

Well Name: W LYBROOK UNIT	Well Location: T23N / R9W / SEC 27 / NENW / 36.201957 / -107.7768	County or Parish/State: SAN JUAN / NM
Well Number: 830H	Type of Well: OIL WELL	Allottee or Tribe Name: WESTERN NAVAJO
Lease Number: NMNM118731	Unit or CA Name:	Unit or CA Number: NMNM135216A
US Well Number: 3004535814	Well Status: Approved Application for Permit to Drill	Operator: ENDURING RESOURCES LLC

Notice of Intent

Sundry ID: 2644147

Type of Submission: Notice of Intent	Type of Action: Drilling Operations
Date Sundry Submitted: 11/12/2021	Time Sundry Submitted: 03:21
Date proposed operation will begin: 12/01/2021	

Procedure Description: Enduring Resources requests to change the BHL of the W LYBROOK UNIT 830H well per attached updated: C-102 OPS Plan Directional Plan Wellbore Diagram Previously approved BHL: 1,595' FNL & 2,308' FEL - Section 21, T23N, R9W Proposed BHL: 223' FNL & 2,587' FWL - Section 21, T23N, R9W

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

- Procedure Description
- Enduring_W_Lybrook_Unit_No._830H_rev0__11914__20211118074657.pdf
 - W_LYBROOK_UNIT_830H_C_102_Plat_20211026_20211112151239.pdf
 - WLU_830H_WBD_11082021_20211112151148.pdf
 - WLU_830H_Drilling_Prog_11082021_20211112151104.pdf

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US Well Number: 3004535814	Well Status: Approved Application for Permit to Drill	Operator: ENDURING RESOURCES LLC

Operator Certification

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 submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: KHEM SUTHIWAN	Signed on: NOV 18, 2021 07:47 AM
Name: ENDURING RESOURCES LLC	
Title: Project Regulatory Specialist	
Street Address: 6400 W 60TH AVE	
City: ARVADA	State: CO
Phone: (303) 962-5508	
Email address: KHEM.SUTHIWAN@WSP.COM	

Field Representative

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5055647742	BLM POC Email Address: krennick@blm.gov
Disposition: Approved	Disposition Date: 11/18/2021
Signature: Kenneth Rennick	

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

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

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number		*Pool Code	*Pool Name
		98157	LYBROOK MANCOS W
*Property Code	*Property Name		*Well Number
321259	W LYBROOK UNIT		830H
*GRID No.	*Operator Name		*Elevation
372286	ENDURING RESOURCES, LLC		6641'

10 Surface Location

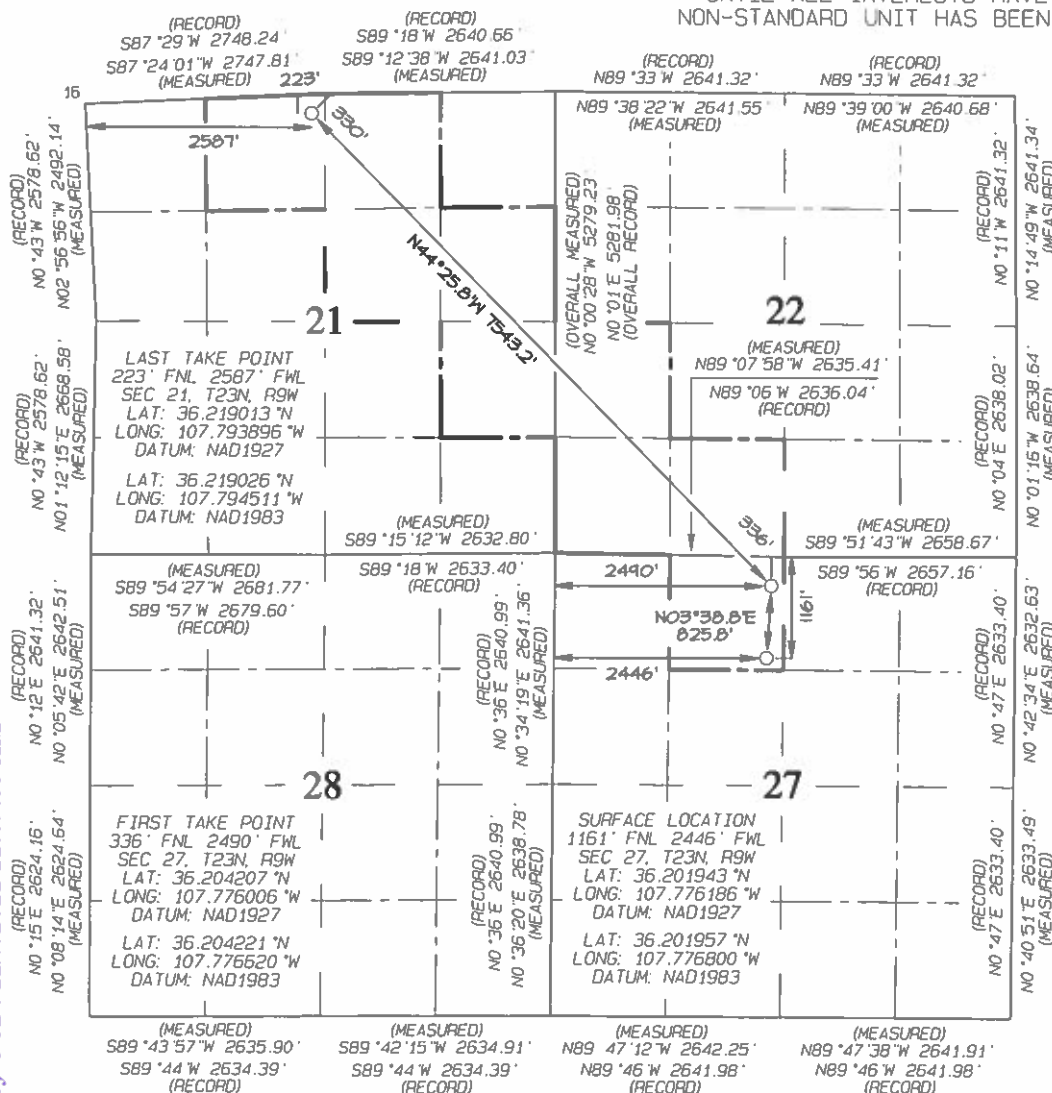
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	27	23N	9W		1161	NORTH	2446	WEST	SAN JUAN

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	21	23N	9W		223	NORTH	2587	WEST	SAN JUAN

12 Dedicated Acres		13 Joint or Infill	14 Consolidation Code	15 Order No.
360.00 NE/4 NW/4 - Section 27 NE/4 NW/4, W/2 NE/4 SE/4 NE/4, NE/4 SE/4 - Section 21 W/2 SW/4, SE/4 SW/4 - Section 22				R-14051 - 12,807.24 Acres

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.

Signature: *Khem Suthiwan* Date: 11/8/21
Printed Name: Khem Suthiwan
E-mail Address: khem.suthiwan@wsp.com

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: OCTOBER 26, 2021
Date of Survey: MARCH 10, 2016

Signature and Seal of Professional Surveyor



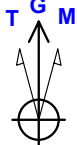
JASON C. EDWARDS
Certificate Number 15269



Well: W Lybrook Unit No. 830H
Site: W Lybrook Unit
Project: San Juan County, New Mexico NAD83 NM W
Design: rev0
Rig:

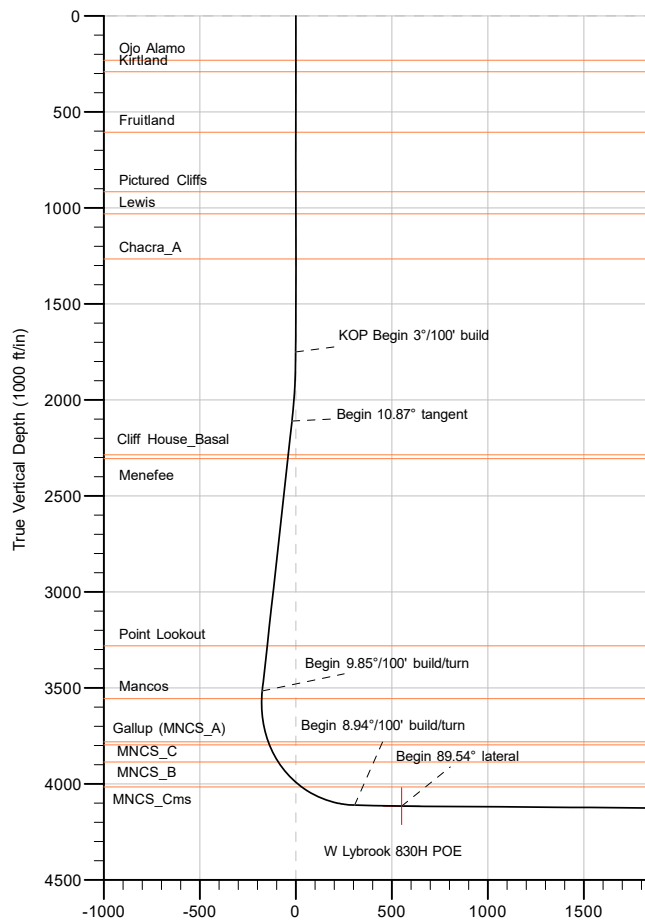
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Depth Reference: RKB=6641+25 @ 6666.00ft
Northing: 1892814.692 Easting: 2739770.775 Latitude: 36.201957000 Longitude: -107.776800000

Total Corr (M=>G): To convert a Magnetic Direction to a Grid Direction, Add 8.727°



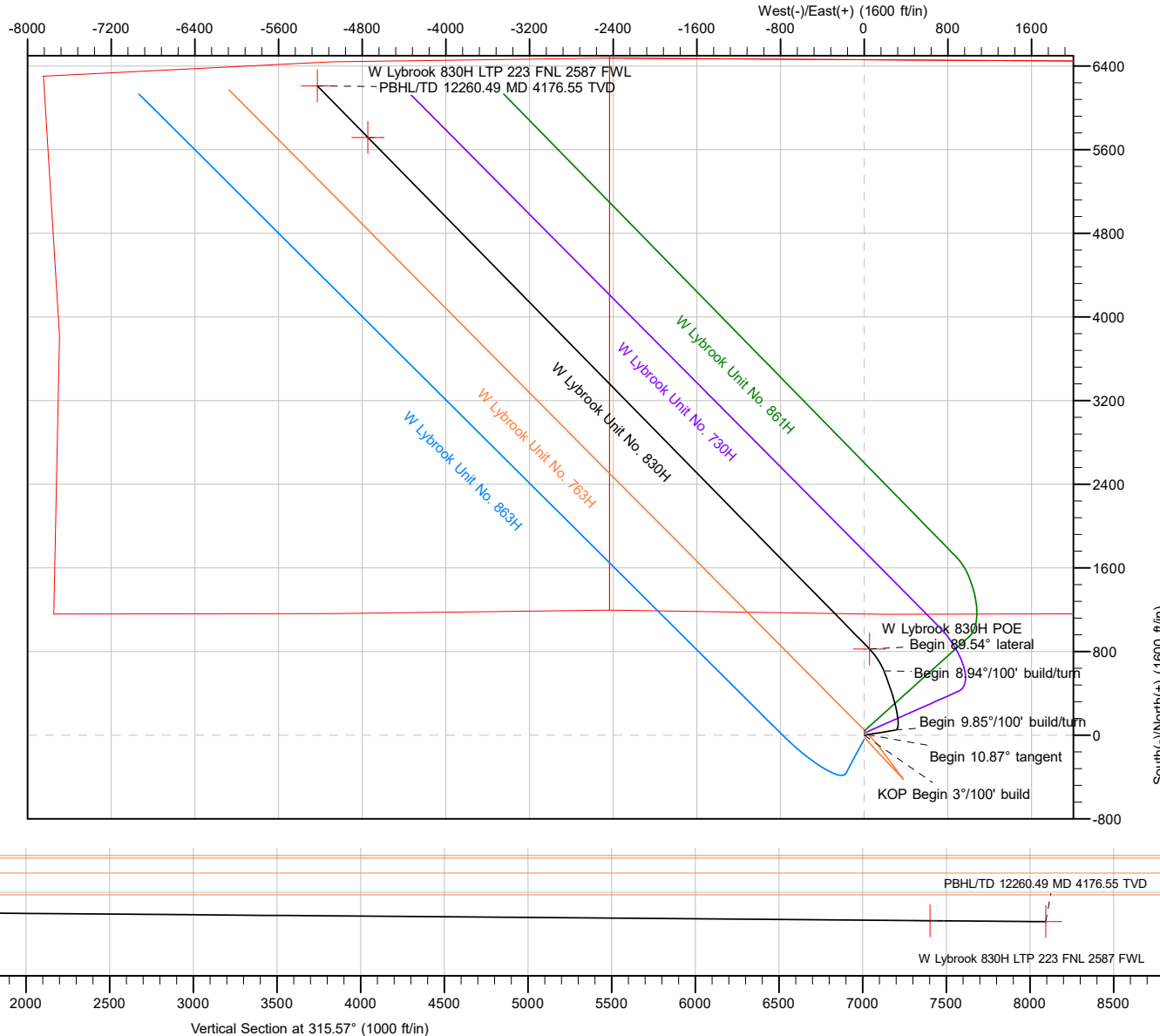
Azimuths to Grid North
True North: -0.03°
Magnetic North: 8.73°

Magnetic Field
Strength: 49258.1nT
Dip Angle: 62.82°
Date: 11/11/2021
Model: IGRF2015



Section Details										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	1750.00	0.00	0.00	1750.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 3°/100' build
3	2112.22	10.87	80.54	2110.05	5.63	33.78	3.00	80.538	-19.63	Begin 10.87° tangent
4	3543.84	10.87	80.54	3516.00	50.00	300.00	0.00	0.000	-174.31	Begin 9.85°/100' build/turn
5	4464.87	88.36	338.08	4111.32	614.50	189.72	9.85	-102.544	306.01	Begin 8.94°/100' build/turn
6	4717.05	89.54	315.57	4116.00	824.18	52.63	8.94	-87.252	551.71	Begin 89.54° lateral
7	11569.54	89.54	315.57	4171.00	5717.51	-4744.13	0.00	0.000	7403.98	
8	12260.49	89.54	315.57	4176.55	6210.91	-5227.80	0.00	0.000	8094.90	PBHL/TD 12260.49 MD 4176.55 TVD

DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude
W Lybrook 830H POE	4116.00	824.18	52.63	1893638.870	2739823.400	36.204221015
W Lybrook 830H BHL	4171.00	5717.50	-4744.14	1898532.180	2735026.640	36.217670014
W Lybrook 830H LTP 223 FNL 2587 FWL	4176.55	6210.91	-5227.80	1899025.590	2734542.986	36.219026000





Planning Report

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	W Lybrook Unit				
Site Position:		Northing:	1,897,416.802 usft	Latitude:	36.214585000
From:	Lat/Long	Easting:	2,747,156.265 usft	Longitude:	-107.751754000
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	W Lybrook Unit No. 830H, Surf loc: 1161 FNL 2446 FWL Section 27-T23N-R09W					
Well Position	+N/-S	0.00 ft	Northing:	1,892,814.692 usft	Latitude:	36.201957000
	+E/-W	0.00 ft	Easting:	2,739,770.775 usft	Longitude:	-107.776800000
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,641.00 ft
Grid Convergence:		0.033 °				

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/11/2021	8.760	62.824	49,258.06216240

Design	rev0				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	315.57	

Plan Survey Tool Program	Date	11/11/2021			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	12,260.49	rev0 (Original Hole)	MWD	
				OWSG MWD - Standard	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,750.00	0.00	0.00	1,750.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,112.22	10.87	80.54	2,110.05	5.63	33.78	3.00	3.00	22.23	80.538	
3,543.84	10.87	80.54	3,516.00	50.00	300.00	0.00	0.00	0.00	0.000	
4,464.87	88.36	338.08	4,111.32	614.50	189.72	9.85	8.41	-11.12	-102.544	
4,717.05	89.54	315.57	4,116.00	824.18	52.63	8.94	0.47	-8.93	-87.252	W Lybrook 830H POE
11,569.54	89.54	315.57	4,171.00	5,717.51	-4,744.13	0.00	0.00	0.00	0.000	W Lybrook 830H BHL
12,260.49	89.54	315.57	4,176.55	6,210.91	-5,227.80	0.00	0.00	0.00	0.000	W Lybrook 830H LTP



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Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
231.00	0.00	0.00	231.00	0.00	0.00	0.00	0.00	0.00	0.00
Ojo Alamo									
291.00	0.00	0.00	291.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirtland									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8" Csg									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
606.00	0.00	0.00	606.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruitland									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
916.00	0.00	0.00	916.00	0.00	0.00	0.00	0.00	0.00	0.00
Pictured Cliffs									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,031.00	0.00	0.00	1,031.00	0.00	0.00	0.00	0.00	0.00	0.00
Lewis									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,266.00	0.00	0.00	1,266.00	0.00	0.00	0.00	0.00	0.00	0.00
Chacra_A									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,750.00	0.00	0.00	1,750.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 3°/100' build									
1,800.00	1.50	80.54	1,799.99	0.11	0.65	-0.38	3.00	3.00	0.00
1,900.00	4.50	80.54	1,899.85	0.97	5.81	-3.37	3.00	3.00	0.00
2,000.00	7.50	80.54	1,999.29	2.69	16.12	-9.36	3.00	3.00	0.00
2,100.00	10.50	80.54	2,098.04	5.26	31.55	-18.33	3.00	3.00	0.00
2,112.22	10.87	80.54	2,110.05	5.63	33.78	-19.63	3.00	3.00	0.00
Begin 10.87° tangent									
2,200.00	10.87	80.54	2,196.26	8.35	50.10	-29.11	0.00	0.00	0.00
2,291.38	10.87	80.54	2,286.00	11.18	67.10	-38.98	0.00	0.00	0.00
Cliff House_Basal									
2,300.00	10.87	80.54	2,294.47	11.45	68.70	-39.92	0.00	0.00	0.00
2,311.75	10.87	80.54	2,306.00	11.81	70.88	-41.18	0.00	0.00	0.00
Menefee									
2,400.00	10.87	80.54	2,392.67	14.55	87.29	-50.72	0.00	0.00	0.00
2,413.57	10.87	80.54	2,406.00	14.97	89.82	-52.19	0.00	0.00	0.00
9 5/8" Csg									
2,500.00	10.87	80.54	2,490.88	17.65	105.89	-61.52	0.00	0.00	0.00
2,600.00	10.87	80.54	2,589.09	20.75	124.49	-72.33	0.00	0.00	0.00
2,700.00	10.87	80.54	2,687.29	23.85	143.08	-83.13	0.00	0.00	0.00



Planning Report

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Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned 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)
2,800.00	10.87	80.54	2,785.50	26.95	161.68	-93.94	0.00	0.00	0.00
2,900.00	10.87	80.54	2,883.71	30.05	180.27	-104.74	0.00	0.00	0.00
3,000.00	10.87	80.54	2,981.91	33.14	198.87	-115.55	0.00	0.00	0.00
3,100.00	10.87	80.54	3,080.12	36.24	217.47	-126.35	0.00	0.00	0.00
3,200.00	10.87	80.54	3,178.33	39.34	236.06	-137.16	0.00	0.00	0.00
3,300.00	10.87	80.54	3,276.53	42.44	254.66	-147.96	0.00	0.00	0.00
3,304.55	10.87	80.54	3,281.00	42.58	255.50	-148.45	0.00	0.00	0.00
Point Lookout									
3,400.00	10.87	80.54	3,374.74	45.54	273.25	-158.76	0.00	0.00	0.00
3,500.00	10.87	80.54	3,472.95	48.64	291.85	-169.57	0.00	0.00	0.00
3,543.84	10.87	80.54	3,516.00	50.00	300.00	-174.31	0.00	0.00	0.00
Begin 9.85°/100' build/turn									
3,550.00	10.75	77.36	3,522.05	50.22	301.13	-174.94	9.85	-1.88	-51.57
3,584.54	10.73	59.02	3,556.00	52.58	307.04	-177.39	9.85	-0.07	-53.08
Mancos									
3,600.00	11.06	51.15	3,571.18	54.25	309.42	-177.87	9.85	2.13	-50.94
3,650.00	13.30	30.16	3,620.08	62.24	316.05	-176.80	9.85	4.48	-41.98
3,700.00	16.71	16.34	3,668.38	74.11	320.96	-171.76	9.85	6.83	-27.64
3,750.00	20.73	7.42	3,715.73	89.80	324.13	-162.78	9.85	8.04	-17.85
3,800.00	25.07	1.37	3,761.79	109.18	325.53	-149.92	9.85	8.67	-12.09
3,821.38	26.98	359.35	3,781.00	118.55	325.58	-143.26	9.85	8.94	-9.43
Gallup (MNCS_A)									
3,839.47	28.61	357.84	3,797.00	126.98	325.37	-137.09	9.85	9.05	-8.34
MNCS_C									
3,850.00	29.57	357.04	3,806.20	132.10	325.14	-133.28	9.85	9.12	-7.67
3,900.00	34.19	353.77	3,848.65	158.40	322.98	-112.98	9.85	9.23	-6.53
3,946.39	38.53	351.37	3,886.00	185.66	319.39	-91.01	9.85	9.36	-5.17
MNCS_B									
3,950.00	38.87	351.20	3,888.82	187.89	319.05	-89.17	9.85	9.41	-4.64
4,000.00	43.60	349.11	3,926.41	220.35	313.39	-62.03	9.85	9.46	-4.18
4,050.00	48.36	347.35	3,961.15	255.53	306.04	-31.76	9.85	9.52	-3.51
4,100.00	53.14	345.84	3,992.77	293.18	297.05	1.41	9.85	9.57	-3.03
4,140.59	57.04	344.74	4,016.00	325.37	288.59	30.32	9.85	9.60	-2.70
MNCS_Cms									
4,150.00	57.95	344.51	4,021.06	333.02	286.49	37.26	9.85	9.61	-2.55
4,200.00	62.76	343.30	4,045.78	374.75	274.44	75.50	9.85	9.63	-2.40
4,250.00	67.58	342.20	4,066.77	418.07	260.98	115.85	9.85	9.65	-2.20
4,300.00	72.41	341.17	4,083.87	462.66	246.22	158.03	9.85	9.66	-2.05
4,350.00	77.25	340.20	4,096.96	508.19	230.26	201.71	9.85	9.67	-1.95
4,400.00	82.08	339.26	4,105.92	554.32	213.22	246.58	9.85	9.68	-1.87
4,450.00	86.92	338.35	4,110.71	600.70	195.23	292.30	9.85	9.68	-1.83
4,464.87	88.36	338.08	4,111.32	614.50	189.72	306.01	9.85	9.68	-1.82
Begin 8.94°/100' build/turn									
4,500.00	88.52	334.94	4,112.28	646.70	175.72	338.80	8.94	0.44	-8.93
4,550.00	88.74	330.48	4,113.48	691.11	152.81	386.56	8.94	0.45	-8.93
4,600.00	88.97	326.02	4,114.48	733.61	126.51	435.32	8.94	0.47	-8.93
4,650.00	89.21	321.55	4,115.27	773.94	96.98	484.78	8.94	0.48	-8.92
4,700.00	89.46	317.09	4,115.85	811.84	64.40	534.66	8.94	0.49	-8.92
4,717.05	89.54	315.57	4,116.00	824.18	52.63	551.71	8.94	0.49	-8.92
Begin 89.54° lateral									
4,800.00	89.54	315.57	4,116.67	883.41	-5.44	634.65	0.00	0.00	0.00
4,900.00	89.54	315.57	4,117.47	954.82	-75.44	734.65	0.00	0.00	0.00
5,000.00	89.54	315.57	4,118.27	1,026.23	-145.44	834.65	0.00	0.00	0.00



Planning Report

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned 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)	
5,100.00	89.54	315.57	4,119.07	1,097.64	-215.44	934.64	0.00	0.00	0.00	
5,200.00	89.54	315.57	4,119.88	1,169.05	-285.44	1,034.64	0.00	0.00	0.00	
5,300.00	89.54	315.57	4,120.68	1,240.46	-355.44	1,134.64	0.00	0.00	0.00	
5,400.00	89.54	315.57	4,121.48	1,311.87	-425.44	1,234.64	0.00	0.00	0.00	
5,500.00	89.54	315.57	4,122.28	1,383.28	-495.44	1,334.63	0.00	0.00	0.00	
5,600.00	89.54	315.57	4,123.09	1,454.69	-565.44	1,434.63	0.00	0.00	0.00	
5,700.00	89.54	315.57	4,123.89	1,526.10	-635.44	1,534.63	0.00	0.00	0.00	
5,800.00	89.54	315.57	4,124.69	1,597.51	-705.44	1,634.62	0.00	0.00	0.00	
5,900.00	89.54	315.57	4,125.50	1,668.92	-775.44	1,734.62	0.00	0.00	0.00	
6,000.00	89.54	315.57	4,126.30	1,740.32	-845.44	1,834.62	0.00	0.00	0.00	
6,100.00	89.54	315.57	4,127.10	1,811.73	-915.44	1,934.61	0.00	0.00	0.00	
6,200.00	89.54	315.57	4,127.90	1,883.14	-985.44	2,034.61	0.00	0.00	0.00	
6,300.00	89.54	315.57	4,128.71	1,954.55	-1,055.44	2,134.61	0.00	0.00	0.00	
6,400.00	89.54	315.57	4,129.51	2,025.96	-1,125.44	2,234.60	0.00	0.00	0.00	
6,500.00	89.54	315.57	4,130.31	2,097.37	-1,195.44	2,334.60	0.00	0.00	0.00	
6,600.00	89.54	315.57	4,131.11	2,168.78	-1,265.44	2,434.60	0.00	0.00	0.00	
6,700.00	89.54	315.57	4,131.92	2,240.19	-1,335.44	2,534.59	0.00	0.00	0.00	
6,800.00	89.54	315.57	4,132.72	2,311.60	-1,405.44	2,634.59	0.00	0.00	0.00	
6,900.00	89.54	315.57	4,133.52	2,383.01	-1,475.44	2,734.59	0.00	0.00	0.00	
7,000.00	89.54	315.57	4,134.32	2,454.42	-1,545.44	2,834.58	0.00	0.00	0.00	
7,100.00	89.54	315.57	4,135.13	2,525.83	-1,615.44	2,934.58	0.00	0.00	0.00	
7,200.00	89.54	315.57	4,135.93	2,597.24	-1,685.44	3,034.58	0.00	0.00	0.00	
7,300.00	89.54	315.57	4,136.73	2,668.65	-1,755.44	3,134.57	0.00	0.00	0.00	
7,400.00	89.54	315.57	4,137.54	2,740.06	-1,825.44	3,234.57	0.00	0.00	0.00	
7,500.00	89.54	315.57	4,138.34	2,811.47	-1,895.44	3,334.57	0.00	0.00	0.00	
7,600.00	89.54	315.57	4,139.14	2,882.88	-1,965.44	3,434.56	0.00	0.00	0.00	
7,700.00	89.54	315.57	4,139.94	2,954.29	-2,035.44	3,534.56	0.00	0.00	0.00	
7,800.00	89.54	315.57	4,140.75	3,025.70	-2,105.44	3,634.56	0.00	0.00	0.00	
7,900.00	89.54	315.57	4,141.55	3,097.11	-2,175.44	3,734.55	0.00	0.00	0.00	
8,000.00	89.54	315.57	4,142.35	3,168.51	-2,245.44	3,834.55	0.00	0.00	0.00	
8,100.00	89.54	315.57	4,143.15	3,239.92	-2,315.45	3,934.55	0.00	0.00	0.00	
8,200.00	89.54	315.57	4,143.96	3,311.33	-2,385.45	4,034.55	0.00	0.00	0.00	
8,300.00	89.54	315.57	4,144.76	3,382.74	-2,455.45	4,134.54	0.00	0.00	0.00	
8,400.00	89.54	315.57	4,145.56	3,454.15	-2,525.45	4,234.54	0.00	0.00	0.00	
8,500.00	89.54	315.57	4,146.37	3,525.56	-2,595.45	4,334.54	0.00	0.00	0.00	
8,600.00	89.54	315.57	4,147.17	3,596.97	-2,665.45	4,434.53	0.00	0.00	0.00	
8,700.00	89.54	315.57	4,147.97	3,668.38	-2,735.45	4,534.53	0.00	0.00	0.00	
8,800.00	89.54	315.57	4,148.77	3,739.79	-2,805.45	4,634.53	0.00	0.00	0.00	
8,900.00	89.54	315.57	4,149.58	3,811.20	-2,875.45	4,734.52	0.00	0.00	0.00	
9,000.00	89.54	315.57	4,150.38	3,882.61	-2,945.45	4,834.52	0.00	0.00	0.00	
9,100.00	89.54	315.57	4,151.18	3,954.02	-3,015.45	4,934.52	0.00	0.00	0.00	
9,200.00	89.54	315.57	4,151.98	4,025.43	-3,085.45	5,034.51	0.00	0.00	0.00	
9,300.00	89.54	315.57	4,152.79	4,096.84	-3,155.45	5,134.51	0.00	0.00	0.00	
9,400.00	89.54	315.57	4,153.59	4,168.25	-3,225.45	5,234.51	0.00	0.00	0.00	
9,500.00	89.54	315.57	4,154.39	4,239.66	-3,295.45	5,334.50	0.00	0.00	0.00	
9,600.00	89.54	315.57	4,155.19	4,311.07	-3,365.45	5,434.50	0.00	0.00	0.00	
9,700.00	89.54	315.57	4,156.00	4,382.48	-3,435.45	5,534.50	0.00	0.00	0.00	
9,800.00	89.54	315.57	4,156.80	4,453.89	-3,505.45	5,634.49	0.00	0.00	0.00	
9,900.00	89.54	315.57	4,157.60	4,525.30	-3,575.45	5,734.49	0.00	0.00	0.00	
10,000.00	89.54	315.57	4,158.41	4,596.71	-3,645.45	5,834.49	0.00	0.00	0.00	
10,100.00	89.54	315.57	4,159.21	4,668.11	-3,715.45	5,934.48	0.00	0.00	0.00	
10,200.00	89.54	315.57	4,160.01	4,739.52	-3,785.45	6,034.48	0.00	0.00	0.00	
10,300.00	89.54	315.57	4,160.81	4,810.93	-3,855.45	6,134.48	0.00	0.00	0.00	
10,400.00	89.54	315.57	4,161.62	4,882.34	-3,925.45	6,234.47	0.00	0.00	0.00	



Planning Report

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned 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)
10,500.00	89.54	315.57	4,162.42	4,953.75	-3,995.45	6,334.47	0.00	0.00	0.00
10,600.00	89.54	315.57	4,163.22	5,025.16	-4,065.45	6,434.47	0.00	0.00	0.00
10,700.00	89.54	315.57	4,164.02	5,096.57	-4,135.45	6,534.46	0.00	0.00	0.00
10,800.00	89.54	315.57	4,164.83	5,167.98	-4,205.45	6,634.46	0.00	0.00	0.00
10,900.00	89.54	315.57	4,165.63	5,239.39	-4,275.45	6,734.46	0.00	0.00	0.00
11,000.00	89.54	315.57	4,166.43	5,310.80	-4,345.45	6,834.46	0.00	0.00	0.00
11,100.00	89.54	315.57	4,167.24	5,382.21	-4,415.45	6,934.45	0.00	0.00	0.00
11,200.00	89.54	315.57	4,168.04	5,453.62	-4,485.45	7,034.45	0.00	0.00	0.00
11,300.00	89.54	315.57	4,168.84	5,525.03	-4,555.45	7,134.45	0.00	0.00	0.00
11,400.00	89.54	315.57	4,169.64	5,596.44	-4,625.45	7,234.44	0.00	0.00	0.00
11,500.00	89.54	315.57	4,170.45	5,667.85	-4,695.45	7,334.44	0.00	0.00	0.00
11,569.54	89.54	315.57	4,171.00	5,717.51	-4,744.13	7,403.98	0.00	0.00	0.00
11,600.00	89.54	315.57	4,171.25	5,739.26	-4,765.45	7,434.44	0.00	0.00	0.00
11,700.00	89.54	315.57	4,172.05	5,810.67	-4,835.45	7,534.43	0.00	0.00	0.00
11,800.00	89.54	315.57	4,172.85	5,882.08	-4,905.45	7,634.43	0.00	0.00	0.00
11,900.00	89.54	315.57	4,173.66	5,953.49	-4,975.46	7,734.43	0.00	0.00	0.00
12,000.00	89.54	315.57	4,174.46	6,024.90	-5,045.46	7,834.42	0.00	0.00	0.00
12,100.00	89.54	315.57	4,175.26	6,096.31	-5,115.46	7,934.42	0.00	0.00	0.00
12,200.00	89.54	315.57	4,176.06	6,167.71	-5,185.46	8,034.42	0.00	0.00	0.00
12,260.49	89.54	315.57	4,176.55	6,210.91	-5,227.80	8,094.90	0.00	0.00	0.00
PBHL/TD 12260.49 MD 4176.55 TVD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
W Lybrook 830H POE - plan hits target center - Point	0.00	0.00	4,116.00	824.18	52.63	1,893,638.870	2,739,823.400	36.204221015	-107.776619995
W Lybrook 830H BHL - plan misses target center by 0.01ft at 11569.54ft MD (4171.00 TVD, 5717.51 N, -4744.13 E) - Point	0.00	0.00	4,171.00	5,717.50	-4,744.14	1,898,532.180	2,735,026.640	36.217670014	-107.792872012
W Lybrook 830H LTP 22 - plan hits target center - Point	0.00	0.00	4,176.55	6,210.91	-5,227.80	1,899,025.590	2,734,542.986	36.219026000	-107.794511000

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
350.00	350.00	13 3/8" Csg	13-3/8	17-1/2	
2,413.57	2,406.00	9 5/8" Csg	9-5/8	12-1/4	



Planning Report

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
231.00	231.00	Ojo Alamo				
291.00	291.00	Kirtland				
606.00	606.00	Fruitland				
916.00	916.00	Pictured Cliffs				
1,031.00	1,031.00	Lewis				
1,266.00	1,266.00	Chacra_A				
2,291.38	2,286.00	Cliff House_Basal				
2,311.75	2,306.00	Menefee				
3,304.55	3,281.00	Point Lookout				
3,584.54	3,556.00	Mancos				
3,821.38	3,781.00	Gallup (MNCS_A)				
3,839.47	3,797.00	MNCS_C				
3,946.39	3,886.00	MNCS_B				
4,140.59	4,016.00	MNCS_Cms				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,750.00	1,750.00	0.00	0.00	KOP Begin 3°/100' build	
2,112.22	2,110.05	5.63	33.78	Begin 10.87° tangent	
3,543.84	3,516.00	50.00	300.00	Begin 9.85°/100' build/turn	
4,464.87	4,111.32	614.50	189.72	Begin 8.94°/100' build/turn	
4,717.05	4,116.00	824.18	52.63	Begin 89.54° lateral	
11,569.54	4,171.00	5,717.51	-4,744.13		
12,260.49	4,176.55	6,210.91	-5,227.80	PBHL/TD 12260.49 MD 4176.55 TVD	



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	W Lybrook Unit				
Site Position:		Northing:	1,897,416.802 usft	Latitude:	36.214585000
From:	Lat/Long	Easting:	2,747,156.265 usft	Longitude:	-107.751754000
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	W Lybrook Unit No. 830H, Surf loc: 1161 FNL 2446 FWL Section 27-T23N-R09W					
Well Position	+N/-S	0.00 ft	Northing:	1,892,814.692 usft	Latitude:	36.201957000
	+E/-W	0.00 ft	Easting:	2,739,770.775 usft	Longitude:	-107.776800000
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,641.00 ft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/11/2021	8.760	62.824	49,258.06216240

Design	rev0				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	315.57	

Plan Survey Tool Program	Date				
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	12,260.49 rev0 (Original Hole)			

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,750.00	0.00	0.00	1,750.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,112.22	10.87	80.54	2,110.05	5.63	33.78	3.00	3.00	22.23	80.538	
3,543.84	10.87	80.54	3,516.00	50.00	300.00	0.00	0.00	0.00	0.000	
4,464.87	88.36	338.08	4,111.32	614.50	189.72	9.85	8.41	-11.12	-102.544	
4,717.05	89.54	315.57	4,116.00	824.18	52.63	8.94	0.47	-8.93	-87.252	W Lybrook 830H POE
11,569.54	89.54	315.57	4,171.00	5,717.51	-4,744.13	0.00	0.00	0.00	0.000	W Lybrook 830H BHL
12,260.49	89.54	315.57	4,176.55	6,210.91	-5,227.80	0.00	0.00	0.00	0.000	W Lybrook 830H LTP



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned 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	0.00	0.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
100.00	0.00	0.00	100.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
200.00	0.00	0.00	200.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
231.00	0.00	0.00	231.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Ojo Alamo									
291.00	0.00	0.00	291.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Kirtland									
300.00	0.00	0.00	300.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
350.00	0.00	0.00	350.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
13 3/8" Csg									
400.00	0.00	0.00	400.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
500.00	0.00	0.00	500.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
600.00	0.00	0.00	600.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
606.00	0.00	0.00	606.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Fruitland									
700.00	0.00	0.00	700.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
800.00	0.00	0.00	800.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
900.00	0.00	0.00	900.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
916.00	0.00	0.00	916.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Pictured Cliffs									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,031.00	0.00	0.00	1,031.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Lewis									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,200.00	0.00	0.00	1,200.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,266.00	0.00	0.00	1,266.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
Chacra_A									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,400.00	0.00	0.00	1,400.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,500.00	0.00	0.00	1,500.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,600.00	0.00	0.00	1,600.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,700.00	0.00	0.00	1,700.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
1,750.00	0.00	0.00	1,750.00	0.00	0.00	1,892,814.692	2,739,770.775	36.201957000	-107.776800000
KOP Begin 3°/100' build									
1,800.00	1.50	80.54	1,799.99	0.11	0.65	1,892,814.800	2,739,771.420	36.201957294	-107.776797812
1,900.00	4.50	80.54	1,899.85	0.97	5.81	1,892,815.660	2,739,776.582	36.201959649	-107.776780314
2,000.00	7.50	80.54	1,999.29	2.69	16.12	1,892,817.378	2,739,786.891	36.201964353	-107.776745368
2,100.00	10.50	80.54	2,098.04	5.26	31.55	1,892,819.950	2,739,802.320	36.201971392	-107.776693067
2,112.22	10.87	80.54	2,110.05	5.63	33.78	1,892,820.322	2,739,804.554	36.201972412	-107.776685493
Begin 10.87° tangent									
2,200.00	10.87	80.54	2,196.26	8.35	50.10	1,892,823.043	2,739,820.878	36.201979859	-107.776630160
2,291.38	10.87	80.54	2,286.00	11.18	67.10	1,892,825.875	2,739,837.871	36.201987612	-107.776572558
Cliff House_Basal									
2,300.00	10.87	80.54	2,294.47	11.45	68.70	1,892,826.142	2,739,839.474	36.201988344	-107.776567124
2,311.75	10.87	80.54	2,306.00	11.81	70.88	1,892,826.506	2,739,841.658	36.201989340	-107.776559720
Menefee									
2,400.00	10.87	80.54	2,392.67	14.55	87.29	1,892,829.241	2,739,858.069	36.201996828	-107.776504088
2,413.57	10.87	80.54	2,406.00	14.97	89.82	1,892,829.662	2,739,860.593	36.201997979	-107.776495534
9 5/8" Csg									
2,500.00	10.87	80.54	2,490.88	17.65	105.89	1,892,832.341	2,739,876.665	36.202005312	-107.776441053
2,600.00	10.87	80.54	2,589.09	20.75	124.49	1,892,835.440	2,739,895.261	36.202013796	-107.776378017
2,700.00	10.87	80.54	2,687.29	23.85	143.08	1,892,838.539	2,739,913.856	36.202022280	-107.776314981
2,800.00	10.87	80.54	2,785.50	26.95	161.68	1,892,841.638	2,739,932.452	36.202030764	-107.776251945



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
2,900.00	10.87	80.54	2,883.71	30.05	180.27	1,892,844.738	2,739,951.048	36.202039248	-107.776188910
3,000.00	10.87	80.54	2,981.91	33.14	198.87	1,892,847.837	2,739,969.643	36.202047732	-107.776125874
3,100.00	10.87	80.54	3,080.12	36.24	217.47	1,892,850.936	2,739,988.239	36.202056216	-107.776062838
3,200.00	10.87	80.54	3,178.33	39.34	236.06	1,892,854.036	2,740,006.835	36.202064700	-107.775999802
3,300.00	10.87	80.54	3,276.53	42.44	254.66	1,892,857.135	2,740,025.431	36.202073183	-107.775936767
3,304.55	10.87	80.54	3,281.00	42.58	255.50	1,892,857.276	2,740,026.276	36.202073569	-107.775933900
Point Lookout									
3,400.00	10.87	80.54	3,374.74	45.54	273.25	1,892,860.234	2,740,044.026	36.202081667	-107.775873731
3,500.00	10.87	80.54	3,472.95	48.64	291.85	1,892,863.333	2,740,062.622	36.202090151	-107.775810695
3,543.84	10.87	80.54	3,516.00	50.00	300.00	1,892,864.692	2,740,070.774	36.202093870	-107.775783061
Begin 9.85°/100' build/turn									
3,550.00	10.75	77.36	3,522.05	50.22	301.13	1,892,864.913	2,740,071.908	36.202094476	-107.775779218
3,584.54	10.73	59.02	3,556.00	52.58	307.04	1,892,867.273	2,740,077.809	36.202100950	-107.775759211
Mancos									
3,600.00	11.06	51.15	3,571.18	54.25	309.42	1,892,868.944	2,740,080.197	36.202105534	-107.775751114
3,650.00	13.30	30.16	3,620.08	62.24	316.05	1,892,876.927	2,740,086.823	36.202127455	-107.775728638
3,700.00	16.71	16.34	3,668.38	74.11	320.96	1,892,888.806	2,740,091.738	36.202160078	-107.775711954
3,750.00	20.73	7.42	3,715.73	89.80	324.13	1,892,904.491	2,740,094.906	36.202203163	-107.775701187
3,800.00	25.07	1.37	3,761.79	109.18	325.53	1,892,923.868	2,740,096.302	36.202256390	-107.775696416
3,821.38	26.98	359.35	3,781.00	118.55	325.58	1,892,933.245	2,740,096.355	36.202282151	-107.775696216
Gallup (MNCS_A)									
3,839.47	28.61	357.84	3,797.00	126.98	325.37	1,892,941.676	2,740,096.146	36.202305312	-107.775696909
MNCS_C									
3,850.00	29.57	357.04	3,806.20	132.10	325.14	1,892,946.793	2,740,095.917	36.202319367	-107.775697676
3,900.00	34.19	353.77	3,848.65	158.40	322.98	1,892,973.096	2,740,093.753	36.202391629	-107.775704957
3,946.39	38.53	351.37	3,886.00	185.66	319.39	1,893,000.350	2,740,090.169	36.202466504	-107.775717050
MNCS_B									
3,950.00	38.87	351.20	3,888.82	187.89	319.05	1,893,002.584	2,740,089.826	36.202472642	-107.775718206
4,000.00	43.60	349.11	3,926.41	220.35	313.39	1,893,035.039	2,740,084.166	36.202561808	-107.775737326
4,050.00	48.36	347.35	3,961.15	255.53	306.04	1,893,070.221	2,740,076.814	36.202658469	-107.775762175
4,100.00	53.14	345.84	3,992.77	293.18	297.05	1,893,107.870	2,740,067.825	36.202761910	-107.775792569
4,140.59	57.04	344.74	4,016.00	325.37	288.59	1,893,140.060	2,740,059.367	36.202850353	-107.775821170
MNCS_Cms									
4,150.00	57.95	344.51	4,021.06	333.02	286.49	1,893,147.709	2,740,057.264	36.202871368	-107.775828284
4,200.00	62.76	343.30	4,045.78	374.75	274.44	1,893,189.443	2,740,045.210	36.202986035	-107.775869057
4,250.00	67.58	342.20	4,066.77	418.07	260.98	1,893,232.764	2,740,031.752	36.203105065	-107.775914586
4,300.00	72.41	341.17	4,083.87	462.66	246.22	1,893,277.352	2,740,016.989	36.203227577	-107.775964535
4,350.00	77.25	340.20	4,096.96	508.19	230.26	1,893,322.878	2,740,001.031	36.203352667	-107.776018536
4,400.00	82.08	339.26	4,105.92	554.32	213.22	1,893,369.006	2,739,983.994	36.203479413	-107.776076190
4,450.00	86.92	338.35	4,110.71	600.70	195.23	1,893,415.395	2,739,966.006	36.203606877	-107.776137070
4,464.87	88.36	338.08	4,111.32	614.50	189.72	1,893,429.188	2,739,960.493	36.203644777	-107.776155729
Begin 8.94°/100' build/turn									
4,500.00	88.52	334.94	4,112.28	646.70	175.72	1,893,461.394	2,739,946.496	36.203733271	-107.776203106
4,550.00	88.74	330.48	4,113.48	691.11	152.81	1,893,505.805	2,739,923.584	36.203855309	-107.776280679
4,600.00	88.97	326.02	4,114.48	733.61	126.51	1,893,548.302	2,739,897.283	36.203972096	-107.776369742
4,650.00	89.21	321.55	4,115.27	773.94	96.98	1,893,588.627	2,739,867.754	36.204082920	-107.776469754
4,700.00	89.46	317.09	4,115.85	811.84	64.40	1,893,626.534	2,739,835.175	36.204187109	-107.776580107
4,717.05	89.54	315.57	4,116.00	824.18	52.63	1,893,638.870	2,739,823.400	36.204221015	-107.776619995
Begin 89.54° lateral									
4,800.00	89.54	315.57	4,116.67	883.41	-5.44	1,893,698.101	2,739,765.338	36.204383821	-107.776816682
4,900.00	89.54	315.57	4,117.47	954.82	-75.44	1,893,769.510	2,739,695.338	36.204580101	-107.777053813
5,000.00	89.54	315.57	4,118.27	1,026.23	-145.44	1,893,840.920	2,739,625.338	36.204776381	-107.777290944
5,100.00	89.54	315.57	4,119.07	1,097.64	-215.44	1,893,912.329	2,739,555.338	36.204972661	-107.777528076



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,200.00	89.54	315.57	4,119.88	1,169.05	-285.44	1,893,983.738	2,739,485.338	36.205168940	-107.777765210
5,300.00	89.54	315.57	4,120.68	1,240.46	-355.44	1,894,055.148	2,739,415.337	36.205365218	-107.778002345
5,400.00	89.54	315.57	4,121.48	1,311.87	-425.44	1,894,126.557	2,739,345.337	36.205561496	-107.778239481
5,500.00	89.54	315.57	4,122.28	1,383.28	-495.44	1,894,197.966	2,739,275.337	36.205757774	-107.778476618
5,600.00	89.54	315.57	4,123.09	1,454.69	-565.44	1,894,269.376	2,739,205.337	36.205954051	-107.778713756
5,700.00	89.54	315.57	4,123.89	1,526.10	-635.44	1,894,340.785	2,739,135.337	36.206150328	-107.778950896
5,800.00	89.54	315.57	4,124.69	1,597.51	-705.44	1,894,412.194	2,739,065.337	36.206346604	-107.779188037
5,900.00	89.54	315.57	4,125.50	1,668.92	-775.44	1,894,483.604	2,738,995.337	36.206542880	-107.779425179
6,000.00	89.54	315.57	4,126.30	1,740.32	-845.44	1,894,555.013	2,738,925.337	36.206739155	-107.779662322
6,100.00	89.54	315.57	4,127.10	1,811.73	-915.44	1,894,626.423	2,738,855.337	36.206935430	-107.779899466
6,200.00	89.54	315.57	4,127.90	1,883.14	-985.44	1,894,697.832	2,738,785.336	36.207131704	-107.780136611
6,300.00	89.54	315.57	4,128.71	1,954.55	-1,055.44	1,894,769.241	2,738,715.336	36.207327978	-107.780373758
6,400.00	89.54	315.57	4,129.51	2,025.96	-1,125.44	1,894,840.651	2,738,645.336	36.207524251	-107.780610906
6,500.00	89.54	315.57	4,130.31	2,097.37	-1,195.44	1,894,912.060	2,738,575.336	36.207720524	-107.780848055
6,600.00	89.54	315.57	4,131.11	2,168.78	-1,265.44	1,894,983.469	2,738,505.336	36.207916797	-107.781085205
6,700.00	89.54	315.57	4,131.92	2,240.19	-1,335.44	1,895,054.879	2,738,435.336	36.208113068	-107.781322357
6,800.00	89.54	315.57	4,132.72	2,311.60	-1,405.44	1,895,126.288	2,738,365.336	36.208309340	-107.781559509
6,900.00	89.54	315.57	4,133.52	2,383.01	-1,475.44	1,895,197.698	2,738,295.336	36.208505611	-107.781796663
7,000.00	89.54	315.57	4,134.32	2,454.42	-1,545.44	1,895,269.107	2,738,225.335	36.208701881	-107.782033818
7,100.00	89.54	315.57	4,135.13	2,525.83	-1,615.44	1,895,340.516	2,738,155.335	36.208898151	-107.782270974
7,200.00	89.54	315.57	4,135.93	2,597.24	-1,685.44	1,895,411.926	2,738,085.335	36.209094421	-107.782508131
7,300.00	89.54	315.57	4,136.73	2,668.65	-1,755.44	1,895,483.335	2,738,015.335	36.209290690	-107.782745290
7,400.00	89.54	315.57	4,137.54	2,740.06	-1,825.44	1,895,554.744	2,737,945.335	36.209486959	-107.782982450
7,500.00	89.54	315.57	4,138.34	2,811.47	-1,895.44	1,895,626.154	2,737,875.335	36.209683227	-107.783219611
7,600.00	89.54	315.57	4,139.14	2,882.88	-1,965.44	1,895,697.563	2,737,805.335	36.209879494	-107.783456773
7,700.00	89.54	315.57	4,139.94	2,954.29	-2,035.44	1,895,768.973	2,737,735.335	36.210075762	-107.783693936
7,800.00	89.54	315.57	4,140.75	3,025.70	-2,105.44	1,895,840.382	2,737,665.335	36.210272028	-107.783931100
7,900.00	89.54	315.57	4,141.55	3,097.11	-2,175.44	1,895,911.791	2,737,595.334	36.210468294	-107.784168266
8,000.00	89.54	315.57	4,142.35	3,168.51	-2,245.44	1,895,983.201	2,737,525.334	36.210664560	-107.784405433
8,100.00	89.54	315.57	4,143.15	3,239.92	-2,315.45	1,896,054.610	2,737,455.334	36.210860825	-107.784642601
8,200.00	89.54	315.57	4,143.96	3,311.33	-2,385.45	1,896,126.019	2,737,385.334	36.211057090	-107.784879770
8,300.00	89.54	315.57	4,144.76	3,382.74	-2,455.45	1,896,197.429	2,737,315.334	36.211253355	-107.785116940
8,400.00	89.54	315.57	4,145.56	3,454.15	-2,525.45	1,896,268.838	2,737,245.334	36.211449618	-107.785354112
8,500.00	89.54	315.57	4,146.37	3,525.56	-2,595.45	1,896,340.247	2,737,175.334	36.211645882	-107.785591285
8,600.00	89.54	315.57	4,147.17	3,596.97	-2,665.45	1,896,411.657	2,737,105.334	36.211842145	-107.785828458
8,700.00	89.54	315.57	4,147.97	3,668.38	-2,735.45	1,896,483.066	2,737,035.333	36.212038407	-107.786065634
8,800.00	89.54	315.57	4,148.77	3,739.79	-2,805.45	1,896,554.476	2,736,965.333	36.212234669	-107.786302810
8,900.00	89.54	315.57	4,149.58	3,811.20	-2,875.45	1,896,625.885	2,736,895.333	36.212430931	-107.786539987
9,000.00	89.54	315.57	4,150.38	3,882.61	-2,945.45	1,896,697.294	2,736,825.333	36.212627191	-107.786777166
9,100.00	89.54	315.57	4,151.18	3,954.02	-3,015.45	1,896,768.704	2,736,755.333	36.212823452	-107.787014346
9,200.00	89.54	315.57	4,151.98	4,025.43	-3,085.45	1,896,840.113	2,736,685.333	36.213019712	-107.787251527
9,300.00	89.54	315.57	4,152.79	4,096.84	-3,155.45	1,896,911.522	2,736,615.333	36.213215972	-107.787488709
9,400.00	89.54	315.57	4,153.59	4,168.25	-3,225.45	1,896,982.932	2,736,545.333	36.213412231	-107.787725892
9,500.00	89.54	315.57	4,154.39	4,239.66	-3,295.45	1,897,054.341	2,736,475.333	36.213608489	-107.787963077
9,600.00	89.54	315.57	4,155.19	4,311.07	-3,365.45	1,897,125.751	2,736,405.332	36.213804747	-107.788200263
9,700.00	89.54	315.57	4,156.00	4,382.48	-3,435.45	1,897,197.160	2,736,335.332	36.214001005	-107.788437450
9,800.00	89.54	315.57	4,156.80	4,453.89	-3,505.45	1,897,268.569	2,736,265.332	36.214197262	-107.788674638
9,900.00	89.54	315.57	4,157.60	4,525.30	-3,575.45	1,897,339.979	2,736,195.332	36.214393519	-107.788911827
10,000.00	89.54	315.57	4,158.41	4,596.71	-3,645.45	1,897,411.388	2,736,125.332	36.214589775	-107.789149018
10,100.00	89.54	315.57	4,159.21	4,668.11	-3,715.45	1,897,482.797	2,736,055.332	36.214786031	-107.789386209
10,200.00	89.54	315.57	4,160.01	4,739.52	-3,785.45	1,897,554.207	2,735,985.332	36.214982286	-107.789623402
10,300.00	89.54	315.57	4,160.81	4,810.93	-3,855.45	1,897,625.616	2,735,915.332	36.215178541	-107.789860595
10,400.00	89.54	315.57	4,161.62	4,882.34	-3,925.45	1,897,697.026	2,735,845.331	36.215374795	-107.790097790
10,500.00	89.54	315.57	4,162.42	4,953.75	-3,995.45	1,897,768.435	2,735,775.331	36.215571049	-107.790334987
10,600.00	89.54	315.57	4,163.22	5,025.16	-4,065.45	1,897,839.844	2,735,705.331	36.215767303	-107.790572184



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well W Lybrook Unit No. 830H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,700.00	89.54	315.57	4,164.02	5,096.57	-4,135.45	1,897,911.254	2,735,635.331	36.215963556	-107.790809383
10,800.00	89.54	315.57	4,164.83	5,167.98	-4,205.45	1,897,982.663	2,735,565.331	36.216159808	-107.791046583
10,900.00	89.54	315.57	4,165.63	5,239.39	-4,275.45	1,898,054.072	2,735,495.331	36.216356060	-107.791283784
11,000.00	89.54	315.57	4,166.43	5,310.80	-4,345.45	1,898,125.482	2,735,425.331	36.216552311	-107.791520987
11,100.00	89.54	315.57	4,167.24	5,382.21	-4,415.45	1,898,196.891	2,735,355.331	36.216748562	-107.791758190
11,200.00	89.54	315.57	4,168.04	5,453.62	-4,485.45	1,898,268.300	2,735,285.330	36.216944813	-107.791995395
11,300.00	89.54	315.57	4,168.84	5,525.03	-4,555.45	1,898,339.710	2,735,215.330	36.217141063	-107.792232601
11,400.00	89.54	315.57	4,169.64	5,596.44	-4,625.45	1,898,411.119	2,735,145.330	36.217337312	-107.792469808
11,500.00	89.54	315.57	4,170.45	5,667.85	-4,695.45	1,898,482.529	2,735,075.330	36.217533562	-107.792707016
11,569.54	89.54	315.57	4,171.00	5,717.51	-4,744.13	1,898,532.189	2,735,026.650	36.217670040	-107.792871980
11,600.00	89.54	315.57	4,171.25	5,739.26	-4,765.45	1,898,553.938	2,735,005.330	36.217729810	-107.792944226
11,700.00	89.54	315.57	4,172.05	5,810.67	-4,835.45	1,898,625.347	2,734,935.330	36.217926058	-107.793181436
11,800.00	89.54	315.57	4,172.85	5,882.08	-4,905.45	1,898,696.757	2,734,865.330	36.218122306	-107.793418648
11,900.00	89.54	315.57	4,173.66	5,953.49	-4,975.46	1,898,768.166	2,734,795.330	36.218318553	-107.793655861
12,000.00	89.54	315.57	4,174.46	6,024.90	-5,045.46	1,898,839.575	2,734,725.330	36.218514800	-107.793893075
12,100.00	89.54	315.57	4,175.26	6,096.31	-5,115.46	1,898,910.985	2,734,655.329	36.218711046	-107.794130291
12,200.00	89.54	315.57	4,176.06	6,167.71	-5,185.46	1,898,982.394	2,734,585.329	36.218907292	-107.794367507
12,260.49	89.54	315.57	4,176.55	6,210.91	-5,227.80	1,899,025.590	2,734,542.986	36.219026000	-107.794511000
PBHL/TD 12260.49 MD 4176.55 TVD									

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
W Lybrook 830H POE - plan hits target center - Point	0.00	0.00	4,116.00	824.18	52.63	1,893,638.870	2,739,823.400	36.204221015	-107.776619995	
W Lybrook 830H BHL - plan misses target center by 0.01ft at 11569.54ft MD (4171.00 TVD, 5717.51 N, -4744.13 E) - Point	0.00	0.00	4,171.00	5,717.50	-4,744.14	1,898,532.180	2,735,026.640	36.217670014	-107.792872012	
W Lybrook 830H LTP 22 - plan hits target center - Point	0.00	0.00	4,176.55	6,210.91	-5,227.80	1,899,025.590	2,734,542.986	36.219026000	-107.794511000	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")	
350.00	350.00	13 3/8" Csg		13-3/8	17-1/2	
2,413.57	2,406.00	9 5/8" Csg		9-5/8	12-1/4	



Planning Report - Geographic

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Company:	Enduring Resources LLC	TVD Reference:	RKB=6641+25 @ 6666.00ft
Project:	San Juan County, New Mexico NAD83 NM W	MD Reference:	RKB=6641+25 @ 6666.00ft
Site:	W Lybrook Unit	North Reference:	Grid
Well:	W Lybrook Unit No. 830H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
231.00	231.00	Ojo Alamo				
291.00	291.00	Kirtland				
606.00	606.00	Fruitland				
916.00	916.00	Pictured Cliffs				
1,031.00	1,031.00	Lewis				
1,266.00	1,266.00	Chacra_A				
2,291.38	2,286.00	Cliff House_Basal				
2,311.75	2,306.00	Menefee				
3,304.55	3,281.00	Point Lookout				
3,584.54	3,556.00	Mancos				
3,821.38	3,781.00	Gallup (MNCS_A)				
3,839.47	3,797.00	MNCS_C				
3,946.39	3,886.00	MNCS_B				
4,140.59	4,016.00	MNCS_Cms				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,750.00	1,750.00	0.00	0.00	KOP Begin 3°/100' build	
2,112.22	2,110.05	5.63	33.78	Begin 10.87° tangent	
3,543.84	3,516.00	50.00	300.00	Begin 9.85°/100' build/turn	
4,464.87	4,111.32	614.50	189.72	Begin 8.94°/100' build/turn	
4,717.05	4,116.00	824.18	52.63	Begin 89.54° lateral	
11,569.54	4,171.00	5,717.51	-4,744.13		
12,260.49	4,176.55	6,210.91	-5,227.80	PBHL/TD 12260.49 MD 4176.55 TVD	



ENDURING RESOURCES IV, LLC
1050 SEVENTEENTH STREET, SUITE 2500
DENVER, COLORADO 80265

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

WELL INFORMATION:

Name: W LYBROOK UNIT 830H

API Number: 30-045-35814

AFE Number: not yet assigned

ER Well Number: not yet assigned

State: New Mexico

County: San Juan

Surface Elevation: 6,641 ft ASL (GL) 6,666 ft ASL (KB)

Surface Location: 27-23N-09W Sec-Twn-Rng 1,161 ft FNL 2,446 ft FWL

36.201957 ° N latitude 107.7768 ° W longitude (NAD 83)

BH Location: 21-23N-09W Sec-Twn-Rng 223 ft FNL 2,587 ft FWL

36.219026 ° N latitude 107.794511 ° 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 38.3 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 0.5 miles to fork, Right (West) exiting CR #7890 onto access road for W Lybrook Unit 720H pad for 0.6 miles to fork, Left (West) onto access road for W Lybrook Unit 726H pad for 0.7 miles to fork, Left (West) for 1.4 miles to fork. Left (Southeast) for 0.6 miles to W Lybrook Unit 730H Pad (wells: 730H, 763H, 830H, 861H, 863H).

GEOLOGIC AND RESERVOIR INFORMATION:

Prognosis:	Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O / G / W	Pressure
	Ojo Alamo	6,435	231	231	W	normal
	Kirtland	6,375	291	291	W	normal
	Fruitland	6,060	606	606	G, W	sub
	Pictured Cliffs	5,750	916	916	G, W	sub
	Lewis	5,635	1,031	1,031	G, W	normal
	Chacra	5,400	1,266	1,266	G, W	normal
	Cliff House	4,380	2,286	2,291	G, W	sub
	Menefee	4,360	2,306	2,312	G, W	normal
	Point Lookout	3,385	3,281	3,305	G, W	normal
	Mancos	3,110	3,556	3,585	O,G	sub (~0.38)
	Gallup (MNCS_A)	2,885	3,781	3,821	O,G	sub (~0.38)
	MNCS_B	2,780	3,886	3,946	O,G	sub (~0.38)
	MNCS_C	2,695	3,971	4,065	O,G	sub (~0.38)
	MNCS_Cms	2,650	4,016	4,141	O,G	sub (~0.38)
	P.O.E. TARGET	2,550	4,116	4,717	O,G	sub (~0.38)
	PROJECTED TD	2,495	4,171	12,261	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: 1,800 psi

Maximum anticipated surface pressure, assuming partially evacuated hole: 890 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; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD.

MWD / LWD: Gamma Ray from drillout of 13-3/8" casing to TD

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: Aztec

Rig No.: 1000

Draw Works: E80 AC 1,500 hp

Mast: Hyduke Triple (136 ft, 600,000 lbs, 10 lines)

Top Drive: NOV IDS-350PE (350 ton)

Prime Movers: 4 - GE Jenbacher Natural Gas Generator

Pumps: 2 - RS F-1600 (7,500 psi)

BOPE 1: Cameron single & double gate rams (13-5/8", 3,000 psi)

BOPE 2: Cameron annular (13-5/8", 5,000 psi)

Choke: Cameron (4", 10,000 psi)

KB-GL (ft): 25

NOTE: A different rig may be used to drill the well depending on rig availability

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.
- 2) 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.
- 3) 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.
- 4) 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.
- 5) 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.

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

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	525	116,634	116,634
Min. S.F.					7.39	5.20	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 Summary: 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)
	Class G	15.8	1.174	5.15	0.6946	100%	0	414

Calculated cement volumes assume gauge hole and the excess noted in table

Halliburton HALCEM surface cementing blend

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	2,414 ft (MD)	Hole Section Length:	2,064 ft
350 ft (TVD)	to	2,406 ft (TVD)	Casing Required:	2,414 ft

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	

Hole Size: 12-1/4"**Bit / Motor:** PDC w/mud motor**MWD / Survey:** MWD Survey with inclination and azimuth survey (every 100' at a 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.

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
Loading					1,051	1,028	175,772
Min. S.F.					1.92	3.43	3.21

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: 3,400 Optimum: 4,530 Maximum: 5,660**Casing Summary:** 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)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Lead	G:POZ Blend	12.3	1.987	10.16	70%	0	528
Tail	Class G	15.8	1.148	4.98	20%	1,914	164

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

Calculated cement volumes assume gauge hole and the excess noted in table

Halliburton ECONOCHEM & HALCEM cementing blend

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.

2,414 ft (MD)	to	12,261 ft (MD)	Hole Section Length:	9,847 ft
2,406 ft (TVD)	to	4,171 ft (TVD)	Casing Required:	12,261 ft

Estimated KOP:	3,544 ft (MD)	3,516 ft (TVD)
Estimated Landing Point (P.O.E.):	4,717 ft (MD)	4,116 ft (TVD)
Estimated Lateral Length:	7,544 ft (MD)	

Fluid:	Type	MW (ppg)	FL (mL/30')	PV (cp)	YP (lb/100 sqft)	pH	Comments
	LSND (FW)	8.8 - 9.5	20	8 - 14	8 - 14	9.0 - 9.5	OBM as contingency

Hole Size: 8-1/2"**Bit / Motor:** PDC w/mud motor**MWD / Survey:** MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)**Logging:** GR MWD 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.

Casing Specs:	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	5.500	17.0	P-110	LTC	7,460	10,640	546,000	445,000
Loading					2,060	8,890	279,862	279,862
Min. S.F.					3.62	1.20	1.95	1.59

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 100,000 lbs over-pull

MU Torque (ft lbs): Minimum: 3,470 Optimum: 4,620 Maximum: 5,780

Casing Summary: Float shoe, 1 jt casing, float collar, 1 jt casing, float collar, 1 jt casing, toe-initiation sleeve, 20' marker joint, toe-initiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub, casing to surface. The bottom 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 the azimuth of the well.

Centralizers: Centralizer count and placement may be adjusted based on well conditions and as-drilled surveys.

Lateral: 1 centralizer per joint

Curve: 1 centralizer per joint from landing point to KOP

KOP to surf: 1 centralizer per 2 joints

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Lead	G:POZ blend	12.4	1.907	9.981	50%	0	765
Tail	G:POZ blend	13.3	1.360	5.999	10%	3,821	1,564

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

Halliburton ECONOCHEM & EXTENDACHEM cementing 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 NMAC 19.15.16.15.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 bottom 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, cap well, RDMO.

COMPLETION AND PRODUCTION PLAN:

Frac: 40 plug-and-perf stages with 240,000 bbls slickwater fluid and 11,000,000 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: TBD

Completion: TBD

Production: TBD

Prepared by: Alec Bridge 1/21/2020

Updated by: Alec Bridge 11/8/2021 - updated BHL and directional plan for combination unit (LL increase 691')

WELL NAME: **W LYBROOK UNIT 830H**

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

API Number: *30-045-35814*

AFE Number: *not yet assigned*

ER Well Number: *not yet assigned*

State: **New Mexico**

County: **San Juan**

Surface Elev.: **6,641** ft ASL (GL) **6,666** ft ASL (KB)

Surface Location: **27-23N-09W** Sec-Twn- Rng **1,161** ft FNL **2,446** ft FWL

BH Location: **21-23N-09W** Sec-Twn- Rng **223** ft FNL **2587** ft FWL

Driving Directions: **FROM THE INTERSECTION OF US HWY 550 & US HWY 64 IN BLOOMFIELD, NM:**

South on US Hwy 550 for 38.3 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 0.5 miles to fork, Right (West) exiting CR #7890 onto access road for W Lybrook Unit 720H pad for 0.6 miles to fork, Left (West) onto access road for W Lybrook Unit 726H pad for 0.7 miles to fork, Left (West) for 1.4 miles to fork. Left (Southeast) for 0.6 miles to W Lybrook Unit 730H Pad (wells: 730H, 763H, 830H, 861H, 863H).

QUICK REFERENCE	
Sur TD (MD)	350 ft
Int TD (MD)	2,414 ft
KOP (MD)	3,544 ft
KOP (TVD)	3,516 ft
Target (TVD)	4,116 ft
Curve BUR	10 °/100 ft
POE (MD)	4,717 ft
TD (MD)	12,261 ft
Lat Len (ft)	7,544 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	2,414	9.625	36.0	J-55	LTC	0	2,414
Production	8.500	12,261	5.500	17.0	P-110	LTC	0	12,261

CEMENT PROPERTIES SUMMARY:

	Type	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	Hole Cap. (cuft/ft)	% Excess	TOC (ft MD)	Total (sx)
Surface	Class G	15.8	1.174	5.15	0.6946	100%	0	414
Inter. (Lead)	G:POZ Blend	12.3	1.987	10.16	0.3627	70%	0	528
Inter. (Tail)	Class G	15.8	1.148	4.98	0.3132	20%	1,914	164
Prod. (Lead)	G:POZ blend	12.4	1.907	9.981	0.2691	50%	0	765
Prod. (Tail)	G:POZ blend	13.3	1.360	5.999	0.2291	10%	3,821	1,564

COMPLETION / PRODUCTION SUMMARY:

Frac: 40 plug-and-perf stages with 240,000 bbls slickwater fluid and 11,000,000 lbs of proppant (estimated)
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Tops	TVD (ft KB)	MD (ft KB)
Ojo Alamo	231	231
Kirtland	291	291
Fruitland	606	606
Pictured Cliffs	916	916
Lewis	1,031	1,031
Chacra	1,266	1,266
Cliff House	2,286	2,291
Menefee	2,306	2,312
Point Lookout	3,281	3,305
Mancos	3,556	3,585
Gallup (MNCS_A)	3,781	3,821
MNCS_B	3,886	3,946
MNCS_C	3,971	4,065
MNCS_Cms	4,016	4,141
P.O.E. TARGET	4,116	4,717
PROJECTED TD	4,171	12,261

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

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

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 65909

CONDITIONS

Operator: ENDURING RESOURCES, LLC 6300 S Syracuse Way, Suite 525 Centennial, CO 80111	OGRID: 372286
	Action Number: 65909
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
kpickford	Adhere to previous conditions of approval.	12/14/2021