Susana Martinez Governor

Ken McQueen Cabinet Secretary

Matthias Sayer

Heather Riley, Division Director **Oil Conservation Division**



Deputy Cabinet Secretary New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 10/4/2018

Well information;

_, Well Name and Number 10. Lybrook Clust 771H Operator Enduring

API# 30-045-35894, Section 23 Township 23 (N)S, Range G EW

Conditions of Approval: (See the below checked and handwritten conditions)

- Notify Aztec OCD 24hrs prior to casing & cement.
- Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC
- Spacing rule violation. Operator must follow up with change of status notification on other well 0 to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply 0 with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or . use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A .
 - A below grade tank requires a registration be filed prior to the construction or use of the . below grade tank, pursuant to 19.15.17.8.C
- Once the well is spud, to prevent ground water contamination through whole or partial conduits 0 from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string

Submit Gas Capture Plan form prior to spudding or initiating recompletion operations 0

Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

NMOCD Approved by Signature

<form><form>Bind Bind Bind Bind Bind Bind Bind Bind</form></form>		-		NMOCD	*			
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100:01 TH ST STE 2000 DENVER CO 80225 (505)386-8205 BASIN MANCOS/MANCOS 4. Location of Well (Report location clearly and in accondance with any State regiments ¹) At surfs ² SENE (1864 FML /140 FEL /LAT 36. 198401 /LONG -107.75124) 1. See T, R M R BUL, and Surey or Area SC 23 /T28/M ROW / MMP 14. Distance in miles and direction from nearest town or post office [*] 12. Compt or Pains The SC 23 /T28/M ROW / MMP 13. State MM 15. Distance from proposed pocation to marks property or lease line. ft. (Abo to nearest applied for, on this lease, ft. 40. Proposed Depth. 20. BLM BIA Bond No. in file WUY Z 1 2018 NM0 CD 360 16. Distance from proposed location [*] 19. Proposed Peph. 20. BLM BIA Bond No. in file WUY Z 1 2018 NM0 CD 360 17. Specific Unit decleated to this well applied for, on this lease, ft. 40. Do nearest applied for, on this lease, ft. 50. Compt or Proposed Depth. 20. BLM BIA Bond No. in file WUY Z 1 2018 NM0 CD 30 days 18. Distance from proposed location [*] 19. Proposed Peph. 20. BLM BIA Bond No. in file WUY Z 1 2018 NM0 CD 30 days 19. Elevations (Show whether DF, KDB, RT, GL, etc.) 22. A functionents 30 days 30 days 19. Boal to critified by a registered surveyor. 3. A Surface Like Plan (if the location is on National Forest System Lands, the 30. Surger and the file of the file of the surger service Office) 4. Boal to critification. 6. Sch other ste specific information and/or plans as may be requested by the BLM State Plant Mode Corecore fore streaked to the file office boal to critifica	ENDURING RESOURCES LLC	26 1	Phone N	in linduda avaa aad		30-045	-35	894
At surface SENE / 1864 FNL / 740 FEL / LAT 36.214537 / LONG - 107.75171 SEC 23 / T281 / ReW / NMP 14. Datance in miles and direction from nearest town or post office: 12. Commy or Parish 13. State 37. miles 20 feet 16. No of acres in lease 17. Specing Unit dedicated to this well NM CD 15. Distance from proposed: 20 feet 16. No of acres in lease 17. Specing Unit dedicated to this well NM CD 16. Distance from proposed flag, unit line, if any) 18. Distance from proposed location: NOV 2.1. 2008 NOV 2.1. 2008 18. Distance from proposed flag, unit line, if any) 18. Distance from proposed location: 199. Proposed Depth. 20. BLM BIA Bend No. in file NOV 2.1. 2008 18. Distance from proposed location: 199. Proposed Depth. 23. Estimated duration: 30 days 2.1. Elevations (Show whether DF, K.DB, RT, GL, etc.) 22. Approximate date work will start 30 days 2.4. Attachments: 1100/2018 30 days 24. Attachments: 2.4. Dittachments: 1. Bond to cover the operations unless covered by an existing bond on file (see location is on Ninnau Forcet System Lanys); 8. Bond to cover the operations unless covered by an existing bond on file (see low); 2.4. Spatae Dian Cover the operations unless coverted by an existing bond on file (see low)					<i>(e)</i>	Statute Statute		
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25. Signature (Electronic Submission) Name (Printed/Typed) Lacey Granillo / Ph: (505)636-9743 Date 10/04/2018 27. Signature (Electronic Submission) Date 10/04/2018 Date 10/04/2018 27. Signature (Electronic Submission) Date 10/04/2018 Date 10/04/2018 27. Signature (Electronic Submission) Name (Printed/Typed) Date 10/04/2018 27. Signature (Electronic Submission) Name (Printed/Typed) Date 11/1/20/2018 27. Signature (Electronic Submission) Name (Printed/Typed) Date 11/1/20/2018 27. Signature (Electronic Submission) Office FARMINGTON Date 11/1/20/2018 Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. Conditions of approval, if any, are attached. Tritle BUS.C. Section 101 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. This action is subject to technical area procedural review pursuant to 43 CFR 3165.3 area appeal pursuant to 43 CFR 3165.4 BLM'S APPROVAL OR ACCEPTANC OF THIS ACTION DOES NOT RELIEVE THE DESEE AND OPERATIONS ON REQUIRED FOR OPERATIONS ON REQUIRED FOR OPERATIONS ON REQUIRED FOR OPERATIONS ON REQUIRED FOR OPERATIONS ON REDUIRED FOR OPERATIONS ON REDUIRED FOR OPERATIONS ON REDUIRED FOR OPERATIONS ON REDU	(as applicable)1. Well plat certified by a registered surveyor.2. A Drilling Plan.3. A Surface Use Plan (if the location is on National Forest S	System Lan		 Bond to cover th Item 20 above). Operator certification 	ne operation	ns unless covered by an	n existing l	oond on file (see
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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

API Number

Section

Section

25

23

POINT-OF-ENTRY

1921 FNL 824 FEL SEC 23, T23N, R9W LAT: 36.214368 N LONG: 107.751392 W

DATUM: NAD1927

LAT: 36.214381 °N LONG: 107.752005 °W DATUM: NAD1983

26

30-045-35 *Property Code

321259

'OGRID NO

372286

UL or lot no

H

UL ar lat on

H

¹² Dedicated Acres

(RECURD) N89 "55 "W 2641.32" S89 "57 '22 "W 2640.63" (MEASURED)

(MEASURED) 589 "51 "35 W 2623.23

(MEASURED) N89 "56 '48 W 2640.96 N89 "55 W 2640.00" (RECORD)

18

(MEASURED) NO "14'49'W 2641.34'

64 . 2638.02 '

(MEASURED) NO '01 '16"W 2638.

33

(MEASURED) 2 '34"E 2632.6

NO .42

MEASURED)

2

R

2633.40 ·

17 E

NO

2641.32

NO "11" W

"04 E

8

360.0

District IV 1220 S. St. Francis Drive, Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

89

State of New Mexico Energy, Minerals & Natural Resources Department

Form C-102 Revised August 1, 2011

Submit one copy to Appropriate District Office

AMENDED REPORT

Pool Name

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

98157 LYBROOK MANCOS W Well Number Property Name W LYBROOK UNIT 771H *Elevation Operator Name ENDURING RESOURCES, LLC 6737 ¹⁰ Surface Location County Township Lot Idn Feet from the Range North/South line East/West line Feet from the NORTH **NES** 9W 1864 740 EAST SAN JUAN 11 Bottom Hole Location If Different From Surface County Townshin Range Lat Ida North/South line Feet from the Feet from the East/West line 23N 9W 2424 NORTH 330 EAST SAN JUAN ¹³ Joint or Infill ¹⁴ Consolidation Code ¹⁵ Order No. NE/4 NW/4, NW/4 NE/4 R-14051 12.807.24 Acres 360.0 S/2 NE/4 - Section 25 NW/4 SW/4, S/2 SW/4 - Section 24 SE/4 NE/4, NE/4 SE/4 - Section 23 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 (RECORD) N89 *12 W 2608.98 N89 *17 31 W 2608.72 (MEASURED) (RECORD) N89 "58 "W 2643.96" 589 "56 '03 "W 2640.91 (MEASURED) (RECORD) N89 *12 W 2608.98 NB9 16 35 W 2607.57 (MEASURED) 17 OPERATOR CERTIFICATION (MEASURED) NO *10 55 W 2629.91 NO *08 W 2629.44 NO *08 W 2629.44 ¹¹ 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 agreement or a compulsory pooling order heretoric putched by the division. 9/26/18 SURFACE LOCATION 1854 FNL 740 FEL SEC 23, T23N, R9W LAT: 35.214524 N LONG: 107.751107 W DATUM: NAD1927 (MEASURED) 1 °06 '13 °W 2622.24 ° 40 °03 W 2623.83 ° (RECORD) 1964 125 740 555°52.9'W LAT: 36.214537 N ale is LONG: 107.751721 W DATUM: NAD1983 1. ON 24 (MEASURED) NO *06 *36 *V 2623.83 * NO *03 *V 2623.83 * (RECORD) Signature Date Lacey Granillo 67 2641.98 · Ser. (MEASURED) 41'26'E 2641. Printed Name lgranillo@enduringresources.com 24 8693 E-mail Address 45 E (RECORD) N89 *30 W 2624.16* 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 unduring my supervision, and that the same is true and correct to the best of my belief. 2 2 NB9 "33 '31 W 2624.58 (MEASURED) 2 (MEASURED) 589 "50 '32 "W 2622.50 (MEASURED) N89 "34" 18 W 2624.69 (MEASURED) 0 *07 '30 *N 2623.66' NO *03 W 2623.83' (RECORD) Date Revised: SEPTEMBER 20, 2018 Date of Survey: MAY 16, 2018 589 *54 W 2623.17 (RECORD) MEASURED) NB9 '30 W 2624.16 (RECORD) 2641.65' 2424 Signature and Seal of Professional Surveyor SON C. EDWARDS 330 25. ON 02. MEXICO ON. JEH QN 2 25PECTESTICHE PROFESSION SHUEYOR (MEASURED) 06:58"W 2624.61" 1"03"W 2623.83" (RECORD) END-OF-LATERAL (MEASURED) NO *17:38'E 2641.75 -20 E 2641.65 2424 FNL 330 FEL SEC 25, T23N, R9W LAT: 36,198388 W LONG: 107.732028 W DATUM: NAD1927 LAT: 36.198401 °N LONG: 107.732640 °W .00 NON 2 DATUM: NAD1983 2 JASON DWARDS (MEASURED) N89 "57 "16"W 2641.55 N89 "55 W 2640.00" (RECORD) (MEASURED) N89 *57 '05 'W 2644.69 N89 *56 'W 2643.30' (RECORD) (MEASURED) N89 *57 29 W 2642.59 N89 *56 W 2643.30 ' (RECORD) 15269 Certificate Number



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

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

approximately 0.2 miles to the W Lybrook Unit 768H pad.

WELL INFORMATION:

Name:	W Lybrook U	Init 771H						
API Number:	30-045- 35	8941						
State:	New Mexico							
County:	San Juan							
Surface Elevation:	6,737	ft ASL (GL)	6,762	ft ASL (KB)				
Surface Location:	23-23N-09W	Sec-Twn-Rng	1,864	ft FNL	740	ft FEL		
	36.214537	° N latitude	107.751721	° W longitude		(NAD 83)		
BH Location:	25-23N-09W	Sec-Twn-Rng	2,425	ft FNL	330	ft FEL		
	36.198401	° N latitude	107.73264	° W longitude		(NAD 83)		
Driving Directions:	From the inter	rsection of US H	WY 550 and U	S HWY 64 in Bloc	omfield, NM:	South on US	5 HWY 550 for 38	3.3 miles to MI
	113.4, right (s	outhwest) at on	CR #7890 for	0.8 miles to fork;	; left (south)	staying on #	7890 for 1.3 mile	s to 4-way
	intersection, l	eft (southeast) s	staying on #789	90 for 0.6 miles t	o fork, right	(west) exitin	g from #7890 on	to existing
	roadway for 0	.6 miles to fork	in road, right (northwest) for 0	.6 miles to be	eginning of a	ccess road on th	e right, right

GEOLOGIC AND RESERVOIR INFORMATION:

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O/G/W	Pressure
Ojo Alamo	6,354	408	408	W	normal
Kirtland	6,245	517	517	W	normal
Fruitland	6,047	715	715	G, W	sub
Pictured Cliffs	5,670	1,092	1,092	G, W	sub
Lewis	5,447	1,315	1,316	G, W	normal
Chacra	5,305	1,457	1,459	G, W	normal
Cliff House	4,230	2,532	2,584	G, W	sub
Menefee	4,215	2,547	2,600	G, W	normal
Point Lookout	3,248	3,514	3,623	G, W	normal
Mancos	2,983	3,779	3,904	0,G	sub (~0.38)
Gallup (MNCS_A)	2,762	4,000	4,138	0,G	sub (~0.38)
MNCS_I (TARGET)	2,031	4,731	5,505	0,G	sub (~0.38)
PROJECTED WELL TD	2,063	4,699	13,658	0,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-no	ormal pressu	re gradients	anticipated in all formations		
	Max. pressure gradient:	0.43	psi/ft	Evacuated hole gradient:	0.22	psi/ft
	Maximum anticipated BH pro	essure, assu	ming maxim	um pressure gradient:	2,040	psi
	Maximum anticipated surfac	e pressure,	assuming pa	rtially evacuated hole:	1,000	psi

Temperature: Maximum anticipated BHT is 155° F or less

H₂S INFORMATION:

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

MM

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 chromatograph 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 double gate ram (13-5/8", 3,000 psi)

BOPE 2: Cameron annular (13-5/8", 2,500 psi)

Choke Cameron (4", 10,000 psi)

KB-GL (ft): 25

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 10 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 the 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 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 ca	asing, cement casing to surface.

	0	ft (MD)	to	24	0 ft (MD)	Hole S	ection Length:	240			
	0	ft (TVD)	to	24	0 ft (TVD)	Ca	sing Required:	240			
	Note: Surface hole may be drilled, cased, and cemented with a smaller rig in advance of the drilling rig.										
			FL		YP						
Fluid:	Туре	MW (ppg)	(mL/30 min)	PV (cp)	(lb/100 sqft)	рН	Comn	nents			
	Fresh Water	8.4	N/C	2 - 8	2 - 12	9.0	Spud	mud			
Hole Size:	17-1/2"										
Bit / Motor:	Mill Tooth or I	PDC, no motor									
AWD / Survey:	No MWD, run	deviation surv	ey after drilling								
Logging:	None										
							Tens. Body	Tens. Conn			
Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	(lbs)	(lbs)			
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000			
Loading					105	570	111,406	111,406			
Min. S.F.					10.78	4.79	7.66	8.16			
		intermediate l	hole and 8.4 ppg	equivalent e	ure with 9.5 ppg j external pressure th 100,000 lbs ove	gradient	sing while drillin	g			
Torque (ft lbs):	Minumum:	N/A	Optimum:	N/A	Maximum:	N/A					
	Make-up as pe	er API Buttress	Connection runn	ing procedu	re.						
Casing Details:	Float shoe, 1 j	t casing, float c	ollar, casing to s	urface							
Centralizers:	2 centralizers	per jt stop-ban	ded 10' from eac	ch collar on l	oottom 3 jts, 1 ce	ntralizer per 2	2 jts to surface				
			Yield	Water	Hole Cap.		Planned TOC	Total Cmt			
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)			
	Class G	15.8	1.174	5.15	0.6946	100%	0	284			
	Class G										
		nent volumes a	issume gauge ho	ole and the e	xcess noted in ta	ble					
	Calculated cer		ssume gauge ho cementing blend		xcess noted in ta	ble					
	Calculated cer Halliburton HA	ALCEM surface	cementing blend	1	xcess noted in tak) psi compressiv	e strength			

	240	ft (MD)	to	2,706	ft (MD)	Hole S	ection Length:	2,466 ft
	240	ft (TVD)	to	2,647	ft (TVD)	Ca	sing Required:	2,706 ft
Eluid.	Turne	MMA (mmg)	FL (mL/30 min)	PV (cn)	YP (lb/100 sqft)	nH	Comp	aanto
Fluid:	Type WBM	MW (ppg)		PV (cp) 8 - 14	8 - 14	the second s		and a state of the second second second
Hole Size:		8.8 - 9.5	20	0-14	0-14	9.0 - 9.5		intiligency
		otor						
	PDC w/mud m			au (auan) 100	at a minimum)			
MWD / Survey:		, inclination, ar	id azimuth surv	ey (every 100	at a minimum)			
Logging:		hand los a shad a		toot 12 2/01	e e cinerte	1 500	nai fan 20 minu	***
Pressure Test:	NO BOPE and	test (as noted a	ibove); pressure	e test 13-3/8		1,500		the second s
Casina Space		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (nsi)		
Casing Specs:	9.625	36.0	J-55	LTC	2,020	statement in the statement of the statem		Contract of Contract of Contractory of Contractory of Contractory
Specs	9.025	50.0	1-22	LIC				
Loading					1,156	and the second se		
Min. S.F.		C. II		and the second	L		1	2.43
	Assumptions:			· · · · · · · · · · · · · · · · · · ·		9.0 - 9.5 OBM as contingency Im) 1,500 psi for 30 minutes. Im) Tens. Body Tens. Conn Isi) Burst (psi) (lbs) (lbs) 3,520 564,000 453,000 1,151 184,952 184,952 3.06 3.05 2.45 external pressure gradient pg fluid inside casing while drilling production s over-pull . 5,660 1 centralizer per 2 jts to surface . % Excess (ft MD) (sx) 40% 0 487 10% 2,206 150 must achieve 500 psi compressive strength		
						fluid inside ca	sing while drillin	g production
			pg equivalent e		•			
		Tension: buoye	ed weight in 8.4		100,000 lbs ov	er-pull		
AU Torque (ft lbs):	Minumum:	3,400	Optimum:	4,530	Maximum:	5,660		
Casing Details:	Float shoe, 1 jt	casing, float c	ollar, casing to	surface				
Centralizers:	2 centralizers	per jt stop-band	ded 10' from ea	ch collar on bo	ottom 3 jts, 1 ce	ntralizer per 2	2 jts to surface	
			Yield	Water	Hole Cap.		Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excass	(AMD)	(cv)
		The second second		(gai/ SK)	(curt/it)	/0 LALESS		(SA)
Lead	G:POZ Blend	12.3	1.987	10.16	0.3132	manufacture in the second s		the second s
Tail	G:POZ Blend Class G	12.3 15.8	1.987 1.148	10.16 4.98	0.3132 0.3132	40% 10%	0	487
Tail	G:POZ Blend Class G Calculated cen Halliburton EC	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem	1.987 1.148 ssume gauge h LCEM cementir	10.16 4.98 ole and the ex ng blend	0.3132 0.3132 cess noted in ta	40% 10% ble	0 2,206	487 150
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out.	1.987 1.148 ssume gauge h LCEM cementin ent is not circu	10.16 4.98 ole and the ex- ng blend lated to surfac	0.3132 0.3132 cess noted in ta	40% 10% ble st achieve 500	0 2,206	487 150
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD folk	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction	1.987 1.148 ssume gauge h LCEM cementin ent is not circu	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of	0.3132 0.3132 cess noted in ta ce. Cement mus	40% 10% ble st achieve 500 e.	0 2,206	487 150 re strength
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD)	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD)	40% 10% ble st achieve 500 e. Hole S	0 2,206 9 psi compressiv	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction	1.987 1.148 ssume gauge h LCEM cementin ent is not circu	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658	0.3132 0.3132 cess noted in ta ce. Cement mus	40% 10% ble st achieve 500 e. Hole S	0 2,206 9 psi compressiv	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. owing direction ft (MD) ft (TVD)	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD)	40% 10% ble st achieve 500 e. Hole S Ca	0 2,206 psi compressiv section Length: sing Required:	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. out. owing direction ft (MD) ft (MD) ft (TVD)	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000	0 2,206) psi compressiv Section Length: sing Required: [ft (TVD)	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD) ft (TVD) Es nated Landing	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to timated KOP: Point (P.O.E.):	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000	0 2,206 psi compressiv ection Length: sing Required:	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD) ft (TVD) Es nated Landing	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000	0 2,206) psi compressiv Section Length: sing Required: [ft (TVD)	487 150 re strength 10,952 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647 Estim	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD) ft (MD) ft (TVD) Estimated Landing I Estimated Landing I	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to to to to Point (P.O.E.): ateral Length:	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505 8,153	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731	0 2,206) psi compressiv Section Length: sing Required: ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. D & BLM if cem out. D & BLM if cem out. Estimated Landing if Estimated Landing if Estimated Landing if Estimated Landing if	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to timated KOP: Point (P.O.E.):	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp)	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD) ft (MD) ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731	0 2,206 9 psi compressiv Section Length: sing Required: ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD folk 2,706 2,647 Estim Type WBM	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD) ft (MD) ft (TVD) Estimated Landing I Estimated Landing I	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to to to to Point (P.O.E.): ateral Length:	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505 8,153	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731	0 2,206) psi compressiv Section Length: sing Required: ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft
Tail	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD folk 2,706 2,647 Estim Type WBM	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. D & BLM if cem out. D & BLM if cem out. Estimated Landing if Estimated Landing if Estimated Landing if Estimated Landing if	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to to to to Etimated KOP: Point (P.O.E.): oteral Length:	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp)	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD) ft (MD) ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731	0 2,206 9 psi compressiv Section Length: sing Required: ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft
Tail PRODUCTION: Fluid: Hole Size:	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD folk 2,706 2,647 Estim Type WBM	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. D & BLM if cem out. D & BLM if cem out. Estimated Long Estimated Long MW (ppg) 8.8 - 9.5	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to to to to Etimated KOP: Point (P.O.E.): oteral Length:	10.16 4.98 ole and the ex- ng blend lated to surfact sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp)	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (TVD) ft (MD) ft (MD) ft (MD) ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731	0 2,206 9 psi compressiv Section Length: sing Required: ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft
Tail <u>PRODUCTION:</u> Fluid: Hole Size: Bit / Motor:	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,706 2,647 Estim Estim VBM 8-1/2" PDC w/mud m	12.3 15.8 nent volumes a ONOCEM & HA O & BLM if cem out. owing direction ft (MD) ft (MD) ft (TVD) Estimated Landing is Estimated Landing is 8.8 - 9.5 otor	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to to to timated KOP: Point (P.O.E.): ateral Length: FL (mL/30') 20	10.16 4.98 ole and the ex- ng blend lated to surface sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp) 8 - 14	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731 pH 9.0 - 9.5	0 2,206) psi compressiv Section Length: sing Required: ft (TVD) ft (TVD) ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft nents ntingency
Tail PRODUCTION: Fluid: Hole Size: Bit / Motor: MWD / Survey:	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD follo 2,647 Estim Estim VPPE WBM 8-1/2" PDC w/mud m MWD with GR	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. D & BLM i	1.987 1.148 ssume gauge h LCEM cementin ent is not circu nal plan, run ca to to timated KOP: Point (P.O.E.): nteral Length: FL (mL/30') 20 end azimuth (sur	10.16 4.98 ole and the ex- ng blend lated to surface sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp) 8 - 14	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731 pH 9.0 - 9.5	0 2,206) psi compressiv Section Length: sing Required: ft (TVD) ft (TVD) ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft nents ntingency
Tail PRODUCTION: Fluid: Hole Size: Bit / Motor: MWD / Survey:	G:POZ Blend Class G Calculated cen Halliburton EC Notify NMOCI before drilling Drill to TD folk 2,706 2,647 Estim Estim Set 2,647 VBM 8-1/2" PDC w/mud m MWD with GR minimum befor	12.3 15.8 nent volumes a ONOCEM & HA D & BLM if cem out. D & BLM i	1.987 1.148 ssume gauge h LCEM cementin ent is not circu hal plan, run ca to to timated KOP: Point (P.O.E.): hteral Length: FL (mL/30') 20 hd azimuth (surver er Landing Poin	10.16 4.98 ole and the ex- ng blend lated to surface sing, cement of 13,658 4,699 4,138 5,505 8,153 PV (cp) 8 - 14 vey every joint at	0.3132 0.3132 cess noted in ta ce. Cement mus casing to surfac ft (MD) ft (MD)	40% 10% ble st achieve 500 e. Hole S Ca 4,000 4,731 pH 9.0 - 9.5 anding Point a	0 2,206) psi compressiv Section Length: sing Required: ft (TVD) ft (TVD) ft (TVD) ft (TVD)	487 150 re strength 10,952 ft 13,658 ft nents ntingency

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

							Tens. Body	Tens. Conn
Casing Specs:	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	(lbs)	(lbs)
Specs	5.500	17.0	P-110	LTC	7,460	10,640	546,000	445,000
Loading			1000	2	2,321	8,940	300,355	300,355
Min. S.F.					3.21	1.19	1.82	1.48
	Assumptions:	Collapse: fully	evacuated cas	ing with 9.5 pp	ng fluid in the an	nulus (floating	g casing during i	running)
		Burst: 8,500 ps	si maximum su	rface treating	pressure with 10	.2 ppg equiva	lent mud weigh	t sand laden
		fluid with 8.4 p	opg equivalent	external press	ure gradient			
		Tension: buoye	ed weight in 9.	0 ppg fluid wit	h 100,000 lbs ov	er-pull		
IU Torque (ft lbs):	Minumum:	3,470	Optimum:	4,620	Maximum:	5,780		
Casing Details:	Float shoe, flo	at collar, 2 jts c	asing, float col	lar, 1 jt casing,	toe-intitiation s	leeve, 1 jt cas	ing, toe-initiatio	n sleeve,
	casing to KOP	with 20' marke	r joints spaced	evenly in later	ral every 2,000'.	Place Floatati	on Sub at KOP (-	-/-). Continue
	running casing	to surface. The	e toe-initiation	sleeves must	be positioned I	NSIDE the 330)' unit setback.	
Centralizers:	Centralizer cou	unt and placem	ent may be ad	justed based o	n well condition	s and as-drille	d surveys.	
	Lateral: estima	ated 1 centralize	er per joints					
	Curve: estimat	ted 1 centralize	r per joint fron	n landing point	t to KOP			
	Vertical: estim	ated 1 centraliz	er per 2 joints	from KOP to 9	-5/8" shoe, 1 pe	r 3 joints fron	n 9-5/8" shoe to	surface
			Yield	Water	Hole Cap.		Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)
Lead	G:POZ blend	12.3	1.987	10.16	0.2691	40%	0	722
Tail	G:POZ blend	13.3	1.354	5.94	0.2291	10%	4,000	1,798
	Calculated cer	nent volumes a	ssume gauge h	nole and the ex	cess noted in ta	ble		
	Halliburton EC	ONOCEM & EX	TENDACEM cei	menting blend				
	Notify NMOCI	D & BLM if cem	ent is not circu	ulated to surfa	ice.			
Note:								
	The lateral ma	y be drilled pas	t applicaple se	tback to maxir	nize the length o	of the comple	ted interval and	to maximize
		very. If the well						

The lateral may be drilled past applicaple setback to maximize the length of the completed interval and to maximize resource recovery. If the well is drilled past the setback, the toe Initiation sleeve and all perforations will be placed inside the setback. An unorthodox location application is not required because the completed interval will be entirely within the setback as defined and allowed by NMAC 19.15.16.7B(1), NMAC 19.15.16.14B(2), NMAC 19.15.16.15B(2).

FINISH WELL: ND BOP, NU WH with BPV and cap, RDMO.

COMPLETION AND PRODUCTION PLAN:

Frac: Lateral will be fracture-stimulated in approximately 45 plug-and-perf stages with approximately 225,000 bbls slickwater fluid and 16,000,000 lbs of proppant.

Flowback: Depending on well pressures, flow back may be either up 5-1/2" casing or 2-7/8" production tubing. Well will be flowed back until proppant volumes are low enough that the well can safely be produced through permanent production facilities.

Production: Well will produce up production tubing via gas-lift into permanent production and storage facilities.

ESTIMATED START DATES:

Drilling:	12/1/2018
Completion:	1/31/2019
Production:	3/16/2019

Prepared by: Alec Bridge 9/14/2018



Enduring Resources LLC

San Juan Basin - W Lybrook Unit 768H Pad 771H

Wellbore #1

Plan: Design #1

Standard Planning Report

14 September, 2018



Nata based	EDM	Contractor of the second	WT CAR DESCRIPTION	Service Barris	Level 6	andle of a D. f.		Mall 77411	THE OWNER AND COMPANY	eginide industry industry environment
atabase:	EDM Enduring	Basaurasa				ordinate Refe		Well 771H		
ompany:		Resources L			TVD Refe	rence:		KB @ 6762.0usf		
roject:		Basin - W Ly	brook Unit		MD Refer	ence:		KB @ 6762.0usf	t (Original We	ll Elev)
ite:	768H Pad				North Ref	erence:		Grid		
/ell:	771H				Survey Ca	alculation Met	thod:	Minimum Curvat	ure	
Vellbore:	Wellbore #	#1								
Design:	Design #1						6 18 21	-an ²¹		
Project	San Juan B	Basin - W Lyt	prook Unit, Sa	an Juan Cour	nty, New Mexico				n an	n an an an Anna an Anna an Anna an Anna An Anna an Anna an Anna an Anna an Anna an Anna
Map System:	US State Pla				System Dat	tum:	M	ean Sea Level		
deo Datum.	North Americ									
Map Zone:	New Mexico	Western Zor	ne					8		
Site	768H Pad,	San Juan Co	ounty, New M	Mexico						
Site Position:			North	ing:	1,897	,416.80 usft	Latitude:			36.214585°N
From:	Lat/Long	g	Eastin	ng:	2,747	,156.27 usft	Longitude:			107.751754°W
Position Uncertainty:		0.0		Radius:		13-3/16 "	Grid Converg	jence:		0.05
Well	771H		in the second				Good and a set	Carent in Carent Constant of State		
Well Position	+N/-S	-17 5	ousft No	orthing:		1,897,399.34	lusft Lat	itude:		36.214537°N
in a station	+E/-W			asting:		2,747,166.02		ngitude:		107.751721°W
Depition Upsertaint	. [ellhead Eleva	tion	=,1 +1,100.02		ound Level:		6,737,0 ust
Position Uncertainty		0.0	Vusit W	ennead Eleva	itton.		Gro	unu Level:		0,737.0 USI
Wellbore	Wellbore #	ŧ1					andra and an and an and an			n an
Magnetics	Model	Name	Sampl	le Date	Declina	ition		Angle		Strength
	IGI	RF200510		12/31/2009	(°)	9.99	(°) 63.06		nT) 605.67835577
Design	Design #1						en e securação cabarlação			W ALLONG REPORTED AND AND AND A
Design Audit Notes:	Design #1									
			Dhao		PROTOTYPE	т:	o On Donth		0.0	
Version:			Phas				e On Depth:			
Vertical Section:		De	pth From (T) (usft)	VD)	+N/-S (usft)		E/-W usft)		ction (°)	
			0.0		0.0		0.0		6.16	
			0.0		0.0	(0.0	13	0.10	
Plan Survey Tool Pro	ogram	Date	9/14/2018							
Depth From (usft)	Depth To (usft)		Wellbore)		Tool Name		Remarks			
			Wellbore)	44)			Rentarks			
1 0.0	13,658.	/ Design #	1 (Wellbore #	+1)	MWD	Oterad				
					OWSG MWD	- Standard				
Plan Sections										
			Martha 1		14	Dest	D. III	Tim		
Measured	nation to		Vertical	+N/ S	+E/-W	Dogleg	Build	Turn Rate	TEO	
		zimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Rate (°/100usft)	Rate (°/100usft)	(°/100usft)	TFO	Target
(usit) ((°)	(°)	(usit)	(usit)	(usit)	(Trousit)	(Trousit)	(Trousit)	(°)	larget
	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
0.0	0.00	0.00	0.0	0.0						
0.0 240.0	0.00	0.00	240.0	0.0		0.00	0.00	0.00	0.00	
					0.0	0.00		0.00 0.00	0.00 0.00	
240.0 1,000.0	0.00	0.00 0.00	240.0 1,000.0	0.0 0.0	0.0 0.0	0.00	0.00	0.00	0.00	
240.0	0.00	0.00	240.0	0.0	0.0 0.0 -124.7		0.00	0.00 0.00	0.00 307.66	771Н - КОР

5,148.3

5,505.4

13,658.7

132.24

135.46

135.46

87.09

90.22

90.22

4,722.6

4,731.0

4,699.0

190.4

-56.9

-5,868.5

-341.3

-83.9

5,634.6

10.50

1.26

0.00

6.73

0.88

0.00

-17.36

0.90

0.00

-175.25

45.86 771H - POE2

0.00 771H - BHL2

COMPASS 5000.15 Build 88



1

Database:	EDM	Local Co-ordinate Reference:	Well 771H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6762.0usft (Original Well Elev)
Project:	San Juan Basin - W Lybrook Unit	MD Reference:	KB @ 6762.0usft (Original Well Elev)
Site:	768H Pad	North Reference:	Grid
Well:	771H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Desian #1		

Planned Survey

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	. 0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	2.00	307.66	1,100.0	1.1	-1.4	-1.7	2.00	2.00	0.00
1,200.0	4.00	307.66	1,199.8	4.3	-5.5	-6.9	2.00	2.00	0.00
1,300.0	6.00	307.66	1,299.5	9.6	-12.4	-15.5	2.00	2.00	0.00
1,400.0	8.00	307.66	1,398.7	17.0	-22.1	-27.6	2.00	2.00	0.00
1,500.0	10.00	307.66	1,497.5	26.6	-34.5	-43.0	2.00	2.00	0.00
1,600.0	12.00	307.66	1,595.6	38.3	-49.6	-61.9	2.00	2.00	0.00
1,700.0	14.00	307.66	1,693.1	52.0	-67.4	-84.2	2.00	2.00	0.00
1,800.0	16.00	307.66	1,789.6	67.8	-87.9	-109.8	2.00	2.00	0.00
1,900.0	18.00	307.66	1,885.3	85.7	-111.0	-138.7	2.00	2.00	0.00
1,954.5	19.09	307.66	1,937.0	96.3	-124.7	-155.8	2.00	2.00	0.00
2,000.0	19.09	307.66	1,979.9	105.4	-136.5	-170.5	0.00	0.00	0.00
2,100.0	19.09	307.66	2,074.4	125.3	-162.4	-202.9	0.00	0.00	0.00
2,200.0	19.09	307.66	2,168.9	145.3	-188.3	-235.2	0.00	0.00	0.00
2,300.0	19.09	307.66	2,263.4	165.3	-214.2	-267.6	0.00	0.00	0.00
2,400.0	19.09	307.66	2,357.9	185.3	-240.1	-299.9	0.00	0.00	0.00
								0.00	
2,500.0	19.09	307.66	2,452.4	205.3	-266.0	-332.3	0.00		0.00
2,600.0	19.09	307.66	2,546.9	225.3	-291.8	-364.6	0.00	0.00	0.00
2,700.0	19.09	307.66	2,641.4	245.2	-317.7	-397.0	0.00	0.00	0.00
2,800.0	19.09	307.66	2,735.9	265.2	-343.6	-429.3	0.00	0.00	0.00
2,900.0	19.09	307.66	2,830.4	285.2	-369.5	-461.7	0.00	0.00	0.00
3,000.0	19.09	307.66	2,924.9	305.2	-395.4	-494.0	0.00	0.00	0.00
3,100.0	19.09	307.66	3,019.4	325.2	-421.3	-526.3	0.00	0.00	0.00
3,200.0	19.09	307.66	3,113.9	345.2	-447.2	-558.7	0.00	0.00	0.00
3,300.0	19.09	307.66	3,208.4	365.1	-473.1	-591.0	0.00	0.00	0.00
3,400.0	19.09	307.66	3,302.9	385.1	-499.0	-623.4	0.00	0.00	0.00
3,500.0	19.09	307.66	3,397.4	405.1	-524.9	-655.7	0.00	0.00	0.00
3,600.0	19.09	307.66	3,491.9	425.1	-550.8	-688.1	0.00	0.00	0.00
3,700.0	19.09	307.66	3,586.4	445.1	-576.6	-720.4	0.00	0.00	0.00
3,800.0	19.09	307.66	3,680.9	465.1	-602.5	-752.8	0.00	0.00	0.00
3,900.0	19.09	307.66	3,775.4	485.0	-628.4	-785.1	0.00	0.00	0.00
4,000.0	19.09	307.66	3,869.9	505.0	-654.3	-817.5	0.00	0.00	0.00
4,100.0	19.09	307.66	3,964.4	525.0	-680.2	-849.8	0.00	0.00	0.00
4,137.6	19.09	307.66	4,000.0	532.5	-690.0	-862.0	0.00	0.00	0.00
4,200.0	12.58	305.17	4,060.0	542.7	-703.6	-878.8	10.50	-10.45	-3.99
4,300.0	2.52	274.07	4,159.0	549.1	-714.7	-891.1	10.50	-10.06	-31.11
4,400.0	8.66	142.41	4,258.7	543.3	-712.3	-885.2	10.50	6.14	-131.65
4,500.0	19.08	136.65	4,355.6	525.4	-696.5	-861.3	10.50	10.42	-5.76
4,600.0	29.56	134.90	4,446.6	496.0	-667.7	-820.2	10.50	10.48	-1.76
4,700.0	40.04	134.01	4,528.6	456.2	-627.0	-763.3	10.50	10.49	-0.89
4,800.0	50.54	133.44	4,598.9	407.1	-575.6	-692.4	10.50	10.49	-0.57
4,900.0	61.03	133.02	4,655.0	350.6	-515.5	-609.9	10.50	10.49	-0.37
4,500.0	71.53	132.68	4,695.2	288.4	-448.4	-518.6	10.00	10.49	-0.42



Database:	EDM	Local Co-ordinate Reference:	Well 771H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6762.0usft (Original Well Elev)
Project:	San Juan Basin - W Lybrook Unit	MD Reference:	KB @ 6762.0usft (Original Well Elev)
Site:	768H Pad	North Reference:	Grid
Well: .	771H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Database: Company: Project: Site: Vell: Wellbore: Design:		Enduring Resources LLC San Juan Basin - W Lybrook Unit 768H Pad 771H Wellbore #1			Co-ordinate Re eference: ference: Reference: / Calculation M		Well 771H KB @ 6762.0usft (Original Well Elev) KB @ 6762.0usft (Original Well Elev) Grid Minimum Curvature		
Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	82.02	132.37	4,718.0	222.7	-376.8	-421.6	10.50	10.50	-0.30
5,148.3 5,200.0 5,300.0 5,400.0 5,500.0	87.09 87.54 88.42 89.30 90.18	132.24 132.70 133.61 134.51 135.41	4,722.6 4,725.0 4,728.6 4,730.6 4,731.0	190.4 155.5 87.2 17.6 -53.0	-341.3 -303.1 -230.2 -158.4 -87.6	-373.7 -322.1 -222.3 -122.4 -22.4	10.50 1.26 1.26 1.26 1.26 1.26	10.50 0.88 0.88 0.88 0.88	-0.29 0.91 0.90 0.90 0.90
5,505.4	90.22	135.46	4,731.0	-56.9	-83.9	-17.1	1.26	0.88	0.90
5,600.0	90.22	135.46	4,730.6	-124.3	-17.5	77.6	0.00	0.00	0.00
5,700.0	90.22	135.46	4,730.2	-195.6	52.6	177.5	0.00	0.00	0.00
5,800.0 5,900.0	90.22 90.22	135.46 135.46	4,729.8 4,729.5	-266.9 -338.1 -409.4	122.8 192.9 263.1	277.5 377.5 477.5	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00
6,000.0	90.22	135.46	4,729.1	-409.4	263.1	477.5	0.00	0.00	0.00
6,100.0	90.22	135.46	4,728.7	-480.7	333.2	577.5	0.00	0.00	0.00
6,200.0	90.22	135.46	4,728.3	-552.0	403.3	677.5	0.00	0.00	0.00
6,300.0	90.22	135.46	4,727.9	-623.3	473.5	777.5	0.00	0.00	0.00
6,400.0	90.22	135.46	4,727.5	-694.5	543.6	877.5	0.00	0.00	0.00
6,500.0	90.22	135.46	4,727.1	-765.8	613.7	977.5	0.00	0.00	0.00
6,600.0	90.22	135.46	4,726.7	-837.1	683.9	1,077.5	0.00	0.00	0.00
6,700.0	90.22	135.46	4,726.3	-908.4	754.0	1,177.5	0.00	0.00	0.00
6,800.0	90.22	135.46	4,725.9	-979.7	824.1	1,277.5	0.00	0.00	0.00
6,900.0 7,000.0	90.22	135.46	4,725.5	-1,050.9	894.3 964.4	1,377.4	0.00	0.00	0.00
7,100.0	90.22	135.46	4,724.7	-1,193.5	1,034.6	1,577.4	0.00	0.00	0.00
7,200.0	90.22	135.46	4,724.3	-1,264.8	1,104.7	1,677.4	0.00	0.00	0.00
7,300.0	90.22	135.46	4,724.0	-1,336.1	1,174.8	1,777.4	0.00	0.00	0.00
7,400.0	90.22	135.46	4,723.6	-1,407.3	1,245.0	1,877.4	0.00	0.00	0.00
7,500.0	90.22	135.46	4,723.2	-1,478.6	1,315.1	1,977.4	0.00	0.00	0.00
7,600.0	90.22	135.46	4,722.8	-1,549.9	1,385.2	2,077.4	0.00	0.00	0.00
7,700.0	90.22	135.46	4,722.4	-1,621.2	1,455.4	2,177.4	0.00	0.00	0.00
7,800.0	90.22	135.46	4,722.0	-1,692.5	1,525.5	2,277.4	0.00	0.00	0.00
7,900.0	90.22	135.46	4,721.6	-1,763.7	1,595.6	2,377.4	0.00	0.00	0.00
8,000.0	90.22	135.46	4,721.2	-1,835.0	1,665.8	2,477.4	0.00	0.00	0.00
8,100.0	90.22	135.46	4,720.8	-1,906.3	1,735.9	2,577.3	0.00	0.00	0.00
8,200.0	90.22	135.46	4,720.4	-1,977.6	1,806.1	2,677.3	0.00	0.00	0.00
8,300.0	90.22	135.46	4,720.0	-2,048.8	1,876.2	2,777.3	0.00	0.00	0.00
8,400.0	90.22	135.46	4,719.6	-2,120.1	1,946.3	2,877.3	0.00	0.00	0.00
8,500.0	90.22	135.46	4,719.2	-2,191.4	2,016.5	2,977.3	0.00	0.00	0.00
8,600.0	90.22	135.46	4,718.9	-2,262.7	2,086.6	3,077.3	0.00	0.00	0.00
8,700.0	90.22	135.46	4,718.5	-2,334.0	2,156.7	3,177.3	0.00	0.00	0.00
8,800.0	90.22	135.46	4,718.1	-2,405.2	2,226.9	3,277.3	0.00	0.00	0.00
8,900.0	90.22	135.46	4,717.7	-2,476.5	2,297.0	3,377.3	0.00	0.00	0.00
9,000.0	90.22	135.46	4,717.3	-2,547.8	2,367.1	3,477.3	0.00	0.00	0.00
9,100.0	90.22	135.46	4,716.9	-2,619.1	2,437.3	3,577.3	0.00	0.00	0.00
9,200.0	90.22	135.46	4,716.5	-2,690.4	2,507.4	3,677.3	0.00	0.00	0.00
9,300.0	90.22	135.46	4,716.1	-2,761.6	2,577.6	3,777.2	0.00	0.00	0.00
9,400.0	90.22	135.46	4,715.7	-2,832.9	2,647.7	3,877.2	0.00	0.00	0.00
9,500.0	90.22	135.46	4,715.3	-2,904.2	2,717.8	3,977.2	0.00	0.00	0.00
9,600.0	90.22	135.46	4,714.9	-2,975.5	2,788.0	4,077.2	0.00	0.00	0.00
9,700.0	90.22	135.46	4,714.5	-3,046.8	2,858.1	4,177.2	0.00	0.00	0.00
9,800.0	90.22	135.46	4,714.1	-3,118.0	2,928.2	4,277.2	0.00	0.00	0.00
9,900.0	90.22	135.46	4,713.8	-3,189.3	2,998.4	4,377.2	0.00	0.00	0.00
10,000.0 10,100.0 10,200.0	90.22 90.22 90.22 90.22	135.46 135.46 135.46	4,713.8 4,713.4 4,713.0 4,712.6	-3,260.6 -3,331.9 -3,403.2	3,068.5 3,138.6 3,208.8	4,477.2 4,577.2 4,677.2	0.00 0.00 0.00	0.00 0.00 0.00	0.00 0.00 0.00 0.00



Database:	EDM	Local Co-ordinate Reference:	Well 771H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6762.0usft (Original Well Elev)
Project:	San Juan Basin - W Lybrook Unit	MD Reference:	KB @ 6762.0usft (Original Well Elev)
Site:	768H Pad	North Reference:	Grid
Vell:	771H	Survey Calculation Method:	Minimum Curvature
Vellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.0 10,400.0	90.22 90.22	135.46 135.46	4,712.2 4,711.8	-3,474.4 -3,545.7	3,278.9 3,349.1	4,777.2 4,877.2	0.00 0.00	0.00 0.00	0.00 0.00
10,500.0	90.22	135.46	4,711.4	-3,617.0	3,419.2	4,977.1	0.00	0.00	0.00
10,600.0	90.22	135.46	4,711.0	-3,688.3	3,489.3	5,077.1	0.00	0.00	0.00
10,700.0	90.22	135.46	4,710.6	-3,759.5	3,559.5	5,177.1	0.00	0.00	0.00
10,800.0	90.22	135.46	4,710.2	-3,830.8	3,629.6	5,277.1	0.00	0.00	0.00
10,900.0	90.22	135.46	4,709.8	-3,902.1	3,699.7	5,377.1	0.00	0.00	0.00
11,000.0	90.22	135.46	4,709.4	-3,973.4	3,769.9	5,477.1	0.00	0.00	0.00
11,100.0	90.22	135.46	4,709.0	-4,044.7	3,840.0	5,577.1	0.00	0.00	0.00
11,200.0	90.22	135.46	4,708.6	-4,115.9	3,910.1	5,677.1	0.00	0.00	0.00
11,300.0	90.22	135.46	4,708.3	-4,187.2	3,980.3	5,777.1	0.00	0.00	0.00
11,400.0	90.22	135.46	4,707.9	-4,258.5	4,050.4	5,877.1	0.00	0.00	0.00
11,500.0	90.22	135.46	4,707.5	-4,329.8	4,120.6	5,977.1	0.00	0.00	0.00
11,600.0	90.22	135.46	4,707.1	-4,401.1	4,190.7	6.077.1	0.00	0.00	0.00
11,700.0	90.22	135.46	4,706,7	-4,472.3	4,260.8	6.177.0	0.00	0.00	0.00
11,800.0	90.22	135.46	4,706.3	-4,543.6	4,331.0	6,277.0	0.00	0.00	0.00
11,900.0	90.22	135.46	4,705.9	-4,614.9	4,401.1	6,377.0	0.00	0.00	0.00
12,000.0	90.22	135.46	4,705.5	-4,686.2	4,471.2	6,477.0	0.00	0.00	0.00
12,100.0	90.22	135.46	4,705.1	-4,757.5	4,541.4	6,577.0	0.00	0.00	0.00
12,200.0	90.22	135.46	4,704.7	-4,828.7	4,611.5	6,677.0	0.00	0.00	0.00
12,300.0	90.22	135.46	4,704.3	-4,900.0	4,681,6	6,777.0	0.00	0.00	0.00
12,400.0	90.22	135.46	4,703.9	-4,971.3	4,751.8	6,877.0	0.00	0.00	0.00
12,500.0	90.22	135.46	4,703.5	-5,042.6	4,821.9	6,977.0	0.00	0.00	0.00
12,600.0	90.22	135.46	4,703.2	-5,113.9	4,892.1	7,077.0	0.00	0.00	0.00
12,700.0	90.22	135.46	4,702.8	-5,185.1	4,962.2	7,177.0	0.00	0.00	0.00
12,800.0	90.22	135.46	4,702.4	-5,256.4	5,032.3	7,277.0	0.00	0.00	0.00
12,900.0	90.22	135.46	4,702.0	-5,327.7	5,102.5	7,376.9	0.00	0.00	0.00
13,000.0	90.22	135.46	4,701.6	-5,399.0	5,172.6	7,476.9	0.00	0.00	0.00
13,100.0	90.22	135.46	4,701.2	-5,470.3	5,242.7	7,576.9	0.00	0.00	0.00
13,200.0	90.22	135.46	4,700.8	-5,541.5	5,312.9	7,676.9	0.00	0.00	0.00
13,300.0	90.22	135.46	4,700.4	-5,612.8	5,383.0	7,776.9	0.00	0.00	0.00
13,400.0	90.22	135.46	4,700.0	-5,684.1	5,453.1	7,876.9	0.00	0.00	0.00
13,500.0	90.22	135.46	4,699.6	-5.755.4	5.523.3	7.976.9	0.00	0.00	0.00
13,600.0	90.22	135.46	4,699.2	-5,826.6	5,593.4	8,076.9	0.00	0.00	0.00
13,658.7	90.22	135.46	4,699.0	-5,868.5	5,634.6	8,135.6	0.00	0.00	0.00

Design Targets	1	2.22							
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
771H - KOP - plan hits target cent - Point	0.00 er	0.00	4,000.0	532.5	- <mark>6</mark> 90.0	1,897,931.88	2,746,476.06	36.216002°N	107.754059°W
771H - BHL2 - plan hits target cent - Point	0.00 er	0.00	4,699.0	- <mark>5</mark> ,868.5	5,634.6	1,891,530.84	2,752,800.62	36.198401°N	107.732641°W
771H - POE2 - plan hits target cent - Point	0.00 er	0.00	4,731.0	-56.9	-83.9	1,897,342.48	2,747,082.16	36.214381°N	107.752006°W

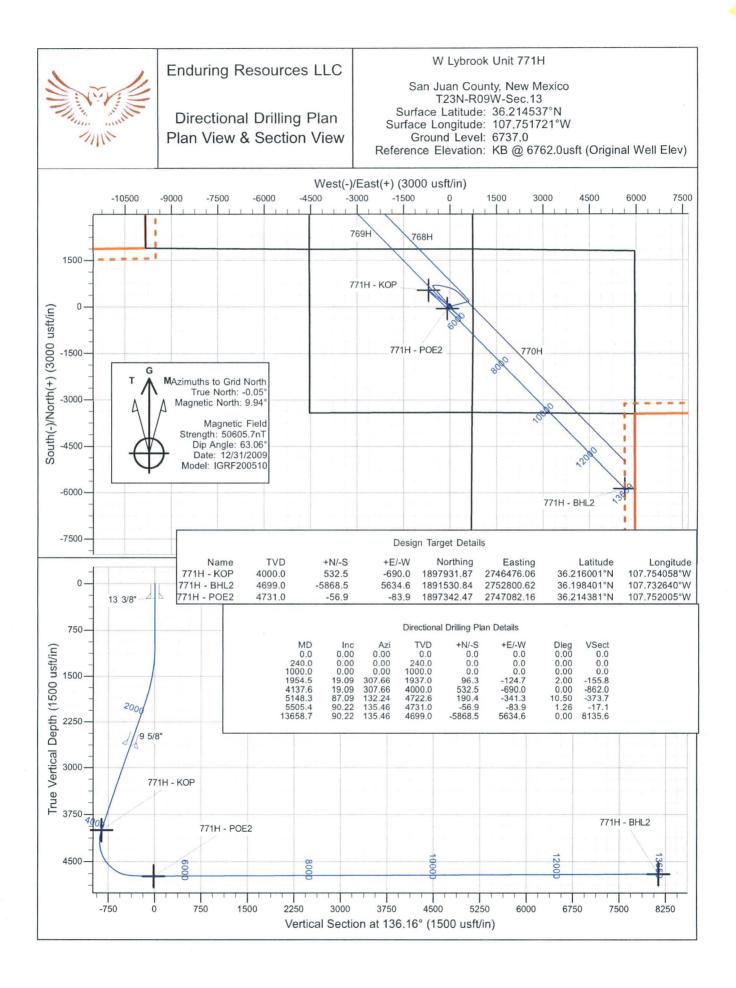


Database:	EDM	Local Co-ordinate Reference:	Well 771H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6762.0usft (Original Well Elev)
Project:	San Juan Basin - W Lybrook Unit	MD Reference:	KB @ 6762.0usft (Original Well Elev)
Site:	768H Pad	North Reference:	Grid
Well:	771H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Casing Points

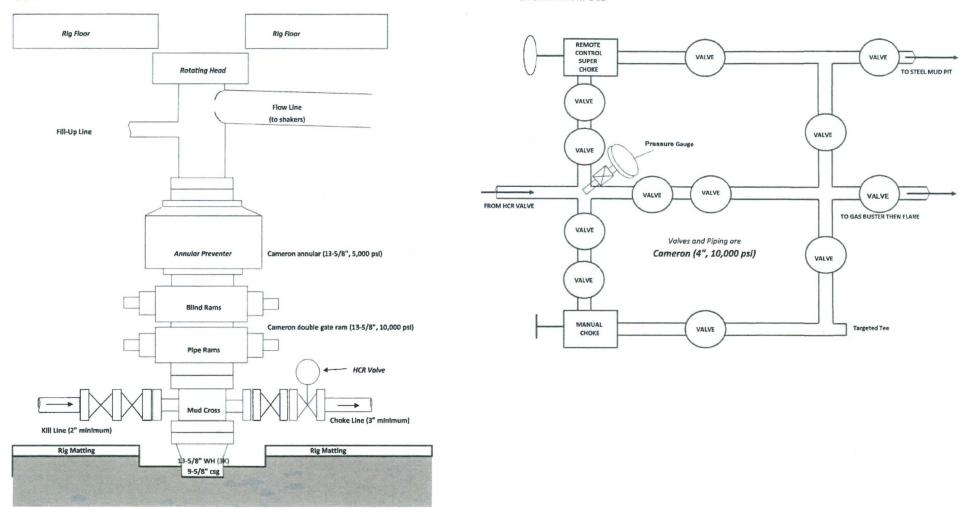
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (")	Hole Diameter (")
240.0	240.0	13 3/8"		13-3/8	17-1/2
2,705.9	2,647.0	9 5/8"		9-5/8	12-1/4

Formations					
	Measured Depth (usft)	Vertical Depth (usft)	Name	Dip Lithology (°)	Dip Direction (°)
	408.0	408.0	Ojo Alamo	0.00	
	517.0	517.0	Kirtland	0.00	
	715.0	715.0	Fruitland	0.00	
	1,092.0	1,092.0	Pictured Cliffs	0.00	
	1,315.6	1,315.0	Lewis	0.00	
	1,459.0	1,457.0	Chacra	0.00	
	2,584.2	2,532.0	Cliff House	0.00	
	2,600.1	2,547.0	Menefee	0.00	
	3,623.3	3,514.0	Point Lookout	0.00	
	3,903.8	3,779.0	Mancos	0.00	
	4,137.6	4,000.0	Gallup (MNCS_A)	0.00	
	4,240.7	4,100.0	MNCS_B	0.00	
	4,373.1	4,232.0	MNCS_C	0.00	
	4,378.1	4,237.0	MNCS_Cms	0.00	
	4,496.2	4,352.0	MNCS_D	0.00	
	4,644.0	4,484.0	MNCS_E	0.00	
	4,717.7	4,542.0	MNCS_F	0.00	
	4,822.8	4,613.0	MNCS G	0.00	
	4,914.8	4,662.0	MNCS_H	0.00	
	5,050.6	4,709.0	MNCS_I	0.00	
	5,505.4	4,731.0	MNCS_I (TARGET)	0.00	



BOPE & CHOKE MANIFOLD DIAGRAMS

BOPE



CHOKE MANIFOLD

Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Enduring Resources, LLC W Lybrook Unit #771H

1864' FNL & 740' FEL, Section 23, T23N, R9W, N.M.P.M., San Juan County, NM

Latitude: 36.214537°N Longitude: 107.751721°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 38.3 miles to Mile Marker 113.4;

Go Right (South-westerly) on County Road #7890 for 0.8 miles to fork in roadway;

Go Left (Southerly) remaining on County Road #7890 for 1.3 miles to four-way intersection;

Go Left (South-easterly) remaining on County Road #7890 for 0.6 miles to fork in roadway;

Go Right (South-westerly) remaining on County Road #7890 for 0.6 miles to fork in roadway;

Go Right (Westerly) exiting County Road #7890 onto existing roadway for 0.6 miles to fork in roadway;

Go Right (North-westerly) for 0.6 miles to begin proposed access on right-hand side of existing roadway which continues for 1056.1' to staked Enduring W Lybrook Unit #771H location.