Form 3160-3 (June 2015)		FORM APPROV OMB No. 1004-0 Expires: January 31	ED 137 2018
UNITED STATES	Explices. January 51,	, 2018	
DEPARTMENT OF THE I	5. Lease Serial No.		
		6 If Indian Allatas as Tribe News	
APPLICATION FOR PERMIT TO D	6. II Indian, Allotee or Tribe	Name	
		7 If Unit or CA Agreement 1	Name and No.
1a. Type of work:   DRILL	EENTER	7. If Ollit of CA Agreement, I	vallie and two.
1b. Type of Well:   Oil Well   Gas Well   O	ther	8. Lease Name and Well No.	
1c. Type of Completion: Hydraulic Fracturing Si	ngle Zone 📃 Multiple Zone		
2. Name of Operator		9. API Well No.	
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Explor	atory
4. Location of Well (Report location clearly and in accordance w	with any State requirements.*)	11. Sec., T. R. M. or Blk. and	Survey or Area
At surface			
At proposed prod. zone			
14. Distance in miles and direction from nearest town or post offi	ice*	12. County or Parish	13. State
15. Distance from proposed*	16. No of acres in lease 17. Spacing	ng Unit dedicated to this well	
location to nearest property or lease line, ft.			
(Also to nearest drig. unit line, if any)			
<ol> <li>Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.</li> </ol>	19. Proposed Depth 20, BLM/	BIA Bond No. in file	
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration	
	24. Attachments		
The following, completed in accordance with the requirements of (as applicable)	f Onshore Oil and Gas Order No. 1, and the F	Iydraulic Fracturing rule per 43	3 CFR 3162.3-3
<ol> <li>Well plat certified by a registered surveyor.</li> <li>A Drilling Plan</li> </ol>	4. Bond to cover the operation Item 20 above).	s unless covered by an existing	bond on file (see
3. A Surface Use Plan (if the location is on National Forest System	m Lands, the 5. Operator certification.		
SUPO must be filed with the appropriate Forest Service Office	6. Such other site specific infor BLM	mation and/or plans as may be re	equested by the
25. Signature	Name (Printed/Typed)	Date	
Title			
Approved by (Signature)	Name (Printed/Typed)	Date	
Title	Office	I	
Application approval does not warrant or certify that the applicar applicant to conduct operations thereon.	t holds legal or equitable title to those rights	in the subject lease which wou	ld entitle the
Conditions of approval, if any, are attached.			
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, n of the United States any false, fictitious or fraudulent statements of	nake it a crime for any person knowingly and or representations as to any matter within its	willfully to make to any depar jurisdiction.	tment or agency



(Continued on page 2)

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## INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48( d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## **Additional Operator Remarks**

## Location of Well

0. SHL: NWNW / 1099 FNL / 703 FWL / TWSP: 23N / RANGE: 6W / SECTION: 6 / LAT: 36.257635 / LONG: -107.516937 ( TVD: 0 feet, MD: 0 feet ) PPP: NENE / 386 FNL / 153 FEL / TWSP: 23N / RANGE: 7W / SECTION: 1 / LAT: 36.259605 / LONG: -107.519881 ( TVD: 5661 feet, MD: 6509 feet ) PPP: NWNW / 380 FNL / 0 FWL / TWSP: 23N / RANGE: 6W / SECTION: 6 / LAT: 36.259604 / LONG: -107.519362 ( TVD: 5662 feet, MD: 6662 feet ) PPP: NWNW / 401 FNL / 0 FWL / TWSP: 23N / RANGE: 6W / SECTION: 5 / LAT: 36.259583 / LONG: -107.501551 ( TVD: 5717 feet, MD: 11913 feet ) BHL: NENE / 380 FNL / 100 FEL / TWSP: 23N / RANGE: 6W / SECTION: 5 / LAT: 36.259559 / LONG: -107.484083 ( TVD: 5770 feet, MD: 17064 feet )

## **BLM Point of Contact**

Name: CHRISTOPHER P WENMAN Title: Natural Resource Specialist Phone: (505) 564-7727 Email: cwenman@blm.gov

## **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

## **Conditions of Approval**

Operator:	Enduring Resources IV, LLC
Well Names:	Haynes Canyon Unit 428H Pad: HCU 428H, 430H, 440H, 442H
	Haynes Canyon Unit 432H Pad: HCU 432H, 434H, 436H, 438H,
	Northeast Lybrook COM 176H Pad: NELCA 262H and 263H
Legal Location:	Sec 3 & Sec 6 Township 23N, Range 6W, Rio Arriba County
NEPA Log Number:	DOI-BLM-NM-F010-2023-0067-EA
Inspection Date:	June 27, 2023
Lease Number:	NMNM-028733, NMNM-142111X, NMSF-078362, NMNM-132829

The following conditions of approval will apply to Haynes Canyon Unit 428H, 432H, and NE Lybrook Com 176H Reoccupation (NELCA 262H) Oil and Gas Wells Project, and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in an assessment or civil penalties pursuant to 43 CFR 3163.1 or 3163.2.

**Disclaimers:** BLM's approval of the APD does not relieve the lessee and operator from obtaining any other authorizations that may be required by the BIA, Navajo Tribe, State, or other jurisdictional entities.

**Copy of Plans:** A complete copy of the APD package, including Surface Use Plan of Operations, Bare Soil Reclamation Plan, Plan of Development (if required), Conditions of Approval, Cultural Resource Record of Review, Cultural Resources Compliance Form (if required), and Project Stipulations (if required) shall be at the project area at all times and available to all persons.

**Review of NEPA documents:** It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in the Environmental Assessment DOI-BLM-NM-F010-2023-0067-EA, which contains additional design features and best management practices that must be followed. Copies of the EA, Decision Record, and Finding of No Significant Impact may be obtained from the BLM FFO public room, or online at: EplanningUi (blm.gov).

**Best Management Practices (BMPs)**: Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007 and at

<u>http://www.blm.gov/wo/st/en/prog/energy/oil\_and\_gas/best\_management\_practices.html</u>. Farmi ngton Field Office BMPs are integrated into the Environmental Assessment, Surface Use Plan of Operations, Bare Soil Reclamation Plan, and COAs.

## Construction, Production, Facilities, Reclamation & Maintenance

**Construction & Reclamation Notification:** The operator or their contractor will contact the Bureau of Land Management, Farmington Field Office Environmental Protection Staff (505) 564-7600 or by email, at least 48 hours prior to any construction or reclamation on this project.

**Production Facilities:** design and layout of facilities will be deferred until an onsite with BLM-FFO surface protection staff is conducted to determine the best location. Enduring Resources or their contractor will contact the Bureau of Land Management, Farmington Field Office, Surface, and Environmental Protection Staff (505) 564-7600 to schedule a facility layout onsite.

**Staking:** The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the plan of development. If stakes are disturbed, they shall be replaced before proceeding with construction.

**Weather:** No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts more than 6 inches deep, the soil shall be deemed too wet.

**Stockpile of Soil:** The top 6 inches of soil material will be stripped and stockpiled in the construction zones around the pad [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks, and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

**Painting of Equipment:** Within 90 days of installation, all above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of: Federal 595a-34127 (Juniper Green).

**Storage Tanks:** All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced water and or other production waste shall be screened, netted, or otherwise covered to protect migratory birds and other wildlife from access.

**Compressors:** Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a 12-inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the Authorized Officer (AO). Noise mitigation may be required at the time of compressor installation.

Culverts: Silt Traps/Bell Holes will be built upstream of all culvert locations.

**Driving Surface Area:** All activities associated within the construction, operation, maintenance, and abandonment of the well location is limited to areas approved in the APD or ROW permit. During the production of the well, vehicular traffic is limited to the daily driving surface area established during interim reclamation construction operations. This area typically forms a keyhole or teardrop driving surface from which all production facilities may be serviced or inspected. A v-type ditch will be constructed on the outside of the driving surface to further define the driving surface and to deter vehicular traffic from entering onto the interim reclamation areas.

**Contouring of Cut and Fill Slopes:** The interim cut and fill slope grade shall be as close to the original contour as possible. To obtain this ratio, pits and slopes shall be back sloped into the pad during interim reclamation. Only subsurface soil and material shall be utilized in the contouring of the cut and fill slopes. Under no circumstances shall topsoil be utilized as substrate material for contouring of cut and fill slopes.

**Maintenance:** In order to perform subsequent well operations, right-of-way (ROW) operations, or install new/additional equipment, it may be necessary to drive, park, and operate on restored, interim vegetation within the previously disturbed area. This is generally acceptable provided damage is promptly repaired and reclaimed following use. Where vehicular travel has occurred as a "convenience" and interim reclamation/vegetation has been compromised, immediate remediation of the affected areas is required. Additionally, where erosion has occurred and compromised the reclamation of the well location, the affected area must be promptly remediated so that future erosion is prevented, and the landform is stabilized.

**Layflat Lines:** Layflat lines used for development of the wells may be on the ground for a maximum of 6 months and shall be retrieved immediately following completion operations. If the layflat lines are needed for longer than 6 months a Sundry NOI shall be submitted to the BLM FFO for review and decision that includes a rationale for the time extension.

The holder or its contractors will notify the BLM of any fires and comply with all rules and regulations administered by the BLM concerning the use, prevention and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The holder or its contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the holder or its contractors.

#### "Hotwork" and Construction Affecting Fire Safety: The holder or its contractors shall:

- 1. Operate all internal and external combustion engines (including off-highway vehicles, chainsaws, generators, heavy equipment, etc.) with a qualified spark arrester. Qualified spark arresters are maintained and not modified, and meet the Society of Automotive Engineers (SAE) Recommended Practices J335 or J350. Refer to 43 CFR §8343.1.
  - a. Refueling of any combustible engine equipment must be minimum of 3 meters away from any ignition source (open flame, smoking, etc.).
- 2. Maintain and clean all equipment regularly to remove flammable debris buildup and prevent fluid leaks that can lead to ignitions.

- Carry at least one shovel or wildland fire hand tool (combi, Pulaski, McLeod) per person working, minimum 5 gallons of water, and a fire extinguisher rated at a minimum as ABC
   10 pound on each piece of equipment and each vehicle.
- 4. When conducting "hotwork" such as, but not limited to welding, grinding, cutting, sparkproducing work with metal, work that creates hot material or slag; choose an area large enough to contain all hot material that is naturally free of all flammable vegetation or remove the flammable vegetation in a manner compliant with the permitted activity. If adequate clearance cannot be made, wet an area large enough to contain all hot material prior to the activity and periodically throughout the activity to reduce the risk of wildfire ignition. Regardless of clearance, maintain readiness to respond to an ignition at all times. In addition, keep one hand tool per person and at least one fire extinguisher ready, minimum, as specified earlier (#3) during this activity.
- 5. Keep apprised of current and forecasted weather at <u>https://www.weather.gov/abq/forecasts-fireweather-links</u> and fire conditions at <u>www.wfas.net</u> and take additional fire precautions when fire danger is rated High or greater. Red Flag Warnings are issued by the National Weather Service when fire conditions are most dangerous, and ignitions escape control quickly. Extra precautions are required during these warnings such as additional water, designate a fire watch/patrol and tools. If work is being conducted in an area that is not clear of vegetation within 50 feet of work area; then, when fire danger is rated High or greater and 1. There is a predicted Red Flag warning for your area or 2. If winds are predicted to be greater than 10 mph, stop all hotwork activities for the day at 10 am.
- 6. In the event of an ignition, initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands. If a fire spreads beyond the capability of workers with the stipulated tools, all will cease fire suppression action and leave the area immediately via pre-identified escape routes.
- 7. Call **911** or the **Taos Interagency Fire Dispatch Center (575-758-6208)** immediately of the location and status of any fire.

## AND

Notify the respective BLM field office for which the permit or contract was issued immediately of the incident.

## Farmington Field Office at 505-564-7600

Taos Field Office at 575-758-8851

## **Noxious Weeds**

Inventory the proposed site for the presence of noxious and invasive weeds. Noxious weeds are those listed on the New Mexico Noxious Weed List and USDA's Federal Noxious Weed List. The New Mexico Noxious Weed List or USDA's Noxious Weed List can be updated at any time and should be regularly check for any changes. Invasive species may or may not be listed as a noxious weed but have been identified to likely cause economic or environmental harm or harm to human health. The following noxious weeds have been identified as occurring on lands within the boundaries of the Farmington Field Office (FFO). There are numerous invasive species on the FFO such as Russian thistle (*Salsola spp.*) and field bindweed (*Convolvulus arvensis*).

Russian Knapweed (Centaurea repens)	Musk Thistle (Carduss nutans)
Bull Thistle (Cirsium vulgare)	Canada Thistle (Cirsium arvense)
Scotch Thistle (Onopordum acanthium)	Hoary Cress (Cardaria draba)
Perennial Pepperweed (Lepdium latiofolfium)	Halogeton (Halogeton glomeratus)
Spotted Knapweed (Centaurea maculosa)	Dalmation Toadflax (Linaria genistifolia)
Yellow Toadflax (Linaria vulgaris)	Camelthorn (Alhagi pseudalhagi)
African Rue (Penganum harmala)	Salt Cedar (Tamarix spp.)
Diffuse Knapweed (Centaurea diffusa)	Leafy Spurge (Euphorbia esula)

- a. Identified weeds will be treated prior to new surface disturbance if determined by the FFO Noxious Weed Coordinator. A Pesticide Use Proposal (PUP) must be submitted to and approved by the FFO Noxious Weed Coordinator prior to application of pesticide. The FFO Noxious Weeds Coordinator (505-564-7600) can provide assistance in the development of the PUP.
- b. Construction equipment should be inspected and cleaned prior to coming onto the work site. This is especially important on vehicles from out of state or if coming from a weed-infested site.
- c. Fill dirt or gravel may be needed for excavation, road construction/repair, or for spill remediation. If fill dirt or gravel will be required, the source shall be noxious weed free and approved by the FFO Noxious Weed Coordinator.
- d. The site shall be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found the FFO Coordinator shall be notified at (505) 564-7600 and provided with a Weed Management Plan and if necessary, a Pesticide Use Proposal (PUP). The FFO Coordinator can provide assistance developing the Weed Management Plan and/or the Pesticide Use Proposal.
- e. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. (Company Name)'s weed-control contractor would contact the BLM-FFO prior to using these chemicals.
- f. Noxious/invasive weed treatments must be reported to the FFO Noxious Weed Coordinator. A Pesticide Application Record (PAR) is required to report any mechanical, chemical, biological or cultural treatments used to eradicate, and/or control noxious or invasive species. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

**Bare ground vegetation trim-out:** If bare ground vegetation treatment (trim-out) is desired around facility structures, the operator will submit a bare ground/trim-out design included in their Surface Use Plan of Operations (SUPO). The design will address vegetation safety concerns of the operator and BLM while minimizing impacts to interim reclamation efforts. The design must include what structures to be treated and buffer distances of trim-out. Pesticide use

for vegetation control around anchor structures is not approved. If pesticides are used for bare ground trim-out, the trim-out will not exceed three feet from the edge of any eligible permanent structure (i.e., well heads, fences, tanks). Additional distance/areas may be requested and must be approved by the FFO authorized officer. The additional information below must also be provided to the FFO:

- a. Pesticide use for trim out will require a Pesticide Use Proposal (PUP). A PUP is required *prior* to any treatment and must be approved by the FFO Noxious Weed Coordinator. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Enduring Resources' weed-control contractor would contact the BLM-FFO prior to using these chemicals and provide Pesticide Use Reports (PURs) post treatment.
- A Pesticide Use Report (PUR) or a Biological Use Report (BUR) is required to report any chemical, or biological treatments used to eradicate, or control vegetation on site. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

#### **Paleontology**

Any paleontological resource discovered by the Operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

#### Visual Resources

Dark Sky COAs need to be applied to existing lighting, which is not dark sky friendly and to any additional lights added as part of pad expansion. All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source). All permanent lighting will be pointed straight down at the ground in order to prevent light spill to the sides. All permanent lighting will be 4000° Kelvin or less with 3000° Kelvin preferred. Warmer light colors are less noticeable by humans and cause less impact to wildlife. All permanent lighting will be controlled by a switch and/or timer which allows the lights to be turned on when workers are on location during dark periods but will keep the lights off the majority of the time.

#### Wildlife Resources

**Wildlife:** The proposed project intersects a known mule deer migration route. Big game habitat areas and hunting activities are valuable land uses which support BLM's multiple-use land management objectives. To maintain reasonable concurrence with surface use closure

requirements in other recognized mule deer migration areas in the BLM FFO, no surface use will take place December 1 – March 1.

**Hazards:** Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in storage tanks, as necessary.

**Migratory Bird:** Migratory nest survey stipulations. Once drilling and completion activities are complete, any open water that could be harmful to birds and wildlife. must be covered, screened, or netted to prevent entry.

**Threatened, Endangered or Sensitive Species:** If, in operations the operator/holder discovers any Threatened, Endangered, or Sensitive species, work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM-FFO T&E specialist at (505) 564-7600. The BLM-FFO will then specify what action is to be taken. Failure to notify the BLM-FFO about a discovery may result in civil or criminal penalties in accordance with The Endangered Species Act (as amended).

**Noise:** This well is located within a designated Noise Sensitive Area (NSA). Once proposed project activities are complete, noise from pumpjack, compressor or other facilities cannot exceed 48.6 db at edge of Bald eagle ACEC core area. Any compressor that emits noise > 48.6db may require a 'noise wall' to deflect sound away from ACEC...

**Nesting:** If a bird nest containing eggs or young is encountered in the path of construction the operator will cease construction and consult with BLM to determine appropriate actions.

**Livestock Grazing:** Cattle are in allotment between 5/1 and 10/31. Industry may need to coordinate with permittee if concerns of livestock in area during construction.

#### Soil, Air, Water

**Land Farming:** No excavation, remediation or closure activities will be authorized without prior approval, on any federal or Indian mineral estate, federal surface, or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.

**Emission Control Standard:** Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.

**Waste Disposal:** All fluids (i.e., scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination, or hazard to livestock or wildlife.

#### **Cultural Resources**

**Non-Permitted Disturbance:** Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

**Employee Education:** All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

Discovery of Cultural Resources in the Absence of Monitoring: Discovery of Cultural Resources in the Absence of Monitoring: If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, or in accordance with an approved program alternative. Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive archaeological or alternative mitigation, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any mitigations determined appropriate through the agency's Section 106 consultation are completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.

**Discovery of Cultural Resources during Monitoring:** If monitoring confirms the presence of previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, or in accordance with an approved program alternative. Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive archaeological or alternative mitigation, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to

allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any mitigations determined appropriate through the agency's Section 106 consultation are completed.

**Damage to Sites:** If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare a BLM approved damage assessment and/or data recovery plan. The operator/holder agrees at his/her expense to implement a **mitigation** that the agency finds appropriate given the significance of the site, which the agency determines in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property. **This mitigation may entail execution of the data recovery plan by a permitted cultural resources consultant and/or alternative mitigations.** Damage to cultural resources may result in **civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.** 

See below additional cultural stipulations.

# IN-HOUSE ARCHEOLOGICAL SURVEY DETERMINATION FARMINGTON FIELD OFFICE

NM-210-2024-003

Date Submitted: 10/17/2023.

Case No./Name: Haynes Canyon 428H Well Pad Company: Enduring Type of Case: Well Pad

## IS A CULTURAL RESOURCE INVENTORY REQUIRED?

Proposal involves non-Federal lands.

Proposal is within an existing right-of-way.

 $\boxtimes$  Proposal is along an existing road.

Proposal is within an existing disturbed area.

The well pad is to be expanded feet to the

Other: This new well pad will be re-permitted and drilled on an existing location.

Please see the attached base map.

Submitted by: Kim A. on behalf of Chris W.

## **CULTURAL RESOURCE SPECIALIST RECOMMENDATIONS**

Inventory for cultural resources is required.

 $\boxtimes$  Inventory for cultural resources **is not** required for the reason(s) indicated below.

Previous natural ground disturbance has modified the surface so extensively that the likelihood of finding cultural properties is negligible (e.g., within a floodplain), or

Human activity has created a new land surface to such an extent as to eradicate traces of cultural properties, or

Existing Class II or equivalent inventory or environmental data are sufficient to indicate that there is no likelihood of finding a National Register or eligible property, or

Inventory at the Class III level of intensity has previously been performed and records adequately documenting the location, methods, and results of the inventory are available in report no. NMCRIS No 130650

or

Natural environmental characteristics are unfavorable to the presence of cultural properties (such as recent landslide or rock falls), or

The nature of the proposed action is such that no impact can be expected on significant cultural resources (e.g. land use will not require any surface disturbing action, e.g., aerial spraying, hand application of chemicals, travel on existing roads, etc.), or

Other: Recommended by: Kin Adams

Date: 10/17/2023

Archaeologist Cultural Notes (if any, e.g., conditions, stipulations, etc.):



Released to Imaging: 12/28/2023 4:31:25 PM Approval Date: 12/05/2023



<u>BLM Report Number:</u> 2024(I)002F <u>USGS Map:</u> Counselor & Tafoya Canyon, NM <u>Activity Code</u>: 1310 <u>NMCRIS No:</u> 153816

## **CULTURAL RESOURCE RECORD OF REVIEW**

BUREAU OF LAND MANAGEMENT FARMINGTON FIELD OFFICE

## **1. Description of Report/Project:**

<u>Project Name:</u> Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Areas.

Project Sponsor: Enduring Resources.

Arch. Firm & Report No.: Division of Conservation Archaeology; DCA Report No. 23-DCA-027. Location: T23N R6W Section 3.

Well Footages: 1,773' FNL, 303' FWL.

<u>Split Estate:</u> No.

Project Dimensions:400 ft x 400 ft - well pad (500 ft x 500 ft w/ a 50 ft construction zone).1,571 ft x 30 ft - access road upgrade.3,384 ft x 40 ft - pipeline/layflat.248 ft x 25 ft - TUA.323 ft x 25 ft - TUA.Sites Located:LA39919/NM-01-31536 (NRHP- Eligible; Avoided).

Determination: No Effect to Historic Properties.

#### 2. Field Check: No

3. Cultural ACEC: No.

4. Sensitive Cultural Area: No.

**5. Recommendation:** *PROCEED WITH ACTION:* <u>X</u> *STIPULATIONS ATTACHED:* <u>X</u>

6. Reviewer / Archaeologist: Kim Adams Date: 10/23/2023

roter i art or this project and previously inventorieu								
<b>Report Summary</b>	BLM	Other	Total					
Acres Inventoried	14.93	0.00	14.93					
Sites Recorded	0	0	0					
Prev. Recorded Sites	1	0	1					
Sites Avoided	1	0	1					
Sites Treated	0	0	0					

Note: Part of this project was previously inventoried.

Discovery of Cultural Resources in the Presence or Absence of Monitoring: If any previously unidentified historic or prehistoric cultural resources are discovered during construction or project operations, work in the vicinity of the discovery will be suspended and the discovery will promptly be reported to the BLM Field Manager.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov. Or Geoffrey Haymes (BLM) at 505.564.7684 or ghaymes@blm.gov

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## CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)002F

Project Name: Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Area. Project Sponsor: Enduring Resources.

## **1. SITE PROTECTION AND EMPLOYEE EDUCATION:**

All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

## 2. ARCHAEOLOGICAL MONITORING IS REQUIRED:

A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the archaeological monitor. The monitor will:

- Ensure that the site protection barrier is located as indicated on the attached map in the vicinity of LA39919.
- Inform BLM-FFO archaeologists that monitoring will be occurring within 24 hours of the scheduled monitoring.
- Observe all construction activities within 100'of LA39919.
- Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.

## **3. SITE PROTECTION BARRIER:**

- The temporary site protection barrier will be erected prior to the start of construction. The barrier will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barrier will remain in place through reclamation and reseeding and shall be promptly removed after reclamation.
- The barrier will be placed as indicated on the attached map. •
- There will be no surface-disturbing activities or vehicle traffic past the barrier.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

## For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18) CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)002F

<u>Project Name:</u> Haynes Canyon Unit 432H Reoccupation Well Pad, Access Road Upgrade, Pipeline, Layflat, and Temporary Use Area. <u>Project Sponsor:</u> Enduring Resources.

MONITOR CONSTRUCTION = TEMPORARY FENCING =





BLM Report Number: 2024(I)005F USGS Map: Crow Mesa West, NM Activity Code: 1310 NMCRIS No: 154100

## **CULTURAL RESOURCE RECORD OF REVIEW**

BUREAU OF LAND MANAGEMENT FARMINGTON FIELD OFFICE

1. Description of Report/Project:

<u>Project Name:</u> Northeast Lybrook Com No 262H **Reoccupation Well**. <u>Project Sponsor:</u> Enduring Resources. <u>Arch. Firm & Report No.:</u> Division of Conservation Archaeology; DCA Report No. 22-DCA-060. <u>Location:</u> T23N R6W Section 6.

Well Footages: See plats

Split Estate: No.

Project Dimensions: 300 ft x 500 ft – well pad (400 ft x 600 ft w/ a 50 ft construction zone).

Sites Located: LA64876/NM-01-34748 (NRHP- Eligible; Update; Avoided; No Further Work). LA175265/NM-210-47840 (NRHP- Eligible; Update; Avoided). LA178266/NM-210-48243 (NRHP- Eligible; Update; Avoided).

Determination: No Effect to Historic Properties.

2. Field Check: No

3. Cultural ACEC: No.

- 4. Sensitive Cultural Area: No.
- **5. Recommendation:** *PROCEED WITH ACTION:* <u>X</u> *STIPULATIONS ATTACHED:* <u>X</u>
- 6. Reviewer / Archaeologist: Kim Adams Date: 11/6/2023

Note: The majority of this project was previously inventoried (see NMCRIS No 129798).

Report Summary	BLM	Other	Total
Acres Inventoried	0.74	0.00	0.74
Sites Recorded	0	0	0
Prev. Recorded Sites	3	0	3
Sites Avoided	3	0	3
Sites Treated	0	0	0

Discovery of Cultural Resources in the Presence or Absence of Monitoring: If any previously unidentified historic or prehistoric cultural resources are discovered during construction or project operations, work in the vicinity of the discovery will be suspended and the discovery will promptly be reported to the BLM Field Manager.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

## CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)005F

<u>Project Name:</u> Northeast Lybrook Com No 262H **Reoccupation Well**. <u>Project Sponsor:</u> Enduring Resources.

## **1. SITE PROTECTION AND EMPLOYEE EDUCATION:**

All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

## 2. ARCHAEOLOGICAL MONITORING IS REQUIRED:

A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the archaeological monitor.

The monitor will:

- Ensure that the site protection barriers are located as indicated on the attached maps in the vicinity of LA175265, & LA178266.
- Inform BLM-FFO archaeologists that monitoring will be occurring within 24 hours of the scheduled monitoring.
- Observe all construction activities within 100'of LA175265, & LA178266.
- Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.

## **3. SITE PROTECTION BARRIER:**

- The temporary site protection barriers will be erected prior to the start of construction. The barriers will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barriers will remain in place through reclamation and reseeding and shall be promptly removed after reclamation.
- The barriers will be placed as indicated on the attached map.
- There will be no surface-disturbing activities or vehicle traffic past the barriers.

**Note:** If there are questions about these stipulations, contact Kim Adams (BLM) at 505.564.7683 or kadams@blm.gov.

## For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18) CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)005F

<u>Project Name:</u> Northeast Lybrook Com No 262H **Reoccupation Well**. <u>Project Sponsor:</u> Enduring Resources.



## For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18) CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)005F

<u>Project Name:</u> Northeast Lybrook Com No 262H **Reoccupation Well**. <u>Project Sponsor:</u> Enduring Resources.





# United States Department of the Interior

BUREAU OF LAND MANAGEMENT Farmington District Office 6251 College Blvd, Suite A Farmington, New Mexico 87402



In Reply Refer To: 3162.3-1(NMF0110)

\* ENDURING RESOURCES LLC
#262H NE LYBROOK COM
Lease: NMSF078362 Agreement: NMNM132829
SH: NW¼NW¼ Section 6, T. 23N., R. 6W. Rio Arriba County, New Mexico
BH: NE¼NE¼ Section 5, T. 23N., R. 6W. Rio Arriba County, New Mexico
BH: NE¼NE¼ Section 5, T. 23N., R. 6W. Rio Arriba County, New Mexico
\*Above Data Required on Well Sign

## GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

The following special requirements apply and are effective when checked:

- A. 🖂 Note all surface/drilling conditions of approval attached.
- B. ☐ The required wait on cement (WOC) time will be a minimum of 500 psi compressive strength at 60 degrees. Blowout preventor (BOP) nipple-up operations may then be initiated
- C. ☐ Test all casing strings below the conductor casing to .22 psi/ft. of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield (burst) for a minimum of 30 minutes. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.
- D. Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, New Mexico State Office, Reservoir Management Group, 301 Dinosaur Trail, Santa Fe, New Mexico 87508. The effective date of the agreement must be **prior** to any sales.
- E. The use of co-flex hose is authorized contingent upon the following: **1.** From the BOP to the choke manifold: the co-flex hose must be hobbled on both ends and saddle to prevent whip.
  - **2.** From the choke manifold to the discharge tank: the co-flex hoses must be as straight as practical, hobbled on both ends and anchored to prevent whip.

3. The co-flex hose pressure rating must be at least commensurate with approved BOPE.

INTERIOR REGION 7 • UPPER COLORADO BASIN

COLORADO, NEW MEXICO, UTAH, WYOMING

## I. <u>GENERAL</u>

- A. Full compliance with all applicable laws and regulations, with the approved Permit to drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors. Failure to comply with these requirements and the filing of required reports will result in strict enforcement pursuant to 43 CFR 3163.1 or 3163.2.
- B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).
- C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.
- D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report is filed. The report should be on  $8-1/2 \times 11$  inch paper, and each page should identify the well by; operator's name, well number, location and lease number.
- E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).
- F. BOP equipment (except the annular preventer) shall be tested utilizing a test plug to full working pressure for 10 minutes. No bleed-off of pressure is acceptable. (See 43 CFR 3172.6(b)(9)(ii)).
- G. The operator shall have sufficient weighting materials and lost circulation materials on location in the event of a pressure kick or in the event of lost circulation. (See 43 CFR 3172.8(a)).
- H. The flare line(s) discharge shall be located not less than 100 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of the prevailing wind direction and shall be anchored. The flare system shall have an effective method for ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and to maintain a continuous flare. (See 43 CFR 3172.8(b)(7)).
- I. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work, casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a Notice of Intent sundry within three business days. Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at 505-564-7600. Emergency program changes after hours should be directed to Virgil Lucero at 505-793-1836.
- J. The Inspection and Enforcement Section (I&E), phone number (505-564-7750) is to be notified at least 24 hours in advance of BOP test, spudding, cementing, or plugging operations so that a BLM representative may witness the operations.

- K. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two-year extension may be granted if submitted prior to expiration.
- L. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the tool pusher shall maintain rig surveillance at all times, unless the well is secured with blowout preventers or cement plugs.
- M. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.
- N. **Commingling**: No production (oil, gas, and water) from the subject well should start until Sundry Notices (if necessary) granting variances from applicable regulations as related to commingling and off-lease measurement are approved by this office.

#### II. <u>REPORTING REQUIREMENTS</u>

- A. For reporting purposes, all well Sundry notices, well completion and other well actions shall be referenced by the appropriate lease, communitization agreement and/or unit agreement numbers.
- B. The following reports shall be filed with the BLM-Authorized Officer online through AFMSS 2 within 30 days after the work is completed.
  - 1. Provide complete information concerning.
    - a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.
    - b. Intervals tested, perforated (include size, number and location of perforations), acidized, or fractured; and results obtained. Provide date work was done on well completion report and completion sundry notice.
    - c. Subsequent Report of Abandonment, show the way the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.
  - 2. Well Completion Report will be submitted with 30 days after well has been completed.
    - a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.
  - 3. Submit a cement evaluation log if cement is not circulated to surface.
- C. Production Startup Notification is required no later than the 5<sup>th</sup> business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site or resumes production in the case of a well which has been off production for more than 90 days. The operator shall notify the Authorized Officer by letter or Sundry Notice, Form 3160-5, or orally to be followed

by a letter or Sundry Notice, of the date on which such production has begun or resumed. CFR 43 3162.4-1(c).

#### III. DRILLER'S LOG

The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results, 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results, and 8) Estimated amounts of oil and gas recovered and/or produced during drill stem test.

#### IV. GAS FLARING

Gas produced from this well may not be vented or flared beyond an initial, authorized test period of \* Days or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. You shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

\*30 days, unless a longer test period is specifically approved by the authorized officer. The 30-day period will commence upon the first gas to surface.

#### V. SAFETY

- A. All rig heating stoves are to be of the explosion-proof type.
- B. Rig safety lines are to be installed.
- C. Hard hats and other Personal Protective Equipment (PPE) must be utilized.

#### VI. <u>CHANGE OF PLANS OR ABANDONMENT</u>

A. Any changes of plans required to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section 1.F.

- B. If the well is dry, it is to be plugged in accordance with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section 1.F. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1c.
- C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drill site without prior approval from the BLM-Authorized Officer.

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Di Recent 1625 N. Fr Phone: (575) District I 811 S. Fir Phone: (575) District I 1000 Rio B Phone: (505) District I 1220 S. St Phone: (505)	yed by OC rench Drive, 393-6161 I st Street, A 748-1283 II Srazos Road, 334-6178 V Francis Dr 476-3460	D: 12/5/2 Hobbs, NM 8 Fax: (575) 393 rtesia, NM 8 Fax: (575) 748 Aztec, NM 87 Fax: (505) 334 rive, Santa Fi Fax: (505) 476	<b>023 9:18:</b> B-0720 <b>E</b> B-0720 <b>E</b> B-0720 <b>4</b> 10 H-6170 B-0462 <b>5</b> -3462	10 PM St Inergy, Minera OIL CO 1220 St Sa	tate of N Dis & Natura NSERVA1 Duth St. Inta Fe, N	lew Mexico al Resource TION DI Francis NM 8750	o s Department VISION Drive 5	Rev: Appropria	Form ( sed August 1, Submit one co ite District 0	2-102 2011 I here how ffice DRT ORT	PERATOR reby certify th in is true and ledge and belie r owns a worki ral interest in sed bottom-hol rill this well contract with orking interest isofore entered i ment or a comp isofore entered i ment or a comp to fore entered i ment or a comp	CERTIFI at the informatic complete to the f, and that this ing interest or u the land includ the land includ the land includ this location an owner of suc, or to a volunt ulsory pooling ( by the division. 	28 of 63 CATION con contained best of my organization unleased bing the ss a right pursuant h a mineral ary pooling order /14/23
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<sup>4</sup> Prope 332	rty Code 2738			⁵P NE L	roperty Name YBROOK (	COM			<sup>®</sup> Well Number 262H	I h sho not	ereby certify t wn on this plat es of actual su	that the well lo t was plotted fr urveys made by m	cation rom field ne or under
<sup>7</sup> 0GR 372	ID No. 286			°° ENDURING	perator Name 6 RESOURC	ES, LLC			°Elevation 6980′	my and	supervision, an correct to the )ate Revise	d that the same e best of my bel ed: JULY 20	is true lief. , 2023
				<sup>10</sup> Sur	face Loca	tion				<u>SL</u> 	nature and Sea	JANUARY 2 1 of Professiona	9, 2023 1 Surveyor
UL or lot	no. Section	Township 23N	Range Lot	t Idn Feet fr 4 109	om the Nor	th/South line	Feet from the 703	East/West lin WEST	e County RIO		SON	C. EDWAR	
		11	Bottom H	lole Locati	on If Di	fferent F	rom Surfac					METTO	·)
UL or lot	no. Section	Township 23N	Range Lot	t Idn Feet fr 1	om the Nor	th/South line	Feet from the	East/West lir	e County RIO				
<sup>12</sup> Dedicated Acres	N/2	– Sec 1,	T23N, R7	W <sup>13</sup> Joint or	Infill <sup>14</sup> Consol	lidation Code	<sup>15</sup> Order No.		ARRIE		A GR	OFESSIONAL SU	
949.1	N/2	– Sec 5, – Sec 6,	T23N, R6 T23N, R6	W						, Ţ			
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ECORD) W 260 "W 255 \SURED			6		♀ LOT 4	LOT 3	LOT 2	LOT 1	LOT 4	LOT 3	LOT 2		ED) 1619.03 18.22 '
(RE 15 ° 15 ° 15 (MEA	LOT 9	LOT 10	LOT 11	LOT 12	LOT 5	-		     			⊥ 	-	(MEASURI No *25 '38 "E 2 NO *17 W 26
RECORD) . W 2589.84 <sup>·</sup> 5 'W 2597.40 <sup>·</sup> ASURED)	LOT 16	LOT 15	LOT 14	LOT <b>K</b> 13 <b>L</b>	<b>Y</b> LOT 9 6		6 — I	<u>+</u> │			5 —	 	ED) 2624.54 ' 26.14 ' D)
(F NO1 °15 NO °31 '35 (ME	LOT 17	LOT 18	LOT 19	LOT 20	LOT 7			-			+ ·		(MEASUR 0 °24 '05 'E 2 N0 °17 W 26; N0 °17 W 26;
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#### Directions from the Intersection of US Hwy 550 & US Hwy 64

## <u>in Bloomfield, NM to Enduring Resources, LLC NE Lybrook Com #262H</u>

## 1099' FNL & 703' FWL, Section 6, T23N, R6W, N.M.P.M., Rio Arriba County, NM

#### Latitude 36.257635°N Longitude -107.516937°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 48.3 miles to Mile Marker #102.9;

Go Left (Northerly) on County Road #378 for 1.1 miles to fork in roadway;

Go Right (Northerly) exiting County Road #378 for 0.1 miles to fork in roadway;

Go Left (North-easterly) which is straight for 1.3 miles to fork in roadway;

Go Right (Easterly) for 0.2 miles to fork in roadway;

Go Left (North-easterly) for 0.1 miles to fork in roadway;

Go Left (Westerly) for 179.0' to Enduring NE Lybrook Com #262H staked location which overlaps an existing wellpad.



State of New Mexico Energy, Minerals and Natural Resources Department

> Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

Submit Electronically Via E-permitting

**Date:** 12/5/2023

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

## <u>Section 1 – Plan Description</u> <u>Effective May 25, 2021</u>

\_\_\_\_\_ OGRID: \_372286\_

I. Operator: Enduring Resources IV, LLC\_

**II. Type:**  $\square$  Original  $\square$  Amendment due to  $\square$  19.15.27.9.D(6)(a) NMAC  $\square$  19.15.27.9.D(6)(b) NMAC  $\square$  Other.

If Other, please describe: \_\_\_\_\_

**III.** Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced
						Water
NE Lybrook COM 262H	pending	Sec. 6, T23N, R6W	UL:D SHL:1099' FNL & 703' FWL	490	977	586
NE Lybrook COM 263H	pending	Sec. 6, T23N, R6W	UL:D SHL:1109' FNL & 719' FWL	490	977	586

**IV. Central Delivery Point Name:** <u>Haynes Canyon 428 CDP</u> [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Completion		Initial Flow	First Production
			Date	Commencement Date	Back Date	Date
NE Lybrook COM 262H	pending	3/24/2024	4/4/2024	4/17/2024	5/8/2024	5/10/2024
NE Lybrook COM 263H	pending	4/1/2024	4/15/2024	4/17/2024	5/8/2024	5/10/2024

VI. Separation Equipment: 🛛 Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:**  $\boxtimes$  Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** 🖂 Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

## Section 2 – Enhanced Plan EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

 $\boxtimes$  Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

#### IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF	

#### X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering	Available Maximum Daily Capacity
			Start Date	of System Segment Tie-m

**XI. Map.**  $\Box$  Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system  $\boxtimes$  will  $\square$  will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII.** Line Pressure. Operator  $\boxtimes$  does  $\square$  does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

□ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:**  $\Box$  Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

## Section 3 - Certifications Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

 $\boxtimes$  Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

 $\Box$  Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. *If Operator checks this box, Operator will select one of the following:* 

**Well Shut-In.**  $\Box$  Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.**  $\Box$  Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (**b**) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (**h**) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

## Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: Hat Han						
Printed Name: Heather Huntington						
Title: Regulatory Agent						
E-mail Address: hhuntington@enduringresources.com						
Date: 12/5/2023						
Phone: 505-636-9751						
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)						
Approved By:						
Title:						
Approval Date:						
Approval Date: Conditions of Approval:						
Approval Date: Conditions of Approval:						

## Attachments:

#### Separation Equipment: Below is a complete description of how Operator will size separation equipment to optimize gas capture.

#### Description of how separation equipment will be sized to optimize gas capture:

Well separation equipment is sized to have appropriate residence time and vapor space to remove gas particles on the micron scale per typical engineering calculations and/or operational experience. Furthermore, a sales scrubber downstream of the well separators is planned in order to capture any additional liquids if present. All gas is routed to end users or the sales pipeline under normal operating conditions.

# Operational & Best Management Practices: Below is a complete description of the actions the Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC. Additionally, below is a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

#### **Drilling Operations:**

Enduring Resources will minimize venting by:

- Gas will only be vented to the atmosphere to avoid risk of immediate or substantial adverse impact to employee safety, public health, and the environment.
- If utilized, flare stacks shall be located at a minimum of 100 feet from the nearest surface hole location

#### **Completion Operations:**

Enduring Resources will minimize venting by:

- Separator operation will commence as soon as technically feasible.
- Gas will route immediately to a collection system or applied to other beneficial use, such as a fuel source for onsite equipment.
- During initial flowback and if technically feasible, flaring shall occur rather than venting.
- If natural gas does not meet pipeline standards, gas will be vented or flared. A gas analysis will be performed twice weekly until standards are met (for up to 60 days). This is not anticipated to occur.
- If required, all venting and flaring of natural gas during flowback operations shall be performed in compliance with Subsections B, C and D of <u>19.15.27.8</u> NMAC.

#### **Production Operations:**

Enduring Resources will minimize venting by:

- Shutting in the wells if the pipeline is not available. No flaring of high pressure gas will occur.
- Utilizing gas for equipment fuel, heater fuel, and artificial lift when allowable.
- Capturing low pressure gas via a gas capture system when allowable.

#### In General:

- All venting and flaring from drilling, flowback and operation phases shall be reported in compliance with Subsection G of <u>19.15.27.8</u> NMAC.
- If utilized, flare stacks shall be located at a minimum of 100 feet from the nearest surface hole location and 100 ft from the permanent facility storage tanks.

#### Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on <u>Gas Transporter</u> system at that time. Based on current information, it is <u>Operator's</u> belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and nonpipeline quality gas be vented and/or flared rather than sold on a temporary basis.

#### Alternatives to Reduce Flaring

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Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
  - Compressed Natural Gas On lease
    - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal On lease
  - o Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines
- Power generation for grid;
- Liquids removal on lease;
- Reinjection for underground storage;
- Reinjection for temporary storage;
- Reinjection for enhanced oil recovery;
- Fuel cell production; and
- Other alternative beneficial uses approved by the division.



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

DRILLING PLAN:

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Drill, complete, equip single lateral Mancos formation Gallup member.

<b>VELL INFORMATION</b>	:					
Name:	NE LYBROOK COM 262H					
API Number:	Not assigned yet					
AFE Number:	Not assigned yet					
ER Well Number:	Not assigned yet					
State:	New Mexico					
County:	Rio Arriba					
Surface Elevation:	6,980 ft ASL (GL)	7,005	ft ASL (KB)			
Surface Location:	6-23-6 Sec-Twn-Rng	1,099	ft FNL	703	ft FWL	
	36.257635 °N latitude	107.516937	° W longitude		(NAD 83)	
BH Location:	5-23-6 Sec-Twn-Rng	380	ft FNL	100	ft FEL	
	36.259559 <sup>°</sup> N latitude	107.484083	° W longitude		(NAD 83)	
Driving Directions:	FROM THE INTERSECTION OF U	S HWY 550 & US	HWY 64 IN BLOO	MFIELD, NM:		
	South on US HWV 550 for 48.3	miesto MM 102	9. Left (North) o	n County Roa	d #378 for 1 1	mil

HWY 550 for 48.3 mles to MM 102.9; Left (North) on County Road #378 for 1.1 miles to fork; Right (North) exiting CR 378 for 0.1 miles to fork; Left (North-East) for 1.3 miles to fork; Right (East) for 0.2 miles to fork; Left (NorthEast) on lease road for .1 miles to fork, Left (West) on access road into NE Lybrook Com 176H Pad. The 262H will be one of 2 wells to be added to an existing, 2 well pad. The 262H will be the furthest North well and furthest from the location entrance. From South to North will be NE Lybrook Com 177H (existing well), NE Lybrook Com 176 (existing well), NE Lybrook Com 263H (proposed) and NE Lybrook Com 262H (proposed).

#### **GEOLOGIC AND RESERVOIR INFORMATION:**

Prognosis:	Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O/G/W	Pressure
	Nacimiento	7,005	0	0	0	0
	Ojo Alamo	5,498	1,507	1,551	W	normal
	Kirtland	5,415	1,590	1,640	W	normal
	Fruitland	5,154	1,851	1,924	G, W	sub
	Pictured Cliffs	4,865	2,140	2,238	G, W	sub
	Lewis	4,736	2,269	2,379	G, W	normal
	Chacra A	4,437	2,568	2,703	G, W	normal
	Cliff House Basal	3,337	3,668	3,900	G, W	sub
	Menefee	3,302	3,703	3,937	G, W	normal
	Point Lookout	2,615	4,390	4,684	G, W	normal
	Mancos	2,331	4,674	4,993	0,G	normal
	MNCS_A	1,987	5,018	5,358	0,G	sub (~.38)
	MNCS_B	1,902	5,103	5,444	0,G	sub (~.38)
	MNCS_C	1,767	5,238	5,583	0,G	sub (~.38)
	MNCS_Cms	1,694	5,311	5,662	0,G	sub (~.38)
	MNCS_D	1,631	5,374	5,735	0,G	sub (~.38)
	MNCS_E	1,535	5,470	5,861	0,G	sub (~.38)
	MNCS_F	1,490	5,515	5,931	0,G	sub (~.38)
	MNCS_G	1,403	5,602	6,100	0,G	sub (~.38)
	MNCS_H	1,357	5,648	6,246	0,G	sub (~.38)
	FTP TARGET	1,403	5,602	6,100	0,G	sub (~.38)
	PROJECTED WELL TD (BHL)	1,235	5,770	17,064	0,G	sub (~.38)
Surface:	Nacimiento					
<b>~</b> · · <b>-</b> · · · ·						

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

Pressure:	Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations								
	Max. pressure gradient:	0.22	psi/ft						
	Maximum anticipated BH pressu	ire, assumi	ng maximum	pressure gradient:	2,490	psi			
	Maximum anticipated surface p	1,230	psi						

#### Temperature: Maximum anticipated BHT is 125° F or less

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

H 2 S Zones:	Encountering hydrogen-sulfide bearing zones is <b>NOT</b> anticipated.
Safety:	Sensors and alarms will be placed in the substructure, on the rig floor, above the pits, and at the shakers.

#### LOGGING, CORING, AND TESTING:

Mud Logs:

None planned; remote geo-steering from drill out of 9-5/8" casing to TD; gas detection from drillout of 13-3/8" casing to TD. MWD/LWD: Gamma Ray from drillout of 13-3/8" casing to TD Open Hole Logs: None planned Testing: None planned Coring: None planned Cased Hole Logs: CBL on 5-1/2" casing from deepest free-fall depth to surface

#### DRILLING RIG INFORMATION:

	VIATION.
Contractor:	Aztec
Rig No.:	1000
Draw Works:	E80 AC 1,500 hp
Mast:	Hyduke Triple (136 ft, 600,000 lbs, 10 lines)
Top Drive:	NOV IDS-350PE (350 ton)
Prime Movers:	4 - GE Jenbacher Natural Gas Generator
Pumps:	2 - RS F-1600 (7,500 psi)
BOPE 1:	Cameron single & double gate rams (13-5/8", 3,000 psi)
BOPE 2:	Cameron annular (13-5/8", 5,000 psi)
Choke	Cameron (4", 10,000 psi)

KB-GL (ft): 25

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

#### STATE AND FEDERAL NOTIFICATIONS

STATE AND FEDERAL	NOTIFICATIONS	BLM	State
Construction and	BLM is to be notified minimum of 48 hours prior to start of construction or reclamation.		
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	seenote
	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	g & cementing
	and any plugging be given to her in both phone message and email: (505) 320-0243, monica.	ceuhling@emnr	d.nm.gov
BOPE REQUIREMENT	S:		
	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 BOD and TIW valves will be available to use on all sizes and threads of drill nine used wh	ile drilling the w	
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 pum	ps. The fluid res	ervoir capacity
	shall be at least double the usable fluid volume of the accumulator system capacity, and the fl	uid level shall b	e maintained
	at manufacturer's recommendation. There will be two additional sources of power for the clo	sing pumps (ele	ctric and air).
	Sufficient nitrogen bottles will be available and will be recharged when pressure falls below m	anufacturer's re	commended
	minimum.		
- 1			

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 for additional details. Sufficient barite will be on location to weight up mud system to
	balance maximum anticipated pressure gradient.

#### DETAILED DRILLING PLAN:

SURFACE:	Drill vertically	to casing settin	ig depth (pius ne	cessaryrathole	e), run casıng, ce	ment casing to	surjace.	
	0	ft (MD)	to	350	ft (MD)	Hole S	ection Length:	350 ft
	0	ft (TVD)	to	350	ft (TVD)	Ca	sing Required:	350 ft
	Note: Surface h	ole may be dril	led, cased, and	cemented with	a smaller rig in d	dvance of the d	drilling rig.	
Eluidi	Tuno	MM (ppg)	FL (mL/30	D\/ (cp)	YP (lb/100	nH	Comr	nonto
Fluiu.	Fresh Water	8 4	N/C	2-8	2 - 12	9.0	Snud	mud
Hole Size:	17-1/2"	011	, c	2 0		5.0	opuu	
Bit / Motor:	Mill Tooth or P	DC. no motor						
MWD / Survey:	No MWD, devi	ation survey						
Logging:	None							
Procedure:	Drill to TD. Use from TD to surf	e 12-/4" bit and face. Condition	open to 17-1/2" hole and fluid fo	if unable to dri r casing runnin	ll with 17-1/2" b g as required. TO	it. Run inclinat OH. Run casing	ion survey in 10 . Pump cement :	0' stations as detailed
	below. Monito	r returns during	g cement job and	I note cement v	olume to surface	e. Install cellar a	nd wellhead.	
Carrier Carro		\A(t) (11- (ft))	Crede	Comm		Durat (mai)	Tens. Body	Tens. Conn
Casing Specs:	40.075	Wt (ID/π)	Grade	Conn.	Collapse (psi)	Burst (psi)	(IDS)	(IDS)
Specs	13.375	54.5	J-55	BIC	1,130	2,730	853,000	909,000
Loaaing					153	829	116,634	116,634
IVIII. S.F.	<b>A</b>	Callenaarfullu		a with 0 4 and	7.39	3.29	7.31	7.79
	Assumptions.	Conupse: juny	evacuatea casin	iy with 8.4 ppy	equivalent exte	id incide eacin	uulent zwhile drilling	intermediate
		buist. muximu	na oquiyalant o	urjuce pressure	willi 9.5 ppy jil aradient	na msiae casing	y white utility i	memediate
		Tonsion but	py equivalent ex	nna fluid with	gruuient			
Toranalette	A.dim	rension: buoye	cu weight in 8.4	ppg jiula with 1	LUU, UUU IDS OVEI	-pull		
o iorque (ft lbs):	iviinumum:	N/A	Optimum:	N/A	iviaximum:	N/A		
noin a Current	Iviake-up as per	API BUTTIPESS CO	Unrection runni	ny proceaure.				
asing Summary:	Float shoe, 1 Jt	casing, noat co	nar, casing to su	riace				
Centralizers:	2 centralizers p	er jt stop-bande	ed 10 from each	collar on botto	om 3 jts, 1 centra	lizer per 2 jts to	surface	
C	True	14(a: abt (a a a)	V: -   -  (ft (- .)		Hole Cap.	0/ 5	Planned IOC	Tabal Crut (m)
Cement:	Туре	weight (ppg)	field (cuπ/sk)	water (gal/sk)	(cuπ/π)	% Excess		Total Cmt (sx)
		14.6	1.39	6.686	0.6946	100%	0	364
inular Capacity	0.6946	cuft/ft	13-3/8" casing	x1/-1/2"hole	annulus	Csg capacity	0.8680	#3/#
Drake E	nergy Services:	Calculated cen	nent volumes as	sume gauge ho	le and the exces	s noted in table		Cu Ft Slurry
			D-CD2 .3% BWOC					505.3
		Calcium Chloride 2%	D-CD2 .3% BWOC Dispersant/Friction	.25 lbs/sx Cello				505.3
Tail	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator	D-CD2 .3% BWOC Dispersant/Friction reducer	.25 lbs/sx Cello Flake - seepage				505.3
Tail	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator & BLM if cemen	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate	.25 lbs/sx Cello Flake - seepage ed to surface. C	ement must ach	ieve 500 psi co	mpressive strer	505.3 ngth before
Tail	ASTM Type III Blend Notify COGCC & drilling out.	Calcium Chloride 2% BWOC Accelerator & BLM if cemen	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate	.25 lbs/sx Cello Flake - seepage ed to surface. Co	ement must ach	ieve 500 psi co	mpressive strer	505.3 Ingth before
Tail	ASTM Type III Blend Notify COGCC & drilling out.	Calcium Chloride 2% BWOC Accelerator & BLM if cemen	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate	.25 lbs/sx Cello Flake - seepage ed to surface. C	ement must ach	ieve 500 psi co	mpressive strer	505.3 ngth before
Tail NTERMEDIATE:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire	Calcium Chloride 2% BWOC Accelerator & BLM if cemen	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate	.25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin	ement must ach ng, cement casin	ieve 500 psi co g to surface.	mpressive strer	505.3 ngth before
Tail NTERMEDIATE:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD)	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting o to	.25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100	ement must ach ng, cement casin ft (MD)	ieve 500 psi co <u>g to surface.</u> Hole S	mpressive strer	505.3 ngth before 3,750 ft
Tail NTERMEDIATE:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD)	D-CD2 .3% BWOC Dispersant/Friction reducer tt is not circulate casing setting of to to	.25 lbs/sx Cello Flake - seepage ed to surface. Cr depth, run casin 4,100 3,853	ement must ach 1g, cement casin ft (MD) ft (TVD)	ieve 500 psi co <u>g to surface.</u> Hole S Ca	mpressive strer ection Length: Ising Required:	505.3 ngth before 3,750 ft 4,100 ft
Tail	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD)	D-CD2 .3% BWOC Dispersant/Friction reducer tt is not circulate casing setting of to to	.25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853	ement must ach ng, cement casin ft (MD) ft (TVD)	ieve 500 psi co <u>g to surface.</u> Hole S Ca	mpressive strer ection Length: ssing Required:	505.3 Igth before 3,750 ft 4,100 ft
Tail	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD)	D-CD2 .3% BWOC Dispersant/Friction reducer it is not circulate casing setting of to to FL (mL/30	.25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100	ieve 500 psi co <u>g to surface.</u> Hole S Ca	mpressive strer ection Length: Ising Required:	505.3 Igth before 3,750 ft 4,100 ft
Tail ITERMEDIATE: Fluid:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg)	D-CD2 .3% BWOC Dispersant/Friction reducer it is not circulate casing setting of to to to FL (mL/30 min)	.25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp)	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft)	ieve 500 psi co <u>g to surface.</u> Hole S Ca pH	mpressive strer ection Length: Issing Required: Comr	505.3 Igth before 3,750 ft 4,100 ft
Tail I <u>TERMEDIATE:</u> Fluid:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 Type LSND (5% KCI)	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	ieve 500 psi co <u>g to surface.</u> Hole S Ca <u>pH</u> 9.0 - 9.5	mpressive strer ection Length: Issing Required: Comr No (	505.3 Igth before 3,750 ft 4,100 ft nents DBM
Tail I <u>TERMEDIATE:</u> Fluid: Hole Size:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 Urype LSND (5% KCl) 12-1/4"	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate to to to FL (mL/30 min) 20	.25 lbs/sx Celio Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5	mpressive strer fection Length: ising Required: Comr No (	505.3 agth before 3,750 ft 4,100 ft ments DBM
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC bi	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate to to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	ieve 500 psi co <u>g to surface.</u> Hole S Ca <u>pH</u> 9.0 - 9.5	mpressive strer ection Length: using Required: Comr No (	505.3 ngth before 3,750 ft 4,100 ft nents DBM
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8.4.	D-CD2.3% BWOC Dispersant/Friction reducer tt is not circulate to to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5	mpressive strer ection Length: using Required: Comr No (	505.3 igth before <u>3,750 ft</u> 4,100 ft ments DBM
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate to casing setting of to to FL (mL/30 min) 20 0, stage, 0.16 re 19 mm cutters	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0,67 so-ir	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 0 (range 0.65 - 0	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max). iet wit	mpressive strer ection Length: ssing Required: Comr No (	505.3 Igth before 3,750 ft 4,100 ft DBM
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dit / Motor:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI WWD Survey M	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm otor	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate to casing setting of to to FL (mL/30 min) 20 0, stage, 0.16 re 19 mm cutters, and azimuth sur	.25 lbs/sx Cello Flake - seepage ed to surface. Cc depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir yey (every 100'	ement must ach ng, cement casim ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum) (	ieve 500 psi co <u>g to surface.</u> Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit	mpressive strer ection Length: ssing Required: Comr No ( No (	505.3 Igth before 3,750 ft 4,100 ft ments DBM
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Ungging:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 250 LSND (5% KCl) 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None	Calcium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to FL (mL/30 min) 20 0, stage, 0.16 re 19 mm cutters, and azimuth sur	25 lbs/sx Cello Flake - seepage ed to surface. Cc depth, run casin 4,100 3,853 PV (cp) 8 - 14 V/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'	ement must ach ng, cement casim ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s	505.3 Igth before 3,750 ft 4,100 ft ments DBM
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 250 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NILL BOPE and t	Caldium Chloride 2% BWOC Accelerator & BLM if cemen ectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100', st 13.3/8" casin	ement must ach ng, cement casim ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 0 (range 0.65 - 0. at a minimum), G	ieve 500 psi co <u>g to surface.</u> Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1 500	mpressive strer ection Length: ising Required: Comr No ( th 6 - 12s	505.3 Igth before 3,750 ft 4,100 ft DBM
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Pressure Test:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to	Calcium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or ith inclination est (as noted abo	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100', st 13-3/8" casin pole past esting	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 gto satting death	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet with GR optional 1,500 Steer as needed	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on	505.3 agth before 3,750 ft 4,100 ft ments DBM tes.
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and t Drill to TD follo	Calcium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8,4. DC w/16 mm or rith inclination est (as noted abo	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate to to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'. st 13-3/8" casing oole past casing possible Take of	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 gto setting depth). 1 IVers every the	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d at a minimum	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n Target flow of	505.3 Ingth before 3,750 ft 4,100 ft Ments DBM tes. plan. Keep DLS ates of 750
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GDM (biober if	Calcium Chloride 2% BWOC Accelerator & BLM if cemen & Ctional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8,4. DC w/16 mm or rith inclination est (as noted abo wing direction, d keep slide len	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate casing setting of to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin ole past casing possible. Take ss	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 1 (range 0.65 - 0. at a minimum), G g to setting depth). 3 Inveys every stan	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GRM At TD ac	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on Target flow-r.	505.3 Igth before 3,750 ft 4,100 ft Ments DBM tes. plan. Keep DLS ates of 750 4 fuid for
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher iff	Calcium Chloride 2% BWOC Accelerator & BLM if cemen ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination : est (as noted abo owing direction; d keep slide len able to control i TOOH Mus con	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate to to to FL (mL/30 min) 20 0, stage, 0.16 re 19 mm cutters, and azimuth sur ove); pressure te al plan (20' rat-h gth < 10', when J return rates). Mi	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin ole past casing possible. Take si nimum desired od usobiag. (ci	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 3 riveys every stan flow-rate is 650	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit 5R optional 1,500 Steer as needed d, at a minimur GPM. At TD, cari	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r. ndition hole an-	505.3 Igth before 3,750 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for olk gid to part
Tail ITERMEDIATE: Fluid: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well Perform	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination est (as noted abo owing direction d keep slide len able to control is . TOOH. Run camer is	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate to to to FL (mL/30 min) 20 C, stage, 0.16 re 19 mm cutters, and azimuth sur ove); pressure te al plan (20' rat-h gth < 10', when Ji return rates). Mi	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin possible. Take su nimum desired ind washing / ci	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 3 urveys every stan flow-rate is 650 rculating as requ	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, coo iired. Land casir	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r ndition hole an- ng. ND BOPE. We ment job and r	505.3 Igth before 3,750 ft 4,100 ft Ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next bla cement
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination : est (as noted abo owing direction d keep slide len able to control 1. . TOOH. Run cas off-line cement j	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. C depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100') st 13-3/8" casin ole past casing possible. Take su nimum desired ind washing / ci th as detailed bu	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G g to setting depth). 1 urveys every stam flow-rate is 650 rculating as requ elow. Monitor re	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit 5R optional 1,500 Steer as needed d, at a minimur GPM. At TD, co irred. Land casir turns during ce	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-ra ndition hole an- 18. ND BOPE. Wa ment job and no	505.3 Igth before 3,750 ft 4,100 ft Ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 250 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE YM MVD Survey W None NU BOPE and tr Drill to TD follo < 3 deg/100' an GPM (higher iff casing running well. Perform of volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination est (as noted abd owing direction d keep slide len able to control u. TOOH. Run cas ff-line cement j ace.	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Cr depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100', st 13-3/8" casin ole past casing possible. Take si nimum desired ind washing / ci ta s detailed by	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 3 urveys every stan flow-rate is 650 rculating as requences	ieve 500 psi co <u>g to surface.</u> Hole S Ca <u>pH</u> 9.0 - 9.5 DIFF PSIG 90 max), jet wit GPM at minimur GPM. At TD, co irred. Land casir turns during ce	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-ra ndition hole and ng. ND BOPE. Wa ment job and no	505.3 agth before 3,750 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 250 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and tı Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform co volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination est (as noted abdo owing direction d keep slide len able to control 1 . TOOH. Run cas off-line cement j ace.	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'. st 13-3/8" casin iole past casing possible. Take si nimum desired ind washing / ci int as detailed bu	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 3 urveys every stam flow-rate is 650 rculating as requered.	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co irred. Land casin turns during ce	mpressive strer ection Length: using Required: Comr No ( h 6 - 12s psi for 30 minu to keep well on n. Target flow-ra ndition hole and ig. ND BOPE. Wa ment job and no	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and tr Drill to TD folloc < 3 deg/100' an GPM (higher if casing running well. Perform co	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or ith inclination a cest (as noted abdo bwing direction d keep slide len able to control i . TOOH. Run cas off-line cement j ace.	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'. st 13-3/8" casin possible. Take su nimum desired ind washing / ci ht as detailed be	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 y 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 1 urveys every stam flow-rate is 650 rculating as requ elow. Monitor ref	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co irred. Land casir sturns during ce	mpressive strer ection Length: using Required: Comr No C th 6 - 12s psi for 30 minu to keep well on n. Target flow-ra ndition hole and ig. ND BOPE. W. ment job and no Tens. Body	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs:	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo <3 deg/100' an GPM (higher iff casing running well. Perform covolume to surfi-	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cetional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination a est (as noted abo wing direction d keep slide len able to control 1. . TOOH. Run cas off-line cement j ace. Wt (lb/ft)	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate to to to To FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'- st 13-3/8" casin nimum desired nimum desired nimu washing / ci nt as detailed by Conn.	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8-14 , 900 GPM, 950 h (range 0.65 - 0. at a minimum), 0 g to setting depth). 1 g to setting depth). 2 urveys every stan flow-rate is 650 rculating as requ elow. Monitor references Collapse (psi)	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co iired. Land casir turns during ce Burst (psi)	mpressive strer ection Length: using Required: Comr No C th 6 - 12s psi for 30 minu to keep well on n. Target flow-r, ndition hole and ng. ND BOPE. W. ment job and nu Tens. Body (lbs)	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs)
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Procedure: Specs	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform or volume to surfate 9.625	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination a est (as noted abo owing direction d keep slide len able to control i . TOOH. Run cas off-line cement j ace. Wt (lb/ft) 36.0	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate to to to To FL (mL/30 min) 20 C, stage, 0.16 re 19 mm cutters, and azimuth sur ove); pressure te al plan (20' rat-h gth < 10', when j return rates). Mi ing using a CRT a ob. Pump cement Grade J-55	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin int as detailed by Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 3 urveys every stan flow-rate is 650 rculating as reque elow. Monitor ref Collapse (psi) 2,020	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit SR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co iired. Land casin iturns during ce Burst (psi) 3,520	mpressive strer ection Length: ising Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r ndition hole and is. ND BOPE. Wo ment job and no Tens. Body (lbs) 564,000	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loadina	ASTM Type III Blend Notify COGCC & drilling out. Drill as per direc 350 350 12-1/4" 12-1/4" 12 12-1/4" 12 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform co volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination : est (as noted abo owing direction d keep slide len able to control i . TOOH. Run cas off-line cement j ace. Wt (lb/ft) 36.0	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100's st 13-3/8" casin possible. Take si nimum desired and washing / ci at as detailed be Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 3 urveys every stan flow-rate is 650 rculating as requ elow. Monitor ref Collapse (psi) 2,020 1,683	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GPM. At TD, co iired. Land casin turns during ce Burst (psi) 3,520 1,450	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r ndition hole an- ng. ND BOPE. W ment job and no Tens. Body (lbs) 564,000 220,960	505.3 agth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and tr Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform c volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination est (as noted abo wing direction d keep slide len able to control . TOOH. Run cas off-line cement j ace. Wt (lb/ft) 36.0	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Cr depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin ole past casing possible. Take si nimum desired ind washing / ci nt as detailed by Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), G gto setting depth). 1 urveys every stan flow-rate is 650 rculating as reque elow. Monitor ref Collapse (psi) 2,020 1,683 1.20	ieve 500 psi co <u>g to surface.</u> Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit 5R optional 1,500 Steer as needed d, at a minimur GPM. At TD, co iired. Land casin turns during ce Burst (psi) 3,520 1,450 2,43	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-ra ndition hole and ig. ND BOPE. Wa ment job and no Tens. Body (lbs) 564,000 220,960 2.55	505.3 agth before 3,750 ft 4,100 ft 4,100 ft before tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960 2.05
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC 4 drilling out. Drill as per dire 350 350 12-114" 12-114" 12-114" 12-114" 12-114" 12-114" 12-114" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and tr Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform c volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination d keep slide len able to control u. TOOH. Run cas off-line cement j ace. wt (lb/ft) 36.0	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin pole past casing possible. Take si nimum desired and washing / ci int as detailed bu Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 3 urveys every stan flow-rate is 650 rculating as requ elow. Monitor ref Collapse (psi) 2,020 1,683 1.20 equivalent exte	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co tirred. Land casin turns during ce Burst (psi) 3,520 1,450 2.43 rngl pressure ou	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r ndition hole an- ng, ND BOPE. W ment job and no Tens. Body (lbs) 564,000 220,960 2.55 radient	505.3 agth before 3,750 ft 4,100 ft 4,100 ft before tes. plan. Keep DLS ates of 750 d fluid for alk rig to next bet cement Tens. Conn (lbs) 453,000 220,960 2.05
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dit / Motor: WWD / Survey: Logging: Pressure Test: Procedure: Procedure: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" 12-11/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and tr Drill to TD folloc <3 deg/100' an GPM (higher if casing running well. Perform co volume to surfa 9.625 Assumptions:	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination cest (as noted abdo bwing direction d keep slidelen able to control 1 . TOOH. Run cas off-line cement j ace. wt (lb/ft) 36.0 Collapse: fully Burst: maximu	D-CD2.3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to To FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin pole past casing possible. Take su nimum desired ind washing / ci int as detailed bu Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 y 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 1 urveys every stan flow-rate is 650 rculating as requ elow. Monitor ref Collapse (psi) 2,020 1,683 1.20 equivalent exter with 9.5 poof flo	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co irred. Land casin iturns during ce Burst (psi) 3,520 1,450 2.43 rnal pressure gr id inside casin	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-ra- ndition hole and is. ND BOPE. W. ment job and no Tens. Body (lbs) 564,000 220,960 2.55 radient g while drilling a	505.3 agth before 3,750 ft 4,100 ft 4,100 ft before tes. plan. Keep DLS adtes of 750 d fluid for alk rig to next be cement Tens. Conn (lbs) 453,000 220,960 2.05 production
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dist / Motor: WWD / Survey: Logging: Pressure Test: Procedure: Procedure: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and t: Drill to TD follo <3 deg/100' ar GPM (higher iff casing running well. Perform c volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination a cest (as noted abo owing direction d keep slide len able to control i . TOOH. Run cas off-line cement j ace. Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 m	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulated casing setting of to to To FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'- st 13-3/8" casin ole past casing possible. Take se nimum desing / ci nt as detailed bu Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8-14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 1 g to setting depth). 2 urveys every stan flow-rate is 650 rculating as requ- elow. Monitor ref Collapse (psi) 2,020 1,683 1.20 equivalent exter with 9.5 ppg flu erardient	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit GR optional 1,500 Steer as needed d, at a minimur GPM. At TD, co irired. Land casir iturns during ce Burst (psi) 3,520 1,450 2.43 rnal pressure gr	mpressive strer ection Length: using Required: Comr No C th 6 - 12s psi for 30 minu to keep well on m. Target flow-ra ndition hole and no to keep well on ment job and no Tens. Body (lbs) 564,000 220,960 2.55 radient g while drilling	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960 2.05 production
Tail TERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Procedure: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo <3 deg/100' an GPM (higher if casing running well. Perform co volume to surfation 9.625 Assumptions:	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination : est (as noted abo owing direction; d keep slide len able to control i . TOOH. Run cas off-line cement j ace. wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p, Tension : huove	D-CD2.3% BWOC Dispersant/Friction reducer it is not circulate casing setting of to to FL (mL/30 min) 20	25 lbs/sx Cello Flake - seepage ed to surface. Co depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100'- st 13-3/8" casin possible. Take sis nimum desired ind washing / ci nt as detailed by Conn. LTC	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 1 (range 0.65 - 0. at a minimum), G g to setting depth). 1 urveys every stan flow-rate is 650 rculating as requ- elow. Monitor ref Collapse (psi) 2,020 1,683 1.20 equivalent exter with 9.5 ppg flu e gradient 100,000 lbs over	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wild GPM At TD, cosin turns during ce Burst (psi) 3,520 1,450 2.43 rnal pressure guid inside casing -pull	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on m. Target flow-r: ndition hole and is, ND BOPE. W. ment job and no Tens. Body (lbs) 564,000 220,960 2.55 radient g while drilling (	505.3 Ingth before 3,750 ft 4,100 ft 4,100 ft ments DBM tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960 2.05 production
Tail ITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" 12-1/4" NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform of volume to surfa	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination : est (as noted abo owing direction d keep slide len able to control i. .TOOH. Run cas off-line cement j ace. Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 py Tension: buoye 3 400	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 Ibs/sx Celio Flake - seepage ed to surface. Cr depth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin possible. Take su nimum desired ind washing / ci nt as detailed by Conn. LTC by with 8.4 ppg urface pressure cternal pressure cternal pressure fuid with 2 4,520	ement must ach ng, cement casin ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14 , 900 GPM, 950 a (range 0.65 - 0. at a minimum), G gto setting depth). 1 gto setting depth). 1 gto collapse (psi) 2,020 1,683 1.20 equivalent exter with 9.5 ppg flue equivalent exter Maximum	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit 5R optional 1,500 Steer as needed d, at a minimur GPM. At TD, co iired. Land casin turns during ce Burst (psi) 3,520 1,450 2.43 rnal pressure gr iid inside casing -pull 5 660	mpressive strer ection Length: ssing Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r ndition hole am- ig. ND BOPE. Wo ment job and no Tens. Body (lbs) 564,000 220,960 2.55 radient g while drilling j	505.3 agth before 3,750 ft 4,100 ft 4,100 ft tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960 2.05 production
Tail TERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC & drilling out. Drill as per dire 350 350 12-1/4" 12-1/4" PDC bi MOTOR: NOV 0 BIT: 6-BLADE PI MWD Survey w None NU BOPE and to Drill to TD follo < 3 deg/100' an GPM (higher if casing running well. Perform o volume to surfa 9.625 Assumptions: Minumum: Elaat shape 1 bi	Caldium Chloride 2% BWOC Accelerator & BLM if cemen cectional plan to ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 t w/mud motor 87840 - 7/8, 4. DC w/16 mm or rith inclination cest (as noted abd wying direction d keep slide len able to control . TOOH. Run cas off-line cement j ace. wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoye 3,400	D-CD2 .3% BWOC Dispersant/Friction reducer t is not circulate casing setting of to to to FL (mL/30 min) 20	25 lbs/sx Celio Flake - seepage ed to surface. Cr Aepth, run casin 4,100 3,853 PV (cp) 8 - 14 v/gal, 1.83 DEG TFA = 0.67 sq-ir vey (every 100' st 13-3/8" casin ole past casing possible. Take si nimum desired ind washing / ci nt as detailed bu Conn. LTC fg with 8.4 ppg urface pressure cternal pressure cternal pressure face (FL 00150	ement must ach ng, cement casin ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 , 900 GPM, 950 n (range 0.65 - 0. at a minimum), 0 g to setting depth). 3 urveys every stan flow-rate is 650 rculating as reque elow. Monitor ref Collapse (psi) 2,020 1,683 1.20 equivalent exter with 9.5 ppg flu e gradient 100,000 lbs over Maximum:	ieve 500 psi co g to surface. Hole S Ca pH 9.0 - 9.5 DIFF PSIG 90 max), jet wit 50 optional 1,500 Steer as needed d, at a minimur GPM. At TD, co iired. Land casin turns during ce Burst (psi) 3,520 1,450 2.43 rnal pressure guid inside casing -pull 5,660 WEATHEOFORD	mpressive strer ection Length: using Required: Comr No ( th 6 - 12s psi for 30 minu to keep well on n. Target flow-r. ndition hole an- ng. ND BOPE. W. ment job and nu Tens. Body (lbs) 564,000 220,960 2.55 radient g while drilling j	505.3 agth before 3,750 ft 4,100 ft 4,100 ft before tes. plan. Keep DLS ates of 750 d fluid for alk rig to next ote cement Tens. Conn (lbs) 453,000 220,960 2.05 broduction

Centralizers: 1 per joint in non-vertical hole; 1 per 2-joints in vertical hole

.

Centrunzers.	(floating) to KC 11.75" SOLID E	P; 1 centralizer	per 3 jts (floatin <b>)</b>	ng) to surface <b>(C</b> o	t & 1 centralize entralizers from	r floating on bo Scepter Supply	y - SLIP'N'SLIDE	9-5/8" x
Cement:	Type	Weight (ppg) 8.5	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD) 0	Total Cmt (sx)	Total Cmt (cu ft)
	90:10 Type							
Lead	III:POZ	12.5	2.140	12.05	70%	0	868	1,857
Tail	Type III	14.6	1.380	6.64	20%	3,600	150	207
Displacement	314	est bbls	0 5 /8" againg y	12 2/9" casing	annulus			l
Amulai Capacity	0.3132 0.4341 Calculated cen	cuft/ft cuft/ft nent volumes as	9-5/8" casing x 9-5/8" casing x 9-5/8" casing v ssume gauge ho	212-3/8° cusing 212-1/4" hole ai vol le and the exces	nnulus est shoe jt ft s (open hole on	9-5/8" 36# ID 44 ly) noted in tab	8.921 le	
Spacer	D-Mud Breaker	SAPP						
Lead	ASTM Type III 90/10 Poz	D-CSE 1 5.0% BWOC Strength Enhancer	D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control	D-SA 1 1.4% BWOC Na Metasilicate	D-CD 2 .4% BWOC Dispersant	Cello Flace LCM .25 lb/sx	D-FP1 0.5% BWOC Defoamer	D-R1 .5% Retarder
Tail	ASTM Type III Blend Drake Intermed	diate Cementing	D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control g Program		D-CD 2 .5% BWOC Dispersant	Cello Flace LCM .25 lb/sx		D-R1.2% Retarder
	Cement must a Notify NMOCD drilling out.	achieve 500 psi & BLM if ceme	compressive str nt is not circula	rength before d ted to surface. (	rilling out. Cement must ad	chieve 500 psi c	ompressive stre	ength before
PRODUCTION:	Drill to ID folic	the (MD)	ai pian, run cas to	ing, cement cas	ft (MD)	Holes	ection Length	12 964 ft
	3.853	ft (TVD)	to	5.770	ft (TVD)	C	asing Required:	12,904 ft
							0 1	
		E	stimated KOP:	5,200	ft (MD)	4,865	ft (TVD)	
	E	stimated Landi	ng Point (FTP):	6,100	ft (MD)	5,602	ft (TVD)	
		Estimated L	ateral Length:	10,964	ft (MD)			
		r					-	
					VP (lb/100			
Fluid:	Туре	MW (ppg)	WPS ppm	нтнр	YP (lb/100 sqft)	ES	OWR	Comment WBM as
Fluid:	Type OBM	<b>MW (ppg)</b> 8.0 - 9.0	WPS ppm 120,000 CaCl	HTHP NC	YP (lb/100 sqft) ±6	<b>ES</b> +300	<b>OWR</b> 80:20	<b>Comment</b> WBM as contingency
Fluid: Fluids / Solids Notes:	Type OBM OptiDrill OBM shakers. Solids required to ma	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in p	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R	HTHP NC us well. Ensure t tings samples o eference Newpa	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Adu m for additiona	OWR 80:20 p after the rig (2 d diesel and pro I details.	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size:	Type OBM OptiDrill OBM shakers. Solids required to ma	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R	HTHP NC us well. Ensure t tings samples o eference Newpa	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Adu m for additiona	OWR 80:20 p after the rig (2 d diesel and prov l details.	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R	HTHP NC us well. Ensure t tings samples o eference Newpa	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Add am for additiona	OWR 80:20 p after the rig (2 d diesel and prod d details.	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV 0	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/3	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R 8, 5.0 stage, 0.2	HTHP NC us well. Ensure to tings samples o eference Newpa 3 rev/gal, 1.83 o	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Add am for additiona	OWR 80:20 p after the rig (2 d diesel and pro- l details.	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV 0 friction breakin BIT: 5-BLADE PI	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/4 19 device(s) as re DC w/16 mm - 1	WPS ppm 120,000 CaCl uilt from previo in retorts on cut rogram specs. R 8, 5.0 stage, 0.2 quired, bottom 9 mm cutters, n	HTHP NC us well. Ensure: tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Add im for additiona L,580 DIFF PSIG e bit.	OWR 80:20 p after the rig (2 d diesel and prov l details. (or similar); on o	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV 0 friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/ ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 quired, bottom 9 mm cutters, n d azimuth (surver oint)	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra	ES +300 kers are rigged u heck % ROC. Add im for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su	OWR 80:20 p after the rig (2 d diesel and prov l details. (or similar); on o	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV 0 friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P titre section, no	WPS ppm 120,000 CaCl uilt from previo in retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut	HTHP NC rus well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling,	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land	ES +300 kers are rigged u heck % ROC. Add im for additiona .,580 DIFF PSIG e bit. .5 sq-in ing Point and su	OWR 80:20 p after the rig (2 d diesel and prov d details. (or similar); on o rvey every 100'	Comment WBM as contingency nd set) of ducts as
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and tu	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P titre section, no est (as noted abc	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surver- oint) mud-log or cut bye); pressure tee pal plan. Target	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flowcrate is 550	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 bm KOP to Land no OH WL logs to	ES +300 kers are rigged u heck % ROC. Adv am for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i	OWR 80:20 p after the rig (2 d diesel and prov l details. (or similar); on o rvey every 100'	Comment WBM as contingency nd set) of ducts as demand minimum ites.
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P ntire section, no est (as noted abo lowing direction ) - 600 ft/hr. Ste	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surver oint) mud-log or cut pressure te nal plan. Target er as needed to l	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3	ES +300 kers are rigged u heck % ROC. Adv am for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke	OWR 80:20 p after the rig (2 d diesel and provi il details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length o	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. <10' until KOP,
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible.	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 77857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P otire section, no est (as noted abo lowing direction ) - 600 ft/hr. Ste- Take surveys ever	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut pressure te nal plan. Target er as needed to l rry stand, at a m	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confiri	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n, Keep DLS < 3 m landing targe	ES +300 kers are rigged u heck % ROC. Adv am for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length o for curve, and K0	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. < 10' until KOP, OP with
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P otire section, no cest (as noted abor lowing direction ) - 600 ft/hr. Stev Take surveys even agineering. Drill	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut bove); pressure te nal plan. Target er as needed to l ery stand, at a m curve following	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirr directional pla	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l	ES +300 kers are rigged u heck % ROC. Adv am for additiona .,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length o for curve, and K0 ake survey every	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. <10' until KOP, OP with
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cur	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P otire section, no est (as noted abo lowing direction ) - 600 ft/hr. Stee Take surveys even agineering. Drill rve. Continue dr	WPS ppm 120,000 CaCl uilt from previo n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut pressure te nal plan. Target er as needed to l rry stand, at a m curve following illing in lateral s	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confiri directional pla section, steering	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l g as needed to ke	ES +300 kers are rigged u heck % ROC. Adv am for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length or curve, and K0 ake survey every and in the targe	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. < 10' until KOP, OP with ' joint during et window.
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cur Keep DLS < 2 de	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P otire section, no est (as noted abor lowing direction - 600 ft/hr. Stev Take surveys even agineering. Drill rve. Continue dr 29/100' and keeg	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut pressure te nal plan. Target er as needed to l rry stand, at a m curve following illing in lateral so o slide length <2	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confiri directional pla section, steering 0', when feasible	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys	ES +300 kers are rigged u heck % ROC. Adv am for additiona L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at a	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length or curve, and K0 ake survey every and in the targe minimum. Targe	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. <10' until KOP, OP with ' joint during et window. get rotating
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for and GR MWD for and Target ROP 500 when feasible. Geology and Er curve. Land cur Keep DLS < 2 de parameters/ p	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and after Landing P otire section, no cest (as noted abor lowing direction - 600 ft/hr. Ster Take surveys even ngineering. Drill rve. Continue dr 2010' and keep erformance: flo	WPS ppm 120,000 CaCl uilt from previor n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut bye); pressure te ras needed to l ery stand, at a m curve following illing in lateral so o slide length < 2 ww-rate is 650 - 7 o MILT) 56 - 7	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, ist 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirr directional pla section, steering 0', when feasibl 700 GPM, differ	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to -700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys ential is pressu	ES +300 kers are rigged u heck % ROC. Add am for additiona .580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at a <b>re is 700 - 1,00</b>	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length for curve, and K0 ake survey every and in the targe minimum. Targ D psig, ROP 500	Comment WBM as contingency nd set) of ducts as demand minimum ites. ) - 1,000 psig. <10' until KOP, DP with ' joint during et window. yet rotating - 600 ft/hr, tion hole for
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cur Keep DLS < 2 de parameters / p torque 38K ft-1	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/1 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P thire section, no est (as noted abo lowing direction - 600 ft/hr. Ster Take surveys even agineering. Drill rve. Continue dr ag/100' and keep bs (MAX drill pi unless shaker i	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut by pressure te nal plan. Target er as needed to l try stand, at a m curve following illing in lateral s o slide length < 2 bw-rate is 650 - 3 pe MUT). After molicate addition	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, ist 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirm directional plan section, steering 10', when feasibl 700 GPM, differ reaching TD, peak	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to -700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys ential is pressu form no more t ded TOOH & 10	ES +300 cers are rigged u heck % ROC. Adv am for additional t,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at a re is 700 - 1,00 han one clean-u d dill pine (POC)	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length for curve, and K0 ake survey every and in the targe minimum. Targ D psig, ROP 500 p cycle to condi	Comment WBM as contingency nd set) of ducts as demand dema
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cur Keep DLS < 2 do parameters / p torque 38K ft-I casing running required with 0	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/1 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P thire section, no est (as noted abo lowing direction 0 - 600 ft/hr. Ster Take surveys even ngineering. Drill rve. Continue dr ag/100' and keege the formance: flo bs (MAX drill pi unless shakers in DBM system). W	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut bye); pressure te nal plan. Target er as needed to l bry stand, at a m curve following illing in lateral s o slide length < 2 bw-rate is 650 - 3 pe MUT). After ndicate addition hen pumping h	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirm directional plan section, steering 10', when feasibl <b>700 GPM, differ</b> reaching TD, pea	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to -700 GPM. Tar n. Keep DLS <3 m landing targe n and updated l gas needed to ke e. Take surveys ential is pressu form no more to ded. TOOH & LD	ES +300 cers are rigged u heck % ROC. Add am for additional t,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at a re is 700 - 1,00 han one clean-u d of lipipe (ROC roduct is to be u	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep Slide length for curve, and K0 ake survey every and in the targe minimum. Targ D psig, ROP 500 p cycle to condi H, if required; sl ssed -Do not use	Comment WBM as contingency nd set) of ducts as demand dema
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and to Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cur Keep DLS < 2 de parameters / p torque 38K ft-1 casing running required with 0 sweeps. Run c	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P ntire section, no est (as noted abo lowing direction 0 - 600 ft/hr. Ster Take surveys ever ngineering. Drill rve. Continue dr sg/100' and keegr terformance: flor bs (MAX drill pi unless shakers in DBM system). W asing as describe	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut ove); pressure te nal plan. Target er as needed to l rry stand, at a m curve following illing in lateral s o slide length < 2 ow-rate is 650 - 3 pe MUT). After ndicate addition hen pumping he ed below. Use Cl	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 c tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirm directional pla section, steering 10', when feasibl 700 GPM, differ reaching TD, per nal cleaning nee ole cleaning swe RT for casing rur	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys ential is pressu form no more to ded. TOOH & LD pens, fine LCM p uning only if need	ES +300 cers are rigged u heck % ROC. Adv am for additional t,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR f anding target. T eep well on plan every stand, at a <b>re is 700 - 1,00</b> han one clean-u d orill pipe (ROC roduct is to be u	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on of rvey every 100' psi for 30 minu s pressure is 700 exp slide length for curve, and K0 ake survey every and in the targe minimum. Targ <b>D psig, ROP 500</b> p cycle to condi H, if required; sl ised - <b>Do not use</b> IOT be required	Comment WBM as contingency nd set) of ducts as demand dema
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2"PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and t Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cui Keep DLS < 2 de parameters / p torque 38K ft-I casing running required with O sweeps. Run c Verify make up	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P thire section, no est (as noted abo lowing direction 0 - 600 ft/hr. Ster Take surveys ever sgineering. Drill rve, Continue dr performance: flor bs (MAX drill pi unless shakers in DBM system). W asing as describer torque when ru	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, m d azimuth (surve oint) mud-log or cut bye); pressure te nal plan. Target er as needed to l rry stand, at a m curve following illing in lateral : o slide length < 2 ww-rate is 650 - pe MUT). After ndicate addition hen pumping he ed below. Use Cl nning casing. Sp	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 c tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirm directional pla section, steering c0', when feasibl <b>700 GPM, differ</b> nal cleaning nee ole cleaning nee ole cleaning swe RT for casing run bace out casing g	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys ential is pressu form no more t ded. TOOH & LD puning only if neo getting the toe s	ES +300 ers are rigged u heck % ROC. Adv im for additional t,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR t anding target. T eep well on plan every stand, at a <b>re is 700 - 1,00</b> han one clean-u 0 drill pipe (ROC roduct is to be u cessary (should N	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on of rvey every 100' psi for 30 minu s pressure is 700 exp slide length for curve, and KO ake survey every and in the targe minimum. Targe D psig, ROP 500 p cycle to condi H, if required; sl ssed -Do not use IOT be required of Dr equired	Comment WBM as contingency nd set) of ducts as demand dema
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM Shakers. Solids required to ma 8-1/2" 8-1/2"PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and tr Drill to KOP fol Target ROP 50C when feasible. Geology and Er curve. Land cur Keep DLS < 2 de parameters / p torque 38K ft-1 casing running required with (o sweeps. Run c Verify make up and test pack-o	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/3 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P otire section, and d after Landing P bo (MAX drill pi unless shakers in DBM system). W asing as describe torque when ru off. Open floatati ted to surface. I	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut by pressure te ras needed to l ery stand, at a m curve following illing in lateral so slide length < 2 by rate is 650 - 1 pe MUT). Aftern ndicate addition hen pumping he del below. Use Cl nning casing. Sp on sub, fill casin Nipple down BC	HTHP NC us well. Ensure i tings samples o eference Newpa a rev/gal, 1.83 o tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirr directional plan section, steering 0', when feasibl 700 GPM, differ reaching TD, per nal cleaning nee ble cleaning nee ble cleaning swe RT for casing rur bace out casing g ng, and circulate PE. Clean pits. F	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to -700 GPM. Tar n. Keep DLS < 3 m landing targe n and updated l gas needed to ke e. Take surveys rential is pressu form no mote Lt ded. TOOH & Lt getting the toes a srequired. Put DMO to next pi	ES +300 eres are rigged u heck % ROC. Add im for additional content of the second e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at a re is 700 - 1,000 han one clean-u dorill pipe (ROC roduct is to be u cessary (should h sleeve as close to ump cement as c ad.	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on o rvey every 100' psi for 30 minu s pressure is 700 ep slide length for curve, and K0 ake survey every and in the targe minimum. Targ D psig, ROP 500 p cycle to condi H, if required; sl ssed -Do not use to Tbe required b LTP as possible letailed below. I	Comment WBM as contingency nd set) of ducts as demand demand minimum tes. ) - 1,000 psig. (10' until KOP, DP with 'joint during et window. set rotating - 600 ft/hr, ition hole for hould NOT be barite for with OBM). Land casing Note cement
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and t Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cuu Keep DLS <2 dd parameters / p torque 38K ft-I casing running required with O sweeps. Run c Verify make up and test pack-o volume circula	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/1 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P tire section, no est (as noted abo lowing direction 0 - 600 ft/hr. Stee Take surveys ever ingineering. Drill true. Continue dr ag/100' and kegs torgent continue dr bs (MAX drill pi unless shakers in DBM system). W asing as describe torque when ru off. Open floatatit ted to surface. I	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, m d azimuth (surve roint) mud-log or cut bye); pressure te nal plan. Target er as needed to l rry stand, at a m curve following rilling in lateral : o slide length - 2 o slide length - 2 o slide length - 2 pe MUT). After ndicate addition hen pumping he ed below. Use Cl nning casing. Sf on sub, fill casin Nipple down BC	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 c tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirm directional plan section, steering co', when feasibl co', when feasibl co', when feasibl co', on steering co', when feasibl co', and circulate pla cleaning nee pla cleaning swe RT for casing rur pace out casing g g, and circulate IPE. Clean pits. F	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS <3 m landing targe n and updated l gas needed to k e. Take surveys <b>ential is pressu</b> form no more t ded. TOOH & LI teps, fine LCM p uning only if nee getting the toe e as required. Pt to DMO to next p	ES +300 cers are rigged u heck % ROC. Adv m for additional L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR i anding target. T eep well on plan every stand, at re is 700 - 1,00 han one clean-u O drill pipe (ROC roduct is to be u cessary (should N sleeve as close to imp cement as c ad.	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on of rvey every 100' psi for 30 minu s pressure is 700 ep slide length - for curve, and K0 ake survey every and in the targe minimum. Targ <b>D psig, ROP 500</b> p cycle to condi H, if required; sl used - <b>Do not use</b> IOT be required b LTP as possible letailed below. I	Comment WBM as contingency nd set) of ducts as demand demand demand demand tes. ) - 1,000 psig. (10' until KOP, DP with 'joint during et window. set rotating - 600 ft/hr, tion hole for hould NOT be barite for with OBM). Land casing Note cement
Fluid: Fluids / Solids Notes: Hole Size: Bit / Motor: Bit / Motor: Logging: Pressure Test: Procedure:	Type OBM OptiDrill OBM shakers. Solids required to ma 8-1/2" 8-1/2" PDC bit MOTOR: NOV O friction breakin BIT: 5-BLADE PI MWD with GR, before KOP and GR MWD for er NU BOPE and tt Drill to KOP fol Target ROP 500 when feasible. Geology and Er curve. Land cun Keep DLS <2 dd parameters / p torque 38K ft-1 casing running required with O sweeps. Run c Verify make up and test pack-co volume circula	MW (ppg) 8.0 - 9.0 system will be b control will bur intain mud in pr w/mud motor 177857 - 6.5" 7/1 ng device(s) as re DC w/16 mm - 1 inclination, and d after Landing P defter Landing P control diversion 100 ft/hr. Stee Take surveys ever ngineering. Drill true. Continue der ag/100' and kegr bs (MAX drill pi unless shakers in DBM system). W asing as describe torque when ru aff. Open floatatit ted to surface. I Wt (lb/ft)	WPS ppm 120,000 CaCl uilt from previou n retorts on cut rogram specs. R 8, 5.0 stage, 0.2 equired, bottom 9 mm cutters, n d azimuth (surve oint) mud-log or cut bye); pressure te nal plan. Target er as needed to l rry stand, at a m curve following rilling in lateral : os slide length < 2 ow-rate is 650 - pe MUT). After nndicate addition hen pumping he ed below. Use Cl nning casing. Sf on sub, fill casin Nipple down BC	HTHP NC us well. Ensure i tings samples o eference Newpa 3 rev/gal, 1.83 c tool spaced ~3, natrix body, targ ey every joint fro tings sampling, st 9-5/8" casing flow-rate is 650 keep well on pla inimum. Confirr directional plan section, steering co', when feasibl co', and circulate ple cleaning nee ple cleaning swe RT for casing rur pace out casing g g, and circulate iPE. Clean pits. F	YP (lb/100 sqft) ±6 that drying shal ne per tour to c rk's mud progra deg, 750 GPM, 1 000' behind the get TFA = 1.0 - 1 om KOP to Land no OH WL logs to - 700 GPM. Tar n. Keep DLS <3 m landing targe n and updated l g as needed to k e. Take surveys ential is pressu form no more t ded. TOOH & LD puning only if nee getting the toe e as required. Pu to DMO to next pu	ES +300 ers are rigged u heck % ROC. Adv m for additional L,580 DIFF PSIG e bit. .5 sq-in ing Point and su 1,500 get differential i deg/100' and ke t, planned BUR f anding target. T eep well on plan are is 700 - 1,00 han one clean-u O drill pipe (ROC roduct is to be u cessary (should h sleeve as close to ump cement as c ad.	OWR 80:20 p after the rig (2 d diesel and provi l details. (or similar); on of rvey every 100' psi for 30 minu s pressure is 700 ep slide length - for curve, and K0 ake survey every and in the targe minimum. Targ <b>0 psig, ROP 500</b> p cycle to condi H, if required; sl used - <b>Do not use</b> IOT be required b TP as possible letailed below. I Tens. Body _(lbs)	Comment WBM as contingency nd set) of ducts as demand dema

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Loading					2,850	9,040	350,320	350,320		
Min. S.F.	<b>A</b>	C			2.62	1.18	1.56	1.27		
MU Torque (ft lbs): Casing Summary:	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 Minumum: 3,470 Optimum: 4,620 Maximum: 5,780 Float shoe, float collar, 1 jt casing, float collar, 20' marker joint, toe-intitiation sleeve, casing to KOP with 20' marker joints spaced evenly in lateral every 2,000', floatation sub at KOP, casing to surface. The toe-initiation sleeve (last-take-point) cannot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.									
	cannot be place	annot be placed closer than 330' to the unit boundary when measured perpendicular to the well path.								
Casing Summary:	Float shoe, floa intitiation sleer sub (NCS Air-Lo boundary than Wellbore path sleeve and is no the toe sleeve a	Float shoe, float collar w/debris catcher, 1 jt casing, float collar (Weatherford (WFT) float equipment), 20' marker joint, toe- inititation sleeve (WFT RD 8,500 psi), casing to KOP with 20' marker joints spaced evenly in lateral every ~2,000', floatation sub (NCS Air-Lock 2,500 psi from WFT), casing to surface. The toe-initiation sleeve shall be placed no closer to the unit boundary than 300' measured perpendicular to the East or West lease lines for a East-West azimuth drilled wellbore. Wellbore path must be no closer than 600' 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.								
Centralizers:	Centralizer cou	int and placeme	ent may be adju	isted based on v	vell conditions of	and as-drilled su	irveys.			
	Lateral: 1 centr Top of curve to 9-5/8" shoe to	alizer per 3 join 9-5/8" shoe: 1 surface: 1 centr	ts (purchase cer centralizer per s alizer per 5 join	ntralizers from e 5 joints Its	ither Scepter Su	pply or Arsenal				
						Planned TOC		Total Cmt (cu		
Cement:	Туре	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	(ft MD)	Total Cmt (sx)	ft)		
Spacer	IntegraGuard Star	11		31.6		0	60 bbls			
Lead	ASTM type I/II	12.4	2.370	13.40	50%	0	550	1,304		
Tail	G:POZ blend	13.3	1.570	7.70	10%	4,684	1,987	3,120		
Displacement	126	est bbis	F 1 /2"	0 5 /0"						
Annular Capacity	0.2691	cuπ/π	5-1/2 casing x	9-5/8" casing c	innuius					
	0.2291	cuft/ft	5-1/2" casing x	(8-1/2" hole and	nulus	400				
	0.1245	cuπ/π	5-1/2" casing v	/01	est snoe jt jt	100				
	Calculated cen	nent volumes as	sume gauge ho	le and the exces	is noted in table					
	American Cem	enting Liner & P	roduction Blen	d IntegraGuard Star						
Spacer	S-8 Silica Flour 163.7 lbs/bbl	Avis 616 viscosifier 11.6 lb/bbl	FP24 Defoamer .5 lb/bbl	Plus 3K LCM 15 Ib/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		
	Calculated cen Notify NMOCD	nent volumes as & BLM if ceme	sume gauge ho nt is not circula	le and the exces ted to surface.	s noted in table	,				
Note:	Calculated cement volumes assume gauge hole and the excess noted in table <b>Notify NMOCD &amp; BLM if cement is not circulated to surface.</b> This well will not be considered an unorthodox well location as definited 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- nitiation sleeve, and the first take point will be the top perforation. Neither the toe-initiation sleeve nor the top <b>Deerforation shall be closer to the unit boundary than 100' measured along the azimuth of the well or 330' measured</b> <b>Deerpendicular to the azimuth of the well.</b>									

## 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 PR	ODUCTION PL	AN:					
Est Lateral Length:	10,864						
Est Frac Inform:	45	Frac Stages	174,000	bbls slick water	14,130,000	lbs proppant	
Flowback:	Flow back thro	ow back through production tubing as pressures allow					
Production:	Producethrou	oduce through production tubing via gas-lift into permanent production and storage facilities					

#### ESTIMATED START DATES:

Drilling:	2/1/24	
Completion:	4/1/24	
Production:	5/16/24	
Prepared by:	Greg Olson	8/9/23
Updated:	Greg Olson	9/14/23





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## Planning Report

Database: Company: Project: Site: Well: Wellbore: Design:	DT_Aug2923v16 Enduring Resources LLC Rio Arriba County, New Mexico NAD83 NM C Section 06-T23N-R06W NE Lybrook Com 262 H Original Hole rev2			83 NM C	Local Co-c TVD Refer MD Refere North Refe Survey Ca	ordinate Refere ence: nce: erence: lculation Meth	ence: Iod:	Well NE Lybrook Com 262 H RKB=6980+25 @ 7005.00ft RKB=6980+25 @ 7005.00ft Grid Minimum Curvature			
Project	Rio Arriba	County, New	v Mexico NAD8	3 NM C							
Map System: Geo Datum: Map Zone:	US State P North Amer New Mexico	lane 1983 ican Datum ´ o Central Zor	1983 ne		System Date	um:	М	ean Sea Level			
Site	Section 06	6-T23N-R06\	N								
Site Position: From: Position Uncertainty:	Lat/Lor	ng 0.00 fi	Northin Easting Slot Ra	g:  : dius:	1,915,48 1,266,89 1;	8.563 usft 2.374 usft 3-3/16 "	Latitude: Longitude:			36.257635000 -107.516937000	
Well	NE Lybroo	k Com 262 H	H, Surf loc: 1099	9 FNL 703 FV	VL Section 06-T	23N-R06W					
Well Position Position Uncertainty Grid Convergence:	+N/-S +E/-W	0.0 0.0 0.0 -0.7	0 ft Nor 0 ft Eas 0 ft Wel 5 °	thing: ting: Ihead Elevat	1 1 ion:	,915,488.563 ,266,892.374	usft Lat usft Lo ft Gre	iitude: ngitude: ound Level:		36.257635000 -107.516937000 6,980.00 ft	
Wellbore	Original H	Hole									
Magnetics	Mode	l Name	Sample	Date	Declinat (°)	ion	Dip /	Angle °)	Field S (n	trength T)	
		IGRF2020	ę	9/11/2023	8.47			62.76	49,12	23.25179824	
Design	rev2										
Audit Notes:											
Version:			Phase	F F	PLAN	Tie	On Depth:		0.00		
Vertical Section:		D	epth From (TVI (ft)	))	+N/-S (ft)	+E/ (fi	/-W t)	Dir	ection (°)		
			0.00		0.00	0.0	00	90	0.831		
Plan Survey Tool Pro Depth From (ft)	ogram Depth T (ft)	Date o Survey	9/11/2023 (Wellbore)		Tool Name		Remarks				
	,	(	·g····· /		OWSG MWD -	Standard					
Plan Sections											
Measured Depth Inclir (ft) (	nation A °)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target	
0.00 500.00 1,269.34 5,178.59 5,998.94 6,058.94 6,353.02	0.00 0.00 23.08 23.08 60.00 60.00 89.41	0.000 0.000 288.969 288.969 90.180 90.180 90.180	0.00 500.00 1,248.70 4,845.05 5,552.71 5,582.71 5,659.44	0.00 0.00 49.69 547.85 610.00 609.84 608.96	0.00 0.00 -144.57 -1,593.84 -1,347.00 -1,295.04 -1,014.48	0.00 0.00 3.00 0.00 10.00 0.00 10.00	0.00 0.00 3.00 0.00 4.50 0.00 10.00	0.00 0.00 0.00 19.65 0.00 0.00	0.00 0.00 288.97 0.00 163.64 0.00 0.00	uback 260 170 200	
17,063.70	89.41	90.180	5,770.00	575.36	9,695.57	0.00	0.00	0.00	0.00 [	JUDIOOK 262 LTP 380	

9/11/2023 8:00:35PM

COMPASS 5000.16 Build 96



Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 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
350.00	0.00	0.000	350.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8" Csg									
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
KOP Begin 3	°/100' build								
600.00	3.00	288.969	599.95	0.85	-2.48	-2.49	3.00	3.00	0.00
700.00	6.00	288.969	699.63	3.40	-9.89	-9.94	3.00	3.00	0.00
800.00	9.00	288.969	798.77	7.64	-22.24	-22.35	3.00	3.00	0.00
900.00	12.00	288.969	897.08	13.57	-39.47	-39.66	3.00	3.00	0.00
1,000.00	15.00	288.969	994.31	21.15	-61.54	-61.84	3.00	3.00	0.00
1,100.00	18.00	288.969	1,090.18	30.39	-88.40	-88.83	3.00	3.00	0.00
1,200.00	21.00	288.969	1,184.43	41.23	-119.96	-120.55	3.00	3.00	0.00
1,269.34	23.08	288.969	1,248.70	49.69	-144.57	-145.27	3.00	3.00	0.00
Begin 23.08°	tangent								
1,300.00	23.08	288.969	1,276.91	53.60	-155.94	-156.70	0.00	0.00	0.00
1,400.00	23.08	288.969	1,368.90	66.34	-193.01	-193.95	0.00	0.00	0.00
1,500.00	23.08	288.969	1,460.90	79.09	-230.08	-231.20	0.00	0.00	0.00
1,550.57	23.08	288.969	1,507.43	85.53	-248.83	-250.04	0.00	0.00	0.00
Ojo Alamo									
1,600.00	23.08	288.969	1,552.89	91.83	-267.15	-268.46	0.00	0.00	0.00
1,640.42	23.08	288.969	1,590.08	96.98	-282.14	-283.52	0.00	0.00	0.00
Kirtland									
1,700.00	23.08	288.969	1,644.89	104.57	-304.23	-305.71	0.00	0.00	0.00
1,800.00	23.08	288.969	1,736.89	117.31	-341.30	-342.97	0.00	0.00	0.00
1,900.00	23.08	288.969	1,828.88	130.06	-3/8.3/	-380.22	0.00	0.00	0.00
Fruitland	23.00	200.909	1,000.99	100.12	-307.20	-309.17	0.00	0.00	0.00
2,000.00	23.08	288.969	1,920.88	142.80	-415.45	-417.47	0.00	0.00	0.00
2,100.00	23.08	288.969	2,012.87	100.04	-452.52	-454.73	0.00	0.00	0.00
2,200.00	∠3.00 23.08	200.909 288 969	2,104.07	100.29	-409.09 -503.66	-491.90 -506 12	0.00	0.00	0.00
Pictured Cliff	20.00	200.303	2,100.10	170.12	-000.00	-000.12	0.00	0.00	0.00
2,300.00	23.08	288.969	2,196.87	181.03	-526.66	-529.23	0.00	0.00	0.00
2 378 68	23.08	288 969	2 269 25	191.06	-555 83	-558 55	0 00	0.00	0.00
Lewis	20.00	200.000	2,200.20	101.00	000.00	000.00	0.00	0.00	0.00
2,400.00	23.08	288.969	2,288.86	193.77	-563.74	-566.49	0.00	0.00	0.00
2,500.00	23.08	288.969	2,380.86	206.52	-600.81	-603.74	0.00	0.00	0.00
2,600.00	23.08	288.969	2,472.85	219.26	-637.88	-640.99	0.00	0.00	0.00
2,700.00	23.08	288.969	2,564.85	232.00	-674.95	-678.25	0.00	0.00	0.00
2,703.43	23.08	288.969	2,568.00	232.44	-676.23	-679.53	0.00	0.00	0.00
Chacra A									
2,800.00	23.08	288.969	2,656.84	244.74	-712.03	-715.50	0.00	0.00	0.00
2,900.00	23.08	288.969	2,748.84	257.49	-749.10	-752.76	0.00	0.00	0.00
3,000.00	23.08	288.969	2,840.84	270.23	-786.17	-790.01	0.00	0.00	0.00
3,100.00	23.08	288.969	2,932.83	282.97	-823.25	-827.26	0.00	0.00	0.00
3,200.00	23.08	288.969	3,024.83	295.72	-860.32	-864.52	0.00	0.00	0.00
3,300.00	23.08	288.969	3,116.82	308.46	-897.39	-901.77	0.00	0.00	0.00
3,400.00	23.08	288.969	3,208.82	321.20	-934.46	-939.02	0.00	0.00	0.00
 3,500.00	23.08	288.969	3,300.81	333.95	-971.54	-976.28	0.00	0.00	0.00

9/11/2023 8:00:35PM

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Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
3,600.00	23.08	288.969	3,392.81	346.69	-1,008.61	-1,013.53	0.00	0.00	0.00
3 700 00	23.08	288 969	3 484 81	359 43	-1 045 68	-1 050 79	0.00	0.00	0.00
3 800 00	23.08	288 969	3 576 80	372 17	-1 082 76	-1 088 04	0.00	0.00	0.00
3,899.58	23.08	288.969	3,668.41	384.86	-1,119.67	-1,125.14	0.00	0.00	0.00
Cliff House_I	Basal		,		,	,			
3,900.00	23.08	288.969	3,668.80	384.92	-1,119.83	-1,125.29	0.00	0.00	0.00
3,937.47	23.08	288.969	3,703.27	389.69	-1,133.72	-1,139.25	0.00	0.00	0.00
Menefee									
4,000.00	23.08	288.969	3,760.79	397.66	-1,156.90	-1,162.55	0.00	0.00	0.00
4,100.00	23.08	288.969	3,852.79	410.40	-1,193.97	-1,199.80	0.00	0.00	0.00
4,113.27	23.08	288.969	3,865.00	412.10	-1,198.90	-1,204.75	0.00	0.00	0.00
9 5/8" Csg									
4,200.00	23.08	288.969	3,944.78	423.15	-1,231.05	-1,237.05	0.00	0.00	0.00
4,300.00	23.08	288.969	4,036.78	435.89	-1,268.12	-1,274.31	0.00	0.00	0.00
4,400.00	23.08	288.969	4,128.78	448.63	-1,305.19	-1,311.56	0.00	0.00	0.00
4,500.00	23.08	288.969	4,220.77	461.38	-1,342.27	-1,348.82	0.00	0.00	0.00
4,600.00	23.08	288.969	4,312.77	474.12	-1,379.34	-1,386.07	0.00	0.00	0.00
4,684.39	23.08	288.969	4,390.40	484.87	-1,410.62	-1,417.51	0.00	0.00	0.00
Point Looko	ut								
4,700.00	23.08	288.969	4,404.76	486.86	-1,416.41	-1,423.32	0.00	0.00	0.00
4,800.00	23.08	288.969	4,496.76	499.60	-1,453.48	-1,460.58	0.00	0.00	0.00
4,900.00	23.08	288.969	4,588.76	512.35	-1,490.56	-1,497.83	0.00	0.00	0.00
4,992.90	23.08	288.969	4,674.22	524.19	-1,525.00	-1,532.44	0.00	0.00	0.00
Mancos									
5,000.00	23.08	288.969	4,680.75	525.09	-1,527.63	-1,535.08	0.00	0.00	0.00
5,100.00	23.08	288.969	4,772.75	537.83	-1,564.70	-1,572.34	0.00	0.00	0.00
5,178.59	23.08	288.969	4,845.05	547.85	-1,593.84	-1,601.62	0.00	0.00	0.00
Begin 10°/10	0' build/turn								
5,200.00	21.03	290.649	4,864.89	550.57	-1,601.40	-1,609.22	10.00	-9.56	7.85
5,250.00	16.35	296.116	4,912.24	556.83	-1,616.13	-1,624.03	10.00	-9.38	10.93
5,300.00	11.90	305.657	4,960.72	562.94	-1,626.64	-1,634.63	10.00	-8.88	19.08
5,350.00	8.13	324.923	5,009.97	568.84	-1,632.87	-1,640.95	10.00	-7.55	38.53
5,358.21	7.64	329.747	5,018.10	569.79	-1,633.48	-1,641.57	10.00	-5.92	58.79
MNCS_A									
5,400.00	6.34	2.975	5,059.59	574.50	-1,634.76	-1,642.92	10.00	-3.12	79.50
5,443.81	7.65	38.011	5,103.10	579.21	-1,632.83	-1,641.06	10.00	2.98	79.97
MNCS_B									
5,450.00	8.01	41.699	5,109.23	579.86	-1,632.29	-1,640.53	10.00	5.84	59.61
5,500.00	11.74	61.545	5,158.49	584.88	-1,625.50	-1,633.81	10.00	7.47	39.69
5,550.00	16.17	71.324	5,207.01	589.54	-1,614.43	-1,622.81	10.00	8.85	19.56
5,582.94	19.23	75.290	5,238.39	592.39	-1,604.83	-1,613.26	10.00	9.31	12.04
MNCS_C									
5,600.00	20.85	76.897	5,254.42	593.79	-1,599.16	-1,607.60	10.00	9.47	9.42
5,650.00	25.65	80.479	5,300.35	597.60	-1,579.81	-1,588.31	10.00	9.60	7.16
5,661.53	26.76	81.132	5,310.70	598.41	-1,574.78	-1,583.29	10.00	9.68	5.66
MNCS_Cms									
5,700.00	30.51	82.989	5,344.45	600.94	-1,556.53	-1,565.08	10.00	9.73	4.83
5,735.02	33.93	84.353	5,374.07	602.99	-1,537.97	-1,546.55	10.00	9.78	3.89
MNCS D					-				
5,750.00	35.40	84.864	5,386.40	603.79	-1,529.49	-1,538.08	10.00	9.81	3.41
5 800 00	40.32	86.336	5,425.86	606.12	-1,498.90	-1,507.53	10.00	9.84	2.94
0,000.00									



Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 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)
5.860.55	46.30	87,762	5.469.90	608.23	-1.457.44	-1.466.11	10.00	9.88	2.15
MNCS E			-,		, -	,			
5,900.00	50.20	88.546	5,496.17	609.17	-1,428.03	-1,436.72	10.00	9.89	1.99
5,931.15	53.28	89.104	5,515.46	609.67	-1,403.58	-1,412.28	10.00	9.90	1.79
MNCS_F									
5,950.00	55.15	89.421	5,526.48	609.86	-1,388.29	-1,396.99	10.00	9.91	1.68
5,998.94	60.00	90.180	5,552.71	610.00	-1,347.00	-1,355.71	10.00	9.91	1.55
Begin 60.00°	tangent								
6 000 00	60.00	90 180	5 553 24	610.00	-1.346.08	-1 354 79	0.00	0.00	0.00
6.058.94	60.00	90.180	5.582.71	609.84	-1.295.04	-1.303.75	0.00	0.00	0.00
Begin 10°/10	0' build		-,		,	,			
6,100.00	64.11	90.180	5,601.95	609.72	-1,258.78	-1,267.49	10.00	10.00	0.00
MNCS G									
6,150.00	69.11	90.180	5,621.80	609.58	-1,212.90	-1,221.61	10.00	10.00	0.00
6,159.20	70.03	90.180	5,625.01	609.55	-1,204.28	-1,212.99	10.00	10.00	0.00
70° inc @ 61	59.20 MD 5625.2	21 TVD							
6 200 00	74 11	90 180	5 637 57	609 43	-1 165 47	-1 174 18	10.00	10.00	0.00
6.245.96	78.70	90.180	5.648.37	609.29	-1.120.81	-1.129.53	10.00	10.00	0.00
MNCS H			-,		.,	.,			
6.250.00	79.11	90.180	5.649.15	609.28	-1.116.84	-1.125.56	10.00	10.00	0.00
6,300.00	84.11	90.180	5,656.44	609.12	-1,067.39	-1,076.12	10.00	10.00	0.00
6,353.02	89.41	90.180	5,659.44	608.96	-1,014.48	-1,023.20	10.00	10.00	0.00
Begin 89.41°	lateral								
6 400 00	89.41	90 180	5 659 93	608 81	-967 50	-976 23	0.00	0.00	0.00
6.500.00	89.41	90.180	5.660.96	608.50	-867.51	-876.24	0.00	0.00	0.00
6,600.00	89.41	90.180	5,661.99	608.18	-767.51	-776.25	0.00	0.00	0.00
6,700.00	89.41	90.180	5,663.02	607.87	-667.52	-676.26	0.00	0.00	0.00
6,800.00	89.41	90.180	5,664.06	607.55	-567.52	-576.28	0.00	0.00	0.00
6 900 00	89 41	90 180	5 665 09	607 24	-467 53	-476 29	0.00	0.00	0.00
7.000.00	89.41	90.180	5.666.12	606.93	-367.54	-376.30	0.00	0.00	0.00
7,100.00	89.41	90.180	5,667.15	606.61	-267.54	-276.31	0.00	0.00	0.00
7,200.00	89.41	90.180	5,668.18	606.30	-167.55	-176.32	0.00	0.00	0.00
7,300.00	89.41	90.180	5,669.22	605.99	-67.55	-76.34	0.00	0.00	0.00
7.400.00	89.41	90.180	5.670.25	605.67	32.44	23.65	0.00	0.00	0.00
7,500.00	89.41	90.180	5,671.28	605.36	132.43	123.64	0.00	0.00	0.00
7,600.00	89.41	90.180	5,672.31	605.05	232.43	223.63	0.00	0.00	0.00
7,700.00	89.41	90.180	5,673.35	604.73	332.42	323.62	0.00	0.00	0.00
7,800.00	89.41	90.180	5,674.38	604.42	432.42	423.61	0.00	0.00	0.00
7,900.00	89.41	90.180	5,675.41	604.10	532.41	523.59	0.00	0.00	0.00
8,000.00	89.41	90.180	5,676.44	603.79	632.41	623.58	0.00	0.00	0.00
8,100.00	89.41	90.180	5,677.47	603.48	732.40	723.57	0.00	0.00	0.00
8,200.00	89.41	90.180	5,678.51	603.16	832.39	823.56	0.00	0.00	0.00
8,300.00	89.41	90.180	5,679.54	602.85	932.39	923.55	0.00	0.00	0.00
8,400.00	89.41	90.180	5,680.57	602.54	1,032.38	1,023.53	0.00	0.00	0.00
8,500.00	89.41	90.180	5,681.60	602.22	1,132.38	1,123.52	0.00	0.00	0.00
8,600.00	89.41	90.180	5,682.64	601.91	1,232.37	1,223.51	0.00	0.00	0.00
8,700.00	89.41	90.180	5,683.67	601.60	1,332.36	1,323.50	0.00	0.00	0.00
8,800.00	89.41	90.180	5,684.70	601.28	1,432.36	1,423.49	0.00	0.00	0.00
8,900.00	89.41	90.180	5,685.73	600.97	1,532.35	1,523.48	0.00	0.00	0.00
9,000.00	89.41	90.180	5,686.76	600.65	1,632.35	1,623.46	0.00	0.00	0.00
9,100.00	89.41	90.180	5,687.80	600.34	1,732.34	1,723.45	0.00	0.00	0.00
9,200.00	89.41	90.180	5,688.83	600.03 500.71	1,832.34	1,823.44	0.00	0.00	0.00
9,300.00	09.41	90.100	0,009.00	099.71	1,332.33	1,923.43	0.00	0.00	0.00



Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)
9 400 00	89.41	90 180	5 690 89	599 40	2 032 32	2 023 42	0.00	0.00	0.00
9 500 00	89.41	90 180	5 691 93	599.09	2 132 32	2,020.12	0.00	0.00	0.00
9,600,00	80.41	00.180	5 602 06	508 77	2,102.02	2,120.41	0.00	0.00	0.00
9,000.00	09.41	90.100	5,092.90	500.77	2,232.31	2,223.33	0.00	0.00	0.00
9,700.00	09.41	90.100	5,095.99	596.40	2,332.31	2,323.30	0.00	0.00	0.00
9,800.00	89.41	90.180	5,695.02	598.15	2,432.30	2,423.37	0.00	0.00	0.00
9,900.00	89.41	90.180	5,696.05	597.83	2,532.29	2,523.36	0.00	0.00	0.00
10,000.00	89.41	90.180	5,697.09	597.52	2,632.29	2,623.35	0.00	0.00	0.00
10,100.00	89.41	90.180	5,698.12	597.20	2,732.28	2,723.33	0.00	0.00	0.00
10,200.00	89.41	90.180	5,699.15	596.89	2,832.28	2,823.32	0.00	0.00	0.00
10,300.00	89.41	90.180	5,700.18	596.58	2,932.27	2,923.31	0.00	0.00	0.00
10,400.00	89.41	90.180	5,701.22	596.26	3,032.27	3,023.30	0.00	0.00	0.00
10,500.00	89.41	90.180	5,702.25	595.95	3,132.26	3,123.29	0.00	0.00	0.00
10,600.00	89.41	90.180	5,703.28	595.64	3,232.25	3,223.28	0.00	0.00	0.00
10,700.00	89.41	90,180	5,704,31	595.32	3.332.25	3.323.26	0.00	0.00	0.00
10,800.00	89.41	90.180	5,705.34	595.01	3,432.24	3,423.25	0.00	0.00	0.00
10 900 00	89 41	90 180	5 706 38	594 70	3 532 24	3 523 24	0.00	0.00	0.00
11 000 00	89.41	90.180	5 707 41	594 38	3 632 23	3 623 23	0.00	0.00	0.00
11,000.00	80./1	90.180	5 708 44	504.00	3 732 22	3 723 22	0.00	0.00	0.00
11,100.00	90.41	00.100	5,700.47	502 75	2 022 22	2 022 20	0.00	0.00	0.00
11,200.00	89.41	90.180	5,709.47	593.75	3,032.22	3,023.20	0.00	0.00	0.00
11,000.00	00.41	00.100	5,7 10.01	500.44	0,002.21	0,020.10	0.00	0.00	0.00
11,400.00	89.41	90.180	5,711.54	593.13	4,032.21	4,023.18	0.00	0.00	0.00
11,500.00	89.41	90.180	5,712.57	592.81	4,132.20	4,123.17	0.00	0.00	0.00
11,600.00	89.41	90.180	5,713.60	592.50	4,232.20	4,223.16	0.00	0.00	0.00
11,700.00	89.41	90.180	5,714.63	592.19	4,332.19	4,323.15	0.00	0.00	0.00
11,800.00	89.41	90.180	5,715.67	591.87	4,432.18	4,423.13	0.00	0.00	0.00
11,900.00	89.41	90.180	5,716.70	591.56	4,532.18	4,523.12	0.00	0.00	0.00
12,000.00	89.41	90.180	5,717.73	591.25	4,632.17	4,623.11	0.00	0.00	0.00
12,100.00	89.41	90.180	5,718.76	590.93	4,732.17	4,723.10	0.00	0.00	0.00
12,200.00	89.41	90.180	5,719.80	590.62	4,832.16	4,823.09	0.00	0.00	0.00
12,300.00	89.41	90.180	5,720.83	590.30	4,932.16	4,923.08	0.00	0.00	0.00
12,400.00	89.41	90.180	5,721.86	589.99	5,032.15	5,023.06	0.00	0.00	0.00
12,500.00	89.41	90.180	5,722.89	589.68	5,132.14	5,123.05	0.00	0.00	0.00
12,600.00	89.41	90,180	5,723,92	589.36	5.232.14	5,223,04	0.00	0.00	0.00
12 700 00	89 41	90 180	5 724 96	589.05	5 332 13	5 323 03	0.00	0.00	0.00
12,800.00	89.41	90.180	5,725.99	588.74	5,432.13	5,423.02	0.00	0.00	0.00
12 900 00	89.41	90 180	5 727 02	588 42	5 532 12	5 523 00	0.00	0.00	0.00
13,000,00	89.41	90.180	5 728 05	588 11	5 632 11	5 622 99	0.00	0.00	0.00
13 100 00	80./1	90.180	5 720 00	587.80	5 732 11	5 722 98	0.00	0.00	0.00
13,100.00	80.41	90.100	5,729.09	587.00	5 832 10	5 822 07	0.00	0.00	0.00
13,200.00	09.41	90.100	5,730.12	507.40	5,032.10	5,022.97	0.00	0.00	0.00
13,300.00	09.41	90.160	5,751.15	11.100	5,932.10	5,922.90	0.00	0.00	0.00
13,400.00	89.41	90.180	5,732.18	586.86	6,032.09	6,022.95	0.00	0.00	0.00
13,500.00	89.41	90.180	5,733.21	586.54	6,132.09	6,122.93	0.00	0.00	0.00
13,600.00	89.41	90.180	5,734.25	586.23	6,232.08	6,222.92	0.00	0.00	0.00
13,700.00	89.41	90.180	5,735.28	585.91	6,332.07	6,322.91	0.00	0.00	0.00
13,800.00	89.41	90.180	5,736.31	585.60	6,432.07	6,422.90	0.00	0.00	0.00
13.900.00	89.41	90.180	5,737.34	585.29	6,532.06	6.522.89	0.00	0.00	0.00
14.000.00	89.41	90.180	5,738.38	584.97	6,632.06	6,622.87	0.00	0.00	0.00
14.100.00	89.41	90.180	5,739.41	584.66	6,732.05	6.722.86	0.00	0.00	0.00
14 200 00	89 41	90 180	5,740 44	584 35	6.832.04	6.822 85	0.00	0.00	0.00
14,300.00	89.41	90.180	5,741.47	584.03	6,932.04	6,922.84	0.00	0.00	0.00
14 400 00	80 /1	90 180	5 7/2 50	583 72	7 032 03	7 022 83	0.00	0.00	0.00
14,400.00	80 <u>/</u> 1	90.180	5 743 54	583 41	7 132.03	7 122 82	0.00	0.00	0.00
14 600 00	80 <u>4</u> 1	90.180	5 744 57	583 00	7 232 02	7 222 80	0.00	0.00	0.00
1/ 700.00	20.41 20./1	Q0 120	5 7/5 60	582 78	7 332 02	7 322 70	0.00	0.00	0.00
14,700.00	03.41	30.100	5,745.00	002.10	1,002.02	1,022.13	0.00	0.00	0.00



Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 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)
14,800.00	89.41	90.180	5,746.63	582.46	7,432.01	7,422.78	0.00	0.00	0.00
14,900.00	89.41	90.180	5,747.67	582.15	7,532.00	7,522.77	0.00	0.00	0.00
15,000.00	89.41	90.180	5,748.70	581.84	7,632.00	7,622.76	0.00	0.00	0.00
15,100.00	89.41	90.180	5,749.73	581.52	7,731.99	7,722.75	0.00	0.00	0.00
15,200.00	89.41	90.180	5,750.76	581.21	7,831.99	7,822.73	0.00	0.00	0.00
15,300.00	89.41	90.180	5,751.79	580.90	7,931.98	7,922.72	0.00	0.00	0.00
15,400.00	89.41	90.180	5,752.83	580.58	8,031.97	8,022.71	0.00	0.00	0.00
15,500.00	89.41	90.180	5,753.86	580.27	8,131.97	8,122.70	0.00	0.00	0.00
15,600.00	89.41	90.180	5,754.89	579.96	8,231.96	8,222.69	0.00	0.00	0.00
15,700.00	89.41	90.180	5,755.92	579.64	8,331.96	8,322.67	0.00	0.00	0.00
15,800.00	89.41	90.180	5,756.96	579.33	8,431.95	8,422.66	0.00	0.00	0.00
15,900.00	89.41	90.180	5,757.99	579.01	8,531.95	8,522.65	0.00	0.00	0.00
16,000.00	89.41	90.180	5,759.02	578.70	8,631.94	8,622.64	0.00	0.00	0.00
16,100.00	89.41	90.180	5,760.05	578.39	8,731.93	8,722.63	0.00	0.00	0.00
16,200.00	89.41	90.180	5,761.08	578.07	8,831.93	8,822.62	0.00	0.00	0.00
16,300.00	89.41	90.180	5,762.12	577.76	8,931.92	8,922.60	0.00	0.00	0.00
16,400.00	89.41	90.180	5,763.15	577.45	9,031.92	9,022.59	0.00	0.00	0.00
16,500.00	89.41	90.180	5,764.18	577.13	9,131.91	9,122.58	0.00	0.00	0.00
16,600.00	89.41	90.180	5,765.21	576.82	9,231.91	9,222.57	0.00	0.00	0.00
16,700.00	89.41	90.180	5,766.25	576.51	9,331.90	9,322.56	0.00	0.00	0.00
16,800.00	89.41	90.180	5,767.28	576.19	9,431.89	9,422.54	0.00	0.00	0.00
16,900.00	89.41	90.180	5,768.31	575.88	9,531.89	9,522.53	0.00	0.00	0.00
17,000.00	89.41	90.180	5,769.34	575.56	9,631.88	9,622.52	0.00	0.00	0.00
17 062 70	80.41	00 180	5 770 00	575.26	0 605 57	0 696 21	0.00	0.00	0.00

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
Lybrook 262 FTP 386 - plan misses targ - Point	■ 0.00 et center by 120	0.000 0.07ft at 6508	5,661.03 8.52ft MD (56	728.54 661.05 TVD, 60	-858.61 )8.47 N, -858	1,916,217.097 9.98 E)	1,266,033.769	36.259605000	-107.519881000
Lybrook 262 0 VS - plan misses targ - Point	0.00 et center by 115	0.000 .67ft at 7371	5,670.00 .86ft MD (56	721.43 69.96 TVD, 60	4.67 )5.76 N, 4.30	1,916,209.990 E)	1,266,897.040	36.259616529	-107.516953176
Lybrook 262 LTP 380 F - plan hits target c - Point	enter 0.00	0.000	5,770.00	575.36	9,695.57	1,916,063.927	1,276,587.928	36.259559000	-107.484083000

Casing Points							
	Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")	
	350.00	350.00	13 3/8" Csg		13-3/8	17-1/2	
	4,113.27	3,865.00	9 5/8" Csg		9-5/8	12-1/4	



Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,550.57	1,507.43	Ojo Alamo		0.59	90.831
1,640.42	1,590.08	Kirtland		0.59	90.831
1,924.03	1,850.99	Fruitland		0.59	90.831
2,237.96	2,139.79	Pictured Cliffs		0.59	90.831
2,378.68	2,269.25	Lewis		0.59	90.831
2,703.43	2,568.00	Chacra_A		0.59	90.831
3,899.58	3,668.41	Cliff House_Basal		0.59	90.831
3,937.47	3,703.27	Menefee		0.59	90.831
4,684.39	4,390.40	Point Lookout		0.59	90.831
4,992.90	4,674.22	Mancos		0.59	90.831
5,358.21	5,018.10	MNCS_A		0.59	90.831
5,443.81	5,103.10	MNCS_B		0.59	90.831
5,582.94	5,238.39	MNCS_C		0.59	90.831
5,661.53	5,310.70	MNCS_Cms		0.59	90.831
5,735.02	5,374.07	MNCS_D		0.59	90.831
5,860.55	5,469.90	MNCS_E		0.59	90.831
5,931.15	5,515.46	MNCS_F		0.59	90.831
6,100.00	5,601.95	MNCS_G		0.59	90.831
6,245.96	5,648.37	MNCS_H		0.59	90.831

Plan Annotations

Measured	Vertical	Local Coordinates		
Depth (ft)	Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
500.00	500.00	0.00	0.00	KOP Beain 3°/100' build
1,269.34	1,248.70	49.69	-144.57	Begin 23.08° tangent
5,178.59	4,845.05	547.85	-1,593.84	Begin 10°/100' build/turn
5,998.94	5,552.71	610.00	-1,347.00	Begin 60.00° tangent
6,058.94	5,582.71	609.84	-1,295.04	Begin 10°/100' build
6,159.20	5,625.01	609.55	-1,204.28	70° inc @ 6159.20 MD 5625.21 TVD
6,353.02	5,659.44	608.96	-1,014.48	Begin 89.41° lateral
17,063.70	5,770.00	575.36	9,695.57	PBHL/TD @ 17063.70 MD 5770.00 TVD



#### Planning Report - Geographic

Database: Company: Project: Site: Well: Wellbore: Design:	DT_A Endur Rio Al Sectio NE Ly Origin rev2	DT_Aug2923v16 Enduring Resources LLC Rio Arriba County, New Mexico NAD83 NM C Section 06-T23N-R06W NE Lybrook Com 262 H Original Hole rev2				ordinate Refer ence: ence: erence: Iculation Meth	< Com 262 H @ 7005.00ft @ 7005.00ft ture			
Project	Rio Arr	iba County, Ne	w Mexico NAD8	33 NM C						
Map System: Geo Datum: Map Zone:	US State North Ar New Me	e Plane 1983 nerican Datum xico Central Zo	1983 ne		System Dat	um:	Μ	ean Sea Level		
Site	Section	n 06-T23N-R06	W							
Site Position: From: Position Uncert	Lat, ainty:	/Long 0.00 f	Northin Easting t Slot Ra	ng: g: adius:	1,915,48 1,266,89 1	38.563 usft 92.374 usft 3-3/16 "	Latitude: Longitude:			36.257635000 -107.516937000
Well	NE Lyb	rook Com 262 I	H, Surf loc: 109	9 FNL 703 FV	VL Section 06-1	23N-R06W				
Well Position Position Uncert Grid Convergen	+N/-S +E/-W ainty ace:	0.0 0.0 0.0	00 ft Nor 00 ft Eas 00 ft We	rthing: sting: Ilhead Elevat	ion:	I,915,488.563 I,266,892.374	usft Lati usft Lon ft Gro	itude: Igitude: und Level:		36.257635000 -107.516937000 6,980.00 ft
Wellbore	Origin	al Hole								
Magnetics	Мо	odel Name	Sample	Date	Declina (°)	tion	Dip A (°	ingle ')	Field Stro (nT)	ength
		IGRF2020	!	9/11/2023		8.47		62.76	49,123	.25179824
Design	rev2									
Audit Notes:										
Version:			Phase	: F	PLAN	Tie	On Depth:		0.00	
Vertical Section	::	D	0epth From (TV (ft) 0.00	D)	+N/-S (ft)	+E/ (f	<b>'-W</b> t) 00	Dir 90	ection (°) ) 831	
Plan Survey To Depth Fro (ft)	ol Program om Dept (fr	Date h To t) Survey	(Wellbore)		Tool Name		Remarks			
	0.00 17,	003.09 Tevz (Of								
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
0.00 500.00 1,269.34 5,178.59 5,998.94 6,058.94	0.00 0.00 23.08 23.08 60.00 60.00	0.000 0.000 288.969 288.969 90.180 90.180	0.00 500.00 1,248.70 4,845.05 5,552.71 5,582.71	0.00 0.00 49.69 547.85 610.00 609.84	0.00 0.00 -144.57 -1,593.84 -1,347.00 -1,295.04	0.00 0.00 3.00 0.00 10.00 0.00	0.00 0.00 3.00 0.00 4.50 0.00	0.00 0.00 0.00 19.65 0.00	0.00 0.00 288.97 0.00 163.64 0.00	
6,353.02	89.41	90.180	5,659.44	608.96	-1,014.48	10.00	10.00	0.00	0.00	

9/11/2023 8:01:12PM

17,063.70

575.36

9,695.57

0.00 Lybrook 262 LTP 380

0.00

0.00

0.00

89.41

90.180

5,770.00



#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
(ft)	(°)	(°)	(π)	(ft)	(ft)	(usπ)	(USTT)	Latitude	Longitude
0.00 100.00 200.00 300.00 350.00	0.00 0.00 0.00 0.00	0.000 0.000 0.000 0.000	0.00 100.00 200.00 300.00 350.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	1,915,488.563 1,915,488.563 1,915,488.563 1,915,488.563	1,266,892.374 1,266,892.374 1,266,892.374 1,266,892.374 1,266,892.374	36.257635000 36.257635000 36.257635000 36.257635000 36.257635000	-107.516937000 -107.516937000 -107.516937000 -107.516937000 -107.516937000
13 3/8" C	0.00	0.000	550.00	0.00	0.00	1,913,400.303	1,200,092.574	30.237053000	-107.510957000
400.00	0.00 0.00	0.000 0.000	400.00 500.00	0.00 0.00	0.00 0.00	1,915,488.563 1,915,488.563	1,266,892.374 1,266,892.374	36.257635000 36.257635000	-107.516937000 -107.516937000
KOP Beg	jin 3°/100' bui	ld							
600.00 700.00 800.00 900.00 1,000.00	3.00 6.00 9.00 12.00 15.00	288.969 288.969 288.969 288.969 288.969 288.969	599.95 699.63 798.77 897.08 994.31	0.85 3.40 7.64 13.57 21.15 30.39	-2.48 -9.89 -22.24 -39.47 -61.54 88.40	1,915,489.414 1,915,491.964 1,915,496.207 1,915,502.130 1,915,509.717	1,266,889.898 1,266,882.479 1,266,870.137 1,266,852.905 1,266,830.831 1,266,803.075	36.257637248 36.257643985 36.257655194 36.257670842 36.257690888 36.2577690888	-107.516945431 -107.516970703 -107.517012745 -107.517071443 -107.517146635
1,200.00	21.00	288.969 288.969	1,184.43	41.23 49.69	-119.96 -144 57	1,915,529.798	1,266,772.411	36.257743939 36.257766283	-107.517236110
Begin 23	08° tangent	200.303	1,240.70	40.00	-144.07	1,910,000.200	1,200,747.000	30.237700203	-107.317423447
1,300.00 1,400.00 1,500.00 1,550.57	23.08 23.08 23.08 23.08 23.08	288.969 288.969 288.969 288.969	1,276.91 1,368.90 1,460.90 1,507.43	53.60 66.34 79.09 85.53	-155.94 -193.01 -230.08 -248.83	1,915,542.163 1,915,554.906 1,915,567.649 1,915,574.093	1,266,736.439 1,266,699.366 1,266,662.293 1,266,643.544	36.257776606 36.257810271 36.257843937 36.257860963	-107.517468169 -107.517594452 -107.517720735 -107.517784602
Ojo Alam	10								
1,600.00 1,640.42	23.08 23.08	288.969 288.969	1,552.89 1,590.08	91.83 96.98	-267.15 -282.14	1,915,580.392 1,915,585.543	1,266,625.220 1,266,610.235	36.257877602 36.257891210	-107.517847019 -107.517898064
Kirtland	~~~~~		4 0 4 4 0 0	101.57	004.00	1 0 1 5 500 105	4 000 500 440	00.0570//007	107 517070000
1,700.00 1,800.00 1,900.00 1,924.03	23.08 23.08 23.08 23.08	288.969 288.969 288.969 288.969	1,644.89 1,736.89 1,828.88 1,850.99	104.57 117.31 130.06 133.12	-304.23 -341.30 -378.37 -387.28	1,915,593.135 1,915,605.878 1,915,618.621 1,915,621.683	1,266,588.148 1,266,551.075 1,266,514.002 1,266,505.092	36.257911267 36.257944932 36.257978597 36.257986688	-107.517973302 -107.518099586 -107.518225869 -107.518256220
Fruitland									
2,000.00 2,100.00 2,200.00 2,237.96	23.08 23.08 23.08 23.08	288.969 288.969 288.969 288.969	1,920.88 2,012.87 2,104.87 2,139.79	142.80 155.54 168.29 173.12	-415.45 -452.52 -489.59 -503.66	1,915,631.364 1,915,644.107 1,915,656.850 1,915,661.687	1,266,476.929 1,266,439.857 1,266,402.784 1,266,388.712	36.258012262 36.258045926 36.258079591 36.258092369	-107.518352153 -107.518478437 -107.518604721 -107.518652654
Pictured 2,300.00 2,378.68	Cliffs 23.08 23.08	288.969 288.969	2,196.87 2,269.25	181.03 191.06	-526.66 -555.83	1,915,669.593 1,915,679.619	1,266,365.711 1,266,336.542	36.258113255 36.258139742	-107.518731005 -107.518830366
Lewis 2,400.00 2,500.00 2,600.00 2,700.00 2,703.43	23.08 23.08 23.08 23.08 23.08 23.08	288.969 288.969 288.969 288.969 288.969 288.969	2,288.86 2,380.86 2,472.85 2,564.85 2,568.00	193.77 206.52 219.26 232.00 232.44	-563.74 -600.81 -637.88 -674.95 -676.23	1,915,682.336 1,915,695.079 1,915,707.822 1,915,720.565 1,915,721.002	1,266,328.638 1,266,291.566 1,266,254.493 1,266,217.420 1,266,216.149	36.258146919 36.258180583 36.258214247 36.258247911 36.258249065	-107.518857289 -107.518983573 -107.519109857 -107.519236142 -107.519240471
Chacra_4 2,800.00 2,900.00 3,000.00 3,100.00 3,200.00 3,300.00	A 23.08 23.08 23.08 23.08 23.08 23.08 23.08	288.969 288.969 288.969 288.969 288.969 288.969 288.969	2,656.84 2,748.84 2,840.84 2,932.83 3,024.83 3,116.82	244.74 257.49 270.23 282.97 295.72 308.46	-712.03 -749.10 -786.17 -823.25 -860.32 -897.39	1,915,733.308 1,915,746.051 1,915,758.794 1,915,771.537 1,915,784.280 1 915 707 023	1,266,180.347 1,266,143.275 1,266,106.202 1,266,069.129 1,266,032.056 1,265,994,984	36.258281575 36.258315238 36.258348902 36.258382565 36.258416228 36.258449891	-107.519362426 -107.519488711 -107.519614996 -107.519741280 -107.519867565 -107.519983850
3,400.00 3,500.00	23.08 23.08 23.08	288.969 288.969	3,208.82 3,300.81	321.20 333.95	-934.46 -971.54	1,915,809.765 1,915,822.508	1,265,957.911 1,265,920.838	36.258483554 36.258517217	-107.520120136 -107.520246421

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#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

(f)         (r)         (r) <th>Measured Depth</th> <th>Inclination</th> <th>Azimuth</th> <th>Vertical Depth</th> <th>+N/-S</th> <th>+E/-W</th> <th>Map Northing</th> <th>Map Easting</th> <th></th> <th></th>	Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
3.000.00         23.00         28.06         3.892.81         3.646.00         1.915.833.251         1.265.883.763         30.285550679         -107.52075049992           3.000.00         23.00         28.09         3.896.81         3576.80         3771.1         -1.005.76         1.915.860.737         1.265.800.62         30.25855122         -107.520751038           0.000.00         23.00         28.09         3.898.41         38.48         -1.119.67         1.915.873.4420         1.265.772.647         30.258651280         -107.520751633           3.000.00         23.00         288.090         3.703.27         28.09         3.427.7103         1.915.873.440         1.265.778.647         30.258651280         -107.520751633           3.000.00         23.00         288.090         3.850.00         410.40         -1.119.37         1.115.890.628         1.265.698.441         30.25865528         -107.5207510413           4.113.27         23.00         288.090         3.850.00         412.01         -1.119.8.00         1.915.990.658         1.265.698.441         30.258675382         -107.521704713           4.000.00         23.00         288.096         3.944.78         423.15         -1.231.05         1.915.917.99         1.265.698.441         30.258975485         -107.5212567077	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)	Latitude	Longitude
3.000.00 2.2.08 228.9690 3.478.48 356.44 - 1,045.88 1,915.447.944 1,265.646.633 96.256.9672 2.56.06620 96.256.96620 96.2565.96620 96.256.95620 96.25	3,600.00	23.08	288.969	3,392.81	346.69	-1,008.61	1,915,835.251	1,265,883.765	36.258550879	-107.520372706
1.300.00       22.00       228.969       3.976.30       334.26       1.119.87       1.15.873.480       1.265.772.702       38.25651824       -107.52075168         Ciff House, Basal       3.986.30       1.119.87       1.15.873.480       1.265.772.547       38.25651824       -107.52075168         3.900.00       2.00       228.969       3.968.30       3.94.22       1.119.83       1.915.873.480       1.265.778.547       38.256651846       -107.52075163         4.000.00       2.00       228.969       3.967.07       397.66       -107.520771545       38.25665441       38.256754545       -107.5207715457         4.000.00       2.00       228.969       3.965.00       412.00       -119.337       1.15.900.658       1.265.663.421       38.256752852       -107.520751453         4.000.00       2.00       228.969       3.964.78       423.15       -1.231.05       1.915.911.709       1.265.663.429       38.258752852       -107.52136247         4.000.00       2.00       2.08       288.969       4.327.71       44.83       -3.06.19       1.915.917.499       1.265.663.429       38.25867153       -107.52136247         4.000.00       2.00       2.08       288.968       4.327.71       44.83       -3.06.19       1.265.663.429	3,700.00	23.08	288.969	3,484.81	359.43	-1,045.68	1,915,847.994	1,265,846.693	36.258584542	-107.520498992
Constrain         Constraint         Constraint <thconstraint< th="">          4,000.00         <t< td=""><td>3,800.00</td><td>23.08</td><td>288.969</td><td>3,576.80</td><td>372.17</td><td>-1,082.76</td><td>1,915,860.737</td><td>1,265,809.620</td><td>36.258618204</td><td>-107.520625277</td></t<></thconstraint<>	3,800.00	23.08	288.969	3,576.80	372.17	-1,082.76	1,915,860.737	1,265,809.620	36.258618204	-107.520625277
Lin Nouse Jeas         Control         Control <thcontro< th=""> <thcontrol< th=""></thcontrol<></thcontro<>	3,099.00	23.00	200.909	3,000.41	304.00	-1,119.07	1,915,073.427	1,205,772.702	30.230031720	-107.520751030
3.937.47         23.06         288.969         3.703.27         399.96         -1.133.72         1.915.878.255         1.285.788.656         36.258664479         -107.52077649           4.000.00         2.0.08         288.969         3.700.79         397.66         -1.165.90         -1.285.688.423         36.25875285         -107.520677649           4.100.00         2.1.08         288.969         3.865.79         41.04         -1.198.00         1.815.006.86         1.285.688.441         36.258752852         -107.5210771           4.200.00         2.3.08         288.969         3.944.78         42.3         1.915.971.452         1.265.661.329         36.258752852         -107.52105727           4.400.00         2.3.08         288.969         4.207.77         47.14         1.379.34         1.915.971.452         1.265.571.138         36.25887538         -107.521509279           4.600.00         2.3.08         288.969         4.207.77         47.14         1.379.34         1.915.924.81         1.365.513.383         6.25887549         -107.521742139           Point         Cootot         -         -         4.44.87         -1.416.41         1.915.973.435         1.265.437.867         36.25891542         -107.521742139           Point         Cootot         -<	3 900 00	se_ваsаі 23.08	288 969	3 668 80	384 92	-1 119 83	1 915 873 480	1 265 772 547	36 258651866	-107 520751563
Manuface         Annoface         1116 886 223         1.285 738 474         38 258885528         -107 520877840           4 000.00         23.08         288.869         3.852.79         41.040         -1.193.97         1.915.888.293         1.285.793.474         38 25872368         -107 520077840           4 112.07         23.08         288.869         3.855.00         412.10         -1.193.97         1.915.888.293         3.8258723658         -107 52103027           4 200.00         23.08         288.869         3.944.76         423.15         -1.231.105         1.915.911.709         1.265.661.329         38.258723651         -107 521286707           4 400.00         23.08         288.469         4.122.77         441.83         -3.03.19         1.915.941.3031         32.2688280175         -107 521509279           4 000.00         23.08         288.4694         4.312.77         474.12         -1.379.34         1.915.946.331         32.268847497         -107 521742139           Point Lockout         4.700.00         23.08         288.4694         4.404.76         496.66         -1.416.41         1.915.975.424         1.265.475.965         36.25691410         -107 521742139           4.000.00         23.08         288.4694         4.807.75         527.60         -	3.937.47	23.08	288.969	3.703.27	389.69	-1.133.72	1.915.878.255	1.265.758.656	36.258664479	-107.520798882
4,000,00       23,08       288,669       3,760,79       397,66       -1,163,897       11,168,806,806       1,265,784       32,258744       32,258744       32,258744       32,258744       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,2587144       32,25872456       -107,521120421       4,300,00       23,08       288,869       4,203,77       443,58       -1,203,102       1,315,394,462       1,205,567,133       38,2587780513       -107,5212382993         4,200,00       23,08       288,869       4,220,77       441,38       -1,415,924,442       1,205,561,1303       32,2588479       -107,521382993         4,600,00       23,08       288,669       4,220,77       441,32       -1,415,924,41       1,265,513,038       32,25881914       -107,52138293         4,600,00       23,08       288,669       4,404,76       486,66       -1,416,41       1,915,973,435       1,265,481,752       32,25891944       -107,521382193         4,000,00       23,08       288,669       4,668,76       512,35       -1,400,56       1,916,003,91       1,265,481,72       32,25891459       -107,52131446       1,915,988,167       1,916,003,91       <	Menefee			-,		,	,,	,,		
4,100.00       23.08       288.669       3.862.79       410.40       -1,198.90       1.915,900.688       1.285,698.402       382.287719190       -107.521004187         4,200.00       23.08       288.669       3.865.00       412.10       -1,198.90       1.915,900.688       1.285,698.402       382.287728688       -107.521020897         4,200.00       23.08       288.869       4,036.78       435.89       1.281,915,924.452       1.285,694.129       38.22867296513       -107.52126707         4,400.00       23.08       288.869       4,127.77       441.83       -1.342.271       1.915,997.403       38.228691308       -107.521509279         4,600.00       23.08       288.669       4,390.40       44.47       -1.410.62       1.285,471.903       38.228691479       -107.521742139         9.001       23.08       288.669       4,404.76       486.66       -1.416.41       1.915,973.43       1.285,477.905       38.25891490       -107.521742139         4.000.00       23.08       288.669       4,404.76       486.66       -1.416.41       1.915,973.433       1.285,481.702       38.25891490       -107.521742139         4.000.00       23.08       288.669       4,680.75       525.09       -1.416.41       1.915,973.433       1.285,477.9	4,000.00	23.08	288.969	3,760.79	397.66	-1,156.90	1,915,886.223	1,265,735.474	36.258685528	-107.520877849
4, 113.27       23.08       288.969       3,865.00       412.10       -1,195.900.658       1,265.961.329       36.258732858       -107.52102027         4,200.00       23.08       288.969       3,044.76       423.15       -1,210.5       1,915.911.709       1,265.641.258       36.258762852       -107.521296707         4,400.00       23.08       288.969       4,108.78       -13.081.1305       1,915.937.195       1,265.557.113       36.258820175       -107.521292077         4,600.00       23.08       288.969       4,20.77       471.12       -1,379.34       1,915.962.681       1,265.510.308       36.258987407       -107.5217620327         4,600.00       23.08       288.969       4,304.70       444.63       -1,410.82       1,915.973.435       1,265.417.50       36.258987407       -107.52176182         9.0int Lookout       -       -       -       -       -       1,915.973.435       1,265.417.50       36.258998440       -107.521714218         4,900.00       23.08       288.969       4,667.6       49.64.07       1,916.902.744       1,265.438.89       36.25899751       -107.522140713         4,900.00       23.08       288.969       4,680.75       55.2.69       -1,527.63       1,265.238.277.64       36.2590922141	4,100.00	23.08	288.969	3,852.79	410.40	-1,193.97	1,915,898.966	1,265,698.402	36.258719190	-107.521004135
9 SP* Csg         - 423.15         - 1.231.05         1.915.911.709         1.285.661.329         36.258752852         - 1.07.52130421           4.300.00         22.08         288.969         4.08.78         + 23.15         - 1.281.12         1.915.924.452         1.265.687.183         36.2588706513         - 1.07.52130421           4.400.00         22.08         288.969         4.128.76         448.83         -1.305.19         1.265.587.183         36.25885077         -107.521732424           4.600.00         22.08         288.969         4.127.7         441.12         -1.379.348         1.265.513.038         36.258897477         -107.521732456           4.684.39         23.08         288.969         4.300.40         484.87         -1.416.41         1.915.973.424         1.265.475.965         36.258924159         -107.5217618526           4.700.00         23.08         288.969         4.867.76         499.60         -1.453.48         1.915.986.167         1.265.401.829         36.258924159         -107.5217618526           4.900.00         23.08         288.969         4.687.75         52.1490.56         1.916.012.748         1.265.307.379         36.259027141         -107.522761426           4.900.00         23.08         288.969         4.680.75         525.09	4,113.27	23.08	288.969	3,865.00	412.10	-1,198.90	1,915,900.658	1,265,693.481	36.258723658	-107.521020897
4,200.00       23.08       288.969       3,944.78       423.15       -1,231.05       1,915,941.709       1,265.624.256       36.258762852       -107.521296707         4,400.00       23.08       288.969       4,128.73       -1,268.12       1,1915,924.421       1,265.520.113       36.258762851       -107.521362937         4,600.00       23.08       288.969       4,20.77       441.83       -1,342.27       1,915,949.38       1,265.50.113       36.258863363       -107.521690279         4,600.00       23.08       288.969       4,312.77       474.12       -1,379.34       1,915,973.435       1,265,481.752       36.258915904       -107.521742139         Point Lookout       -       -       -1,416.41       1,915,975.424       1,265,475.965       36.25898420       -107.521742139         4,900.00       23.08       288.969       4,676       498.06       1,416.41       1,915,975.424       1,265,475.965       36.25898420       -107.521742139         4,900.00       23.08       288.969       4,677.275       57.83       1,916,003.651       1,265,387.774       36.259019751       -107.522140713         5,000.00       23.08       288.969       4,680.75       525.09       -1,527.633       1,265,327.677       36.259019751       -107.5	9 5/8" Cs	g								
4,300.00       23.08       268.369       4,128.78       443.68       -1,306.12       1,919,924.492       1,265,571.18       33.258.0695.13       -107.521602279         4,600.00       23.08       228.869       4,220.77       461.38       -1,342.27       1,915,944.928       1,265,571.11       33.258621155       -107.521602279         4,600.00       23.08       228.869       4,302.77       471.2       -1,373.41       1,915,924.4928       1,265,513.03       33.258687497       -107.521742139         Point Lookut       -	4,200.00	23.08	288.969	3,944.78	423.15	-1,231.05	1,915,911.709	1,265,661.329	36.258752852	-107.521130421
+400.00       23.08       288.69       +120.77       46.03       +130.19       191.930.183       1.268.50       302.490.201.13       322.490.201.11       322.588.588       +107.52       1501.59         4,600.00       23.08       288.69       4.312.77       47.12       -1.379.34       1.915.942.681       1.265.561.30.33       32.258887497       +107.52163566         4,680.39       23.08       228.696       4.404.76       486.84       -1.416.41       1.915.973.435       1.265.491.753       32.258915904       -107.521761892         4,700.00       23.08       288.696       4.406.76       490.60       -1.453.48       1.915.986.167       1.265.475.965       36.258924159       -107.52174189         4,900.00       23.08       288.696       4.680.75       525.09       -1.527.63       1.916.013.653       1.265.367.779       36.259019751       -107.522147167         Mancos       5.000.00       23.08       288.696       4.777.75       537.83       1.594.70       1.916.036.611       1.265.269.747       36.2590022141       -107.522124176         5.176       5.187.83       -1.597.83       1.916.036.611       1.265.296.738       36.259022261       -107.522232024         5.200.00       21.03       296.164       4.912.24	4,300.00	23.08	200.909	4,030.78	435.89	-1,208.12	1,915,924.452	1,205,024.250	30.258780513	-107.521250707
4,600.00       23.08       288.969       4,312.77       474.12       -1,378.34       1,916,962.681       1,265,273.038       36.258887497       -107.521635566         4,684.39       23.08       288.969       4,404.76       468.48       -1,416.62       1,915,973.435       1,265,471.752       36.258917490       -107.521742139         4,000.00       23.08       288.969       4,404.76       466.86       -1,416.41       1,915,975.42       1,265,438.892       36.258954820       -107.52176188133         4,900.00       23.08       288.969       4,588.76       512.35       -1,490.56       1,916,000.910       1,265,401.820       36.258984820       -107.52174188133         4,902.00       23.08       288.969       4,680.75       525.09       -1,527.63       1,916,013.653       1,265,347.47       36.259022141       -107.522140710         5,000.00       23.08       288.969       4,680.75       525.09       -1,527.63       1,916,038.411       1,265,247.474       36.25906842       -107.522267000         5,178.59       23.08       288.969       4,864.05       547.85       -1,593.84       1,916,038.130       1,265,276.276       36.25908451       -107.52230740         5,200.00       16.35       290.649       4,864.89       550.57	4,400.00	23.08	288.969	4,120.70	440.03	-1,305.19	1,915,937.195	1,205,567.105	36.258853836	-107.521502995
4,684.39         23.08         288.969         4,390.40         484.87         -1,410.62         1,915,973.435         1,265,481.752         36.258915904         -107.521761852           4,700.00         23.08         288.969         4,404.76         496.86         -1,415.41         1,915,975.424         1,265,475.965         36.258921159         -107.521761852           4,800.00         23.08         288.969         4,406.76         499.60         -1,453.48         1,915,975.424         1,265,471.920         36.258921159         -107.521761852           4,992.90         23.08         288.969         4,674.22         524.19         -1,525.00         1,916,013.653         1,265,367.379         36.259019751         -107.522140713           5,000.00         23.08         288.969         4,772.75         537.83         -1,647.00         1,916,026.396         1,265,327.674         36.259082256         -107.522267000           5,178.59         23.08         288.969         4,782.75         537.83         -1,617.00         1,916,036.411         1,265,207.674         36.259082456         -107.52240703           5,000.00         1,132         290.449         4,864.89         50.577         -1,601.40         1,916,063.961         1,265,265.762         36.259106127         -107.522426232 <td>4.600.00</td> <td>23.08</td> <td>288.969</td> <td>4.312.77</td> <td>474.12</td> <td>-1.379.34</td> <td>1,915,962,681</td> <td>1.265.513.038</td> <td>36.258887497</td> <td>-107.521635566</td>	4.600.00	23.08	288.969	4.312.77	474.12	-1.379.34	1,915,962,681	1.265.513.038	36.258887497	-107.521635566
Point Lookout           4,700.00         23.08         288.969         4,404.76         486.86         -1,416.41         1,915.975.424         1,265,475.965         36.258921159         -107.521761852           4,900.00         23.08         228.969         4,588.76         512.35         -1,490.56         1,916,000.910         1,265,401.820         36.258984400         -107.522161852           4,990.20         23.08         228.969         4,674.22         524.19         -1,525.00         1,916,012.748         1,265,367.379         36.259919751         -107.522161746           Mancos         5.000.00         23.08         228.969         4,680.75         525.09         -1,527.63         1,916,013.653         1,265,327.674         36.259092256         -107.52236200           5,100.00         23.08         228.969         4,845.05         547.85         -1,593.84         1,916,038.611         1,265,327.674         36.259082256         -107.52236200           5,200.00         21.03         290.649         4,864.89         505.57         -1,601.40         1,916,038.61         1,265,227.573         36.25908256         -107.522478160           5,300.00         8.13         249.747         5,059.59         574.50         -1,601.40         1,916,065.405         1,265,25	4,684.39	23.08	288.969	4,390.40	484.87	-1,410.62	1,915,973.435	1,265,481.752	36.258915904	-107.521742139
4,700.00       23.08       288.969       4,404.76       486.86       -1,416.41       1.915.975.424       1,265.475.965       36.258921159       -107.521761882139         4,800.00       23.08       288.969       4,568.76       499.60       -1,430.56       1,916,000.910       1,265,401.820       36.258948420       -107.52214426         4,992.90       23.08       288.969       4,674.22       524.19       -1,525.00       1,916,012.748       1,265,401.820       36.258948420       -107.52214426         5,000.00       23.08       288.969       4,674.27       557.63       1,916,013.653       1,265,364.747       36.259092141       -107.522366250         5,178.59       23.08       288.969       4,861.95       525.57       -1,601.40       1,916,038.411       1,265,276.921       36.259082266       -107.522366250         Begin 10*/100* build/turn       500.00       16.35       296.116       4,912.24       556.83       -1,161.13       1,916,045.396       1,265,276.210       36.259182521       -107.522478160         5,300.00       11.90       305.657       4,960.72       562.94       -1,626.64       1,916,057.406       1,265,276.21       36.25918268       -107.522498535       5,358.21       7.64       329.747       5,018.10       569.79	Point Lo	okout								
4,800.00       23.08       288,999       4,496,76       499.00       -1,453.48       1,915,988.176       1,265,401.820       36.258954820       -107.521888139         4,900.00       23.08       288,969       4,674.22       524.19       -1,525.00       1,916,003.010       1,265,401.820       36.258968420       -107.522141424         5,000.00       23.08       288.969       4,674.22       524.19       -1,527.63       1,916,013.653       1,265,361.747       36.259052141       -107.52221420713         5,000.00       23.08       288.969       4,680.75       525.09       -1,557.63       1,916,003.961       1,265,327.674       36.25908256       -107.5222420700         5,178.59       23.08       288.969       4,845.05       57.7       -1,601.40       1,916,039.130       1,265,290.974       36.259089256       -107.522342024         5,200.00       11.93       296.414       4,864.89       550.57       -1,601.40       1,916,045.396       1,265,290.974       36.259108127       -107.522442023         5,200.00       11.90       305.657       4,860.72       562.84       1,916,057.406       1,265,256.510       36.25910127       -107.5224478160         5,350.00       8.13       324.923       5,009.97       574.50       -1,632.48	4,700.00	23.08	288.969	4,404.76	486.86	-1,416.41	1,915,975.424	1,265,475.965	36.258921159	-107.521761852
4.900.00       23.08       288.969       4.588.76       512.35       -1.490.56       1.916,001       1.265,307.379       36.259984450       -107.52211426         Mancos       -107.522131746       1.265,307.379       36.259019751       -107.522131746         5,000.00       23.08       288.969       4.680.75       52.09       -1,527.63       1.916,013.653       1.265,364.747       36.259022141       -107.5222140713         5,100.00       23.08       288.969       4.845.05       547.85       -1,564.70       1.916,023.986       1.265,327.674       36.259082560       -107.522247000         5,200.00       21.03       290.649       4.864.89       550.57       -1,601.40       1.916,023.916       1.265,276.20       36.259082451       -107.5224702042         5,200.00       18.35       296.116       4.967.24       556.38       -1,616.131       1.916,057.306       1.265,276.20       36.25910850       -107.522470160         5,300.00       11.33       324.923       5,009.77       568.84       -1,632.87       1.916,057.306       1.265,259.510       36.259138508       -107.522490853       5.358.21       7.64       32.975       5,059.59       574.50       -1,632.87       1.916,063.059       1.265,256.58.90       36.259138508       -107.52249945	4,800.00	23.08	288.969	4,496.76	499.60	-1,453.48	1,915,988.167	1,265,438.892	36.258954820	-107.521888139
4,992.90       23.08       28.09       4,64.22       52.19       -1,52b.00       1,916,012.748       1,265,367.379       36.259019751       -107.522131746         Mancos       5,000.00       23.08       288.969       4,680.75       525.09       -1,527.63       1,916,013.653       1,265,326.4.747       36.259022141       -107.5222400713         5,100.00       23.08       288.969       4,680.75       547.85       -1,593.84       1,916,036.411       1,265,326.27674       36.259082256       -107.522236020         5,176.59       23.00       289.969       4,865.05       547.85       -1,614.00       1,916,039.130       1,265,290.974       36.259089451       -107.522392024         5,200.00       21.03       290.649       4,864.89       550.57       -1,614.00       1,916,039.130       1,265,276.03       36.259106127       -107.522442232         5,300.00       11.90       306.667       4,960.72       562.94       -1,626.64       1,916,051.503       1,265,265.10       36.25916812       -107.522442232         5,300.00       11.90       306.667       4,960.72       562.94       -1,632.87       1,916,063.059       1,265,265.10       36.25916812       -107.522476271         5,433.81       7.66       38.011       5,103.10	4,900.00	23.08	288.969	4,588.76	512.35	-1,490.56	1,916,000.910	1,265,401.820	36.258988480	-107.522014426
Mancos           5,000.00         23.08         288.969         4,680.75         525.09         -1,527.63         1,916,013.653         1,265,384.747         36.259022141         -107.522140713           5,100.00         23.08         288.969         4,772.75         537.83         -1,564.70         1,916,026.396         1,265,327.674         36.259082256         -107.522360250           Begin 10"/100 build/turn         -	4,992.90	23.08	288.969	4,674.22	524.19	-1,525.00	1,916,012.748	1,265,367.379	36.259019751	-107.522131746
5,100.00       23.08       28.080       4,000.13       53.00       -1,564.70       30.250.00       1,265,327.674       30.25905802       -107.522267000         5,170.00       23.08       288.969       4,845.05       547.85       -1,593.84       1,916,036.411       1,265,290.8538       36.259082256       -107.522267000         5,200.00       21.03       290.649       4,864.89       550.57       -1,611.43       1,916,039.130       1,265,276.250       36.259089451       -107.522247160         5,200.00       16.35       296.116       4,912.24       556.83       -1,616.13       1,916,045.366       1,265,257.62       36.2591086127       -107.522478160         5,350.00       8.13       324.923       5,009.75       568.84       -1,626.64       1,916,051.503       1,265,257.62       36.259138506       -107.522499535         5,358.21       7.64       329.747       5,018.10       569.79       -1,633.48       1,916,063.059       1,265,257.621       36.25915966       -107.522499535         5,400.00       6.34       2.975       5,059.59       574.50       -1,632.83       1,916,067.773       1,265,257.621       36.25916896       -107.522499535         5,400.00       11.74       61.545       5,158.49       584.84 <t< td=""><td>5 000 00</td><td>23.08</td><td>288.060</td><td>4 680 75</td><td>525.00</td><td>1 527 63</td><td>1 016 013 653</td><td>1 265 364 747</td><td>36 250022141</td><td>107 5221/0713</td></t<>	5 000 00	23.08	288.060	4 680 75	525.00	1 527 63	1 016 013 653	1 265 364 747	36 250022141	107 5221/0713
5,178.59       20.80       288.99       4,84.50       547.85       -1,593.84       1,916,036.411       1,265,289.538       36.259082226       -107.52236220         Begin 10°/100' build/turn       -       -       -       -1,593.84       1,916,036.411       1,265,289.538       36.259082226       -107.522392024         5,200.00       11.30       290.649       4,864.89       550.57       -1,601.40       1,916,034.396       1,265,276.250       36.25908916127       -107.522492224         5,300.00       11.90       305,657       4,960.72       562.94       -1,626.64       1,916,051.503       1,265,259.510       36.259125251       -107.522478160         5,350.00       8.13       324.923       5,009.97       568.84       -1,632.87       1,916,053.952       1,265,259.510       36.25914084       -107.522499535         5,350.00       8.13       324.923       5,009.97       568.84       -1,632.87       1,916,063.059       1,265,257.621       36.25914084       -107.522499535         5,400.00       6.34       2.975       5,059.59       574.50       -1,634.76       1,916,063.059       1,265,257.621       36.25914380       -107.52249888         MNCS_C       B       -       -       -       -       62.591640777	5 100 00	23.00	288 969	4,000.75	537.83	-1,527.05	1,916,026,396	1,205,304.747	36 259055802	-107 522267000
Begin 10*/100* build/turn           5,200.00         21.03         290.649         4,864.89         550.57         -1,611.40         1,916.039.130         1,265,290.974         36.259089451         -107.522392024           5,200.00         16.35         296.116         4,912.24         556.83         -1,616.13         1,916,045.396         1,265,265.736         36.259106127         -107.522442232           5,300.00         11.90         305.6567         4,960.72         562.94         -1,632.64         1,916,051.503         1,265,265.910         36.259122521         -107.522478160           5,350.00         8.13         324.923         5,009.97         568.84         -1,632.87         1.916,057.360         36.259141084         -107.522491408           MNCS_A         5,400.00         6.34         2.975         5,059.59         574.50         -1,634.76         1.916,063.059         1,265,257.621         36.259149694         -107.522490888           MNCS_B         5,450.00         8.01         41.699         5,109.23         579.86         -1,632.29         1.916,068.419         1,265,276.921         36.2591496177         -107.522490885           5,500.00         11.74         61.545         5,158.49         584.88         -1,632.29         1.916,068.419         1,2	5,178.59	23.08	288.969	4,845.05	547.85	-1,593.84	1,916,036.411	1,265,298.538	36.259082256	-107.522366250
5,200.00       21.03       290.649       4,864.89       550.57       -1,601.40       1,916,039.130       1,265,290.974       36.259089451       -107.522392024         5,250.00       16.35       296.116       4,912.24       556.83       -1,616.13       1,916,045.396       1,265,276.250       36.259122521       -107.522422232         5,300.00       11.90       305.657       4,960.72       562.24       -1,626.64       1,916,057.406       1,265,259.510       36.259122521       -107.522478160         5,350.00       8.13       324.923       5,009.97       568.84       -1,632.87       1,916,057.406       1,265,259.510       36.259141084       -107.522499355         5,358.21       7.64       329.747       5,018.10       569.79       -1,633.48       1,916,063.059       1,265,257.621       36.25914904       -107.522409140         MNCS_A       N       N       5,100.23       5,109.23       5,109.23       5,109.23       1,916,067.773       1,265,257.521       36.259168777       -107.522498085         5,400.00       8.01       41.699       5,109.23       579.86       -1,632.29       1,916,067.173       1,265,267.59.542       36.259182830       -107.522498085         5,500.00       16.17       71.324       5,207.01	Begin 10	°/100' build/tu	ırn							
5,250.00       16.35       296.116       4,912.24       556.83       -1,616.13       1,916,045.396       1,265,276.250       36.259106127       -107.522442232         5,300.00       11.90       305.657       4,960.72       562.94       -1,626.64       1,916,057.406       1,265,257.51       36.25912521       -107.522478160         5,358.21       7.64       329.747       5,018.10       569.79       -1,633.48       1,916,053.552       1,265,258.902       36.25913666       -107.522469353         5,400.00       6.34       2.975       5,059.59       574.50       -1,632.87       1,916,063.059       1,265,259.542       36.259153966       -107.522498085         5,430.00       6.34       2.975       5,059.59       574.50       -1,632.83       1,916,063.059       1,265,259.542       36.259168977       -107.522498085         5,450.00       8.01       41.699       5,109.23       579.86       -1,632.29       1,916,068.419       1,265,260.082       36.259168777       -107.522480855       5550.00       107.522475271       -107.522478261         5,550.00       11.74       61.545       5,188.49       584.88       -1,625.50       1,916,078.447       1,265,260.876       36.259148230       -107.522478261         5,550.00       16.1	5,200.00	21.03	290.649	4,864.89	550.57	-1,601.40	1,916,039.130	1,265,290.974	36.259089451	-107.522392024
5,300.00       11.90       305.657       4,960.72       562.94       -1,626.64       1,916,051.503       1,265,255.736       362.259122521       -107.522478160         5,350.00       8.13       324.923       5,009.97       568.84       -1,632.87       1,916,057.406       1,265,258.902       362.59138508       -107.522499535         5,358.21       7.64       329.747       5,018.10       569.79       -1,633.48       1,916,053.52       1,265,258.902       362.59141084       -107.522499585         5,400.00       6.34       2.975       5,059.59       574.50       -1,632.76       1,916,063.059       1,265,257.621       36.25916984       -107.522499888         MNCS_B       5       570.01       579.86       -1,632.29       1,916,068.419       1,265,260.082       36.2591868777       -107.522498085         5,500.00       11.74       61.545       5,158.49       584.88       -1,625.50       1,916,073.447       1,265,260.082       36.259182830       -107.5224975271         5,500.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,080.499       1,265,277.543       36.25918677       -107.522405520         5,600.00       20.85       76.897       5,254.42       593.79       -1,614.43       <	5,250.00	16.35	296.116	4,912.24	556.83	-1,616.13	1,916,045.396	1,265,276.250	36.259106127	-107.522442232
5,350.00       8.13       324.923       5,009.97       568.84       -1,632.87       1,916,057.406       1,265,259.510       36.259138508       -107.522499355         5,358.21       7.64       329.747       5,018.10       569.79       -1,633.48       1,916,058.352       1,265,258.902       36.259141084       -107.522506194         MNCS_A       5,400.00       6.34       2.975       5,059.59       574.50       -1,632.83       1,916,063.059       1,265,257.621       36.259153966       -107.522499888         MNCS_B        -       -1,632.29       1,916,068.419       1,265,260.082       36.259168777       -107.522498085         5,500.00       11.74       61.545       5,158.49       584.88       -1,625.50       1,916,073.447       1,265,267.621       36.259168777       -107.522498085         5,500.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,078.102       1,265,287.543       36.259108016       -107.522470520         5,580.00       20.85       76.897       5,254.42       593.79       -1,599.16       1,916,082.351       1,265,237.543       36.259208125       -107.52230865         5,600.00       20.85       76.897       5,254.42       593.79       -1,599.16       1,916	5,300.00	11.90	305.657	4,960.72	562.94	-1,626.64	1,916,051.503	1,265,265.736	36.259122521	-107.522478160
5,358,21       7,64       329,747       5,018,10       569,73       -1,633,48       1,916,088,352       1,265,258,902       36,259141064       -107,52250140         MNCS_A       5,400,00       6.34       2.975       5,059,59       574,50       -1,634,76       1,916,063,059       1,265,257,621       36,259153966       -107,522499888         MNCS_B       5,450,00       8.01       41.699       5,109,23       579,86       -1,632,29       1,916,068,419       1,265,260,082       36,259168777       -107,522498085         5,500,00       11.74       61,545       5,158,49       584,88       -1,625,50       1,916,073,447       1,265,266,876       36,259182830       -107,522437926         5,550,00       16,17       71,324       5,207,01       589,54       -1,614,43       1,916,082,051       1,265,277,950       36,259182830       -107,522437926         5,560,00       16,17       71,324       5,207,01       589,54       -1,614,43       1,916,082,351       1,265,287,543       36,259208235       -107,5223485520         5,600,00       20.85       76,897       5,254,42       593,79       -1,599,16       1,916,082,351       1,265,312,569       36,259208235       -107,52230885       5,661,53       26,676       81,132       5,310,70	5,350.00	8.13	324.923	5,009.97	568.84	-1,632.87	1,916,057.406	1,265,259.510	36.259138508	-107.522499535
INNCS_A         Investant	5,358.21	7.04	329.747	5,018.10	569.79	-1,033.48	1,916,058.352	1,205,258.902	30.259141084	-107.522501640
5,443.81       7,65       38.011       5,103.10       579.21       -1,632.83       1,916,067.773       1,265,259.542       36.259166984       -107.522499888         MNCS_B       5,450.00       8.01       41.699       5,109.23       579.86       -1,632.29       1,916,067.773       1,265,260.082       36.259166984       -107.522499888         5,450.00       11.74       61.545       5,158.49       584.88       -1,625.50       1,916,073.447       1,265,266.876       36.259166984       -107.522498085         5,550.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,073.102       1,265,287.543       36.259169016       -107.522490520         5,582.94       19.23       75.290       5,238.39       592.39       -1,604.83       1,916,080.949       1,265,287.543       36.259140016       -107.522405520         MNCS_C            -107.52240520       -107.522300855       5,650.00       25.65       80.479       5,300.35       597.60       -1,579.81       1,916,082.351       1,265,335.851       36.259224110       -107.522300885       5,661.53       26.759225130       -107.522242080       5,735.02       33.93       84.353       5,374.07       602.99       -1,577.97	5 400 00	6 3/	2 075	5 059 59	574 50	-1 634 76	1 916 063 059	1 265 257 621	36 250153066	-107 522506104
MNCS_B         State         State <t< td=""><td>5,443.81</td><td>7.65</td><td>38.011</td><td>5,103.10</td><td>579.21</td><td>-1.632.83</td><td>1,916.067.773</td><td>1,265,259,542</td><td>36.259166984</td><td>-107.522499888</td></t<>	5,443.81	7.65	38.011	5,103.10	579.21	-1.632.83	1,916.067.773	1,265,259,542	36.259166984	-107.522499888
5,450.0       8.01       41.699       5,109.23       579.86       -1,632.29       1,916,068.419       1,265,260.082       36.259168777       -107.522498085         5,500.00       11.74       61.545       5,158.49       584.88       -1,625.50       1,916,073.447       1,265,266.876       36.259182830       -107.522475271         5,550.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,078.102       1,265,287.79.50       36.259180616       -107.522437926         5,582.94       19.23       75.290       5,238.39       592.39       -1,604.83       1,916,080.949       1,265,287.543       36.259206235       -107.522306533         5,600.00       20.85       76.897       5,254.42       593.79       -1,579.16       1,916,082.351       1,265,312.569       36.259208235       -107.522308633         5,661.53       26.676       81.132       5,310.70       598.41       -1,574.78       1,916,086.974       1,265,317.597       36.259221810       -107.522308873         5,700.00       30.51       82.989       5,344.45       600.94       -1,574.78       1,916,089.501       1,265,335.851       36.25922921810       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99 <td>MNCS B</td> <td></td> <td></td> <td>-,</td> <td></td> <td>,</td> <td>,,</td> <td>, ,</td> <td></td> <td></td>	MNCS B			-,		,	,,	, ,		
5,500.00       11.74       61.545       5,158.49       584.88       -1,625.50       1,916,073.447       1,265,266.876       36.259182830       -107.522475271         5,550.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,078.102       1,265,277.950       36.259196016       -107.522437926         5,582.94       19.23       75.290       5,238.39       592.39       -1,604.83       1,916,080.949       1,265,287.543       36.259204180       -107.522405520         MNCS_C  <	5,450.00	8.01	41.699	5,109.23	579.86	-1,632.29	1,916,068.419	1,265,260.082	36.259168777	-107.522498085
5,550.00       16.17       71.324       5,207.01       589.54       -1,614.43       1,916,078.102       1,265,277.950       36.259196016       -107.522437926         5,582.94       19.23       75.290       5,238.39       592.39       -1,604.83       1,916,080.949       1,265,287.543       36.259204180       -107.522405520         MNCS_C       5,600.00       20.85       76.897       5,254.42       593.79       -1,599.16       1,916,082.351       1,265,293.219       36.259208235       -107.522386333         5,650.00       25.65       80.479       5,300.35       597.60       -1,579.81       1,916,086.160       1,265,312.569       36.259208235       -107.52230885         5,661.53       26.76       81.132       5,310.70       598.41       -1,574.78       1,916,086.974       1,265,317.597       36.259221810       -107.522303871         MNCS_Cms       5,700.00       30.51       82.989       5,344.45       600.94       -1,556.53       1,916,089.501       1,265,335.851       36.259229411       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259238206       -107.522150519         5,750.00       35.40       84.864	5,500.00	11.74	61.545	5,158.49	584.88	-1,625.50	1,916,073.447	1,265,266.876	36.259182830	-107.522475271
5,582.94       19.23       75.290       5,238.39       592.39       -1,604.83       1,916,080.949       1,265,287.543       36.259204180       -107.522405520         MNCS_C       5,600.00       20.85       76.897       5,254.42       593.79       -1,599.16       1,916,082.351       1,265,293.219       36.259208235       -107.522386333         5,650.00       25.65       80.479       5,300.35       597.60       -1,579.81       1,916,086.160       1,265,312.569       36.259219395       -107.52230885         5,661.53       26.76       81.132       5,310.70       598.41       -1,574.78       1,916,086.974       1,265,317.597       36.259221810       -107.522303871         MNCS_Cms       5,700.00       30.51       82.989       5,344.45       600.94       -1,556.53       1,916,089.501       1,265,335.851       36.259229411       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259238206       -107.522150219         MNCS_D       4       5,386.40       603.79       -1,529.49       1,916,092.348       1,265,362.889       36.259238206       -107.522150519         5,800.00       40.32       86.336       5,425.86	5,550.00	16.17	71.324	5,207.01	589.54	-1,614.43	1,916,078.102	1,265,277.950	36.259196016	-107.522437926
MNCS_C           5,600.00         20.85         76.897         5,254.42         593.79         -1,599.16         1,916,082.351         1,265,293.219         36.259208235         -107.522386333           5,650.00         25.65         80.479         5,300.35         597.60         -1,579.81         1,916,086.160         1,265,312.569         36.259219395         -107.52230885           5,661.53         26.76         81.132         5,310.70         598.41         -1,574.78         1,916,086.974         1,265,317.597         36.259221810         -107.522303871           MNCS_Cms         5,700.00         30.51         82.989         5,344.45         600.94         -1,556.53         1,916,089.501         1,265,335.851         36.259229411         -107.522242080           5,735.02         33.93         84.353         5,374.07         602.99         -1,537.97         1,916,091.549         1,265,335.851         36.259235703         -107.522179251           MNCS_D         U	5,582.94	19.23	75.290	5,238.39	592.39	-1,604.83	1,916,080.949	1,265,287.543	36.259204180	-107.522405520
5,600.00       20.85       76.897       5,254.42       593.79       -1,599.16       1,916,082.351       1,265,293.219       36.259208235       -107.522386333         5,650.00       25.65       80.479       5,300.35       597.60       -1,579.81       1,916,086.160       1,265,312.569       36.259219395       -107.522320885         5,661.53       26.76       81.132       5,310.70       598.41       -1,574.78       1,916,086.974       1,265,317.597       36.259221810       -107.522303871         MNCS_Cms         5,700.00       30.51       82.989       5,344.45       600.94       -1,556.53       1,916,089.501       1,265,335.851       36.259229411       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259235703       -107.522179251         MNCS_D         5,750.00       35.40       84.864       5,386.40       603.79       -1,529.49       1,916,092.348       1,265,362.889       36.259238206       -107.522150519       5,800.00       40.32       86.336       5,425.86       606.12       -1,498.90       1,916,094.680       1,265,393.476       36.259245713       -107.522046897       5,850.00       45.25	MNCS_C	00.05	70.007	5 054 40	500 70	4 500 40	4 0 4 0 0 0 0 5 4	4 005 000 040		107 50000000
5,650.00       25.65       80.479       5,300.35       597.60       -1,579.61       1,916,060.160       1,265,312.569       36.259219395       -107.52230885         5,661.53       26.76       81.132       5,310.70       598.41       -1,574.78       1,916,086.974       1,265,317.597       36.259221810       -107.522303871         MNCS_Cms       5,700.00       30.51       82.989       5,344.45       600.94       -1,556.53       1,916,089.501       1,265,335.851       36.259229411       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259235703       -107.522179251         MNCS_D	5,600.00	20.85	76.897	5,254.42	593.79	-1,599.16	1,916,082.351	1,265,293.219	36.259208235	-107.522386333
MNCS_Cms         5,310.10         5,310.10         5,310.10         5,310.10         5,310.10         5,310.10         1,310,000.314         1,310,000.314         1,205,311.331         30.233221010         101.322030311           MNCS_Cms         5,700.00         30.51         82.989         5,344.45         600.94         -1,556.53         1,916,089.501         1,265,335.851         36.259229411         -107.522242080           5,735.02         33.93         84.353         5,374.07         602.99         -1,537.97         1,916,091.549         1,265,354.405         36.259235703         -107.522179251           MNCS_D         5,750.00         35.40         84.864         5,386.40         603.79         -1,529.49         1,916,092.348         1,265,362.889         36.259238206         -107.522150519           5,800.00         40.32         86.336         5,425.86         606.12         -1,498.90         1,916,094.680         1,265,393.476         36.259245713         -107.522046897           5,850.00         45.25         87.535         5,462.54         607.92         -1,465.00         1,916,096.479         1,265,427.379         36.259251876         -107.521932004	5,650.00	25.05	00.479 81 132	5,300.35	597.00	-1,579.01	1,910,000.100	1,205,312.509	36.259219395	-107.522320665
5,700.00       30.51       82.989       5,344.45       600.94       -1,556.53       1,916,089.501       1,265,335.851       36.259229411       -107.522242080         5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259235703       -107.522179251         MNCS_D       5,750.00       35.40       84.864       5,386.40       603.79       -1,529.49       1,916,092.348       1,265,362.889       36.259238206       -107.522150519         5,800.00       40.32       86.336       5,425.86       606.12       -1,498.90       1,916,094.680       1,265,393.476       36.259245713       -107.522046897         5,850.00       45.25       87.535       5,462.54       607.92       -1,465.00       1,916,096.479       1,265,427.379       36.259251876       -107.521932004	MNCS C	ms	01.102	0,010.10	000.41	-1,074.70	1,010,000.074	1,200,011.001	00.200221010	-107.022000071
5,735.02       33.93       84.353       5,374.07       602.99       -1,537.97       1,916,091.549       1,265,354.405       36.259235703       -107.522179251         MNCS_D       5,750.00       35.40       84.864       5,386.40       603.79       -1,529.49       1,916,092.348       1,265,362.889       36.259238206       -107.522150519         5,800.00       40.32       86.336       5,425.86       606.12       -1,498.90       1,916,094.680       1,265,393.476       36.259245713       -107.522046897         5,850.00       45.25       87.535       5,462.54       607.92       -1,465.00       1,916,096.479       1,265,427.379       36.259251876       -107.521932004	5.700.00	30.51	82.989	5.344.45	600.94	-1.556.53	1.916.089.501	1.265.335.851	36.259229411	-107.522242080
MNCS_D           5,750.00         35.40         84.864         5,386.40         603.79         -1,529.49         1,916,092.348         1,265,362.889         36.259238206         -107.522150519           5,800.00         40.32         86.336         5,425.86         606.12         -1,498.90         1,916,094.680         1,265,393.476         36.259245713         -107.522046897           5,850.00         45.25         87.535         5,462.54         607.92         -1,465.00         1,916,096.479         1,265,427.379         36.259251876         -107.521932004	5,735.02	33.93	84.353	5,374.07	602.99	-1,537.97	1,916,091.549	1,265,354.405	36.259235703	-107.522179251
5,750.0035.4084.8645,386.40603.79-1,529.491,916,092.3481,265,362.88936.259238206-107.5221505195,800.0040.3286.3365,425.86606.12-1,498.901,916,094.6801,265,393.47636.259245713-107.5220468975,850.0045.2587.5355,462.54607.92-1,465.001,916,096.4791,265,427.37936.259251876-107.521932004	MNCS_D									
5,800.00         40.32         86.336         5,425.86         606.12         -1,498.90         1,916,094.680         1,265,393.476         36.259245713         -107.522046897           5,850.00         45.25         87.535         5,462.54         607.92         -1,465.00         1,916,096.479         1,265,427.379         36.259251876         -107.521932004	5,750.00	35.40	84.864	5,386.40	603.79	-1,529.49	1,916,092.348	1,265,362.889	36.259238206	-107.522150519
5,850.00 45.25 87.535 5,462.54 607.92 -1,465.00 1,916,096.479 1,265,427.379 36.259251876 -107.521932004	5,800.00	40.32	86.336	5,425.86	606.12	-1,498.90	1,916,094.680	1,265,393.476	36.259245713	-107.522046897
	 5,850.00	45.25	87.535	5,462.54	607.92	-1,465.00	1,916,096.479	1,265,427.379	36.259251876	-107.521932004

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#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

M	easured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
	(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)	Latitude	Longitude
	5,860.55	46.30	87.762	5,469.90	608.23	-1,457.44	1,916,096.789	1,265,434.934	36.259253000	-107.521906399
	MNCS_E									
	5,900.00	50.20	88.546	5,496.17	609.17	-1,428.03	1,916,097.730	1,265,464.342	36.259256646	-107.521806714
	5,931.15	53.28	89.104	5,515.46	609.67	-1,403.58	1,916,098.229	1,265,488.795	36.259258898	-107.521723811
	MNCS_F		00.404	5 500 40		1 000 00	4 9 4 9 9 9 9 4 9 9	4 005 504 000	00.050050000	
	5,950.00	55.15	89.421	5,526.48	609.86	-1,388.29	1,916,098.426	1,265,504.082	36.259259989	-107.521671980
	5,998.94	00.00	90.180	5,552.71	610.00	-1,347.00	1,916,098.562	1,205,545.376	30.259201853	-107.521531950
	6 000 00	.00° tangent	00 180	5 553 24	610.00	-1 346 08	1 016 008 550	1 265 5/6 206	36 250261878	-107 521528830
	6 058 94	60.00	90.180	5 582 71	609.84	-1 295 04	1,916,098,399	1 265 597 338	36 259263278	-107 521355734
	Begin 10	°/100' build	001100	0,002.1	000101	1,200101	1,010,000.000	1,200,001.000	00.2002002.0	1011021000101
	6,100.00	64.11	90.180	5,601.95	609.72	-1,258.78	1,916,098.285	1,265,633.599	36.259264272	-107.521232761
	MNCS G									
	6,150.00	69.11	90.180	5,621.80	609.58	-1,212.90	1,916,098.141	1,265,679.478	36.259265530	-107.521077170
	6,159.20	70.03	90.180	5,625.01	609.55	-1,204.28	1,916,098.114	1,265,688.099	36.259265766	-107.521047934
	70° inc @	6159.20 MD	5625.21 TVD							
	6,200.00	74.11	90.180	5,637.57	609.43	-1,165.47	1,916,097.992	1,265,726.908	36.259266830	-107.520916320
	6,245.96	78.70	90.180	5,648.37	609.29	-1,120.81	1,916,097.852	1,265,771.564	36.259268055	-107.520764879
	MNCS_H	70.44	00.400	5 0 40 45		4 440 04	4 9 4 9 9 9 7 9 9 9	4 005 775 500	00.050000.000	
	6,250.00	79.11	90.180	5,649.15	609.28	-1,116.84	1,916,097.839	1,265,775.533	36.259268163	-107.520751420
	6 353 02	04.11 80./1	90.100	5,050.44	608.06	-1,007.39	1,910,097.004	1,205,024.901	36.259209519	-107.520563726
	Begin 89	/1º latoral	30.100	3,033.44	000.30	-1,014.40	1,310,037.010	1,203,077.300	30.233270303	-107.520404201
	6.400.00	89.41	90.180	5.659.93	608.81	-967.50	1.916.097.371	1.265.924.874	36.259272257	-107.520244958
	6,500.00	89.41	90.180	5,660.96	608.50	-867.51	1,916,097.057	1,266,024.868	36.259274997	-107.519905848
	6,600.00	89.41	90.180	5,661.99	608.18	-767.51	1,916,096.744	1,266,124.862	36.259277735	-107.519566738
	6,700.00	89.41	90.180	5,663.02	607.87	-667.52	1,916,096.430	1,266,224.856	36.259280473	-107.519227628
	6,800.00	89.41	90.180	5,664.06	607.55	-567.52	1,916,096.117	1,266,324.850	36.259283210	-107.518888518
	6,900.00	89.41	90.180	5,665.09	607.24	-467.53	1,916,095.803	1,266,424.844	36.259285946	-107.518549407
	7,000.00	89.41	90.180	5,6667.12	606.93	-367.54	1,916,095.489	1,200,524.838	36.259288681	-107.518210297
	7,100.00	89.41	90.180	5,007.15	606.30	-207.54	1,910,095.170	1,200,024.032	36 259291413	-107.517572076
	7,300.00	89.41	90.180	5.669.22	605.99	-67.55	1,916.094.548	1,266.824.820	36.259296880	-107.517192966
	7,400.00	89.41	90.180	5,670.25	605.67	32.44	1,916,094.235	1,266,924.814	36.259299611	-107.516853855
	7,500.00	89.41	90.180	5,671.28	605.36	132.43	1,916,093.921	1,267,024.808	36.259302341	-107.516514744
	7,600.00	89.41	90.180	5,672.31	605.05	232.43	1,916,093.608	1,267,124.802	36.259305070	-107.516175634
	7,700.00	89.41	90.180	5,673.35	604.73	332.42	1,916,093.294	1,267,224.796	36.259307798	-107.515836523
	7,800.00	89.41	90.180	5,674.38	604.42	432.42	1,916,092.980	1,267,324.790	36.259310526	-107.515497412
	7,900.00	89.41	90.180	5,675.41	604.10	532.41	1,916,092.667	1,267,424.784	36.259313252	-107.515158302
	8,000.00	89.41	90.180	5,070.44	603.48	732.41	1,910,092.333	1,207,524.778	36 259318702	-107.514619191
	8.200.00	89.41	90.180	5.678.51	603.16	832.39	1,916.091.726	1.267.724.766	36.259321425	-107.514140969
	8,300.00	89.41	90.180	5,679.54	602.85	932.39	1,916,091.412	1,267,824.760	36.259324148	-107.513801858
	8,400.00	89.41	90.180	5,680.57	602.54	1,032.38	1,916,091.099	1,267,924.754	36.259326869	-107.513462747
	8,500.00	89.41	90.180	5,681.60	602.22	1,132.38	1,916,090.785	1,268,024.748	36.259329590	-107.513123636
	8,600.00	89.41	90.180	5,682.64	601.91	1,232.37	1,916,090.471	1,268,124.742	36.259332309	-107.512784524
	8,700.00	89.41	90.180	5,683.67	601.60	1,332.36	1,916,090.158	1,268,224.735	36.259335028	-107.512445413
	8,800.00	89.41	90.180	5,684.70	601.28	1,432.36	1,916,089.844	1,268,324.729	36.259337745	-107.512106302
	9,900.00 9,000.00	09.41 80 11	90.100 90.180	5 686 76	600.97	1,002.00	1,910,009.000	1,200,424.723	36 259340402	-107.511/07.191
	9,100.00	89.41	90.180	5.687.80	600.34	1,732.34	1.916.088.903	1.268.624.711	36.259345892	-107.511088968
	9,200.00	89.41	90.180	5,688.83	600.03	1,832.34	1,916,088.590	1,268,724.705	36.259348606	-107.510749856
	9,300.00	89.41	90.180	5,689.86	599.71	1,932.33	1,916,088.276	1,268,824.699	36.259351319	-107.510410745
	9,400.00	89.41	90.180	5,690.89	599.40	2,032.32	1,916,087.962	1,268,924.693	36.259354031	-107.510071633

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COMPASS 5000.16 Build 96



#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured	Inclination	A i th	Vertical			Map	Map Easting		
(ft)	(°)	(°)	(ft)	+in/-5 (ft)	+E/-VV (ft)	(usft)	(usft)	Latitude	Longitude
9,500.00	89.41	90.180	5,691.93	599.09	2,132.32	1,916,087.649	1,269,024.687	36.259356742	-107.509732521
9,600.00	89.41	90.180	5,692.96	598.77	2,232.31	1,916,087.335	1,269,124.681	36.259359452	-107.509393410
9,700.00	89.41	90.180	5,693.99	598.46	2,332.31	1,916,087.021	1,269,224.675	36.259362161	-107.509054298
9,800.00	89.41	90.180	5,695.02	598.15	2,432.30	1,916,086.708	1,269,324.669	36.259364869	-107.508715186
9,900.00	89.41	90.180	5,696.05	597.83	2,532.29	1,916,086.394	1,269,424.663	36.259367576	-107.508376074
10,000.00	89.41	90.180	5,697.09	597.52	2,632.29	1,916,086.081	1,269,524.657	36.259370282	-107.508036962
10,100.00	89.41	90.180	5,698.12	597.20	2,732.28	1,916,085.767	1,269,624.651	36.259372987	-107.507697851
10,200.00	89.41	90.180	5,699.15	596.89	2,832.28	1,916,085.453	1,269,724.645	36.259375691	-107.507358739
10,300.00	89.41	90.180	5,700.18	596.58	2,932.27	1,916,085.140	1,269,824.639	36.259378394	-107.507019626
10,400.00	89.41	90.180	5,701.22	596.26	3,032.27	1,916,084.826	1,269,924.633	36.259381097	-107.506680515
10,500.00	89.41	90.180	5,702.25	595.95	3,132.26	1,916,084.512	1,270,024.627	36.259383798	-107.506341403
10,600.00	89.41	90.180	5,703.28	595.64	3,232.25	1,916,084.199	1,270,124.621	36.259386498	-107.506002291
10,700.00	89.41	90.180	5,704.31	595.32	3,332.25	1,916,083.885	1,270,224.615	36.259389198	-107.505663179
10,800.00	89.41	90.180	5,705.34	595.01	3,432.24	1,916,083.572	1,270,324.609	36.259391896	-107.505324066
10,900.00	89.41	90.180	5,706.38	594.70	3,532.24	1,916,083.258	1,270,424.603	36.259394594	-107.504984954
11,000.00	89.41	90.180	5,707.41	594.38	3,632.23	1,916,082.944	1,270,524.597	36.259397290	-107.504645842
11,100.00	89.41	90.180	5,708.44	594.07	3,732.22	1,916,082.631	1,270,624.591	36.259399986	-107.504306729
11,200.00	89.41	90.180	5,709.47	593.75	3,832.22	1,916,082.317	1,270,724.585	36.259402680	-107.503967617
11,300.00	89.41	90.180	5,710.51	593.44	3,932.21	1,916,082.003	1,270,824.579	36.259405374	-107.503628504
11,400.00	89.41	90.180	5,711.54	593.13	4,032.21	1,916,081.690	1,270,924.573	36.259408066	-107.503289391
11,500.00	89.41	90.180	5,712.57	592.81	4,132.20	1,916,081.376	1,271,024.567	36.259410758	-107.502950279
11,600.00	89.41	90.180	5,713.60	592.50	4,232.20	1,916,081.063	1,271,124.561	36.259413449	-107.502611166
11,700.00	89.41	90.180	5,714.63	592.19	4,332.19	1,916,080.749	1,271,224.555	36.259416139	-107.502272053
11,800.00	89.41	90.180	5,715.67	591.87	4,432.18	1,916,080.435	1,271,324.549	36.259418827	-107.501932940
11,900.00	89.41	90.180	5,716.70	591.56	4,532.18	1,916,080.122	1,271,424.543	36.259421515	-107.501593827
12,000.00	89.41	90.180	5,717.73	591.25	4,632.17	1,916,079.808	1,271,524.537	36.259424202	-107.501254714
12,100.00	89.41	90.180	5,718.76	590.93	4,732.17	1,916,079.494	1,271,624.531	36.259426888	-107.500915601
12,200.00	89.41	90.180	5,719.80	590.62	4,832.16	1,916,079.181	1,271,724.525	36.259429573	-107.500576488
12,300.00	89.41	90.180	5,720.83	590.30	4,932.16	1,916,078.867	1,271,824.519	36.259432257	-107.500237375
12,400.00	89.41	90.180	5,721.86	589.99	5,032.15	1,916,078.554	1,271,924.513	36.259434940	-107.499898262
12,500.00	89.41	90.180	5,722.89	589.68	5,132.14	1,916,078.240	1,272,024.507	36.259437622	-107.499559149
12,600.00	89.41	90.180	5,723.92	589.36	5,232.14	1,916,077.926	1,272,124.501	36.259440303	-107.499220036
12,700.00	89.41	90.180	5,724.96	589.05	5,332.13	1,916,077.613	1,272,224.495	36.259442983	-107.498880922
12,800.00	89.41	90.180	5,725.99	588.74	5,432.13	1,916,077.299	1,272,324.488	36.259445662	-107.498541809
12,900.00	89.41	90.180	5,727.02	588.42	5,532.12	1,916,076.985	1,272,424.482	36.259448341	-107.498202696
13,000.00	89.41	90.180	5,728.05	588.11	5,632.11	1,916,076.672	1,272,524.476	36.259451018	-107.497863582
13,100.00	89.41	90.180	5,729.09	587.80	5,732.11	1,916,076.358	1,272,624.470	36.259453694	-107.497524469
13,200.00	89.41	90.180	5,730.12	587.48	5,832.10	1,916,076.045	1,272,724.464	36.259456370	-107.497185355
13,300.00	89.41	90.180	5,731.15	587.17	5,932.10	1,916,075.731	1,272,824.458	36.259459044	-107.496846241
13,400.00	89.41	90.180	5,732.18	586.86	6,032.09	1,916,075.417	1,272,924.452	36.259461717	-107.496507128
13,500.00	89.41	90.180	5,733.21	586.54	6,132.09	1,916,075.104	1,273,024.446	36.259464390	-107.496168014
13,600.00	89.41	90.180	5,734.25	586.23	6,232.08	1,916,074.790	1,273,124.440	36.259467061	-107.495828900
13,700.00	89.41	90.180	5,735.28	585.91	6,332.07	1,916,074.476	1,273,224.434	36.259469732	-107.495489786
13,800.00	89.41	90.180	5,736.31	585.60	6,432.07	1,916,074.163	1,273,324.428	36.259472401	-107.495150673
13,900.00	89.41	90.180	5,737.34	585.29	6,532.06	1,916,073.849	1,273,424.422	36.259475070	-107.494811559
14,000.00	89.41	90.180	5,738.38	584.97	6,632.06	1,916,073.536	1,273,524.416	36.259477738	-107.494472445
14,100.00	89.41	90.180	5,739.41	584.66	6,732.05	1,916,073.222	1,273,624.410	36.259480404	-107.494133331
14,200.00	89.41	90.180	5,740.44	584.35	6,832.04	1,916,072.908	1,273,724.404	36.259483070	-107.493794216
14,300.00	89.41	90.180	5,741.47	584.03	6,932.04	1,916,072.595	1,273,824.399	36.259485735	-107.493455102
14,400.00	89.41	90.180	5,742.50	583.72	7,032.03	1,916,072.281	1,273,924.393	36.259488399	-107.493115988
14,500.00	89.41	90.180	5,743.54	583.41	7,132.03	1,916,071.967	1,274,024.387	36.259491062	-107.492776874
14,600.00	89.41	90.180	5,744.57	583.09	7,232.02	1,916,071.654	1,274,124.381	36.259493723	-107.492437760
14,700.00	89.41	90.180	5,745.60	582.78	7,332.02	1,916,071.340	1,274,224.375	36.259496384	-107.492098645
14,800.00	89.41	90.180	5,746.63	582.46	7,432.01	1,916,071.027	1,274,324.369	36.259499044	-107.491759531
14,900.00	89.41	90.180	5,747.67	582.15	7,532.00	1,916,070.713	1,274,424.363	36.259501703	-107.491420416

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COMPASS 5000.16 Build 96



#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 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
15,000.00	89.41	90.180	5,748.70	581.84	7,632.00	1,916,070.399	1,274,524.357	36.259504361	-107.491081302
15,100.00	89.41	90.180	5,749.73	581.52	7,731.99	1,916,070.086	1,274,624.351	36.259507018	-107.490742187
15,200.00	89.41	90.180	5,750.76	581.21	7,831.99	1,916,069.772	1,274,724.345	36.259509675	-107.490403073
15,300.00	89.41	90.180	5,751.79	580.90	7,931.98	1,916,069.458	1,274,824.339	36.259512330	-107.490063958
15,400.00	89.41	90.180	5,752.83	580.58	8,031.97	1,916,069.145	1,274,924.333	36.259514984	-107.489724843
15,500.00	89.41	90.180	5,753.86	580.27	8,131.97	1,916,068.831	1,275,024.327	36.259517637	-107.489385729
15,600.00	89.41	90.180	5,754.89	579.96	8,231.96	1,916,068.518	1,275,124.321	36.259520289	-107.489046614
15,700.00	89.41	90.180	5,755.92	579.64	8,331.96	1,916,068.204	1,275,224.315	36.259522941	-107.488707499
15,800.00	89.41	90.180	5,756.96	579.33	8,431.95	1,916,067.890	1,275,324.309	36.259525591	-107.488368384
15,900.00	89.41	90.180	5,757.99	579.01	8,531.95	1,916,067.577	1,275,424.303	36.259528240	-107.488029269
16,000.00	89.41	90.180	5,759.02	578.70	8,631.94	1,916,067.263	1,275,524.297	36.259530889	-107.487690154
16,100.00	89.41	90.180	5,760.05	578.39	8,731.93	1,916,066.950	1,275,624.291	36.259533536	-107.487351039
16,200.00	89.41	90.180	5,761.08	578.07	8,831.93	1,916,066.636	1,275,724.285	36.259536183	-107.487011924
16,300.00	89.41	90.180	5,762.12	577.76	8,931.92	1,916,066.322	1,275,824.279	36.259538828	-107.486672809
16,400.00	89.41	90.180	5,763.15	577.45	9,031.92	1,916,066.009	1,275,924.273	36.259541473	-107.486333694
16,500.00	89.41	90.180	5,764.18	577.13	9,131.91	1,916,065.695	1,276,024.267	36.259544117	-107.485994578
16,600.00	89.41	90.180	5,765.21	576.82	9,231.91	1,916,065.381	1,276,124.261	36.259546759	-107.485655463
16,700.00	89.41	90.180	5,766.25	576.51	9,331.90	1,916,065.068	1,276,224.255	36.259549401	-107.485316348
16,800.00	89.41	90.180	5,767.28	576.19	9,431.89	1,916,064.754	1,276,324.249	36.259552042	-107.484977232
16,900.00	89.41	90.180	5,768.31	575.88	9,531.89	1,916,064.441	1,276,424.242	36.259554681	-107.484638117
17,000.00	89.41	90.180	5,769.34	575.56	9,631.88	1,916,064.127	1,276,524.236	36.259557320	-107.484299001
17,063.70	89.41	90.180	5,770.00	575.36	9,695.57	1,916,063.927	1,276,587.928	36.259559000	-107.484083000
PBHL/T	0 @ 17063.70	MD 5770.00 T	VD						

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
Lybrook 262 FTP 386 F - plan misses targe - Point	№ 0.00 t center by 120	0.000 07ft at 6508.	5,661.03 3.52ft MD (56	728.54 661.05 TVD, 6	-858.61 08.47 N, -858	1,916,217.097 8.98 E)	1,266,033.769	36.259605000	-107.519881000
Lybrook 262 0 VS - plan misses targe - Point	0.00 t center by 115	0.000 .67ft at 7371	5,670.00 .86ft MD (56	721.43 69.96 TVD, 60	4.67 05.76 N, 4.30	1,916,209.990 E)	1,266,897.040	36.259616529	-107.516953176
Lybrook 262 LTP 380 Fl - plan hits target ce - Point	N 0.00 enter	0.000	5,770.00	575.36	9,695.57	1,916,063.927	1,276,587.928	36.259559000	-107.484083000
Casing Points									

Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter ('')	Hole Diameter ('')	
350.00	350.00	13 3/8" Csg		13-3/8	17-1/2	
4,113.27	3,865.00	9 5/8" Csg		9-5/8	12-1/4	

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#### Planning Report - Geographic

Database:	DT_Aug2923v16	Local Co-ordinate Reference:	Well NE Lybrook Com 262 H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6980+25 @ 7005.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6980+25 @ 7005.00ft
Site:	Section 06-T23N-R06W	North Reference:	Grid
Well:	NE Lybrook Com 262 H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Formations

1	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,550.57	1,507.43	Ojo Alamo		0.59	90.831
	1,640.42	1,590.08	Kirtland		0.59	90.831
	1,924.03	1,850.99	Fruitland		0.59	90.831
	2,237.96	2,139.79	Pictured Cliffs		0.59	90.831
	2,378.68	2,269.25	Lewis		0.59	90.831
	2,703.43	2,568.00	Chacra_A		0.59	90.831
	3,899.58	3,668.41	Cliff House_Basal		0.59	90.831
	3,937.47	3,703.27	Menefee		0.59	90.831
	4,684.39	4,390.40	Point Lookout		0.59	90.831
	4,992.90	4,674.22	Mancos		0.59	90.831
	5,358.21	5,018.10	MNCS_A		0.59	90.831
	5,443.81	5,103.10	MNCS_B		0.59	90.831
	5,582.94	5,238.39	MNCS_C		0.59	90.831
	5,661.53	5,310.70	MNCS_Cms		0.59	90.831
	5,735.02	5,374.07	MNCS_D		0.59	90.831
	5,860.55	5,469.90	MNCS_E		0.59	90.831
	5,931.15	5,515.46	MNCS_F		0.59	90.831
	6,100.00	5,601.95	MNCS_G		0.59	90.831
	6,245.96	5,648.37	MNCS_H		0.59	90.831

Plan Annotations

Measured	Vertical	Local Coor	dinates	
Depth (ft)	Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
500.00	500.00	0.00	0.00	KOP Begin 3°/100' build
1,269.34	1,248.70	49.69	-144.57	Begin 23.08° tangent
5,178.59	4,845.05	547.85	-1,593.84	Begin 10°/100' build/turn
5,998.94	5,552.71	610.00	-1,347.00	Begin 60.00° tangent
6,058.94	5,582.71	609.84	-1,295.04	Begin 10°/100' build
6,159.20	5,625.01	609.55	-1,204.28	70° inc @ 6159.20 MD 5625.21 TVD
6,353.02	5,659.44	608.96	-1,014.48	Begin 89.41° lateral
17,063.70	5,770.00	575.36	9,695.57	PBHL/TD @ 17063.70 MD 5770.00 TVD

#### WELL NAME: NE LYBROOK COM 262H

OBJECTIVE: Drill, complete, equip single lateral Mancos formation Gallup member.
API Number: Not assigned yet
AFE Number: Not assigned yet

ER Well Number: Not assigned yet

State: N	lew Mexico	)				
County: R	io Arriba					
Surface Elev.:	6,980	ft ASL (GL)	7,005	ft ASL (KB)		
Surface Location:	6-23-6	Sec-Twn- Rng	1,099	ft FNL	703	ft FWL
BH Location:	5-23-6	Sec-Twn- Rng	380	ft FNL	100	ft FEL

-								
QUICK REFERENCE								
Sur TD (MD)	350	ft						
Int TD (MD)	4,100	ft						
KOP (MD)	5,200	ft						
KOP (TVD)	4,865	ft						
Target (TVD)	5,602	ft						
Curve BUR	10	°/100 ft						
POE (MD)	6,100	ft						
TD (MD)	17,064	ft						
Lat Len (ft)	10,964	ft						

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

South on US HWY 550 for 48.3 mles to MM 102.9; Left (North) on County Road #378 for 1.1 miles to fork; Right (North) exiting CR 378 for 0.1 miles to fork; Left (North-East) for 1.3 miles to fork; Right (East) for 0.2 miles to fork; Left (NorthEast) on lease road for .1 miles to fork, Left (West) on access road into NE Lybrook Com 176H Pad. The 262H will be one of 2 wells to be added to an existing, 2 well pad. The 262H will be the furthest North well and furthest from the location entrance. From South to North will be NE Lybrook Com 177H (existing well), NE Lybrook Com 176 (existing well), NE Lybrook Com 263H (proposed) and NE Lybrook Com 262H (proposed).

#### WELL CONSTRUCTION SUMMARY:

	Hole (in)	TD MD (ft)	Csg (in)	Csg (lb/ft)	Csg (grade)	Csg (conn)	Csg Top (ft)	Csg Bot (ft)
Surface	17.500	350	13.375	54.5	J-55	BTC	0	350
Intermediate	12.250	4,100	9.625	36.0	J-55	LTC	0	4,100
Production	8.500	17,064	5.500	17.0	P-110	LTC	0	17,064

#### **CEMENT PROPERTIES SUMMARY:**

						тос		
	Туре	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	% Excess	(ft MD)	Total (sx)	Cu Ft Slurry
Surface	TYPE III	14.6	1.39	6.686	100%	0	364	505
Inter. (Lead)	):10 Type III:P	12.5	2.14	12.05	70%	0	868	1,857
Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3600	150	207
Prod. (Lead)	ASTM type I/I	12.4	2.370	13.4	50%	0	550	1,304
Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4684	1987	3,120

#### **COMPLETION / PRODUCTION SUMMARY:**

*Frac:* 10864

Flowback: Flow back through production tubing as pressures allow

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



#### BOPE & CHOKE MANIFOLD DIAGRAMS

NOTE: EXACT BOPE AND CHOKE CONFIRGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.





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

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

District III

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

District IV

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

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

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CONDITIONS

Action 291552

CONDITIONS

Operator:	OGRID:
ENDURING RESOURCES, LLC	372286
6300 S Syracuse Way, Suite 525	Action Number:
Centennial, CO 80111	291552
	Action Type:
	[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

#### CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	12/28/2023
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	12/28/2023
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	12/28/2023
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	12/28/2023
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	12/28/2023
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	12/28/2023