

Well Name: RODEO UNIT	Well Location: T23N / R9W / SEC 25 / SESW / 36.191179 / -107.744868	County or Parish/State: SAN JUAN / NM
Well Number: 512H	Type of Well: OIL WELL	Allottee or Tribe Name: EASTERN NAVAJO
Lease Number: NOG13121859	Unit or CA Name:	Unit or CA Number: NMNM136328A, NMNM136328X
US Well Number: 3004535874	Well Status: Approved Application for Permit to Drill	Operator: ENDURING RESOURCES LLC

Notice of Intent

Sundry ID: 2712767

Type of Submission: Notice of Intent

Date Sundry Submitted: 01/26/2023

Date proposed operation will begin: 01/26/2023

Type of Action: APD Change

Time Sundry Submitted: 03:45

Procedure Description: Enduring Resources requests to change the HSU of the Rodeo Unit 512H well per the attached updated C-102 plat. The dedicated acreage will change from 1121.69 acres to 799.96 acres. See the attached documents for details.

NOI Attachments

Procedure Description

- Rodeo_Unit__512H_Detailed_As_Drilled_C_102_Plat___signed_KS_20230126154420.pdf
- Enduring_Rodeo__512H_svys_dec2022_20230126105300.pdf
- RODU_512H_WBD_11082022_20230126105254.pdf
- RODU_512H_Drilling_Package_11082022_20230126105256.pdf

Received by OCD: 1/27/2023 12:04:56 PM

Page 2 of 34

Well Name: RODEO UNIT	Well Location: T23N / R9W / SEC 25 / SESW / 36.191179 / -107.744868	County or Parish/State: SAN JUAN / NM
Well Number: 512H	Type of Well: OIL WELL	Allottee or Tribe Name: EASTERN NAVAJO
Lease Number: N0G13121859	Unit or CA Name:	Unit or CA Number: NMNM136328A, NMNM136328X
US Well Number: 3004535874	Well Status: Approved Application for Permit to Drill	Operator: ENDURING RESOURCES LLC

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: KAYLA WHITE

Signed on: JAN 26, 2023 03:44 PM

Name: ENDURING RESOURCES LLC

Title: Staff Engineer

Street Address: 9446 CLERMONT ST

City: THORNTONState: CO

Phone: (720) 768-3575

Email address: KWHITE@CDHCONSULT.COM

Field

Representative Name:

Street Address:

City:State:Zip:

Phone:

Email address:

District II
811 S. First Street, 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 Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

AS-DRILLED WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35874		² Pool Code 97232		³ Pool Name BASIN MANCOS	
⁴ Property Code 321253		⁵ Property Name RODEO UNIT			⁶ Well Number 512H
⁷ GRID No. 372286		⁸ Operator Name ENDURING RESOURCES, LLC			⁹ Elevation 6798'

¹⁰ Surface Location

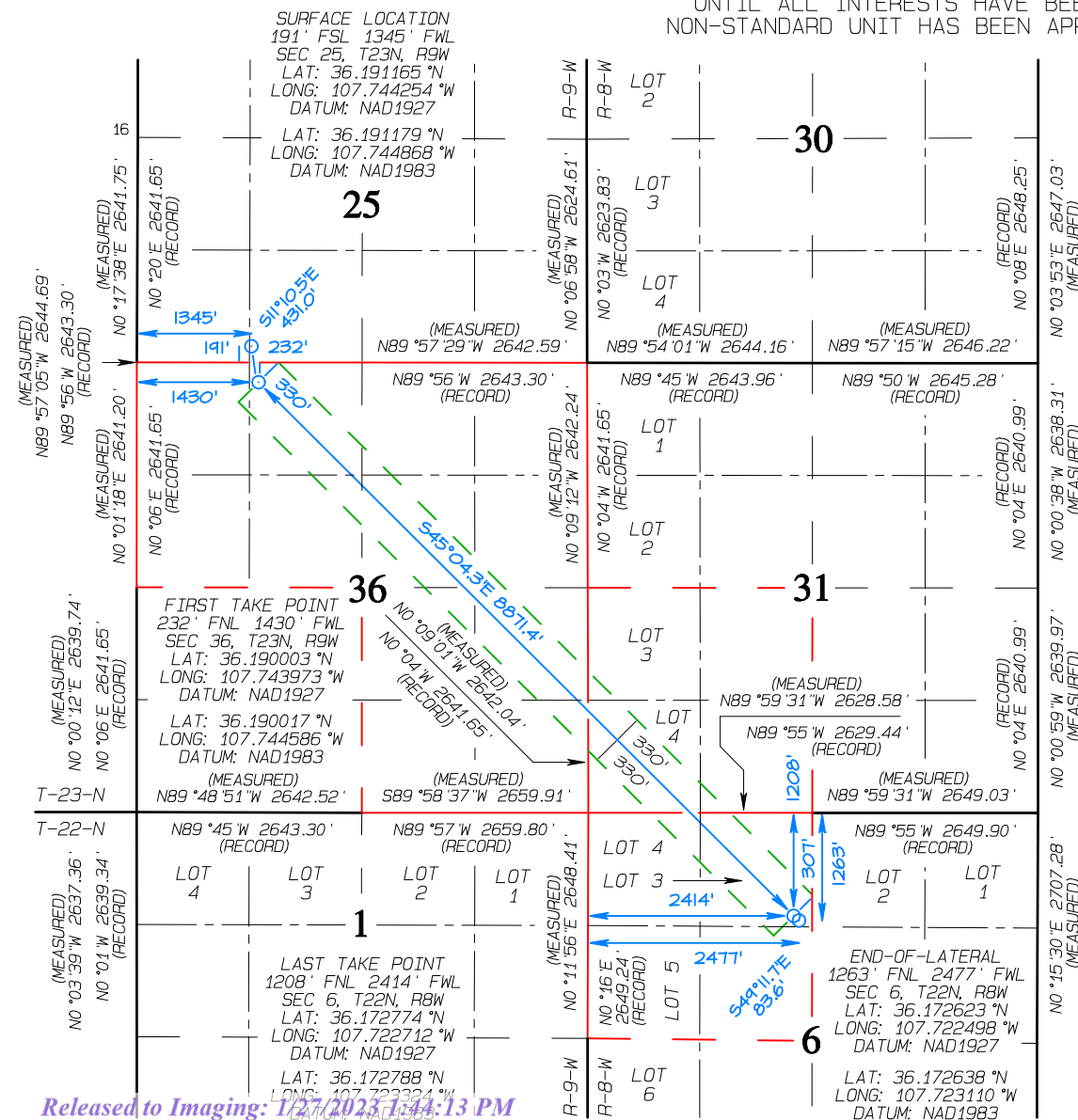
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	25	23N	9W		191	SOUTH	1345	WEST	SAN JUAN

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
C	6	22N	8W	3	1263	NORTH	2477	WEST	SAN JUAN

¹² Dedicated Acres 799.96		NW/4 - Sec 6, T22NR8W SW/4 - Sec 31, T23NR8W NW/4, E/2 - Sec 36, T23NR9W		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No. R-14313	
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION
UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A
NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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.

Khem Suthiwan 1/26/2023

Signature Date

Khem Suthiwan

Printed Name
ksuthiwan@enduringresources.com

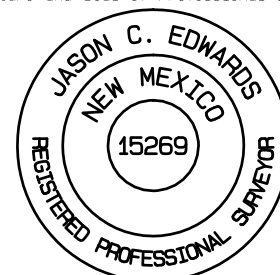
E-mail Address

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.

Date Revised: JANUARY 26, 2023
Survey Date: JANUARY 24, 2017

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

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

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¹ API Number 30-045-35874	² Pool Code 97232	³ Pool Name BASIN MANCOS
⁴ Property Code 321253	⁵ Property Name RODEO UNIT	⁶ Well Number 512H
⁷ GRID No. 372286	⁸ Operator Name ENDURING RESOURCES, LLC	⁹ Elevation 6798'

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
N	25	23N	9W		191	SOUTH	1345	WEST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

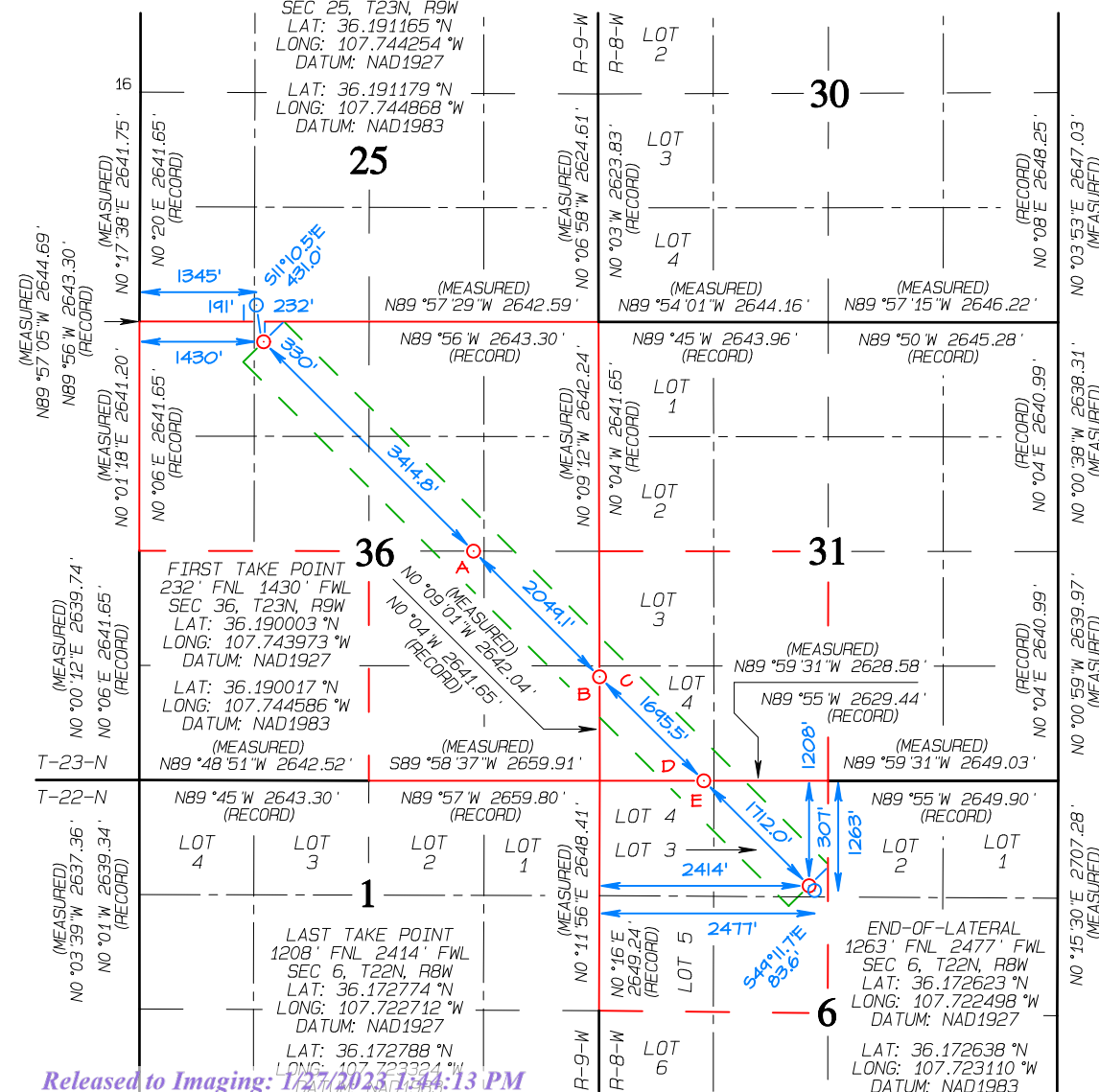
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	6	22N	8W	3	1263	NORTH	2477	WEST	SAN JUAN

¹² Dedicated Acres 799.96	NW/4 - Sec 6, T22NR8W SW/4 - Sec 31, T23NR8W NW/4, E/2 - Sec 36, T23NR9W	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-14313
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UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A
NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SURFACE LOCATION
191' FSL 1345' FWL
SEC 25, T23N, R9W
LAT: 36.191165°N
LONG: 107.744254°W
DATUM: NAD1927

LAT: 36.191179°N
LONG: 107.744868°W
DATUM: NAD1983



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.

Khem Suthiwan 1/26/2023

Signature Date

Khem Suthiwan

Printed Name

ksuthiwan@enduringresources.com

E-mail Address

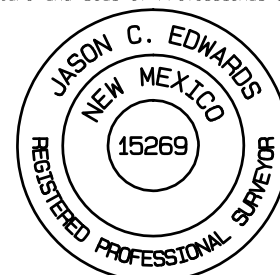
¹⁸ SURVEYOR CERTIFICATION

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.

Date Revised: JANUARY 26, 2023

Survey Date: JANUARY 24, 2017

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

(A) 2642' FNL 1447' FEL
SEC 36, T23N, R9W
LAT: 36.183372 °N
LONG: 107.735788 °W
DATUM: NAD1927

LAT: 36.183385 °N
LONG: 107.736401 °W
DATUM: NAD1983

(B) 1196' FSL 0' FEL
SEC 36, T23N, R9W
LAT: 36.179392 °N
LONG: 107.730877 °W
DATUM: NAD1927

LAT: 36.179406 °N
LONG: 107.731490 °W
DATUM: NAD1983

(C) 1196' FSL 0' FWL
SEC 31, T23N, R8W
LAT: 36.179392 °N
LONG: 107.730877 °W
DATUM: NAD1927

LAT: 36.179406 °N
LONG: 107.731490 °W
DATUM: NAD1983

(D) 0' FSL 1197' FWL
SEC 31, T23N, R8W
LAT: 36.176099 °N
LONG: 107.726814 °W
DATUM: NAD1927

LAT: 36.176113 °N
LONG: 107.727427 °W
DATUM: NAD1983

(E) 0' FNL 1197' FWL
SEC 6, T22N, R8W
LAT: 36.176099 °N
LONG: 107.726814 °W
DATUM: NAD1927

LAT: 36.176113 °N
LONG: 107.727427 °W
DATUM: NAD1983



Well: Rodeo Unit #512H
Site: Rodeo Unit 511 pad (511, 512 & 513)
Project: San Juan County, New Mexico NAD83 NM W
Design: Surveys Original Hole
Rig: Ensign 145

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Western Zone

System Datum: Mean Sea Level
 Depth Reference: RKB=6798+13 @ 6811.00ft (Ensign 145)
 Surface location:

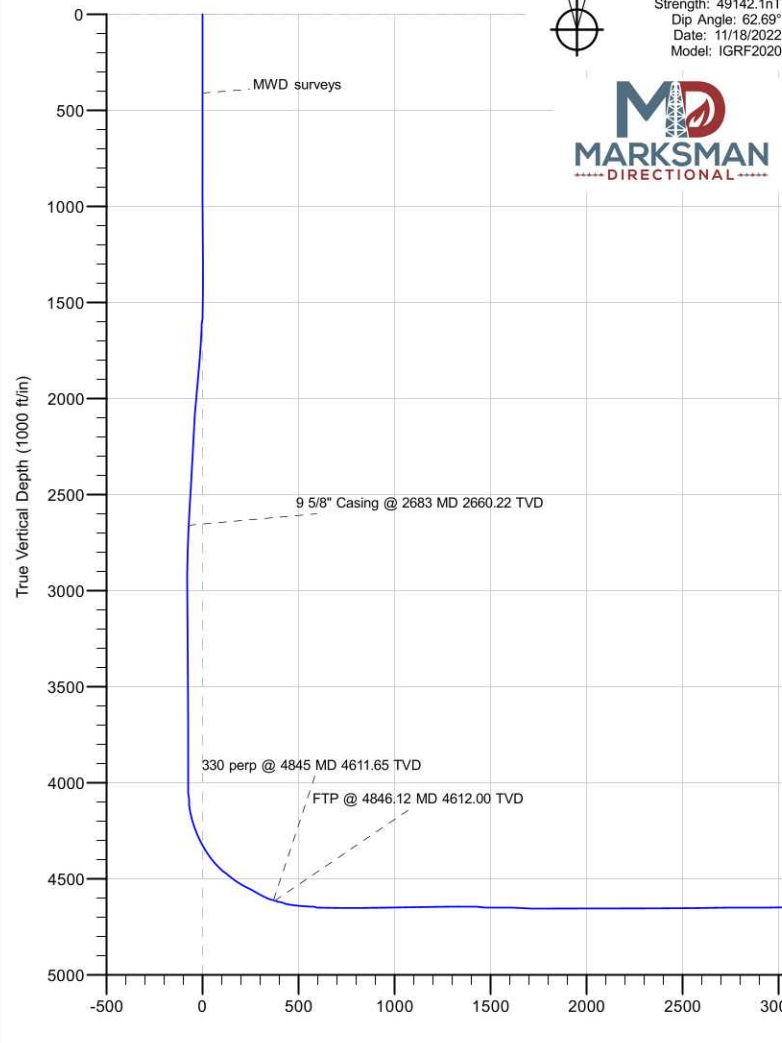
Northing: 1888898.328 Easting: 2749195.296 Latitude: 36.191179000 Longitude: -107.744868000

Total Corr (M=>G): To convert a Magnetic Direction to a Grid Direction, Add 8.59°



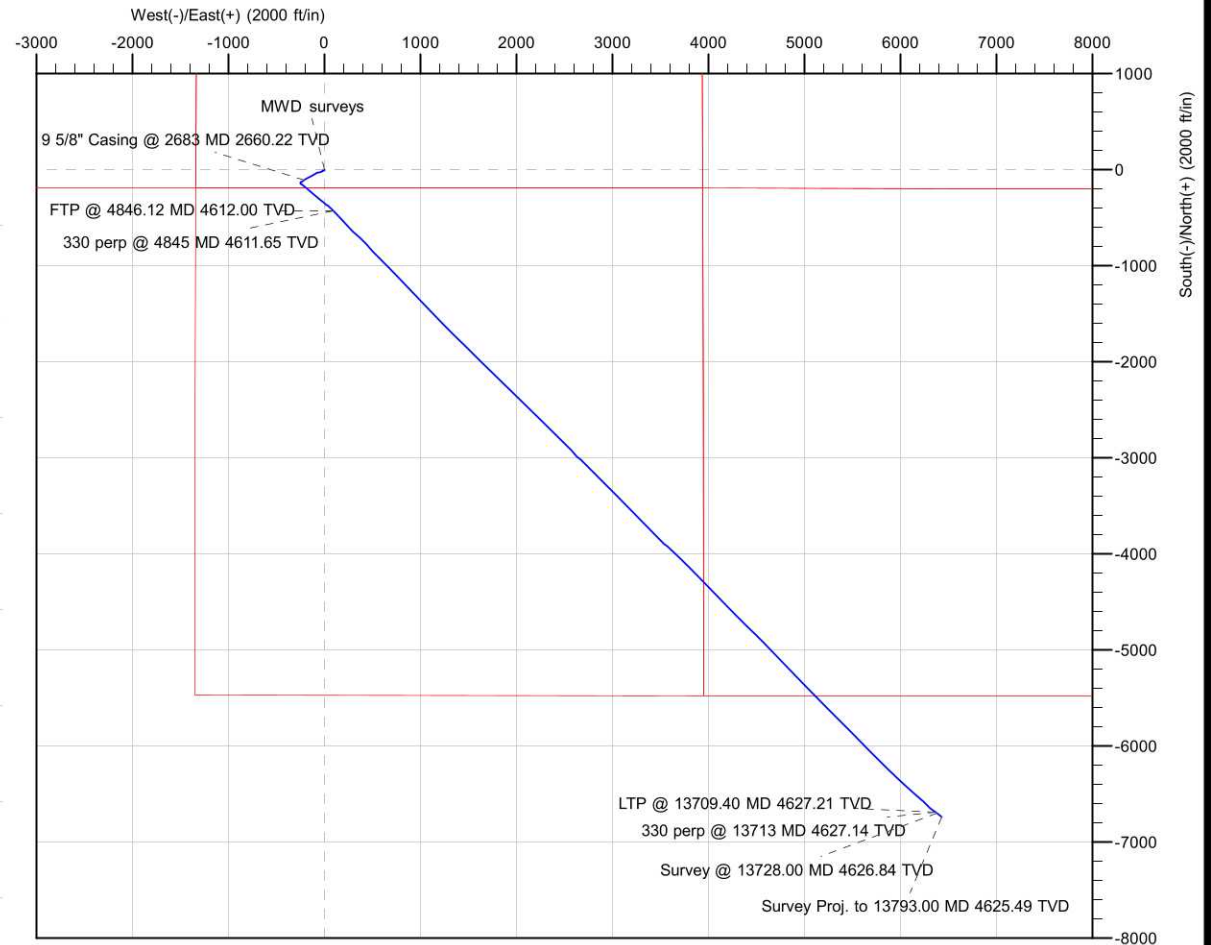
Azimuths to Grid North
 True North: -0.05°
 Magnetic North: 8.59°

Magnetic Field
 Strength: 49142.1nT
 Dip Angle: 62.69°
 Date: 11/18/2022
 Model: IGRF2020



ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
412.00	0.42	208.180	412.00	-1.33	-0.71	0.44	1.51	MWD surveys
2683.00	11.21	239.588	2660.22	-106.46	-211.85	-74.53	238.18	9 5/8" Casing @ 2683 MD 2660.22 TVD
4845.00	71.90	133.221	4611.65	-432.33	93.64	371.92	744.53	330 perp @ 4845 MD 4611.65 TVD
4846.12	72.01	133.240	4612.00	-433.06	94.42	372.99	745.60	FTP @ 4846.12 MD 4612.00 TVD
13709.40	91.07	131.012	4627.21	-6688.28	6364.51	9229.72	9604.05	LTP @ 13709.40 MD 4627.21 TVD
13713.00	91.09	130.967	4627.14	-6690.64	6367.23	9233.31	9607.65	330 perp @ 13713 MD 4627.14 TVD
13728.00	91.19	130.780	4626.84	-6700.45	6378.57	9248.27	9622.65	Survey @ 13728.00 MD 4626.84 TVD
13793.00	91.19	130.780	4625.49	-6742.90	6427.78	9313.08	9687.63	Survey Proj. to 13793.00 MD 4625.49 TVD



330 perp @ 13713 MD 4627.14 TVD
 LTP @ 13709.40 MD 4627.21 TVD
 Survey @ 13728.00 MD 4626.84 TVD
 Survey Proj. to 13793.00 MD 4625.49 TVD



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Project	San Juan County, New Mexico NAD83 NM W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	Rodeo Unit 511 pad (511, 512 & 513)				
Site Position:		Northing:	1,888,898.347 usft	Latitude:	36.191179000
From:	Lat/Long	Easting:	2,749,215.362 usft	Longitude:	-107.744800000
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Rodeo Unit #512H, Surf loc: 191 FSL 1345 FWL Section 25-T23N-R09W					
Well Position	+N/-S	0.00 ft	Northing:	1,888,898.328 usft	Latitude:	36.191179000
	+E/-W	0.00 ft	Easting:	2,749,195.297 usft	Longitude:	-107.744868000
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,798.00 ft
Grid Convergence:		0.05 °				

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/18/2022	8.65	62.69	49,142.14064790

Design	Surveys Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	135.000	

Survey Program	Date	12/20/2022			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
412.00	2,632.00	MWD surf (Original Hole)	MWD	OWSG MWD - Standard	
2,697.00	13,728.00	MWD (Original Hole)	MWD	OWSG MWD - Standard	
13,793.00	13,793.00	Projection (Original Hole)	MWD	OWSG MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
412.00	0.42	208.180	412.00	-1.33	-0.71	0.44	0.10	0.10	0.00
MWD surveys									
503.00	0.46	209.440	502.99	-1.94	-1.05	0.63	0.05	0.04	1.38
594.00	0.56	209.460	593.99	-2.65	-1.45	0.85	0.11	0.11	0.02
685.00	0.55	223.010	684.99	-3.36	-1.97	0.98	0.14	-0.01	14.89
776.00	0.52	221.260	775.98	-3.98	-2.54	1.02	0.04	-0.03	-1.92
866.00	0.58	229.750	865.98	-4.59	-3.15	1.01	0.11	0.07	9.43



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
957.00	0.61	226.260	956.97	-5.22	-3.85	0.97	0.05	0.03	-3.84	
1,051.00	0.64	231.020	1,050.97	-5.89	-4.62	0.90	0.06	0.03	5.06	
1,146.00	0.77	239.210	1,145.96	-6.56	-5.58	0.69	0.17	0.14	8.62	
1,240.00	0.82	240.770	1,239.95	-7.21	-6.71	0.35	0.06	0.05	1.66	
1,334.00	0.89	235.980	1,333.94	-7.94	-7.91	0.03	0.11	0.07	-5.10	
1,429.00	0.87	232.420	1,428.93	-8.80	-9.09	-0.21	0.06	-0.02	-3.75	
1,523.00	2.77	245.820	1,522.88	-10.16	-11.73	-1.11	2.06	2.02	14.26	
1,617.00	5.73	247.590	1,616.61	-12.88	-18.14	-3.72	3.15	3.15	1.88	
1,712.00	9.24	245.520	1,710.78	-17.85	-29.47	-8.21	3.71	3.69	-2.18	
1,806.00	12.68	246.380	1,803.06	-25.12	-45.79	-14.62	3.66	3.66	0.91	
1,900.00	13.66	246.830	1,894.58	-33.62	-65.45	-22.51	1.05	1.04	0.48	
1,994.00	13.46	246.130	1,985.96	-42.41	-85.66	-30.58	0.28	-0.21	-0.74	
2,089.00	12.36	245.000	2,078.56	-51.18	-104.99	-38.04	1.19	-1.16	-1.19	
2,183.00	12.35	245.500	2,170.38	-59.60	-123.25	-45.01	0.11	-0.01	0.53	
2,277.00	11.72	242.890	2,262.32	-68.12	-140.90	-51.46	0.89	-0.67	-2.78	
2,371.00	11.72	242.220	2,354.36	-76.92	-157.84	-57.22	0.14	0.00	-0.71	
2,466.00	11.46	242.490	2,447.42	-85.78	-174.75	-62.91	0.28	-0.27	0.28	
2,560.00	11.32	240.630	2,539.57	-94.62	-191.07	-68.20	0.42	-0.15	-1.98	
2,632.00	11.15	240.460	2,610.19	-101.51	-203.29	-71.96	0.24	-0.24	-0.24	
2,683.00	11.21	239.588	2,660.22	-106.46	-211.85	-74.53	0.35	0.12	-1.71	
9 5/8" Casing @ 2683 MD 2660.22 TVD										
2,697.00	11.23	239.350	2,673.95	-107.84	-214.20	-75.21	0.35	0.13	-1.70	
2,791.00	10.02	234.740	2,766.34	-117.23	-228.75	-78.86	1.57	-1.29	-4.90	
2,886.00	6.61	232.470	2,860.33	-125.33	-239.84	-80.97	3.61	-3.59	-2.39	
2,981.00	3.43	234.620	2,954.95	-130.31	-246.49	-82.16	3.35	-3.35	2.26	
3,075.00	0.46	154.720	3,048.90	-132.28	-248.63	-82.27	3.60	-3.16	-85.00	
3,169.00	0.90	121.140	3,142.89	-133.00	-247.83	-81.20	0.61	0.47	-35.72	
3,263.00	0.57	111.650	3,236.88	-133.56	-246.77	-80.05	0.37	-0.35	-10.10	
3,357.00	0.65	160.050	3,330.88	-134.23	-246.15	-79.14	0.54	0.09	51.49	
3,451.00	0.58	169.810	3,424.87	-135.20	-245.88	-78.27	0.13	-0.07	10.38	
3,546.00	0.57	201.200	3,519.87	-136.11	-245.97	-77.68	0.33	-0.01	33.04	
3,640.00	0.56	214.990	3,613.86	-136.93	-246.40	-77.41	0.14	-0.01	14.67	
3,735.00	0.64	198.530	3,708.86	-137.81	-246.84	-77.09	0.20	0.08	-17.33	
3,829.00	0.68	210.290	3,802.85	-138.79	-247.29	-76.72	0.15	0.04	12.51	
3,924.00	0.58	222.580	3,897.84	-139.63	-247.89	-76.56	0.18	-0.11	12.94	
4,018.00	0.85	210.320	3,991.84	-140.58	-248.57	-76.36	0.33	0.29	-13.04	
4,049.00	0.74	210.820	4,022.83	-140.95	-248.79	-76.25	0.36	-0.35	1.61	
4,080.00	1.79	152.490	4,053.83	-141.55	-248.67	-75.74	4.96	3.39	-188.16	
4,111.00	4.81	139.150	4,084.77	-142.97	-247.59	-73.98	9.99	9.74	-43.03	
4,143.00	8.25	134.470	4,116.56	-145.59	-245.08	-70.35	10.87	10.75	-14.63	
4,174.00	11.19	129.470	4,147.11	-149.06	-241.17	-65.13	9.86	9.48	-16.13	
4,205.00	14.05	126.790	4,177.36	-153.23	-235.83	-58.41	9.41	9.23	-8.65	
4,236.00	17.38	126.780	4,207.20	-158.25	-229.11	-50.10	10.74	10.74	-0.03	
4,268.00	20.24	127.610	4,237.49	-164.50	-220.89	-39.88	8.98	8.94	2.59	



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,299.00	22.96	128.460	4,266.31	-171.53	-211.91	-28.55	8.83	8.77	2.74
4,331.00	26.15	129.760	4,295.41	-179.92	-201.60	-15.32	10.11	9.97	4.06
4,362.00	29.23	130.840	4,322.86	-189.25	-190.62	-0.97	10.07	9.94	3.48
4,393.00	32.13	131.960	4,349.51	-199.71	-178.76	14.82	9.53	9.35	3.61
4,425.00	35.69	132.300	4,376.07	-211.68	-165.52	32.64	11.14	11.13	1.06
4,456.00	39.10	131.630	4,400.69	-224.27	-151.52	51.44	11.08	11.00	-2.16
4,488.00	42.34	130.870	4,424.94	-238.03	-135.83	72.27	10.24	10.13	-2.38
4,519.00	46.19	130.220	4,447.14	-252.09	-119.38	93.83	12.51	12.42	-2.10
4,551.00	49.80	129.610	4,468.55	-267.34	-101.15	117.52	11.37	11.28	-1.91
4,582.00	53.49	129.370	4,487.78	-282.79	-82.39	141.71	11.92	11.90	-0.77
4,614.00	56.45	129.200	4,506.15	-299.38	-62.11	167.78	9.26	9.25	-0.53
4,645.00	59.21	129.200	4,522.65	-315.97	-41.78	193.88	8.90	8.90	0.00
4,677.00	60.19	129.230	4,538.80	-333.43	-20.37	221.37	3.06	3.06	0.09
4,708.00	60.20	129.030	4,554.20	-350.41	0.50	248.13	0.56	0.03	-0.65
4,739.00	61.70	129.600	4,569.26	-367.58	21.46	275.09	5.10	4.84	1.84
4,771.00	64.07	131.130	4,583.84	-386.03	43.16	303.48	8.54	7.41	4.78
4,802.00	67.10	132.720	4,596.65	-404.89	64.15	331.66	10.83	9.77	5.13
4,833.00	70.72	133.020	4,607.81	-424.56	85.35	360.56	11.71	11.68	0.97
4,845.00	71.90	133.221	4,611.65	-432.33	93.64	371.92	9.94	9.81	1.67
330 perp @ 4845 MD 4611.65 TVD									
4,846.12	72.01	133.240	4,612.00	-433.06	94.42	372.99	9.94	9.81	1.66
FTP @ 4846.12 MD 4612.00 TVD									
4,865.00	73.86	133.550	4,617.54	-445.46	107.53	391.03	9.94	9.81	1.64
4,897.00	76.62	134.100	4,625.69	-466.89	129.86	421.96	8.78	8.63	1.72
4,928.00	79.62	134.710	4,632.07	-488.11	151.53	452.29	9.87	9.68	1.97
4,959.00	81.55	135.570	4,637.14	-509.79	173.10	482.87	6.80	6.23	2.77
4,991.00	83.36	135.960	4,641.35	-532.52	195.23	514.59	5.78	5.66	1.22
5,022.00	85.21	135.880	4,644.43	-554.68	216.68	545.43	5.97	5.97	-0.26
5,054.00	86.78	135.590	4,646.67	-577.54	238.96	577.35	4.99	4.91	-0.91
5,085.00	87.87	135.400	4,648.11	-599.62	260.67	608.32	3.57	3.52	-0.61
5,148.00	88.96	135.530	4,649.86	-644.51	304.84	671.29	1.74	1.73	0.21
5,243.00	91.08	136.280	4,649.82	-712.73	370.94	766.27	2.37	2.23	0.79
5,337.00	89.67	135.410	4,649.21	-780.17	436.41	860.26	1.76	-1.50	-0.93
5,431.00	90.92	135.390	4,648.72	-847.10	502.41	954.25	1.33	1.33	-0.02
5,525.00	89.75	135.610	4,648.18	-914.14	568.30	1,048.24	1.27	-1.24	0.23
5,619.00	90.99	135.300	4,647.57	-981.13	634.23	1,142.24	1.36	1.32	-0.33
5,714.00	89.34	135.780	4,647.29	-1,048.94	700.77	1,237.23	1.81	-1.74	0.51
5,808.00	91.03	135.660	4,646.99	-1,116.23	766.39	1,331.22	1.80	1.80	-0.13
5,903.00	89.42	135.890	4,646.62	-1,184.31	832.65	1,426.20	1.71	-1.69	0.24
5,997.00	88.08	136.440	4,648.67	-1,252.09	897.74	1,520.16	1.54	-1.43	0.59
6,091.00	88.88	136.500	4,651.16	-1,320.22	962.46	1,614.10	0.85	0.85	0.06
6,186.00	89.81	136.880	4,652.25	-1,389.34	1,027.62	1,709.05	1.06	0.98	0.40
6,280.00	90.58	137.230	4,651.93	-1,458.15	1,091.66	1,802.98	0.90	0.82	0.37



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
6,374.00	89.38	135.160	4,651.96	-1,525.98	1,156.72	1,896.96	2.55	-1.28	-2.20	
6,469.00	89.56	135.280	4,652.84	-1,593.41	1,223.63	1,991.95	0.23	0.19	0.13	
6,563.00	90.00	135.350	4,653.20	-1,660.25	1,289.73	2,085.95	0.47	0.47	0.07	
6,657.00	90.09	134.900	4,653.13	-1,726.86	1,356.06	2,179.95	0.49	0.10	-0.48	
6,752.00	90.03	134.290	4,653.03	-1,793.56	1,423.70	2,274.95	0.65	-0.06	-0.64	
6,846.00	91.19	134.550	4,652.03	-1,859.34	1,490.84	2,368.94	1.26	1.23	0.28	
6,940.00	89.38	134.810	4,651.56	-1,925.44	1,557.67	2,462.93	1.95	-1.93	0.28	
7,035.00	89.49	134.620	4,652.50	-1,992.27	1,625.18	2,557.92	0.23	0.12	-0.20	
7,130.00	90.59	134.340	4,652.43	-2,058.83	1,692.96	2,652.92	1.19	1.16	-0.29	
7,224.00	92.44	134.670	4,649.94	-2,124.70	1,759.97	2,746.88	2.00	1.97	0.35	
7,318.00	90.00	134.340	4,647.94	-2,190.57	1,826.99	2,840.84	2.62	-2.60	-0.35	
7,413.00	90.50	134.320	4,647.53	-2,256.96	1,894.95	2,935.84	0.53	0.53	-0.02	
7,507.00	90.50	133.480	4,646.71	-2,322.13	1,962.67	3,029.82	0.89	0.00	-0.89	
7,602.00	91.52	133.720	4,645.03	-2,387.63	2,031.46	3,124.77	1.10	1.07	0.25	
7,696.00	90.02	134.880	4,643.77	-2,453.28	2,098.72	3,218.75	2.02	-1.60	1.23	
7,790.00	90.83	135.210	4,643.07	-2,519.79	2,165.14	3,312.75	0.93	0.86	0.35	
7,884.00	91.49	135.110	4,641.17	-2,586.43	2,231.41	3,406.73	0.71	0.70	-0.11	
7,979.00	88.90	134.510	4,640.85	-2,653.38	2,298.80	3,501.72	2.80	-2.73	-0.63	
8,073.00	89.03	133.790	4,642.55	-2,718.84	2,366.23	3,595.69	0.78	0.14	-0.77	
8,168.00	89.69	133.610	4,643.61	-2,784.47	2,434.91	3,690.66	0.72	0.69	-0.19	
8,262.00	90.68	135.740	4,643.30	-2,850.56	2,501.75	3,784.65	2.50	1.05	2.27	
8,356.00	89.37	135.800	4,643.26	-2,917.91	2,567.32	3,878.64	1.40	-1.39	0.06	
8,450.00	89.29	135.040	4,644.36	-2,984.86	2,633.29	3,972.63	0.81	-0.09	-0.81	
8,545.00	90.22	133.780	4,644.77	-3,051.34	2,701.15	4,067.62	1.65	0.98	-1.33	
8,639.00	91.43	133.700	4,643.41	-3,116.32	2,769.06	4,161.59	1.29	1.29	-0.09	
8,733.00	88.74	134.840	4,643.27	-3,181.93	2,836.36	4,255.57	3.11	-2.86	1.21	
8,827.00	90.42	135.640	4,643.96	-3,248.67	2,902.54	4,349.56	1.98	1.79	0.85	
8,922.00	88.86	135.270	4,644.56	-3,316.37	2,969.18	4,444.56	1.69	-1.64	-0.39	
9,016.00	88.16	134.000	4,647.00	-3,382.39	3,036.04	4,538.52	1.54	-0.74	-1.35	
9,110.00	89.13	133.680	4,649.23	-3,447.48	3,103.82	4,632.47	1.09	1.03	-0.34	
9,205.00	88.87	135.860	4,650.89	-3,514.37	3,171.25	4,727.45	2.31	-0.27	2.29	
9,299.00	89.48	135.790	4,652.24	-3,581.78	3,236.75	4,821.43	0.65	0.65	-0.07	
9,393.00	91.09	136.150	4,651.77	-3,649.36	3,302.08	4,915.41	1.76	1.71	0.38	
9,488.00	92.17	136.590	4,649.07	-3,718.10	3,367.60	5,010.35	1.23	1.14	0.46	
9,583.00	93.40	135.450	4,644.45	-3,786.37	3,433.49	5,105.22	1.76	1.29	-1.20	
9,677.00	91.21	135.080	4,640.67	-3,853.09	3,499.59	5,199.13	2.36	-2.33	-0.39	
9,772.00	89.23	133.050	4,640.31	-3,919.15	3,567.85	5,294.11	2.98	-2.08	-2.14	
9,866.00	88.83	133.450	4,641.90	-3,983.55	3,636.31	5,388.05	0.60	-0.43	0.43	
9,961.00	91.19	135.360	4,641.88	-4,050.02	3,704.17	5,483.04	3.20	2.48	2.01	
10,055.00	92.44	134.800	4,638.91	-4,116.54	3,770.51	5,576.99	1.46	1.33	-0.60	
10,150.00	93.62	134.260	4,633.88	-4,183.07	3,838.13	5,671.85	1.37	1.24	-0.57	
10,243.00	91.46	134.960	4,629.76	-4,248.31	3,904.27	5,764.75	2.44	-2.32	0.75	
10,338.00	89.78	135.350	4,628.73	-4,315.66	3,971.26	5,859.74	1.82	-1.77	0.41	
10,433.00	90.50	135.820	4,628.50	-4,383.52	4,037.74	5,954.73	0.91	0.76	0.49	



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,527.00	90.01	136.050	4,628.08	-4,451.06	4,103.12	6,048.72	0.58	-0.52	0.24
10,622.00	90.58	135.900	4,627.60	-4,519.37	4,169.14	6,143.70	0.62	0.60	-0.16
10,716.00	89.64	134.950	4,627.41	-4,586.33	4,235.11	6,237.70	1.42	-1.00	-1.01
10,810.00	90.12	134.880	4,627.61	-4,652.70	4,301.68	6,331.70	0.52	0.51	-0.07
10,905.00	90.51	134.390	4,627.09	-4,719.44	4,369.28	6,426.69	0.66	0.41	-0.52
10,999.00	88.44	134.220	4,627.95	-4,785.09	4,436.54	6,520.68	2.21	-2.20	-0.18
11,094.00	89.03	134.210	4,630.05	-4,851.32	4,504.61	6,615.65	0.62	0.62	-0.01
11,188.00	91.66	135.660	4,629.48	-4,917.71	4,571.15	6,709.63	3.19	2.80	1.54
11,283.00	89.91	135.530	4,628.18	-4,985.57	4,637.61	6,804.62	1.85	-1.84	-0.14
11,377.00	90.72	136.730	4,627.66	-5,053.33	4,702.75	6,898.59	1.54	0.86	1.28
11,471.00	90.03	136.110	4,627.05	-5,121.42	4,767.55	6,992.56	0.99	-0.73	-0.66
11,566.00	90.94	136.410	4,626.24	-5,190.06	4,833.23	7,087.53	1.01	0.96	0.32
11,660.00	90.84	135.970	4,624.78	-5,257.88	4,898.30	7,181.50	0.48	-0.11	-0.47
11,755.00	89.32	135.790	4,624.65	-5,326.08	4,964.43	7,276.49	1.61	-1.60	-0.19
11,849.00	89.55	135.610	4,625.58	-5,393.35	5,030.08	7,370.48	0.31	0.24	-0.19
11,944.00	90.62	135.610	4,625.44	-5,461.24	5,096.53	7,465.47	1.13	1.13	0.00
12,037.00	89.58	135.680	4,625.28	-5,527.73	5,161.55	7,558.46	1.12	-1.12	0.08
12,132.00	90.57	136.140	4,625.15	-5,595.96	5,227.65	7,653.45	1.15	1.04	0.48
12,226.00	89.41	135.290	4,625.17	-5,663.26	5,293.28	7,747.44	1.53	-1.23	-0.90
12,321.00	89.96	134.960	4,625.69	-5,730.58	5,360.31	7,842.44	0.68	0.58	-0.35
12,415.00	88.37	134.620	4,627.06	-5,796.79	5,427.01	7,936.42	1.73	-1.69	-0.36
12,509.00	91.16	135.820	4,627.44	-5,863.50	5,493.21	8,030.41	3.23	2.97	1.28
12,604.00	89.19	135.150	4,627.15	-5,931.24	5,559.81	8,125.40	2.19	-2.07	-0.71
12,698.00	91.08	134.670	4,626.93	-5,997.60	5,626.38	8,219.40	2.07	2.01	-0.51
12,793.00	89.68	135.290	4,626.30	-6,064.75	5,693.58	8,314.39	1.61	-1.47	0.65
12,888.00	91.30	136.280	4,625.49	-6,132.83	5,759.82	8,409.37	2.00	1.71	1.04
12,982.00	89.00	134.210	4,625.24	-6,199.58	5,825.99	8,503.36	3.29	-2.45	-2.20
13,077.00	87.45	133.120	4,628.19	-6,265.13	5,894.68	8,598.29	1.99	-1.63	-1.15
13,171.00	89.62	133.070	4,630.59	-6,329.33	5,963.29	8,692.20	2.31	2.31	-0.05
13,265.00	90.12	132.450	4,630.80	-6,393.15	6,032.31	8,786.13	0.85	0.53	-0.66
13,360.00	90.54	131.880	4,630.26	-6,456.92	6,102.72	8,881.01	0.75	0.44	-0.60
13,454.00	90.60	130.540	4,629.32	-6,518.84	6,173.43	8,974.79	1.43	0.06	-1.43
13,548.00	90.06	132.030	4,628.78	-6,580.86	6,244.06	9,068.59	1.69	-0.57	1.59
13,643.00	90.64	131.840	4,628.20	-6,644.35	6,314.73	9,163.45	0.64	0.61	-0.20
13,709.40	91.07	131.012	4,627.21	-6,688.28	6,364.51	9,229.72	1.40	0.65	-1.25
LTP @ 13709.40 MD 4627.21 TVD									
13,713.00	91.09	130.967	4,627.14	-6,690.64	6,367.23	9,233.31	1.40	0.65	-1.25
330 perp @ 13713 MD 4627.14 TVD									
13,728.00	91.19	130.780	4,626.84	-6,700.45	6,378.57	9,248.27	1.40	0.65	-1.25
Survey @ 13728.00 MD 4626.84 TVD									
13,793.00	91.19	130.780	4,625.49	-6,742.90	6,427.78	9,313.08	0.00	0.00	0.00
Survey Proj. to 13793.00 MD 4625.49 TVD									



Survey Report



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
412.00	412.00	-1.33	-0.71	MWD surveys
2,683.00	2,660.22	-106.46	-211.85	9 5/8" Casing @ 2683 MD 2660.22 TVD
4,845.00	4,611.65	-432.33	93.64	330 perp @ 4845 MD 4611.65 TVD
4,846.12	4,612.00	-433.06	94.42	FTP @ 4846.12 MD 4612.00 TVD
13,709.40	4,627.21	-6,688.28	6,364.51	LTP @ 13709.40 MD 4627.21 TVD
13,713.00	4,627.14	-6,690.64	6,367.23	330 perp @ 13713 MD 4627.14 TVD
13,728.00	4,626.84	-6,700.45	6,378.57	Survey @ 13728.00 MD 4626.84 TVD
13,793.00	4,625.49	-6,742.90	6,427.78	Survey Proj. to 13793.00 MD 4625.49 TVD



Survey Report - Geographic



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Project	San Juan County, New Mexico NAD83 NM W		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	Rodeo Unit 511 pad (511, 512 & 513)				
Site Position:		Northing:	1,888,898.347 usft	Latitude:	36.191179000
From:	Lat/Long	Easting:	2,749,215.362 usft	Longitude:	-107.744800000
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.05 °

Well	Rodeo Unit #512H, Surf loc: 191 FSL 1345 FWL Section 25-T23N-R09W					
Well Position	+N/-S	0.00 ft	Northing:	1,888,898.328 usft	Latitude:	36.191179000
	+E/-W	0.00 ft	Easting:	2,749,195.297 usft	Longitude:	-107.744868000
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,798.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/18/2022	8.65	62.69	49,142.14064790

Design	Surveys Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	135.000	

Survey Program	Date	12/20/2022			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
412.00	2,632.00	MWD surf (Original Hole)	MWD	OWSG MWD - Standard	
2,697.00	13,728.00	MWD (Original Hole)	MWD	OWSG MWD - Standard	
13,793.00	13,793.00	Projection (Original Hole)	MWD	OWSG MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	1,888,898.328	2,749,195.297	36.191179000	-107.744868000
412.00	0.42	208.180	412.00	-1.33	-0.71	1,888,896.997	2,749,194.584	36.191175345	-107.744870421
MWD surveys									
503.00	0.46	209.440	502.99	-1.94	-1.05	1,888,896.385	2,749,194.247	36.191173664	-107.744871565
594.00	0.56	209.460	593.99	-2.65	-1.45	1,888,895.680	2,749,193.848	36.191171727	-107.744872917
685.00	0.55	223.010	684.99	-3.36	-1.97	1,888,894.973	2,749,193.332	36.191169788	-107.744874670
776.00	0.52	221.260	775.98	-3.98	-2.54	1,888,894.343	2,749,192.762	36.191168059	-107.744876605
866.00	0.58	229.750	865.98	-4.59	-3.15	1,888,893.742	2,749,192.145	36.191166409	-107.744878698
957.00	0.61	226.260	956.97	-5.22	-3.85	1,888,893.110	2,749,191.443	36.191164673	-107.744881077
1,051.00	0.64	231.020	1,050.97	-5.89	-4.62	1,888,892.433	2,749,190.673	36.191162817	-107.744883687



Survey Report - Geographic



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,146.00	0.77	239.210	1,145.96	-6.56	-5.58	1,888,891.773	2,749,189.713	36.191161005	-107.744886945
1,240.00	0.82	240.770	1,239.95	-7.21	-6.71	1,888,891.121	2,749,188.583	36.191159217	-107.744890776
1,334.00	0.89	235.980	1,333.94	-7.94	-7.91	1,888,890.384	2,749,187.391	36.191157196	-107.744894818
1,429.00	0.87	232.420	1,428.93	-8.80	-9.09	1,888,889.532	2,749,186.208	36.191154857	-107.744898830
1,523.00	2.77	245.820	1,522.88	-10.16	-11.73	1,888,888.166	2,749,183.570	36.191151112	-107.744907774
1,617.00	5.73	247.590	1,616.61	-12.88	-18.14	1,888,885.446	2,749,177.158	36.191143656	-107.744929511
1,712.00	9.24	245.520	1,710.78	-17.85	-29.47	1,888,880.476	2,749,165.829	36.191130031	-107.744967922
1,806.00	12.68	246.380	1,803.06	-25.12	-45.79	1,888,873.213	2,749,149.503	36.191110120	-107.745023272
1,900.00	13.66	246.830	1,894.58	-33.62	-65.45	1,888,864.712	2,749,129.846	36.191086816	-107.745089916
1,994.00	13.46	246.130	1,985.96	-42.41	-85.66	1,888,855.918	2,749,109.638	36.191062707	-107.745158430
2,089.00	12.36	245.000	2,078.56	-51.18	-104.99	1,888,847.146	2,749,090.311	36.191038660	-107.745223953
2,183.00	12.35	245.500	2,170.38	-59.60	-123.25	1,888,838.726	2,749,072.046	36.191015574	-107.745285880
2,277.00	11.72	242.890	2,262.32	-68.12	-140.90	1,888,830.207	2,749,054.400	36.190992214	-107.745345708
2,371.00	11.72	242.220	2,354.36	-76.92	-157.84	1,888,821.406	2,749,037.456	36.190968081	-107.745403161
2,466.00	11.46	242.490	2,447.42	-85.78	-174.75	1,888,812.550	2,749,020.549	36.190943794	-107.745460486
2,560.00	11.32	240.630	2,539.57	-94.62	-191.07	1,888,803.712	2,749,004.227	36.190919556	-107.745515828
2,632.00	11.15	240.460	2,610.19	-101.51	-203.29	1,888,796.814	2,748,992.012	36.190900636	-107.745557245
2,683.00	11.21	239.588	2,660.22	-106.46	-211.85	1,888,791.873	2,748,983.445	36.190887084	-107.745586291
9 5/8" Casing @ 2683 MD 2660.22 TVD									
2,697.00	11.23	239.350	2,673.95	-107.84	-214.20	1,888,790.489	2,748,981.099	36.190883287	-107.745594248
2,791.00	10.02	234.740	2,766.34	-117.23	-228.75	1,888,781.101	2,748,966.546	36.190857535	-107.745643596
2,886.00	6.61	232.470	2,860.33	-125.33	-239.84	1,888,772.997	2,748,955.458	36.190835299	-107.745681197
2,981.00	3.43	234.620	2,954.95	-130.31	-246.49	1,888,768.019	2,748,948.804	36.190821642	-107.745703765
3,075.00	0.46	154.720	3,048.90	-132.28	-248.63	1,888,766.050	2,748,946.671	36.190816236	-107.745710997
3,169.00	0.90	121.140	3,142.89	-133.00	-247.83	1,888,765.327	2,748,947.464	36.190814248	-107.745708312
3,263.00	0.57	111.650	3,236.88	-133.56	-246.77	1,888,764.772	2,748,948.531	36.190812722	-107.745704700
3,357.00	0.65	160.050	3,330.88	-134.23	-246.15	1,888,764.099	2,748,949.147	36.190810870	-107.745702612
3,451.00	0.58	169.810	3,424.87	-135.20	-245.88	1,888,763.129	2,748,949.413	36.190808206	-107.745701713
3,546.00	0.57	201.200	3,519.87	-136.11	-245.97	1,888,762.215	2,748,949.328	36.190805696	-107.745702007
3,640.00	0.56	214.990	3,613.86	-136.93	-246.40	1,888,761.403	2,748,948.895	36.190803466	-107.745703475
3,735.00	0.64	198.530	3,708.86	-137.81	-246.84	1,888,760.520	2,748,948.460	36.190801040	-107.745704952
3,829.00	0.68	210.290	3,802.85	-138.79	-247.29	1,888,759.540	2,748,948.012	36.190798351	-107.745706473
3,924.00	0.58	222.580	3,897.84	-139.63	-247.89	1,888,758.700	2,748,947.402	36.190796043	-107.745708542
4,018.00	0.85	210.320	3,991.84	-140.58	-248.57	1,888,757.747	2,748,946.729	36.190793428	-107.745710829
4,049.00	0.74	210.820	4,022.83	-140.95	-248.79	1,888,757.377	2,748,946.510	36.190792411	-107.745711571
4,080.00	1.79	152.490	4,053.83	-141.55	-248.67	1,888,756.776	2,748,946.631	36.190790759	-107.745711163
4,111.00	4.81	139.150	4,084.77	-142.97	-247.59	1,888,755.363	2,748,947.705	36.190786875	-107.745707527
4,143.00	8.25	134.470	4,116.56	-145.59	-245.08	1,888,752.739	2,748,950.222	36.190779660	-107.745699006
4,174.00	11.19	129.470	4,147.11	-149.06	-241.17	1,888,749.268	2,748,954.132	36.190770116	-107.745685765
4,205.00	14.05	126.790	4,177.36	-153.23	-235.83	1,888,745.101	2,748,959.468	36.190758656	-107.745667692
4,236.00	17.38	126.780	4,207.20	-158.25	-229.11	1,888,740.074	2,748,966.192	36.190744830	-107.745644921
4,268.00	20.24	127.610	4,237.49	-164.50	-220.89	1,888,733.833	2,748,974.407	36.190727665	-107.745617101
4,299.00	22.96	128.460	4,266.31	-171.53	-211.91	1,888,726.799	2,748,983.391	36.190708318	-107.745586676
4,331.00	26.15	129.760	4,295.41	-179.92	-201.60	1,888,718.404	2,748,993.702	36.190685233	-107.745551758
4,362.00	29.23	130.840	4,322.86	-189.25	-190.62	1,888,709.083	2,749,004.682	36.190659600	-107.745514575
4,393.00	32.13	131.960	4,349.51	-199.71	-178.76	1,888,698.620	2,749,016.541	36.190630825	-107.745474418
4,425.00	35.69	132.300	4,376.07	-211.68	-165.52	1,888,686.644	2,749,029.777	36.190597894	-107.745429598
4,456.00	39.10	131.630	4,400.69	-224.27	-151.52	1,888,674.061	2,749,043.776	36.190563291	-107.745382195
4,488.00	42.34	130.870	4,424.94	-238.03	-135.83	1,888,660.302	2,749,059.471	36.190525455	-107.745329044
4,519.00	46.19	130.220	4,447.14	-252.09	-119.38	1,888,646.243	2,749,075.913	36.190486792	-107.745273368
4,551.00	49.80	129.610	4,468.55	-267.34	-101.15	1,888,630.990	2,749,094.150	36.190444847	-107.745211609
4,582.00	53.49	129.370	4,487.78	-282.79	-82.39	1,888,615.535	2,749,112.908	36.190402342	-107.745148086
4,614.00	56.45	129.200	4,506.15	-299.38	-62.11	1,888,598.946	2,749,133.188	36.190356720	-107.745079410
4,645.00	59.21	129.200	4,522.65	-315.97	-41.78	1,888,582.362	2,749,153.521	36.190311113	-107.745010553
4,677.00	60.19	129.230	4,538.80	-333.43	-20.37	1,888,564.895	2,749,174.927	36.190263074	-107.744938064



Survey Report - Geographic



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,708.00	60.20	129.030	4,554.20	-350.41	0.50	1,888,547.919	2,749,195.793	36.190216388	-107.744867401
4,739.00	61.70	129.600	4,569.26	-367.58	21.46	1,888,530.749	2,749,216.758	36.190169167	-107.744796404
4,771.00	64.07	131.130	4,583.84	-386.03	43.16	1,888,512.301	2,749,238.455	36.190118434	-107.744722931
4,802.00	67.10	132.720	4,596.65	-404.89	64.15	1,888,493.440	2,749,259.451	36.190066568	-107.744651836
4,833.00	70.72	133.020	4,607.81	-424.56	85.35	1,888,473.765	2,749,280.645	36.190012465	-107.744580072
4,845.00	71.90	133.221	4,611.65	-432.33	93.64	1,888,465.995	2,749,288.942	36.189991100	-107.744551979
330 perp @ 4845 MD 4611.65 TVD									
4,846.12	72.01	133.240	4,612.00	-433.06	94.42	1,888,465.265	2,749,289.718	36.189989094	-107.744549350
FTP @ 4846.12 MD 4612.00 TVD									
4,865.00	73.86	133.550	4,617.54	-445.46	107.53	1,888,452.866	2,749,302.831	36.189954999	-107.744504947
4,897.00	76.62	134.100	4,625.69	-466.89	129.86	1,888,431.440	2,749,325.153	36.189896084	-107.744429366
4,928.00	79.62	134.710	4,632.07	-488.11	151.53	1,888,410.215	2,749,346.823	36.189837722	-107.744355996
4,959.00	81.55	135.570	4,637.14	-509.79	173.10	1,888,388.538	2,749,368.393	36.189778119	-107.744282963
4,991.00	83.36	135.960	4,641.35	-532.52	195.23	1,888,365.810	2,749,390.522	36.189715626	-107.744208040
5,022.00	85.21	135.880	4,644.43	-554.68	216.68	1,888,343.653	2,749,411.979	36.189654702	-107.744135392
5,054.00	86.78	135.590	4,646.67	-577.54	238.96	1,888,320.794	2,749,434.259	36.189591850	-107.744059957
5,085.00	87.87	135.400	4,648.11	-599.62	260.67	1,888,298.709	2,749,455.965	36.189531127	-107.743986466
5,148.00	88.96	135.530	4,649.86	-644.51	304.84	1,888,253.819	2,749,500.132	36.189407698	-107.743836927
5,243.00	91.08	136.280	4,649.82	-712.73	370.94	1,888,185.596	2,749,566.234	36.189220114	-107.743613128
5,337.00	89.67	135.410	4,649.21	-780.17	436.41	1,888,118.159	2,749,631.710	36.189034692	-107.743391445
5,431.00	90.92	135.390	4,648.72	-847.10	502.41	1,888,051.231	2,749,697.711	36.188850665	-107.743167987
5,525.00	89.75	135.610	4,648.18	-914.14	568.30	1,887,984.188	2,749,763.594	36.188666322	-107.742944928
5,619.00	90.99	135.300	4,647.57	-981.13	634.23	1,887,917.197	2,749,829.529	36.188482123	-107.742721692
5,714.00	89.34	135.780	4,647.29	-1,048.94	700.77	1,887,849.395	2,749,896.065	36.188295692	-107.742496424
5,808.00	91.03	135.660	4,646.99	-1,116.23	766.39	1,887,782.100	2,749,961.690	36.188110656	-107.742274244
5,903.00	89.42	135.890	4,646.62	-1,184.31	832.65	1,887,714.025	2,750,027.947	36.187923477	-107.742049923
5,997.00	88.08	136.440	4,648.67	-1,252.09	897.74	1,887,646.237	2,750,093.033	36.187737089	-107.741829573
6,091.00	88.88	136.500	4,651.16	-1,320.22	962.46	1,887,578.111	2,750,157.750	36.187549770	-107.741610473
6,186.00	89.81	136.880	4,652.25	-1,389.34	1,027.62	1,887,508.989	2,750,222.910	36.187359716	-107.741389880
6,280.00	90.58	137.230	4,651.93	-1,458.15	1,091.66	1,887,440.182	2,750,286.951	36.187170528	-107.741173077
6,374.00	89.38	135.160	4,651.96	-1,525.98	1,156.72	1,887,372.347	2,750,352.013	36.186984009	-107.740952811
6,469.00	89.56	135.280	4,652.84	-1,593.41	1,223.63	1,887,304.917	2,750,418.927	36.186798597	-107.740726270
6,563.00	90.00	135.350	4,653.20	-1,660.25	1,289.73	1,887,238.086	2,750,485.028	36.186614830	-107.740502484
6,657.00	90.09	134.900	4,653.13	-1,726.86	1,356.06	1,887,171.473	2,750,551.350	36.186431664	-107.740277946
6,752.00	90.03	134.290	4,653.03	-1,793.56	1,423.70	1,887,104.775	2,750,618.998	36.186248259	-107.740048919
6,846.00	91.19	134.550	4,652.03	-1,859.34	1,490.84	1,887,038.988	2,750,686.130	36.186067358	-107.739821636
6,940.00	89.38	134.810	4,651.56	-1,925.44	1,557.67	1,886,972.896	2,750,752.965	36.185885619	-107.739595365
7,035.00	89.49	134.620	4,652.50	-1,992.27	1,625.18	1,886,906.060	2,750,820.470	36.185701832	-107.739366825
7,130.00	90.59	134.340	4,652.43	-2,058.83	1,692.96	1,886,839.498	2,750,888.250	36.185518800	-107.739137351
7,224.00	92.44	134.670	4,649.94	-2,124.70	1,759.97	1,886,773.633	2,750,955.264	36.185337683	-107.738910477
7,318.00	90.00	134.340	4,647.94	-2,190.57	1,826.99	1,886,707.762	2,751,022.283	36.185156549	-107.738683582
7,413.00	90.50	134.320	4,647.53	-2,256.96	1,894.95	1,886,641.378	2,751,090.238	36.184974002	-107.738453520
7,507.00	90.50	133.480	4,646.71	-2,322.13	1,962.67	1,886,576.201	2,751,157.967	36.184794773	-107.738224223
7,602.00	91.52	133.720	4,645.03	-2,387.63	2,031.46	1,886,510.699	2,751,226.751	36.184614645	-107.737991349
7,696.00	90.02	134.880	4,643.77	-2,453.28	2,098.72	1,886,445.057	2,751,294.017	36.184434137	-107.737763623
7,790.00	90.83	135.210	4,643.07	-2,519.79	2,165.14	1,886,378.539	2,751,360.430	36.184251227	-107.737538791
7,884.00	91.49	135.110	4,641.17	-2,586.43	2,231.41	1,886,311.900	2,751,426.698	36.184067982	-107.737314451
7,979.00	88.90	134.510	4,640.85	-2,653.38	2,298.80	1,886,244.954	2,751,494.089	36.183883892	-107.737086309
8,073.00	89.03	133.790	4,642.55	-2,718.84	2,366.23	1,886,179.491	2,751,561.524	36.183703873	-107.736858013
8,168.00	89.69	133.610	4,643.61	-2,784.47	2,434.91	1,886,113.862	2,751,630.201	36.183523395	-107.736625510
8,262.00	90.68	135.740	4,643.30	-2,850.56	2,501.75	1,886,047.777	2,751,697.040	36.183341670	-107.736399239
8,356.00	89.37	135.800	4,643.26	-2,917.91	2,567.32	1,885,980.423	2,751,762.608	36.183156462	-107.736177282
8,450.00	89.29	135.040	4,644.36	-2,984.86	2,633.29	1,885,913.475	2,751,828.581	36.182972366	-107.735953947
8,545.00	90.22	133.780	4,644.77	-3,051.34	2,701.15	1,885,846.998	2,751,896.442	36.182789559	-107.735724218
8,639.00	91.43	133.700	4,643.41	-3,116.32	2,769.06	1,885,782.016	2,751,964.347	36.182610858	-107.735494334



Survey Report - Geographic



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,733.00	88.74	134.840	4,643.27	-3,181.93	2,836.36	1,885,716.407	2,752,031.649	36.182430438	-107.735266497
8,827.00	90.42	135.640	4,643.96	-3,248.67	2,902.54	1,885,649.666	2,752,097.833	36.182246909	-107.735042453
8,922.00	88.86	135.270	4,644.56	-3,316.37	2,969.18	1,885,581.963	2,752,164.469	36.182060737	-107.734816883
9,016.00	88.16	134.000	4,647.00	-3,382.39	3,036.04	1,885,515.944	2,752,231.334	36.181879188	-107.734590529
9,110.00	89.13	133.680	4,649.23	-3,447.48	3,103.82	1,885,450.855	2,752,299.115	36.181700191	-107.734361075
9,205.00	88.87	135.860	4,650.89	-3,514.37	3,171.25	1,885,383.964	2,752,366.544	36.181516246	-107.734132814
9,299.00	89.48	135.790	4,652.24	-3,581.78	3,236.75	1,885,316.553	2,752,432.041	36.181330877	-107.733911107
9,393.00	91.09	136.150	4,651.77	-3,649.36	3,302.08	1,885,248.973	2,752,497.371	36.181145043	-107.733689966
9,488.00	92.17	136.590	4,649.07	-3,718.10	3,367.60	1,885,180.240	2,752,562.893	36.180956041	-107.733468179
9,583.00	93.40	135.450	4,644.45	-3,786.37	3,433.49	1,885,111.963	2,752,628.781	36.180768290	-107.733245153
9,677.00	91.21	135.080	4,640.67	-3,853.09	3,499.59	1,885,045.247	2,752,694.884	36.180584825	-107.733021395
9,772.00	89.23	133.050	4,640.31	-3,919.15	3,567.85	1,884,979.184	2,752,763.138	36.180403150	-107.732790343
9,866.00	88.83	133.450	4,641.90	-3,983.55	3,636.31	1,884,914.786	2,752,831.595	36.180226048	-107.732558601
9,961.00	91.19	135.360	4,641.88	-4,050.02	3,704.17	1,884,848.320	2,752,899.456	36.180043265	-107.732328887
10,055.00	92.44	134.800	4,638.91	-4,116.54	3,770.51	1,884,781.795	2,752,965.796	36.179860322	-107.732104327
10,150.00	93.62	134.260	4,633.88	-4,183.07	3,838.13	1,884,715.267	2,753,033.424	36.179677370	-107.731875406
10,243.00	91.46	134.960	4,629.76	-4,248.31	3,904.27	1,884,650.024	2,753,099.561	36.179497949	-107.731651532
10,338.00	89.78	135.350	4,628.73	-4,315.66	3,971.26	1,884,582.674	2,753,166.547	36.179312738	-107.731424788
10,433.00	90.50	135.820	4,628.50	-4,383.52	4,037.74	1,884,514.817	2,753,233.032	36.179126137	-107.731199746
10,527.00	90.01	136.050	4,628.08	-4,451.06	4,103.12	1,884,447.274	2,753,298.406	36.178940400	-107.730978471
10,622.00	90.58	135.900	4,627.60	-4,519.37	4,169.14	1,884,378.967	2,753,364.427	36.178752562	-107.730755005
10,716.00	89.64	134.950	4,627.41	-4,586.33	4,235.11	1,884,312.010	2,753,430.398	36.178568430	-107.730531703
10,810.00	90.12	134.880	4,627.61	-4,652.70	4,301.68	1,884,245.640	2,753,496.964	36.178385914	-107.730306386
10,905.00	90.51	134.390	4,627.09	-4,719.44	4,369.28	1,884,178.896	2,753,564.565	36.178202363	-107.730077566
10,999.00	88.44	134.220	4,627.95	-4,785.09	4,436.54	1,884,113.245	2,753,631.827	36.178021817	-107.729849888
11,094.00	89.03	134.210	4,630.05	-4,851.32	4,504.61	1,884,047.013	2,753,699.899	36.177839671	-107.729619470
11,188.00	91.66	135.660	4,629.48	-4,917.71	4,571.15	1,883,980.630	2,753,766.434	36.177657113	-107.729394263
11,283.00	89.91	135.530	4,628.18	-4,985.57	4,637.61	1,883,912.770	2,753,832.899	36.177470498	-107.729169299
11,377.00	90.72	136.730	4,627.66	-5,053.33	4,702.75	1,883,845.007	2,753,898.040	36.177284154	-107.728948820
11,471.00	90.03	136.110	4,627.05	-5,121.42	4,767.55	1,883,776.914	2,753,962.839	36.177096905	-107.728729506
11,566.00	90.94	136.410	4,626.24	-5,190.06	4,833.23	1,883,708.282	2,754,028.517	36.176908169	-107.728507212
11,660.00	90.84	135.970	4,624.78	-5,257.88	4,898.30	1,883,640.456	2,754,093.582	36.176721651	-107.728286995
11,755.00	89.32	135.790	4,624.65	-5,326.08	4,964.43	1,883,572.259	2,754,159.716	36.176534111	-107.728063161
11,849.00	89.55	135.610	4,625.58	-5,393.35	5,030.08	1,883,504.988	2,754,225.363	36.176349113	-107.727840970
11,944.00	90.62	135.610	4,625.44	-5,461.24	5,096.53	1,883,437.102	2,754,291.818	36.176162426	-107.727616047
12,037.00	89.58	135.680	4,625.28	-5,527.73	5,161.55	1,883,370.607	2,754,356.834	36.175979559	-107.727395998
12,132.00	90.57	136.140	4,625.15	-5,595.96	5,227.65	1,883,302.374	2,754,422.932	36.175791919	-107.727172286
12,226.00	89.41	135.290	4,625.17	-5,663.26	5,293.28	1,883,235.084	2,754,488.564	36.175606868	-107.726950154
12,321.00	89.96	134.960	4,625.69	-5,730.58	5,360.31	1,883,167.764	2,754,555.591	36.175421730	-107.726723295
12,415.00	88.37	134.620	4,627.06	-5,796.79	5,427.01	1,883,101.549	2,754,622.293	36.175239630	-107.726497535
12,509.00	91.16	135.820	4,627.44	-5,863.50	5,493.21	1,883,034.835	2,754,688.496	36.175056158	-107.726273465
12,604.00	89.19	135.150	4,627.15	-5,931.24	5,559.81	1,882,967.098	2,754,755.096	36.174869875	-107.726048058
12,698.00	91.08	134.670	4,626.93	-5,997.60	5,626.38	1,882,900.738	2,754,821.665	36.174687374	-107.725822752
12,793.00	89.68	135.290	4,626.30	-6,064.75	5,693.58	1,882,833.590	2,754,888.860	36.174502706	-107.725595329
12,888.00	91.30	136.280	4,625.49	-6,132.83	5,759.82	1,882,765.506	2,754,955.103	36.174315471	-107.725371135
12,982.00	89.00	134.210	4,625.24	-6,199.58	5,825.99	1,882,698.763	2,755,021.278	36.174131918	-107.725147169
13,077.00	87.45	133.120	4,628.19	-6,265.13	5,894.68	1,882,633.206	2,755,089.963	36.173951614	-107.724914692
13,171.00	89.62	133.070	4,630.59	-6,329.33	5,963.29	1,882,569.009	2,755,158.578	36.173775048	-107.724682453
13,265.00	90.12	132.450	4,630.80	-6,393.15	6,032.31	1,882,505.190	2,755,227.592	36.173599519	-107.724448858
13,360.00	90.54	131.880	4,630.26	-6,456.92	6,102.72	1,882,441.421	2,755,298.006	36.173424121	-107.724210522
13,454.00	90.60	130.540	4,629.32	-6,518.84	6,173.43	1,882,379.497	2,755,368.717	36.173253789	-107.723971174
13,548.00	90.06	132.030	4,628.78	-6,580.86	6,244.06	1,882,317.478	2,755,439.348	36.173083199	-107.723732095
13,643.00	90.64	131.840	4,628.20	-6,644.35	6,314.73	1,882,253.993	2,755,510.017	36.172908577	-107.723492896
13,709.40	91.07	131.012	4,627.21	-6,688.28	6,364.51	1,882,210.064	2,755,559.798	36.172787746	-107.723324396
LTP @ 13709.40 MD 4627.21 TVD									



Survey Report - Geographic



Company:	Enduring Resources LLC	Local Co-ordinate Reference:	Well Rodeo Unit #512H
Project:	San Juan County, New Mexico NAD83 NM W	TVD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Site:	Rodeo Unit 511 pad (511, 512 & 513)	MD Reference:	RKB=6798+13 @ 6811.00ft (Ensign 145)
Well:	Rodeo Unit #512H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	DB_Decv0422v16

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,713.00	91.09	130.967	4,627.14	-6,690.64	6,367.23	1,882,207.704	2,755,562.515	36.172781252	-107.723315199
330 perp @ 13713 MD 4627.14 TVD									
13,728.00	91.19	130.780	4,626.84	-6,700.45	6,378.57	1,882,197.890	2,755,573.855	36.172754257	-107.723276815
Survey @ 13728.00 MD 4626.84 TVD									
13,793.00	91.19	130.780	4,625.49	-6,742.90	6,427.78	1,882,155.444	2,755,623.064	36.172637500	-107.723110248
Survey Proj. to 13793.00 MD 4625.49 TVD									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
412.00	412.00	-1.33	-0.71	MWD surveys	
2,683.00	2,660.22	-106.46	-211.85	9 5/8" Casing @ 2683 MD 2660.22 TVD	
4,845.00	4,611.65	-432.33	93.64	330 perp @ 4845 MD 4611.65 TVD	
4,846.12	4,612.00	-433.06	94.42	FTP @ 4846.12 MD 4612.00 TVD	
13,709.40	4,627.21	-6,688.28	6,364.51	LTP @ 13709.40 MD 4627.21 TVD	
13,713.00	4,627.14	-6,690.64	6,367.23	330 perp @ 13713 MD 4627.14 TVD	
13,728.00	4,626.84	-6,700.45	6,378.57	Survey @ 13728.00 MD 4626.84 TVD	
13,793.00	4,625.49	-6,742.90	6,427.78	Survey Proj. to 13793.00 MD 4625.49 TVD	

Checked By: _____ Approved By: _____ Date: _____

WELL NAME: **RODEO UNIT 512H**

OBJECTIVE: **Drill, complete, and equip single lateral in the Mancos-I formation**

API Number: 30-045-35874

State: New Mexico

County: San Juan

Surface Elev.: 6,798 ft ASL (GL) 6,811 ft ASL (KB)

Surface Location: 25-23N-09W Sec-Twn- Rng 191 ft FSL 1,345 ft FWL

BH Location: 6-22N-08W Sec-Twn- Rng 1226 ft FNL 2398 ft FWL

Driving Directions: **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 37.8 miles to MM 113.4; Right (Southwest) on CR #7890 for 0.8 miles to fork; Left (South) remaining on CR #7890 for 1.3 miles to 4-way intersection; Left (Southeast) remaining on CR #7890 for 0.6 miles to fork; Right (Southwest) on CR #7890 for 1.5 miles to access road; Left on access road for 0.5 mile to Rodeo Unit 511H Pad (three wells planned to be drilled: 511H, 512H, 513H).

QUICK REFERENCE	
Sur TD (MD)	360 ft
Int TD (MD)	2,693 ft
KOP (MD)	4,092 ft
KOP (TVD)	4,084 ft
Target (TVD)	4,626 ft
Curve BUR	10 °/100 ft
POE (MD)	4,823 ft
TD (MD)	13,793 ft
Lat Len (ft)	8,761 ft

WELL CONSTRUCTION SUMMARY:

	Hole (in)	TD MD (ft)	Csg (in)	Csg (lb/ft)	Csg (grade)	Csg (conn)	Csg Top (ft)	Csg Bot (ft)
Surface	17.500	360	13.375	54.5	J-55	BTC	0	360
Intermediate	12.250	2,693	9.625	36.0	J-55	LTC	0	2,693
Production	8.500	13,793	5.500	17.0	P-110	LTC	0	13,793

CEMENT PROPERTIES SUMMARY:

	Type	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	Hole Cap. (cuft/ft)	% Excess	TOC (ft MD)	Total (sx)
Surface	TYPE III	14.6	1.39	6.686	0.6946	100%	0	350
Inter. (Lead)	III:POZ Blend	12.5	2.14	12.05	0.3627	70%	0	502
Inter. (Tail)	Type III	14.6	1.37	6.63	0.3132	20%	2,130	137
Prod. (Lead)	Type I / II	12.4	2.360	13.40	0.2691	65%	0	575
Prod. (Tail)	G:POZ blend	13.3	1.560	7.70	0.2291	10%	3,587	1,615

COMPLETION / PRODUCTION SUMMARY:

Frac: 40 plug-and-perf stages with 360,000 bbls slickwater fluid and 15,000,000 lbs of proppant (estimated)

Flowback: Flow back through production tubing as pressures allow (ESP may be used for load recovery assistance)

Production: Produce through production tubing via gas-lift into permanent production and storage facilities

Tops	TVD (ft KB)	MD (ft KB)
Ojo Alamo	356	356
Kirtland	441	441
Fruitland	671	671
Pictured Cliffs	1,021	1,021
Lewis	1,146	1,146
Chacra	1,406	1,406
Cliff House	2,431	2,434
Menefee	2,466	2,470
Point Lookout	3,431	3,437
Mancos	3,581	3,587
Gallup (MNCS_A)	3,916	3,921
MNCS_B	4,021	4,027
MNCS_C	4,106	4,112
MNCS_Cms	4,146	4,152
MNCS_D	4,271	4,282
MNCS_E	4,421	4,457
MNCS_F	4,476	4,532
MNCS_G	4,546	4,648
MNCS_H	4,593	4,742
MNCS_I	4,649	4,909
FTP (LP) TARGET	4,626	4,823
LTP (TD) TARGET	4,586	13,584



ENDURING RESOURCES IV, LLC
6300 S SYRACUSE WAY, SUITE 525
CENTENNIAL, COLORADO 80211

DRILLING PLAN: *Drill, complete, and equip single lateral in the Mancos-I formation*

WELL INFORMATION:

Name: RODEO UNIT 512H
API Number: 30-045-35874
AFE Number: DV03088
ER Well Number: NM08212.01
State: New Mexico
County: San Juan
Surface Elevation: 6,798 ft ASL (GL) 6,811 ft ASL (KB)
Surface Location: 25-23N-09W Sec-Twn-Rng 191 ft FSL 1,345 ft FWL
 36.191179 ° N latitude 107.744868 ° W longitude (NAD 83)
BH Location (LTP): 6-22N-08W Sec-Twn-Rng 1,226 ft FNL 2,398 ft FWL
 36.172739 ° N latitude 107.723377 ° W longitude (NAD 83)
Driving Directions: **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
 South on US Hwy 550 for 37.8 miles to MM 113.4; Right (Southwest) on CR #7890 for 0.8 miles to fork; Left (South) remaining on CR #7890 for 1.3 miles to 4-way intersection; Left (Southeast) remaining on CR #7890 for 0.6 miles to fork; Right (Southwest) on CR #7890 for 1.5 miles to access road; Left on access road for 0.5 mile to Rodeo Unit 511H Pad (three wells planned to be drilled: 511H, 512H, 513H).

GEOLOGIC AND RESERVOIR INFORMATION:

<i>Prognosis:</i>	Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O / G / W	Pressure
	Ojo Alamo	6,455	356	356	W	normal
	Kirtland	6,370	441	441	W	normal
	Fruitland	6,140	671	671	G, W	sub
	Pictured Cliffs	5,790	1,021	1,021	G, W	sub
	Lewis	5,665	1,146	1,146	G, W	normal
	Chacra	5,405	1,406	1,406	G, W	normal
	Cliff House	4,380	2,431	2,434	G, W	sub
	Menefee	4,345	2,466	2,470	G, W	normal
	Point Lookout	3,380	3,431	3,437	G, W	normal
	Mancos	3,230	3,581	3,587	O,G	sub (~0.38)
	Gallup (MNCS_A)	2,895	3,916	3,921	O,G	sub (~0.38)
	MNCS_B	2,790	4,021	4,027	O,G	sub (~0.38)
	MNCS_C	2,705	4,106	4,112	O,G	sub (~0.38)
	MNCS_Cms	2,665	4,146	4,152	O,G	sub (~0.38)
	MNCS_D	2,540	4,271	4,282	O,G	sub (~0.38)
	MNCS_E	2,390	4,421	4,457	O,G	sub (~0.38)
	MNCS_F	2,335	4,476	4,532	O,G	sub (~0.38)
	MNCS_G	2,265	4,546	4,648	O,G	sub (~0.38)
	MNCS_H	2,218	4,593	4,742	O,G	sub (~0.38)
	MNCS_I	2,162	4,649	4,909	O,G	sub (~0.38)
	FTP (LP) TARGET	2,185	4,626	4,823	O,G	sub (~0.38)
	LTP (TD) TARGET	2,225	4,586	13,584	O,G	sub (~0.38)

Surface: Nacimiento

Oil & Gas Zones: Several gas bearing zones will be encountered; target formation is the Gallup

Pressure: Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations

Max. pressure gradient: 0.43 psi/ft Evacuated hole gradient: 0.22 psi/ft

Maximum anticipated BH pressure, assuming maximum pressure gradient: 1,990 psi

Maximum anticipated surface pressure, assuming partially evacuated hole: 980 psi

Temperature: Maximum anticipated BHT is 125° F or less

H₂S INFORMATION:

H₂S Zones: Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.

Safety: Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

LOGGING, CORING, AND TESTING:

Mud Logs: None planned; gas detection from drill out of 13-3/8" casing to TD; remote geo-steering from drill out of 9-5/8" casing to TD.

MWD / LWD: MWD surveys with inclination and azimuth in 100' stations (minimum) from drill out of 13-3/8" casing to TD; Gamma Ray from drill out of 9-5/8" casing to TD; Gamma Ray optional in 12-1/4" intermediate hole

Open Hole Logs: None planned

Testing: None planned

Coring: None planned

Cased Hole Logs: CBL on 5-1/2" casing from deepest free-fall depth to surface

DRILLING RIG INFORMATION:

Contractor: Ensign

Rig No.: 145

Draw Works: Lewco LDS 1500K (1,000 hp)

Mast: ADR 1000 Cantilever Triple (134 ft, 500,000 lbs)

Top Drive: Tesco 350-EXI-600 (250 ton)

Prime Movers: 2 - CAT 3512 (1,350 hp), 1 -CAT C32 (1,100 hp)

Pumps: 2 - Mudder MD11 (5,000 psi)

BOPE 1: T3 Annular & Shaffer double gate ram (13-5/8", 5,000 psi)

Int Hole BOPE 2: T3 annular(13-5/8", 5,000 psi)

Prod Hole BOPE 2: T3 annular/ Townsend Double gate(11", 5,000 psi)

Choke 3", 5,000 psi

KB-GL (ft): 13

Note: Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled.

Note: BOPE 2 are alternate stacks to be used only if problems with rig height and BOP 1 height are encountered.

Intermediate hole BOPE 2 is designed for 2,000 psi permit requirements.

BOPE REQUIREMENTS:

See attached diagram for details regarding BOPE specifications and configuration.

- 1) Rig will be equipped with upper and lower kelly cocks with handles available.
- 2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
- 3) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
- 4) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
- 5) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
- 6) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device. The valve will be maintained in the open position and shall only be closed when there is no power to the accumulator.

FLUIDS AND SOLIDS CONTROL PROGRAM:

Fluid Measurement: Pumps shall be equipped with stroke counters with displays in the dog-house. Slow pump speed shall be recorded daily and after mudding up, at a minimum, on the drilling report. A Pit Volume Totalizer will be installed and the readout will be displayed in the dog-house. Gas-detecting equipment will be installed at the shakers, and readouts will be available in the dog-house and the in the geologist's work-station (if geologist or mud-logger is on-site).

Closed-Loop System: A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal.

Fluid Disposal: Fluids that cannot be reused, recycled, or returned to the supplier will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

Solids Disposal: Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage products. Waste solids will be hauled to and disposed of at an approved disposal site (Industrial Ecosystem, Inc. or Envirotech, Inc.).

Fluid Program: See "Detailed Drilling Plan" section for specifics and fluid program from Newpark. Sufficient weighting agent will be on location to weight up mud system to balance the maximum expected pressure gradient.

DETAILED DRILLING PLAN:

SURFACE: *Drill vertically to casing setting depth (plus necessary rathole), run casing, cement casing to surface.*

0 ft (MD)	to	350 ft (MD)	Hole Section Length:	350 ft
0 ft (TVD)	to	350 ft (TVD)	Casing Required:	350 ft

Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.

Fluid:	Type	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pH	Comments
	Fresh Water	8.4	N/C	2 - 8	2 - 12	9.0	Spud mud

Hole Size: 17-1/2"

Bit / Motor: Mill Tooth or PDC, no motor

MWD / Survey: No MWD, deviation survey

Logging: None

Procedure: Drill to TD. Use 12-1/4" bit and open to 17-1/2" if unable to drill with 17-1/2" bit. Run inclination survey in 100' stations from TD to surface. Condition hole and fluid for casing running as required. TOOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000
Loading					153	571	116,634	116,634
Min. S.F.					7.39	4.78	7.31	7.79

Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient

Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling

intermediate hole and 8.4 ppg equivalent external pressure gradient

Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull

MU Torque (ft lbs): Minimum: N/A Optimum: N/A Maximum: N/A

Make-up as per API Buttress Connection running procedure.

Casing Details: Float shoe, 1 jt casing, float collar, casing to surface

Centralizers: 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	Hole Cap. (cuft/ft)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
	TYPE III	14.6	1.39	6.686	0.6946	100%	0	350

Drake Energy Services: Calculated cement volumes assume gauge hole and the excess noted in table

	Calcium Chloride	D-CD2 .2% BWOC
ASTM Type III	.5% BWOC	Dispersant/Friction
Blend	Accelerator	reducer

Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.

INTERMEDIATE: Drill as per directional plan to casing setting depth, run casing, cement casing to surface.

350 ft (MD)	to	2,630 ft (MD)	Hole Section Length:	2,280 ft
350 ft (TVD)	to	2,626 ft (TVD)	Casing Required:	2,630 ft

*TARGET CSG SHOE DEPTH IS 150' TVD BELOW MENEFFEE TOP

Fluid:	Type	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pH	Comments
	LSND (KCI)	8.8 - 9.5	20	8 - 14	8 - 14	9.0 - 9.5	No OBM

Hole Size: 12-1/4"

Bit / Motor: PDC w/mud motor

Bit / Motor (Detail): MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 900 GPM, 950 DIFF PSIG

BIT: 5- or 6-BLADE PDC w/16 mm or 19 mm cutters, target TFA 0.65 - 1.0 max); 6 - 14s = 0.902 sq-in TFA

MWD / Survey: MWD surveys with inclination and azimuth in 100' stations (minimum), GR optional

Logging: None

Pressure Test: NU BOPE and test (as noted above); pressure test 13-3/8" casing to 1,500 psi for 30 minutes.

Procedure: Drill to TD following directional plan (20' rat-hole (MAX) past casing setting depth). Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible. Take surveys every stand, at a minimum. Target flow-rates of 750 GPM (higher if able to control return rates). Minimum desired flow-rate is 650 GPM. At TD, condition hole and fluid for casing running. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well and perform off-line cement job, if possible. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	9.625	36.0	J-55	LTC	2,020	3,520	564,000	453,000
Loading					1,147	1,130	182,566	182,566
Min. S.F.					1.76	3.11	3.09	2.48

Assumptions: Collapse: fully evacuated casing with 8.4 ppg equivalent external pressure gradient

Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling

production hole and 8.4 ppg equivalent external pressure gradient

Tension: buoyed weight in 8.4 ppg fluid with 100,000 lbs over-pull

MU Torque (ft lbs): Minimum: 3,900 Optimum: 5,200 Maximum: 6,500

Casing Summary: Float shoe, 1 jt casing, float collar, casing to surface

Centralizers: 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per 3 jts to surface

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Lead	III:POZ Blend	12.5	2.140	12.05	70%	0	502
Tail	Type III	14.6	1.370	6.63	20%	2,130	137
Annular Capacity		0.3627	cuft/ft 9-5/8" casing x 13-3/8" casing annulus				
		0.3132	cuft/ft 9-5/8" casing x 12-1/4" hole annulus				

Drake Energy Services: Calculated cement volumes assume gauge hole and the excess noted in table

Spacer	D-Mud Breaker	SAPP							
			D-MPA-1 .4%						
		D-CSE 1 5.0%	BWOC Fluid Loss &						
	ASTM Type III	BWOC Strength	Gas Migration	D-SA 1 1.4% BWOC	D-CD 2 .4% BWOC	Cello Flace LCM .25	D-FP 1 .5% BWOC		
Lead	90/10 Poz	Enhancer	Control	Na Metasilicate	Dispersant	lb/sx	Defoamer	D-R1 .5% Retarder	
			D-MPA-1 .4%						
Tail	ASTM Type III		BWOC Fluid Loss &						
	Blend		Gas Migration	Cello Flace LCM .25					
			Control	lb/sx					

Drake Intermediate Cementing Program
Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.

PRODUCTION: Drill to TD following directional plan, run casing, cement casing to surface.

2,630 ft (MD)	to	13,584 ft (MD)	Hole Section Length:	10,954 ft
2,626 ft (TVD)	to	4,586 ft (TVD)	Casing Required:	13,584 ft

Estimated KOP:	4,092 ft (MD)	4,084 ft (TVD)
Estimated Landing Point (FTP):	4,823 ft (MD)	4,626 ft (TVD)
Estimated Lateral Length:	8,761 ft (MD)	

Fluid:	Type	MW (ppg)	FL (mL/30')	PV (cp)	YP (lb/100 sqft)	ES	OWR
	OBM	8.7 - 9.0	10 - 15	10 - 20	6 - 10	500+	80:20

Fluids / Solids Notes: Newpark OptiDrill OBM system. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details. No asphalt products are to be added to the OBM system. Any changes to the mud systems are to be discussed with engineering prior to application.

Hole Size: 8-1/2"

Bit / Motor: PDC w/mud motor

Bit / Motor (Detail): MOTOR: NOV 077857 - 7/8, 5.7, stage, 0.23 rev/gal, 1.83 - 2.12 DEG, 750 GPM, 1,580 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.

BIT: 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in

MWD / Survey: MWD surveys with inclination and azimuth in 100' stations (minimum) before KOP, every joint from KOP to POE, every 100' (minimum) from POE to TD; Gamma Ray from drill out of 9-5/8" shoe to TD

Logging: MWD Gamma Ray for entire section, no mud-log or cuttings sampling, no OH WL logs

Pressure Test: NU BOPE and test (as noted above); pressure test 9-5/8" casing to 1,500 psi for 30 minutes.

Procedure: Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed to keep well on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take surveys every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, differential is pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT). After reaching TD, perform clean-up cycle to condition hole for casing running. Spot lube as required and TOO (ROOH, if required; should NOT be required with OBM system). Run casing as described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verify make up torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land casing and test pack-off. Open floatation sub, fill casing, and circulate as required. Nipple down BOPE, walk rig to next well, and perform off-line cement job (unless on final well on the pad). Pump cement as detailed below. Note cement volume circulated to surface.

Casing Specs:	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	5.500	20.0	HCP-110	TCBC-HT	12,200	12,360	641,000	667,000
Loading					2,265	8,929	384,435	384,435
Min. S.F.					5.39	1.38	1.67	1.74

Assumptions: Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)

Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient
Tension: buoyed weight in 9.0 ppg fluid with 150,000 lbs over-pull

MU Torque (ft lbs): Minimum: 10,000 Optimum: 13,500 Maximum: 18,500

Casing Summary: Float shoe, 1 float collar, 1 jt casing, float collar, 20' marker joint, toe-initiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub at KOP (+/-), casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well. **Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.**

Centralizers: Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys (ARSENAL)
Lateral and Curve: 1 centralizer per 3 joints
Top of curve to 9-5/8" shoe: 1 centralizer per 5 joints
9-5/8" shoe to surface: 1 centralizer per 5 joints

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Spacer	IntegraGuard EZ II LCM	11		30.7 gpb			60 bbls
Lead	Type I / II	12.4	2.360	13.40	65%	0	575
Tail	G:POZ blend	13.3	1.560	7.70	10%	3,587	1,615
Annular Capacity	0.2691 cuft/ft	5-1/2" casing x 9-5/8" casing annulus					
	0.2291 cuft/ft	5-1/2" casing x 8-1/2" hole annulus					
Calculated cement volumes assume gauge hole and the excess noted in table							
Spacer	Cmt, Fly Ash 170.903 lbs/bbl	Avis 616 viscosifier 11.6 lb/bbl	FP24 Defoamer .5 lb/bbl	IntegraGuard Star Plus 3K LCM 15 lb/bbl	SS201 Surfactant 1 gal/bbl		
Lead	ASTM Type I/II	BA90 Bonding Agent 5.0 lb/sx	Bentonite Viscosifier 8% BWOB	FL24 Fluid Loss .5% BWOB	IntegraGuard GW86 Viscosifier .1% BWOB	IntegraSeal Poli LCM .25 lb/sx	FP24 Defoamer 0.3% BWOB, Anti- Static .01 lb/sx R3 Retarder .5% BWOB FP24
Tail	Type G 50%	Pozzolan Fly Ash Extender 50%	BA90 Bonding Agent 3.0 lb/sx	Bentonite Viscosifier 4% BWOB	FL24 Fluid Loss .4% BWOB	IntegraGuard GW86 Viscosifier .1% BWOB	IntegraSeal Poli LCM .25 lb/sx Defoamer .3% BWOB

American Cementing Liner & Production Blend
Notify NMOCD & BLM if cement is not circulated to surface.

Note: This well will not be considered an unorthodox well location as defined by NMAC19.15.16.15.C.5. As defined in NMAC 19.15.16.15.C.1.a and 19.15.16.15.C.1.b, no point in the completed interval shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth well. The boundaries of the completed interval, as defined by NMAC 19.15.16.7.B, are the last take point and first take point, as defined by NMAC 19.15.16.7.E and NMAC 19.15.16.7.J, respectively. In the case of this well, the last take point will be the bottom toe-initiation sleeve, and the first take point will be the top perforation. **Neither the toe-initiation sleeve nor the top perforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured perpendicular to the azimuth of the well.**

FINISH WELL: ND BOP. RDMO Drilling Rig.

Procedure: ND BOP. Walk rig to next well. Cement off-line. Cap well.

COMPLETION AND PRODUCTION PLAN:

Frac: 40 plug-and-perf stages with 360,000 bbls slickwater fluid and 15,000,000 lbs of proppant (estimated)
Flowback: Flow back through production tubing as pressures allow (ESP may be used for load recovery assistance)
Production: Produce through production tubing via gas-lift into permanent production and storage facilities

ESTIMATED START DATES:

Drilling: 7/1/2022
Completion: 8/15/2022
Production: 9/29/2022

Prepared by: Alec Bridge 2/7/2020
Updated by: Alec Bridge 3/31/2022 - updated drilling prog & directional plans for new development plan & current program
Greg Olson 10/17/2022 - updated drilling prog & directional plans for new development plan & current program

WELL NAME: **RODEO UNIT 512H**
OBJECTIVE: **Drill, complete, and equip single lateral in the Mancos-I formation**
API Number: 30-045-35874
State: New Mexico
County: San Juan
Surface Elev.: 6,798 ft ASL (GL) 6,811 ft ASL (KB)
Surface Location: 25-23N-09W Sec-Twn- Rng 191 ft FSL 1,345 ft FWL
BH Location: 6-22N-08W Sec-Twn- Rng 1226 ft FNL 2398 ft FWL
Driving Directions: **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**
South on US Hwy 550 for 37.8 miles to MM 113.4; Right (Southwest) on CR #7890 for 0.8 miles to fork; Left (South) remaining on CR #7890 for 1.3 miles to 4-way intersection; Left (Southeast) remaining on CR #7890 for 0.6 miles to fork; Right (Southwest) on CR #7890 for 1.5 miles to access road; Left on access road for 0.5 mile to Rodeo Unit 511H Pad (three wells planned to be drilled: 511H, 512H, 513H).

QUICK REFERENCE	
Sur TD (MD)	350 ft
Int TD (MD)	2,630 ft
KOP (MD)	4,092 ft
KOP (TVD)	4,084 ft
Target (TVD)	4,626 ft
Curve BUR	10 °/100 ft
POE (MD)	4,823 ft
TD (MD)	13,584 ft
Lat Len (ft)	8,761 ft

WELL CONSTRUCTION SUMMARY:

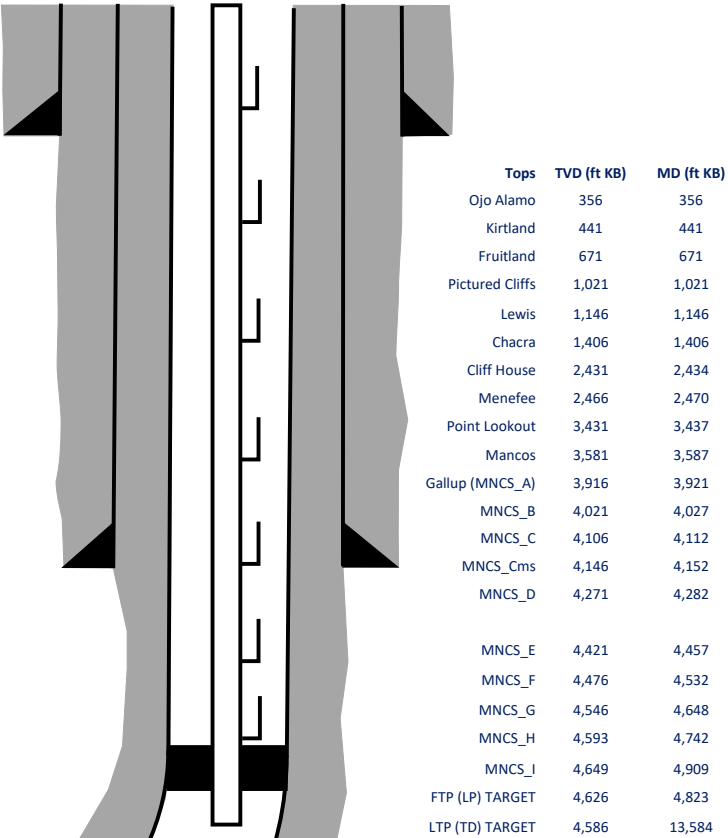
	Hole (in)	TD MD (ft)	Csg (in)	Csg (lb/ft)	Csg (grade)	Csg (conn)	Csg Top (ft)	Csg Bot (ft)
Surface	17.500	350	13.375	54.5	J-55	BTC	0	350
Intermediate	12.250	2,630	9.625	36.0	J-55	LTC	0	2,630
Production	8.500	13,584	5.500	20.0	HCP-110	TCBC-HT	0	13,584

CEMENT PROPERTIES SUMMARY:

	Type	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	Hole Cap. (cuft/ft)	% Excess	TOC (ft MD)	Total (sx)
Surface	TYPE III	14.6	1.39	6.686	0.6946	100%	0	350
Inter. (Lead)	III:POZ Blend	12.5	2.14	12.05	0.3627	70%	0	502
Inter. (Tail)	Type III	14.6	1.37	6.63	0.3132	20%	2,130	137
Prod. (Lead)	Type I / II	12.4	2.360	13.40	0.2691	65%	0	575
Prod. (Tail)	G:POZ blend	13.3	1.560	7.70	0.2291	10%	3,587	1,615

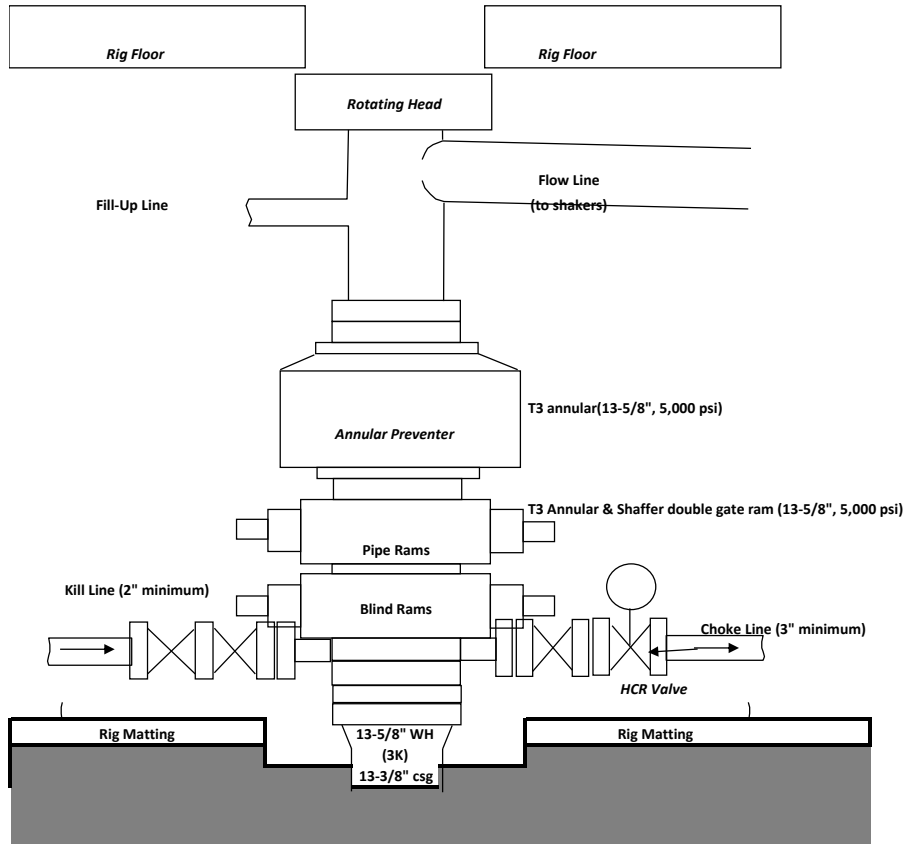
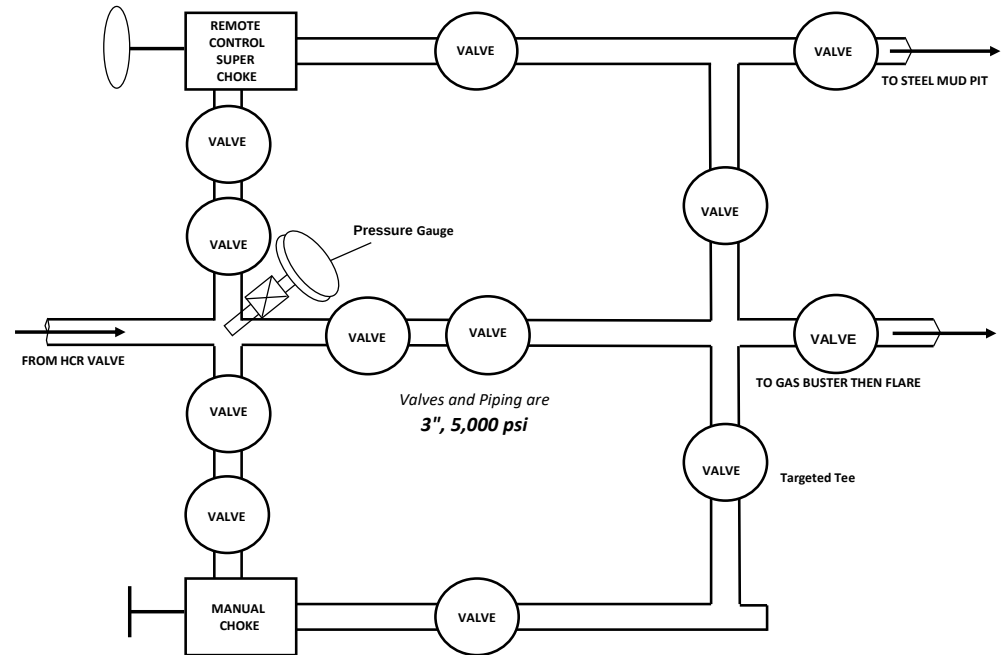
COMPLETION / PRODUCTION SUMMARY:

Frac: 40 plug-and-perf stages with 360,000 bbls slickwater fluid and 15,000,000 lbs of proppant (estimated)
Flowback: Flow back through production tubing as pressures allow (ESP may be used for load recovery assistance)
Production: Produce through production tubing via gas-lift into permanent production and storage facilities



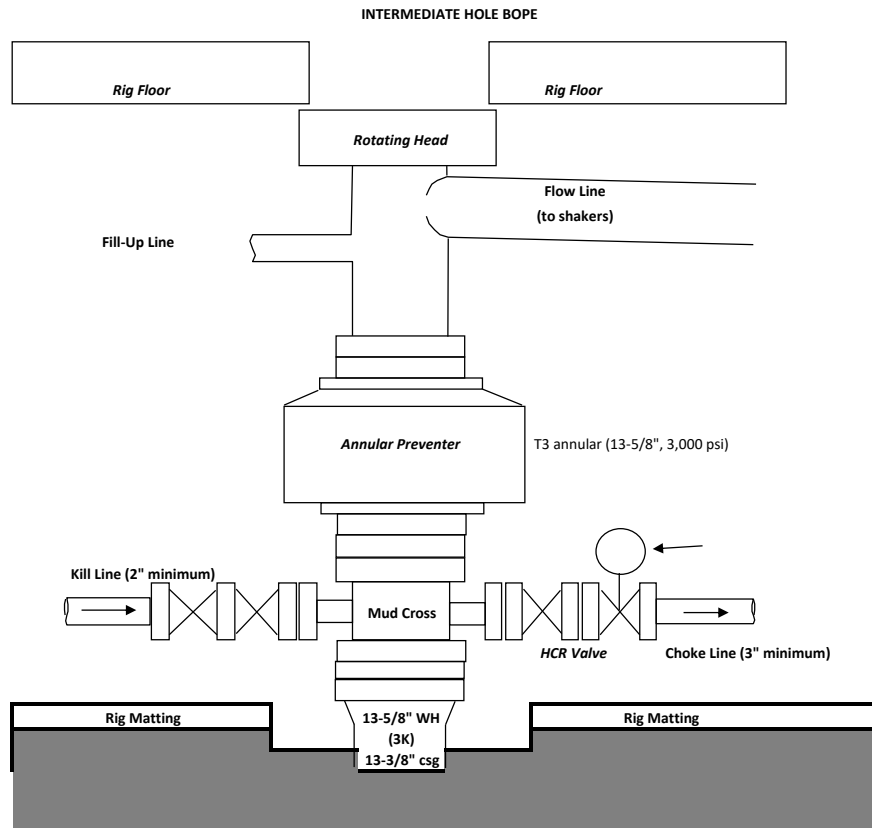
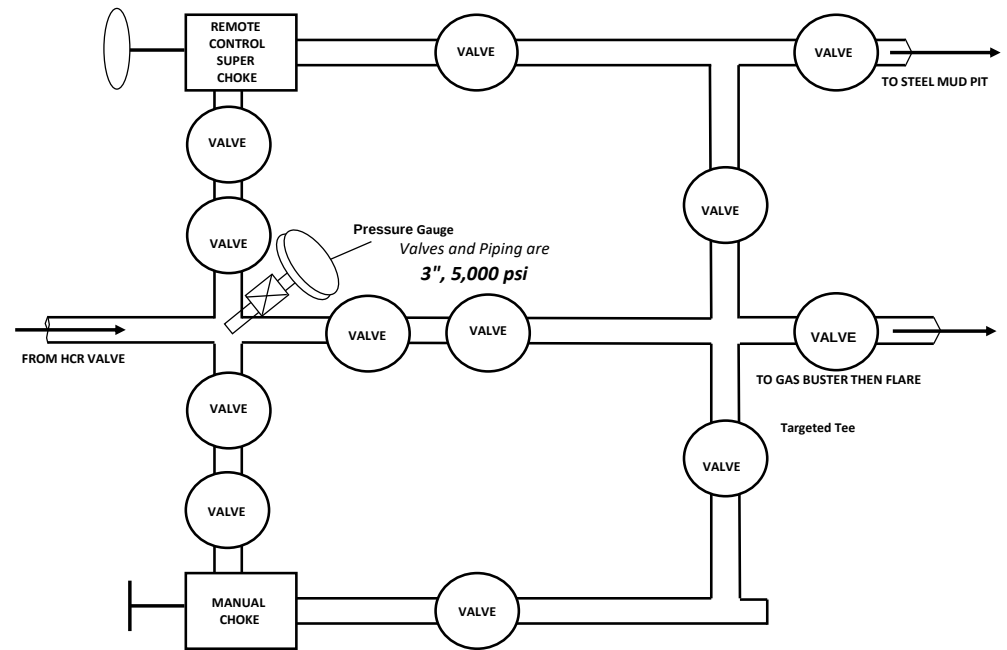
BOPE & CHOKE MANIFOLD DIAGRAMS

NOTE: EXACT BOPE AND CHOKE CONFIGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.

BOPE**CHOKE MANIFOLD**

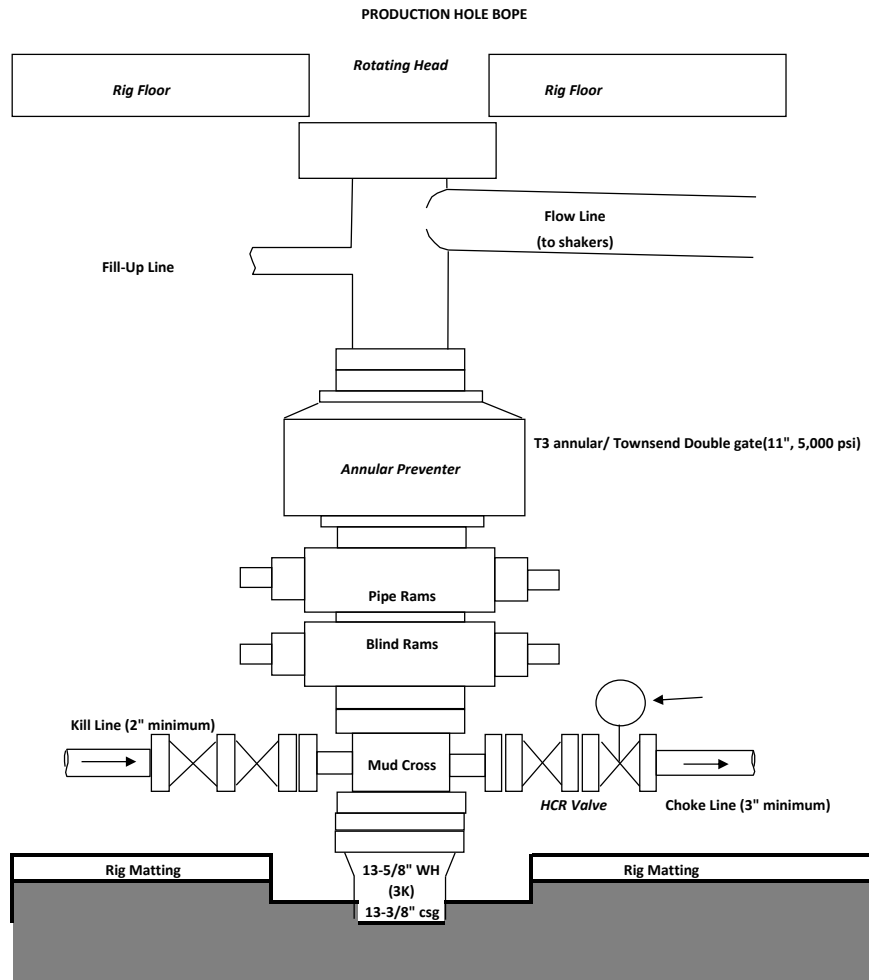
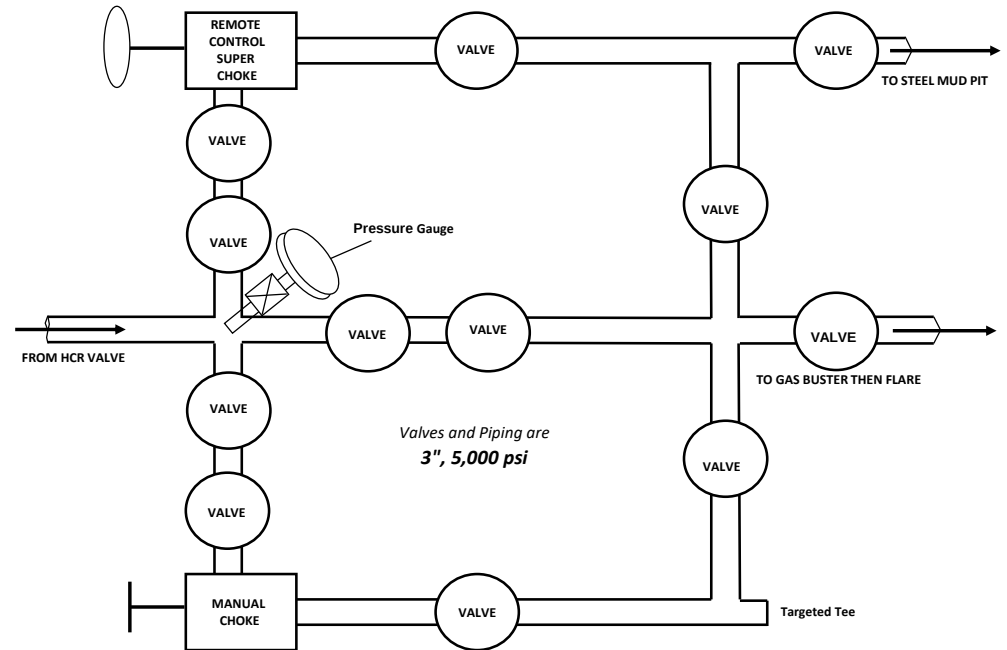
ALTERNATE, INTERMEDIATE HOLE ONLY, BOPE & CHOKE MANIFOLD DIAGRAMS

NOTE: EXACT BOPE AND CHOKE CONFIGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 2,000 PSI MINIMUM. THIS BOPE SETUP IS AN ALTERNATE ONLY, DESIGNED FOR ANY POSSIBLE FUTURE DRILLING RIG WITH SUBSTRUCTURE HEIGHT THAT IS TOO SHORT TO ACCOMADATE A FULL 13-5/8" 3,000 PSI BOP STACK

BOPE**CHOKE MANIFOLD**

ALTERNATE, PRODUCTION HOLE ONLY, BOPE & CHOKE MANIFOLD DIAGRAMS

NOTE: EXACT BOPE AND CHOKE CONFIGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM. THIS BOPE SETUP IS AN ALTERNATE ONLY, DESIGNED FOR ANY POSSIBLE FUTURE DRILLING RIG WITH SUBSTRUCTURE HEIGHT THAT IS TOO SHORT TO ACCOMADATE A FULL 13-5/8" 3,000 PSI BOP STACK

BOPE**CHOKE MANIFOLD**

WELL NAME: RODEO UNIT 512H
API NUMBER: 30-045-35874
AFE NUMBER: DVO3088
ER WELL NUMBER: NM08212.01
WELL LOCATION: 191 ft FSL & 1345 ft FWL 25-23N-09W
AFE SUMMARY: Drill, complete, and equip single lateral in the Mancos-I formation
TD (FT MD): 13,584
LAT LEN (FT MD): 8,761

DRILLING SUMMARY

Drill Surface: *Mo-Te will pre-drill surface hole*
Prep hole for casing, run 13-3/8" casing, cement casing: Mo-Te will pre-set surface casing
MIRU Drilling Rig to pad (mob rate)
Walk Rig, NU BOPE, TIH w/BHA (operating rate)
Drill Intmerediate to casing point (into Menefee)
Prep hole for casing, run 9-5/8" casing, cement casing, walk rig for production section, NU BOPE, PU BHA & TIH
Drill to KOP
Drill Curve to landing point
Drill lateral to TD
Prep hole for casing, run 5-1/2" casing, cement casing

NEW WELLS: 5
EXISTING WELLS: 0
STAGE LENGTH: 235
STAGES: 38

	Sec. Days	Cum. Drig. Days	Ttl. Dep. (ft MD)	Sec. Ftg. (ft MD)	Avg. ROP (ft/day)
Drill Surface:	0.50	0.50	350	350	700
Surface Casing:	0.50	1.00	350	N/A	N/A
MIRU:	0.00	0.00	300	N/A	N/A
Test & PU BHA:	0.75	0.00	350	N/A	N/A
Drill Intermediate:	0.75	0.75	2,630	2280	3040
Inter. Casing:	1.50	2.25	2,630	N/A	N/A
Drill Veritcal:	0.50	2.75	4,092	1462	2924
Drill Curve:	0.75	3.50	4,823	731	975
Drill Lateral:	1.75	5.25	13,584	8761	5006
Prod Casing:	1.50	6.75	13,584	N/A	N/A
DO SURF TO RR:		6.75			
TOTAL BIG RIG DAYS:		7.50		(Total Operating Rate Days)	
TOTAL BIG RIG DAYS:		7.50		(Total Days Operating + Mobilization)	

795H is first well on pad

CODE 1	CODE 2	COST DESCRIPTION & DETAILS	RATE & QUANTITY DETAILS						ITEM	CODE
			Rate	units	Count	desc.	Count	desc.	SUBTOTAL	TOTAL
830	10	IDC - PERMITS & SURVEYS								\$58,500
		Permits w/BLM & NMOCD	\$10,000	\$/ea	1	ea			\$10,000	
		Air Quality Management Services	\$4,000	\$/ea	1	ea			\$4,000	
		NEPA Services	\$3,000	\$/ea	1	ea			\$3,000	
		Archaeology	\$1,500	\$/ea	1	ea			\$1,500	
		Survey & Mapping	\$20,000	\$/ea	1	ea			\$20,000	
		ROW & SUA	\$20,000	\$/ea	1	ea			\$20,000	
830	15	IDC - CONDUCTOR/RAT/MOUSE HOLE								\$9,000
		install cellar w/Adobe (8' diameter x 8' deep & backfilled to no more than 6' deep after WH is installed)	\$5,000	\$/ea	1	ea			\$5,000	
		Drill Mousehole w/MOTE	\$4,000	\$/ea	1	ea			\$4,000	
830	20	IDC - DRILLING TITLE OPINION								\$0
		N/A							\$0	
830	30	IDC - LOCATION AND ROADS								\$45,000
		Build pad & access road (\$150,000 pad total, split evenly between CTB & D&C AFEs)	\$75,000	\$/pad	3	wells			\$25,000	
		Interim reclamation	\$60,000	\$/pad	3	wells			\$20,000	
830	50	IDC - RIG MOBILIZATION								\$98,400
		mobilize rig from W Lybrook Unit 726H Pad	\$200,000	\$/mob	1	mob	3	wells	\$66,667	
		mobilize other rig equipment (camps, solids control, drill pipe, etc.)	\$95,000	\$/mob	1	mob	3	wells	\$31,667	
830	60	IDC - DAYRATE DRILLING								\$228,600
		Ensign 145 (mobilization rate - 85% op rate)	\$17,850	\$/day	2.0	days			\$35,700	
		Ensign 145 (operating - \$18,600/day + \$2400/day 6th man)	\$21,000	\$/day	7.50	days			\$157,500	
		Ensign 145 (crew per diem - \$35/day + tax)	\$35	\$/day/man	7.50	days	13	men	\$3,413	
		Ensign Edge drilling software (\$600/day - used + tax)	\$600	\$/day	7.50	days			\$4,500	
		Forklift + Manlift (\$380/day + tax)	\$380	\$/day	7.50	days			\$2,850	
		Ensign 145 (OBM pay) = \$400/day + \$35/day/man, 8.5 section only	\$35	\$/day/man	4.50	days	13	men	\$4,005	
		drill pipe credit	\$0	\$/day	7.50	days			\$0	
		Boiler (winter only)	\$750	\$/day	7.50	days			\$5,625	
830	65	IDC - FISHING SERVICES								\$0
		N/A							\$0	
830	70	IDC - FOOTAGE DRILLING								\$28,000
		Mo-Te to drill surface hole & set surface casing	\$28,000	\$/ea	1	ea			\$28,000	
830	75	IDC - DIRECTIONAL SERVICES								\$122,500
		MWD & DD operating charges: including motor rentals	\$11,000	\$/day	7.50	days			\$82,500	
		MWD & DD operating charges: standby	\$5,000	\$/day	1.0	day			\$5,000	
		Other charges: trucking, inspections, battery disposal, motor inspections / relines, well planning, etc	\$35,000	\$/ea	1	ea			\$35,000	
830	90	IDC - BITS								\$25,000
		12-1/4" bit rental	\$12,500	\$/ea	1	ea			\$12,500	
		8-1/2" bit rental	\$12,500	\$/ea	1	ea			\$12,500	
830	92	IDC - MOTORS/AGITATORS								\$20,000
		third party motor rentals	\$15,000	\$/run	0	runs			\$0	
		motor re-lines & inspections	\$6,000	\$/ea	0	ea			\$0	
		agitator rentals & inspection	\$20,000	\$/ea	1	ea			\$20,000	
830	95	IDC - BRINE MUD, CHEM & TRUCK								\$14,000
		20% KCl base fluid + trucking	\$40.00	\$/bbl	350	bbls			\$14,000	
830	100	IDC - MUD & CHEMICALS								\$28,200
		engineer	\$5,000	\$/day	3.00	days			\$15,000	
		mud products	\$5	\$/ft	2630	days			\$13,150	
830	105	IDC - OILBASE MUD, CHEM & TRUCKING								\$129,100
		mud products (not including lubricant) & mud engineer	\$8,000	\$/day	4.25	days			\$34,000	
		add'l chem usage	\$6.00	\$/ft	3,792	ft			\$22,752	
		diesel make up for OBM	1.50	gal/ lat ft	8761	ft	\$5.50	gal	\$72,278	
830	106	IDC - MUD HANDLING EQUIP RENTAL								\$45,400
		solids control package & mud storage (equipment, personnel, materials)	\$4,200	\$/day	7.50	days			\$31,500	
		mud storage tanks & cuttings bins	\$1,500	\$/day	7.50	days			\$11,250	
		solids control loader	\$350	\$/day	7.50	days			\$2,625	
830	110	IDC - FUEL & POWER								\$165,000
		Rig Diesel (operating)	\$5.50	\$/gal	3,500	gal/day	7.50	days	\$144,375	
		Boiler diesel	\$5.50	\$/day	500	gal/day	7.50	days	\$20,625	
		Rig Diesel (mobilization)	\$5.50	\$/gal	1,000	gal	0.0	days	\$0	
830	120	IDC - RIG WATER								\$34,000
		Water for cement jobs & rig (including trucking)	\$5.00	\$/bbl	0.50	bbls/ft	13584.0	ft	\$33,960	
830	121	IDC - WATER FOR DRILLING FLUIDS								\$0
		all charged to 830.120							\$0	
830	130	IDC - CEMENT & CEMENT SERVICES								\$207,600
		13-3/8" casing cement job	\$36,000	\$/job					\$36,000	
		9-5/8" casing cement job	\$50,000	\$/job					\$50,000	
		5-1/2" casing cement job	\$40,000	\$/job	\$6.00	\$/ft	13,584	ft	\$121,504	
830	135	IDC - CASING CREW/SERVICES								\$56,800
		Run 13-3/8" casing	\$4,500	\$/job	1	job			\$4,500	
		Rack, clean, drift 9-5/8" casing	\$1.50	\$/ft	2,630	ft			\$3,945	
		Run 9-5/8" casing + CRT rental	\$2.50	\$/ft	2,630	ft			\$6,575	
		9-5/8" CRT	\$6,000	\$/job	1	job			\$6,000	
		Rack, clean, drift 5-1/2" casing	\$0.50	\$/ft	13,584	ft			\$6,792	
		Run 5-1/2" casing	\$1.25	\$/ft	13,584	ft			\$16,980	
		5-1/2" CRT & Torque Turn	\$12,000	\$/job	1	job			\$12,000	
830	140	IDC - OPEN HOLE LOGS								\$0
		N/A							\$0	
830	160	IDC - CORING								\$0
		N/A							\$0	
830	165	IDC - WELDING								\$0
		N/A							\$0	
830	180	IDC - RENTAL EQUIPMENT								\$28,500
		misc surface rentals (pipe racks, light towers, flare stack, etc.)	\$1,500	\$/day	7.50	days			\$11,250	
		Loader	\$300	\$/day	7.50	days			\$2,250	
		BOPE	\$900	\$/day	7.50	days			\$6,750	
		Pason PVT equipment	\$1,100	\$/day	7.50	days			\$8,250	
830	181	IDC - DRILL STRING RENTAL								\$31,100
		5" HWDP Drill-pipe (intermediate section only)	\$350	\$/day	3.0	days			\$1,050	
		5" Drill-Pipe rental	\$2,000	\$/day	7.50	days			\$15,000	

		Inspection / repair / recut (DP rental included in rig's day rate)	\$15,000	\$/well	1	well		\$15,000	
830	183	IDC - BOPE RENTALS							\$3,800
		Rotating Head Rental + rubbers	\$150	\$/day	7.50	days	\$1,500	\$/well	\$2,625
		Choke & flare	\$150	\$/day	7.50	days			\$1,125
830	190	IDC - TRANSPORTATION							\$10,000
		misc. transporation & hot shot							\$5,000
		transport rig camp, drill pipe, mud handling equipment							\$5,000
830	200	IDC - COMMUNICATIONS							\$2,400
		internet for rig	\$150	\$/day	7.5	days			\$1,125
		hand-held radios, phones, printer/scanner/fax	\$170	\$/day	7.5	days			\$1,275
830	210	IDC - CONTRACT LABOR							\$41,700
		drilling consultant	\$1,850	\$/ea/day	7.50	days	2	ea.	\$27,750
		drilling superintendent	\$1,850	\$/ea/day	7.50	days	1	ea.	\$13,875
830	215	IDC - CREW QUARTERS							\$9,400
		trailer houses (includes servicing) for on-site personnel	\$1,250	\$/day/ea	7.50	days			\$9,375
830	220	IDC - CONSULTING ENGINEER							\$0
		Moblize Drilling Analytics	\$0	\$/day/ea	7.50	days			\$0
830	230	IDC - CONSULTING GEOLOGIST							\$1,800
		TD Geo Steering	\$600	\$/day/ea	3.00	days			\$1,800
830	260	IDC - MISCELLANEOUS							\$20,000
		pit cleaning, other misc services							\$20,000
830	270	IDC - PLUGGING & ABANDONMENT							\$0
		N/A							\$0
830	280	IDC - SURFACE DAMAGES							\$0
		N/A							\$0
830	310	IDC - LAYDOWN MACHINE							\$0
		N/A							\$0
830	320	IDC - NU/ND/BOP TEST/WH SERV.							\$20,000
		BOP test	\$5,000	\$/test	2	tests			\$10,000
		Service tech to land 9-5/8" and 5-1/2" casings	\$5,000	\$/job	2	jobs			\$10,000
830	330	IDC - GYRO							\$0

N/A									\$0	
830	480	IDC - CUTTINGS DISPOSAL								\$68,100
		dispose of cuttings (including dillution of high chlorides & OBM Charges)	\$20.00	\$/yd	650	yds			\$13,009	
		trucking & truck clean outs	\$1,250	\$/load	44	loads			\$55,000	
830	481	IDC - LIQUIDS DISPOSAL								\$16,300
		dispose of fluids (including dillution of high chlorides)	\$20.00	\$/bbl	500	bbls			\$10,000	
		trucking & truck clean outs	\$1,250	\$/load	5	loads			\$6,250	
830	482	IDC - OTHER DISPOSAL								\$12,300
		dispose of cement returns	\$14.00	\$/bbl	250	bbls			\$3,500	
			\$1,250	\$/load	3	loads			\$3,750	
		Other misc disposal (trash, etc.)							\$5,000	
830	290	IDC - CONTINGENCIES								\$0
		0%							\$0	
830 INTANGIBLE DRILLING COSTS TOTAL										\$1,580,500
850	10	TDC - CONDUCTOR PIPE								\$0
		none							\$0	
850	20	TDC - SURFACE CASING								\$30,900
		13-3/8", 54.5#, J55, STC casing	\$82.00	\$/ft	350	ft			\$28,700	
850	25	TDC - INTERMEDIATE CASING								\$149,900
		9-5/8", 36.0#, J-55, LTC casing	\$53.00	\$/ft	2,630	ft			\$139,390	
850	30	TDC - LINERS								\$0
		N/A							\$0	
850	40	TDC - PRODUCTION CASING								\$633,500
		5-1/2", 20.0#, P110, GB CD	\$43.00	\$/ft	13,584	ft			\$584,112	
		marker jts	\$780.00	\$/ea	6.0	ea			\$5,101	
850	50	TDC - CASING HEADS & SPOOLS								\$65,000
		13-3/8" x 9-5/8" x 5-1/2" (Antelope Uni-Head assembly)	\$65,000	\$/ea	1	ea			\$65,000	
850	60	TDC - LINERS & HANGERS								\$0
		N/A							\$0	
850	90	TDC - MISCELLANEOUS EQUIPMENT								\$0
		N/A							\$0	
850	100	TDC - FLOAT EQUIPMENT								\$50,700
		13-3/8" float equipment	\$3,000	\$/ea	1	ea			\$3,000	
		13-3/8" centralizers (average 1 per jt)	\$65	\$/ea	8	ea			\$520	
		9-5/8" float equipment	\$1,500	\$/ea	1	ea			\$1,500	
		9-5/8" centralizers (average 1 per jt)	\$50	\$/ea	60	ea			\$3,000	
		5-1/2" centralizers (average 1 per jt)	\$40	\$/ea	310	ea			\$12,400	
		5-1/2" toe-initiation sleeve	\$10,000	\$/ea	1	ea			\$10,000	
		5-1/2" float equipment	\$5,200	\$/ea	1	ea			\$5,200	
		5-1/2" casing floatation sub	\$10,000	\$/ea	1	ea			\$10,000	
		service tech for toe sleeves & floatation sub	\$5,000	\$/ea	1	ea			\$5,000	
850	13	TDC - CONTINGENCIES								\$0
		0%							\$0	
850 TANGIBLE DRILLING COSTS TOTAL										\$930,000
840	30	ICC - LOCATION & ROADS								\$7,000
	1	Traffic control duiring frac operations + 3 days	\$1,000	\$/day	7	days			\$7,000	
840	50	ICC - RIG MOBILIZATION								\$16,000
		mob running production	\$4,000	\$/mob	1	mob			\$4,000	
		AD 980 mobilization	\$60,000	\$/day	1	mob	5	wells	\$12,000	
840	55	ICC - COMPLETION RIG								\$133,500
		Run production (well Service Rig)	\$4,500	\$/day	1	days			\$4,500	
		Drill out plugs (AD 980) 15 plugs / day + 2 days (\$14K/day + ancillary charges)	\$18,000	\$/day	5	days			\$90,000	
		Drill out (AD 980), mob time (3 days first/last well, 1 day middle wells)	\$13,000	\$/day	3	days			\$39,000	
840	70	ICC - FISHING SERVICES								\$0
		none							\$0	
840	90	ICC - TANK RENTAL								\$31,900
	1	mob and de-mob frac tanks	\$25,000	\$/pad	5	wells			\$5,000	
	1	AST trucking, install, rental (rental per tank per pad)	\$60,000	\$/tank	2	tanks	5	wells	\$24,000	
	0.5	tank rental during pre frac, frac, drill-out (7 days between frac & drill-out)	\$500	\$/day	29.0	days	5	wells	\$2,900	
840	100	ICC - WIRELINE SERVICES								\$159,600
	1	perforate & set frac plugs	\$4,200	\$/stage	38	stages			\$159,600	
840	110	ICC - FUEL & POWER								\$239,200
		Diesel fuel for AD 980	\$3.50	\$/gal	2,000	gal/day	8	days	\$56,000	
	1	Diesel fuel for frac spread (8,000 gal/day)	\$3.50	\$/gal	8,000	gal/day	4	days	\$112,000	
		Diesel for camp equipment	\$3.50	\$/gal	300	gal/day	52	days	\$54,600	
	1	frac shack fuel distribution	\$4,150	\$/day	4	days			\$16,600	
840	120	ICC - WATER/HAULING								\$1,044,000
	1	Water for frac (frac pond)	\$2.52	\$/bbl	9,000	bbl/stage	38	stages	\$861,840	
	1	Water transfer pre-frac (equipment, pumps, line)	\$15,000	\$/day	10	days/pad	5	wells/pad	\$30,000	
	1	Vac truck rental on pad (during frac)	\$2,650	\$/day	4	days/pad			\$10,600	
	1	Water transfer during frac (equipment, pumps, line)	\$23,000	\$/day	10	staq/day	4	days*	\$92,000	
	1	Water transfer during flowback (equipment, pumps, line)	\$15,000	\$/day	14	days	5	wells/pad	\$42,000	
		Water for drill-outs (frac pond / WSW)	\$2.52	\$/bbl	1,000	bbls/well	1	well	\$2,520	
	1	Fresh water for testing lay-flat (includes trucking)	\$5.00	\$/bbl	5,000	bbls	5	wells/pad	\$5,000	
840	150	ICC - DIRT WORK								\$0
		none							\$0	
840	160	ICC - WELDING								\$0
		none							\$0	
840	170	ICC - FIELD SUPERVISOR								\$87,000
	1	well site supervisor (pre-frac)	\$1,850	\$/day	2	ea.	3	days	\$11,100	
	1	well site supervisor (frac)	\$1,850	\$/day	4	ea.	4	days	\$29,600	
		well-site supervisor consultant & superintendent (drill-out)	\$1,850	\$/day	3	ea.	8	days	\$44,400	
		well-site supervisor (run production)	\$1,850	\$/day	1	ea.	1	days	\$1,850	
840	180	ICC - RENTAL EQUIPMENT								\$161,400
		Motors, bits, tools, personnel for cleanout BHA (daily rental)	\$2,500	\$/day	5	days			\$12,500	
		Motors, bits, tools, personnel for cleanout BHA (repair, redress, mileage, other one-time charges)	\$15,000	\$/well	1	well			\$15,000	
		Agitator Rental	\$18,000	\$/ea	0	ea			\$0	
		HZT pipe rental	\$3,500	\$/day	5	days			\$17,500	
		solids control equipment, tanks, & transfer pumps during drillout	\$3,000	\$/day	8	days			\$24,000	
		Other misc rentals for drill-out ops (light plants, BOPE, containment, loader, Pason EDR, valves, etc.)	\$5,500	\$/day	8	days			\$44,000	
	1	Other rentals for frac, water transfer, flowback ops (light towers, forklift, porta-potty, etc.)	\$5,500	\$/day	44	days	5	wells/pad	\$48,400	
840	181	ICC - FRAC HD RENTALS & SERVICE								\$81,000
	1	Frac head, valve, zipper manifold, greasing (frac + 3 days)	\$16,500	\$/day	4	days			\$66,000	
	1	Frac head, valve, zipper manifold - Repairs & damages	\$15,000	\$/well	1	well			\$15,000	
840	184	ICC - FOAM/NITROGEN UNITS								\$0
		None							\$0	
840	185	ICC - RENTAL PUMP EQUIPMENT								\$0
		None							\$0	
840	190	ICC - TRANSPORTATION								\$0
		None - use 840.420							\$0	
840	200	ICC - COMMUNICATION								\$2,100
	0.33	Internet and communications	\$200	\$/day	52	days	5	wells/pad	\$2,080	
840	210	ICC - CONTRACT LABOR								\$26,300
	1	Operate Transfer Pumps & Monitor Lay-Flat (pre-frac & frac & post frac)	\$2,000	\$/day	44	days	5	wells/pad	\$17,600	
		WH Techs for landing tbq hangers	\$1,200	\$/job	1	job			\$1,200	
		Misc. labor for wellhead hook-ups, etc	\$7,500	\$/job	1	job			\$7,500	
840	215	ICC - CREW QUARTERS								\$7,800
	0.33	Housing & Offices	\$750	\$/day	52	days	5	wells/pad	\$7,800	
840	260	ICC - MISCELLANEOUS								\$0
		None							\$0	
840	310	ICC - CTU / SWAB UNIT								\$0
	1	None							\$0	

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

CONDITIONS

Action 180355

CONDITIONS

Operator: ENDURING RESOURCES, LLC 6300 S Syracuse Way, Suite 525 Centennial, CO 80111	OGRID: 372286
	Action Number: 180355
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Adhere to previous NMOCD Conditions of Approval	1/27/2023