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

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.

2. Name of Operator

9. API Well No.
30-005-64404

3a. Address

3b. Phone No. *(include area code)*

10. Field and Pool, or Exploratory

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

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

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

12. County or Parish

13. State

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)

16. No of acres in lease

17. Spacing Unit dedicated to this well

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.

19. Proposed Depth

20. BLM/BIA Bond No. in file

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

22. Approximate date work will start*

23. Estimated duration

24. Attachments

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

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
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).
5. Operator certification.
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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 03/31/2025

C-102	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024
Submit Electronically Via OCD Permitting		Submittal Type: ☑ Initial Submittal ☐ Amended Report ☐ As Drilled

WELL LOCATION INFORMATION

API Number	Pool Code	Pool Name	
30-005-64404	52770	Round Tank; San Andres	
Property Code: 337207	Property Name: BROCKVILLE FEDERAL		Well Number: 2H
OGRID No.: 13837	Operator Name: MACK ENERGY CORPORATION		Ground Level Elevation: 3714.4
Surface Owner: ☐State ☐Fee ☐Tribal ☑Federal		Mineral Owner: ☐State ☐Fee ☐Tribal ☑Federal	

Surface Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	7	15 S	29 E	4	607 SOUTH	330 WEST	33.0249455°N	104.0756848°W	CHAVES

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	4	1 SOUTH	330 WEST	33.0085638°N	104.0756002°W	CHAVES

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidation Code
160				
Order Numbers.			Well setbacks are under Common Ownership: ☐Yes ☐No	

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	7	15 S	29 E	4	607 SOUTH	330 WEST	33.0249455°N	104.0756848°W	CHAVES

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	1	100 NORTH	330 WEST	33.0230026°N	104.0756868°W	CHAVES

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	4	100 SOUTH	330 WEST	33.0088358°N	104.0756024°W	CHAVES

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☐Horizontal ☐Vertical	Ground Floor Elevation:

OPERATOR CERTIFICATIONS

I hereby certify that the information contained herein is true and complete to the best ofmy knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest run leased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order here to fore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Deana Weaver 9/5/2024

Signature Date

Deana Weaver

Printed Name

dweaver@mec.com

Email Address

SURVEYOR CERTIFICATIONS

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.

Signature and Seal of Professional Surveyor

FILIMON F. JARAMILLO

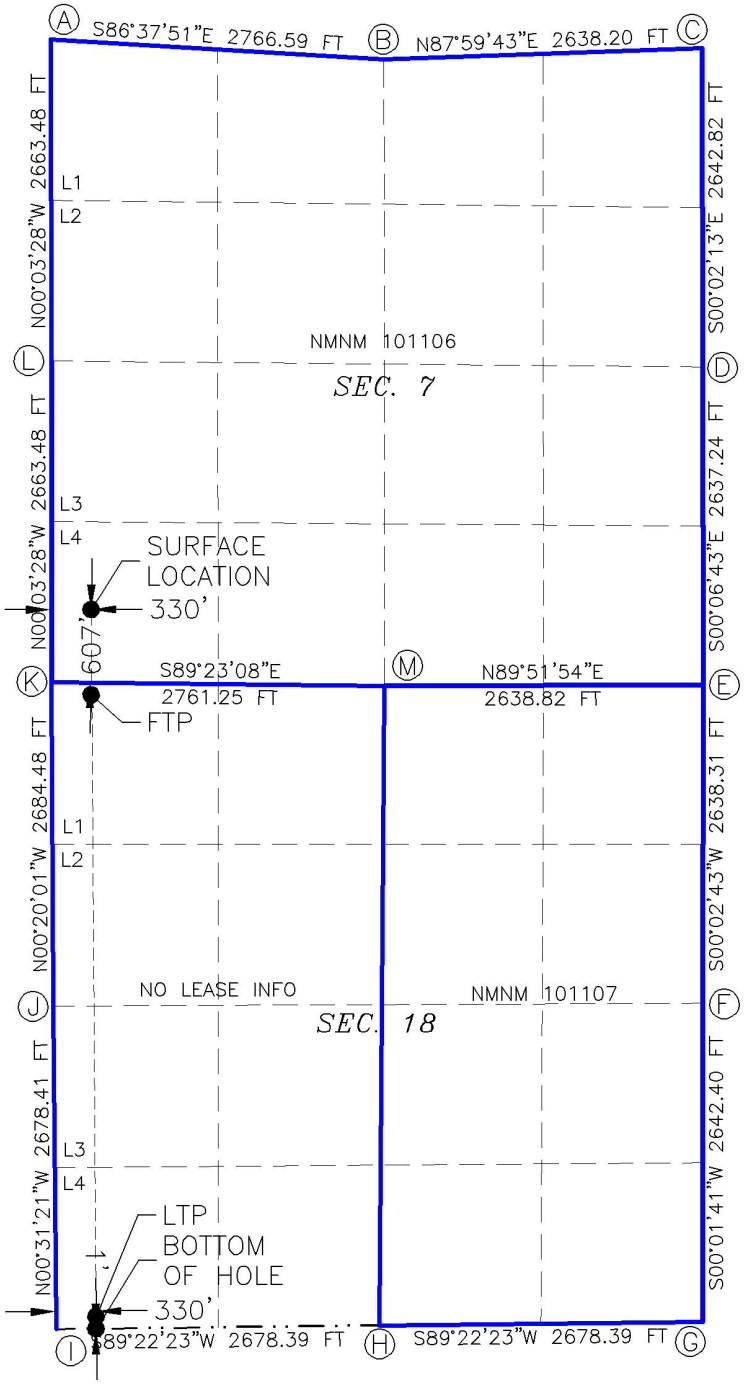
CertificateNumber	Dateof Survey
PLS 12797	JUNE 17, 2024
	SURVEY NO. 9920A

Note: 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.

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



BROCKVILLE FEDERAL 2H
EL. = 3714.4

GEODETIC COORDINATES
NAD 83 NMSP EAST
SURFACE LOCATION
N.= 736709.08
E.= 620304.37
LAT. = 33.0249455°N
LONG. = 104.0756848°W

KICK OFF POINT	FIRST TAKE POINT (PPP 1)
607' FSL, 330' FWL	100' FNL, 330' FWL
N.= 736709.08	N.= 736002.20
E.= 620304.37	E.= 620305.50
LAT. = 33.0249455°N	LAT. = 33.0230026°N
LONG. = 104.0756848°W	LONG. = 104.0756868°W

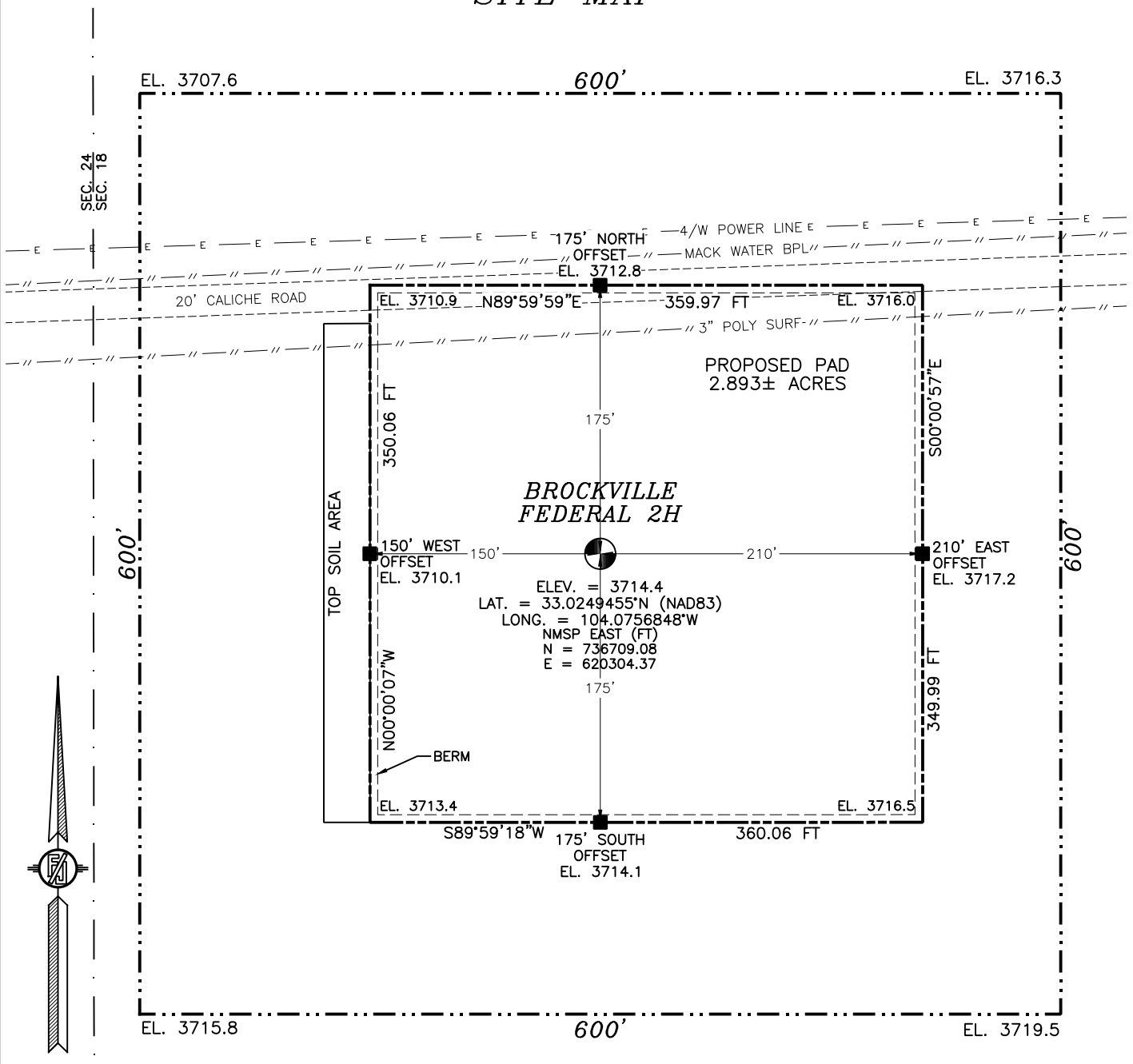
LAST TAKE POINT	BOTTOM OF HOLE
100' FSL, 330' FWL	1' FSL, 330' FWL
N.= 730847.96	N.= 730748.99
E.= 620344.00	E.= 620344.90
LAT. = 33.0088358°N	LAT. = 33.0085638°N
LONG. = 104.0756024°W	LONG. = 104.0756002°W

CORNER COORDINATES TABLE
NAD 83 NMSP EAST

A	N.= 741431.31	E.= 619969.62
B	N.= 741268.76	E.= 622730.72
C	N.= 741361.02	E.= 625366.62
D	N.= 738718.89	E.= 625368.32
E	N.= 736082.33	E.= 625373.48
F	N.= 733444.71	E.= 625371.40
G	N.= 730802.99	E.= 625370.10
H	N.= 730773.68	E.= 622692.56
I	N.= 730744.38	E.= 620015.02
J	N.= 733421.99	E.= 619990.60
K	N.= 736105.72	E.= 619974.98
L	N.= 738768.51	E.= 619972.30
M	N.= 736076.12	E.= 622735.35

LEGEND
SECTION LINE
QUARTER LINE
LEASE LINE
WELL PATH

SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
SITE MAP



010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HWY. 249 & CO. RD. 217 (HAGERMAN CUTOFF) GO WEST ON ST. HWY. 249 APPROX. 3.4 MILES, TURN LEFT ON 20' CALICHE ROAD AND GO SOUTH APPROX. 2.9 MILES, TURN RIGHT ON 20' CALICHE ROAD AND GO WEST APPROX. 1.15 MILES TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

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 WAS MADE TO MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILIMON F. JARAMILLO PLS 17078

FILIMON F. JARAMILLO 17078 NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR

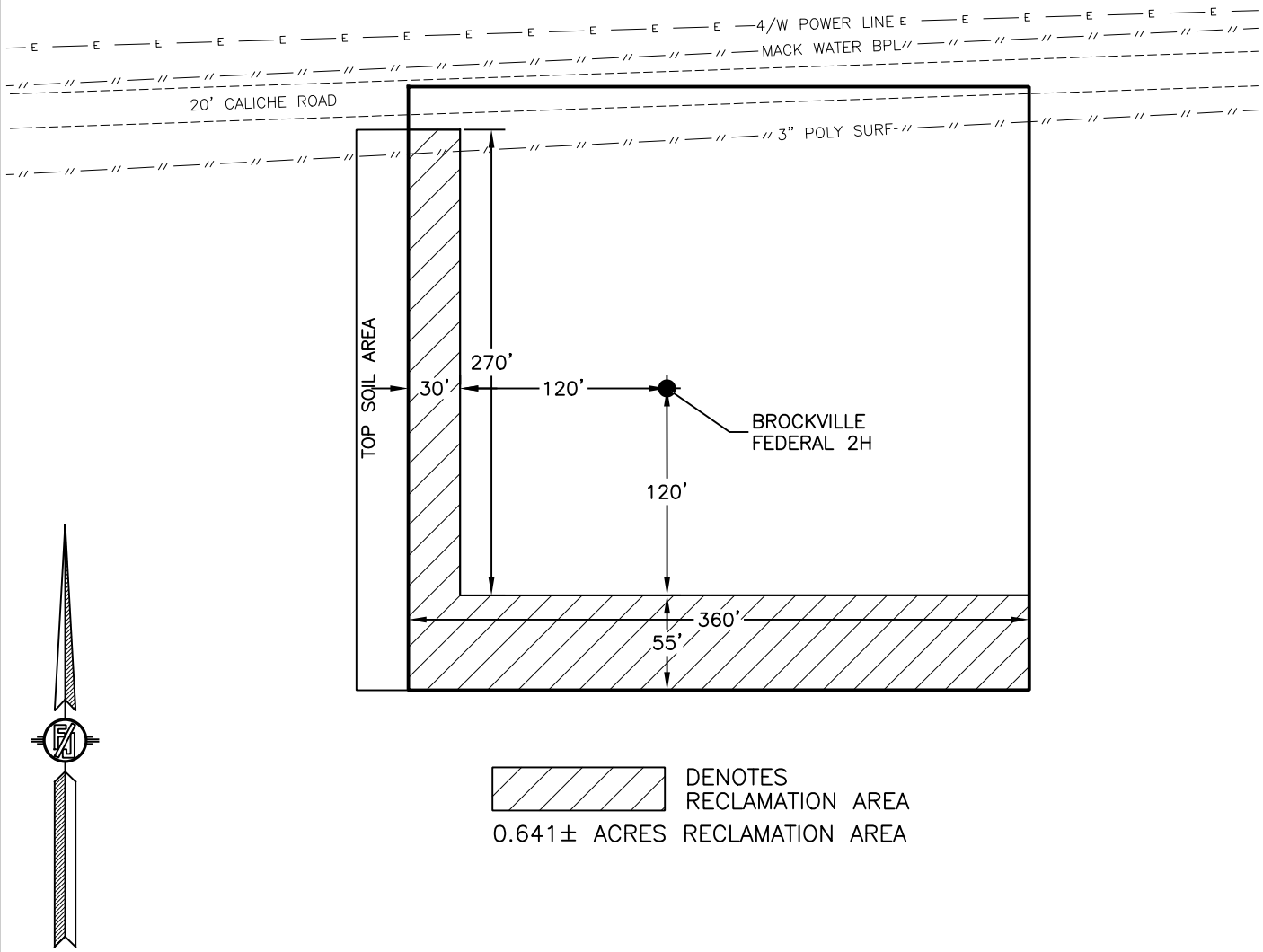
MACK ENERGY CORPORATION
BROCKVILLE FEDERAL 2H
LOCATED 607 FT. FROM THE SOUTH LINE AND 330 FT. FROM THE WEST LINE OF SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M. CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 17, 2024

SURVEY NO. 9920A

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

SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO
INTERIM SITE RECLAMATION



DENOTES RECLAMATION AREA

0.641± ACRES RECLAMATION AREA

010 50 100 200
SCALE 1" = 100'

MACK ENERGY CORPORATION

BROCKVILLE FEDERAL 2H

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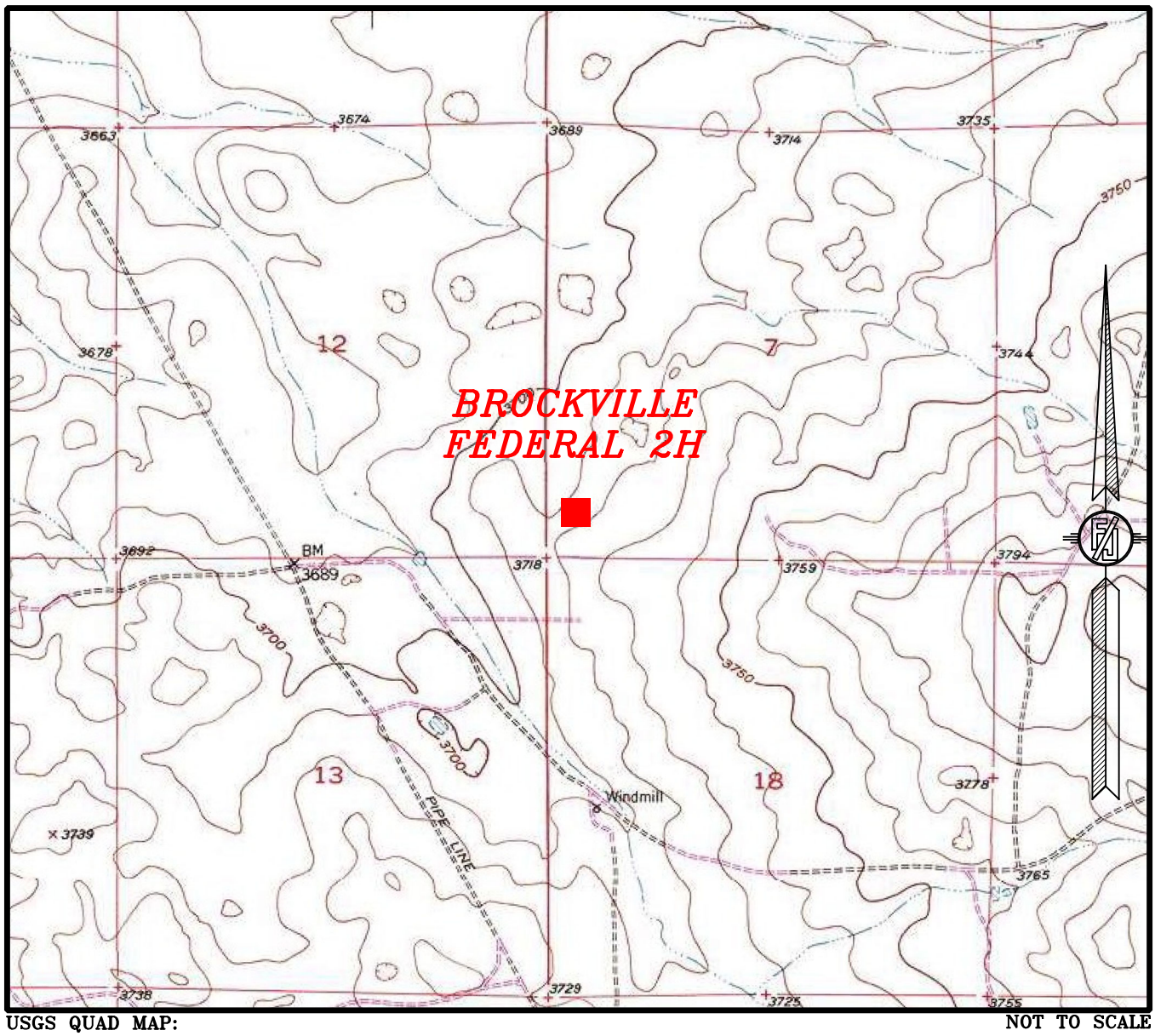
JUNE 17, 2024

SURVEY NO. 9920A

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

SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
KING CAMP

NOT TO SCALE

MACK ENERGY CORPORATION
BROCKVILLE FEDERAL 2H
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AND 330 FT. FROM THE WEST LINE OF
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RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 17, 2024

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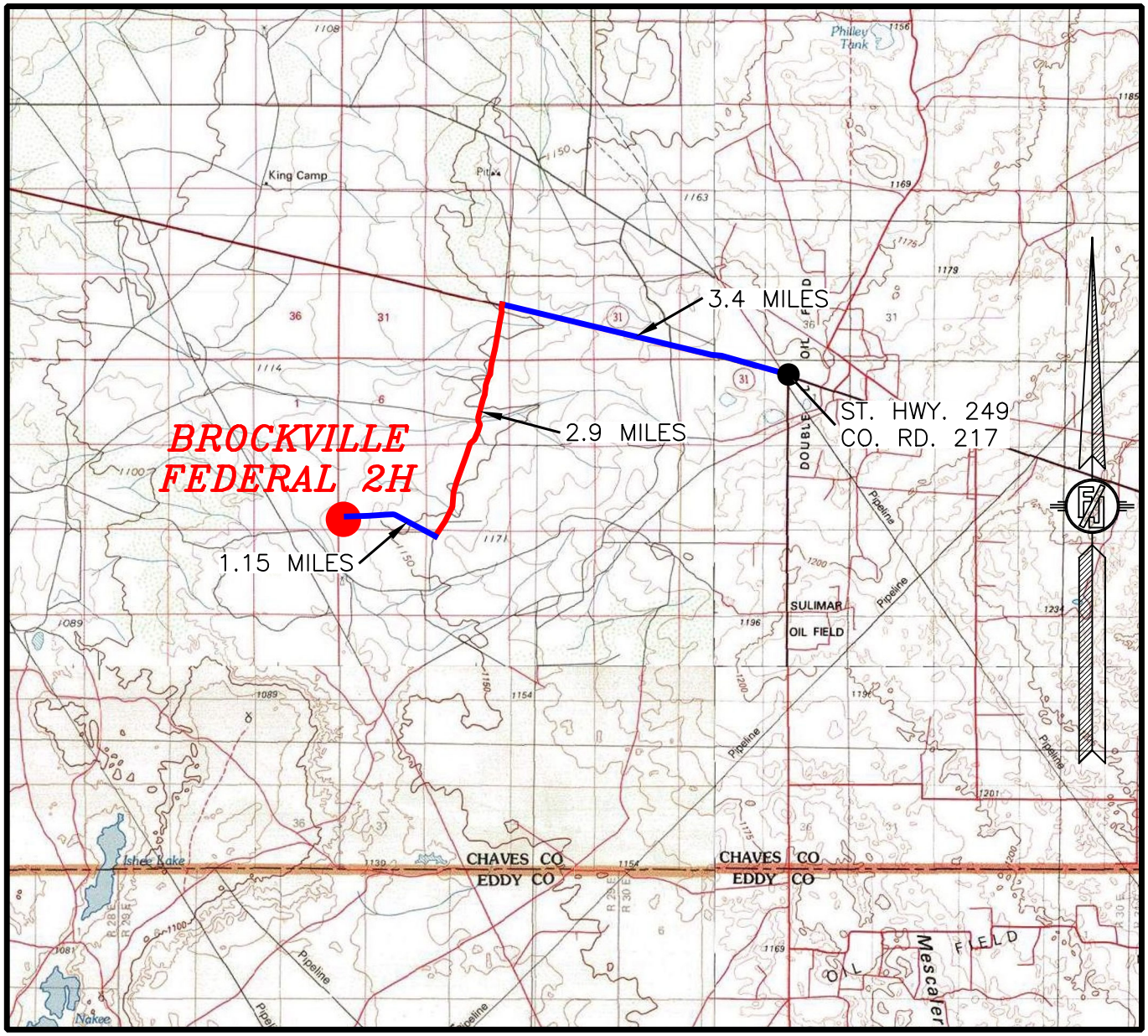
MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3327 CARLSBAD, NEW MEXICO

SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF ST. HWY. 249 & CO. RD. 217 (HAGERMAN CUTOFF) GO WEST ON ST. HWY. 249 APPROX. 3.4 MILES, TURN LEFT ON 20' CALICHE ROAD AND GO SOUTH APPROX. 2.9 MILES, TURN RIGHT ON 20' CALICHE ROAD AND GO WEST APPROX. 1.15 MILES TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

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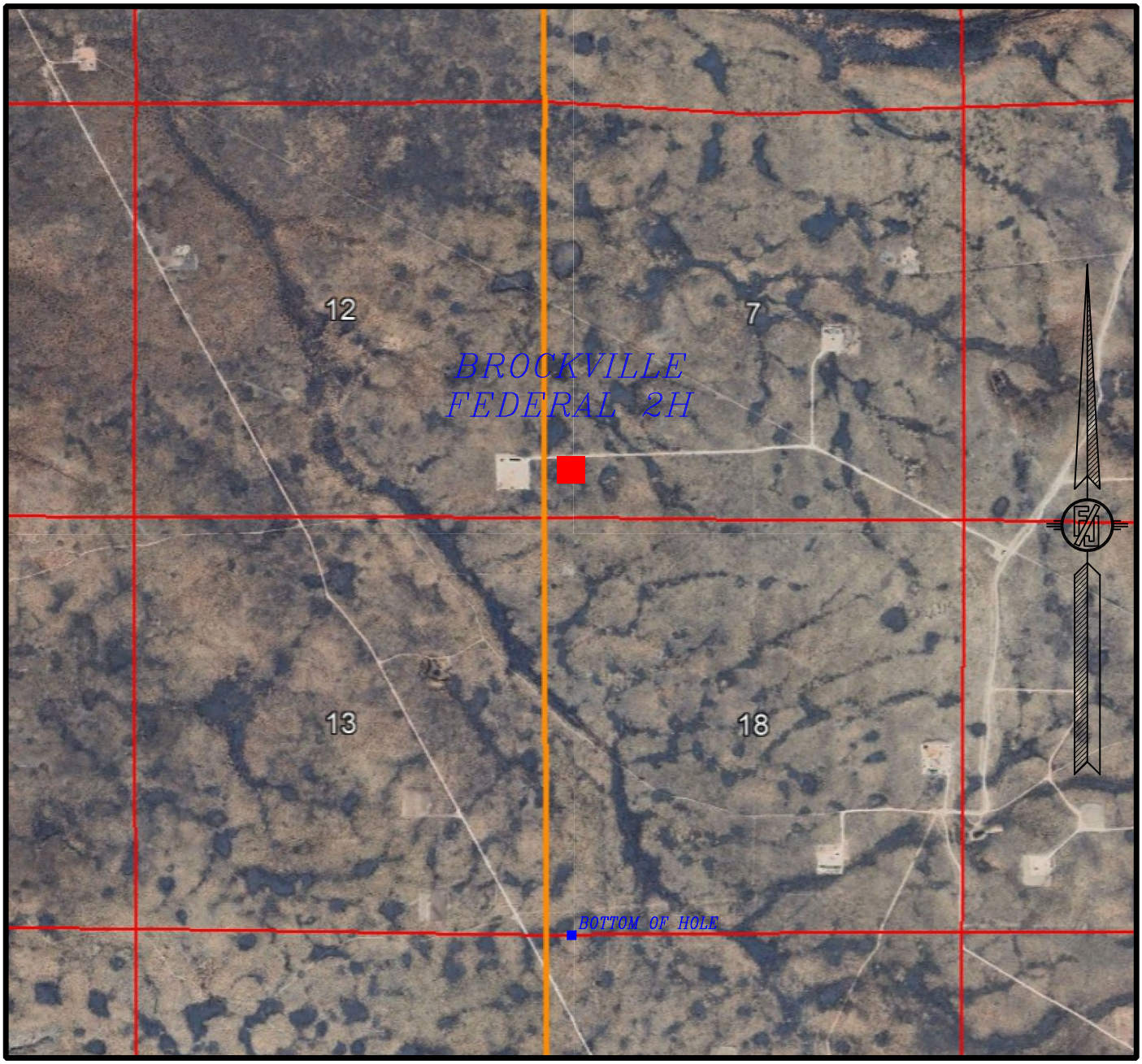
SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APRIL 2023

MACK ENERGY CORPORATION
BROCKVILLE FEDERAL 2H
LOCATED 607 FT. FROM THE SOUTH LINE
AND 330 FT. FROM THE WEST LINE OF
SECTION 7, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

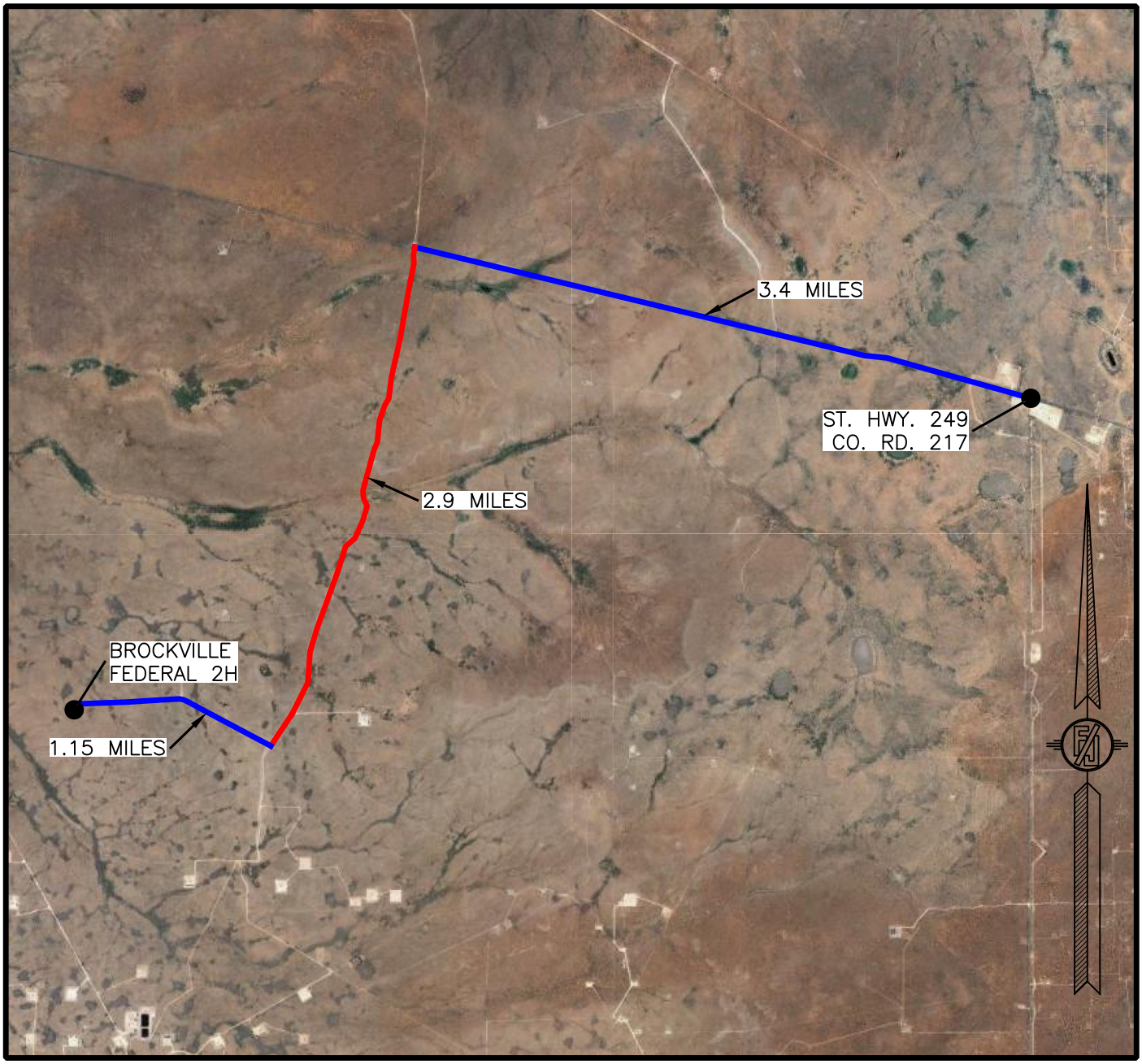
JUNE 17, 2024

SURVEY NO. 9920A

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

SECTION 7, TOWNSHIP 15 SOUTH, RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

AERIAL ACCESS ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
APRIL 2023

MACK ENERGY CORPORATION

BROCKVILLE FEDERAL 2H

LOCATED 607 FT. FROM THE SOUTH LINE
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SECTION 7, TOWNSHIP 15 SOUTH,
RANGE 29 EAST, N.M.P.M.
CHAVES COUNTY, STATE OF NEW MEXICO

JUNE 17, 2024

SURVEY NO. 9920A

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

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:** 9 / 5 / 2024

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
Brockville Federal #2H		Lot 4 Sec 7 T15S R29E	607 FSL 330 FWL	100	100	1,000

IV. Central Delivery Point Name: DCP Midstream Linam Ranch Proscessing 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
Brockville Federal #2H		2/1/2025	2/20/2025	04/30/2025	04/30/2025	5/1/2025

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:	Deana Weaver
Printed Name:	Deana Weaver
Title:	Regulatory Technician II
E-mail Address:	dweaver@mec.com
Date:	9/5/2024
Phone:	575-748-1288

OIL CONSERVATION DIVISION

(Only applicable when submitted as a standalone form)

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.

Month	Gas (MCF)
1	10550
2	8917
3	7769
4	6913
5	6247
6	5712
7	5273
8	4904
9	4589
10	4317
11	4080
12	3871
13	3685
14	3518
15	3368
16	3231
17	3107
18	2993
19	2889
20	2792
21	2702
22	2619
23	2542
24	2469
25	2402
26	2338
27	2278
28	2221
29	2168
30	2118
31	2070
32	2024
33	1981
34	1940
35	1900
36	1863
37	1827
38	1793
39	1760
40	1729
41	1698
42	1669
43	1641

44	1615
45	1589
46	1564
47	1540
48	1516
49	1494
50	1472
51	1451
52	1431
53	1411
54	1392
55	1374
56	1356
57	1339
58	1322
59	1305
60	1289
61	1274
62	1259
63	1244
64	1230
65	1216
66	1202
67	1189
68	1176
69	1164
70	1151
71	1140
72	1128
73	1116
74	1105
75	1094
76	1084
77	1073
78	1063
79	1053
80	1043
81	1034
82	1024
83	1015
84	1006
85	998
86	989
87	980

88	972
89	964
90	956
91	948
92	941
93	933
94	926
95	918
96	911
97	904
98	897
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100	884
101	877
102	871
103	865
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106	846
107	840
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AFMSS
U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report
03/31/2025

APD ID: 10400096655
Submission Date: 02/15/2024
Operator Name: MACK ENERGY CORPORATION
Well Name: BROCKVILLE FEDERAL
Well Number: 2H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
15317021	RUSTLER	3740	170	170	ALLUVIUM	NONE	N
15317022	TOP OF SALT	3340	400	400	SALT	NONE	N
15317023	BASE OF SALT	3090	650	650	SALT	NONE	N
15317024	YATES	2950	790	790	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317025	SEVEN RIVERS	2720	1020	1020	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317026	QUEEN	2223	1517	1517	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317027	GRAYBURG	1832	1908	1908	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
15317028	SAN ANDRES	1512	2228	2228	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 8826

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 300 psi. Testing to 2,000 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. The estimated Bottom Hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1462psig (0.052*3057'TVD*9.2) less than 2900 bottom hole pressure.

Choke Diagram Attachment:

NEW_Choke_Manifold_3M_20240110143318.pdf

BOP Diagram Attachment:

NEW_BOP_3M_20240110143329.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: BROCKVILLE FEDERAL **Well Number:** 2H

NEW_Choke_Manifold_3M_20240110143318.pdf

NEW_BOP_3M_20240110143329.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	200	0	200	3714	3514	200	J-55	48	ST&C	7.412	4.701	BUOY	52.87	BUOY	4.74
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1200	0	1200	0	2514	1200	J-55	36	LT&C	3.237	7.04	BUOY	10.768	BUOY	7.04
3	PRODUCTION	8.75	7.0	NEW	API	N	0	3175	0	2947	0	767	3175	HCP-110	26	BUTT	4.582	3.317	BUOY	6.934	BUOY	3.317
4	PRODUCTION	8.75	7.0	NEW	API	N	3175	8864	2947	3057	767	657	5689	HCP-110	17	BUTT	5.42	3.547	BUOY	6.934	BUOY	3.547

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Surface_Csg_20240905094232.pdf

Operator Name: MACK ENERGY CORPORATION

Well Name: BROCKVILLE FEDERAL **Well Number:** 2H

Casing Attachments

Casing ID: 2 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Inter_Csg_20240110144049.pdf

Casing ID: 3 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Production_Csg_20240905094524.pdf

Casing ID: 4 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Production_Csg_20240905094826.pdf

Section 4 - Cement

Operator Name: MACK ENERGY CORPORATION

Well Name: BROCKVILLE FEDERAL **Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0		0	0
SURFACE	Lead		0	200	100	2.31	14.4	139		RFC+12% PF 53+2%PF1+5pps PF42+.125pps PF29	20bbls Gelled Water 50sx of 11# Scavenger Cement
SURFACE	Tail		0	200	200	1.34	14.8	139	100	Class C + 1% PF1	20bbls Gelled Water 50sx of 11# Scavenger Cement
INTERMEDIATE	Lead		0	1200	225	1.72	13.5	417	100	Class C + 45PF20+.4pps PF45+.125 PF29	20bbls Gelled Water 50sx of 11# Scavenger Cement
INTERMEDIATE	Tail		0	1200	200	1.34	14.8	417	100	Class C + 1% PF 1	20bbls Gelled Water 50sx of 11# Scavenger Cement
PRODUCTION	Lead		0	8864	250	2.82	13.5	2230	35	Class C 4% PF20+4pps PF45+125pps PF29	20bbls Gelled Water 50sx of 11# Scavenger Cement
PRODUCTION	Tail		0	8864	1750	1.34	14.2	2230	35	50/50 POZ C+5% (BWOW) PF 44+2% PF204+.2% PF606+.1% PF153+.4pps PF44	20bbls Gelled Water 50sx of 11# Scavenger Cement

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with 43 CFR 3172:

Diagram of the equipment for the circulating system in accordance with 43 CFR 3172:

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

Describe the mud monitoring system utilized: Pason PVT with Pit Volume Recorder

Circulating Medium Table

Operator Name: MACK ENERGY CORPORATION

Well Name: BROCKVILLE FEDERAL **Well Number:** 2H

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	200	SPUD MUD	8.5	10	74.8	0.1	11		12000	15	
200	1200	LSND/GEL	8.3	9.2	74.8	0.1	11		12000	15	
1200	8864	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 1462psig

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: 1462 **Anticipated Surface Pressure:** 789

Anticipated Bottom Hole Temperature(F): 95

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations

Operator Name: MACK ENERGY CORPORATION

Well Name: BROCKVILLE FEDERAL **Well Number:** 2H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Brockville_Federal__2H_Preliminary_Horizontal_Well_Plan_1_20240905095614.pdf
Natural_Gas_Management_Plan_20240905095630.pdf
Escape_Route_20240905095801.pdf
KOP_20240905095919.pdf

Other proposed operations facets description:

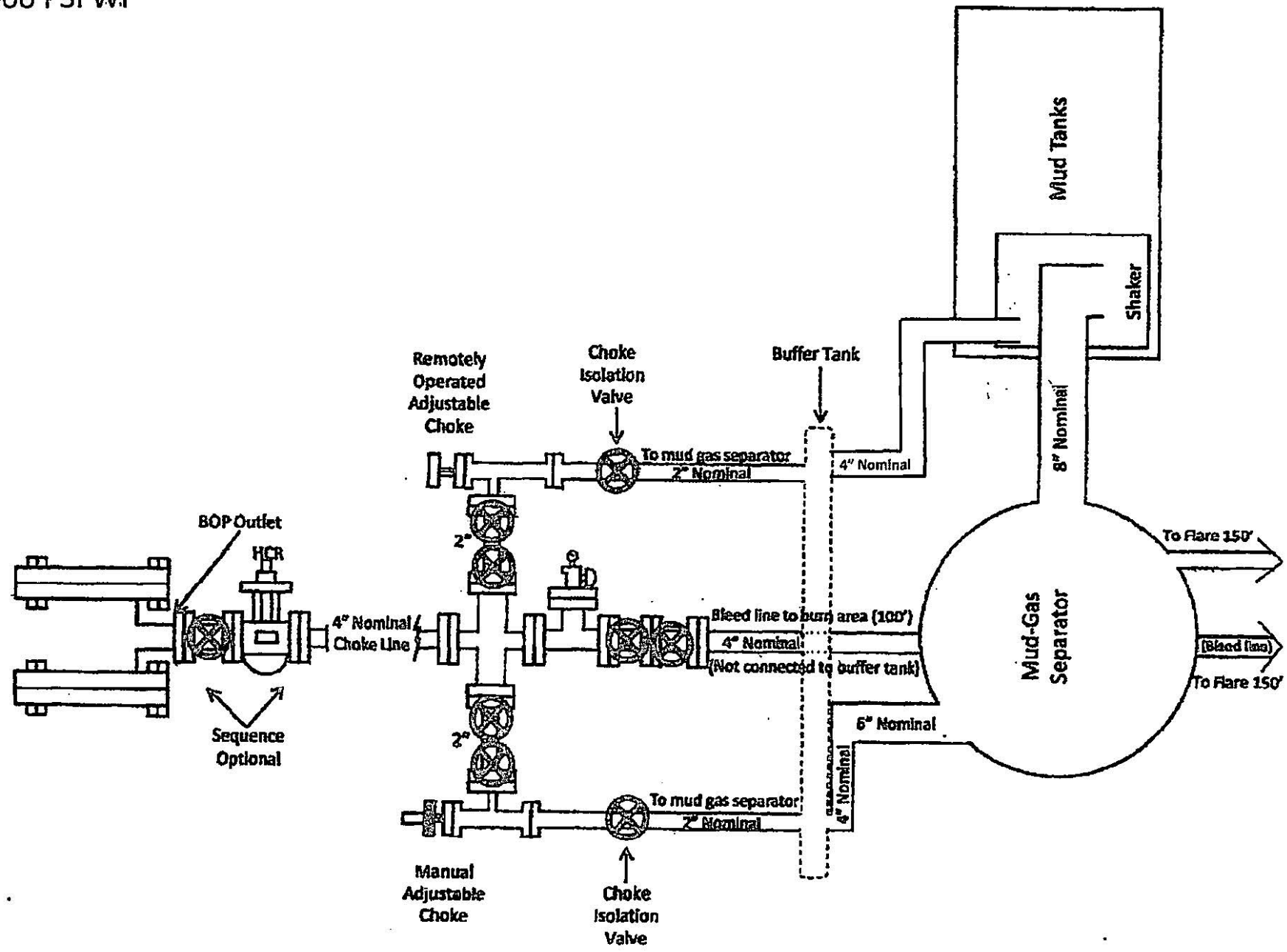
Other proposed operations facets attachment:

Other Variance attachment:

Variance_request_20240111084904.pdf
Cactus_Wellhead_installation_Procedure_20240111084934.pdf
Flex_Hose_Cert_20240111084951.pdf

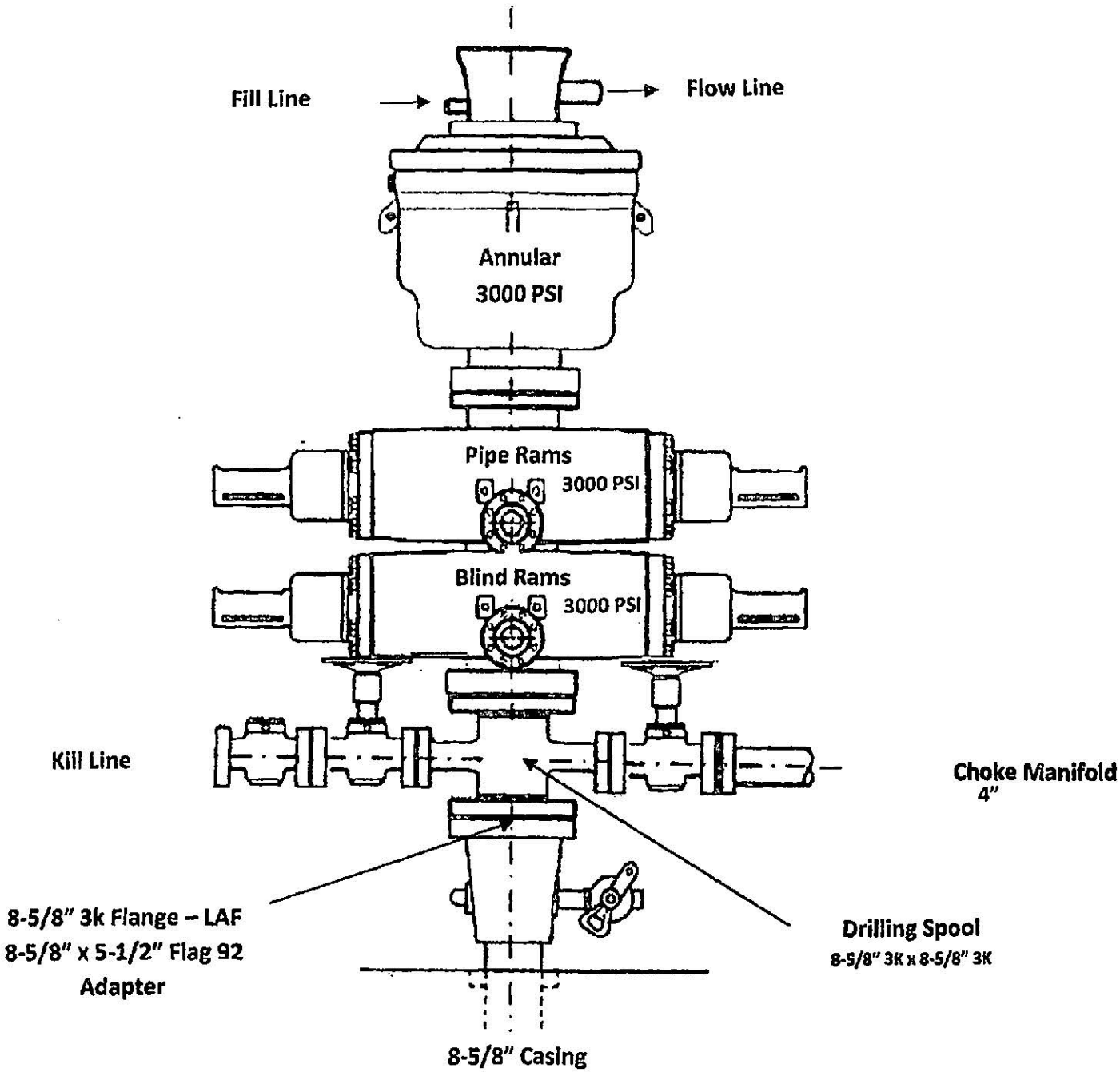
Choke Manifold

3000 PSI WP



BOP Diagram

Dual Ram BOP
3000 PSI WP



Casing Design **Well:** Brockviile Federal #2H

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

Total Depth: 1,200 ft **TVD:** 1,200 ft

Pressure Gradient for Calculations **(While drilling)**

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

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

Mud weight for joint strength: 10 #/gal Safety Factor Joint Strength 1.8

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

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

Max. Shut in surface pressure: 500 psi

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

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

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

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

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

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

Select 1st segment bottom 1200

1200 ft to 0 ft
9.625 0 J-55 LT&C

S.F.	Actual		Desire
collapse	3.237179	>=	1.125
burst-b	7.04	>=	1.25
burst-t	7.04		

Top of segment 1 (ft) 0

Select 2nd segment from bottom

0 ft to 0 ft
0 0 0 0

S.F.	Actual		Desire
collapse	#DIV/0!	>=	1.125
burst-b	0	>=	1.25
burst-t	0		
jnt strngth	10.76785	>=	1.8

Casing Design **Well:** Brockville Federal #2H

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

Total Depth: 8864 ft **TVD:** 3044 ft

Pressure Gradient for Calculations **(While drilling)**

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

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

Mud weight for joint strength: 10 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1582.88 psi Burst: 1582.88 psi, joint strength: 1582.88 psi

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

Max. Shut in surface pressure: 3000 psi

1st segment	8864 ft to 3175 ft		Make up Torque ft-lbs			Total ft = 5689
O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	**17** #/ft	**HCP-110**	**Buttress**	**4,620**	**3,470**	**5,780**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
8,580 psi	**10,640** psi-lrcr	**568** ,000 #		**546** ,000 #		**4.767**

2nd segment	3175 ft to 0 ft		Make up Torque ft-lbs			Total ft = 3175
O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	**26** #/ft	**HCP-110**	**Buttress**	**6,930**	**5,200**	**8,660**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
7,800 psi	**9,950** psi-lrcr	**853** ,000 #		**830** ,000 #		**6.151**

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	**26** #/ft	**HCP-110**	**LT&C**	**6930**	**5200**	**8660**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
7,800 psi	**9,950** psi	**693** ,000 #		**830** ,000 #		**6.151**

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

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

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

Select 1st segment bottom	8864	**S.F.**	Actual		Desire
		collapse	5.420499	>=	1.125
8864 ft to 3175 ft		burst-b	3.546667	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.546667		
Top of segment 1 (ft)	3175	**S.F.**	Actual		Desire
Select 2nd segment from bottom		collapse	4.581677	>=	1.125
		burst-b	3.316667	>=	1.25
3175 ft to 0 ft		burst-t	3.316667		
7 26 HCP-110 Buttress		jnt strngth	6.93394	>=	1.8

	Top of segment 2 (ft)	0	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	3.316667	>=	1.25
0 ft	to 0 ft		burst-t	3.316667		
0	0 0 0		jnt strngth	5.617912	>=	1.8
	Top of segment 3 (ft)	0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to 0 ft		burst-t	0		
0	0 0 0		jnt strngth	4.56414	>=	1.8
	Top of segment 4 (ft)		S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 5 (ft)		S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 6 (ft)		jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation:	1,200 ft		516	psi @	1,200 ft	
Top of salt:	2,400 ft	fx #1	516			
Base of salt:	3,700 ft	fx #2	900			
TD of intermediate:	4,600 ft	fx #3	540			

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

fx #1	fx #2	fx #3
0.43	0.75	0.45

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

Adjust for best combination of safety factors

	Secondary
S.F. Collapse bottom of segment:	
S.F. Collapse top of segment:	4.93931
S.F. Burst bottom of segment:	
S.F. Burst top of segment	
S.F. Joint strength bottom of segment:	795.518
S.F. Joint strength top of segment:	
S.F. Body yield strength bottom of segment:	764.706
S.F. Body yield strength top of segment:	6.66537

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.847		
calculations for bottom of segment @	3044	ft	
hydrostatic pressure collapse - backside:	1582.88	psi	
Axial load @ bottom of section	0	lbs	previous segments
Axial load factor:	0		load/(pipe body yield strength)
Collapse strength reduction factor:	1		Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580	psi	
Actual safety factor	5.4205		adjusted casing rating / actual pressure

Casing Design **Well:** Brockville Federal #2H

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

Total Depth: 8864 ft **TVD:** 3044 ft

Pressure Gradient for Calculations **(While drilling)**

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

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

Mud weight for joint strength: 10 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1582.88 psi Burst: 1582.88 psi, joint strength: 1582.88 psi

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

Max. Shut in surface pressure: 3000 psi

1st segment	8864 ft to 3175 ft		Make up Torque ft-lbs			Total ft = 5689
O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	**17** #/ft	**HCP-110**	**Buttress**	**4,620**	**3,470**	**5,780**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
8,580 psi	**10,640** psi-lrcr	**568** ,000 #		**546** ,000 #		**4.767**

2nd segment	3175 ft to 0 ft		Make up Torque ft-lbs			Total ft = 3175
O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	**26** #/ft	**HCP-110**	**Buttress**	**6,930**	**5,200**	**8,660**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
7,800 psi	**9,950** psi-lrcr	**853** ,000 #		**830** ,000 #		**6.151**

3rd segment	0 ft to 0 ft		Make up Torque ft-lbs			Total ft = 0
O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	**26** #/ft	**HCP-110**	**LT&C**	**6930**	**5200**	**8660**
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift
7,800 psi	**9,950** psi	**693** ,000 #		**830** ,000 #		**6.151**

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

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

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

Select 1st segment bottom	8864	**S.F.**	Actual		Desire
		collapse	5.420499	>=	1.125
8864 ft to 3175 ft		burst-b	3.546667	>=	1.25
5.5 0 HCP-110 Buttress		burst-t	3.546667		
Top of segment 1 (ft)	3175	**S.F.**	Actual		Desire
Select 2nd segment from bottom		collapse	4.581677	>=	1.125
		burst-b	3.316667	>=	1.25
3175 ft to 0 ft		burst-t	3.316667		
7 26 HCP-110 Buttress		jnt strngth	6.93394	>=	1.8

	Top of segment 2 (ft)	0	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	3.316667	>=	1.25
0 ft	to 0 ft		burst-t	3.316667		
0	0 0 0		jnt strngth	5.617912	>=	1.8
	Top of segment 3 (ft)	0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to 0 ft		burst-t	0		
0	0 0 0		jnt strngth	4.56414	>=	1.8
	Top of segment 4 (ft)		S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 5 (ft)		S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 6 (ft)		jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation:	1,200 ft			516	psi @	1,200 ft
Top of salt:	2,400 ft	fx #1	516			
Base of salt:	3,700 ft	fx #2	900			
TD of intermediate:	4,600 ft	fx #3	540			

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

fx #1	fx #2	fx #3
0.43	0.75	0.45

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

Adjust for best combination of safety factors

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S.F. Collapse bottom of segment:	
S.F. Collapse top of segment:	4.93931
S.F. Burst bottom of segment:	
S.F. Burst top of segment	
S.F. Joint strength bottom of segment:	795.518
S.F. Joint strength top of segment:	
S.F. Body yield strength bottom of segment:	764.706
S.F. Body yield strength top of segment:	6.66537

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.847		
calculations for bottom of segment @	3044	ft	
hydrostatic pressure collapse - backside:	1582.88	psi	
Axial load @ bottom of section	0	lbs	previous segments
Axial load factor:	0		load/(pipe body yield strength)
Collapse strength reduction factor:	1		Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580	psi	
Actual safety factor	5.4205		adjusted casing rating / actual pressure

Casing Design **Well:** Brockville Federal #2H

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

Total Depth: 200 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 9.6 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 9.6 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 9.6 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 99.84 psi Burst: 99.84 psi, joint strength: 99.84 psi

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

Max. Shut in surface pressure: 500 psi

1st segment	200 ft to 0 ft			Make up Torque ft-lbs			Total ft = 200
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
13.375 inches	**48** #/ft	**J-55**	**ST&C**	**3,220**	**2,420**	**4,030**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
740	**2,370** psi	**433** ,000 #		**744** ,000 #		**12.559**	

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

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

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

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

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

Select 1st segment bottom				200	**S.F.**	Actual		Desire
					collapse	7.411859	>=	1.125
200 ft to 0 ft					burst-b	4.700889	>=	1.25
13.375	0	J-55	ST&C		burst-t	4.74		
Top of segment 1 (ft)				0	**S.F.**	Actual		Desire
Select 2nd segment from bottom					collapse	#DIV/0!	>=	1.125
					burst-b	0	>=	1.25
0 ft to 0 ft					burst-t	0		
0	0	0	0		jnt strngth	52.86966	>=	1.8

Casing Design **Well:** Brockville Federal #2H

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

Total Depth: 8826 ft **TVD:** 3044 ft

Pressure Gradient for Calculations **(While drilling)**

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

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

Mud weight for joint strength: 10 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1582.88 psi Burst: 1582.88 psi, joint strength: 1582.88 psi

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

Max. Shut in surface pressure: 3000 psi

1st segment	8826 ft to 3275 ft			Make up Torque ft-lbs			Total ft = 5551
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
5.5 inches	**17** #/ft	**HCP-110**	**Buttress**	**4,620**	**3,470**	**5,780**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
8,580 psi	**10,640** psi-lrcr	**568** ,000 #		**546** ,000 #		**4.767**	

2nd segment	3275 ft to 2225 ft			Make up Torque ft-lbs			Total ft = 1050
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
7 inches	**26** #/ft	**HCP-110**	**Buttress**	**6,930**	**5,200**	**8,660**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
7,800 psi	**9,950** psi-lrcr	**853** ,000 #		**830** ,000 #		**6.151**	

3rd segment	2225 ft to 0 ft			Make up Torque ft-lbs			Total ft = 2225
O.D.	Weight	Grade	Threads	opt.	min.	mx.	
7 inches	**26** #/ft	**HCP-110**	**LT&C**	**6930**	**5200**	**8660**	
Collapse Resistance	Internal Yield	Joint Strength		Body Yield		Drift	
7,800 psi	**9,950** psi	**693** ,000 #		**830** ,000 #		**6.151**	

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

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

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

Select 1st segment bottom				8826	**S.F.**	Actual		Desire
					collapse	5.420499	>=	1.125
8826 ft	to	3275 ft			burst-b	3.546667	>=	1.25
5.5	0	HCP-110	Buttress		burst-t	3.546667		
Top of segment 1 (ft)				3275	**S.F.**	Actual		Desire
Select 2nd segment from bottom					collapse	4.44563	>=	1.125
					burst-b	3.316667	>=	1.25
3275 ft	to	2225 ft			burst-t	3.316667		
7	26	HCP-110	Buttress		jnt strngth	7.10632	>=	1.8

	Top of segment 2 (ft)	2225	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	6.475321	>=	1.125
			burst-b	3.316667	>=	1.25
2225 ft	to 0 ft		burst-t	3.316667		
7	26 HCP-110 LT&C		jnt strngth	8.277379	>=	1.8
	Top of segment 3 (ft)	0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to 0 ft		burst-t	0		
0 0	0 0		jnt strngth	6.72476	>=	1.8
	Top of segment 4 (ft)		S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0 0	0 0		jnt strngth	0	>=	1.8
	Top of segment 5 (ft)		S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0 0	0 0		jnt strngth	0	>=	1.8
	Top of segment 6 (ft)		jnt strngth		>=	1.8

use in colapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation:	1,200 ft		516	psi @	1,200 ft	
Top of salt:	2,400 ft	fx #1	516			
Base of salt:	3,700 ft	fx #2	900			
TD of intermediate:	4,600 ft	fx #3	540			

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

fx #1	fx #2	fx #3
0.43	0.75	0.45

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

Adjust for best combination of safety factors

	Secondary
S.F. Collapse bottom of segment:	
S.F. Collapse top of segment:	4.79582
S.F. Burst bottom of segment:	
S.F. Burst top of segment	
S.F. Joint strength bottom of segment:	795.518
S.F. Joint strength top of segment:	
S.F. Body yield strength bottom of segment:	764.706
S.F. Body yield strength top of segment:	6.83108

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.847		
calculations for bottom of segment @	3044	ft	
hydrostatic pressure collapse - backside:	1582.88	psi	
Axial load @ bottom of section	0	lbs	previous segments
Axial load factor:	0		load/(pipe body yield strength)
Collapse strength reduction factor:	1		Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	8580	psi	
Actual safety factor	5.4205		adjusted casing rating / actual pressure

Brockville Federal #2H, Plan 1

Operator	Mack Energy Corp	**Units**	feet, °/100ft	07:47 Monday, August 26, 2024	Page 1 of 4
Field	Round Tank	**County**	Chaves	**Vertical Section Azimuth**	179.58
Well Name	Brockville Federal #2H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 607 FSL & 330 FWL Section 7-T15S-R29E BHL: 1 FSL & 330 FWL Section 18-T15S-R29E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1923783.7	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11988953.6	**Surface Lat**	
Well Number	2H **API**	**Surface Z**	3731.9	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3714.4	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD* ft	INC* deg	AZI* deg	TVD* ft	N* ft	E* ft	DLS* °/100ft	V. S.* ft	MapE* ft	MapN* ft	SysTVD* ft
*** TIE (at MD = 2125.00)										
2125.00	0.00	0.0	2125.00	0.00	0.00		0.00	1923783.70	11988953.60	1606.90
2150.00	0.00	0.0	2150.00	0.00	0.00	0.00	0.00	1923783.70	11988953.60	1581.90
2200.00	0.00	0.0	2200.00	0.00	0.00	0.00	0.00	1923783.70	11988953.60	1531.90
*** KOP 8 DEGREE (at MD = 2225.00)										
2225.00	0.00	0.0	2225.00	0.00	0.00	0.00	0.00	1923783.70	11988953.60	1506.90
2250.00	2.00	179.6	2249.99	-0.44	0.00	8.00	0.44	1923783.70	11988953.16	1481.91
2300.00	6.00	179.6	2299.86	-3.92	0.03	8.00	3.92	1923783.73	11988949.68	1432.04
2350.00	10.00	179.6	2349.37	-10.88	0.08	8.00	10.88	1923783.78	11988942.72	1382.53
2400.00	14.00	179.6	2398.26	-21.27	0.16	8.00	21.27	1923783.86	11988932.33	1333.64
2450.00	18.00	179.6	2446.32	-35.05	0.26	8.00	35.05	1923783.96	11988918.55	1285.58
2500.00	22.00	179.6	2493.29	-52.15	0.38	8.00	52.15	1923784.08	11988901.45	1238.61
2550.00	26.00	179.6	2538.96	-72.48	0.53	8.00	72.48	1923784.23	11988881.12	1192.94
2600.00	30.00	179.6	2583.10	-95.95	0.70	8.00	95.95	1923784.40	11988857.65	1148.80
2650.00	34.00	179.6	2625.49	-122.44	0.90	8.00	122.44	1923784.60	11988831.16	1106.41
2700.00	38.00	179.6	2665.94	-151.82	1.11	8.00	151.83	1923784.81	11988801.78	1065.96
2750.00	42.00	179.6	2704.23	-183.95	1.35	8.00	183.96	1923785.05	11988769.65	1027.67
2800.00	46.00	179.6	2740.19	-218.68	1.60	8.00	218.68	1923785.30	11988734.92	991.71
2850.00	50.00	179.6	2773.64	-255.83	1.88	8.00	255.83	1923785.58	11988697.77	958.26
2900.00	54.00	179.6	2804.42	-295.22	2.16	8.00	295.23	1923785.86	11988658.38	927.48
*** 55 DEGREE TANGENT (at MD = 2912.50)										
2912.50	55.00	179.6	2811.67	-305.40	2.24	8.00	305.40	1923785.94	11988648.20	920.23
2950.00	55.00	179.6	2833.18	-336.11	2.46	0.00	336.12	1923786.16	11988617.49	898.72
3000.00	55.00	179.6	2861.86	-377.07	2.76	0.00	377.08	1923786.46	11988576.53	870.04
3050.00	55.00	179.6	2890.54	-418.03	3.06	0.00	418.04	1923786.76	11988535.57	841.36
3100.00	55.00	179.6	2919.22	-458.98	3.36	0.00	458.99	1923787.06	11988494.62	812.68
*** 10 DEGREE BUILD (at MD = 3112.50)										
3112.50	55.00	179.6	2926.39	-469.22	3.44	0.00	469.23	1923787.14	11988484.38	805.51
3150.00	58.75	179.6	2946.88	-500.62	3.67	10.00	500.63	1923787.37	11988452.98	785.02
3200.00	63.75	179.6	2970.92	-544.44	3.99	10.00	544.46	1923787.69	11988409.16	760.98
3250.00	68.75	179.6	2991.05	-590.19	4.33	10.00	590.21	1923788.03	11988363.41	740.85
3300.00	73.75	179.6	3007.12	-637.52	4.67	10.00	637.54	1923788.37	11988316.08	724.78
3350.00	78.75	179.6	3019.00	-686.07	5.03	10.00	686.09	1923788.73	11988267.53	712.90
3400.00	83.75	179.6	3026.60	-735.47	5.39	10.00	735.49	1923789.09	11988218.13	705.30
3450.00	88.75	179.6	3029.87	-785.35	5.76	10.00	785.37	1923789.46	11988168.25	702.03
*** LANDING POINT (at MD = 3459.50)										
3459.50	89.70	179.6	3030.00	-794.85	5.83	10.00	794.87	1923789.53	11988158.75	701.90
3500.00	89.70	179.6	3030.21	-835.35	6.12	0.00	835.37	1923789.82	11988118.25	701.69
3550.00	89.70	179.6	3030.47	-885.34	6.49	0.00	885.37	1923790.19	11988068.26	701.43

Brockville Federal #2H, Plan 1

Operator	Mack Energy Corp	**Units**	feet, °/100ft	07:47 Monday, August 26, 2024	Page 2 of 4
Field	Round Tank	**County**	Chaves	**Vertical Section Azimuth**	179.58
Well Name	Brockville Federal #2H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 607 FSL & 330 FWL Section 7-T15S-R29E BHL: 1 FSL & 330 FWL Section 18-T15S-R29E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1923783.7	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11988953.6	**Surface Lat**	
Well Number	2H **API**	**Surface Z**	3731.9	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3714.4	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD* ft	INC* deg	AZI* deg	TVD* ft	N* ft	E* ft	DLS* °/100ft	V. S.* ft	MapE* ft	MapN* ft	SysTVD* ft
3600.00	89.70	179.6	3030.74	-935.34	6.86	0.00	935.37	1923790.56	11988018.26	701.16
3650.00	89.70	179.6	3031.00	-985.34	7.22	0.00	985.37	1923790.92	11987968.26	700.90
3700.00	89.70	179.6	3031.26	-1035.34	7.59	0.00	1035.37	1923791.29	11987918.26	700.64
3750.00	89.70	179.6	3031.52	-1085.34	7.96	0.00	1085.36	1923791.66	11987868.26	700.38
3800.00	89.70	179.6	3031.78	-1135.33	8.32	0.00	1135.36	1923792.02	11987818.27	700.12
3850.00	89.70	179.6	3032.04	-1185.33	8.69	0.00	1185.36	1923792.39	11987768.27	699.86
3900.00	89.70	179.6	3032.31	-1235.33	9.06	0.00	1235.36	1923792.76	11987718.27	699.59
3950.00	89.70	179.6	3032.57	-1285.33	9.42	0.00	1285.36	1923793.12	11987668.27	699.33
4000.00	89.70	179.6	3032.83	-1335.33	9.79	0.00	1335.36	1923793.49	11987618.27	699.07
4050.00	89.70	179.6	3033.09	-1385.32	10.16	0.00	1385.36	1923793.86	11987568.28	698.81
4100.00	89.70	179.6	3033.35	-1435.32	10.52	0.00	1435.36	1923794.22	11987518.28	698.55
4150.00	89.70	179.6	3033.62	-1485.32	10.89	0.00	1485.36	1923794.59	11987468.28	698.28
4200.00	89.70	179.6	3033.88	-1535.32	11.25	0.00	1535.36	1923794.95	11987418.28	698.02
4250.00	89.70	179.6	3034.14	-1585.32	11.62	0.00	1585.36	1923795.32	11987368.28	697.76
4300.00	89.70	179.6	3034.40	-1635.31	11.99	0.00	1635.36	1923795.69	11987318.29	697.50
4350.00	89.70	179.6	3034.66	-1685.31	12.35	0.00	1685.36	1923796.05	11987268.29	697.24
4400.00	89.70	179.6	3034.92	-1735.31	12.72	0.00	1735.36	1923796.42	11987218.29	696.98
4450.00	89.70	179.6	3035.19	-1785.31	13.09	0.00	1785.36	1923796.79	11987168.29	696.71
4500.00	89.70	179.6	3035.45	-1835.31	13.45	0.00	1835.35	1923797.15	11987118.29	696.45
4550.00	89.70	179.6	3035.71	-1885.30	13.82	0.00	1885.35	1923797.52	11987068.30	696.19
4600.00	89.70	179.6	3035.97	-1935.30	14.19	0.00	1935.35	1923797.89	11987018.30	695.93
4650.00	89.70	179.6	3036.23	-1985.30	14.55	0.00	1985.35	1923798.25	11986968.30	695.67
4700.00	89.70	179.6	3036.50	-2035.30	14.92	0.00	2035.35	1923798.62	11986918.30	695.40
4750.00	89.70	179.6	3036.76	-2085.30	15.29	0.00	2085.35	1923798.99	11986868.30	695.14
4800.00	89.70	179.6	3037.02	-2135.29	15.65	0.00	2135.35	1923799.35	11986818.31	694.88
4850.00	89.70	179.6	3037.28	-2185.29	16.02	0.00	2185.35	1923799.72	11986768.31	694.62
4900.00	89.70	179.6	3037.54	-2235.29	16.39	0.00	2235.35	1923800.09	11986718.31	694.36
4950.00	89.70	179.6	3037.80	-2285.29	16.75	0.00	2285.35	1923800.45	11986668.31	694.10
5000.00	89.70	179.6	3038.07	-2335.29	17.12	0.00	2335.35	1923800.82	11986618.32	693.83
5050.00	89.70	179.6	3038.33	-2385.28	17.49	0.00	2385.35	1923801.19	11986568.32	693.57
5100.00	89.70	179.6	3038.59	-2435.28	17.85	0.00	2435.35	1923801.55	11986518.32	693.31
5150.00	89.70	179.6	3038.85	-2485.28	18.22	0.00	2485.35	1923801.92	11986468.32	693.05
5200.00	89.70	179.6	3039.11	-2535.28	18.58	0.00	2535.35	1923802.28	11986418.32	692.79
5250.00	89.70	179.6	3039.38	-2585.27	18.95	0.00	2585.34	1923802.65	11986368.33	692.52
5300.00	89.70	179.6	3039.64	-2635.27	19.32	0.00	2635.34	1923803.02	11986318.33	692.26
5350.00	89.70	179.6	3039.90	-2685.27	19.68	0.00	2685.34	1923803.38	11986268.33	692.00
5400.00	89.70	179.6	3040.16	-2735.27	20.05	0.00	2735.34	1923803.75	11986218.33	691.74

Brockville Federal #2H, Plan 1

Operator	Mack Energy Corp	**Units**	feet, °/100ft	07:47 Monday, August 26, 2024	Page 3 of 4
Field	Round Tank	**County**	Chaves	**Vertical Section Azimuth**	179.58
Well Name	Brockville Federal #2H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 607 FSL & 330 FWL Section 7-T15S-R29E BHL: 1 FSL & 330 FWL Section 18-T15S-R29E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1923783.7	**Surface Long**	
Slot Name		**UWI**		**Surface Y**	11988953.6	**Surface Lat**	
Well Number	2H	**API**		**Surface Z**	3731.9	**Global Z Ref**	KB
Project		**MD/TVD Ref**	KB	**Ground Level**	3714.4	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD* ft	INC* deg	AZI* deg	TVD* ft	N* ft	E* ft	DLS* °/100ft	V. S.* ft	MapE* ft	MapN* ft	SysTVD* ft
5450.00	89.70	179.6	3040.42	-2785.27	20.42	0.00	2785.34	1923804.12	11986168.33	691.48
5500.00	89.70	179.6	3040.68	-2835.26	20.78	0.00	2835.34	1923804.48	11986118.34	691.22
5550.00	89.70	179.6	3040.95	-2885.26	21.15	0.00	2885.34	1923804.85	11986068.34	690.95
5600.00	89.70	179.6	3041.21	-2935.26	21.52	0.00	2935.34	1923805.22	11986018.34	690.69
5650.00	89.70	179.6	3041.47	-2985.26	21.88	0.00	2985.34	1923805.58	11985968.34	690.43
5700.00	89.70	179.6	3041.73	-3035.26	22.25	0.00	3035.34	1923805.95	11985918.34	690.17
5750.00	89.70	179.6	3041.99	-3085.25	22.62	0.00	3085.34	1923806.32	11985868.35	689.91
5800.00	89.70	179.6	3042.25	-3135.25	22.98	0.00	3135.34	1923806.68	11985818.35	689.65
5850.00	89.70	179.6	3042.52	-3185.25	23.35	0.00	3185.34	1923807.05	11985768.35	689.38
5900.00	89.70	179.6	3042.78	-3235.25	23.72	0.00	3235.34	1923807.42	11985718.35	689.12
5950.00	89.70	179.6	3043.04	-3285.25	24.08	0.00	3285.33	1923807.78	11985668.35	688.86
6000.00	89.70	179.6	3043.30	-3335.24	24.45	0.00	3335.33	1923808.15	11985618.36	688.60
6050.00	89.70	179.6	3043.56	-3385.24	24.82	0.00	3385.33	1923808.52	11985568.36	688.34
6100.00	89.70	179.6	3043.83	-3435.24	25.18	0.00	3435.33	1923808.88	11985518.36	688.07
6150.00	89.70	179.6	3044.09	-3485.24	25.55	0.00	3485.33	1923809.25	11985468.36	687.81
6200.00	89.70	179.6	3044.35	-3535.24	25.92	0.00	3535.33	1923809.62	11985418.36	687.55
6250.00	89.70	179.6	3044.61	-3585.23	26.28	0.00	3585.33	1923809.98	11985368.37	687.29
6300.00	89.70	179.6	3044.87	-3635.23	26.65	0.00	3635.33	1923810.35	11985318.37	687.03
6350.00	89.70	179.6	3045.13	-3685.23	27.01	0.00	3685.33	1923810.71	11985268.37	686.77
6400.00	89.70	179.6	3045.40	-3735.23	27.38	0.00	3735.33	1923811.08	11985218.37	686.50
6450.00	89.70	179.6	3045.66	-3785.23	27.75	0.00	3785.33	1923811.45	11985168.37	686.24
6500.00	89.70	179.6	3045.92	-3835.22	28.11	0.00	3835.33	1923811.81	11985118.38	685.98
6550.00	89.70	179.6	3046.18	-3885.22	28.48	0.00	3885.33	1923812.18	11985068.38	685.72
6600.00	89.70	179.6	3046.44	-3935.22	28.85	0.00	3935.33	1923812.55	11985018.38	685.46
6650.00	89.70	179.6	3046.71	-3985.22	29.21	0.00	3985.33	1923812.91	11984968.38	685.19
6700.00	89.70	179.6	3046.97	-4035.22	29.58	0.00	4035.32	1923813.28	11984918.38	684.93
6750.00	89.70	179.6	3047.23	-4085.21	29.95	0.00	4085.32	1923813.65	11984868.39	684.67
6800.00	89.70	179.6	3047.49	-4135.21	30.31	0.00	4135.32	1923814.01	11984818.39	684.41
6850.00	89.70	179.6	3047.75	-4185.21	30.68	0.00	4185.32	1923814.38	11984768.39	684.15
6900.00	89.70	179.6	3048.01	-4235.21	31.05	0.00	4235.32	1923814.75	11984718.39	683.89
6950.00	89.70	179.6	3048.28	-4285.21	31.41	0.00	4285.32	1923815.11	11984668.39	683.62
7000.00	89.70	179.6	3048.54	-4335.20	31.78	0.00	4335.32	1923815.48	11984618.40	683.36
7050.00	89.70	179.6	3048.80	-4385.20	32.15	0.00	4385.32	1923815.85	11984568.40	683.10
7100.00	89.70	179.6	3049.06	-4435.20	32.51	0.00	4435.32	1923816.21	11984518.40	682.84
7150.00	89.70	179.6	3049.32	-4485.20	32.88	0.00	4485.32	1923816.58	11984468.40	682.58
7200.00	89.70	179.6	3049.59	-4535.20	33.25	0.00	4535.32	1923816.95	11984418.40	682.31
7250.00	89.70	179.6	3049.85	-4585.19	33.61	0.00	4585.32	1923817.31	11984368.41	682.05

Brockville Federal #2H, Plan 1

Operator	Mack Energy Corp	**Units**	feet, °/100ft	07:47 Monday, August 26, 2024	Page 4 of 4
Field	Round Tank	**County**	Chaves	**Vertical Section Azimuth**	179.58
Well Name	Brockville Federal #2H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 607 FSL & 330 FWL Section 7-T15S-R29E BHL: 1 FSL & 330 FWL Section 18-T15S-R29E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1923783.7	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11988953.6	**Surface Lat**	
Well Number	2H **API**	**Surface Z**	3731.9	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3714.4	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD* ft	INC* deg	AZI* deg	TVD* ft	N* ft	E* ft	DLS* °/100ft	V. S.* ft	MapE* ft	MapN* ft	SysTVD* ft
7300.00	89.70	179.6	3050.11	-4635.19	33.98	0.00	4635.32	1923817.68	11984318.41	681.79
7350.00	89.70	179.6	3050.37	-4685.19	34.34	0.00	4685.32	1923818.04	11984268.41	681.53
7400.00	89.70	179.6	3050.63	-4735.19	34.71	0.00	4735.31	1923818.41	11984218.41	681.27
7450.00	89.70	179.6	3050.89	-4785.19	35.08	0.00	4785.31	1923818.78	11984168.41	681.01
7500.00	89.70	179.6	3051.16	-4835.18	35.44	0.00	4835.31	1923819.14	11984118.42	680.74
7550.00	89.70	179.6	3051.42	-4885.18	35.81	0.00	4885.31	1923819.51	11984068.42	680.48
7600.00	89.70	179.6	3051.68	-4935.18	36.18	0.00	4935.31	1923819.88	11984018.42	680.22
7650.00	89.70	179.6	3051.94	-4985.18	36.54	0.00	4985.31	1923820.24	11983968.42	679.96
7700.00	89.70	179.6	3052.20	-5035.18	36.91	0.00	5035.31	1923820.61	11983918.42	679.70
7750.00	89.70	179.6	3052.47	-5085.17	37.28	0.00	5085.31	1923820.98	11983868.43	679.44
7800.00	89.70	179.6	3052.73	-5135.17	37.64	0.00	5135.31	1923821.34	11983818.43	679.17
7850.00	89.70	179.6	3052.99	-5185.17	38.01	0.00	5185.31	1923821.71	11983768.43	678.91
7900.00	89.70	179.6	3053.25	-5235.17	38.38	0.00	5235.31	1923822.08	11983718.43	678.65
7950.00	89.70	179.6	3053.51	-5285.17	38.74	0.00	5285.31	1923822.44	11983668.43	678.39
8000.00	89.70	179.6	3053.77	-5335.16	39.11	0.00	5335.31	1923822.81	11983618.44	678.13
8050.00	89.70	179.6	3054.04	-5385.16	39.48	0.00	5385.31	1923823.18	11983568.44	677.86
8100.00	89.70	179.6	3054.30	-5435.16	39.84	0.00	5435.31	1923823.54	11983518.44	677.60
8150.00	89.70	179.6	3054.56	-5485.16	40.21	0.00	5485.30	1923823.91	11983468.44	677.34
8200.00	89.70	179.6	3054.82	-5535.16	40.58	0.00	5535.30	1923824.28	11983418.44	677.08
8250.00	89.70	179.6	3055.08	-5585.15	40.94	0.00	5585.30	1923824.64	11983368.45	676.82
8300.00	89.70	179.6	3055.34	-5635.15	41.31	0.00	5635.30	1923825.01	11983318.45	676.56
8350.00	89.70	179.6	3055.61	-5685.15	41.68	0.00	5685.30	1923825.38	11983268.45	676.29
8400.00	89.70	179.6	3055.87	-5735.15	42.04	0.00	5735.30	1923825.74	11983218.45	676.03
8450.00	89.70	179.6	3056.13	-5785.15	42.41	0.00	5785.30	1923826.11	11983168.45	675.77
8500.00	89.70	179.6	3056.39	-5835.14	42.77	0.00	5835.30	1923826.47	11983118.46	675.51
8550.00	89.70	179.6	3056.65	-5885.14	43.14	0.00	5885.30	1923826.84	11983068.46	675.25
8600.00	89.70	179.6	3056.92	-5935.14	43.51	0.00	5935.30	1923827.21	11983018.46	674.98
8650.00	89.70	179.6	3057.18	-5985.14	43.87	0.00	5985.30	1923827.57	11982968.46	674.72
*** TD (at MD = 8663.50)										
8663.50	89.70	179.6	3057.25	-5998.64	43.97	0.00	5998.80	1923827.67	11982954.96	674.65

PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Mack Energy Corporation**
LEASE NO.:	**NMNM-105294478**
WELL NAME & NO.:	**Brockville Federal 2H**
SURFACE HOLE FOOTAGE:	**0707' FNL & 0330' FWL**
BOTTOM HOLE FOOTAGE	**0001' FNL & 0330' FWL Sec. 18, T. 15 S., R 29 E.**
LOCATION:	**Section 19, T. 15 S., R 29 E., NMPM**
COUNTY:	**Chaves County, New Mexico**

The Gamma Ray and Neutron well logs must be run from total depth to surface and e-mailed to McKitric Wier at mwier@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 cll (575) 627-0205.

A. Hydrogen Sulfide

1. **Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S 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.

Approval Date: 03/31/2025

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.
Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

High Cave/Karst
Possibility of water flows in the Rustler, Queen, Salado, and Artesia Group.
Possibility of lost circulation in the Rustler, Artesia Group, and San Andres.

1. The **13-3/8** inch surface casing shall be set at approximately **395** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

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

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

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

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

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

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

 Approval Date: 03/31/2025

2. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi (testing to 2,000 psi).**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

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 05152024

Approval Date: 03/31/2025

Attached to Form 3160-3
Mack Energy Corporation
Brockville Federal #2H NM-105294478
SHL : 607 FSL & 330 FWL, Lot 4, Sec. 7 T15S R29E
BHL : 1 FSL & 330 FWL, Lot 4, Sec. 18 T15S R29E
Chaves County, NM

Mack Energy Corporation
Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

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

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S 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 H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

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

II. H2S SAFETY EQUIPMENT AND SYSTEMS

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

1. Well Control Equipment:

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

2. **Protective equipment for essential personnel:**

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

3. **H2S detection and monitoring equipment:**

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

4. **Visual warning systems:**

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

5. **Mud program:**

   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 3160-3
Mack Energy Corporation
Brockville Federal #2H NM-105294478
SHL : 607 FSL & 330 FWL, Lot 4, Sec. 7 T15S R29E
BHL : 1 FSL & 330 FWL, Lot 4, Sec. 18 T15S R29E
Chaves County, NM

B. There will be no drill stem testing.

EXHIBIT #7

WARNING

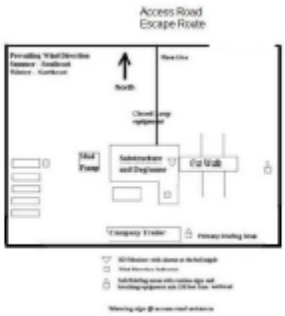
YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

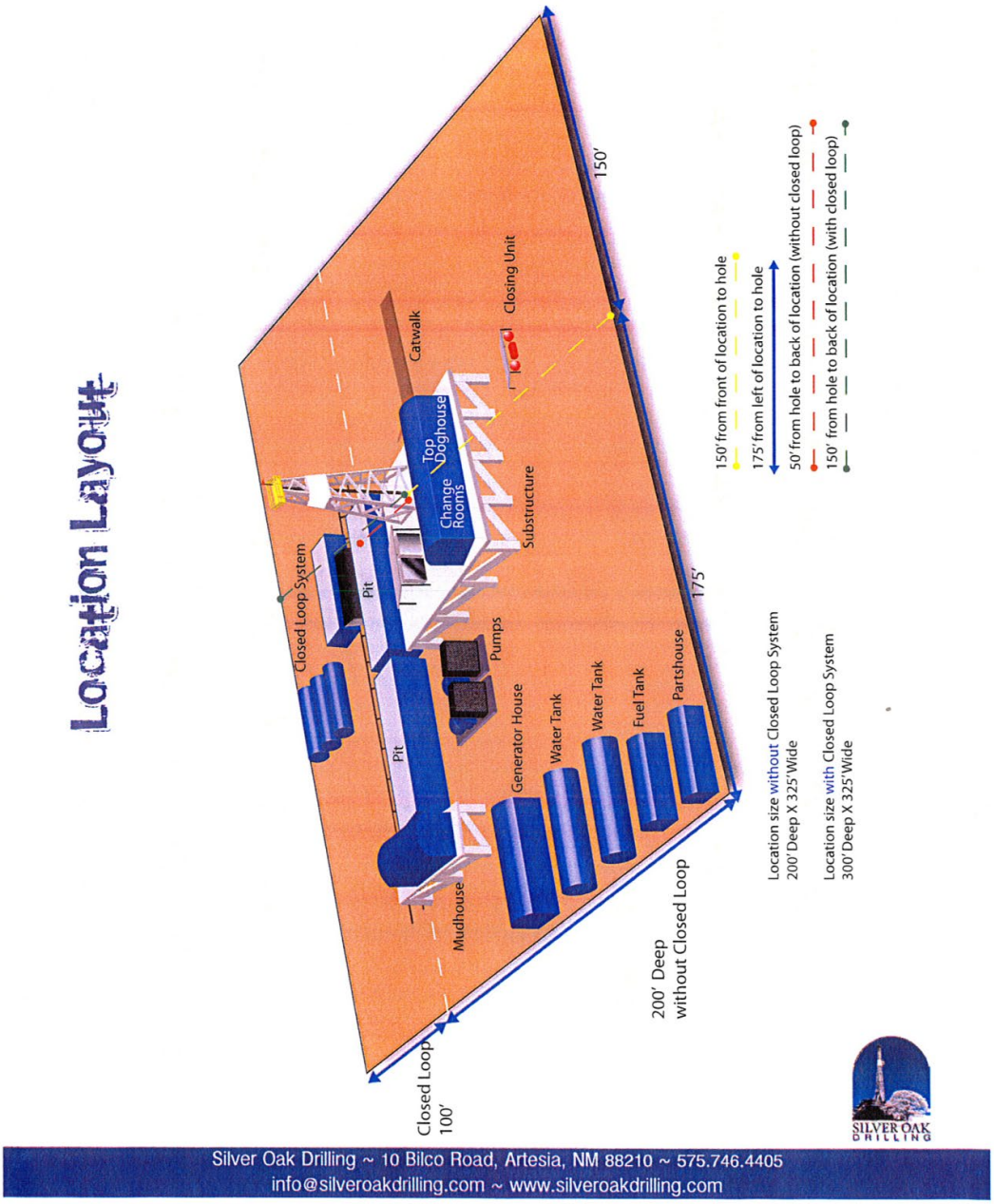
1. **BEARDS OR CONTACT LENSES NOT ALLOWED**
2. **HARD HATS REQUIRED**
3. **SMOKING IN DESIGNATED AREAS ONLY**
4. **BE WIND CONSCIOUS AT ALL TIMES**
5. **CHECK WITH MACK ENERGY FOREMAN AT OFFICE**

MACK ENERGY CORPORATION

1-575-748-1288



DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



Mack Energy Corporation Call List, Chaves County

Artesia (575)	Cellular	Office
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

C-102	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024
Submit Electronically Via OCD Permitting		Submittal Type: ☑ Initial Submittal ☐ Amended Report ☐ As Drilled

WELL LOCATION INFORMATION

API Number	Pool Code 52770	Pool Name Round Tank; San Andres	
Property Code	Property Name BROCKVILLE FEDERAL		Well Number 2H
OGRID No. 13837	Operator Name MACK ENERGY CORPORATION		Ground Level Elevation 3714.4
Surface Owner: ☐State ☐Fee ☐Tribal ☑Federal		Mineral Owner: ☐State ☐Fee ☐Tribal ☑Federal	

Surface Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	7	15 S	29 E	4	607 SOUTH	330 WEST	33.0249455°N	104.0756848°W	CHAVES

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	4	1 SOUTH	330 WEST	33.0085638°N	104.0756002°W	CHAVES

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidation Code
160				
Order Numbers.			Well setbacks are under Common Ownership: ☐Yes ☐No	

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	7	15 S	29 E	4	607 SOUTH	330 WEST	33.0249455°N	104.0756848°W	CHAVES

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	1	100 NORTH	330 WEST	33.0230026°N	104.0756868°W	CHAVES

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
	18	15 S	29 E	4	100 SOUTH	330 WEST	33.0088358°N	104.0756024°W	CHAVES

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☐Horizontal ☐Vertical	Ground Floor Elevation:

OPERATOR CERTIFICATIONS

I hereby certify that the information contained herein is true and complete to the best ofmy knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest run leased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order here to fore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Deana Weaver 9/5/2024

Signature Date

Deana Weaver

Printed Name

dweaver@mec.com

Email Address

SURVEYOR CERTIFICATIONS

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.

Signature and Seal of Professional Surveyor

FILIMON F. JARAMILLO

CertificateNumber	Dateof Survey
PLS 12797	JUNE 17, 2024 SURVEY NO. 9920A

Note: 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.

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

Drilling Plan Data Report
03/31/2025

APD ID: 10400096655
Submission Date: 02/15/2024
Operator Name: MACK ENERGY CORPORATION
Well Name: BROCKVILLE FEDERAL
Well Number: 2H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
15317021	RUSTLER	3740	170	170	ALLUVIUM	NONE	N
15317022	TOP OF SALT	3340	400	400	SALT	NONE	N
15317023	BASE OF SALT	3090	650	650	SALT	NONE	N
15317024	YATES	2950	790	790	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317025	SEVEN RIVERS	2720	1020	1020	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317026	QUEEN	2223	1517	1517	ANHYDRITE, SILTSTONE	NATURAL GAS, OIL	N
15317027	GRAYBURG	1832	1908	1908	ANHYDRITE, DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
15317028	SAN ANDRES	1512	2228	2228	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 8826

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 300 psi. Testing to 2,000 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. The estimated Bottom Hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1462psig (0.052*3057'TVD*9.2) less than 2900 bottom hole pressure.

Choke Diagram Attachment:

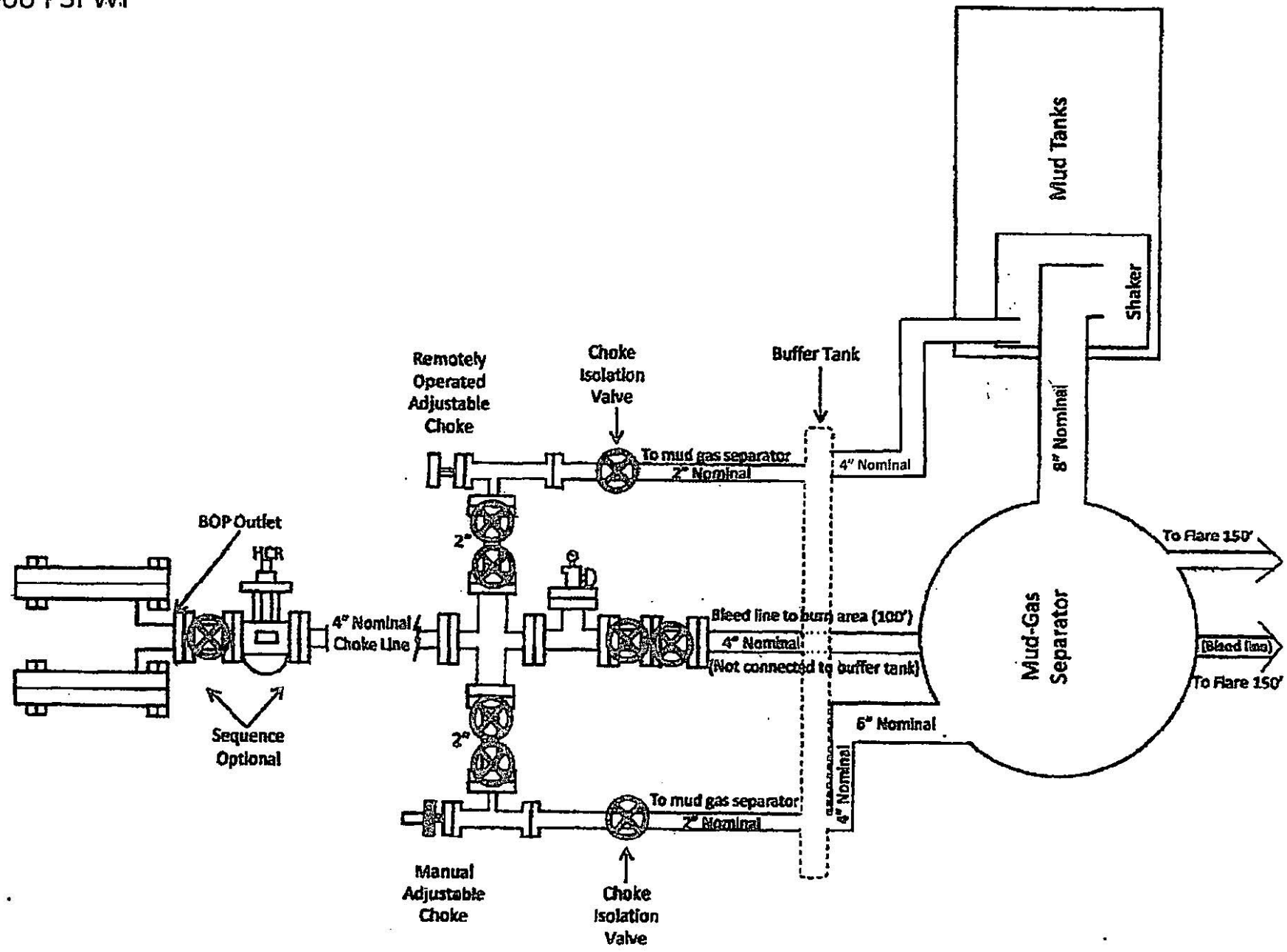
NEW_Choke_Manifold_3M_20240110143318.pdf

BOP Diagram Attachment:

NEW_BOP_3M_20240110143329.pdf

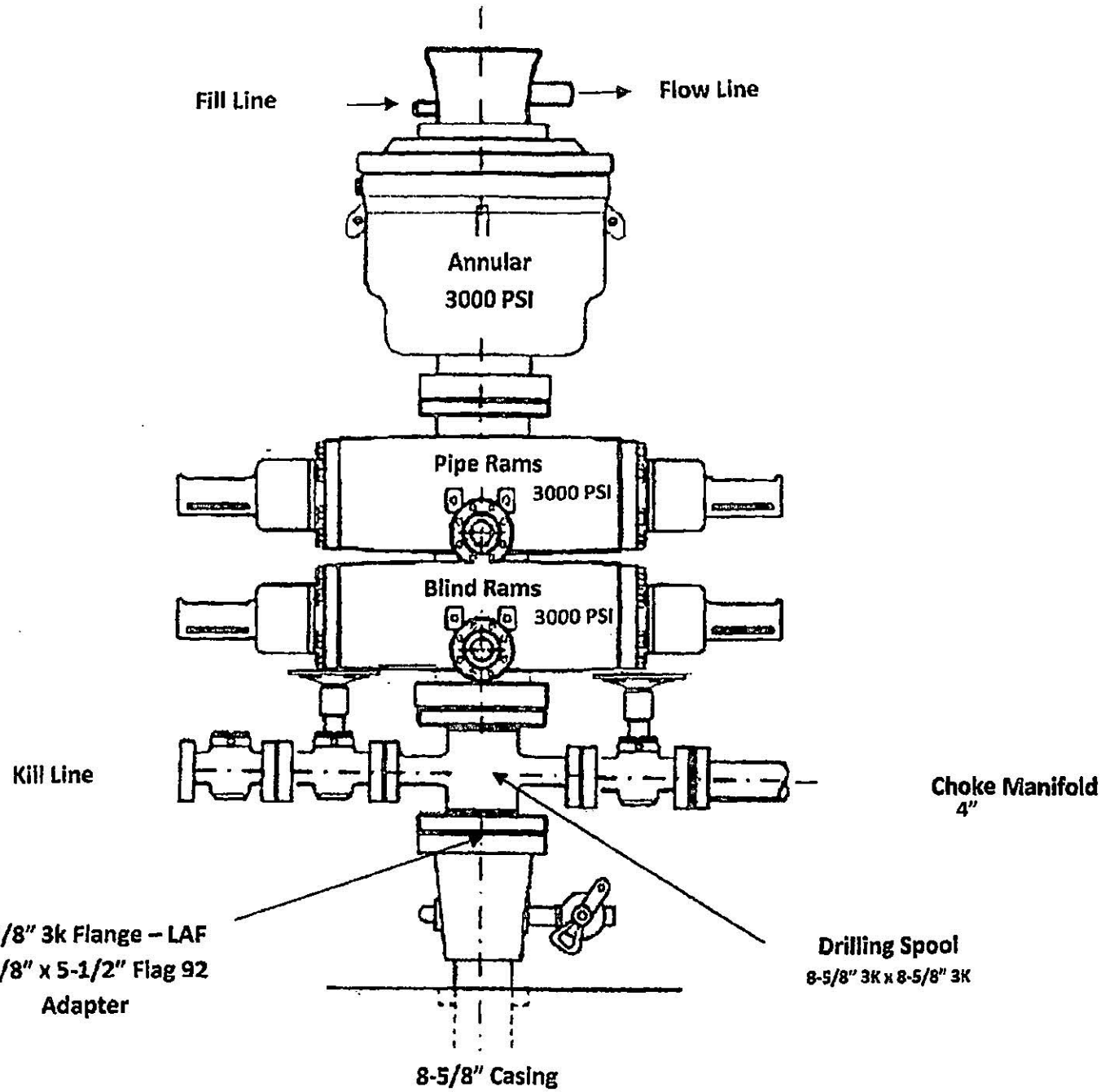
Choke Manifold

3000 PSI WP



BOP Diagram

Dual Ram BOP
3000 PSI WP



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https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 447559
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
dweaver	Cement is required to circulate on both surface and intermediate1 strings of casing.	4/1/2025
dweaver	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	4/1/2025
ward.rikala	Notify the OCD 24 hours prior to casing & cement.	5/16/2025
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	5/16/2025
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string.	5/16/2025
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.	5/16/2025