

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

REGISTERED  
AUG 08 2013

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
**NO-G-1312-1823**  
6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well  
 Oil Well     Gas Well     Other

7. If Unit of CA/Agreement, Name and/or No.  
**South Escavada Unit**

2. Name of Operator  
**Enduring Resources LLC**

8. Well Name and No.  
**S Escavada Unit #353H**

3a. Address  
**332 Cr 3100    Aztec, NM 87410**

3b. Phone No. (include area code)  
**505-636-9743**

9. API Well No.  
**30-043-21320**

10. Field and Pool or Exploratory Area  
**Rusty Gallup Oil Pool**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**SHL: 1719' FNL & 2352' FWL SEC 26 22N 7W**  
**BHL: 2325' FSL & 1815' FEL SEC 22 22N 7W**

11. Country or Parish, State  
**Sandoval, NM**

**12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water ShutOff
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <b>Change in plans - Withdraw Pilot Hole Design</b>
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

**Enduring Resources LLC requests a change in plans to withdraw the pilot-hole design on the S Escavada Unit #353H.**

Attached are the updated:

- C102
- Wellbore
- Ops plan
- Plan & Section view
- Well Plan

**NMOCD**  
**AUG 22 2018**  
**DISTRICT III**

**BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS**

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
**Lacey Granillo**

Title: **Permitting Specialist**

Signature

Date: **8/8/18**

**THE SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Title **PE**

Date **8/21/18**

Conditions of approval, if any, are attached. Approval of this notice 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.

Office **FFO**

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.

**NMOCD**  
**AV**

**ADHERE TO PREVIOUS NMOCD CONDITIONS OF APPROVAL**

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

<sup>1</sup> API Number 30-043-21320		<sup>2</sup> Pool Code 52860		<sup>3</sup> Pool Name RUSTY GALLUP OIL POOL	
<sup>4</sup> Property Code 322151		<sup>5</sup> Property Name S ESCAVADA UNIT			<sup>6</sup> Well Number 353H
<sup>7</sup> GRID No. 372286		<sup>8</sup> Operator Name ENDURING RESOURCES LLC			<sup>9</sup> Elevation 6776'

<sup>10</sup> Surface Location

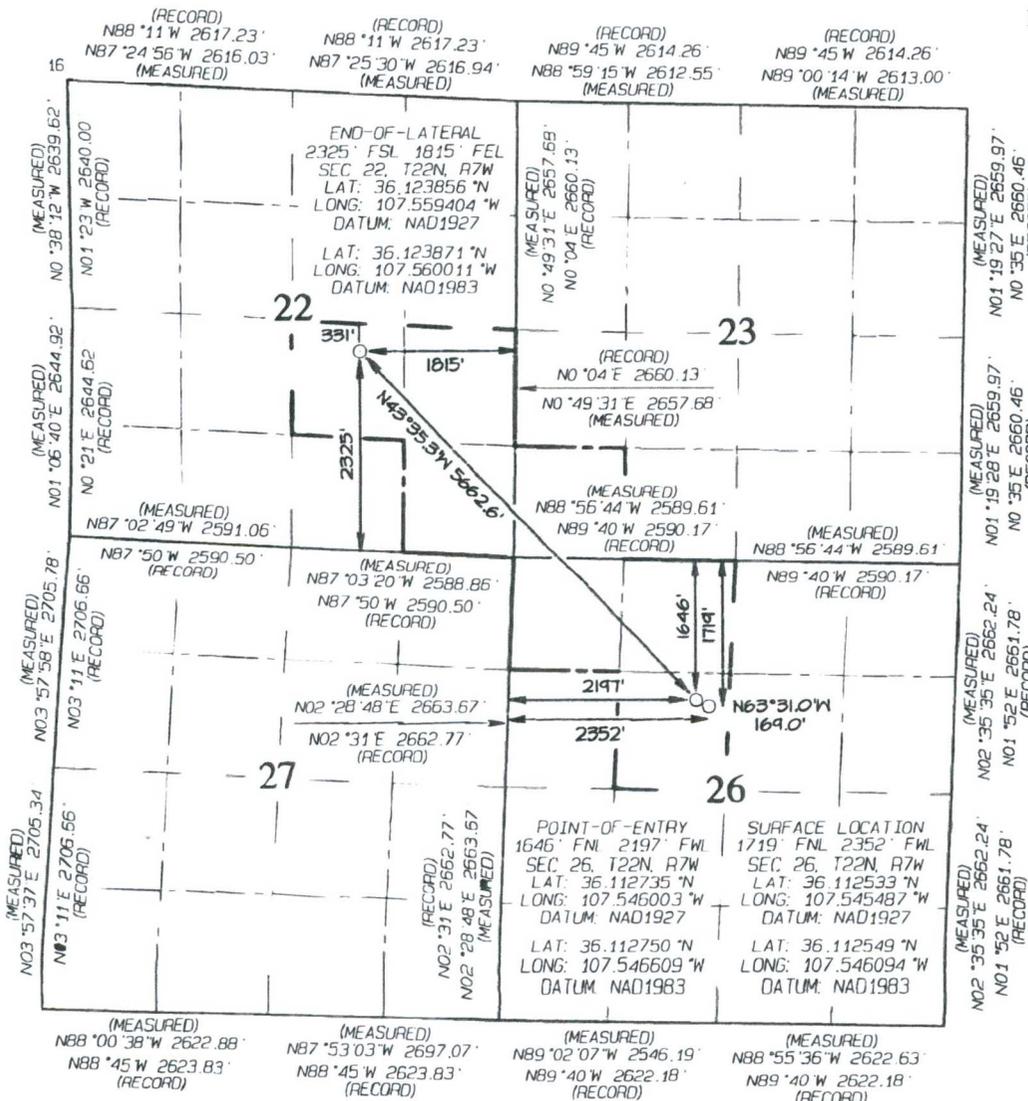
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	26	22N	7W		1719	NORTH	2352	WEST	SANDOVAL

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	22	22N	7W		2325	SOUTH	1815	EAST	SANDOVAL

<sup>12</sup> Dedicated Acres 280.00 SW/4 SW/4 - Section 23 N/2 SE/4, SE/4 SE/4 - Section 22 N/2 NW/4, SE/4 NW/4 - Section 26				<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No. R-14347
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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



<sup>17</sup> 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 a owner of such a mineral or working interest or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

8/8/18  
Signature: *Lacey Granillo* Date: \_\_\_\_\_  
Printed Name: Lacey Granillo  
E-mail Address: lgranillo@enduringresources.com

<sup>18</sup> 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: FEBRUARY 20, 2018  
Date of Survey: JUNE 6, 2017

Signature and Seal of Professional Surveyor



JASON C. EDWARDS  
Certificate Number 15269

**WELL NAME: S Escavada Unit 353H**

**OBJECTIVE: Drill, complete, and equip single lateral in the Gallup formation**

**API Number:** 30-043-21320

**State:** New Mexico

**County:** Sandoval

**Surface Elev.:** 6,776 ft ASL (GL) 6,798 ft ASL (KB)

**Surface Location:** 26-22N-07W Sec-Twn- Rng 1,719 ft FNL 2,352 ft FWL

**BH Location:** 22-22N-07W Sec-Twn- Rng 2325 ft FSL 1815 ft FEL

**Driving Directions:** From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM: south on 550 for 53.6 miles to MM 97.7, right (south) on Indian Service Route 474 for 4.6 miles to fork, right (west) continuing on 474 for 2.5 miles to fork, right (west) for 0.4 miles to fork, right (west) for 0.9 miles to 4-way intersection, straight (west) for 1.2 miles to 4-way intersection, left (south) at for 1.7 miles to 4-way intersection, straight (south) for 1.9 miles to fork, left (south) for 0.4 miles to 4-way intersection, straight (south) for 0.3 miles to proposed access on left side of road, continue approximately 1 mile to location.

QUICK REFERENCE	
Sur csg (MD)	220 ft
Int csg (TVD)	2,623 ft
Int csg (MD)	2,649 ft
KOP (TVD)	4,050 ft
KOP (MD)	4,157 ft
Curve BUR	10 °/100 ft
Target (TVD)	4,713 ft
LP/POE (MD)	5,368 ft
TD (MD)	10,932 ft
Lat Len	5,564 ft

**WELL CONSTRUCTION SUMMARY:**

	Hole (in)	TD MD (ft)	Csg (in)	Csg (lb/ft)	Csg (grade)	Csg (conn)	Csg Top (ft)	Csg Bot (ft)
Surface	17.500	240	13.375	54.5	J-55	BTC	0	220
Intermediate	12.250	2,649	9.625	36.0	J-55	LTC	0	2,649
Production	8.500	10,932	5.500	17.0	P-110	LTC	0	10,932

**CEMENT PROPERTIES SUMMARY:**

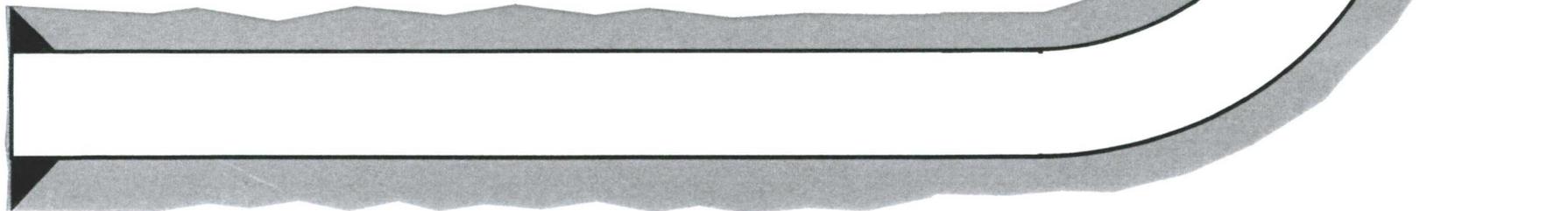
	Type	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	Hole Cap. (cuft/ft)	% Excess	TOC (ft MD)	Total (sx)
Surface	Class G	15.8	1.174	5.15	0.6946	100%	0	284
Inter. (Lead)	G:POZ Blend	12.3	1.987	10.16	0.3132	40%	0	474
Inter. (Tail)	Class G	15.8	1.148	4.98	0.3132	10%	2,149	150
Prod. (Lead)	G:POZ blend	12.3	1.987	10.16	0.2691	40%	0	728
Prod. (Tail)	G:POZ blend	13.3	1.354	5.94	0.2291	10%	4,050	1,281

**COMPLETION / PRODUCTION SUMMARY:**

**Frac:** 30-stage (+/-) plug-and-perf frac with slick water and 12,000,000 lbs (+/-) proppant

**Flowback:** Flow up 5-1/2" casing or 2-7/8" tubing until returns are free of sand

**Production:** 2-7/8" tubing with packer set in 5-1/2" casing and gas-lift mandrels as needed





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

**DRILLING PLAN:** *Drill, complete, and equip single lateral in the Gallup formation*

**WELL INFORMATION:**

**Name:** S Escavada Unit 353H

**API Number:** 30-043-21320

**State:** New Mexico

**County:** Sandoval

**Surface Elevation:** 6,776 ft ASL (GL) 6,798 ft ASL (KB)  
**Surface Location:** 26-22N-07W Sec-Twn-Rng 1,719 ft FNL 2,352 ft FWL  
 36.112459 ° N latitude 107.546094 ° W longitude (NAD 83)  
**BH Location:** 22-22N-07W Sec-Twn-Rng 2,325 ft FSL 1,815 ft FEL  
 36.123871 ° N latitude 107.560011 ° W longitude (NAD 83)

**Driving Directions:** From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM: south on 550 for 53.6 miles to MM 97.7, right (south) on Indian Service Route 474 for 4.6 miles to fork, right (west) continuing on 474 for 2.5 miles to fork, right (west) for 0.4 miles to fork, right (west) for 0.9 miles to 4-way intersection, straight (west) for 1.2 miles to 4-way intersection, left (south) at for 1.7 miles to 4-way intersection, straight (south) for 1.9 miles to fork, left (south) for 0.4 miles to 4-way intersection, straight (south) for 0.3 miles to proposed access on left side of road, continue approximately 1 mile to location.

**GEOLOGIC AND RESERVOIR INFORMATION:**

<b>Prognosis:</b>	<b>Formation Tops</b>	<b>TVD (ft ASL)</b>	<b>TVD (ft KB)</b>	<b>MD (ft KB)</b>	<b>O / G / W</b>	<b>Pressure</b>
	Ojo Alamo	6,280	518	518	W	normal
	Kirtland	6,015	783	783	W	normal
	Fruitland	5,966	832	832	G, W	normal
	Pictured Cliffs	5,651	1,147	1,147	G, W	normal
	Lewis	5,438	1,360	1,361	G, W	normal
	Chacra	5,293	1,505	1,508	G, W	normal
	Cliff House	4,915	1,883	1,893	G, W	normal
	Menefee	4,225	2,573	2,598	G, W	normal
	Point Lookout	3,280	3,518	3,562	G, W	normal
	Mancos	3,025	3,773	3,823	O,G	normal
	Gallup (MNCS. A)	2,825	3,973	4,027	O,G	normal
	<b>Gallup (Target Depth)</b>	<b>2,085</b>	<b>4,713</b>	<b>5,267</b>	<b>O,G</b>	<b>normal</b>
	<b>PROJECTED WELL TD</b>	<b>2,055</b>	<b>4,743</b>	<b>10,932</b>	<b>O,G</b>	<b>normal</b>

**Surface:** Nacimiento

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

**Pressure:** Normal pressure gradient (0.43 psi/ft) 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: 2,030 psi**

**Maximum anticipated surface pressure, assuming partially evacuated hole: 1,000 psi**

**Temperature:** Maximum anticipated BHT is 165° F or less

**H<sub>2</sub>S INFORMATION:**

**H<sub>2</sub>S Zones:** Encountering hydrogen-sulfide bearing zones is **NOT** anticipated.

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

#### LOGGING, CORING, AND TESTING:

**Mud Logs:** None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas 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):** 22

#### 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 psi 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	240 ft (MD)	Hole Section Length:	240 ft
0 ft (TVD)	to	240 ft (TVD)	Casing Required:	220 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, run gyro survey after drilling

**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					105	565	111,406	111,406
Min. S.F.					10.78	4.84	7.66	8.16

*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: 3,860 Optimum: 5,140 Maximum: 6,430

**Casing Details:** Guide shoe, single-valve float collar, 1 jt casing, double-valve float collar, landing 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	284

*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, install wellhead.

220 ft (MD)	to	2,649 ft (MD)	Hole Section Length:	2,429 ft
220 ft (TVD)	to	2,623 ft (TVD)	Casing Required:	2,649 ft

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

Hole Size: 12-1/4"

Bit / Motor: PDC w/mud motor

MWD / Survey: MWD with GR, inclination, and azimuth survey (every 100' at a minimum)

Logging: None

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

Note: The intermediate hole section may be drilled with a 2,000 psi annular preventer only (no blind or pipe rams).

Maximum anticipated surface pressure while drilling intermediate hole section is 560 psi

Casing Specs:	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)	
Specs	9.625	36.0	J-55	LTC	2,020	3,520	564,000	453,000
Loading					1,146	1,150	183,162	183,162
Min. S.F.					1.76	3.06	3.08	2.47

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

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

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

MU Torque (ft lbs): Minimum: 3,400 Optimum: 4,530 Maximum: 5,660

Casing Details: Guide shoe, single-valve float collar, 1 jt casing, double-valve float collar, landing collar, casing to surface, 11" 5K API-certified wellhead

Centralizers: 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 3 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)
Lead	G:POZ Blend	12.3	1.987	10.16	0.3132	40%	0	474
Tail	Class G	15.8	1.148	4.98	0.3132	10%	2,149	150

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

Halliburton ECONOCEM & HALCEM cementing blend

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

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

2,649 ft (MD)	to	10,932 ft (MD)	Hole Section Length:	8,283 ft
2,623 ft (TVD)	to	4,713 ft (TVD)	Casing Required:	10,932 ft

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

Hole Size: 8-1/2"

Bit / Motor: PDC w/mud motor

MWD / Survey: MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 100' minimum before KOP and after Landing Point)

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

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

<b>Casing Specs:</b>	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	5.500	17.0	P-110	LTC	7,460	10,640	546,000	445,000
Loading					2,328	8,941	260,367	260,367
Min. S.F.					<b>3.20</b>	<b>1.19</b>	<b>2.10</b>	<b>1.71</b>

**Assumptions:** Collapse: fully evacuated casing with 9.5 ppg fluid in the annulus (floating casing during running)  
 Burst: 8,500 psi maximum surface treating pressure with 10.2 ppg equivalent mud weight sand laden fluid with 8.4 ppg equivalent external pressure gradient  
 Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull

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

**Casing Details:** Guide shoe, single-valve float collar, 1 jt casing, double-valve float collar, 1 jt casing, landing collar, toe-initiation sleeve x 2, casing to surface with 4 - 20' marker joints spaced evenly in lateral and 1 - 20' marker joint at KOP. The toe-initiation sleeves will be positioned inside the applicable unit setback.

**Centralizers:** Lateral: 1 centralizer every 2 joints at a minimum (will evaluate running additional centralizers based on surveys)

Curve: 1 centralizer every joint from landing point to KOP

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

<b>Cement:</b>	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	Hole Cap. (cuft/ft)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)
Lead	G:POZ blend	12.3	1.987	10.16	0.2691	40%	0	728
Tail	G:POZ blend	13.3	1.354	5.94	0.2291	10%	4,050	1,281

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). Order number for South Escavada Unit is R-14347.

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

### COMPLETION AND PRODUCTION PLAN:

**Frac:** Lateral will be fracture-stimulated in approximately 30 plug-and-perf stages with approximately 200,000 bbls slickwater fluid and 10,000,000 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:** 8/1/2017

**Completion:** 9/15/2017

**Production:** 10/15/2017

**Prepared by:** Alec Bridge 6/8/2018

**Updated by:** Alec Bridge 7/5/2018 - added procedure for drilling, logging, and abandoning 8-1/2" pilot hole

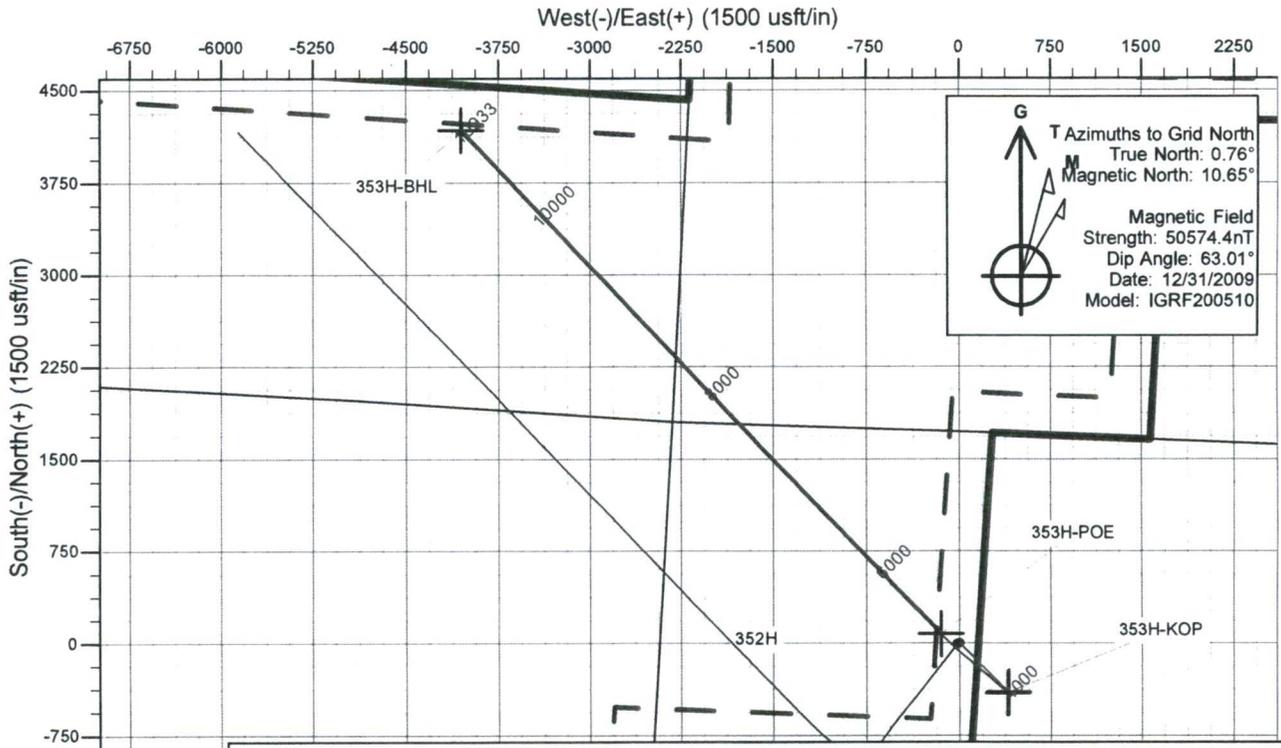
Alec Bridge 8/7/2018 - removed pilot hole procedure



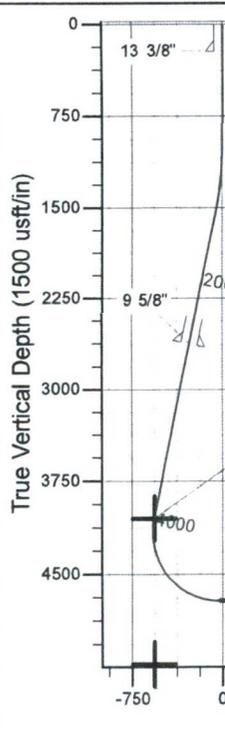
Enduring Resources LLC

Directional Drilling Plan  
Plan View & Section View

Sandoval Co., New Mexico  
T22N-R07W-Sec. 26-Lot F  
Surface Latitude: 36.112549°N  
Surface Longitude: 107.546094°W  
Ground Level: 6776.0  
Reference Elevation: KB new @ 6798.0usft



Design Target Details							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
353H-KOP	4050.0	-400.0	400.0	1862385.00	1257990.21	36.111465°N	107.544722°W
353H-POE	4713.0	75.2	-151.1	1862860.20	1257439.07	36.112750°N	107.546609°W
353H-BHL	4743.0	4176.8	-4055.3	1866961.75	1253534.90	36.123871°N	107.560011°W



Directional Drilling Plan Details								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
220.0	0.00	0.00	220.0	0.0	0.0	0.00	0.0	
1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.0	
1579.3	11.59	135.00	1575.3	-41.3	41.3	2.00	-58.4	
4105.4	11.59	135.00	4050.0	-400.0	400.0	0.00	-565.6	
5074.3	89.21	310.78	4711.1	-59.8	-9.4	10.40	-36.4	
5270.2	89.70	316.41	4713.0	75.2	-151.1	2.88	159.2	
10932.9	89.70	316.41	4743.0	4176.8	-4055.3	0.00	5821.6	



# **Enduring Resources LLC**

**San Juan Basin - South Escavada Unit**

**352H Pad**

**353H**

**Wellbore #3**

**Plan: Design #1**

## **Standard Planning Report**

**08 August, 2018**



<b>Project</b>	San Juan Basin - South Escavada Unit		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Central Zone		

<b>Site</b>	352H Pad, Sandoval Co., New Mexico				
<b>Site Position:</b>		<b>Northing:</b>	1,862,785.00 usft	<b>Latitude:</b>	36.112549°N
<b>From:</b>	Lat/Long	<b>Easting:</b>	1,257,590.21 usft	<b>Longitude:</b>	107.546094°W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.76 °

<b>Well</b>	353H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	1,862,785.00 usft	<b>Latitude:</b>	36.112549°N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,257,590.21 usft	<b>Longitude:</b>	107.546094°W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	6,776.0 usft

<b>Wellbore</b>	Wellbore #3				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	IGRF200510	12/31/2009	9.89	63.01	50,574.41004715

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	315.85

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/8/2018		
<b>Depth From</b>	<b>Depth To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
(usft)	(usft)			
1	0.0	10,932.9 Design #1 (Wellbore #3)	MWD	
			OWSG MWD - Standard	

<b>Plan Sections</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	<b>TFO</b>	<b>Target</b>
<b>Depth</b>	(°)	(°)	<b>Depth</b>	<b>(usft)</b>	<b>(usft)</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
220.0	0.00	0.00	220.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,579.3	11.59	135.00	1,575.3	-41.3	41.3	2.00	2.00	0.00	135.00	
4,105.4	11.59	135.00	4,050.0	-400.0	400.0	0.00	0.00	0.00	0.00	353H-KOP
5,074.3	89.21	310.78	4,711.1	-59.8	-9.4	10.40	8.01	18.14	175.71	
5,270.2	89.70	316.41	4,713.0	75.2	-151.1	2.88	0.25	2.87	85.14	353H-POE
10,932.9	89.70	316.41	4,743.0	4,176.8	-4,055.3	0.00	0.00	0.00	0.00	353H-BHL

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
220.0	0.00	0.00	220.0	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	135.00	1,100.0	-1.2	1.2	-1.7	2.00	2.00	0.00
1,200.0	4.00	135.00	1,199.8	-4.9	4.9	-7.0	2.00	2.00	0.00
1,300.0	6.00	135.00	1,299.5	-11.1	11.1	-15.7	2.00	2.00	0.00
1,400.0	8.00	135.00	1,398.7	-19.7	19.7	-27.9	2.00	2.00	0.00
1,500.0	10.00	135.00	1,497.5	-30.8	30.8	-43.5	2.00	2.00	0.00
1,579.3	11.59	135.00	1,575.3	-41.3	41.3	-58.4	2.00	2.00	0.00
1,600.0	11.59	135.00	1,595.6	-44.2	44.2	-62.5	0.00	0.00	0.00
1,700.0	11.59	135.00	1,693.6	-58.4	58.4	-82.6	0.00	0.00	0.00
1,800.0	11.59	135.00	1,791.6	-72.6	72.6	-102.7	0.00	0.00	0.00
1,900.0	11.59	135.00	1,889.5	-86.8	86.8	-122.8	0.00	0.00	0.00
2,000.0	11.59	135.00	1,987.5	-101.0	101.0	-142.8	0.00	0.00	0.00
2,100.0	11.59	135.00	2,085.5	-115.2	115.2	-162.9	0.00	0.00	0.00
2,200.0	11.59	135.00	2,183.4	-129.4	129.4	-183.0	0.00	0.00	0.00
2,300.0	11.59	135.00	2,281.4	-143.6	143.6	-203.1	0.00	0.00	0.00
2,400.0	11.59	135.00	2,379.3	-157.8	157.8	-223.2	0.00	0.00	0.00
2,500.0	11.59	135.00	2,477.3	-172.0	172.0	-243.2	0.00	0.00	0.00
2,600.0	11.59	135.00	2,575.3	-186.2	186.2	-263.3	0.00	0.00	0.00
2,700.0	11.59	135.00	2,673.2	-200.4	200.4	-283.4	0.00	0.00	0.00
2,800.0	11.59	135.00	2,771.2	-214.6	214.6	-303.5	0.00	0.00	0.00
2,900.0	11.59	135.00	2,869.2	-228.8	228.8	-323.6	0.00	0.00	0.00
3,000.0	11.59	135.00	2,967.1	-243.0	243.0	-343.7	0.00	0.00	0.00
3,100.0	11.59	135.00	3,065.1	-257.2	257.2	-363.7	0.00	0.00	0.00
3,200.0	11.59	135.00	3,163.0	-271.4	271.4	-383.8	0.00	0.00	0.00
3,300.0	11.59	135.00	3,261.0	-285.6	285.6	-403.9	0.00	0.00	0.00
3,400.0	11.59	135.00	3,359.0	-299.8	299.8	-424.0	0.00	0.00	0.00
3,500.0	11.59	135.00	3,456.9	-314.0	314.0	-444.1	0.00	0.00	0.00
3,600.0	11.59	135.00	3,554.9	-328.2	328.2	-464.1	0.00	0.00	0.00
3,700.0	11.59	135.00	3,652.9	-342.4	342.4	-484.2	0.00	0.00	0.00
3,800.0	11.59	135.00	3,750.8	-356.6	356.6	-504.3	0.00	0.00	0.00
3,900.0	11.59	135.00	3,848.8	-370.8	370.8	-524.4	0.00	0.00	0.00
4,000.0	11.59	135.00	3,946.7	-385.0	385.0	-544.5	0.00	0.00	0.00
4,100.0	11.59	135.00	4,044.7	-399.2	399.2	-564.5	0.00	0.00	0.00
4,105.4	11.59	135.00	4,050.0	-400.0	400.0	-565.6	0.00	0.00	0.00
4,200.0	1.92	157.43	4,143.8	-408.2	407.3	-576.6	10.40	-10.22	23.71
4,300.0	8.73	305.18	4,243.5	-405.4	401.8	-570.7	10.40	6.81	147.75
4,400.0	19.10	308.31	4,340.4	-390.8	382.7	-547.0	10.40	10.38	3.13
4,500.0	29.50	309.27	4,431.5	-365.0	350.7	-506.2	10.40	10.39	0.96
4,600.0	39.89	309.77	4,513.6	-328.8	306.9	-449.7	10.40	10.40	0.49
4,700.0	50.29	310.08	4,584.1	-283.4	252.6	-379.3	10.40	10.40	0.31
4,800.0	60.69	310.31	4,640.6	-230.3	189.8	-297.4	10.40	10.40	0.23
4,900.0	71.09	310.50	4,681.4	-171.2	120.4	-206.7	10.40	10.40	0.19
5,000.0	81.48	310.67	4,705.1	-108.1	46.7	-110.1	10.40	10.40	0.17
5,074.3	89.21	310.78	4,711.1	-59.8	-9.4	-36.4	10.40	10.40	0.16
5,100.0	89.28	311.52	4,711.5	-42.9	-28.7	-10.8	2.88	0.24	2.87
5,200.0	89.52	314.40	4,712.5	25.2	-101.9	89.1	2.88	0.25	2.87
5,270.2	89.70	316.41	4,713.0	75.2	-151.1	159.2	2.88	0.25	2.87
5,300.0	89.70	316.41	4,713.2	96.8	-171.7	189.1	0.00	0.00	0.00
5,400.0	89.70	316.41	4,713.7	169.2	-240.7	289.1	0.00	0.00	0.00
5,500.0	89.70	316.41	4,714.2	241.7	-309.6	389.1	0.00	0.00	0.00
5,600.0	89.70	316.41	4,714.7	314.1	-378.5	489.1	0.00	0.00	0.00
5,700.0	89.70	316.41	4,715.3	386.5	-447.5	589.0	0.00	0.00	0.00
5,800.0	89.70	316.41	4,715.8	459.0	-516.4	689.0	0.00	0.00	0.00
5,900.0	89.70	316.41	4,716.3	531.4	-585.4	789.0	0.00	0.00	0.00
6,000.0	89.70	316.41	4,716.9	603.8	-654.3	889.0	0.00	0.00	0.00

## 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)
6,100.0	89.70	316.41	4,717.4	676.3	-723.3	989.0	0.00	0.00	0.00
6,200.0	89.70	316.41	4,717.9	748.7	-792.2	1,089.0	0.00	0.00	0.00
6,300.0	89.70	316.41	4,718.5	821.1	-861.2	1,189.0	0.00	0.00	0.00
6,400.0	89.70	316.41	4,719.0	893.5	-930.1	1,289.0	0.00	0.00	0.00
6,500.0	89.70	316.41	4,719.5	966.0	-999.1	1,389.0	0.00	0.00	0.00
6,600.0	89.70	316.41	4,720.0	1,038.4	-1,068.0	1,489.0	0.00	0.00	0.00
6,700.0	89.70	316.41	4,720.6	1,110.8	-1,136.9	1,589.0	0.00	0.00	0.00
6,800.0	89.70	316.41	4,721.1	1,183.3	-1,205.9	1,689.0	0.00	0.00	0.00
6,900.0	89.70	316.41	4,721.6	1,255.7	-1,274.8	1,789.0	0.00	0.00	0.00
7,000.0	89.70	316.41	4,722.2	1,328.1	-1,343.8	1,889.0	0.00	0.00	0.00
7,100.0	89.70	316.41	4,722.7	1,400.6	-1,412.7	1,989.0	0.00	0.00	0.00
7,200.0	89.70	316.41	4,723.2	1,473.0	-1,481.7	2,089.0	0.00	0.00	0.00
7,300.0	89.70	316.41	4,723.8	1,545.4	-1,550.6	2,188.9	0.00	0.00	0.00
7,400.0	89.70	316.41	4,724.3	1,617.9	-1,619.6	2,288.9	0.00	0.00	0.00
7,500.0	89.70	316.41	4,724.8	1,690.3	-1,688.5	2,388.9	0.00	0.00	0.00
7,600.0	89.70	316.41	4,725.3	1,762.7	-1,757.5	2,488.9	0.00	0.00	0.00
7,700.0	89.70	316.41	4,725.9	1,835.2	-1,826.4	2,588.9	0.00	0.00	0.00
7,800.0	89.70	316.41	4,726.4	1,907.6	-1,895.3	2,688.9	0.00	0.00	0.00
7,900.0	89.70	316.41	4,726.9	1,980.0	-1,964.3	2,788.9	0.00	0.00	0.00
8,000.0	89.70	316.41	4,727.5	2,052.4	-2,033.2	2,888.9	0.00	0.00	0.00
8,100.0	89.70	316.41	4,728.0	2,124.9	-2,102.2	2,988.9	0.00	0.00	0.00
8,200.0	89.70	316.41	4,728.5	2,197.3	-2,171.1	3,088.9	0.00	0.00	0.00
8,300.0	89.70	316.41	4,729.1	2,269.7	-2,240.1	3,188.9	0.00	0.00	0.00
8,400.0	89.70	316.41	4,729.6	2,342.2	-2,309.0	3,288.9	0.00	0.00	0.00
8,500.0	89.70	316.41	4,730.1	2,414.6	-2,378.0	3,388.9	0.00	0.00	0.00
8,600.0	89.70	316.41	4,730.6	2,487.0	-2,446.9	3,488.9	0.00	0.00	0.00
8,700.0	89.70	316.41	4,731.2	2,559.5	-2,515.9	3,588.9	0.00	0.00	0.00
8,800.0	89.70	316.41	4,731.7	2,631.9	-2,584.8	3,688.8	0.00	0.00	0.00
8,900.0	89.70	316.41	4,732.2	2,704.3	-2,653.7	3,788.8	0.00	0.00	0.00
9,000.0	89.70	316.41	4,732.8	2,776.8	-2,722.7	3,888.8	0.00	0.00	0.00
9,100.0	89.70	316.41	4,733.3	2,849.2	-2,791.6	3,988.8	0.00	0.00	0.00
9,200.0	89.70	316.41	4,733.8	2,921.6	-2,860.6	4,088.8	0.00	0.00	0.00
9,300.0	89.70	316.41	4,734.3	2,994.0	-2,929.5	4,188.8	0.00	0.00	0.00
9,400.0	89.70	316.41	4,734.9	3,066.5	-2,998.5	4,288.8	0.00	0.00	0.00
9,500.0	89.70	316.41	4,735.4	3,138.9	-3,067.4	4,388.8	0.00	0.00	0.00
9,600.0	89.70	316.41	4,735.9	3,211.3	-3,136.4	4,488.8	0.00	0.00	0.00
9,700.0	89.70	316.41	4,736.5	3,283.8	-3,205.3	4,588.8	0.00	0.00	0.00
9,800.0	89.70	316.41	4,737.0	3,356.2	-3,274.3	4,688.8	0.00	0.00	0.00
9,900.0	89.70	316.41	4,737.5	3,428.6	-3,343.2	4,788.8	0.00	0.00	0.00
10,000.0	89.70	316.41	4,738.1	3,501.1	-3,412.1	4,888.8	0.00	0.00	0.00
10,100.0	89.70	316.41	4,738.6	3,573.5	-3,481.1	4,988.8	0.00	0.00	0.00
10,200.0	89.70	316.41	4,739.1	3,645.9	-3,550.0	5,088.8	0.00	0.00	0.00
10,300.0	89.70	316.41	4,739.6	3,718.4	-3,619.0	5,188.8	0.00	0.00	0.00
10,400.0	89.70	316.41	4,740.2	3,790.8	-3,687.9	5,288.7	0.00	0.00	0.00
10,500.0	89.70	316.41	4,740.7	3,863.2	-3,756.9	5,388.7	0.00	0.00	0.00
10,600.0	89.70	316.41	4,741.2	3,935.7	-3,825.8	5,488.7	0.00	0.00	0.00
10,700.0	89.70	316.41	4,741.8	4,008.1	-3,894.8	5,588.7	0.00	0.00	0.00
10,800.0	89.70	316.41	4,742.3	4,080.5	-3,963.7	5,688.7	0.00	0.00	0.00
10,900.0	89.70	316.41	4,742.8	4,152.9	-4,032.7	5,788.7	0.00	0.00	0.00
10,932.9	89.70	316.41	4,743.0	4,176.8	-4,055.3	5,821.6	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
353H-KOP - plan hits target center - Point	0.00	360.00	4,050.0	-400.0	400.0	1,862,385.00	1,257,990.21	36.111465°N	107.544722°W
353H-POE - plan hits target center - Point	0.00	357.85	4,713.0	75.2	-151.1	1,862,860.20	1,257,439.06	36.112750°N	107.546609°W
353H-BHL - plan hits target center - Point	0.00	357.85	4,743.0	4,176.8	-4,055.3	1,866,961.75	1,253,534.89	36.123871°N	107.560011°W

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(usft)	(usft)		(")	(")	
220.0	220.0	13 3/8"	13-3/8	17-1/2	
2,648.7	2,623.0	9 5/8"	9-5/8	12-1/4	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
518.0	518.0	Ojo Alamo		0.00		
783.0	783.0	Kirtland		0.00		
832.0	832.0	Fruitland		0.00		
1,147.1	1,147.0	Pictured Cliffs		0.00		
1,361.0	1,360.0	Lewis		0.00		
1,507.7	1,505.0	Chacra		0.00		
1,893.3	1,883.0	Cliff House		0.00		
2,597.7	2,573.0	Menefee		0.00		
3,562.3	3,518.0	Point Lookout		0.00		
3,822.6	3,773.0	Mancos		0.00		
4,026.8	3,973.0	Gallup		0.00		
5,270.2	4,713.0	TARGET		0.00		