U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Sundry Print Report

05/21/2024

Well Name: NORTH ALAMITO UNIT

Well Location: T23N / R7W / SEC 19 / NENE / 36.21727 / -107.610473

County or Parish/State: SANDOVAL / NM

Well Number: 102H

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM81638

Unit or CA Name: /1/NORTH ALAMITO UNIT

Unit or CA Number: NMNM135229A

US Well Number: 3004321510

Operator: DJR OPERATING LLC

Notice of Intent

Sundry ID: 2791520

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 05/20/2024

Time Sundry Submitted: 03:00

Date proposed operation will begin: 05/20/2024

Procedure Description: DJR respectfully requests approval to change the casing and cement design for the subject well. Attached please find a revised Drilling and Directional Plan; reflecting changes to the lateral length, intermediate/production liner casing size, set depth and cement slurry assumptions. Please note, effective December 21, 2023, Enduring Resources, LLC & DJR Operating, LLC are wholly owned subsidiaries of Enduring Resources, LLC. Leases, rights of way, wells, and other property interests will continue to be held in their current entity names.

NOI Attachments

Procedure Description

102H_Change_to_Slim_Hole_20240520150019.pdf

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Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: SHAW-MARIE FORD

Signed on: MAY 20, 2024 03:00 PM

Name: DJR OPERATING LLC

Title: Regulatory Specialist

Street Address: 1 ROAD 3263

City: AZTEC **State:** NM

Phone: (505) 632-3476

Email address: SFORD@ENDURINGRESOURCES.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5055647742

BLM POC Email Address: krennick@blm.gov

Disposition: Approved

Disposition Date: 05/21/2024

Signature: Kenneth Rennick

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

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

WELL INFORMATION:

Name: **NORTH ALAMITO UNIT 102H**
API Number: 30-043-21510
AFE Number: *DV03211*
ER Well Number: *Not yet assigned*
State: New Mexico
County: Sandoval
Surface Elevation: 6,962 ft ASL (GL) 6,986 ft ASL (KB)
Surface Location: 19-23N-07W Sec-Twn-Rng 917 ft FNL 1,154 ft FEL
36.21727 ° N latitude 107.610473 ° W longitude (NAD 83)
BH Location: 29-23N-07W Sec-Twn-Rng 855 ft FNL 82 ft FEL
36.202864 ° N latitude 107.589175 ° 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 39.0 miles to MM 112.7, Right (South) on CR #7900 / IR #7061 for 5.1 miles to Y (just passed 4-way), Left (East) leaving CR #7900 for 4.0 miles to lease road; Left (NorthEast) for 1.8 miles to new access; Right (North) for 1.5 miles to NAU A19-2307 pad entrance on left (from South to North): N Alamito 102H, 106H wells)

GEOLOGIC AND RESERVOIR INFORMATION:

Prognosis:

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O / G / W	Pressure
Ojo Alamo	5,915	1,071	1,071	W	normal
Kirtland	5,800	1,186	1,186	W	normal
Fruitland	5,630	1,356	1,358	G, W	sub
Pictured Cliffs	5,295	1,691	1,707	G, W	sub
Lewis	5,140	1,846	1,877	G, W	normal
Chacra	4,889	2,097	2,152	G, W	normal
Cliff House	3,802	3,184	3,346	G, W	sub
Menefee	3,757	3,229	3,395	G, W	normal
Point Lookout	2,925	4,061	4,309	G, W	normal
Mancos	2,709	4,277	4,546	O,G	sub (~0.38)
Gallup (MNCS_A)	2,374	4,612	4,909	O,G	sub (~0.38)
MNCS_B	2,274	4,712	5,009	O,G	sub (~0.38)
MNCS_C	2,187	4,799	5,097	O,G	sub (~0.38)
MNCS_Cms	2,142	4,844	5,142	O,G	sub (~0.38)
MNCS_D	2,016	4,970	5,275	O,G	sub (~0.38)
MNCS_E	1,904	5,082	5,405	O,G	sub (~0.38)
MNCS_F	1,854	5,132	5,469	O,G	sub (~0.38)
MNCS_G	1,780	5,206	5,579	O,G	sub (~0.38)
MNCS_H	1,718	5,268	5,697	O,G	sub (~0.38)
MNCS_I	1,681	5,305	5,807	O,G	sub (~0.38)
FTP TARGET	**1,697**	**5,289**	**5,752**	**O,G**	**sub (~0.38)**
PROJECTED TD	**1,703**	**5,283**	**14,997**	**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: 2,280 psi
Maximum anticipated surface pressure, assuming partially evacuated hole: 1,120 psi
Temperature: **Maximum anticipated BHT is 125° F or less**

H_2S INFORMATION:

H_2S 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 7" casing to TD; gas detection from drillout of 9-5/8" casing to TD.
MWD / LWD: Gamma Ray from drillout of 9-5/8" casing to TD
Open Hole Logs: None planned
Testing: None planned
Coring: None planned
Cased Hole Logs: CBL on 7" casing from deepest free-fall depth to surface

DRILLING RIG INFORMATION:

Contractor: Ensign
Rig No.: 140

Draw Works: Pacific Rim 1500AC (1,500 hp)
Mast: Process MFG Corp Swing Up Triple (136 ft, 750,000 lbs)
Top Drive: Tesco 400-EXI-600 (400 ton)
Prime Movers: 3 - CAT 3512C (1,350 hp)
Pumps: 2 - Gardner Denver PZ-11 (7,500 psi)
BOPE 1: T3 Annular & Shaffer double gate ram (11", 5,000 psi)
BOPE 2: T3 annular(11", 5,000 psi)
Choke 3", 5,000 psi
KB-GL (ft): 23.5
Note: Actual drilling rig may vary depending on availability at time the well is scheduled to be drilled.

STATE AND FEDERAL NOTIFICATIONS		BLM	State
Construction and Reclamation:	BLM is to be notified minimum of 48 hours prior to start of construction or reclamation. Grazing permittee is to be notified 10 days in advance.	(505) 564-7600	
Spud	BLM and state are to be notified minimum of 24 hours prior to spud.	(505) 564-7750	(505) 334-6178
BOP	BLM is to be notified minimum of 24 hours prior to BOPE testing.	(505) 564-7750	see note
Casing / cementing	BLM and state are to be notified minimum of 24 hours prior to running casing and cementing.	(505) 564-7750	(505) 334-6178
Plugging	BLM and state are to be notified minimum of 24 hours prior to plugging ops.	(505) 564-7750	see note
	All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to.		
	Note: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov		

BOPE REQUIREMENTS:

See attached diagram for details regarding BOPE specifications and configuration.

1) Rig will be equipped with upper and lower kelly cocks with handles available.
2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.
2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum.
3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, for 30 minutes, prior to drilling out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line valve will be function tested daily at a minimum.
4) Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily available to the driller. The remote BOP valve shall be capable of closing and opening the rams.
5) Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device.The valve will be maintained in the open position and shall only be closed when 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 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 minimimize 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 and attached Newpark mud program for additional details.

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: 12-1/4"
Bit / Motor: Mill Tooth or PDC, no motor
MWD / Survey: No MWD, deviation survey
Logging: None
Procedure: Drill to TD. After reaching TD, run gyro survey in 100' stations from TD to surface. Wiper trip. Condition hole and fluid for casing running. TOH. Run casing. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface. Install cellar and wellhead.

Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	9.625	36.0	K-55	STC	2,020	3,520	564,000	423,000
Loading					153	1,136	110,988	110,988
Min. S.F.					**13.21**	**3.10**	**5.08**	**3.81**

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): *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*

Casing Summary: Float shoe, 1 jt casing, float collar, casing to surface
Centralizers: 2 centralizers per jt stop-banded 10' from each collar on bottom 3 jts, 1 centralizer per 2 jts to surface

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	Hole Cap. (cuft/ft)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)	Total Cmt (cu ft)
Redi-Mix	TYPE I-II	14.5	1.61	7.41	0.3132	50%	0	114	184

Calculated cement volumes assume gauge hole and the excess noted in table Csg ID 8.921
Mesa Ready Mix or first available Shoe Track L 44
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	**5,852** ft (MD)	**Hole Section Length:**	**5,502 ft**
350 ft (TVD)	to	**5,314** ft (TVD)	**Casing Required:**	**5,852 ft**

Fluid:	Type	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pH	Comments
	LSND (KCl)	8.8 - 9.2	15	8 - 14	6 - 12	10.8 - 11.2	No OBM

Procedure: Mud system is to have a 7% KCl base and 3% blown asphalt type product added for additional hole stability. Bulk KCl is to be used. When mixing mud, all safety equipment is to be used including face shields. Fluid loss control should be moderate and in the 15 ml range. Control GPM (350 to 400 if possible) from BSC to ±2,000' MD in order to minimize washout in the less consolidated surface formations.

Hole Size: 8.75
Bit / Motor: 8-3/4" PDC bit w/mud motor
Bit / Motor: MOTOR: NOV 087840 - 7/8, 4.0, stage, 0.16 rev/gal, 1.83 DEG, 600 GPM, 950 DIFF PSIG
BIT: 5-BLADE PDC w/16 mm or 19 mm cutters, TFA = 1.2 sq-in (range 1.00 - 1.50 max), **jet with 5 - 18's**
MWD / Survey: MWD Survey with inclination and azimuth survey (every 100' at a minimum), GR optional
Logging: None
Pressure Test: NU BOPE and test (as noted above); pressure test 13-3/8" casing to **1,500** psi for 30 minutes.
Procedure: Drill to TD following directional plan **(20' rat-hole past casing setting depth)**. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and keep slide length < 10', when possible during back build and hold section. Build is planned at 10°/100' and landing is to be at ±80° inclination. Take surveys every stand, at a minimum. Target flow-rates of 400 to 600 GPM after 2,000' MD. Minimum desired flow-rate is 450 GPM. At TD, condition hole and fluid for casing running but keep to a minimum due to uphole instability problems that are possible. Confirm landing target, planned BUR for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated landing target. Take survey every joint during curve. Land curve. TOOH. Run casing using a CRT and washing / circulating as required. Land casing. ND BOPE. Walk rig to next well. Perform off-line cement job if possible. Pump cement as detailed below. Monitor returns during cement job and note cement volume to surface.

Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	7	26.0	K-55	LTC	4,320	4,980	415,000	367,000
Loading					2,321	1,424	232,684	232,684
Min. S.F.					**1.86**	**3.50**	**1.78**	**1.58**

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): *Minumum: 3,400 Optimum: 4,530 Maximum: 5,660*
Casing Summary: Float shoe, 1 jt casing, float collar, casing to surface **(FLOAT EQUIPMENT FROM WEATHERFORD)**
Centralizers: 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

Centralizers: 1 centralizers jt stop-banded 10' from float shoe on bottom 1 jt & 1 centralizer floating on bottom joint, 1 centralizer per jt (floating) to KOP ; 1 centralizer per 3 jts to surface **(Centralizers from Scepter Supply - SLIP'N'SLIDE 9-5/8" x 12" SOLID BODY POLYMER)**

Cement:	Type	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)	Total Cmt (cu ft)
Lead	III:POZ Blend	12.5	2.140	12.05	70%	0	516	1,105
Tail	Type III	14.6	1.380	6.64	20%	4,446	191	263

Annular Capacity	0.16681	cuft/ft	*7" casing x 9-5/8" casing annulus*	Shoe Track L	44
	0.1503	cuft/ft	*9-5/8" casing x 12-1/4" hole annulus*	Casing ID	6.276
	0.2148	cuft/ft	*7" casing casing volume*		

Calculated cement volumes assume gauge hole and the excess noted in table
Drake Intermediate Cementing Program
Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive strength before drilling out.

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

5,852	ft (MD)	to	14,997	ft (MD)	Hole Section Length:	9,145 ft
5,314	ft (TVD)	to	5,283	ft (TVD)	Casing Required:	9,295 ft

Estimated KOP:	4,841	ft (MD)	4,450	ft (TVD)
Estimated Liner Top:	5,702	ft (MD)	5,270	ft (TVD)
Estimated Landing Point (FTP):	5,752	ft (MD)	5,289	ft (TVD)
Estimated Lateral Length:	9,245	ft (MD)		

Fluid:	Type	MW (ppg)	FL (mL/30')	PV (cp)	YP (lb/100 sqft)	pH	Comments	Comments
	WBM	8.7 - 9.0	NC	+20	±2	9-9.5	prod water	OBM as contingency

Fluids / Solids Notes: **Drilling fluid will be production water and Newpark lubricant NDFT 487 (1.5 to 2% by retort).** Corrosion inhibitor is to be used. As a contingency only: Newpark OptiDrill OBM system. Ensure that drying shakers are rigged up after the rig (2nd set) of shakers. Solids control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as required to maintain mud in program specs. Reference Newpark's mud program for additional details. No asphalt products are to be added to the OBM system. **Any changes to the mud systems are to be discussed with engineering prior to application.**

Hole Size: 6.125

Bit / Motor: 6-1/8" PDC bit w/mud motor

Bit / Motor (Detail): MOTOR: NOV 500ERT6764 - 6/7, 6.4, stage, 0.79 rev/gal, 1.83 DEG, 250-400 GPM, 1,710 DIFF PSIG (or similar); on demand friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.
BIT: 5-BLADE Long Guage PDC w/13 mm - 16 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in

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.

Procedure: Target flow-rate is 250 - 400 GPM. Target differential is pressure is 700 - 1,000 psig. Target ROP 300 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 1 deg/100' and keep slide length < 10', when feasible. Take surveys every stand, at a minimum. After reaching TD, perform clean-up cycle to condition hole for casing running. Spot lube as needed and TOOH (ROOH, if required; should NOT be required with OBM system). Run liner as described below. Verify make up torque when running casing. Space out liner getting the toe sleeve as close to LTP as possible while maintaining ±150' of liner lap. Follow liner setting procedure. Circulate as required. Perform cement job. Pump cement as detailed below. Note cement volume circulated to surface.

Liner/Casing Specs:	Size (in)	Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	4.500	11.6	P-110	BTC	7,560	10,690	367,000	385,000
Loading					2,610	8,802	250,116	250,116
Min. S.F.					**2.90**	**1.21**	**1.47**	**1.54**

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. Tension calculations assume vertical hole to approximate drag in lateral.

MU Torque (ft lbs): *Minumum: BTC Optimum: BTC Maximum: BTC*

Liner Summary: Float shoe, 1 jt casing, double float -float collar (Weatherford float equipment), landing collar, 1 joint csg, toe-intitiation sleeve **(Weatherford (WFT) RD 8,500 psi)**, casing to shoe of 7" and overlap to liner top at 65° inclination or 150' MD from base of intermediate casing to top of liner hanger / packer / liner tie back sleeve per plan with 20' marker joints spaced evenly in lateral every ~2,000'. Run liner dry, do not use a floatation sub but have one on location as a back up**(NCS Air-Lock 2,500 psi from WFT)**, drill pipe to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 330' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 330' from the parallel lease lines. ***Note: the LTP is the maximum depth of the toe sleeve and is noted on the Well Plan. Drill past the LTP as required for necessary rat-hole and shoe-track length to place the toe sleeve as close to (but not past) the planned LTP as possible.***

Liner Procedure Prior to TD, record pump rate and pressure, torque and RPM, PU, SO and static weights with and w/o pumps. Plan TD and liner tally to ensure liner hanger is not placed across any 7" casing connection. Rabbit drill pipe on last trip and ensure recovery of drift. Run liner as above, PU last joint and record PU/SO weights. PU hanger assembly and install liner wiper plug system. MU joint of DP and circulate liner volume. TIH to set depth. Break circ slowly, C&C. On depth drop setting ball, pump <2 bpm. With ball on seat, increase pressure to 20% higher than pinned press, hold 3 minutes. Slack off to check liner hanger has been set. If not set, increase pressure 200 psi and repeat process. Once set, slack off liner weight plus 5 k#'s. Rotate 20 rounds to right to release from hanger. PU no more than 3' to ensure liner release. Slack off 20 k#'s. Increase pump pressure to ±2,500 psi to shear ball and regain circulation. Record pressures. Increase SO weight to 40 k#'s for cement job. Pump cement, launch DP wiper plug, engage with liner wiper plug and record shear pressure. Bump plug, RD cement head. PU DP to expose liner packer dogs above PBR. Lower DP, mark DP when dogs are on PBR. Slack off to shear packer pins and energize packing element and slips. Pull PBR packoff out of PBR while slowly engaging pumps to ensure cement does not fall into PBR. Clear PBR, pump ±10 bbls to clear cement, pressure test hanger seals to 2,000 psi. Release, check for flow and circulate BU and record cement volume to surface.

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

Lateral: 1 centralizer per 3 joints (purchase centralizers from Scepter Supply)
90° inclination to liner hanger: 1 centralizer per joint

Cement:	**Type**	**Weight (ppg)**	**Yield (cuft/sk)**	**Water (gal/sk)**	**% Excess**	**Planned TOC (ft MD)**	**Total Cmt (sx)**	**Total Cmt (cu ft)**
Spacer	IntegraGuard Star	11		31.6		0	60 bbls	
Tail	G:POZ blend	13.3	1.560	7.70	30%	5,702	761	1,187

Displacement	*201*	*est bbls*		
Annular Capacity	0.1044	cuft/ft	*4-1/2" casing x 7" casing annulus*	
	0.09417	cuft/ft	*4-1/2" casing x 6-1/8" hole annulus*	
	0.0873	cuft/ft	*4-1/2" casing vol*	*est shoe jt ft* 100
	0.0102	bbls/ft	*4" DP capacity*	

Calculated cement volumes assume gauge hole and the excess noted in table
American Cementing Liner & Production Blend

Spacer	*S-8 Silica Flour 163.7 lbs/bbl*	Avis 616 viscosifier 11.6 lb/bbl	FP24 Defoamer .5 lb/bbl	IntegraGuard Star Plus 3K LCM 15 lb/bbl	SS201 Surfactant 1 gal/bbl				
Lead	*ASTM Type I/II*	BA90 Bonding Agent 5.0 lb/sx	Bentonite Viscosifier 8% BWOB	FL24 Fluid Loss .5% BWOB	IntegraGuard GW86 Viscosifier .1% BWOB	R7C Retarder .2% BWOB	FP24 Defoamer 0.3% BWOB, Anti-Static .01 lb/sx		
Tail	*Type G 50%*	Pozzolan Fly Ash Extender 50%	BA90 Bonding Agent 3.0 lb/sx	Bentonite Viscosifier 4% BWOB	FL24 Fluid Loss .4% BWOB	IntegraGuard GW86 Viscosifier .1% BWOB	R3 Retarder .5% BWOB	FP24 Defoamer .3% BWOB, IntegraSeal 0.25 lb/sx	

LCM will be added to spacer. LCM may be added lead slurry and tail slurry depending on drilling observations and observations during cementing on initial wells on pad.

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

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

FINISH WELL: ***ND BOP, cap well, RDMO.***

Procedure: After off-line cement job, cap and cover well. Continue drilling operations on subsequent wells on pad.

COMPLETION AND PRODUCTION PLAN:

Est Lateral Length: 9,145

Est Frac Inform: *38 Frac Stages 147,000 bbls slick water 11,890,000 lbs proppant*

Frac: 39 plug-and-perf stages with 150,000 bbls slickwater fluid and 12,100,000 lbs of proppant (estimated)

Flowback: Flow back through production tubing as pressures allow

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

ESTIMATED START DATES:

Drilling: 2/16/2024
Completion: 4/16/2024
Production: 5/31/2024

Prepared by: **Greg Olson** **1/25/2024**
Updated:

WELL NAME: **NORTH ALAMITO UNIT 102H**

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

API Number: *30-043-21510*

AFE Number: *DV03211*

ER Well Number: *Not yet assigned*

State: New Mexico

County: Sandoval

Surface Elev.:	6,962	ft ASL (GL)	6,986	ft ASL (KB)		
Surface Location:	19-23N-07W	Sec-Twn- Rng	917	ft FNL	1,154	ft FEL
BH Location:	29-23N-07W	Sec-Twn- Rng	855	ft FNL	82	ft FEL

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

South on US Hwy 550 for 39.0 miles to MM 112.7, Right (South) on CR #7900 / IR #7061 for 5.1 miles to Y (just passed 4-way), Left (East) leaving CR #7900 for 4.0 miles to lease road; Left (NorthEast) for 1.8 miles to new access; Right (North) for 1.5 miles to NAU A19-2307 pad entrance on left (from South to North): N Alamito 102H, 106H wells).

QUICK REFERENCE		
Sur TD (MD)	350	ft
Int TD (MD)	5,852	ft
KOP (MD)	4,841	ft
KOP (TVD)	4,450	ft
Target (TVD)	5,289	ft
Curve BUR	10	°/100 ft
POE (MD)	5,752	ft
TD (MD)	14,997	ft
Lat Len (ft)	9,245	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	12.250	350	9.625	36	K-55	STC	0	350
Intermediate	8.750	5,852	7	26.0	K-55	LTC	0	5,852
Production	6.125	14,997	4.500	11.6	P-110	BTC	5,702	14,997

CEMENT PROPERTIES SUMMARY:

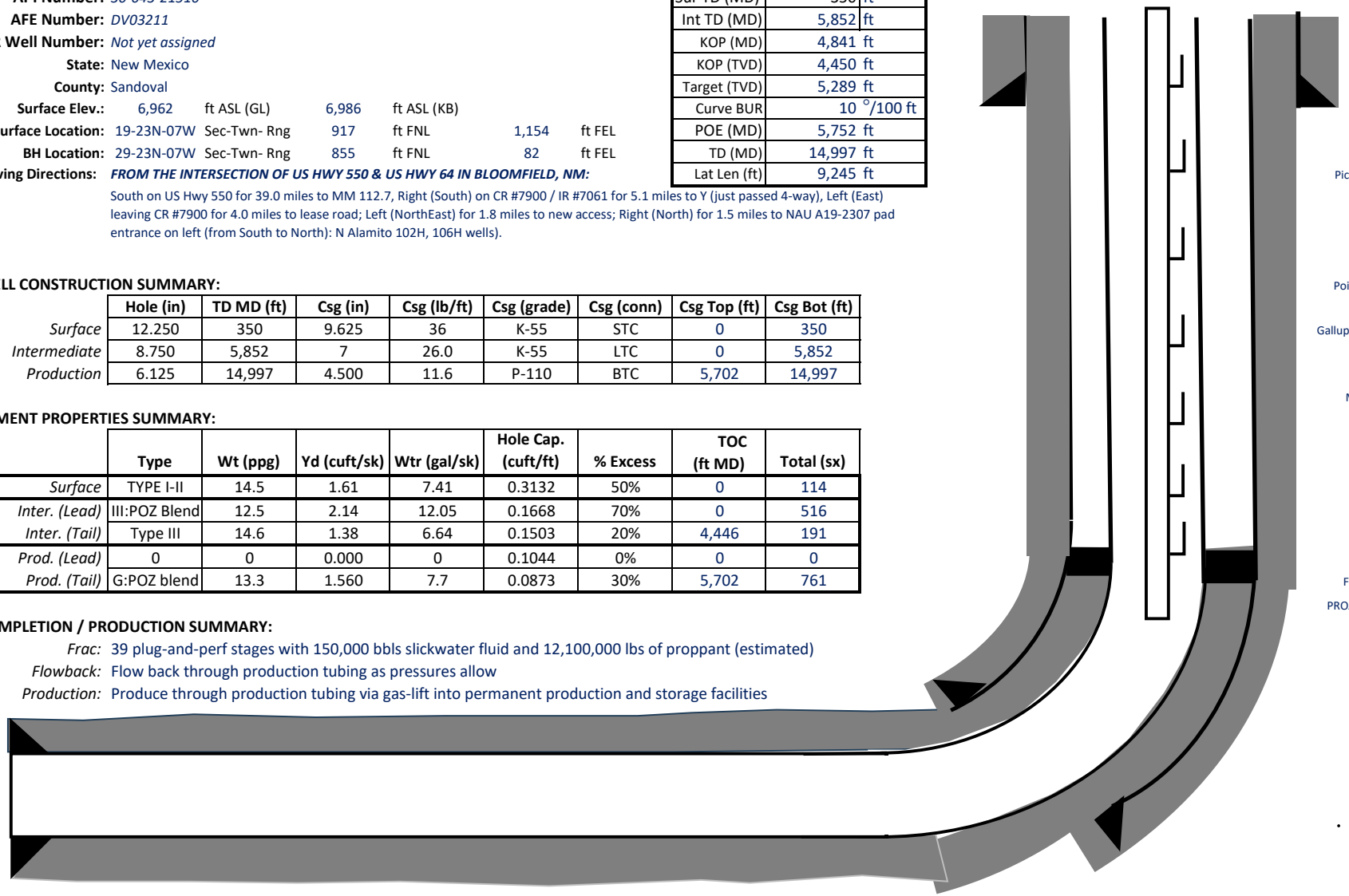
	Type	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	Hole Cap. (cuft/ft)	% Excess	TOC (ft MD)	Total (sx)
Surface	TYPE I-II	14.5	1.61	7.41	0.3132	50%	0	114
Inter. (Lead)	III:POZ Blend	12.5	2.14	12.05	0.1668	70%	0	516
Inter. (Tail)	Type III	14.6	1.38	6.64	0.1503	20%	4,446	191
Prod. (Lead)	0	0	0.000	0	0.1044	0%	0	0
Prod. (Tail)	G:POZ blend	13.3	1.560	7.7	0.0873	30%	5,702	761

COMPLETION / PRODUCTION SUMMARY:

Frac: 39 plug-and-perf stages with 150,000 bbls slickwater fluid and 12,100,000 lbs of proppant (estimated)

Flowback: Flow back through production tubing as pressures allow

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



Tops	TVD (ft KB)	MD (ft KB)
Ojo Alamo	1,071	1,071
Kirtland	1,186	1,186
Fruitland	1,356	1,358
Pictured Cliffs	1,691	1,707
Lewis	1,846	1,877
Chacra	2,097	2,152
Cliff House	3,184	3,346
Menefee	3,229	3,395
Point Lookout	4,061	4,309
Mancos	4,277	4,546
Gallup (MNCS_A)	4,612	4,909
MNCS_B	4,712	5,009
MNCS_C	4,799	5,097
MNCS_Cms	4,844	5,142
MNCS_D	4,970	5,275
MNCS_E	5,082	5,405
MNCS_F	5,132	5,469
MNCS_G	5,206	5,579
MNCS_H	5,268	5,697
MNCS_I	5,305	5,807
FTP TARGET	5,289	5,752
PROJECTED TD	5,283	14,997

Well: North Alamito Unit 102 H
Site: North Alamito Unit (102 & 106)
Project: Sandoval County, New Mexico NAD83 NM C
Design: rev2
Rig: Ensign 140

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Central Zone
System Datum: Mean Sea Level
Depth Reference: RKB=6962+23.5 @ 6985.50ft (Ensign 140)

Surface location:

Northing	Easting	Latitude	Longitude
1901167.83	1239107.84	36.21727000	-107.61047300

Total Corr (M=>G): To convert a Magnetic Direction to a Grid Direction, Add 9.24°

Azimuths to Grid North
True North: 0.80°
Magnetic North: 9.24°

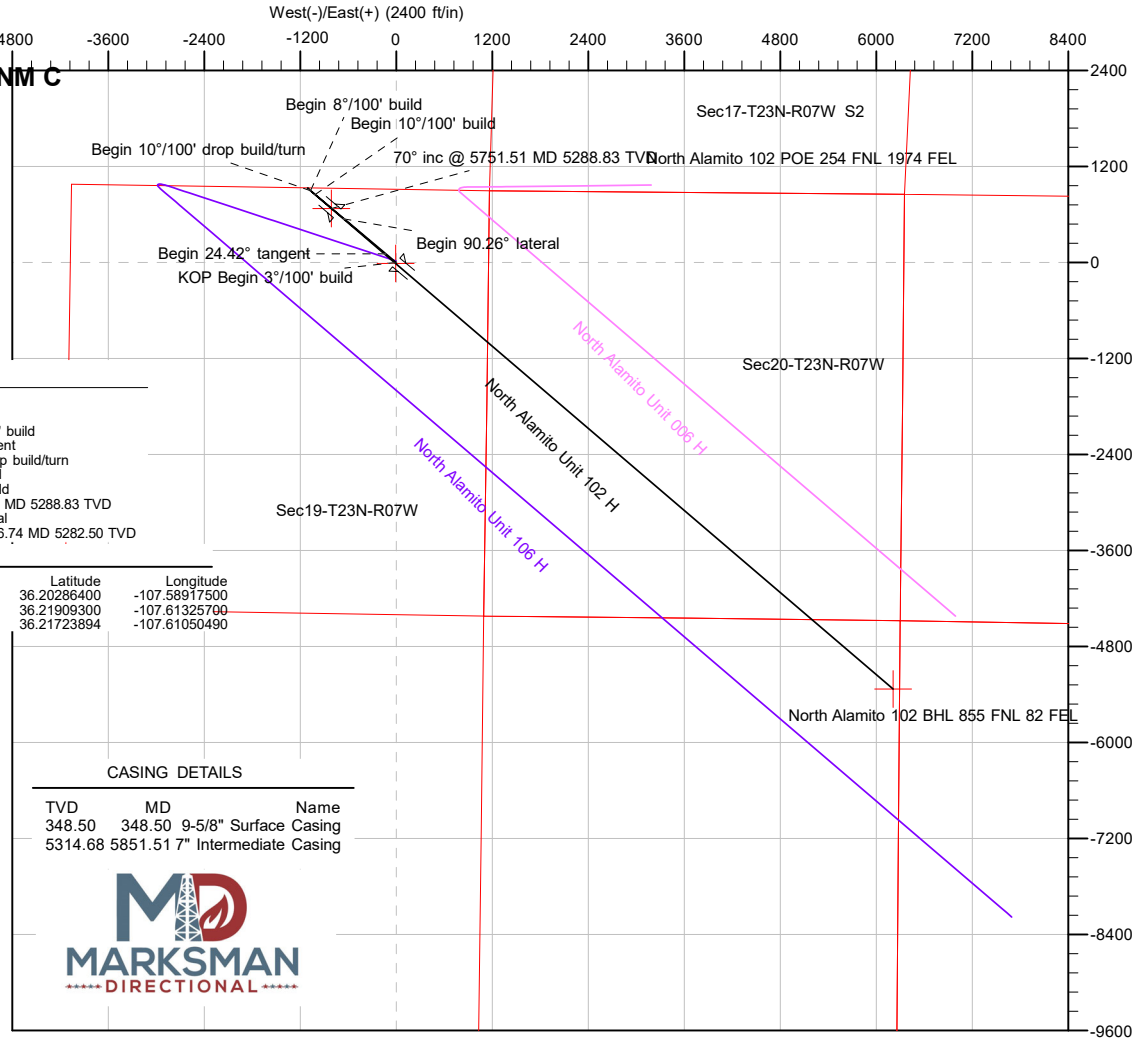
Magnetic Field
Strength: 49028.1nT
Dip Angle: 62.70°
Date: 4/17/2024
Model: IGRF2020

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
2	998.50	0.00	0.000	998.50	0.00	0.00	0.00	0.00	0.00	KOP Begin 3°/100' build
3	1812.56	24.42	309.984	1788.14	109.80	-130.94	3.00	309.98	-170.88	Begin 24.42° tangent
4	4777.30	24.42	309.984	4487.61	897.46	-1070.16	0.00	0.00	-1396.60	Begin 10°/100' drop build/turn
5	5261.51	24.00	130.545	4957.53	897.78	-1072.15	10.00	-179.70	-1398.32	Begin 8°/100' build
6	5411.51	36.00	130.545	5087.20	849.12	-1015.26	8.00	0.00	-1323.46	Begin 10°/100' build
7	5751.51	70.00	130.545	5288.83	675.19	-811.93	10.00	0.00	-1055.89	70° inc @ 5751.51 MD 5288.83 TVD
8	5954.10	90.26	130.545	5323.38	546.12	-661.05	10.00	0.00	-857.34	Begin 90.26° lateral
9	14996.74	90.26	130.545	5282.50	-5331.91	6210.37	0.00	0.00	8185.21	PBHL/TD @ 14996.74 MD 5282.50 TVD

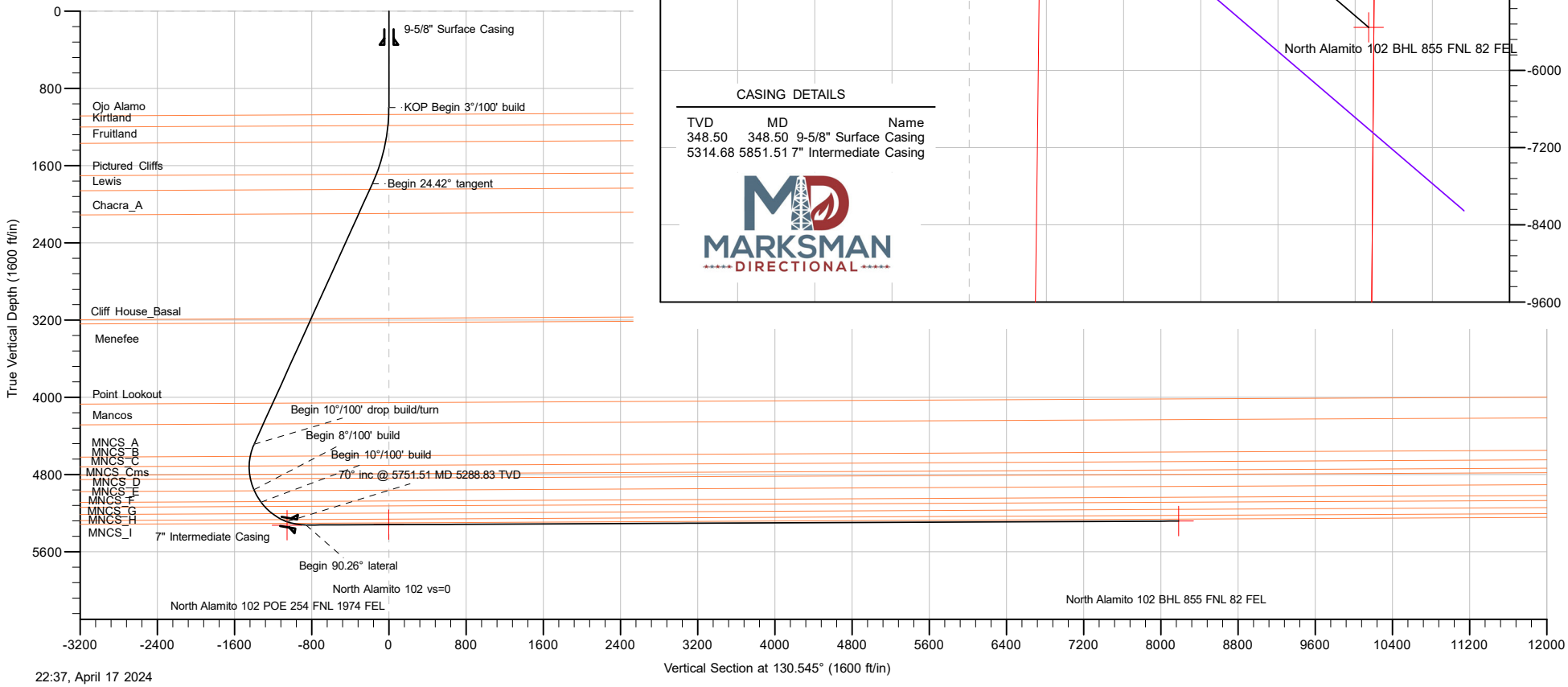
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
North Alamito 102 BHL 855 FNL 82 FEL	5282.50	-5331.91	6210.37	1895835.93	1245318.19	36.20286400	-107.58917500
North Alamito 102 POE 254 FNL 1974 FEL	5325.50	675.19	-811.93	1901843.02	1238295.90	36.21909300	-107.61325700
North Alamito 102 vs=0	5319.50	-11.17	-9.57	1901156.66	1239098.27	36.21723894	-107.61050490



CASING DETAILS

TVD	MD	Name
348.50	348.50	9-5/8" Surface Casing
5314.68	5851.51	7" Intermediate Casing



22:37, April 17 2024

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project Sandoval County, New Mexico NAD83 NM C

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site North Alamito Unit (102 & 106)

Site Position:		**Northing:**	1,901,167.83 usft	**Latitude:**	36.21727000
From:	Lat/Long	**Easting:**	1,239,107.83 usft	**Longitude:**	-107.61047300
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "		

Well North Alamito Unit 102 H, Surf loc: 917 FNL 1154 FE: Section 19-T23N-R07W

Well Position	**+N/-S**	0.00 ft	**Northing:**	1,901,167.83 usft	**Latitude:**	36.21727000
	+E/-W	0.00 ft	**Easting:**	1,239,107.83 usft	**Longitude:**	-107.61047300
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,962.00 ft
Grid Convergence:		-0.80 °				

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	4/17/2024	8.44	62.70	49,028.12253633

Design rev2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	130.545

Plan Survey Tool Program **Date** 4/17/2024

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	14,996.62	rev2 (Original Hole)	MWD	
				OWSG MWD - Standard	

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
998.50	0.00	0.000	998.50	0.00	0.00	0.00	0.00	0.00	0.00	
1,812.56	24.42	309.984	1,788.14	109.80	-130.94	3.00	3.00	0.00	309.98	
4,777.30	24.42	309.984	4,487.61	897.46	-1,070.16	0.00	0.00	0.00	0.00	
5,261.52	24.00	130.545	4,957.53	897.78	-1,072.15	10.00	-0.09	-37.06	-179.70	
5,411.52	36.00	130.545	5,087.20	849.12	-1,015.26	8.00	8.00	0.00	0.00	
5,751.52	70.00	130.545	5,288.83	675.19	-811.93	10.00	10.00	0.00	0.00	
5,954.11	90.26	130.545	5,323.38	546.12	-661.05	10.00	10.00	0.00	0.00	
14,996.75	90.26	130.545	5,282.50	-5,331.91	6,210.37	0.00	0.00	0.00	0.00	North Alamito 102 BH

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
348.50	0.00	0.000	348.50	0.00	0.00	0.00	0.00	0.00	0.00
9-5/8" Surface Casing									
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.000	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
998.50	0.00	0.000	998.50	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 3°/100' build									
1,000.00	0.05	309.984	1,000.00	0.00	0.00	0.00	3.00	3.00	0.00
1,070.52	2.16	309.984	1,070.51	0.87	-1.04	-1.36	3.00	3.00	0.00
Ojo Alamo									
1,100.00	3.05	309.984	1,099.95	1.73	-2.07	-2.70	3.00	3.00	0.00
1,185.84	5.62	309.984	1,185.54	5.90	-7.03	-9.18	3.00	3.00	0.00
Kirtland									
1,200.00	6.05	309.984	1,199.63	6.82	-8.14	-10.62	3.00	3.00	0.00
1,300.00	9.05	309.984	1,298.75	15.26	-18.20	-23.75	3.00	3.00	0.00
1,357.77	10.78	309.984	1,355.66	21.65	-25.82	-33.69	3.00	3.00	0.00
Fruitland									
1,400.00	12.05	309.984	1,397.05	27.02	-32.22	-42.05	3.00	3.00	0.00
1,500.00	15.05	309.984	1,494.26	42.07	-50.16	-65.46	3.00	3.00	0.00
1,600.00	18.05	309.984	1,590.11	60.36	-71.98	-93.93	3.00	3.00	0.00
1,700.00	21.05	309.984	1,684.33	81.86	-97.61	-127.38	3.00	3.00	0.00
1,707.27	21.26	309.984	1,691.11	83.54	-99.62	-130.01	3.00	3.00	0.00
Pictured Cliffs									
1,800.00	24.05	309.984	1,776.68	106.49	-126.98	-165.72	3.00	3.00	0.00
1,812.56	24.42	309.984	1,788.14	109.80	-130.94	-170.88	3.00	3.00	0.00
Begin 24.42° tangent									
1,876.59	24.42	309.984	1,846.43	126.81	-151.22	-197.34	0.00	0.00	0.00
Lewis									
1,900.00	24.42	309.984	1,867.75	133.03	-158.64	-207.02	0.00	0.00	0.00
2,000.00	24.42	309.984	1,958.80	159.60	-190.31	-248.37	0.00	0.00	0.00
2,100.00	24.42	309.984	2,049.85	186.17	-221.99	-289.71	0.00	0.00	0.00
2,151.74	24.42	309.984	2,096.97	199.91	-238.39	-311.10	0.00	0.00	0.00
Chacra_A									
2,200.00	24.42	309.984	2,140.91	212.74	-253.67	-331.05	0.00	0.00	0.00
2,300.00	24.42	309.984	2,231.96	239.30	-285.35	-372.40	0.00	0.00	0.00
2,400.00	24.42	309.984	2,323.01	265.87	-317.03	-413.74	0.00	0.00	0.00
2,500.00	24.42	309.984	2,414.06	292.44	-348.71	-455.08	0.00	0.00	0.00
2,600.00	24.42	309.984	2,505.12	319.01	-380.39	-496.43	0.00	0.00	0.00
2,700.00	24.42	309.984	2,596.17	345.57	-412.07	-537.77	0.00	0.00	0.00
2,800.00	24.42	309.984	2,687.22	372.14	-443.75	-579.11	0.00	0.00	0.00
2,900.00	24.42	309.984	2,778.28	398.71	-475.43	-620.46	0.00	0.00	0.00
3,000.00	24.42	309.984	2,869.33	425.27	-507.11	-661.80	0.00	0.00	0.00
3,100.00	24.42	309.984	2,960.38	451.84	-538.79	-703.14	0.00	0.00	0.00
3,200.00	24.42	309.984	3,051.43	478.41	-570.47	-744.49	0.00	0.00	0.00
3,300.00	24.42	309.984	3,142.49	504.98	-602.15	-785.83	0.00	0.00	0.00
3,345.92	24.42	309.984	3,184.29	517.17	-616.70	-804.81	0.00	0.00	0.00

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Cliff House_Basal									
3,395.44	24.42	309.984	3,229.39	530.33	-632.39	-825.29	0.00	0.00	0.00
Menefee									
3,400.00	24.42	309.984	3,233.54	531.54	-633.83	-827.17	0.00	0.00	0.00
3,500.00	24.42	309.984	3,324.59	558.11	-665.51	-868.52	0.00	0.00	0.00
3,600.00	24.42	309.984	3,415.64	584.68	-697.19	-909.86	0.00	0.00	0.00
3,700.00	24.42	309.984	3,506.70	611.25	-728.87	-951.20	0.00	0.00	0.00
3,800.00	24.42	309.984	3,597.75	637.81	-760.55	-992.55	0.00	0.00	0.00
3,900.00	24.42	309.984	3,688.80	664.38	-792.23	-1,033.89	0.00	0.00	0.00
4,000.00	24.42	309.984	3,779.85	690.95	-823.91	-1,075.23	0.00	0.00	0.00
4,100.00	24.42	309.984	3,870.91	717.51	-855.59	-1,116.58	0.00	0.00	0.00
4,200.00	24.42	309.984	3,961.96	744.08	-887.27	-1,157.92	0.00	0.00	0.00
4,300.00	24.42	309.984	4,053.01	770.65	-918.95	-1,199.26	0.00	0.00	0.00
4,308.96	24.42	309.984	4,061.17	773.03	-921.79	-1,202.97	0.00	0.00	0.00
Point Lookout									
4,400.00	24.42	309.984	4,144.06	797.22	-950.63	-1,240.61	0.00	0.00	0.00
4,500.00	24.42	309.984	4,235.12	823.78	-982.31	-1,281.95	0.00	0.00	0.00
4,545.59	24.42	309.984	4,276.63	835.90	-996.75	-1,300.80	0.00	0.00	0.00
Mancos									
4,600.00	24.42	309.984	4,326.17	850.35	-1,013.99	-1,323.29	0.00	0.00	0.00
4,700.00	24.42	309.984	4,417.22	876.92	-1,045.67	-1,364.64	0.00	0.00	0.00
4,777.30	24.42	309.984	4,487.61	897.46	-1,070.16	-1,396.60	0.00	0.00	0.00
Begin 10°/100' drop build/turn									
4,800.00	22.15	309.952	4,508.45	903.22	-1,077.04	-1,405.57	10.00	-10.00	-0.14
4,850.00	17.15	309.853	4,555.53	914.00	-1,089.93	-1,422.38	10.00	-10.00	-0.20
4,900.00	12.15	309.676	4,603.89	922.09	-1,099.65	-1,435.02	10.00	-10.00	-0.35
4,908.56	11.30	309.630	4,612.27	923.20	-1,100.99	-1,436.76	10.00	-10.00	-0.53
MNCS_A									
4,950.00	7.15	309.257	4,653.16	927.43	-1,106.11	-1,443.40	10.00	-10.00	-0.90
5,000.00	2.16	306.909	4,702.98	929.96	-1,109.28	-1,447.45	10.00	-9.99	-4.69
5,009.35	1.22	304.348	4,712.32	930.12	-1,109.50	-1,447.73	10.00	-9.97	-27.41
MNCS_B									
5,050.00	2.85	132.795	4,752.96	929.68	-1,109.12	-1,447.15	10.00	4.00	-421.98
5,096.54	7.50	131.219	4,799.30	926.89	-1,105.98	-1,442.95	10.00	10.00	-3.39
MNCS_C									
5,100.00	7.85	131.176	4,802.73	926.59	-1,105.63	-1,442.49	10.00	10.00	-1.23
5,142.18	12.07	130.851	4,844.26	921.81	-1,100.13	-1,435.20	10.00	10.00	-0.77
MNCS_Cms									
5,150.00	12.85	130.814	4,851.90	920.70	-1,098.85	-1,433.51	10.00	10.00	-0.47
5,200.00	17.85	130.653	4,900.10	912.07	-1,088.82	-1,420.28	10.00	10.00	-0.32
5,250.00	22.85	130.561	4,946.97	900.76	-1,075.63	-1,402.90	10.00	10.00	-0.18
5,261.52	24.00	130.545	4,957.53	897.78	-1,072.15	-1,398.32	10.00	10.00	-0.14
Begin 8°/100' build									
5,275.29	25.10	130.545	4,970.06	894.06	-1,067.80	-1,392.60	8.00	8.00	0.00
MNCS_D									
5,300.00	27.08	130.545	4,992.25	887.00	-1,059.54	-1,381.73	8.00	8.00	0.00
5,350.00	31.08	130.545	5,035.94	871.21	-1,041.08	-1,357.44	8.00	8.00	0.00
5,400.00	35.08	130.545	5,077.83	853.47	-1,020.35	-1,330.15	8.00	8.00	0.00
5,404.81	35.46	130.545	5,081.76	851.67	-1,018.24	-1,327.38	8.00	8.00	0.00
MNCS_E									
5,411.52	36.00	130.545	5,087.20	849.12	-1,015.26	-1,323.46	8.00	8.00	0.00
Begin 10°/100' build									

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,450.00	39.85	130.545	5,117.55	833.75	-997.29	-1,299.81	10.00	10.00	0.00
5,468.51	41.70	130.545	5,131.57	825.89	-988.10	-1,287.72	10.00	10.00	0.00
MNCS_F									
5,500.00	44.85	130.545	5,154.49	811.86	-971.70	-1,266.14	10.00	10.00	0.00
5,550.00	49.85	130.545	5,188.36	787.96	-943.77	-1,229.37	10.00	10.00	0.00
5,578.50	52.70	130.545	5,206.19	773.51	-926.87	-1,207.14	10.00	10.00	0.00
MNCS_G									
5,600.00	54.85	130.545	5,218.89	762.24	-913.69	-1,189.80	10.00	10.00	0.00
5,650.00	59.85	130.545	5,245.86	734.88	-881.71	-1,147.72	10.00	10.00	0.00
5,696.85	64.53	130.545	5,267.71	707.95	-850.23	-1,106.28	10.00	10.00	0.00
MNCS_H									
5,700.00	64.85	130.545	5,269.06	706.10	-848.07	-1,103.44	10.00	10.00	0.00
5,751.52	70.00	130.545	5,288.83	675.19	-811.93	-1,055.89	10.00	10.00	0.00
70° inc @ 5751.51 MD 5288.83 TVD									
5,800.00	74.85	130.545	5,303.46	645.15	-776.82	-1,009.68	10.00	10.00	0.00
5,806.90	75.54	130.545	5,305.23	640.82	-771.76	-1,003.01	10.00	10.00	0.00
MNCS_I									
5,850.00	79.85	130.545	5,314.41	613.45	-739.76	-960.91	10.00	10.00	0.00
5,851.51	80.00	130.545	5,314.68	612.48	-738.63	-959.42	10.00	10.00	0.00
7" Intermediate Casing									
5,900.00	84.85	130.545	5,321.07	581.25	-702.12	-911.37	10.00	10.00	0.00
5,954.11	90.26	130.545	5,323.38	546.12	-661.05	-857.34	10.00	10.00	0.00
Begin 90.26° lateral									
6,000.00	90.26	130.545	5,323.17	516.29	-626.18	-811.44	0.00	0.00	0.00
6,100.00	90.26	130.545	5,322.72	451.28	-550.19	-711.44	0.00	0.00	0.00
6,200.00	90.26	130.545	5,322.26	386.28	-474.20	-611.44	0.00	0.00	0.00
6,300.00	90.26	130.545	5,321.81	321.28	-398.21	-511.44	0.00	0.00	0.00
6,400.00	90.26	130.545	5,321.36	256.27	-322.22	-411.44	0.00	0.00	0.00
6,500.00	90.26	130.545	5,320.91	191.27	-246.23	-311.45	0.00	0.00	0.00
6,600.00	90.26	130.545	5,320.46	126.27	-170.24	-211.45	0.00	0.00	0.00
6,700.00	90.26	130.545	5,320.00	61.26	-94.26	-111.45	0.00	0.00	0.00
6,800.00	90.26	130.545	5,319.55	-3.74	-18.27	-11.45	0.00	0.00	0.00
6,900.00	90.26	130.545	5,319.10	-68.74	57.72	88.55	0.00	0.00	0.00
7,000.00	90.26	130.545	5,318.65	-133.75	133.71	188.55	0.00	0.00	0.00
7,100.00	90.26	130.545	5,318.20	-198.75	209.70	288.55	0.00	0.00	0.00
7,200.00	90.26	130.545	5,317.74	-263.75	285.69	388.55	0.00	0.00	0.00
7,300.00	90.26	130.545	5,317.29	-328.76	361.68	488.55	0.00	0.00	0.00
7,400.00	90.26	130.545	5,316.84	-393.76	437.67	588.54	0.00	0.00	0.00
7,500.00	90.26	130.545	5,316.39	-458.76	513.66	688.54	0.00	0.00	0.00
7,600.00	90.26	130.545	5,315.94	-523.77	589.65	788.54	0.00	0.00	0.00
7,700.00	90.26	130.545	5,315.48	-588.77	665.64	888.54	0.00	0.00	0.00
7,800.00	90.26	130.545	5,315.03	-653.78	741.63	988.54	0.00	0.00	0.00
7,900.00	90.26	130.545	5,314.58	-718.78	817.61	1,088.54	0.00	0.00	0.00
8,000.00	90.26	130.545	5,314.13	-783.78	893.60	1,188.54	0.00	0.00	0.00
8,100.00	90.26	130.545	5,313.68	-848.79	969.59	1,288.54	0.00	0.00	0.00
8,200.00	90.26	130.545	5,313.22	-913.79	1,045.58	1,388.54	0.00	0.00	0.00
8,300.00	90.26	130.545	5,312.77	-978.79	1,121.57	1,488.54	0.00	0.00	0.00
8,400.00	90.26	130.545	5,312.32	-1,043.80	1,197.56	1,588.53	0.00	0.00	0.00
8,500.00	90.26	130.545	5,311.87	-1,108.80	1,273.55	1,688.53	0.00	0.00	0.00
8,600.00	90.26	130.545	5,311.42	-1,173.80	1,349.54	1,788.53	0.00	0.00	0.00
8,700.00	90.26	130.545	5,310.96	-1,238.81	1,425.53	1,888.53	0.00	0.00	0.00
8,800.00	90.26	130.545	5,310.51	-1,303.81	1,501.52	1,988.53	0.00	0.00	0.00
8,900.00	90.26	130.545	5,310.06	-1,368.81	1,577.51	2,088.53	0.00	0.00	0.00

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,000.00	90.26	130.545	5,309.61	-1,433.82	1,653.49	2,188.53	0.00	0.00	0.00
9,100.00	90.26	130.545	5,309.16	-1,498.82	1,729.48	2,288.53	0.00	0.00	0.00
9,200.00	90.26	130.545	5,308.70	-1,563.82	1,805.47	2,388.53	0.00	0.00	0.00
9,300.00	90.26	130.545	5,308.25	-1,628.83	1,881.46	2,488.53	0.00	0.00	0.00
9,400.00	90.26	130.545	5,307.80	-1,693.83	1,957.45	2,588.52	0.00	0.00	0.00
9,500.00	90.26	130.545	5,307.35	-1,758.83	2,033.44	2,688.52	0.00	0.00	0.00
9,600.00	90.26	130.545	5,306.90	-1,823.84	2,109.43	2,788.52	0.00	0.00	0.00
9,700.00	90.26	130.545	5,306.44	-1,888.84	2,185.42	2,888.52	0.00	0.00	0.00
9,800.00	90.26	130.545	5,305.99	-1,953.84	2,261.41	2,988.52	0.00	0.00	0.00
9,900.00	90.26	130.545	5,305.54	-2,018.85	2,337.40	3,088.52	0.00	0.00	0.00
10,000.00	90.26	130.545	5,305.09	-2,083.85	2,413.39	3,188.52	0.00	0.00	0.00
10,100.00	90.26	130.545	5,304.64	-2,148.86	2,489.37	3,288.52	0.00	0.00	0.00
10,200.00	90.26	130.545	5,304.18	-2,213.86	2,565.36	3,388.52	0.00	0.00	0.00
10,300.00	90.26	130.545	5,303.73	-2,278.86	2,641.35	3,488.52	0.00	0.00	0.00
10,400.00	90.26	130.545	5,303.28	-2,343.87	2,717.34	3,588.51	0.00	0.00	0.00
10,500.00	90.26	130.545	5,302.83	-2,408.87	2,793.33	3,688.51	0.00	0.00	0.00
10,600.00	90.26	130.545	5,302.37	-2,473.87	2,869.32	3,788.51	0.00	0.00	0.00
10,700.00	90.26	130.545	5,301.92	-2,538.88	2,945.31	3,888.51	0.00	0.00	0.00
10,800.00	90.26	130.545	5,301.47	-2,603.88	3,021.30	3,988.51	0.00	0.00	0.00
10,900.00	90.26	130.545	5,301.02	-2,668.88	3,097.29	4,088.51	0.00	0.00	0.00
11,000.00	90.26	130.545	5,300.57	-2,733.89	3,173.28	4,188.51	0.00	0.00	0.00
11,100.00	90.26	130.545	5,300.11	-2,798.89	3,249.27	4,288.51	0.00	0.00	0.00
11,200.00	90.26	130.545	5,299.66	-2,863.89	3,325.25	4,388.51	0.00	0.00	0.00
11,300.00	90.26	130.545	5,299.21	-2,928.90	3,401.24	4,488.51	0.00	0.00	0.00
11,400.00	90.26	130.545	5,298.76	-2,993.90	3,477.23	4,588.50	0.00	0.00	0.00
11,500.00	90.26	130.545	5,298.31	-3,058.90	3,553.22	4,688.50	0.00	0.00	0.00
11,600.00	90.26	130.545	5,297.85	-3,123.91	3,629.21	4,788.50	0.00	0.00	0.00
11,700.00	90.26	130.545	5,297.40	-3,188.91	3,705.20	4,888.50	0.00	0.00	0.00
11,800.00	90.26	130.545	5,296.95	-3,253.91	3,781.19	4,988.50	0.00	0.00	0.00
11,900.00	90.26	130.545	5,296.50	-3,318.92	3,857.18	5,088.50	0.00	0.00	0.00
12,000.00	90.26	130.545	5,296.05	-3,383.92	3,933.17	5,188.50	0.00	0.00	0.00
12,100.00	90.26	130.545	5,295.59	-3,448.92	4,009.16	5,288.50	0.00	0.00	0.00
12,200.00	90.26	130.545	5,295.14	-3,513.93	4,085.15	5,388.50	0.00	0.00	0.00
12,300.00	90.26	130.545	5,294.69	-3,578.93	4,161.13	5,488.49	0.00	0.00	0.00
12,400.00	90.26	130.545	5,294.24	-3,643.93	4,237.12	5,588.49	0.00	0.00	0.00
12,500.00	90.26	130.545	5,293.79	-3,708.94	4,313.11	5,688.49	0.00	0.00	0.00
12,600.00	90.26	130.545	5,293.33	-3,773.94	4,389.10	5,788.49	0.00	0.00	0.00
12,700.00	90.26	130.545	5,292.88	-3,838.95	4,465.09	5,888.49	0.00	0.00	0.00
12,800.00	90.26	130.545	5,292.43	-3,903.95	4,541.08	5,988.49	0.00	0.00	0.00
12,900.00	90.26	130.545	5,291.98	-3,968.95	4,617.07	6,088.49	0.00	0.00	0.00
13,000.00	90.26	130.545	5,291.53	-4,033.96	4,693.06	6,188.49	0.00	0.00	0.00
13,100.00	90.26	130.545	5,291.07	-4,098.96	4,769.05	6,288.49	0.00	0.00	0.00
13,200.00	90.26	130.545	5,290.62	-4,163.96	4,845.04	6,388.49	0.00	0.00	0.00
13,300.00	90.26	130.545	5,290.17	-4,228.97	4,921.03	6,488.48	0.00	0.00	0.00
13,400.00	90.26	130.545	5,289.72	-4,293.97	4,997.01	6,588.48	0.00	0.00	0.00
13,500.00	90.26	130.545	5,289.27	-4,358.97	5,073.00	6,688.48	0.00	0.00	0.00
13,600.00	90.26	130.545	5,288.81	-4,423.98	5,148.99	6,788.48	0.00	0.00	0.00
13,700.00	90.26	130.545	5,288.36	-4,488.98	5,224.98	6,888.48	0.00	0.00	0.00
13,800.00	90.26	130.545	5,287.91	-4,553.98	5,300.97	6,988.48	0.00	0.00	0.00
13,900.00	90.26	130.545	5,287.46	-4,618.99	5,376.96	7,088.48	0.00	0.00	0.00
14,000.00	90.26	130.545	5,287.01	-4,683.99	5,452.95	7,188.48	0.00	0.00	0.00
14,100.00	90.26	130.545	5,286.55	-4,748.99	5,528.94	7,288.48	0.00	0.00	0.00
14,200.00	90.26	130.545	5,286.10	-4,814.00	5,604.93	7,388.48	0.00	0.00	0.00
14,300.00	90.26	130.545	5,285.65	-4,879.00	5,680.92	7,488.47	0.00	0.00	0.00

Planning Report

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Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
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Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
14,400.00	90.26	130.545	5,285.20	-4,944.00	5,756.91	7,588.47	0.00	0.00	0.00
14,500.00	90.26	130.545	5,284.75	-5,009.01	5,832.90	7,688.47	0.00	0.00	0.00
14,600.00	90.26	130.545	5,284.29	-5,074.01	5,908.88	7,788.47	0.00	0.00	0.00
14,700.00	90.26	130.545	5,283.84	-5,139.01	5,984.87	7,888.47	0.00	0.00	0.00
14,800.00	90.26	130.545	5,283.39	-5,204.02	6,060.86	7,988.47	0.00	0.00	0.00
14,900.00	90.26	130.545	5,282.94	-5,269.02	6,136.85	8,088.47	0.00	0.00	0.00
14,996.75	90.26	130.545	5,282.50	-5,331.91	6,210.37	8,185.21	0.00	0.00	0.00
PBHL/TD @ 14996.74 MD 5282.50 TVD									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
348.50	348.50	9-5/8" Surface Casing	9-5/8	12-1/4
5,851.51	5,314.68	7" Intermediate Casing	7	8-3/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,070.52	1,070.51	Ojo Alamo		-0.27	130.545
1,185.84	1,185.54	Kirtland		-0.27	130.545
1,357.77	1,355.66	Fruitland		-0.27	130.545
1,707.27	1,691.11	Pictured Cliffs		-0.27	130.545
1,876.59	1,846.43	Lewis		-0.27	130.545
2,151.74	2,096.97	Chacra_A		-0.27	130.545
3,345.92	3,184.29	Cliff House_Basal		-0.27	130.545
3,395.44	3,229.39	Menefee		-0.27	130.545
4,308.96	4,061.17	Point Lookout		-0.27	130.545
4,545.59	4,276.63	Mancos		-0.27	130.545
4,908.56	4,612.27	MNCS_A		-0.27	130.545
5,009.35	4,712.32	MNCS_B		-0.27	130.545
5,096.54	4,799.30	MNCS_C		-0.27	130.545
5,142.18	4,844.26	MNCS_Cms		-0.27	130.545
5,275.29	4,970.06	MNCS_D		-0.27	130.545
5,404.81	5,081.76	MNCS_E		-0.27	130.545
5,468.51	5,131.57	MNCS_F		-0.27	130.545
5,578.50	5,206.19	MNCS_G		-0.27	130.545
5,696.85	5,267.71	MNCS_H		-0.27	130.545
5,806.90	5,305.23	MNCS_I		-0.27	130.545

Planning Report

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
998.50	998.50	0.00	0.00	KOP Begin 3°/100' build
1,812.56	1,788.14	109.80	-130.94	Begin 24.42° tangent
4,777.30	4,487.61	897.46	-1,070.16	Begin 10°/100' drop build/turn
5,261.52	4,957.53	897.78	-1,072.15	Begin 8°/100' build
5,411.52	5,087.20	849.12	-1,015.26	Begin 10°/100' build
5,751.52	5,288.83	675.19	-811.93	70° inc @ 5751.51 MD 5288.83 TVD
5,954.11	5,323.38	546.12	-661.05	Begin 90.26° lateral
14,996.75	5,282.50	-5,331.91	6,210.37	PBHL/TD @ 14996.74 MD 5282.50 TVD

Planning Report - Geographic

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project Sandoval County, New Mexico NAD83 NM C

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site North Alamito Unit (102 & 106)

Site Position:		**Northing:**	1,901,167.83 usft	**Latitude:**	36.21727000
From:	Lat/Long	**Easting:**	1,239,107.83 usft	**Longitude:**	-107.61047300
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "		

Well North Alamito Unit 102 H, Surf loc: 917 FNL 1154 FE: Section 19-T23N-R07W

Well Position	**+N/-S**	0.00 ft	**Northing:**	1,901,167.83 usft	**Latitude:**	36.21727000
	+E/-W	0.00 ft	**Easting:**	1,239,107.83 usft	**Longitude:**	-107.61047300
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,962.00 ft
Grid Convergence:		-0.80 °				

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	4/17/2024	8.44	62.70	49,028.12253633

Design rev2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	130.545

Plan Survey Tool Program **Date** 4/17/2024

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	14,996.62	rev2 (Original Hole)	MWD OWSG MWD - Standard	

Planning Report - Geographic

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
998.50	0.00	0.000	998.50	0.00	0.00	0.00	0.00	0.00	0.00	
1,812.56	24.42	309.984	1,788.14	109.80	-130.94	3.00	3.00	0.00	309.98	
4,777.30	24.42	309.984	4,487.61	897.46	-1,070.16	0.00	0.00	0.00	0.00	
5,261.52	24.00	130.545	4,957.53	897.78	-1,072.15	10.00	-0.09	-37.06	-179.70	
5,411.52	36.00	130.545	5,087.20	849.12	-1,015.26	8.00	8.00	0.00	0.00	
5,751.52	70.00	130.545	5,288.83	675.19	-811.93	10.00	10.00	0.00	0.00	
5,954.11	90.26	130.545	5,323.38	546.12	-661.05	10.00	10.00	0.00	0.00	
14,996.75	90.26	130.545	5,282.50	-5,331.91	6,210.37	0.00	0.00	0.00	0.00	North Alamito 102 BH

Planning Report - Geographic

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
100.00	0.00	0.000	100.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
200.00	0.00	0.000	200.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
300.00	0.00	0.000	300.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
348.50	0.00	0.000	348.50	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
9-5/8" Surface Casing									
400.00	0.00	0.000	400.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
500.00	0.00	0.000	500.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
600.00	0.00	0.000	600.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
700.00	0.00	0.000	700.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
800.00	0.00	0.000	800.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
900.00	0.00	0.000	900.00	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
998.50	0.00	0.000	998.50	0.00	0.00	1,901,167.83	1,239,107.83	36.21727000	-107.61047300
KOP Begin 3°/100' build									
1,000.00	0.05	309.984	1,000.00	0.00	0.00	1,901,167.84	1,239,107.83	36.21727000	-107.61047301
1,070.52	2.16	309.984	1,070.51	0.87	-1.04	1,901,168.71	1,239,106.79	36.21727236	-107.61047657
Ojo Alamo									
1,100.00	3.05	309.984	1,099.95	1.73	-2.07	1,901,169.57	1,239,105.77	36.21727468	-107.61048009
1,185.84	5.62	309.984	1,185.54	5.90	-7.03	1,901,173.73	1,239,100.80	36.21728593	-107.61049713
Kirtland									
1,200.00	6.05	309.984	1,199.63	6.82	-8.14	1,901,174.66	1,239,099.70	36.21728843	-107.61050091
1,300.00	9.05	309.984	1,298.75	15.26	-18.20	1,901,183.10	1,239,089.64	36.21731121	-107.61053540
1,357.77	10.78	309.984	1,355.66	21.65	-25.82	1,901,189.48	1,239,082.02	36.21732846	-107.61056153
Fruitland									
1,400.00	12.05	309.984	1,397.05	27.02	-32.22	1,901,194.85	1,239,075.62	36.21734296	-107.61058348
1,500.00	15.05	309.984	1,494.26	42.07	-50.16	1,901,209.90	1,239,057.67	36.21738360	-107.61064501
1,600.00	18.05	309.984	1,590.11	60.36	-71.98	1,901,228.20	1,239,035.86	36.21743300	-107.61071983
1,700.00	21.05	309.984	1,684.33	81.86	-97.61	1,901,249.69	1,239,010.22	36.21749105	-107.61080772
1,707.27	21.26	309.984	1,691.11	83.54	-99.62	1,901,251.38	1,239,008.21	36.21749560	-107.61081461
Pictured Cliffs									
1,800.00	24.05	309.984	1,776.68	106.49	-126.98	1,901,274.33	1,238,980.85	36.21755757	-107.61090845
1,812.56	24.42	309.984	1,788.14	109.80	-130.94	1,901,277.64	1,238,976.90	36.21756652	-107.61092200
Begin 24.42° tangent									
1,876.59	24.42	309.984	1,846.43	126.81	-151.22	1,901,294.65	1,238,956.62	36.21761245	-107.61099155
Lewis									
1,900.00	24.42	309.984	1,867.75	133.03	-158.64	1,901,300.87	1,238,949.20	36.21762925	-107.61101698
2,000.00	24.42	309.984	1,958.80	159.60	-190.31	1,901,327.44	1,238,917.52	36.21770099	-107.61112562
2,100.00	24.42	309.984	2,049.85	186.17	-221.99	1,901,354.00	1,238,885.84	36.21777273	-107.61123425
2,151.74	24.42	309.984	2,096.97	199.91	-238.39	1,901,367.75	1,238,869.45	36.21780985	-107.61129046
Chacra_A									
2,200.00	24.42	309.984	2,140.91	212.74	-253.67	1,901,380.57	1,238,854.16	36.21784447	-107.61134289
2,300.00	24.42	309.984	2,231.96	239.30	-285.35	1,901,407.14	1,238,822.48	36.21791621	-107.61145152
2,400.00	24.42	309.984	2,323.01	265.87	-317.03	1,901,433.70	1,238,790.80	36.21798795	-107.61156016
2,500.00	24.42	309.984	2,414.06	292.44	-348.71	1,901,460.27	1,238,759.12	36.21805969	-107.61166879
2,600.00	24.42	309.984	2,505.12	319.01	-380.39	1,901,486.84	1,238,727.44	36.21813144	-107.61177743
2,700.00	24.42	309.984	2,596.17	345.57	-412.07	1,901,513.41	1,238,695.76	36.21820318	-107.61188606
2,800.00	24.42	309.984	2,687.22	372.14	-443.75	1,901,539.97	1,238,664.08	36.21827492	-107.61199470
2,900.00	24.42	309.984	2,778.28	398.71	-475.43	1,901,566.54	1,238,632.40	36.21834666	-107.61210334
3,000.00	24.42	309.984	2,869.33	425.27	-507.11	1,901,593.11	1,238,600.72	36.21841840	-107.61221197
3,100.00	24.42	309.984	2,960.38	451.84	-538.79	1,901,619.68	1,238,569.04	36.21849014	-107.61232061
3,200.00	24.42	309.984	3,051.43	478.41	-570.47	1,901,646.24	1,238,537.36	36.21856188	-107.61242925
3,300.00	24.42	309.984	3,142.49	504.98	-602.15	1,901,672.81	1,238,505.68	36.21863362	-107.61253788

Planning Report - Geographic

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,345.92	24.42	309.984	3,184.29	517.17	-616.70	1,901,685.01	1,238,491.14	36.21866656	-107.61258777
Cliff House_Basal									
3,395.44	24.42	309.984	3,229.39	530.33	-632.39	1,901,698.17	1,238,475.45	36.21870209	-107.61264157
Menefee									
3,400.00	24.42	309.984	3,233.54	531.54	-633.83	1,901,699.38	1,238,474.00	36.21870536	-107.61264652
3,500.00	24.42	309.984	3,324.59	558.11	-665.51	1,901,725.94	1,238,442.32	36.21877710	-107.61275516
3,600.00	24.42	309.984	3,415.64	584.68	-697.19	1,901,752.51	1,238,410.64	36.21884884	-107.61286380
3,700.00	24.42	309.984	3,506.70	611.25	-728.87	1,901,779.08	1,238,378.96	36.21892058	-107.61297243
3,800.00	24.42	309.984	3,597.75	637.81	-760.55	1,901,805.65	1,238,347.28	36.21899232	-107.61308107
3,900.00	24.42	309.984	3,688.80	664.38	-792.23	1,901,832.21	1,238,315.60	36.21906406	-107.61318971
4,000.00	24.42	309.984	3,779.85	690.95	-823.91	1,901,858.78	1,238,283.92	36.21913580	-107.61329835
4,100.00	24.42	309.984	3,870.91	717.51	-855.59	1,901,885.35	1,238,252.24	36.21920754	-107.61340699
4,200.00	24.42	309.984	3,961.96	744.08	-887.27	1,901,911.91	1,238,220.56	36.21927928	-107.61351563
4,300.00	24.42	309.984	4,053.01	770.65	-918.95	1,901,938.48	1,238,188.88	36.21935102	-107.61362427
4,308.96	24.42	309.984	4,061.17	773.03	-921.79	1,901,940.86	1,238,186.05	36.21935745	-107.61363400
Point Lookout									
4,400.00	24.42	309.984	4,144.06	797.22	-950.63	1,901,965.05	1,238,157.20	36.21942276	-107.61373291
4,500.00	24.42	309.984	4,235.12	823.78	-982.31	1,901,991.62	1,238,125.53	36.21949450	-107.61384155
4,545.59	24.42	309.984	4,276.63	835.90	-996.75	1,902,003.73	1,238,111.08	36.21952721	-107.61389108
Mancos									
4,600.00	24.42	309.984	4,326.17	850.35	-1,013.99	1,902,018.18	1,238,093.85	36.21956624	-107.61395019
4,700.00	24.42	309.984	4,417.22	876.92	-1,045.67	1,902,044.75	1,238,062.17	36.21963798	-107.61405882
4,777.30	24.42	309.984	4,487.61	897.46	-1,070.16	1,902,065.29	1,238,037.68	36.21969343	-107.61414281
Begin 10°/100' drop build/turn									
4,800.00	22.15	309.952	4,508.45	903.22	-1,077.04	1,902,071.05	1,238,030.80	36.21970900	-107.61416639
4,850.00	17.15	309.853	4,555.53	914.00	-1,089.93	1,902,081.84	1,238,017.91	36.21973812	-107.61421061
4,900.00	12.15	309.676	4,603.89	922.09	-1,099.65	1,902,089.93	1,238,008.19	36.21975996	-107.61424393
4,908.56	11.30	309.630	4,612.27	923.20	-1,100.99	1,902,091.04	1,238,006.85	36.21976296	-107.61424852
MNCS_A									
4,950.00	7.15	309.257	4,653.16	927.43	-1,106.11	1,902,095.26	1,238,001.72	36.21977436	-107.61426609
5,000.00	2.16	306.909	4,702.98	929.96	-1,109.28	1,902,097.80	1,237,998.56	36.21978120	-107.61427694
5,009.35	1.22	304.348	4,712.32	930.12	-1,109.50	1,902,097.96	1,237,998.34	36.21978164	-107.61427770
MNCS_B									
5,050.00	2.85	132.795	4,752.96	929.68	-1,109.12	1,902,097.52	1,237,998.72	36.21978044	-107.61427638
5,096.54	7.50	131.219	4,799.30	926.89	-1,105.98	1,902,094.73	1,238,001.86	36.21977290	-107.61426562
MNCS_C									
5,100.00	7.85	131.176	4,802.73	926.59	-1,105.63	1,902,094.42	1,238,002.20	36.21977207	-107.61426442
5,142.18	12.07	130.851	4,844.26	921.81	-1,100.13	1,902,089.64	1,238,007.71	36.21975915	-107.61424554
MNCS_Cms									
5,150.00	12.85	130.814	4,851.90	920.70	-1,098.85	1,902,088.54	1,238,008.99	36.21975617	-107.61424116
5,200.00	17.85	130.653	4,900.10	912.07	-1,088.82	1,902,079.90	1,238,019.01	36.21973285	-107.61420676
5,250.00	22.85	130.561	4,946.97	900.76	-1,075.63	1,902,068.59	1,238,032.21	36.21970230	-107.61416149
5,261.52	24.00	130.545	4,957.53	897.78	-1,072.15	1,902,065.62	1,238,035.69	36.21969426	-107.61414956
Begin 8°/100' build									
5,275.29	25.10	130.545	4,970.06	894.06	-1,067.80	1,902,061.90	1,238,040.04	36.21968421	-107.61413464
MNCS_D									
5,300.00	27.08	130.545	4,992.25	887.00	-1,059.54	1,902,054.83	1,238,048.29	36.21966513	-107.61410632
5,350.00	31.08	130.545	5,035.94	871.21	-1,041.08	1,902,039.04	1,238,066.76	36.21962247	-107.61404299
5,400.00	35.08	130.545	5,077.83	853.47	-1,020.35	1,902,021.30	1,238,087.49	36.21957456	-107.61397187
5,404.81	35.46	130.545	5,081.76	851.67	-1,018.24	1,902,019.50	1,238,089.60	36.21956969	-107.61396464
MNCS_E									
5,411.52	36.00	130.545	5,087.20	849.12	-1,015.26	1,902,016.95	1,238,092.58	36.21956281	-107.61395443
Begin 10°/100' build									

Planning Report - Geographic

Database:	DT_Mar1724_v17	**Local Co-ordinate Reference:**	Well North Alamito Unit 102 H
Company:	Enduring Resources LLC	**TVD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,450.00	39.85	130.545	5,117.55	833.75	-997.29	1,902,001.58	1,238,110.55	36.21952128	-107.61389279
5,468.51	41.70	130.545	5,131.57	825.89	-988.10	1,901,993.72	1,238,119.73	36.21950006	-107.61386128
MNCS_F									
5,500.00	44.85	130.545	5,154.49	811.86	-971.70	1,901,979.69	1,238,136.13	36.21946216	-107.61380502
5,550.00	49.85	130.545	5,188.36	787.96	-943.77	1,901,955.80	1,238,164.07	36.21939761	-107.61370920
5,578.50	52.70	130.545	5,206.19	773.51	-926.87	1,901,941.34	1,238,180.96	36.21935857	-107.61365125
MNCS_G									
5,600.00	54.85	130.545	5,218.89	762.24	-913.69	1,901,930.07	1,238,194.14	36.21932812	-107.61360605
5,650.00	59.85	130.545	5,245.86	734.88	-881.71	1,901,902.71	1,238,226.12	36.21925422	-107.61349635
5,696.85	64.53	130.545	5,267.71	707.95	-850.23	1,901,875.78	1,238,257.61	36.21918147	-107.61338836
MNCS_H									
5,700.00	64.85	130.545	5,269.06	706.10	-848.07	1,901,873.93	1,238,259.77	36.21917648	-107.61338095
5,751.52	70.00	130.545	5,288.83	675.19	-811.93	1,901,843.02	1,238,295.90	36.21909299	-107.61325700
70° inc @ 5751.51 MD 5288.83 TVD									
5,800.00	74.85	130.545	5,303.46	645.15	-776.82	1,901,812.99	1,238,331.01	36.21901185	-107.61313656
5,806.90	75.54	130.545	5,305.23	640.82	-771.76	1,901,808.65	1,238,336.08	36.21900015	-107.61311919
MNCS_I									
5,850.00	79.85	130.545	5,314.41	613.45	-739.76	1,901,781.28	1,238,368.08	36.21892621	-107.61300944
5,851.51	80.00	130.545	5,314.68	612.48	-738.63	1,901,780.32	1,238,369.20	36.21892360	-107.61300557
7" Intermediate Casing									
5,900.00	84.85	130.545	5,321.07	581.25	-702.12	1,901,749.08	1,238,405.72	36.21883923	-107.61288032
5,954.11	90.26	130.545	5,323.38	546.12	-661.05	1,901,713.95	1,238,446.78	36.21874435	-107.61273948
Begin 90.26° lateral									
6,000.00	90.26	130.545	5,323.17	516.29	-626.18	1,901,684.12	1,238,481.66	36.21866376	-107.61261985
6,100.00	90.26	130.545	5,322.72	451.28	-550.19	1,901,619.12	1,238,557.65	36.21848817	-107.61235921
6,200.00	90.26	130.545	5,322.26	386.28	-474.20	1,901,554.11	1,238,633.63	36.21831258	-107.61209857
6,300.00	90.26	130.545	5,321.81	321.28	-398.21	1,901,489.11	1,238,709.62	36.21813699	-107.61183793
6,400.00	90.26	130.545	5,321.36	256.27	-322.22	1,901,424.11	1,238,785.61	36.21796140	-107.61157728
6,500.00	90.26	130.545	5,320.91	191.27	-246.23	1,901,359.10	1,238,861.60	36.21778580	-107.61131665
6,600.00	90.26	130.545	5,320.46	126.27	-170.24	1,901,294.10	1,238,937.59	36.21761021	-107.61105601
6,700.00	90.26	130.545	5,320.00	61.26	-94.26	1,901,229.10	1,239,013.58	36.21743462	-107.61079537
6,800.00	90.26	130.545	5,319.55	-3.74	-18.27	1,901,164.09	1,239,089.57	36.21725902	-107.61053473
6,900.00	90.26	130.545	5,319.10	-68.74	57.72	1,901,099.09	1,239,165.56	36.21708343	-107.61027410
7,000.00	90.26	130.545	5,318.65	-133.75	133.71	1,901,034.09	1,239,241.55	36.21690783	-107.61001347
7,100.00	90.26	130.545	5,318.20	-198.75	209.70	1,900,969.08	1,239,317.53	36.21673224	-107.60975283
7,200.00	90.26	130.545	5,317.74	-263.75	285.69	1,900,904.08	1,239,393.52	36.21655664	-107.60949220
7,300.00	90.26	130.545	5,317.29	-328.76	361.68	1,900,839.08	1,239,469.51	36.21638105	-107.60923157
7,400.00	90.26	130.545	5,316.84	-393.76	437.67	1,900,774.07	1,239,545.50	36.21620545	-107.60897094
7,500.00	90.26	130.545	5,316.39	-458.76	513.66	1,900,709.07	1,239,621.49	36.21602985	-107.60871031
7,600.00	90.26	130.545	5,315.94	-523.77	589.65	1,900,644.07	1,239,697.48	36.21585425	-107.60844969
7,700.00	90.26	130.545	5,315.48	-588.77	665.64	1,900,579.06	1,239,773.47	36.21567865	-107.60818906
7,800.00	90.26	130.545	5,315.03	-653.78	741.63	1,900,514.06	1,239,849.46	36.21550305	-107.60792844
7,900.00	90.26	130.545	5,314.58	-718.78	817.61	1,900,449.06	1,239,925.45	36.21532745	-107.60766781
8,000.00	90.26	130.545	5,314.13	-783.78	893.60	1,900,384.05	1,240,001.44	36.21515185	-107.60740719
8,100.00	90.26	130.545	5,313.68	-848.79	969.59	1,900,319.05	1,240,077.42	36.21497625	-107.60714657
8,200.00	90.26	130.545	5,313.22	-913.79	1,045.58	1,900,254.05	1,240,153.41	36.21480065	-107.60688595
8,300.00	90.26	130.545	5,312.77	-978.79	1,121.57	1,900,189.04	1,240,229.40	36.21462504	-107.60662533
8,400.00	90.26	130.545	5,312.32	-1,043.80	1,197.56	1,900,124.04	1,240,305.39	36.21444944	-107.60636471
8,500.00	90.26	130.545	5,311.87	-1,108.80	1,273.55	1,900,059.04	1,240,381.38	36.21427383	-107.60610410
8,600.00	90.26	130.545	5,311.42	-1,173.80	1,349.54	1,899,994.03	1,240,457.37	36.21409823	-107.60584348
8,700.00	90.26	130.545	5,310.96	-1,238.81	1,425.53	1,899,929.03	1,240,533.36	36.21392262	-107.60558287
8,800.00	90.26	130.545	5,310.51	-1,303.81	1,501.52	1,899,864.03	1,240,609.35	36.21374702	-107.60532226
8,900.00	90.26	130.545	5,310.06	-1,368.81	1,577.51	1,899,799.02	1,240,685.34	36.21357141	-107.60506164
9,000.00	90.26	130.545	5,309.61	-1,433.82	1,653.49	1,899,734.02	1,240,761.32	36.21339580	-107.60480103

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Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
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Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,100.00	90.26	130.545	5,309.16	-1,498.82	1,729.48	1,899,669.02	1,240,837.31	36.21322020	-107.60454042
9,200.00	90.26	130.545	5,308.70	-1,563.82	1,805.47	1,899,604.01	1,240,913.30	36.21304459	-107.60427982
9,300.00	90.26	130.545	5,308.25	-1,628.83	1,881.46	1,899,539.01	1,240,989.29	36.21286898	-107.60401921
9,400.00	90.26	130.545	5,307.80	-1,693.83	1,957.45	1,899,474.01	1,241,065.28	36.21269337	-107.60375860
9,500.00	90.26	130.545	5,307.35	-1,758.83	2,033.44	1,899,409.00	1,241,141.27	36.21251776	-107.60349800
9,600.00	90.26	130.545	5,306.90	-1,823.84	2,109.43	1,899,344.00	1,241,217.26	36.21234215	-107.60323740
9,700.00	90.26	130.545	5,306.44	-1,888.84	2,185.42	1,899,279.00	1,241,293.25	36.21216654	-107.60297679
9,800.00	90.26	130.545	5,305.99	-1,953.84	2,261.41	1,899,213.99	1,241,369.24	36.21199093	-107.60271619
9,900.00	90.26	130.545	5,305.54	-2,018.85	2,337.40	1,899,148.99	1,241,445.23	36.21181531	-107.60245559
10,000.00	90.26	130.545	5,305.09	-2,083.85	2,413.39	1,899,083.99	1,241,521.21	36.21163970	-107.60219499
10,100.00	90.26	130.545	5,304.64	-2,148.86	2,489.37	1,899,018.98	1,241,597.20	36.21146409	-107.60193439
10,200.00	90.26	130.545	5,304.18	-2,213.86	2,565.36	1,898,953.98	1,241,673.19	36.21128847	-107.60167380
10,300.00	90.26	130.545	5,303.73	-2,278.86	2,641.35	1,898,888.98	1,241,749.18	36.21111286	-107.60141320
10,400.00	90.26	130.545	5,303.28	-2,343.87	2,717.34	1,898,823.97	1,241,825.17	36.21093724	-107.60115261
10,500.00	90.26	130.545	5,302.83	-2,408.87	2,793.33	1,898,758.97	1,241,901.16	36.21076163	-107.60089201
10,600.00	90.26	130.545	5,302.37	-2,473.87	2,869.32	1,898,693.97	1,241,977.15	36.21058601	-107.60063142
10,700.00	90.26	130.545	5,301.92	-2,538.88	2,945.31	1,898,628.96	1,242,053.14	36.21041039	-107.60037083
10,800.00	90.26	130.545	5,301.47	-2,603.88	3,021.30	1,898,563.96	1,242,129.13	36.21023477	-107.60011024
10,900.00	90.26	130.545	5,301.02	-2,668.88	3,097.29	1,898,498.96	1,242,205.11	36.21005916	-107.59984965
11,000.00	90.26	130.545	5,300.57	-2,733.89	3,173.28	1,898,433.95	1,242,281.10	36.20988354	-107.59958907
11,100.00	90.26	130.545	5,300.11	-2,798.89	3,249.27	1,898,368.95	1,242,357.09	36.20970792	-107.59932848
11,200.00	90.26	130.545	5,299.66	-2,863.89	3,325.25	1,898,303.95	1,242,433.08	36.20953230	-107.59906790
11,300.00	90.26	130.545	5,299.21	-2,928.90	3,401.24	1,898,238.94	1,242,509.07	36.20935668	-107.59880731
11,400.00	90.26	130.545	5,298.76	-2,993.90	3,477.23	1,898,173.94	1,242,585.06	36.20918105	-107.59854673
11,500.00	90.26	130.545	5,298.31	-3,058.90	3,553.22	1,898,108.94	1,242,661.05	36.20900543	-107.59828615
11,600.00	90.26	130.545	5,297.85	-3,123.91	3,629.21	1,898,043.93	1,242,737.04	36.20882981	-107.59802557
11,700.00	90.26	130.545	5,297.40	-3,188.91	3,705.20	1,897,978.93	1,242,813.03	36.20865419	-107.59776499
11,800.00	90.26	130.545	5,296.95	-3,253.91	3,781.19	1,897,913.93	1,242,889.02	36.20847856	-107.59750441
11,900.00	90.26	130.545	5,296.50	-3,318.92	3,857.18	1,897,848.92	1,242,965.00	36.20830294	-107.59724383
12,000.00	90.26	130.545	5,296.05	-3,383.92	3,933.17	1,897,783.92	1,243,040.99	36.20812731	-107.59698326
12,100.00	90.26	130.545	5,295.59	-3,448.92	4,009.16	1,897,718.92	1,243,116.98	36.20795169	-107.59672268
12,200.00	90.26	130.545	5,295.14	-3,513.93	4,085.15	1,897,653.91	1,243,192.97	36.20777606	-107.59646211
12,300.00	90.26	130.545	5,294.69	-3,578.93	4,161.13	1,897,588.91	1,243,268.96	36.20760043	-107.59620154
12,400.00	90.26	130.545	5,294.24	-3,643.93	4,237.12	1,897,523.91	1,243,344.95	36.20742481	-107.59594097
12,500.00	90.26	130.545	5,293.79	-3,708.94	4,313.11	1,897,458.90	1,243,420.94	36.20724918	-107.59568040
12,600.00	90.26	130.545	5,293.33	-3,773.94	4,389.10	1,897,393.90	1,243,496.93	36.20707355	-107.59541983
12,700.00	90.26	130.545	5,292.88	-3,838.95	4,465.09	1,897,328.90	1,243,572.92	36.20689792	-107.59515926
12,800.00	90.26	130.545	5,292.43	-3,903.95	4,541.08	1,897,263.89	1,243,648.91	36.20672229	-107.59489869
12,900.00	90.26	130.545	5,291.98	-3,968.95	4,617.07	1,897,198.89	1,243,724.89	36.20654666	-107.59463813
13,000.00	90.26	130.545	5,291.53	-4,033.96	4,693.06	1,897,133.89	1,243,800.88	36.20637103	-107.59437756
13,100.00	90.26	130.545	5,291.07	-4,098.96	4,769.05	1,897,068.88	1,243,876.87	36.20619540	-107.59411700
13,200.00	90.26	130.545	5,290.62	-4,163.96	4,845.04	1,897,003.88	1,243,952.86	36.20601976	-107.59385644
13,300.00	90.26	130.545	5,290.17	-4,228.97	4,921.03	1,896,938.88	1,244,028.85	36.20584413	-107.59359588
13,400.00	90.26	130.545	5,289.72	-4,293.97	4,997.01	1,896,873.87	1,244,104.84	36.20566850	-107.59333532
13,500.00	90.26	130.545	5,289.27	-4,358.97	5,073.00	1,896,808.87	1,244,180.83	36.20549286	-107.59307476
13,600.00	90.26	130.545	5,288.81	-4,423.98	5,148.99	1,896,743.87	1,244,256.82	36.20531723	-107.59281420
13,700.00	90.26	130.545	5,288.36	-4,488.98	5,224.98	1,896,678.86	1,244,332.81	36.20514159	-107.59255365
13,800.00	90.26	130.545	5,287.91	-4,553.98	5,300.97	1,896,613.86	1,244,408.79	36.20496596	-107.59229309
13,900.00	90.26	130.545	5,287.46	-4,618.99	5,376.96	1,896,548.86	1,244,484.78	36.20479032	-107.59203254
14,000.00	90.26	130.545	5,287.01	-4,683.99	5,452.95	1,896,483.85	1,244,560.77	36.20461469	-107.59177199
14,100.00	90.26	130.545	5,286.55	-4,748.99	5,528.94	1,896,418.85	1,244,636.76	36.20443905	-107.59151143
14,200.00	90.26	130.545	5,286.10	-4,814.00	5,604.93	1,896,353.85	1,244,712.75	36.20426341	-107.59125088
14,300.00	90.26	130.545	5,285.65	-4,879.00	5,680.92	1,896,288.84	1,244,788.74	36.20408777	-107.59099033
14,400.00	90.26	130.545	5,285.20	-4,944.00	5,756.91	1,896,223.84	1,244,864.73	36.20391213	-107.59072979
14,500.00	90.26	130.545	5,284.75	-5,009.01	5,832.90	1,896,158.84	1,244,940.72	36.20373649	-107.59046924

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Project:	Sandoval County, New Mexico NAD83 NM C	**MD Reference:**	RKB=6962+23.5 @ 6985.50ft (Ensign 140)
Site:	North Alamito Unit (102 & 106)	**North Reference:**	Grid
Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,600.00	90.26	130.545	5,284.29	-5,074.01	5,908.88	1,896,093.83	1,245,016.71	36.20356085	-107.59020869
14,700.00	90.26	130.545	5,283.84	-5,139.01	5,984.87	1,896,028.83	1,245,092.70	36.20338521	-107.58994815
14,800.00	90.26	130.545	5,283.39	-5,204.02	6,060.86	1,895,963.83	1,245,168.68	36.20320957	-107.58968761
14,900.00	90.26	130.545	5,282.94	-5,269.02	6,136.85	1,895,898.82	1,245,244.67	36.20303393	-107.58942706
14,996.75	90.26	130.545	5,282.50	-5,331.91	6,210.37	1,895,835.94	1,245,318.19	36.20286400	-107.58917500
PBHL/TD @ 14996.74 MD 5282.50 TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
North Alamito 102 BHL ε - plan hits target center - Point	0.00	360.000	5,282.50	-5,331.91	6,210.37	1,895,835.94	1,245,318.19	36.20286400	-107.58917500
North Alamito 102 vs=0 - plan hits target center - Point	0.00	360.000	5,319.50	-11.17	-9.57	1,901,156.66	1,239,098.26	36.21723894	-107.61050491
North Alamito 102 POE : - plan misses target center by 34.60ft at 5762.59ft MD (5292.51 TVD, 668.40 N, -804.00 E) - Point	0.00	360.000	5,325.50	675.19	-811.93	1,901,843.03	1,238,295.90	36.21909300	-107.61325700

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
348.50	348.50	9-5/8" Surface Casing	9-5/8	12-1/4
5,851.51	5,314.68	7" Intermediate Casing	7	8-3/4

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Well:	North Alamito Unit 102 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,070.52	1,070.51	Ojo Alamo		-0.27	130.545
1,185.84	1,185.54	Kirtland		-0.27	130.545
1,357.77	1,355.66	Fruitland		-0.27	130.545
1,707.27	1,691.11	Pictured Cliffs		-0.27	130.545
1,876.59	1,846.43	Lewis		-0.27	130.545
2,151.74	2,096.97	Chacra_A		-0.27	130.545
3,345.92	3,184.29	Cliff House_Basal		-0.27	130.545
3,395.44	3,229.39	Menefee		-0.27	130.545
4,308.96	4,061.17	Point Lookout		-0.27	130.545
4,545.59	4,276.63	Mancos		-0.27	130.545
4,908.56	4,612.27	MNCS_A		-0.27	130.545
5,009.35	4,712.32	MNCS_B		-0.27	130.545
5,096.54	4,799.30	MNCS_C		-0.27	130.545
5,142.18	4,844.26	MNCS_Cms		-0.27	130.545
5,275.29	4,970.06	MNCS_D		-0.27	130.545
5,404.81	5,081.76	MNCS_E		-0.27	130.545
5,468.51	5,131.57	MNCS_F		-0.27	130.545
5,578.50	5,206.19	MNCS_G		-0.27	130.545
5,696.85	5,267.71	MNCS_H		-0.27	130.545
5,806.90	5,305.23	MNCS_I		-0.27	130.545

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
998.50	998.50	0.00	0.00	KOP Begin 3°/100' build
1,812.56	1,788.14	109.80	-130.94	Begin 24.42° tangent
4,777.30	4,487.61	897.46	-1,070.16	Begin 10°/100' drop build/turn
5,261.52	4,957.53	897.78	-1,072.15	Begin 8°/100' build
5,411.52	5,087.20	849.12	-1,015.26	Begin 10°/100' build
5,751.52	5,288.83	675.19	-811.93	70° inc @ 5751.51 MD 5288.83 TVD
5,954.11	5,323.38	546.12	-661.05	Begin 90.26° lateral
14,996.75	5,282.50	-5,331.91	6,210.37	PBHL/TD @ 14996.74 MD 5282.50 TVD

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

CONDITIONS

Action 346438

CONDITIONS

Operator: DJR OPERATING, LLC 200 Energy Court Farmington, NM 87401	OGRID: 371838
	Action Number: 346438
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	5/21/2024