

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED 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 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No.  6. If Indian, Allottee or Tribe Name  7. If Unit or CA Agreement, Name and No.  8. Lease Name and Well No.  <div style="text-align: center; font-weight: bold;">[331182]</div>
2. Name of Operator <div style="text-align: center; font-weight: bold;">[13837]</div>		9. API Well No. <b>30-005-29222</b>
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory <b>XXXXXXXXX</b> <div style="float: right; font-weight: bold;">[19150]</div>
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.<br>2. A Drilling Plan.<br>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). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).<br>5. Operator certification.<br>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.

**NGMP Rec 06/23/2021**

**SL**

(Continued on page 2)



**08/19/2021**

\*(Instructions on page 2)

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM I:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## Additional Operator Remarks

### Location of Well

0. SHL: SWNE / 1825 FNL / 2385 FEL / TWSP: 15S / RANGE: 30E / SECTION: 8 / LAT: 33.0327422 / LONG: -103.9465098 ( TVD: 0 feet, MD: 0 feet )

PPP: NWSE / 2540 FSL / 2310 FEL / TWSP: 15S / RANGE: 30E / SECTION: 8 / LAT: 33.0302268 / LONG: -103.9462653 ( TVD: 3707 feet, MD: 4084 feet )

BHL: SWSE / 1 FSL / 2310 FEL / TWSP: 15S / RANGE: 30E / SECTION: 17 / LAT: 33.0087271 / LONG: -103.9463001 ( TVD: 3677 feet, MD: 12116 feet )

### BLM Point of Contact

Name: MEIGHAN M SALAS

Title: Land Law Examiner

Phone: (575) 627-0228

Email: mmsalas@blm.gov

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### **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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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>30-005-29222</b>	<sup>2</sup> Pool Code <b>19150</b>	<sup>3</sup> Pool Name <b>DOUBLE L; SAN ANDRES</b>
<sup>4</sup> Property Code <b>331182</b>	<sup>5</sup> Property Name <b>WILLIAMS LAKE FEDERAL</b>	<sup>6</sup> Well Number <b>1H</b>
<sup>7</sup> OGRID No. <b>13837</b>	<sup>8</sup> Operator Name <b>MACK ENERGY CORPORATION</b>	<sup>9</sup> Elevation <b>3965.8</b>

<sup>10</sup> Surface Location

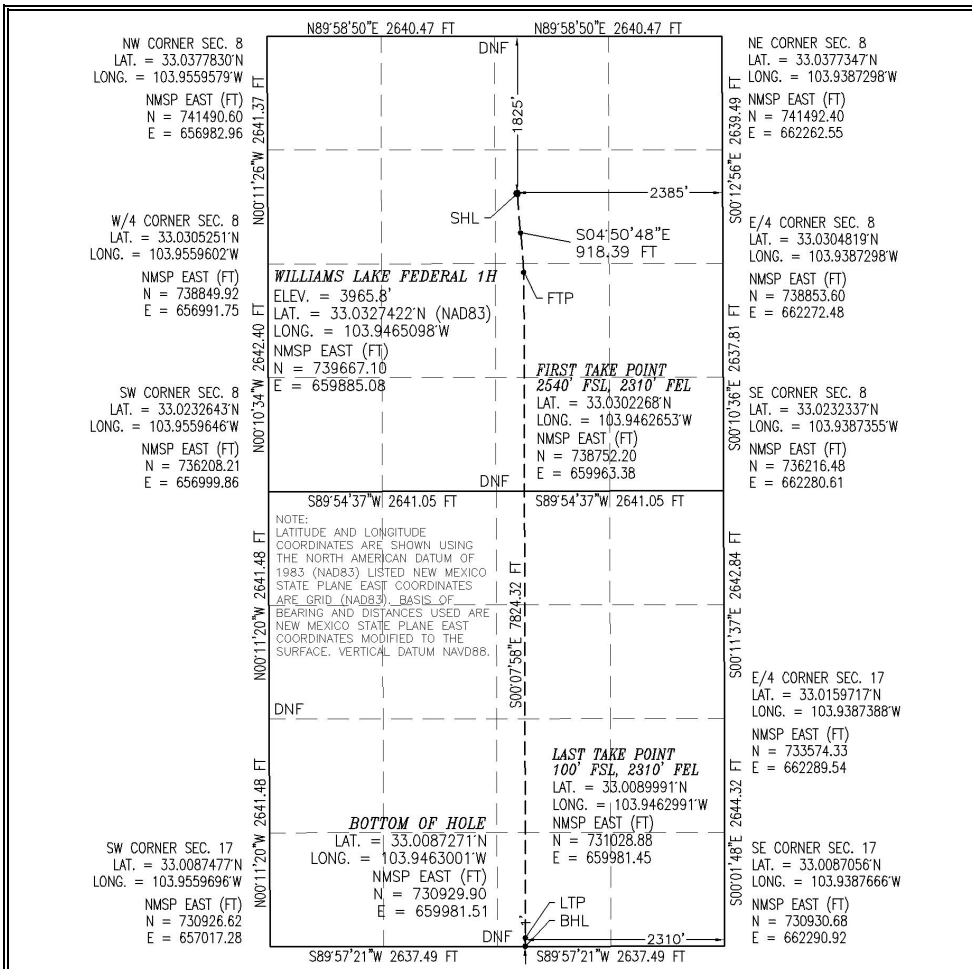
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>G</b>	<b>8</b>	<b>15 S</b>	<b>30 E</b>		<b>1825</b>	<b>NORTH</b>	<b>2385</b>	<b>EAST</b>	<b>CHAVES</b>

<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>O</b>	<b>17</b>	<b>15 S</b>	<b>30 E</b>		<b>1</b>	<b>SOUTH</b>	<b>2310</b>	<b>EAST</b>	<b>CHAVES</b>

<sup>12</sup> Dedicated Acres <b>240</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.



<sup>17</sup> OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Deana Weaver* 4/16/2021

Signature Date

Deana Weaver

Printed Name

dweaver@mec.com

E-mail Address

<sup>18</sup> SURVEYOR CERTIFICATION

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

APRIL 12, 2021

Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: **ELIMON F. JARAMILLO, PLS 12797**  
Survey No. 8502B

Intent ☒ As Drilled ☐

API #		
Operator Name: <b>MACK ENERGY CORPORATION</b>	Property Name: <b>WILLIAMS LAKE FEDERAL</b>	Well Number <b>1H</b>

Kick Off Point (KOP)

UL <b>G</b>	Section <b>8</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>1825</b>	From N/S <b>NORTH</b>	Feet <b>2385</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0327422</b>					Longitude <b>103.9465098</b>			NAD <b>83</b>	

First Take Point (FTP)

UL <b>J</b>	Section <b>8</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>2540</b>	From N/S <b>SOUTH</b>	Feet <b>2310</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0302268</b>					Longitude <b>103.9462653</b>			NAD <b>83</b>	

Last Take Point (LTP)

UL <b>O</b>	Section <b>17</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>100</b>	From N/S <b>SOUTH</b>	Feet <b>2310</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0089991</b>					Longitude <b>103.9462991</b>			NAD <b>83</b>	

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

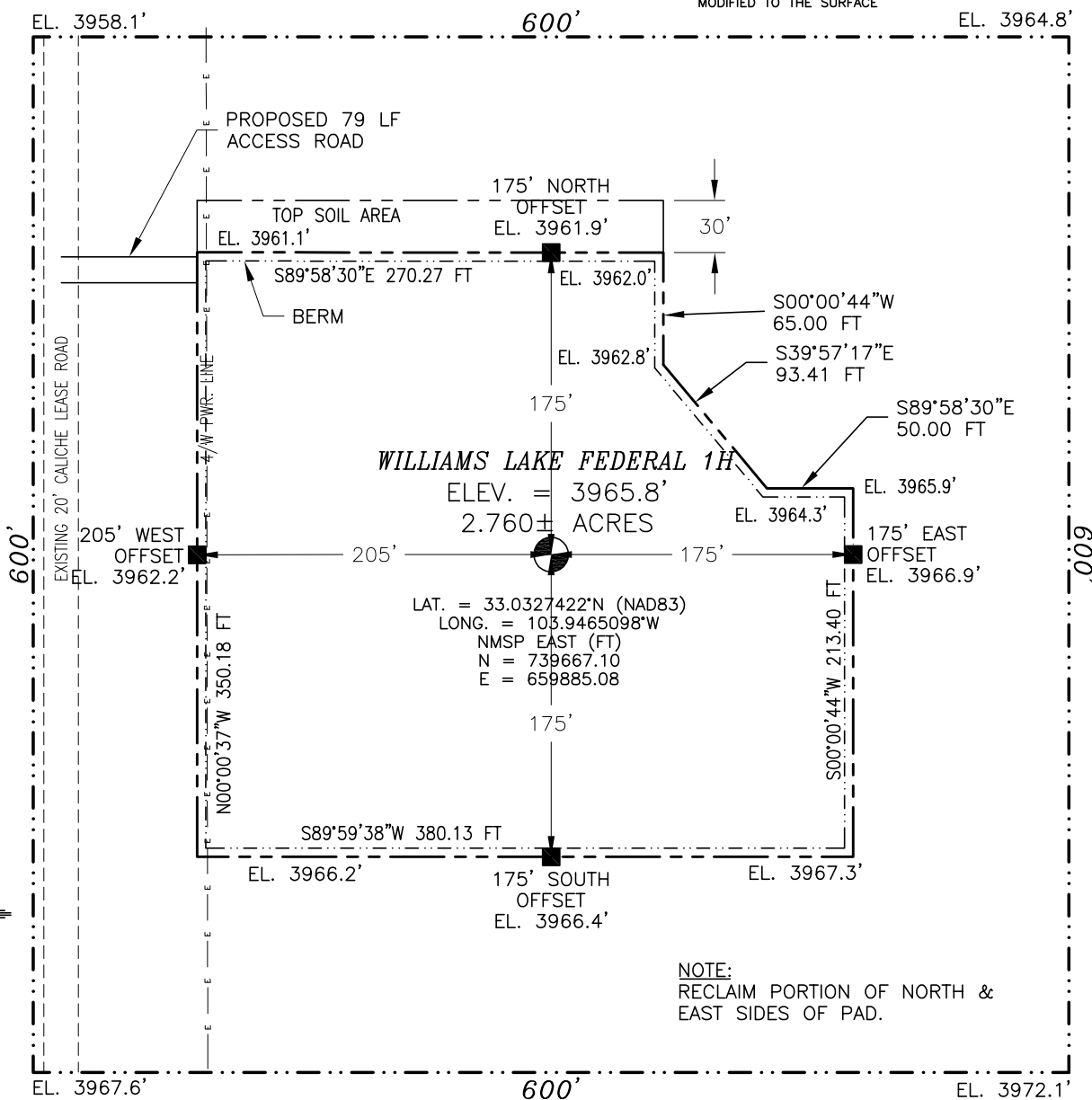
If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

SECTION 8, TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
**SITE MAP**

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



NOTE:  
RECLAIM PORTION OF NORTH &  
EAST SIDES OF PAD.

010 50 100 200

SCALE 1" = 100'

**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF CR. 217 (HAGERMAN CUTOFF) & CR. 249 GO EAST ON CR. 249 FOR APPROX. 2.3 MILES, GO SOUTH ON 25' CALICHE LEASE ROAD FOR APPROX. 0.4 OF A MILE TO BEGIN ROAD SURVEY, FOLLOW ROAD SURVEY EAST APPROX. 79' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I HAVE CONDUCTED THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THE SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILIMON F. JARAMILLO, PLS 1279

**MADRON SURVEYING, INC.**

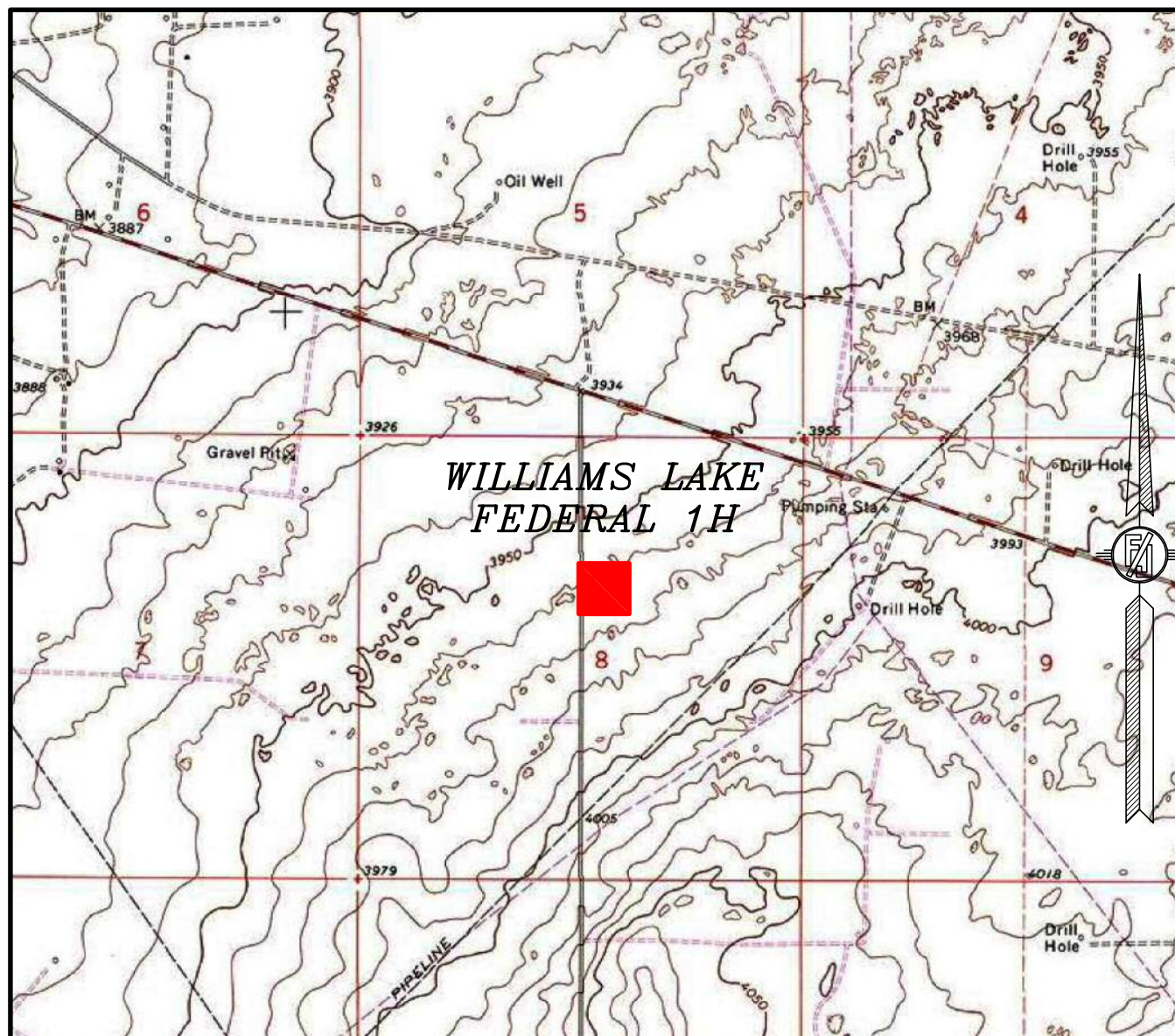
301 SOUTH CANAL  
(575) 234-3341

**CARLSBAD, NEW MEXICO**

APRIL 12, 2021

SURVEY NO. 8502B

SECTION 8, TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
LOCATION VERIFICATION MAP



USGS QUAD MAP:  
CEDAR POINT

NOT TO SCALE

MACK ENERGY CORPORATION  
**WILLIAMS LAKE FEDERAL 1H**  
LOCATED 1825 FT. FROM THE NORTH LINE  
AND 2385 FT. FROM THE EAST LINE OF  
SECTION 8, TOWNSHIP 15 SOUTH,  
RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

APRIL 12, 2021

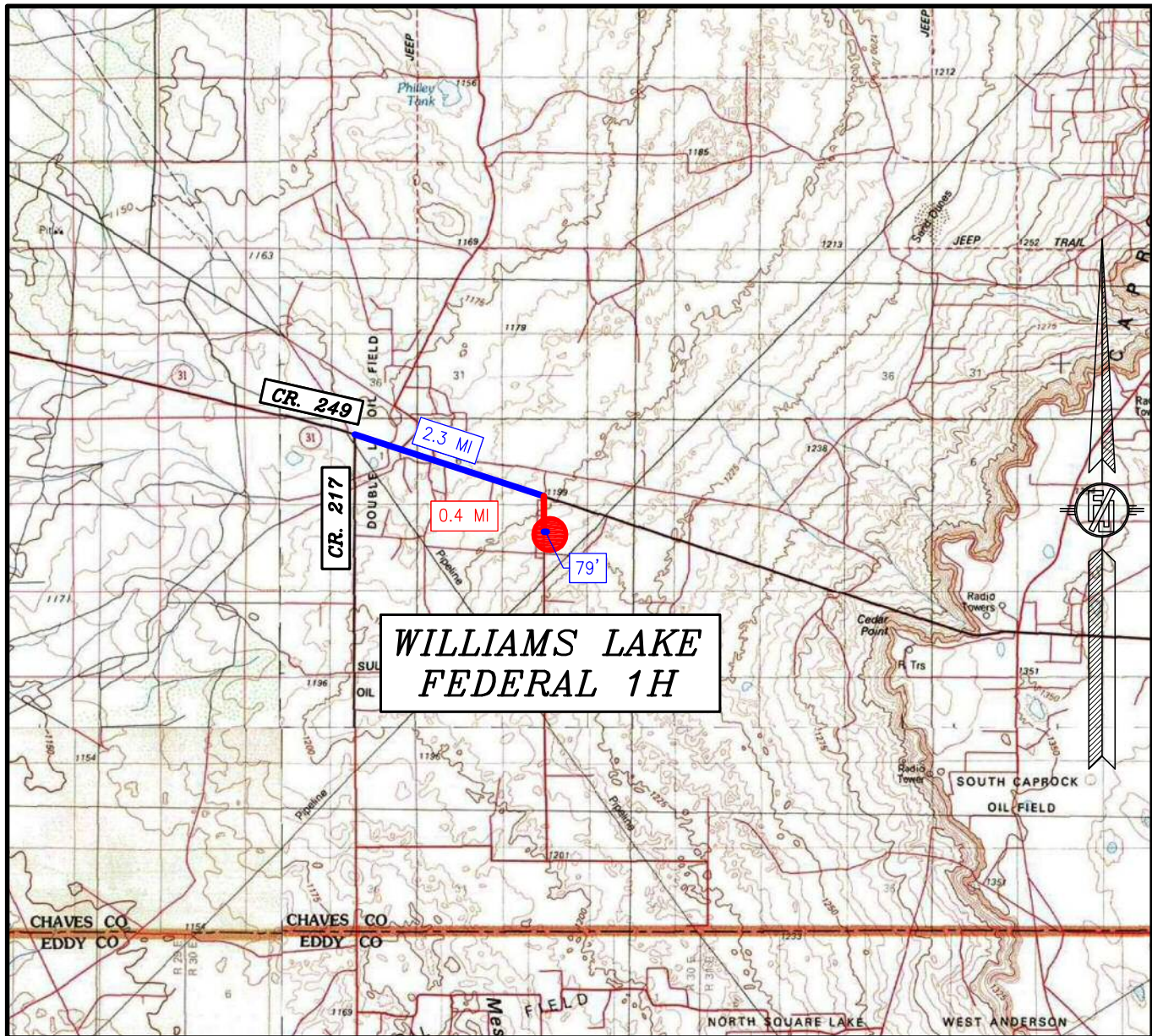
MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3341

SURVEY NO. 8502B  
CARLSBAD, NEW MEXICO



SECTION 8, TOWNSHIP 15 SOUTH, RANGE 30 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 CR. 217 (HAGERMAN CUTOFF) & CR. 249 GO EAST ON CR. 249 FOR APPROX. 2.3 MILES, GO SOUTH ON 25' CALICHE LEASE ROAD FOR APPROX. 0.4 OF A MILE TO BEGIN ROAD SURVEY, FOLLOW ROAD SURVEY EAST APPROX. 79' TO THE NORTHWEST PAD CORNER FOR THIS LOCATION.

MACK ENERGY CORPORATION  
**WILLIAMS LAKE FEDERAL 1H**  
LOCATED 1825 FT. FROM THE NORTH LINE  
AND 2385 FT. FROM THE EAST LINE OF  
SECTION 8, TOWNSHIP 15 SOUTH,  
RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

APRIL 12, 2021

SURVEY NO. 8502B

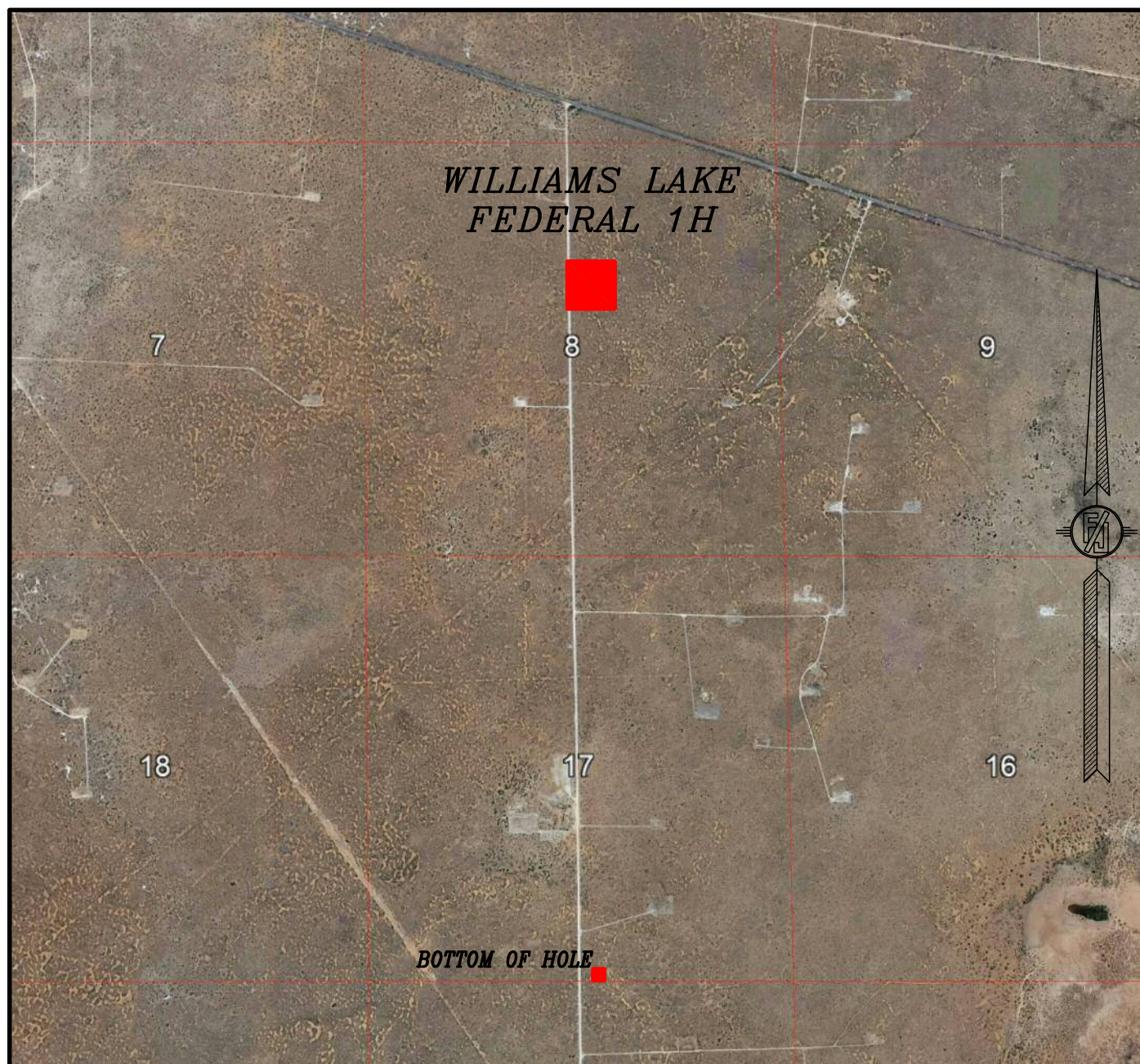
MADRON SURVEYING, INC. 301 SOUTH CANAL

(575) 234-3341

CARLSBAD, NEW MEXICO



SECTION 8, TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
**AERIAL PHOTO**



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUNE 2019

**MACK ENERGY CORPORATION**  
**WILLIAMS LAKE FEDERAL 1H**  
LOCATED 1825 FT. FROM THE NORTH LINE  
AND 2385 FT. FROM THE EAST LINE OF  
SECTION 8, TOWNSHIP 15 SOUTH,  
RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

APRIL 12, 2021

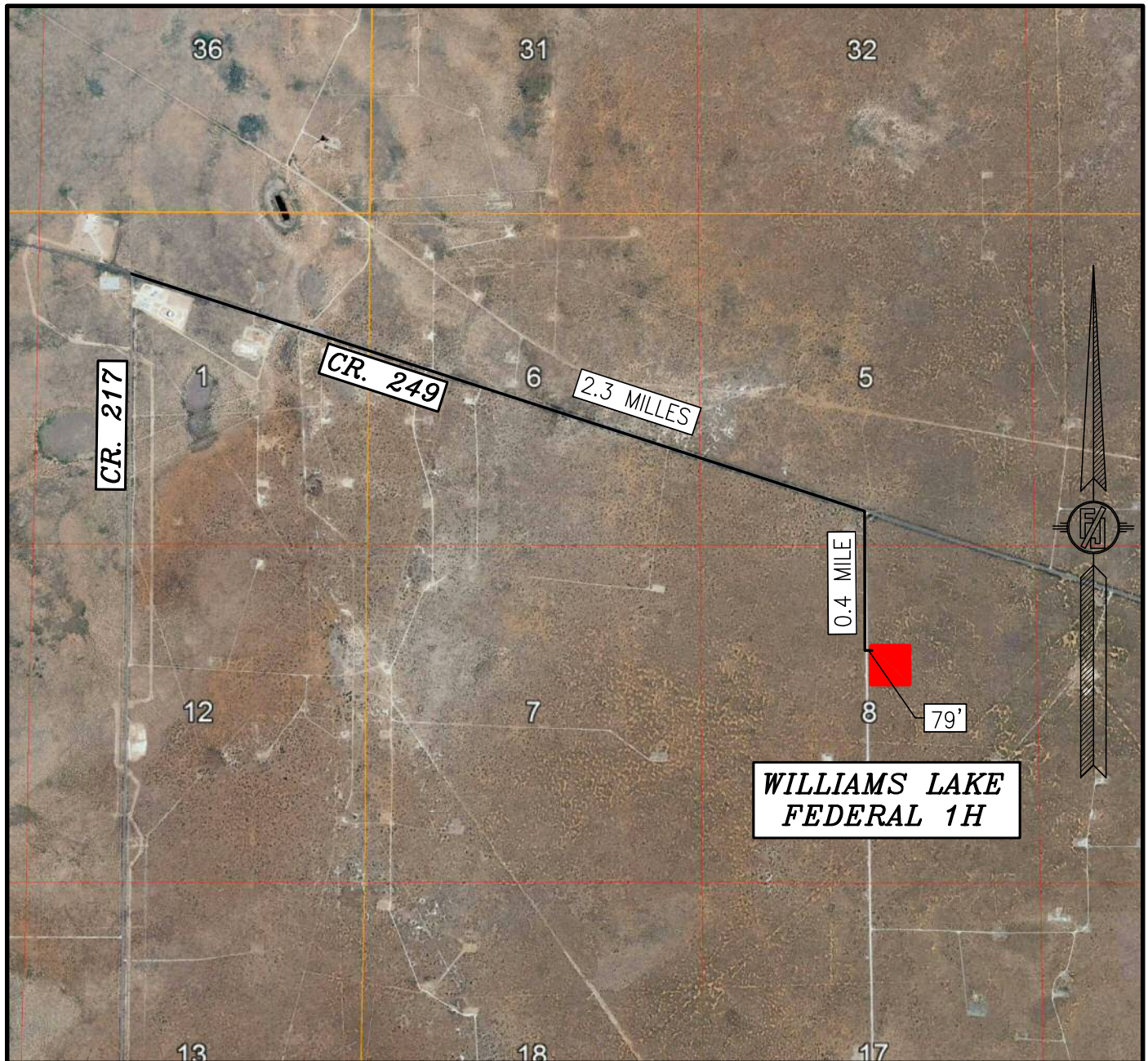
SURVEY NO. 8502B

MADRON SURVEYING, INC. 301 SOUTH CANAL  
(575) 234-3341

CARLSBAD, NEW MEXICO



SECTION 8, TOWNSHIP 15 SOUTH, RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO  
ACCESS AERIAL ROUTE MAP



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
JUNE 2019

**MACK ENERGY CORPORATION**  
**WILLIAMS LAKE FEDERAL 1H**  
LOCATED 1825 FT. FROM THE NORTH LINE  
AND 2385 FT. FROM THE EAST LINE OF  
SECTION 8, TOWNSHIP 15 SOUTH,  
RANGE 30 EAST, N.M.P.M.  
CHAVES COUNTY, STATE OF NEW MEXICO

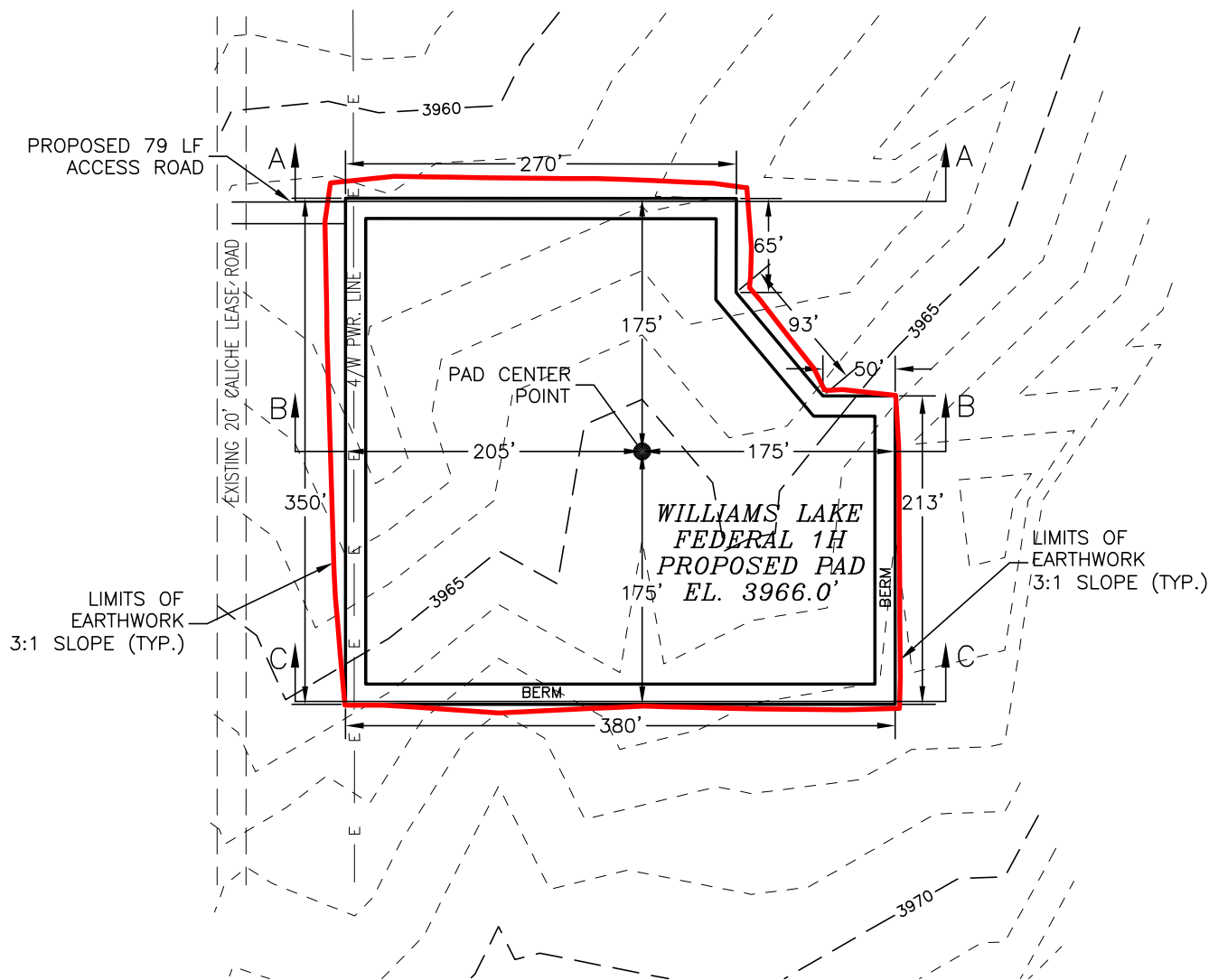
APRIL 12, 2021

MADRON SURVEYING, INC.

301 SOUTH CANAL  
(575) 234-3341

SURVEY NO. 8502B  
CARLSBAD, NEW MEXICO

# PLAN VIEW



I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.



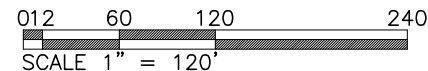
FILIMON F. JARAMILLO, No. 12797

**MACK ENERGY CORPORATION**  
**GRADING PLAN AND CROSS SECTIONS**  
**FOR WILLIAMS LAKE FEDERAL 1H**  
 SECTION 8, TOWNSHIP 15 SOUTH,  
 RANGE 30 EAST, N.M.P.M.  
 CHAVES COUNTY, STATE OF NEW MEXICO

APRIL 12, 2021

301 SOUTH CANAL  
 (575) 234-3341

**MADRON SURVEYING, INC.** CARLSBAD, NEW MEXICO



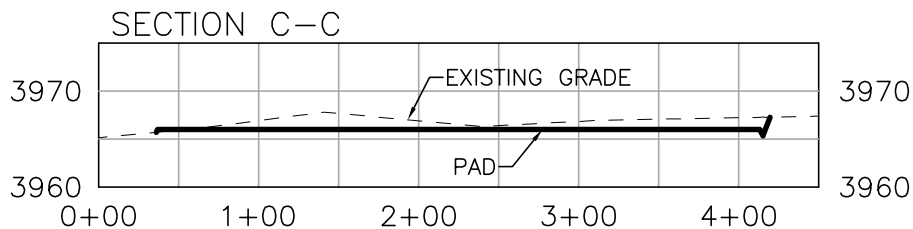
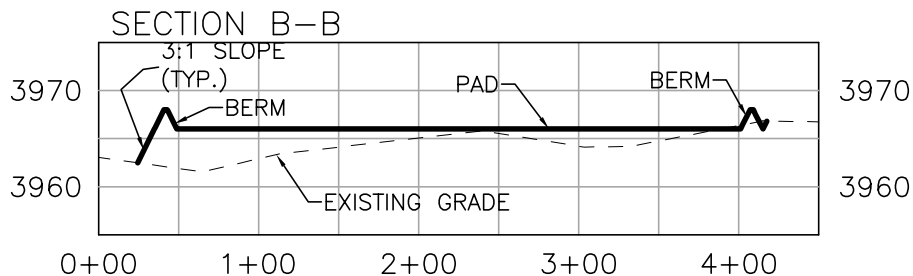
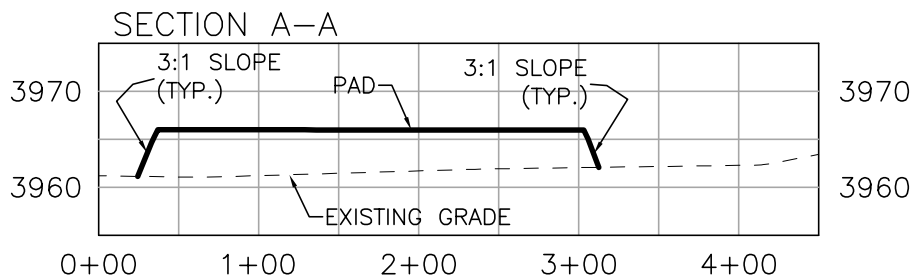
CUT	FILL	NET
308 CU. YD	9007 CU. YD	8699 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

**SHEET 1-2**  
 SURVEY NO. 8502B



# CROSS-SECTIONS



I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

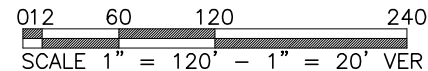
FILIMON F. JARAMILLO, S. 12797

**MACK ENERGY CORPORATION**  
**GRADING PLAN AND CROSS SECTIONS**  
**FOR WILLIAMS LAKE FEDERAL 1H**  
 SECTION 8, TOWNSHIP 15 SOUTH,  
 RANGE 30 EAST, N.M.P.M.  
 CHAVES COUNTY, STATE OF NEW MEXICO

APRIL 12, 2021

301 SOUTH CANAL  
 (575) 234-3341

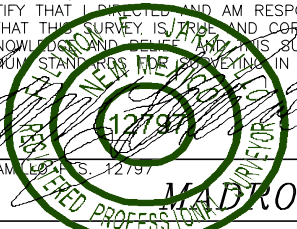
CARLSBAD, NEW MEXICO



CUT	FILL	NET
308 CU. YD	9007 CU. YD	8699 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 2-2  
 SURVEY NO. 8502B



MADRON SURVEYING, INC.



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

# Drilling Plan Data Report

06/21/2021

APD ID: 10400069405

Submission Date: 03/04/2021

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: WILLIAMS LAKE FEDERAL

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1616525	RUSTLER	3965	551	551	ANHYDRITE	NONE	N
1616526	TOP OF SALT	3279	686	686	SALT	NONE	N
1616527	BASE OF SALT	2675	1290	1290	SALT	NONE	N
1616528	YATES	2500	1465	1465	SILTSTONE	NATURAL GAS, OIL	N
1616529	SEVEN RIVERS	2275	1690	1690	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616530	QUEEN	1785	2180	2180	SILTSTONE	NATURAL GAS, OIL	N
1616531	GRAYBURG	1359	2606	2606	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616532	SAN ANDRES	1025	2940	2940	DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 12116

Equipment: Rotating Head, Mud-Gas Separator

Requesting Variance? NO

Variance request:

**Testing Procedure:** The BOP/BOPE test shall include a low pressure test from 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 1759psig (0.052\*3677\*TVD\*9.2ppg) less than 2900 Bottom Hole Pressure. Will test to 2000psi for 30 mins.

**Choke Diagram Attachment:**

choke\_manifold\_diagram\_20210223112320.pdf

choke\_manifold\_20210223112331.pdf

**BOP Diagram Attachment:**

bop\_diagram\_20210223112343.pdf

State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

Oil 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:** 06 / 23 / 2021

**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
Williams Lake Federal #1H	<b>30-005-29222</b>	G, Sec. 8 T15S R30E	1825 FNL 2385 FEL	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
Williams Lake Federal #1H	<b>30-005-29222</b>	6/10/2022	7/1/2022	9/1/2022	9/1/2022	9/15/2022

**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:	6/23/2021
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

06/21/2021

APD ID: 10400069405

Submission Date: 03/04/2021

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: WILLIAMS LAKE FEDERAL

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1616525	RUSTLER	3965	551	551	ANHYDRITE	NONE	N
1616526	TOP OF SALT	3279	686	686	SALT	NONE	N
1616527	BASE OF SALT	2675	1290	1290	SALT	NONE	N
1616528	YATES	2500	1465	1465	SILTSTONE	NATURAL GAS, OIL	N
1616529	SEVEN RIVERS	2275	1690	1690	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616530	QUEEN	1785	2180	2180	SILTSTONE	NATURAL GAS, OIL	N
1616531	GRAYBURG	1359	2606	2606	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616532	SAN ANDRES	1025	2940	2940	DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 12116

Equipment: Rotating Head, Mud-Gas Separator

Requesting Variance? NO

Variance request:

**Testing Procedure:** The BOP/BOPE test shall include a low pressure test from 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 1759psig (0.052\*3677\*TVD\*9.2ppg) less than 2900 Bottom Hole Pressure. Will test to 2000psi for 30 mins.

**Choke Diagram Attachment:**

choke\_manifold\_diagram\_20210223112320.pdf

choke\_manifold\_20210223112331.pdf

**BOP Diagram Attachment:**

bop\_diagram\_20210223112343.pdf

**Operator Name:** MACK ENERGY CORPORATION**Well Name:** WILLIAMS LAKE FEDERAL**Well Number:** 1H

choke\_manifold\_diagram\_20210223112320.pdf

choke\_manifold\_20210223112331.pdf

bop\_diagram\_20210223112343.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	450	0	450	3965	3515	450	J-55	48	ST&C	3.294	4.653	BUOY	23.498	BUOY	4.74
2	PRODUCTI ON	8.75	7.0	NEW	API	N	0	2850	0	2850	3965	1115	2850	HCP -110	26	LT&C	5.327	3.206	BUOY	4.852	BUOY	3.317
3	PRODUCTI ON	8.75	7.0	NEW	API	N	2850	3850	2850	3654	1115	311	1000	HCP -110	26	BUTT	3.999	3.169	BUOY	5.972	BUOY	3.206
4	PRODUCTI ON	8.75	5.5	NEW	API	N	3850	12116	3654	3677	311	288	8266	HCP -110	17	BUTT	4.824	3.092	BUOY	4.713	BUOY	3.388

**Casing Attachments****Casing ID:** 1 **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Surface\_Csg\_20210223112917.pdf

**Operator Name:** MACK ENERGY CORPORATION**Well Name:** WILLIAMS LAKE FEDERAL**Well Number:** 1H**Casing Attachments**

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**Casing ID:** 2      **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**Production\_Csg\_20210223113530.pdf

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**Casing ID:** 3      **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**Production\_Csg\_20210223114131.pdf

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**Casing ID:** 4      **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**Production\_Csg\_20210223114510.pdf

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**Section 4 - Cement**

**Operator Name:** MACK ENERGY CORPORATION**Well Name:** WILLIAMS LAKE FEDERAL**Well Number:** 1H

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

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

SURFACE	Lead		0	450	250	1.61	14.4	348		RFC + 12% PF53 + 2%PF1 + 5ppsPF42 + .125pps PF29	20bbls Gelled Water, 50sx of 11# Scavenger Cement
SURFACE	Tail		0	450	200	1.34	14.8	348	100	Class C + 1%PF1	20bbls gelled water 50sx of 11# Scavenger cement
PRODUCTION	Lead		0	1211 6	465	1.84	13.2	3060. 5	35	Class C 4% PF20 + 4pps PF45 + 125pps PF29	20bbls gelled water 20bbls chemical wash 50sx of 11# scavenger cement
PRODUCTION	Tail		0	1211 6	2310	1.48	13	3060. 5	35	PVL+1.3 (BWOW) PF44 + 5% PF174 + .5%PF 606 + .1% PF 153 + .4%pps PF44	20bbls gelled water 20bbls chemical wash 50sx of 11# Scavenger cement

### Section 5 - Circulating Medium

**Mud System Type:** Open**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:****Describe what will be on location to control well or mitigate other conditions:** BOPE Brine Water**Describe the mud monitoring system utilized:** Pason PVT with PVT volume recorder

### Circulating Medium Table

**Operator Name:** MACK ENERGY CORPORATION**Well Name:** WILLIAMS LAKE FEDERAL**Well Number:** 1H

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	450	SPUD MUD	8.5	10	74.8	0.1	11		1200	15	
450	1211 6	LSND/GEL	8.3	9.2	74.8	0.1	11		12000	15	The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1759 psi (0.052*3677' TVD*9.2) Less than 2900 bottom hole pressure

### 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: 1759

Anticipated Surface Pressure: 943

Anticipated Bottom Hole Temperature(F): 95

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Attached to Form 5160-3

Mack Energy Corporation

Williams Lake Federal #1H NMNM-141493, NMNM-138842

SHL : 1825 FNL &amp; 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL &amp; 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

## DRILLING PROGRAM

### 1. Geologic Name of Surface Formation

Quaternary

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

Rustler	551'
Top Salt	686'
Base of Salt	1290'
Yates	1465'
Seven Rivers	1690'
Queen	2180'
Grayburg	2606'
San Andres	2940'

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

Water Sand	150'	Fresh Water
Yates	1465'	Oil/Gas
Seven Rivers	1690'	Oil/Gas
Queen	2180'	Oil/Gas
Grayburg	2606'	Oil/Gas
San Andres	2940'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 450' 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"	0-450'	13 3/8"	48#, J-55, ST&C, New, 3.29416/4.652898/4.74
8 3/4"	0-2850'	7"	26#, HCP-110, LT&C, New, 5.327431/3.20581/3.316667
8 3/4"	2850-3850'	7"	26#, HCP-110, Buttress, New, 3.989799/3.168649/ 3.20581
8 3/4"	3850-12116'	5 1/2"	17#, HCP-110, Buttress, New, 4.8238/3.092104/3.388384

### 5. Cement Program:

13 3/8" Surface Casing: Lead 250sx, RFC + 12% PF53 + 2% PF1 + 5 pps PF42 + .125 pps PF29, yld 1.61, wt 14.4 ppg, 7.357 gals/sx. Tail: 200sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.323 gals/sx, 100% excess

Attached to Form 5160-3

Mack Energy Corporation

Williams Lake Federal #1H NMNM-141493, NMNM-138842

SHL : 1825 FNL &amp; 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL &amp; 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

7" & 5 1/2" Production Casing: Lead 465sx, Class C 4% PF 20 + 4 pps PF45 + 125 pps PF29, yld 1.84, wt 13.2 ppg, 9.914 gals/sx, excess 35%, Slurry Top Surface, Tail: 2310sx, PVL + 1.3% (BWOW) PF44 + 5% PF 174 + .5% PF 606 + .1% PF 153 + .4 pps PF 44, yld 1.48, wt 13 ppg, 7.577gals/sx, 35% excess, Slurry Top 2,500'

## 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 2000 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
0-450'	Fresh Water	10	28	N.C.
450-TD'	Cut Brine	9.2	29	N.C.

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

## 8. Auxiliary Well Control and Monitoring Equipment:

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

## 9. Logging, Testing and Coring Program:

- 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:

Attached to Form 5160-3

Mack Energy Corporation

Williams Lake Federal #1H NMNM-141493, NMNM-138842

SHL : 1825 FNL &amp; 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL &amp; 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

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No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1759 psig (0.052\*3677\*9.2ppg) less than 2900 Bottom Hole Pressure. Will test to 2000psi for 30 minutes. 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 July 1, 2021. 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.



Attached to Form 5160-3

Mack Energy Corporation

Williams Lake Federal #1H NMNM-141493, NMNM-138842

SHL : 1825 FNL & 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL & 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

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**Attachment to Exhibit #10**

**NOTES REGARDING THE BLOWOUT PREVENTERS**

**Williams Lake Federal 1H**

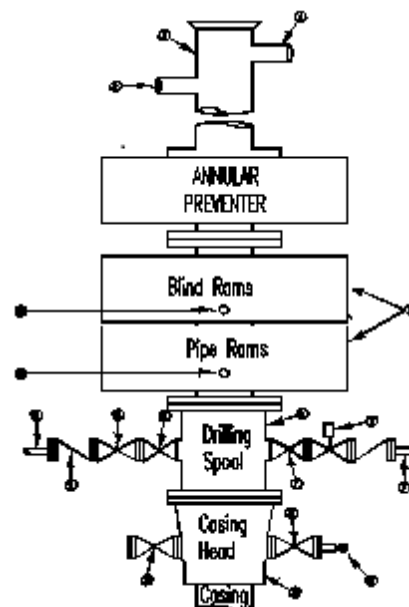
**Chaves County, New Mexico**

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.
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.

**Mack Energy Corporation**  
**Minimum Blowout Preventer Requirements**  
**3000 psi Working Pressure**  
**13 3/8 inch- 3 MWP**  
**11 Inch - 3 MWP**  
**EXHIBIT #10**

**Stack Requirements**

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



**OPTIONAL**

16	Flanged Valve	1 13/16	
----	---------------	---------	--

**CONTRACTOR'S OPTION TO FURNISH:**

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.

**MEC TO FURNISH:**

1. Bradenhead or casing head and side valves.
2. Wear bushing. If required.

**GENERAL NOTES:**

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans.

Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.

5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

# Mack Energy Corporation

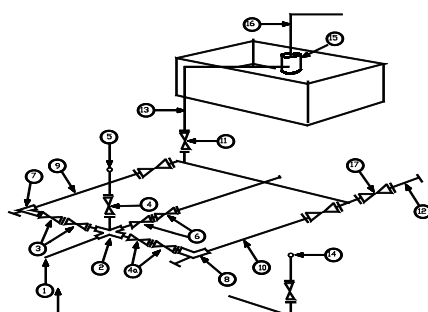
Exhibit #11

## MINIMUM CHOKE MANIFOLD

2,000, 5,000, and 10,000 PSI Working Pressure

3M will be used

2 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

\* Location of separator optional

Below Substructure

### Minimum requirements

No.		3,000 MWP			5,000 MWP			10,000 MWP		
		I.D.	Nominal	Rating	I.D.	Nominal	Rating	I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	1 13/16		3,000	1 13/16		5,000	1 13/16		10,000
4a	Valves (1)	2 1/16		3,000	2 1/16		5,000	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			3,000			5,000			10,000
15	Gas Separator		2' x5'			2' x5'			2' x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000

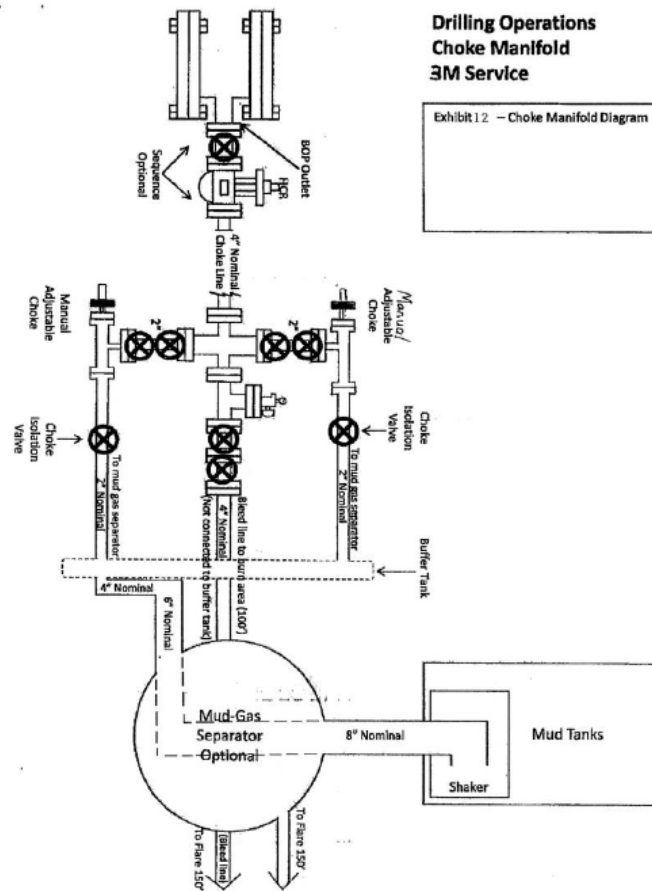
- (1) Only one required in Class 2M
- (2) Gate valves only shall be used for Class 10 M
- (3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

### EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees

**Mack Energy Corporation****MANIFOLD SCHEMATIC**

Exhibit #12



## Williams Lake Federal 1H, Plan 1

<b>Operator</b>	Mack Energy Corp			<b>Units</b>	feet, °/100ft		14:43 Monday, February 22, 2021 Page 1 of 6			
<b>Field</b>	Round Tank			<b>County</b>	Chaves		<b>Vertical Section Azimuth</b> 179.87			
<b>Well Name</b>	Williams Lake Federal 1H			<b>State</b>	New Mexico		<b>Survey Calculation Method</b> Minimum Curvature			
<b>Plan</b>	1			<b>Country</b>	USA		<b>Database</b> Access			
<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E					<b>Map Zone</b> UTM		<b>Lat Long Ref</b>			
<b>Site</b>					<b>Surface X</b> 1963349.8		<b>Surface Long</b>			
<b>Slot Name</b>					<b>Surface Y</b> 11992103.9		<b>Surface Lat</b>			
<b>Well Number</b> 1H		<b>UWI</b>			<b>Surface Z</b> 3983.8		<b>Global Z Ref</b> Sea Level			
<b>Project</b>		<b>API</b>			<b>Ground Level</b> 3965.8		<b>Local North Ref</b> Grid			
<b>MD/TVD Ref</b>		KB								
<b>DIRECTIONAL WELL PLAN</b>										
<b>MD*</b>	<b>INC*</b>	<b>AZI*</b>	<b>TVD*</b>	<b>N*</b>	<b>E*</b>	<b>DLS*</b>	<b>V. S.*</b>	<b>MapE*</b>	<b>MapN*</b>	<b>SysTVD*</b>
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
*** TIE (at MD = 2847.00)										
2847.00	0.00	0.0	2847.00	0.00	0.00		0.00	1963349.80	11992103.90	1136.80
2850.00	0.00	0.0	2850.00	0.00	0.00	0.00	0.00	1963349.80	11992103.90	1133.80
2900.00	0.00	0.0	2900.00	0.00	0.00	0.00	0.00	1963349.80	11992103.90	1083.80
*** KOP 8 DEGREE (at MD = 2947.00)										
2947.00	0.00	0.0	2947.00	0.00	0.00	0.00	0.00	1963349.80	11992103.90	1036.80
2950.00	0.24	172.3	2950.00	-0.01	0.00	8.00	0.01	1963349.80	11992103.89	1033.80
3000.00	4.24	172.3	2999.95	-1.94	0.26	8.00	1.94	1963350.06	11992101.96	983.85
3050.00	8.24	172.3	3049.65	-7.33	0.99	8.00	7.33	1963350.79	11992096.57	934.15
3100.00	12.24	172.3	3098.84	-16.13	2.18	8.00	16.14	1963351.98	11992087.77	884.96
3150.00	16.24	172.3	3147.29	-28.32	3.83	8.00	28.33	1963353.63	11992075.58	836.51
3200.00	20.24	172.3	3194.77	-43.83	5.93	8.00	43.84	1963355.73	11992060.07	789.03
3250.00	24.24	172.3	3241.04	-62.58	8.46	8.00	62.59	1963358.26	11992041.32	742.76
3300.00	28.24	172.3	3285.88	-84.48	11.42	8.00	84.50	1963361.22	11992019.42	697.92
3350.00	32.24	172.3	3329.07	-109.43	14.80	8.00	109.46	1963364.60	11991994.47	654.73
3400.00	36.24	172.3	3370.39	-137.30	18.56	8.00	137.34	1963368.36	11991966.60	613.41
3450.00	40.24	172.3	3409.66	-167.96	22.71	8.00	168.01	1963372.51	11991935.94	574.14
3500.00	44.24	172.3	3446.67	-201.27	27.21	8.00	201.33	1963377.01	11991902.63	537.13
3550.00	48.24	172.3	3481.24	-237.04	32.05	8.00	237.12	1963381.85	11991866.86	502.56
3600.00	52.24	172.3	3513.21	-275.13	37.20	8.00	275.21	1963387.00	11991828.77	470.59
*** 55 DEGREE TANGENT (at MD = 3634.50)										
3634.50	55.00	172.3	3533.67	-302.65	40.92	8.00	302.74	1963390.72	11991801.25	450.13
3650.00	55.00	172.3	3542.56	-315.23	42.62	0.00	315.33	1963392.42	11991788.67	441.24
3700.00	55.00	172.3	3571.24	-355.82	48.11	0.00	355.93	1963397.91	11991748.08	412.56
3750.00	55.00	172.3	3599.92	-396.41	53.60	0.00	396.53	1963403.40	11991707.49	383.88
*** 12 DEGREE BUILD (at MD = 3784.50)										
3784.50	55.00	172.3	3619.71	-424.41	57.38	0.00	424.54	1963407.18	11991679.49	364.09
3800.00	56.81	172.8	3628.40	-437.14	59.05	12.00	437.27	1963408.85	11991666.76	355.40
3850.00	62.68	174.3	3653.58	-480.04	63.89	12.00	480.18	1963413.69	11991623.86	330.22
3900.00	68.55	175.6	3674.22	-525.38	67.88	12.00	525.53	1963417.68	11991578.52	309.58
3950.00	74.44	176.8	3690.08	-572.67	70.99	12.00	572.83	1963420.79	11991531.23	293.72
4000.00	80.33	178.0	3701.00	-621.39	73.18	12.00	621.56	1963422.98	11991482.51	282.80
4050.00	86.23	179.1	3706.85	-671.01	74.43	12.00	671.18	1963424.23	11991432.89	276.95
*** LANDING POINT (at MD = 4083.86)										
4083.86	90.22	179.9	3707.90	-704.85	74.72	12.00	705.01	1963424.52	11991399.05	275.90
4100.00	90.22	179.9	3707.84	-720.99	74.76	0.00	721.15	1963424.56	11991382.91	275.97
4150.00	90.22	179.9	3707.64	-770.98	74.87	0.00	771.15	1963424.67	11991332.92	276.16
4200.00	90.22	179.9	3707.45	-820.98	74.99	0.00	821.15	1963424.79	11991282.92	276.35
4250.00	90.22	179.9	3707.26	-870.98	75.10	0.00	871.15	1963424.90	11991232.92	276.54

## Williams Lake Federal 1H, Plan 1

<b>Operator</b>	Mack Energy Corp			<b>Units</b>	feet, °/100ft		14:43 Monday, February 22, 2021 Page 2 of 6			
<b>Field</b>	Round Tank			<b>County</b>	Chaves		<b>Vertical Section Azimuth</b> 179.87			
<b>Well Name</b>	Williams Lake Federal 1H			<b>State</b>	New Mexico		<b>Survey Calculation Method</b> Minimum Curvature			
<b>Plan</b>	1			<b>Country</b>	USA		<b>Database</b> Access			
<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E					<b>Map Zone</b> UTM		<b>Lat Long Ref</b>			
<b>Site</b>		<b>UWI</b> <b>API</b> <b>MD/TVD Ref</b> KB			<b>Surface X</b> 1963349.8		<b>Surface Long</b>			
<b>Slot Name</b>					<b>Surface Y</b> 11992103.9		<b>Surface Lat</b>			
<b>Well Number</b> 1H					<b>Surface Z</b> 3983.8		<b>Global Z Ref</b> Sea Level			
<b>Project</b>					<b>Ground Level</b> 3965.8		<b>Local North Ref</b> Grid			
<b>DIRECTIONAL WELL PLAN</b>										
<b>MD*</b>	<b>INC*</b>	<b>AZI*</b>	<b>TVD*</b>	<b>N*</b>	<b>E*</b>	<b>DLS*</b>	<b>V. S.*</b>	<b>MapE*</b>	<b>MapN*</b>	<b>SysTVD*</b>
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
4300.00	90.22	179.9	3707.07	-920.98	75.21	0.00	921.15	1963425.01	11991182.92	276.73
4350.00	90.22	179.9	3706.88	-970.98	75.33	0.00	971.15	1963425.13	11991132.92	276.93
4400.00	90.22	179.9	3706.68	-1020.98	75.44	0.00	1021.15	1963425.24	11991082.92	277.12
4450.00	90.22	179.9	3706.49	-1070.98	75.55	0.00	1071.15	1963425.35	11991032.92	277.31
4500.00	90.22	179.9	3706.30	-1120.98	75.67	0.00	1121.15	1963425.47	11990982.92	277.50
4550.00	90.22	179.9	3706.11	-1170.98	75.78	0.00	1171.15	1963425.58	11990932.92	277.69
4600.00	90.22	179.9	3705.92	-1220.98	75.89	0.00	1221.15	1963425.69	11990882.92	277.88
4650.00	90.22	179.9	3705.72	-1270.98	76.01	0.00	1271.15	1963425.81	11990832.92	278.08
4700.00	90.22	179.9	3705.53	-1320.98	76.12	0.00	1321.15	1963425.92	11990782.92	278.27
4750.00	90.22	179.9	3705.34	-1370.98	76.23	0.00	1371.15	1963426.03	11990732.92	278.46
4800.00	90.22	179.9	3705.15	-1420.98	76.35	0.00	1421.15	1963426.15	11990682.92	278.65
4850.00	90.22	179.9	3704.96	-1470.98	76.46	0.00	1471.15	1963426.26	11990632.92	278.84
4900.00	90.22	179.9	3704.76	-1520.98	76.57	0.00	1521.15	1963426.37	11990582.92	279.04
4950.00	90.22	179.9	3704.57	-1570.98	76.69	0.00	1571.15	1963426.49	11990532.92	279.23
5000.00	90.22	179.9	3704.38	-1620.98	76.80	0.00	1621.15	1963426.60	11990482.92	279.42
5050.00	90.22	179.9	3704.19	-1670.98	76.91	0.00	1671.15	1963426.71	11990432.92	279.61
5100.00	90.22	179.9	3704.00	-1720.98	77.03	0.00	1721.15	1963426.83	11990382.92	279.80
5150.00	90.22	179.9	3703.80	-1770.97	77.14	0.00	1771.15	1963426.94	11990332.93	280.00
5200.00	90.22	179.9	3703.61	-1820.97	77.26	0.00	1821.14	1963427.06	11990282.93	280.19
5250.00	90.22	179.9	3703.42	-1870.97	77.37	0.00	1871.14	1963427.17	11990232.93	280.38
5300.00	90.22	179.9	3703.23	-1920.97	77.48	0.00	1921.14	1963427.28	11990182.93	280.57
5350.00	90.22	179.9	3703.04	-1970.97	77.60	0.00	1971.14	1963427.40	11990132.93	280.76
5400.00	90.22	179.9	3702.84	-2020.97	77.71	0.00	2021.14	1963427.51	11990082.93	280.96
5450.00	90.22	179.9	3702.65	-2070.97	77.82	0.00	2071.14	1963427.62	11990032.93	281.15
5500.00	90.22	179.9	3702.46	-2120.97	77.94	0.00	2121.14	1963427.74	11989982.93	281.34
5550.00	90.22	179.9	3702.27	-2170.97	78.05	0.00	2171.14	1963427.85	11989932.93	281.53
5600.00	90.22	179.9	3702.08	-2220.97	78.16	0.00	2221.14	1963427.96	11989882.93	281.72
5650.00	90.22	179.9	3701.88	-2270.97	78.28	0.00	2271.14	1963428.08	11989832.93	281.92
5700.00	90.22	179.9	3701.69	-2320.97	78.39	0.00	2321.14	1963428.19	11989782.93	282.11
5750.00	90.22	179.9	3701.50	-2370.97	78.50	0.00	2371.14	1963428.30	11989732.93	282.30
5800.00	90.22	179.9	3701.31	-2420.97	78.62	0.00	2421.14	1963428.42	11989682.93	282.49
5850.00	90.22	179.9	3701.12	-2470.97	78.73	0.00	2471.14	1963428.53	11989632.93	282.68
5900.00	90.22	179.9	3700.92	-2520.97	78.84	0.00	2521.14	1963428.64	11989582.93	282.88
5950.00	90.22	179.9	3700.73	-2570.97	78.96	0.00	2571.14	1963428.76	11989532.93	283.07
6000.00	90.22	179.9	3700.54	-2620.97	79.07	0.00	2621.14	1963428.87	11989482.93	283.26
6050.00	90.22	179.9	3700.35	-2670.97	79.18	0.00	2671.14	1963428.98	11989432.93	283.45
6100.00	90.22	179.9	3700.16	-2720.97	79.30	0.00	2721.14	1963429.10	11989382.93	283.64

## Williams Lake Federal 1H, Plan 1

<b>Operator</b> Mack Energy Corp	<b>Units</b> feet, °/100ft	14:43 Monday, February 22, 2021 Page 3 of 6
<b>Field</b> Round Tank	<b>County</b> Chaves	<b>Vertical Section Azimuth</b> 179.87
<b>Well Name</b> Williams Lake Federal 1H	<b>State</b> New Mexico	<b>Survey Calculation Method</b> Minimum Curvature
<b>Plan</b> 1	<b>Country</b> USA	<b>Database</b> Access
<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E	<b>Map Zone</b> UTM	<b>Lat Long Ref</b>
<b>Site</b>	<b>Surface X</b> 1963349.8	<b>Surface Long</b>
<b>Slot Name</b>	<b>Surface Y</b> 11992103.9	<b>Surface Lat</b>
<b>Well Number</b> 1H	<b>Surface Z</b> 3983.8	<b>Global Z Ref</b> Sea Level
<b>Project</b>	<b>Ground Level</b> 3965.8	<b>Local North Ref</b> Grid
<b>UWI</b>		
<b>API</b>		
<b>MD/TVD Ref</b> KB		

## 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
6150.00	90.22	179.9	3699.96	-2770.96	79.41	0.00	2771.14	1963429.21	11989332.94	283.84
6200.00	90.22	179.9	3699.77	-2820.96	79.52	0.00	2821.14	1963429.32	11989282.94	284.03
6250.00	90.22	179.9	3699.58	-2870.96	79.64	0.00	2871.14	1963429.44	11989232.94	284.22
6300.00	90.22	179.9	3699.39	-2920.96	79.75	0.00	2921.14	1963429.55	11989182.94	284.41
6350.00	90.22	179.9	3699.20	-2970.96	79.86	0.00	2971.14	1963429.66	11989132.94	284.60
6400.00	90.22	179.9	3699.00	-3020.96	79.98	0.00	3021.14	1963429.78	11989082.94	284.80
6450.00	90.22	179.9	3698.81	-3070.96	80.09	0.00	3071.14	1963429.89	11989032.94	284.99
6500.00	90.22	179.9	3698.62	-3120.96	80.20	0.00	3121.14	1963430.00	11988982.94	285.18
6550.00	90.22	179.9	3698.43	-3170.96	80.32	0.00	3171.13	1963430.12	11988932.94	285.37
6600.00	90.22	179.9	3698.24	-3220.96	80.43	0.00	3221.13	1963430.23	11988882.94	285.56
6650.00	90.22	179.9	3698.04	-3270.96	80.54	0.00	3271.13	1963430.34	11988832.94	285.76
6700.00	90.22	179.9	3697.85	-3320.96	80.66	0.00	3321.13	1963430.46	11988782.94	285.95
6750.00	90.22	179.9	3697.66	-3370.96	80.77	0.00	3371.13	1963430.57	11988732.94	286.14
6800.00	90.22	179.9	3697.47	-3420.96	80.89	0.00	3421.13	1963430.69	11988682.94	286.33
6850.00	90.22	179.9	3697.28	-3470.96	81.00	0.00	3471.13	1963430.80	11988632.94	286.52
6900.00	90.22	179.9	3697.08	-3520.96	81.11	0.00	3521.13	1963430.91	11988582.94	286.72
6950.00	90.22	179.9	3696.89	-3570.96	81.23	0.00	3571.13	1963431.03	11988532.94	286.91
7000.00	90.22	179.9	3696.70	-3620.96	81.34	0.00	3621.13	1963431.14	11988482.94	287.10
7050.00	90.22	179.9	3696.51	-3670.96	81.45	0.00	3671.13	1963431.25	11988432.94	287.29
7100.00	90.22	179.9	3696.32	-3720.96	81.57	0.00	3721.13	1963431.37	11988382.94	287.48
7150.00	90.22	179.9	3696.12	-3770.95	81.68	0.00	3771.13	1963431.48	11988332.95	287.68
7200.00	90.22	179.9	3695.93	-3820.95	81.79	0.00	3821.13	1963431.59	11988282.95	287.87
7250.00	90.22	179.9	3695.74	-3870.95	81.91	0.00	3871.13	1963431.71	11988232.95	288.06
7300.00	90.22	179.9	3695.55	-3920.95	82.02	0.00	3921.13	1963431.82	11988182.95	288.25
7350.00	90.22	179.9	3695.36	-3970.95	82.13	0.00	3971.13	1963431.93	11988132.95	288.44
7400.00	90.22	179.9	3695.16	-4020.95	82.25	0.00	4021.13	1963432.05	11988082.95	288.64
7450.00	90.22	179.9	3694.97	-4070.95	82.36	0.00	4071.13	1963432.16	11988032.95	288.83
7500.00	90.22	179.9	3694.78	-4120.95	82.47	0.00	4121.13	1963432.27	11987982.95	289.02
7550.00	90.22	179.9	3694.59	-4170.95	82.59	0.00	4171.13	1963432.39	11987932.95	289.21
7600.00	90.22	179.9	3694.40	-4220.95	82.70	0.00	4221.13	1963432.50	11987882.95	289.40
7650.00	90.22	179.9	3694.20	-4270.95	82.81	0.00	4271.13	1963432.61	11987832.95	289.60
7700.00	90.22	179.9	3694.01	-4320.95	82.93	0.00	4321.13	1963432.73	11987782.95	289.79
7750.00	90.22	179.9	3693.82	-4370.95	83.04	0.00	4371.13	1963432.84	11987732.95	289.98
7800.00	90.22	179.9	3693.63	-4420.95	83.15	0.00	4421.13	1963432.95	11987682.95	290.17
7850.00	90.22	179.9	3693.44	-4470.95	83.27	0.00	4471.13	1963433.07	11987632.95	290.36
7900.00	90.22	179.9	3693.24	-4520.95	83.38	0.00	4521.13	1963433.18	11987582.95	290.56
7950.00	90.22	179.9	3693.05	-4570.95	83.49	0.00	4571.12	1963433.29	11987532.95	290.75
8000.00	90.22	179.9	3692.86	-4620.95	83.61	0.00	4621.12	1963433.41	11987482.95	290.94



## Williams Lake Federal 1H, Plan 1

<b>Operator</b> Mack Energy Corp	<b>Units</b> feet, °/100ft	14:43 Monday, February 22, 2021 Page 4 of 6
<b>Field</b> Round Tank	<b>County</b> Chaves	<b>Vertical Section Azimuth</b> 179.87
<b>Well Name</b> Williams Lake Federal 1H	<b>State</b> New Mexico	<b>Survey Calculation Method</b> Minimum Curvature
<b>Plan</b> 1	<b>Country</b> USA	<b>Database</b> Access

<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E	<b>Map Zone</b> UTM	<b>Lat Long Ref</b>
<b>Site</b>	<b>Surface X</b> 1963349.8	<b>Surface Long</b>
<b>Slot Name</b>	<b>Surface Y</b> 11992103.9	<b>Surface Lat</b>
<b>Well Number</b> 1H	<b>Surface Z</b> 3983.8	<b>Global Z Ref</b> Sea Level
<b>Project</b>	<b>Ground Level</b> 3965.8	<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
8050.00	90.22	179.9	3692.67	-4670.95	83.72	0.00	4671.12	1963433.52	11987432.95	291.13
8100.00	90.22	179.9	3692.48	-4720.95	83.83	0.00	4721.12	1963433.63	11987382.95	291.32
8150.00	90.22	179.9	3692.28	-4770.94	83.95	0.00	4771.12	1963433.75	11987332.96	291.52
8200.00	90.22	179.9	3692.09	-4820.94	84.06	0.00	4821.12	1963433.86	11987282.96	291.71
8250.00	90.22	179.9	3691.90	-4870.94	84.18	0.00	4871.12	1963433.98	11987232.96	291.90
8300.00	90.22	179.9	3691.71	-4920.94	84.29	0.00	4921.12	1963434.09	11987182.96	292.09
8350.00	90.22	179.9	3691.52	-4970.94	84.40	0.00	4971.12	1963434.20	11987132.96	292.28
8400.00	90.22	179.9	3691.32	-5020.94	84.52	0.00	5021.12	1963434.32	11987082.96	292.48
8450.00	90.22	179.9	3691.13	-5070.94	84.63	0.00	5071.12	1963434.43	11987032.96	292.67
8500.00	90.22	179.9	3690.94	-5120.94	84.74	0.00	5121.12	1963434.54	11986982.96	292.86
8550.00	90.22	179.9	3690.75	-5170.94	84.86	0.00	5171.12	1963434.66	11986932.96	293.05
8600.00	90.22	179.9	3690.56	-5220.94	84.97	0.00	5221.12	1963434.77	11986882.96	293.24
8650.00	90.22	179.9	3690.36	-5270.94	85.08	0.00	5271.12	1963434.88	11986832.96	293.44
8700.00	90.22	179.9	3690.17	-5320.94	85.20	0.00	5321.12	1963435.00	11986782.96	293.63
8750.00	90.22	179.9	3689.98	-5370.94	85.31	0.00	5371.12	1963435.11	11986732.96	293.82
8800.00	90.22	179.9	3689.79	-5420.94	85.42	0.00	5421.12	1963435.22	11986682.96	294.01
8850.00	90.22	179.9	3689.60	-5470.94	85.54	0.00	5471.12	1963435.34	11986632.96	294.20
8900.00	90.22	179.9	3689.40	-5520.94	85.65	0.00	5521.12	1963435.45	11986582.96	294.40
8950.00	90.22	179.9	3689.21	-5570.94	85.76	0.00	5571.12	1963435.56	11986532.96	294.59
9000.00	90.22	179.9	3689.02	-5620.94	85.88	0.00	5621.12	1963435.68	11986482.96	294.78
9050.00	90.22	179.9	3688.83	-5670.94	85.99	0.00	5671.12	1963435.79	11986432.96	294.97
9100.00	90.22	179.9	3688.64	-5720.94	86.10	0.00	5721.12	1963435.90	11986382.96	295.16
9150.00	90.22	179.9	3688.44	-5770.94	86.22	0.00	5771.12	1963436.02	11986332.97	295.36
9200.00	90.22	179.9	3688.25	-5820.93	86.33	0.00	5821.12	1963436.13	11986282.97	295.55
9250.00	90.22	179.9	3688.06	-5870.93	86.44	0.00	5871.12	1963436.24	11986232.97	295.74
9300.00	90.22	179.9	3687.87	-5920.93	86.56	0.00	5921.11	1963436.36	11986182.97	295.93
9350.00	90.22	179.9	3687.68	-5970.93	86.67	0.00	5971.11	1963436.47	11986132.97	296.12
9400.00	90.22	179.9	3687.48	-6020.93	86.78	0.00	6021.11	1963436.58	11986082.97	296.32
9450.00	90.22	179.9	3687.29	-6070.93	86.90	0.00	6071.11	1963436.70	11986032.97	296.51
9500.00	90.22	179.9	3687.10	-6120.93	87.01	0.00	6121.11	1963436.81	11985982.97	296.70
9550.00	90.22	179.9	3686.91	-6170.93	87.12	0.00	6171.11	1963436.92	11985932.97	296.89
9600.00	90.22	179.9	3686.72	-6220.93	87.24	0.00	6221.11	1963437.04	11985882.97	297.08
9650.00	90.22	179.9	3686.52	-6270.93	87.35	0.00	6271.11	1963437.15	11985832.97	297.28
9700.00	90.22	179.9	3686.33	-6320.93	87.47	0.00	6321.11	1963437.27	11985782.97	297.47
9750.00	90.22	179.9	3686.14	-6370.93	87.58	0.00	6371.11	1963437.38	11985732.97	297.66
9800.00	90.22	179.9	3685.95	-6420.93	87.69	0.00	6421.11	1963437.49	11985682.97	297.85
9850.00	90.22	179.9	3685.76	-6470.93	87.81	0.00	6471.11	1963437.61	11985632.97	298.04



## Williams Lake Federal 1H, Plan 1

<b>Operator</b> Mack Energy Corp	<b>Units</b> feet, °/100ft	14:43 Monday, February 22, 2021 Page 5 of 6
<b>Field</b> Round Tank	<b>County</b> Chaves	<b>Vertical Section Azimuth</b> 179.87
<b>Well Name</b> Williams Lake Federal 1H	<b>State</b> New Mexico	<b>Survey Calculation Method</b> Minimum Curvature
<b>Plan</b> 1	<b>Country</b> USA	<b>Database</b> Access

<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E	<b>Map Zone</b> UTM	<b>Lat Long Ref</b>
<b>Site</b>	<b>Surface X</b> 1963349.8	<b>Surface Long</b>
<b>Slot Name</b>	<b>Surface Y</b> 11992103.9	<b>Surface Lat</b>
<b>Well Number</b> 1H	<b>Surface Z</b> 3983.8	<b>Global Z Ref</b> Sea Level
<b>Project</b>	<b>Ground Level</b> 3965.8	<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
9900.00	90.22	179.9	3685.56	-6520.93	87.92	0.00	6521.11	1963437.72	11985582.97	298.24
9950.00	90.22	179.9	3685.37	-6570.93	88.03	0.00	6571.11	1963437.83	11985532.97	298.43
10000.00	90.22	179.9	3685.18	-6620.93	88.15	0.00	6621.11	1963437.95	11985482.97	298.62
10050.00	90.22	179.9	3684.99	-6670.93	88.26	0.00	6671.11	1963438.06	11985432.97	298.81
10100.00	90.22	179.9	3684.80	-6720.93	88.37	0.00	6721.11	1963438.17	11985382.97	299.00
10150.00	90.22	179.9	3684.60	-6770.93	88.49	0.00	6771.11	1963438.29	11985332.98	299.20
10200.00	90.22	179.9	3684.41	-6820.92	88.60	0.00	6821.11	1963438.40	11985282.98	299.39
10250.00	90.22	179.9	3684.22	-6870.92	88.71	0.00	6871.11	1963438.51	11985232.98	299.58
10300.00	90.22	179.9	3684.03	-6920.92	88.83	0.00	6921.11	1963438.63	11985182.98	299.77
10350.00	90.22	179.9	3683.84	-6970.92	88.94	0.00	6971.11	1963438.74	11985132.98	299.96
10400.00	90.22	179.9	3683.64	-7020.92	89.05	0.00	7021.11	1963438.85	11985082.98	300.16
10450.00	90.22	179.9	3683.45	-7070.92	89.17	0.00	7071.11	1963438.97	11985032.98	300.35
10500.00	90.22	179.9	3683.26	-7120.92	89.28	0.00	7121.11	1963439.08	11984982.98	300.54
10550.00	90.22	179.9	3683.07	-7170.92	89.39	0.00	7171.11	1963439.19	11984932.98	300.73
10600.00	90.22	179.9	3682.88	-7220.92	89.51	0.00	7221.11	1963439.31	11984882.98	300.92
10650.00	90.22	179.9	3682.68	-7270.92	89.62	0.00	7271.10	1963439.42	11984832.98	301.12
10700.00	90.22	179.9	3682.49	-7320.92	89.73	0.00	7321.10	1963439.53	11984782.98	301.31
10750.00	90.22	179.9	3682.30	-7370.92	89.85	0.00	7371.10	1963439.65	11984732.98	301.50
10800.00	90.22	179.9	3682.11	-7420.92	89.96	0.00	7421.10	1963439.76	11984682.98	301.69
10850.00	90.22	179.9	3681.92	-7470.92	90.07	0.00	7471.10	1963439.87	11984632.98	301.88
10900.00	90.22	179.9	3681.72	-7520.92	90.19	0.00	7521.10	1963439.99	11984582.98	302.08
10950.00	90.22	179.9	3681.53	-7570.92	90.30	0.00	7571.10	1963440.10	11984532.98	302.27
11000.00	90.22	179.9	3681.34	-7620.92	90.41	0.00	7621.10	1963440.21	11984482.98	302.46
11050.00	90.22	179.9	3681.15	-7670.92	90.53	0.00	7671.10	1963440.33	11984432.98	302.65
11100.00	90.22	179.9	3680.96	-7720.92	90.64	0.00	7721.10	1963440.44	11984382.98	302.84
11150.00	90.22	179.9	3680.77	-7770.92	90.76	0.00	7771.10	1963440.56	11984332.98	303.04
11200.00	90.22	179.9	3680.57	-7820.91	90.87	0.00	7821.10	1963440.67	11984282.99	303.23
11250.00	90.22	179.9	3680.38	-7870.91	90.98	0.00	7871.10	1963440.78	11984232.99	303.42
11300.00	90.22	179.9	3680.19	-7920.91	91.10	0.00	7921.10	1963440.90	11984182.99	303.61
11350.00	90.22	179.9	3680.00	-7970.91	91.21	0.00	7971.10	1963441.01	11984132.99	303.80
11400.00	90.22	179.9	3679.81	-8020.91	91.32	0.00	8021.10	1963441.12	11984082.99	303.99
11450.00	90.22	179.9	3679.61	-8070.91	91.44	0.00	8071.10	1963441.24	11984032.99	304.19
11500.00	90.22	179.9	3679.42	-8120.91	91.55	0.00	8121.10	1963441.35	11983982.99	304.38
11550.00	90.22	179.9	3679.23	-8170.91	91.66	0.00	8171.10	1963441.46	11983932.99	304.57
11600.00	90.22	179.9	3679.04	-8220.91	91.78	0.00	8221.10	1963441.58	11983882.99	304.76
11650.00	90.22	179.9	3678.85	-8270.91	91.89	0.00	8271.10	1963441.69	11983832.99	304.95
11700.00	90.22	179.9	3678.65	-8320.91	92.00	0.00	8321.10	1963441.80	11983782.99	305.15
11750.00	90.22	179.9	3678.46	-8370.91	92.12	0.00	8371.10	1963441.92	11983732.99	305.34

## Williams Lake Federal 1H, Plan 1

<b>Operator</b> Mack Energy Corp	<b>Units</b> feet, °/100ft	14:43 Monday, February 22, 2021 Page 6 of 6
<b>Field</b> Round Tank	<b>County</b> Chaves	<b>Vertical Section Azimuth</b> 179.87
<b>Well Name</b> Williams Lake Federal 1H	<b>State</b> New Mexico	<b>Survey Calculation Method</b> Minimum Curvature
<b>Plan</b> 1	<b>Country</b> USA	<b>Database</b> Access
<b>Location</b> SL: 1825 FNL & 2385 FEL Section 8-T15S-R30E BHL: 1 FSL & 2310 FEL Section 17-T15S-30E	<b>Map Zone</b> UTM	<b>Lat Long Ref</b>
<b>Site</b>	<b>Surface X</b> 1963349.8	<b>Surface Long</b>
<b>Slot Name</b>	<b>Surface Y</b> 11992103.9	<b>Surface Lat</b>
<b>Well Number</b> 1H	<b>Surface Z</b> 3983.8	<b>Global Z Ref</b> Sea Level
<b>Project</b>	<b>Ground Level</b> 3965.8	<b>Local North Ref</b> Grid
<b>UWI</b>		
<b>API</b>		
<b>MD/TVD Ref</b> KB		

~~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
11800.00	90.22	179.9	3678.27	-8420.91	92.23	0.00	8421.10	1963442.03	11983682.99	305.53
11850.00	90.22	179.9	3678.08	-8470.91	92.34	0.00	8471.10	1963442.14	11983632.99	305.72
11900.00	90.22	179.9	3677.89	-8520.91	92.46	0.00	8521.10	1963442.26	11983582.99	305.91
11950.00	90.22	179.9	3677.69	-8570.91	92.57	0.00	8571.10	1963442.37	11983532.99	306.11
12000.00	90.22	179.9	3677.50	-8620.91	92.68	0.00	8621.09	1963442.48	11983482.99	306.30
12050.00	90.22	179.9	3677.31	-8670.91	92.80	0.00	8671.09	1963442.60	11983432.99	306.49
12100.00	90.22	179.9	3677.12	-8720.91	92.91	0.00	8721.09	1963442.71	11983382.99	306.68
*** TD (at MD = 12115.86)										
12115.86	90.22	179.9	3677.06	-8736.77	92.95	0.00	8736.95	1963442.75	11983367.13	306.74

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MACK ENERGY CORPORATION
LEASE NO.:	NMNM-138841
WELL NAME & NO.:	WILLIAMS LAKE FEDERAL #1H
SURFACE HOLE	[1825] ' F [N] L [2385] ' F
FOOTAGE:	[E] L
LOCATION:	Section 8, T 15. S., R 30 E., NMPM
COUNTY:	Chaves County, New Mexico

### 1. GENERAL PROVISIONS

Approval of the APD does not warrant that any party holds equitable or legal title. Any request for a variance shall be submitted to the Authorized Officer on Sundry Notice (Form 3160-5).

For BLM's surface operating standards and guidelines, refer to: The Gold Book, Fourth Edition - Revised 2007. To obtain a copy free of charge contact the Roswell Field Office (575) 627-0272 or visit BLM on the web at:  
[http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices/gold\\_book.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/gold_book.html)

All construction, operations, and reclamation shall follow the Onshore Oil and Gas Operations as described in the 43 CFR part 3160.

The Operator shall submit a Sundry Notice (Form 3160-5) to the Bureau of Land Management, Roswell Field Office (address above) for approval prior to beginning any new surface-disturbing activities or operations that are not specifically addressed and approved by this APD.

A site facility diagram and a site security plan shall be filed no later than 60 calendar days following first production (Onshore Order 3, Section III, I. and 43 CFR 3162.7-5).

## **2. PERMIT EXPIRATION**

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

## **3. JURISDICTIONAL WATERS of the U.S.**

The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers prior to discharge or dredge and fill material into waters of the United States in accordance with Section 404 of the Clean Water Act. Contact The U.S. Army Corps of Engineers regulatory New Mexico Branch Office, 4101 Jefferson Plaza NE, Albuquerque, NM 87109-3435 at (505) 342-3678 or Email: [CESPA-RD-NM@usace.army.mil](mailto:CESPA-RD-NM@usace.army.mil) if you have questions.

## **4. ARCHAEOLOGICAL, PALEONTOLOGICAL & HISTORICAL SITES**

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

## **5. HUMAN REMAINS AND OBJECTS OF CULTURAL PATRIMONY**

The operator shall comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, funerary objects, sacred objects, and objects of cultural patrimony that are discovered inadvertently during project implementation. In the event that any of the cultural items listed above are

discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes.

## **6. NOXIOUS WEEDS**

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

## **7. CAVE AND KARST**

Any Cave or Karst feature discovered by the operator or by any person working on the operator's behalf shall immediately report the feature to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids.

To mitigate or lessen the probability of impacts associated with the drilling and production of oil and gas wells in karst areas, the guidelines listed in Appendix 3, Practices for Oil and Gas Drilling and Production in Cave and Karst Areas, as approved in the Roswell Resource Management Plan Amendment of 1997, page AP3-4 through AP 3-7 shall be followed.

A more complete discussion of the impacts of oil and gas drilling can be found in the *Dark Canyon Environmental Impact*

Statement of 1993, published by the U.S. Department of the Interior, Bureau of Land Management.

## 8. CONSTRUCTION

**NOTIFICATION:** The BLM shall administer compliance and monitor construction of the access road and well pad. Notify Natural Resource Specialist, Ricky Flores at (575) 627-0339 or the Roswell Field Office at (575) 627-0272 at least three (3) working days prior to commencing construction of the access road and/or well pad.

A complete copy of the approved APD and the attached Conditions of Approval (COAs) **shall be kept on the well's location** for reference upon inspections.

Construction over and/or immediately adjacent to existing pipelines shall be coordinated, and in accordance with, the relevant pipeline companies' policy.

Any trench left open for (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, an agency approved monitor shall walk the entire length of the open trench and remove all trapped fauna. The bottom surface of the trench will be disturbed a minimum of 2 inches in order to arouse any buried fauna. All fauna will be released a minimum of 100 yards from the trench.

For trenches left open for (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench. Structures will also be authorized within the trench. Metal structures will not be authorized. Structures used as escape ramps will be placed at no more than a 30 degree slope and spaced no more than 500 feet apart.

## 9. TOPSOIL:

When saturated soil conditions exist on access roads or location, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads and locations.

Topsoil shall be stripped following removal of vegetation during construction of well pads, pipelines, roads, or other surface facilities. This shall include all growth medium - at a minimum,

the upper 2-6 inches of soil - but shall also include stripping of any additional topsoil present at a site, such as indicated by color or texture. Stripping depth may be specified during the onsite inspection. Stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to interim seedbed preparation. No topsoil shall be stripped when soils are moisture-saturated or frozen below the stripping depth.

The topsoil will not be used to construct the containment structures or earthen dikes that are on the outside boundaries of the constructed well pad, tanks, and storage facilities.

Each construction area is site specific as to topsoil depth. It is the operator's responsibility to ensure that topsoil, caliche, or spoils are not mixed together.

**(Pads):** topsoil will be stripped and stored in separate piles from the spoils pile. They can be stored on opposite or adjacent sides. If topsoil and spoils must be stored on the same pad side together they shall be no closer than toe to toe, not overlapping. Each pile shall be kept within 30 feet of the pad's side. 100% of the topsoil will be used for both interim and final reclamation. 100% of topsoil will be respread over the disturbed areas during reclamation.

**(Roads):** topsoil shall be stripped in such a way to follow the road's edge outside of the surfacing or drivable area. During final reclamation, after removal of surface material and re-contouring, 100% of topsoil will be respread over the disturbed areas during reclamation. Vegetation in the topsoil will help hold re-seeding, moisture content, and reduce erosion.

#### **10. WELL PAD SURFACING:**

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need. Surfacing of the well pad is not required. If the operator elects to surface the well pad, the surfacing material will be required to be removed at the time of reclamation.

#### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattle guard(s) on the access road



shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guard(s) that are in place and are utilized during lease operations. Gates or cattle guards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the authorized officer. A gate shall be constructed and fastened securely to H-braces.

### **Fence Requirement**

The operator shall notify the private surface landowner or the grazing allotment operator prior to crossing any fence(s). Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

## **11. PRODUCTION:**

### **Storage**

Fiberglass storage tanks are **not** permitted for the storage of production.

### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim reclamation and re-vegetation of the well location.

### **Containment Structures**

All production facilities shall have a lined containment structure large enough to contain **110% of the largest Tank (PLUS) 24 hours of production** (43 CFR 3162.5-1) ***Environmental Obligations***, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **OIL GREEN** (Standard Environmental Color Chart June 2008).

### **Completion Report**



In accordance with 43 CFR 3160, Form 3160-4 (Well Completion or Re-completion Report and Log) must be submitted to the Bureau of Land Management, Roswell Field Office within 30 days after completion of the well or producer. Copies of all open hole and cased hole logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, formation test reports, stimulation reports, directional survey (if applicable), and all other surveys or data obtained and compiled during the drilling, completion, and/or work over operations, shall be included with Form 3160-4.

## **12. INTERIM RECLAMATION:**

Reclamation earthwork for interim and/or final reclamation shall be completed within 6 months of well completion or well plugging (weather permitting), and shall consist of: 1) backfilling pits, 2) re-contouring and stabilizing the well site, access road, cut/fill slopes, drainage channels, utility and pipeline corridors, and all other disturbed areas, to approximately the original contour, shape, function, and configuration that existed before construction (any compacted backfilling activities shall ensure proper spoils placement, settling, and stabilization, 3) surface ripping, prior to topsoil placement, to a depth of 18-24 inches deep on 18-24 inch centers to reduce compaction, 4) final grading and replacement of all topsoil so that no topsoil's remains in the stockpile, 5) seeding in accordance with reclamation portions of the APD and these COA's.

Any subsequent re-disturbance of interim reclamation shall be reclaimed within six (6) months by the same means described above.

### **Prior to conducting interim reclamation, the operator is required to:**

- Submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.
- Contact BLM at least three (3) working days prior to conducting any interim reclamation activities, and prior to seeding.

During reclamation, the removal of caliche is important to increasing the success of re-vegetating the site. Removed caliche may be used in road repairs, fire walls or for building

other roads and locations. In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing re-vegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be re-vegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Use a certified noxious weed-free seed mixture. Use seed tested for viability and purity in accordance with State law(s) within nine months prior to purchase. Use a commercial seed mixture certified or registered and tagged in accordance with State law(s). Make the seed mixture labels available for BLM inspection.

**13. SEED MIX:**

SEE ATTACHED SEED MIX.

WELL NAME	ECOSITE (ACCESS ROAD)	ECOSITE (PAD)
WILLIAMS LAKE FEDERAL #1H	SHALLOW SD-3	SHALLOW SD-3

**14. FINAL ABANDONMENT:**

**A.** Upon abandonment of the well a Notice of Intent for Plug and Abandonment describing plugging procedures. Followed within 30 days you shall file with this office, a Subsequent Report of Abandonment (Form 3160-5). To be included with this report is where the plugs were placed; volumes of cement used and well bore schematic as plugged.

**B.** On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements and a copy of the release is to be submitted upon abandonment.

**C.** The Operator shall promptly plug and abandoned each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval from this office. When justified by the Operator, BLM may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well which is to be permanently abandoned, the

surface of the lands disturbed shall be reclaimed in accordance with an approved Notice of Intent for final reclamation.

**D. Final reclamation shall include:** the removal of all solid waste, trash, surfacing materials, storage facilities and all other related equipment, flow lines, and meter housing, power poles, guy wires, and all other related power materials. All disturbed areas, i.e. cuts and fills, shall be re-contoured to their original surroundings. 100% of topsoil shall be used to resurface all disturbed areas including access roads. A label of the seed mix used shall be submitted with the Final Abandonment Notice (FAN) for review once reclamation is complete.

#### **15. PIPELINE PROTECTION REQUIREMENT:**

Precautionary measures shall be taken by the operator during construction of the access road to protect existing pipelines that the access road will cross over. An earthen berm; 2 feet high by 3 feet wide and 14 feet across the access road travelway (2' X 3' X 14'), shall be constructed over existing pipelines. The operator shall be held responsible for any damage to existing pipelines. If the pipeline is ruptured and/or damaged the operator shall immediately cease construction operations and repair the pipeline. The operator shall be held liable for any unsafe construction operations that threaten human life and/or cause the destruction of equipment.

#### **16. WILDLIFE PROTECTION MEASURES - Best Management Practices (BMPs)**

All pipelines laid on the surface will have sloped dirt berms built over them every 100 yards to allow reptiles, amphibians, small mammals, ground-dwelling birds and their broods access over them. Dirt berms should be no less than 12 inches in width and extend over all surface pipelines within the Right of Way. Berms should be maintained for the life of the project.

##### **Wildlife Mortality - General**

The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

- 1. Closed top tanks are required for any containment system.**  
All tanks are required to have a closed top tank.

## **2. Chemical and Fuel Secondary Containment Systems**

Chemical and Fuel Secondary Containment and Exclosure Screening – The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. Closed-top tanks are required for any secondary containment systems.

## **3. Open-Vent Exhaust Stacks**

Open-Vent Exhaust Stack Exclosures – The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

## **17. WASTE, HAZARDOUS AND SOLID:**

Waste materials produced during all phases of operation will be disposed of promptly in an approved manner so it will not impact the air, soil, water, vegetation or animals. “Waste” means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment. All liquid waste, completion fluids and drilling products associated with oil and gas operations will be contained and then removed and deposited in an approved disposal site. Portable toilets will remain on site throughout well pad construction, drilling and reclamation.

The operator and contractors shall ensure that all use, production, storage, transportation and disposal of hazardous materials, solid wastes and hazardous wastes associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. A file will be maintained onsite containing current Safety Data Sheets (SDS) for all chemicals, compounds and/or substances which are used in the course of construction, drilling, completion and production operations.

## **18. SURFACE WATER AND GROUNDWATER PROTECTION MEASURES – Best Management Practices (BMPs)\**

A containment structure or earthen dike shall be constructed and maintained around the north, and east outside boundary of the well pad. The containment structure or earthen dike shall be constructed two (2) feet high (the containment structure or earthen dike can be constructed higher than the two (2) feet high minimum). The containment structure or earthen dike is required so that if a oilfield waste contaminant or product contaminant were leaked, spilled, and or released upon the well pad the oilfield waste contaminant or product contaminant shall be contained in order to prevent the contaminant from entering into the ephemeral drainage located north and east and downslope of the well pad location.

**PECOS DISTRICT  
DRILLING OPERATIONS  
CONDITIONS OF APPROVAL**

<b>OPERATOR'S NAME:</b>	<b>Mack Energy Corporation</b>
<b>LEASE NO.:</b>	<b>NMNM-141493</b>
<b>WELL NAME &amp; NO.:</b>	<b>Williams Lake Federal 1H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>1825' FNL &amp; 2385' FEL</b>
<b>BOTTOM HOLE FOOTAGE:</b>	<b>0001' FSL &amp; 2310' FEL Sec. 17, T. 15 S., R 30 E.</b>
<b>LOCATION:</b>	<b>Section 08, T. 15 S., R 30 E., NMPM</b>
<b>COUNTY:</b>	<b>Chaves County, New Mexico</b>

The Gamma Ray and Neutron well logs must be run from total depth to surface and e-mailed to Chris Bolen at [cbolen@blm.gov](mailto:cbolen@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.**

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

### **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.**

**Possibility of water flows in the Rustler, Queen, Rustler, 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 **575** 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.

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

2. 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.
3. 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. 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 (Installing 3M BOP, testing to 2,000 psi). BOP specs must be on location for PET inspection.**
3. 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 05242021**

**Mack Energy Corporation**  
**Williams Lake Federal #1H NMNM-141493, NMNM-138842**  
**SHL : 1825 FNL & 2385 FEL, SWNE, Sec. 8 T15S R30E**  
**BHL : 1 FSL & 2310 FEL, SWSE, Sec. 17 T15S R30E**  
**Chaves County, NM**

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## **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 tubulars 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 reasonably 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

Williams Lake Federal #1H NMNM-141493, NMNM-138842

SHL : 1825 FNL &amp; 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL &amp; 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

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**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.

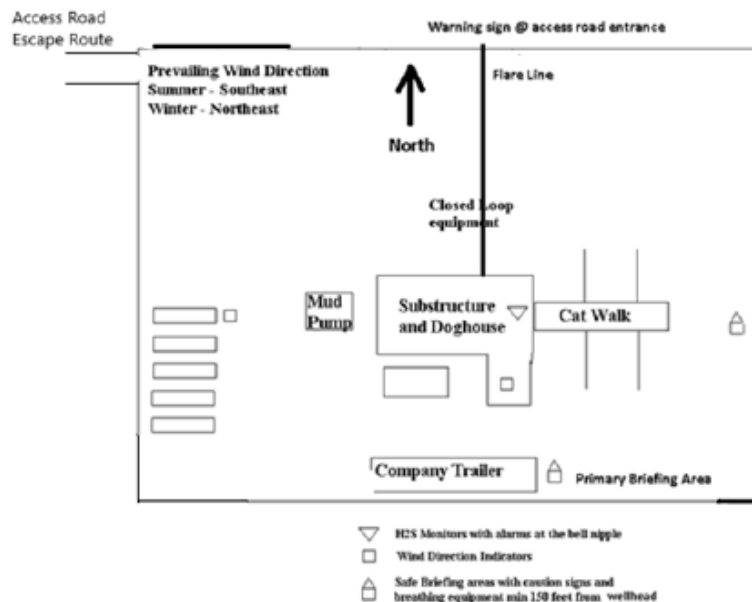
Attached to Form 5160-3

**Mack Energy Corporation****Williams Lake Federal #1H NMNM-141493, NMNM-138842****SHL : 1825 FNL & 2385 FEL, SWNE, Sec. 8 T15S R30E****BHL : 1 FSL & 2310 FEL, SWSE, Sec. 17 T15S R30E****Chaves County, NM**

B. There will be no drill stem testing.

**EXHIBIT #7**

<p style="text-align: center;"><b>WARNING</b></p> <p style="text-align: center;"><b>YOU ARE ENTERING AN H2S</b></p> <p style="text-align: center;"><b>AUTHORIZED PERSONNEL ONLY</b></p> <p><b>1. BEARDS OR CONTACT LENSES NOT ALLOWED</b></p> <p><b>2. HARD HATS REQUIRED</b></p> <p><b>3. SMOKING IN DESIGNATED AREAS ONLY</b></p> <p><b>4. BE WIND CONSCIOUS AT ALL TIMES</b></p> <p><b>5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE</b></p> <p style="text-align: center;"><b>MACK ENERGY CORPORATION</b></p> <p style="text-align: center;"><b>1-575-748-1288</b></p>
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Attached to Form 5160-3

Mack Energy Corporation

Williams Lake Federal #1H NMNM-141493, NMNM-138842

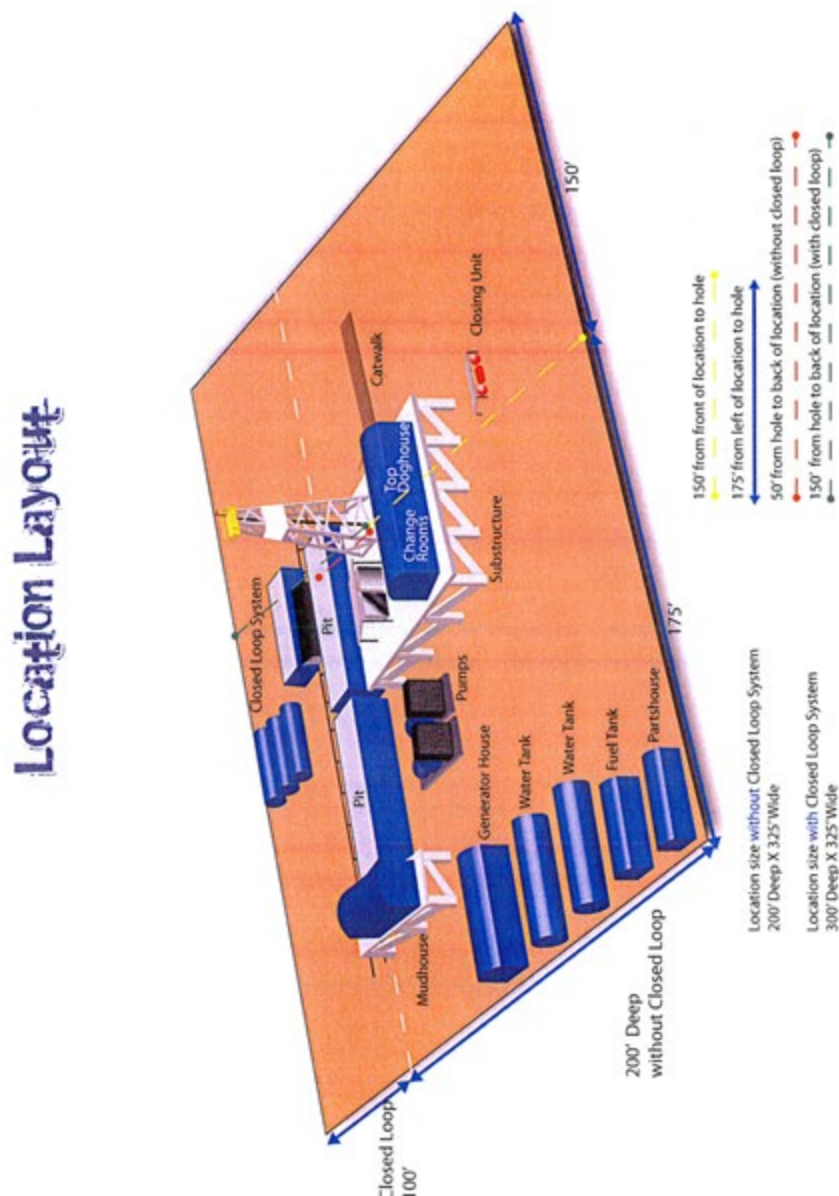
SHL : 1825 FNL &amp; 2385 FEL, SWNE, Sec. 8 T15S R30E

BHL : 1 FSL &amp; 2310 FEL, SWSE, Sec. 17 T15S R30E

Chaves County, NM

## DRILLING LOCATION H2S SAFETY EQUIPMENT

## Exhibit # 8



**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

# Mack Energy Corporation

Legal Description:  
Mack Energy-San Andres MDP Area  
Chaves Co. New Mexico  
Various Sections  
T-15-S, R-28-E and R-29-E

## H2S "Contingency Plan"

1



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## H2S CONTINGENCY PLAN SECTION

### Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H<sub>2</sub>S).

### Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H<sub>2</sub>S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

### Discussion of Plan:

#### Suspected Problem Zones:

**Implementation:** This plan, with all details, is to be fully implemented 1000' before drilling into the first sour zone.

**Emergency Response Procedure:** This section outlines the conditions and denotes steps to be taken in the event of an emergency.

**Emergency Equipment and Procedure:** This section outlines the safety and emergency equipment that will be required for the drilling of this well.

**Training Provisions:** This section outlines the training provisions that must be adhered to 1000' before drilling into the first sour zone.

**Emergency call list:** Included are the telephone numbers of all persons that would need to be contacted, should an H<sub>2</sub>S emergency occur.

**Briefing:** This section deals with the briefing of all persons involved with the drilling of this well.

**Public Safety:** Public Safety Personnel will be made aware of the drilling of this well.

**Check Lists:** Status check lists and procedural check lists have been included to ensure adherence to the plan.

**General/Information:** A general information section has been included to supply support information.

## EMERGENCY PROCEDURES SECTION

I. In the event of any evidence of H<sub>2</sub>S level above 10ppm, take the following steps immediately:

- a. Secure breathing apparatus.
- b. Order non-essential personnel out of the danger zone.
- c. Take steps to determine if the H<sub>2</sub>S level can be corrected or suppressed, and if so, proceed with normal operations.

II. If uncontrollable conditions occur, proceed with the following:

- a. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify public safety personnel and the New Mexico Oil Conservation Division or Bureau of Land Management, whichever is appropriate, of the situation.
- b. Remove all personnel to the Safe Briefing Area.
- c. Notify public safety personnel for help with maintaining roadblocks and implementing evacuation.
- d. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.

III. Responsibility:

- a. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
- b. The Company Approved Supervisor shall be in complete command during any emergency.
- c. The Company Approved Supervisor shall designate a back-up Supervisor in the event that he/she is not available.

## EMERGENCY PROCEDURE IMPLEMENTATION

### I. Drilling or Tripping

#### *a. All Personnel*

- i. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
- ii. Check status of other personnel (buddy system).
- iii. Secure breathing apparatus.
- iv. Wait for orders from supervisor.

#### *b. Drilling Foreman*

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
- iii. Determine the concentration of H<sub>2</sub>S.
- iv. Assess the situation and take appropriate control measures.

#### *c. Tool Pusher*

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
- iii. Determine the concentration of H<sub>2</sub>S.
- iv. Assess the situation and take appropriate control measures.

#### *d. Driller*

- i. Check the status of other personnel (in a rescue attempt, always use the buddy system).
- ii. Assign the least essential person to notify the Drilling Foreman and Tool Pusher, in the event of their absence.
- iii. Assume the responsibility of the Drilling Foreman and the Tool Pusher until they arrive, in the event of their absence.

e. Derrick Man and Floor Hands

- i. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

f. Mud Engineer

- i. Report to the upwind Safe Briefing Area.
- ii. When instructed, begin check of mud for pH level and H<sub>2</sub>S level.

g. Safety Personnel

- i. Don Breathing Apparatus.
- ii. Check status of personnel.
- iii. Wait for instructions from Drilling Foreman or Tool Pusher.

## II. Taking a Kick

- a. All Personnel report to the upwind Safe Briefing Area.
- b. Follow standard BOP procedures.

## III. Open Hole Logging

- a. All unnecessary personnel should leave the rig floor.
- b. Drilling Foreman and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

## IV. Running Casing or Plugging

- a. Follow "Drilling or Tripping" procedures.
- b. Assure that all personnel have access to protective equipment.



## **SIMULATED BLOWOUT CONTROL DRILLS**

All drills will be initiated by activating alarm devices (air horn). One long blast, on the air horn, for ACTUAL and SIMULATED Blowout Control Drills. This operation will be performed by the Drilling Foreman or Tool Pusher at least one time per week for each of the following conditions, with each crew:

- |          |                     |
|----------|---------------------|
| Drill #1 | Bottom Drilling     |
| Drill #2 | Tripping Drill Pipe |

In each of these drills, the initial reaction time to shutting in the well shall be timed as well as the total time for the crew to complete its entire pit drill assignment. The times must be recorded on the IADC Driller's Log as "Blowout Control Drill".

Drill No.:  
Reaction Time to Shut-In:        minutes,        seconds.  
Total Time to Complete Assignment:        minutes,        seconds.

### **I. Drill Overviews**

- a. Drill No. 1-Bottom Drilling
  - i. Sound the alarm immediately.
  - ii. Stop the rotary and hoist Kelly joint above the rotary table.
  - iii. Stop the circulatory pump.
  - iv. Close the drill pipe rams.
  - v. Record casing and drill pipe shut-in pressures and pit volume increases.
- b. Drill No. 2-Tripping Drill Pipe
  - i. Sound the alarm immediately.
  - ii. Position the upper tool joint just above the rotary table and set the slips.
  - iii. Install a full opening valve or inside blowout preventer tool in order to close the drill pipe.
  - iv. Close the drill pipe rams.
  - v. Record the shut-in annular pressure.

### **II. Crew Assignments**

a. Drill No. 1-Bottom Drilling

i. *Driller*

1. Stop the rotary and hoist Kelly joint above the rotary table.
2. Stop the circulatory pump.
3. Check Flow.
4. If flowing, sound the alarm immediately
5. Record the shut-in drill pipe pressure
6. Determine the mud weight increase needed or other courses of action.

ii. *Derrick man*

1. Open choke line valve at BOP.
2. Signal Floor Man #1 at accumulator that choke line is open.
3. Close choke and upstream valve after pipe tam have been closed.
4. Read the shut-in annular pressure and report readings to Driller.

iii. *Floor Man #1*

1. Close the pipe rams after receiving the signal from the Derrickman.
2. Report to Driller for further instructions.

iv. *Floor Man #2*

1. Notify the Tool Pusher and Operator representative of the H<sub>2</sub>S alarms.
2. Check for open fires and, if safe to do so, extinguish them.
3. Stop all welding operations.
4. Turn-off all non-explosions proof lights and instruments.
5. Report to Driller for further instructions.

v. *Tool Pusher*

1. Report to the rig floor.
2. Have a meeting with all crews.

3. Compile and summarize all information.
4. Calculate the proper kill weight.
5. Ensure that proper well procedures are put into action.

vi. *Operator Representative*

1. Notify the Drilling Superintendent.
2. Determine if an emergency exists and if so, activate the contingency plan.

b. Drill No. 2- Tripping Pipe

i. Driller

1. Sound the alarm immediately when mud volume increase has been detected.
2. Position the upper tool joint just above the rotary table and set slips.
3. Install a full opening valve or inside blowout preventer tool to close the drill pipe.
4. Check flow.
5. Record all data reported by the crew.
6. Determine the course of action.

ii. Derrick man

1. Come down out of derrick.
2. Notify Tool Pusher and Operator Representative.
3. Check for open fires and, if safe to do so, extinguish them.
4. Stop all welding operations.
5. Report to Driller for further instructions.

iii. Floor Man #1

1. Pick up full opening valve or inside blowout preventer tool and stab into tool joint above rotary table (with Floor Man #2).
2. Tighten valve with back-up tongs.

3. Close pipe rams after signal from Floor Man #2.
4. Read accumulator pressure and check for possible high pressure fluid leaks in valves or piping.
5. Report to Driller for further instructions.

iv. Floor Man #2

1. Pick-up full opening valve or inside blowout preventer tool and stab into tool joint above rotary table (with Floor Man #1).
2. Position back-up tongs on drill pipe.
3. Open choke line valve at BOP.
4. Signal Floor Man #1 at accumulator that choke line is open.
5. Close choke and upstream valve after pipe rams have been closed.
6. Check for leaks on BOP stack and choke manifold.
7. Read annular pressure.
8. Report readings to the Driller.

v. Tool Pusher

1. Report to the rig floor.
2. Have a meeting with all of the crews.
3. Compile and summarize all information.
4. See that proper well kill procedures are put into action.

vi. Operator Representative

1. Notify Drilling Superintendent
2. Determine if an emergency exists, and if so, activate the contingency plan.

## IGNITION PROCEDURES

### Responsibility:

The decision to ignite the well is the responsibility of the DRILLING FOREMAN in concurrence with the emergency response officials. In the event the Drilling Foreman is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

### Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Foreman is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Foreman.

Note: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Do not assume the area is safe after the well is ignited.



## TRAINING PROGRAM

When working in an area where Hydrogen Sulfide (H<sub>2</sub>S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel, at the well site, have had adequate training in the following consistent with the requirements in ANSI/ASSE Z390.1-2006 (R2010) Accepted Practices for Hydrogen Sulfide (H<sub>2</sub>S) Training Programs:

1. Physical and Chemical Properties of Hydrogen Sulfide.
2. Sources of Hydrogen Sulfide.
3. Human Physiology and Medical Evaluation.
4. Work Procedures.
5. Personal Protective Equipment.
6. Use of Contingency Plans and Emergency Response.
7. Burning, Flaring and Venting of Hydrogen Sulfide.
8. State and Federal Regulatory Requirements.
9. Hydrogen Sulfide Release Dispersion Models
10. Rescue Techniques, First Aid and Post-Exposure Evaluation
11. Methods of Detection and Monitoring
12. Engineering Controls
13. Transportation of Hydrogen Sulfide Cargoes
14. Emerging Technology

Service company personnel and visiting personnel must be notified if the zone contains H<sub>2</sub>S, and each service company must provide proof of adequate training and equipment for their employees before they arrive at the well site.



## EMERGENCY EQUIPMENT REQUIREMENTS

### Lease Entrance Sign:

Should be located at the lease entrance with the following information:

CAUTION- POTENTIAL POISON GAS  
HYDROGEN SULFIDE  
NO ADMITTANCE WITHOUT AUTHORIZATION

### Respiratory Equipment:

- Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
- Two SCBA's at each briefing area.
- Enough airline units to operate safely, anytime the H<sub>2</sub>S concentration reaches the IDLH level (100 ppm).
- Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrick man and the other operation areas.

### Windsocks or Wind Streamers:

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location.
- Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

### Hydrogen Sulfide Detector and Alarms:

- 1- Four channel H<sub>2</sub>S monitor with alarms.
- Four (4) sensors located as follows: #1- Rig Floor, #2- Bell Nipple, #3- Shale Shaker, #4- Mud Pits.
- Gastec or Draeger pump with tubes.
- Sensor test gas.

**Well Condition Sign and Flags:**

The Well Condition Sign w/flags should be placed a minimum of 150' before you enter the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN- Normal Operating Conditions

YELLOW- Potential Danger

RED- Danger, H<sub>2</sub>S Gas Present

**Auxiliary Rescue Equipment:**

- Stretcher
- 2- 100' Rescue lines.
- First Aid Kit properly stocked.

**Mud Inspection Equipment:**

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

**Fire Extinguishers:**

Adequate fire extinguishers shall be located at strategic locations.

**Blowout Preventer:**

- The well shall have hydraulic BOP equipment for the anticipated BHP.
- The BOP should be tested upon installation.
- BOP, Choke Line and Kill Line will be tested as specified by Operator.

**Confined Space Monitor:**

There should be a portable multi-gas monitor with at least 3 sensors (O<sub>2</sub>, LEL H<sub>2</sub>S). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided.

**Communication Equipment:**

- Proper communication equipment such as cell phones or 2-way radios should be available at the rig.
- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.

- Communication equipment shall be available on the vehicles.

**Special Control Equipment:**

- Hydraulic BOP equipment with remote control on the ground.
- Rotating head at the surface casing point.

**Evacuation Plan:**

- Evacuation routes should be established prior to spudding the well.
- Should be discussed with all rig personnel.

**Designated Areas:*****Parking and Visitor area:***

- All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- Designated smoking area.

**Safe Briefing Areas:**

- Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.
- Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

**Note:**

- Additional equipment will be available at the Alliance Safety office.
- Additional personal H<sub>2</sub>S monitors are available for all employees on location.
- Automatic Flare Igniters are recommended for installation on the rig.

## CHECK LISTS

### Status Check List

Note: Date each item as they are implemented.

1. Sign at location entrance. \_\_\_\_\_
2. Two (2) wind socks (in required locations). \_\_\_\_\_
3. Wind Streamers (if required). \_\_\_\_\_
4. SCBA's on location for all rig personnel and mud loggers. \_\_\_\_\_
5. Air packs, inspected and ready for use. \_\_\_\_\_
6. Spare bottles for each air pack (if required). \_\_\_\_\_
7. Cascade system for refilling air bottles. \_\_\_\_\_
8. Cascade system and hose line hook up. \_\_\_\_\_
9. Choke manifold hooked-up and tested.  
(before drilling out surface casing.) \_\_\_\_\_
10. Remote Hydraulic BOP control (hooked-up and tested before  
drilling out surface casing). \_\_\_\_\_
11. BOP tested (before drilling out surface casing). \_\_\_\_\_
12. Mud engineer on location with equipment to test mud for H<sub>2</sub>S. \_\_\_\_\_
13. Safe Briefing Areas set-up \_\_\_\_\_
14. Well Condition sign and flags on location and ready. \_\_\_\_\_
15. Hydrogen Sulfide detection system hooked -up & tested. \_\_\_\_\_
16. Hydrogen Sulfide alarm system hooked-up & tested. \_\_\_\_\_
17. Stretcher on location at Safe Briefing Area. \_\_\_\_\_
18. 2 -100' Life Lines on location. \_\_\_\_\_
19. 1-20# Fire Extinguisher in safety trailer. \_\_\_\_\_
20. Confined Space Monitor on location and tested. \_\_\_\_\_
21. All rig crews and supervisor trained (as required). \_\_\_\_\_

22. Access restricted for unauthorized personnel.

\_\_\_\_\_

23. Drills on H<sub>2</sub>S and well control procedures.

\_\_\_\_\_

24. All outside service contractors advised of potential H<sub>2</sub>S on the well.

\_\_\_\_\_

25. NO SMOKNG sign posted.

\_\_\_\_\_

26. H<sub>2</sub>S Detector Pump w/tubes on location.

\_\_\_\_\_

27. 25mm Flare Gun on location w/flares.

\_\_\_\_\_

28. Automatic Flare Igniter installed on rig.

\_\_\_\_\_



## Procedural Check List

Perform the following on each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to insure that they have not been tampered with.
3. Check pressure on the supply air bottles to make sure they are capable of recharging.
4. Make sure all of the Hydrogen Sulfide detection systems are operative.

Perform the following each week:

1. Check each piece of breathing equipment to make sure that they are fully charged and operational. This requires that the air cylinder be opened and the mask assembly be put on and tested to make sure that the regulators and masks are properly working. Negative and Positive pressure should be conducted on all masks.
2. BOP skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all breathing air mask assemblies to see that straps are loosened and turned back, ready for use.
5. Check pressure on cascade air cylinders to make sure they are fully charged and ready to use for refill purposes if necessary.
6. Check all cascade system regulators to make sure they work properly.
7. Perform breathing drills with on-site personnel.
8. Check the following supplies for availability:
  - Stretcher
  - Safety Belts and Ropes
  - Spare air Bottles
  - Spare Oxygen Bottles (if resuscitator required)
  - Gas Detector Pump and Tubes
  - Emergency telephone lists
9. Test the Confined Space Monitor to verify the batteries are good



## EVACUATION PLAN

### General Plan

The direct lines of action prepared by Mack Energy Corporation to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Foreman, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the area map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" safety personnel will determine when the area is safe for re-entry.

**See Specific Site Safety Plan or Job Safety Analysis to be completed during drilling**

## Emergency Assistance Telephone List

PUBLIC SAFETY: 911 or

Pecos Valley Communication (575) 624-7590  
Center (Chaves County Police, Fire, EMS)

Central Dispatch (575) 616-7155  
(Eddy County Police, Fire, EMS)

Hospitals:

Roswell (575) 622-8170

Artesia (575) 748-3333

Dept. of Public Safety/SE New Mexico (575) 622-7200

Highway Department (575) 637-7200

New Mexico Oil Conservation (575) 748-1283

Bureau of Land Management (575) 622-5335

Mack Energy CorporationCompany Drilling Supervisor

Jim Krogman (575) 703-7385

Drilling Foreman

Emilio Martinez (575) 703-5231

Silver Oak Drilling

Silver Oak Drilling (575) 746-4405

Tool Pusher:

Darren Mc Bride (575) 703-6070

Osiel Sanchez (575) 703-4109

Safety

Lee Hassell (Alliance Safety)

(806) 217-2950

Scott Ford (Mack Energy)

(505) 692-4976

Robbie Houghtaling (Silver Oak)

(575) 703-2122

**Intentionally Blank –Space provided for Specific Site Safety Plan or Job Safety Analysis**

### Affected Notification List

(within a 65' radius of exposure @ 100ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H<sub>2</sub>S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

#### Evacuee Description:

Residents: **THERE ARE NO RESIDENTS WITHIN 3000' ROE.**

#### Notification Process:

A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

#### Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

The Oil Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

### Toxic Effects of H<sub>2</sub>S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity -1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen Sulfide and other gases are compared below in Table 1. Toxicity table for H<sub>2</sub>S and physical effects are shown in Table 2.

Table 1  
Permissible Exposure Limits of Various Gases

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	c	
Hydrogen Sulfide	H <sub>2</sub> S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	so <sub>2</sub>	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	co	.97	25 ppm	200 ppm	
Carbon Dioxide	CO <sub>2</sub>	1.52	5000 ppm	30,000 ppm	
Methane	CH <sub>4</sub>	.55	4.7% LEL	14% UEL	

### Definitions

- A. TLV- Threshold Limit Value is the concentration employees may be exposed based on a TWA {time weighted average} for eight {8} hours in one day for 40 hours in one {1} week. This is set by ACGIH {American Conference of Governmental Hygienists} and regulated by OSHA.
- B. STEL- Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL {Occupational Exposure Limit}. The OEL for H<sub>2</sub>S is 19 PPM.
- C. IDLH -Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H<sub>2</sub>S is 100 PPM.
- D. TWA- Time Weighted Average is the average concentration of any chemical or gas for an eight {8} hour period. This is the concentration that any employee may be exposed based on an TWA.

**TABLE 2**

Toxicity Table of H<sub>2</sub>S

Physical Effects

Percent%	PPM	
.0001	1	Can smell less than 1ppm.
.001	10	TLV for 8 hours of exposure.
.0015	15	STEL for 15 minutes of exposure.
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins <b>in a few minutes</b> .
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.



## PHYSICAL PROPERTIES OF H<sub>2</sub>S

The properties of all gases are usually described in the context of seven major categories:

COLOR  
ODOR  
VAPOR DENSITY  
EXPLOSIVE LIMITS  
FLAMMABILITY  
SOLUBILITY (IN WATER)  
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

### **COLOR-TRANSPARENT**

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence. In fact that makes this gas extremely dangerous to be around.

### **ODOR- ROTTEN EGGS**

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H<sub>2</sub>S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

### **VAPOR DENSITY- SPECIFIC GRAVITY OF 1.192**

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H<sub>2</sub>S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

### **EXPLOSIVE LIMITS- 4.3% TO 46%**

Mixed with the right proportion of air or oxygen, H<sub>2</sub>S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

### **FLAMMABILITY**

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO<sub>2</sub>), another hazardous gas that irritates the eyes and lungs.

### **SOLUBILITY-4 TO 1 RATIO WITH WATER**

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H<sub>2</sub>S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H<sub>2</sub>S may release the gas into the air.

### **BOILING POINT- {-76 degrees Fahrenheit)**

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

## RESPIRATOR USE

The Occupational Safety and Health Administration (OSHA) regulate the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators, shall complete a OSHA mandated medical evaluation questionnaire. The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gases.

Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

Respirators shall be inspected prior to and after each use to make sure that the respirator has been properly cleaned, disinfected and that the respirator works properly. The unit should be fully charged prior to being used.

Anyone who may use respirators shall be properly trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. (Note: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal.) Anyone that may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Contact lenses should not be allowed.

Respirators shall be worn during the following conditions:

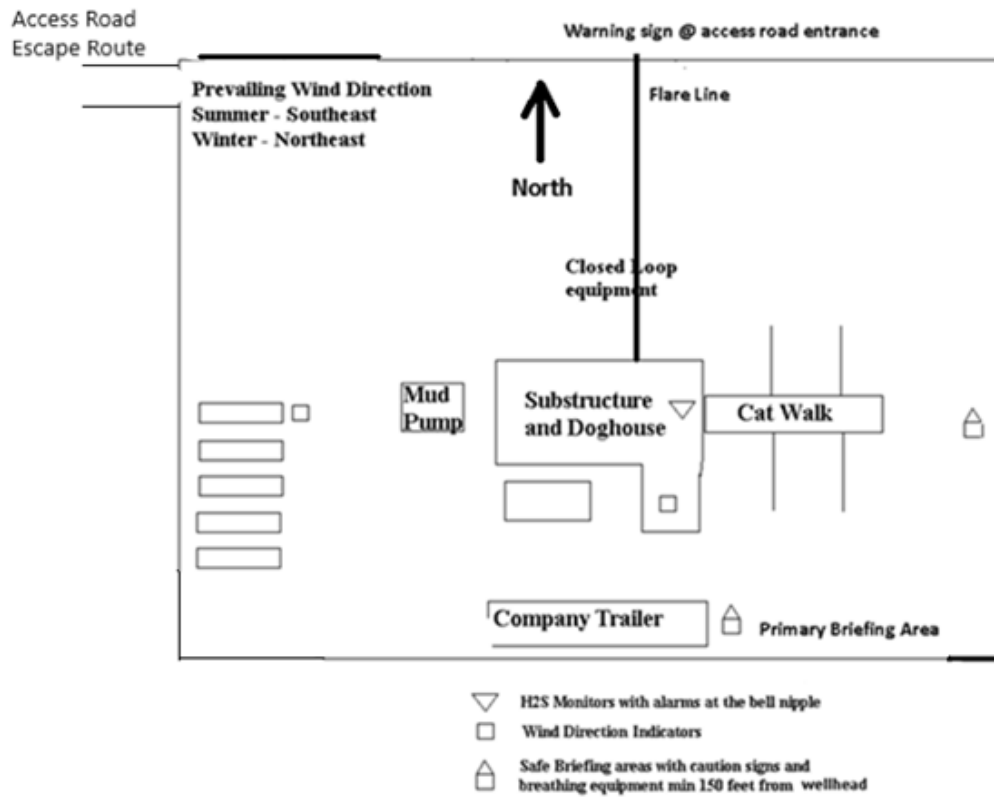
- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H<sub>2</sub>S.
- B. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
- C. When sampling air in areas where H<sub>2</sub>S may be present.
- D. When working in areas where the concentration of H<sub>2</sub>S exceeds the Threshold Limit Value for H<sub>2</sub>S { 10 ppm).
- E. At any time where there is a doubt as to the H<sub>2</sub>S level in the area to be entered.

## EMERGENCY RESCUE PROCEDURES

**DO NOT PANIC!!!**

**Remain Calm -Think**

1. Before attempting any rescue you must first get out of the hazardous area yourself. Go to a safe briefing area.
2. Sound alarm and activate the 911 system.
3. Put on breathing apparatus. At least two persons should do this, when available use the buddy system.
4. Rescue the victim and return them to a safe briefing area.
5. Perform an initial assessment and begin proper First Aid/CPR procedures.
6. Keep victim lying down with a blanket or coat, etc., under the shoulders to keep airway open. Conserve body heat and do not leave unattended.
7. If the eyes are affected by H<sub>2</sub>S, wash them thoroughly with potable water. For slight irritation, cold compresses are helpful.
8. In case a person has only minor exposure and does not lose consciousness totally, it's best if he doesn't return to work until the following day.
9. Any personnel overcome by H<sub>2</sub>S should always be examined by medical personnel. They should always be transported to a hospital or doctor.



Intent ☒ As Drilled ☐

API #

Operator Name:	Property Name:	Well Number
<b>MACK ENERGY CORPORATION</b>	<b>WILLIAMS LAKE FEDERAL</b>	<b>1H</b>

Kick Off Point (KOP)

UL <b>G</b>	Section <b>8</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>1825</b>	From N/S <b>NORTH</b>	Feet <b>2385</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0327422</b>					Longitude <b>103.9465098</b>			NAD <b>83</b>	

First Take Point (FTP)

UL <b>J</b>	Section <b>8</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>2540</b>	From N/S <b>SOUTH</b>	Feet <b>2310</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0302268</b>					Longitude <b>103.9462653</b>			NAD <b>83</b>	

Last Take Point (LTP)

UL <b>O</b>	Section <b>17</b>	Township <b>15S</b>	Range <b>30E</b>	Lot	Feet <b>100</b>	From N/S <b>SOUTH</b>	Feet <b>2310</b>	From E/W <b>EAST</b>	County <b>CHAVES</b>
Latitude <b>33.0089991</b>					Longitude <b>103.9462991</b>			NAD <b>83</b>	

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

06/21/2021

APD ID: 10400069405

Submission Date: 03/04/2021

Highlighted data  
reflects the most  
recent changes

Operator Name: MACK ENERGY CORPORATION

Well Name: WILLIAMS LAKE FEDERAL

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1616525	RUSTLER	3965	551	551	ANHYDRITE	NONE	N
1616526	TOP OF SALT	3279	686	686	SALT	NONE	N
1616527	BASE OF SALT	2675	1290	1290	SALT	NONE	N
1616528	YATES	2500	1465	1465	SILTSTONE	NATURAL GAS, OIL	N
1616529	SEVEN RIVERS	2275	1690	1690	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616530	QUEEN	1785	2180	2180	SILTSTONE	NATURAL GAS, OIL	N
1616531	GRAYBURG	1359	2606	2606	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
1616532	SAN ANDRES	1025	2940	2940	DOLOMITE	NATURAL GAS, OIL	Y

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 12116

Equipment: Rotating Head, Mud-Gas Separator

Requesting Variance? NO

Variance request:

**Testing Procedure:** The BOP/BOPE test shall include a low pressure test from 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 1759psig (0.052\*3677\*TVD\*9.2ppg) less than 2900 Bottom Hole Pressure. Will test to 2000psi for 30 mins.

**Choke Diagram Attachment:**

choke\_manifold\_diagram\_20210223112320.pdf

choke\_manifold\_20210223112331.pdf

**BOP Diagram Attachment:**

bop\_diagram\_20210223112343.pdf





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

# Drilling Plan Data Report

06/21/2021

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Operator Name: MACK ENERGY CORPORATION

Well Name: WILLIAMS LAKE FEDERAL

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

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**Choke Diagram Attachment:**

choke\_manifold\_diagram\_20210223112320.pdf

choke\_manifold\_20210223112331.pdf

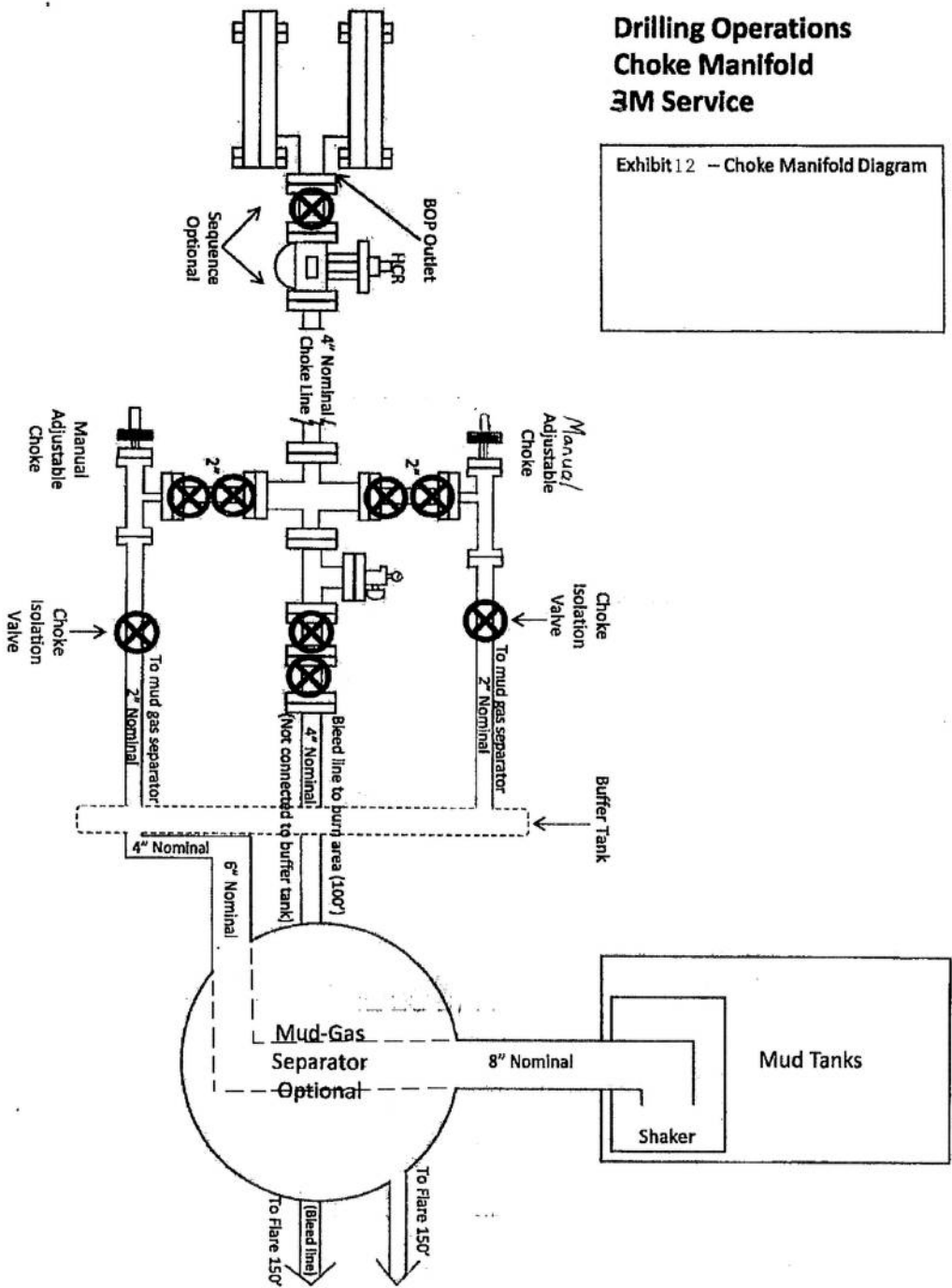
**BOP Diagram Attachment:**

bop\_diagram\_20210223112343.pdf

Mack Energy Corporation  
MANIFOLD SCHEMATIC  
Exhibit #12

Drilling Operations  
Choke Manifold  
3M Service

Exhibit 12 - Choke Manifold Diagram



# Mack Energy Corporation

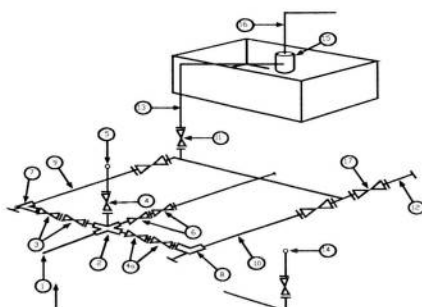
Exhibit #11

## MINIMUM CHOKE MANIFOLD

3,000, 5,000, and 10,000 PSI Working Pressure

3M will be used

3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

\* Location of separator optional

Below Substructure

### Minimum requirements

No.		3,000 MWP			5,000 MWP			10,000 MWP		
		I.D.	Nominal	Rating	I.D.	Nominal	Rating	I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	1 13/16		3,000	1 13/16		5,000	1 13/16		10,000
4a	Valves (1)	2 1/16		3,000	2 1/16		5,000	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			3,000			5,000			10,000
15	Gas Separator		2' x 5'			2' x 5'			2' x 5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000

(1) Only one required in Class 3M

(2) Gate valves only shall be used for Class 10 M

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

### EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

- All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
- All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
- All lines shall be securely anchored.
- Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
- alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
- Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees

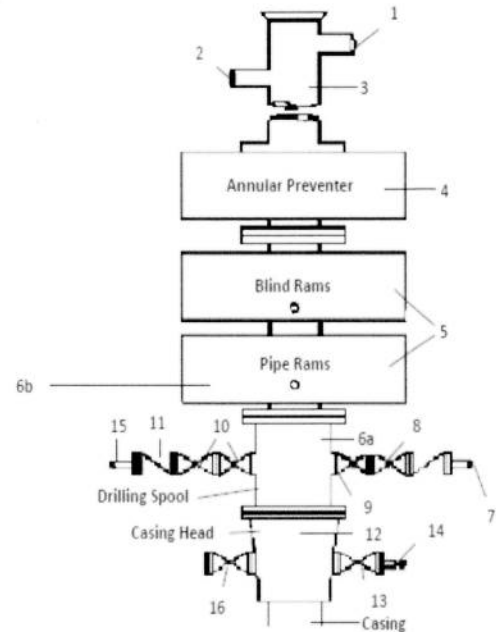
# Mack Energy Corporation

## Minimum Blowout Preventer Requirements

**5000 psi Working Pressure**  
**13 5/8 inch- 5 MWP**  
**11 Inch - 5 MWP**

### Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



### OPTIONAL

16	Flanged Valve	1 13/16	
----	---------------	---------	--

CONTRACTOR'S OPTION TO FURNISH:

- All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
- Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
- BOP controls, to be located near drillers' position.
- Kelly equipped with Kelly cock.
- Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
- Kelly saver-sub equipped with rubber casing protector at all times.
- Plug type blowout preventer tester.
- Extra set pipe rams to fit drill pipe in use on location at all times.
- Type RX ring gaskets in place of Type R.

MEC TO FURNISH:

- Bradenhead or casing head and side valves.
- Wear bushing. If required.

### GENERAL NOTES:

- Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
- All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
- Controls to be of standard design and each marked, showing opening and closing position
- Chokes will be positioned so as not to hamper or delay changing of choke beans.

Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.

- All valves to be equipped with hand-wheels or handles ready for immediate use.
- Choke lines must be suitably anchored.
- Handwheels and extensions to be connected and ready for use.
- Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
- All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
- Casinghead connections shall not be used except in case of emergency.
- Does not use kill line for routine fill up operations.

**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 33384

**CONDITIONS**

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 33384
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

**CONDITIONS**

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/19/2021
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	8/19/2021
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	8/19/2021
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	8/19/2021