

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No.
1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator		8. Lease Name and Well No.
3a. Address		9. API Well No. 30-015-55365
3b. Phone No. (include area code)		10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish
		13. State
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
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 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 must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
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.

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

(Continued on page 2)

\*(Instructions on page 2)



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

**District II**  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

**District III**  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

**District IV**  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number <b>30-015-55365</b>		<sup>2</sup> Pool Code <b>98356</b>	<sup>3</sup> Pool Name <b>WC16S28E3; San Andres</b>	
<sup>4</sup> Property Code <b>336227</b>	<sup>5</sup> Property Name <b>COLUMBIA FEDERAL COM</b>			<sup>6</sup> Well Number <b>1H</b>
<sup>7</sup> OGRID No. <b>13837</b>	<sup>8</sup> Operator Name <b>MACK ENERGY CORPORATION</b>			<sup>9</sup> Elevation <b>3609.6</b>

## <sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
14	3	16 S	28 E		3885	NORTH	2110	WEST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no. <b>N</b>	Section <b>10</b>	Township <b>16 S</b>	Range <b>28 E</b>	Lot Idn	Feet from the <b>1</b>	North/South line <b>SOUTH</b>	Feet from the <b>2310</b>	East/West line <b>WEST</b>	County <b>EDDY</b>
<sup>12</sup> Dedicated Acres <b>240</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code			<sup>15</sup> Order No.				

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NW CORNER SEC. 3  
LAT. = 32.9652183°N  
LONG. = 104.1722355°W

NMSP EAST (FT)  
N = 714919.81  
E = 590745.72

W/4 CORNER SEC. 3  
LAT. = 32.9526569°N  
LONG. = 104.1722442°W

NMSP EAST (FT)  
N = 710349.88  
E = 590750.03

SECTION CORNER  
LAT. = 32.9452027°N  
LONG. = 104.1722402°W

NMSP EAST (FT)  
N = 707637.64  
E = 590752.57

W/4 CORNER SEC. 10  
LAT. = 32.9377482°N  
LONG. = 104.1723098°W

NMSP EAST (FT)  
N = 704925.50  
E = 590738.19

SW CORNER SEC. 10  
LAT. = 32.9302933°N  
LONG. = 104.1723723°W

NMSP EAST (FT)  
N = 702213.20  
E = 590723.17

NE CORNER SEC. 3  
LAT. = 32.9652718°N  
LONG. = 104.1552599°W

NMSP EAST (FT)  
N = 714947.67  
E = 595952.05

E/4 CORNER SEC. 3  
LAT. = 32.9529100°N  
LONG. = 104.1551948°W

NMSP EAST (FT)  
N = 710450.18  
E = 595979.63

SECTION CORNER  
LAT. = 32.9455694°N  
LONG. = 104.1551583°W

NMSP EAST (FT)  
N = 707779.51  
E = 595995.35

E/4 CORNER SEC. 10  
LAT. = 32.9382305°N  
LONG. = 104.1552288°W

NMSP EAST (FT)  
N = 705109.39  
E = 595978.33

SE CORNER SEC. 10  
LAT. = 32.9308912°N  
LONG. = 104.1552988°W

NMSP EAST (FT)  
N = 702439.15  
E = 595961.26

**17 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 or has a right to drill this well at this 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.

Deana Weaver 10/31/2023

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Deana Weaver**

Printed Name \_\_\_\_\_

dweaver@mec.com

E-mail Address \_\_\_\_\_

**18 SURVEYOR CERTIFICATION**

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

OCTOBER 17, 2023

Date of Survey \_\_\_\_\_

Signature and Seal of Professional Surveyor: \_\_\_\_\_

Certificate Number: \_\_\_\_\_

WILLIAM F. JARAMILLO  
NEW MEXICO  
12797  
PROFESSIONAL SURVEYOR  
EXPIRES 12/29/24

Intent ☒ As Drilled ☐

API #		
Operator Name: MACK ENERGY CORPORATION	Property Name: COLUMBIA FEDERAL COM	Well Number 1H

## Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	3	16S	28E	14	3885	NORTH	2110	WEST	EDDY
Latitude 32.9545647					Longitude 104.1653657				NAD 83

## First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
K	3	16S	28E		2593	SOUTH	2310	WEST	EDDY
Latitude 32.9524942					Longitude 104.1647155				NAD 83

## Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
N	10	16S	28E		100	SOUTH	2310	WEST	EDDY
Latitude 32.9308340					Longitude 104.1648406				NAD 83

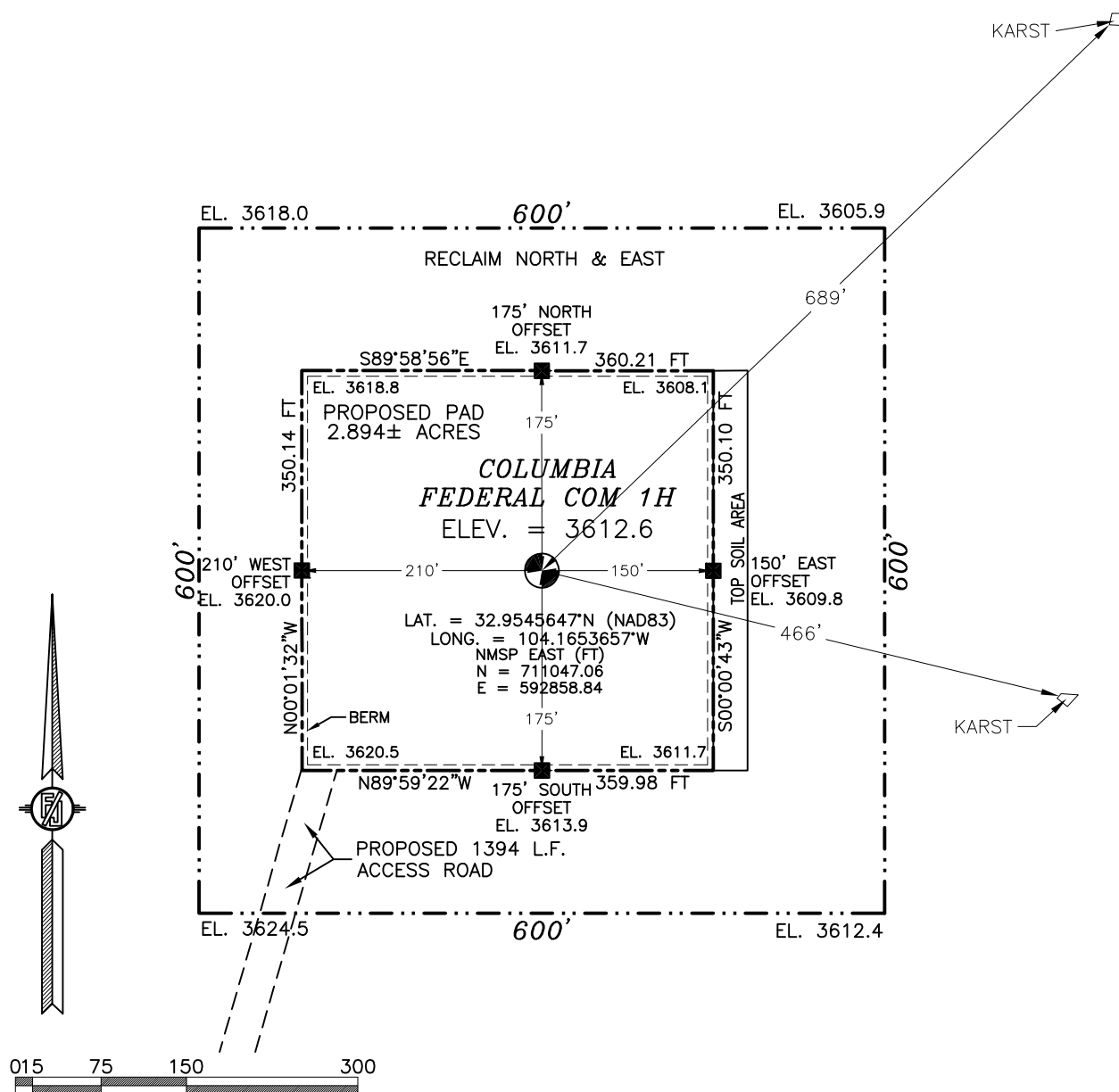
Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

**SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
SITE MAP**



**MACK ENERGY CORPORATION  
COLUMBIA FEDERAL COM 1H  
LOCATED 3885 FT. FROM THE NORTH LINE  
AND 2110 FT. FROM THE WEST LINE OF  
SECTION 3, TOWNSHIP 16 SOUTH,  
RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO**

**OCTOBER 17, 2023**

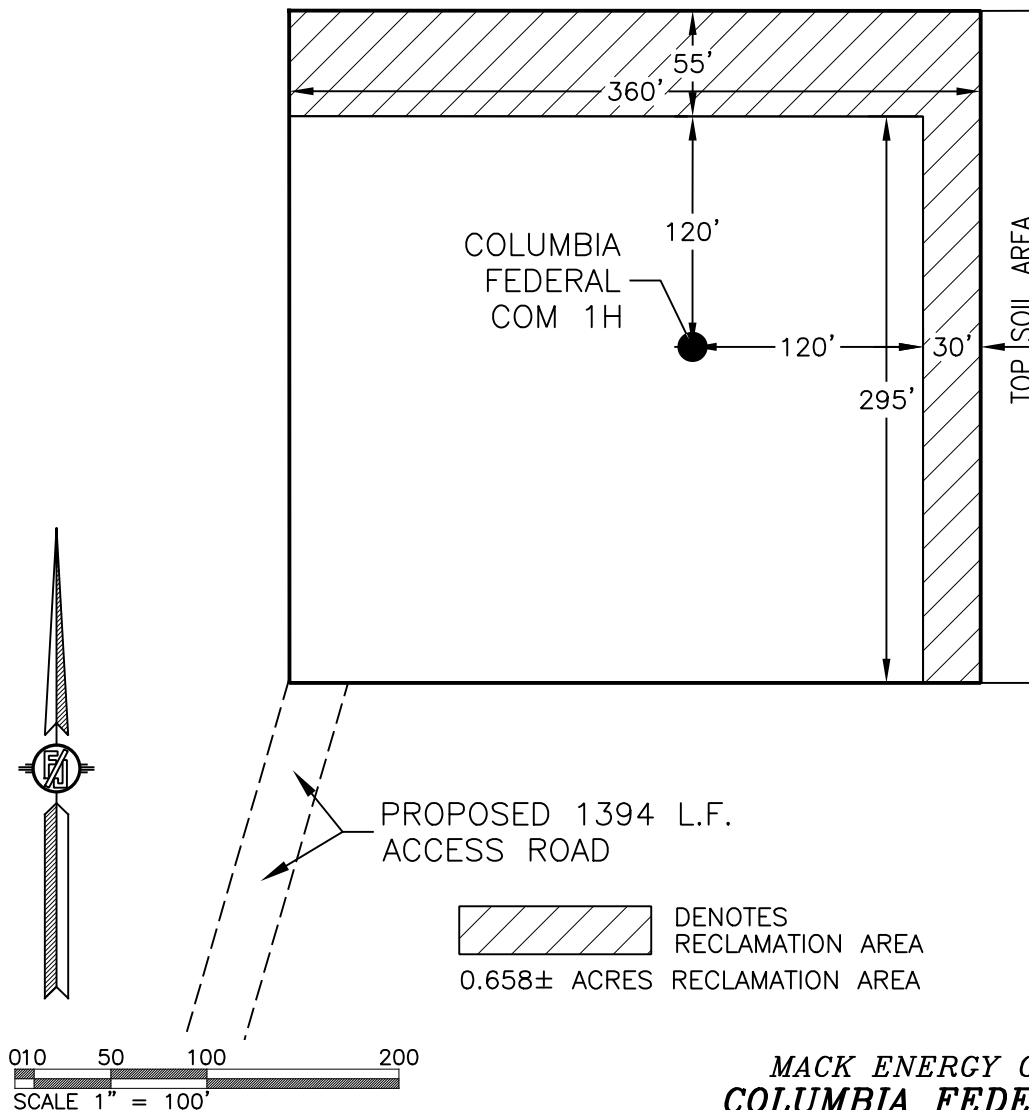
**SURVEY NO. 9816A**

**MADRON PROFESSIONAL SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO**  
(575) 234-3327



SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 INTERIM SITE RECLAMATION

RECLAIM NORTH & EAST



MACK ENERGY CORPORATION  
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 EDDY COUNTY, STATE OF NEW MEXICO

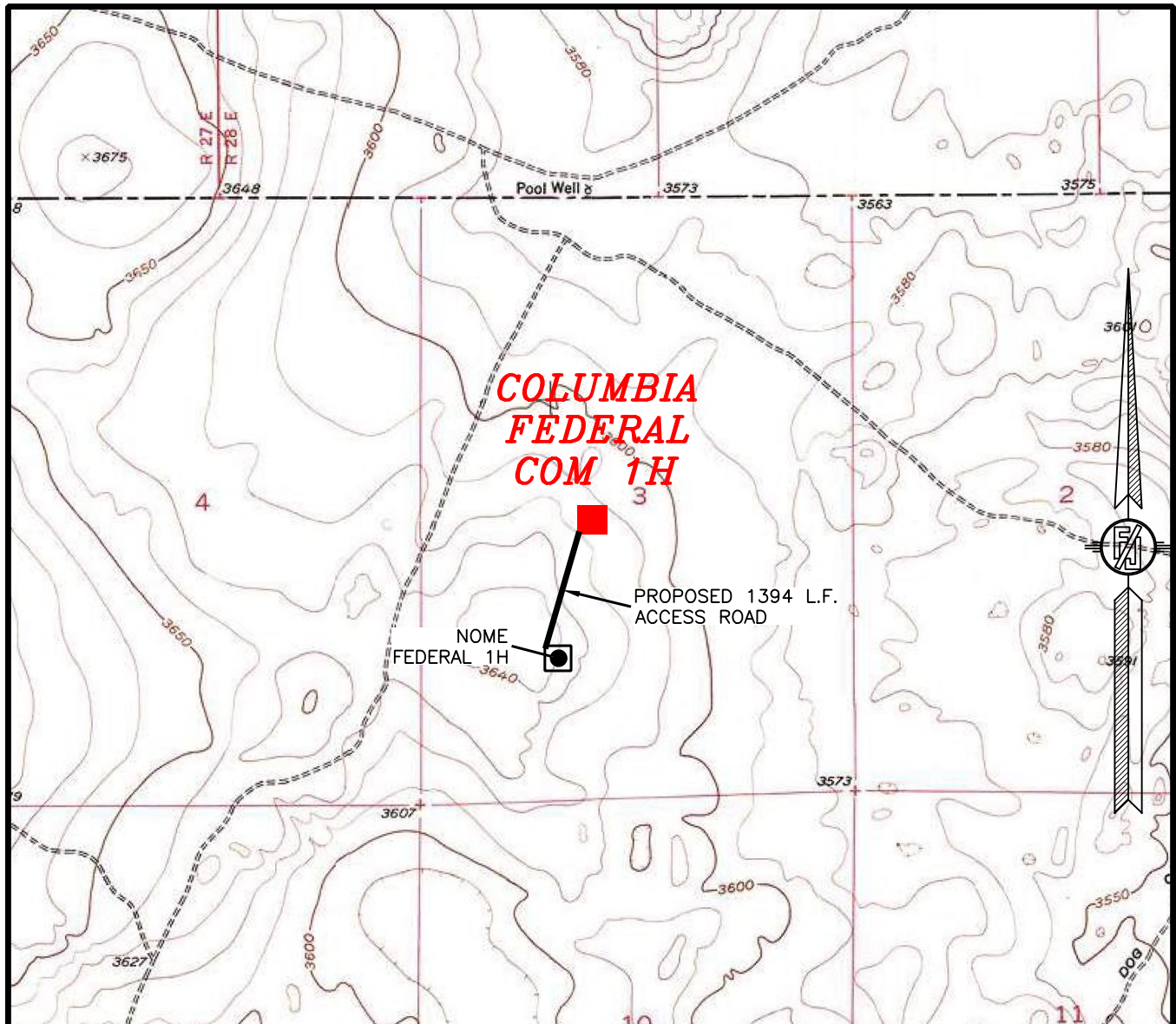
OCTOBER 17, 2023

SURVEY NO. 9816A

MADRON SURVEYING, INC. 301 SOUTH CANAL  
 (575) 234-3327

CARLSBAD, NEW MEXICO

SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 DIAMOND MOUND

NOT TO SCALE

MACK ENERGY CORPORATION  
**COLUMBIA FEDERAL COM 1H**  
 LOCATED 3885 FT. FROM THE NORTH LINE  
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 EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 17, 2023

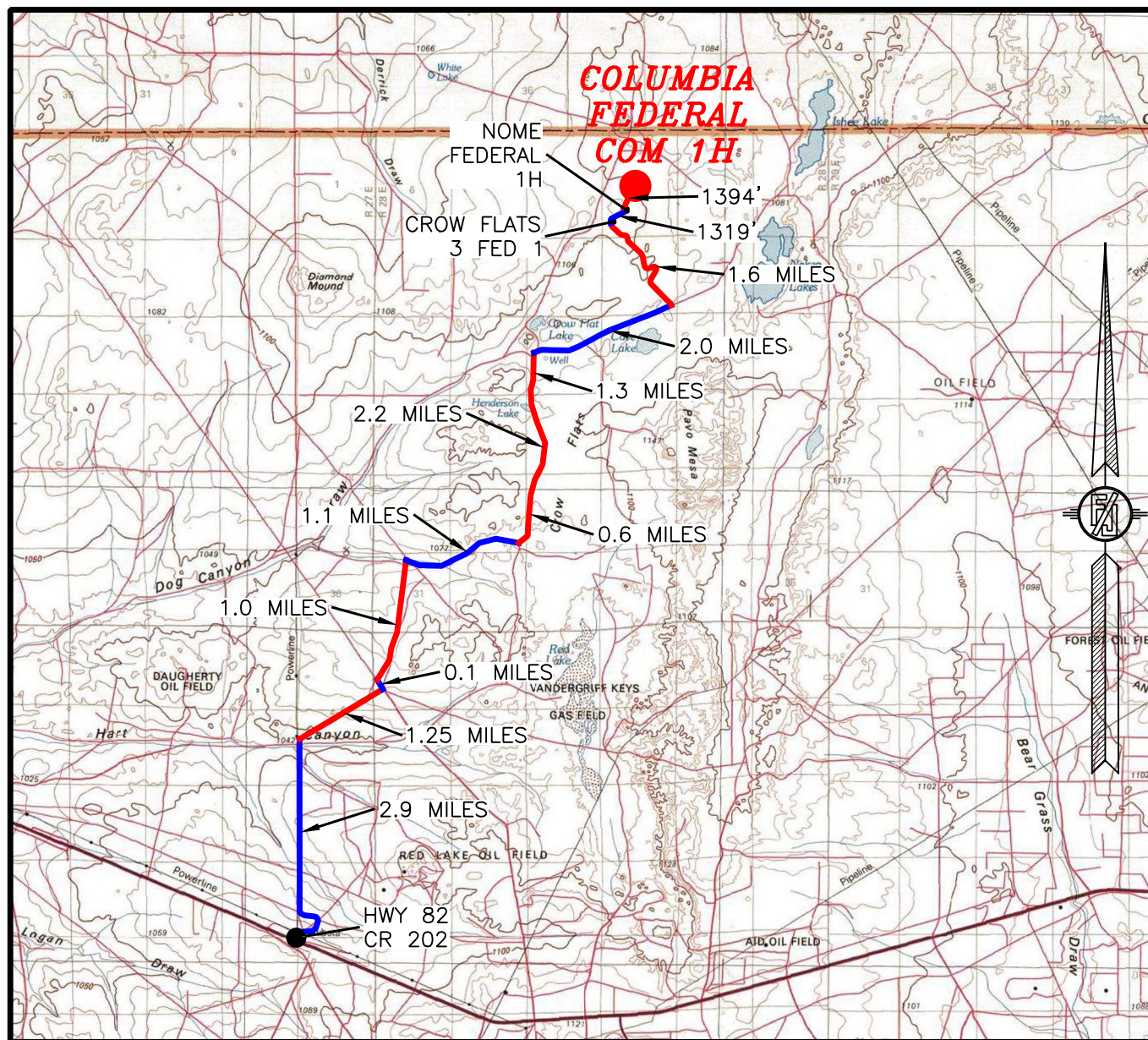
MADRON SURVEYING, INC.

301 SOUTH CANAL  
 (575) 234-3327

SURVEY NO. 9816A  
 CARLSBAD, NEW MEXICO



SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



### DISTANCES IN MILES

*NOT TO SCALE*

### DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF US HIGHWAY 82 & CR 202 (SOUTHERN UNION)  
GO NORTH ON CR 202 (AROUND SUBSTATION) FOR APPROX. 2.9, MILES, VEER  
NORTHEAST & CONTINUE ON CR 202 FOR APPROX. 1.25 MILES TO THE END  
OF CR 202, GO NORTHWEST ON 15' CALICHE ROAD APPROX. 0.1 MILES TO A  
FORK, TAKE ROAD ON RIGHT & GO NORTH APPROX. 1.0 MILE, TAKE CALICHE  
ROAD EAST (RIGHT) & GO APPROX. 1.1 MILES TO A "Y", TAKE LEFT FORK  
FOR APPROX. 0.6 MILES, GO NORTH (LEFT) & GO APPROX. 2.2 MILES, THEN  
CONTINUE NORTH ON 30' CALICHE ROAD FOR APPROX. 1.3 MILES, TURN RIGHT  
(NORTHEAST) AND CONTINUE ON CALICHE ROAD FOR APPROX. 2 MILES, TURN  
LEFT (NORTHWEST) ON 12' CALICHE ROAD FOR APPROX. 1.6 MILES TO  
SELLERS & FULTON CROW FLATS 3 FED 1, FROM SOUTHWEST CORNER GO  
NORTH APPROX. 285' THEN NORTHEAST APPROX. 1034' (TOTAL 1319')  
TO NOME FEDERAL 1H, FROM THE NORTHWEST PAD CORNER FOLLOW ROAD  
SURVEY NORTHEAST APPROX. 1394' TO THE SOUTHWEST PAD CORNER FOR  
THIS LOCATION.

**MACK ENERGY CORPORATION**  
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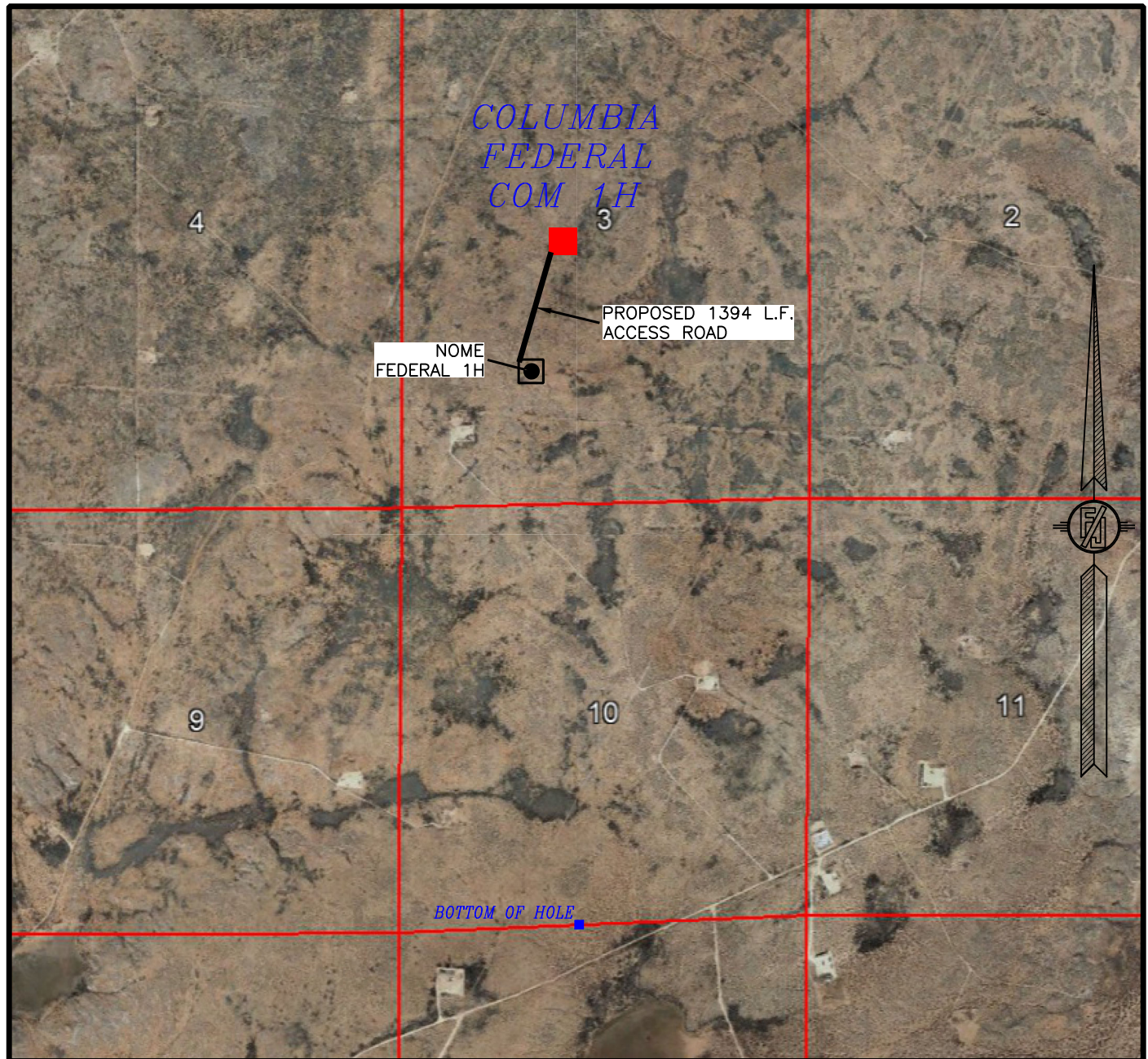
OCTOBER 17, 2023

*MADRON SURVEYING, INC.* 301 SOUTH CANAL  
(575) 234-3327

SURVEY NO. 9816A  
CARLSBAD, NEW MEXICO



SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 AERIAL PHOTO



NOT TO SCALE  
 AERIAL PHOTO:  
 GOOGLE EARTH  
 DEC. 2019

**MACK ENERGY CORPORATION**  
**COLUMBIA FEDERAL COM 1H**  
 LOCATED 3885 FT. FROM THE NORTH LINE  
 AND 2110 FT. FROM THE WEST LINE OF  
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 RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 17, 2023

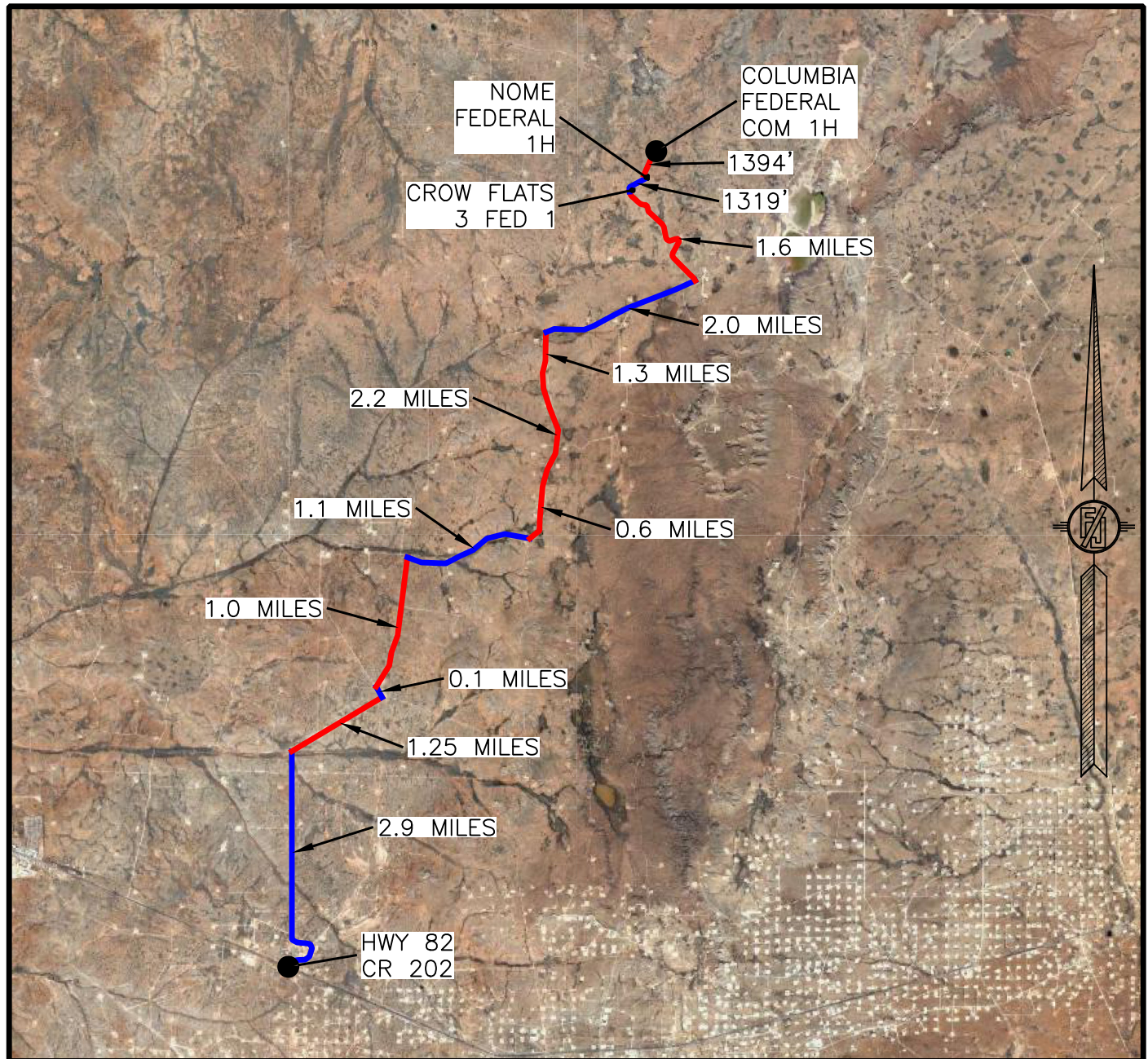
SURVEY NO. 9816A

MADRON SURVEYING, INC. 301 SOUTH CANAL  
 (575) 234-3327

CARLSBAD, NEW MEXICO



SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 AERIAL ACCESS ROUTE MAP



NOT TO SCALE  
 AERIAL PHOTO:  
 GOOGLE EARTH  
 DEC. 2019

**MACK ENERGY CORPORATION**  
**COLUMBIA FEDERAL COM 1H**  
 LOCATED 3885 FT. FROM THE NORTH LINE  
 AND 2110 FT. FROM THE WEST LINE OF  
 SECTION 3, TOWNSHIP 16 SOUTH,  
 RANGE 28 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 17, 2023

SURVEY NO. 9816A

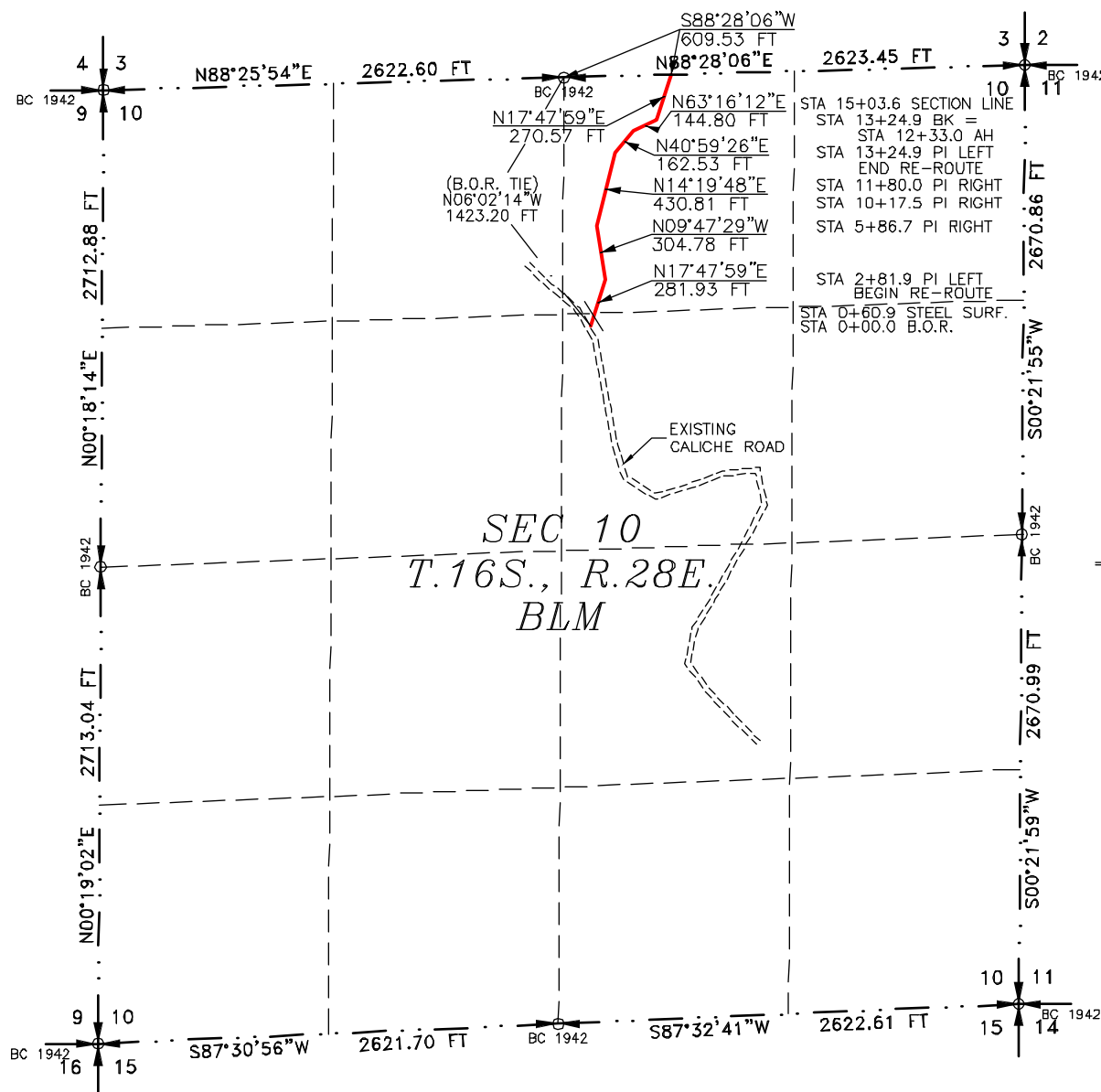
MADRON SURVEYING, INC. 301 SOUTH CANAL  
 (575) 234-3327

CARLSBAD, NEW MEXICO

**ACCESS ROAD PLAT**

ACCESS ROAD STARTING AT AN EXISTING CALICHE ROAD  
PASSING THROUGH DENALI SWD 1 AND ENDING AT COLUMBIA FEDERAL COM 1H

**MACK ENERGY CORPORATION**  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
FEBRUARY 20, 2024



SEE NEXT SHEET (2-4) FOR DESCRIPTION

**SURVEYOR CERTIFICATE**

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 14th DAY OF MARCH 2024.

FILMON F. JARAMILLO  
NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797  
MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3327

SURVEY NO. 9934A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(575) 234-3327

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-4



**ACCESS ROAD PLAT**

ACCESS ROAD STARTING AT AN EXISTING CALICHE ROAD  
PASSING THROUGH DENALI SWD 1 AND ENDING AT COLUMBIA FEDERAL COM 1H

**MACK ENERGY CORPORATION**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**FEBRUARY 20, 2024**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NE/4 OF SAID SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS N06°02'14"W, A DISTANCE OF 1423.20 FEET;

THENCE N17°47'59"E A DISTANCE OF 281.93 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N09°47'29"W A DISTANCE OF 304.78 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N14°19'48"E A DISTANCE OF 430.81 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N40°59'26"E A DISTANCE OF 162.53 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N63°16'12"E A DISTANCE OF 144.80 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N17°47'59"E A DISTANCE OF 270.57 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 10, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S88°28'06"W, A DISTANCE OF 609.53 FEET;

SAID STRIP OF LAND BEING 1595.42 FEET OR 96.69 RODS IN LENGTH, CONTAINING 1.099 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NE/4	77.93 L.F.	4.72 RODS	0.054 ACRES
NW/4 NE/4	1517.49 L.F.	91.97 RODS	1.045 ACRES

**SURVEYOR CERTIFICATE**

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 21<sup>ST</sup> DAY OF MARCH 2024.

FILIMON F. JARAMILLO  
12797  
NEW MEXICO PROFESSIONAL SURVEYOR  
301 SOUTH CANAL  
(575) 234-3327

MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3327

SURVEY NO. 9934A

**GENERAL NOTES**

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

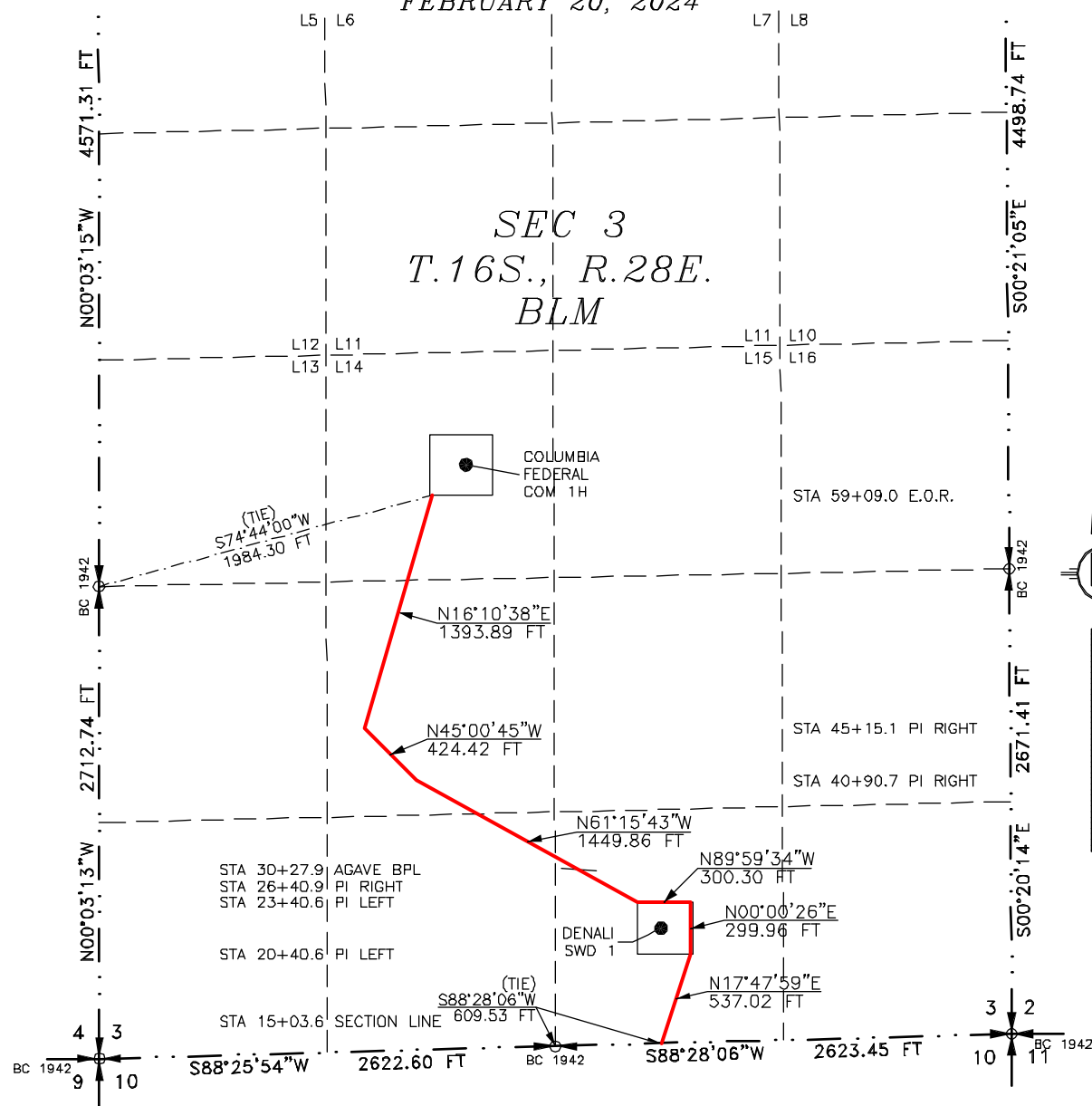
SHEET: 2-4

**MADRON SURVEYING, INC.** 301 SOUTH CANAL CARLSBAD, NEW MEXICO

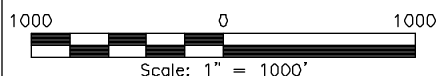
**ACCESS ROAD PLAT**

ACCESS ROAD STARTING AT AN EXISTING CALICHE ROAD  
PASSING THROUGH DENALI SWD 1 AND ENDING AT COLUMBIA FEDERAL COM 1H

**MACK ENERGY CORPORATION**  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
FEBRUARY 20, 2024



SEE NEXT SHEET (4-4) FOR DESCRIPTION

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
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SHEET: 3-4

**MADRON SURVEYING, INC.** 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3327

**SURVEYOR CERTIFICATE**

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IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, 14<sup>TH</sup> DAY OF MARCH 2024.

*FILMON F. JARAMILLO*  
12797  
FILMON F. JARAMILLO, PLS  
NEW MEXICO PROFESSIONAL SURVEYOR

MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3327

SURVEY NO. 9934A

**ACCESS ROAD PLAT**

ACCESS ROAD STARTING AT AN EXISTING CALICHE ROAD  
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**SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**FEBRUARY 20, 2024**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SE/4 OF SAID SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S88°28'06"W, A DISTANCE OF 609.53 FEET;  
THENCE N17°47'59"E A DISTANCE OF 537.02 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N00°00'26"E A DISTANCE OF 299.96 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N89°59'34"W A DISTANCE OF 300.30 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N61°15'43"W A DISTANCE OF 1449.86 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N45°00'45"W A DISTANCE OF 424.42 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N16°10'38"E A DISTANCE OF 1393.89 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 3, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S74°44'00"W, A DISTANCE OF 1984.30 FEET;

SAID STRIP OF LAND BEING 4405.45 FEET OR 267.00 RODS IN LENGTH, CONTAINING 3.034 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4	1681.21 L.F.	101.89 RODS	1.158 ACRES
SE/4 SW/4	511.04 L.F.	30.97 RODS	0.352 ACRES
NE/4 SW/4	1704.64 L.F.	103.32 RODS	1.174 ACRES
LOT 14	508.56 L.F.	30.82 RODS	0.350 ACRES

**SURVEYOR CERTIFICATE**

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 21<sup>ST</sup> DAY OF MARCH 2024.



MADRON SURVEYING, INC.  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3327

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 4-4

**MADRON SURVEYING, INC.** 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3327

**SURVEY NO. 9934A**

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit Electronically  
Via E-permitting

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** Mack Energy Corporation **OGRID:** 013837 **Date:** 8 / 21 / 2023

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Columbia Federal Com #1H		Lot 14 Sec 3 T16S R28E	3885 FNL 2110 FWL	100	100	1,000

**IV. Central Delivery Point Name:** DCP Midstream Linam Ranch Processing Plant / Durango Midstream [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Columbia Federal Com #1H		1/1/2024	1/20/2024	03/31/2024	03/31/2024	4/1/2024

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

**Section 2 – Enhanced Plan**  
**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

**X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.



I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	<i>Deana Weaver</i>
Printed Name:	Deana Weaver
Title:	Regulatory Technician II
E-mail Address:	dweaver@mec.com
Date:	8/21/2023
Phone:	575-748-1288
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

## VI. Separation Equipment:

Mack Energy Corporation(MEC) production facilities include separation equipment designed to efficiently separate gas from liquid phases to optimize gas capture based on projected and estimated volumes from the targeted pool of our completion project. MEC will utilize flowback separation equipment and production separation equipment designed and built to industry specifications after the completion to optimize gas capture and send gas to sales or flare based on analytical composition. MEC operates facilities that are typically multi-well facilities. Production separation equipment is upgraded prior to new wells being completed, if determined to be undersized or inadequate. This equipment is already on-site and tied into our sales gas lines prior to the new drill operations.

## VII. Operational Practices:

1. Subsection (A) Venting and Flaring of Natural Gas. MEC understands the requirements of NMAC 19.15.27.8 which outlines that the venting and flaring of natural gas during drilling, completion or production operations that constitutes waste as defined in 19.15.2 are prohibited.
2. Subsection (B) Venting and Flaring during drilling operations. This gas capture plan isn't for a well being drilled.
3. Subsection (C) Venting and flaring during completion or recompletion. Flowlines will be routed for flowback fluids into a completion or storage tank and if feasible under well conditions, flare rather than vent and commence operation of a separator as soon as it is technically feasible for a separator to function.
  - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
4. Subsection (D) Venting and flaring during production operations
  - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.
  - Monitor manual liquid unloading for wells on-site or in close proximity (<30 minutes' drive time), take reasonable actions to achieve a stabilized rate and pressure at the earliest practical time, and take reasonable actions to minimize venting to the maximum extent practicable.
  - MEC will not vent or flare except during the approved activities listed in NMAC 19.15.27.8 (D) 14.
5. Subsection (E) Performance standards
  - All tanks and separation equipment are designed for maximum throughput and pressure to minimize waste.
  - If a flare is utilized during production operations it will have a continuous pilot and is located more than 100 feet from any known well or storage tanks.
  - At any point in the well life (completion, production, inactive) an audio, visual and olfactory inspection be performed at prescribed intervals (weekly or monthly) pursuant to Subsection D of 19.15.27.8 NMAC, to confirm that all production equipment is operating properly and there are no leaks or releases.

6. Subsection (F) Measurement or estimation of vented and flared natural gas
  - Measurement equipment is installed to measure the volume of natural gas flared from process piping.
  - When measurement isn't practicable, estimation of vented and flared natural gas will be completed as noted in 19.15.27.8 (F) 5-6.

VIII. Best Management Practices:

1. MEC has adequate storage and takeaway capacity for wells it chooses to complete as the flowlines at the sites are already in place and tied into a gathering system.
2. MEC will flare rather than vent vessel blowdown gas when technically feasible during active and/or planned maintenance to equipment on-site.
3. MEC combusts natural gas that would otherwise be vented or flared, when technically feasible.
4. MEC will shut in wells in the event of a takeaway disruption, emergency situation, or other operations where venting or flaring may occur due to equipment failures.
5. MEC has a gas gathering system in place(CTB-887)a with multiple purchaser's to limit venting or flaring, due to purchaser shut downs.



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Drilling Plan Data Report

08/09/2024

APD ID: 10400094083

Submission Date: 12/14/2023

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COM

Well Number: 1H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
13932898	QUATERNARY	3609	0	0	ALLUVIUM	NONE	N
13932899	YATES	3265	344	344	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932900	SEVEN RIVERS	3025	584	584	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932901	QUEEN	2522	1087	1087	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932902	GRAYBURG	2113	1496	1496	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
13932903	SAN ANDRES	1780	1829	1829	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 11134

Equipment: Rotating Head, Mud Gas Separator

Requesting Variance? NO

Variance request:

**Testing Procedure:** The BOP/BOPE test shall include a low pressure test for 250 to 300psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 mins without a test plug. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1223psig (0.052\*2557'TVD\*9.2) less than 2900 bottom hole pressure.

**Choke Diagram Attachment:**

NEW\_Choke\_Manifold\_3M\_20230829141459.pdf

**BOP Diagram Attachment:**

NEW\_BOP\_3M\_20230829141509.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COMWell Number: 1H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	350	0	350	3609	3259	350	J-55	48	ST&C	4.235	4.672	BUOY	30.211	BUOY	4.74
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1200	0	1200	3609	2409	1200	J-55	36	ST&C	3.237	7.04	BUOY	10.768	BUOY	7.04
3	PRODUCTION	8.75	7.0	NEW	API	N	0	1675	0	1675	3609	1934	1675	HCP-110	26	LT&C	8.862	3.279	BUOY	4.778	BUOY	3.317
4	PRODUCTION	8.75	7.0	NEW	API	N	1675	2750	1675	2525	1934	1084	1075	HCP-110	26	BUTT	5.564	3.256	BUOY	5.881	BUOY	3.279
5	PRODUCTION	8.75	5.5	NEW	API	N	2750	10994	2525	2570	1084	1039	8244	HCP-110	17	BUTT	6.792	3.293	BUOY	4.644	BUOY	3.481

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surface\_Csg\_20231031141507.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COM

Well Number: 1H

Casing Attachments

Casing ID: 2	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Intermediate_Csg_20231031141546.pdf		
Casing ID: 3	String	PRODUCTION
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Production_Csg_20231031141635.pdf		
Casing ID: 4	String	PRODUCTION
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Production_Csg_20231031141724.pdf		



Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COMWell Number: 1H

Casing Attachments

Casing ID: 5StringPRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Production\_Csg\_20231031141847.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0		0	0

PRODUCTION	Lead		0	0	0	0	0	0		0	0
------------	------	--	---	---	---	---	---	---	--	---	---

SURFACE	Lead		0	350	100	1.61	14.4	340		RFC + 12% PF53 + 2%PF1 + 5pps PF42 + .125ppsPF29	20bbls Gelled Water 50sx of 11# Scavenger Cement
SURFACE	Tail		0	350	350	1.34	14.8	340	100	Class C + 1% PF 1	20bbls Gelled Water 50sx of 11# Scavenger Cement
INTERMEDIATE	Lead		0	1200	560	1.34	14.8	340	100	Class C 1% PF 1	20bbls Gelled Water 50sx of 11# Scavenger Cement

PRODUCTION	Lead		0	1099 4	200	2.82	11.5	2813	35	50/50 POZ/c + 10% PF20 + .5% PF79 + 3pps PF42+.4pps PF45 + .125pps PF29	20bbls Gelled Water 20bbls Chemical Wash 50sx of 11# Scavenger Cement
------------	------	--	---	--------	-----	------	------	------	----	---	---

Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COM

Well Number: 1H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		0	1099 4	2450	1.34	14.2	2813	35	50/50 POZ/C +5%PF44 + 2% PF20 +.2% PF13 +.2% PF65 + .2% PF606+ .4pps PF45	20bbls Gelled Water 20bbls Chemical Wash 50sx of 11# Scavenger Cement

### Section 5 - Circulating Medium

Mud System Type: Open

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: BOPE Brine Water

Describe the mud monitoring system utilized: Parson PVT with PVT Volume Recorder

### Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	350	SPUD MUD	8.5	10	74.8	0.1	11			15	
350	1200	LSND/GEL	8.3	9.2	74.8	0.1	11			15	
1200	1099 4	LSND/GEL	8.3	9.2	74.8	0.1	11			15	The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1229 psig (0.052*2570'TVD*9.2ppg)

**Operator Name:** MACK ENERGY CORPORATION**Well Name:** COLUMBIA FEDERAL COM**Well Number:** 1H

## Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

None

**List of open and cased hole logs run in the well:**

CNL/FDC,COMPENSATED DENSILOG,GAMMA RAY LOG,DUAL LATERAL LOG/MICRO-SPHERICALLY FOCUSED,

**Coring operation description for the well:**

None

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 1229**Anticipated Surface Pressure:** 657**Anticipated Bottom Hole Temperature(F):** 95**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO**Describe:****Contingency Plans geohazards description:****Contingency Plans geohazards****Hydrogen Sulfide drilling operations plan required?** NO**Hydrogen sulfide drilling operations**

## Section 8 - Other Information

**Proposed horizontal/directional/multi-lateral plan submission:**

Escape\_Route\_20230823083112.pdf

KOP\_20231031142210.pdf

Natural\_Gas\_Management\_Plan\_20231031142300.pdf

Columbia\_Federal\_Com\_\_1H\_Preliminary\_Horizontal\_Well\_Plan\_\_1\_20231031142309.pdf

Drill\_Plan\_20240322074814.pdf

H2S\_Plan\_20240322074824.pdf

**Other proposed operations facets description:****Other proposed operations facets attachment:****Other Variance attachment:**

Cactus\_Wellhead\_installation\_Procedure\_20230823083202.pdf

Flex\_Hose\_Cert\_20230823083238.pdf

Variance\_request\_20230823083332.pdf

**Operator Name:** MACK ENERGY CORPORATION

**Well Name:** COLUMBIA FEDERAL COM

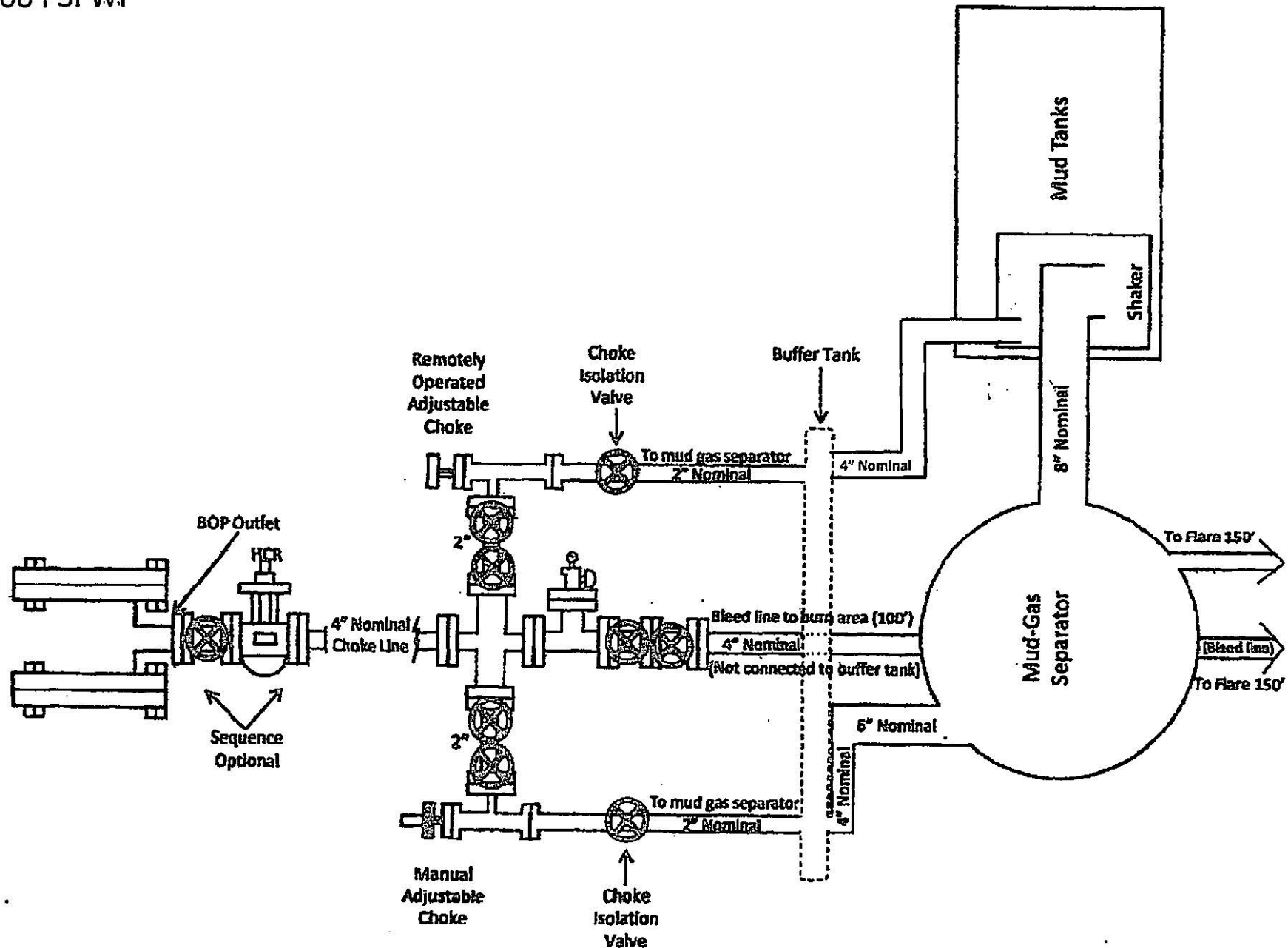
**Well Number:** 1H

CCC\_\_Rig\_6\_20230823083403.pdf

CONFIDENTIAL

# Choke Manifold

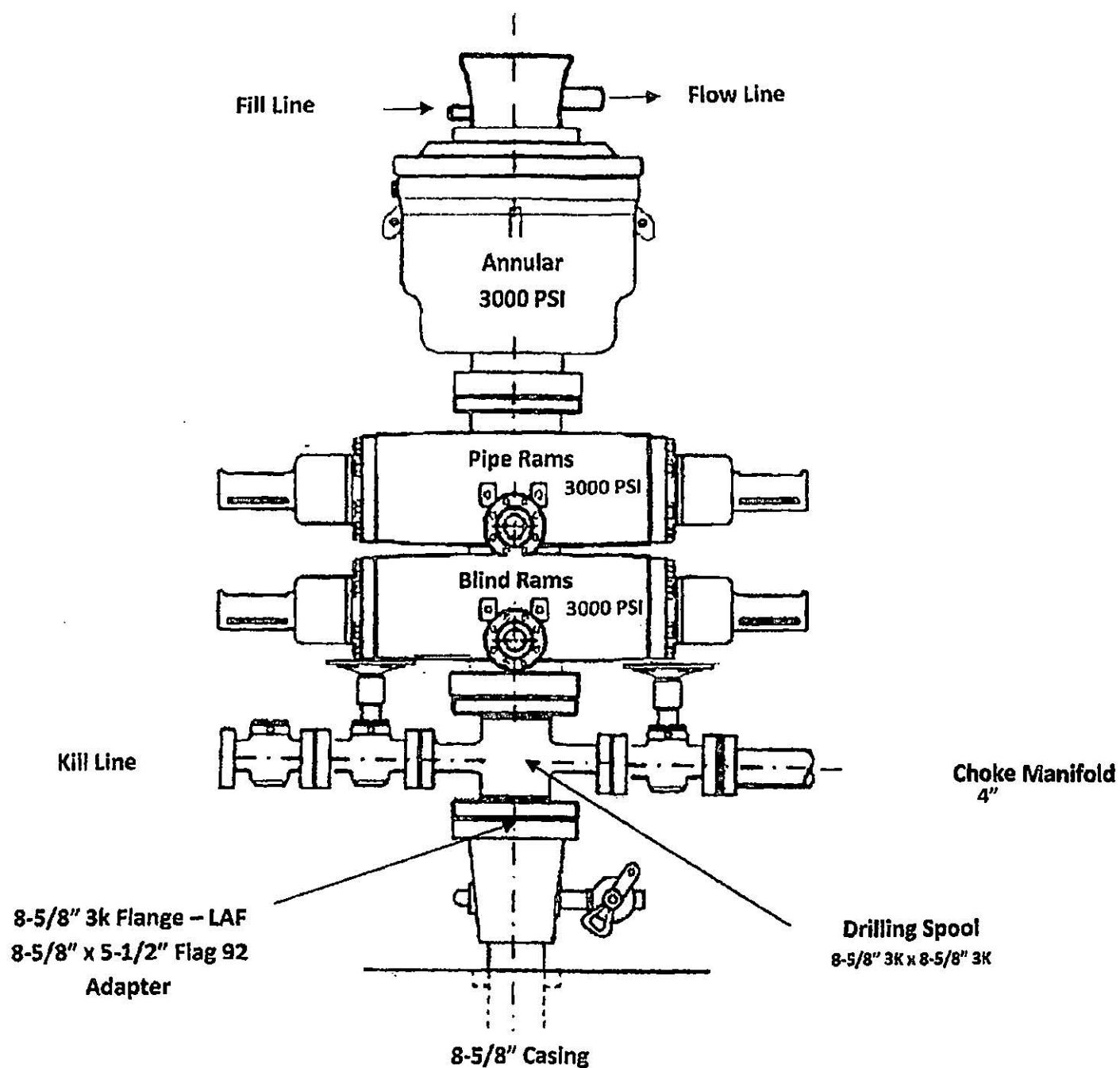
3000 PSI WP



**BOP Diagram**

Dual Ram BOP

3000 PSI WP





Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

## DRILLING PROGRAM

### 1. Geologic Name of Surface Formation

Quaternary

### 2. Estimated Tops of Important Geologic Markers:

Yates	344'
Seven Rivers	584'
Queen	1087'
Grayburg	1496'
San Andres	1829'

### 3. Estimated Depths of Anticipated Fresh Water, Oil and Gas:

Water Sand	150'	Fresh Water
Yates	344'	Oil/Gas
Seven Rivers	584'	Oil/Gas
Queen	1087'	Oil/Gas
Grayburg	1496'	Oil/Gas
San Andres	1829'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 350' and circulating cement back to surface will protect the surface fresh water sand. Salt section and shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 1/2" production casing, sufficient cement will be pumped to circulate back to surface.

### 4. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
17 1/2"	0-350'	13 3/8"	48#, J-55, ST&C, New, 4.235348/4.671976/4.74
12 1/4"	0-1200'	9 5/8"	36#, J-55, ST&C, New, 3.237179/7.04/7.04
8 3/4"	0-1675'	7"	26#, HCP-110, LT&C, New, 8.861771/3.278591/3.316667
8 3/4"	1675-2750'	7"	26#, HCP-110, Buttress, New, 5.563748/3.25572/3.278591
8 3/4"	2750-10994'	5 1/2"	17#, HCP-110, Buttress, New, 6.792499/3.2925/3.481493

*Variance request: A variance is requested to use a Multi Bowl System and Flex Hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test will be kept on the rig.*

### 5. Cement Program:

Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

13 3/8" Surface Casing: Lead 100sx, RFC+12%PF53+2%PF1+5ppsPF42+.125ppsPF29, yld 1.61, wt 14.4 ppg, 7.357gals/sx Tail: 350sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%

9 5/8" Intermediate Casing: Tail 560sx, Class C + 1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%

7" & 5 1/2" Production Casing: Lead 200sx 50/50 Poz/C + 10% PF20 + .5% PF79 + 3 pps PF42 + .4 pps PF45 + .125 pps PF29, yld 2.82, wt 11.5 ppg, 16.421gals/sx, excess 35%, Slurry Top-Surface Tail 2450sx, 50/50 Poz/C + 5% PF44 + 2% PF20 + .2% PF13 + .2% PF65 + .2% PF606 + .4 pps PF45, yield 1.34, wt 14.2, 6.091gals/sx, 35% excess, Slurry Top- 1,575'

## 6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #10 will consist of a double ram-type (3000 psi WP) minimum preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The 11" BOP will be nipped up on the 8 5/8" surface casing and tested by a 3<sup>rd</sup> party to 2000 psi used continuously until TD is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate casing. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with a minimum 3000 psi WP rating

## 7. Types and Characteristics of the Proposed Mud System:

The well will be drilled to TD with a combination of fresh and cut brine mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-350'	Fresh Water	8.5	28	N.C.
350'-1,200'	Cut Brine	9.1	29	N.C.
1,200-TD	Cut Brine	9.1	29	N.C.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

## 8. Auxiliary Well Control and Monitoring Equipment:

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

## 9. Logging, Testing and Coring Program:

Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

- 
- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from T.D. to 8 5/8 casing shoe.
  - B. Drill Stem test is not anticipated.
  - C. No conventional coring is anticipated.
  - D. Further testing procedures will be determined at TD.

**10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:**

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1229 psig (0.052\*2,570'TVD\*9.2). Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

**11. Anticipated Starting Date and Duration of Operations:**

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is January 1, 2024. Once commenced, the drilling operation should be finished in approximately 20 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

**Attachment to Exhibit #10**  
**NOTES REGARDING THE BLOWOUT PREVENTERS**  
**Columbia Federal Com #1H**  
**Eddy County, New Mexico**

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.

Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL & 2110 FWL, Lot 14, Sec. 3 T16S R28E

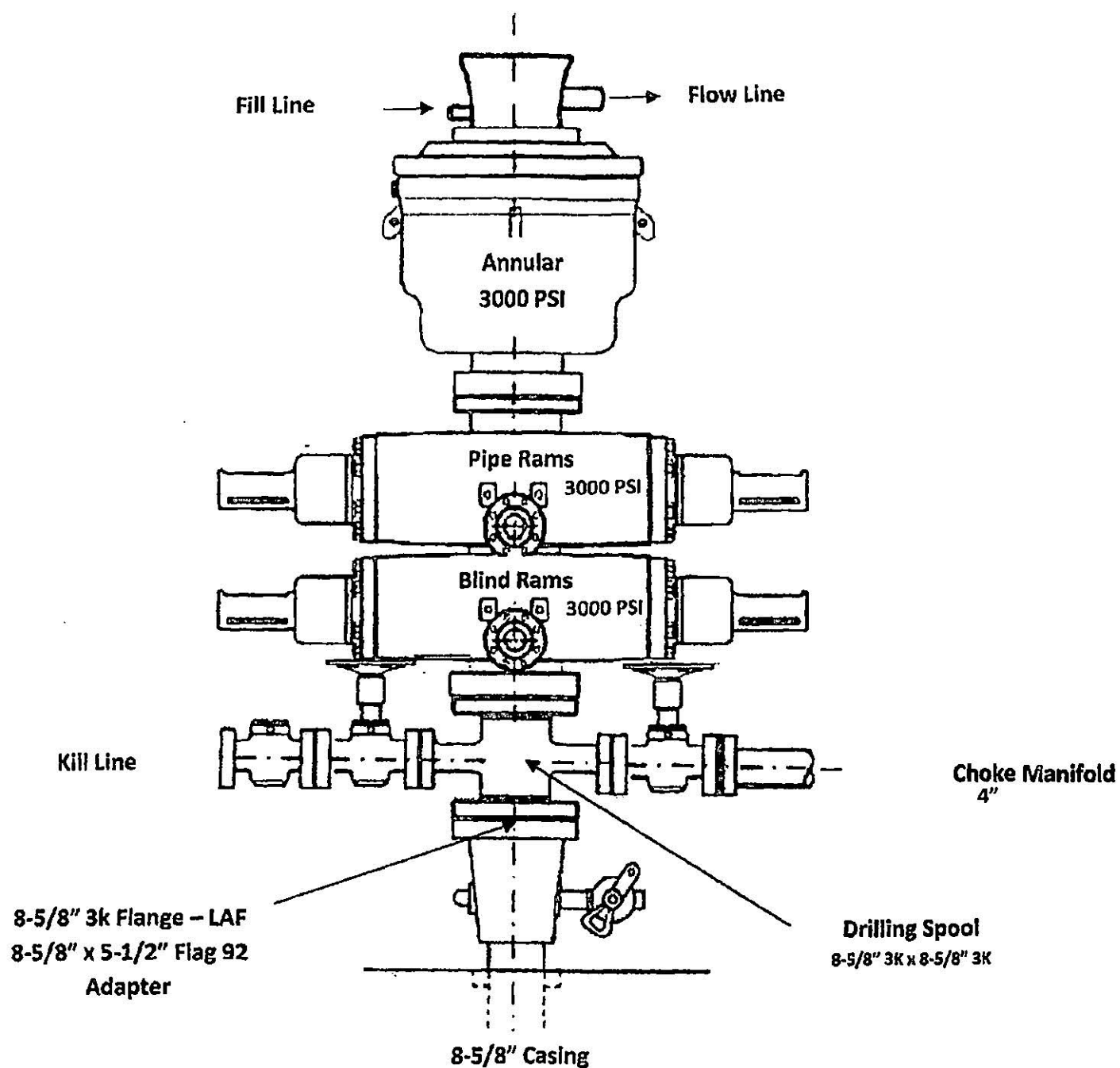
BHL : 1 FSL & 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

- 
9. Extension wrenches and hands wheels to be properly installed.
  10. Blow out preventer control to be located as close to driller's position as feasible.
  11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

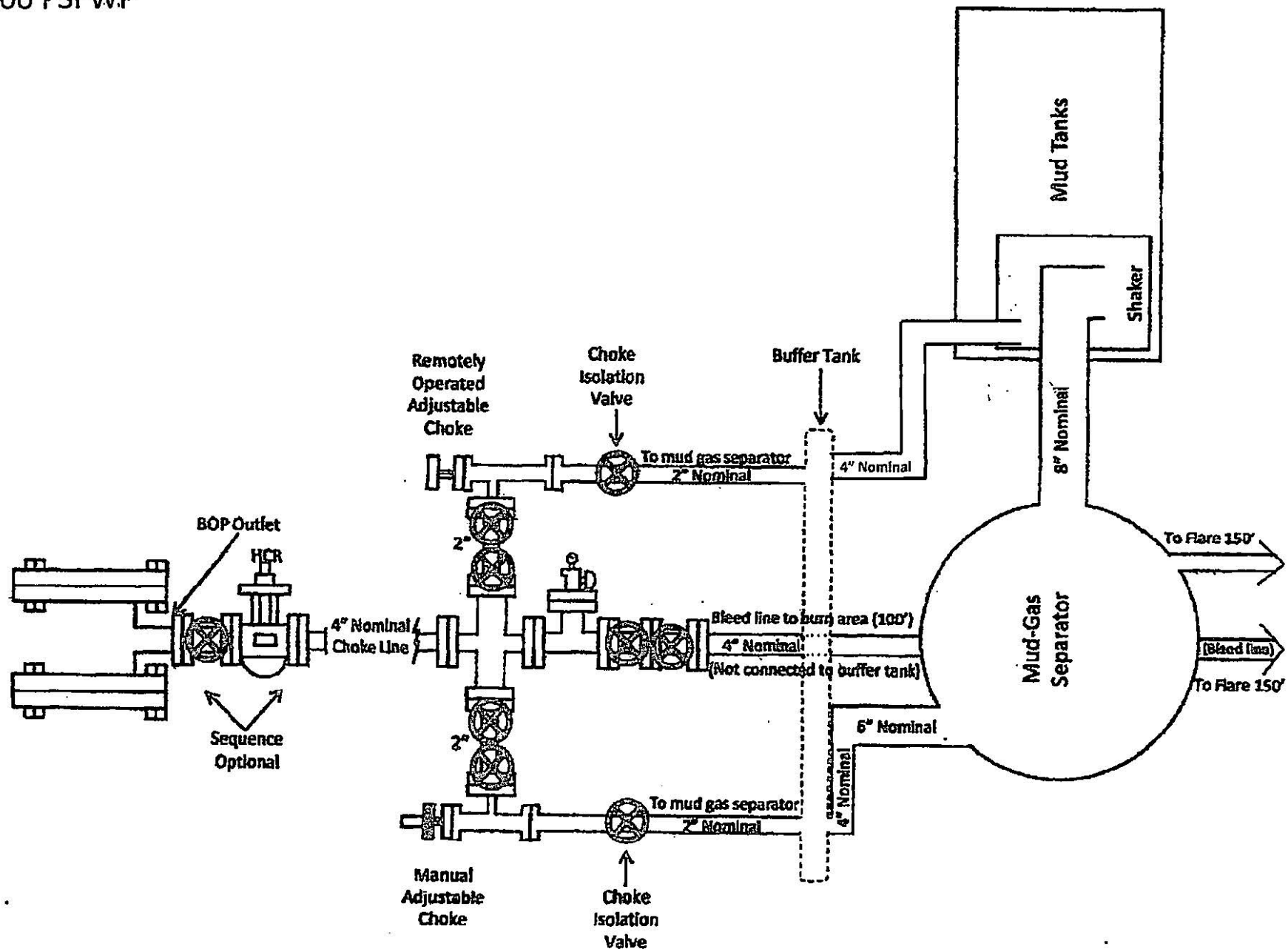
**BOP Diagram**

Dual Ram BOP  
3000 PSI WP



# Choke Manifold

3000 PSI WP



## Columbia Federal Com #1H, Plan 1

<b>Operator</b>	Mack Energy Corp	<b>Units</b>	feet, °/100ft	09:14 Tuesday, October 31, 2023	Page 1 of 6
<b>Field</b>	Round Tank	<b>County</b>	Eddy	<b>Vertical Section Azimuth</b>	180.18
<b>Well Name</b>	Columbia Federal Com #1H	<b>State</b>	New Mexico	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>	USA	<b>Database</b>	Access

<b>Location</b>	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1896520	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11963034.7	<b>Surface Lat</b>	
<b>Well Number</b>	1H	<b>API</b>		<b>Surface Z</b>	3627.1	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3609.6	<b>Local North Ref</b>	Grid

## DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
*** TIE (at MD = 1680.00)										
1680.00	0.00	0.0	1680.00	0.00	0.00		0.00	1896520.00	11963034.70	1947.10
1700.00	0.00	0.0	1700.00	0.00	0.00	0.00	0.00	1896520.00	11963034.70	1927.10
1750.00	0.00	0.0	1750.00	0.00	0.00	0.00	0.00	1896520.00	11963034.70	1877.10
*** KOP 8 DEGREE (at MD = 1780.00)										
1780.00	0.00	0.0	1780.00	0.00	0.00	0.00	0.00	1896520.00	11963034.70	1847.10
1800.00	1.60	161.6	1800.00	-0.27	0.09	8.00	0.26	1896520.09	11963034.44	1827.10
1850.00	5.60	161.6	1849.89	-3.24	1.08	8.00	3.24	1896521.08	11963031.46	1777.21
1900.00	9.60	161.6	1899.44	-9.52	3.16	8.00	9.51	1896523.16	11963025.18	1727.66
1950.00	13.60	161.6	1948.41	-19.06	6.33	8.00	19.04	1896526.33	11963015.64	1678.69
2000.00	17.60	161.6	1996.56	-31.81	10.57	8.00	31.78	1896530.57	11963002.89	1630.54
2050.00	21.60	161.6	2043.65	-47.73	15.86	8.00	47.68	1896535.86	11962986.97	1583.45
2100.00	25.60	161.6	2089.46	-66.72	22.17	8.00	66.65	1896542.17	11962967.98	1537.64
2150.00	29.60	161.6	2133.76	-88.70	29.47	8.00	88.61	1896549.47	11962946.00	1493.34
2200.00	33.60	161.6	2176.34	-113.56	37.73	8.00	113.44	1896557.73	11962921.14	1450.76
2250.00	37.60	161.6	2216.98	-141.17	46.91	8.00	141.02	1896566.91	11962893.53	1410.12
2300.00	41.60	161.6	2255.50	-171.41	56.95	8.00	171.23	1896576.95	11962863.29	1371.60
2350.00	45.60	161.6	2291.70	-204.13	67.82	8.00	203.91	1896587.82	11962830.57	1335.40
2400.00	49.60	161.6	2325.41	-239.16	79.47	8.00	238.91	1896599.47	11962795.54	1301.69
2450.00	53.60	161.6	2356.46	-276.34	91.82	8.00	276.05	1896611.82	11962758.36	1270.64
*** 55 DEGREE TANGENT (at MD = 2467.50)										
2467.50	55.00	161.6	2366.67	-289.82	96.30	8.00	289.52	1896616.30	11962744.88	1260.43
2500.00	55.00	161.6	2385.32	-315.09	104.69	0.00	314.76	1896624.69	11962719.61	1241.78
2550.00	55.00	161.6	2413.99	-353.96	117.61	0.00	353.58	1896637.61	11962680.74	1213.11
2600.00	55.00	161.6	2442.67	-392.82	130.52	0.00	392.41	1896650.52	11962641.88	1184.43
2650.00	55.00	161.6	2471.35	-431.69	143.44	0.00	431.24	1896663.44	11962603.01	1155.75
*** 10 DEGREE BUILD (at MD = 2667.50)										
2667.50	55.00	161.6	2481.39	-445.30	147.96	0.00	444.83	1896667.96	11962589.40	1145.71
2700.00	57.82	163.6	2499.37	-471.13	156.05	10.00	470.63	1896676.05	11962563.57	1127.73
2750.00	62.22	166.3	2524.35	-512.94	167.29	10.00	512.41	1896687.29	11962521.76	1102.75
2800.00	66.67	168.8	2545.92	-556.98	176.98	10.00	556.42	1896696.98	11962477.72	1081.18
2850.00	71.15	171.2	2563.91	-602.91	185.04	10.00	602.32	1896705.04	11962431.79	1063.19
2900.00	75.67	173.5	2578.18	-650.38	191.43	10.00	649.78	1896711.43	11962384.32	1048.92
2950.00	80.20	175.6	2588.63	-699.04	196.08	10.00	698.42	1896716.08	11962335.66	1038.47
3000.00	84.75	177.7	2595.18	-748.51	198.97	10.00	747.88	1896718.97	11962286.19	1031.92
3050.00	89.30	179.8	2597.77	-798.41	200.06	10.00	797.78	1896720.06	11962236.29	1029.33
*** LANDING POINT (at MD = 3059.86)										
3059.86	90.20	180.2	2597.82	-808.28	200.07	10.00	807.65	1896720.07	11962226.42	1029.28
3100.00	90.20	180.2	2597.68	-848.41	199.94	0.00	847.78	1896719.94	11962186.29	1029.42



## Columbia Federal Com #1H, Plan 1

<b>Operator</b>	Mack Energy Corp	<b>Units</b>	feet, °/100ft	09:14 Tuesday, October 31, 2023	Page 2 of 6
<b>Field</b>	Round Tank	<b>County</b>	Eddy	<b>Vertical Section Azimuth</b>	180.18
<b>Well Name</b>	Columbia Federal Com #1H	<b>State</b>	New Mexico	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>	USA	<b>Database</b>	Access

<b>Location</b>	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1896520	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11963034.7	<b>Surface Lat</b>	
<b>Well Number</b>	1H	<b>API</b>		<b>Surface Z</b>	3627.1	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3609.6	<b>Local North Ref</b>	Grid

## DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
3150.00	90.20	180.2	2597.50	-898.41	199.78	0.00	897.78	1896719.78	11962136.29	1029.60
3200.00	90.20	180.2	2597.33	-948.41	199.63	0.00	947.78	1896719.63	11962086.29	1029.77
3250.00	90.20	180.2	2597.15	-998.41	199.47	0.00	997.78	1896719.47	11962036.29	1029.95
3300.00	90.20	180.2	2596.98	-1048.41	199.31	0.00	1047.78	1896719.31	11961986.29	1030.12
3350.00	90.20	180.2	2596.80	-1098.41	199.16	0.00	1097.78	1896719.16	11961936.29	1030.30
3400.00	90.20	180.2	2596.63	-1148.41	199.00	0.00	1147.78	1896719.00	11961886.29	1030.47
3450.00	90.20	180.2	2596.45	-1198.41	198.84	0.00	1197.78	1896718.84	11961836.29	1030.65
3500.00	90.20	180.2	2596.28	-1248.41	198.68	0.00	1247.78	1896718.68	11961786.29	1030.82
3550.00	90.20	180.2	2596.11	-1298.41	198.53	0.00	1297.78	1896718.53	11961736.29	1030.99
3600.00	90.20	180.2	2595.93	-1348.41	198.37	0.00	1347.78	1896718.37	11961686.29	1031.17
3650.00	90.20	180.2	2595.76	-1398.41	198.21	0.00	1397.78	1896718.21	11961636.29	1031.34
3700.00	90.20	180.2	2595.58	-1448.41	198.06	0.00	1447.78	1896718.06	11961586.29	1031.52
3750.00	90.20	180.2	2595.41	-1498.41	197.90	0.00	1497.78	1896717.90	11961536.29	1031.69
3800.00	90.20	180.2	2595.23	-1548.41	197.74	0.00	1547.78	1896717.74	11961486.29	1031.87
3850.00	90.20	180.2	2595.06	-1598.41	197.58	0.00	1597.78	1896717.58	11961436.29	1032.04
3900.00	90.20	180.2	2594.88	-1648.41	197.43	0.00	1647.78	1896717.43	11961386.29	1032.22
3950.00	90.20	180.2	2594.71	-1698.40	197.27	0.00	1697.78	1896717.27	11961336.30	1032.39
4000.00	90.20	180.2	2594.53	-1748.40	197.11	0.00	1747.78	1896717.11	11961286.30	1032.57
4050.00	90.20	180.2	2594.36	-1798.40	196.96	0.00	1797.78	1896716.96	11961236.30	1032.74
4100.00	90.20	180.2	2594.19	-1848.40	196.80	0.00	1847.78	1896716.80	11961186.30	1032.91
4150.00	90.20	180.2	2594.01	-1898.40	196.64	0.00	1897.78	1896716.64	11961136.30	1033.09
4200.00	90.20	180.2	2593.84	-1948.40	196.48	0.00	1947.77	1896716.48	11961086.30	1033.26
4250.00	90.20	180.2	2593.66	-1998.40	196.33	0.00	1997.77	1896716.33	11961036.30	1033.44
4300.00	90.20	180.2	2593.49	-2048.40	196.17	0.00	2047.77	1896716.17	11960986.30	1033.61
4350.00	90.20	180.2	2593.31	-2098.40	196.01	0.00	2097.77	1896716.01	11960936.30	1033.79
4400.00	90.20	180.2	2593.14	-2148.40	195.86	0.00	2147.77	1896715.86	11960886.30	1033.96
4450.00	90.20	180.2	2592.96	-2198.40	195.70	0.00	2197.77	1896715.70	11960836.30	1034.14
4500.00	90.20	180.2	2592.79	-2248.40	195.54	0.00	2247.77	1896715.54	11960786.30	1034.31
4550.00	90.20	180.2	2592.61	-2298.40	195.39	0.00	2297.77	1896715.39	11960736.30	1034.49
4600.00	90.20	180.2	2592.44	-2348.40	195.23	0.00	2347.77	1896715.23	11960686.30	1034.66
4650.00	90.20	180.2	2592.27	-2398.40	195.07	0.00	2397.77	1896715.07	11960636.30	1034.83
4700.00	90.20	180.2	2592.09	-2448.40	194.91	0.00	2447.77	1896714.91	11960586.30	1035.01
4750.00	90.20	180.2	2591.92	-2498.40	194.76	0.00	2497.77	1896714.76	11960536.30	1035.18
4800.00	90.20	180.2	2591.74	-2548.40	194.60	0.00	2547.77	1896714.60	11960486.30	1035.36
4850.00	90.20	180.2	2591.57	-2598.39	194.44	0.00	2597.77	1896714.44	11960436.31	1035.53
4900.00	90.20	180.2	2591.39	-2648.39	194.29	0.00	2647.77	1896714.29	11960386.31	1035.71
4950.00	90.20	180.2	2591.22	-2698.39	194.13	0.00	2697.77	1896714.13	11960336.31	1035.88



## Columbia Federal Com #1H, Plan 1

<b>Operator</b>	Mack Energy Corp	<b>Units</b>	feet, °/100ft	09:14 Tuesday, October 31, 2023	Page 3 of 6
<b>Field</b>	Round Tank	<b>County</b>	Eddy	<b>Vertical Section Azimuth</b>	180.18
<b>Well Name</b>	Columbia Federal Com #1H	<b>State</b>	New Mexico	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>	USA	<b>Database</b>	Access

<b>Location</b>	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1896520	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11963034.7	<b>Surface Lat</b>	
<b>Well Number</b>	1H	<b>API</b>		<b>Surface Z</b>	3627.1	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3609.6	<b>Local North Ref</b>	Grid

**DIRECTIONAL WELL PLAN**

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
5000.00	90.20	180.2	2591.04	-2748.39	193.97	0.00	2747.77	1896713.97	11960286.31	1036.06
5050.00	90.20	180.2	2590.87	-2798.39	193.81	0.00	2797.77	1896713.81	11960236.31	1036.23
5100.00	90.20	180.2	2590.70	-2848.39	193.66	0.00	2847.77	1896713.66	11960186.31	1036.40
5150.00	90.20	180.2	2590.52	-2898.39	193.50	0.00	2897.77	1896713.50	11960136.31	1036.58
5200.00	90.20	180.2	2590.35	-2948.39	193.34	0.00	2947.77	1896713.34	11960086.31	1036.75
5250.00	90.20	180.2	2590.17	-2998.39	193.19	0.00	2997.77	1896713.19	11960036.31	1036.93
5300.00	90.20	180.2	2590.00	-3048.39	193.03	0.00	3047.77	1896713.03	11959986.31	1037.10
5350.00	90.20	180.2	2589.82	-3098.39	192.87	0.00	3097.77	1896712.87	11959936.31	1037.28
5400.00	90.20	180.2	2589.65	-3148.39	192.71	0.00	3147.77	1896712.71	11959886.31	1037.45
5450.00	90.20	180.2	2589.47	-3198.39	192.56	0.00	3197.77	1896712.56	11959836.31	1037.63
5500.00	90.20	180.2	2589.30	-3248.39	192.40	0.00	3247.77	1896712.40	11959786.31	1037.80
5550.00	90.20	180.2	2589.12	-3298.39	192.24	0.00	3297.77	1896712.24	11959736.31	1037.98
5600.00	90.20	180.2	2588.95	-3348.39	192.09	0.00	3347.77	1896712.09	11959686.31	1038.15
5650.00	90.20	180.2	2588.78	-3398.39	191.93	0.00	3397.77	1896711.93	11959636.31	1038.32
5700.00	90.20	180.2	2588.60	-3448.39	191.77	0.00	3447.77	1896711.77	11959586.31	1038.50
5750.00	90.20	180.2	2588.43	-3498.38	191.62	0.00	3497.77	1896711.62	11959536.32	1038.67
5800.00	90.20	180.2	2588.25	-3548.38	191.46	0.00	3547.77	1896711.46	11959486.32	1038.85
5850.00	90.20	180.2	2588.08	-3598.38	191.30	0.00	3597.76	1896711.30	11959436.32	1039.02
5900.00	90.20	180.2	2587.90	-3648.38	191.14	0.00	3647.76	1896711.14	11959386.32	1039.20
5950.00	90.20	180.2	2587.73	-3698.38	190.99	0.00	3697.76	1896710.99	11959336.32	1039.37
6000.00	90.20	180.2	2587.55	-3748.38	190.83	0.00	3747.76	1896710.83	11959286.32	1039.55
6050.00	90.20	180.2	2587.38	-3798.38	190.67	0.00	3797.76	1896710.67	11959236.32	1039.72
6100.00	90.20	180.2	2587.20	-3848.38	190.52	0.00	3847.76	1896710.52	11959186.32	1039.90
6150.00	90.20	180.2	2587.03	-3898.38	190.36	0.00	3897.76	1896710.36	11959136.32	1040.07
6200.00	90.20	180.2	2586.86	-3948.38	190.20	0.00	3947.76	1896710.20	11959086.32	1040.24
6250.00	90.20	180.2	2586.68	-3998.38	190.04	0.00	3997.76	1896710.04	11959036.32	1040.42
6300.00	90.20	180.2	2586.51	-4048.38	189.89	0.00	4047.76	1896709.89	11958986.32	1040.59
6350.00	90.20	180.2	2586.33	-4098.38	189.73	0.00	4097.76	1896709.73	11958936.32	1040.77
6400.00	90.20	180.2	2586.16	-4148.38	189.57	0.00	4147.76	1896709.57	11958886.32	1040.94
6450.00	90.20	180.2	2585.98	-4198.38	189.42	0.00	4197.76	1896709.42	11958836.32	1041.12
6500.00	90.20	180.2	2585.81	-4248.38	189.26	0.00	4247.76	1896709.26	11958786.32	1041.29
6550.00	90.20	180.2	2585.63	-4298.38	189.10	0.00	4297.76	1896709.10	11958736.32	1041.47
6600.00	90.20	180.2	2585.46	-4348.38	188.95	0.00	4347.76	1896708.95	11958686.32	1041.64
6650.00	90.20	180.2	2585.28	-4398.37	188.79	0.00	4397.76	1896708.79	11958636.33	1041.82
6700.00	90.20	180.2	2585.11	-4448.37	188.63	0.00	4447.76	1896708.63	11958586.33	1041.99
6750.00	90.20	180.2	2584.94	-4498.37	188.47	0.00	4497.76	1896708.47	11958536.33	1042.16
6800.00	90.20	180.2	2584.76	-4548.37	188.32	0.00	4547.76	1896708.32	11958486.33	1042.34

## Columbia Federal Com #1H, Plan 1

<b>Operator</b>	Mack Energy Corp	<b>Units</b>	feet, °/100ft	09:14 Tuesday, October 31, 2023	Page 4 of 6
<b>Field</b>	Round Tank	<b>County</b>	Eddy	<b>Vertical Section Azimuth</b>	180.18
<b>Well Name</b>	Columbia Federal Com #1H	<b>State</b>	New Mexico	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>	USA	<b>Database</b>	Access

<b>Location</b>	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1896520	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11963034.7	<b>Surface Lat</b>	
<b>Well Number</b>	1H	<b>API</b>		<b>Surface Z</b>	3627.1	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3609.6	<b>Local North Ref</b>	Grid

## DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
6850.00	90.20	180.2	2584.59	-4598.37	188.16	0.00	4597.76	1896708.16	11958436.33	1042.51
6900.00	90.20	180.2	2584.41	-4648.37	188.00	0.00	4647.76	1896708.00	11958386.33	1042.69
6950.00	90.20	180.2	2584.24	-4698.37	187.85	0.00	4697.76	1896707.85	11958336.33	1042.86
7000.00	90.20	180.2	2584.06	-4748.37	187.69	0.00	4747.76	1896707.69	11958286.33	1043.04
7050.00	90.20	180.2	2583.89	-4798.37	187.53	0.00	4797.76	1896707.53	11958236.33	1043.21
7100.00	90.20	180.2	2583.71	-4848.37	187.37	0.00	4847.76	1896707.37	11958186.33	1043.39
7150.00	90.20	180.2	2583.54	-4898.37	187.22	0.00	4897.76	1896707.22	11958136.33	1043.56
7200.00	90.20	180.2	2583.36	-4948.37	187.06	0.00	4947.76	1896707.06	11958086.33	1043.74
7250.00	90.20	180.2	2583.19	-4998.37	186.90	0.00	4997.76	1896706.90	11958036.33	1043.91
7300.00	90.20	180.2	2583.02	-5048.37	186.75	0.00	5047.76	1896706.75	11957986.33	1044.08
7350.00	90.20	180.2	2582.84	-5098.37	186.59	0.00	5097.76	1896706.59	11957936.33	1044.26
7400.00	90.20	180.2	2582.67	-5148.37	186.43	0.00	5147.76	1896706.43	11957886.33	1044.43
7450.00	90.20	180.2	2582.49	-5198.37	186.27	0.00	5197.76	1896706.27	11957836.33	1044.61
7500.00	90.20	180.2	2582.32	-5248.37	186.12	0.00	5247.75	1896706.12	11957786.33	1044.78
7550.00	90.20	180.2	2582.14	-5298.36	185.96	0.00	5297.75	1896705.96	11957736.34	1044.96
7600.00	90.20	180.2	2581.97	-5348.36	185.80	0.00	5347.75	1896705.80	11957686.34	1045.13
7650.00	90.20	180.2	2581.79	-5398.36	185.65	0.00	5397.75	1896705.65	11957636.34	1045.31
7700.00	90.20	180.2	2581.62	-5448.36	185.49	0.00	5447.75	1896705.49	11957586.34	1045.48
7750.00	90.20	180.2	2581.44	-5498.36	185.33	0.00	5497.75	1896705.33	11957536.34	1045.66
7800.00	90.20	180.2	2581.27	-5548.36	185.18	0.00	5547.75	1896705.18	11957486.34	1045.83
7850.00	90.20	180.2	2581.10	-5598.36	185.02	0.00	5597.75	1896705.02	11957436.34	1046.00
7900.00	90.20	180.2	2580.92	-5648.36	184.86	0.00	5647.75	1896704.86	11957386.34	1046.18
7950.00	90.20	180.2	2580.75	-5698.36	184.70	0.00	5697.75	1896704.70	11957336.34	1046.35
8000.00	90.20	180.2	2580.57	-5748.36	184.55	0.00	5747.75	1896704.55	11957286.34	1046.53
8050.00	90.20	180.2	2580.40	-5798.36	184.39	0.00	5797.75	1896704.39	11957236.34	1046.70
8100.00	90.20	180.2	2580.22	-5848.36	184.23	0.00	5847.75	1896704.23	11957186.34	1046.88
8150.00	90.20	180.2	2580.05	-5898.36	184.08	0.00	5897.75	1896704.08	11957136.34	1047.05
8200.00	90.20	180.2	2579.87	-5948.36	183.92	0.00	5947.75	1896703.92	11957086.34	1047.23
8250.00	90.20	180.2	2579.70	-5998.36	183.76	0.00	5997.75	1896703.76	11957036.34	1047.40
8300.00	90.20	180.2	2579.53	-6048.36	183.60	0.00	6047.75	1896703.60	11956986.34	1047.58
8350.00	90.20	180.2	2579.35	-6098.36	183.45	0.00	6097.75	1896703.45	11956936.34	1047.75
8400.00	90.20	180.2	2579.18	-6148.36	183.29	0.00	6147.75	1896703.29	11956886.34	1047.92
8450.00	90.20	180.2	2579.00	-6198.35	183.13	0.00	6197.75	1896703.13	11956836.35	1048.10
8500.00	90.20	180.2	2578.83	-6248.35	182.98	0.00	6247.75	1896702.98	11956786.35	1048.27
8550.00	90.20	180.2	2578.65	-6298.35	182.82	0.00	6297.75	1896702.82	11956736.35	1048.45
8600.00	90.20	180.2	2578.48	-6348.35	182.66	0.00	6347.75	1896702.66	11956686.35	1048.62
8650.00	90.20	180.2	2578.30	-6398.35	182.50	0.00	6397.75	1896702.50	11956636.35	1048.80

## Columbia Federal Com #1H, Plan 1

<b>Operator</b>	Mack Energy Corp	<b>Units</b>	feet, °/100ft	09:14 Tuesday, October 31, 2023	Page 5 of 6
<b>Field</b>	Round Tank	<b>County</b>	Eddy	<b>Vertical Section Azimuth</b>	180.18
<b>Well Name</b>	Columbia Federal Com #1H	<b>State</b>	New Mexico	<b>Survey Calculation Method</b>	Minimum Curvature
<b>Plan</b>	1	<b>Country</b>	USA	<b>Database</b>	Access

<b>Location</b>	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1896520	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11963034.7	<b>Surface Lat</b>	
<b>Well Number</b>	1H	<b>API</b>		<b>Surface Z</b>	3627.1	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3609.6	<b>Local North Ref</b>	Grid

**DIRECTIONAL WELL PLAN**

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
8700.00	90.20	180.2	2578.13	-6448.35	182.35	0.00	6447.75	1896702.35	11956586.35	1048.97
8750.00	90.20	180.2	2577.95	-6498.35	182.19	0.00	6497.75	1896702.19	11956536.35	1049.15
8800.00	90.20	180.2	2577.78	-6548.35	182.03	0.00	6547.75	1896702.03	11956486.35	1049.32
8850.00	90.20	180.2	2577.61	-6598.35	181.88	0.00	6597.75	1896701.88	11956436.35	1049.49
8900.00	90.20	180.2	2577.43	-6648.35	181.72	0.00	6647.75	1896701.72	11956386.35	1049.67
8950.00	90.20	180.2	2577.26	-6698.35	181.56	0.00	6697.75	1896701.56	11956336.35	1049.84
9000.00	90.20	180.2	2577.08	-6748.35	181.41	0.00	6747.75	1896701.41	11956286.35	1050.02
9050.00	90.20	180.2	2576.91	-6798.35	181.25	0.00	6797.75	1896701.25	11956236.35	1050.19
9100.00	90.20	180.2	2576.73	-6848.35	181.09	0.00	6847.75	1896701.09	11956186.35	1050.37
9150.00	90.20	180.2	2576.56	-6898.35	180.93	0.00	6897.74	1896700.93	11956136.35	1050.54
9200.00	90.20	180.2	2576.38	-6948.35	180.78	0.00	6947.74	1896700.78	11956086.35	1050.72
9250.00	90.20	180.2	2576.21	-6998.35	180.62	0.00	6997.74	1896700.62	11956036.35	1050.89
9300.00	90.20	180.2	2576.03	-7048.35	180.46	0.00	7047.74	1896700.46	11955986.35	1051.07
9350.00	90.20	180.2	2575.86	-7098.35	180.31	0.00	7097.74	1896700.31	11955936.36	1051.24
9400.00	90.20	180.2	2575.69	-7148.34	180.15	0.00	7147.74	1896700.15	11955886.36	1051.41
9450.00	90.20	180.2	2575.51	-7198.34	179.99	0.00	7197.74	1896699.99	11955836.36	1051.59
9500.00	90.20	180.2	2575.34	-7248.34	179.83	0.00	7247.74	1896699.83	11955786.36	1051.76
9550.00	90.20	180.2	2575.16	-7298.34	179.68	0.00	7297.74	1896699.68	11955736.36	1051.94
9600.00	90.20	180.2	2574.99	-7348.34	179.52	0.00	7347.74	1896699.52	11955686.36	1052.11
9650.00	90.20	180.2	2574.81	-7398.34	179.36	0.00	7397.74	1896699.36	11955636.36	1052.29
9700.00	90.20	180.2	2574.64	-7448.34	179.21	0.00	7447.74	1896699.21	11955586.36	1052.46
9750.00	90.20	180.2	2574.46	-7498.34	179.05	0.00	7497.74	1896699.05	11955536.36	1052.64
9800.00	90.20	180.2	2574.29	-7548.34	178.89	0.00	7547.74	1896698.89	11955486.36	1052.81
9850.00	90.20	180.2	2574.11	-7598.34	178.73	0.00	7597.74	1896698.73	11955436.36	1052.99
9900.00	90.20	180.2	2573.94	-7648.34	178.58	0.00	7647.74	1896698.58	11955386.36	1053.16
9950.00	90.20	180.2	2573.77	-7698.34	178.42	0.00	7697.74	1896698.42	11955336.36	1053.33
10000.00	90.20	180.2	2573.59	-7748.34	178.26	0.00	7747.74	1896698.26	11955286.36	1053.51
10050.00	90.20	180.2	2573.42	-7798.34	178.11	0.00	7797.74	1896698.11	11955236.36	1053.68
10100.00	90.20	180.2	2573.24	-7848.34	177.95	0.00	7847.74	1896697.95	11955186.36	1053.86
10150.00	90.20	180.2	2573.07	-7898.34	177.79	0.00	7897.74	1896697.79	11955136.36	1054.03
10200.00	90.20	180.2	2572.89	-7948.34	177.64	0.00	7947.74	1896697.64	11955086.36	1054.21
10250.00	90.20	180.2	2572.72	-7998.34	177.48	0.00	7997.74	1896697.48	11955036.36	1054.38
10300.00	90.20	180.2	2572.54	-8048.33	177.32	0.00	8047.74	1896697.32	11954986.37	1054.56
10350.00	90.20	180.2	2572.37	-8098.33	177.16	0.00	8097.74	1896697.16	11954936.37	1054.73
10400.00	90.20	180.2	2572.19	-8148.33	177.01	0.00	8147.74	1896697.01	11954886.37	1054.91
10450.00	90.20	180.2	2572.02	-8198.33	176.85	0.00	8197.74	1896696.85	11954836.37	1055.08
10500.00	90.20	180.2	2571.85	-8248.33	176.69	0.00	8247.74	1896696.69	11954786.37	1055.25

Columbia Federal Com #1H, Plan 1										
Operator	Mack Energy Corp			Units	feet, °/100ft		09:14 Tuesday, October 31, 2023 Page 6 of 6			
Field	Round Tank			County	Eddy		Vertical Section Azimuth 180.18			
Well Name	Columbia Federal Com #1H			State	New Mexico		Survey Calculation Method Minimum Curvature			
Plan	1			Country	USA		Database Access			
Location	SL: 3885 FNL & 2110 FWL Section 3-T16S-R28E BHL: 1 FSL & 2310 FWL Section 10-T16S-R28E					Map Zone	UTM		Lat Long Ref	
Site						Surface X	1896520		Surface Long	
Slot Name	UWI					Surface Y	11963034.7		Surface Lat	
Well Number	1H					Surface Z	3627.1		Global Z Ref KB	
Project	MD/TVD Ref KB					Ground Level	3609.6		Local North Ref Grid	
DIRECTIONAL WELL PLAN										
MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
10550.00	90.20	180.2	2571.67	-8298.33	176.54	0.00	8297.74	1896696.54	11954736.37	1055.43
10600.00	90.20	180.2	2571.50	-8348.33	176.38	0.00	8347.74	1896696.38	11954686.37	1055.60
10650.00	90.20	180.2	2571.32	-8398.33	176.22	0.00	8397.74	1896696.22	11954636.37	1055.78
10700.00	90.20	180.2	2571.15	-8448.33	176.06	0.00	8447.74	1896696.06	11954586.37	1055.95
10750.00	90.20	180.2	2570.97	-8498.33	175.91	0.00	8497.74	1896695.91	11954536.37	1056.13
10800.00	90.20	180.2	2570.80	-8548.33	175.75	0.00	8547.73	1896695.75	11954486.37	1056.30
10850.00	90.20	180.2	2570.62	-8598.33	175.59	0.00	8597.73	1896695.59	11954436.37	1056.48
10900.00	90.20	180.2	2570.45	-8648.33	175.44	0.00	8647.73	1896695.44	11954386.37	1056.65
10950.00	90.20	180.2	2570.27	-8698.33	175.28	0.00	8697.73	1896695.28	11954336.37	1056.83
*** TD (at MD = 10993.86)										
10993.86	90.20	180.2	2570.12	-8742.19	175.14	0.00	8741.60	1896695.14	11954292.51	1056.98

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SES v5.79

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**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Mack Energy Corporation
LEASE NO.:	NMNM 018831
COUNTY:	Eddy County, New Mexico

**Wells:**

Columbia Federal Com 1H  
Surface Hole Location: 3885' FNL & 2110' FWL, Section 3, T. 16 S., R. 28 E.  
Bottom Hole Location: 1' FSL & 2310' FWL, Section 10, T. 16 S, R 28 E.

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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**
  - Watershed
  - Cave/Karst
  - Raptors
  - Special Status Plant Species
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
- ☐ **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 resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 6 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or

any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

#### **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)**

##### **Watershed:**

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

##### **Cave/Karst:**

##### **Construction Mitigation**

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

##### **General Construction:**

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

##### **Pad Construction:**

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.



- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised (i.e. an access road crossing the berm cannot be lower than the berm height).
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

**Road Construction:**

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

**Powerline Construction:**

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

**Surface Flowlines Installation:**

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

**Drilling Mitigation**

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.



- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

**Production Mitigation**

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

**Residual and Cumulative Mitigation**

The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be taken to correct the problem to the BLM's approval.

**Plugging and Abandonment Mitigation**

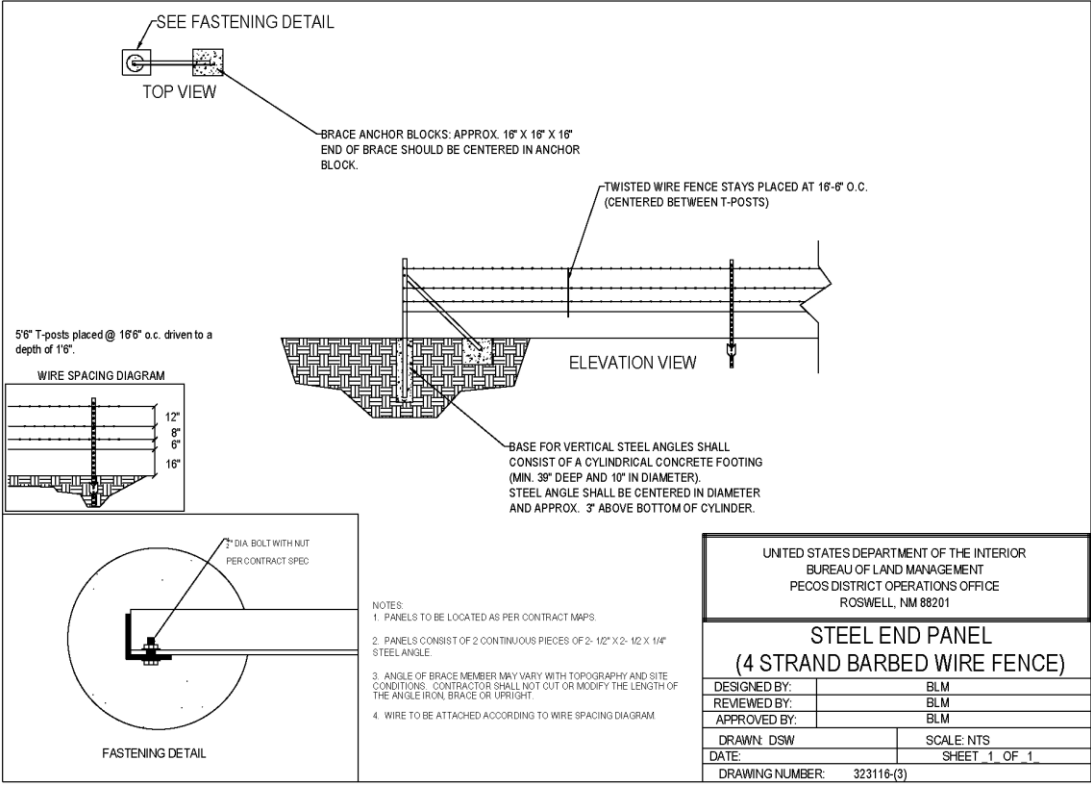
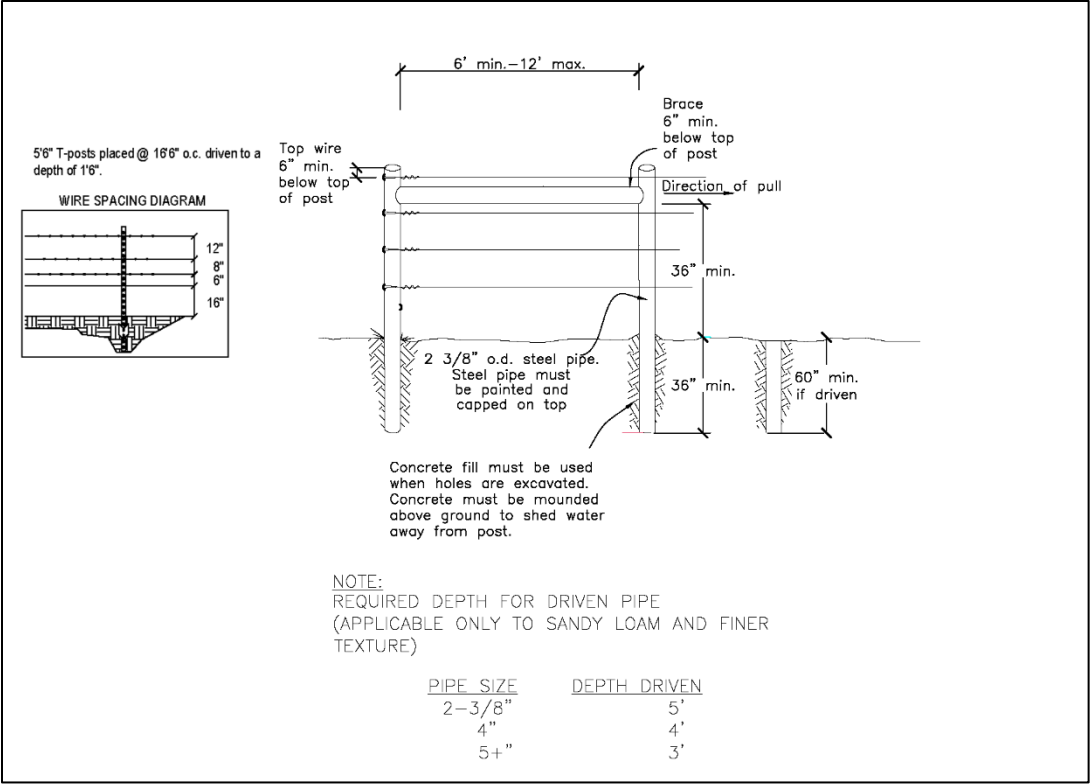
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Range:***Cattleguards*

Where a permanent cattleguard is approved, 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 on one side of the cattleguard and fastened securely to H-braces.

*Fence Requirement*

Where entry granted across a fence line, the fence must be H-braced or angle iron braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall consult the private surface landowner or the grazing allotment holder prior to cutting any fence(s).



**Livestock Watering Requirement**  
Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must

notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

**VRM IV:**

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

**Raptor Nest Mitigation**

- A BLM Wildlife Biologist must be contacted by the operator prior to construction activities to determine if the raptor nest is active.
- Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.
- 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.

**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) 234-5909 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 strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

**C. CLOSED LOOP SYSTEM**

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**

Payment shall be made to the BLM prior to removal of any federal mineral materials. 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. EXCLOSURE FENCING (CELLARS & PITS)**

##### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

#### **G. 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 twenty-five (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.

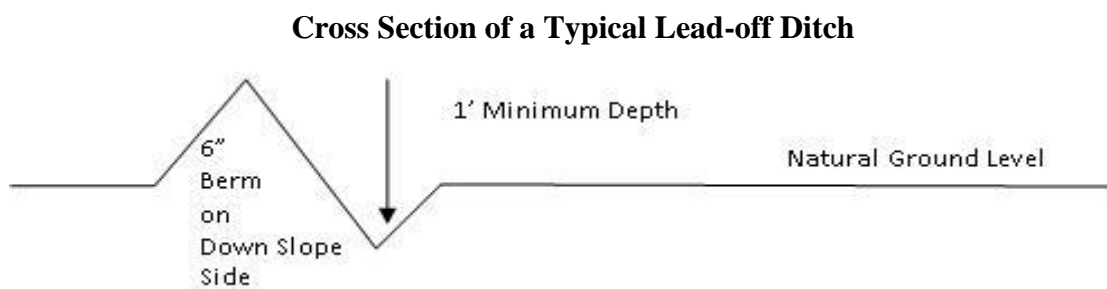
##### **Turnouts**

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

##### **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:

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

#### **Public Access**

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

**Construction Steps**

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## VII. 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.

#### Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### 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** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

### B. PIPELINES



## STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (see 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing
  - (2) Earth-disturbing and earth-moving work
  - (3) Blasting
  - (4) Vandalism and sabotage;
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system,



impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 30 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 6 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any

person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 16 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

16. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

17. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

18. 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, powerline 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.

19. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

## **VIII. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

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.

**Seed Mixture 1 for Loamy Sites**

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 shall 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 shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall 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 shall 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). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may 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

	<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
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

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

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MACK ENERGY CORPORATION
WELL NAME & NO.:	COLUMBIA FED COM 1H
SURFACE HOLE FOOTAGE:	3885'/N & 2110'/W
BOTTOM HOLE FOOTAGE:	1'/S & 2310'/W
LOCATION:	Section 3, T.16 S., R.28 E., NMP
COUNTY:	Eddy County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Wellhead Variance	<input type="radio"/> Diverter		
Other	<input type="checkbox"/> 4 String	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Open Annulus
Cementing	<input type="checkbox"/> Contingency Cement Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> Primary Cement Squeeze
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
Special Requirements	<input type="checkbox"/> Batch Sundry		
Special Requirements Variance	<input type="checkbox"/> Break Testing	<input type="checkbox"/> Offline Cementing	<input type="checkbox"/> Casing Clearance

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet 43 CFR part 3170 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

### B. CASING

#### Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **350 feet** (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. The surface hole shall be **17 1/2** inch in diameter.



- 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. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial 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.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
  - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
3. The minimum required fill of cement behind the **7 X 5 inch** production casing is: casing is:
  - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

## C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8 inch** surface casing. 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**.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test.
- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

#### **D. SPECIAL REQUIREMENT (S)**

##### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## **GENERAL REQUIREMENTS**

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

**EMAIL** or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

**[BLM\\_NM\\_CFO\\_DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV)**

(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 689-5981

1. 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.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
2. 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.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall 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.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive

strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

#### B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal

or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)



- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. 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.
- g. 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. This test shall be performed prior to the test at full stack pressure.
- h. 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 **43 CFR part 3170 Subpart 3172**.

#### C. 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.

#### D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

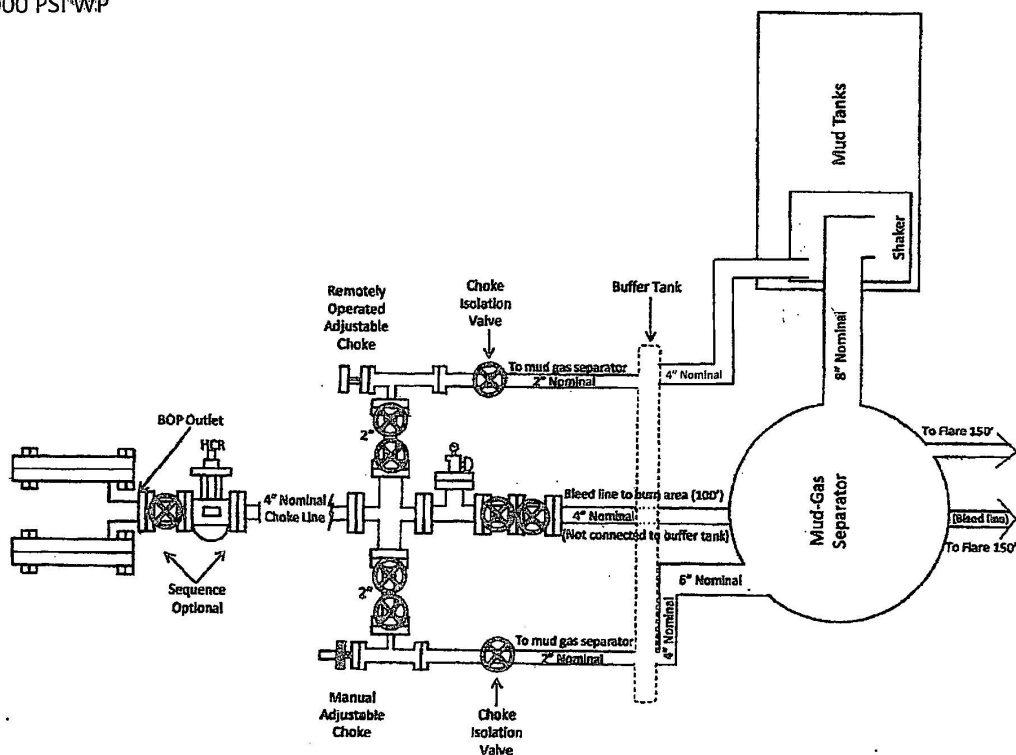
## Mack Energy Corporation

### MANIFOLD SCHEMATIC

Exhibit #12

#### Choke Manifold

3000 PSI W.P.



## Mack Energy Corporation

### Onshore Order #6

### Hydrogen Sulfide Drilling Operation Plan

#### I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

- 
1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
  2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
  3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

## II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

### 1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

### 2. Protective equipment for essential personnel:

- A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

### 3. H2S detection and monitoring equipment:

- A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

### 4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

### 5. Mud program:

Attached to Form 3160-3

Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM

- 
- A. The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. Proper mud weight, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.

**6. Metallurgy:**

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
- B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

**7. Communication:**

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

**8. Well testing:**

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H<sub>2</sub>S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

**EXHIBIT #7**

**WARNING**  
**YOU ARE ENTERING AN H<sub>2</sub>S**  
**AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE**

**MACK ENERGY CORPORATION**

**1-575-748-1288**

Attached to Form 3160-3

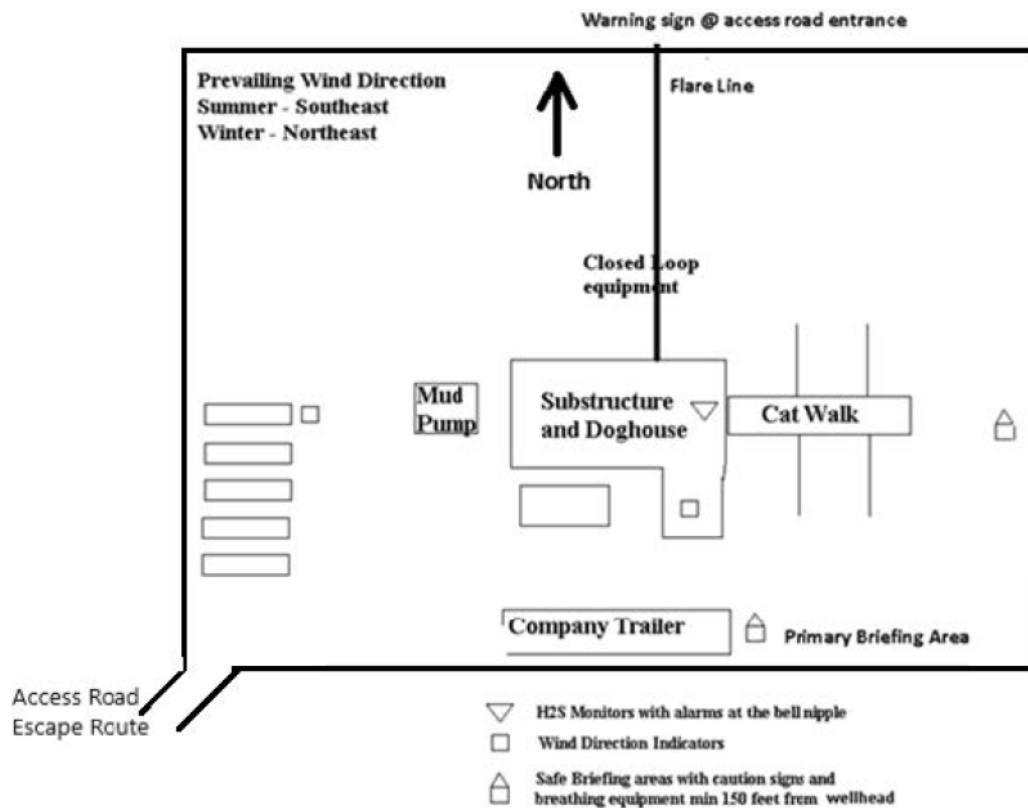
Mack Energy Corporation

Columbia Com #1H NMNM-018831 NMNM-095630 NMNM-97128

SHL : 3885 FNL &amp; 2110 FWL, Lot 14, Sec. 3 T16S R28E

BHL : 1 FSL &amp; 2310 FWL, SESW, Sec. 10 T16S R28E

Eddy County, NM



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**DRILLING LOCATION H<sub>2</sub>S SAFTY EQUIPMENT**

**Exhibit # 8**



**Mack Energy Corporation Call List, Eddy County**

<b>Artesia (575)</b>	<b>Cellular</b>	<b>Office</b>
Jim Krogman.....	432-934-1596.....	748-1288
Emilio Martinez.....	432-934-7586.....	748-1288

**Agency Call List (575)****Artesia**

State Police.....	746-2703
City Police.....	746-2703
Sheriff's Office.....	746-9888
Ambulance.....	911
Fire Department.....	746-2701
LEPC (Local Emergency Planning Committee.....	746-2122
NMOCD.....	748-1283
Bureau of Land Management.....	627-0272

**Carlsbad**

State Police.....	885-3137
City Police.....	885-2111
Sheriff's Office.....	887-7551
Ambulance.....	911
Fire Department.....	885-2111
LEPC (Local Emergency Planning Committee.....	887-3798
Bureau of Land Management.....	887-6544
New Mexico Emergency Respond Commission.....	(505)476-9690
24 Hour.....	(505)827-9126
National Emergency Repsonse Center (Washington)....	(800)424-8802

**Emergency Services**

Boots & Coots IWC.....	1-800-256-9688 or (281)931-8884
Cudd pressure Control.....	(915)699-0139 or (915)563-3356
Halliburton.....	746-2757
Par Five.....	748-9539
Flight For Life-Lubbock, TX.....	(806)743-9911
Aerocare-Lubbock, TX.....	(806)747-8923
Med Flight Air Amb-Albuquerque, NM.....	(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM.....	(505)272-3115

Intent ☒ As Drilled ☐

API #		
Operator Name: MACK ENERGY CORPORATION	Property Name: COLUMBIA FEDERAL COM	Well Number 1H

## Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	3	16S	28E	14	3885	NORTH	2110	WEST	EDDY
Latitude 32.9545647					Longitude 104.1653657				NAD 83

## First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
K	3	16S	28E		2593	SOUTH	2310	WEST	EDDY
Latitude 32.9524942					Longitude 104.1647155				NAD 83

## Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
N	10	16S	28E		100	SOUTH	2310	WEST	EDDY
Latitude 32.9308340					Longitude 104.1648406				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

# Drilling Plan Data Report

08/09/2024

APD ID: 10400094083

Submission Date: 12/14/2023

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: COLUMBIA FEDERAL COM

Well Number: 1H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
13932898	QUATERNARY	3609	0	0	ALLUVIUM	NONE	N
13932899	YATES	3265	344	344	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932900	SEVEN RIVERS	3025	584	584	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932901	QUEEN	2522	1087	1087	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13932902	GRAYBURG	2113	1496	1496	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
13932903	SAN ANDRES	1780	1829	1829	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 11134

Equipment: Rotating Head, Mud Gas Separator

Requesting Variance? NO

Variance request:

**Testing Procedure:** The BOP/BOPE test shall include a low pressure test for 250 to 300psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 mins without a test plug. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1223psig (0.052\*2557'TVD\*9.2) less than 2900 bottom hole pressure.

**Choke Diagram Attachment:**

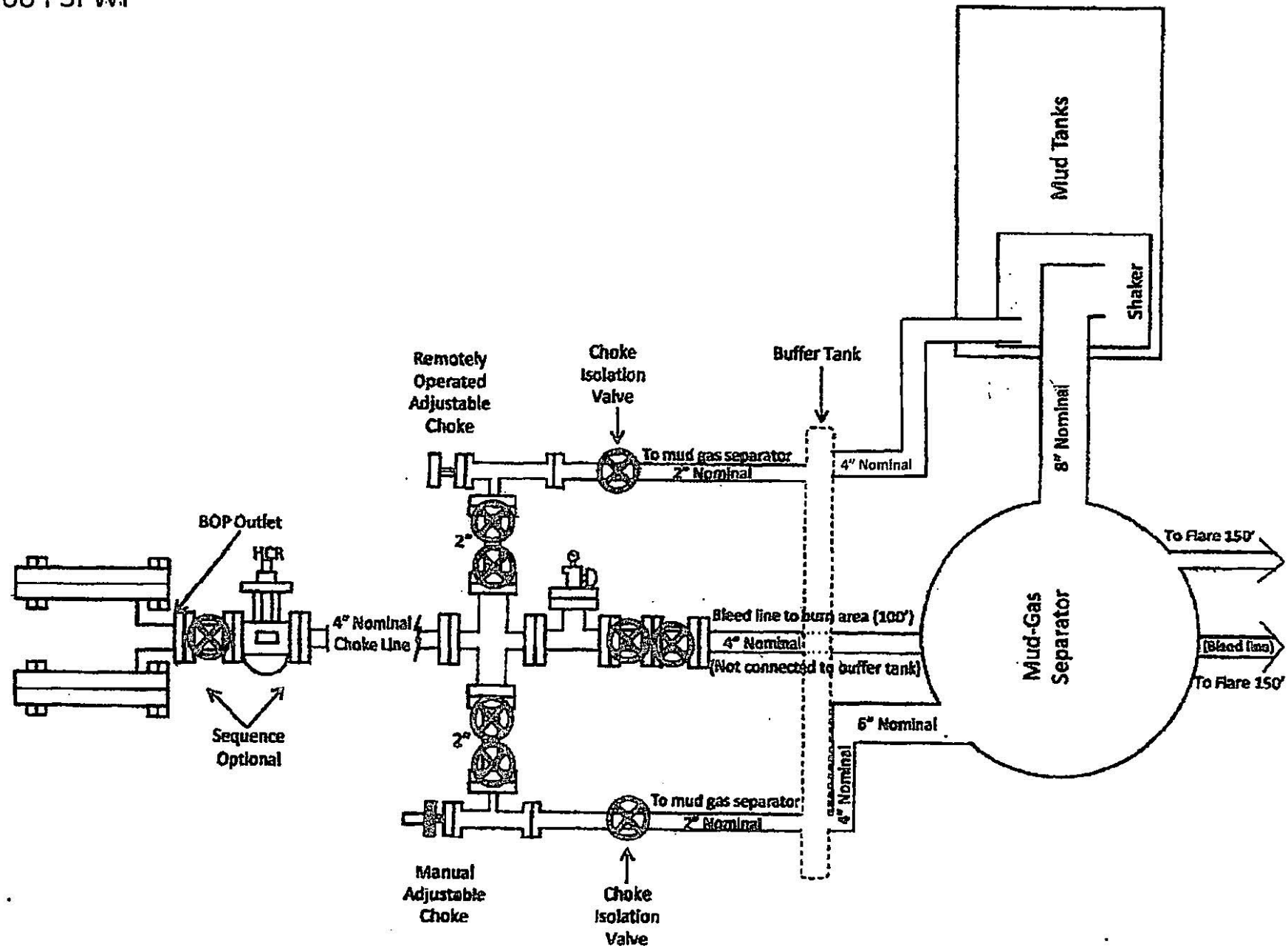
NEW\_Choke\_Manifold\_3M\_20230829141459.pdf

**BOP Diagram Attachment:**

NEW\_BOP\_3M\_20230829141509.pdf

# Choke Manifold

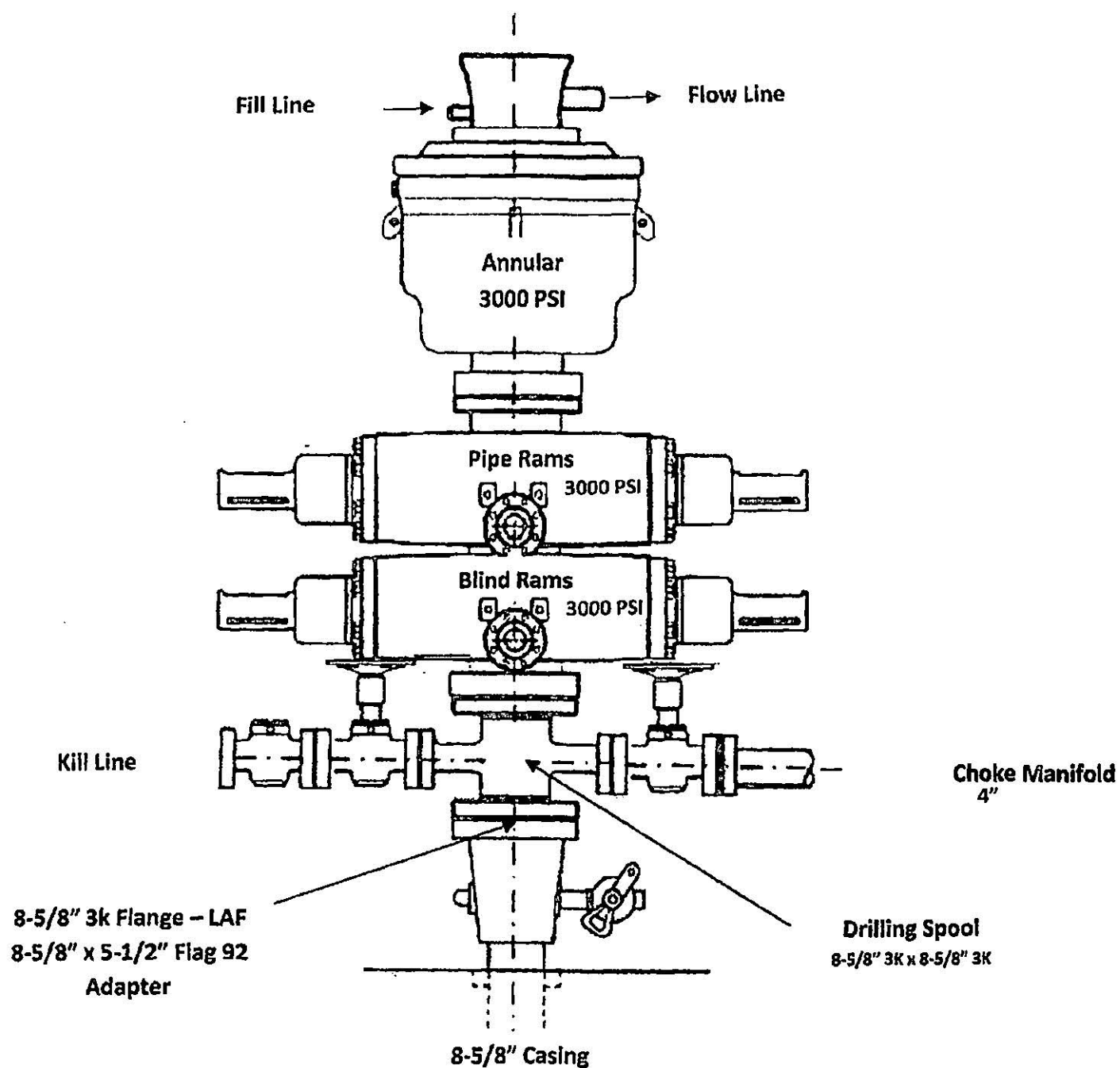
3000 PSI WP



**BOP Diagram**

Dual Ram BOP

3000 PSI WP



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS  
  
Action 372382

CONDITIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID:
	13837
	Action Number:
	372382
Action Type:	
[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)	

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	8/28/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/28/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	8/28/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	8/28/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	8/28/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	8/28/2024