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.
30-015-49682

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

Dean R McClure

07/01/2022

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 06/17/2022

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-49682	51120	Red Lake; Glorieta-Yeso

[4] Property Code	[5] Property Name	[6] Well Number
333029	SPARKPLUG 17 FEDERAL COM	3H

[7] OGRID No.	[8] Operator Name	[9] Elevation
330211	REDWOOD OPERATING LLC	3506.1

[10] Surface Location

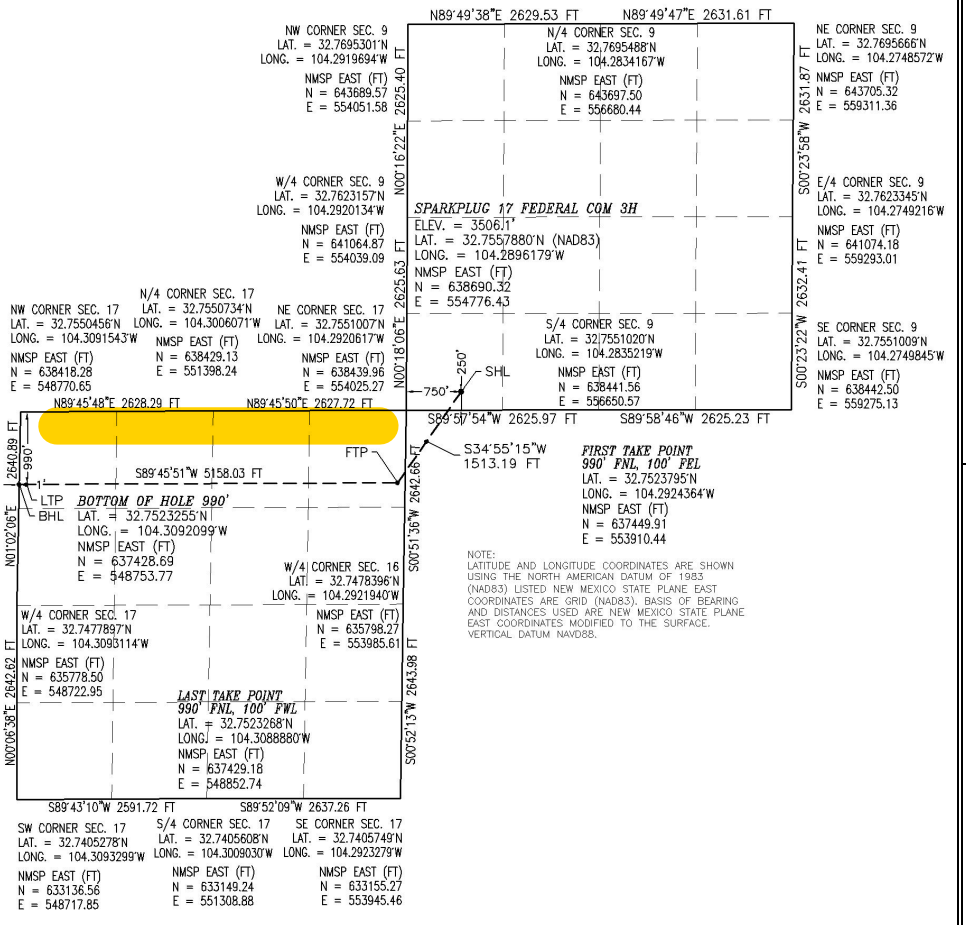
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	9	18 S	27 E		250	SOUTH	750	WEST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	17	18 S	27 E		990	NORTH	1	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160			

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.



[17] OPERATOR CERTIFICATION

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

Delilah Flores — 11/11/2021
Signature — Date

Delilah Flores
Printed Name

regulatory@redwoodoperating.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

NOVEMBER 9, 2021
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

SURVEY NO. 8954C

Intent ☐ As Drilled ☐

API #

Operator Name:	Property Name:	Well Number
REDWOOD OPERATING LLC	**SPARKPLUG 17 FEDERAL COM**	**3H**

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
M	**9**	**18S**	**27E**		**250**	**SOUTH**	**750**	**WEST**	**EDDY**

Latitude	Longitude	NAD
32.7557880	**104.2896179**	**83**

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	**17**	**18S**	**27E**		**990**	**NORTH**	**100**	**EAST**	**EDDY**

Latitude	Longitude	NAD
32.7523795	**104.2924364**	**83**

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
D	**17**	**18S**	**27E**		**990**	**NORTH**	**100**	**WEST**	**EDDY**

Latitude	Longitude	NAD
32.7523268	**104.3088880**	**83**

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

Is this well an infill well? ☐

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

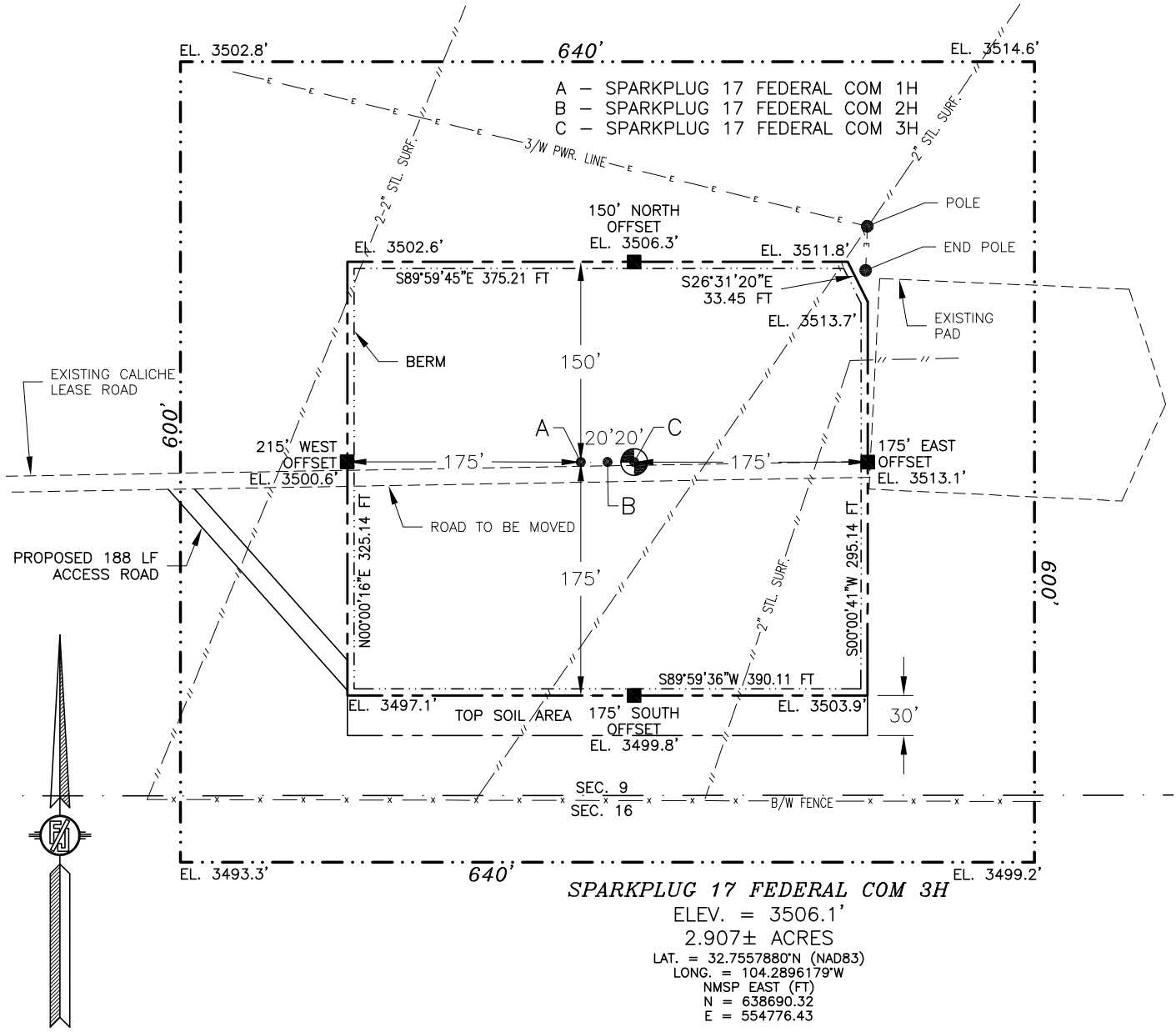
API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

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



SPARKPLUG 17 FEDERAL COM 3H
ELEV. = 3506.1'
2.907± ACRES
LAT. = 32.7557880°N (NAD83)
LONG. = 104.2896179°W
NMSP EAST (FT)
N = 638690.32
E = 554776.43

012 60 120 240
SCALE 1" = 120'

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CR. 201 (CHALK BLUFF) AND CR. 227 (LITTLE DIAMOND) GO SOUTH ON 15' CALICHE LEASE ROAD FOR APPROX. 0.7 OF A MILE, CONTINUE EAST APPROX. 0.25 OF A MILE, CONTINUE SOUTH APPROX. 0.7 OF A MILE, CONTINUE EAST APPROX. 436' TO BEGIN ROAD SURVEY, FOLLOW ROAD SURVEY SOUTHEAST APPROX. 188' TO SOUTHWEST 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 PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILIMON F. JARAMILLO P.S. 12797

REDWOOD OPERATING LLC
SPARKPLUG 17 FEDERAL COM 3H
LOCATED 250 FT. FROM THE SOUTH LINE AND 750 FT. FROM THE WEST LINE OF SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

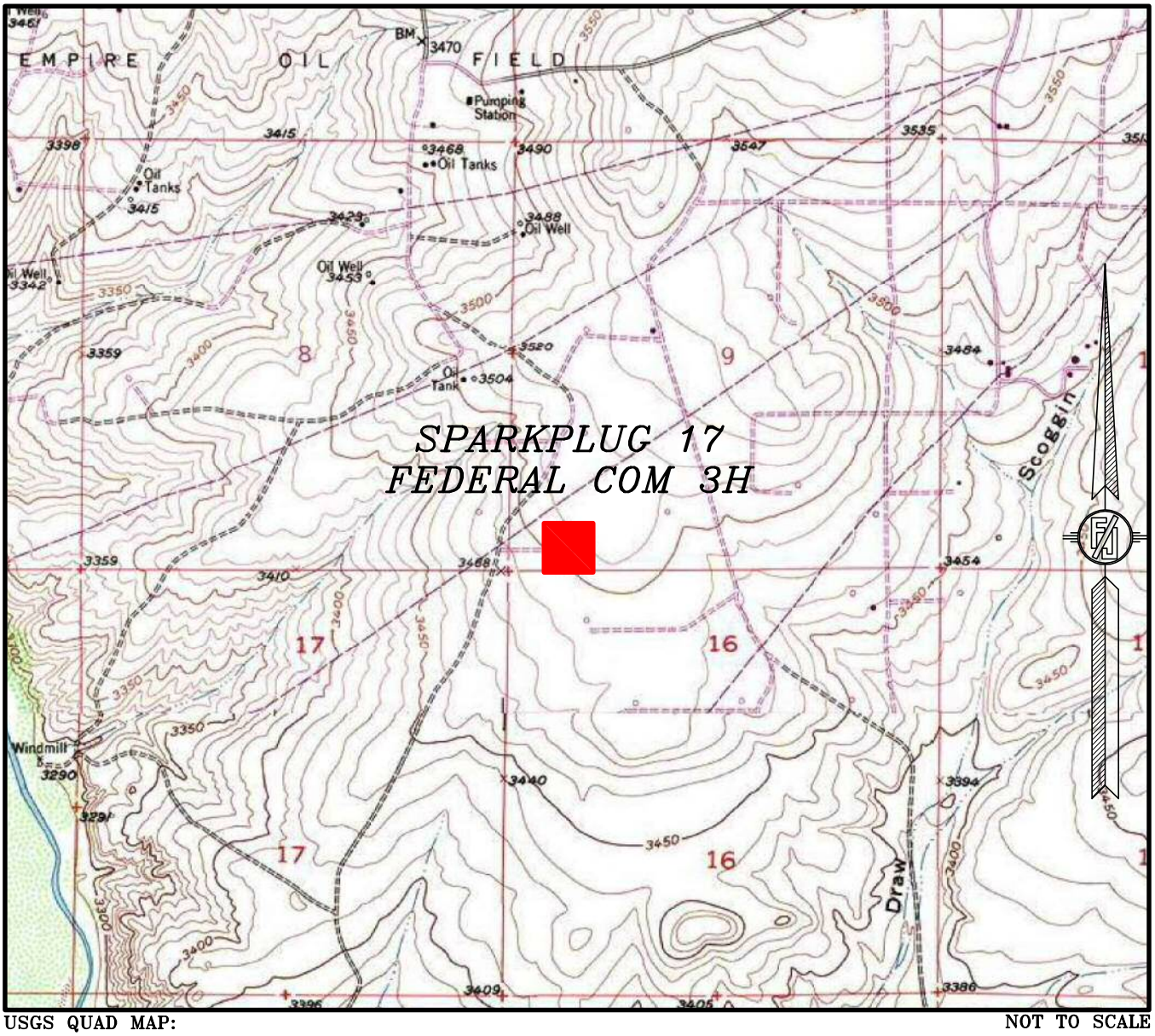
NOVEMBER 9, 2021

SURVEY NO. 8954C

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

LOCATION VERIFICATION MAP



USGS QUAD MAP:
SPRING LAKE

NOT TO SCALE

REDWOOD OPERATING LLC
SPARKPLUG 17 FEDERAL COM 3H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 750 FT. FROM THE WEST LINE OF
SECTION 9, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

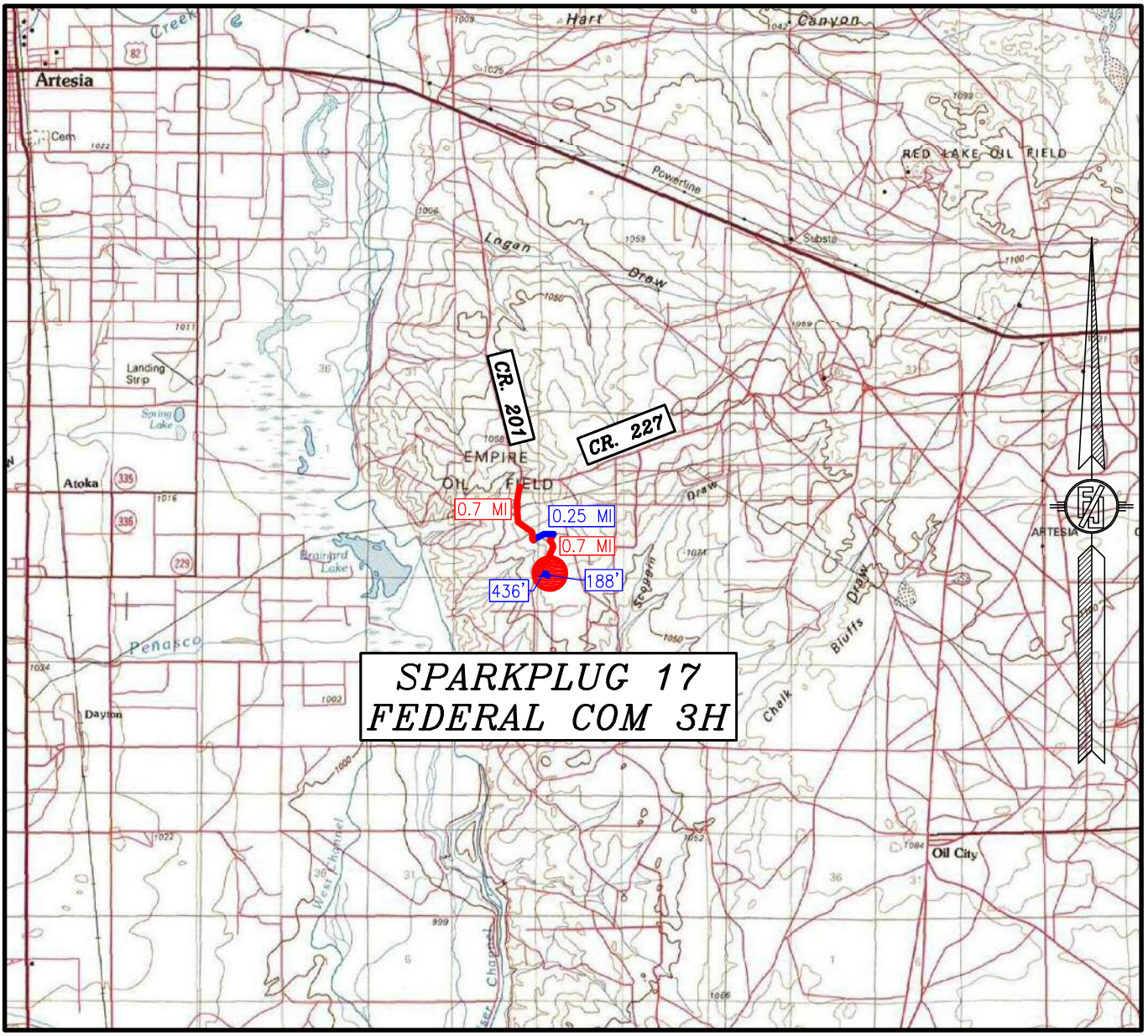
NOVEMBER 9, 2021

SURVEY NO. 8954C

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

SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

VICINITY MAP



DISTANCES IN MILES NOT TO SCALE

DIRECTIONS TO LOCATION
FROM THE INTERSECTION OF CR. 201 (CHALK BLUFF) AND CR. 227 (LITTLE DIAMOND) GO SOUTH ON 15' CALICHE LEASE ROAD FOR APPROX. 0.7 OF A MILE, CONTINUE EAST APPROX. 0.25 OF A MILE, CONTINUE SOUTH APPROX. 0.7 OF A MILE, CONTINUE EAST APPROX. 436' TO BEGIN ROAD SURVEY, FOLLOW ROAD SURVEY SOUTHEAST APPROX. 188' TO SOUTHWEST PAD CORNER FOR THIS LOCATION.

REDWOOD OPERATING LLC
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LOCATED 250 FT. FROM THE SOUTH LINE AND 750 FT. FROM THE WEST LINE OF SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

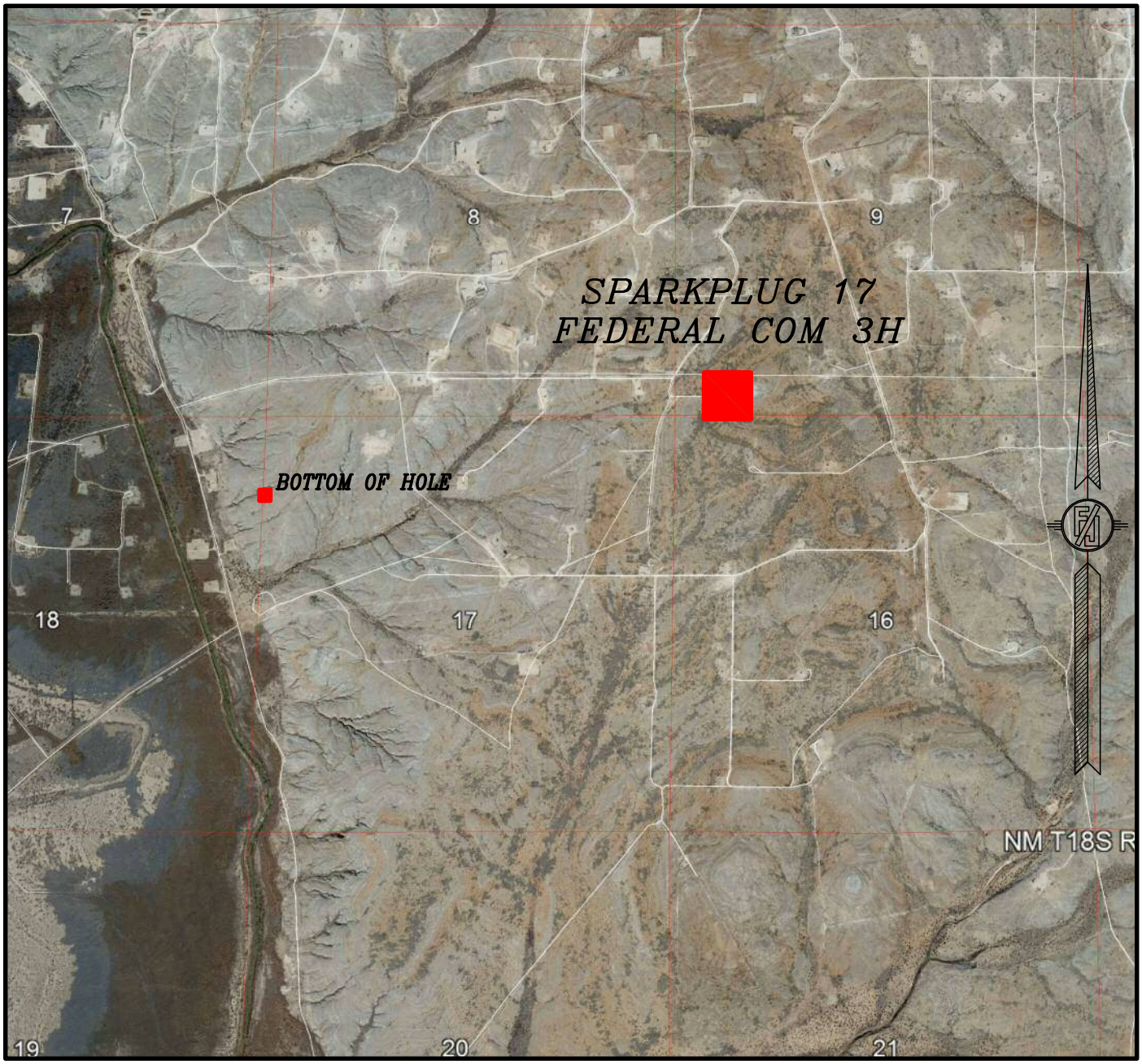
NOVEMBER 9, 2021

SURVEY NO. 8954C

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

SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
DECEMBER 2019

REDWOOD OPERATING LLC
SPARKPLUG 17 FEDERAL COM 3H
LOCATED 250 FT. FROM THE SOUTH LINE
AND 750 FT. FROM THE WEST LINE OF
SECTION 9, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

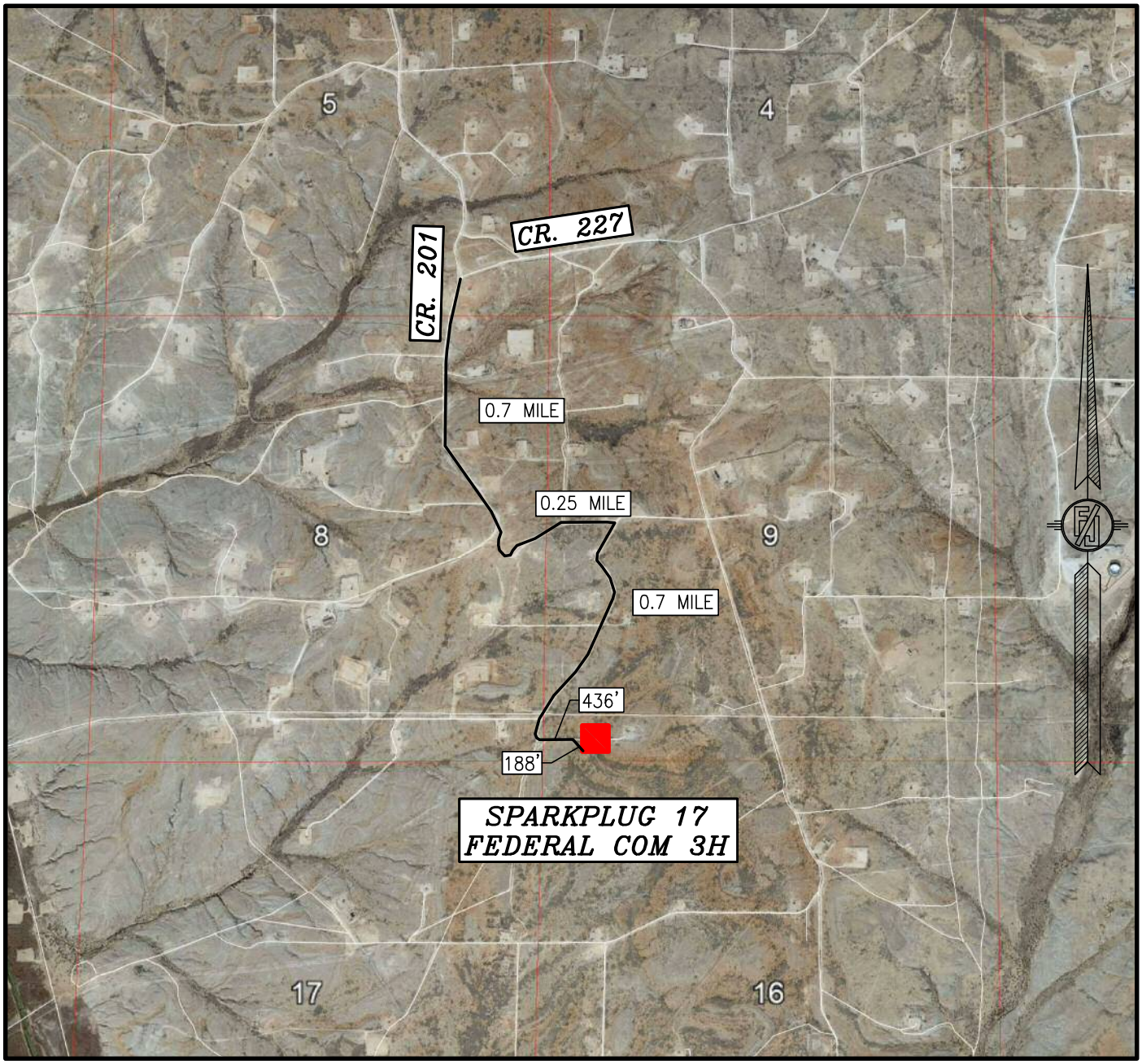
NOVEMBER 9, 2021

SURVEY NO. 8954C

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

SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

ACCESS AERIAL ROUTE MAP



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
DECEMBER 2019

REDWOOD OPERATING LLC

SPARKPLUG 17 FEDERAL COM 3H

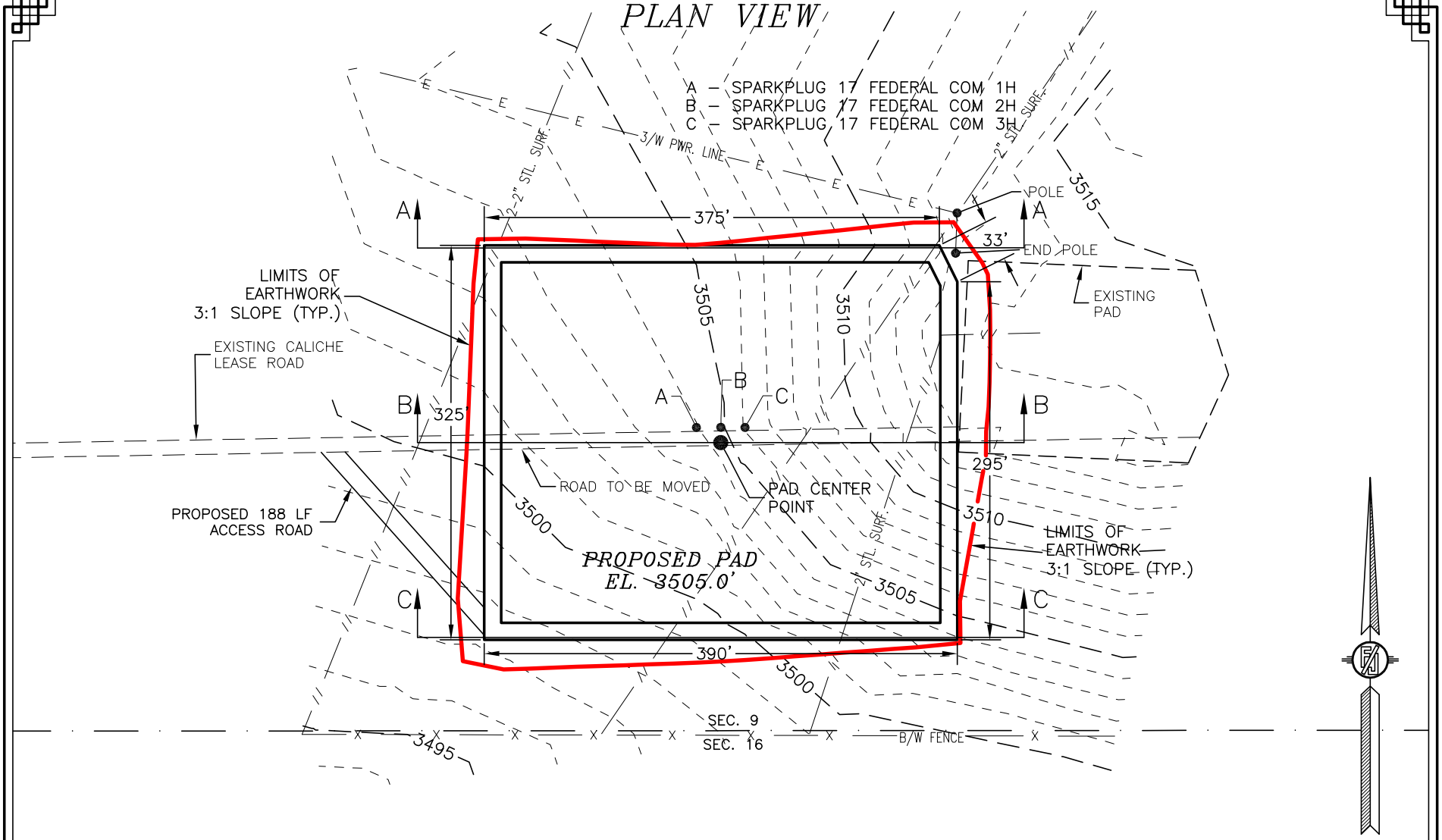
LOCATED 250 FT. FROM THE SOUTH LINE
AND 750 FT. FROM THE WEST LINE OF
SECTION 9, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 9, 2021

SURVEY NO. 8954C

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

PLAN VIEW



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

FILIMON F. JARAMILLO, NMPS 12797

REDWOOD OPERATING LLC
GRADING PLAN AND CROSS SECTIONS
FOR SPARKPLUG 17 FEDERAL COM 3H
SECTION 9, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 9, 2021

012 60 120 240
SCALE 1" = 120'

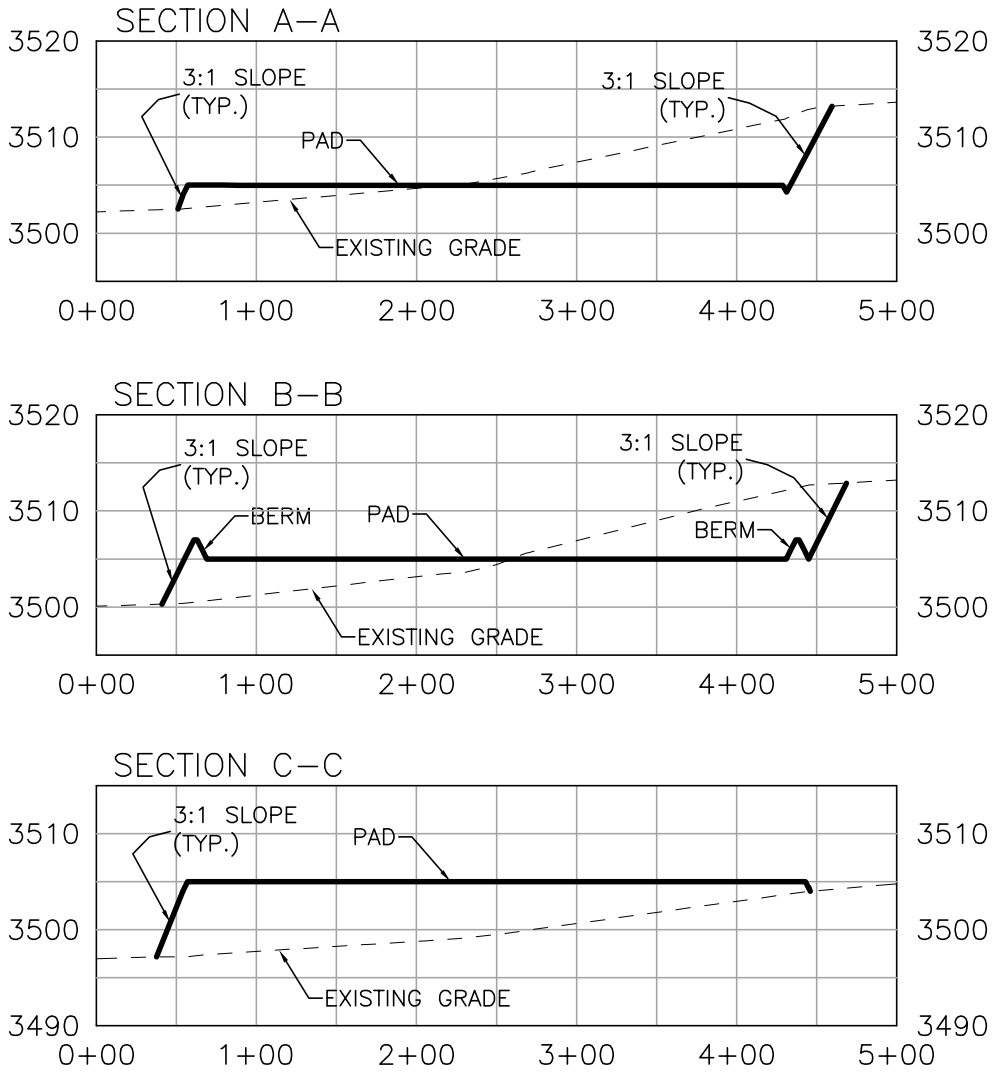
CUT	FILL	NET
7742 CU. YD	10363 CU. YD	2621 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

SHEET 1-2
SURVEY NO. 8954C

CROSS-SECTIONS



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

FILIMON F. JARAMILLO, PLS - 12797

STATE OF NEW MEXICO 12797 REGISTERED PROFESSIONAL SURVEYOR

REDWOOD OPERATING LLC
GRADING PLAN AND CROSS SECTIONS
FOR SPARKPLUG 17 FEDERAL COM 3H
SECTION 9, TOWNSHIP 18 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOVEMBER 9, 2021

012 60 120 240
SCALE 1" = 120' - 1" = 20' VER

CUT	FILL	NET
7742 CU. YD	10363 CU. YD	2621 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 *CARLSBAD, NEW MEXICO*

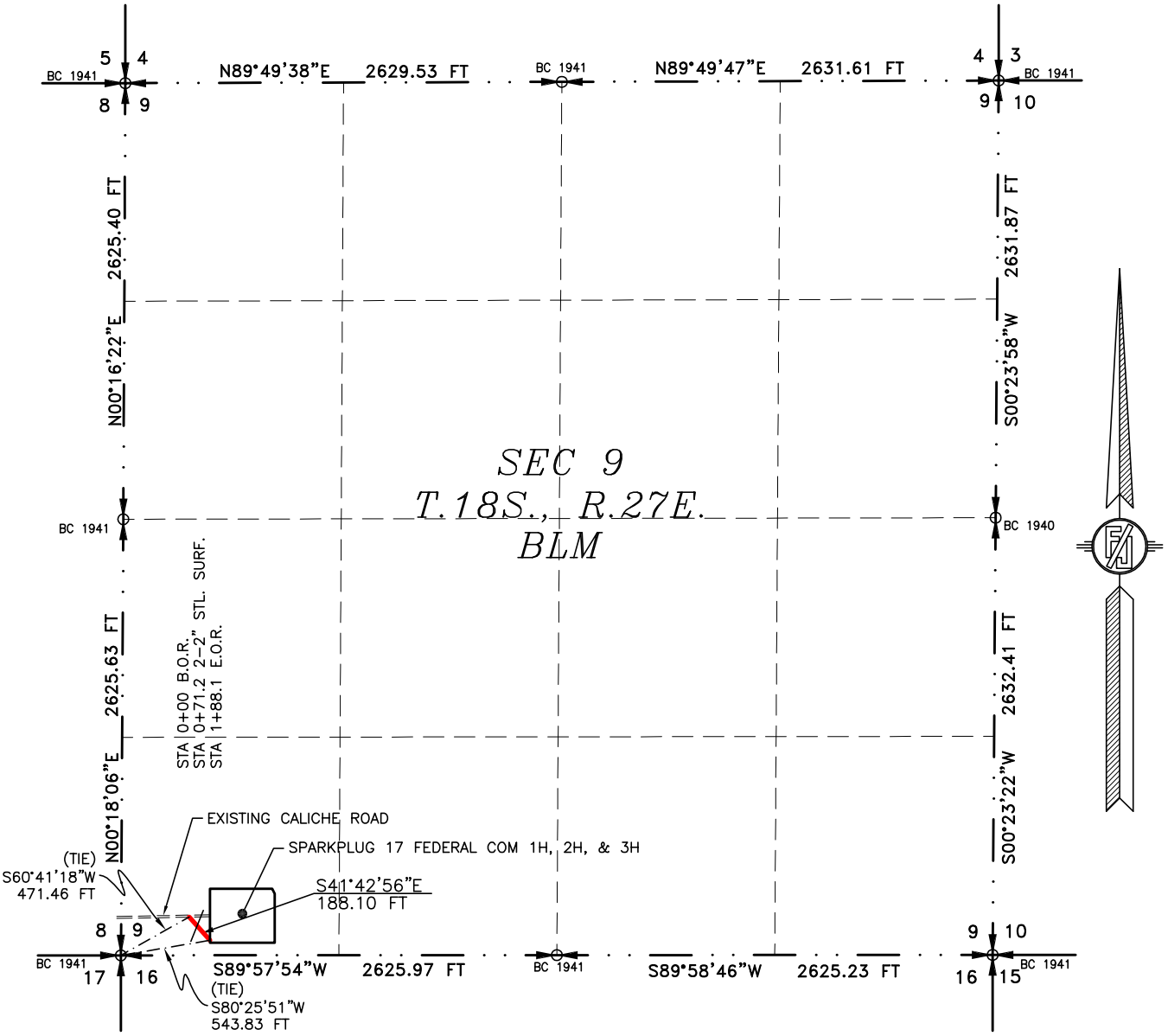
SHEET 2-2
SURVEY NO. 8954C

ACCESS ROAD PLAT

ACCESS ROAD TO SPARKPLUG 17 FEDERAL COM COM 1H, 2H, & 3H

REDWOOD OPERATING LLC

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 9, 2021



SEE NEXT SHEET (2-2) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

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

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

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 19 DAY OF NOVEMBER 2021

FILIMON F. JARAMILLO NEW MEXICO 12797 REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 1-2

SURVEY NO. 8954C

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO SPARKPLUG 17 FEDERAL COM COM 1H, 2H, & 3H

REDWOOD OPERATING LLC

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
NOVEMBER 9, 2021

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 SW/4 OF SAID SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., WHENCE THE SOUTHWEST CORNER OF SAID SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS S60°41'18"W, A DISTANCE OF 471.46 FEET;
THENCE S41°42'56"E A DISTANCE OF 188.10 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 9, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS S80°25'51"W, A DISTANCE OF 543.83 FEET;

SAID STRIP OF LAND BEING 188.10 FEET OR 11.40 RODS IN LENGTH, CONTAINING 0.130 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4	188.10 L.F.	11.40 RODS	0.130 ACRES

SURVEYOR CERTIFICATE

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

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF NOVEMBER 2021

FILIMON F. JARAMILLO, PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

GENERAL NOTES

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

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

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: Redwood Operating LLC **OGRID:** 330211 **Date:** 11 / 11 / 2021

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

If Other, please describe: _____

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

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Sparkplug 17 Federal Com 3H		Sec. 9 T18S R27E	250 FSL 750 FWL	100	100	1,000

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

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

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Sparkplug 17 Federal Com 3H		2/1/2022	2/21/2022	3/21/2022	3/21/2022	3/21/2022

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

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

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature:	Delilah Flores
Printed Name:	Delilah Flores
Title:	Regulatory Technician I
E-mail Address:	regulatory@redwoodoperating.com
Date:	11/11/2021
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:

Redwood Operating LLC 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. Redwood Operating LLC 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. Redwood Operating LLC 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. Redwood Operating LLC 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.
    - Redwood Operating LLC 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. Redwood Operating LLC 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. Redwood Operating LLC will flare rather than vent vessel blowdown gas when technically feasible during active and/or planned maintenance to equipment on-site.
3. Redwood Operating LLC combusts natural gas that would otherwise be vented or flared, when technically feasible.
4. Redwood Operating LLC 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.

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

Drilling Plan Data Report
06/20/2022

APD ID: 10400081650 **Submission Date:** 01/06/2022

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

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
7795695	QUATERNARY	3506	0	0	ALLUVIUM	NONE	N
7795652	QUEEN	2824	682	682	SILTSTONE	NATURAL GAS, OIL	N
7795726	GRAYBURG	2371	1135	1135	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
7795727	SAN ANDRES	2134	1372	1372	DOLOMITE	NATURAL GAS, OIL	N
7795728	GLORIETA	646	2860	2860	SILTSTONE	NATURAL GAS, OIL	Y
7795779	PADDOCK	591	2915	2915	SILTSTONE	NATURAL GAS, OIL	Y
7808317	BLINEBRY	-4	3510	3510	SILTSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 9587

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. 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 1464 psig (0.052*3061' TVD*9.2ppg) less than 2900 bottom hole pressure.

Choke Diagram Attachment:

Redwood_choke_manifold_diagram_20211116140836.pdf

Redwood_choke_manifold_20211116140846.pdf

BOP Diagram Attachment:

Redwood_bop_diagram_20211116140855.pdf

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

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	375	0	375	3506	3131	375	J-55	48	ST&C	3.953	4.667	BUOY	28.197	BUOY	4.74
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	1230	0	1229	3506	2277	1230	J-55	36	ST&C	3.066	7.321	BUOY	10.562	BUOY	7.04
3	PRODUCTION	8.75	7.0	NEW	API	N	0	1625	0	1623	3506	1883	1625	L-80	26	LT&C	3.715	2.715	BUOY	3.815	BUOY	4.534
4	PRODUCTION	8.75	7.0	NEW	API	N	0	3300	0	2981	3506	525	3300	L-80	26	OTHER - BTC	2.828	2.457	BUOY	2.443	BUOY	3.815
5	PRODUCTION	8.75	5.5	NEW	API	N	0	9587	0	3160	3506	346	9587	L-80	17	OTHER - BTC	4.107	2.443	BUOY	2.413	BUOY	4.534

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Sparkplug_17_Fed_Com_3H___Surface_20211111134749.pdf

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

Casing Attachments

Casing ID: 2 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Sparkplug_17_Fed_Com_3H___Intermediate_20211111135611.pdf

Casing ID: 3 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Sparkplug_17_Fed_Com_3H___Production_20211111140249.pdf

Casing ID: 4 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Sparkplug_17_Fed_Com_3H___Production_20211111143928.pdf

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

Casing Attachments

Casing ID: 5 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Sparkplug_17_Fed_Com_3H___Production_20211111144246.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0		0	0
PRODUCTION	Lead		0	0	0	0	0	0		0	0
SURFACE	Lead		0	375	420	1.34	14.8	261		Class C w/ 1% PF1	20bbls gel spacer 50 sx of 11# scavenger cement
INTERMEDIATE	Lead		0	1230	250	1.72	13.5	385		Class C +4%PF20+1%PF 1+0.25#/skPF29+ .4%PF45	20bbls gel spacer. 50 sx of 11# scavenger cement
INTERMEDIATE	Tail		0	1230	200	1.34	14.8	385		Class C .1%PF1	20bbls gel spacer. 50 sx of 11# scavenger cement
PRODUCTION	Lead		0	9587	290	1.82	12.9	2422		35/65 Perlite/C 5% PF44+6%PF20+. 2%PF13+3ppsPF 42+.4ppsPF45+.	20bbls gel spacer. 50 sx of 11# scavenger cement

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
										125ppsPF29	
PRODUCTION	Tail		0	9587	1870	1.48	13	2422		PVL+1.3%PF44(BWOW)+5%PF174+.5%PF506+0.1%PF153+.4#PF45	20bbls gel spacer. 50 sx of 11# scavenger cement.

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

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

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

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

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	375	SPUD MUD	8.5	10	74.8	0.1	11		12000	15	
375	1230	LSND/GEL	8.3	10	74.8	0.1	11		12000	15	
1230	9587	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 1464 psig (0.52*3161'TVD*9.2ppg) less than 2900 bottom hole pressure.

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

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,GAMMA RAY LOG,FORMATION DENSITY COMPENSATED LOG,

Coring operation description for the well:

Will evaluate after logging to determine the necessity for sidewall coring

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 1464 **Anticipated Surface Pressure:** 768

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

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Sparkplug_17_Fed_Com_3H___Horizontal_Spacing_20211116080015.pdf
Sparkplug_17_Fed_Com_3H___Escape_Route_20211116080026.pdf
Sparkplug_17_Fed_Com_3H___Natural_Gas_Management_Plan_20211116085158.pdf
Sparkplug_17_Federal_Com_3H_Preliminary_Horizontal_Plan_1_20211116085228.pdf
Drilling_Plan_20220106112558.pdf
H2S_Plan_20220106112605.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Other Variance attachment:

Cactus_Wellhead_installation_Procedure_20211116080130.pdf
Variance_request_20211116080139.pdf

Attached to Form 3160-3
Redwood Operating LLC
Sparkplug 17 Federal Com 3H NMNM-029276
SHL : 250 FSL & 750 FWL, SWSW, Sec. 9 T18S R27E
BHL : 990 FNL & 1 FWL, NWNW, Sec. 17 T18S R27E
Eddy County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Queen	682’
Grayburg	1135’
San Andres	1372’
Glorieta	2860’
Yeso/Paddock	2915’
Blinebry	3510’

Estimated Depths of Anticipated Fresh Water, Oil and Gas:

Water Sand	150’	Fresh Water
Queen	682’	Oil/Gas
Grayburg	1135’	Oil/Gas
San Andres	1372’	Oil/Gas
Glorieta	2860’	Oil/Gas
Yeso/Paddock	2915’	Oil/Gas
Blinebry	3510’	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8” casing to 375’ and circulating cement back to surface will protect the surface fresh water sand. Salt section and shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 ½” production casing, sufficient cement will be pumped to circulate back to surface.

3. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
17 1/2”	0-375’	13 3/8”	48#, J-55, ST&C, New, 3.952991/4.667192/4.74
12 ¼”	0-1230’	9 5/8”	36#, J-55, ST&C, New, 3.158224/7.04/7.04
8 3/4”	0-1625’	7”	26#, L-80, LT&C, New, 3.309806/2.413333/2.413333
8 ¾”	1625-3300’	7”	26#, L-80, BT&C, New, 2.572738/2.413333/ 2.413333
8 ¾”	3300-9587’	5 ½”	17#, L-80, BT&C, New, 3.215352/2.58/2.58

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

4. Cement Program:

13 3/8” Surface Casing: Lead 420sx, Class C+1% PF1, yld 1.34, wt 14.8 ppg, 6.307 gals/sx, excess 100%, Slurry Top Surface

9 5/8" Intermediate Casing: Lead 250sx Class C + 4% PF20 +1% PF1+0.125#/skPF29+.4% PF 45, yld 1.72, wt 13.5 ppg, excess 100%, Slurry Top Surface. Tail: 200sx, Class C+.1% PF1, yld 1.34, wt 14.8 ppg, 6.307 gals/sx, excess 100%, Slurry Top 1,800'

7" & 5 ½" Production Casing: Lead 290sx, 36/65 Perlite/C 5% PF44 +6% PF20 + .2%PF13 + 3ppsPF 42 + .4pps PF45 +.125pps PF29 , yld 1.82, wt 12.9 ppg, 9.21 gals/sx, excess 35%, Slurry Top Surface, Tail: 1870sx, PVL + 1.3% PF44 (BWOW) + 5% PF174 + .5%PF506 + 0.1% PF 153 + .4# PF45, yld 1.48, wt 13 ppg, 7.57gals/sx, 35% excess, Slurry Top 2,600'

6. Minimum Specifications for Pressure Control:

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

7. Types and Characteristics of the Proposed Mud System:

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

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-375'	Fresh Water	10	28	N.C.
375-1230'	Cut Brine	10	29	N.C.
1230-TD'	Cut Brine	9.2	29	N.C.

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

8. Auxiliary Well Control and Monitoring Equipment:

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

9. Logging, Testing and Coring Program:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from T.D. to 8 5/8 casing shoe.
B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.
D. Further testing procedures will be determined at TD.

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

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 1800 psig (0.052*3762' TVD*9.2ppg) less than 2900 Bottom Hole Pressure.
Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is April 1, 2022. Once commenced, the drilling operation should be finished in approximately 20 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Attachment to Exhibit #10
NOTES REGARDING THE BLOWOUT PREVENTERS
Sparkplug 17 Federal Com #3H
Eddy County, New Mexico

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

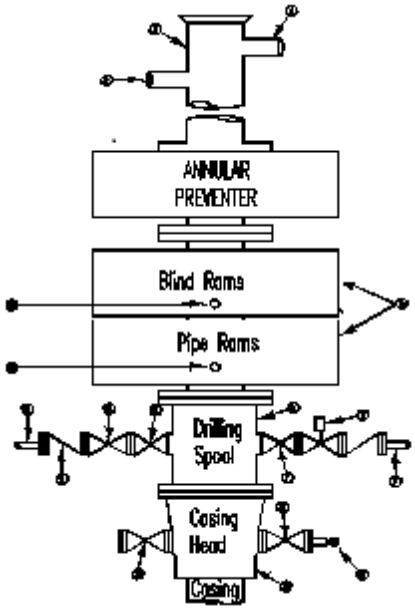
Attached to Form 3160-3
Redwood Operating LLC
Sparkplug 17 Federal Com 3H NMNM-029276
SHL : 250 FSL & 750 FWL, SWSW, Sec. 9 T18S R27E
BHL : 990 FNL & 1 FWL, NWNW, Sec. 17 T18S R27E
Eddy County, NM

11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Redwood Operating LLC
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
13 3/8 inch- 3 MWP
11 Inch - 3 MWP
EXHIBIT #10

Stack Requirements

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



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO
CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.
10.

ME

Redwood TO FURNISH:

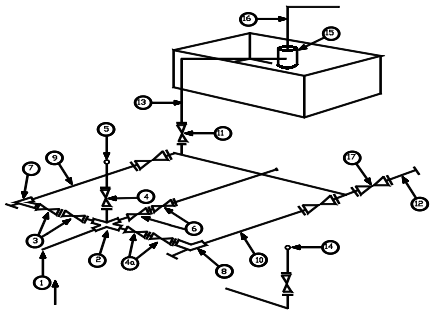
1. Bradenhead or casing head and side valves.
2. Wear bushing. If required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of Redwood Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Redwood Operating LLC

Exhibit #11
MIMIMUM CHOKE MANIFOLD
2,000, 5,000, and 10,000 PSI Working Pressure
3M will be used
2 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

*** Location of separator optional**

Below Substructure

Mimimum requirements

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

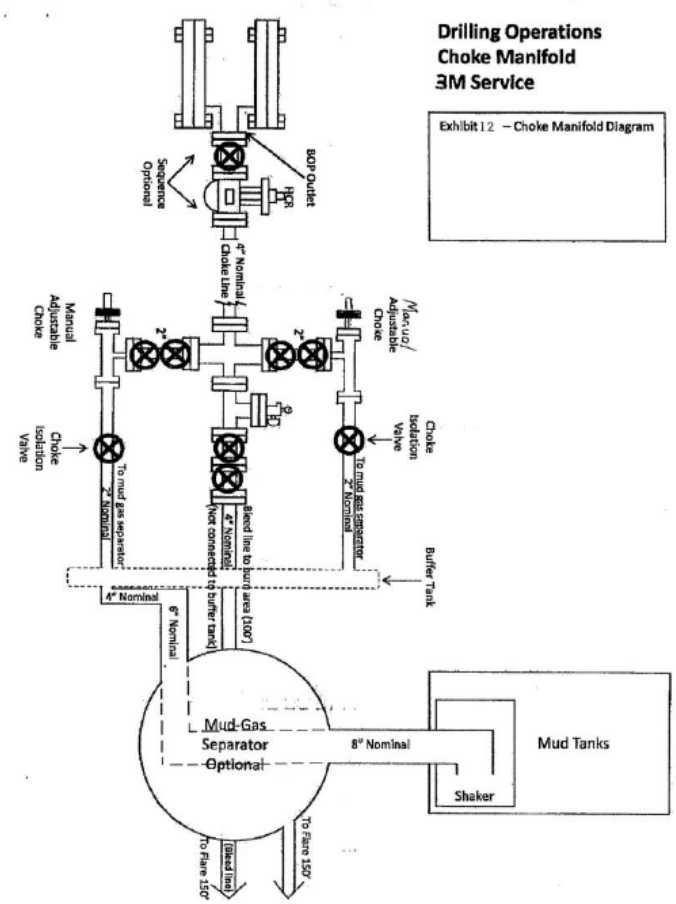
(1) Only one required in Class 2M
(2) Gate valves only shall be used for Class 10 M
(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

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

Redwood Operating LLC

MANIFOLD SCHEMATIC
Exhibit #12



Sparkplug 17 Federal Com #3H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	10:15 Tuesday, November 09, 2021	Page 1 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.76
Well Name	Sparkplug 17 Federal Com #3H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 250 FSL & 750 FWL Section 9-T18S-R27E BHL: 990 FNL & 1 FWL Secition 17-T18S-27E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1858935	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11890432.2	**Surface Lat**	
Well Number	**API**	**Surface Z**	3524.1	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3506.1	**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 = 1623.00)										
1623.00	0.00	0.0	1623.00	0.00	0.00		0.00	1858935.00	11890432.20	1901.10
1650.00	0.00	0.0	1650.00	0.00	0.00	0.00	0.00	1858935.00	11890432.20	1874.10
1700.00	0.00	0.0	1700.00	0.00	0.00	0.00	0.00	1858935.00	11890432.20	1824.10
*** KOP 8 DEGREES (at MD = 1723.00)										
1723.00	0.00	0.0	1723.00	0.00	0.00	0.00	0.00	1858935.00	11890432.20	1801.10
1750.00	1.17	180.0	1750.00	-0.28	0.00	4.35	0.00	1858935.00	11890431.92	1774.10
1800.00	3.35	180.0	1799.96	-2.25	0.00	4.35	0.01	1858935.00	11890429.95	1724.14
1850.00	5.52	180.0	1849.80	-6.12	0.00	4.35	0.03	1858935.00	11890426.08	1674.30
1900.00	7.70	180.0	1899.47	-11.87	0.00	4.35	0.05	1858935.00	11890420.33	1624.63
1950.00	9.87	180.0	1948.88	-19.51	0.00	4.35	0.08	1858935.00	11890412.69	1575.22
2000.00	12.05	180.0	1997.96	-29.02	0.00	4.35	0.12	1858935.00	11890403.18	1526.14
2050.00	14.22	180.0	2046.65	-40.38	0.00	4.35	0.17	1858935.00	11890391.82	1477.45
2100.00	16.40	180.0	2094.87	-53.59	0.00	4.35	0.22	1858935.00	11890378.61	1429.23
2150.00	18.57	180.0	2142.56	-68.61	0.00	4.35	0.29	1858935.00	11890363.59	1381.54
2200.00	20.75	180.0	2189.64	-85.43	0.00	4.35	0.36	1858935.00	11890346.77	1334.46
2250.00	22.92	180.0	2236.05	-104.03	0.00	4.35	0.44	1858935.00	11890328.17	1288.05
2300.00	25.10	180.0	2281.72	-124.37	0.00	4.35	0.52	1858935.00	11890307.83	1242.38
2350.00	27.27	180.0	2326.59	-146.44	0.00	4.35	0.61	1858935.00	11890285.76	1197.51
2400.00	29.45	180.0	2370.58	-170.19	0.00	4.35	0.71	1858935.00	11890262.01	1153.52
2450.00	31.62	180.0	2413.64	-195.59	0.00	4.35	0.82	1858935.00	11890236.61	1110.46
2500.00	33.80	180.0	2455.71	-222.61	0.00	4.35	0.93	1858935.00	11890209.59	1068.39
2550.00	35.97	180.0	2496.72	-251.21	0.00	4.35	1.05	1858935.00	11890180.99	1027.38
2600.00	38.15	180.0	2536.62	-281.34	0.00	4.35	1.18	1858935.00	11890150.86	987.48
2650.00	40.32	180.0	2575.35	-312.96	0.00	4.35	1.31	1858935.00	11890119.24	948.76
2700.00	42.50	180.0	2612.84	-346.04	0.00	4.35	1.45	1858935.00	11890086.16	911.26
2750.00	44.67	180.0	2649.06	-380.51	0.00	4.35	1.59	1858935.00	11890051.69	875.04
2800.00	46.85	180.0	2683.94	-416.33	0.00	4.35	1.74	1858935.00	11890015.87	840.16
2850.00	49.02	180.0	2717.43	-453.45	0.00	4.35	1.90	1858935.00	11889978.75	806.67
2900.00	51.20	180.0	2749.49	-491.81	0.00	4.35	2.06	1858935.00	11889940.39	774.61
2950.00	53.37	180.0	2780.08	-531.36	0.00	4.35	2.23	1858935.00	11889900.84	744.02
*** 55 DEGREE TANGENT (at MD = 2987.37)										
2987.37	55.00	180.0	2801.94	-561.66	0.00	4.35	2.35	1858935.00	11889870.54	722.16
3000.00	55.00	180.0	2809.19	-572.01	0.00	0.00	2.40	1858935.00	11889860.19	714.91
3050.00	55.00	180.0	2837.87	-612.97	0.00	0.00	2.57	1858935.00	11889819.23	686.23
3100.00	55.00	180.0	2866.54	-653.92	0.00	0.00	2.74	1858935.00	11889778.28	657.56
3150.00	55.00	180.0	2895.22	-694.88	0.00	0.00	2.91	1858935.00	11889737.32	628.88
3200.00	55.00	180.0	2923.90	-735.84	0.00	0.00	3.08	1858935.00	11889696.36	600.20

Sparkplug 17 Federal Com #3H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	10:15 Tuesday, November 09, 2021	Page 2 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.76
Well Name	Sparkplug 17 Federal Com #3H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 250 FSL & 750 FWL Section 9-T18S-R27E BHL: 990 FNL & 1 FWL Secition 17-T18S-27E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1858935	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11890432.2	**Surface Lat**	
Well Number	**API**	**Surface Z**	3524.1	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3506.1	**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
*** 10 DEGREE BUILD (at MD = 3237.37)										
3237.37	55.00	180.0	2945.34	-766.45	0.00	0.00	3.21	1858935.00	11889665.75	578.76
3250.00	55.03	181.5	2952.58	-776.80	-0.14	10.00	3.39	1858934.86	11889655.40	571.52
3300.00	55.35	187.6	2981.14	-817.69	-3.42	10.00	6.84	1858931.58	11889614.51	542.96
3350.00	55.97	193.6	3009.36	-858.23	-11.03	10.00	14.63	1858923.97	11889573.97	514.74
3400.00	56.88	199.5	3037.03	-898.13	-22.92	10.00	26.68	1858912.08	11889534.07	487.07
3450.00	58.05	205.3	3063.94	-937.06	-39.00	10.00	42.92	1858896.00	11889495.14	460.16
3500.00	59.48	210.9	3089.88	-974.75	-59.14	10.00	63.22	1858875.86	11889457.45	434.22
3550.00	61.15	216.3	3114.65	-1010.89	-83.18	10.00	87.42	1858851.82	11889421.31	409.45
3600.00	63.02	221.6	3138.07	-1045.22	-110.96	10.00	115.34	1858824.04	11889386.98	386.03
3650.00	65.08	226.6	3159.96	-1077.47	-142.25	10.00	146.76	1858792.75	11889354.73	364.14
3700.00	67.31	231.5	3180.16	-1107.40	-176.82	10.00	181.45	1858758.18	11889324.80	343.94
3750.00	69.68	236.3	3198.50	-1134.78	-214.40	10.00	219.15	1858720.60	11889297.42	325.60
3800.00	72.17	240.9	3214.84	-1159.40	-254.71	10.00	259.56	1858680.29	11889272.80	309.26
3850.00	74.77	245.3	3229.08	-1181.08	-297.44	10.00	302.38	1858637.56	11889251.12	295.02
3900.00	77.45	249.7	3241.09	-1199.64	-342.27	10.00	347.29	1858592.73	11889232.56	283.01
3950.00	80.20	253.9	3250.78	-1214.96	-388.85	10.00	393.93	1858546.15	11889217.24	273.32
4000.00	83.01	258.1	3258.08	-1226.91	-436.83	10.00	441.97	1858498.17	11889205.29	266.02
4050.00	85.85	262.2	3262.94	-1235.40	-485.85	10.00	491.02	1858449.15	11889196.80	261.16
4100.00	88.71	266.3	3265.32	-1240.36	-535.53	10.00	540.72	1858399.47	11889191.84	258.78
*** LANDING POINT (at MD = 4141.71)										
4141.71	91.10	269.8	3265.39	-1241.78	-577.21	10.00	582.40	1858357.79	11889190.42	258.71
4150.00	91.10	269.8	3265.23	-1241.81	-585.49	0.00	590.69	1858349.51	11889190.39	258.87
4200.00	91.10	269.8	3264.27	-1242.02	-635.48	0.00	640.68	1858299.52	11889190.18	259.83
4250.00	91.10	269.8	3263.31	-1242.23	-685.47	0.00	690.67	1858249.53	11889189.97	260.79
4300.00	91.10	269.8	3262.35	-1242.44	-735.46	0.00	740.66	1858199.54	11889189.76	261.75
4350.00	91.10	269.8	3261.39	-1242.65	-785.45	0.00	790.65	1858149.55	11889189.55	262.71
4400.00	91.10	269.8	3260.43	-1242.86	-835.45	0.00	840.64	1858099.55	11889189.34	263.67
4450.00	91.10	269.8	3259.47	-1243.07	-885.44	0.00	890.63	1858049.56	11889189.13	264.63
4500.00	91.10	269.8	3258.51	-1243.28	-935.43	0.00	940.63	1857999.57	11889188.92	265.59
4550.00	91.10	269.8	3257.55	-1243.49	-985.42	0.00	990.62	1857949.58	11889188.71	266.55
4600.00	91.10	269.8	3256.59	-1243.70	-1035.41	0.00	1040.61	1857899.59	11889188.50	267.51
4650.00	91.10	269.8	3255.63	-1243.91	-1085.40	0.00	1090.60	1857849.60	11889188.29	268.47
4700.00	91.10	269.8	3254.67	-1244.12	-1135.39	0.00	1140.59	1857799.61	11889188.08	269.43
4750.00	91.10	269.8	3253.71	-1244.33	-1185.38	0.00	1190.58	1857749.62	11889187.87	270.39
4800.00	91.10	269.8	3252.75	-1244.54	-1235.37	0.00	1240.57	1857699.63	11889187.66	271.35
4850.00	91.10	269.8	3251.79	-1244.74	-1285.36	0.00	1290.56	1857649.64	11889187.46	272.31
4900.00	91.10	269.8	3250.83	-1244.95	-1335.35	0.00	1340.55	1857599.65	11889187.25	273.27

Sparkplug 17 Federal Com #3H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	10:15 Tuesday, November 09, 2021	Page 3 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.76
Well Name	Sparkplug 17 Federal Com #3H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 250 FSL & 750 FWL Section 9-T18S-R27E BHL: 990 FNL & 1 FWL Secition 17-T18S-27E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1858935	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11890432.2	**Surface Lat**	
Well Number	**API**	**Surface Z**	3524.1	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3506.1	**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
4950.00	91.10	269.8	3249.87	-1245.16	-1385.34	0.00	1390.54	1857549.66	11889187.04	274.23
5000.00	91.10	269.8	3248.91	-1245.37	-1435.33	0.00	1440.53	1857499.67	11889186.83	275.19
5050.00	91.10	269.8	3247.95	-1245.58	-1485.32	0.00	1490.52	1857449.68	11889186.62	276.15
5100.00	91.10	269.8	3246.99	-1245.79	-1535.31	0.00	1540.51	1857399.69	11889186.41	277.11
5150.00	91.10	269.8	3246.03	-1246.00	-1585.30	0.00	1590.51	1857349.70	11889186.20	278.07
5200.00	91.10	269.8	3245.07	-1246.21	-1635.29	0.00	1640.50	1857299.71	11889185.99	279.03
5250.00	91.10	269.8	3244.11	-1246.42	-1685.28	0.00	1690.49	1857249.72	11889185.78	279.99
5300.00	91.10	269.8	3243.15	-1246.63	-1735.27	0.00	1740.48	1857199.73	11889185.57	280.95
5350.00	91.10	269.8	3242.19	-1246.84	-1785.26	0.00	1790.47	1857149.74	11889185.36	281.91
5400.00	91.10	269.8	3241.23	-1247.05	-1835.25	0.00	1840.46	1857099.75	11889185.15	282.87
5450.00	91.10	269.8	3240.27	-1247.26	-1885.24	0.00	1890.45	1857049.76	11889184.94	283.83
5500.00	91.10	269.8	3239.31	-1247.47	-1935.23	0.00	1940.44	1856999.77	11889184.73	284.79
5550.00	91.10	269.8	3238.35	-1247.68	-1985.22	0.00	1990.43	1856949.78	11889184.52	285.75
5600.00	91.10	269.8	3237.39	-1247.89	-2035.21	0.00	2040.42	1856899.79	11889184.31	286.71
5650.00	91.10	269.8	3236.43	-1248.09	-2085.20	0.00	2090.41	1856849.80	11889184.11	287.67
5700.00	91.10	269.8	3235.47	-1248.30	-2135.19	0.00	2140.40	1856799.81	11889183.90	288.63
5750.00	91.10	269.8	3234.51	-1248.51	-2185.18	0.00	2190.40	1856749.82	11889183.69	289.59
5800.00	91.10	269.8	3233.55	-1248.72	-2235.17	0.00	2240.39	1856699.83	11889183.48	290.55
5850.00	91.10	269.8	3232.59	-1248.93	-2285.17	0.00	2290.38	1856649.83	11889183.27	291.51
5900.00	91.10	269.8	3231.63	-1249.14	-2335.16	0.00	2340.37	1856599.84	11889183.06	292.47
5950.00	91.10	269.8	3230.67	-1249.35	-2385.15	0.00	2390.36	1856549.85	11889182.85	293.43
6000.00	91.10	269.8	3229.71	-1249.56	-2435.14	0.00	2440.35	1856499.86	11889182.64	294.39
6050.00	91.10	269.8	3228.75	-1249.77	-2485.13	0.00	2490.34	1856449.87	11889182.43	295.35
6100.00	91.10	269.8	3227.79	-1249.98	-2535.12	0.00	2540.33	1856399.88	11889182.22	296.31
6150.00	91.10	269.8	3226.83	-1250.19	-2585.11	0.00	2590.32	1856349.89	11889182.01	297.27
6200.00	91.10	269.8	3225.87	-1250.40	-2635.10	0.00	2640.31	1856299.90	11889181.80	298.23
6250.00	91.10	269.8	3224.91	-1250.61	-2685.09	0.00	2690.30	1856249.91	11889181.59	299.19
6300.00	91.10	269.8	3223.95	-1250.82	-2735.08	0.00	2740.29	1856199.92	11889181.38	300.15
6350.00	91.10	269.8	3222.99	-1251.03	-2785.07	0.00	2790.28	1856149.93	11889181.17	301.11
6400.00	91.10	269.8	3222.04	-1251.24	-2835.06	0.00	2840.28	1856099.94	11889180.96	302.06
6450.00	91.10	269.8	3221.08	-1251.45	-2885.05	0.00	2890.27	1856049.95	11889180.75	303.02
6500.00	91.10	269.8	3220.12	-1251.65	-2935.04	0.00	2940.26	1855999.96	11889180.55	303.98
6550.00	91.10	269.8	3219.16	-1251.86	-2985.03	0.00	2990.25	1855949.97	11889180.34	304.94
6600.00	91.10	269.8	3218.20	-1252.07	-3035.02	0.00	3040.24	1855899.98	11889180.13	305.90
6650.00	91.10	269.8	3217.24	-1252.28	-3085.01	0.00	3090.23	1855849.99	11889179.92	306.86
6700.00	91.10	269.8	3216.28	-1252.49	-3135.00	0.00	3140.22	1855800.00	11889179.71	307.82
6750.00	91.10	269.8	3215.32	-1252.70	-3184.99	0.00	3190.21	1855750.01	11889179.50	308.78

Sparkplug 17 Federal Com #3H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	10:15 Tuesday, November 09, 2021	Page 4 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.76
Well Name	Sparkplug 17 Federal Com #3H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 250 FSL & 750 FWL Section 9-T18S-R27E BHL: 990 FNL & 1 FWL Secition 17-T18S-27E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1858935	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11890432.2	**Surface Lat**	
Well Number	**API**	**Surface Z**	3524.1	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3506.1	**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
6800.00	91.10	269.8	3214.36	-1252.91	-3234.98	0.00	3240.20	1855700.02	11889179.29	309.74
6850.00	91.10	269.8	3213.40	-1253.12	-3284.97	0.00	3290.19	1855650.03	11889179.08	310.70
6900.00	91.10	269.8	3212.44	-1253.33	-3334.96	0.00	3340.18	1855600.04	11889178.87	311.66
6950.00	91.10	269.8	3211.48	-1253.54	-3384.95	0.00	3390.17	1855550.05	11889178.66	312.62
7000.00	91.10	269.8	3210.52	-1253.75	-3434.94	0.00	3440.16	1855500.06	11889178.45	313.58
7050.00	91.10	269.8	3209.56	-1253.96	-3484.93	0.00	3490.16	1855450.07	11889178.24	314.54
7100.00	91.10	269.8	3208.60	-1254.17	-3534.92	0.00	3540.15	1855400.08	11889178.03	315.50
7150.00	91.10	269.8	3207.64	-1254.38	-3584.91	0.00	3590.14	1855350.09	11889177.82	316.46
7200.00	91.10	269.8	3206.68	-1254.59	-3634.90	0.00	3640.13	1855300.10	11889177.61	317.42
7250.00	91.10	269.8	3205.72	-1254.80	-3684.90	0.00	3690.12	1855250.11	11889177.40	318.38
7300.00	91.10	269.8	3204.76	-1255.01	-3734.89	0.00	3740.11	1855200.11	11889177.19	319.34
7350.00	91.10	269.8	3203.80	-1255.21	-3784.88	0.00	3790.10	1855150.12	11889176.99	320.30
7400.00	91.10	269.8	3202.84	-1255.42	-3834.87	0.00	3840.09	1855100.13	11889176.78	321.26
7450.00	91.10	269.8	3201.88	-1255.63	-3884.86	0.00	3890.08	1855050.14	11889176.57	322.22
7500.00	91.10	269.8	3200.92	-1255.84	-3934.85	0.00	3940.07	1855000.15	11889176.36	323.18
7550.00	91.10	269.8	3199.96	-1256.05	-3984.84	0.00	3990.06	1854950.16	11889176.15	324.14
7600.00	91.10	269.8	3199.00	-1256.26	-4034.83	0.00	4040.05	1854900.17	11889175.94	325.10
7650.00	91.10	269.8	3198.04	-1256.47	-4084.82	0.00	4090.05	1854850.18	11889175.73	326.06
7700.00	91.10	269.8	3197.08	-1256.68	-4134.81	0.00	4140.04	1854800.19	11889175.52	327.02
7750.00	91.10	269.8	3196.12	-1256.89	-4184.80	0.00	4190.03	1854750.20	11889175.31	327.98
7800.00	91.10	269.8	3195.16	-1257.10	-4234.79	0.00	4240.02	1854700.21	11889175.10	328.94
7850.00	91.10	269.8	3194.20	-1257.31	-4284.78	0.00	4290.01	1854650.22	11889174.89	329.90
7900.00	91.10	269.8	3193.24	-1257.52	-4334.77	0.00	4340.00	1854600.23	11889174.68	330.86
7950.00	91.10	269.8	3192.28	-1257.73	-4384.76	0.00	4389.99	1854550.24	11889174.47	331.82
8000.00	91.10	269.8	3191.32	-1257.94	-4434.75	0.00	4439.98	1854500.25	11889174.26	332.78
8050.00	91.10	269.8	3190.36	-1258.15	-4484.74	0.00	4489.97	1854450.26	11889174.05	333.74
8100.00	91.10	269.8	3189.40	-1258.36	-4534.73	0.00	4539.96	1854400.27	11889173.84	334.70
8150.00	91.10	269.8	3188.44	-1258.57	-4584.72	0.00	4589.95	1854350.28	11889173.64	335.66
8200.00	91.10	269.8	3187.48	-1258.77	-4634.71	0.00	4639.94	1854300.29	11889173.43	336.62
8250.00	91.10	269.8	3186.52	-1258.98	-4684.70	0.00	4689.93	1854250.30	11889173.22	337.58
8300.00	91.10	269.8	3185.56	-1259.19	-4734.69	0.00	4739.93	1854200.31	11889173.01	338.54
8350.00	91.10	269.8	3184.60	-1259.40	-4784.68	0.00	4789.92	1854150.32	11889172.80	339.50
8400.00	91.10	269.8	3183.64	-1259.61	-4834.67	0.00	4839.91	1854100.33	11889172.59	340.46
8450.00	91.10	269.8	3182.68	-1259.82	-4884.66	0.00	4889.90	1854050.34	11889172.38	341.42
8500.00	91.10	269.8	3181.72	-1260.03	-4934.65	0.00	4939.89	1854000.35	11889172.17	342.38
8550.00	91.10	269.8	3180.76	-1260.24	-4984.64	0.00	4989.88	1853950.36	11889171.96	343.34
8600.00	91.10	269.8	3179.80	-1260.45	-5034.63	0.00	5039.87	1853900.37	11889171.75	344.30

Sparkplug 17 Federal Com #3H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	10:15 Tuesday, November 09, 2021	Page 5 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.76
Well Name	Sparkplug 17 Federal Com #3H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 250 FSL & 750 FWL Section 9-T18S-R27E BHL: 990 FNL & 1 FWL Secition 17-T18S-27E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1858935	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11890432.2	**Surface Lat**	
Well Number	**API**	**Surface Z**	3524.1	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3506.1	**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
8650.00	91.10	269.8	3178.84	-1260.66	-5084.62	0.00	5089.86	1853850.38	11889171.54	345.26
8700.00	91.10	269.8	3177.88	-1260.87	-5134.62	0.00	5139.85	1853800.39	11889171.33	346.22
8750.00	91.10	269.8	3176.92	-1261.08	-5184.61	0.00	5189.84	1853750.39	11889171.12	347.18
8800.00	91.10	269.8	3175.96	-1261.29	-5234.60	0.00	5239.83	1853700.40	11889170.91	348.14
8850.00	91.10	269.8	3175.00	-1261.50	-5284.59	0.00	5289.82	1853650.41	11889170.70	349.10
8900.00	91.10	269.8	3174.04	-1261.71	-5334.58	0.00	5339.81	1853600.42	11889170.49	350.06
8950.00	91.10	269.8	3173.08	-1261.92	-5384.57	0.00	5389.81	1853550.43	11889170.28	351.02
9000.00	91.10	269.8	3172.12	-1262.12	-5434.56	0.00	5439.80	1853500.44	11889170.08	351.98
9050.00	91.10	269.8	3171.16	-1262.33	-5484.55	0.00	5489.79	1853450.45	11889169.87	352.94
9100.00	91.10	269.8	3170.20	-1262.54	-5534.54	0.00	5539.78	1853400.46	11889169.66	353.90
9150.00	91.10	269.8	3169.24	-1262.75	-5584.53	0.00	5589.77	1853350.47	11889169.45	354.86
9200.00	91.10	269.8	3168.28	-1262.96	-5634.52	0.00	5639.76	1853300.48	11889169.24	355.82
9250.00	91.10	269.8	3167.32	-1263.17	-5684.51	0.00	5689.75	1853250.49	11889169.03	356.78
9300.00	91.10	269.8	3166.36	-1263.38	-5734.50	0.00	5739.74	1853200.50	11889168.82	357.74
9350.00	91.10	269.8	3165.40	-1263.59	-5784.49	0.00	5789.73	1853150.51	11889168.61	358.70
9400.00	91.10	269.8	3164.44	-1263.80	-5834.48	0.00	5839.72	1853100.52	11889168.40	359.66
9450.00	91.10	269.8	3163.48	-1264.01	-5884.47	0.00	5889.71	1853050.53	11889168.19	360.62
9500.00	91.10	269.8	3162.52	-1264.22	-5934.46	0.00	5939.70	1853000.54	11889167.98	361.58
9550.00	91.10	269.8	3161.56	-1264.43	-5984.45	0.00	5989.69	1852950.55	11889167.77	362.54
*** TD (at MD = 9586.71)										
9586.71	91.10	269.8	3160.86	-1264.58	-6021.16	0.00	6026.40	1852913.84	11889167.62	363.24

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**REDWOOD OPERATING LLC**
LEASE NO.:	**NMNM029276**
WELL NAME & NO.:	**SPARKPLUG 17 FEDERAL COM 3H**
SURFACE HOLE FOOTAGE:	250'/S & 750'/W
BOTTOM HOLE FOOTAGE	990'/N & 1'/W
LOCATION:	Section 09, T.18 S., R.27 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	◉ Yes	○ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **375 feet** (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.

    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.

 Approval Date: 06/17/2022

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **9-5/8** inch Internmediate casing shall be set at **1230 feet**. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **7** inch production casing is:

Option 1 (Single Stage):

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2. **BOP REQUIREMENTS**

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **2000 (2M)** psi.

Option 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.

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

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

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

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e.

changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

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

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead 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. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been

 Approval Date: 06/17/2022

done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

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

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

RI03182022

Attached to Form 3160-3
Redwood Operating LLC
Sparkplug 17 Federal Com 3H NMNM-029276
SHL : 250 FSL & 750 FWL, SWSW, Sec. 9 T18S R27E
BHL : 990 FNL & 1 FWL, NWNW, Sec. 17 T18S R27E
Eddy County, NM

Redwood Operating LLC
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
Redwood Operating LLC
Sparkplug 17 Federal Com 3H NMNM-029276
SHL : 250 FSL & 750 FWL, SWSW, Sec. 9 T18S R27E
BHL : 990 FNL & 1 FWL, NWNW, Sec. 17 T18S R27E
Eddy County, NM

B. There will be no drill stem testing.

EXHIBIT #7

WARNING

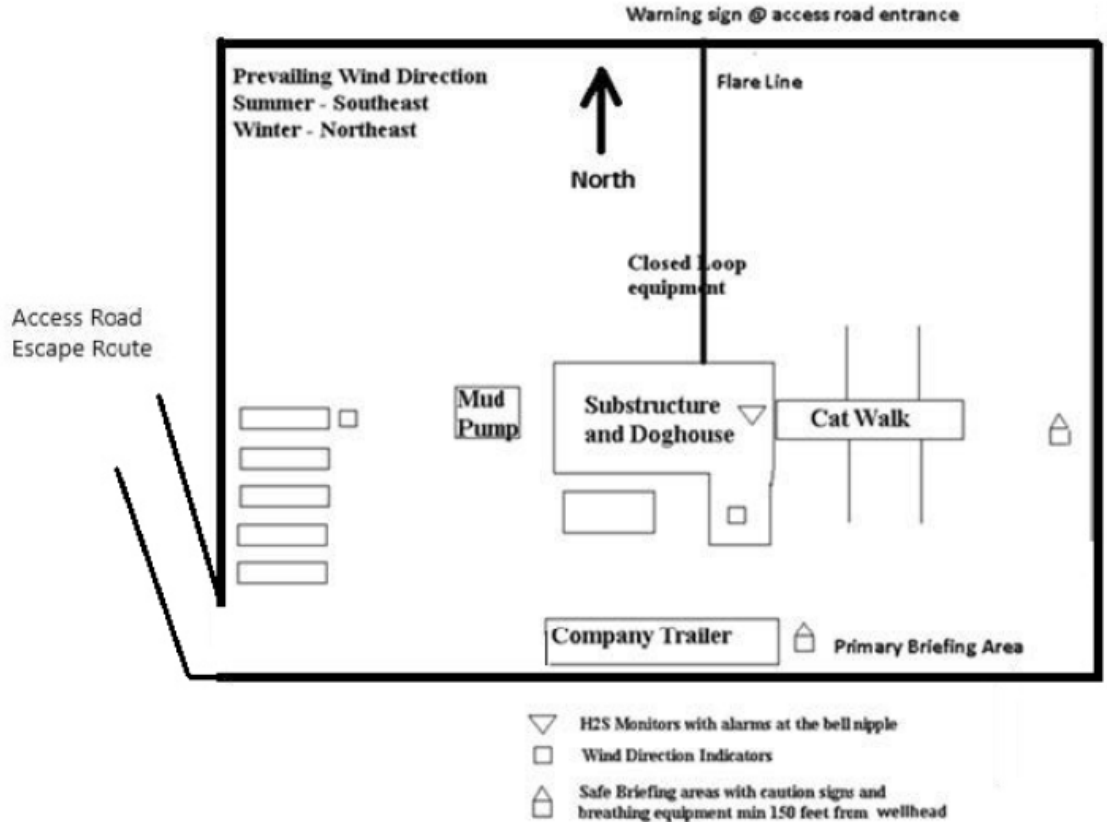
YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

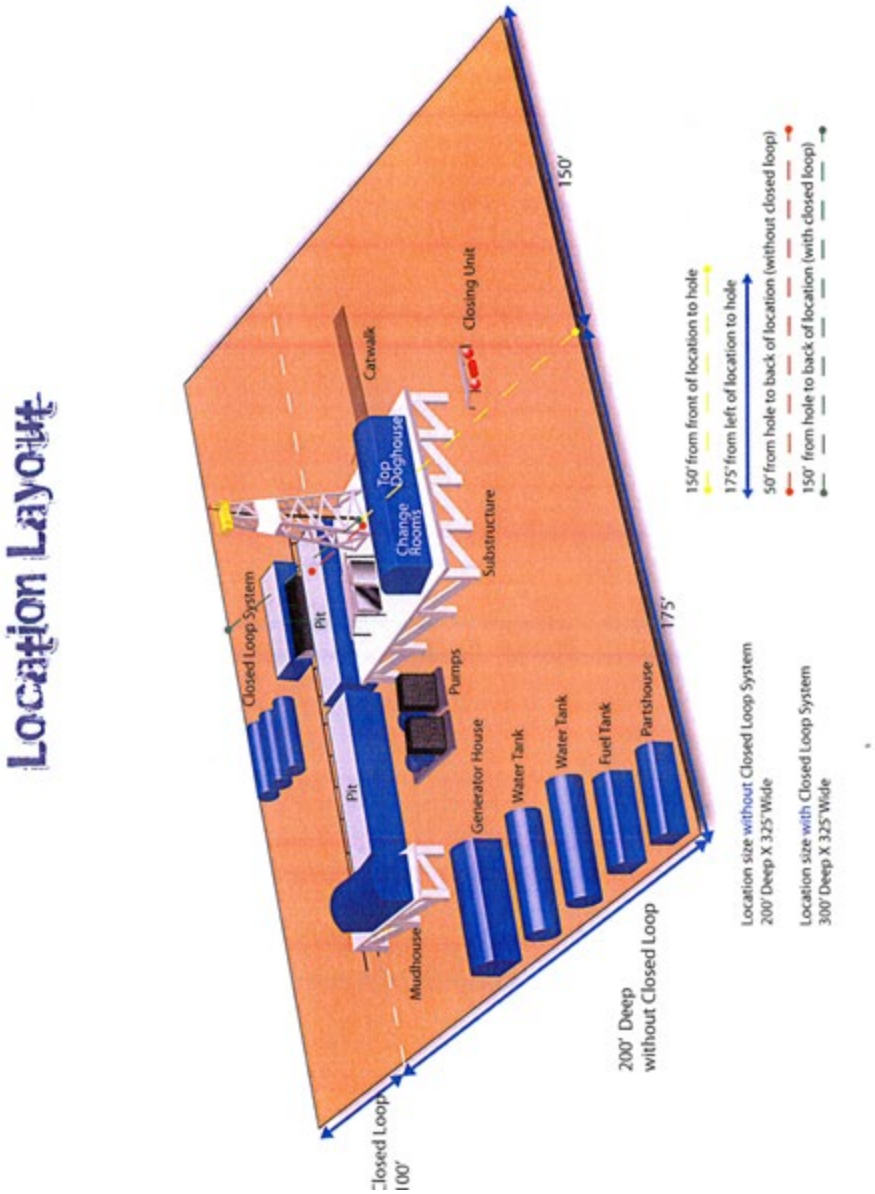
1. **BEARDS OR CONTACT LENSES NOT ALLOWED**
2. **HARD HATS REQUIRED**
3. **SMOKING IN DESIGNATED AREAS ONLY**
4. **BE WIND CONSCIOUS AT ALL TIMES**
5. **CHECK WITH** Redwood Operating **FOREMAN AT OFFICE**

Redwood Operating LLC

1-575-748-1288



DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



Redwood Operating LLC Call List, Eddy County

Artesia (575)	Cellular	Office
Jim Krogman	432-934-1596	748-1288
Emilio Martinez	432-934-7586	748-1288

Agency Call List (575)

Artesia

State Police……..746-2703
City Police……...746-2703
Sheriff's Office……746-9888
Ambulance……...911
Fire Department……...746-2701
LEPC (Local Emergency Planning Committee……...746-2122
NMOCD……...748-1283

Carlsbad

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

Emergency Services

Boots & Coots IWC……..…1-800-256-9688 or (281)931-8884
Cudd pressure Control…….(915)699-0139 or (915)563-3356
Halliburton……..746-2757
Par Five……..748-9539

Flight For Life-Lubbock, TX……..……(806)743-9911
Aerocare-Lubbock, TX……...(806)747-8923
Med Flight Air Amb-Albuquerque, NM…….(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM……(505)272-3115

Intent ☐ As Drilled ☐

API #

Operator Name:	Property Name:	Well Number
REDWOOD OPERATING LLC	**SPARKPLUG 17 FEDERAL COM**	**3H**

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
M	**9**	**18S**	**27E**		**250**	**SOUTH**	**750**	**WEST**	**EDDY**

Latitude	Longitude	NAD
32.7557880	**104.2896179**	**83**

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	**17**	**18S**	**27E**		**990**	**NORTH**	**100**	**EAST**	**EDDY**

Latitude	Longitude	NAD
32.7523795	**104.2924364**	**83**

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
D	**17**	**18S**	**27E**		**990**	**NORTH**	**100**	**WEST**	**EDDY**

Latitude	Longitude	NAD
32.7523268	**104.3088880**	**83**

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

Is this well an infill well? ☐

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

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

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

Drilling Plan Data Report
06/20/2022

APD ID: 10400081650 **Submission Date:** 01/06/2022

Operator Name: REDWOOD OPERATING LLC

Well Name: SPARKPLUG 17 FEDERAL COM **Well Number:** 3H

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
7795695	QUATERNARY	3506	0	0	ALLUVIUM	NONE	N
7795652	QUEEN	2824	682	682	SILTSTONE	NATURAL GAS, OIL	N
7795726	GRAYBURG	2371	1135	1135	DOLOMITE, SILTSTONE	NATURAL GAS, OIL	N
7795727	SAN ANDRES	2134	1372	1372	DOLOMITE	NATURAL GAS, OIL	N
7795728	GLORIETA	646	2860	2860	SILTSTONE	NATURAL GAS, OIL	Y
7795779	PADDOCK	591	2915	2915	SILTSTONE	NATURAL GAS, OIL	Y
7808317	BLINEBRY	-4	3510	3510	SILTSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 9587

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. 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 1464 psig (0.052*3061' TVD*9.2ppg) less than 2900 bottom hole pressure.

Choke Diagram Attachment:

Redwood_choke_manifold_diagram_20211116140836.pdf

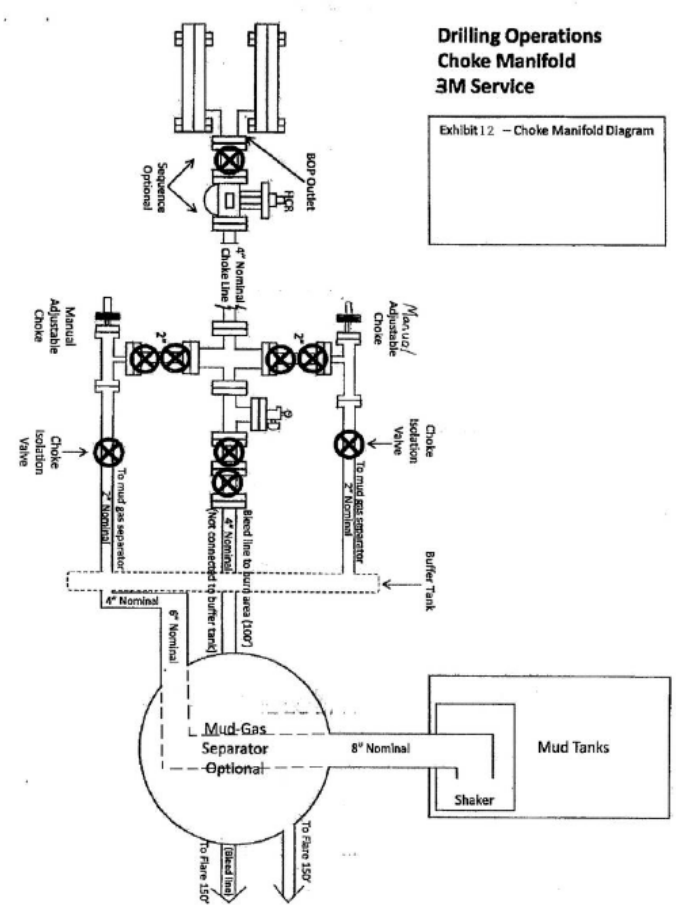
Redwood_choke_manifold_20211116140846.pdf

BOP Diagram Attachment:

Redwood_bop_diagram_20211116140855.pdf

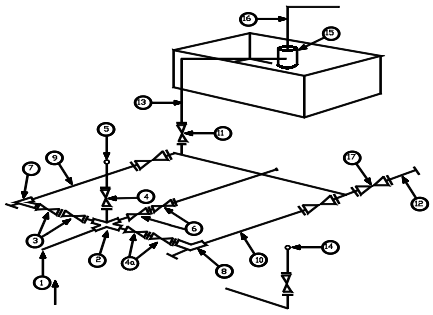
Redwood Operating LLC

MANIFOLD SCHEMATIC
Exhibit #12



Redwood Operating LLC

Exhibit #11
MIMIMUM CHOKE MANIFOLD
2,000, 5,000, and 10,000 PSI Working Pressure
3M will be used
2 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

*** Location of separator optional**

Below Substructure

Mimimum requirements

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

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

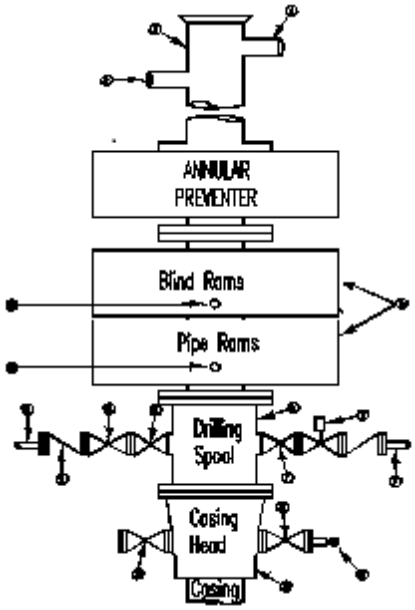
EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

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

Redwood Operating LLC
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
13 3/8 inch- 3 MWP
11 Inch - 3 MWP
EXHIBIT #10

Stack Requirements

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



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO

CONTRACTOR'S OPTION TO FURNISH:

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

REDWOOD TO FURNISH:

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

10.

ME

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of Redwood's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

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

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

COMMENTS

Action 120290

COMMENTS

Operator: Redwood Operating LLC PO Box 1370 Artesia, NM 88210	OGRID: 330211
	Action Number: 120290
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

COMMENTS

Created By	Comment	Comment Date
kpickford	KP GEO review 6/28/2022	6/28/2022

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals and Natural Resources
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Santa Fe, NM 87505

CONDITIONS

Action 120290

CONDITIONS

Operator: Redwood Operating LLC PO Box 1370 Artesia, NM 88210	OGRID: 330211
	Action Number: 120290
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
dmcclure	Notify OCD 24 hours prior to Spudding	7/1/2022
dmcclure	Notify OCD 24 hours prior to casing & cement	7/5/2022
dmcclure	Will require a File As Drilled C-102 and a Directional Survey with the C-104	7/5/2022
dmcclure	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	7/5/2022
dmcclure	Cement is required to circulate on both surface and intermediate1 strings of casing	7/5/2022
dmcclure	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	7/5/2022