

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. <b>30-005-64389</b>
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)



Approval Date: 05/17/2024

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>30-005-64389</b>	<sup>2</sup> Pool Code <b>52770</b>	<sup>3</sup> Pool Name <b>Round Tank; San Andres</b>
<sup>4</sup> Property Code <b>320470 320469</b>	<sup>5</sup> Property Name <b>OTTAWA FEDERAL COM</b>	<sup>6</sup> Well Number <b>2H</b>
<sup>7</sup> OGRID No. <b>13837</b>	<sup>8</sup> Operator Name <b>MACK ENERGY CORPORATION</b>	<sup>9</sup> Elevation <b>3763.5</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
<b>M</b>	<b>20</b>	<b>15 S</b>	<b>29 E</b>		<b>700</b>	<b>SOUTH</b>	<b>1190</b>	<b>WEST</b>	<b>CHAVES</b>

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

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>M</b>	<b>29</b>	<b>15 S</b>	<b>29 E</b>		<b>1</b>	<b>SOUTH</b>	<b>990</b>	<b>WEST</b>	<b>CHAVES</b>

<sup>12</sup> Dedicated Acres <b>160</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.

	<p><b><sup>17</sup> OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location 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.</p> <p><i>Deana Weaver</i> 10/30/2023 Signature Date <b>Deana Weaver</b> Printed Name <b>dweaver@mec.com</b> E-mail Address</p> <p><b><sup>18</sup> SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>OCTOBER 23, 2023 Date of Survey</p> <p><i>ALIMON F. JARAMILLO</i> Signature and Seal of Professional Surveyor Certificate Number: <b>12797</b> NEW MEXICO PROFESSIONAL SURVEYORS NO. 9842A</p>

Intent ☒ ☒ As Drilled ☐

API #		
Operator Name: MACK ENERGY CORPORATION	Property Name: OTTAWA FEDERAL COM	Well Number 2H

Kick Off Point (KOP)

UL M	Section 20	Township 15S	Range 29E	Lot	Feet 700	From N/S SOUTH	Feet 1190	From E/W WEST	County CHAVES
Latitude 32.9961028					Longitude 104.0553415				NAD 83

First Take Point (FTP)

UL D	Section 29	Township 15S	Range 29E	Lot	Feet 100	From N/S NORTH	Feet 990	From E/W WEST	County CHAVES
Latitude 32.9939041					Longitude 104.0559926				NAD 83

Last Take Point (LTP)

UL M	Section 29	Township 15S	Range 29E	Lot	Feet 100	From N/S SOUTH	Feet 990	From E/W WEST	County CHAVES
Latitude 32.9800176					Longitude 104.0562148				NAD 83

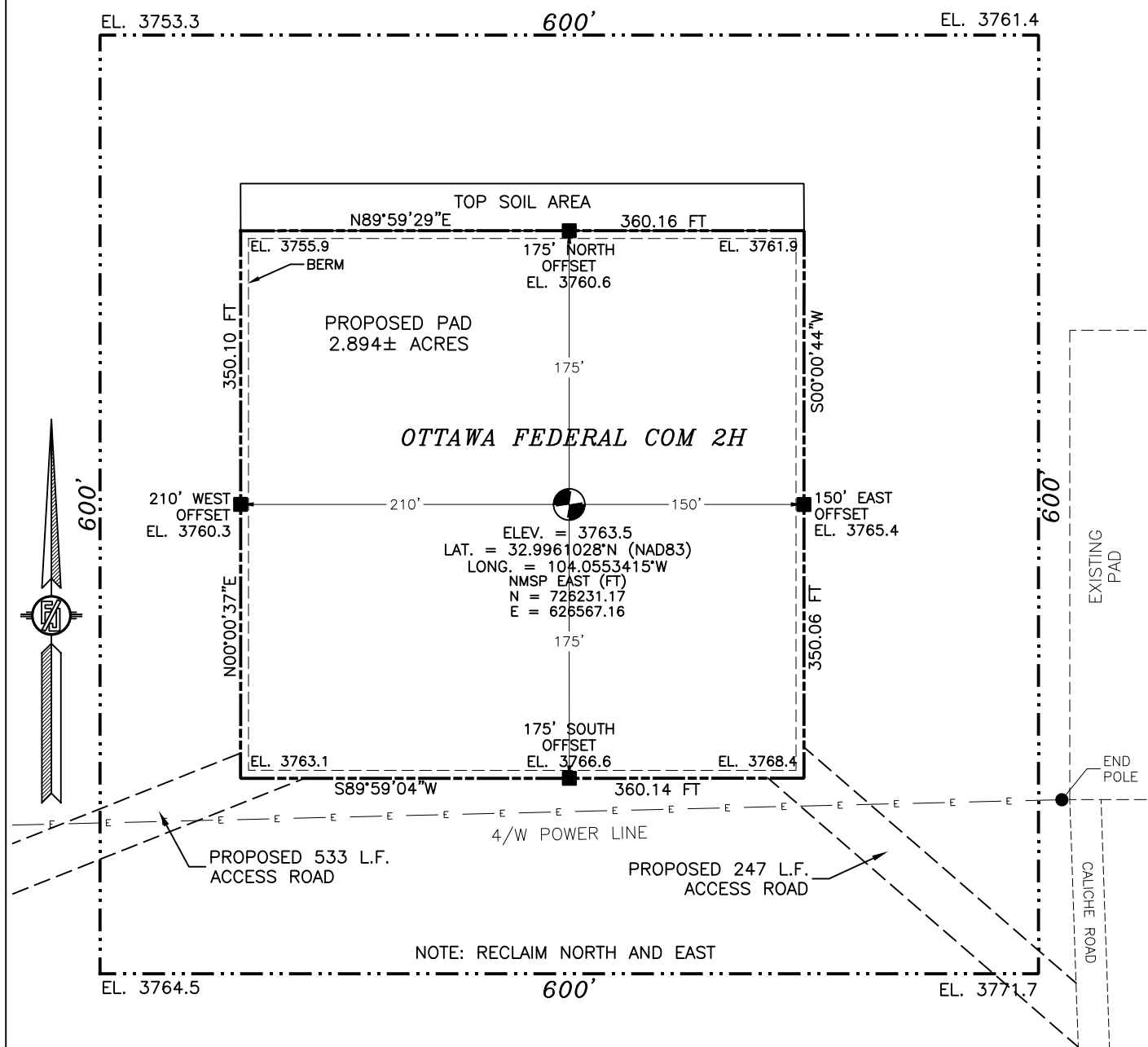
Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

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 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
SITE MAP



010 50 100 200

SCALE 1" = 100'

**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF ST. HWY. 82 & CO. RD. 217 (HAGERMAN CUT OFF), GO NORTH ON CO. RD. 217 APPROX. 10 MILES, TURN LEFT (NORTHWEST) ON 25' CALICHE LEASE ROAD (CO. LINE ROAD) AND GO APPROX. 3.8 MILES, TURN RIGHT (NORTHEAST) ON 15' CALICHE ROAD AND GO APPROX. 0.6 MILES TO A ROAD SURVEY, FOLLOW ROAD SURVEY NORTHEAST APPROX. 533' TO THE SOUTHWEST PAD CORNER FOR THIS LOCATION.

I, FILMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR, CERTIFY THAT I HAVE PERSONALLY CONDUCTED THIS SURVEY, THAT THIS MAP IS A TRUE AND CORRECT REPRESENTATION OF MY KNOWLEDGE AND BELIEFS, AND THAT I AM AWARE OF THE MINIMUM STANDARDS FOR SURVEYING PRACTICES.

FILMON F. JARAMILLO, REGISTERED PROFESSIONAL SURVEYOR

MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3327

MACK ENERGY CORPORATION  
OTTAWA FEDERAL COM 2H

LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

OCTOBER 23, 2023

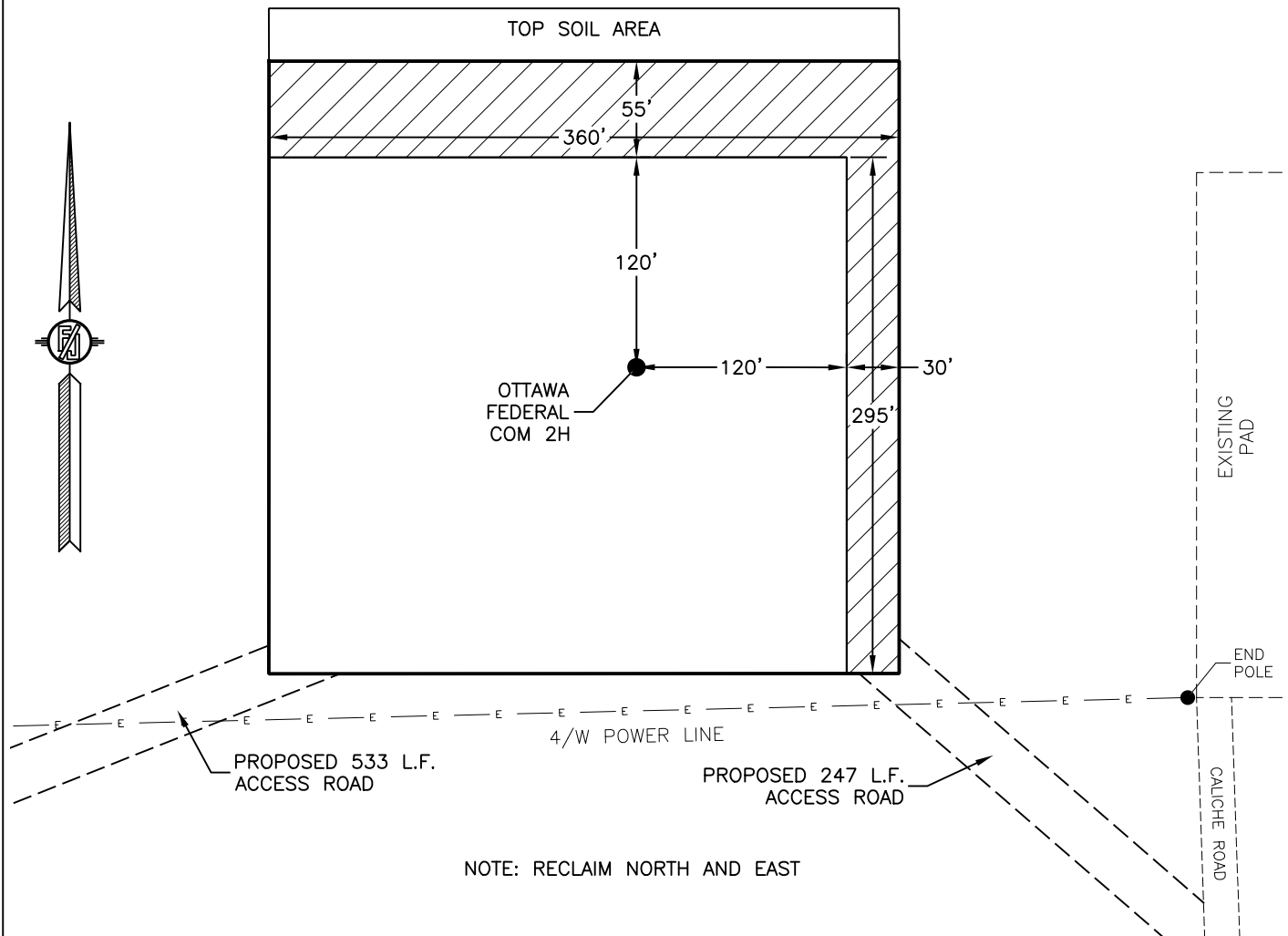
SURVEY NO. 9842A

CARLSBAD, NEW MEXICO



SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
INTERIM SITE RECLAMATION

 DENOTES  
RECLAMATION AREA  
0.658± ACRES RECLAMATION AREA



NOTE: RECLAIM NORTH AND EAST

010 50 100 200  
SCALE 1" = 100'

MACK ENERGY CORPORATION  
**OTTAWA FEDERAL COM 2H**  
LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

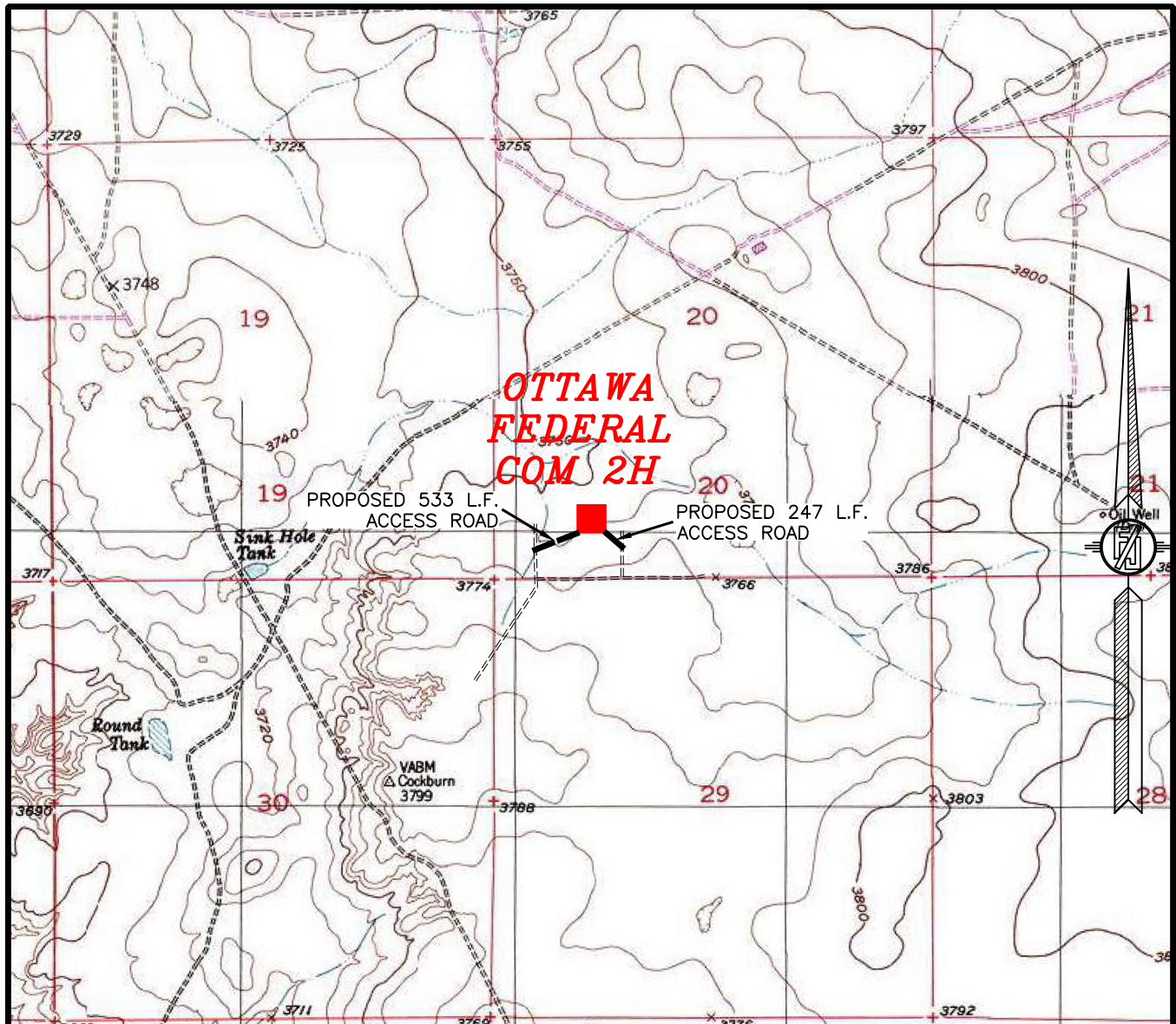
OCTOBER 23, 2023

SURVEY NO. 9842A

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

CARLSBAD, NEW MEXICO

SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
LOCATION VERIFICATION MAP



USGS QUAD MAP:  
BASIN WELL KING CAMP

NOT TO SCALE

MACK ENERGY CORPORATION  
**OTTAWA FEDERAL COM 2H**  
LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

OCTOBER 23, 2023

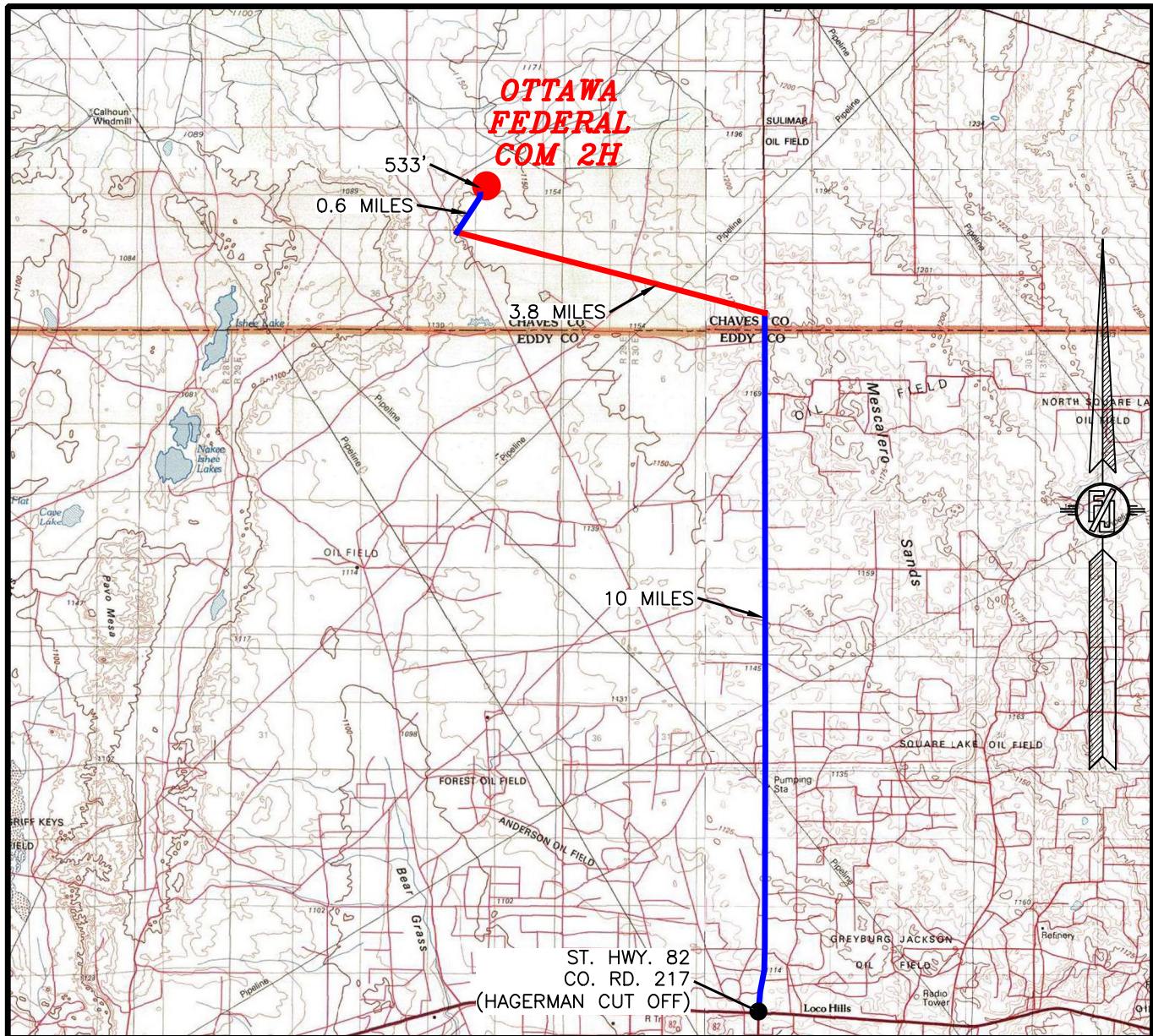
MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3327

SURVEY NO. 9842A  
CARLSBAD, NEW MEXICO



SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF ST. HWY. 82 & CO. RD. 217 (HAGERMAN CUT OFF), GO NORTH ON CO. RD. 217 APPROX. 10 MILES, TURN LEFT (NORTHWEST) ON 25' CALICHE LEASE ROAD (CO. LINE ROAD) AND GO APPROX. 3.8 MILES, TURN RIGHT (NORTH) ON 15' CALICHE ROAD AND GO APPROX. 0.6 MILES TO A ROAD SURVEY, FOLLOW ROAD SURVEY NORTHEAST APPROX. 533' TO THE SOUTHWEST PAD CORNER FOR THIS LOCATION.

**MACK ENERGY CORPORATION**  
**OTTAWA FEDERAL COM 2H**  
LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

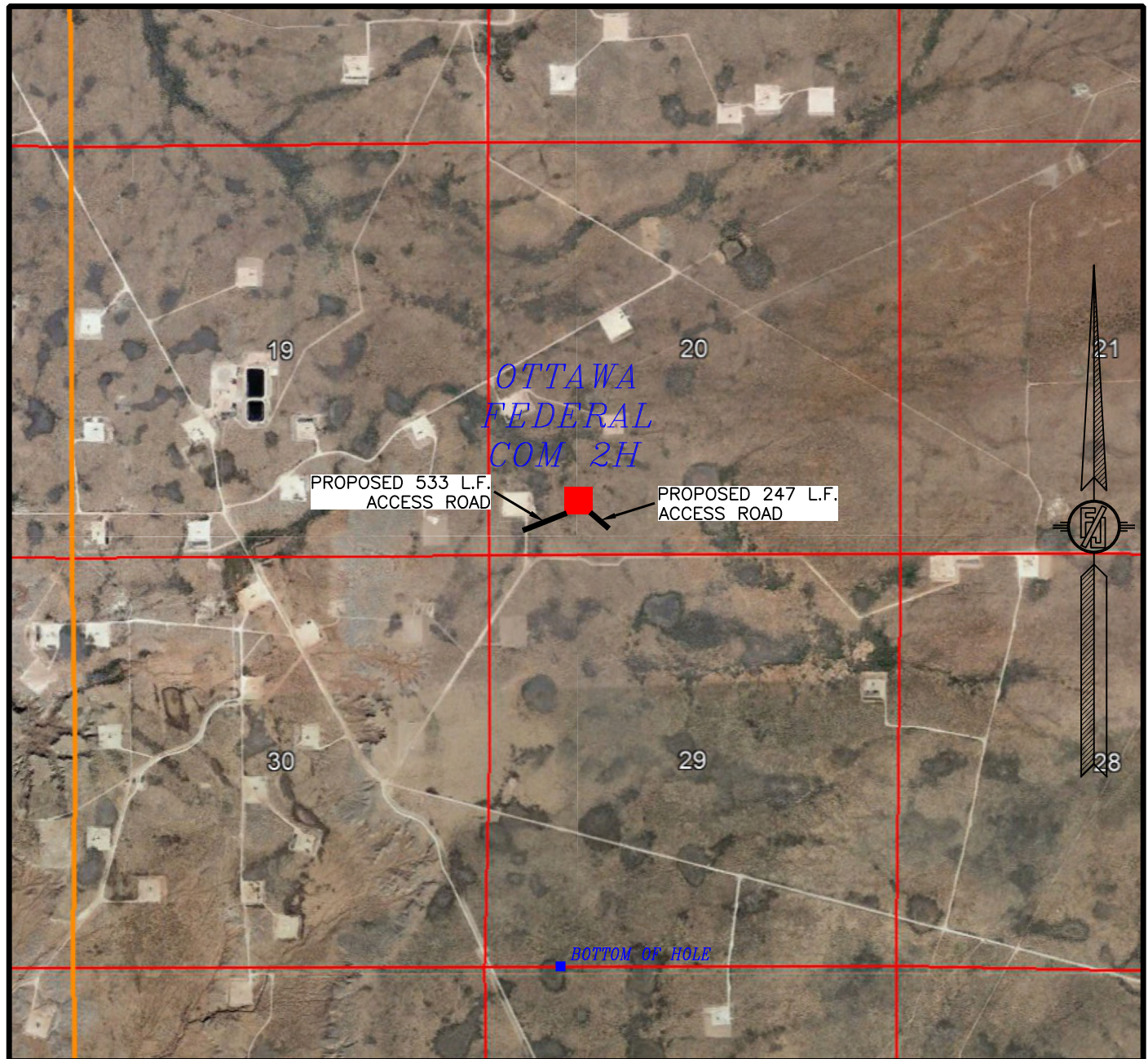
OCTOBER 23, 2023

MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3327SURVEY NO. 9842A  
CARLSBAD, NEW MEXICO



SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
**AERIAL PHOTO**



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUN. 2019

**MACK ENERGY CORPORATION**  
**OTTAWA FEDERAL COM 2H**  
LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

OCTOBER 23, 2023

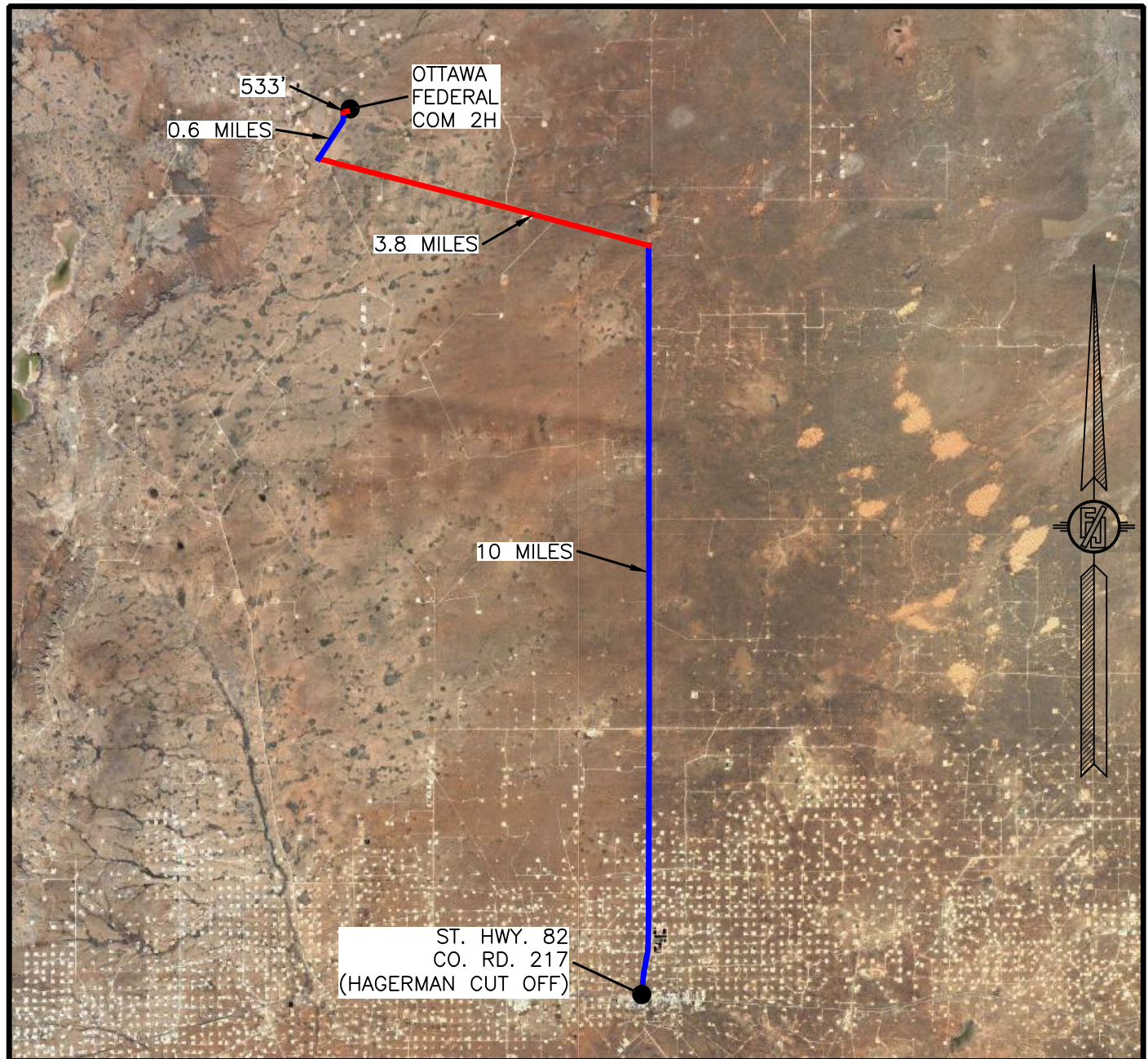
MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3327

SURVEY NO. 9842A  
CARLSBAD, NEW MEXICO



SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
AERIAL ACCESS ROUTE MAP



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUN. 2019

**MACK ENERGY CORPORATION**  
**OTTAWA FEDERAL COM 2H**  
LOCATED 700 FT. FROM THE SOUTH LINE  
AND 1190 FT. FROM THE WEST LINE OF  
SECTION 20, TOWNSHIP 15 SOUTH,  
RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

OCTOBER 23, 2023

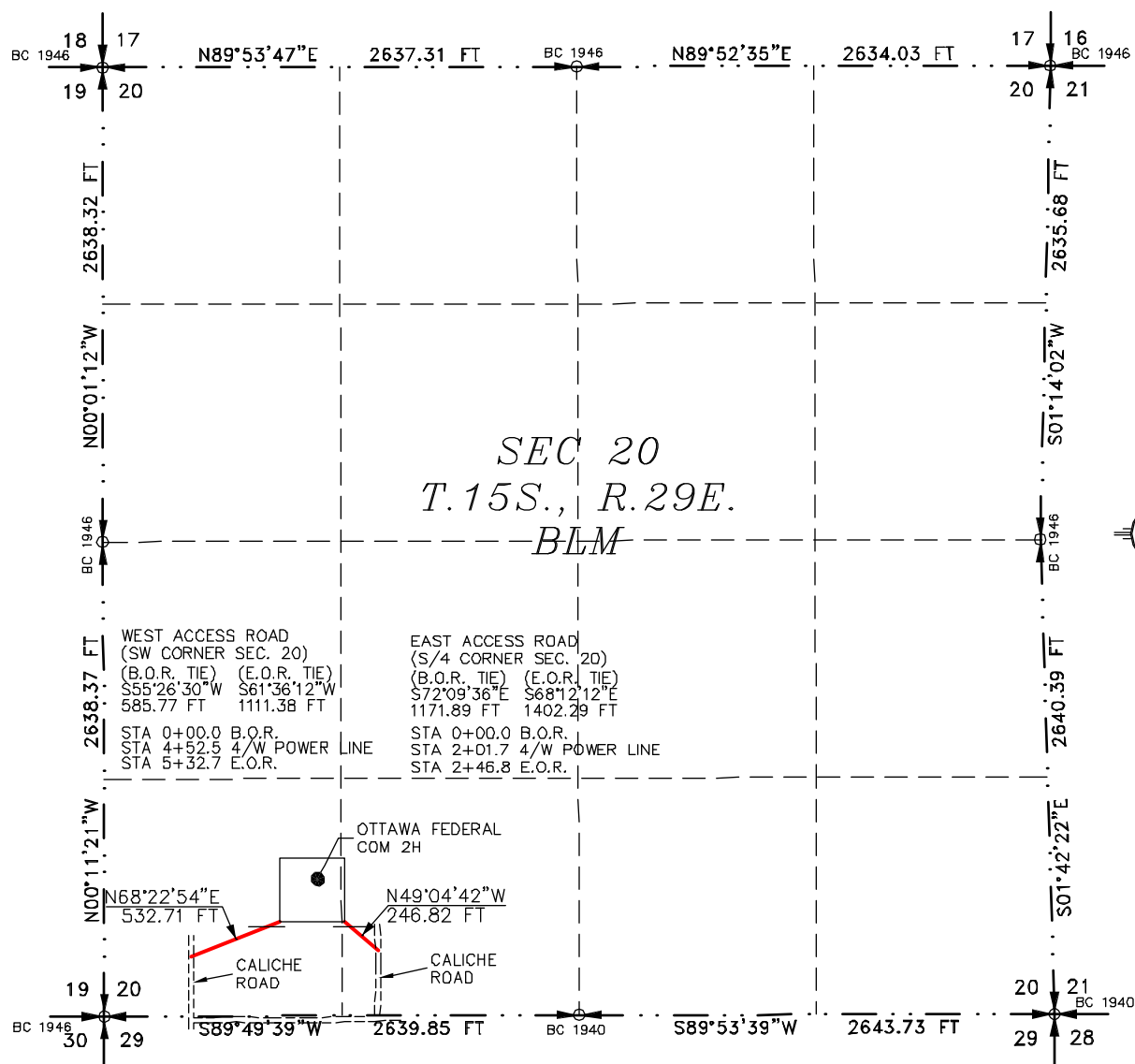
SURVEY NO. 9842A

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

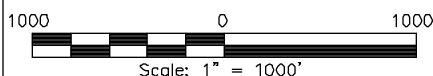
CARLSBAD, NEW MEXICO

**ACCESS ROAD PLAT**  
ACCESS ROAD FOR OTTAWA FEDERAL COM 2H

**MACK ENERGY CORPORATION**  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
OCTOBER 23, 2023



SEE NEXT SHEET (2-2) FOR DESCRIPTION



**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: 1-2

**MADRON SURVEYING, INC.**

**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 30th DAY OF OCTOBER 2023.

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

SURVEY NO. 9842A

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



**ACCESS ROAD PLAT**  
**ACCESS ROAD FOR OTTAWA FEDERAL COM 2H**

**MACK ENERGY CORPORATION**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.**  
**CHAVES COUNTY, STATE OF NEW MEXICO**  
**OCTOBER 23, 2023**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., CHAVES COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

**WEST ACCESS ROAD**

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S55°26'30"W, A DISTANCE OF 585.77 FEET;  
 THENCE N68°22'54"E A DISTANCE OF 532.71 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S61°36'12"W, A DISTANCE OF 1111.38 FEET;

SAID STRIP OF LAND BEING 532.71 FEET OR 32.29 RODS IN LENGTH, CONTAINING 0.367 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4    532.71 L.F.    32.29 RODS    0.367 ACRES

**EAST ACCESS ROAD**

BEGINNING AT A POINT WITHIN THE SE/4 SW/4 OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S72°09'36"E, A DISTANCE OF 1171.89 FEET;  
 THENCE N49°04'42"W A DISTANCE OF 246.82 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 20, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. BEARS S68°12'12"E, A DISTANCE OF 1402.29 FEET;

SAID STRIP OF LAND BEING 246.82 FEET OR 14.96 RODS IN LENGTH, CONTAINING 0.170 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SE/4 SW/4    246.82 L.F.    14.96 RODS    0.170 ACRES

**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.

**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 23<sup>RD</sup> DAY OF OCTOBER 2023.

FILIMON F. JARAMILLO  
 12797  
 MADRON SURVEYING, INC.  
 301 SOUTH CANAL  
 CARLSBAD, NEW MEXICO 88220  
 Phone (575) 234-3327

SURVEY NO. 9842A

SHEET: 2-2

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

State of New Mexico  
Energy, Minerals and Natural Resources DepartmentSubmit Electronically  
Via E-permittingOil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505**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:** 9 / 18 / 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
Ottawa Federal Com 2H		M Sec 20 T15S R29E	700 FSL 1190 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
Ottawa Federal Com 2H		2/1/2024	2/20/2024	7/31/2024	7/31/2024	7/1/2024

**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:	9/18/2023
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

05/17/2024

APD ID: 10400094568

Submission Date: 10/31/2023

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COM

Well Number: 2H

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
13450138	QUATERNARY	0	118	118	ALLUVIUM	NONE	N
13450139	TOP OF SALT	-190	190	190	SALT	NONE	N
13450140	BASE OF SALT	-810	810	810	SALT	NONE	N
13450141	YATES	-838	838	838	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450137	SEVEN RIVERS	-1072	1072	1072	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450144	QUEEN	-1562	1562	1562	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450142	GRAYBURG	-1956	1956	1956	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
13450143	SAN ANDRES	-2269	2269	2269	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 8806

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 minutes without a test plug. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1524 psig (0.052\*3187'TVD\*9.2ppg) less than 2900 bottom hole pressure. Will test to 2000psi for 30mins.

**Choke Diagram Attachment:**

NEW\_Choke\_Manifold\_3M\_20230918152436.pdf

**BOP Diagram Attachment:**

NEW\_BOP\_3M\_20230918152446.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COMWell Number: 2H

NEW\_Choke\_Manifold\_3M\_20230918152436.pdf

NEW\_BOP\_3M\_20230918152446.pdf

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	190	0	190	3760	3570	190	J-55	48	ST&C	7.802	4.703	BUOY	55.652	BUOY	4.74
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1200	0	1200	3760	2560	1200	J-55	36	LT&C	3.237	7.04	BUOY	10.768	BUOY	7.04
3	PRODUCTION	8.75	7.0	NEW	API	N	0	2275	0	2275	3760	1485	2275	HCP-110	26	LT&C	6.214	3.343	BUOY	6.845	BUOY	3.317
4	PRODUCTION	8.75	7.0	NEW	API	N	2275	3350	2275	3123	1485	637	1075	HCP-110	26	LT&C	4.265	3.356	BUOY	8.425	BUOY	3.343
5	PRODUCTION	8.75	5.5	NEW	API	N	3350	8806	3123	3187	637	573	5456	HCP-110	17	BUTT	5.076	3.658	BUOY	7.256	BUOY	3.588

Casing Attachments

Casing ID: 1StringSURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surface\_Csg\_20231031100230.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COM

Well Number: 2H

Casing Attachments

Casing ID: 2	String	INTERMEDIATE
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Inter_Csg_20231031100318.pdf		
Casing ID: 3	String	PRODUCTION
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Production_Csg_20231031100356.pdf		
Casing ID: 4	String	PRODUCTION
Inspection Document:		
Spec Document:		
Tapered String Spec:		
Casing Design Assumptions and Worksheet(s):		
Production_Csg_20231031100423.pdf		

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COM

Well Number: 2H

Casing Attachments

Casing ID: 5      String      PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Production\_Csg\_20231031100606.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	190	100	1.61	14.4	160		RFC+12%PF53+2%PF1+5ppsPF42+.125ppsPF29	20bbls Gelled Water 50sx of 11# scavenger Cement
SURFACE	Tail		0	190	250	1.34	14.8	160	100	Class C+1%PF1	20bbls Gelled Water 50sx of 11# Scavenger Cement
INTERMEDIATE	Lead		0	1200	220	1.72	13.5	417	100	Class C+45PF20+.4ppsPF45+.125PF29	20bbls Gelled Water 50sx of 11# Scavenger Cement
INTERMEDIATE	Tail		0	1200	200	1.34	14.8	417	100	Class C+1% PF 1	20bbls Gelled Water 50sx of 11# Scavenger Cement
PRODUCTION	Lead		0	8806	275	2.82	13.5	2205	35	Class C 4% PF20+4ppsPF45+125ppsPF29	20bbls Gelled Water 20bbls Chemical Wash 50sx of 11# Scavenger Cement

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COM

Well Number: 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		0	8806	1710	1.34	14.2	2205	35	50/50 POZ C + 5% (BWOW) PF44+2%PF204+.2%PF606+.1%PF153+.4ppsPF44	20bbls Gelled Water 20bbls Chemical Wash 50sx of 11# Scavenger Cement

### Section 5 - Circulating Medium

Mud System Type: Closed

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: Pason PVT with Pit 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	190	SPUD MUD	8.5	10	74.8	0.1	11		160000	15	
0	1200	LSND/GEL	8.3	9.2	74.8	0.1	11		160000	15	
0	8763	LSND/GEL	8.3	9.2	74.8	0.1	11		160000	15	The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1518psig (0.052*3175'TVD*9.2ppg) less than 2900 bottom hole pressure.



**Operator Name:** MACK ENERGY CORPORATION**Well Name:** OTTAWA FEDERAL COM**Well Number:** 2H

## 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:** 1524**Anticipated Surface Pressure:** 823**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\_20231030143807.pdf

KOP\_20231030143813.pdf

Gas\_Management\_20231030143822.pdf

Drill\_Plan\_20231031102019.pdf

H2S\_Plan\_20231031102026.pdf

Ottawa\_Federal\_Com\_\_2H\_Preliminary\_Horizontal\_Well\_Plan\_\_1\_20231031092641.pdf

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

CCC\_\_Rig\_6\_20230919082743.pdf

Cactus\_Wellhead\_installation\_Procedure\_20230919082757.pdf

Choke\_Hose\_Cert\_20230919082808.pdf

**Operator Name:** MACK ENERGY CORPORATION

**Well Name:** OTTAWA FEDERAL COM

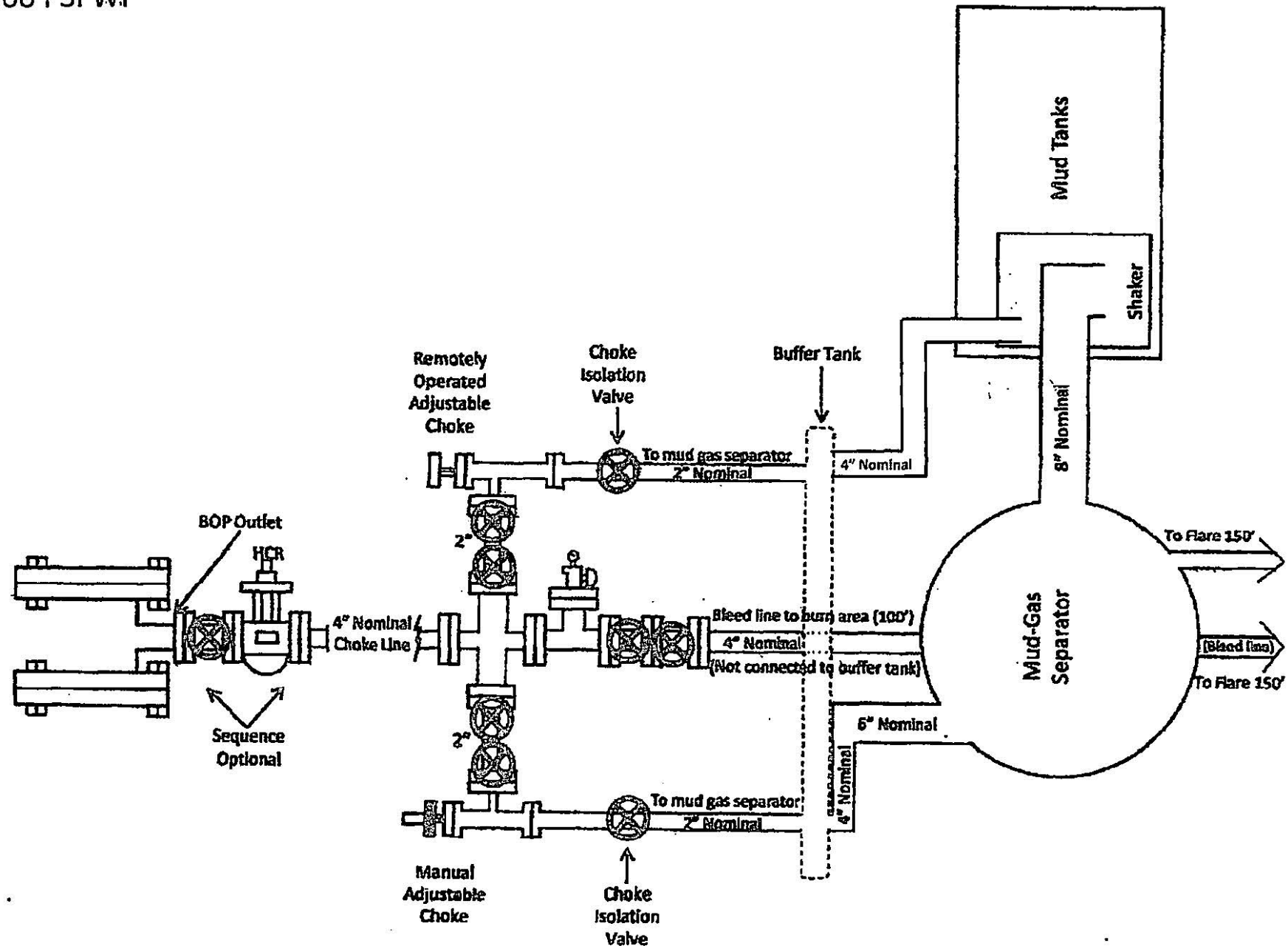
**Well Number:** 2H

Variance\_request\_20230919082913.pdf

CONFIDENTIAL

# Choke Manifold

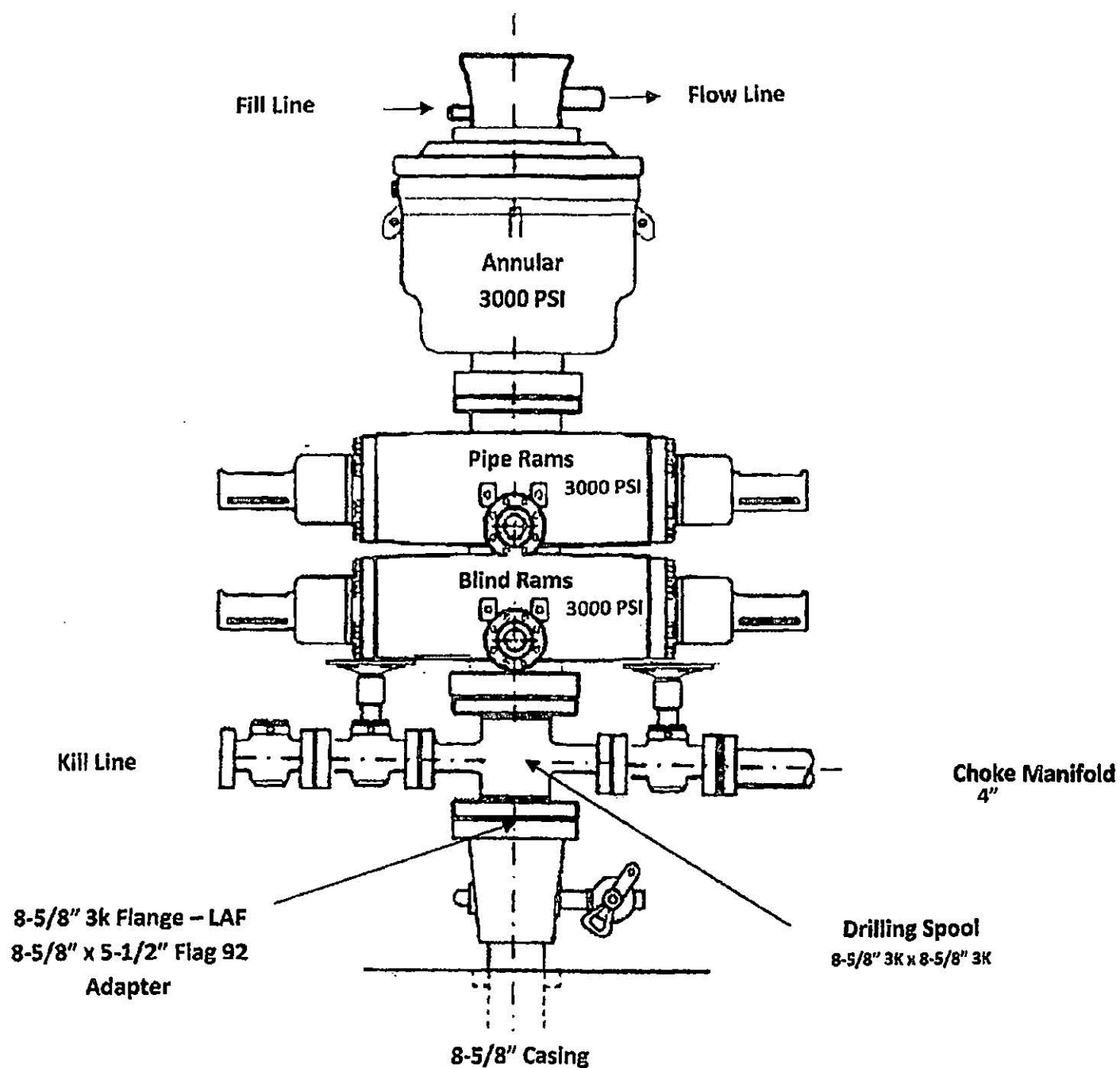
3000 PSI WP



**BOP Diagram**

Dual Ram BOP

3000 PSI WP



Casing Design Well: Ottawa Federal Com #2H (Revised)

String Size & Function: 7"x 5 1/2" in Production x

Total Depth: 8806 ft TVD: 3187 ft

Pressure Gradient for Calculations			(While drilling)		
Mud weight, <u>collapse</u> :	<u>10.2</u>	#/gal	Safety Factor Collapse:	<u>1.125</u>	
Mud weight, <u>burst</u> :	<u>10.2</u>	#/gal	Safety Factor Burst:	<u>1.25</u>	
Mud weight for joint strength:	<u>10.2</u>	#/gal	Safety Factor Joint Strength	<u>1.8</u>	
BHP @ TD for: collapse: <u>1690.385</u> psi			Burst: <u>1690.385</u> psi, joint strength: <u>1690.385</u>		

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment 8806 ft to 3350 ft Make up Torque ft-lbs Total ft = 5456

O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
8,580 psi	10,640 psi-lrcr	568 ,000 #	546 ,000 #	4.767		

2nd segment 3350 ft to 2275 ft Make up Torque ft-lbs Total ft = 1075

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	Buttress	6,930	5,200	8,660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
7,800 psi	9,950 psi-lrcr	853 ,000 #	830 ,000 #	6.151		

3rd segment 2275 ft to 0 ft Make up Torque ft-lbs Total ft = 2275

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	LT&C	6930	5200	8660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
7,800 psi	9,950 psi	693 ,000 #	830 ,000 #	6.151		

4th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

5th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

6th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

Select	1st segment bottom	8806	S.F.	Actual	Desire
			collapse	5.075767	>= 1.125
	8806 ft to 3350 ft		burst-b	3.658347	>= 1.25
	5.5 26 HCP-110 Buttress		burst-t	3.588339	
	Top of segment 1 (ft)	3350	S.F.	Actual	Desire
Select	2nd segment from bottom		collapse	4.263935	>= 1.125
			burst-b	3.355637	>= 1.25
	3350 ft to 2275 ft		burst-t	3.343032	
	7 26 HCP-110 Buttress		jnt strngth	7.256271	>= 1.8

Top of segment 2 (ft)		2275	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	6.212304	>=	1.125
			burst-b	3.343032	>=	1.25
			burst-t	3.316667		
			jnt strngth	8.373808	>=	1.8
Top of segment 3 (ft)		0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	6.80311	>=	1.8
Top of segment 4 (ft)			S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
Top of segment 5 (ft)			S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
Top of segment 6 (ft)			jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation: 1,200 ft

516 psi @ 1,200 ft

Top of salt: 2,400 ft

fx #1 516

Base of salt: 3,700 ft

fx #2 900

TD of intermediate: 4,600 ft

fx #3 540

Pressure gradient to be used above each top to be used as a function of depth. ex. psi/ft

fx #1

fx #2

fx #3

0.43

0.75

0.45

- 1) Calculate neutral point for buckling with temperature affects computed also
- 2) Surface burst calculations & kick tolerance in surface pressure for burst
- 3) Do a comparison test to determine which value is lower joint strength or body yield to use in tensile strength calculations
- 4) Raise joint strength safety factor up to next level on page #2
- 5) Sour service what pipe can be used with proper degrading of strength factors and as function of temp

Adjust for best combination of safety factors

		Secondary
S.F. Collapse bottom of segment:		
S.F. Collapse top of segment:	4.60231	
S.F. Burst bottom of segment:		
S.F. Burst top of segment		
S.F. Joint strength bottom of segment:	795.518	
S.F. Joint strength top of segment:		
S.F. Body yield strength bottom of segment:	764.706	
S.F. Body yield strength top of segment:	6.97522	

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.84394	
calculations for bottom of segment @	3187 ft	
hydrostatic pressure collapse - backside:	1690.38 psi	
Axial load @ bottom of section	0 lbs	previous segments
Axial load factor:	0	load/(pipe body yield strength)
Collapse strength reduction factor:	1	Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580 psi	
Actual safety factor	5.07577	adjusted casing rating / actual pressure



Casing Design Well: Ottawa Federal Com #2H (Revised)

String Size & Function: 7"x 5 1/2" in Production x

Total Depth: 8806 ft TVD: 3187 ft

Pressure Gradient for Calculations				(While drilling)	
Mud weight, collapse:	10.2	#/gal	Safety Factor Collapse:	1.125	
Mud weight, burst:	10.2	#/gal	Safety Factor Burst:	1.25	
Mud weight for joint strength:	10.2	#/gal	Safety Factor Joint Strength	1.8	
BHP @ TD for:	collapse:	1690.385	psi	Burst:	1690.385
				joint strength:	1690.385
					psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment 8806 ft to 3350 ft Make up Torque ft-lbs Total ft = 5456

O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
8,580 psi	10,640 psi-lrcr	568 ,000 #	546 ,000 #		4.767	

2nd segment 3350 ft to 2275 ft Make up Torque ft-lbs Total ft = 1075

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	Buttress	6,930	5,200	8,660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
7,800 psi	9,950 psi-lrcr	853 ,000 #	830 ,000 #		6.151	

3rd segment 2275 ft to 0 ft Make up Torque ft-lbs Total ft = 2275

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	LT&C	6930	5200	8660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
7,800 psi	9,950 psi	693 ,000 #	830 ,000 #		6.151	

4th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

5th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

6th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield		Drift	
psi	psi	,000 #	,000 #			

Select	1st segment bottom	8806	S.F.	Actual	Desire
			collapse	5.075767	>= 1.125
	8806 ft to 3350 ft		burst-b	3.658347	>= 1.25
	5.5 26 HCP-110 Buttress		burst-t	3.588339	
	Top of segment 1 (ft)	3350	S.F.	Actual	Desire
Select	2nd segment from bottom		collapse	4.263935	>= 1.125
			burst-b	3.355637	>= 1.25
	3350 ft to 2275 ft		burst-t	3.343032	
	7 26 HCP-110 Buttress		jnt strngth	7.256271	>= 1.8

Top of segment 2 (ft)		2275	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	6.212304	>=	1.125
			burst-b	3.343032	>=	1.25
			burst-t	3.316667		
			jnt strngth	8.373808	>=	1.8
Top of segment 3 (ft)		0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	6.80311	>=	1.8
Top of segment 4 (ft)			S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
Top of segment 5 (ft)			S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
Top of segment 6 (ft)			jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation: 1,200 ft

516

psi @ 1,200 ft

Top of salt: 2,400 ft

fx #1

516

Base of salt: 3,700 ft

fx #2

900

TD of intermediate: 4,600 ft

fx #3

540

Pressure gradient to be used above each top to be used as a function of depth. ex. psi/ft

fx #1

fx #2

fx #3

0.43

0.75

0.45

- 1) Calculate neutral point for buckling with temperature affects computed also
- 2) Surface burst calculations & kick tolerance in surface pressure for burst
- 3) Do a comparison test to determine which value is lower joint strength or body yield to use in tensile strength calculations
- 4) Raise joint strength safety factor up to next level on page #2
- 5) Sour service what pipe can be used with proper degrading of strength factors and as function of temp

Adjust for best combination of safety factors

		Secondary
S.F. Collapse bottom of segment:		
S.F. Collapse top of segment:		4.60231
S.F. Burst bottom of segment:		
S.F. Burst top of segment		
S.F. Joint strength bottom of segment:		795.518
S.F. Joint strength top of segment:		
S.F. Body yield strength bottom of segment:		764.706
S.F. Body yield strength top of segment:		6.97522

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.84394	
calculations for bottom of segment @	3187 ft	
hydrostatic pressure collapse - backside:	1690.38 psi	
Axial load @ bottom of section	0 lbs	previous segments
Axial load factor:	0	load/(pipe body yield strength)
Collapse strength reduction factor:	1	Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580 psi	
Actual safety factor	5.07577	adjusted casing rating / actual pressure

Casing Design Well: Ottawa Federal Com #2H (Revised)

String Size & Function: 7"x 5 1/2" in Production x

Total Depth: 8806 ft TVD: 3187 ft

Pressure Gradient for Calculations				(While drilling)	
Mud weight, collapse:	10.2	#/gal	Safety Factor Collapse:	1.125	
Mud weight, burst:	10.2	#/gal	Safety Factor Burst:	1.25	
Mud weight for joint strength:	10.2	#/gal	Safety Factor Joint Strength	1.8	
BHP @ TD for:	collapse:	1690.385	psi	Burst:	1690.385
				joint strength:	1690.385
				psi	

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

1st segment 8806 ft to 3350 ft Make up Torque ft-lbs Total ft = 5456

O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	17 #/ft	HCP-110	Buttress	4,620	3,470	5,780
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
8,580 psi	10,640 psi-lrcr	568 ,000 #	546 ,000 #	4.767		

2nd segment 3350 ft to 2275 ft Make up Torque ft-lbs Total ft = 1075

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	Buttress	6,930	5,200	8,660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
7,800 psi	9,950 psi-lrcr	853 ,000 #	830 ,000 #	6.151		

3rd segment 2275 ft to 0 ft Make up Torque ft-lbs Total ft = 2275

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	HCP-110	LT&C	6930	5200	8660
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
7,800 psi	9,950 psi	693 ,000 #	830 ,000 #	6.151		

4th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

5th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

6th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	Internal Yield	Joint Strength	Body Yield	Drift		
psi	psi	,000 #	,000 #			

Select	1st segment bottom	8806	S.F.	Actual	Desire
			collapse	5.075767	>= 1.125
	8806 ft to 3350 ft		burst-b	3.658347	>= 1.25
	5.5 26 HCP-110 Buttress		burst-t	3.588339	
	Top of segment 1 (ft)	3350	S.F.	Actual	Desire
Select	2nd segment from bottom		collapse	4.263935	>= 1.125
			burst-b	3.355637	>= 1.25
	3350 ft to 2275 ft		burst-t	3.343032	
	7 26 HCP-110 Buttress		jnt strngth	7.256271	>= 1.8

Top of segment 2 (ft)		2275	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	6.212304	>=	1.125
			burst-b	3.343032	>=	1.25
			burst-t	3.316667		
			jnt strngth	8.373808	>=	1.8
2275 ft to 0 ft						
7 26 HCP-110 LT&C						
Top of segment 3 (ft)		0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	6.80311	>=	1.8
0 ft to 0 ft						
0 0 0 0						
Top of segment 4 (ft)			S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
0 ft to ft						
0 0 0 0						
Top of segment 5 (ft)			S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
			burst-t	0		
			jnt strngth	0	>=	1.8
0 ft to ft						
0 0 0 0						
Top of segment 6 (ft)			jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation: 1,200 ft

516 psi @ 1,200 ft

Top of salt: 2,400 ft

fx #1 516

Base of salt: 3,700 ft

fx #2 900

TD of intermediate: 4,600 ft

fx #3 540

Pressure gradient to be used above each top to be used as a function of depth. ex. psi/ft

fx #1

fx #2

fx #3

0.43

0.75

0.45

- 1) Calculate neutral point for buckling with temperature affects computed also
- 2) Surface burst calculations & kick tolerance in surface pressure for burst
- 3) Do a comparison test to determine which value is lower joint strength or body yield to use in tensile strength calculations
- 4) Raise joint strength safety factor up to next level on page #2
- 5) Sour service what pipe can be used with proper degrading of strength factors and as function of temp

Adjust for best combination of safety factors

		Secondary
S.F. Collapse bottom of segment:		
S.F. Collapse top of segment:	4.60231	
S.F. Burst bottom of segment:		
S.F. Burst top of segment		
S.F. Joint strength bottom of segment:	795.518	
S.F. Joint strength top of segment:		
S.F. Body yield strength bottom of segment:	764.706	
S.F. Body yield strength top of segment:	6.97522	

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.84394	
calculations for bottom of segment @	3187 ft	
hydrostatic pressure collapse - backside:	1690.38 psi	
Axial load @ bottom of section	0 lbs	previous segments
Axial load factor:	0	load/(pipe body yield strength)
Collapse strength reduction factor:	1	Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580 psi	
Actual safety factor	5.07577	adjusted casing rating / actual pressure

Casing DesignWell: Ottawa Federal Com #2H (Revised)

String Size & Function:9 5/8 in      surface      intermediate x

Total Depth:1200 ft      TVD:1200 ft

Pressure Gradient for Calculations(While drilling)

Mud weight, collapse:10 #/gal      Safety Factor Collapse:1.125

Mud weight, burst:10 #/gal      Safety Factor Burst:1.25

Mud weight for joint strength:10 #/gal      Safety Factor Joint Strength1.8

BHP @ TD for:collapse:624 psi      Burst:624 psi,      joint strength:624 psi

Partially evacuated hole?      Pressure gradient remaining:10 #/gal

Max. Shut in surface pressure:500 psi

1st segment	1200 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	1200
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
9.625 inches	36 #/ft	J-55	LT&C	3,940	2,960	4,930		
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
2,020 psi	3,520 psi	394 ,000 #		564 ,000 #		8.765		

2nd segment	ft	to	ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

3rd segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

4th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

5th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

6th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

Select	1st segment bottom	1200	S.F.	Actual	Desire
			collapse	3.237179	>= 1.125
	1200 ft to 0 ft		burst-b	7.04	>= 1.25
	9.625 0 J-55 LT&C		burst-t	7.04	
	Top of segment 1 (ft)	0	S.F.	Actual	Desire
Select	2nd segment from bottom		collapse	#DIV/0!	>= 1.125
			burst-b	0	>= 1.25
	0 ft to 0 ft		burst-t	0	
	0 0 0 0		jnt strngth	10.76785	>= 1.8

Casing DesignWell: Ottawa Federal Com #2H (Revised)

String Size & Function:13 3/8 in surface x intermediate

Total Depth:190 ft

Pressure Gradient for Calculations(While drilling)

Mud weight, collapse:9.6 #/galSafety Factor Collapse:1.125

Mud weight, burst:9.6 #/galSafety Factor Burst:1.25

Mud weight for joint strength:9.6 #/galSafety Factor Joint Strength1.8

BHP @ TD for:collapse:94.848 psiBurst:94.848 psi, joint strength:94.848 psi

Partially evacuated hole?Pressure gradient remaining:10 #/gal

Max. Shut in surface pressure:500 psi

1st segment	190 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	190
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
13.375 inches	48 #/ft	J-55	ST&C	3,220	2,420	4,030		
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
740	2,370 psi	433 ,000 #		744 ,000 #		12.559		

2nd segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

3rd segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

4th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

5th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

6th segment	0 ft	to	0 ft	Make up Torque ft-lbs			Total ft =	0
O.D.	Weight	Grade	Threads	opt.	min.	mx.		
inches	#/ft							
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift		
psi	psi	,000 #		,000 #				

Select	1st segment bottom	190	S.F.	Actual	Desire
			collapse	7.801957	>= 1.125
	190 ft to 0 ft		burst-b	4.702829	>= 1.25
	13.375 0 J-55 ST&C		burst-t	4.74	
	Top of segment 1 (ft)	0	S.F.	Actual	Desire
Select	2nd segment from bottom		collapse	#DIV/0!	>= 1.125
			burst-b	0	>= 1.25
	0 ft to 0 ft		burst-t	0	
	0 0 0 0		jnt strngth	55.65228	>= 1.8

Attached to Form 5160-3

Mack Energy Corporation

Ottawa Federal Com #2H NMNM-131583

SHL : 700 FSL &amp; 1190 FWL, SWSW, Sec. 20 T15S R29E

BHL : 1 FSL &amp; 990 FWL, SWSW, Sec. 29 T15S R29E

Chaves County, NM

---

## DRILLING PROGRAM

**1. Geologic Name of Surface Formation**

Quaternary

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

Top of Salt	190'
Base of Salt	810'
Yates	838'
Seven Rivers	1072'
Queen	1562'
Grayburg	1956'
San Andres	2269'

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

Water Sand	150'	Fresh Water
Yates	838'	Oil/Gas
Seven Rivers	1072'	Oil/Gas
Queen	1562'	Oil/Gas
Grayburg	1956'	Oil/Gas
San Andres	2269'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 190' 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"	0-190'	13 3/8"	48#, J-55, ST&C, New, 7.801957/4.702829/4.74

Attached to Form 5160-3

Mack Energy Corporation

Ottawa Federal Com #2H NMNM-131583

SHL : 700 FSL &amp; 1190 FWL, SWSW, Sec. 20 T15S R29E

BHL : 1 FSL &amp; 990 FWL, SWSW, Sec. 29 T15S R29E

Chaves County, NM

12 1/4"	0-1,200'	9 5/8"	36#, J-55, LT&C, New, 3.237179/7.04/7.04
8 3/4"	0-2,275'	7"	26#, HCP-110, LT&C, New, 6.214105/3.343032/3.316667
8 3/4"	2,275-3,350'	7"	26#, HCP-110, Buttress, New, 4.26507, 3.355637, 3.343032
8 3/4"	3,350-8,806'	5 1/2"	17#, HCP-110, Buttress, New, 5.075767/3.658347/3.588339

*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:

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: 250sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%

9 5/8" Intermediate Casing: Lead 220sx, Class C + 45 F20 + .4pps PF45+.125 PF29, yld 1.72, wt 13.5 ppg, 9.102 gals/sx, excess 100%, Slurry Top- Surface. Tail: 200sx, Class C + 1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, excess 100%, Slurry Top- Surface

7" & 5 1/2" Production Casing: Lead 275sx Class C 4% PF 20+4 pps PF45 +125pps PF29, yld 2.82, wt 13.5 ppg, 16.421gals/sx, excess 35%, Slurry Top- Surface. Tail: 1710sx, 50/50 POZ C + 5% (BWOW) PF 44 + 2% PF 204+ .2% PF606 + .1% PF153+ .4pps PF44, yld 1.34, wt 14.2, 6.091gals/sx, 35% excess, Slurry Top- 2,100'.

## 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
0-190'	Fresh Water	8.5	28	N.C.
190'-1,200'	Cut Brine	9.1	29	N.C.
1,200-8,806'	Cut Brine	9.1	29	N.C.



Attached to Form 5160-3

Mack Energy Corporation

Ottawa Federal Com #2H NMNM-131583

SHL : 700 FSL &amp; 1190 FWL, SWSW, Sec. 20 T15S R29E

BHL : 1 FSL &amp; 990 FWL, SWSW, Sec. 29 T15S R29E

Chaves County, NM

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:**

- 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 1524 psig (0.052\*3187' TVD\*9.2ppg). 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 February 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**  
**Ottawa Federal Com #2H**  
**Chaves 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.

Attached to Form 5160-3

**Mack Energy Corporation**

**Ottawa Federal Com #2H NMNM-131583**

**SHL : 700 FSL & 1190 FWL, SWSW, Sec. 20 T15S R29E**

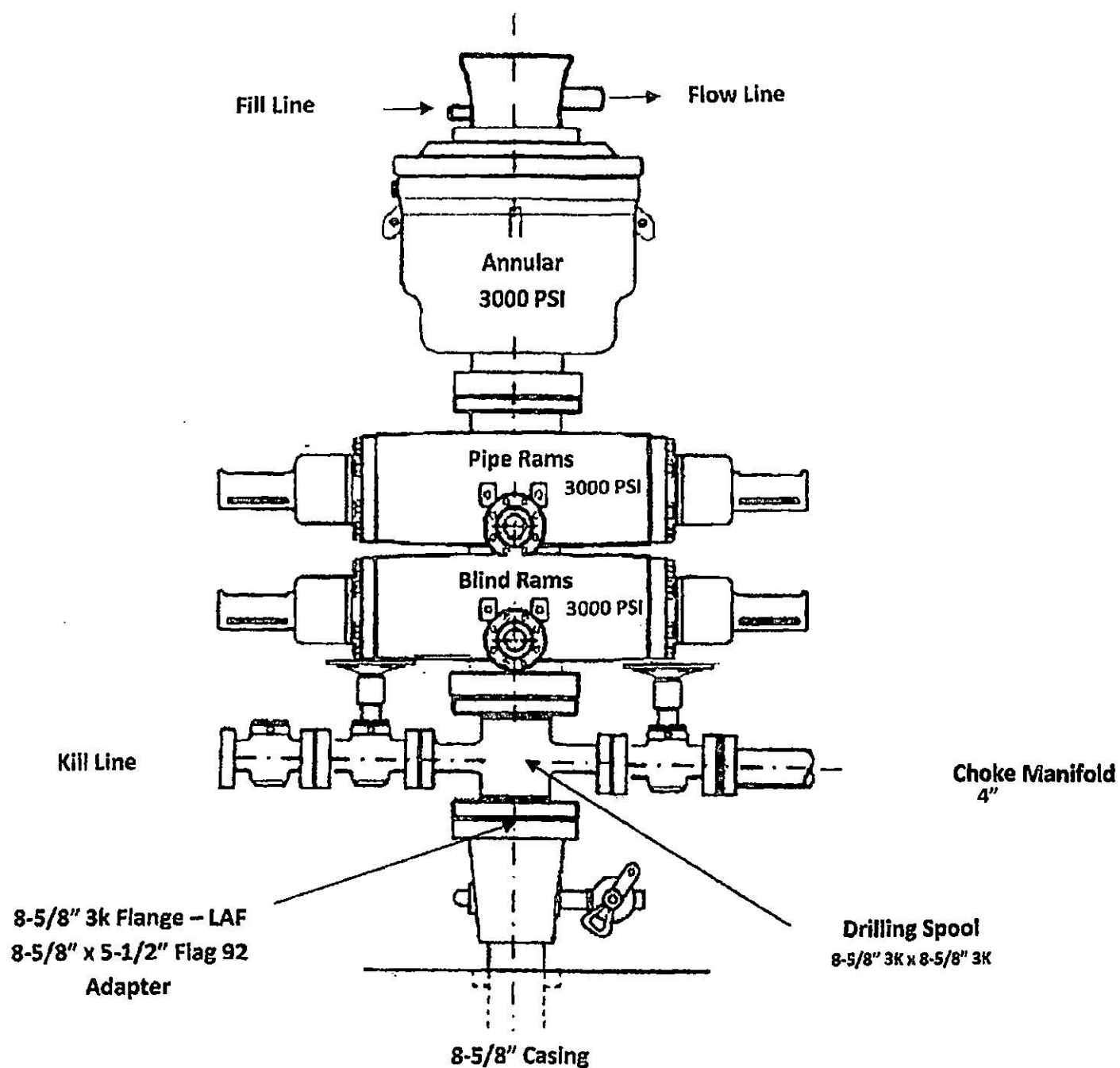
**BHL : 1 FSL & 990 FWL, SWSW, Sec. 29 T15S R29E**

**Chaves County, NM**

- 
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.
  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.

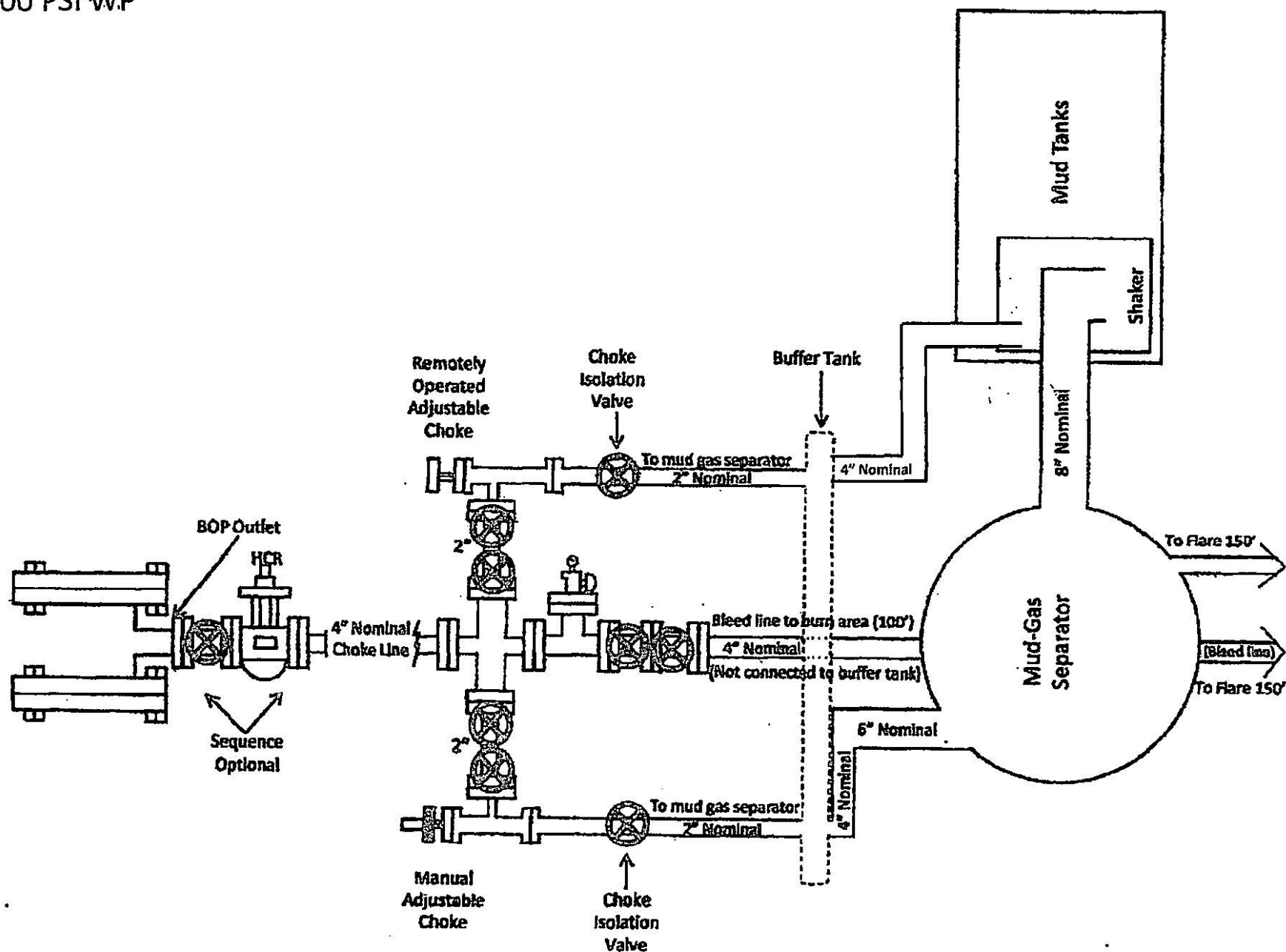
**BOP Diagram**

Dual Ram BOP  
3000 PSI WP



# Choke Manifold

3000 PSI WP



## Ottawa Federal Com #2H, Plan 1

<b>Operator</b>	Mack Energy Corporation	<b>Units</b>	feet, °/100ft	09:11 Tuesday, October 31, 2023	Page 1 of 4
<b>Field</b>	Round Tank	<b>County</b>	Chaves	<b>Vertical Section Azimuth</b>	180.63
<b>Well Name</b>	Ottawa Federal Com #2H	<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: 700 FSL & 1190 FWL Section 20-T15S-R29E BHL: 1 FSL & 990 FWL Section 29-T15S-R29E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1930085.5	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11978445	<b>Surface Lat</b>	
<b>Well Number</b>	2H	<b>API</b>		<b>Surface Z</b>	3781	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3763.5	<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 = 2280.00)										
2280.00	0.00	0.0	2280.00	0.00	0.00		0.00	1930085.50	11978445.00	1501.00
2300.00	0.00	0.0	2300.00	0.00	0.00	0.00	0.00	1930085.50	11978445.00	1481.00
2350.00	0.00	0.0	2350.00	0.00	0.00	0.00	0.00	1930085.50	11978445.00	1431.00
*** KOP 8 DEGREE (at MD = 2380.00)										
2380.00	0.00	0.0	2380.00	0.00	0.00	0.00	0.00	1930085.50	11978445.00	1401.00
2400.00	1.60	198.2	2400.00	-0.27	-0.09	8.00	0.27	1930085.41	11978444.73	1381.00
2450.00	5.60	198.2	2449.89	-3.25	-1.07	8.00	3.26	1930084.43	11978441.75	1331.11
2500.00	9.60	198.2	2499.44	-9.53	-3.13	8.00	9.56	1930082.37	11978435.47	1281.56
2550.00	13.60	198.2	2548.41	-19.08	-6.27	8.00	19.15	1930079.23	11978425.92	1232.59
2600.00	17.60	198.2	2596.56	-31.85	-10.47	8.00	31.96	1930075.03	11978413.15	1184.44
2650.00	21.60	198.2	2643.65	-47.78	-15.70	8.00	47.95	1930069.80	11978397.22	1137.35
2700.00	25.60	198.2	2689.46	-66.79	-21.95	8.00	67.03	1930063.55	11978378.21	1091.54
2750.00	29.60	198.2	2733.76	-88.80	-29.18	8.00	89.11	1930056.32	11978356.20	1047.24
2800.00	33.60	198.2	2776.34	-113.68	-37.35	8.00	114.09	1930048.15	11978331.32	1004.66
2850.00	37.60	198.2	2816.98	-141.33	-46.44	8.00	141.83	1930039.06	11978303.67	964.02
2900.00	41.60	198.2	2855.50	-171.60	-56.39	8.00	172.21	1930029.11	11978273.40	925.50
2950.00	45.60	198.2	2891.70	-204.35	-67.15	8.00	205.08	1930018.35	11978240.65	889.30
3000.00	49.60	198.2	2925.41	-239.42	-78.67	8.00	240.27	1930006.83	11978205.58	855.59
3050.00	53.60	198.2	2956.46	-276.64	-90.90	8.00	277.62	1929994.60	11978168.36	824.54
*** 55 DEGREE TANGENT (at MD = 3067.50)										
3067.50	55.00	198.2	2966.67	-290.14	-95.34	8.00	291.17	1929990.16	11978154.86	814.33
3100.00	55.00	198.2	2985.32	-315.43	-103.65	0.00	316.55	1929981.85	11978129.57	795.68
3150.00	55.00	198.2	3013.99	-354.34	-116.43	0.00	355.60	1929969.07	11978090.66	767.01
3200.00	55.00	198.2	3042.67	-393.26	-129.22	0.00	394.65	1929956.28	11978051.75	738.33
3250.00	55.00	198.2	3071.35	-432.17	-142.01	0.00	433.70	1929943.49	11978012.83	709.65
*** 10 DEGREE BUILD (at MD = 3267.50)										
3267.50	55.00	198.2	3081.39	-445.78	-146.48	0.00	447.37	1929939.02	11977999.22	699.61
3300.00	57.86	196.3	3099.36	-471.64	-154.51	10.00	473.31	1929930.99	11977973.36	681.64
3350.00	62.31	193.7	3124.29	-513.49	-165.72	10.00	515.28	1929919.78	11977931.51	656.71
3400.00	66.81	191.3	3145.77	-557.56	-175.47	10.00	559.45	1929910.03	11977887.44	635.23
3450.00	71.34	189.0	3163.62	-603.52	-183.69	10.00	605.50	1929901.81	11977841.48	617.38
3500.00	75.90	186.9	3177.72	-651.01	-190.31	10.00	653.06	1929895.19	11977793.99	603.28
3550.00	80.47	184.8	3187.96	-699.68	-195.28	10.00	701.79	1929890.22	11977745.32	593.04
3600.00	85.06	182.8	3194.26	-749.16	-198.57	10.00	751.30	1929886.93	11977695.84	586.74
3650.00	89.65	180.8	3196.56	-799.06	-200.16	10.00	801.22	1929885.34	11977645.94	584.44
*** LANDING POINT (at MD = 3655.01)										
3655.01	90.11	180.6	3196.57	-804.07	-200.22	10.00	806.22	1929885.28	11977640.93	584.43
3700.00	90.11	180.6	3196.49	-849.06	-200.72	0.00	851.22	1929884.79	11977595.94	584.51

## Ottawa Federal Com #2H, Plan 1

<b>Operator</b>	Mack Energy Corporation	<b>Units</b>	feet, °/100ft	09:11 Tuesday, October 31, 2023	Page 2 of 4
<b>Field</b>	Round Tank	<b>County</b>	Chaves	<b>Vertical Section Azimuth</b>	180.63
<b>Well Name</b>	Ottawa Federal Com #2H	<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: 700 FSL & 1190 FWL Section 20-T15S-R29E BHL: 1 FSL & 990 FWL Section 29-T15S-R29E			<b>Map Zone</b>	UTM	<b>Lat Long Ref</b>	
<b>Site</b>				<b>Surface X</b>	1930085.5	<b>Surface Long</b>	
<b>Slot Name</b>		<b>UWI</b>		<b>Surface Y</b>	11978445	<b>Surface Lat</b>	
<b>Well Number</b>	2H	<b>API</b>		<b>Surface Z</b>	3781	<b>Global Z Ref</b>	KB
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3763.5	<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
3750.00	90.11	180.6	3196.39	-899.06	-201.26	0.00	901.22	1929884.24	11977545.94	584.61
3800.00	90.11	180.6	3196.30	-949.05	-201.81	0.00	951.22	1929883.69	11977495.95	584.70
3850.00	90.11	180.6	3196.20	-999.05	-202.36	0.00	1001.22	1929883.14	11977445.95	584.80
3900.00	90.11	180.6	3196.10	-1049.05	-202.91	0.00	1051.22	1929882.59	11977395.95	584.90
3950.00	90.11	180.6	3196.01	-1099.05	-203.46	0.00	1101.22	1929882.04	11977345.95	584.99
4000.00	90.11	180.6	3195.91	-1149.04	-204.01	0.00	1151.22	1929881.49	11977295.96	585.09
4050.00	90.11	180.6	3195.82	-1199.04	-204.56	0.00	1201.22	1929880.94	11977245.96	585.18
4100.00	90.11	180.6	3195.72	-1249.04	-205.11	0.00	1251.22	1929880.39	11977195.96	585.28
4150.00	90.11	180.6	3195.62	-1299.03	-205.66	0.00	1301.22	1929879.84	11977145.97	585.38
4200.00	90.11	180.6	3195.53	-1349.03	-206.21	0.00	1351.22	1929879.29	11977095.97	585.47
4250.00	90.11	180.6	3195.43	-1399.03	-206.76	0.00	1401.22	1929878.74	11977045.97	585.57
4300.00	90.11	180.6	3195.34	-1449.02	-207.31	0.00	1451.22	1929878.19	11976995.98	585.66
4350.00	90.11	180.6	3195.24	-1499.02	-207.86	0.00	1501.22	1929877.64	11976945.98	585.76
4400.00	90.11	180.6	3195.14	-1549.02	-208.41	0.00	1551.22	1929877.09	11976895.98	585.86
4450.00	90.11	180.6	3195.05	-1599.01	-208.96	0.00	1601.22	1929876.54	11976845.99	585.95
4500.00	90.11	180.6	3194.95	-1649.01	-209.51	0.00	1651.21	1929875.99	11976795.99	586.05
4550.00	90.11	180.6	3194.86	-1699.01	-210.06	0.00	1701.21	1929875.44	11976745.99	586.14
4600.00	90.11	180.6	3194.76	-1749.00	-210.61	0.00	1751.21	1929874.89	11976696.00	586.24
4650.00	90.11	180.6	3194.66	-1799.00	-211.16	0.00	1801.21	1929874.34	11976646.00	586.34
4700.00	90.11	180.6	3194.57	-1849.00	-211.71	0.00	1851.21	1929873.79	11976596.00	586.43
4750.00	90.11	180.6	3194.47	-1899.00	-212.26	0.00	1901.21	1929873.24	11976546.00	586.53
4800.00	90.11	180.6	3194.38	-1948.99	-212.81	0.00	1951.21	1929872.69	11976496.01	586.62
4850.00	90.11	180.6	3194.28	-1998.99	-213.36	0.00	2001.21	1929872.14	11976446.01	586.72
4900.00	90.11	180.6	3194.18	-2048.99	-213.91	0.00	2051.21	1929871.59	11976396.01	586.82
4950.00	90.11	180.6	3194.09	-2098.98	-214.46	0.00	2101.21	1929871.04	11976346.02	586.91
5000.00	90.11	180.6	3193.99	-2148.98	-215.01	0.00	2151.21	1929870.49	11976296.02	587.01
5050.00	90.11	180.6	3193.90	-2198.98	-215.56	0.00	2201.21	1929869.94	11976246.02	587.10
5100.00	90.11	180.6	3193.80	-2248.97	-216.11	0.00	2251.21	1929869.39	11976196.03	587.20
5150.00	90.11	180.6	3193.70	-2298.97	-216.66	0.00	2301.21	1929868.84	11976146.03	587.30
5200.00	90.11	180.6	3193.61	-2348.97	-217.21	0.00	2351.21	1929868.29	11976096.03	587.39
5250.00	90.11	180.6	3193.51	-2398.96	-217.76	0.00	2401.21	1929867.74	11976046.04	587.49
5300.00	90.11	180.6	3193.42	-2448.96	-218.31	0.00	2451.21	1929867.19	11975996.04	587.58
5350.00	90.11	180.6	3193.32	-2498.96	-218.86	0.00	2501.21	1929866.64	11975946.04	587.68
5400.00	90.11	180.6	3193.22	-2548.95	-219.41	0.00	2551.21	1929866.09	11975896.05	587.78
5450.00	90.11	180.6	3193.13	-2598.95	-219.96	0.00	2601.21	1929865.54	11975846.05	587.87
5500.00	90.11	180.6	3193.03	-2648.95	-220.51	0.00	2651.21	1929864.99	11975796.05	587.97
5550.00	90.11	180.6	3192.94	-2698.95	-221.06	0.00	2701.21	1929864.44	11975746.05	588.06

## Ottawa Federal Com #2H, Plan 1

Operator	Mack Energy Corporation			Units	feet, °/100ft		09:11 Tuesday, October 31, 2023 Page 3 of 4			
Field	Round Tank			County	Chaves		Vertical Section Azimuth		180.63	
Well Name	Ottawa Federal Com #2H			State	New Mexico		Survey Calculation Method		Minimum Curvature	
Plan	1			Country	USA		Database		Access	
Location	SL: 700 FSL & 1190 FWL Section 20-T15S-R29E BHL: 1 FSL & 990 FWL Section 29-T15S-R29E						Map Zone	UTM		Lat Long Ref
Site							Surface X	1930085.5		Surface Long
Slot Name							Surface Y	11978445		Surface Lat
Well Number	2H			API			Surface Z	3781		Global Z Ref KB
Project				MD/TVD Ref	KB		Ground Level	3763.5		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
5600.00	90.11	180.6	3192.84	-2748.94	-221.61	0.00	2751.21	1929863.89	11975696.06	588.16
5650.00	90.11	180.6	3192.74	-2798.94	-222.16	0.00	2801.21	1929863.34	11975646.06	588.26
5700.00	90.11	180.6	3192.65	-2848.94	-222.71	0.00	2851.21	1929862.79	11975596.06	588.35
5750.00	90.11	180.6	3192.55	-2898.93	-223.26	0.00	2901.21	1929862.24	11975546.07	588.45
5800.00	90.11	180.6	3192.46	-2948.93	-223.81	0.00	2951.21	1929861.69	11975496.07	588.54
5850.00	90.11	180.6	3192.36	-2998.93	-224.35	0.00	3001.21	1929861.15	11975446.07	588.64
5900.00	90.11	180.6	3192.26	-3048.92	-224.90	0.00	3051.21	1929860.60	11975396.08	588.74
5950.00	90.11	180.6	3192.17	-3098.92	-225.45	0.00	3101.21	1929860.05	11975346.08	588.83
6000.00	90.11	180.6	3192.07	-3148.92	-226.00	0.00	3151.21	1929859.50	11975296.08	588.93
6050.00	90.11	180.6	3191.98	-3198.91	-226.55	0.00	3201.21	1929858.95	11975246.09	589.02
6100.00	90.11	180.6	3191.88	-3248.91	-227.10	0.00	3251.21	1929858.40	11975196.09	589.12
6150.00	90.11	180.6	3191.78	-3298.91	-227.65	0.00	3301.21	1929857.85	11975146.09	589.22
6200.00	90.11	180.6	3191.69	-3348.91	-228.20	0.00	3351.21	1929857.30	11975096.09	589.31
6250.00	90.11	180.6	3191.59	-3398.90	-228.75	0.00	3401.21	1929856.75	11975046.10	589.41
6300.00	90.11	180.6	3191.50	-3448.90	-229.30	0.00	3451.21	1929856.20	11974996.10	589.50
6350.00	90.11	180.6	3191.40	-3498.90	-229.85	0.00	3501.21	1929855.65	11974946.10	589.60
6400.00	90.11	180.6	3191.30	-3548.89	-230.40	0.00	3551.21	1929855.10	11974896.11	589.70
6450.00	90.11	180.6	3191.21	-3598.89	-230.95	0.00	3601.21	1929854.55	11974846.11	589.79
6500.00	90.11	180.6	3191.11	-3648.89	-231.50	0.00	3651.21	1929854.00	11974796.11	589.89
6550.00	90.11	180.6	3191.02	-3698.88	-232.05	0.00	3701.21	1929853.45	11974746.12	589.98
6600.00	90.11	180.6	3190.92	-3748.88	-232.60	0.00	3751.21	1929852.90	11974696.12	590.08
6650.00	90.11	180.6	3190.82	-3798.88	-233.15	0.00	3801.21	1929852.35	11974646.12	590.18
6700.00	90.11	180.6	3190.73	-3848.87	-233.70	0.00	3851.21	1929851.80	11974596.13	590.27
6750.00	90.11	180.6	3190.63	-3898.87	-234.25	0.00	3901.21	1929851.25	11974546.13	590.37
6800.00	90.11	180.6	3190.54	-3948.87	-234.80	0.00	3951.21	1929850.70	11974496.13	590.46
6850.00	90.11	180.6	3190.44	-3998.86	-235.35	0.00	4001.21	1929850.15	11974446.14	590.56
6900.00	90.11	180.6	3190.34	-4048.86	-235.90	0.00	4051.21	1929849.60	11974396.14	590.66
6950.00	90.11	180.6	3190.25	-4098.86	-236.45	0.00	4101.21	1929849.05	11974346.14	590.75
7000.00	90.11	180.6	3190.15	-4148.86	-237.00	0.00	4151.21	1929848.50	11974296.14	590.85
7050.00	90.11	180.6	3190.06	-4198.85	-237.55	0.00	4201.21	1929847.95	11974246.15	590.94
7100.00	90.11	180.6	3189.96	-4248.85	-238.10	0.00	4251.21	1929847.40	11974196.15	591.04
7150.00	90.11	180.6	3189.86	-4298.85	-238.65	0.00	4301.21	1929846.85	11974146.15	591.14
7200.00	90.11	180.6	3189.77	-4348.84	-239.20	0.00	4351.21	1929846.30	11974096.16	591.23
7250.00	90.11	180.6	3189.67	-4398.84	-239.75	0.00	4401.21	1929845.75	11974046.16	591.33
7300.00	90.11	180.6	3189.58	-4448.84	-240.30	0.00	4451.21	1929845.20	11973996.16	591.42
7350.00	90.11	180.6	3189.48	-4498.83	-240.85	0.00	4501.21	1929844.65	11973946.17	591.52
7400.00	90.11	180.6	3189.38	-4548.83	-241.40	0.00	4551.21	1929844.10	11973896.17	591.62



## Ottawa Federal Com #2H, Plan 1

<b>Operator</b>	Mack Energy Corporation	<b>Units</b>	feet, °/100ft	09:11 Tuesday, October 31, 2023	Page 4 of 4
<b>Field</b>	Round Tank	<b>County</b>	Chaves	<b>Vertical Section Azimuth</b>	180.63
<b>Well Name</b>	Ottawa Federal Com #2H	<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: 700 FSL & 1190 FWL Section 20-T15S-R29E BHL: 1 FSL & 990 FWL Section 29-T15S-R29E			<b>Map Zone</b>	UTM
<b>Site</b>				<b>Surface X</b>	1930085.5
<b>Slot Name</b>				<b>Surface Y</b>	11978445
<b>Well Number</b>	2H	<b>API</b>		<b>Surface Z</b>	3781
<b>Project</b>		<b>MD/TVD Ref</b>	KB	<b>Ground Level</b>	3763.5
				<b>Lat Long Ref</b>	
				<b>Surface Long</b>	
				<b>Surface Lat</b>	
				<b>Global Z Ref</b>	KB
				<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
7450.00	90.11	180.6	3189.29	-4598.83	-241.95	0.00	4601.21	1929843.55	11973846.17	591.71
7500.00	90.11	180.6	3189.19	-4648.82	-242.50	0.00	4651.21	1929843.00	11973796.18	591.81
7550.00	90.11	180.6	3189.10	-4698.82	-243.05	0.00	4701.21	1929842.45	11973746.18	591.90
7600.00	90.11	180.6	3189.00	-4748.82	-243.60	0.00	4751.21	1929841.90	11973696.18	592.00
7650.00	90.11	180.6	3188.90	-4798.81	-244.15	0.00	4801.21	1929841.35	11973646.19	592.10
7700.00	90.11	180.6	3188.81	-4848.81	-244.70	0.00	4851.21	1929840.80	11973596.19	592.19
7750.00	90.11	180.6	3188.71	-4898.81	-245.25	0.00	4901.21	1929840.25	11973546.19	592.29
7800.00	90.11	180.6	3188.62	-4948.81	-245.80	0.00	4951.21	1929839.70	11973496.19	592.38
7850.00	90.11	180.6	3188.52	-4998.80	-246.35	0.00	5001.21	1929839.15	11973446.20	592.48
7900.00	90.11	180.6	3188.42	-5048.80	-246.90	0.00	5051.21	1929838.60	11973396.20	592.58
7950.00	90.11	180.6	3188.33	-5098.80	-247.45	0.00	5101.21	1929838.05	11973346.20	592.67
8000.00	90.11	180.6	3188.23	-5148.79	-247.99	0.00	5151.21	1929837.51	11973296.21	592.77
8050.00	90.11	180.6	3188.14	-5198.79	-248.54	0.00	5201.21	1929836.96	11973246.21	592.86
8100.00	90.11	180.6	3188.04	-5248.79	-249.09	0.00	5251.21	1929836.41	11973196.21	592.96
8150.00	90.11	180.6	3187.94	-5298.78	-249.64	0.00	5301.21	1929835.86	11973146.22	593.06
8200.00	90.11	180.6	3187.85	-5348.78	-250.19	0.00	5351.21	1929835.31	11973096.22	593.15
8250.00	90.11	180.6	3187.75	-5398.78	-250.74	0.00	5401.21	1929834.76	11973046.22	593.25
8300.00	90.11	180.6	3187.66	-5448.77	-251.29	0.00	5451.21	1929834.21	11972996.23	593.34
8350.00	90.11	180.6	3187.56	-5498.77	-251.84	0.00	5501.21	1929833.66	11972946.23	593.44
8400.00	90.11	180.6	3187.46	-5548.77	-252.39	0.00	5551.21	1929833.11	11972896.23	593.54
8450.00	90.11	180.6	3187.37	-5598.76	-252.94	0.00	5601.21	1929832.56	11972846.24	593.63
8500.00	90.11	180.6	3187.27	-5648.76	-253.49	0.00	5651.21	1929832.01	11972796.24	593.73
8550.00	90.11	180.6	3187.18	-5698.76	-254.04	0.00	5701.21	1929831.46	11972746.24	593.82
8600.00	90.11	180.6	3187.08	-5748.76	-254.59	0.00	5751.21	1929830.91	11972696.24	593.92
8650.00	90.11	180.6	3186.98	-5798.75	-255.14	0.00	5801.21	1929830.36	11972646.25	594.02
8700.00	90.11	180.6	3186.89	-5848.75	-255.69	0.00	5851.21	1929829.81	11972596.25	594.11
8750.00	90.11	180.6	3186.79	-5898.75	-256.24	0.00	5901.21	1929829.26	11972546.25	594.21
8800.00	90.11	180.6	3186.70	-5948.74	-256.79	0.00	5951.21	1929828.71	11972496.26	594.30
*** TD (at MD = 8805.01)										
8805.01	90.11	180.6	3186.69	-5953.75	-256.85	0.00	5956.21	1929828.65	11972491.25	594.31



## PECOS DISTRICT DRILLING OPERATIONS CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>Mack Energy Corporation</b>
<b>LEASE NO.:</b>	<b>NMMN-131583</b>
<b>WELL NAME &amp; NO.:</b>	<b>Ottawa Federal Com 2H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>0700' FSL &amp; 1190' FWL</b>
<b>BOTTOM HOLE FOOTAGE:</b>	<b>0001' FSL &amp; 0990' FWL Sec. 29, T. 15 S., R 29 E.</b>
<b>LOCATION:</b>	<b>Section 20, T. 15 S., R 29 E., NMPM</b>
<b>COUNTY:</b>	<b>Chaves County, New Mexico</b>

### Communitization Agreement

· The operator will submit a Communitization Agreement to the Roswell Field Office, 2909 West 2<sup>nd</sup> Street Roswell, New Mexico 88220, 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.

· 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.

**The Gamma Ray and Neutron well logs must be run from total depth to surface and e-mailed to Aleksandr Knapowski at [cknapowski@blm.gov](mailto:cknapowski@blm.gov) or hard copy mailed to 2909 West Second Street Roswell, NM 88201 to his attention.**

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)

☒ **Chaves and Roosevelt Counties**

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.  
During office hours call (575) 627-0272.  
After hours call (575) 627-0205.

**A. Hydrogen Sulfide**

1. **Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the 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.**

**B. CASING**

**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.**

**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.**

**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.**

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

**High Cave/Karst**

**Possibility of water flows in the Rustler, Queen, Salado, and Artesia Group.**

**Possibility of lost circulation in the Rustler, Artesia Group, and San Andres.**

1. The **13-3/8** inch surface casing shall be set at approximately **210** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
  - 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 is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

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

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

3. The minimum required fill of cement behind the **7 X 5-1/2** inch production casing is:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

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

### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 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 (testing to 2,000 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. Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
  - 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.

4. 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 when specified), 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
  - c. 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.
  - d. The results of the test shall be reported to the appropriate BLM office.
  - e. 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.**
  - f. 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.

#### **D. DRILL STEM TEST**

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

## **E. 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.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 02132024**

Attached to Form 5160-3

Mack Energy Corporation

Ottawa Federal Com #2H NMNM-131583

SHL : 700 FSL &amp; 1190 FWL, SWSW, Sec. 20 T15S R29E

BHL : 1 FSL &amp; 990 FWL, SWSW, Sec. 29 T15S R29E

Chaves County, NM

---

## 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:

1. The effects of H<sub>2</sub>S on metal components. If high tensile tubular are to be used, personnel will 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 H<sub>2</sub>S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H<sub>2</sub>S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

### II. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS

Note: All H<sub>2</sub>S 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 H<sub>2</sub>S.

#### 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.

Attached to Form 5160-3  
Mack Energy Corporation  
Ottawa Federal Com #2H NMNM-131583  
SHL : 700 FSL & 1190 FWL, SWSW, Sec. 20 T15S R29E  
BHL : 1 FSL & 990 FWL, SWSW, Sec. 29 T15S R29E  
Chaves County, NM

---

**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:**

- A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S 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 H2S service.
- B. All elastomers used for packing and seals shall be H2S 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 H2S environment will use the closed chamber method of testing.



Attached to Form 5160-3

Mack Energy Corporation

Ottawa Federal Com #2H NMNM-131583

SHL : 700 FSL &amp; 1190 FWL, SWSW, Sec. 20 T15S R29E

BHL : 1 FSL &amp; 990 FWL, SWSW, Sec. 29 T15S R29E

Chaves County, NM

B. There will be no drill stem testing.

**EXHIBIT #7****WARNING****YOU ARE ENTERING AN H2S****AUTHORIZED PERSONNEL ONLY**

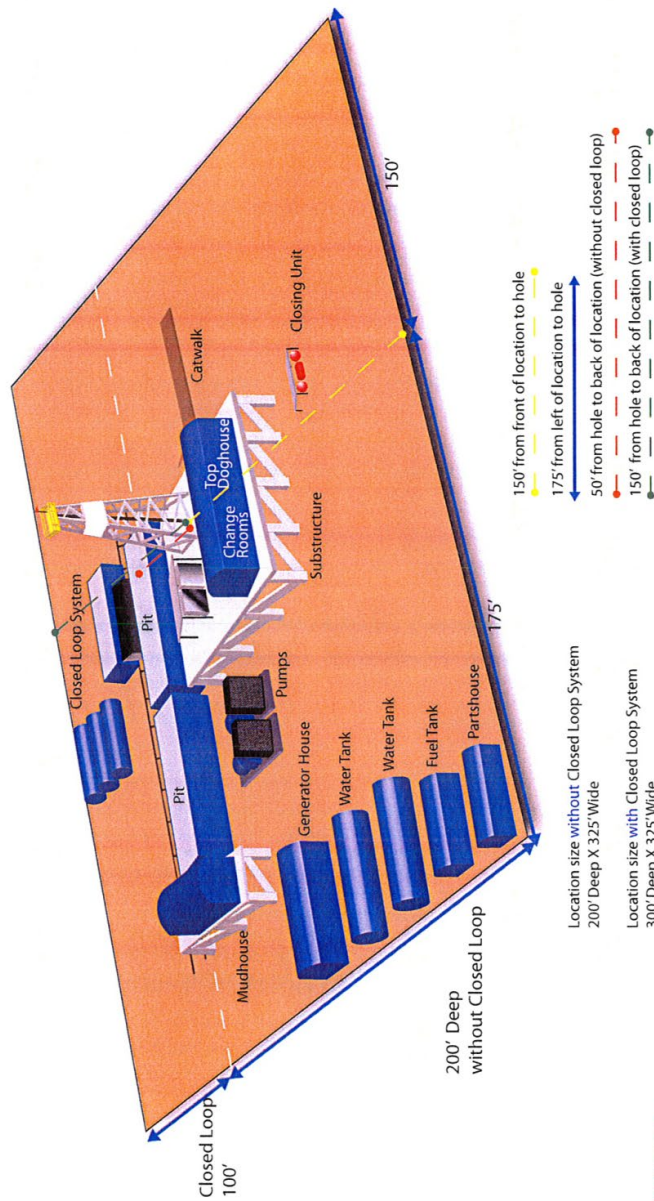
- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE**

**MACK ENERGY CORPORATION****1-575-748-1288**

## DRILLING LOCATION H2S SAFETY EQUIPMENT

Exhibit # 8

## Location Layout



Silver Oak Drilling ~ 10 Bilco Road, Artesia, NM 88210 ~ 575.746.4405  
 info@silveroakdrilling.com ~ www.silveroakdrilling.com

---

**Mack Energy Corporation Call List, Chaves 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)****Roswell**

State Police.....	622-7200
City Police.....	624-6770
Sheriff's Office.....	624-7590
Ambulance.....	624-7590
Fire Department.....	624-7590
LEPC (Local Emergency Planning Committee.....	624-6770
NMOCD.....	748-1283
Bureau of Land Management.....	627-0272

**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: OTTAWA FEDERAL COM	Well Number 2H

## Kick Off Point (KOP)

UL M	Section 20	Township 15S	Range 29E	Lot	Feet 700	From N/S SOUTH	Feet 1190	From E/W WEST	County CHAVES
Latitude 32.9961028					Longitude 104.0553415			NAD 83	

## First Take Point (FTP)

UL D	Section 29	Township 15S	Range 29E	Lot	Feet 100	From N/S NORTH	Feet 990	From E/W WEST	County CHAVES
Latitude 32.9939041					Longitude 104.0559926			NAD 83	

## Last Take Point (LTP)

UL M	Section 29	Township 15S	Range 29E	Lot	Feet 100	From N/S SOUTH	Feet 990	From E/W WEST	County CHAVES
Latitude 32.9800176					Longitude 104.0562148			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

05/17/2024

APD ID: 10400094568

Submission Date: 10/31/2023

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: OTTAWA FEDERAL COM

Well Number: 2H

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
13450138	QUATERNARY	0	118	118	ALLUVIUM	NONE	N
13450139	TOP OF SALT	-190	190	190	SALT	NONE	N
13450140	BASE OF SALT	-810	810	810	SALT	NONE	N
13450141	YATES	-838	838	838	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450137	SEVEN RIVERS	-1072	1072	1072	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450144	QUEEN	-1562	1562	1562	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
13450142	GRAYBURG	-1956	1956	1956	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
13450143	SAN ANDRES	-2269	2269	2269	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 8806

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 minutes without a test plug. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1524 psig (0.052\*3187'TVD\*9.2ppg) less than 2900 bottom hole pressure. Will test to 2000psi for 30mins.

**Choke Diagram Attachment:**

NEW\_Choke\_Manifold\_3M\_20230918152436.pdf

**BOP Diagram Attachment:**

NEW\_BOP\_3M\_20230918152446.pdf



**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 345413

CONDITIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID:
	13837
	Action Number:
	345413
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	6/5/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	6/5/2024
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	6/5/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	6/5/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	6/5/2024
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	6/5/2024