

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



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: 4/23/2019

Well information;

Operator Enduring, Well Name and Number: Rodeo Unit 494H

API# 30-045-³75923, Section 31, Township 23 N/S, Range 8 E/W

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

- ✓ Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ If cement doesn't circulate on any casing string or stage tool a CBL will be required. Contact the regulatory agencies prior to proceeding.
- ✓ Hold C-104 for directional survey & "As Drilled" Plat
- ✓ Hold C-104 for: **NSL**, NSP, DHC, **5.9 Compliance**
- Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- Regarding the use of a pit, closed loop system or below grade tank, the operator must comply 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 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
- ✓ 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

4/15/20

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM120377
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No. NMNM136328A
2. Name of Operator ENDURING RESOURCES LLC		8. Lease Name and Well No. RODEO UNIT 494H
3a. Address 1050 17TH ST STE 2500 DENVER CO 80265	3b. Phone No. (include area code) (505)386-8205	9. API Well No. 30-045-35923
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWNW / 225 FNL / 935 FWL / LAT 36.19001 / LONG -107.728343 At proposed prod. zone SESW / 330 FSL / 1498 FWL / LAT 36.177003 / LONG -107.708525		10. Field and Pool, or Exploratory MANCOS / BASIN MANCOS
11. Sec., T. R. M. or Blk. and Survey or Area SEC 31 / T23N / R8W / NMP		
14. Distance in miles and direction from nearest town or post office* 53.9 miles		12. County or Parish SAN JUAN
13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 20 feet	16. No of acres in lease 643.12	17. Spacing Unit dedicated to this well 1283.63
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 225 feet	19. Proposed Depth 4125 feet / 14239 feet	20. BLM/BIA Bond No. in file FED: NMB001492
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6680 feet	22. Approximate date work will start* 06/01/2019	23. Estimated duration 30 days
24. Attachments		

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Lacey Granillo / Ph: (505)947-1704	Date 04/23/2019
Title Permitting Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Richard Fields / Ph: (505)564-7612	Date 03/19/2020
Title Field Manager		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.



OCD Received
3/19/2020

AV

(Continued on page 2)

*(Instructions on page 2)

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 30-045-35923		*Pool Code 97232	*Pool Name BASIN MANCOS
*Property Code 321253	*Property Name RODEO UNIT		*Well Number 494H
*GRID No. 372286	*Operator Name ENDURING RESOURCES, LLC		*Elevation 6680'

¹⁰ Surface Location

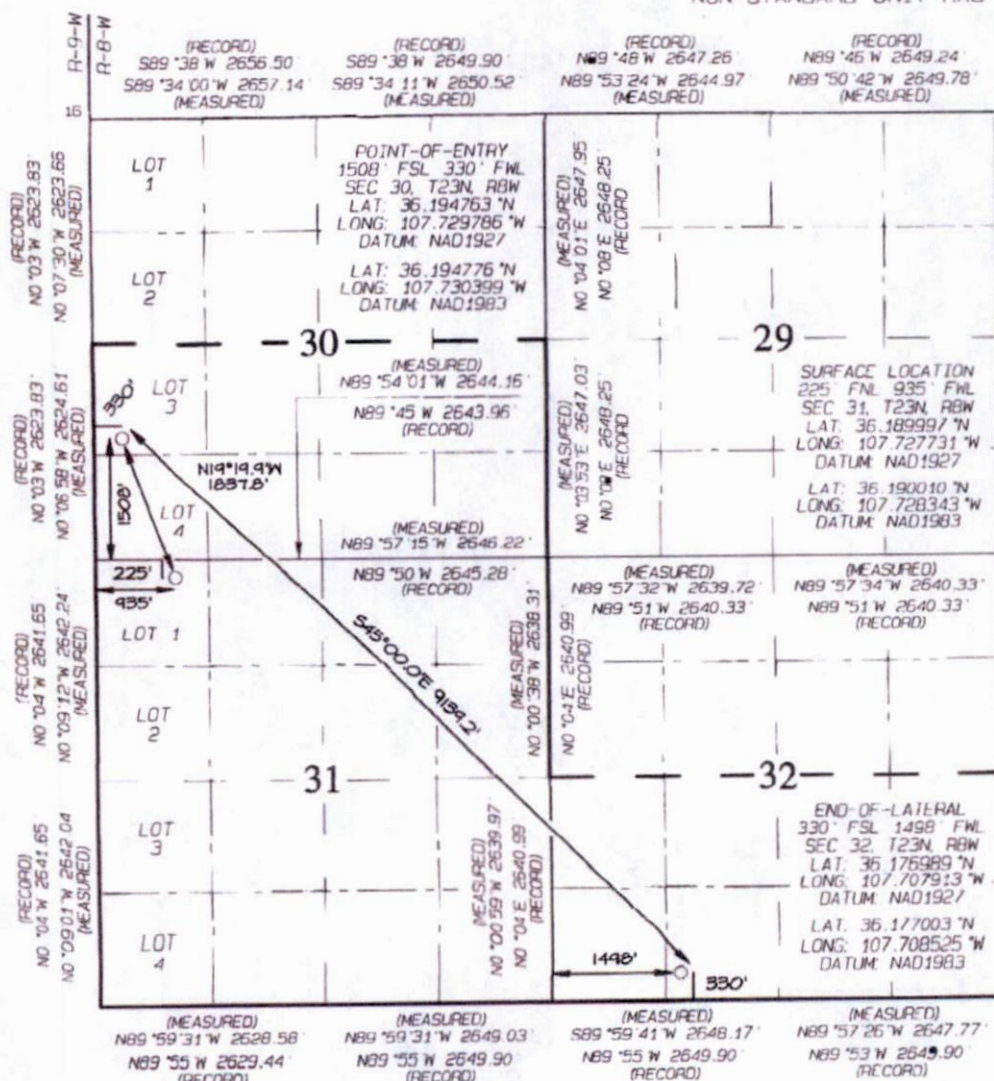
UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
D	31	23N	8W	1	225	NORTH	935	WEST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
N	32	23N	8W		330	SOUTH	1498	WEST	SAN JUAN

¹² Dedicated Acres 1283.63	S/2 - Section 30 Entire Section 31 S/2 - Section 32	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-14313
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION
UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A
NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



¹⁷ OPERATOR CERTIFICATION

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

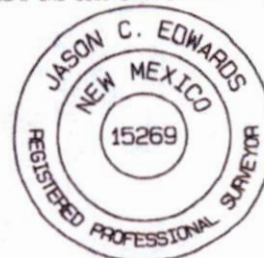
Signature: [Signature]
Date: 4/2/19
Printed Name: Lacey Granillo
E-mail Address: lgranillo@enduringresources.com

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: APRIL 22, 2019
Date of Survey: APRIL 12, 2016

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269



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: **RODEO UNIT 494H**

API Number: **30-045-**

State: New Mexico

County: San Juan

Surface Elevation: 6,680 ft ASL (GL)

6,705 ft ASL (KB)

Surface Location: 31-23N-08W Sec-Twn-Rng

225 ft FNL

935 ft FWL

36.19001 ° N latitude

107.728343 ° W longitude

(NAD 83)

BH Location: 32-23N-08W Sec-Twn-Rng

330 ft FSL

1,498 ft FWL

36.177003 ° N latitude

107.708525 ° 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 38.7 miles to MM 112.7; Right (South) on CR 7900 for 2.3 miles to fork; Right (West) on 7940 for 2.6 miles, Right (North-West) on new acces road for approximately 0.2 miles to Rodeo Unit 492H Pad (includes wells 492H, 493H, 494H, 495H, 496H).

GEOLOGIC AND RESERVOIR INFORMATION:

Prognosis:	Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O / G / W	Pressure
	Ojo Alamo	6,418	287	287	W	normal
	Kirtland	6,297	408	408	W	normal
	Fruitland	6,092	613	613	G, W	sub
	Pictured Cliffs	5,737	968	982	G, W	sub
	Lewis	5,485	1,220	1,277	G, W	normal
	Chacra	5,352	1,353	1,441	G, W	normal
	Cliff House	4,276	2,429	2,764	G, W	sub
	Menefee	4,270	2,435	2,771	G, W	normal
	Point Lookout	3,290	3,415	4,150	G, W	normal
	Mancos	3,065	3,640	4,404	O,G	sub (~0.38)
	Gallup (MNCS_A)	2,835	3,870	4,658	O,G	sub (~0.38)
	MNCS_B	2,735	3,970	4,782	O,G	sub (~0.38)
	MNCS_Cms	2,610	4,095	4,978	O,G	sub (~0.38)
	P.O.E. TARGET	2,560	4,145	5,094	O,G	sub (~0.38)
	L.P. TARGET	2,510	4,195	5,417	O,G	sub (~0.38)
	PROJECTED TD	2,580	4,125	14,239	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: 1,810 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; gas detection from drill out of 13-3/8" casing to TD; remote geo-steering from drill out of 9-5/8" casing to TD.

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

Open Hole Logs: None planned

Testing: None planned

Coring: None planned

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

DRILLING RIG INFORMATION:

Contractor: 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", 5,000 psi)

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

KB-Gl (ft): 25

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

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 installed 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	805	116,634	116,634
Min. S.F.					7.39	3.39	7.31	7.79

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

Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling intermediate hole and 8.4 ppg equivalent external pressure gradient

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

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

Make-up as per API Buttress Connection running procedure.

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

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

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	Hole Cap. (cuft/ft)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
	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	4,512 ft (MD)	Hole Section Length:	4,162 ft
350 ft (TVD)	to	3,740 ft (TVD)	Casing Required:	4,512 ft

Fluid:	Type	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pH	Comments
	LSND	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 surveys with inclination and azimuth in 100' stations (minimum), GR optional**Logging:** None**Pressure Test:** NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.

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					1,634	1,104	241,649
Min. S.F.					1.24	3.19	2.33

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

Burst: maximum anticipated surface pressure with 9.5 ppg fluid inside casing while drilling production hole and 8.4 ppg equivalent external pressure gradient

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

MU Torque (ft lbs): Minimum: 3,900 Optimum: 5,200 Maximum: 6,500**Casing Details:** Float shoe, 1 jt casing, float collar, casing to surface**Centralizers:** 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Lead	G:POZ Blend	12.3	1.987	10.16	40%	0	898
Tail	Class G	15.8	1.148	4.98	10%	4,012	150

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.**

4,512 ft (MD)	to	14,239 ft (MD)	Hole Section Length:	9,727 ft
3,740 ft (TVD)	to	4,125 ft (TVD)	Casing Required:	14,239 ft

Estimated KOP:	3,466 ft (MD)	3,000 ft (TVD)
Estimated Point-of-Entry (70 deg. inc):	5,094 ft (MD)	4,145 ft (TVD)
Estimated Landing Point:	5,417 ft (MD)	4,195 ft (TVD)
Estimated Lateral Length:	9,145 ft (MD)	

Fluid:	Type	MW (ppg)	FL (mL/30')	PV (cp)	YP (lb/100 sqft)	pH	Comments
	LSND	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 surveys with inclination and azimuth in 100' stations (minimum) before KOP, every joint from KOP to POE, every 100' (minimum) from POE to TD; Gamma Ray from drill out of 9-5/8" shoe to TD

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

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

Casing Specs:	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
<i>Specs</i>	5.500	17.0	P-110	LTC	7,460	10,640	546,000	445,000
<i>Loading</i>					2,038	8,886	308,878	308,878
<i>Min. S.F.</i>					3.66	1.20	1.77	1.44

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: 3,400 Optimum: 4,530 Maximum: 5,660

Casing Details: Float shoe, float collar, 2 jts 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'. Place Floatation Sub at KOP. Continue running casing to surface. **The toe-initiation sleeves must be positioned INSIDE the 330' unit setback.**

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

Lateral: 1 centralizer per joint

POE to KOP: 1 centralizer per joint from landing point to KOP

KOP to surface: 1 centralizer per 2 joints from KOP to 9-5/8" shoe, 1 per 3 joints from 9-5/8" shoe to surface

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
<i>Lead</i>	G:POZ blend	12.4	1.907	9.98	40%	0	916
<i>Tail</i>	G:POZ blend	13.3	1.360	6.00	10%	4,658	1,775

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 ECONOCEM & EXTENDACEM cementing blend

Notify NMOCD & BLM if cement is not circulated to surface.

Note: The lateral may be drilled past applicable 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) . Rodeo Unit Order Number is R-14313.

FINISH WELL: ND BOP, NU WH, RDMO.

COMPLETION AND PRODUCTION PLAN:

Frac: Lateral will be fracture-stimulated in approximately 50 plug-and-perf stages with approximately 200,000 bbls slickwater fluid and 16,000,000 lbs of proppant.

Flowback: Well will be flowed back through production tubing. An ESP may be used to assist in load water recovery.

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

ESTIMATED START DATES:

Drilling: 6/1/2019

Completion: 7/16/2019

Production: 8/15/2019

Prepared by: Alec Bridge 4/17/2019



Enduring Resources LLC

San Juan Basin - Rodeo Unit

492H Pad

494H

Wellbore #1

Plan: Design #3 - Final

Standard Planning Report

17 April, 2019



Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

Project	San Juan Basin - Rodeo Unit		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	492H Pad, San Juan County, New Mexico				
Site Position:		Northing:	1,888,477.95 usft	Latitude:	36.190011°N
From:	Lat/Long	Easting:	2,754,011.92 usft	Longitude:	107.728546°W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.06 °

Well	494H, Upper Target					
Well Position	+N/-S	-0.3 usft	Northing:	1,888,477.65 usft	Latitude:	36.190010°N
	+E/-W	59.9 usft	Easting:	2,754,071.82 usft	Longitude:	107.728343°W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	6,680.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.97	63.04	50,595.13560184

Design	Design #3 - Final				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	128.93	

Plan Survey Tool Program	Date	4/17/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	14,239.4	Design #3 - Final (Wellbore #1)	MWD	
				OWSG MWD - Standard	



Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,212.0	35.60	328.39	1,167.1	182.4	-112.2	5.00	5.00	0.00	328.39	
3,466.3	35.60	328.39	3,000.0	1,300.0	-800.0	0.00	0.00	0.00	0.00	494H KOP V3
3,786.9	68.65	332.37	3,194.2	1,517.9	-921.6	10.35	10.31	1.24	6.78	
5,094.3	70.00	135.00	4,145.0	1,734.3	-608.5	10.35	0.10	12.44	156.50	494H POE V3
5,338.0	87.06	134.99	4,193.3	1,566.0	-440.3	7.00	7.00	-0.01	-0.04	
5,416.9	90.45	135.00	4,195.0	1,510.3	-384.5	4.31	4.31	0.01	0.19	494H LP V3
14,239.4	90.45	135.00	4,125.0	-4,727.9	5,853.9	0.00	0.00	0.00	0.00	494H BHL



Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

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)
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
287.0	0.00	0.00	287.0	0.0	0.0	0.0	0.00	0.00	0.00
Ojo Alamo									
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
408.0	0.00	0.00	408.0	0.0	0.0	0.0	0.00	0.00	0.00
Kirtland									
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	5.00	328.39	599.9	3.7	-2.3	-4.1	5.00	5.00	0.00
613.2	5.66	328.39	613.0	4.8	-2.9	-5.3	5.00	5.00	0.00
Fruitland									
700.0	10.00	328.39	699.0	14.8	-9.1	-16.4	5.00	5.00	0.00
800.0	15.00	328.39	796.6	33.3	-20.5	-36.8	5.00	5.00	0.00
900.0	20.00	328.39	891.9	58.9	-36.2	-65.2	5.00	5.00	0.00
982.1	24.10	328.39	968.0	85.1	-52.4	-94.2	5.00	5.00	0.00
Pictured Cliffs									
1,000.0	25.00	328.39	984.3	91.4	-56.3	-101.2	5.00	5.00	0.00
1,100.0	30.00	328.39	1,073.0	130.7	-80.5	-144.7	5.00	5.00	0.00
1,200.0	35.00	328.39	1,157.3	176.5	-108.6	-195.4	5.00	5.00	0.00
1,212.0	35.60	328.39	1,167.1	182.4	-112.2	-201.9	5.00	5.00	0.00
1,277.1	35.60	328.39	1,220.0	214.7	-132.1	-237.7	0.00	0.00	0.00
Lewis									
1,300.0	35.60	328.39	1,238.6	226.0	-139.1	-250.2	0.00	0.00	0.00
1,400.0	35.60	328.39	1,319.9	275.6	-169.6	-305.1	0.00	0.00	0.00
1,440.7	35.60	328.39	1,353.0	295.8	-182.0	-327.4	0.00	0.00	0.00
Chacra									
1,500.0	35.60	328.39	1,401.2	325.2	-200.1	-360.0	0.00	0.00	0.00
1,600.0	35.60	328.39	1,482.5	374.8	-230.6	-414.9	0.00	0.00	0.00
1,700.0	35.60	328.39	1,563.9	424.3	-261.1	-469.8	0.00	0.00	0.00
1,800.0	35.60	328.39	1,645.2	473.9	-291.6	-524.7	0.00	0.00	0.00
1,900.0	35.60	328.39	1,726.5	523.5	-322.1	-579.5	0.00	0.00	0.00
2,000.0	35.60	328.39	1,807.8	573.1	-352.7	-634.4	0.00	0.00	0.00
2,100.0	35.60	328.39	1,889.1	622.6	-383.2	-689.3	0.00	0.00	0.00
2,200.0	35.60	328.39	1,970.4	672.2	-413.7	-744.2	0.00	0.00	0.00
2,300.0	35.60	328.39	2,051.7	721.8	-444.2	-799.1	0.00	0.00	0.00
2,400.0	35.60	328.39	2,133.0	771.4	-474.7	-854.0	0.00	0.00	0.00
2,500.0	35.60	328.39	2,214.3	821.0	-505.2	-908.8	0.00	0.00	0.00
2,600.0	35.60	328.39	2,295.6	870.5	-535.7	-963.7	0.00	0.00	0.00
2,700.0	35.60	328.39	2,377.0	920.1	-566.2	-1,018.6	0.00	0.00	0.00
2,764.0	35.60	328.39	2,429.0	951.8	-585.7	-1,053.7	0.00	0.00	0.00
Cliff House									
2,771.4	35.60	328.39	2,435.0	955.5	-588.0	-1,057.8	0.00	0.00	0.00
Menefee									
2,800.0	35.60	328.39	2,458.3	969.7	-596.7	-1,073.5	0.00	0.00	0.00
2,900.0	35.60	328.39	2,539.6	1,019.3	-627.2	-1,128.4	0.00	0.00	0.00
3,000.0	35.60	328.39	2,620.9	1,068.8	-657.7	-1,183.3	0.00	0.00	0.00
3,100.0	35.60	328.39	2,702.2	1,118.4	-688.3	-1,238.2	0.00	0.00	0.00
3,200.0	35.60	328.39	2,783.5	1,168.0	-718.8	-1,293.0	0.00	0.00	0.00
3,300.0	35.60	328.39	2,864.8	1,217.6	-749.3	-1,347.9	0.00	0.00	0.00



Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

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)
3,400.0	35.60	328.39	2,946.1	1,267.1	-779.8	-1,402.8	0.00	0.00	0.00
3,466.3	35.60	328.39	3,000.0	1,300.0	-800.0	-1,439.2	0.00	0.00	0.00
494H KOP V3									
3,500.0	39.07	329.05	3,026.8	1,317.5	-810.6	-1,458.4	10.35	10.28	1.94
3,600.0	49.37	330.52	3,098.4	1,377.7	-845.6	-1,523.5	10.35	10.30	1.48
494H KOP2									
3,700.0	59.68	331.60	3,156.4	1,448.9	-884.9	-1,598.8	10.35	10.31	1.08
3,786.9	68.65	332.37	3,194.2	1,517.9	-921.6	-1,670.7	10.35	10.32	0.88
3,800.0	67.41	332.95	3,199.1	1,528.7	-927.2	-1,681.8	10.35	-9.48	4.47
3,900.0	58.01	337.84	3,244.9	1,609.3	-964.2	-1,761.3	10.35	-9.40	4.89
4,000.0	48.84	343.84	3,304.5	1,684.9	-990.8	-1,829.5	10.35	-9.17	6.00
4,084.5	41.41	350.35	3,364.1	1,743.1	-1,004.4	-1,876.6	10.35	-8.80	7.70
494H KOP									
4,100.0	40.09	351.75	3,375.8	1,753.1	-1,005.9	-1,884.1	10.35	-8.51	9.02
4,149.7	35.99	356.80	3,415.0	1,783.6	-1,009.1	-1,905.7	10.35	-8.25	10.16
Point Lookout									
4,200.0	32.10	2.99	3,456.6	1,811.7	-1,009.2	-1,923.4	10.35	-7.73	12.32
4,300.0	25.63	19.86	3,544.3	1,858.7	-1,000.4	-1,946.1	10.35	-6.47	16.87
4,400.0	22.06	44.10	3,636.0	1,892.6	-980.0	-1,951.5	10.35	-3.57	24.24
4,404.3	22.00	45.28	3,640.0	1,893.8	-978.8	-1,951.4	10.35	-1.45	27.32
Mancos									
4,500.0	22.81	71.37	3,728.7	1,912.4	-948.4	-1,939.4	10.35	0.85	27.26
4,512.3	23.21	74.47	3,740.0	1,913.8	-943.8	-1,936.7	10.35	3.22	25.17
9 5/8"									
4,600.0	27.52	93.23	3,819.3	1,917.3	-906.9	-1,910.2	10.35	4.92	21.40
4,658.2	31.45	102.53	3,870.0	1,913.2	-878.6	-1,885.6	10.35	6.75	15.98
Gallup (MNCS_A)									
4,700.0	34.61	107.95	3,905.1	1,907.2	-856.7	-1,864.7	10.35	7.56	12.97
4,782.4	41.40	116.38	3,970.0	1,887.8	-809.9	-1,816.2	10.35	8.23	10.23
MNCS_B									
4,800.0	42.91	117.89	3,983.0	1,882.4	-799.4	-1,804.6	10.35	8.62	8.54
4,900.0	51.83	125.05	4,050.8	1,843.8	-736.9	-1,731.8	10.35	8.92	7.16
4,978.0	59.03	129.48	4,095.0	1,804.9	-685.9	-1,667.7	10.35	9.23	5.69
MNCS_Cms									
5,000.0	61.09	130.61	4,106.0	1,792.6	-671.4	-1,648.6	10.35	9.35	5.12
5,094.3	70.00	135.00	4,145.0	1,734.3	-608.5	-1,563.1	10.35	9.44	4.65
494H POE V3									
5,100.0	70.40	135.00	4,146.9	1,730.5	-604.7	-1,557.8	7.00	7.00	-0.01
5,108.2	70.97	135.00	4,149.6	1,725.0	-599.3	-1,550.1	7.00	7.00	-0.01
494H POE									
5,200.0	77.40	134.99	4,174.6	1,662.6	-536.9	-1,462.3	7.00	7.00	-0.01
5,300.0	84.40	134.99	4,190.5	1,592.8	-467.1	-1,364.2	7.00	7.00	0.00
5,338.0	87.06	134.99	4,193.3	1,566.0	-440.3	-1,326.5	7.00	7.00	0.00
5,400.0	89.73	135.00	4,195.0	1,522.2	-396.4	-1,264.9	4.31	4.31	0.01
5,416.9	90.45	135.00	4,195.0	1,510.3	-384.5	-1,248.1	4.31	4.31	0.01
494H LP V3									
5,500.0	90.45	135.00	4,194.3	1,451.5	-325.7	-1,165.4	0.00	0.00	0.00
5,600.0	90.45	135.00	4,193.5	1,380.8	-255.0	-1,066.0	0.00	0.00	0.00
5,700.0	90.45	135.00	4,192.8	1,310.1	-184.3	-966.6	0.00	0.00	0.00
5,800.0	90.45	135.00	4,192.0	1,239.4	-113.6	-867.1	0.00	0.00	0.00
5,802.8	90.45	135.00	4,191.9	1,237.4	-111.6	-864.3	0.00	0.00	0.00
494H POE2									



Planning Report

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Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

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)
5,900.0	90.45	135.00	4,191.2	1,168.7	-42.9	-767.7	0.00	0.00	0.00
6,000.0	90.45	135.00	4,190.4	1,098.0	27.8	-668.2	0.00	0.00	0.00
6,100.0	90.45	135.00	4,189.6	1,027.3	98.5	-568.8	0.00	0.00	0.00
6,200.0	90.45	135.00	4,188.8	956.6	169.2	-469.4	0.00	0.00	0.00
6,300.0	90.45	135.00	4,188.0	885.9	239.9	-369.9	0.00	0.00	0.00
6,400.0	90.45	135.00	4,187.2	815.2	310.7	-270.5	0.00	0.00	0.00
6,500.0	90.45	135.00	4,186.4	744.5	381.4	-171.1	0.00	0.00	0.00
6,600.0	90.45	135.00	4,185.6	673.8	452.1	-71.6	0.00	0.00	0.00
6,700.0	90.45	135.00	4,184.8	603.0	522.8	27.8	0.00	0.00	0.00
6,800.0	90.45	135.00	4,184.0	532.3	593.5	127.2	0.00	0.00	0.00
6,900.0	90.45	135.00	4,183.2	461.6	664.2	226.7	0.00	0.00	0.00
7,000.0	90.45	135.00	4,182.4	390.9	734.9	326.1	0.00	0.00	0.00
7,100.0	90.45	135.00	4,181.6	320.2	805.6	425.5	0.00	0.00	0.00
7,200.0	90.45	135.00	4,180.9	249.5	876.3	525.0	0.00	0.00	0.00
7,300.0	90.45	135.00	4,180.1	178.8	947.0	624.4	0.00	0.00	0.00
7,400.0	90.45	135.00	4,179.3	108.1	1,017.8	723.9	0.00	0.00	0.00
7,500.0	90.45	135.00	4,178.5	37.4	1,088.5	823.3	0.00	0.00	0.00
7,600.0	90.45	135.00	4,177.7	-33.3	1,159.2	922.7	0.00	0.00	0.00
7,700.0	90.45	135.00	4,176.9	-104.0	1,229.9	1,022.2	0.00	0.00	0.00
7,800.0	90.45	135.00	4,176.1	-174.7	1,300.6	1,121.6	0.00	0.00	0.00
7,900.0	90.45	135.00	4,175.3	-245.4	1,371.3	1,221.0	0.00	0.00	0.00
8,000.0	90.45	135.00	4,174.5	-316.1	1,442.0	1,320.5	0.00	0.00	0.00
8,100.0	90.45	135.00	4,173.7	-386.9	1,512.7	1,419.9	0.00	0.00	0.00
8,200.0	90.45	135.00	4,172.9	-457.6	1,583.4	1,519.3	0.00	0.00	0.00
8,300.0	90.45	135.00	4,172.1	-528.3	1,654.1	1,618.8	0.00	0.00	0.00
8,400.0	90.45	135.00	4,171.3	-599.0	1,724.9	1,718.2	0.00	0.00	0.00
8,500.0	90.45	135.00	4,170.5	-669.7	1,795.6	1,817.6	0.00	0.00	0.00
8,600.0	90.45	135.00	4,169.7	-740.4	1,866.3	1,917.1	0.00	0.00	0.00
8,700.0	90.45	135.00	4,169.0	-811.1	1,937.0	2,016.5	0.00	0.00	0.00
8,800.0	90.45	135.00	4,168.2	-881.8	2,007.7	2,116.0	0.00	0.00	0.00
8,900.0	90.45	135.00	4,167.4	-952.5	2,078.4	2,215.4	0.00	0.00	0.00
9,000.0	90.45	135.00	4,166.6	-1,023.2	2,149.1	2,314.8	0.00	0.00	0.00
9,100.0	90.45	135.00	4,165.8	-1,093.9	2,219.8	2,414.3	0.00	0.00	0.00
9,200.0	90.45	135.00	4,165.0	-1,164.6	2,290.5	2,513.7	0.00	0.00	0.00
9,300.0	90.45	135.00	4,164.2	-1,235.3	2,361.2	2,613.1	0.00	0.00	0.00
9,400.0	90.45	135.00	4,163.4	-1,306.0	2,432.0	2,712.6	0.00	0.00	0.00
9,500.0	90.45	135.00	4,162.6	-1,376.7	2,502.7	2,812.0	0.00	0.00	0.00
9,600.0	90.45	135.00	4,161.8	-1,447.5	2,573.4	2,911.4	0.00	0.00	0.00
9,700.0	90.45	135.00	4,161.0	-1,518.2	2,644.1	3,010.9	0.00	0.00	0.00
9,800.0	90.45	135.00	4,160.2	-1,588.9	2,714.8	3,110.3	0.00	0.00	0.00
9,900.0	90.45	135.00	4,159.4	-1,659.6	2,785.5	3,209.7	0.00	0.00	0.00
10,000.0	90.45	135.00	4,158.6	-1,730.3	2,856.2	3,309.2	0.00	0.00	0.00
10,100.0	90.45	135.00	4,157.8	-1,801.0	2,926.9	3,408.6	0.00	0.00	0.00
10,200.0	90.45	135.00	4,157.0	-1,871.7	2,997.6	3,508.1	0.00	0.00	0.00
10,300.0	90.45	135.00	4,156.3	-1,942.4	3,068.3	3,607.5	0.00	0.00	0.00
10,400.0	90.45	135.00	4,155.5	-2,013.1	3,139.0	3,706.9	0.00	0.00	0.00
10,500.0	90.45	135.00	4,154.7	-2,083.8	3,209.8	3,806.4	0.00	0.00	0.00
10,600.0	90.45	135.00	4,153.9	-2,154.5	3,280.5	3,905.8	0.00	0.00	0.00
10,700.0	90.45	135.00	4,153.1	-2,225.2	3,351.2	4,005.2	0.00	0.00	0.00
10,800.0	90.45	135.00	4,152.3	-2,295.9	3,421.9	4,104.7	0.00	0.00	0.00
10,900.0	90.45	135.00	4,151.5	-2,366.6	3,492.6	4,204.1	0.00	0.00	0.00
11,000.0	90.45	135.00	4,150.7	-2,437.4	3,563.3	4,303.5	0.00	0.00	0.00
11,100.0	90.45	135.00	4,149.9	-2,508.1	3,634.0	4,403.0	0.00	0.00	0.00
11,200.0	90.45	135.00	4,149.1	-2,578.8	3,704.7	4,502.4	0.00	0.00	0.00



Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

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)
11,300.0	90.45	135.00	4,148.3	-2,649.5	3,775.4	4,601.8	0.00	0.00	0.00
11,400.0	90.45	135.00	4,147.5	-2,720.2	3,846.1	4,701.3	0.00	0.00	0.00
11,500.0	90.45	135.00	4,146.7	-2,790.9	3,916.9	4,800.7	0.00	0.00	0.00
11,600.0	90.45	135.00	4,145.9	-2,861.6	3,987.6	4,900.1	0.00	0.00	0.00
11,700.0	90.45	135.00	4,145.1	-2,932.3	4,058.3	4,999.6	0.00	0.00	0.00
11,800.0	90.45	135.00	4,144.4	-3,003.0	4,129.0	5,099.0	0.00	0.00	0.00
11,900.0	90.45	135.00	4,143.6	-3,073.7	4,199.7	5,198.5	0.00	0.00	0.00
12,000.0	90.45	135.00	4,142.8	-3,144.4	4,270.4	5,297.9	0.00	0.00	0.00
12,100.0	90.45	135.00	4,142.0	-3,215.1	4,341.1	5,397.3	0.00	0.00	0.00
12,200.0	90.45	135.00	4,141.2	-3,285.8	4,411.8	5,496.8	0.00	0.00	0.00
12,300.0	90.45	135.00	4,140.4	-3,356.5	4,482.5	5,596.2	0.00	0.00	0.00
12,400.0	90.45	135.00	4,139.6	-3,427.3	4,553.2	5,695.6	0.00	0.00	0.00
12,500.0	90.45	135.00	4,138.8	-3,498.0	4,624.0	5,795.1	0.00	0.00	0.00
12,600.0	90.45	135.00	4,138.0	-3,568.7	4,694.7	5,894.5	0.00	0.00	0.00
12,700.0	90.45	135.00	4,137.2	-3,639.4	4,765.4	5,993.9	0.00	0.00	0.00
12,800.0	90.45	135.00	4,136.4	-3,710.1	4,836.1	6,093.4	0.00	0.00	0.00
12,900.0	90.45	135.00	4,135.6	-3,780.8	4,906.8	6,192.8	0.00	0.00	0.00
13,000.0	90.45	135.00	4,134.8	-3,851.5	4,977.5	6,292.2	0.00	0.00	0.00
13,100.0	90.45	135.00	4,134.0	-3,922.2	5,048.2	6,391.7	0.00	0.00	0.00
13,200.0	90.45	135.00	4,133.2	-3,992.9	5,118.9	6,491.1	0.00	0.00	0.00
13,300.0	90.45	135.00	4,132.5	-4,063.6	5,189.6	6,590.6	0.00	0.00	0.00
13,400.0	90.45	135.00	4,131.7	-4,134.3	5,260.3	6,690.0	0.00	0.00	0.00
13,500.0	90.45	135.00	4,130.9	-4,205.0	5,331.1	6,789.4	0.00	0.00	0.00
13,600.0	90.45	135.00	4,130.1	-4,275.7	5,401.8	6,888.9	0.00	0.00	0.00
13,700.0	90.45	135.00	4,129.3	-4,346.4	5,472.5	6,988.3	0.00	0.00	0.00
13,800.0	90.45	135.00	4,128.5	-4,417.2	5,543.2	7,087.7	0.00	0.00	0.00
13,900.0	90.45	135.00	4,127.7	-4,487.9	5,613.9	7,187.2	0.00	0.00	0.00
14,000.0	90.45	135.00	4,126.9	-4,558.6	5,684.6	7,286.6	0.00	0.00	0.00
14,100.0	90.45	135.00	4,126.1	-4,629.3	5,755.3	7,386.0	0.00	0.00	0.00
14,200.0	90.45	135.00	4,125.3	-4,700.0	5,826.0	7,485.5	0.00	0.00	0.00
14,239.4	90.45	135.00	4,125.0	-4,727.9	5,853.9	7,524.7	0.00	0.00	0.00

494H BHL

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
494H KOP V3 - plan hits target center - Point	0.00	0.00	3,000.0	1,300.0	-800.0	1,889,777.65	2,753,271.82	36.193584°N	107.731050°W
494H BHL - plan hits target center - Point	0.00	0.00	4,125.0	-4,727.9	5,853.9	1,883,749.78	2,759,925.74	36.177003°N	107.708525°W
494H POE V3 - plan hits target center - Point	0.00	0.00	4,145.0	1,734.3	-608.5	1,890,211.92	2,753,463.30	36.194776°N	107.730399°W
494H LP V3 - plan hits target center - Point	0.00	0.00	4,195.0	1,510.3	-384.5	1,889,987.95	2,753,687.32	36.194160°N	107.729641°W



Planning Report

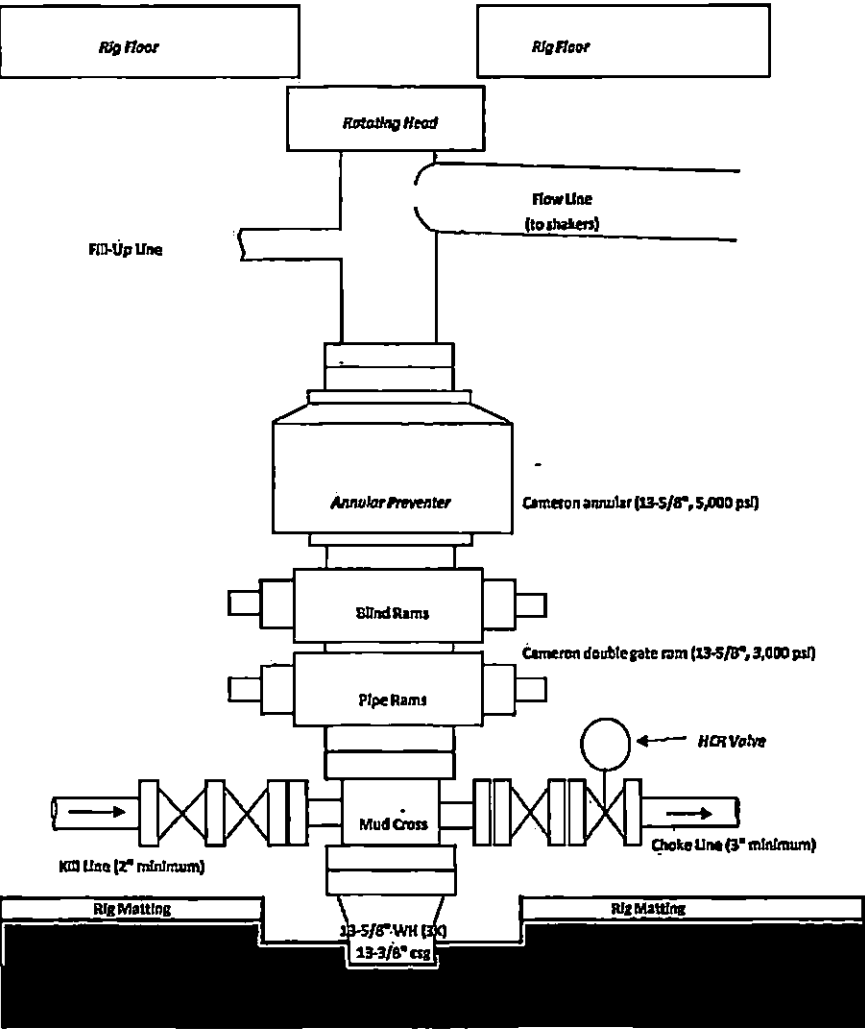
Database:	EDM	Local Co-ordinate Reference:	Well 494H
Company:	Enduring Resources LLC	TVD Reference:	KB @ 6705.0usft (Original Well Elev)
Project:	San Juan Basin - Rodeo Unit	MD Reference:	KB @ 6705.0usft (Original Well Elev)
Site:	492H Pad	North Reference:	Grid
Well:	494H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3 - Final		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (")	Hole Diameter (")
350.0	350.0	13 3/8"		13-3/8	17-1/2
4,512.3	3,740.0	9 5/8"		9-5/8	12-1/4

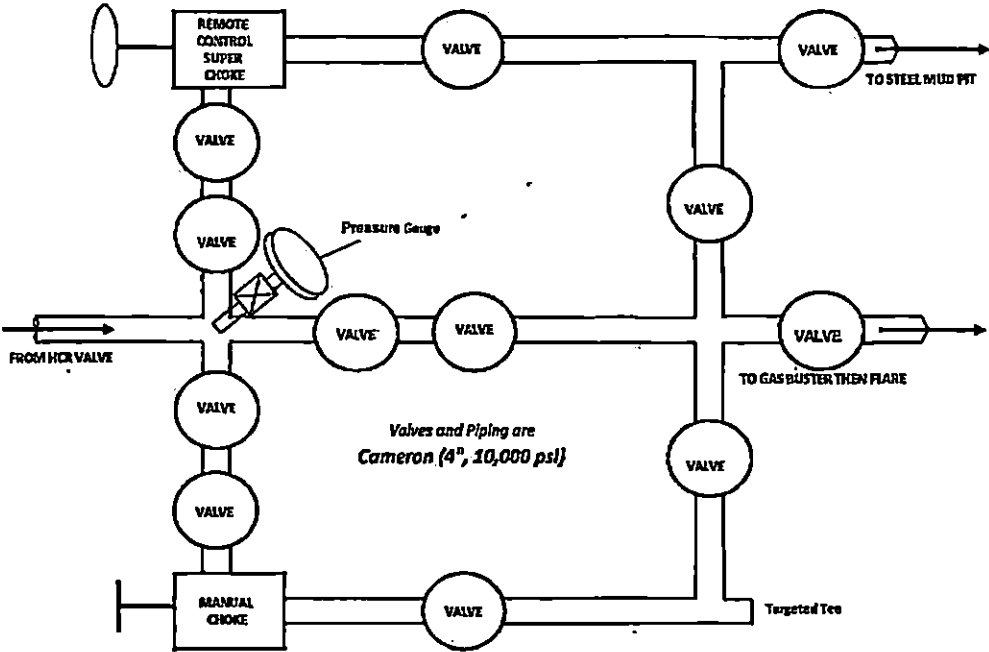
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
287.0	287.0	Ojo Alamo		0.00		
408.0	408.0	Kirtland		0.00		
613.2	613.0	Fruitland		0.00		
982.1	968.0	Pictured Cliffs		0.00		
1,277.1	1,220.0	Lewis		0.00		
1,440.7	1,353.0	Chacra		0.00		
2,764.0	2,429.0	Cliff House		0.00		
2,771.4	2,435.0	Menefee		0.00		
4,149.7	3,415.0	Point Lookout		0.00		
4,404.3	3,640.0	Mancos		0.00		
4,658.2	3,870.0	Gallup (MNCS_A)		0.00		
4,782.4	3,970.0	MNCS_B		0.00		
4,978.0	4,095.0	MNCS_Cms		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 Rodeo Unit #494H

225' FNL & 935' FWL, Section 31, T23N, R8W, N.M.P.M., San Juan County, NM

Latitude: 36.190010°N Longitude: 107.728343°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 38.7 miles to Mile Marker 112.7;

Go Right (Southerly) on County Road #7900 for 2.3 miles to fork in road;

Go Right (Westerly) on County Road #7940 for 2.6 miles to existing access road on right-hand side which continues for 1071.2' to Enduring Rodeo Unit #494H existing location.