Application for Permit to Drill

AFMSS

U.S. Department of the Interior

Bureau of Land Management

APD Package Report	Date Printed:	
APD ID:	Well Status:	
APD Received Date:	Well Name:	
Operator:	Well Number:	

APD Package Report Contents

- Form 3160-3

- Operator Certification Report
- Application Report
- Application Attachments
 - -- Operator Letter of Designation: 1 file(s)
 - -- Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
 - -- Blowout Prevention BOP Diagram Attachment: 1 file(s)
 - -- Casing Design Assumptions and Worksheet(s): 3 file(s)
 - -- Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
 - -- Other Facets: 1 file(s)
- SUPO Report
- SUPO Attachments
 - -- Existing Road Map: 1 file(s)
 - -- Existing Road Improvement Attachment: 1 file(s)
 - -- Attach Well map: 1 file(s)
 - -- Production Facilities map: 4 file(s)
 - -- Water source and transportation map: 1 file(s)
 - -- Construction Materials source location attachment: 1 file(s)
 - -- Well Site Layout Diagram: 2 file(s)
 - -- Recontouring attachment: 1 file(s)
 - -- Other SUPO Attachment: 4 file(s)
- PWD Report
- PWD Attachments
 - -- None

- Bond Report

- Bond Attachments

-- None

Form 3160-3 (June 2015) UNITED STATE	S	FORM APPROVED OMB No. 1004-0137 Expires: January 31, 2018				
DEPARTMENT OF THE	5. Lease Serial No.					
BUREAU OF LAND MAN						
APPLICATION FOR PERMIT TO I	6. If Indian, Allotee or Tribe Name					
1a. Type of work:	7. If Unit or CA Agreement, Name and No.					
	REENTER					
	Other	8. Lease Name and Well No.				
1c. Type of Completion: Hydraulic Fracturing	Single Zone Multiple Zone					
2. Name of Operator		9. API Well No. 30-039-31446				
3a. Address	3b. Phone No. (include area code)	10, Field and Pool, or Exploratory				
4. Location of Well (Report location clearly and in accordance	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 of	ffice*	12. County or Parish 13. State				
 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 	16. No of acres in lease 17. Spaci	ng Unit dedicated to this well				
 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 	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 (as applicable)	of Onshore Oil and Gas Order No. 1, and the H	Hydraulic Fracturing rule per 43 CFR 3162.3-3				
 Well plat certified by a registered surveyor. A Drilling Plan. 	4. Bond to cover the operation Item 20 above).	ns unless covered by an existing bond on file (see				
3. A Surface Use Plan (if the location is on National Forest Syst SUPO must be filed with the appropriate Forest Service Office		rmation and/or plans as may be requested 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 applicat applicant to conduct operations thereon. Conditions of approval, if any, are attached.	ant holds legal or equitable title to those rights	in the subject lease which would entitle the				
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212,	make it a crime for any person knowingly and	willfully to make to any department or agency				
of the United States any false, fictitious or fraudulent statements						



(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: SWNW / 1773 FNL / 303 FWL / TWSP: 23N / RANGE: 6W / SECTION: 3 / LAT: 36.25601 / LONG: -107.464636 (TVD: 0 feet, MD: 0 feet) PPP: SWNW / 2266 FNL / 0 FWL / TWSP: 23N / RANGE: 6W / SECTION: 11 / LAT: 36.240524 / LONG: -107.44756 (TVD: 5484 feet, MD: 13533 feet) PPP: NWNE / 0 FNL / 2229 FEL / TWSP: 23N / RANGE: 6W / SECTION: 10 / LAT: 36.246496 / LONG: -107.455117 (TVD: 5506 feet, MD: 10420 feet) PPP: SWNW / 2187 FNL / 0 FWL / TWSP: 23N / RANGE: 6W / SECTION: 3 / LAT: 36.254858 / LONG: -107.465703 (TVD: 5536 feet, MD: 6060 feet) PPP: SENE / 2136 FNL / 50 FEL / TWSP: 23N / RANGE: 6W / SECTION: 4 / LAT: 36.254988 / LONG: -107.465867 (TVD: 5537 feet, MD: 5992 feet) BHL: SWSE / 234 FSL / 2592 FEL / TWSP: 23N / RANGE: 6W / SECTION: 11 / LAT: 36.233057 / LONG: -107.438113 (TVD: 5457 feet, MD: 17426 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

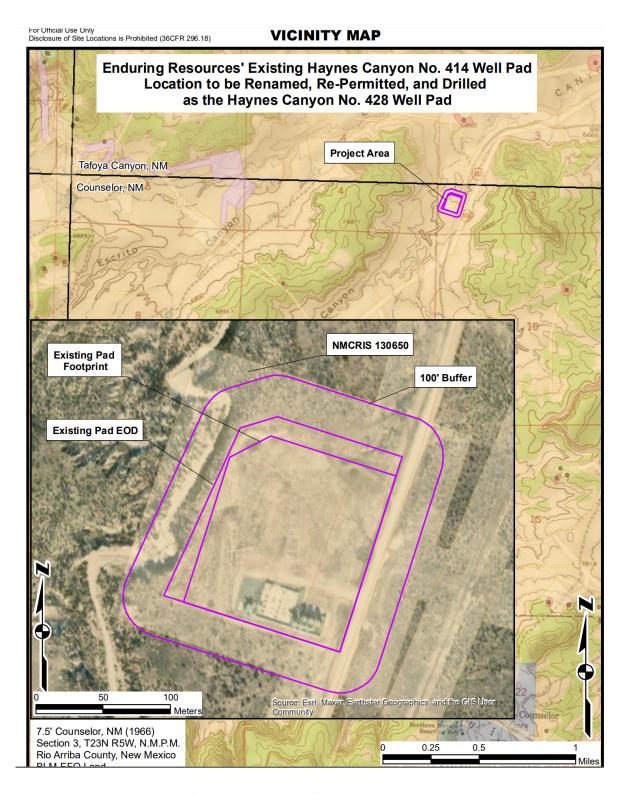
Natural environmental characteristics are unfavorable to the presence of cultural properties (such as recent landslide or rock falls), or

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 5:09:01 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

Note. I all of this project was previously inventoried.										
Report Summary	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

1

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:

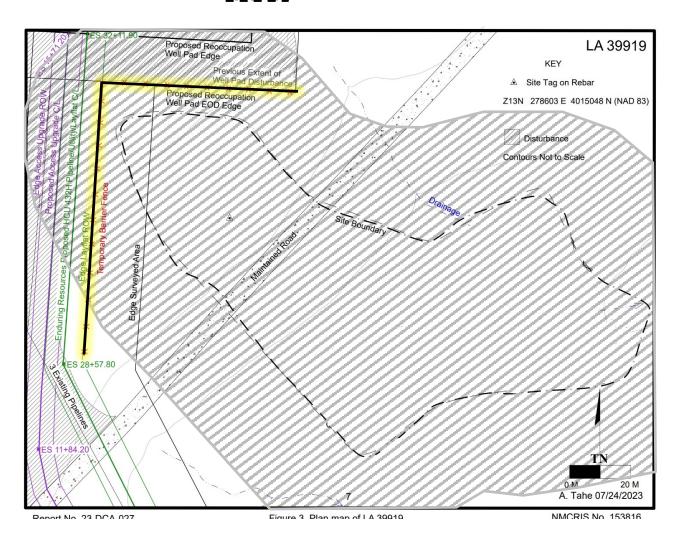
- The temporary site protection barrier will be erected prior to the start of construction. The barrier will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barrier will remain in place through reclamation and reseeding and shall 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.

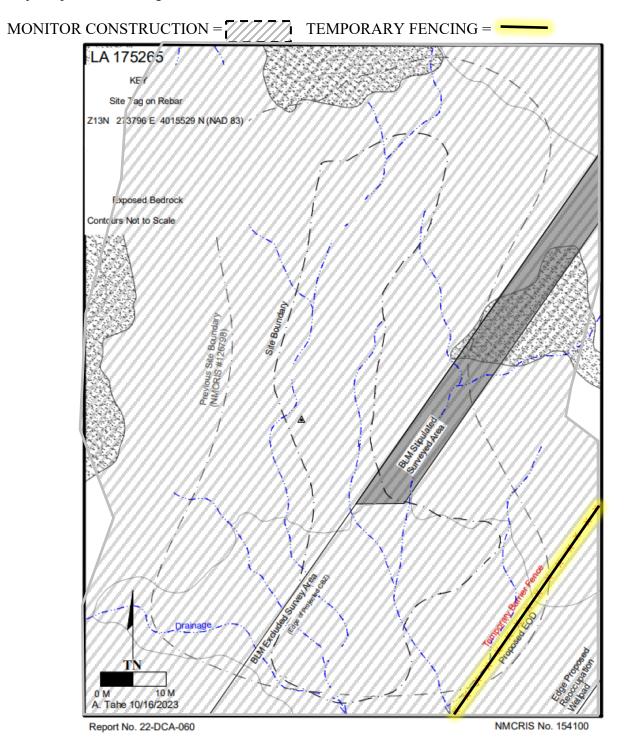
3. SITE PROTECTION BARRIER:

- 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.

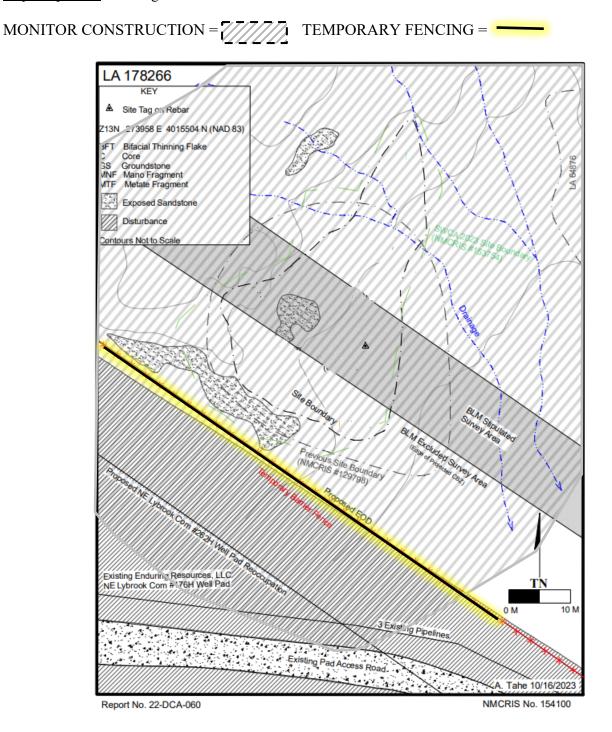
For Official Use Only: Disclosure of site locations prohibited (43 CFR 7.18) CULTURAL RESOURCE STIPULATIONS Farmington Field Office BLM Report Number: 2024(I)005F

<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.



4



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
#432H HAYNES CANYON UNIT
Lease: NMNM130875 Agreement: NMNM105770949
SH: SW1/4SW1/4 Section 3, T. 23N., R. 6W. Rio Arriba County, New Mexico
BH: SW1/4SE1/4 Section 11, 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 5th 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. <u>DRILLER'S LOG</u>

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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U.S. Department of the Interior BUREAU OF LAND MANAGEMENT Operator Certification Data Report

Operator

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: DANIELLE GAVITO		Signed on: 09/18/2023
Title: Permit Agent		
Street Address: 9446 CLEARMON	IT STREET	
City: THORNTON	State: CO	Zip: 80229
Phone: (303)524-4651		
Email address: DGAVITO@CDHC	ONSULT.COM	
Field		
Representative Name:		
Street Address:		
City: S	tate:	Zip:
Phone:		
Email address:		

Received by OCD: 12/5/2023 9:19:54 PM

FAFMSS

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

APD ID: 10400093992

Operator Name: ENDURING RESOURCES LLC Well Name: HAYNES CANYON UNIT Well Type: OIL WELL

Submission Date: 09/22/2023

Highlighted data reflects the most recent changes Show Final Text

Application Data

Section 1 - General

APD ID: 10400093992	Tie to previous NOS?	? Y Submission Date: 09/22/20	023						
BLM Office: Farmington	User: DANIELLE GAVI	VITO Title: Permit Agent							
Federal/Indian APD: FED	Is the first lease penet	etrated for production Federal or Indian? FED							
Lease number: NMNM130875	Lease Acres:								
Surface access agreement in place	e? Allotted?	Reservation:							
Agreement in place? YES	Federal or Indian agre	Federal or Indian agreement: FEDERAL							
Agreement number: NMNM105770	949								
Agreement name: Haynes Canyon	Unit								
Keep application confidential? Y									
Permitting Agent? YES	APD Operator: ENDUF	JRING RESOURCES LLC							
Operator letter of	Operator_Certification_09062023	23_20230908144749.pdf							

Operator Info

Operator Organization Name: ENDURING RESOURCES LLC Operator Address: 200 ENERGY COURT Operator PO Box: Operator City: FARMINGTON State: NM **Operator Phone:** (505)497-8574 **Operator Internet Address:**

Section 2 - Well Information

Well in Master Development Plan? NO	Master Development Plan name:							
Well in Master SUPO? NO	Master SUPO name:							
Well in Master Drilling Plan? NO	Master Drilling Plan name:							
Well Name: HAYNES CANYON UNIT	Well Number: 432H Well API Number:							
Field/Pool or Exploratory? Field and Pool	Field Name: COUNSELOR GALLUP-DAKOTA	Pool Name: COUNSELORS GALLUP DAKOTA						

12/05/2023

Well Number: 432H Well Work Type: Drill

Zip: 87401

Operator Name: ENDURING RESOURCES LLC Well Name: HAYNES CANYON UNIT

Well Number: 432H

Is the proposed well in an area containing other mineral resources? USEABLE WATER, NATURAL GAS, OIL

Is the proposed well in a Helium produ	uction area? N	Use Existing Well Pad	New surface disturbance? N				
Type of Well Pad: MULTIPLE WELL		Multiple Well Pad Nam Haynes Canyon Unit	ne:	Number: 412			
Well Class: HORIZONTAL		Number of Legs: 1					
Well Work Type: Drill							
Well Type: OIL WELL							
Describe Well Type:							
Well sub-Type: EXPLORATORY (WILD	CAT)						
Describe sub-type:							
Distance to town: 60 Miles	Distance to ne	arest well: 20 FT	Distance	to lease line: 303 FT			
Reservoir well spacing assigned acres	s Measurement	: 680 Acres					
Well plat: HCU_432H_Plats_112823	3_202311281243	08.pdf					
Well work start Date: 01/01/2024		Duration: 30 DAYS					

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Survey number: 15269

Vertical Datum: NAVD88

Reference Datum: GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	177 3	FNL	303	FW L	23N	6W	3	Aliquot SWN W	36.25601	107.4646	RIO ARRI BA	NEW MEXI CO		F	NMNM 28733	668 9	0	0	Y
KOP Leg #1	177 3	FNL	303	FW L	23N	6W	3	Aliquot SWN W	36.25601	107.4646	RIO ARRI BA	1	NEW MEXI CO	F	NMNM 28733	173 3	505 0	495 6	Y
PPP Leg #1-1	213 6	FNL	50	FEL	23N	6W	4	Aliquot SENE	36.25498 8		RIO ARRI BA	NEW MEXI CO	NEW MEXI CO	F	NMNM 130875	115 2	599 2	553 7	Y

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
PPP	218	FNL	0	FW	23N	6W	3	Aliquot	36.25485	-	RIO	NEW	NEW	F	NMNM	115	606	553	Y
Leg	7			L				SWN	8	107.4657 03	ARRI BA	MEXI CO	MEXI CO		28733	3	0	6	
#1-2								W											
PPP	0	FNL		FEL	23N	6W	10	Aliquot	36.24649		RIO	NEW	NEW	F	NMNM	118	104	550	Y
Leg			9					NWNE	6	107.4551 17	ARRI BA	MEXI CO	MEXI CO		28737	3	20	6	
#1-3												00	00						
PPP	226	FNL	0	FW	23N	6W	11	Aliquot	36.24052		RIO	NEW	NEW	F	NMNM	120	135	548	Y
Leg	6			L				SWN	4	107.4475 6	ARRI BA	MEXI CO	MEXI CO		24458	5	33	4	
#1-4								W		0	DA	00	00						
EXIT	234	FSL		FEL	23N	6W	11	Aliquot	36.23305	-	RIO	NEW	NEW	F	NMNM	123	174	545	Y
Leg			2					SWSE	7	107.4381		MEXI			130876	2	26	7	
#1										13	BA	со	со						
BHL	234	FSL	259	FEL	23N	6W	11	Aliquot	36.23305	-	RIO	NEW		F	NMNM	123	174	545	Y
Leg			2					SWSE	7	107.4381			MEXI		130876	2	26	7	
#1										13	BA	co	со						

Operator Certification:

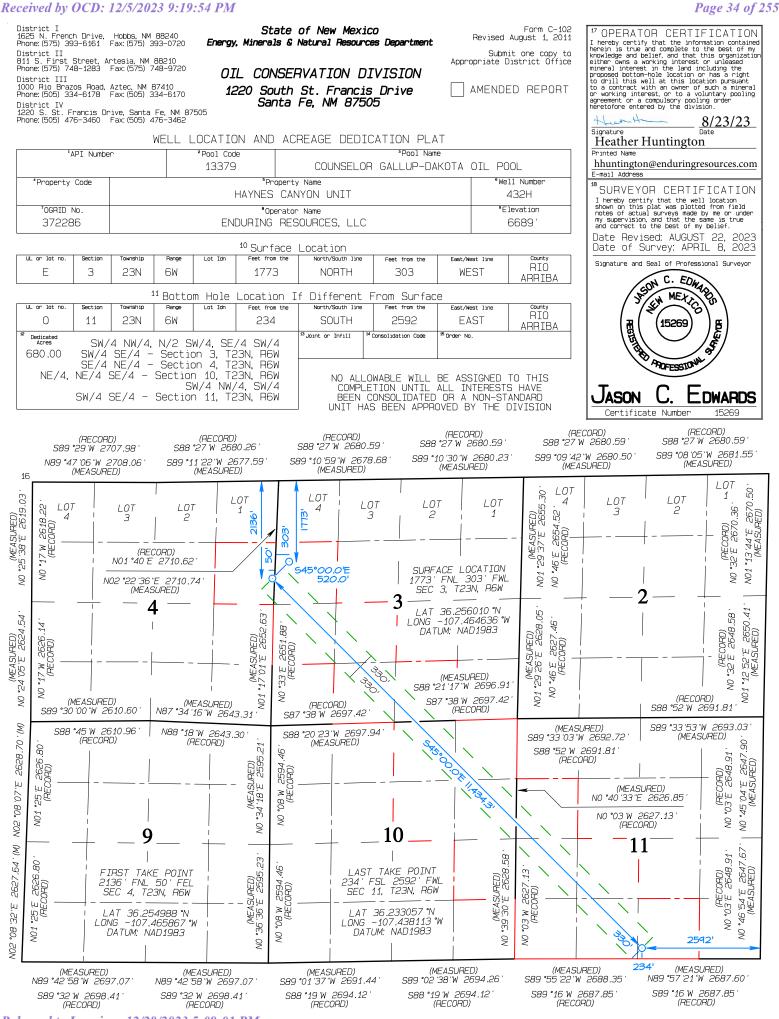
I hereby certify that I, or someone under my direct supervision, has inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package, to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 6th day of September	,2023.
Name: Heather Huntington	
Position Title Permitting Technician	
Address: 200 Energy Court, Farmington, NM 87401	
Telephone: 505-636-9751	_
Field representative (if not above signatory)	
Email: <u>hhuntington@enduringresources.com</u>	

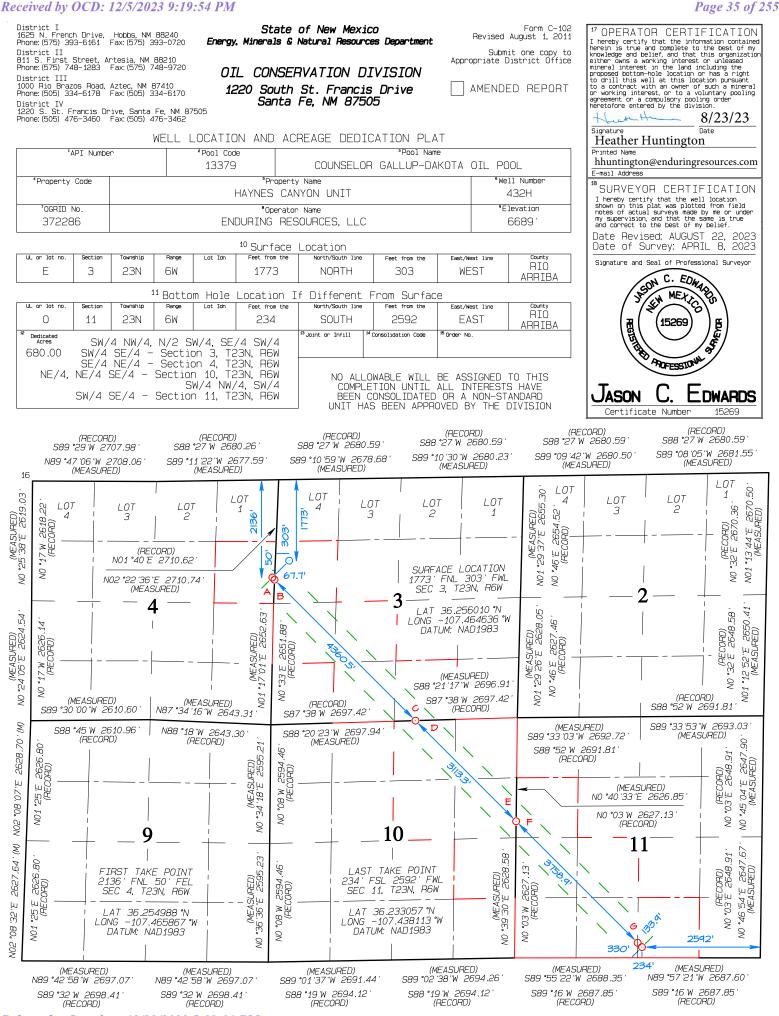
Date: 9/6/2023

at

Heather Huntington Permitting Technician Enduring Resources, LLC



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Released to Imaging: 12/28/2023 5:09:01 PM

LEASE X-ING (A) 2187' FNL O' FEL SEC 4, T23N, R6W

LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

- LEASE X-ING (B) 2187' FNL 0' FWL SEC 3, T23N, R6W
- LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

LEASE X-ING (C) O'FSL 2229'FEL SEC 3, T23N, R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

LEASE X-ING (D) 0' FNL 2229' FEL SEC 10, T23N. R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

LEASE X-ING (E) 2266' FNL 0' FEL SEC 10, T23N, R6W

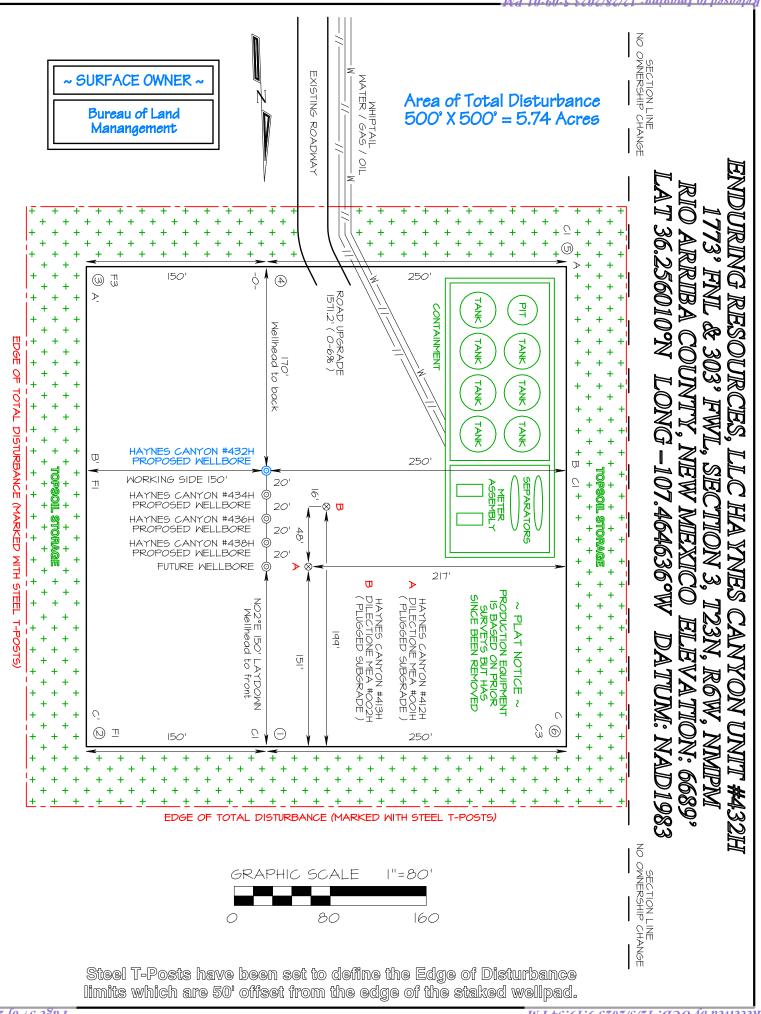
LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983 LEASE X-ING (F) 2266' FNL 0' FWL SEC 11, T23N, R6W

LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983

LEASE X-ING (G) 328' FSL 2688' FWL SEC 11, T23N, R6W

LAT 36.233314 °N LONG -107.438438 °W DATUM: NAD1983

•

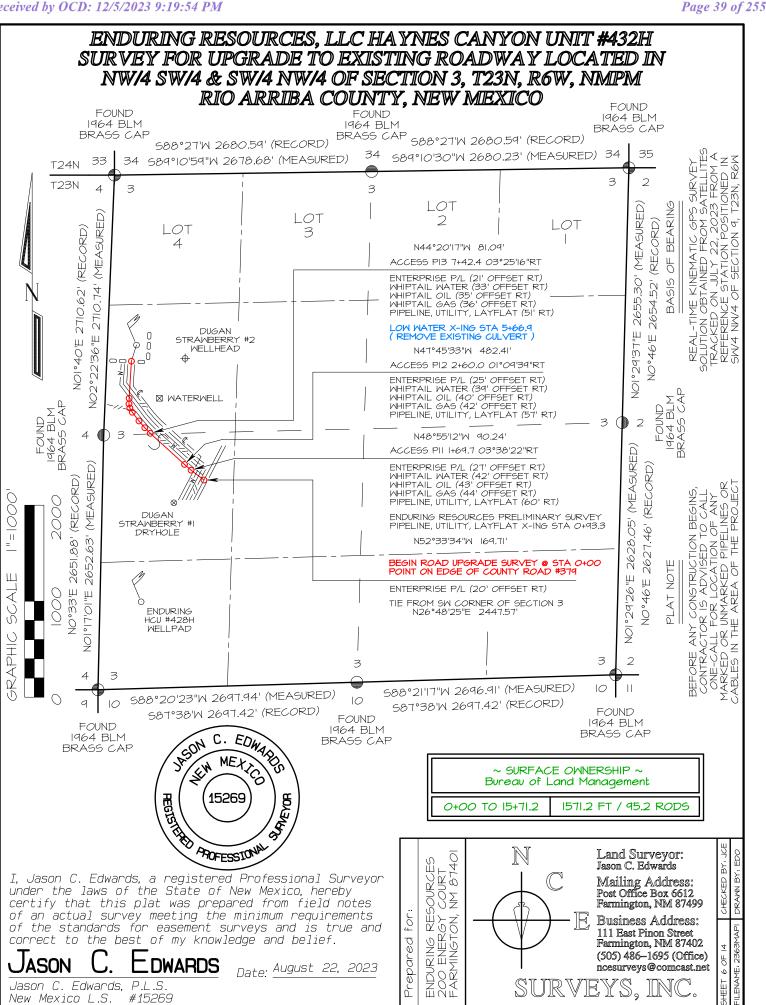


	ENDURING RESOURCES, LLC HAYNES CANYON UNIT #432H 1773' FNL & 303' FWL, SECTION 3, T23N, R6W, NMPM RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6689'
A - A	HORIZONTAL SCALE I"=55' CIL VERTICAL SCALE I"=30'
-06dd	
-b899	
6679'	
	C/L
₽-₽_	
6699	
-b899	
6679	
	C/L
C - C	
66dd	
66791	
	EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

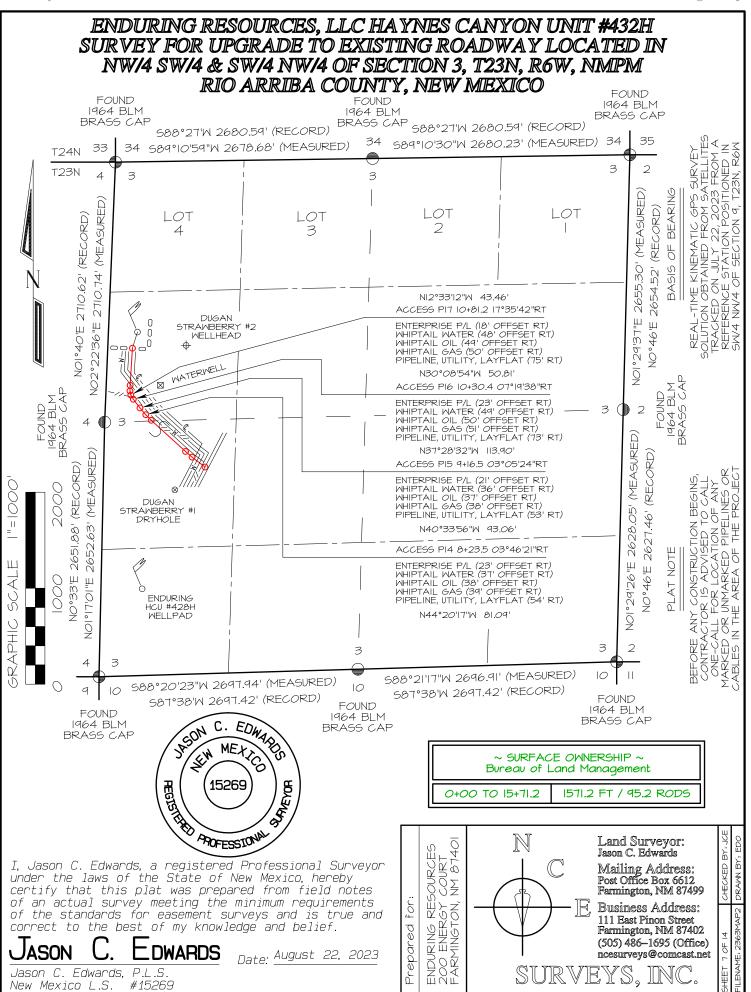
Me 10:00: 2202/82/21 :guigom 1 of besoel M

Received by OCD: 12/5/2023 9:19:54 PM

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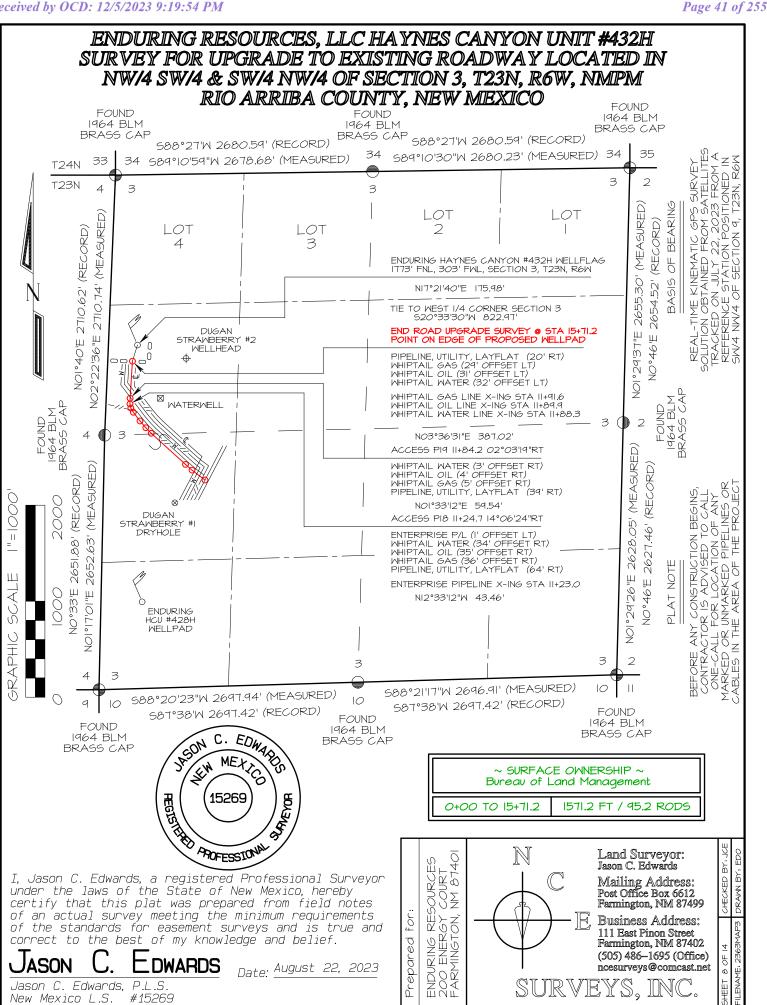


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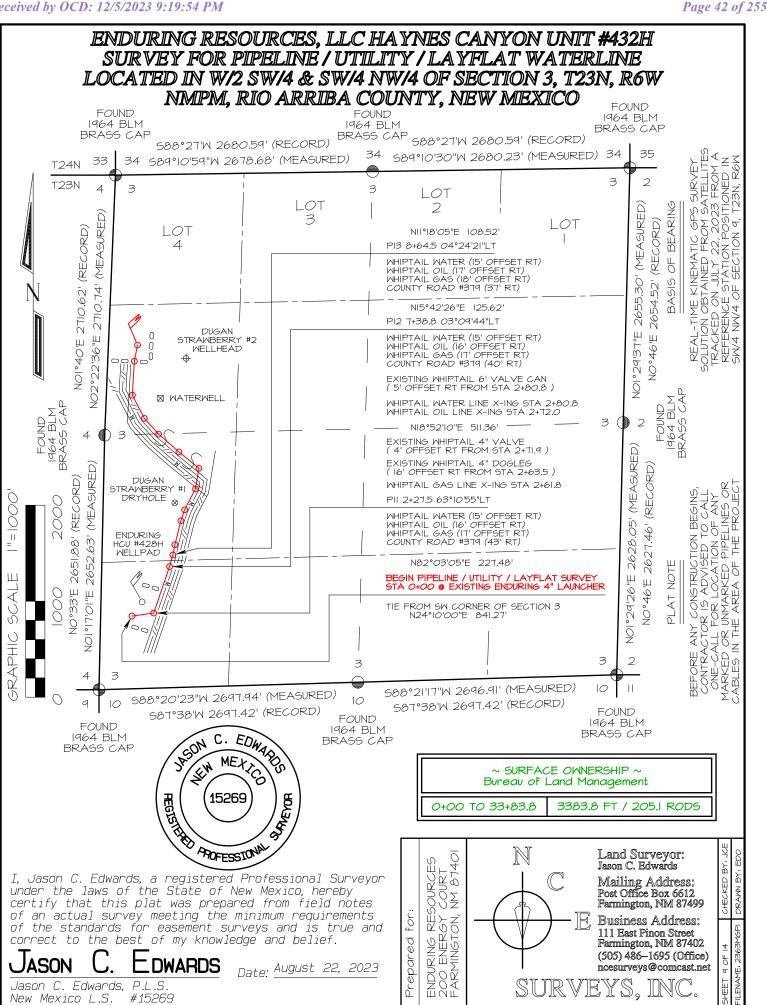


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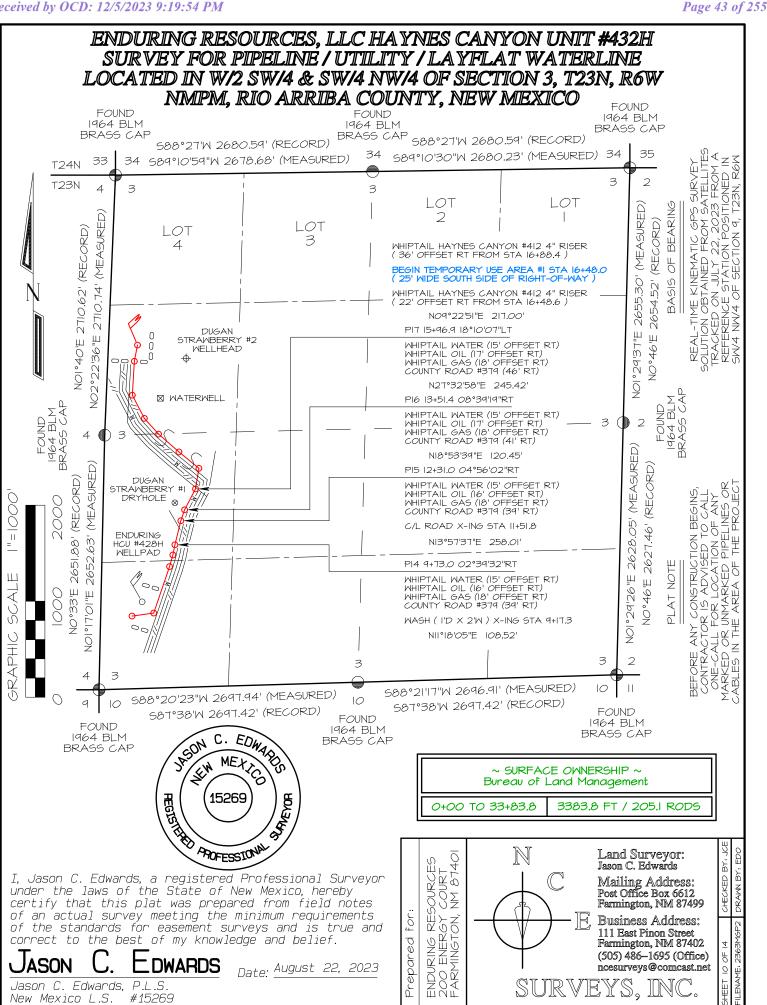
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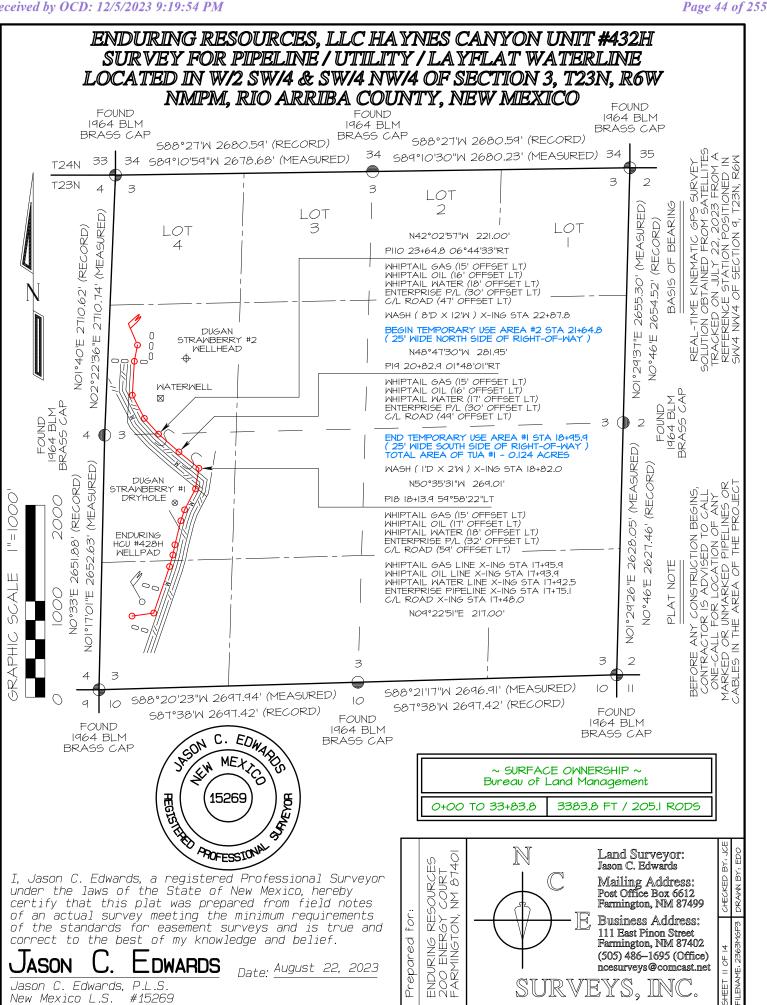
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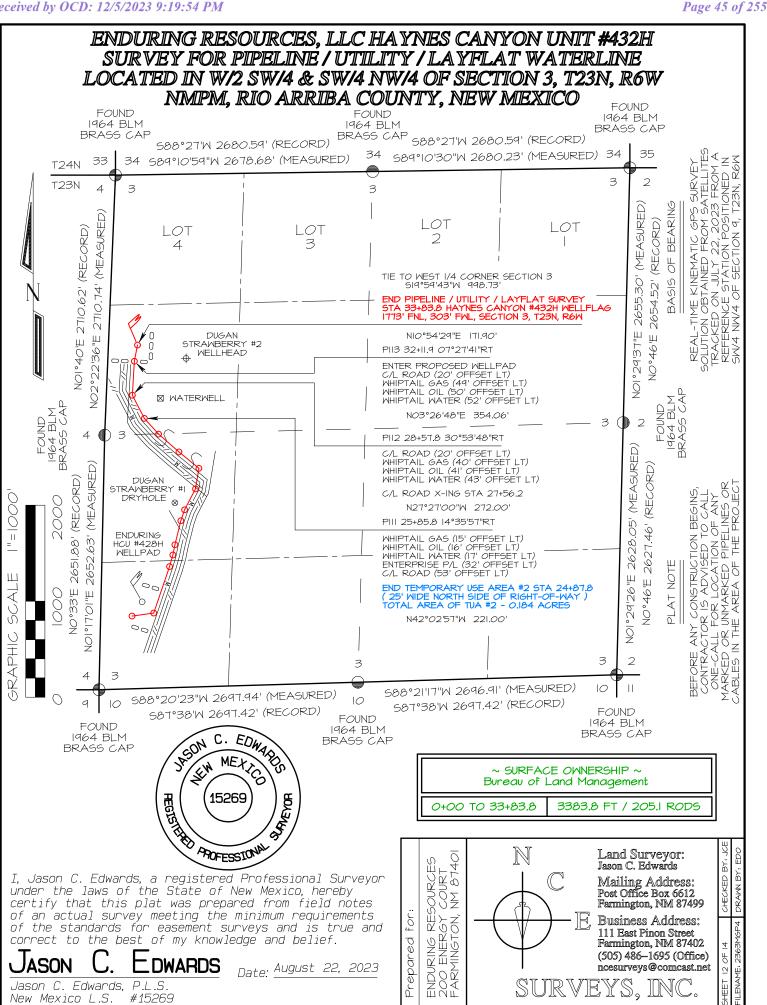
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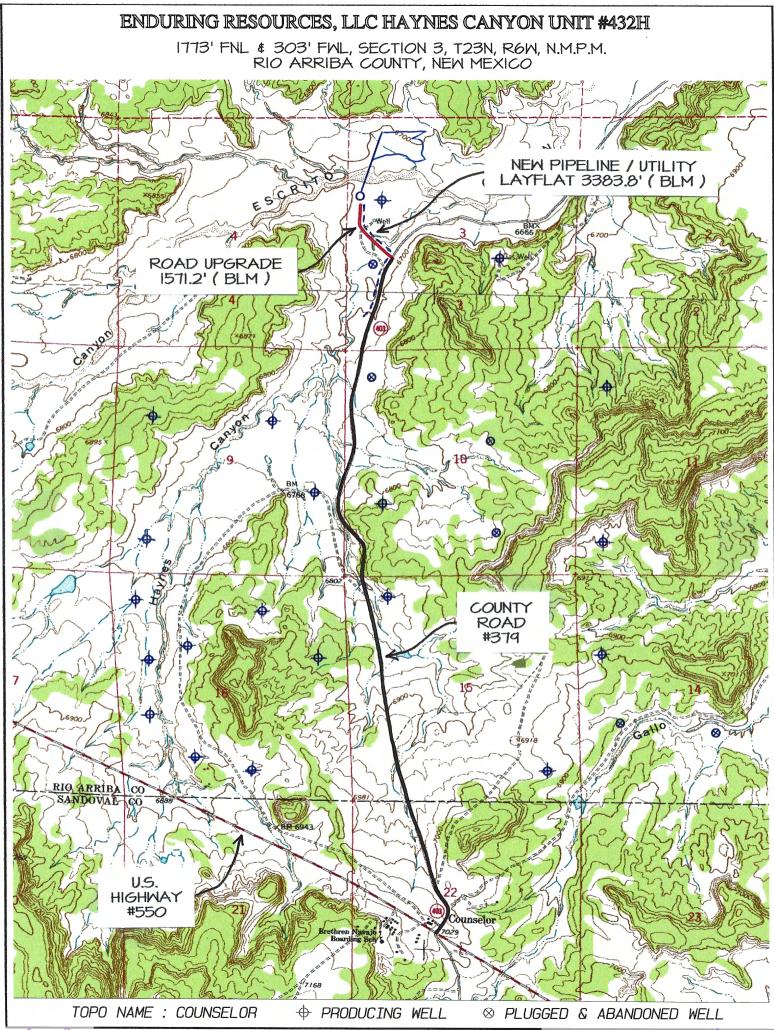
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Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #432H

1773' FNL & 303' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM

Latitude 36.256010°N Longitude -107.464636°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.7 miles to fork in roadway;

Go Left (North-westerly) exiting County Road #379 (aka State Highway #403) for 0.2 miles to fork in road;

Go Right (Northerly) for 0.1 miles to Enduring Haynes Canyon Unit #432H existing location.



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

APD ID: 10400093992

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Type: OIL WELL

Well Number: 432H Well Work Type: Drill

Submission Date: 09/22/2023

Highlighted data reflects the most recent changes

12/05/2023

Drilling Plan Data Report

Show Final Text

Section 1 - Geologic Formations

Sec	tion 1 - Geologic	Formatio	ns				
Formation	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producino Formatio
12560837	NACIMIENTO	6714	0	Ö	SANDSTONE, SHALE	USEABLE WATER	N
12560838	OJO ALAMAO	5300	1414	1418	SANDSTONE, SILTSTONE	USEABLE WATER	N
12560839	KIRTLAND	5190	1524	1531	SANDSTONE, SHALE, SILTSTONE	USEABLE WATER	N
12560840	FRUITLAND	4970	1744	1758	COAL, SANDSTONE, SHALE, SILTSTONE	NATURAL GAS	Y
12560841	PICTURED CLIFFS	4745	1969	1990	SANDSTONE, SILTSTONE	NATURAL GAS	Y
12560842	LEWIS	4599	2115	2139	OTHER, SHALE, SILTSTONE : Huarfonito Bentonite is in middle of the interval (1' thick marker bed)	NATURAL GAS	Y
12560843	CHACRA	4299	2415	2448	SHALE, SILTSTONE	NATURAL GAS	Y
12560844	CLIFFHOUSE	3187	3527	3592	SANDSTONE	NATURAL GAS	Y
12560845	MENEFEE	3187	3527	3592	COAL, SANDSTONE, SHALE, SILTSTONE	NATURAL GAS	Y
12560846	POINT LOOKOUT	2476	4238	4324	SANDSTONE, SHALE	NATURAL GAS	Y
12560847	MANCOS	2186	4528	4621	SHALE, SILTSTONE	NATURAL GAS, OIL	Y
12560848	GALLUP	1846	4868	4962	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560849	MANCOS	1756	4958	5052	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560850	MANCOS	1606	5108	5205	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560851	MANCOS	1536	5178	5280	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560852	MANCOS	1481	5233	5342	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
12560853	MANCOS	1402	5312	5441	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560854	MANCOS	1347	5367	5519	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560855	MANCOS	1268	5446	5660	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y
12560857	MANCOS	1257	5457	17427	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	Y
12560856	MANCOS	1218	5496	5768	OTHER, SHALE : Silts	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 5457

Equipment: See attached BOP and Choke diagram for reference. Rig will be equipped with upper and lower kelly cocks with handles available. Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well.

Requesting Variance? NO

Variance request:

Testing Procedure: 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.

Choke Diagram Attachment:

Haynes_Canyon_Unit_432H_BOP__Choke_8_17_2023_20230903145725.pdf

BOP Diagram Attachment:

Haynes_Canyon_Unit_432H_BOP___Choke_8_17_2023_20230903145730.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	350	0	350	6689	6339	350	J-55	54.5	BUTT	7.39	3.45	BUOY	7.79	BUOY	7.31

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
2	INTERMED IATE	12.2 5	9.625	NEW	API	N	0	3747	0	3677	6689	3012	3747	J-55	36	LT&C	1.26	2.59	BUOY	2.1	BUOY	2.62
3	PRODUCTI ON	8.5	5.5	NEW	API	N	0	17427	0	5457	6689	1232	17427	P- 110	17	LT&C	2.77	1.18	BUOY	1.25	BUOY	1.54

Casing Attachments

Casing ID: 1 String SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Haynes_Canyon_Unit_432H_Drilling_Package_09032023_20230903161348.pdf

Casing ID: 2 String INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Haynes_Canyon_Unit_432H_Drilling_Package_09032023_20230903161359.pdf

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

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Casing Attachments

Casing ID: 3 String PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Haynes_Canyon_Unit_432H_Drilling_Package_09032023_20230903161409.pdf

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	350	364	1.39	14.6	505.3	100		ASTM Type III Blend, Calcium Chloride 2% BWOC Accelerator, D- CD2 .3% BWOC Dispersant/Friction Reducer, .25 lbs/sx Cello Flake - seepage

INTERMEDIATE	Lead	0	3247	780	2.14	12.5	1669	70	Type III	90/10 Poz, D-CSE 1 5.0% BWOC Strength Enhancer, D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control, D-CD 2 .4% BWOC Dispersant, Cello Flace LCM .25 Ib/sx, D-FP1 0.5% BWOC Defoamer, D-R1 .5% Retarder
INTERMEDIATE	Tail	3247	3747	150	1.38	14.6	207	20	Type III	ASTM Type III Blend, D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control, D-CD 2 .5% BWOC Dispersant, Cello Flace LCM .25 lb/sx, D-R1 .2% Retarder

Well Name: HAYNES CANYON UNIT

Well Number: 432H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	4621	552	2.37	12.4	1309	50		ASTM Type I/II, BA90 Bonding Agent 5.0 Ib/sx, Bentonite Viscosifier 8% BWOB, FL24 Fluid Loss .5% BWOB, IntegraGuard GW86 Viscosifier .1% BWOB, R7C Retarder .2% BWOB, FP24 Defoamer .3% BWOB, Anti-Static .01 Ib/sx
PRODUCTION	Tail		4621	1742 7	2063	1.57	13.3	3240	10	G:POZ Blend	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

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: 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). See attached drill plan for detail.

Describe the mud monitoring system utilized: A fully, closed-loop system will be utilized. The system will consist of aboveground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids and solids that require disposal. See attached drill plan for details.

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Circulating Medium Table

	1										
Top Depth	Bottom Depth	Mud Type	Min Weight (Ibs/gal)	Max Weight (Ibs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	Hd	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	350	SPUD MUD	8.4	8.4			9	8			
0	3747	LOW SOLIDS NON- DISPERSED (LSND)	8.8	9.5			9.5	14			
0	1742 7	OIL-BASED MUD	8	9					120000		OWR 80:20

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Reference Operations Plan, see attached.

List of open and cased hole logs run in the well:

GAMMA RAY LOG, MEASUREMENT WHILE DRILLING, DIRECTIONAL SURVEY,

Coring operation description for the well:

None, please reference Drill Plan for details

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 2350

Anticipated Surface Pressure: 1131

Anticipated Bottom Hole Temperature(F): 125

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations

Well Name: HAYNES CANYON UNIT

Well Number: 432H

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Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Enduring_Hayes_Canyon_Unit_432H_Directional_Plan_09032023_20230903161206.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

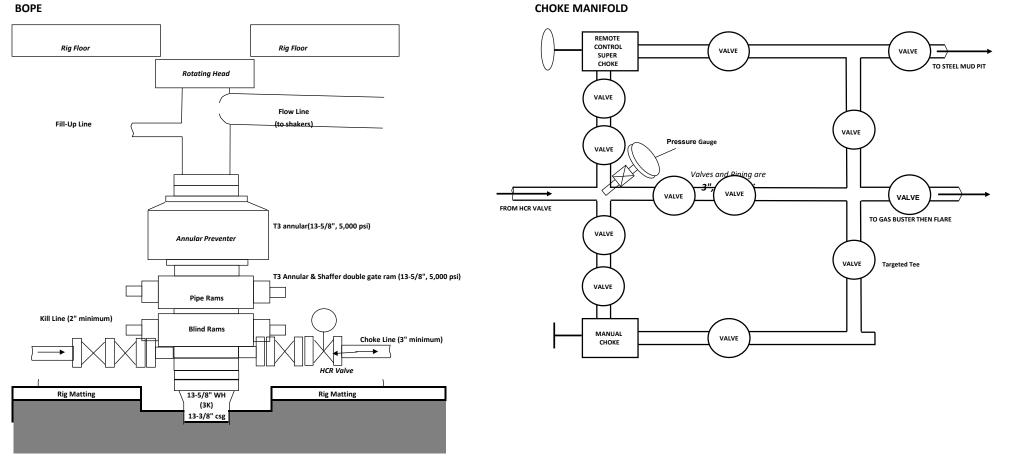
Haynes_Canyon_Unit_432H_WBD_20230907173648.pdf

Other Variance attachment:

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BOPE & CHOKE MANIFOLD DIAGRAMS

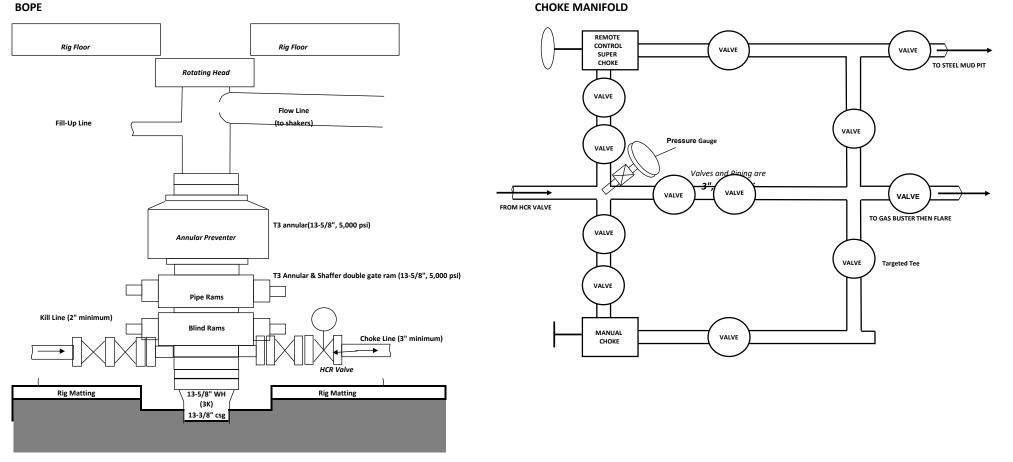
NOTE: EXACT BOPE AND CHOKE CONFIRGURATION AND COMPONENTS MAY DIFFER FROM WHAT IS DEPICTED IN THE DIGRAMS BELOW DEPENDING ON THE RIG AND ITS ASSOCIATED EQUIPMENT. RAM PREVENTERS, ANNULAR PREVENTERS, AND CHOKE MANIFOLD AND COMPONENTS WILL BE RATED TO 3,000 PSI MINIMUM.



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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.





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

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

WELL INFORMATION	N:				
Name:	Haynes Canyon Unit 432H				
API Number:	Not yet assigned				
AFE Number:	Not yet assigned				
ER Well Number:	Not yet assigned				
State:	New Mexico				
County:	Rio Arriba				
Surface Elevation:	6,689 ft ASL (GL)	6,714 f	ft ASL (KB)		
Surface Location:	3-23-6 Sec-Twn-Rng	1,773 f	ft FNL	303	ft FWL
	36.25601 ° N latitude	107.464636	° W longitude		(NAD 83)
BH Location:	11-23-6 Sec-Twn-Rng	234 f	ft FSL	2,592	ft FEL
	36.233057 ° N latitude	107.438113	° W longitude		(NAD 83)
Driving Directions:	FROM THE INTERSECTION OF	F US HWY 550 8	& US HWY 64 IN	I BLOOMFIEL	D, NM:
	South on US Hwy 550 for 53.8	8 miles to MM 9	97.6; Left (North	n) on CR #379	(State Hwy 403) for 1.3 miles to fork; Right
	(North) remaining on CR #379	9/403 for 1.8 mi	iles to T interse	ction of CR 49	98, Left (NorthWest) on CR 498 for .2 miles
	to location access on right int	o Haynes Canyo	on Unit 432H Pa	ad. From Sout	th to North will be Haynes Canyon Unit
	42211 42411 42611 142011				

432H, 434H, 436H, and 438H.

GEOLOGIC AND RESERVOIR INFORMATION:

Pro

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O/G/W	Pressure
Ojo Alamo	5,300	1,414	1,418	W	normal
Kirtland	5,190	1,524	1,531	W	normal
Fruitland	4,970	1,744	1,758	G, W	sub
Pictured Cliffs	4,745	1,969	1,990	G, W	sub
Lewis	4,599	2,115	2,139	G, W	normal
Chacra	4,299	2,415	2,448	G, W	normal
Cliff House	3,187	3,527	3,592	G, W	sub
Menefee	3,187	3,527	3,592	G, W	normal
Point Lookout	2,476	4,238	4,324	G, W	normal
Mancos	2,186	4,528	4,621	0,G	sub (~0.38
Gallup (MNCS_A)	1,846	4,868	4,962	0,G	sub (~0.38
MNCS_B	1,756	4,958	5,052	0,G	sub (~0.38
MNCS_C	1,606	5,108	5,205	0,G	sub (~0.38
MNCS_Cms	1,536	5,178	5,280	0,G	sub (~0.38
MNCS_D	1,481	5,233	5,342	0,G	sub (~0.38
MNCS_E	1,402	5,312	5,441	0,G	sub (~0.38
MNCS_F	1,347	5,367	5,519	0,G	sub (~0.38
MNCS_G	1,268	5,446	5,660	0,G	sub (~0.38
MNCS_H	1,218	5,496	5,768	0,G	sub (~0.38
MNCS_I	0	0	0	0,G	sub (~0.38
FTP TARGET	1,270	5,444	5,660	0,G	sub (~0.38
PROJECTED LTP	1,257	5,457	17,427	0,G	sub (~0.38

Surface: Nacimiento

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

Pressure:	Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations									
	Max. pressure gradient:	0.43	psi/ft	Evacuated hole gradient:	0.22	psi/ft				
	Maximum anticipated BH press	sure, assu	ming maxim	um pressure gradient:	2,350	psi				
	1,150	psi								
	and the state of the second	·								

Temperature: Maximum anticipated BHT is 125° F or less

H₂S INFORMATION:

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

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

LOGGING, CORING, AND TESTING:

 Mud Logs:
 None planned; 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:

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.

TATE AND FEDERA	LNOTIFICATIONS	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) 334-617				
ВОР	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) 334-617				
Plugging	BLM and state are to be notified minimum of 24 hours prior to plugging ops.	(505) 564-7750	see note				
	All notifications are to be recorded in the WellView report with time, date, name o number that notifications were made to.	<u>r</u>					
	<u>Note</u> : Monica Keuhling with the OCD requests state notifications 24 hrs in advance fo cementing and any plugging be given to her in both phone message and email: (505) monica.keuhling@emnrd.nm.gov	and the second	s, casing &				
OPE REQUIREMEN	TS:						
	See attached diagram for details regarding BOPE specifications and configuration.						
1) 2)	Rig will be equipped with upper and lower kelly cocks with handles available.						
	Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe		-				
2)	BOP accumulator will have enough capacity to open the HCR valve, close all rams and minimum of 200 psi above precharge on the closing manifold without the use of closi capacity shall be at least double the usable fluid volume of the accumulator system can be maintained at manufacturer's recommendation. There will be two additional source pumps (electric and air). Sufficient nitrogen bottles will be available and will be rechar manufacturer's recommended minimum.	ng pumps. The fl pacity, and the f ces of power for	luid reservoir luid level sha the closing				
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 readil	y available to the	e driller. The				
	remote BOP valve shall be capable of closing and opening the rams. Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installed						

5) Manual locking devices (hand wheels) shall be installed on rams. A valve will be installed on the annular preventer's closing line as close as possible to the preventer to act as a locking device. The valve will be maintained in the open position and shall only be closed when 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:

Enduring Resources IV, LLC

JUNIACL.	Drill vertically	-				-		350 ft
		ft (MD) ft (TVD)	to to		ft (MD) ft (TVD)		ection Length: sing Required:	350 ft 350 ft
		<u>, ,</u>	rilled, cased, ar				<u> </u>	
	Note: Sulface	noie may be a		ia cementea i		ig in durance i	o, the anning f	·9·
Fluid:	Туре	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pН	Comr	nents
	Fresh Water	8.4	N/C	2 - 8	2 - 12	9.0	Spud	mud
Hole Size:	17-1/2"							
Bit / Motor:	Mill Tooth or F	PDC, no motor						
MWD / Survey:	No MWD, dev	iation survey						
Logging:	None							
Procedure:	Drill to TD. Us	e 12-/4" bit an	d open to 17-1/	2" if unable to	o drill with 17-1	/2" bit. Run ind	clination survey	/ in 100'
	stations from ⁻	TD to surface.	Condition hole a	and fluid for ca	sing running as	required. TOO	OH. Run casing.	Pump
	cement as det	ailed below. M	onitor returns o	during cement	job and note c	ement volume	to surface. Inst	tall cellar and
	wellhead.							
							Tens. Body	Tens. Conn
Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	(lbs)	(lbs)
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000
Loading					153	792	116,634	116,634
Min. S.F.					7.39	3.45	7.31	7.79
	Assumptions:	Collanse: fully	evacuated casi	na with 8 4 nn				7.00
	, loo un peronor		im anticipated s				-	na
			nole and 8.4 pp		11.5	,	ing trine arm	.9
			ed weight in 8.4	, ,	,	5		
U Torque (ft lbs):	Minumum:	N/A	Optimum:	N/A	Maximum:	N/A		
orque () (103).			Connection run			11/2		
Casing Summary:								
			ded 10' from ea		ottom 3 its 1 o	ontralizer ner 1	its to surface	
centrunzers.	2 centralizers		Yield	Water	Hole Cap.		Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)
cement.	TYPE III	14.6	1.39	6.686	0.6946	100%	0	364
Annulas Canacitus		cuft/ft					-	
Annular Capacity	0.6946		13-3/8" casing			Csg capacity	0.8680	ft3/ft
Drake Er	ergy Services:	Calculatea cen	nent volumes a	ssume gauge i	iole and the exc	ess notea in to	ible	Cu Ft Slurry
		Calaium Chlasida	D CD2 28 DWOC					505.3
	ASTM Type III	Calcium Chloride 2% BWOC	D-CD2 .3% BWOC Dispersant/Friction	.25 lbs/sx Cello				
Tail		Accelerator		Flake - seepage				
	Notify COGCC	& BLM if ceme	ent is not circul	ated to surfac	_			
				aleu lo sulla	e. Cement mus	st achieve 500	psi compressiv	e strength
	before drilling	out.			e. Cement mus	st achieve 500	psi compressiv	e strength
	before drilling	; out.			e. Cement mus	st achieve 500	psi compressiv	e strength
NTERMEDIATE:	-		o casing setting					ve strength
NTERMEDIATE:	Drill as per dir	ectional plan t		g depth, run c	asing, cement c	asing to surfa	ce.	_
NTERMEDIATE:	Drill as per dir 350	ectional plan t ft (MD)	to casing setting to to	g depth, run c 3,747	asing, cement o ft (MD)	asing to surfa Hole So		3,397 f
NTERMEDIATE:	Drill as per dir 350	ectional plan t	to	g depth, run c 3,747	asing, cement c	asing to surfa Hole So	<i>ce.</i> ection Length:	3,397 f
<u>NTERMEDIATE:</u>	Drill as per dir 350	ectional plan t ft (MD)	to	g depth, run c 3,747	asing, cement o ft (MD)	casing to surfa Hole So	<i>ce.</i> ection Length:	ve strength 3,397 fr 3,747 fr
	Drill as per dir 350 350	r <u>ectional plan t</u> ft (MD) ft (TVD)	to to FL	g depth, run c 3,747 3,677	asing, cement c ft (MD) ft (TVD) YP	casing to surfa Hole So Ca	<i>ce.</i> ection Length: sing Required:	3,397 fi 3,747 fi
<u>NTERMEDIATE:</u> Fluid:	Drill as per dir 350 350 Type	ectional plan t ft (MD) ft (TVD) MW (ppg)	to to FL (mL/30 min)	g depth, run c 3,747 3,677 PV (cp)	asing, cement of ft (MD) ft (TVD) YP (lb/100 sqft)	casing to surfa Hole So Cas pH	ce. ection Length: sing Required: Comr	3,397 f 3,747 f nents
Fluid:	Drill as per dir 350 350 Type LSND (5% KCI)	r <u>ectional plan t</u> ft (MD) ft (TVD)	to to FL	g depth, run c 3,747 3,677	asing, cement c ft (MD) ft (TVD) YP	casing to surfa Hole So Ca	<i>ce.</i> ection Length: sing Required:	3,397 f 3,747 f nents
Fluid: Hole Size:	Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4"	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	to to FL (mL/30 min) 20	g depth, run c 3,747 3,677 PV (cp)	asing, cement of ft (MD) ft (TVD) YP (lb/100 sqft)	casing to surfa Hole So Cas pH	ce. ection Length: sing Required: Comr	3,397 f 3,747 f nents
Fluid: Hole Size: Bit / Motor:	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto	to to FL (mL/30 min) 20	g depth, run c 3,747 3,677 PV (cp) 8 - 14	rt (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	nasing to surfa Hole So Ca: pH 9.0 - 9.5	ce. ection Length: sing Required: Comr	3,397 f 3,747 f nents
Fluid: Hole Size: Bit / Motor:	Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8,	to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16	g depth, run c 3,747 3,677 PV (cp) 8 - 14	rt (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM,	pH 950 DIFF PSIG	ce. ection Length: ing Required: Comr	3,397 f 3,747 f nents DBM
Fluid: Hole Size: Bit / Motor: Bit / Motor:	Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 2DC w/16 mm of	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67	rt (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6	pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max),	ce. ection Length: ing Required: Comr No (3,397 f 3,747 f nents DBM
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey:	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" 12-1/4" 12-1/4" BIT: 6-BLADE F MWD Survey W	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 2DC w/16 mm of	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67	rt (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6	pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max),	ce. ection Length: ing Required: Comr No (3,397 f 3,747 f nents DBM
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging:	Drill as per dir 350 350 LSND (5% KCl) 12-1/4" 12-1/4" DTCR: NOV BIT: 6-BLADE F MWD Survey W None	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mote 087840 - 7/8, pDC w/16 mm of with inclination	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte h and azimuth si	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1	r (MD) ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu	PH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), im), GR option	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al	3,397 f 3,747 f nents DBM
Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 LSND (5% KCl) 12-1/4" 12-1/4" 12-1/4" BIT: 6-BLADE F MWD Survey None NU BOPE and	rectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, oDC w/16 mm of with inclination test (as noted a	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8"	reasing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to	250 DIFF PSIG 250 DIFF PSIG 250 OIFF PSIG 25	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 mini	3,397 f 3,747 f nents DBM
Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 LSND (5% KCl) 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey V None NU BOPE and Drill to TD follo	rectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm of with inclination test (as noted a pwing direction	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur hal plan (20' rat	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas	reasing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep	233 233 233 233 233 233 233 233 233 233	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 minu eeded to keep	3,397 f 3,747 f nents DBM
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Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 LSND (5% KCl) 12-1/4" 12-1/4" 12-1/4" 12-1/4" BIT: 6-BLADE F MWD Survey None NU BOPE and Drill to TD follo Keep DLS < 3 co	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, oDC w/16 mm o with inclination test (as noted a powing direction leg/100' and ko	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur hal plan (20' rat	g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p	reasing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su	pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 mini eeded to keep and, at a minim	3,397 f 3,747 f nents DBM S utes. well on plan. hum. Target
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" 12-1/4" 12-1/4" NOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD follo Keep DLS < 3 c	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm of with inclination test (as noted a powing direction leg/100° and kt 50 GPM (higher and fluid for c	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth so above); pressur nal plan (20' rat eep slide length er if able to com asing running. T	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rati	reasing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum d ing using a CRT	pH 9.0 - 9.5 950 DIFF PSIG (5 - 0.90 max), mm), GR option 1,500 th). Steer as nu riveys every st esired flow-rat and washing ,	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as	3,397 f 3,747 f nents DBM Jtes. well on plan. num. Target At TD, required. Lan
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N NOB NU BOPE and Drill to TD follo Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 2DC w/16 mm of with inclination test (as noted a pwing direction leg/100' and kk '50 GPM (highe and fluid for c PE. Walk rig to	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur hal plan (20' rat eep slide length er if able to com asing running. T next well. Perfor	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rat TOOH. Run cas porm off-line ce	reasing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su ses). Minimum d ing using a CRT ment job. Pum	pH 9.0 - 9.5 950 DIFF PSIG (5 - 0.90 max), mm), GR option 1,500 th). Steer as nu riveys every st esired flow-rat and washing ,	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as	3,397 f 3,747 f nents DBM Jtes. well on plan. num. Target At TD, required. Lan
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	Drill as per dir 350 350 LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N NOB NU BOPE and Drill to TD follo Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 2DC w/16 mm of with inclination test (as noted a pwing direction leg/100' and kk '50 GPM (highe and fluid for c PE. Walk rig to	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth so above); pressur nal plan (20' rat eep slide length er if able to com asing running. T	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rat TOOH. Run cas porm off-line ce	reasing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su ses). Minimum d ing using a CRT ment job. Pum	pH 9.0 - 9.5 950 DIFF PSIG (5 - 0.90 max), mm), GR option 1,500 th). Steer as nu riveys every st esired flow-rat and washing ,	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as	3,397 f 3,747 f nents DBM Jtes. well on plan. num. Target At TD, required. Lan
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Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD follk Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm o with inclination test (as noted a pwing direction test (as noted a pwin	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur al plan (20' rat eep slide length er if able to com asing running. 1 next well. Perfe ad note cement Grade J-55	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rational formation of the sum com off-line ce volume to sum Conn. LTC Ing with 8.4 pp surface pressu	asing, cement of ft (MD) ft (TVD) yP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su casing to ing using a CRT ment job. Pum face.	An end of the second se	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as etailed below. P Tens. Body (lbs) 564,000 215,435 2.62 e gradient	3,397 f 3,747 f nents DBM Jtes. well on plan. hum. Target At TD, required. Land Monitor Tens. Conn (lbs) 453,000 215,435 2.10
Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD follk Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8-9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination test (as noted a pwing direction deg/100' and ke '50 GPM (highe and fluid for c PE. Walk rig to cement job ar Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur al plan (20' rat eep slide length er if able to com asing running, 1 next well. Perfor ad note cement Grade J-55	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rate TOOH. Run cas orm off-line ce volume to sur Conn. LTC ng with 8.4 pp surface pressu xternal pressu	asing, cement of ft (MD) ft (TVD) yP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take st as). Minimum d ing using a CRT ment job. Pum face. Collapse (psi) 2,020 1,606 1.26 g equivalent ex re with 9.5 ppg re gradient	PH 9.0 - 9.5 950 DIFF PSIG 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nurveys every st esired flow-rat and washing , p cement as de Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as etailed below. P Tens. Body (lbs) 564,000 215,435 2.62 e gradient	3,397 f 3,747 f nents DBM Jtes. well on plan. hum. Target At TD, required. Land Monitor Tens. Conn (lbs) 453,000 215,435 2.10
Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD follk Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8-9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination test (as noted a pwing direction deg/100' and ke '50 GPM (highe and fluid for c PE. Walk rig to cement job ar Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p	to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth si above); pressur aal plan (20' rat eep slide length er if able to com asing running. 1 next well. Perfe id note cement Grade J-55 evacuated casis um anticipated si pg equivalent e	g depth, run co 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p trol return rate TOOH. Run cas orm off-line ce volume to sur Conn. LTC ng with 8.4 pp surface pressu xternal pressu	asing, cement of ft (MD) ft (TVD) yP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take st as). Minimum d ing using a CRT ment job. Pum face. Collapse (psi) 2,020 1,606 1.26 g equivalent ex re with 9.5 ppg re gradient	PH 9.0 - 9.5 950 DIFF PSIG 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nurveys every st esired flow-rat and washing , p cement as de Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 minu eeded to keep and, at a minim te is 650 GPM. (circulating as etailed below. P Tens. Body (lbs) 564,000 215,435 2.62 e gradient	3,397 f 3,747 f nents DBM Jtes. well on plan. hum. Target At TD, required. Land Monitor Tens. Conn (lbs) 453,000 215,435 2.10

Casing Summary: Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD) Centralizers: 1 per joint in non-vertical hole; 1 per 3-joints in vertical hole

		per jt (floating	g) to KOP ; 1 cer	ntralizer per 3 i	ts (floating) to	surface (Centra	alizers from Sco	epter Supply -	SLIP'N'SLIDE 9
			SOLID BODY P						
	Cement:	Туре	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)	Total Cmt (cu ft)
age 1	Spacer	D-Mud Breaker	8.5				0	10 bbls	
		90:10 Type							
	Lead	III:POZ	12.5	2.140	12.05	70%	0	780	1,669
	Tail	Type III	14.6	1.380	6.64	20%	3,247	150	207
	lacement		est bbls						
Annular	^r Capacity	0.3627		9-5/8" casing >		-			
		0.3132		9-5/8" casing >			9-5/8" 36# ID	8.921	
		0.4341		9-5/8" casing v		est shoe jt ft			
		Calculated cer	ment volumes a	ssume gauge h	ole and the ex	cess (open hole	only) noted in	table	
	Spacer	D-Mud Breaker	SAPP						
	Lead	ASTM Type III 90/10 Poz	D-CSE 1 5.0% BWOC Strength Enhancer	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		D-MPA-1 .4% BWOC Fluid Loss & Gas Migration Control		D-CD 2 .5% BWOC Dispersant	Cello Flace LCM .25 lb/sx		D-R1 .2% Retarder
PROD	UCTION:	before drilling Drill to TD foll	lowing direction	nal plan, run co	asing, cement	casing to surfa	ce.		
			ft (MD)	to		ft (MD)		ection Length:	13,680 ft
		3,677	ft (TVD)	to	5,457	ft (TVD)	Cas	ing Required:	17,427 f
						(1.4.4.5.)	4.055	(m)	1
				timated KOP:		ft (MD)		ft (TVD)	
		Est	timated Landin	•		ft (MD)	5,444	ft (TVD)	J
			Estimated La	ateral Length:	11,767	ft (MD)			
						VD			1
	Fluid:	Туре	MW (ppg)	WPS ppm	нтнр	YP (lb/100 sqft)	ES	OWR	Comment WBM as
	Fluid:	Type OBM	MW (ppg) 8.0 - 9.0	WPS ppm 120,000 CaCl	HTHP NC		ES +300	OWR 80:20	WBM as
uids / Soli		OBM Newpark Opti	8.0 - 9.0 Drill OBM syste	120,000 CaCl em. Ensure that	NC drying shaker	(lb/100 sqft) ±6 s are rigged up	+300 after the rig (2	80:20 nd set) of shak	WBM as contingency ers. Solids
uids / Soli		OBM Newpark Opti control will bu	8.0 - 9.0 Drill OBM syste	120,000 CaCl em. Ensure that uttings samples	NC drying shaker s one per tour	(lb/100 sqft) ±6 s are rigged up to check % RO(+300 after the rig (2 C. Add diesel an	80:20 nd set) of shak id products as	WBM as contingency ers. Solids required to
uids / Soli		OBM Newpark Opti control will bu maintain mud	8.0 - 9.0 Drill OBM syste Irn retorts on cu in program spe	120,000 CaCl em. Ensure that uttings samples ecs. Reference	NC drying shaker one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % RO0 d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
uids / Solii		OBM Newpark Opti control will bu maintain mud	8.0 - 9.0 Drill OBM syste	120,000 CaCl em. Ensure that uttings samples ecs. Reference	NC drying shaker one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % RO0 d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
luids / Solii		OBM Newpark Opti control will bu maintain mud	8.0 - 9.0 Drill OBM syste Irn retorts on cu in program spe	120,000 CaCl em. Ensure that uttings samples ecs. Reference	NC drying shaker one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % RO0 d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
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Enduring Resources IV, LLC

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Loading					2,696	9,011	355,645	355,645	
Min. S.F.					2.77	1.18	1.54	1.25	
	Assumptions:	Collapse: fully	evacuated cas	sing with 9.5 pp	g fluid in the ar	nnulus (floating	g casing during	running)	
		Burst: 8,500 p	si maximum sı	urface treating p	pressure with 1	0.2 ppg equiva	lent mud weig	ht sand laden	
		fluid with 8.4	ppg equivalent	t external pressu	ıre gradient				
	fluid with 8.4 ppg equivalent external pressure gradient Tension: buoyed weight in 9.0 ppg fluid with 100,000 lbs over-pull								
J Torque (ft lbs):	Minumum:	3,470	Optimum:		Maximum:	5,780			
asing Summary:		,		,		,	cing to KOD wi	th 20' marker	
using Summury.							•		
				, floatation sub a					
	take-point) ca	nnot be placed	closer than 33	30' to the unit b	oundary when	measured per	pendicular to t	ne well path.	
asing Summary:					-				
	joint, toe-intit	iation sleeve (V	VFT RD 8,500	psi) , casing to K	OP with 20' m	arker joints spa	aced evenly in I	ateral every	
	~2,000', floata	ition sub (NCS	Air-Lock 2,500) psi from WFT),	, casing to surfa	ace. The toe-in	itiation sleeve	shall be placed	
	no closer to th	ie unit bounda	ry than 300' m	easured perper	dicular to the	East or West I	ease lines for a	East-West	
	azimuth drille	d wellbore. We	llbore path m	ust be no closer	than 600' from	n the parallel le	ease lines. Not	e: the LTP is	
	the maximum	depth of the t	oe sleeve and	is noted on the	Well Plan. Dri	II past the LTP	as required fo	r necessary	
				e toe sleeve as o					
Centralizers:				djusted based or			d surveys.		
	Lateral: 1 cent	tralizer per 3 jo	ints (purchase	e centralizers fro	m Scepter Sup	ply)			
	Top of curve t	:o 9-5/8" shoe:	: 1 centralizer J	per 5 joints					
	9-5/8" shoe to	o surface: 1 cer	ntralizer per 5	joints					
			Yield	Water		Planned TOC	Total Cmt	Total Cmt (co	
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	% Excess	(ft MD)	(sx)	ft)	
Spacer	IntegraGuard Star	11		31.6		0	60 bbls		
Lead	ASTM type I/II	12.4	2.370	13.40	50%	0	552	1,309	
Tail	G:POZ blend	13.3	1.570	7.70	10%	4,621	2,063	3,240	
Displacement	384	est bbls							
Annular Capacity	0.2691	cuft/ft	5-1/2" casing	x 9-5/8" casing	annulus				
	0.2291	cuft/ft	5-1/2" casing	x 8-1/2" hole a	nnulus				
	0.1245	cuft/ft	5-1/2" casing	vol	est shoe jt ft	100			
	Calculated cer	nent volumes c	issume gauge	hole and the exc	cess noted in to	ıble			
		nenting Liner &							
		-		IntegraGuard Star					
6	S-8 Silica Flour	Avis 616 viscosifier			SS201 Surfactant 1				
Spacer	163.7 lbs/bbl	11.6 lb/bbl	lb/bbl	lb/bbl	gal/bbl				
			Bentonite		IntegraGuard		FP24 Defoamer		
		BA90 Bonding	Viscosifier 8%	FL24 Fluid Loss .5%	-	R7C Retarder .2%			
Lead	ASTM Type I/II	Agent 5.0 lb/sx	BWOB	BWOB	.1% BWOB	BWOB	Static .01 lb/sx		
								FP24 Defoamer	
				Bentonite		IntegraGuard		.3% BWOB,	
		Pozzolan Fly Ash	BA90 Bonding		FL24 Fluid Loss .4% BWOB	.1% BWOB	R3 Retarder .5% BWOB	IntegraSeal 0.25 lb/sx	
Tail	Tune G 50%	Extender 50%					51105	10/3X	
Tail	Type G 50%	Extender 50%	Agent 3.0 lb/sx	51105					
Tail						the			
Tail	Calculated cer	ment volumes a	assume gauge i	hole and the exc	cess noted in to	ıble			
	Calculated cer	nent volumes a D & BLM if cen	assume gauge i nent is not circ	hole and the exc culated to surfa	cess noted in to Ice.			de fine e dita	
	Calculated cer Notify NMOC This well will r	ment volumes a D & BLM if cen not be consider	nssume gauge i nent is not circ red an unortho	hole and the exc culated to surfa	cess noted in to ice. on as definted I	oy NMAC19.15			
	Calculated cer Notify NMOC This well will r NMAC 19.15.1	nent volumes a D & BLM if cen not be consider 16.15.C.1.a and	nent is not circ red an unortho 19.15.16.15.C	hole and the exc culated to surfa odox well locatio	cess noted in to ice. In as definted l in the complete	oy NMAC19.15 d interval shall	be closer to th	ne unit	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure	assume gauge nent is not circ red an unortho 19.15.16.15.C ed along the az	hole and the exo culated to surfa odox well locatic C.1.b, no point ir cimuth of the we	cess noted in to nce. In as definted in the complete ell or 330' mea	by NMAC19.15 d interval shall sured perpend	be closer to th icular to the az	ie unit imuth well.	
	Calculated cerr Notify NMOC This well will r NMAC 19.15.1 boundary than The boundarie	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl	nssume gauge i nent is not circ red an unortho 19.15.16.15.C ed along the az leted interval, i	hole and the exit culated to surfa odox well locatic C.1.b, no point ir cimuth of the we as defined by N	cess noted in to ice. on as definted i in the complete ell or 330' mea MAC 19.15.16.	by NMAC19.15 d interval shall sured perpend 7.B, are the la	be closer to th icular to the az st take point a	ne unit Simuth well. nd first take	
	Calculated cerr Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl red by NMAC 1	nssume gauge i nent is not circ red an unortho 19.15.16.15.C ed along the az leted interval, i 9.15.16.7.E an	hole and the exe culated to surfa odox well locatio C.1.b, no point ir timuth of the we as defined by N d NMAC 19.15.	cess noted in to ne. on as definted in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca	be closer to th icular to the az st take point a se of this well,	ne unit timuth well. nd first take the last take	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be t	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl ned by NMAC 1: he bottom toe-	assume gauge i nent is not circ red an unortho 19.15.16.15.C ed along the az leted interval, i 9.15.16.7.E an -initiation sleev	hole and the exe culated to surfa odox well locatio C.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first	cess noted in to cee. on as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be t	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl ned by NMAC 1: he bottom toe-	assume gauge i nent is not circ red an unortho 19.15.16.15.C ed along the az leted interval, i 9.15.16.7.E an -initiation sleev	hole and the exe culated to surfa odox well locatio C.1.b, no point ir timuth of the we as defined by N d NMAC 19.15.	cess noted in to cee. on as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be ti initiation slee	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl wed by NMAC 1' he bottom toe- ve nor the top	assume gauge i nent is not cirr red an unortho 19.15.16.15.C ed along the az leted interval, 9.15.16.7.E an -initiation sleev perforation sleev	hole and the exe culated to surfa odox well locatio C.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first	cess noted in to toce. In as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will o the unit bour	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 0	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be ti initiation slee	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl wed by NMAC 1' he bottom toe- ve nor the top	assume gauge i nent is not cirr red an unortho 19.15.16.15.C ed along the az leted interval, 9.15.16.7.E an -initiation sleev perforation sleev	hole and the exa culated to surfa dox well locatic c.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to	cess noted in to toce. In as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will o the unit bour	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 0	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be ti initiation slee	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl wed by NMAC 1' he bottom toe- ve nor the top	assume gauge i nent is not cirr red an unortho 19.15.16.15.C ed along the az leted interval, 9.15.16.7.E an -initiation sleev perforation sleev	hole and the exa culated to surfa dox well locatic c.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to	cess noted in to toce. In as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will o the unit bour	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 0	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary that The boundarie point, as defin point will be ti initiation slee	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl wed by NMAC 1' he bottom toe- ve nor the top	assume gauge i nent is not cirr red an unortho 19.15.16.15.C ed along the az leted interval, 9.15.16.7.E an -initiation sleev perforation sleev	hole and the exa culated to surfa dox well locatic c.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to	cess noted in to toce. In as definted l in the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will o the unit bour	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 0	be closer to th icular to the az st take point a se of this well, rforation. Neit	ne unit timuth well. nd first take the last take her the toe-	
Note: <u>FINISH WELL:</u>	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary thau The boundarie point, as defin point will be ti initiation slee azimuth of th	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl eed by NMAC 1 he bottom toe- ve nor the top e well or 330' r well, RDMO.	assume gauge i nent is not circ red an unortho 19.15.16.15.0 ed along the az leted interval, i 9.15.16.7.E an -initiation sleev perforation sl measured perp	hole and the exe culated to surfa odox well locatic C.1.b, no point ir cimuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to pendicular to th	cess noted in to the complete and the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will or the unit bour ne azimuth of the	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 (the well.	be closer to th icular to the az st take point ar se of this well, rforation. Neitl D' measured al	ie unit iimuth well. nd first take the last take her the toe- ong the	
Note: <u>FINISH WELL:</u>	Calculated cer Notify NMOC This well will r NMAC 19.15.1 boundary thau The boundarie point, as defin point will be ti initiation slee azimuth of th	ment volumes a D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl eed by NMAC 1 he bottom toe- ve nor the top e well or 330' r well, RDMO.	assume gauge i nent is not circ red an unortho 19.15.16.15.0 ed along the az leted interval, i 9.15.16.7.E an -initiation sleev perforation sl measured perp	hole and the exa culated to surfa dox well locatic c.1.b, no point ir timuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to	cess noted in to the complete and the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will or the unit bour ne azimuth of the	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 10 (the well.	be closer to th icular to the az st take point ar se of this well, rforation. Neitl D' measured al	ie unit iimuth well. nd first take the last take her the toe- ong the	

Est Lateral Length: 11,667 Est Frac Inform: 49 Frac Stages 187,000 bbls slick water 15,170,000 Ibs proppant Flowback: Flow back through production tubing as pressures allow Production: Produce through production tubing via gas-lift into permanent production and storage facilities 11/1/2023 Drilling:

EST	'IN	IAT	ED	STA	RT	DAT	ES:

Drinnig.	11/1/2023	
Completion:	12/31/2023	
Production:	2/14/2024	
Prepared by:	Alec Bridge	12/20/2021
Updated:	Greg Olson	2/20/2023
	Greg Olson	3/27/2023
	G Olson	8/17/2023

Released to Imaging: 12/28/2023 5:09:01 PM

OBJECTIVE:	Drill, comple	Drill, complete, and equip single lateral in the Mancos-H formation									
API Number:	Not yet assign	ot yet assigned									
AFE Number:	Not yet assign	ot yet assigned									
ER Well Number:	Not yet assign	ot yet assigned									
State:	New Mexico	ew Mexico									
County:	Rio Arriba										
Surface Elev.:	6,689	ft ASL (GL)	6,714	ft ASL (KB)							
Surface Location:	3-23-6	Sec-Twn- Rng	1,773	ft FNL	303	ft FWL					
BH Location:	11-23-6	Sec-Twn- Rng	234	ft FSL	2592	ft FEL					
Driving Directions:	FROM THE INT	TERSECTION OF US	HWY 550 8	& US HWY 64 IN BL	OOMFIELD,	NM:					

QUIC	K REFERENCE
Sur TD (MD)	350 ft
Int TD (MD)	3,747 ft
KOP (MD)	5,050 ft
KOP (TVD)	4,956 ft
Target (TVD)	5,444 ft
Curve BUR	10 °/100 ft
POE (MD)	5,660 ft
TD (MD)	17,427 ft
Lat Len (ft)	11,767 ft

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379/403 for 1.8 miles to T intersection of CR 498, Left (NorthWest) on CR 498 for .2 miles to location access on right into Haynes Canyon Unit 432H Pad. From South to North will be Haynes Canyon Unit 432H, 434H, 436H, and 438H.

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	3,747	9.625	36.0	J-55	LTC	0	3,747
Production	8.500	17,427	5.500	17.0	P-110	LTC	0	17,427

CEMENT PROPERTIES SUMMARY:

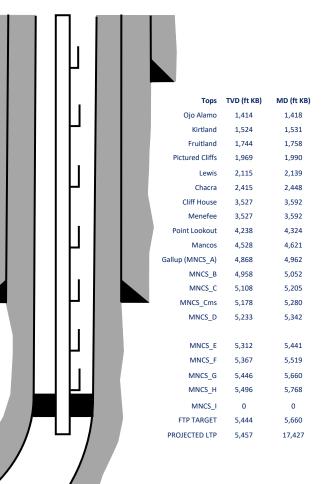
		Туре	Wt (ppg)	Vd (cuft/sk)	Wtr (gal/sk)	% Excess	TOC (ft MD)	Total (sx)	
I	Curface				10 . /			. ,	
	Surface	TYPE III	14.6	1.39	6.686	100%	0	354	
	Inter. (Lead)):10 Type III:P	12.5	2.14	12.05	70%	0	519	
	Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3247	137	
	Prod. (Lead)	ASTM type I/I	12.4	2.370	13.4	50%	0	480	
	Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4621	1368	

COMPLETION / PRODUCTION SUMMARY:

Frac: 11667

Flowback: Flow back through production tubing as pressures allow

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





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

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

WELL INFORMATION	N:					
Name:	Haynes Canyon Unit 432H					
API Number:	Not yet assigned					
AFE Number:	Not yet assigned					
ER Well Number:	Not yet assigned					
State:	New Mexico					
County:	Rio Arriba					
Surface Elevation:	6,689 ft ASL (GL)	6,714	ft ASL (KB)			
Surface Location:	3-23-6 Sec-Twn-Rng	1,773	ft FNL	303	ft FWL	
	36.25601 ° N latitude	107.464636	$^{\circ}$ W longitude		(NAD 83)	
BH Location:	11-23-6 Sec-Twn-Rng	234	ft FSL	2,592	ft FEL	
	36.233057 ° N latitude	107.438113	$^{\circ}$ W longitude		(NAD 83)	
Driving Directions:	FROM THE INTERSECTION OF	US HWY 550	& US HWY 64	IN BLOOMFIEL	D, NM:	
	South on US Hwy 550 for 53.8	3 miles to MM	97.6; Left (Nor	th) on CR #379	(State Hwy 403) fo	or 1.3 miles to fork; Right
	(North) remaining on CR #379	/403 for 1.8 n	niles to T inters	ection of CR 49	8, Left (NorthWest	t) on CR 498 for .2 miles
	to location access on right into	o Haynes Cany	yon Unit 432H I	Pad. From Sout	h to North will be l	Haynes Canyon Unit
	432H, 434H, 436H, and 438H.					

GEOLOGIC AND RESERVOIR INFORMATION:

Pro

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O/G/W	Pressure
Ojo Alamo	5,300	1,414	1,418	W	normal
Kirtland	5,190	1,524	1,531	W	normal
Fruitland	4,970	1,744	1,758	G, W	sub
Pictured Cliffs	4,745	1,969	1,990	G, W	sub
Lewis	4,599	2,115	2,139	G, W	normal
Chacra	4,299	2,415	2,448	G, W	normal
Cliff House	3,187	3,527	3,592	G, W	sub
Menefee	3,187	3,527	3,592	G, W	normal
Point Lookout	2,476	4,238	4,324	G, W	normal
Mancos	2,186	4,528	4,621	0,G	sub (~0.38
Gallup (MNCS_A)	1,846	4,868	4,962	0,G	sub (~0.38
MNCS_B	1,756	4,958	5,052	0,G	sub (~0.38
MNCS_C	1,606	5,108	5,205	0,G	sub (~0.38
MNCS_Cms	1,536	5,178	5,280	0,G	sub (~0.38
MNCS_D	1,481	5,233	5,342	0,G	sub (~0.38
MNCS_E	1,402	5,312	5,441	0,G	sub (~0.38
MNCS_F	1,347	5,367	5,519	0,G	sub (~0.38
MNCS_G	1,268	5,446	5,660	0,G	sub (~0.38
MNCS_H	1,218	5,496	5,768	0,G	sub (~0.38
MNCS_I	0	0	0	0,G	sub (~0.38
FTP TARGET	1,270	5,444	5,660	0,G	sub (~0.38
PROJECTED LTP	1,257	5,457	17,427	0,G	sub (~0.38

Surface: Nacimiento

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

Pressure:	Normal (0.43 psi/ft) or sub-no	ormal pressu	ire gradients	anticipated in all formations		
	Max. pressure gradient:	0.43	psi/ft	Evacuated hole gradient:	0.22	psi/ft
	Maximum anticipated BH pr	essure, assu	ming maxim	um pressure gradient:	2,350	psi
	Maximum anticipated surfac	e pressure,	assuming pa	rtially evacuated hole:	1,150	psi

Temperature: Maximum anticipated BHT is 125° F or less

H₂S INFORMATION:

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

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

LOGGING, CORING, AND TESTING:

 Mud Logs:
 None planned; 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:

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.

TATE AND FEDERA	LNOTIFICATIONS	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
ВОР	BLM is to be notified minimum of 24 hours prior to BOPE testing.	(505) 564-7750	see note
Casing / cementing	BLM and state are to be notified minimum of 24 hours prior to running casing and		
	cementing.	(505) 564-7750	(505) 334-6178
Plugging	BLM and state are to be notified minimum of 24 hours prior to plugging ops.	(505) 564-7750	see note
	All notifications are to be recorded in the WellView report with time, date, name of	<u>r</u>	
	number that notifications were made to.		
	Note: Monica Keuhling with the OCD requests state notifications 24 hrs in advance fo cementing and any plugging be given to her in both phone message and email: (505) is monica.keuhling@emnrd.nm.gov	and the second	s, casing &
OPE REQUIREMEN			
1) 2)	See attached diagram for details regarding BOPE specifications and configuration. Rig will be equipped with upper and lower kelly cocks with handles available.		
2)	Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe BOP accumulator will have enough capacity to open the HCR valve, close all rams and minimum of 200 psi above precharge on the closing manifold without the use of closi capacity shall be at least double the usable fluid volume of the accumulator system ca be maintained at manufacturer's recommendation. There will be two additional source pumps (electric and air). Sufficient nitrogen bottles will be available and will be rechar manufacturer's recommended minimum.	annular prevent ng pumps. The fl pacity, and the f ces of power for	er, and retair uid reservoir luid level sha the closing
3)	BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is brown since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, is out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line val at a minimum.	P ram preventers 10 minutes. Ran 5 will be tested to for 30 minutes, p	will be tested and annular 2.22 psi/ft or prior to drillin
4)	Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readily remote BOP valve shall be capable of closing and opening the rams.	y available to the	e driller. The
5)	Manual locking devices (hand wheels) shall be intalled on rams. A valve will be installe closing line as close as possible to the preventer to act as a locking device. The valve w		

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.

position and shall only be closed when the there is no power to the accumulator.

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:

Enduring Resources IV, LLC

<u>SURFACE:</u>		((40)		250	(1 (2 4 2)			0.000
		ft (MD) ft (TVD)	to to		ft (MD) ft (TVD)		ection Length: sing Required:	350 f 350 f
		· /			vith a smaller r		÷ ,	
	-	-			1			
Fluid:	Type	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pН	Comr	ments
nuiu.	Fresh Water	8.4	N/C	2 - 8	2 - 12	9.0		mud
Hole Size:	17-1/2"		· · · ·					
-	Mill Tooth or F							
MWD / Survey:		iation survey						
Logging: Procedure:	Drill to TD. Us	e 12-/4" hit an	d open to 17-1	/2" if unable to	drill with 17-1	/2" hit Run in	lination survey	/ in 100'
					ising running as			
	cement as deta	ailed below. M	onitor returns	during cement	job and note c	ement volume	to surface. Ins	tall cellar and
	wellhead.							Г
Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000
Loading					153	792	116,634	116,634
Min. S.F.					7.39	3.45	7.31	7.79
					g equivalent ex			
			,	, ,	re with 9.5 ppg aternal pressure	,	ing while drilli	ng
					100,000 lbs ov	•		
U Torque (ft lbs):	Minumum:	N/A	Optimum:	N/A	Maximum:	N/A		
	Make-up as pe	er API Buttress	Connection run	ning procedure	2.			
Casing Summary:		0,	, 0					
Centralizers:	2 centralizers	per jt stop-ban	ded 10' from e Yield	ach collar on b Water	ottom 3 jts, 1 c Hole Cap.	entralizer per 2	2 jts to surface Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)
Centern	TYPE III	14.6	1.39	6.686	0.6946	100%	0	364
Annular Capacity	0.6946	cuft/ft	13-3/8" casing	x 17-1/2" hole	e annulus	Csg capacity	0.8680	ft3/ft
Dualia Fr	<i>c i</i>	Colordated						
Drake Er	iergy Services:	Calculatea cen	nent volumes a	ssume gauge h	nole and the exc	ess noted in to	ible	Cu Ft Slurry
Drake Er				ssume gauge f	ole and the exc	ess noted in to	ıble	Cu Ft Slurry 505.3
Drake Er		Calcium Chloride	D-CD2 .3% BWOC		nole and the exc	ess noted in to	ıble	
	ASTM Type III		D-CD2 .3% BWOC Dispersant/Friction		nole and the exc	ess noted in to	ıble	
	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator	D-CD2 .3% BWOC Dispersant/Friction reducer	.25 lbs/sx Cello Flake - seepage	e. Cement mus			505.3
	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator & BLM if ceme	D-CD2 .3% BWOC Dispersant/Friction reducer	.25 lbs/sx Cello Flake - seepage				505.3
Tail	ASTM Type III Blend Notify COGCC before drilling	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out.	D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu	.25 lbs/sx Cello Flake - seepage lated to surfac	e. Cement mus	st achieve 500	psi compressiv	505.3
Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per dir	Calcium Chloride 2% BWOC Accelerator & BLM if ceme 5 out. ectional plan t	D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu o casing settin	.25 lbs/sx Cello Flake - seepage lated to surfac g depth, run co	e. Cement mus	st achieve 500 casing to surfa	psi compressiv ce.	505.3 ve strength
Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350	Calcium Chloride 2% BWOC Accelerator & BLM if ceme 5 out. ectional plan t ft (MD)	D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to	.25 lbs/sx Cello Flake - seepage lated to surfact g depth, run co 3,747	e. Cement mus asing, cement of ft (MD)	st achieve 500 Stasing to surfa Hole So	psi compressiv <i>ce.</i> ection Length:	505.3 ve strength 3,397 f
Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350	Calcium Chloride 2% BWOC Accelerator & BLM if ceme 5 out. ectional plan t	D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu o casing settin	.25 lbs/sx Cello Flake - seepage lated to surfact g depth, run co 3,747	e. Cement mus	st achieve 500 Stasing to surfa Hole So	psi compressiv ce.	505.3 ve strength 3,397 f
Tail <u>NTERMEDIATE:</u>	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350	Calcium Chloride 2% BWOC Accelerator & BLM if ceme 5 out. ectional plan t ft (MD)	D-CD2.3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL	.25 lbs/sx Cello Flake - seepage lated to surfact g depth, run co 3,747	e. Cement mus asing, cement o ft (MD) ft (TVD) YP	st achieve 500 Stasing to surfa Hole So	psi compressiv <i>ce.</i> ection Length:	505.3 ve strength 3,397 f
Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350	Calcium Chioride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg)	D-CD2.3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min)	.25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp)	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (lb/100 sqft)	st achieve 500 casing to surfa Hole So Cas pH	psi compressiv ce. ection Length: sing Required: Comr	505.3 ve strength 3,397 f 3,747 f
Tail <u>NTERMEDIATE:</u> Fluid:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI)	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD)	D-CD2.3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL	.25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677	e. Cement mus asing, cement o ft (MD) ft (TVD) YP	st achieve 500 tasing to surfa Hole So Cas	psi compressiv ce. ection Length: sing Required: Comr	505.3 ve strength 3,397 f 3,747 f
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4"	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20	.25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp)	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (lb/100 sqft)	st achieve 500 casing to surfa Hole So Cas pH	psi compressiv ce. ection Length: sing Required: Comr	505.3 ve strength 3,397 f 3,747 f
Tail INTERMEDIATE: Fluid: Hole Size: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud motco	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20	.25 lbs/sx Cello Flake - seepage lated to surfac 3,747 3,677 PV (cp) 8 - 14	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14	st achieve 500 casing to surfa Hole S Cas pH 9.0 - 9.5	psi compressiv cc. ection Length: sing Required: Comr No (505.3 ve strength 3,397 f 3,747 f
Tail INTERMEDIATE: Fluid: Hole Size: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8,	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16	25 lbs/sx Cello Flake - seepage lated to surfac <i>g depth, run c</i> 3,747 3,677 <u>PV (cp)</u> 8 - 14	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM,	st achieve 500 casing to surfa Hole S Cas pH 9.0 - 9.5 950 DIFF PSIG	psi compressiv ce. ection Length: sing Required: Comr No (505.3 ve strength <u>3,397 f</u> <u>3,747 f</u> nents DBM
Tail INTERMEDIATE: Fluid: Hole Size: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte	25 lbs/sx Cello Flake - seepage lated to surfac g depth, run cc 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 prev/gal, 1.83	e. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6	st achieve 500 casing to surfa Hole S Cas PH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max),	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12:	505.3 ve strength <u>3,397 f</u> <u>3,747 f</u> nents DBM
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey V	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte	25 lbs/sx Cello Flake - seepage lated to surfac g depth, run cc 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 prev/gal, 1.83	e. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6	st achieve 500 casing to surfa Hole S Cas PH 9.0 - 9.5 950 DIFF PSIG (5 - 0.90 max),	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12:	505.3 ve strength <u>3,397 f</u> <u>3,747 f</u> nents DBM
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey w None	Calcium Chloride 2% BWOC Accelerator & BLM if ceme out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination	D-CD2.3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s	25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 prev/gal, 1.83 prev/gal, 1.83	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu	st achieve 500 casing to surfa Hole S Cas PH 9.0 - 9.5 950 DIFF PSIG (5 - 0.90 max),	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12:	505.3 ve strength 3,397 (3,747 (nents DBM
Tail <u>INTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey W None NU BOPE and f Drill to TD follo	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 'PC w/16 mm of with inclination test (as noted a pwing direction	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cutte and azim, the ssure sbove); pressure tal plan (20' rate	25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 prev/gal, 1.83 prev	e. Cement must asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep	st achieve 500 casing to surfa Hole So Cas 90 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as no	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 mini eeded to keep	505.3 ve strength 3,397 f 3,747 f nents DBM
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey M None NU BOPE and 1 Drill to TD follo Keep DLS < 3 d	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a pwing direction leg/100' and ka	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cutte and azim; the sesure sabove); pressure bal plan (20' rate sep Slide length	25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 Frev/gal, 1.83 Frev/gal, 1.83 Frev	e. Cement must asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su	st achieve 500 casing to surfa Hole So Cas pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as no inveys every st	psi compressioner ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 mini- eeded to keep and, at a minin	505.3 ve strength 3,397 f 3,747 f ments DBM
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey M None NU BOPE and 1 Drill to TD folk Keep DLS < 3 d flow-rates of 7	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a owing direction leg/100' and ke '50 GPM (highe	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur sabove); pressur sabove); pressur	25 lbs/sx Cello Flake - seepage lated to surface 3,747 3,677 PV (cp) 8 - 14 Frev/gal, 1.83 Frev/gal, 1.83 Frev/	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su casible. Take su	st achieve 500 casing to surfa Hole So Cas pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nurveys every st lesired flow-rat	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 min eeded to keep and, at a minin te is 650 GPM.	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. hum. Target At TD,
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey W None NU BOPE and 1 Drill to TD folk Keep DLS < 3 d flow-rates of 7 condition hole	Calcium Chloride 2% BWOC Accelerator & BLM if cemes ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, vDC w/16 mm o with inclination test (as noted a owing direction leg/100' and ke 50 GPM (highe and fluid for c	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur al plan (20' rat sep slide length er if able to con asing running.	.25 lbs/sx Cello Flake - seepage lated to surface 3,747 3,677 PV (cp) 8 - 14 is rev/gal, 1.83 is rev/gal, 1	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su casing to ing using a CRT	st achieve 500 casing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 15 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st esired flow-rat and washing /	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 min eeded to keep and, at a minin te is 650 GPM. { circulating as	505.3 ve strength 3,397 f 3,747 f nents DBM utes. well on plan. num. Target At TD, required. Lan
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD folloc Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (IMD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a powing direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur aal plan (20' rat eep slide length r if able to con asing running.	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 croket 13-3/8" :-hole past cas to <10', when p trol return rate TOOH. Run cas orm off-line ce	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum o ing using a CRT ment job. Pum	st achieve 500 casing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 15 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st esired flow-rat and washing /	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 min eeded to keep and, at a minin te is 650 GPM. { circulating as	505.3 ve strength 3,397 3,747 ments DBM obs utes. well on plan. num. Target At TD, required. Lan
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD folloc Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI	Calcium Chloride 2% BWOC Accelerator & BLM if cemes ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, vDC w/16 mm o with inclination test (as noted a owing direction leg/100' and ke 50 GPM (highe and fluid for c	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur aal plan (20' rat eep slide length r if able to con asing running.	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 croket 13-3/8" :-hole past cas to <10', when p trol return rate TOOH. Run cas orm off-line ce	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum o ing using a CRT ment job. Pum	st achieve 500 casing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 15 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st esired flow-rat and washing /	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 min eeded to keep and, at a minin te is 650 GPM. { circulating as	505.3 ve strength 3,397 3,747 ments DBM obs utes. well on plan. num. Target At TD, required. Lan
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD folloc Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (IMD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a powing direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur aal plan (20' rat eep slide length r if able to con asing running.	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 croket 13-3/8" :-hole past cas to <10', when p trol return rate TOOH. Run cas orm off-line ce	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum o ing using a CRT ment job. Pum	st achieve 500 casing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 15 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st esired flow-rat and washing /	psi compressioner ce. ection Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 mini- eeded to keep and, at a minin te is 650 GPM. ('circulating as etailed below.)	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. hum. Target At TD, required. Lan Monitor
Tail INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Logging: Pressure Test: Procedure:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD folloc Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a bwing direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to cement job an	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur hal plan (20' rat sep slide length er if able to con asing running, next well. Perfi d note cement	25 lbs/sx Cello Flake - seepage lated to surface 3,747 3,677 PV (cp) 8 - 14 Frev/gal, 1.83 i rrs, TFA = 0.67 urvey (every 1 re test 13-3/8" c-hole past cas n < 10', when p trol return rate TOOH. Run cas orm off-line ce volume to sur	e. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su casing to ing using a CRT ment job. Pum face.	st achieve 500 tasing to surfa Hole So Cas pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as no inveys every st esired flow-rat and washing, p cement as de	psi compressiv ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 mini eeded to keep and, at a minin te is 650 GPM. ' circulating as tailed below. 1 Tens. Body	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. bum. Target At TD, required. Lan Monitor Tens. Conn
Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD folloc Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (IMD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a powing direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur aal plan (20' rat eep slide length r if able to con asing running.	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 croket 13-3/8" :-hole past cas to <10', when p trol return rate TOOH. Run cas orm off-line ce	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum o ing using a CRT ment job. Pum	st achieve 500 casing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 15 - 0.90 max), im), GR option 1,500 th). Steer as nu irveys every st esired flow-rat and washing /	psi compressioner ce. ection Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 mini- eeded to keep and, at a minin te is 650 GPM. ('circulating as etailed below.)	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. hum. Target At TD, required. Lan Monitor
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Logging: Pressure Test: Procedure: Casing Specs:	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD follok Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI returns during	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a 50 GPM (highe and fluid for c PE. Walk rig to cement job an Wt (lb/ft)	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settim to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur al plan (20' rat sep slide length r fi able to con asing running. next well. Perfi d note cement	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 ire test 13-3/8" -hole past cas orm off-line ce volume to sur Conn.	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su sosible. Take su ing using a CRT ment job. Pum face.	st achieve 500 asing to surfa Hole Sc Ca: pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nu rveys every st esired flow-rat and washing / p cement as defined Burst (psi)	psi compressio ce. ection Length: sing Required: Comr No (jet with 6 - 12: al psi for 30 mini- eeded to keep and, at a minim te is 650 GPM. ('circulating as etailed below. f Tens. Body (lbs)	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. well on plan. transet At TD, required. Lan Vonitor Tens. Conn (lbs)
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Uogging: Pressure Test: Procedure: Casing Specs: Specs	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE P MWD Survey N None NU BOPE and 1 Drill to TD follok Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI returns during	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a 50 GPM (highe and fluid for c PE. Walk rig to cement job an Wt (lb/ft)	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settim to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s sabove); pressur al plan (20' rat sep slide length r fi able to con asing running. next well. Perfi d note cement	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 ire test 13-3/8" -hole past cas orm off-line ce volume to sur Conn.	e. Cement mu: asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum of ing using a CRT ment job. Pum face. Collapse (psi) 2,020	st achieve 500 asing to surfa Hole Sr Ca: pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nu reverse every st resired flow-rat and washing , p cement as defined Burst (psi) 3,520	psi compressioner ce. ection Length: sing Required: Comm No of jet with 6 - 12: al psi for 30 minimed eded to keep and, at a minime te is 650 GPM. ('circulating as etailed below. f Tens. Body (lbs) 564,000	505.3 ve strength 3,397 f 3,747 f ments DBM s utes. well on plan. yum. Target At TD, required. Lan vionitor Tens. Conn (lbs) 453,000
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MVD SURVEY V None NU BOPE and 1 Drill to TD folk Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI returns during 9.625 Assumptions:	Calcium Chioride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 'DC w/16 mm of with inclination test (as noted a pwing direction leg/100' and ke 50 GPM (highe and fluid for c cement job an wt (lb/ft) 36.0 Collapse: fully	D-CD2.3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur al plan (20' rat sep slide length cr if able to com asing running. next well. Perf id note cement Grade J-55	25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 prev/gal, 1.83 prev	e. Cement must asing, cement of ft (MD) ft (TVD)	st achieve 500 asing to surfa Hole So Ca: pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), mm), GR option 1,500 th). Steer as no rrveys every st esired flow-rai and washing / p cement as de Burst (psi) 3,520 1,360 2.59 ternal pressure	psi compressioner ce. ecction Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 minuseded to keep and, at a minin te is 650 GPM. (circulating as stailed below. It Tens. Body (lbs) 564,000 215,435 2.62 gradient	505.3 ve strength 3,397 3,747 ments DBM ments DBM ves. well on plan. num. Target At TD, required. Lan vonitor Tens. Conm (lbs) 453,000 215,435 2.10
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey W None NU BOPE and f Drill to TD folk Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI returns during 9.625 Assumptions:	Calcium Chioride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 'DC w/16 mm of with inclination test (as noted a pwing direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to cement job an wt (lb/ft) 36.0 Collapse: fully Burst: maximu	D-DD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte or 19 mm cutte and azimuth s sbove); pressur ial plan (20' rat sep slide length r if able to con asing running. next well. Perfi d note cement Grade J-55 evacuated casi m anticipated .	25 lbs/sx Cello Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 prev/gal, 1.83 (prev/gal, 1.83 1.84 (prev/	e. Cement must asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su es). Minimum of ing using a CRT ment job. Pum face. Collapse (psi) 2,020 1,606 1.26 g equivalent ex re with 9.5 ppg	st achieve 500 asing to surfa Hole So Ca: pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), mm), GR option 1,500 th). Steer as no rrveys every st esired flow-rai and washing / p cement as de Burst (psi) 3,520 1,360 2.59 ternal pressure	psi compressioner ce. ecction Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 minuseded to keep and, at a minin te is 650 GPM. (circulating as stailed below. It Tens. Body (lbs) 564,000 215,435 2.62 gradient	505.3 ve strength 3,397 f 3,747 f ments DBM ves. well on plan. num. Target At TD, required. Lan vonitor Tens. Conn (lbs) 453,000 215,435 2.10
Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey V None NU BOPE and 1 Drill to TD folk Keep DLS < 3 d flow-rates of 7 condition hole casing. ND BOI returns during 9.625 Assumptions:	Calcium Chioride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, 'DC w/16 mm of 087840 - 7/8, 'DC w/16 mm of 087840 - 7/8, 'DC w/16 mm of 087840 - 7/8, 'DC w/16 mm of coving direction leg/100' and ke 50 GPM (highe and fluid for c PE. Walk rig to cement job an wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p,	D-DD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azim; the set and	25 lbs/sx Cello Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 PV (cp) 8 - 14 irrs, TFA = 0.67 urvey (every 1 re test 13-3/8" -hole past cas 1 < 10', when p trol return rate TOOH. Run cas orm off-line ce : volume to sur Conn. LTC	e. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su solution of the su solution of the su casing to ing setting dep ossible. Take s	st achieve 500 trasing to surfa Hole So Cas PH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as no irveys every st esired flow-rat esired flow-rat stand washing / p cement as def Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	psi compressioner ce. ecction Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 minuseded to keep and, at a minin te is 650 GPM. (circulating as stailed below. It Tens. Body (lbs) 564,000 215,435 2.62 gradient	505.3 ve strength 3,397 f 3,747 f ments DBM ves. well on plan. num. Target At TD, required. Lan vonitor Tens. Conn (lbs) 453,000 215,435 2.10
Tail INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: UNWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	ASTM Type III Biend Notify COGCC before drilling Drill as per dir 350 350 LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and 1 Drill to TD follo Keep DLS < 3 of flow-rates of 7 condition hole casing. ND BOI returns during 9.625 Assumptions:	Calcium Chloride 2% BWOC Accelerator & BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a with inclination test (as noted a 50 GPM (highe and fluid for c PE. Walk rig to cement job an wt (lb/ft) 36.0 Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoye	D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu o casing settim to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur ala Jaan (20' rat sep slide length er if able to con asing running. next well. Perfi di note cement Grade J-55 evacuated casi m anticipated og equivalent e ed weight in 8	2.5 lbs/sx Cello Flake - seepage lated to surface g depth, run cic 3,747 3,677 PV (cp) 8 - 14 5 rev/gal, 1.83 1 prs, TFA = 0.67 urvey (every 1 re test 13-3/8" -hole past cas orm off-line ce : volume to surface Conn. LTC Ing with 8.4 pp surface pressu xternal pressu	e. Cement must asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep 00' at a minimu casing to ing setting dep 10' at a minimu casing to ing setting to ing setting to	st achieve 500 asing to surfa Hole Sc Ca: pH 9.0 - 9.5 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nu rveys every st esired flow-rat and washing / p cement as def Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas ver-pull	psi compressioner ce. ecction Length: sing Required: Comm No (jet with 6 - 12: al psi for 30 minuseded to keep and, at a minin te is 650 GPM. (circulating as stailed below. It Tens. Body (lbs) 564,000 215,435 2.62 gradient	505.3 ve strength 3,397 f 3,747 f ments DBM ves. well on plan. num. Target At TD, required. Lan vonitor Tens. Conn (lbs) 453,000 215,435 2.10
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Casing Summary: Float shoe, 1 jt casing, float collar, casing to surface (FLOAT EQUIPMENT FROM WEATHERFORD) Centralizers: 1 per joint in non-vertical hole; 1 per 3-joints in vertical hole

		1 centralizers) to KOP ; 1 cer	ntralizer per 3 i	ts (floating) to	surface (Centra		epter Supply -	SLIP'N'SLIDE 9
			SOLID BODY P						
	Cement:	Туре	Weight (ppg)	Yield (cuft/sk)	Water (gal/sk)	% Excess	Planned TOC (ft MD)	Total Cmt (sx)	Total Cmt (cu ft)
age 1	Spacer	D-Mud Breaker	8.5				0	10 bbls	
	1	90:10 Type	12 5	2 1 4 0	12.05	70%	0	700	1.000
	Lead Tail	III:POZ	12.5	2.140	12.05	70%	0	780	1,669
Diant	Tail	Type III	14.6	1.380	6.64	20%	3,247	150	207
	lacement		est bbls	9-5/8" casing >	12 2/0" ansin				1
Annului	Capacity	0.3627 0.3132		9-5/8" casing >		-	9-5/8" 36# ID	9 021	
		0.3132		9-5/8" casing v		est shoe it ft		8.921	
			nent volumes a			,,		tahle	
	~			ssume gauge n	one und the ext		omy noted m	lubic	
	Spacer	D-Mud Breaker	SAPP	D-MPA-1 .4%					
	Lead	ASTM Type III 90/10 Poz	D-CSE 1 5.0% BWOC Strength Enhancer	BWOC Fluid Loss & Gas Migration Control D-MPA-1 .4% BWOC Fluid Loss &	D-SA 1 1.4% BWOC Na Metasilicate	Dispersant	Cello Flace LCM .25 lb/sx	D-FP1 0.5% BWOC Defoamer	D-R1 .5% Retarder
	Tail	ASTM Type III Blend		Gas Migration Control		D-CD 2 .5% BWOC Dispersant	Cello Flace LCM .25 lb/sx		D-R1 .2% Retarder
	'un		diate Cementin			Dispensant	10/37		D-INI .270 Netarder
<u>PRODL</u>	UCTION:	before drilling Drill to TD foll	owing direction	nal plan, run co	asing, cement	casing to surfa	ice.		
			ft (MD)	to		ft (MD)		ection Length:	13,680 f
		3,677	ft (TVD)	to	5,457	ft (TVD)	Cas	ing Required:	17,427 f
						(1.4.4.5.)	4.055	(m)	1
				timated KOP:		ft (MD)	-	ft (TVD)	
		Est	imated Landin			ft (MD)	5,444	ft (TVD)	1
			Estimated La	teral Length:	11,767	ft (MD)			
								1	1
	Fluid:	Туре	MW (ppg)	WPS ppm	нтнр	YP (lb/100 sqft)	ES	OWR	Comment
	Fluid:					(lb/100 sqft)			WBM as
uids / Solid		OBM	8.0 - 9.0	120,000 CaCl	NC	(ib/100 sqft) ±6	+300	80:20	WBM as contingency
uids / Solid		OBM Newpark Opti	8.0 - 9.0 Drill OBM syste	120,000 CaCl	NC drying shaker	(lb/100 sqft) ±6 s are rigged up	+300 after the rig (2	80:20 nd set) of shak	WBM as contingency ers. Solids
luids / Solid		OBM Newpark Opti control will bu	8.0 - 9.0	120,000 CaCl m. Ensure that uttings samples	NC drying shaker s one per tour	(lb/100 sqft) ±6 s are rigged up to check % RO(+300 after the rig (2 C. Add diesel an	80:20 nd set) of shak id products as	WBM as contingency ers. Solids required to
luids / Solid		OBM Newpark Opti control will bu maintain mud	8.0 - 9.0 Drill OBM syste	120,000 CaCl m. Ensure that uttings samples ecs. Reference l	NC drying shaker s one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % ROC d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
luids / Solid		OBM Newpark Opti control will bu maintain mud	8.0 - 9.0 Drill OBM syste Irn retorts on cu in program spe	120,000 CaCl m. Ensure that uttings samples ecs. Reference l	NC drying shaker s one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % ROC d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
	ds Notes:	OBM Newpark Opti control will bu maintain mud to be added to application.	8.0 - 9.0 Drill OBM syste Irn retorts on cu in program spe	120,000 CaCl m. Ensure that uttings samples ecs. Reference l	NC drying shaker s one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % ROC d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
н	ds Notes: Hole Size:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2"	8.0 - 9.0 Drill OBM syste in retorts on cu in program spe o the OBM syste	120,000 CaCl m. Ensure that uttings samples ecs. Reference l em. Any chang	NC drying shaker s one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % ROC d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
H Bit ,	ds Notes: Hole Size: / Motor:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2" 8-1/2" PDC bit	8.0 - 9.0 Drill OBM syste in program spe o the OBM syste	120,000 CaCl m. Ensure that uttings samples ecs. Reference l em. Any chang	NC drying shaker s one per tour Newpark's mu ges to the muc	(Ib/100 sqft) ±6 s are rigged up to check % ROG d program for a systems are t	+300 after the rig (2 C. Add diesel an additional detai o be discussed	80:20 nd set) of shak id products as ils. No asphalt with engineer	WBM as contingency ers. Solids required to products are ing prior to
H Bit ,	ds Notes: Hole Size: / Motor:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2" 8-1/2" PDC bit MOTOR: NOV	8.0 - 9.0 Drill OBM syste im retorts on cu in program spe o the OBM syste w/mud motor 077857 - 6.5"	120,000 CaCl im. Ensure that uttings samples acs. Reference I em. Any chang 7/8, 5.0 stage, (NC drying shaker s one per tour Newpark's mu ges to the muc D.23 rev/gal, 1	(Ib/100 sqft) ±6 s are rigged up to check % ROG d program for a l systems are t	+300 after the rig (2 C. Add diesel ar additional detai o be discussed	80:20 nd set) of shak id products as ils. No asphalt with engineer	WBM as contingency ers. Solids required to products are ing prior to
H Bit ,	ds Notes: Hole Size: / Motor:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2" 8-1/2" PDC bit MOTOR: NOV friction break	8.0 - 9.0 Drill OBM syste in program spe o the OBM syste : w/mud motor 077857 - 6.5" ng device(s) as	120,000 CaCl im. Ensure that uttings samples ecs. Reference I em. Any chang 7/8, 5.0 stage, (required, botto	NC drying shaker s one per tour Newpark's mu ges to the muc 0.23 rev/gal, 1 om tool spaced	(Ib/100 sqft) ±6 s are rigged up to check % ROG d program for a l systems are t 83 deg, 750 Gf ~3,000' behin	+300 after the rig (2 C. Add diesel ar additional detai o be discussed PM, 1,580 DIFF d the bit.	80:20 nd set) of shak id products as ils. No asphalt with engineer	WBM as contingency ers. Solids required to products are ing prior to
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Enduring Resources IV, LLC

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Loading					2,696	9,011	355,645	355,645
Min. S.F.					2.77	1.18	1.54	1.25
U Torque (ft lbs): Casing Summary:	<i>Minumum:</i> Float shoe, flo joints spaced of	Burst: 8,500 p fluid with 8.4 f Tension: buoy 3,470 at collar, 1 jt ca evenly in latera	si maximum su ppg equivalent ed weight in 9. Optimum: asing, float coll al every 2,000',		oressure with 1 ure gradient 100,000 lbs or Maximum: oint, toe-intitia at KOP, casing	0.2 ppg equivo ver-pull 5,780 ition sleeve, ca to surface. The	alent mud weig asing to KOP wi toe-initiation	ht sand laden ith 20' marker sleeve (last-
Casing Summary: Centralizers:	joint, toe-intit ~2,000', floata no closer to th azimuth drille the maximum rat-hole and s	iation sleeve (V ation sub (NCS) are unit bounda d wellbore. We depth of the t hoe-track leng	NFT RD 8,500 Air-Lock 2,500 ry than 300' m ellbore path me to e sleeve and th to place the	it casing, float c psi), casing to K psi from WFT) easured perper ust be no closer is noted on the e toe sleeve as djusted based on	OP with 20' ma , casing to surfa dicular to the than 600' from Well Plan. Dri close to (but no	arker joints spa ace. The toe-in East or West I In the parallel II II past the LTP ot past) the pla	aced evenly in itiation sleeve ease lines for a ease lines. Not as required for anned LTP as p	lateral every shall be placed East-West e: the LTP is or necessary
	Top of curve t	tralizer per 3 jo o 9-5/8" shoe: o surface: 1 cer	: 1 centralizer		om Scepter Sup	ply) Planned TOC	Total Cmt	Total Cmt (cu
Cement:	Туре	Weight (ppg)		(gal/sk)	% Excess	(ft MD)	(sx)	ft)
Spacer	IntegraGuard Star	11		31.6		0	60 bbls	
Lead	ASTM type I/II	12.4	2.370	13.40	50%	0	552	1,309
Tail	G:POZ blend	13.3	1.570	7.70	10%	4,621	2,063	3,240
Displacement	384	est bbls	J					
Annular Capacity	0.2691	cuft/ft	5-1/2" casing	x 9-5/8" casing	annulus			
	0.2291	cuft/ft	5-1/2" casing	x 8-1/2" hole a	nnulus			
	0.1245	cuft/ft	5-1/2" casing	vol	est shoe jt ft	100		
	Calculated cer	nent volumes d	assume gauge	hole and the ex	cess noted in to	ıble		
	American Cerr	nenting Liner &	Production Ble	end				
				IntegraGuard Star				
Snacer	S-8 Silica Flour 163.7 lbs/bbl	Avis 616 viscosifier 11.6 lb/bbl	FP24 Detoamer .5 lb/bbl	Plus 3K LCM 15 lb/bbl	SS201 Surfactant 1 gal/bbl			
·	ASTM Type I/II	BA90 Bonding Agent 5.0 lb/sx	Bentonite Viscosifier 8% BWOB	FL24 Fluid Loss .5% BWOB Bentonite	IntegraGuard GW86 Viscosifier .1% BWOB	R7C Retarder .2% BWOB IntegraGuard	FP24 Defoamer 0.3% BWOB, Anti- Static .01 lb/sx	FP24 Defoamer .3% BWOB,
Tail	Type G 50%	Pozzolan Fly Ash Extender 50%	BA90 Bonding Agent 3.0 lb/sx	Viscosifier 4% BWOB	FL24 Fluid Loss .4% BWOB	GW86 Viscosifier .1% BWOB	R3 Retarder .5% BWOB	IntegraSeal 0.25 lb/sx
Note:	Notify NMOC This well will r NMAC 19.15.1	D & BLM if cen not be consider 16.15.C.1.a and n 100' measure	nent is not circ red an unortho 19.15.16.15.0 ed along the az	hole and the executated to surfactor odox well locatio 2.1.b, no point in timuth of the we	nce. on as definted I on the complete ell or 330' meas	by NMAC19.15 d interval shall sured perpend	l be closer to th licular to the a	ne unit zimuth well.
	The boundarie		eteu intei VdI,					
FINISH WELL:	point will be t initiation slee azimuth of the	ed by NMAC 1 he bottom toe- ve nor the top e well or 330' i	-initiation sleeven perforation s	d NMAC 19.15. ve, and the first hall be closer to pendicular to th	take point will the unit bour	be the top pe dary than 10	rforation. Neit	her the toe-

Est Lateral Length: 11,667 Est Frac Inform: 49 Frac Stages 187,000 bbls slick water 15,170,000 lbs proppant Flowback: Flow back through production tubing as pressures allow Production: Produce through production tubing via gas-lift into permanent production and storage facilities ESTIMATED START DATES: Drilling: 11/1/2023 Completion: 12/31/2023

Production:	2/14/2024	
Prepared by:	Alec Bridge	12/20/2021
Updated:	Greg Olson	2/20/2023
	Greg Olson	3/27/2023
	G Olson	8/17/2023

Released to Imaging: 12/28/2023 5:09:01 PM

WELL NAME: Haynes Canyon Unit 432H

OBJECTIVE:	Drill, comple	ete, and equip s	ingle later	al in the Manco	s-H format	tion	[
API Number:	Not yet assign	ned					
AFE Number:	Not yet assign	ned					
ER Well Number:	Not yet assign	ned					
State:	New Mexico						
County:	Rio Arriba						
Surface Elev.:	6,689	ft ASL (GL)	6,714	ft ASL (KB)			
Surface Location:	3-23-6	Sec-Twn- Rng	1,773	ft FNL	303	ft FWL	
BH Location:	11-23-6	Sec-Twn- Rng	234	ft FSL	2592	ft FEL	
Driving Directions:	FROM THE INT	TERSECTION OF US	HWY 550 8	& US HWY 64 IN BI	LOOMFIELD,	NM:	

ĺ	0.11	CK REFERENC	c
	Sur TD (MD)	350	ft
	Int TD (MD)	3,747	ft
	KOP (MD)	5,050	ft
	KOP (TVD)	4,956	ft
	Target (TVD)	5,444	ft
	Curve BUR	10	°/100 ft
	POE (MD)	5,660	ft
	TD (MD)	17,427	ft
	Lat Len (ft)	11,767	ft

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379/403 for 1.8 miles to T intersection of CR 498, Left (NorthWest) on CR 498 for .2 miles to location access on right into Haynes Canyon Unit 432H Pad. From South to North will be Haynes Canyon Unit 432H, 434H, 436H, and 438H.

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	3,747	9.625	36.0	J-55	LTC	0	3,747
Production	8.500	17,427	5.500	17.0	P-110	LTC	0	17,427

CEMENT PROPERTIES SUMMARY:

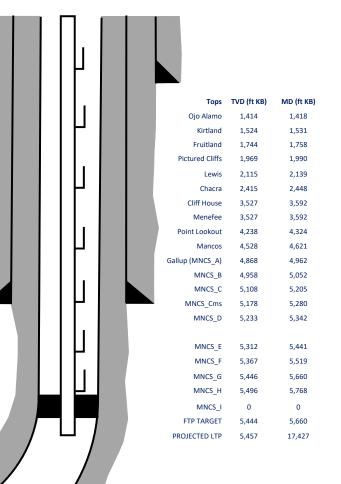
		Туре	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	% Excess	TOC (ft MD)	Total (sx)	
1	Surface	TYPE III	14.6	1.39	6.686	100%	0	354	
	Inter. (Lead)):10 Type III:P	12.5	2.14	12.05	70%	0	519	
	Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3247	137	
	Prod. (Lead)	ASTM type I/I	12.4	2.370	13.4	50%	0	480	
	Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4621	1368	

COMPLETION / PRODUCTION SUMMARY:

Frac: 11667

Flowback: Flow back through production tubing as pressures allow

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





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

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

WELL INFORMATION	N:					
Name:	Haynes Canyon Unit 432H					
API Number:	Not yet assigned					
AFE Number:	Not yet assigned					
ER Well Number:	Not yet assigned					
State:	New Mexico					
County:	Rio Arriba					
Surface Elevation:	6,689 ft ASL (GL)	6,714	ft ASL (KB)			
Surface Location:	3-23-6 Sec-Twn-Rng	1,773	ft FNL	303	ft FWL	
	36.25601 ° N latitude	107.464636	$^{\circ}$ W longitude		(NAD 83)	
BH Location:	11-23-6 Sec-Twn-Rng	234	ft FSL	2,592	ft FEL	
	36.233057 ° N latitude	107.438113	$^{\circ}$ W longitude		(NAD 83)	
Driving Directions:	FROM THE INTERSECTION OF	US HWY 550	& US HWY 64	IN BLOOMFIEL	D, NM:	
	South on US Hwy 550 for 53.8	3 miles to MM	97.6; Left (Nor	th) on CR #379	(State Hwy 403) fo	or 1.3 miles to fork; Right
	(North) remaining on CR #379	/403 for 1.8 n	niles to T inters	ection of CR 49	98, Left (NorthWest) on CR 498 for .2 miles
	to location access on right into	o Haynes Cany	yon Unit 432H I	Pad. From Sout	h to North will be H	-laynes Canyon Unit
	432H, 434H, 436H, and 438H.					

GEOLOGIC AND RESERVOIR INFORMATION:

Pro

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	O/G/W	Pressure
Ojo Alamo	5,300	1,414	1,418	W	normal
Kirtland	5,190	1,524	1,531	W	normal
Fruitland	4,970	1,744	1,758	G, W	sub
Pictured Cliffs	4,745	1,969	1,990	G, W	sub
Lewis	4,599	2,115	2,139	G, W	normal
Chacra	4,299	2,415	2,448	G, W	normal
Cliff House	3,187	3,527	3,592	G, W	sub
Menefee	3,187	3,527	3,592	G, W	normal
Point Lookout	2,476	4,238	4,324	G, W	normal
Mancos	2,186	4,528	4,621	0,G	sub (~0.3
Gallup (MNCS_A)	1,846	4,868	4,962	0,G	sub (~0.3
MNCS_B	1,756	4,958	5,052	0,G	sub (~0.3
MNCS_C	1,606	5,108	5,205	0,G	sub (~0.3
MNCS_Cms	1,536	5,178	5,280	0,G	sub (~0.3
MNCS_D	1,481	5,233	5,342	0,G	sub (~0.3
MNCS_E	1,402	5,312	5,441	0,G	sub (~0.3
MNCS_F	1,347	5,367	5,519	0,G	sub (~0.3
MNCS_G	1,268	5,446	5,660	0,G	sub (~0.3
MNCS_H	1,218	5,496	5,768	0,G	sub (~0.3
MNCS_I	0	0	0	0,G	sub (~0.3
FTP TARGET	1,270	5,444	5,660	0,G	sub (~0.3
PROJECTED LTP	1,257	5,457	17,427	0,G	sub (~0.3

Surface: Nacimiento

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

Pressure:	Normal (0.43 psi/ft) or sub-no	ormal pressu	ire gradients	anticipated in all formations		
	Max. pressure gradient:	0.43	psi/ft	Evacuated hole gradient:	0.22	psi/ft
	Maximum anticipated BH pr	essure, assu	ming maxim	um pressure gradient:	2,350	psi
	Maximum anticipated surfac	1,150	psi			

Temperature: Maximum anticipated BHT is 125° F or less

H₂S INFORMATION:

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

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

LOGGING, CORING, AND TESTING:

 Mud Logs:
 None planned; 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:

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 FEDERA	LNOTIFICATIONS	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
ВОР	BLM is to be notified minimum of 24 hours prior to BOPE testing.	(505) 564-7750	see note
Casing / cementing	BLM and state are to be notified minimum of 24 hours prior to running casing and		
	cementing.	(505) 564-7750	(505) 334-6178
Plugging	BLM and state are to be notified minimum of 24 hours prior to plugging ops.	(505) 564-7750	see note
	All notifications are to be recorded in the WellView report with time, date, name o	<u>r.</u>	
	number that notifications were made to.		
	Note: Monica Keuhling with the OCD requests state notifications 24 hrs in advance fo cementing and any plugging be given to her in both phone message and email: (505) monica.keuhling@emnrd.nm.gov	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	s, casing &
OPE REQUIREMEN	TS:		
	See attached diagram for details regarding BOPE specifications and configuration.		
1) 2)	Rig will be equipped with upper and lower kelly cocks with handles available.		
	Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe	used while drilli	ng the well.
2)	BOP accumulator will have enough capacity to open the HCR valve, close all rams and minimum of 200 psi above precharge on the closing manifold without the use of closi capacity shall be at least double the usable fluid volume of the accumulator system ca be maintained at manufacturer's recommendation. There will be two additional source pumps (electric and air). Sufficient nitrogen bottles will be available and will be rechar manufacturer's recommended minimum.	ng pumps. The fl pacity, and the f ces of power for	luid reservoir luid level sha the closing
3)	BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is bri- since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOI to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing string 1,500 psi, whichever is greater but not exceeding 70% of yield strength of the casing, out 13-3/8" and 9-5/8" casing. Rams and hydraulically operated remote choke line va at a minimum.	P ram preventers 10 minutes. Ran s will be tested to for 30 minutes, p	s will be tested n and annular o .22 psi/ft or prior to drilling
4)	Remote valve for BOP rams, HCR, and choke shall be placed in a location that is readil	y available to the	e 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	ed on the annula	r preventer's

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:

Enduring Resources IV, LLC

SURFACE:	Drill vertically	to casina setti	na depth (plus	necessarv rat	hole), run casin	a. cement casi	na to surface.	
		ft (MD)	to		ft (MD)	-	ection Length:	350 ft
		ft (TVD)	to		ft (TVD)		sing Required:	350 ft
	Note: Surface	hole may be d	rilled, cased, a	nd cemented v	vith a smaller r	ig in advance	of the drilling r	ig.
F 1	Turne		FL (m) (20 min)	D) (()	YP		6	
Fluid:	Type Fresh Water	MW (ppg) 8.4	(mL/30 min) N/C	PV (cp) 2 - 8	(lb/100 sqft) 2 - 12	рН 9.0	Comr Spud	ments mud
Hole Size: Bit / Motor:	17-1/2" Mill Tooth or F	PDC, no motor						<u>.</u>
MWD / Survey: Logging:		iation survey						
Procedure:					odrill with 17-1 using running as			
					job and note o			
	weimeau.						Tens. Body	Tens. Conn
Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	(lbs)	(lbs)
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000
Loading					153	792	116,634	116,634
Min. S.F.					7.39	3.45	7.31	7.79
	Assumptions:				g equivalent ex		-	
		Burst: maximu	m anticipated	surface pressu	re with 9.5 ppg	fluid inside cas	ing while drillir	ng
		intermediate h	ole and 8.4 pp	g equivalent ex	ternal pressure	gradient		
		Tension: buoye	ed weight in 8.4	4 ppg fluid with	100,000 lbs ov	er-pull		
MU Torque (ft lbs):	Minumum:	N/A	Optimum:	N/A	Maximum:	N/A		
nio rolque (je ios).		er API Buttress	-					
C								
Casing Summary:								
Centralizers:	2 centralizers	per jt stop-ban		r	ottom 3 jts, 1 c	entralizer per 2	,	
_	_		Yield	Water	Hole Cap.		Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)
	TYPE III	14.6	1.39	6.686	0.6946	100%	0	364
Annular Capacity	0.6946	cuft/ft		x 17-1/2" hole		Csg capacity	0.8680	ft3/ft
Drake Er	ergy Services:	Calculated cen	nent volumes a	issume gauge h	ole and the exc	ess noted in to	ıble	Cu Ft Slurry
Tail	ASTM Type III	2% BWOC	D-CD2 .3% BWOC Dispersant/Friction	.25 lbs/sx Cello				505.3
- Tun				Flake - seepage	e Cement mus	st achieve 500	nsi compressiv	e strength
		& BLM if ceme		Flake - seepage	e. Cement mus	st achieve 500	psi compressiv	ve strength
INTERMEDIATE:	Notify COGCC before drilling	& BLM if ceme ; out.	ent is not circu	Flake - seepage lated to surfac				ve strength
	Notify COGCC before drilling Drill as per dir	& BLM if ceme ; out.	ent is not circu	Flake - seepage lated to surfac g depth, run co		asing to surfa		ve strength 3,397 ft
	Notify COGCC before drilling Drill as per dir 350	& BLM if ceme gout. Sectional plan t	ent is not circu to casing settin	Flake - seepage lated to surfac g depth, run co 3,747	asing, cement c	asing to surfa Hole So	ce.	
	Notify COGCC before drilling Drill as per dir 350	& BLM if ceme ; out. :ectional plan t ft (MD)	ent is not circu <u>ro casing settin</u> to	Flake - seepage lated to surfac g depth, run co 3,747	asing, cement o ft (MD)	asing to surfa Hole So	<i>ce.</i> ection Length:	3,397 ft
	Notify COGCC before drilling Drill as per dir 350	& BLM if ceme ; out. :ectional plan t ft (MD)	ent is not circu <u>ro casing settin</u> to	Flake - seepage lated to surfac g depth, run co 3,747	asing, cement o ft (MD)	asing to surfa Hole So	<i>ce.</i> ection Length:	3,397 ft
	Notify COGCC before drilling Drill as per dir 350 350	& BLM if ceme ; out. rectional plan t ft (MD) ft (TVD)	ent is not circu to casing settin to to FL	Flake - seepage lated to surfac g depth, run co 3,747 3,677	nsing, cement of ft (MD) ft (TVD) YP	asing to surfa Hole So	<i>ce.</i> ection Length:	3,397 ft 3,747 ft
INTERMEDIATE:	Notify COGCC before drilling Drill as per dir 350 350 Type	& BLM if ceme ; out. ; ectional plan t ft (MD) ft (TVD) MW (ppg)	ent is not circu o casing settin to to FL (mL/30 min)	Flake - seepage lated to surfac g depth, run co 3,747 3,677 PV (cp)	ft (MD) ft (TVD) YP (Ib/100 sqft)	casing to surfa Hole So Cas pH	ce. ection Length: sing Required: Comr	3,397 ft 3,747 ft nents
INTERMEDIATE: Fluid:	Notify COGCC before drilling <i>Drill as per dir</i> 350 350 Type LSND (5% KCl)	& BLM if ceme ; out. rectional plan t ft (MD) ft (TVD)	ent is not circu to casing settin to to FL	Flake - seepage lated to surfac g depth, run co 3,747 3,677	nsing, cement of ft (MD) ft (TVD) YP	casing to surfa Hole So Ca	ce. ection Length: sing Required: Comr	3,397 ft 3,747 ft
INTERMEDIATE: Fluid: Hole Size:	Notify COGCC before drilling 350 350 Type LSND (5% KCl) 12-1/4"	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	ent is not circu o casing settin to to FL (mL/30 min) 20	Flake - seepage lated to surfac g depth, run co 3,747 3,677 PV (cp)	ft (MD) ft (TVD) YP (Ib/100 sqft)	casing to surfa Hole So Cas pH	ce. ection Length: sing Required: Comr	3,397 ft 3,747 ft nents
INTERMEDIATE: Fluid: Hole Size: Bit / Motor:	Notify COGCC before drilling <i>Drill as per dir</i> 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto	ent is not circu o casing settin to to FL (mL/30 min) 20	Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14	tring, cement of ft (MD) ft (TVD) YP (lb/100 sqft) 8 - 14	pH 9.0 - 9.5	ce. ection Length: sing Required: Comr	3,397 ft 3,747 ft nents
INTERMEDIATE: Fluid: Hole Size: Bit / Motor:	Notify COGCC before drilling <i>Drill as per dir</i> 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8,	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16	Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14	rt (MD) ft (TVD) (lb/100 sqft) 8 - 14 DEG, 900 GPM,	pH 950 DIFF PSIG	ce. ection Length: ing Required: Comr No (3,397 ft 3,747 ft nents DBM
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INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Notify COGCC before drilling 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey M None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a powing direction leg/100' and ks '50 GPM (highe and fluid for c PE. Walk rig to ; cement job an wt (lb/ft) 36.0 Collapse: fully	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte a and azimuth s above); pressur hal plan (20' rat eep slide length or fable to con asing running. next well. Perfi d note cement Grade J-55	Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 PV (cp) 8 - 14 Frev/gal, 1.83 res, TFA = 0.67 urvey (every 1 re test 13-3/8" t-hole past cas 1 < 10', when p trol return rate TOOH. Run cas trolow to surface trolow to surface trol return tast TOOH. Run cas trol return tast trol return tast TOOH. Run cas trol return tast trol return ta	ssing, cement of ft (MD) ft (TVD) yP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su solution of the su casing to ing setting dep ossible. Take su solution of the sub- solution o	An end of the second se	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu- beded to keep and, at a minim te is 650 GPM. (circulating as stailed below. P Tens. Body (lbs) 564,000 215,435 2.62 gradient	3,397 ft 3,747 ft nents DBM Jtes. well on plan. num. Target At TD, required. Land Monitor Tens. Conn (lbs) 453,000 215,435 2.10
INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Notify COGCC before drilling 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey M None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, pDC w/16 mm of with inclination test (as noted a powing direction leg/100' and ke '50 GPM (highe and fluid for c PE. Walk rig to ; cement job an wt (lb/ft) 36.0 Collapse: fully Burst: maximu	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte a and azimuth s above); pressur hal plan (20' rat eep slide length er if able to con asing running, next well. Perfi dd note cement Grade J-55 evacuated casi um anticipated .	Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 PV (cp) 8 - 14 Frev/gal, 1.83 Frev/gal,	sing, cement of ft (MD) ft (TVD) P(Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep ossible. Take su casing dep ossible. Take su	An end of the second se	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu- beded to keep and, at a minim te is 650 GPM. (circulating as stailed below. P Tens. Body (lbs) 564,000 215,435 2.62 gradient	3,397 ft 3,747 ft a,747 ft a,7
INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Dit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading	Notify COGCC before drilling 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey M None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, or W/16 mm of with inclination test (as noted a owing direction leg/100' and ke '50 GPM (highe and fluid for c PE. Walk rig to c cement job an Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p,	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte a and azimuth s above); pressur hal plan (20' rat bep slide length er if able to con asing running, next well. Perfi dd note cement Grade J-55 evacuated casi m anticipated pg equivalent e	Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 PV (cp) 8 - 14 Frev/gal, 1.83 Frev/gal,	tring, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 1 - 24 Solution of the solution of the sol	PH 9.0 - 9.5 950 DIFF PSIG 950 DIFF PSIG 55 - 0.90 max), im), GR option 1,500 th). Steer as nurveys every st esired flow-rat and washing , p cement as de Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu- beded to keep and, at a minim te is 650 GPM. (circulating as stailed below. P Tens. Body (lbs) 564,000 215,435 2.62 gradient	3,397 ft 3,747 ft a,747 ft a,7
INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625 Assumptions:	& BLM if ceme ; out. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination test (as noted a pwing direction leg/100' and ke '50 GPM (highe and fluid for c PE. Walk rig to cement job an Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoye	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur al plan (20' rat eep slide length er if able to con asing running. next well. Perfi dd note cement Grade J-55 evacuated casi m anticipated pg equivalent e ed weight in 8.4	Flake - seepage lated to surface g depth, run co 3,747 3,677 PV (cp) 8 - 14 PV (cp) 8 - 14 Frev/gal, 1.83 Frev/gal,	tring, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG,	An and a second	ce. ection Length: sing Required: Comr No (jet with 6 - 12s al psi for 30 minu- beded to keep and, at a minim te is 650 GPM. (circulating as stailed below. P Tens. Body (lbs) 564,000 215,435 2.62 gradient	3,397 ft 3,747 ft a,747 ft a,7
INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625 Assumptions: Minumum:	& BLM if ceme cout. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination test (as noted a pwing direction leg/100' and ke '50 GPM (higher and fluid for c PE. Walk rig to cement job an Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoye 3,400	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte and azimuth s above); pressur al plan (20' rat sep slide length er if able to con asing running, next well. Perf id note cement Grade J-55 evacuated casi m anticipated gg equivalent e ed weight in 8.4 Optimum:	Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 5 rev/gal, 1.83 i ers, TFA = 0.67 survey (every 1 re test 13-3/8" t-hole past cas orm off-line ce t volume to sur Conn. LTC ing with 8.4 pp surface pressur external pressu 4 ppg fluid witt 4,530	tring, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 10 - 14 10 - 14 Collapse (psi) 2,020 1,606 1,26 g equivalent ex: re with 9.5 ppg re gradient 100,000 lbs ov Maximum:	PH 9.0 - 9.5 950 DIFF PSIG 950 DIFF PSIG (5 - 0.90 max), mm), GR option 1,500 th). Steer as nu riveys every st esired flow-rat and washing / p cement as de Burst (psi) 3,520 1,360 2,59 ternal pressure fluid inside cas ver-pull 5,660	ce. action Length: ing Required: Comr No (jet with 6 - 12s al psi for 30 mini- action action action psi for 30 mini- action action action action psi for 30 mini- action action action action (circulating as (circulating as (cir	3,397 ft 3,747 ft a,747 ft a,7
INTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	Notify COGCC before drilling Drill as per dir 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE F MWD Survey N None NU BOPE and Drill to TD foll Keep DLS < 3 c flow-rates of 7 condition hole casing. ND BO returns during 9.625 9.625 Assumptions: Float shoe, 1 j	& BLM if ceme cout. ectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud moto 087840 - 7/8, PDC w/16 mm o with inclination test (as noted a pwing direction leg/100' and ke '50 GPM (higher and fluid for c PE. Walk rig to cement job an Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoye 3,400	ent is not circu o casing settin to to FL (mL/30 min) 20 or 4.0, stage, 0.16 or 19 mm cutte a and azimuth s above); pressur al plan (20' rat sep slide length er if able to con asing running. next well. Perf id note cement Grade J-55 evacuated casi im anticipated pg equivalent e ed weight in 8.4 Optimum: ollar, casing to	Flake - seepage lated to surface g depth, run cc 3,747 3,677 PV (cp) 8 - 14 5 rev/gal, 1.83 rrs, TFA = 0.67 survey (every 1 re test 13-3/8" t-hole past cas n < 10', when p trOOH. Run cas orm off-line ce t volume to surface pressur xurface pressur external pressur 4 ppg fluid with 4,530 surface (FLOA ⁺)	tring, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 9 - 14 DEG, 900 GPM, 8 - 14 DEG, 900 GPM, 9 - 14 DEG, 900	PH 9.0 - 9.5 950 DIFF PSIG 950 DIFF PSIG (5 - 0.90 max), mm), GR option 1,500 th). Steer as nu riveys every st esired flow-rat and washing / p cement as de Burst (psi) 3,520 1,360 2,59 ternal pressure fluid inside cas ver-pull 5,660	ce. action Length: ing Required: Comr No (jet with 6 - 12s al psi for 30 mini- action action action psi for 30 mini- action action action action psi for 30 mini- action action action action (circulating as (circulating as (cir	3,397 ft 3,747 ft a,747 ft a,7

Enduring Resources IV, LLC

Centralizers: 1 per joint in non-vertical hole; 1 per 3-joints in vertical hole

		per ji (noating	3) to KOF , I CEI	ntralizer per 3 j	ts (floating) to	surface (Centra	alizers from Sco	epter Supply -	SLIP'N'SLIDE 9
			SOLID BODY P		Water		Planned TOC	Total Cmt	Total Cmt (cu
age 1	Cement: Spacer	Type D-Mud Breaker	Weight (ppg) 8.5	(cuft/sk)	(gal/sk)	% Excess	(ft MD) 0	(sx) 10 bbls	ft)
		90:10 Type							
	Lead	III:POZ	12.5	2.140	12.05	70%	0	780	1,669
	. , Tail	Type III	14.6	1.380	6.64	20%	3,247	150	207
	isplacement lar Capacity	0.3627	est bbls cuft/ft	9-5/8" casina	x 13-3/8" casin	a annulus			
Anna	iui cupucity	0.3132	cuft/ft	, 3	x 12-1/4" hole	5	9-5/8" 36# ID	8.921	
		0.4341	cuft/ft	9-5/8" casing		est shoe jt ft	44		
		Calculated cer	ment volumes a	ssume gauge h	ole and the ex	cess (open hole	only) noted in	table	
	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-MPA-1.4% BWOC Fluid Loss &	D-SA 1 1.4% BWOC Na Metasilicate	D-CD 2 .4% BWOC Dispersant		D-FP1 0.5% BWOC Defoamer	D-R1 .5% Retarder
	Tail	ASTM Type III Blend		Gas Migration Control		D-CD 2 .5% BWOC Dispersant	Cello Flace LCM .25 lb/sx		D-R1 .2% Retarder
<u>PRC</u>	DDUCTION:	3,747	lowing direction ft (MD)	to	17,427	ft (MD)	Hole Se	ection Length:	13,680 f
		3,677	ft (TVD)	to	5,457	ft (TVD)	Cas	ing Required:	17,427 ft
			Fc	timated KOP:	5 050	ft (MD)	4 956	ft (TVD)	
		Fst	دع timated Landin			ft (MD)	-	ft (TVD)	
		LJ		ateral Length:		ft (MD)	3,444		
				, , , , , , , , , , , , , , , , , , ,					
						YP			
	Fluid:	Туре	MW (ppg)	WPS ppm	НТНР	(lb/100 sqft)	ES	OWR	Comment
uids / S		OBM Newpark Opti	8.0 - 9.0 Drill OBM syste	120,000 CaCl m. Ensure that	NC t drying shaker	(lb/100 sqft) ±6 s are rigged up	+300 after the rig (2	80:20 nd set) of shak	WBM as contingency ers. Solids
	iolids Notes: Hole Size:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2"	8.0 - 9.0 Drill OBM syste urn retorts on co in program spe o the OBM syste	120,000 CaCl em. Ensure that uttings sample: ecs. Reference em. Any chang	NC t drying shaker s one per tour Newpark's mu	(lb/100 sqft) ±6 s are rigged up to check % ROC d program for a	+300 after the rig (2 C. Add diesel an additional detai	80:20 nd set) of shak id products as ils. No asphalt	WBM as contingency ers. Solids required to products are
	olids Notes: Hole Size: Bit / Motor:	OBM Newpark Opti control will bu maintain mud to be added to application. 8-1/2" 8-1/2" PDC bit	8.0 - 9.0 Drill OBM syste In program spe o the OBM syste	120,000 CaCl em. Ensure that uttings samples ecs. Reference em. Any chang	NC t drying shaker s one per tour Newpark's mu ges to the muc	(Ib/100 sqft) ±6 s are rigged up to check % ROC d program for a l systems are to	+300 after the rig (2 C. Add diesel an additional detai o be discussed	80:20 nd set) of shak id products as ils. No asphalt with engineer	WBM as contingency ers. Solids required to products are ing prior to
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Loading					2,696	9,011	355,645	355,645
Min. S.F.					2,000	1.18	1.54	1.25
	Assumptions:	Collapse: fully	evacuated cas	sing with 9.5 pp				
U Torque (ft lbs): Casing Summary:	joints spaced	fluid with 8.4 Tension: buoy 3,470 at collar, 1 jt ca evenly in latera	ppg equivalent ed weight in 9 Optimum: asing, float col al every 2,000',	,	re gradient 100,000 lbs o Maximum: oint, toe-intitia at KOP, casing	ver-pull 5,780 ation sleeve, ca to surface. The	sing to KOP wi	th 20' marker sleeve (last-
Casing Summary: Centralizers:	joint, toe-intit ~2,000', floata no closer to th azimuth driller <i>the maximum</i> <i>rat-hole and s</i>	iation sleeve (N ation sub (NCS ne unit bounda d wellbore. We a depth of the t hoe-track leng	NFT RD 8,500 Air-Lock 2,500 ry than 300' m ellbore path m to e sleeve and th to place the	jt casing, float c psi), casing to K) psi from WFT), leasured perper ust be no closer i is noted on the e toe sleeve as o djusted based on	OP with 20' ma casing to surfa dicular to the than 600' from Well Plan. Dri close to (but no	arker joints spa ace. The toe-in East or West I In the parallel Id Il past the LTP ot past) the pla	aced evenly in l itiation sleeve ease lines for a ease lines. <i>Not</i> <i>as required fo</i> <i>anned LTP as p</i>	ateral every shall be placed East-West e: the LTP is r necessary
	Lateral: 1 cent Top of curve t		oints (purchase 1 centralizer	e centralizers fro per 5 joints				
	e ere sheet		Yield	Water		Planned TOC	Total Cmt	Total Cmt (cu
Cement:	Туре	Weight (ppg)		(gal/sk)	% Excess	(ft MD)	(sx)	ft)
Spacer	IntegraGuard Star	11		31.6		0	60 bbls	
Lead	ASTM type I/II	12.4	2.370	13.40	50%	0	552	1,309
Tail	G:POZ blend	13.3	1.570	7.70	10%	4,621	2,063	3,240
Displacement Annular Capacity	0.2691 0.2291 0.1245	est bbls cuft/ft cuft/ft cuft/ft nent volumes of	5-1/2" casing 5-1/2" casing	x 9-5/8" casing x 8-1/2" hole a vol hole and the exe	nnulus est shoe jt ft			
		nenting Liner &				ibic		
Spacer	S-8 Silica Flour 163.7 lbs/bbl	Avis 616 viscosifier 11.6 lb/bbl		IntegraGuard Star	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	FP24 Defoamer
Tail	Туре 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	.3% BWOB, IntegraSeal 0.25 Ib/sx
Note:	Notify NMOC This well will r NMAC 19.15.1 boundary than The boundarie point, as defin point will be t initiation slee	D & BLM if cen not be consider 16.15.C.1.a and n 100' measure es of the compl ned by NMAC 1 he bottom toe- ve nor the top	nent is not cirr red an unortho 19.15.16.15.0 ed along the az leted interval, 9.15.16.7.E an initiation sleep perforation s	hole and the executated to surfa odox well locatio 2.1.b, no point in timuth of the we as defined by N d NMAC 19.15. ve, and the first hall be closer to pendicular to th	ce. In as definted l the complete ell or 330' mea MAC 19.15.16. 16.7.J, respect take point will the unit bout	by NMAC19.15 d interval shall sured perpend 7.B, are the la ively. In the ca be the top per ndary than 100	be closer to th icular to the az st take point an se of this well, foration. Neit	ne unit timuth well. nd first take the last take her the toe-
FINISH WELL:	ND BOP, cap v	well, RDMO.						
Procedure:	After off-line of	cement job, ca	o and cover we	ell. Continue dri	ling operation	s on subseque	nt wells on pad	

Est Lateral Length:	11,667					
Est Frac Inform:	49	Frac Stages	187,000	bbls slick water	15,170,000	lbs proppant
Flowback:	Flow back three	ough production	tubing as pre	essures allow		
Production:	Produce throu	igh production to	uhing via gas.	lift into permanent pro	duction and storage	facilities
		agin production to		ine into permanent pre	Judecion and Storage	ra onnere o
ESTIMATED START I	DATES:					

ESTI	MATED	START	DATES:

Completion: Production:	12/31/2023 2/14/2024	
Prepared by: Updated:	Alec Bridge Greg Olson	12/20/2021 2/20/2023
	Greg Olson G Olson	3/27/2023 8/17/2023

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WELL NAME: Haynes Canyon Unit 432H

OBJECTIVE:	Drill, comple	Drill, complete, and equip single lateral in the Mancos-H formation								
API Number:	Not yet assign	lot yet assigned								
AFE Number:	Not yet assign	ot yet assigned								
ER Well Number:	Not yet assign	ot yet assigned								
State:	New Mexico	lew Mexico								
County:	Rio Arriba									
Surface Elev.:	6,689	ft ASL (GL)	6,714	ft ASL (KB)						
Surface Location:	3-23-6	Sec-Twn- Rng	1,773	ft FNL	303	ft FWL				
BH Location:	11-23-6	Sec-Twn- Rng	234	ft FSL	2592	ft FEL				
Driving Directions:	FROM THE INT	TERSECTION OF US	HWY 550 8	& US HWY 64 IN BI	LOOMFIELD,	NM:				

QUI	CK REFERENC	E					
Sur TD (MD)	350	ft					
Int TD (MD)	3,747	ft					
KOP (MD)	5,050	ft					
KOP (TVD)	4,956	ft					
Target (TVD)	5,444	ft					
Curve BUR	10	°/100 ft					
POE (MD)	5,660	ft					
TD (MD)	17,427	ft					
Lat Len (ft)	11,767	ft					

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379/403 for 1.8 miles to T intersection of CR 498, Left (NorthWest) on CR 498 for .2 miles to location access on right into Haynes Canyon Unit

432H Pad. From South to North will be Haynes Canyon Unit 432H, 434H, 436H, and 438H.

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	3,747	9.625	36.0	J-55	LTC	0	3,747
Production	8.500	17,427	5.500	17.0	P-110	LTC	0	17,427

CEMENT PROPERTIES SUMMARY:

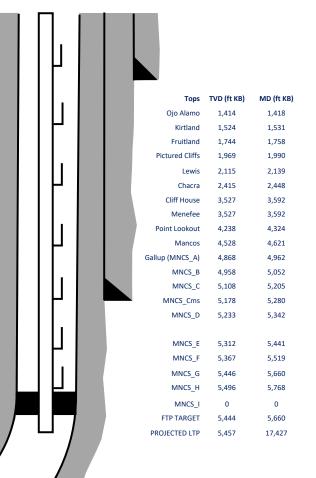
		Туре	Wt (ppg)	Vd (cuft/sk)	Wtr (gal/sk)	% Excess	TOC (ft MD)	Total (sx)	
I	Curface			,	10 . /			. ,	
	Surface	TYPE III	14.6	1.39	6.686	100%	0	354	
	Inter. (Lead)):10 Type III:P	12.5	2.14	12.05	70%	0	519	
	Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3247	137	
	Prod. (Lead)	ASTM type I/I	12.4	2.370	13.4	50%	0	480	
	Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4621	1368	

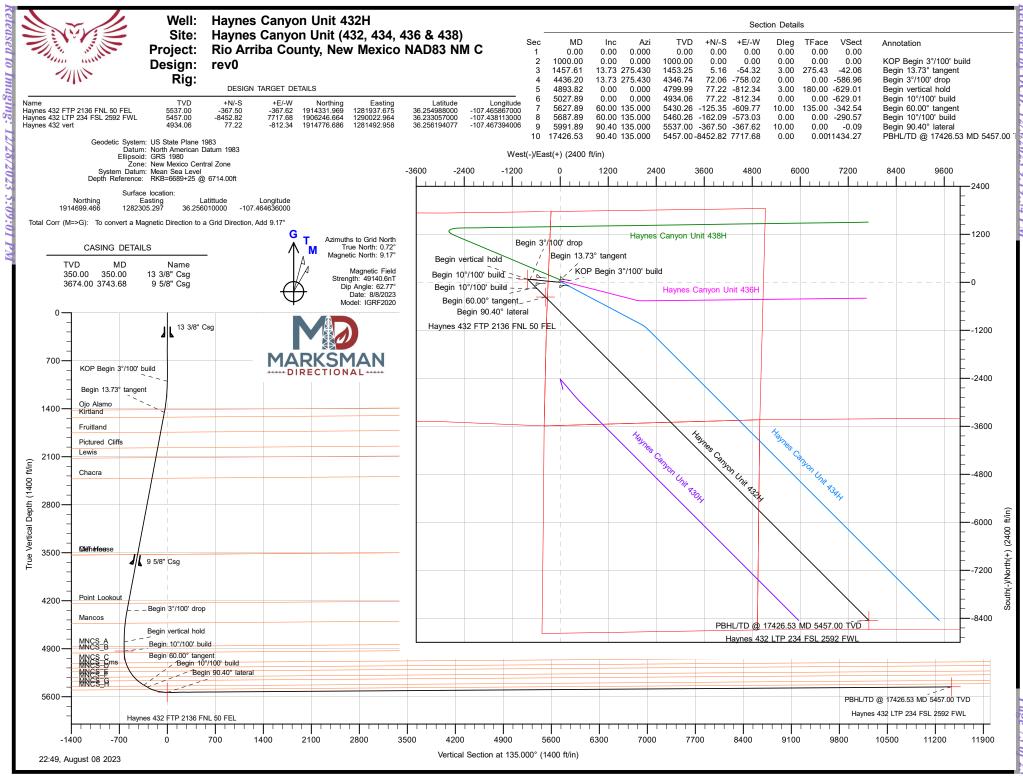
COMPLETION / PRODUCTION SUMMARY:

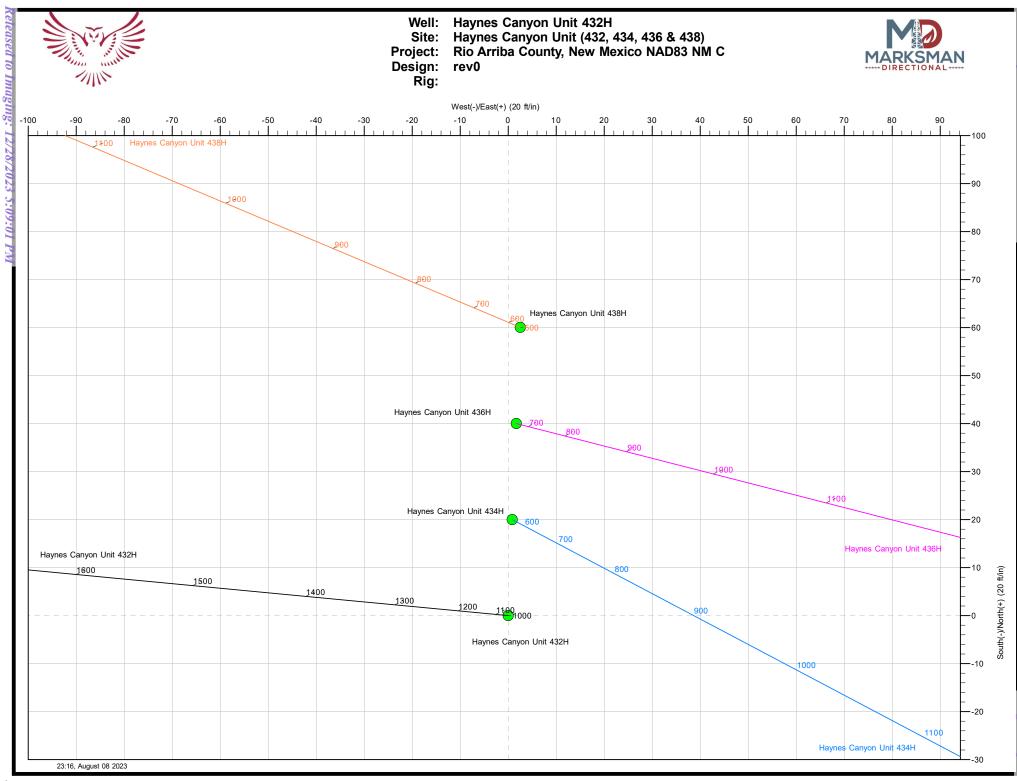
Frac: 11667

Flowback: Flow back through production tubing as pressures allow

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







ee 76 of 25



Database: Company: Project: Site: Well: Wellbore: Design:	Rio Arriba Co Haynes Can	sources LLC ounty, New Me yon Unit (432, yon Unit 432H	exico NAD83 NM C 434, 436 & 438)	Local Co-ordin TVD Reference MD Reference North Reference Survey Calcula	:: :e:	Well Haynes C RKB=6689+25 RKB=6689+25 Grid Minimum Curv	@ 6714.00ft	
Project	Rio Arriba Co	unty, New Me	kico NAD83 NM C					
Map System: Geo Datum: Map Zone:	US State Plane North Americar New Mexico Ce	n Datum 1983		System Datum:		Mean Sea Level		
Site	Haynes Cany	on Unit (432, 4	134, 436 & 438)					
Site Position: From: Position Uncertainty:	Lat/Long	0.00 ft	Northing: Easting: Slot Radius:	1,914,699.46 1,282,305.29 13-3/1	7 usft Longit			.256010000 .464636000
Well	Haynes Canyo	on Unit 432H,	Surf loc: 1773 FNL 3	03 FWL Section 03-T2	3N-R06W			
Well Position	+N/-S +E/-W	0.00 ft 0.00 ft	Northing: Easting:		,699.466 usft ,305.297 usft	Latitude: Longitude:		6.256010000 7.464636000
Position Uncertainty Grid Convergence:		0.00 ft -0.72 °	Wellhead Elev	vation:	ft	Ground Level:	6	,689.00 ft
Wellbore	Original Hole	•						
Magnetics	Model Na	ame	Sample Date	Declination (°)		Dip Angle (°)	Field Strength (nT)	
	IG	RF2020	8/8/2023		8.46	62.77	49,140.568799	999
Design	rev0							
Audit Notes:								
Version:			Phase:	PLAN	Tie On De	pth:	0.00	
Vertical Section:			From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)		rection (°)	
			0.00	0.00	0.00	1:	35.000	
Plan Survey Tool Pro Depth From (ft)	ogram Depth To (ft)	Date 8/8/2 Survey (Well		Tool Name	Rem	arks		
1 0.00	17,426.53	rev0 (Original	Hole)	MWD OWSG MWD - Star				

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Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Target	TFO (°)	Turn Rate (°/100ft)	Build Rate (°/100ft)	Dogleg Rate (°/100ft)	+E/-W (ft)	+N/-S (ft)	Vertical Depth (ft)	Azimuth (°)	Inclination (°)	Measured Depth (ft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	0.000	0.00	1,000.00
	275.43	0.00	3.00	3.00	-54.32	5.16	1,453.25	275.430	13.73	1,457.61
	0.00	0.00	0.00	0.00	-758.02	72.06	4,346.74	275.430	13.73	4,436.20
	180.00	0.00	-3.00	3.00	-812.34	77.22	4,799.99	0.000	0.00	4,893.82
Haynes 432 vert	0.00	0.00	0.00	0.00	-812.34	77.22	4,934.06	0.000	0.00	5,027.89
	135.00	0.00	10.00	10.00	-609.77	-125.35	5,430.26	135.000	60.00	5,627.89
	0.00	0.00	0.00	0.00	-573.03	-162.09	5,460.26	135.000	60.00	5,687.89
	0.00	0.00	10.00	10.00	-367.62	-367.50	5,537.00	135.000	90.40	5,991.89
Haynes 432 LTP 23	0.00	0.00	0.00	0.00	7.717.68	-8,452.82	5.457.00	135.000	90.40	17,426.53



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Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.000	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 3		01000	1,000100	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	3.00	275.430	1,099.95	0.25	-2.61	-2.02	3.00	3.00	0.00
1,200.00	6.00	275.430	1,199.63	0.99	-10.42	-8.06	3.00	3.00	0.00
1,300.00	9.00	275.430	1,298.77	2.23	-23.41	-18.13	3.00	3.00	0.00
1,400.00	12.00	275.430	1,397.08	3.95	-41.55	-32.17	3.00	3.00	0.00
1,400.00	12.00	275.430	1,397.08	3.95 4.30	-41.55	-32.17 -35.05	3.00	3.00	0.00
Ojo Alamo	12.00	210.400	1,717.27	+.00	40.20	-00.00	5.00	5.00	0.00
1,457.61	13.73	275.430	1.453.25	5.16	-54.32	-42.06	3.00	3.00	0.00
Begin 13.73		2101100	1,100120	0110	0.1102	12.00	0.00	0.00	0.00
1,500.00	13.73	275.430	1,494.42	6.12	-64.33	-49.81	0.00	0.00	0.00
1,530.85	13.73	275.430	1,524.39	6.81	-71.62	-55.46	0.00	0.00	0.00
Kirtland									
1,600.00	13.73	275.430	1,591.57	8.36	-87.96	-68.11	0.00	0.00	0.00
1,700.00	13.73	275.430	1,688.71	10.61	-111.58	-86.40	0.00	0.00	0.00
1,757.61	13.73	275.430	1,744.68	11.90	-125.19	-96.94	0.00	0.00	0.00
Fruitland	10.10	210.100	1,111.00	11.00	120.10	00.01	0.00	0.00	0.00
1,800.00	13.73	275.430	1,785.85	12.85	-135.21	-104.69	0.00	0.00	0.00
1,900.00	13.73	275.430	1,883.00	15.10	-158.83	-122.99	0.00	0.00	0.00
							0.00		0.00
1,989.54	13.73	275.430	1,969.97	17.11	-179.99	-139.37	0.00	0.00	0.00
Pictured Clif 2,000.00	13.73	275.430	1,980.14	17.34	-182.46	-141.28	0.00	0.00	0.00
2,000.00	13.73	275.430	2,077.28	19.59	-102.40	-141.20	0.00	0.00	0.00
2,139.00	13.73	275.430	2,115.16	20.47	-215.30	-166.71	0.00	0.00	0.00
Lewis	10.70	210.400	2,110.10	20.47	210.00	100.11	0.00	0.00	0.00
2,200.00	13.73	275.430	2,174.43	21.84	-229.71	-177.87	0.00	0.00	0.00
2.300.00	13.73	275.430	2,271.57	24.08	-253.33	-196.16	0.00	0.00	0.00
2,300.00	13.73	275.430	2,368.71	24.08	-255.55 -276.96	-196.16	0.00	0.00	0.00
2,400.00	13.73	275.430	2,300.71 2,415.56	20.33	-288.35	-214.40	0.00	0.00	0.00
Chacra	10.10	2. 3. 100	2, . 10.00		200.00		0.00	0.00	0.00
2,500.00	13.73	275.430	2,465.85	28.57	-300.59	-232.75	0.00	0.00	0.00
2,600.00	13.73	275.430	2,563.00	30.82	-324.21	-251.04	0.00	0.00	0.00
2,700.00 2,800.00	13.73 13.73	275.430	2,660.14 2,757.28	33.06 35.31	-347.84 -371.46	-269.34 -287.63	0.00 0.00	0.00 0.00	0.00 0.00
2,800.00	13.73	275.430 275.430	2,757.28 2,854.43	35.31	-371.46	-287.63 -305.93	0.00	0.00	0.00
2,900.00	13.73	275.430	2,054.45 2,951.57	39.80	-395.09 -418.71	-305.93	0.00	0.00	0.00
3,000.00	13.73	275.430	3,048.71	42.05	-442.34	-324.22	0.00	0.00	0.00
3,200.00	13.73	275.430	3,145.86	44.29	-465.96	-360.81	0.00	0.00	0.00
3,300.00 3,400.00	13.73 13.73	275.430 275.430	3,243.00 3,340.14	46.54 48.79	-489.59 -513.22	-379.10 -397.39	0.00 0.00	0.00 0.00	0.00 0.00
J.+UU.UU	13.13	275.430	3,340.14 3,437.29	40.79 51.03	-515.22	-397.39 -415.69	0.00	0.00	0.00



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Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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)
3,592.37	13.73	275.430	3,527.02	53.11	-558.66	-432.59	0.00	0.00	0.00
Cliff House -	Menefee								
3,600.00	13.73	275.430	3,534.43	53.28	-560.47	-433.98	0.00	0.00	0.00
3,700.00	13.73	275.430	3,631.57	55.52	-584.09	-452.28	0.00	0.00	0.00
3,743.68	13.73	275.430	3,674.00	56.50	-594.41	-460.27	0.00	0.00	0.00
9 5/8" Csg									
3,800.00	13.73	275.430	3,728.72	57.77	-607.72	-470.57	0.00	0.00	0.00
3,900.00	13.73	275.430	3,825.86	60.01	-631.34	-488.86	0.00	0.00	0.00
4,000.00	13.73	275.430	3,923.00	62.26	-654.97	-507.16	0.00	0.00	0.00
4,100.00	13.73	275.430	4,020.15	64.51	-678.59	-525.45	0.00	0.00	0.00
4,200.00	13.73	275.430	4,117.29	66.75	-702.22	-543.74	0.00	0.00	0.00
4,300.00 4,324.22	13.73 13.73	275.430 275.430	4,214.43 4,237.95	69.00 69.54	-725.84 -731.57	-562.04 -566.47	0.00 0.00	0.00 0.00	0.00 0.00
Point Looko		275.430	4,237.93	09.04	-731.57	-300.47	0.00	0.00	0.00
		077 100	4.0.11						
4,400.00	13.73	275.430	4,311.57	71.24	-749.47	-580.33	0.00	0.00	0.00
4,436.20	13.73	275.430	4,346.74	72.06	-758.02	-586.96	0.00	0.00	0.00
Begin 3°/100 4,500.00	' drop 11.81	275.430	4,408.96	73.39	-772.06	-597.83	3.00	-3.00	0.00
4,500.00	8.81	275.430 275.430	4,408.96 4,507.33	73.39 75.09	-772.06	-597.83 -611.63	3.00	-3.00	0.00
4,621.19	8.18	275.430	4,528.29	75.38	-793.00	-614.04	3.00	-3.00	0.00
Mancos			.,						
	5.01	275 420	4 606 51	76.20	-802.56	621.44	2.00	-3.00	0.00
4,700.00 4,800.00	5.81 2.81	275.430 275.430	4,606.51 4,706.21	76.29 77.00	-802.56	-621.44 -627.24	3.00 3.00	-3.00	0.00
4,893.82	0.00	0.000	4,799.99	77.22	-812.34	-629.01	3.00	-3.00	0.00
Begin vertica		0.000	1,1 00100		012101	020101	0.00	0.00	0.00
4,900.00	0.00	0.000	4,806.17	77.22	-812.34	-629.01	0.00	0.00	0.00
4,962.22	0.00	0.000	4,868.39	77.22	-812.34	-629.01	0.00	0.00	0.00
MNCS_A									
5,000.00	0.00	0.000	4,906.17	77.22	-812.34	-629.01	0.00	0.00	0.00
5,027.89	0.00	0.000	4,934.06	77.22	-812.34	-629.01	0.00	0.00	0.00
Begin 10°/10	0' build								
5,050.00	2.21	135.000	4,956.17	76.92	-812.04	-628.59	10.00	10.00	0.00
5,052.22	2.43	135.000	4,958.39	76.85	-811.97	-628.50	10.00	10.00	0.00
MNCS_B									
5,100.00	7.21	135.000	5,005.98	74.02	-809.14	-624.48	10.00	10.00	0.00
5,150.00	12.21	135.000	5,055.25	68.05	-803.17	-616.05	10.00	10.00	0.00
5,200.00	17.21	135.000	5,103.60	59.08	-794.20	-603.36	10.00	10.00	0.00
5,204.83	17.69	135.000	5,108.20	58.05	-793.17	-601.91	10.00	10.00	0.00
MNCS_C									
5,250.00	22.21	135.000	5,150.65	47.16	-782.28	-586.50	10.00	10.00	0.00
5,279.88	25.20	135.000	5,178.01	38.66	-773.78	-574.49	10.00	10.00	0.00
MNCS_Cms									
5,300.00	27.21	135.000	5,196.06	32.38	-767.50	-565.60	10.00	10.00	0.00
5,342.15	31.43	135.000	5,232.80	17.79	-752.91	-544.97	10.00	10.00	0.00
MNCS_D	00.04	405 000	E 000 47	44.00	740.00	F 40.00	40.00	40.00	0.00
5,350.00	32.21	135.000	5,239.47	14.86	-749.98	-540.83	10.00	10.00	0.00
5,400.00 5,441.13	37.21 41.32	135.000 135.000	5,280.56 5,312.40	-5.26 -23.67	-729.86 -711.45	-512.37 -486.34	10.00 10.00	10.00 10.00	0.00 0.00
5,441.13 MNCS_E	41.32	133.000	5,512.40	-23.07	-711.40	-400.04	10.00	10.00	0.00
_	10.01	105.000	5.010.01	67.65	707.0-	100.10	40.00	10.00	0.00
5,450.00	42.21	135.000	5,319.01	-27.85	-707.27	-480.43	10.00	10.00	0.00
5,500.00 5,518.70	47.21 49.08	135.000 135.000	5,354.53 5,367.01	-52.71 -62.56	-682.41 -672.56	-445.26 -431.33	10.00 10.00	10.00 10.00	0.00 0.00



	Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
1	Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
1	Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
:	Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
1	Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
1	Wellbore:	Original Hole		
1	Design:	rev0		

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)
MNCS_F									
5,550.00	52.21	135.000	5,386.86	-79.67	-655.45	-407.14	10.00	10.00	0.00
5,600.00	57.21	135.000	5,415.73	-108.52	-626.60	-366.34	10.00	10.00	0.00
5,627.89	60.00	135.000	5,430.26	-125.35	-609.77	-342.54	10.00	10.00	0.00
Begin 60.00		1001000	0,100.20	120100		0.2101	10100	10100	0.00
5,659.77	60.00	135.000	5.446.20	-144.88	-590.24	-314.92	0.00	0.00	0.00
MNCS_G			-,						
5,687.89	60.00	135.000	5,460.26	-162.09	-573.03	-290.57	0.00	0.00	0.00
,		133.000	3,400.20	-102.03	-070.00	-230.51	0.00	0.00	0.00
Begin 10°/1		135.000	E 466 00	160 56		280.02	10.00	10.00	0.00
5,700.00	61.21		5,466.20	-169.56	-565.56	-280.02	10.00	10.00	0.00
5,750.00	66.21	135.000	5,488.34	-201.25	-533.87	-235.20	10.00	10.00	0.00
5,768.49	68.06	135.000	5,495.52	-213.29	-521.83	-218.17	10.00	10.00	0.00
MNCS_H									
5,800.00	71.21	135.000	5,506.49	-234.18	-500.94	-188.63	10.00	10.00	0.00
5,850.00	76.21	135.000	5,520.51	-268.10	-467.02	-140.65	10.00	10.00	0.00
5,900.00	81.21	135.000	5,530.29	-302.76	-432.36	-91.64	10.00	10.00	0.00
5,950.00	86.21	135.000	5,535.77	-337.89	-397.23	-41.95	10.00	10.00	0.00
5,991.89	90.40	135.000	5,537.00	-367.50	-367.62	-0.09	10.00	10.00	0.00
Begin 90.40	° lateral								
6,000.00	90.40	135.000	5,536.95	-373.23	-361.89	8.02	0.00	0.00	0.00
6,100.00	90.40	135.000	5,536.25	-443.94	-291.18	108.02	0.00	0.00	0.00
6,200.00	90.40	135.000	5,535.55	-514.65	-220.47	208.01	0.00	0.00	0.00
6,300.00	90.40	135.000	5,534.85	-585.36	-149.76	308.01	0.00	0.00	0.00
0,400,00	00.40	405 000	5 504 45	050.07	70.05	400.04	0.00	0.00	0.00
6,400.00	90.40	135.000	5,534.15	-656.07	-79.05	408.01	0.00	0.00	0.00
6,500.00	90.40	135.000	5,533.45	-726.78	-8.35	508.01	0.00	0.00	0.00
6,600.00	90.40	135.000	5,532.75	-797.48	62.36	608.00	0.00	0.00	0.00
6,700.00	90.40	135.000	5,532.05	-868.19	133.07	708.00	0.00	0.00	0.00
6,800.00	90.40	135.000	5,531.35	-938.90	203.78	808.00	0.00	0.00	0.00
6,900.00	90.40	135.000	5,530.65	-1,009.61	274.49	908.00	0.00	0.00	0.00
7,000.00	90.40	135.000	5,529.95	-1,080.32	345.20	1,007.99	0.00	0.00	0.00
7,100.00	90.40	135.000	5,529.25	-1,151.03	415.91	1,107.99	0.00	0.00	0.00
7,200.00	90.40	135.000	5,528.55	-1,221.74	486.62	1,207.99	0.00	0.00	0.00
7,300.00	90.40	135.000	5,527.85	-1,292.45	557.33	1,307.99	0.00	0.00	0.00
7 400 00	00.40	125 000	5 5 27 15	1 262 16	620 02	1 407 09	0.00	0.00	0.00
7,400.00	90.40	135.000	5,527.15	-1,363.16	628.03	1,407.98	0.00	0.00 0.00	0.00
7,500.00	90.40 90.40	135.000	5,526.45 5,525.75	-1,433.87	698.74 769.45	1,507.98	0.00 0.00	0.00	0.00
7,600.00		135.000		-1,504.57 -1,575.28		1,607.98			0.00
7,700.00 7,800.00	90.40	135.000	5,525.05 5,524.35	,	840.16 910.87	1,707.98 1,807.98	0.00	0.00 0.00	0.00 0.00
1,000.00	90.40	135.000	0,024.00	-1,645.99	510.07	1,007.90	0.00	0.00	
7,900.00	90.40	135.000	5,523.65	-1,716.70	981.58	1,907.97	0.00	0.00	0.00
8,000.00	90.40	135.000	5,522.95	-1,787.41	1,052.29	2,007.97	0.00	0.00	0.00
8,100.00	90.40	135.000	5,522.25	-1,858.12	1,123.00	2,107.97	0.00	0.00	0.00
8,200.00	90.40	135.000	5,521.55	-1,928.83	1,193.71	2,207.97	0.00	0.00	0.00
8,300.00	90.40	135.000	5,520.85	-1,999.54	1,264.41	2,307.96	0.00	0.00	0.00
8,400.00	90.40	135.000	5,520.16	-2,070.25	1,335.12	2,407.96	0.00	0.00	0.00
8,400.00	90.40	135.000	5,519.46	-2,140.96	1,405.83	2,407.90	0.00	0.00	0.00
8,600.00	90.40	135.000	5,519.46 5,518.76	-2,140.96 -2,211.67	1,405.65	2,507.96	0.00	0.00	0.00
8,000.00	90.40	135.000	5,518.06	-2,282.37	1,547.25	2,007.90	0.00	0.00	0.00
8,800.00	90.40	135.000	5,518.06 5,517.36	-2,282.37 -2,353.08	1,547.25		0.00	0.00	0.00
	90.40	135.000	0,017.00	-2,303.00	1,017.90	2,807.95	0.00	0.00	0.00
8,900.00	90.40	135.000	5,516.66	-2,423.79	1,688.67	2,907.95	0.00	0.00	0.00
9,000.00	90.40	135.000	5,515.96	-2,494.50	1,759.38	3,007.95	0.00	0.00	0.00
9,100.00	90.40	135.000	5,515.26	-2,565.21	1,830.09	3,107.94	0.00	0.00	0.00
9,200.00	90.40	135.000	5,514.56	-2,635.92	1,900.79	3,207.94	0.00	0.00	0.00
9,300.00	90.40	135.000	5,513.86	-2,706.63	1,971.50	3,307.94	0.00	0.00	0.00



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Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,400.00	90.40	135.000	5,513.16	-2,777.34	2,042.21	3,407.94	0.00	0.00	0.00
9,500.00	90.40	135.000	5,512.46	-2,848.05	2,112.92	3,507.93	0.00	0.00	0.00
9,600.00	90.40	135.000	5,511.76	-2,918.76	2.183.63	3,607.93	0.00	0.00	0.00
9,700.00	90.40	135.000	5,511.06	-2,989.46	2,254.34	3,707.93	0.00	0.00	0.00
,			,						
9,800.00	90.40	135.000	5,510.36	-3,060.17	2,325.05	3,807.93	0.00	0.00	0.00
9,900.00	90.40	135.000	5,509.66	-3,130.88	2,395.76	3,907.92	0.00	0.00	0.00
10,000.00	90.40	135.000	5,508.96	-3,201.59	2,466.47	4,007.92	0.00	0.00	0.00
10,100.00	90.40	135.000	5,508.26	-3,272.30	2,537.17	4,107.92	0.00	0.00	0.00
10,200.00	90.40	135.000	5,507.56	-3,343.01	2,607.88	4,207.92	0.00	0.00	0.00
10,300.00	90.40	135.000	5,506.86	-3,413.72	2,678.59	4,307.91	0.00	0.00	0.00
10,400.00	90.40	135.000	5,506.16	-3,484.43	2,749.30	4,407.91	0.00	0.00	0.00
10,500.00	90.40	135.000	5,505.46	-3,555.14	2,820.01	4,507.91	0.00	0.00	0.00
10,600.00	90.40	135.000	5,504.76	-3,625.85	2,890.72	4,607.91	0.00	0.00	0.00
10,700.00	90.40	135.000	5,504.06	-3,696.55	2,961.43	4,707.90	0.00	0.00	0.00
10,800.00	90.40	135.000	5,503.36	-3,767.26	3,032.14	4,807.90	0.00	0.00	0.00
10,900.00	90.40	135.000	5,502.66	-3,837.97	3,102.85	4,907.90	0.00	0.00	0.00
11,000.00	90.40	135.000	5,501.96	-3,908.68	3,173.55	5,007.90	0.00	0.00	0.00
11,100.00	90.40	135.000	5,501.26	-3,979.39	3,244.26	5,107.89	0.00	0.00	0.00
11,200.00	90.40	135.000	5,500.56	-4,050.10	3,314.97	5,207.89	0.00	0.00	0.00
11,300.00	90.40	135.000	5,499.87	-4,120.81	3,385.68	5,307.89	0.00	0.00	0.00
11,400.00	90.40	135.000	5,499.17	-4,191.52	3,456.39	5.407.89	0.00	0.00	0.00
11,500.00	90.40	135.000	5,498.47	-4,262.23	3,527.10	5,507.88	0.00	0.00	0.00
11,600.00	90.40	135.000	5,497.77	-4,332.94	3,597.81	5,607.88	0.00	0.00	0.00
11,700.00	90.40	135.000	5,497.07	-4,403.64	3,668.52	5,707.88	0.00	0.00	0.00
11,800.00	90.40	135.000	5,496.37	-4,474.35	3,739.23	5,807.88	0.00	0.00	0.00
11,900.00	90.40	135.000	5,495.67	-4,545.06	3,809.93	5,907.87	0.00	0.00	0.00
12,000.00	90.40	135.000	5,494.97	-4,615.77	3,880.64	6,007.87	0.00	0.00	0.00
12,100.00	90.40	135.000	5,494.27	-4,686.48	3,951.35	6,107.87	0.00	0.00	0.00
12,200.00	90.40	135.000	5,493.57	-4,757.19	4,022.06	6,207.87	0.00	0.00	0.00
12,300.00	90.40	135.000	5,492.87	-4,827.90	4,092.77	6,307.87	0.00	0.00	0.00
12,400.00	90.40	135.000	5,492.17	-4,898.61	4,163.48	6,407.86	0.00	0.00	0.00
12,500.00	90.40	135.000	5,491.47	-4,969.32	4,234.19	6,507.86	0.00	0.00	0.00
12,600.00	90.40	135.000	5,490.77	-5,040.03	4,304.90	6,607.86	0.00	0.00	0.00
12,700.00	90.40	135.000	5,490.07	-5,110.73	4,375.61	6,707.86	0.00	0.00	0.00
12,800.00	90.40	135.000	5,489.37	-5,181.44	4,446.31	6,807.85	0.00	0.00	0.00
12,900.00	90.40	135.000	5,488.67	-5,252.15	4,517.02	6,907.85	0.00	0.00	0.00
13,000.00	90.40	135.000	5,487.97	-5,322.86	4,587.73	7,007.85	0.00	0.00	0.00
13,100.00	90.40	135.000	5,487.27	-5,393.57	4,658.44	7,107.85	0.00	0.00	0.00
13,200.00	90.40	135.000	5,486.57	-5,464.28	4,729.15	7,207.84	0.00	0.00	0.00
13,300.00	90.40	135.000	5,485.87	-5,534.99	4,799.86	7,307.84	0.00	0.00	0.00
13,400.00	90.40	135.000	5,485.17	-5,605.70	4,870.57	7,407.84	0.00	0.00	0.00
13,500.00	90.40	135.000	5,484.47	-5,676.41	4,941.28	7,507.84	0.00	0.00	0.00
13,600.00	90.40	135.000	5,483.77	-5,747.12	5,011.99	7,607.83	0.00	0.00	0.00
13,700.00	90.40	135.000	5,483.07	-5,817.83	5,082.69	7,707.83	0.00	0.00	0.00
13,800.00	90.40	135.000	5,482.37	-5,888.53	5,153.40	7,807.83	0.00	0.00	0.00
13,900.00	90.40	135.000	5,481.67	-5,959.24	5,224.11	7,907.83	0.00	0.00	0.00
14,000.00	90.40	135.000	5,480.97	-6,029.95	5,294.82	8,007.82	0.00	0.00	0.00
14,100.00	90.40	135.000	5,480.27	-6,100.66	5,365.53	8,107.82	0.00	0.00	0.00
14,200.00	90.40	135.000	5,479.57	-6,171.37	5,436.24	8,207.82	0.00	0.00	0.00
14,300.00	90.40	135.000	5,478.88	-6,242.08	5,506.95	8,307.82	0.00	0.00	0.00
14,400.00	90.40	135.000	5,478.18	-6,312.79	5,577.66	8,407.81	0.00	0.00	0.00
14,500.00	90.40	135.000	5,477.48	-6,383.50	5,648.36	8,507.81	0.00	0.00	0.00
14,600.00	90.40	135.000	5,476.78	-6,454.21	5,719.07	8,607.81	0.00	0.00	0.00
14,700.00	90.40	135.000	5,476.08	-6,524.92	5,789.78	8,707.81	0.00	0.00	0.00
1,700.00	07.70	100.000	0,170.00	0,027.02	0,100.10	0,101.01	0.00	0.00	0.00



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Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	90.40	135.000	5,475.38	-6,595.62	5,860.49	8,807.80	0.00	0.00	0.00
14,900.00 15,000.00 15,100.00 15,200.00 15,300.00 15,400.00 15,500.00 15,500.00 15,700.00 15,800.00 15,900.00 16,000.00 16,100.00	90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000	5,474.68 5,473.98 5,473.28 5,472.58 5,471.18 5,471.18 5,470.48 5,469.08 5,469.08 5,468.38 5,466.98 5,466.98 5,466.28	-6,666.33 -6,737.04 -6,807.75 -6,878.46 -6,949.17 -7,019.88 -7,090.59 -7,161.30 -7,232.01 -7,302.71 -7,373.42 -7,444.13 -7,514.84	5,931.20 6,001.91 6,072.62 6,143.33 6,214.04 6,284.74 6,355.45 6,426.16 6,496.87 6,567.58 6,638.29 6,709.00 6,779.71	8,907.80 9,007.80 9,107.80 9,207.79 9,307.79 9,507.79 9,607.78 9,607.78 9,607.78 9,807.78 9,907.78 10,007.77 10,107.77	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
16,200.00 16,300.00	90.40 90.40	135.000 135.000	5,465.58 5,464.88	-7,585.55 -7,656.26	6,850.42 6,921.12	10,207.77 10,307.77	0.00 0.00	0.00 0.00	0.00 0.00
16,400.00 16,500.00 16,600.00 16,700.00 16,800.00	90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000	5,464.18 5,463.48 5,462.78 5,462.08 5,461.38	-7,726.97 -7,797.68 -7,868.39 -7,939.10 -8,009.80	6,991.83 7,062.54 7,133.25 7,203.96 7,274.67	10,407.76 10,507.76 10,607.76 10,707.76 10,807.76	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
16,900.00 17,000.00 17,100.00 17,200.00 17,300.00	90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000	5,460.68 5,459.98 5,459.28 5,458.59 5,457.89	-8,080.51 -8,151.22 -8,221.93 -8,292.64 -8,363.35	7,345.38 7,416.09 7,486.80 7,557.50 7,628.21	10,907.75 11,007.75 11,107.75 11,207.75 11,307.74	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
17,400.00 17,426.53	90.40 90.40 17426.53 MD 54	135.000 135.000	5,457.19 5,457.00	-8,434.06 -8,452.82	7,698.92 7,717.68	11,407.74 11,434.27	0.00 0.00	0.00 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
Haynes 432 vert - plan hits target cent - Point	0.00 er	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
Haynes 432 LTP 234 FS - plan hits target cent - Point	0.00 er	0.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
Haynes 432 FTP 2136 F - plan hits target cent - Point	0.00 er	0.000	5,537.00	-367.50	-367.62	1,914,331.969	1,281,937.675	36.254988000	-107.465867000



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Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		
Design:	levo		

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	
3,743.68	3,674.00	9 5/8" Csg		9-5/8	12-1/4	

Formations

ormations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	1,417.56	1,414.24	Ojo Alamo		-0.40	135.000
	1,530.85	1,524.39	Kirtland		-0.40	135.000
	1,757.61	1,744.68	Fruitland		-0.40	135.000
	1,989.54	1,969.97	Pictured Cliffs		-0.40	135.000
	2,139.00	2,115.16	Lewis		-0.40	135.000
	2,448.23	2,415.56	Chacra		-0.40	135.000
	3,592.37	3,527.02	Cliff House		-0.40	135.000
	3,592.37	3,527.02	Menefee		-0.40	135.000
	4,324.22	4,237.95	Point Lookout		-0.40	135.000
	4,621.19	4,528.29	Mancos		-0.40	135.000
	4,962.22	4,868.39	MNCS_A		-0.40	135.000
	5,052.22	4,958.39	MNCS_B		-0.40	135.000
	5,204.83	5,108.20	MNCS_C		-0.40	135.000
	5,279.88	5,178.01	MNCS_Cms		-0.40	135.000
	5,342.15	5,232.80	MNCS_D		-0.40	135.000
	5,441.13	5,312.40	MNCS_E		-0.40	135.000
	5,518.70	5,367.01	MNCS_F		-0.40	135.000
	5,659.77	5,446.20	MNCS_G		-0.40	135.000
	5,768.49	5,495.52	MNCS_H		-0.40	135.000

Measured	Vertical	Local Coor	dinates	
Depth (ft)	Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
1,000.00	1,000.00	0.00	0.00	KOP Begin 3°/100' build
1,457.61	1,453.25	5.16	-54.32	Begin 13.73° tangent
4,436.20	4,346.74	72.06	-758.02	Begin 3°/100' drop
4,893.82	4,799.99	77.22	-812.34	Begin vertical hold
5,027.89	4,934.06	77.22	-812.34	Begin 10°/100' build
5,627.89	5,430.26	-125.35	-609.77	Begin 60.00° tangent
5,687.89	5,460.26	-162.09	-573.03	Begin 10°/100' build
5,991.89	5,537.00	-367.50	-367.62	Begin 90.40° lateral
17,426.53	5,457.00	-8,452.82	7,717.68	PBHL/TD @ 17426.53 MD 5457.00 TVD



Planning Report - Geographic

Database: Company: Project: Site: Nell: Nellbore: Design:		ources LLC unty, New Me on Unit (432,	exico NAD83 NM C 434, 436 & 438)	TVD Reference MD Reference North Referen	:	Well Haynes (RKB=6689+25 RKB=6689+25 Grid Minimum Curv	5@6714.00ft	2H
Project	Rio Arriba Cour	nty, New Mex	kico NAD83 NM C					
Geo Datum:	US State Plane ² North American I New Mexico Cen	Datum 1983		System Datum	:	Mean Sea Level		
Site	Haynes Canyor	n Unit (432, 4	134, 436 & 438)					
Site Position: From: Position Uncertainty:	Lat/Long	0.00 ft	Northing: Easting: Slot Radius:	1,914,699.4 1,282,305.2 13-3/	97 usft Longit			36.25601000 -107.46463600
Well	Haynes Canyor	n Unit 432H,	Surf loc: 1773 FNL 3	03 FWL Section 03-T	23N-R06W			
Well Position	+N/-S +E/-W	0.00 ft 0.00 ft	Northing: Easting:		4,699.466 usft 2,305.297 usft	Latitude: Longitude:		36.25601000 -107.46463600
Position Uncertainty Grid Convergence:		0.00 ft -0.72 °	Wellhead Elev	vation:	ft	Ground Level:		6,689.00 ft
Wellbore	Original Hole							
Magnetics	Model Nan	ne	Sample Date	Declination (°)	I	Dip Angle (°)		Strength nT)
	IGR	F2020	8/8/2023		8.46	62.77	49,	140.56879999
Design	rev0							
Audit Notes: Version:			Phase:	PLAN	Tie On Der		0.00	
Vertical Section:		Depth	From (TVD)	+N/-S	+E/-W (ft)		Direction	
			(ft) 0.00	(ft) 0.00	0.00	1	(°) 135.000	
Plan Survey Tool Pro	gram	Date 8/8/2	2023					
Depth From (ft)	Depth To (ft) S	Survey (Well	bore)	Tool Name	Rema	ırks		
1 0.00	17,426.53 r	ev0 (Original	Hole)	MWD				



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Target	TFO (°)	Turn Rate (°/100ft)	Build Rate (°/100ft)	Dogleg Rate (°/100ft)	+E/-W (ft)	+N/-S (ft)	Vertical Depth (ft)	Azimuth (°)	Inclination (°)	Measured Depth (ft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	0.000	0.00	1,000.00
	275.43	0.00	3.00	3.00	-54.32	5.16	1,453.25	275.430	13.73	1,457.61
	0.00	0.00	0.00	0.00	-758.02	72.06	4,346.74	275.430	13.73	4,436.20
	180.00	0.00	-3.00	3.00	-812.34	77.22	4,799.99	0.000	0.00	4,893.82
Haynes 432 vert	0.00	0.00	0.00	0.00	-812.34	77.22	4,934.06	0.000	0.00	5,027.89
	135.00	0.00	10.00	10.00	-609.77	-125.35	5,430.26	135.000	60.00	5,627.89
	0.00	0.00	0.00	0.00	-573.03	-162.09	5,460.26	135.000	60.00	5,687.89
	0.00	0.00	10.00	10.00	-367.62	-367.50	5,537.00	135.000	90.40	5,991.89
Haynes 432 LTP 23	0.00	0.00	0.00	0.00	7.717.68	-8,452.82	5.457.00	135.000	90.40	17,426.53



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
100.00	0.00	0.000	100.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
200.00	0.00	0.000	200.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
300.00	0.00	0.000	300.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
350.00	0.00	0.000	350.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
13 3/8" 0	Csg								
400.00	0.00	0.000	400.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
500.00	0.00	0.000	500.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
600.00	0.00	0.000	600.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
700.00	0.00	0.000	700.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
800.00 900.00	0.00	0.000 0.000	800.00 900.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
1,000.00	0.00 0.00	0.000	1,000.00	0.00 0.00	0.00 0.00	1,914,699.466 1,914,699.466	1,282,305.297 1,282,305.297	36.256010000 36.256010000	-107.464636000 -107.464636000
			1,000.00	0.00	0.00	1,914,099.400	1,202,303.297	30.230010000	-107.404030000
1,100.00	gin 3°/100' bui 3.00	275.430	1,099.95	0.25	-2.61	1,914,699.714	1,282,302.691	36.256010591	-107.464644847
1,200.00	6.00	275.430	1,199.63	0.99	-10.42	1,914,700.456	1,282,294.882	36.256012361	-107.464671362
1,300.00		275.430	1,298.77	2.23	-23.41	1,914,701.691	1,282,281.889	36.256015306	-107.464715474
1,400.00	12.00	275.430	1,397.08	3.95	-41.55	1,914,703.416	1,282,263.749	36.256019417	-107.464777060
1,417.56	12.53	275.430	1,414.24	4.30	-45.26	1,914,703.769	1,282,260.035	36.256020258	-107.464789669
Ojo Alan	no								
1,457.61	13.73	275.430	1,453.25	5.16	-54.32	1,914,704.630	1,282,250.980	36.256022311	-107.464820413
Begin 13	3.73° tangent								
1,500.00	13.73	275.430	1,494.42	6.12	-64.33	1,914,705.581	1,282,240.966	36.256024580	-107.464854412
1,530.85	13.73	275.430	1,524.39	6.81	-71.62	1,914,706.274	1,282,233.679	36.256026232	-107.464879154
Kirtland									
1,600.00	13.73	275.430	1,591.57	8.36	-87.96	1,914,707.827	1,282,217.341	36.256029934	-107.464934624
1,700.00	13.73	275.430	1,688.71	10.61	-111.58	1,914,710.073	1,282,193.715	36.256035289	-107.465014835
1,757.61	13.73	275.430	1,744.68	11.90	-125.19	1,914,711.367	1,282,180.104	36.256038373	-107.465061048
Fruitland 1,800.00		275.430	1,785.85	12.85	-135.21	1,914,712.319	1,282,170.090	36.256040643	-107.465095047
1,900.00		275.430	1,883.00	12.05	-155.21	1,914,712.519	1,282,146.464	36.256045997	-107.465175259
1,989.54	13.73	275.430	1,969.97	17.11	-179.99	1,914,716.575	1,282,125.311	36.256050791	-107.465247076
Pictured		2.0.100	1,000101			1,011,1110,010	.,202, .20.01.	00.200000101	
2,000.00	13.73	275.430	1,980.14	17.34	-182.46	1,914,716.810	1,282,122.839	36.256051351	-107.465255470
2,100.00	13.73	275.430	2,077.28	19.59	-206.08	1,914,719.056	1,282,099.214	36.256056705	-107.465335682
2,139.00	13.73	275.430	2,115.16	20.47	-215.30	1,914,719.932	1,282,090.001	36.256058793	-107.465366962
Lewis									
2,200.00	13.73	275.430	2,174.43	21.84	-229.71	1,914,721.302	1,282,075.588	36.256062059	-107.465415894
2,300.00	13.73	275.430	2,271.57	24.08	-253.33	1,914,723.548	1,282,051.963	36.256067413	-107.465496106
2,400.00	13.73	275.430	2,368.71	26.33	-276.96	1,914,725.794	1,282,028.337	36.256072767	-107.465576317
2,448.23	13.73	275.430	2,415.56	27.41	-288.35	1,914,726.877	1,282,016.944	36.256075349	-107.465615000
Chacra									
2,500.00	13.73	275.430	2,465.85	28.57	-300.59	1,914,728.039	1,282,004.712	36.256078121	-107.465656529
2,600.00	13.73	275.430	2,563.00	30.82	-324.21	1,914,730.285	1,281,981.086	36.256083475	-107.465736741
2,700.00		275.430	2,660.14	33.06	-347.84	1,914,732.531	1,281,957.461	36.256088828	-107.465816953
2,800.00	13.73 13.73	275.430 275.430	2,757.28	35.31 37.56	-371.46 -395.09	1,914,734.777	1,281,933.835 1,281,910.210	36.256094182 36.256099536	-107.465897164 -107.465977376
2,900.00 3,000.00		275.430 275.430	2,854.43 2,951.57	37.56 39.80	-395.09 -418.71	1,914,737.023 1,914,739.268	1,281,886.585	36.256104889	-107.466057588
3,100.00	13.73	275.430	3,048.71	42.05	-418.71	1,914,741.514	1,281,862.959	36.256110243	-107.466137800
3,200.00		275.430	3,145.86	44.29	-465.96	1,914,743.760	1,281,839.334	36.256115596	-107.466218012
3,300.00	13.73	275.430	3,243.00	46.54	-489.59	1,914,746.006	1,281,815.708	36.256120949	-107.466298224
3,400.00	13.73	275.430	3,340.14	48.79	-513.22	1,914,748.252	1,281,792.083	36.256126303	-107.466378435
3,500.00	13.73	275.430	3,437.29	51.03	-536.84	1,914,750.498	1,281,768.457	36.256131656	-107.466458647

8/8/2023 11:21:54PM



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitudo
						. ,			Longitude
3,592.37	13.73 Jse - Menefee	275.430	3,527.02	53.11	-558.66	1,914,752.572	1,281,746.634	36.256136601	-107.466532741
3,600.00		275.430	3,534.43	53.28	-560.47	1,914,752.743	1,281,744.832	36.256137009	-107.466538859
3,700.00		275.430	3,631.57	55.52	-584.09	1,914,754.989	1,281,721.206	36.256142362	-107.466619071
3,743.68	13.73	275.430	3,674.00	56.50	-594.41	1,914,755.970	1,281,710.888	36.256144700	-107.466654104
9 5/8" C	-								
3,800.00		275.430	3,728.72	57.77	-607.72	1,914,757.235	1,281,697.581	36.256147716	-107.466699283
3,900.00 4,000.00		275.430	3,825.86	60.01	-631.34	1,914,759.481 1,914,761.727	1,281,673.956	36.256153069 36.256158422	-107.466779495
4,000.00		275.430 275.430	3,923.00 4,020.15	62.26 64.51	-654.97 -678.59	1,914,763.972	1,281,650.330 1,281,626.705	36.256163775	-107.466859707 -107.466939919
4,200.00		275.430	4,117.29	66.75	-702.22	1,914,766.218	1,281,603.079	36.256169128	-107.467020131
4,300.00		275.430	4,214.43	69.00	-725.84	1,914,768.464	1,281,579.454	36.256174480	-107.467100343
4,324.22	13.73	275.430	4,237.95	69.54	-731.57	1,914,769.008	1,281,573.733	36.256175777	-107.467119766
Point Lo									
4,400.00		275.430	4,311.57	71.24	-749.47	1,914,770.710	1,281,555.828	36.256179833	-107.467180554
4,436.20		275.430	4,346.74	72.06	-758.02	1,914,771.523	1,281,547.275	36.256181771	-107.467209593
4,500.00	2/ 100' drop 11.81	275.430	4,408.96	73.39	-772.06	1,914,772.857	1,281,533.236	36.256184952	-107.467257259
4,600.00		275.430	4,507.33	75.09	-789.89	1,914,774.552	1,281,515.413	36.256188990	-107.467317769
4,621.19		275.430	4,528.29	75.38	-793.00	1,914,774.848	1,281,512.297	36.256189696	-107.467328350
Mancos									
4,700.00	5.81	275.430	4,606.51	76.29	-802.56	1,914,775.756	1,281,502.740	36.256191861	-107.467360796
4,800.00		275.430	4,706.21	77.00	-810.05	1,914,776.468	1,281,495.252	36.256193558	-107.467386220
4,893.82		0.000	4,799.99	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
4,900.00	ertical hold 0.00	0.000	4,806.17	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
4,962.22		0.000	4,868.39	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
MNCS_A			.,			.,	.,,		
5,000.00		0.000	4,906.17	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
5,027.89	0.00	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
•	0°/100' build								
5,050.00		135.000	4,956.17	76.92	-812.04	1,914,776.384	1,281,493.260	36.256193259	-107.467392970
5,052.22		135.000	4,958.39	76.85	-811.97	1,914,776.321	1,281,493.324	36.256193086	-107.467392752
5,100.00		135.000	5,005.98	74.02	-809.14	1,914,773.481	1,281,496.163	36.256185386	-107.467383002
5,150.00		135.000	5,055.25	68.05	-803.17	1,914,767.519	1,281,502.125	36.256169217	-107.467362530
5,200.00		135.000	5,103.60	59.08	-794.20	1,914,758.544	1,281,511.101	36.256144875	-107.467331711
5,204.83	17.69	135.000	5,108.20	58.05	-793.17	1,914,757.520	1,281,512.125	36.256142099	-107.467328195
MNCS_C									
5,250.00		135.000	5,150.65	47.16	-782.28	1,914,746.623	1,281,523.022	36.256112546	-107.467290777
5,279.88		135.000	5,178.01	38.66	-773.78	1,914,738.128	1,281,531.516	36.256089510	-107.467261611
MNCS_0 5,300.00		135.000	5,196.06	32.38	-767.50	1,914,731.847	1,281,537.797	36.256072475	-107.467240043
5,342.15		135.000	5,232.80	17.79	-752.91	1,914,717.255	1,281,552.390	36.256032901	-107.467189937
MNCS_E		100.000	0,202.00	11.10	102.01	1,011,111.200	1,201,002.000	00.200002001	
5,350.00		135.000	5,239.47	14.86	-749.98	1,914,714.330	1,281,555.315	36.256024967	-107.467179892
5,400.00		135.000	5,280.56	-5.26	-729.86	1,914,694.203	1,281,575.442	36.255970384	-107.467110784
5,441.13	41.32	135.000	5,312.40	-23.67	-711.45	1,914,675.800	1,281,593.845	36.255920474	-107.467047592
MNCS_E		105 555		07.07	707 07		1 00 1 500 00 1	00.055000.00	
5,450.00		135.000	5,319.01	-27.85	-707.27	1,914,671.621	1,281,598.024	36.255909142	-107.467033244
5,500.00 5,518.70		135.000 135.000	5,354.53 5,367.01	-52.71 -62.56	-682.41 -672.56	1,914,646.755 1,914,636.906	1,281,622.889 1,281,632.739	36.255841706 36.255814994	-107.466947863 -107.466914043
MNCS_F		155.000	5,507.01	-02.00	-072.30	1,917,000.900	1,201,002.709	00.2000 14004	-107.+00914043

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Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
									Ū
5,550.00		135.000	5,386.86	-79.67	-655.45	1,914,619.795	1,281,649.850	36.255768590	-107.466855289
5,600.00		135.000	5,415.73	-108.52	-626.60	1,914,590.945	1,281,678.699	36.255690349	-107.466756229
5,627.89		135.000	5,430.26	-125.35	-609.77	1,914,574.115	1,281,695.529	36.255644706	-107.466698440
•	0.00° tangent	125 000	E 446 20	144.00	500.04	1 014 554 500	1 001 715 055	26 255501752	107 466621206
5,659.77		135.000	5,446.20	-144.88	-590.24	1,914,554.590	1,281,715.055	36.255591753	-107.466631396
MNCS_C		125 000	E 460 06	162.00	E72 02	1 014 527 272	1 001 700 070	26 255545064	107 466570000
5,687.89		135.000	5,460.26	-162.09	-573.03	1,914,537.373	1,281,732.272	36.255545061	-107.466572280
5,700.00	0°/100' build 61.21	135.000	5,466.20	-169.56	-565.56	1,914,529.910	1 201 720 725	26 255524924	-107.466546654
5,750.00		135.000	5,488.34	-201.25	-533.87	1,914,498.221	1,281,739.735 1,281,771.423	36.255524821 36.255438882	-107.466437847
5,768.49		135.000	5,495.52	-213.29	-521.83	1,914,486.175	1,281,783.470	36.255406211	-107.466396483
MNCS_H		100.000	0,100.02	210.20	021.00	1,011,100.110	1,201,100.110	00.200100211	101.100000100
5,800.00		135.000	5,506.49	-234.18	-500.94	1,914,465.289	1,281,804.356	36.255349569	-107.466324769
5,850.00		135.000	5,520.51	-268.10	-467.02	1,914,431.364	1,281,838.281	36.255257562	-107.466208281
5,900.00		135.000	5,530.29	-302.76	-432.36	1,914,396.703	1,281,872.941	36.255163563	-107.466089271
5,950.00	86.21	135.000	5,535.77	-337.89	-397.23	1,914,361.572	1,281,908.072	36.255068286	-107.465968643
5,991.89	90.40	135.000	5,537.00	-367.50	-367.62	1,914,331.968	1,281,937.677	36.254987997	-107.465866993
Begin 90	0.40° lateral								
6,000.00	90.40	135.000	5,536.95	-373.23	-361.89	1,914,326.236	1,281,943.408	36.254972454	-107.465847314
6,100.00	90.40	135.000	5,536.25	-443.94	-291.18	1,914,255.528	1,282,014.117	36.254780689	-107.465604528
6,200.00		135.000	5,535.55	-514.65	-220.47	1,914,184.819	1,282,084.825	36.254588924	-107.465361744
6,300.00		135.000	5,534.85	-585.36	-149.76	1,914,114.110	1,282,155.534	36.254397158	-107.465118961
6,400.00		135.000	5,534.15	-656.07	-79.05	1,914,043.401	1,282,226.243	36.254205391	-107.464876178
6,500.00		135.000	5,533.45	-726.78	-8.35	1,913,972.692	1,282,296.952	36.254013624	-107.464633397
6,600.00		135.000	5,532.75	-797.48	62.36	1,913,901.983	1,282,367.660	36.253821857	-107.464390618
6,700.00 6,800.00		135.000 135.000	5,532.05 5,531.35	-868.19 -938.90	133.07 203.78	1,913,831.274 1,913,760.565	1,282,438.369 1,282,509.078	36.253630089 36.253438320	-107.464147839 -107.463905062
6,900.00		135.000	5,530.65	-1,009.61	203.78	1,913,689.857	1,282,579.787	36.253246551	-107.463662285
7,000.00		135.000	5,529.95	-1,080.32	345.20	1,913,619.148	1,282,650.495	36.253054781	-107.463419510
7,100.00		135.000	5,529.25	-1,151.03	415.91	1,913,548.439	1,282,721.204	36.252863011	-107.463176736
7,200.00		135.000	5,528.55	-1,221.74	486.62	1,913,477.730	1,282,791.913	36.252671241	-107.462933964
7,300.00	90.40	135.000	5,527.85	-1,292.45	557.33	1,913,407.021	1,282,862.622	36.252479469	-107.462691192
7,400.00	90.40	135.000	5,527.15	-1,363.16	628.03	1,913,336.312	1,282,933.330	36.252287698	-107.462448422
7,500.00	90.40	135.000	5,526.45	-1,433.87	698.74	1,913,265.603	1,283,004.039	36.252095925	-107.462205653
7,600.00	90.40	135.000	5,525.75	-1,504.57	769.45	1,913,194.894	1,283,074.748	36.251904153	-107.461962885
7,700.00		135.000	5,525.05	-1,575.28	840.16	1,913,124.186	1,283,145.456	36.251712379	-107.461720118
7,800.00		135.000	5,524.35	-1,645.99	910.87	1,913,053.477	1,283,216.165	36.251520605	-107.461477353
7,900.00		135.000	5,523.65	-1,716.70	981.58	1,912,982.768	1,283,286.874	36.251328831	-107.461234588
8,000.00		135.000	5,522.95	-1,787.41	1,052.29	1,912,912.059	1,283,357.583	36.251137056	-107.460991825
8,100.00		135.000	5,522.25 5,521.55	-1,858.12	1,123.00	1,912,841.350 1,912,770.641	1,283,428.291	36.250945281	-107.460749063 -107.460506302
8,200.00 8,300.00		135.000 135.000	5,521.55 5,520.85	-1,928.83 -1,999.54	1,193.71 1,264.41	1,912,699.932	1,283,499.000 1,283,569.709	36.250753505 36.250561729	-107.460506302
8,400.00		135.000	5,520.05	-2,070.25	1,335.12	1,912,629.223	1,283,640.418	36.250369952	-107.4600203343
8,500.00		135.000	5,519.46	-2,140.96	1,405.83	1,912,558.515	1,283,711.126	36.250178174	-107.459778027
8,600.00		135.000	5,518.76	-2,211.67	1,476.54	1,912,487.806	1,283,781.835	36.249986396	-107.459535271
8,700.00		135.000	5,518.06	-2,282.37	1,547.25	1,912,417.097	1,283,852.544	36.249794618	-107.459292516
8,800.00		135.000	5,517.36	-2,353.08	1,617.96	1,912,346.388	1,283,923.253	36.249602839	-107.459049762
8,900.00	90.40	135.000	5,516.66	-2,423.79	1,688.67	1,912,275.679	1,283,993.961	36.249411059	-107.458807010
9,000.00	90.40	135.000	5,515.96	-2,494.50	1,759.38	1,912,204.970	1,284,064.670	36.249219279	-107.458564258
9,100.00		135.000	5,515.26	-2,565.21	1,830.09	1,912,134.261	1,284,135.379	36.249027499	-107.458321508
9,200.00		135.000	5,514.56	-2,635.92	1,900.79	1,912,063.552	1,284,206.087	36.248835717	-107.458078759
9,300.00		135.000	5,513.86	-2,706.63	1,971.50	1,911,992.844	1,284,276.796	36.248643936	-107.457836011
9,400.00		135.000	5,513.16	-2,777.34	2,042.21	1,911,922.135	1,284,347.505	36.248452154	-107.457593265
9,500.00	90.40	135.000	5,512.46	-2,848.05	2,112.92	1,911,851.426	1,284,418.214	36.248260371	-107.457350519

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Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
									-
9,600.00 9,700.00	90.40 90.40	135.000 135.000	5,511.76 5,511.06	-2,918.76 -2,989.46	2,183.63 2,254.34	1,911,780.717 1,911,710.008	1,284,488.922 1,284,559.631	36.248068588 36.247876804	-107.457107775 -107.456865032
9,800.00	90.40	135.000	5,510.36	-2,989.40	2,234.34	1,911,639.299	1,284,630.340	36.247685020	-107.456622290
9,900.00	90.40	135.000	5,509.66	-3,130.88	2,325.05	1,911,568.590	1,284,701.049	36.247493235	-107.456379550
10,000.00	90.40	135.000	5,508.96	-3,201.59	2,466.47	1,911,497.882	1,284,771.757	36.247301450	-107.456136810
10,100.00	90.40	135.000	5,508.26	-3,272.30	2,537.17	1,911,427.173	1,284,842.466	36.247109664	-107.455894072
10,200.00	90.40	135.000	5,507.56	-3,343.01	2,607.88	1,911,356.464	1,284,913.175	36.246917878	-107.455651335
10,300.00	90.40	135.000	5,506.86	-3,413.72	2,678.59	1,911,285.755	1,284,983.883	36.246726091	-107.455408599
10,400.00	90.40	135.000	5,506.16	-3,484.43	2,749.30	1,911,215.046	1,285,054.592	36.246534303	-107.455165864
10,500.00	90.40	135.000	5,505.46	-3,555.14	2,820.01	1,911,144.337	1,285,125.301	36.246342516	-107.454923131
10,600.00	90.40	135.000	5,504.76	-3,625.85	2,890.72	1,911,073.628	1,285,196.010	36.246150727	-107.454680398
10,700.00	90.40	135.000	5,504.06	-3,696.55	2,961.43	1,911,002.919	1,285,266.718	36.245958938	-107.454437667
10,800.00	90.40	135.000	5,503.36	-3,767.26	3,032.14	1,910,932.211	1,285,337.427	36.245767149	-107.454194937
10,900.00	90.40	135.000	5,502.66	-3,837.97	3,102.85	1,910,861.502	1,285,408.136	36.245575359	-107.453952208
11,000.00	90.40	135.000	5,501.96	-3,908.68	3,173.55	1,910,790.793	1,285,478.845	36.245383568	-107.453709481
11,100.00	90.40	135.000	5,501.26	-3,979.39	3,244.26	1,910,720.084	1,285,549.553	36.245191777	-107.453466754
11,200.00 11,300.00	90.40	135.000	5,500.56	-4,050.10	3,314.97 3,385.68	1,910,649.375	1,285,620.262	36.244999986	-107.453224029 -107.452981305
11,400.00	90.40 90.40	135.000 135.000	5,499.87 5,499.17	-4,120.81 -4,191.52	3,385.68 3,456.39	1,910,578.666 1,910,507.957	1,285,690.971 1,285,761.680	36.244808194 36.244616401	-107.452738582
11,500.00	90.40	135.000	5,499.17	-4,191.52	3,527.10	1,910,437.248	1,285,832.388	36.244424608	-107.452495860
11,600.00	90.40	135.000	5,497.77	-4,332.94	3,597.81	1,910,366.540	1,285,903.097	36.244232815	-107.452253140
11,700.00	90.40	135.000	5,497.07	-4,403.64	3,668.52	1,910,295.831	1,285,973.806	36.244041020	-107.452010421
11,800.00	90.40	135.000	5,496.37	-4,474.35	3,739.23	1,910,225.122	1,286,044.514	36.243849226	-107.451767702
11,900.00	90.40	135.000	5,495.67	-4,545.06	3,809.93	1,910,154.413	1,286,115.223	36.243657431	-107.451524986
12,000.00	90.40	135.000	5,494.97	-4,615.77	3,880.64	1,910,083.704	1,286,185.932	36.243465635	-107.451282270
12,100.00	90.40	135.000	5,494.27	-4,686.48	3,951.35	1,910,012.995	1,286,256.641	36.243273839	-107.451039555
12,200.00	90.40	135.000	5,493.57	-4,757.19	4,022.06	1,909,942.286	1,286,327.349	36.243082042	-107.450796842
12,300.00	90.40	135.000	5,492.87	-4,827.90	4,092.77	1,909,871.577	1,286,398.058	36.242890245	-107.450554130
12,400.00	90.40	135.000	5,492.17	-4,898.61	4,163.48	1,909,800.869	1,286,468.767	36.242698447	-107.450311419
12,500.00	90.40	135.000	5,491.47	-4,969.32	4,234.19	1,909,730.160	1,286,539.476	36.242506649	-107.450068709
12,600.00	90.40	135.000	5,490.77	-5,040.03	4,304.90	1,909,659.451	1,286,610.184	36.242314850	-107.449826000
12,700.00	90.40	135.000	5,490.07	-5,110.73	4,375.61	1,909,588.742	1,286,680.893	36.242123050	-107.449583293
12,800.00	90.40	135.000	5,489.37	-5,181.44	4,446.31	1,909,518.033	1,286,751.602	36.241931251	-107.449340586
12,900.00	90.40	135.000	5,488.67	-5,252.15	4,517.02	1,909,447.324	1,286,822.311	36.241739450	-107.449097881
13,000.00	90.40	135.000	5,487.97	-5,322.86	4,587.73	1,909,376.615	1,286,893.019	36.241547649	-107.448855177
13,100.00 13,200.00	90.40 90.40	135.000 135.000	5,487.27 5,486.57	-5,393.57 -5,464.28	4,658.44 4,729.15	1,909,305.906 1,909,235.198	1,286,963.728 1,287,034.437	36.241355848 36.241164046	-107.448612475 -107.448369773
13,300.00	90.40	135.000	5,485.87	-5,404.28 -5,534.99	4,729.15	1,909,235.198	1,287,105.145	36.240972243	-107.448309773
13,400.00	90.40	135.000	5,485.17	-5,605.70	4,870.57	1,909,093.780	1,287,175.854	36.240780440	-107.447884374
13,500.00	90.40	135.000	5,484.47	-5,676.41	4,941.28	1,909,023.071	1,287,246.563	36.240588637	-107.447641676
13,600.00	90.40	135.000	5,483.77	-5,747.12	5,011.99	1,908,952.362	1,287,317.272	36.240396833	-107.447398979
13,700.00	90.40	135.000	5,483.07	-5,817.83	5,082.69	1,908,881.653	1,287,387.980	36.240205028	-107.447156283
13,800.00	90.40	135.000	5,482.37	-5,888.53	5,153.40	1,908,810.944	1,287,458.689	36.240013223	-107.446913589
13,900.00	90.40	135.000	5,481.67	-5,959.24	5,224.11	1,908,740.235	1,287,529.398	36.239821418	-107.446670896
14,000.00	90.40	135.000	5,480.97	-6,029.95	5,294.82	1,908,669.527	1,287,600.107	36.239629612	-107.446428204
14,100.00	90.40	135.000	5,480.27	-6,100.66	5,365.53	1,908,598.818	1,287,670.815	36.239437805	-107.446185513
14,200.00	90.40	135.000	5,479.57	-6,171.37	5,436.24	1,908,528.109	1,287,741.524	36.239245998	-107.445942823
14,300.00	90.40	135.000	5,478.88	-6,242.08	5,506.95	1,908,457.400	1,287,812.233	36.239054190	-107.445700135
14,400.00	90.40	135.000	5,478.18	-6,312.79	5,577.66	1,908,386.691	1,287,882.941	36.238862382	-107.445457447
14,500.00	90.40	135.000	5,477.48	-6,383.50	5,648.36	1,908,315.982	1,287,953.650	36.238670573	-107.445214761
14,600.00	90.40	135.000	5,476.78	-6,454.21	5,719.07	1,908,245.273	1,288,024.359	36.238478764	-107.444972076
14,700.00	90.40	135.000	5,476.08	-6,524.92	5,789.78	1,908,174.564	1,288,095.068	36.238286954	-107.444729392
14,800.00	90.40	135.000	5,475.38	-6,595.62	5,860.49	1,908,103.856	1,288,165.776	36.238095144	-107.444486710
14,900.00	90.40	135.000	5,474.68 5,473.08	-6,666.33	5,931.20 6.001.01	1,908,033.147	1,288,236.485	36.237903333	-107.444244028
15,000.00	90.40	135.000	5,473.98	-6,737.04	6,001.91	1,907,962.438	1,288,307.194	36.237711522	-107.444001348

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Database:	DB Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
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Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)	Latitude	Longitude
15,100.00	90.40	135.000	5,473.28	-6,807.75	6,072.62	1,907,891.729	1,288,377.903	36.237519710	-107.443758669
15,200.00	90.40	135.000	5,472.58	-6,878.46	6,143.33	1,907,821.020	1,288,448.611	36.237327898	-107.443515991
15,300.00	90.40	135.000	5,471.88	-6,949.17	6,214.04	1,907,750.311	1,288,519.320	36.237136085	-107.443273315
15,400.00	90.40	135.000	5,471.18	-7,019.88	6,284.74	1,907,679.602	1,288,590.029	36.236944271	-107.443030639
15,500.00	90.40	135.000	5,470.48	-7,090.59	6,355.45	1,907,608.893	1,288,660.738	36.236752457	-107.442787965
15,600.00	90.40	135.000	5,469.78	-7,161.30	6,426.16	1,907,538.185	1,288,731.446	36.236560643	-107.442545292
15,700.00	90.40	135.000	5,469.08	-7,232.01	6,496.87	1,907,467.476	1,288,802.155	36.236368828	-107.442302620
15,800.00	90.40	135.000	5,468.38	-7,302.71	6,567.58	1,907,396.767	1,288,872.864	36.236177013	-107.442059949
15,900.00	90.40	135.000	5,467.68	-7,373.42	6,638.29	1,907,326.058	1,288,943.572	36.235985197	-107.441817280
16,000.00	90.40	135.000	5,466.98	-7,444.13	6,709.00	1,907,255.349	1,289,014.281	36.235793380	-107.441574612
16,100.00	90.40	135.000	5,466.28	-7,514.84	6,779.71	1,907,184.640	1,289,084.990	36.235601563	-107.441331944
16,200.00	90.40	135.000	5,465.58	-7,585.55	6,850.42	1,907,113.931	1,289,155.699	36.235409745	-107.441089278
16,300.00	90.40	135.000	5,464.88	-7,656.26	6,921.12	1,907,043.222	1,289,226.407	36.235217927	-107.440846614
16,400.00	90.40	135.000	5,464.18	-7,726.97	6,991.83	1,906,972.514	1,289,297.116	36.235026109	-107.440603950
16,500.00	90.40	135.000	5,463.48	-7,797.68	7,062.54	1,906,901.805	1,289,367.825	36.234834290	-107.440361288
16,600.00	90.40	135.000	5,462.78	-7,868.39	7,133.25	1,906,831.096	1,289,438.534	36.234642470	-107.440118626
16,700.00	90.40	135.000	5,462.08	-7,939.10	7,203.96	1,906,760.387	1,289,509.242	36.234450650	-107.439875966
16,800.00	90.40	135.000	5,461.38	-8,009.80	7,274.67	1,906,689.678	1,289,579.951	36.234258829	-107.439633307
16,900.00	90.40	135.000	5,460.68	-8,080.51	7,345.38	1,906,618.969	1,289,650.660	36.234067008	-107.439390650
17,000.00	90.40	135.000	5,459.98	-8,151.22	7,416.09	1,906,548.260	1,289,721.369	36.233875186	-107.439147993
17,100.00	90.40	135.000	5,459.28	-8,221.93	7,486.80	1,906,477.552	1,289,792.077	36.233683364	-107.438905338
17,200.00	90.40	135.000	5,458.59	-8,292.64	7,557.50	1,906,406.843	1,289,862.786	36.233491541	-107.438662684
17,300.00	90.40	135.000	5,457.89	-8,363.35	7,628.21	1,906,336.134	1,289,933.495	36.233299718	-107.438420031
17,400.00	90.40	135.000	5,457.19	-8,434.06	7,698.92	1,906,265.425	1,290,004.203	36.233107894	-107.438177379
17,426.53	90.40	135.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
PBHL/TC	0 @ 17426.53	MD 5457.00 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
Haynes 432 vert - plan hits target cen - Point	0.00 ter	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
Haynes 432 LTP 234 FS - plan hits target cen - Point	0.00 ter	0.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
Haynes 432 FTP 2136 F - plan hits target cen - Point	0.00 ter	0.000	5,537.00	-367.50	-367.62	1,914,331.969	1,281,937.675	36.254988000	-107.465867000

Casing Points							
	Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")	
	350.00 3,743.68		13 3/8" Csg 9 5/8" Csg		13-3/8 9-5/8	17-1/2 12-1/4	

8/8/2023 11:21:54PM



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,417.56	1,414.24	Ojo Alamo		-0.40	135.000	
1,530.85	1,524.39	Kirtland		-0.40	135.000	
1,757.61	1,744.68	Fruitland		-0.40	135.000	
1,989.54	1,969.97	Pictured Cliffs		-0.40	135.000	
2,139.00	2,115.16	Lewis		-0.40	135.000	
2,448.23	2,415.56	Chacra		-0.40	135.000	
3,592.37	3,527.02	Cliff House		-0.40	135.000	
3,592.37	3,527.02	Menefee		-0.40	135.000	
4,324.22	4,237.95	Point Lookout		-0.40	135.000	
4,621.19	4,528.29	Mancos		-0.40	135.000	
4,962.22	4,868.39	MNCS_A		-0.40	135.000	
5,052.22	4,958.39	MNCS_B		-0.40	135.000	
5,204.83	5,108.20	MNCS_C		-0.40	135.000	
5,279.88	5,178.01	MNCS_Cms		-0.40	135.000	
5,342.15	5,232.80	MNCS_D		-0.40	135.000	
5,441.13	5,312.40	MNCS_E		-0.40	135.000	
5,518.70	5,367.01	 MNCS_F		-0.40	135.000	
5,659.77	5,446.20	 MNCS_G		-0.40	135.000	
5,768.49	5,495.52	 MNCS_H		-0.40	135.000	

Plan Annotations

Measured	Vertical	Local Coor	dinates	
Depth	Depth	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	Comment
1,000.00	1,000.00	0.00	0.00	KOP Begin 3°/100' build
1,457.61	1,453.25	5.16	-54.32	Begin 13.73° tangent
4,436.20	4,346.74	72.06	-758.02	Begin 3°/100' drop
4,893.82	4,799.99	77.22	-812.34	Begin vertical hold
5,027.89	4,934.06	77.22	-812.34	Begin 10°/100' build
5,627.89	5,430.26	-125.35	-609.77	Begin 60.00° tangent
5,687.89	5,460.26	-162.09	-573.03	Begin 10°/100' build
5,991.89	5,537.00	-367.50	-367.62	Begin 90.40° lateral
17,426.53	5,457.00	-8,452.82	7,717.68	PBHL/TD @ 17426.53 MD 5457.00 TVD

WELL NAME: Haynes Canyon Unit 432H

OBJECTIVE:	Drill, compl	complete, and equip single lateral in the Mancos-H formation								
API Number:	Not yet assign	ned					Sur TD (MD)			
AFE Number:	Not yet assign	it yet assigned								
ER Well Number:	Not yet assign	ot yet assigned								
State:	New Mexico						KOP (TVD)			
County:	Rio Arriba						Target (TVD)			
Surface Elev.:	6,689	ft ASL (GL)	6,714	ft ASL (KB)			Curve BUR			
Surface Location:	3-23-6	Sec-Twn- Rng	1,773	ft FNL	303	ft FWL	POE (MD)			
BH Location:	11-23-6	Sec-Twn- Rng	234	ft FSL	2592	ft FEL	TD (MD)			
	COOM THE	UTERCECTION OF I		O LIC LUADA CA INC.	NOOMELELD		Lation (ft)			

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

> South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379/403 for 1.8 miles to T intersection of CR 498, Left (NorthWest) on CR 498 for .2 miles to location access on right into Haynes Canyon Unit 432H Pad. From South to North will be Haynes Canyon Unit 432H, 434H, 436H, and 438H.

QUICK REFERENCE

Lat Len (ft)

350 ft 3,747 ft

5,050 ft

4,956 ft 5,444 ft

5,660 ft

17,427 ft

11,767 ft

10 °/100 ft

WELL CONSTRUCTION SUMMARY:

	Hole (in)	TD MD (ft)	Csg (in)	Csg (lb/ft)	Csg (grade)	Csg (conn)	Csg Top (ft)	Csg Bot (ft)
Surface	17.500	350	13.375	54.5	J-55	BTC	0	350
Intermediate	12.250	3,747	9.625	36.0	J-55	LTC	0	3,747
Production	8.500	17,427	5.500	17.0	P-110	LTC	0	17,427

CEMENT PROPERTIES SUMMARY:

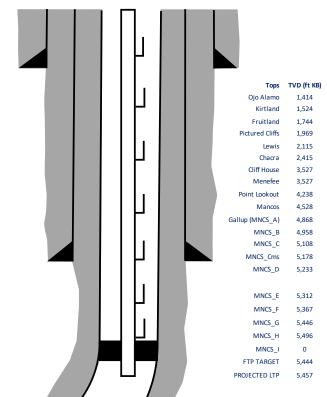
						TOC (ft		
	Туре	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	% Excess	MD)	Total (sx)	Cu Ft Slurry
Surface	TYPE III	14.6	1.39	6.686	100%	0	364	505
Inter. (Lead)	0:10 Type III:P	12.5	2.14	12.05	70%	0	780	1,669
Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3247	150	207
Prod. (Lead)	ASTM type I/II	12.4	2.370	13.4	50%	0	552	1,309
Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4621	2063	3,240

COMPLETION / PRODUCTION SUMMARY:

Frac: 11667

Flowback: Flow back through production tubing as pressures allow

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



MD (ft KB)

1,418

1,531

1,758

1,990

2,139

2,448

3,592

3,592

4,324

4,621

4,962

5,052

5,205

5,280

5,342

5,441

5,519

5,660

5,768

0

5,660

17,427

AFMSS

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

APD ID: 10400093992

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Type: OIL WELL

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

432H_HAYNES_CANYON_UNIT_Access_Road_09032023_20230903161616.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? YES

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description:

Existing Road Improvement Attachment:

432H_HAYNES_CANYON_UNIT_Access_Road_09032023_20230903161644.pdf

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO



Well Name: HAYNES CANYON UNIT

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

HCU_432_Wells_Within_1Mile_08222023_20230903162247.pdf

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description:

Production Facilities map:

Haynes_Canyon_Unit_432H_Facility_Layout_Rev_B_20230903162740.pdf Haynes_Canyon_Unit_432H_Rig_Layout_Rev_A__1__20230920142912.pdf Haynes_Canyon_Unit_432H_Proposed_Reclamation_Rev_A_20230920142923.pdf Haynes_Canyon_Unit_432H_Completions_Layout_Rev_A__1__20230920142933.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL							
Water source use type:	DUST CONTROL						
	SURFACE CASING						
	INTERMEDIATE/PRODUCTION CASING						
Source latitude: 36.069826		Source longitude: -107.04718					
Source datum: NAD83							
Water source permit type:	WATER WELL						
Water source transport method:	TRUCKING						
Source land ownership: PRIVATE							
Source transportation land ownership: FEDERAL							
Water source volume (barrels): 15	562	Source volume (acre-feet): 2.00583437					
Source volume (gal): 653604							

eived by OCD: 12/5/2023 9:19:54 PM		Page 96 of
perator Name: ENDURING RESOU		
ell Name: HAYNES CANYON UNIT	Well	Number: 432H
Water source type: GW WELL		
Water source use type:	DUST CONTROL	
	SURFACE CASING	
	INTERMEDIATE/PRODUC CASING	TION
Source latitude: 36.359802		Source longitude: -107.81031
Source datum: NAD83		
Water source permit type:	WATER WELL	
Water source transport method:	TRUCKING	
Source land ownership: STATE		
	shin: FEDERAL	
Source transportation land owner	-	Source volume (acre-feet): 2.00583437
Source transportation land owner Water source volume (barrels): 15	-	Source volume (acre-feet): 2.00583437
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604	-	Source volume (acre-feet): 2.00583437
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED	-	Source volume (acre-feet): 2.00583437
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type:	5562	Source volume (acre-feet): 2.00583437 Source longitude: -107.576013
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567	5562	
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567 Source datum: NAD83	5562	
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567 Source datum: NAD83 Water source permit type:	5562 STIMULATION	
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567 Source datum: NAD83 Water source permit type: Water source transport method:	STIMULATION	
Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567 Source datum: NAD83 Water source permit type: Water source transport method: Source land ownership: STATE	STIMULATION WATER WELL TRUCKING	
Source land ownership: STATE Source transportation land owner Water source volume (barrels): 15 Source volume (gal): 653604 Water source type: RECYCLED Water source use type: Source latitude: 36.143567 Source datum: NAD83 Water source permit type: Water source transport method: Source land ownership: STATE Source transportation land owner Water source volume (barrels): 65	STIMULATION WATER WELL TRUCKING	

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eceived by OCD: 12/5/2023 9:19:54 PM	r	Page 97 of 255
Operator Name: ENDURING RESOL	JRCES LLC	
Well Name: HAYNES CANYON UNIT	-	Well Number: 432H
Water source type: RECYCLED		
Water source use type:	STIMULATION	
Source latitude: 36.205932		Source longitude: -107.741568
Source datum: NAD83		
Water source permit type:	WATER WELL	
Water source transport method:	TRUCKING	
Source land ownership: FEDERA	L	
Source transportation land owner	ship: FEDERAL	
Water source volume (barrels): 65	50912	Source volume (acre-feet): 83.89806312
Source volume (gal): 27338304		
Water source type: RECYCLED		
Water source use type:	STIMULATION	
Source latitude: 36.210181		Source longitude: -107.831776
Source datum: NAD83		-
Water source permit type:	WATER WELL	
Water source transport method:	TRUCKING	
Source land ownership: FEDERA	L	
Source transportation land owner	ship: FEDERAL	
Water source volume (barrels): 65	50912	Source volume (acre-feet): 83.89806312
Source volume (gal): 27338304		
Water source type: RECYCLED		
Water source use type:	STIMULATION	
Source latitude: 36.117342		Source longitude: -107.488712
Source datum: NAD83		
Water source permit type:	WATER WELL	
Water source transport method:	TRUCKING	

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Received by OCD: 12/5/2023 9:19:54 PM	[Page 98 of 255
Operator Name: ENDURING RESOL	JRCES LLC	
Well Name: HAYNES CANYON UNI	г	Well Number: 432H
Source land ownership: FEDERA	L	
Source transportation land owne	rship: FEDERAL	
Water source volume (barrels): 6	50912	Source volume (acre-feet): 83.89806312
Source volume (gal): 27338304		
Water source type: RECYCLED		
Water source use type:	STIMULATION	
Source latitude: 36.310147		Source longitude: -107.651626
Source datum: NAD83		
Water source permit type:	WATER WELL	
Water source transport method:	TRUCKING	
Source land ownership: FEDERA	L	
Source transportation land owne	rship: FEDERAL	
Water source volume (barrels): 6	50912	Source volume (acre-feet): 83.89806312
Source volume (gal): 27338304		

Water source and transportation

7

HCU_432_Water_Transportation_08222023_20230915142919.pdf

Water source comments: Smelser (POD No. RG06855), Blanco Trading Post (POD No. SJ02105), NEU 2207-16B Water Recycling Facility, WLU 2309-24N Water Recycling Facility, KWU 2309-19K Water Recycling Facility, SEU 2206-20O Water Recycling Facility, NEL 2306-06P Water Recycling Facility New water well? N

New Water Well Info			
Well latitude:	Well Longitude:	Well datum:	
Well target aquifer:			
Est. depth to top of aquifer(ft):	Est th	hickness of aquifer:	
Aquifer comments:			
Aquifer documentation:			
Well depth (ft):	Well cas	asing type:	
Well casing outside diameter (in.):	Well cas	asing inside diameter (in.):	
New water well casing?	Used ca	asing source:	

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Drill material:
Grout depth:
Casing top depth (ft.):
Completion Method:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: Reference attached SUPO chapter 6 construction materials.

Construction Materials source location

MaterialSourceLocationMap_191022_20230903162847.pdf

Section 7 - Methods for Handling

Waste type: DRILLING

Waste content description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Drilling Fluids). **Amount of waste:** 12000 barrels

Waste disposal frequency : Weekly

Safe containment description: Drilling fluids would be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids would be recycled and transferred to other permitted closed-loop systems or disposed of at one of the locations specified in the SUPO section 9. **Safe containmant attachment:**

Waste disposal type: HAUL TO COMMERCIAL Disposal location ownership: PRIVATE FACILITY Disposal type description:

Disposal location description: Approved commercial disposal facility or land farm.

Waste type: FLOWBACK

Waste content description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Flowback). Flowback transported off location will consist of approximately 1000 bbls of produced water per day for approximately 14 days. **Amount of waste:** 1000 barrels

Waste disposal frequency : Daily

Safe containment description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Flowback). Flowback transported off location will consist of approximately 1000 bbls of produced water per day for approximately 14 days. **Safe containmant attachment:**

Waste disposal type: RECYCLE

Disposal location ownership: OTHER

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Disposal type description:

Disposal location description: Produced water from flowback will be stored, treated, and recycled at any of Enduring's approved water recycling facilities. Containments are constructed, lined, and monitored per regulatory requirements. Flowback would be disposed of at one of the disposal wells listed in Section 9 of the SUPO.

Waste type: SEWAGE

Waste content description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Sewage). Amount of waste: 500 gallons

Waste disposal frequency : Weekly

Safe containment description: toilets would be provided and maintained as needed. See SUPO section 9 for reference.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL Disposal location ownership: PRIVATE FACILITY Disposal type description:

Disposal location description: Commercial facilities disposal.

Waste type: GARBAGE

Waste content description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Garbage and other waste material). **Amount of waste:** 1500 pounds

Waste disposal frequency : Weekly

Safe containment description: All garbage and trash would be placed in enclosed metal trash containers. The trash and garbage would be hauled off site and dumped in an approved landfill, as needed. See SUPO, Section 9.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIALDisposal location ownership: PRIVATEFACILITYDisposal type description:

Disposal location description: Approved landfill.

Waste type: PRODUCED WATER

Waste content description: Reference attached Enduring Resources Surface Use Plan of Operations Chapter 9 (Methods for Handling Waste). Section 9 (Produced Water). **Amount of waste:** 11000 barrels

Waste disposal frequency : Weekly

Safe containment description: Drilling fluids would be stored onsite in above-ground storage tanks. See SUPO section 9, Drilling Fluids. **Safe containmant attachment:**

Waste disposal type: ON-LEASE INJECTION Disposal location ownership: PRIVATE

Disposal type description:

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Disposal location description: Commercial UIC, See SUPO Chapter 9 disposal locations.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit? NO

Reserve pit length (ft.) Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO Are you storing cuttings on location? N Description of cuttings location Cuttings area length (ft.) Cuttings area width (ft.) Cuttings area depth (ft.) Cuttings area volume (cu. yd.) Is at least 50% of the cuttings area in cut? WCuttings area liner Cuttings area liner

Section 8 - Ancillary

Are you requesting any Ancillary Facilities?: N Ancillary Facilities

Comments:

Section 9 - Well Site

Well Site Layout Diagram:

HCU_432_Topsoil_and_Cut_09222023_20230922112719.pdf Haynes_Canyon_Unit_432H_Rig_Layout_Rev_A_09222023_20230922113229.pdf Comments:

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Section 10 - Plans for Surface

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: Haynes Canyon Unit

Multiple Well Pad Number: 412

Recontouring

HCU 432H RecPlan Final 20230919 20230920134756.pdf

Drainage/Erosion control construction: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.5 AND THE CONSTRUCTION PLATS.

Drainage/Erosion control reclamation: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION) Section 4.5 AND THE CONSTRUCTION PLATS.

Well pad proposed disturbance (acres): 5.7	Well pad interim reclamation (acres): 3.64	Well pad long term disturbance (acres): 2.01
Road proposed disturbance (acres):	Road interim reclamation (acres): 0	Road long term disturbance (acres): 0
Powerline proposed disturbance (acres): 0 Pipeline proposed disturbance	Powerline interim reclamation (acres): 0 Pipeline interim reclamation (acres):	Powerline long term disturbance (acres): 0 Pipeline long term disturbance
(acres): 1.37	1.37	(acres): 0
Other proposed disturbance (acres):	0 Other interim reclamation (acres): 0	Other long term disturbance (acres): 0
Total proposed disturbance: 7.07	Total interim reclamation: 5.01	Total long term disturbance: 2.01

Disturbance Comments:

Reconstruction method: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION). Section 4.4 RECONTOURING Topsoil redistribution: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.3 TOPSOIL STRIPPING, STORAGE, AND REPLACEMENT

Soil treatment: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.7 SOIL AMENDMENTS

Existing Vegetation at the well pad: Rubber-rabbit brush, Russian thistle, dropseed grass, needle and thread grass, and variety of forbs are the dominant species within the existing well pad and surrounding areas that have revegetated following previous disturbance.

Existing Vegetation at the well pad

Existing Vegetation Community at the road: Rubber-rabbit brush, Russian thistle, dropseed grass, needle and thread grass, and variety of forbs are the dominant species along the existing road and surrounding areas that have revegetated following previous disturbance.

Existing Vegetation Community at the road

Existing Vegetation Community at the pipeline: Rubber-rabbit brush, dropseed grass, needle and thread grass, and various forbs are the dominant species along the proposed pipeline route. **Existing Vegetation Community at the pipeline**

Existing Vegetation Community at other disturbances: N/A

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Existing Vegetation Community at other disturbances

Non native seed used? N

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? ${\sf N}$

Seedling transplant description

Will seed be harvested for use in site reclamation? N Seed harvest description:

Seed harvest description attachment:

Seed

Seed Table

Seed type: PERENNIAL GRASS Seed source: COMMERCIAL Seed name: Western Wheatgrass Source name: Southwest Seed, Inc. Source address: 13514 Rd. 29, Dolores, CO 81323 Source phone: (970)565-8722 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 4 Proposed seeding season: AUTUMN Seed type: SHRUB Seed source: COMMERCIAL Seed name: Fourwing saltbush Source name: Southwest Seed, Inc. Source address: 13514 Rd. 29, Dolores, CO 81323 Source phone: (970)565-8722 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 2 Proposed seeding season: AUTUMN Seed type: PERENNIAL GRASS Seed source: COMMERCIAL Seed name: Indian Ricegrass Source name: Southwest Seed, Inc. Source address: 13514 Rd. 29, Dolores, CO 81323 Source phone: (970)565-8722 Seed cultivar: VNS

Operator Name: ENDURING RESOURCES LLC Well Name: HAYNES CANYON UNIT

Well Number: 432H

Seed use location: WELL PAD PLS pounds per acre: 4 Seed type: PERENNIAL GRASS Seed name: Sand dropseed Source name: Southwest Seed, Inc Source phone: (970)565-8722 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 0 Seed type: SHRUB Seed name: Winterfat Source name: Southwest Seed, Inc. Source phone: (970)565-8722 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 2 Seed type: PERENNIAL GRASS Seed name: Bottle brush squirreltail Source name: Southwest Seed, Inc. Source phone: (978)056-5872 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 3 Seed type: PERENNIAL GRASS Seed name: Blue grama Source name: Southwest Seed, Inc. Source phone: (970)565-8722 Seed cultivar: VNS Seed use location: WELL PAD PLS pounds per acre: 2 Seed type: FORB Seed name: Rocky Mountain Bee Plant Source name: Southwest Seed, Inc. Source phone: (970)565-8722

Proposed seeding season: AUTUMN Seed source: COMMERCIAL Source address: 13514 Rd. 29, Dolores, CO 81323 Proposed seeding season: AUTUMN Seed source: COMMERCIAL

Source address: 13514 Rd. 29, Dolores, CO 81323

Proposed seeding season: AUTUMN Seed source: COMMERCIAL

Source address: 13514 Rd. 29, Dolores, CO 81323

Proposed seeding season: AUTUMN Seed source: COMMERCIAL

Source address: 13514 Rd. 29, Dolores, CO 81323

Proposed seeding season: AUTUMN Seed source: COMMERCIAL

Source address: 13514 Rd. 29, Dolores, CO 81323

Operator Name: ENDUF	RING RESOURCES LLC	
Well Name: HAYNES CA	ANYON UNIT	Well Number: 432H
Seed cultivar: VNS		
Seed use location: V	WELL PAD	
PLS pounds per acr	e : 0	Proposed seeding season: AUTUMN
Seed type: FORB		Seed source: COMMERCIAL
Seed name: Blue Fla	IX	
Source name: South	west Seed, Inc	Source address: 13514 Rd. 29, Dolores CO 81323
Source phone: (970))565-8722	
Seed cultivar: VNS		
Seed use location: V	WELL PAD	
PLS pounds per acr	e: 0	Proposed seeding season: AUTUMN
See	d Summary	Total pounds/Acre: 17
Seed Type	Pounds/Acre	
SHRUB	4	-
FORB	0	

Seed reclamation

Operator Contact/Responsible Official

13

First Name: Theresa

Last Name: Ancell

Phone: (970)749-0124

PERENNIAL GRASS

Email: tancell@enduringresources.com

Seedbed prep: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 4 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.6 SEEDBED PREPARATION Seed BMP: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.7 SOIL AMENDMENTS Seed method: REFERENCE ATTACHED ENDURING RESOURCES SURFACE RECLAMATION PLAN CHAPTER 3 (TECHNIQUES FOR SUCCESSFUL REVEGETATION), Section 4.8 SEEDING for details. Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment

Weed treatment plan description: Please see attached Surface Reclamation Plan, Chapter 4 Reclamation Techniques for Successful Revegetation, section 4.9 Noxious and Invasive Weed Control, for details regarding plans for invasive weed control.

Weed treatment plan

Monitoring plan description: N/A

Monitoring plan

Success standards: Please see the attached Surface Reclamation Plan, Chapter 5 Monitoring Requirements, section 5.4 Reclamation Attainment for successful standards.

Pit closure description: N/A, well will be drilled utilizing a closed-loop system

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Pit closure attachment:

Section 11 - Surface

Disturbance type: PIPELINE Describe: Surface Owner: BUREAU OF LAND MANAGEMENT Other surface owner description: BIA Local Office: BOR Local Office: COE Local Office: DOD Local Office: NPS Local Office: State Local Office: Military Local Office: USFWS Local Office: Other Local Office:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: EXISTING ACCESS ROAD Describe: Surface Owner: BUREAU OF LAND MANAGEMENT Other surface owner description: BIA Local Office: BOR Local Office: COE Local Office: DOD Local Office: NPS Local Office: State Local Office: Military Local Office:

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other

Right of Way needed? N ROW Type(s):

ROW

Use APD as ROW?

Well Name: HAYNES CANYON UNIT

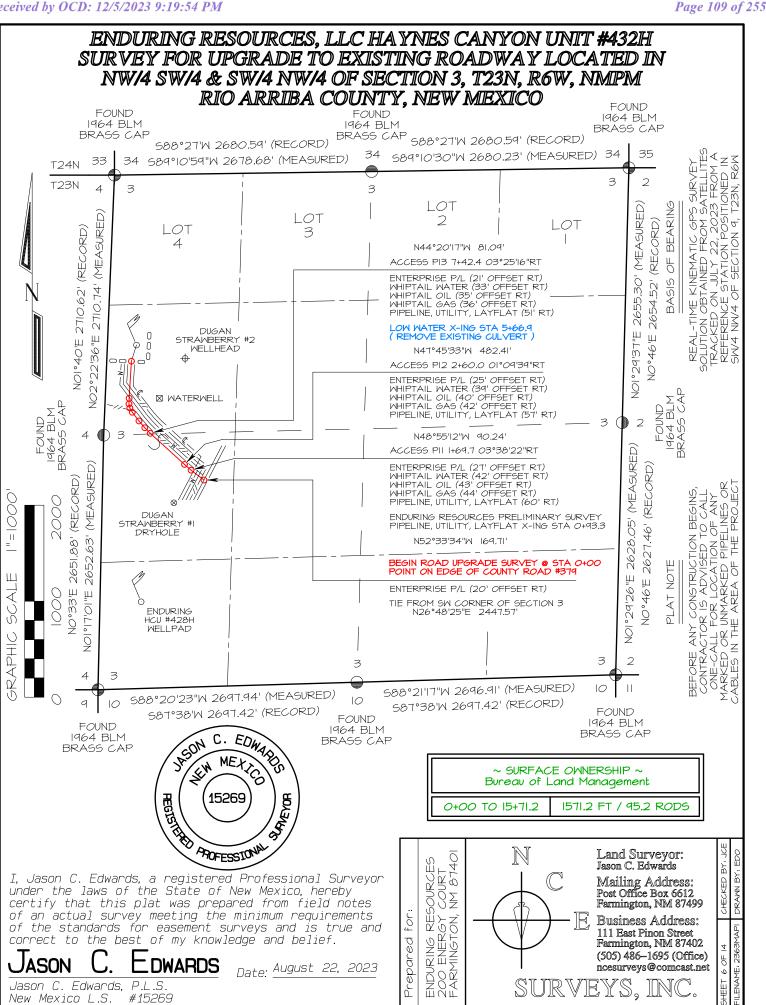
SUPO Additional Information:

Use a previously conducted onsite? Y

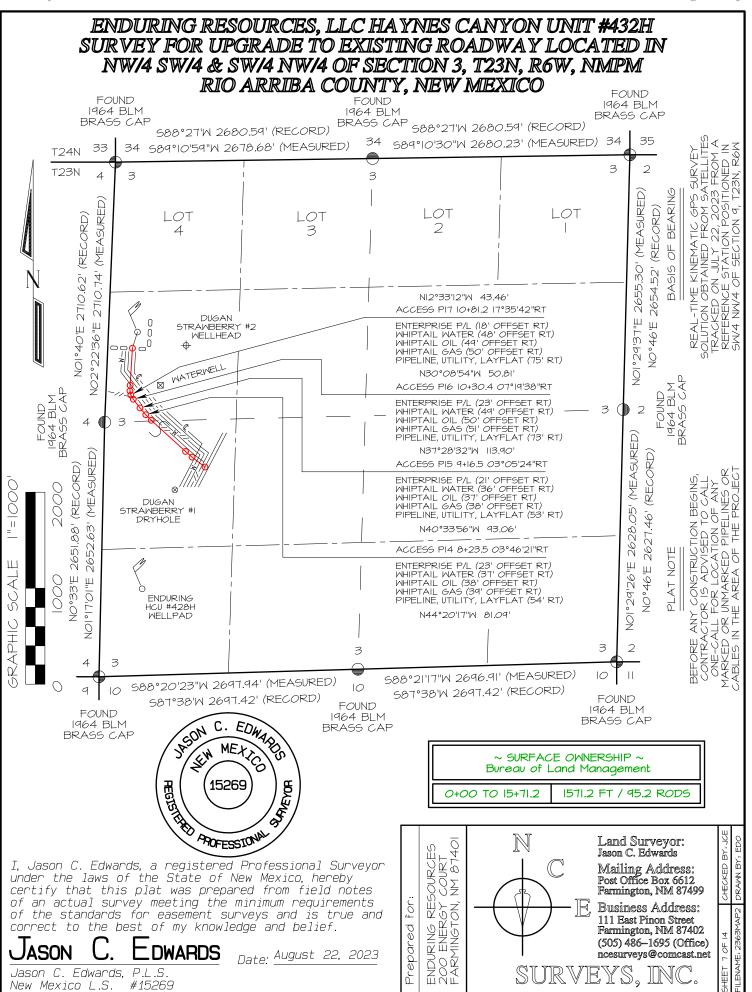
Previous Onsite information: Onsite was held on June 27, 2023, please see attached onsite notes for reference.

Other SUPO

20230627_HCU_432H_Onsite_Notes_20230903163335.pdf HCU_432H_RecPlan_Final_20230919_20230920134329.pdf HCU_432H_RD.Maint.Pln_09202023_20230920170903.pdf HCU_432H_SUPO_Final_20230927_20230927173030.pdf

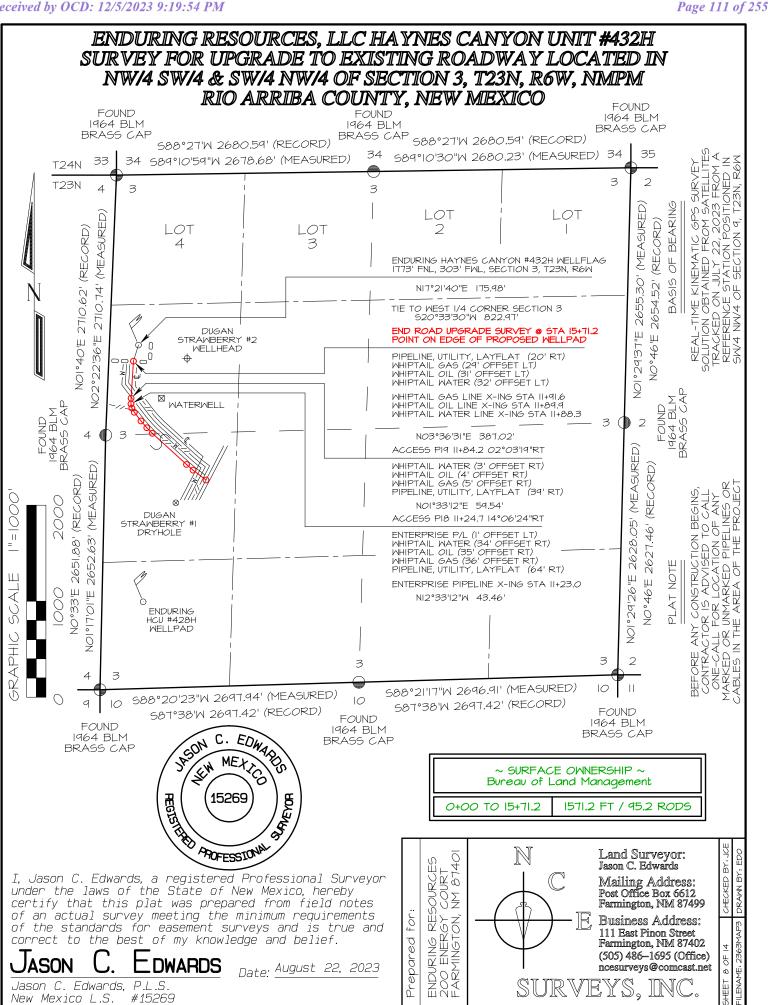


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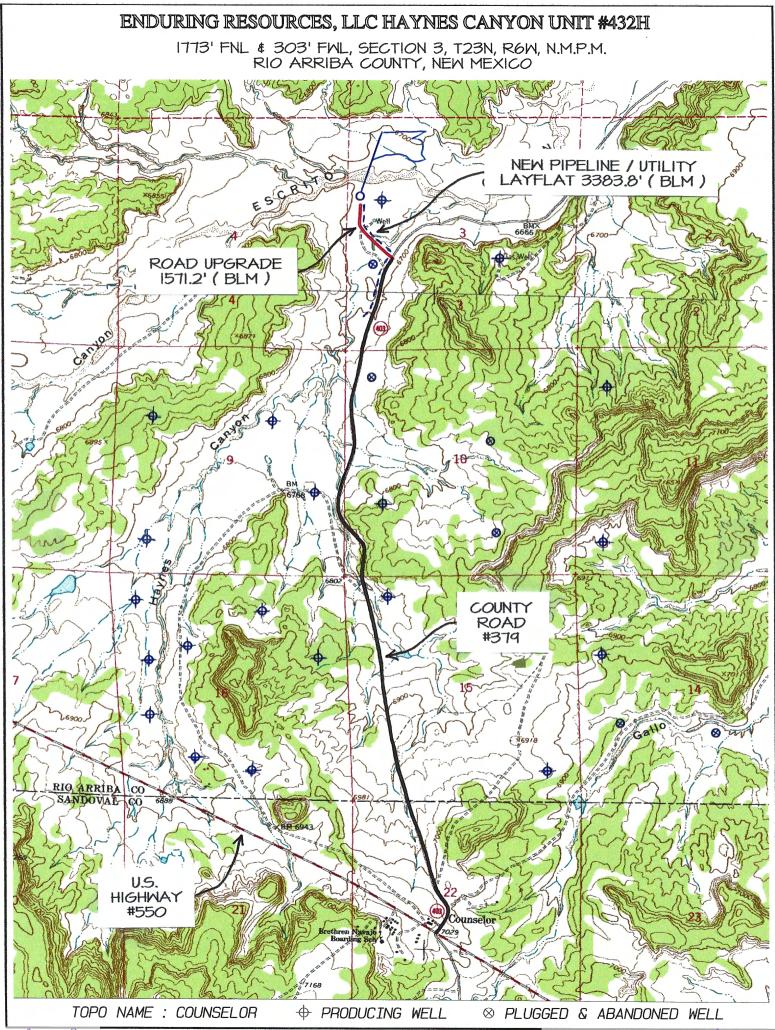


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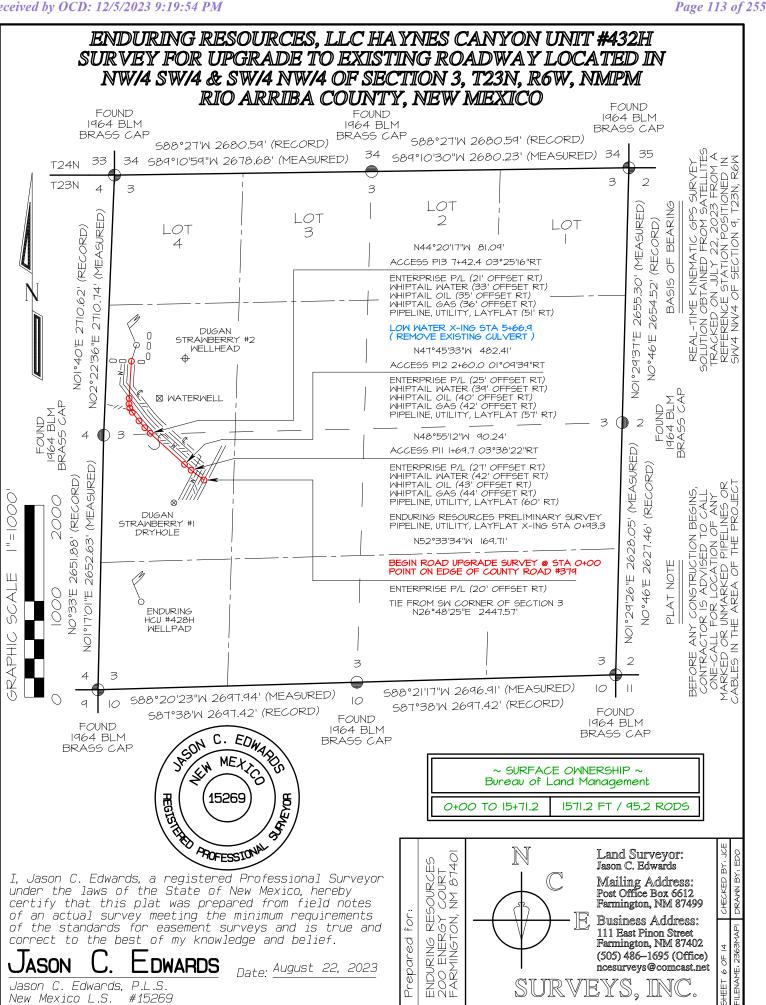


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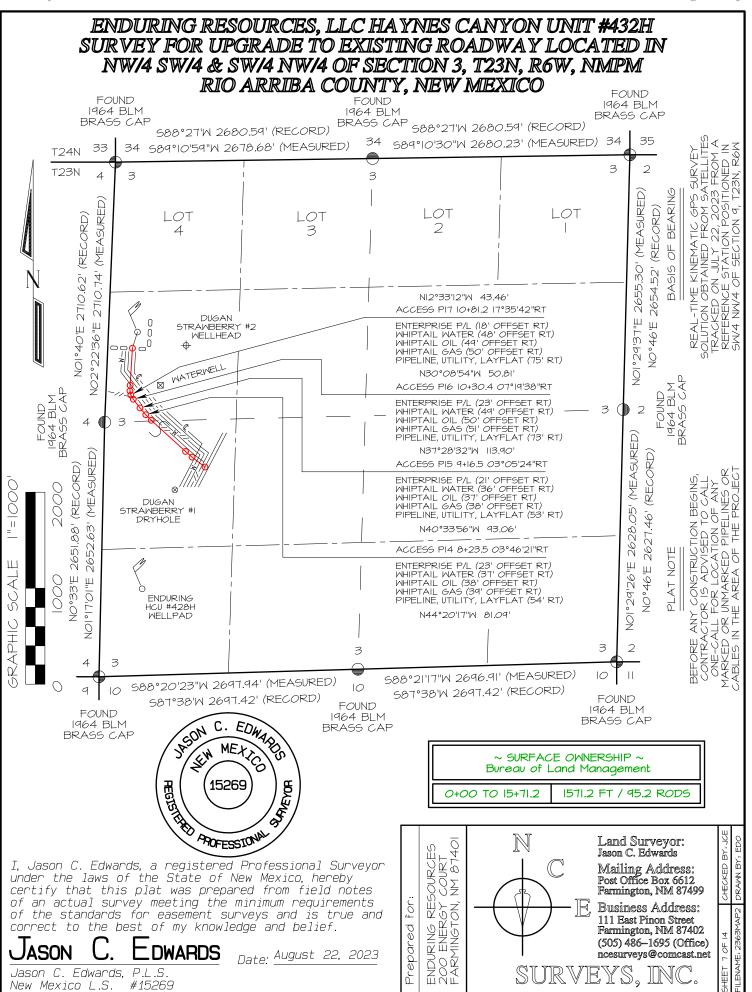


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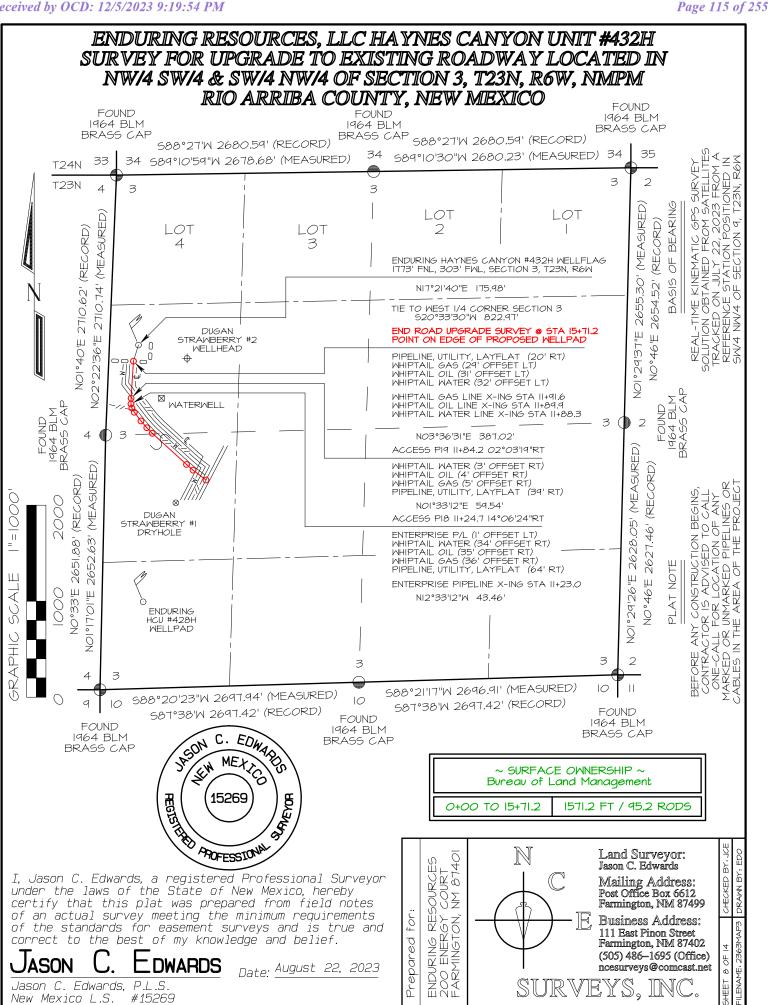


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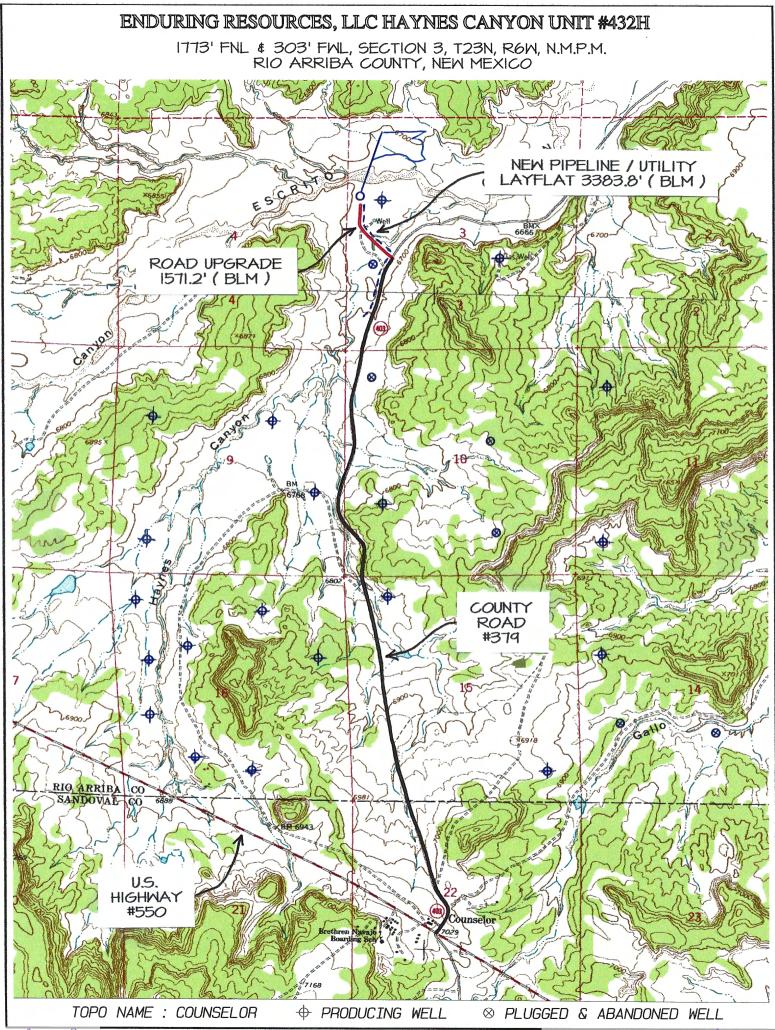


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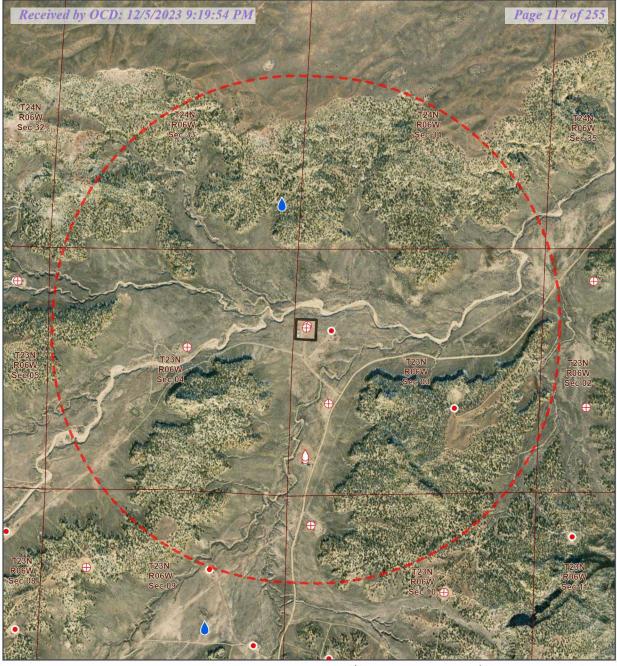


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HCU 432H Project | Wells Within 1 Mile

OSE Points of Diversion

Oil and Gas Well Status

- Active
- New
- Plugged (site released)

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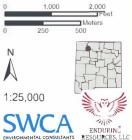
Wells	Within 1 Mile	Within Map Extent
OSE Points of Diversion	1	2
Active O&G	2	9
2/28/2023 5:09:	01 PM	2
Plugged (site released) O&G		9

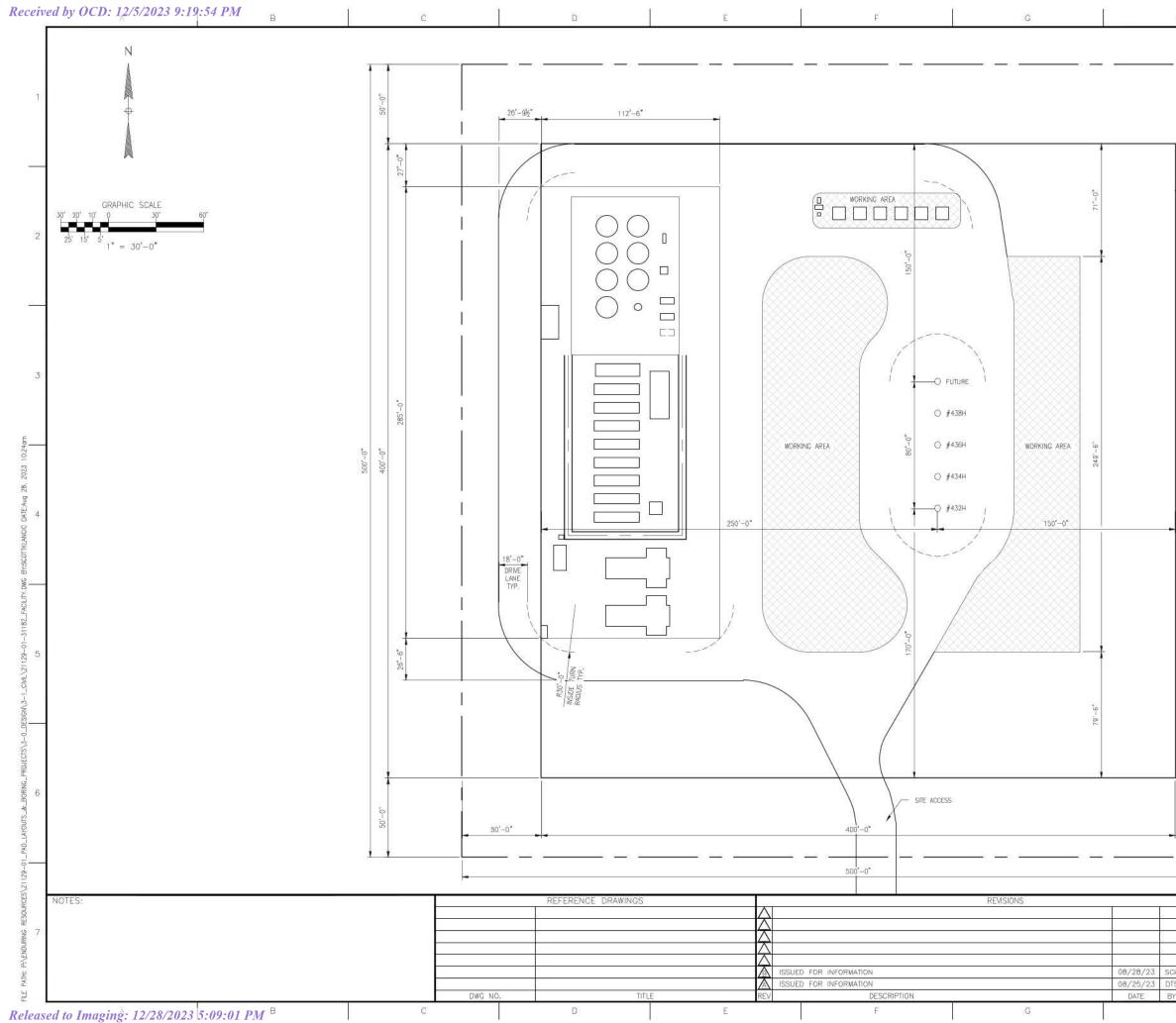
Wellpad

1 Mile Buffer

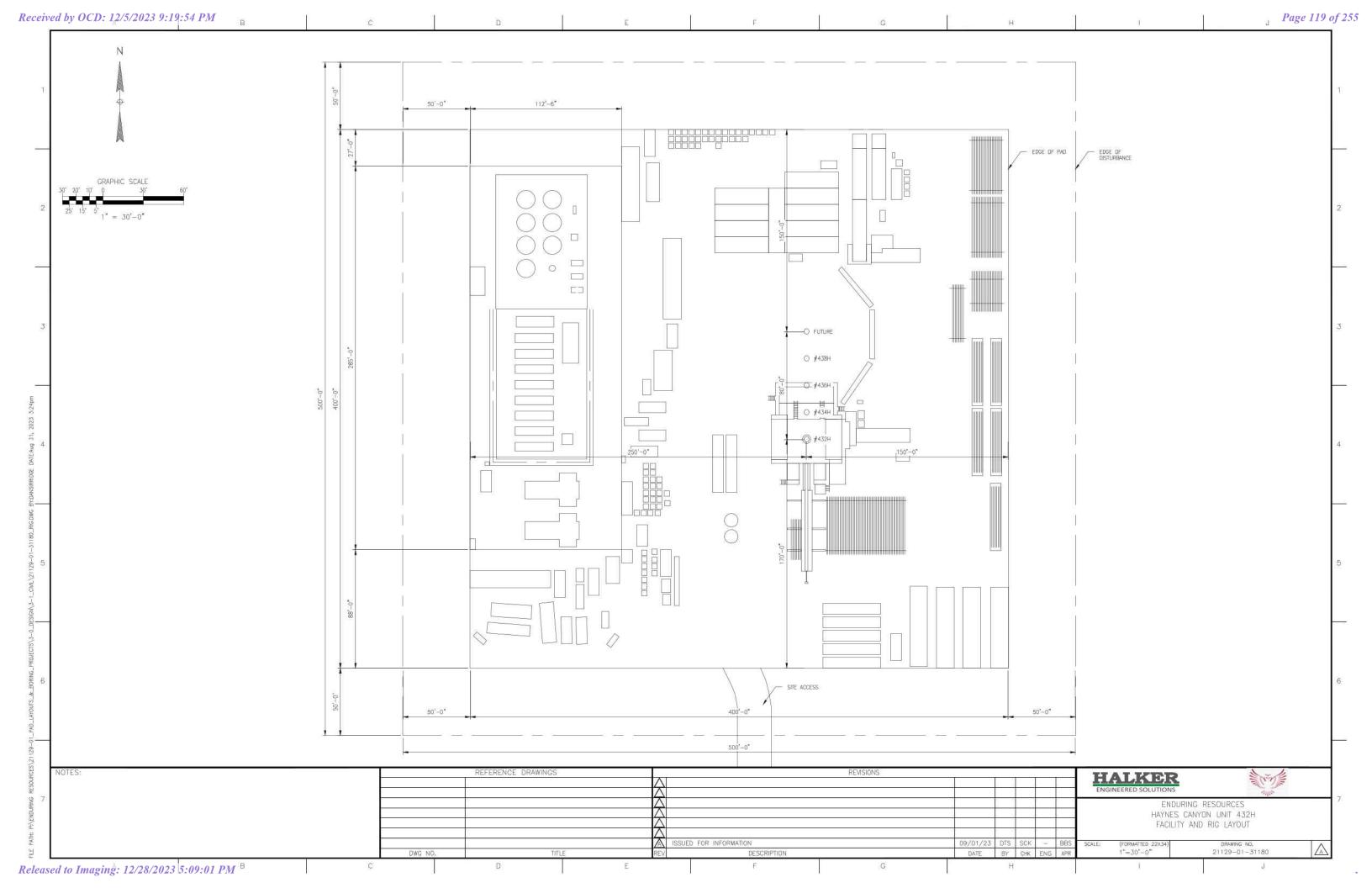
Rio Arriba County, NM NAD 1983 BLM Zone 13N 36.2561°N 107.4645°W

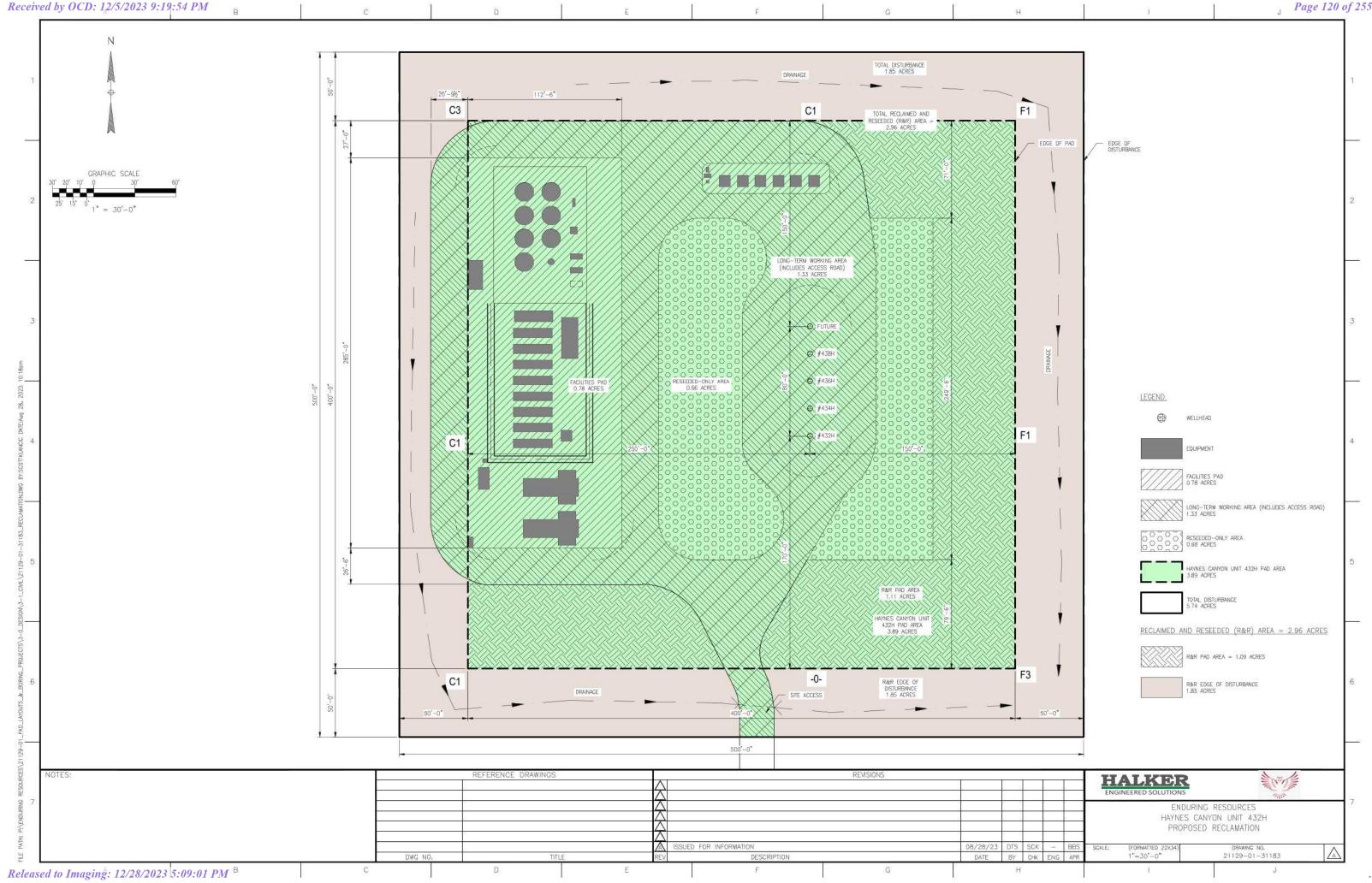
Base Map: ESRI ArcGIS Online, accessed August 2023 Update: 8/4/2023 Project No. 75253p36 Layout: 253p36_HCU_432_Wells_Within_1Mile Aprx: 75253p36_HCU432



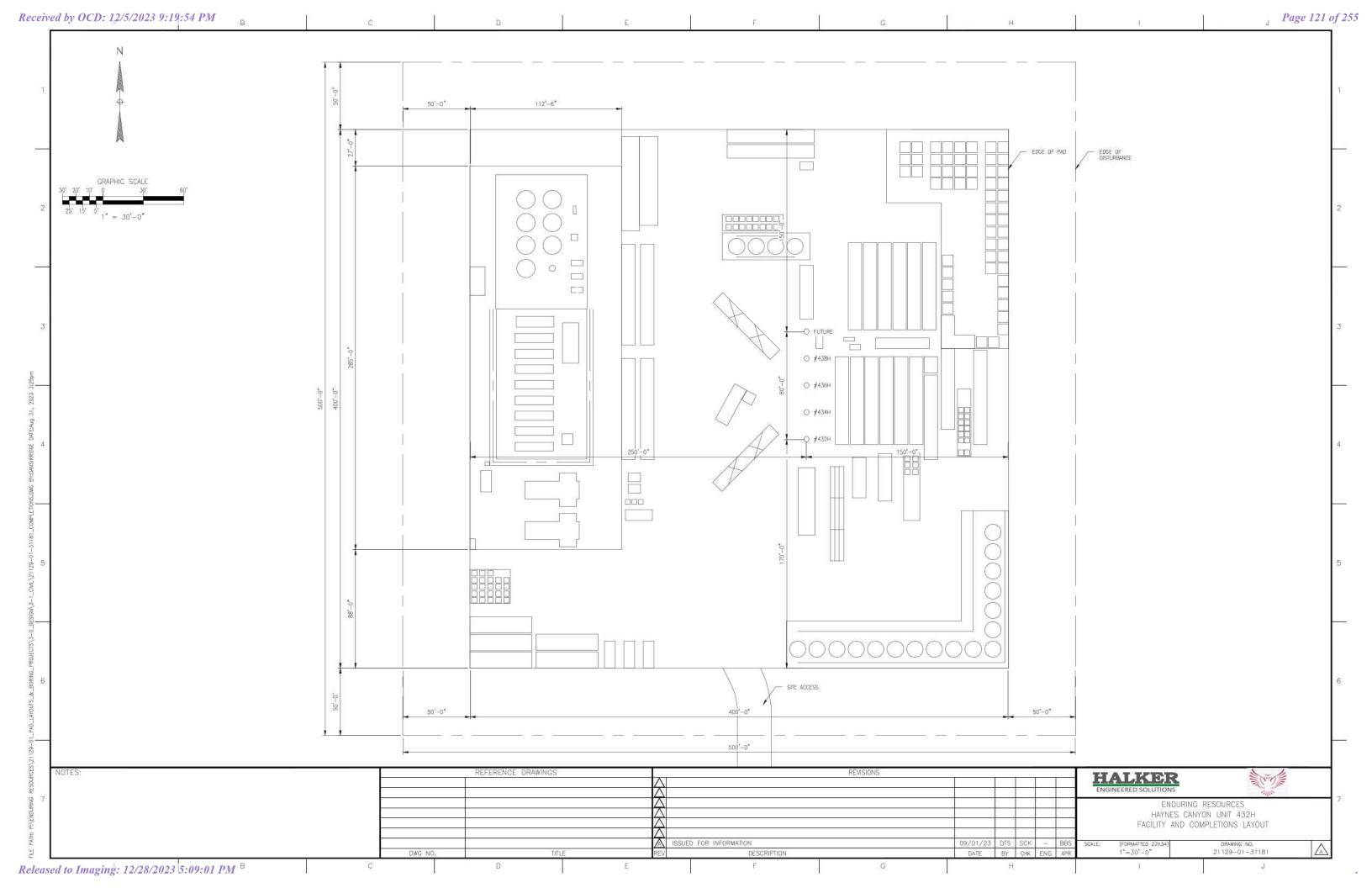


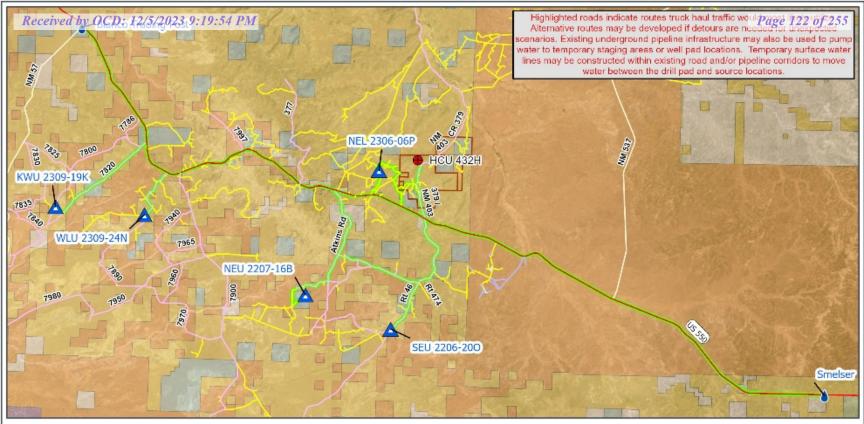
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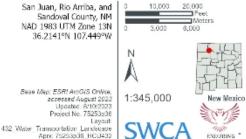




HCU 432H Project | Water Transportation

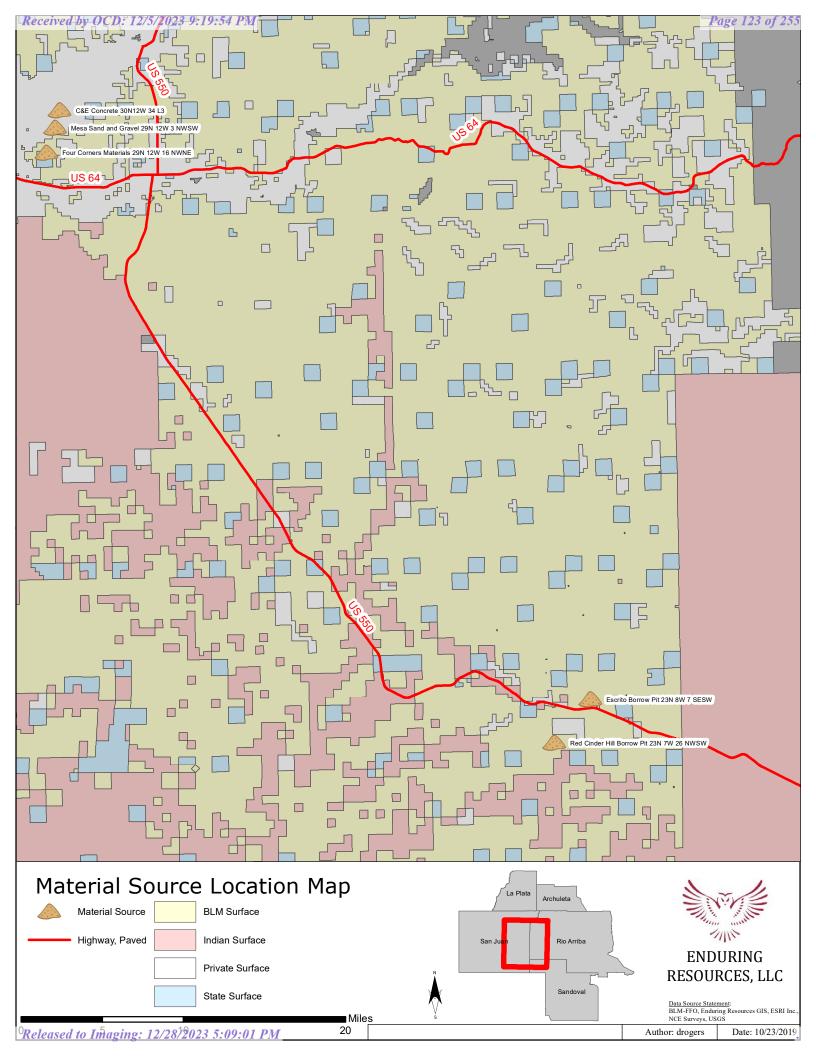


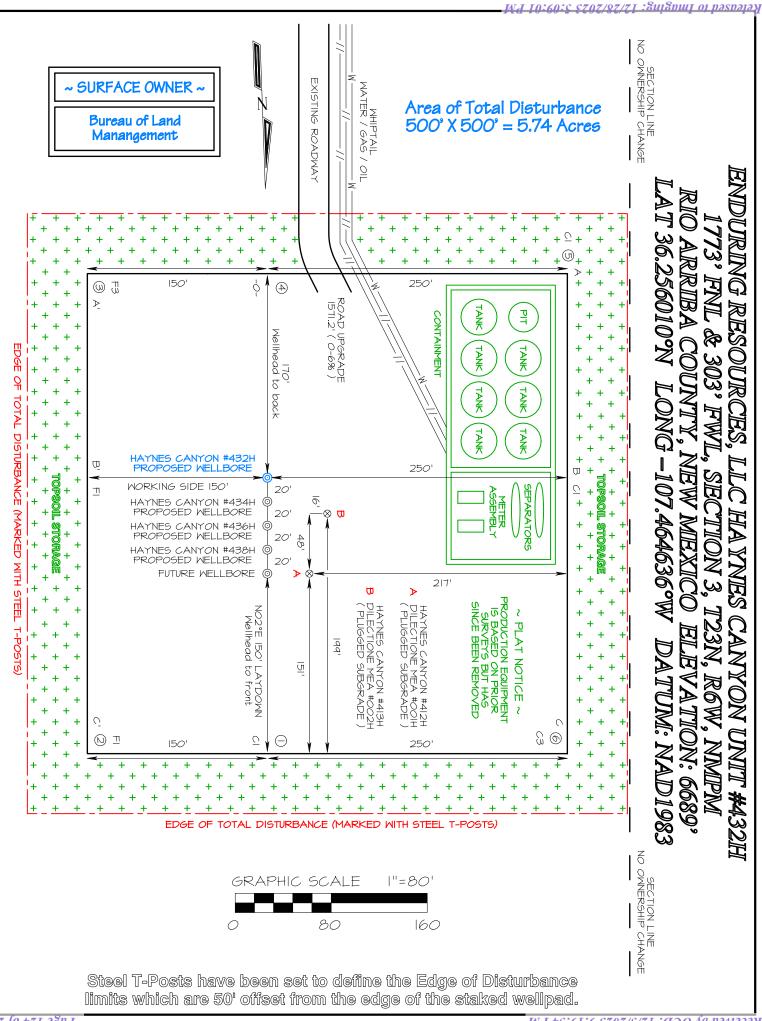
Unit Boundary



PRVIDONMENTAL COMPLETANTS

RESOURCES, LLC

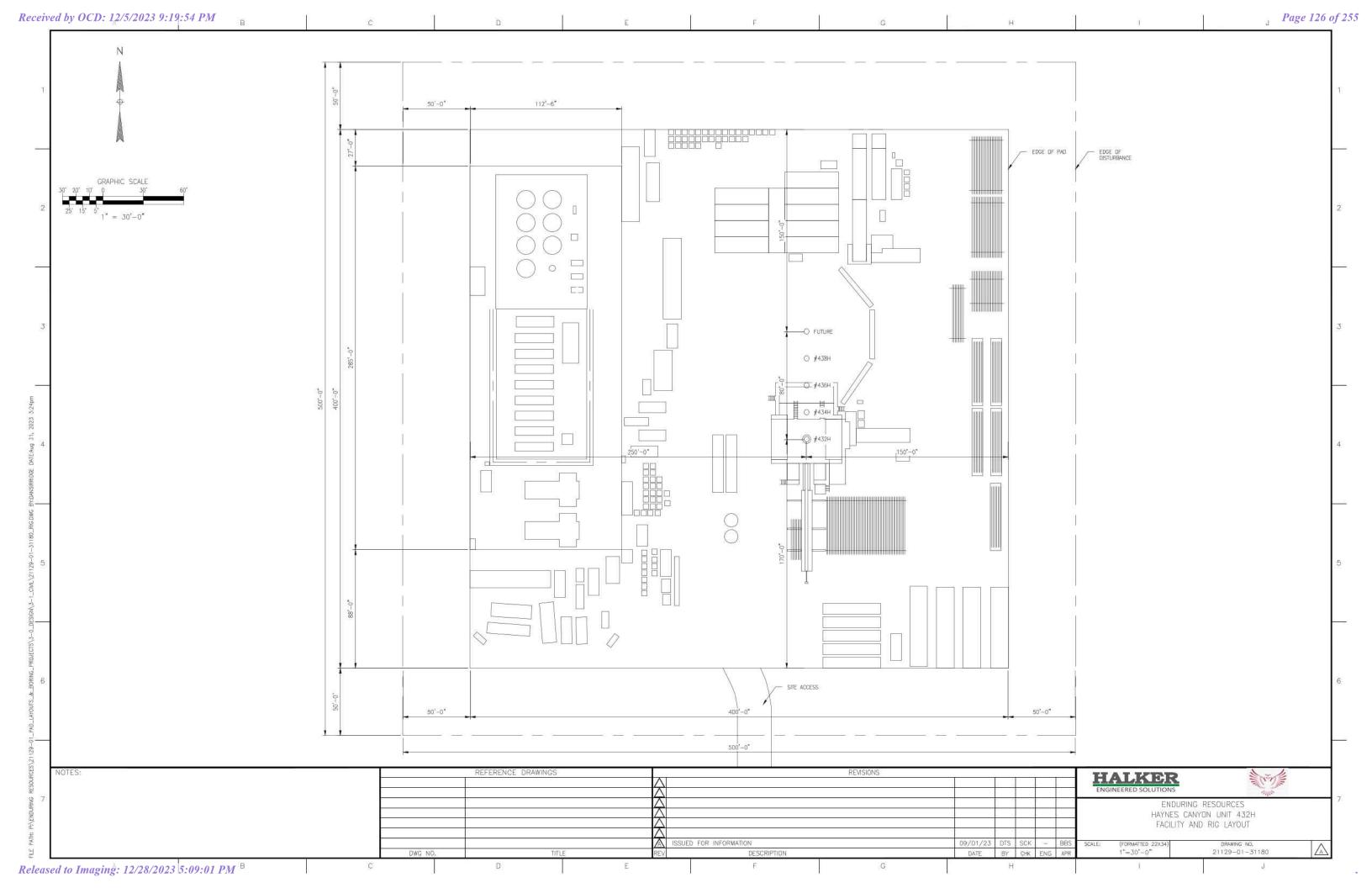




	ENDURING RESOURCES, LLC HAYNES CANYON UNIT #432H 1773' FNL & 303' FWL, SECTION 3, T23N, R6W, NMPM RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6689'
A - A	HORIZONTAL SCALE I"=55' CIL VERTICAL SCALE I"=30'
-06dd	
-b899	
6679'	
	C/L
₽-₽_	
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6679	
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	EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

Me 10:00: 2202/82/21 :guigom 1 of besoel M

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SURFACE RECLAMATION PLAN

<u>Haynes Canyon Unit (HCU) 432H-Four Well-Site Reoccupation</u> <u>Project</u>

<u>HCU 432H, HCU 434H, HCU 436H, HCU 438H</u>

SEPTEMBER 2023



ENDURING RESOURCES IV, LLC

200 Energy Court

Farmington, New Mexico 87401

Phone: (505) 636-9720

.

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Appendix A. Onsite Noxious Weed Form

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1. INTRODUCTION

This Surface Reclamation Plan (Plan) has been prepared for the Bureau of Land Management (BLM) Farmington Field Office (FFO) to support the Surface Use Plan of Operations (SUPO) for the Haynes Canyon Unit (HCU) 432H-Four Well-Site Reoccupation Project HCU 432H, HCU 434H, HCU 436H, HCU 438H (HCU 432H Project). Following the guidance provided in Appendix A (SUPO Procedure) of the *Farmington Field Office Bare Soil Reclamation Procedures* (Procedures) (BLM 2013), this Plan will be used to re-establish vegetation and control New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds (NMDA 2020) within the project area. Information associated with the project is provided in Table 1.

Table	1.	Project	Information
-------	----	---------	-------------

Applicant:	Enduring Resources IV, LLC
Project Name:	Haynes Canyon Unit (HCU) 432H-Five Well-Site Reoccupation Project
Project Features:	 Reoccupation of existing HCU 412H well pad and facilities Four proposed oil and gas wells (HCU 432H, HCU 434H, HCU 436H, HCU 438H)
Lease Number(s):	NMNM-028733
Unit Number:	NMNM-142111 New BLM System MLRS # NMNM105770949
Land Manager(s):	BLM-FFO
Mineral Manager(s):	BLM-FFO
Associated Authorization Applications, Pending:	4 APDs

Enduring may submit a request to the BLM-FFO to revise this reclamation plan at any time during the life of the project in accordance with page The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and U.S. Forest Service 2007). Enduring would include justification for the revision request.

The Enduring contact person for this reclamation plan is:

Theresa Ancell Regulatory Manager Enduring Resources IV, LLC 200 Energy Court Farmington, New Mexico 87401 505-636-9720

2. PROJECT DESCRIPTION

2.1. Location

The project area is in Rio Arriba County, New Mexico, approximately 60 miles south-southeast of Bloomfield, New Mexico. The project area can be accessed as follows:

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550

for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for

1.7 miles to fork in roadway;

Go Left (North-westerly) exiting County Road #379 (aka State Highway #403) for 0.2 miles to fork in

road;

Go Right (Northerly) for 0.1 miles to Enduring Haynes Canyon Unit #432H.The project area is located on lands managed by the BLM FFO. The legal location is provided below.

2.1.1. Well Pad

BLM-managed surface

Enduring would utilize the existing 5.74-acre HCU 412H well pad located in the Southwest ¹/₄ of Northwest ¹/₄ of Section 3, Township 23 North, Range 6, New Mexico Principal Meridian (NMPM).

2.1.2. Access Road

One existing 1571.2-foot-long by 30-foot-wide access road corridor would be improved and utilized to accommodate access for construction, drilling, completion, and long-term operation of the wells mentioned above; no new access road is proposed for the project.

2.1.3. Pipeline Utilities Corridor

The HCU 432H proposed project located north of the proposed HCU 428H would include a 3383.8 foot by 40-foot pipeline and utilities corridor connecting HCU 432H to HCU 428H facilities and infrastructure.

2.2. Surface Disturbance

Enduring proposes to utilize the existing HCU 412H well pad and existing access road. Enduring proposes a new pipeline/utilities corridor for the proposed HCU 432H five well project connecting the proposed HCU 432 to the proposed HCU 428H facilities; new surface disturbance with the pipeline corridor is proposed. During construction, the project working area would be lightly "skimmed" and cleared of vegetation and topsoil would be stored in designated areas. During interim reclamation, approximately 4.22 acres of the well pad and access road will be reclaimed. The remaining 2.51 acres of the well pad and project area will remain disturbed throughout the life of the project and will be reclaimed during final reclamation, when the project is abandoned.

The Enduring proposed HCU 432H pipeline corridor would be constructed adjacent to an existing Whiptail pipeline right-of-way (ROW). The proposed new corridor disturbance would be partially contained within the existing well pads (400-feet) and partially within the existing Whiptail ROW disturbance (20 feet of the 40 feet). The proposed new disturbance associated with the HCU 432H pipeline and utility corridor would be 2983.8 feet by 20-feet creating an estimated 1.37 acres of new disturbance. Upon completion, the pipeline corridor would be reclaimed. Additionally, there are two Temporary Use Areas (TUAs) proposed within the HCU 432H pipeline corridor. TUA No. 1 located would be between STA 1648 and STA 1895.9 would be 25-feet on the wide side of the corridor. TUA No. 2 would be located at STA 2164.8 and would be 25-feet on the wide side of the corridor.

Based on the amount of surface disturbance, Vegetation Reclamation Procedure B applies to this project (BLM 2013). Vegetation Reclamation Procedure B is described further in the Procedures (BLM 2013). Surface disturbance is summarized in Table 2 below.

Table 2. Surface Disturbance Associated with the Project

Project Feature	Summarized Description	Landowner/ Land Manager	Existing Surface Disturbance (acres)	Interim Reclamation (acres)	Final Reclamation (acres)
Access Road	Existing, preauthorized	BLM	1.08	0.58	0.5
Well pad	Existing, Preauthorized The well pad measures approximately 500' × 450'	BLM	5.74	3.64	2.01
Pipeline & Utilities Corridor	Proposed 2983.8 feet x 40	BLM	0	N/A	1.37
Total [†]		BLM	6.82	4.22	3.88

[†] Totals may vary due to rounding discrepancies.

2.3. Pre-Disturbance On-Site/ Site Visit Meeting

A pre-disturbance on-site meeting for the project was held with representatives from the BLM-FFO, Enduring, and SWCA Environmental Consultants (SWCA) on June 27, 2023. The BLM-FFO invited stakeholders and interested parties to the meeting. Aside from those listed, no private citizens or other groups attended.

3. SITE CONDITIONS

The project area topography is fairly level. The elevation of the project area ranges from approximately 6,690 to 6,710 feet above mean sea level. Two soil types are mapped within the project area: Blancot-Notal association and Gypsiorthids-Badland-Stumble complex (Natural Resources Conservation Service 2023). Based on the climatic records for Lybrook, New Mexico (Station No. 295290), this area has an average annual maximum temperature of 61.1 degrees Fahrenheit and an average annual minimum temperature of 34.9 degrees Fahrenheit. The average annual rainfall is 10.8 inches, with the majority occurring between July and September. The average annual total snowfall is 25.3 inches, which largely occurs between October and April (Western Regional Climate Center 2023). Soil testing may be conducted prior to reclamation activities, if requested by the BLM.

3.1. Vegetation Community

Reclamation standards are based on eight BLM FFO–designated vegetation communities that are outlined in the Farmington Field Office Bare Soil Reclamation Procedures (BLM 2013). During the on-site meeting on June 27, 2023, the BLM determined that the sagebrush community would best describe the project area prior to previous disturbances. Dominate species in the surrounding area include sagebrush (*Artemisia tridentata*), blue grama (*Bouteloua gracilis*), and fourwing saltbush (*Atriplex canescens*). Existing disturbances within the project area include the NELCA 176H well pad, an access road, and livestock grazing. There was no indication of current recreational activity.

During the pre-disturbance on-site meeting, SWCA and Enduring personnel conducted a noxious weed survey for New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds in the project area. No NMDA-listed noxious weed species were identified within the project area.

Please refer to the onsite noxious weed form in Appendix A for details.

3.2. Project Area Photographs

Photographs of the project area to be reclaimed are provided in Table 3.

.

Table 3. Project Area Photographs

Photograph Description	Photograph
Photograph of existing access	
Photograph taken from stake 2 looking towards stakes.	

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Photograph Description	Photograph
Photograph taken from stake 3 viewing well stakes.	
Photograph taken from mid- east stake viewing well stakes.	

4. RECLAMATION TECHNIQUES FOR SUCCESSFUL REVEGETATION

The BLM FFO will be notified at least 48 hours prior to the start of reclamation activities. Final facility layouts and placement were determined at the formal BLM facility on-site meeting with the BLM FFO.

4.1. Interim Reclamation

Interim reclamation will take place within 120 days of final construction. This phase will occur following the construction, drilling, and completion phases of the project. Areas that will be reclaimed during interim reclamation are described in Section 2.2.

4.2. Vegetation and Site Clearing

If present, trees and brush 3 inches in diameter or greater at ground level will be cut and stacked for wood gatherers. All other trees and brush will be mowed or mulched at ground level. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the well pad during interim reclamation. Any slash and brush will be chipped, shredded, or mulched, and incorporated into the topsoil for later use in interim reclamation. Vegetation that has re-established within the interim reclaimed portions of the disturbance area will be mulched and incorporated into the topsoil as additional organic matter.

4.3. Topsoil Stripping, Storage, and Replacement

The upper 6 inches of topsoil (if available) will be stripped following vegetation mulching. Topsoil would not be mixed with the underlying subsoil horizons and would be stockpiled as a berm/windrow along the interior perimeter of the construction buffer zone. Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Topsoil will be spread evenly over sub-soils upon completion of recontouring operations and prior to final seedbed preparation. Redistribution of topsoil shall not be done when the ground or topsoil is wet. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments would be added to the topsoil as advised by the Enduring environmental scientist or appropriate agent/contractor.

4.4. Recontouring

All disturbed areas related to the project area will be recontoured to blend with the surrounding landscape, emphasizing restoration of the existing drainage patterns and landforms to pre-construction condition to the extent practicable. Within areas that require recontouring, the surface will be recontoured to match pre-disturbance conditions (particularly drainage patterns) or to blend with the surrounding landform as closely as possible.

The well pad will be contoured to blend with the surrounding landforms, removing signs of cut/fill slopes. The fill slope on the northern sides of the location and stockpiled berm just northeast of the fill slope will be pushed (dozer)/excavated (excavator)/or carried (belly scraper) and placed within the cut slope on the southern sides of the location. Natural rolling contours will be implemented to break up the surface and aid in removing signs of the well pad once vegetation establishes.

4.5. Water Management/Erosion Control Features

The BLM-FFO and the Enduring would work in collaboration to develop site-specific erosion control or water management features and to identify installation locations. Potential erosion control or water management features that may be used include (but are not limited to) water bars or rolling dips for roads, sediment basins or sediment traps, check dams, silt fencing, bellholes upstream of culverts, outlet protection for culverts, erosion control blankets, straw bales, and straw wattles.

As determined during the on-site visit on June 27, 2023, the following water management/erosion control features would be implemented during construction of the project:

• Diversions will be constructed as needed.

During interim reclamation, areas of the project that are not needed for long-term operations and maintenance will be recontoured to reestablish disturbed terrain and blend into the surrounding landscape. The natural drainage network would be reestablished as practicable with necessary diversions around the long-term project footprint.

4.6. Seedbed Preparation

For cut-and-fill slopes, initial seedbed preparation would consist of pushing (dozer)/excavating (excavator)/hauling (belly scraper) the unneeded fill slope material and placing it within the cut slopes. Natural rolling contours would be implemented to break up the surface and aid in removing signs of the sharp well pad corners once vegetation establishes. Emphasis would be placed on restoration of the existing drainage patterns and landforms to pre-construction conditions, to the extent practicable.

Within areas that would be reseeded, stockpiled topsoil would be evenly redistributed prior to final seedbed preparation. Seedbed preparation within compacted areas would include ripping to a minimum depth of 18 inches and spacing furrows 2 feet apart. Ripping would be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking would be conducted perpendicular to slopes in order to provide terracing and minimize runoff and erosion. Final seedbed preparation would consist of raking or harrowing the spread topsoil prior to seeding to promote a firm (but not compacted) seedbed without surface crusting. Seedbed preparation may not be necessary for topsoil storage piles or other areas of temporary seeding.

4.7. Soil Amendments

Soil amendments would be added to the topsoil, if needed, as advised by the Enduring environmental scientist or appropriate surface management agency. During the onsite meeting, no soil amendments were identified for use during reclamation.

4.8. Seeding

Table 4 lists BLM FFO's sagebrush seed pick list was identified as suitable for the project area. The seed pick list components are listed in Table 5.

Common Name	Scientific Name	Pure live Seed lbs/acre ¹
Fourwing saltbush	Atriplex canescens	2.0
Winterfat	Krascheninnikovia lanata	2.0
Sand dropseed	Sporobolus cryptandrus	0.5
Western wheatgrass	Pascopyrum smithii	4.0
Indian ricegrass	Achnatherum hymenoides	4.0
Blue grama	Bouteloua gracilis	2.5
Bottle brush squirreltail	Elymus elymoides	3.0
Blue flax	Linum lewisii	0.25
Rocky Mountain bee plant	Cleome Serrulata	0.25

Table 4. BLM Farmington	Field Office Sagebrush	Community Seed Mix

¹Based on 60 PLS per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydro-seeded.

Seeding will occur immediately following recontouring and seedbed preparation. A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the disturbed areas of the site. Enduring or its reclamation subcontractor will ensure that perennial grasses and shrubs are planted at the appropriate depth. Intermediate-size seeds (such as wheatgrasses and shrubs) will be planted at a depth of 0.5-inch, larger seeds (such as Indian ricegrass) will be planted at a depth of 1 to 2 inches, and small seeds (such as sand dropseed) will be planted at a depth of 0.25 inch. In situations where differing planting depths are not practicable with the equipment being used, the entire mix will be planted no deeper than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion.

Drill seeding may be used on well-packed and stable soils on gentler slopes and where tractors and drills can safely operate. Where drill seeding is not practical, the contractor will hand broadcast seed using a "*cyclone*" hand seeder or similar broadcast seeder. Galleta seed may also be broadcast; due to the light fluffy nature of this seed, it does not seed well through a drill seeder. Broadcast application of seed requires a doubling of the drill-seeding rate. The seed will then be raked into the ground so that the seed is planted no deeper than 0.25 inch below the surface.

Upon completion of seeding, straw mulch will be spread across the reclaimed area and crimped into the soil. This will promote site stabilization and slightly increase moisture retention.

4.9. Noxious and Invasive Weed Control

Should any noxious or invasive weeds be documented within the project area following the completion of reclamation activities, Enduring will follow the guidance outlined in their Pesticide Use Proposal approved by the BLM FFO. Enduring will submit all required documentation for weed treatments associated with the proposed project; this includes chemical and manual weed removal. Enduring will submit a Pesticide Use Report quarterly and annually or when requested by the BLM-FFO Authorized Officer or the BLM-FFO Noxious Weed Specialist.

5. MONITORING REQUIREMENTS

Reclamation monitoring is required to document attainment of the vegetation percent cover standard and reclamation success. The monitoring and reporting methods described below will apply to both interim and final reclamation. Monitoring and reporting requirements remain in effect as long as the permit, grant, or authorization is in force, and until all associated facilities and infrastructure are abandoned by BLM procedure and a FAN and/or relinquishment is issued. The vegetation percent cover referenced below is described in detail in Section 5.4 (Reclamation Attainment).

5.1. Initial Monitoring and Reporting

Monitoring sites will be established by the BLM FFO, in collaboration with Enduring, during the required earthwork and/or seeding inspections. Initial monitoring tasks will be conducted by the BLM FFO. The BLM FFO will submit the initial monitoring reports to Enduring within 60 days of conducting the initial monitoring tasks.

5.2. Annual Monitoring and Reporting

Enduring will perform annual monitoring starting 2 calendar years after BLM FFO's approval of earthwork and/or seeding. Annual monitoring will continue until the vegetation percent cover standard has been attained. Annual monitoring reports will be submitted to the BLM FFO by December 31 of the year monitored.

5.3. Long-Term Monitoring

After the required percent revegetation standard has been attained, Enduring will begin long-term monitoring. This includes every fifth year after attainment as determined by the BLM FFO, Enduring will monitor the site at all established photo points to ensure the site remains productive and stable. Enduring will submit the monitoring report to the BLM by December 31 of the year monitored.

5.4. Reclamation Attainment

Per the Procedures (BLM 2013), the following foliar percent cover standards listed in Table 5 must be attained for reclamation to be considered successful.

Functional Group	Percent (%) Foliar Cover	Common Species
Trees/Shrubs/ Grasses/ Forbs	≥ 35	Utah juniper, Piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indian wheat, fleabane, Penstemon spp., buckwheat, threadleaf groundsel.
Invasive/undesirables 10% allowed toward meeting standard of 35%	≤ 10	Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community. Examples of invasive species include cheatgrass, Russian thistle, halogeton.

Table 5. Reclamation Goal for Sagebrush Community

When vegetation meets the attainment standards listed in Table 4 and as required by the BLM-FFO Bare Soil Reclamation Procedure, Enduring may request BLM-FFO concurrence that vegetation percent cover standards have been attained any time after 2 calendar years of completion of earthwork and seeding. Enduring will submit a final abandonment notice (FAN), identifying that revegetation standards have been attained. The BLM-FFO will reply to the operator to confirm concurrence (or not) with a rationale for the determination within 60 days of receiving the

request. If the revegetation standards are not being attained, Enduring and the BLM-FFO will analyze the issues that may have contributed to vegetation reclamation failure or lack of meaningful progress. Remedial actions will be developed collaboratively if vegetation percent cover standards are not being attained. Details regarding this process can be found in the Procedures (BLM 2013).

6. REFERENCES

Bureau of Land Management (BLM). 2013. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.emnrd.state.nm.us/MMD/AML/documents/FFOBareSoilReclamationProcedures2-1-13.pdf. Accessed July 2023.

Bureau of Land Management (BLM) and U.S. Forest Service. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+307/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

Natural Resources Conservation Service. 2023. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2023.

New Mexico Department of Agriculture (NMDA). 2020. Memo: New Mexico Noxious Weed List Update. Available at: <u>https://nmdeptag.nmsu.edu/apr/noxious-weeds.html.</u> Accessed July 2023.

Western Regional Climate Center. 2023. New Mexico Climate Summaries: Lybrook, New Mexico (295290). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm5290. Accessed July 2023.

APPENDIX A. ONSITE NOXIOUS WEED FORM

Onsite Noxious Weed Form

If noxious weeds are found during the onsite, fill out form and submit to FFO weed coordinator Operator <u>Endwim</u> Surveyor(s) Well Name and Number $\frac{1271202}{321}$ Date $\frac{21271202}{321}$

well Name and Number 199 (910) (911 101 907)	716410-2
Location: Township, Range, Section TZ3W, REW S3	.,
Location of Project NAD 83 Decimal Degrees 36,2345° N	107.454 ac

		Class A Noxious	weed – Check	DOX II FOUND	
	Alfombrilla	Diffuse knapweed	Hydrilla	Purple starthistle	Yellow toadflax
	Black henbane	Dyer's woad	Leafy spurge	Ravenna grass	
	Camelthorm	Eurasian watermilfoil	Oxeye daise	Scotch thistle	
٢	Canada thistle	Giant salvinia	Parrotfeather	Spotted knapweed	
	Dalmation toadflax	Hoary cress	Purple loosestrife	Yellow starthistle	

Class A Noxious Weed – Check Box if Found

Class B Noxious Weed – Check Box if Found

African rue	Perennial pepperweed	Russian knapweed	Tree of heaven
Chicory	Musk thistle	Poison hemlock	
Halogeton	Malta starthistle	Teasel	

Comments:

\$

6/27/23 **FFO Representative:** sign and date 23 **Operator** Representative sign and date

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Onsite Notes for Enduring Resources IV, LLC's Proposed Haynes Canyon Unit 432H Pad

Will be located on an existing location. The APD's on said location have expired.

Onsite Date: June 27, 2023

Attendees		
NAME	ORGANIZATION	
Harley Davis	BLM NRS	
Gary Smith	BLM-FFO NRS	
Jason Meininger	Division of Conservation Archaeology (DCA)	
Jason Edwards	NCE Surveys	
Johnny Stinson	Enduring Resources	
Lena Wilson	Enduring Resources	
Casey Haga	Enduring Resources	

Notes that require change in plats are identified in Red.

Notes that Enduring needs to answer and consider are in **Blue**.

Please review all onsite notes and reply to the entire group if there are changes, mistakes, or additional notes I may have missed. If there are replies with changes, I will update these notes with them accordingly. If you have questions or concerns, please contact me at:

(970)-769-8814 or at chaga@enduringresources.com



ENDURING RESOURCES IV, LLC

200 Energy Court Farmington, New Mexico 87401 Phone: (505) 636-9720

Project Name: Haynes Canyon Unit 432H, 434H, 436H, 438H, and one future

On/Off lease: On Lease

Surface: BLM	Mineral: Federal, Fee, and State

Onsite Notes

Project Scope and Region

- ▲ These wells are being proposed on an existing location that has two plugged and abandoned wells. These plugged wells were cut and capped 3'6" below grade. The well pad was interim reclaimed but never fully reclaimed upon abandonment. The roadway is degraded but still accessible. The facilities were stripped but buried pipe remains buried in the facility lift. The SUPO needs to reflect that this "disturbance" exists but written in a level of detail as a new project since we currently hold no active APD to the location.
- ▲ Region dominated by sagebrush shrublands. Location is situated in a valley between several ephemeral washes. Area is surrounded by small mesas with sandstone outcrops.

Access Road

- There is an existing access road to location. This roadway will need upgraded to an all weather resource roadway. There is pipe each side of road that will restrict significant upgrades.
- Need to centerline survey existing roadway being used off CR 379 for upgrades.
- Remove the existing culvert in wash and replace with low water x-ing.
- Update topo to reflect existing road upgrade section.

Well Pad

- Well pad is existing but we don't hold active APD. The well pad was interim reclaimed but never fully reclaimed. We will permit the original footprint as seen in the plats.
- Add the two plugged and abandoned well locations to plats.
- Correct pad diagram dimensions. It should be 500' by 500'.

Well Connect Pipeline

- Facilities will be located on the HCU 428H location. As such, 3 phase flow lines will be needed from the 432H pad to the 428H pad. The existing whiptail pipe cannot be used for this.
- Survey new pipeline ROW from the HCU 432H to the HCU 428H pad.
- Need to plan layflat route.
- Need to survey layflat route.

Topsoil Storage

• Mulch vegetation into topsoil then strip and windrow along perimeter of location within the EOD.

Production Facilities

• Facilities will be remote to the HCU 428H Location.

Facilities Color

Juniper Green

<u>Seed Mix</u>

Sagebrush seed mix

Other Notes

Arc monitoring and reporting was needed on original build.



SURFACE RECLAMATION PLAN

Haynes Canyon Unit (HCU) 432H-Four Well-Site Reoccupation <u>Project</u>

<u>HCU 432H, HCU 434H, HCU 436H, HCU 438H</u>

SEPTEMBER 2023



ENDURING RESOURCES IV, LLC

200 Energy Court

Farmington, New Mexico 87401

Phone: (505) 636-9720

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1. INTRODUCTION

This Surface Reclamation Plan (Plan) has been prepared for the Bureau of Land Management (BLM) Farmington Field Office (FFO) to support the Surface Use Plan of Operations (SUPO) for the Haynes Canyon Unit (HCU) 432H-Four Well-Site Reoccupation Project HCU 432H, HCU 434H, HCU 436H, HCU 438H (HCU 432H Project). Following the guidance provided in Appendix A (SUPO Procedure) of the *Farmington Field Office Bare Soil Reclamation Procedures* (Procedures) (BLM 2013), this Plan will be used to re-establish vegetation and control New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds (NMDA 2020) within the project area. Information associated with the project is provided in Table 1.

Table	1.	Project	Information
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Applicant:	Enduring Resources IV, LLC	
Project Name:	Haynes Canyon Unit (HCU) 432H-Five Well-Site Reoccupation Project	
Project Features:	 Reoccupation of existing HCU 412H well pad and facilities Four proposed oil and gas wells (HCU 432H, HCU 434H, HCU 436H, HCU 438H) 	
Lease Number(s):	NMNM-028733	
Unit Number:	NMNM-142111 New BLM System MLRS # NMNM105770949	
Land Manager(s):	BLM-FFO	
Mineral Manager(s):	BLM-FFO	
Associated Authorization Applications, Pending:	4 APDs	

Enduring may submit a request to the BLM-FFO to revise this reclamation plan at any time during the life of the project in accordance with page The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and U.S. Forest Service 2007). Enduring would include justification for the revision request.

The Enduring contact person for this reclamation plan is:

Theresa Ancell Regulatory Manager Enduring Resources IV, LLC 200 Energy Court Farmington, New Mexico 87401 505-636-9720

2. PROJECT DESCRIPTION

2.1. Location

The project area is in Rio Arriba County, New Mexico, approximately 60 miles south-southeast of Bloomfield, New Mexico. The project area can be accessed as follows:

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550

for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for

1.7 miles to fork in roadway;

Go Left (North-westerly) exiting County Road #379 (aka State Highway #403) for 0.2 miles to fork in

road;

Go Right (Northerly) for 0.1 miles to Enduring Haynes Canyon Unit #432H.The project area is located on lands managed by the BLM FFO. The legal location is provided below.

2.1.1. Well Pad

BLM-managed surface

Enduring would utilize the existing 5.74-acre HCU 412H well pad located in the Southwest ¹/₄ of Northwest ¹/₄ of Section 3, Township 23 North, Range 6, New Mexico Principal Meridian (NMPM).

2.1.2. Access Road

One existing 1571.2-foot-long by 30-foot-wide access road corridor would be improved and utilized to accommodate access for construction, drilling, completion, and long-term operation of the wells mentioned above; no new access road is proposed for the project.

2.1.3. Pipeline Utilities Corridor

The HCU 432H proposed project located north of the proposed HCU 428H would include a 3383.8 foot by 40-foot pipeline and utilities corridor connecting HCU 432H to HCU 428H facilities and infrastructure.

2.2. Surface Disturbance

Enduring proposes to utilize the existing HCU 412H well pad and existing access road. Enduring proposes a new pipeline/utilities corridor for the proposed HCU 432H five well project connecting the proposed HCU 432 to the proposed HCU 428H facilities; new surface disturbance with the pipeline corridor is proposed. During construction, the project working area would be lightly "skimmed" and cleared of vegetation and topsoil would be stored in designated areas. During interim reclamation, approximately 4.22 acres of the well pad and access road will be reclaimed. The remaining 2.51 acres of the well pad and project area will remain disturbed throughout the life of the project and will be reclaimed during final reclamation, when the project is abandoned.

The Enduring proposed HCU 432H pipeline corridor would be constructed adjacent to an existing Whiptail pipeline right-of-way (ROW). The proposed new corridor disturbance would be partially contained within the existing well pads (400-feet) and partially within the existing Whiptail ROW disturbance (20 feet of the 40 feet). The proposed new disturbance associated with the HCU 432H pipeline and utility corridor would be 2983.8 feet by 20-feet creating an estimated 1.37 acres of new disturbance. Upon completion, the pipeline corridor would be reclaimed. Additionally, there are two Temporary Use Areas (TUAs) proposed within the HCU 432H pipeline corridor. TUA No. 1 located would be between STA 1648 and STA 1895.9 would be 25-feet on the wide side of the corridor. TUA No. 2 would be located at STA 2164.8 and would be 25-feet on the wide side of the corridor.

Based on the amount of surface disturbance, Vegetation Reclamation Procedure B applies to this project (BLM 2013). Vegetation Reclamation Procedure B is described further in the Procedures (BLM 2013). Surface disturbance is summarized in Table 2 below.

Table 2. Surface Disturbance Associated with the Project

Project Feature	Summarized Description	Landowner/ Land Manager	Existing Surface Disturbance (acres)	Interim Reclamation (acres)	Final Reclamation (acres)
Access Road	Existing, preauthorized	BLM	1.08	0.58	0.5
Well pad	Existing, Preauthorized The well pad measures approximately 500' × 450'	BLM	5.74	3.64	2.01
Pipeline & Utilities Corridor	Proposed 2983.8 feet x 40	BLM	0	N/A	1.37
Total [†]		BLM	6.82	4.22	3.88

[†] Totals may vary due to rounding discrepancies.

2.3. Pre-Disturbance On-Site/ Site Visit Meeting

A pre-disturbance on-site meeting for the project was held with representatives from the BLM-FFO, Enduring, and SWCA Environmental Consultants (SWCA) on June 27, 2023. The BLM-FFO invited stakeholders and interested parties to the meeting. Aside from those listed, no private citizens or other groups attended.

3. SITE CONDITIONS

The project area topography is fairly level. The elevation of the project area ranges from approximately 6,690 to 6,710 feet above mean sea level. Two soil types are mapped within the project area: Blancot-Notal association and Gypsiorthids-Badland-Stumble complex (Natural Resources Conservation Service 2023). Based on the climatic records for Lybrook, New Mexico (Station No. 295290), this area has an average annual maximum temperature of 61.1 degrees Fahrenheit and an average annual minimum temperature of 34.9 degrees Fahrenheit. The average annual rainfall is 10.8 inches, with the majority occurring between July and September. The average annual total snowfall is 25.3 inches, which largely occurs between October and April (Western Regional Climate Center 2023). Soil testing may be conducted prior to reclamation activities, if requested by the BLM.

3.1. Vegetation Community

Reclamation standards are based on eight BLM FFO–designated vegetation communities that are outlined in the Farmington Field Office Bare Soil Reclamation Procedures (BLM 2013). During the on-site meeting on June 27, 2023, the BLM determined that the sagebrush community would best describe the project area prior to previous disturbances. Dominate species in the surrounding area include sagebrush (*Artemisia tridentata*), blue grama (*Bouteloua gracilis*), and fourwing saltbush (*Atriplex canescens*). Existing disturbances within the project area include the NELCA 176H well pad, an access road, and livestock grazing. There was no indication of current recreational activity.

During the pre-disturbance on-site meeting, SWCA and Enduring personnel conducted a noxious weed survey for New Mexico Department of Agriculture (NMDA)–listed Class A and Class B noxious weeds in the project area. No NMDA-listed noxious weed species were identified within the project area.

Please refer to the onsite noxious weed form in Appendix A for details.

3.2. Project Area Photographs

Photographs of the project area to be reclaimed are provided in Table 3.

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Table 3. Project Area Photographs

Photograph Description	Photograph
Photograph of existing access	
Photograph taken from stake 2 looking towards stakes.	

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Photograph Description	Photograph
Photograph taken from stake 3 viewing well stakes.	
Photograph taken from mid- east stake viewing well stakes.	

4. RECLAMATION TECHNIQUES FOR SUCCESSFUL REVEGETATION

The BLM FFO will be notified at least 48 hours prior to the start of reclamation activities. Final facility layouts and placement were determined at the formal BLM facility on-site meeting with the BLM FFO.

4.1. Interim Reclamation

Interim reclamation will take place within 120 days of final construction. This phase will occur following the construction, drilling, and completion phases of the project. Areas that will be reclaimed during interim reclamation are described in Section 2.2.

4.2. Vegetation and Site Clearing

If present, trees and brush 3 inches in diameter or greater at ground level will be cut and stacked for wood gatherers. All other trees and brush will be mowed or mulched at ground level. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the well pad during interim reclamation. Any slash and brush will be chipped, shredded, or mulched, and incorporated into the topsoil for later use in interim reclamation. Vegetation that has re-established within the interim reclaimed portions of the disturbance area will be mulched and incorporated into the topsoil as additional organic matter.

4.3. Topsoil Stripping, Storage, and Replacement

The upper 6 inches of topsoil (if available) will be stripped following vegetation mulching. Topsoil would not be mixed with the underlying subsoil horizons and would be stockpiled as a berm/windrow along the interior perimeter of the construction buffer zone. Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Topsoil will be spread evenly over sub-soils upon completion of recontouring operations and prior to final seedbed preparation. Redistribution of topsoil shall not be done when the ground or topsoil is wet. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments would be added to the topsoil as advised by the Enduring environmental scientist or appropriate agent/contractor.

4.4. Recontouring

All disturbed areas related to the project area will be recontoured to blend with the surrounding landscape, emphasizing restoration of the existing drainage patterns and landforms to pre-construction condition to the extent practicable. Within areas that require recontouring, the surface will be recontoured to match pre-disturbance conditions (particularly drainage patterns) or to blend with the surrounding landform as closely as possible.

The well pad will be contoured to blend with the surrounding landforms, removing signs of cut/fill slopes. The fill slope on the northern sides of the location and stockpiled berm just northeast of the fill slope will be pushed (dozer)/excavated (excavator)/or carried (belly scraper) and placed within the cut slope on the southern sides of the location. Natural rolling contours will be implemented to break up the surface and aid in removing signs of the well pad once vegetation establishes.

4.5. Water Management/Erosion Control Features

The BLM-FFO and the Enduring would work in collaboration to develop site-specific erosion control or water management features and to identify installation locations. Potential erosion control or water management features that may be used include (but are not limited to) water bars or rolling dips for roads, sediment basins or sediment traps, check dams, silt fencing, bellholes upstream of culverts, outlet protection for culverts, erosion control blankets, straw bales, and straw wattles.

As determined during the on-site visit on June 27, 2023, the following water management/erosion control features would be implemented during construction of the project:

• Diversions will be constructed as needed.

During interim reclamation, areas of the project that are not needed for long-term operations and maintenance will be recontoured to reestablish disturbed terrain and blend into the surrounding landscape. The natural drainage network would be reestablished as practicable with necessary diversions around the long-term project footprint.

4.6. Seedbed Preparation

For cut-and-fill slopes, initial seedbed preparation would consist of pushing (dozer)/excavating (excavator)/hauling (belly scraper) the unneeded fill slope material and placing it within the cut slopes. Natural rolling contours would be implemented to break up the surface and aid in removing signs of the sharp well pad corners once vegetation establishes. Emphasis would be placed on restoration of the existing drainage patterns and landforms to pre-construction conditions, to the extent practicable.

Within areas that would be reseeded, stockpiled topsoil would be evenly redistributed prior to final seedbed preparation. Seedbed preparation within compacted areas would include ripping to a minimum depth of 18 inches and spacing furrows 2 feet apart. Ripping would be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking would be conducted perpendicular to slopes in order to provide terracing and minimize runoff and erosion. Final seedbed preparation would consist of raking or harrowing the spread topsoil prior to seeding to promote a firm (but not compacted) seedbed without surface crusting. Seedbed preparation may not be necessary for topsoil storage piles or other areas of temporary seeding.

4.7. Soil Amendments

Soil amendments would be added to the topsoil, if needed, as advised by the Enduring environmental scientist or appropriate surface management agency. During the onsite meeting, no soil amendments were identified for use during reclamation.

4.8. Seeding

Table 4 lists BLM FFO's sagebrush seed pick list was identified as suitable for the project area. The seed pick list components are listed in Table 5.

Common Name	Scientific Name	Pure live Seed lbs/acre ¹
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Western wheatgrass	Pascopyrum smithii	4.0
Indian ricegrass	Achnatherum hymenoides	4.0
Blue grama	Bouteloua gracilis	2.5
Bottle brush squirreltail	Elymus elymoides	3.0
Blue flax	Linum lewisii	0.25
Rocky Mountain bee plant	Cleome Serrulata	0.25

Table 4. BLM Farmington	Field Office Sagebrush	Community Seed Mix

¹Based on 60 PLS per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydro-seeded.

Seeding will occur immediately following recontouring and seedbed preparation. A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the disturbed areas of the site. Enduring or its reclamation subcontractor will ensure that perennial grasses and shrubs are planted at the appropriate depth. Intermediate-size seeds (such as wheatgrasses and shrubs) will be planted at a depth of 0.5-inch, larger seeds (such as Indian ricegrass) will be planted at a depth of 1 to 2 inches, and small seeds (such as sand dropseed) will be planted at a depth of 0.25 inch. In situations where differing planting depths are not practicable with the equipment being used, the entire mix will be planted no deeper than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion.

Drill seeding may be used on well-packed and stable soils on gentler slopes and where tractors and drills can safely operate. Where drill seeding is not practical, the contractor will hand broadcast seed using a "*cyclone*" hand seeder or similar broadcast seeder. Galleta seed may also be broadcast; due to the light fluffy nature of this seed, it does not seed well through a drill seeder. Broadcast application of seed requires a doubling of the drill-seeding rate. The seed will then be raked into the ground so that the seed is planted no deeper than 0.25 inch below the surface.

Upon completion of seeding, straw mulch will be spread across the reclaimed area and crimped into the soil. This will promote site stabilization and slightly increase moisture retention.

4.9. Noxious and Invasive Weed Control

Should any noxious or invasive weeds be documented within the project area following the completion of reclamation activities, Enduring will follow the guidance outlined in their Pesticide Use Proposal approved by the BLM FFO. Enduring will submit all required documentation for weed treatments associated with the proposed project; this includes chemical and manual weed removal. Enduring will submit a Pesticide Use Report quarterly and annually or when requested by the BLM-FFO Authorized Officer or the BLM-FFO Noxious Weed Specialist.

5. MONITORING REQUIREMENTS

Reclamation monitoring is required to document attainment of the vegetation percent cover standard and reclamation success. The monitoring and reporting methods described below will apply to both interim and final reclamation. Monitoring and reporting requirements remain in effect as long as the permit, grant, or authorization is in force, and until all associated facilities and infrastructure are abandoned by BLM procedure and a FAN and/or relinquishment is issued. The vegetation percent cover referenced below is described in detail in Section 5.4 (Reclamation Attainment).

5.1. Initial Monitoring and Reporting

Monitoring sites will be established by the BLM FFO, in collaboration with Enduring, during the required earthwork and/or seeding inspections. Initial monitoring tasks will be conducted by the BLM FFO. The BLM FFO will submit the initial monitoring reports to Enduring within 60 days of conducting the initial monitoring tasks.

5.2. Annual Monitoring and Reporting

Enduring will perform annual monitoring starting 2 calendar years after BLM FFO's approval of earthwork and/or seeding. Annual monitoring will continue until the vegetation percent cover standard has been attained. Annual monitoring reports will be submitted to the BLM FFO by December 31 of the year monitored.

5.3. Long-Term Monitoring

After the required percent revegetation standard has been attained, Enduring will begin long-term monitoring. This includes every fifth year after attainment as determined by the BLM FFO, Enduring will monitor the site at all established photo points to ensure the site remains productive and stable. Enduring will submit the monitoring report to the BLM by December 31 of the year monitored.

5.4. Reclamation Attainment

Per the Procedures (BLM 2013), the following foliar percent cover standards listed in Table 5 must be attained for reclamation to be considered successful.

Functional Group	Percent (%) Foliar Cover	Common Species
Trees/Shrubs/ Grasses/ Forbs	≥ 35	Utah juniper, Piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indian wheat, fleabane, Penstemon spp., buckwheat, threadleaf groundsel.
Invasive/undesirables 10% allowed toward meeting standard of 35%	≤ 10	Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community. Examples of invasive species include cheatgrass, Russian thistle, halogeton.

Table 5. Reclamation Goal for Sagebrush Community

When vegetation meets the attainment standards listed in Table 4 and as required by the BLM-FFO Bare Soil Reclamation Procedure, Enduring may request BLM-FFO concurrence that vegetation percent cover standards have been attained any time after 2 calendar years of completion of earthwork and seeding. Enduring will submit a final abandonment notice (FAN), identifying that revegetation standards have been attained. The BLM-FFO will reply to the operator to confirm concurrence (or not) with a rationale for the determination within 60 days of receiving the

request. If the revegetation standards are not being attained, Enduring and the BLM-FFO will analyze the issues that may have contributed to vegetation reclamation failure or lack of meaningful progress. Remedial actions will be developed collaboratively if vegetation percent cover standards are not being attained. Details regarding this process can be found in the Procedures (BLM 2013).

6. REFERENCES

Bureau of Land Management (BLM). 2013. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.emnrd.state.nm.us/MMD/AML/documents/FFOBareSoilReclamationProcedures2-1-13.pdf. Accessed July 2023.

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Natural Resources Conservation Service. 2023. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2023.

New Mexico Department of Agriculture (NMDA). 2020. Memo: New Mexico Noxious Weed List Update. Available at: <u>https://nmdeptag.nmsu.edu/apr/noxious-weeds.html.</u> Accessed July 2023.

Western Regional Climate Center. 2023. New Mexico Climate Summaries: Lybrook, New Mexico (295290). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm5290. Accessed July 2023.

APPENDIX A. ONSITE NOXIOUS WEED FORM

Onsite Noxious Weed Form

If noxious weeds are found during the onsite, fill out form and submit to FFO weed coordinator Operator <u>Endwim</u> Surveyor(s) Well Name and Number $\frac{1271202}{321}$ Date $\frac{21271202}{321}$

well Name and Number 199 (910) (911 101 907)	716410-2
Location: Township, Range, Section TZ3W, REW S3	.,
Location of Project NAD 83 Decimal Degrees 36,2345° N	107.454 ac

Class A Noxious weed – Check Box II Found					
	Alfombrilla	Diffuse knapweed	Hydrilla	Purple starthistle	Yellow toadflax
	Black henbane	Dyer's woad	Leafy spurge	Ravenna grass	
	Camelthorm	Eurasian watermilfoil	Oxeye daise	Scotch thistle	
٢	Canada thistle	Giant salvinia	Parrotfeather	Spotted knapweed	
	Dalmation toadflax	Hoary cress	Purple loosestrife	Yellow starthistle	

Class A Noxious Weed – Check Box if Found

Class B Noxious Weed – Check Box if Found

African rue	Perennial pepperweed	Russian knapweed	Tree of heaven
Chicory	Musk thistle	Poison hemlock	
Halogeton	Malta starthistle	Teasel	

Comments:

\$

6/27/23 **FFO Representative:** sign and date 23 **Operator** Representative sign and date

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ROAD MAINTENANCE PLAN

<u>Haynes Canyon Unit (HCU) 432H-Five Well-Site Reoccupation Project</u> <u>HCU 432H, 434H, HCU436H, HCU438H and One Future</u>

September 2023



ENDURING RESOURCES IV, LLC

200 Energy Court Farmington, New Mexico 87401 Phone: (505) 636-9720

1. INTRODUCTION

Enduring Resources IV, LLC (Enduring) is providing this Road Maintenance Plan (Plan) to the Bureau of Land Management Farmington Field Office (BLM-FFO) as part of the Surface Use Plan of Operations (SUPO) for the Haynes (HCU) Five Well (432H, 434H, 436H, 438H and Future) Oil and Natural Gas Project (HCU 432H Project). The existing 1571.2-foot-long by 30-foot-wide access road addressed in this plan was previously permitted and constructed under the Applications for Permit to Drill (APD) for the HCU 412H. The coordinates for the access road are as follows:

• Start: N 107^o 27'53.61W 36^o 15'15.61N

End: N 107º 27'53.46W 36º 15'19.65N

The road maintenance procedures provided in this Plan meet the standards established in The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development and BLM Manual 9113. Per the HCU 432H Project APD's, Enduring will be responsible for road maintenance associated with the aforementioned wells. This responsibility will continue until Enduring transfers the permit or abandons the project and obtains a Final Abandonment Notice or relinquishment from the BLM-FFO. Refer to the SUPO or Conditions of Approval (COAs) attached to the approved APDs for any upgrades to existing roads.

2. ROAD INSPECTIONS

Enduring Representatives will formally inspect the road biannually, in the spring and fall, to assess the condition of the road. The formal road inspection will be recorded on a Road Inspection Form (blank form attached to this Plan). Completed Road Inspection Forms will be kept on file at Enduring and can be provided to the BLM-FFO, if requested.

Additionally, outside of the formal inspection period, Enduring Representatives driving to/from the project area will assess the condition of the road and notify the Enduring Construction Supervisor if maintenance is needed.

Road maintenance activities will be documented at Enduring and can be provided to the BLM-FFO, if requested.

3. ROAD MAINTENANCE

The following maintenance may be performed on an as needed basis:

- Water control structures (such as culverts, ditches, and silt traps) and/or cattle guards may be cleaned. If this occurs, the soil/sediment material will be spread on area roads or locations.
- Bar ditches may be pulled.
- Low water crossings and drainage dips may be cleared and/or repaired.
- Crowning may be repaired.
- Litter may be collected.
- Noxious weeds may be treated or controlled following the BLM-FFO noxious weed guidelines.
- The access road may be bladed.

ROAD INSPECTION FORM

Road Name:	County:
Date:	Time:
Weather:	
Inspector(s):	
Road Surface Type:	

Dood Condition Inspection Itoms	Road Condition			
Road Condition Inspection Items	Good	Poor	Comment	
Water Control Structure(s)				
Low Water Crossing(s)				
Road Crowning/Ruts/Potholes				
Road Surfacing				
Cattle Guard(s)				
Litter				
Noxious Weeds Within/Adjacent to Roadway				
Vegetation Within Roadway				

Additional Site Specific Inspection Notes:

SURFACE USE PLAN OF OPERATIONS

Haynes Canyon Unit (HCU) 432H-Five Well-Site Reoccupation Project

HCU 432H, HCU 434H, HCU 436H, HCU 438H and One Future

SEPTEMBER 2023



ENDURING RESOURCES IV, LLC

200 Energy Court Farmington, New Mexico 87401 Phone: (505) 636-9720

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1. INTRODUCTION

1.1. Purpose and Intent

The purpose of the Proposed Project is to allow Enduring Resources IV, LLC's (Enduring) reasonable access to public lands to develop federal minerals administered by the Bureau of Land Management's (BLM's) Farmington Field Office (FFO) and New Mexico Oil Conservation Division (NMOCD) for Enduring's valid mineral lease (NMNM-028733) within the Haynes Canyon Unit (NMNM-142111).

The need for the Proposed Project is BLM's requirement to respond to Enduring's Application for Permit to Drill (APD). Per Onshore Oil and Gas Operating Regulations (43 Code of Federal Regulations [CFR] 3160); the Mineral Leasing Act (MLA) of 1920, as amended (30 United States Code [USC] 181 et seq); and the Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.).

In accordance with Onshore Oil and Gas Order No. 1 (43 CFR 3160), this Surface Use Plan of Operations (SUPO) has been prepared for Enduring's proposed Haynes Canyon Unit (HCU) 432H-Five Well-Site Reoccupation Project HCU 432H, HCU 434H, HCU 436H, HCU 438H, and one future (HCU 432H Project). The project as proposed would provide for the drilling, development, transportation, operation, and maintenance of the HCU 432H Project.

The proposed action is not known to cross or impact any U.S. Army Corps of Engineers (USACE) jurisdictional Waters of the U.S. (WOUS).

The information is provided to the surface management agency to give an accurate account of the proposed action for National Environmental Policy Act (NEPA) disclosure. This SUPO details only the proposed action, any alternatives considered in detail are described in the associated Environmental Analysis (EA) document.

Enduring will comply with all applicable laws, regulations, Onshore Orders, Conditions of Approval (COA) attached to the approved APDs, and this SUPO. No additional surface disturbance beyond that authorized by the approved APDs will be initiated without prior approval by the Authorized Officer (AO).

Enduring Resource IV, LLC (Enduring) may submit a request to the BLM-FFO to revise this SUPO at any time during the life of the project in accordance with The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (BLM and U.S. Forest Service 2007). Enduring would include justification for the revision request.

The Enduring representative for this reclamation plan is: Theresa Ancell Regulatory Manager Enduring Resources IV, LLC 200 Energy Court Farmington, New Mexico 87401 505-636-9720

2. PROJECT DESCRIPTION

radie 2.1. Project information					
Applicant:	Enduring Resources IV, LLC				
Project Name:	Haynes Canyon Unit (HCU) 432H-Five Well Site Reoccupation Project HCU 432H, 434H, 436H, 438H, and one future (HCU 432H Project)				
Project Features:	One well pad with five wells and (production facilities if present), access road corridor, 3-phase pipeline, and utility corridor.				
Lease Number(s):	NMNM-028733				
Land Manager(s):	BLM-FFO				
Mineral Manager(s):	BLM-FFO				

Table 2.1. Project Information

Infrastructure proposed to be constructed, operated, subsequently interim reclaimed, and eventually fully reclaimed as part of the HCU 432H Project would be located on lease, located on BLM-FFO administered lands with Federal minerals. The project would be permitted, built, and operated per lease authority for the term of the proposed wells served in Enduring's surface lease (NMNM-028733) within the Haynes Canyon Unit (NMNM-142111X).

The HCU 432H Project would be constructed within existing disturbance associated with plugged and abandoned HCU 412H and HCU 413H wells. The existing well pad, for the HCU 412H was permitted, constructed, plugged and abandoned by a previous operator, WPX.

Existing on-lease infrastructure includes:

The 5.74-acre existing well pad proposed to be utilized for the HCU 432H five well Reoccupation Project well pad is 500-foot by 500-foot well pad inclusive of a 50-foot construction buffer zone/edge of disturbance (EOD).

Proposed HCU 432H Project infrastructure includes:

- Well pad: The 5.74 acre well pad would accommodate the development of five proposed wells.
- Access Road: One existing 1571.2-foot-long by 30-foot-wide access road corridor would be improved and utilized to accommodate access for construction, drilling, completion, and long-term operation of the wells mentioned above; no new access road is proposed for the project.
- Pipeline and Utilities Corridor: The HCU 432H proposed project located north of the proposed HCU 428H would include a 3383.8 foot by 40-foot pipeline and utilities corridor connecting HCU 432H to HCU 428H facilities and infrastructure. The pipeline corridor would be constructed adjacent to an existing Whiptail pipeline right-of-way (ROW). The proposed new corridor disturbance would be partially contained within the existing well pads (400-feet) and partially within the existing Whiptail ROW disturbance (20 feet of the 40 feet). The proposed new disturbance associated with the HCU 432H pipeline and utility corridor would be 2983.8 feet by 20-feet creating an estimated 1.37 acres of new disturbance. There are two Temporary Use Areas (TUAs) proposed within the HCU 432H pipeline corridor. TUA No. 1 located would be between STA 1648 and STA 1895.9 measuring 25-feet on the wide side of the corridor. TUA No. 2 would be located between STA 2164.8 and STA 2487.8 would be 25-feet on the wide side of the corridor.

2.1. Location

The HCU 432H Project is in the Southwest ¹/₄ of Northwest ¹/₄ of Section 3, Township 23 North, Range 6 West, New Mexico Principal Meridian (NMPM), in Rio Arriba County, New Mexico. See table 3.1 below and the survey plat package in Appendix A for detailed location regarding each of the proposed wells.

See the existing road map and written directions in the survey plat package in Appendix A. Directions are from the intersection of US Hwy 550 and US Hwy 64 in Bloomfield, New Mexico.

3. WELL SITE CONSTRUCTION AND LAYOUT

Drilling of the proposed HCU 432H Project would require utilizing a 5.74-acre existing well pad. This entire area would be utilized during construction, setting of production equipment, drilling, and completion phases. The Surface Hole Locations for the four wells associated with the HCU 432H Project are located below in Table 3.1.

Well flag	Footages	Latitude (NAD 83)	Longitude (NAD 83)
HCU 432H	1773' FSL, 303' FWL	36.256010°N	-107.464636°W
HCU 434H	1753' FSL, 303' FWL	36.256065°N	-107.464634°W
HCU 436H	1733' FSL, 303' FWL	36.256120°N	-107.464632°W
HCU 438H	1713' FSL, 303' FWL	36.256175°N	-107.464630°W

Table 3.1. Surface Hole Locations

During construction, the existing well pad would be leveled to provide adequate space and a level working surface for vehicles and equipment. Excavated materials from cuts are used to fill portions of the well pad to level the surface. The approximate cuts, fills, and well pad orientation are shown on the cut/fill worksheet and cross-section diagrams in the survey plats found in Appendix A.

See Appendix E for the proposed Well Pad Facility Diagram showing the long-term well pad layout, areas to be reclaimed, and anticipated utilization of existing disturbance acreage; Well Pad Drilling Diagrams showing the location and orientation of the drill rig; and the Well Pad Completion Diagram, showing the location and orientation of the completion equipment.

3.1. 3.1 Production Facilities

Current plans include collocating facilities for the proposed HCU 428H and HCU 432H projects. Due to existing infrastructure present at the HCU 428H project location, current plans are for production facilities for the HCU 432H Project to be located on the south adjacent HCU 428H well pad. However, due to the changing nature of projects, each project is being proposed with separate facilities to account for changes in drilling sequence and schedule. If facilities are not built and needed on location for the HCU 432H wells (as is intended), the pad will be reclaimed to reflect reduced operational needs without production facilities. Potential facilities on location may include but are not limited to (including facilities that may occur through the life of the four wells) and Temporary equipment during drilling, completion, and flowback operations may be placed anywhere within the permitted location. During road construction, production-associated equipment would be delivered and left within the permitted area until construction is complete.

3.2. Best Practices and Mitigation Measures

Topsoil removal, storage, and protection are described in detail in the associated Surface Reclamation Plan.

4. PROPOSED NEW OR RECONSTRUCTED ACCESS ROAD(S)

During the June 27, 2023, onsite visit, it was determined by the operator and surface managing agency that County Road 379 (CR 379) and the existing 1571.2-foot access road corridor would be utilized to access the proposed project location.

Upon approval, CR 379 and the project access road will be maintained, upgraded, or reconstructed to meet anticipated traffic volumes and all-weather access needs.

Any site-specific stipulations, design features, and Best Management Practices (BMPs) discussed to be implemented on this section of the existing roadway are listed below (4.2 Best Practices and Mitigation Measures) and in Enduring's Road Maintenance Plan. See the construction plats in Appendix A for the access road length and location from existing established roads.

4.1. Best Practices and Mitigation Measures

- A. Enduring will construct, improve, and maintain roads in accordance with The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. Enduring will defer to the county or the Roads Committee, when formed, for maintenance determinations for any existing County Roads or roads that are considered collector roads, utilized for the project. See Enduring's associated Road Maintenance Plan for more details.
- B. The existing culvert located access road culvert located at 566.9-feet will be removed and a low water crossing installed. Low water crossings may include armored on the downstream side.
- C. Any pre-existing water management and erosion control structures not specifically mentioned will be inspected and maintained to accommodate long-term stormwater control.
- D. If found to be necessary, additional water management features such as water bars, rolling dips, or culverts will be installed within the existing roadway if found to be necessary for maintaining a safe stable roadway allowing all-weather access.
- E. No construction or routine maintenance activities will be performed during periods when the soil is too wet to adequately support construction equipment. If equipment creates ruts deeper than six inches, the soil will be deemed too wet for construction or maintenance.
- F. Before any soil disturbing road or well pad construction-related activities, if present and warranted, the project area including the proposed access road and pipeline/utility corridor would be cleared of trees and vegetation. A compact track loader with a mulching attachment will mulch and incorporate all trees that measure less than 3 inches in diameter at ground level (if present) and slash/brush into the topsoil. A woodcutting crew will clear all trees three inches or greater at ground level (if present) with chainsaws. The mean height of any stump will not exceed one-half its diameter and in no case exceed six inches on the uphill side. Tree trunks (left whole) and large limbs will be stacked and made available to the public unless stipulated otherwise by the AO.
- G. Material will be imported only if necessary to establish a safe all-weather roadway. Once the roadway has been established, the driving surface may be capped if needed and deemed economically viable. Sandstone from a nearby permitted location would be the preferred surfacing material and would be laid approximately 8-12 inches thick.
- H. Maintenance of existing roads will be restricted to the existing disturbed footprint; no new surface disturbance will be created. Maintenance will continue until wells accessed by the existing roadway have been Plugged and Abandoned (P&A) and a Final Abandonment Notice (FAN) has been approved.
- I. During interim reclamation, once drilling and completion phases are complete for all wells on location, the roadway will be reduced in size to a 14-foot-wide running surface with 0 pullouts, and appropriate water/erosion control on each side of the roadway. The roadway will measure approximately 22 feet wide from the bottom of the borrow ditch to the bottom of the barrow ditch assuming a 24-inch lift on the road with 2:1 shoulder to the bottom of the ditch (silt traps, culvert bell holes, and turnout ditches will extend beyond this). All remaining disturbed areas within the 30-foot access road corridor and exterior to borrow ditches and back slopes anticipated to be needed for long-term maintenance will be reseeded in efforts to reduce erosion. Any established cut and fill slopes (including any Temporary Use Areas (TUAS) used for cut and fill) will be reseeded only to preserve safe and stable slopes.
- J. There are no steep slopes, side slopes, or large wash crossings requiring the need for additional TUAs beyond the 30-foot access road corridor.

- K. Due to the short nature of the proposed roadway and lack of foreseen drainage concerns, no new culverts are anticipated to be needed. If culverts exist or are found to be needed to maintain a safe and stable roadway, they would be installed during construction and/or interim reclamation. There are no pullouts necessary for the proposed access road due to its short nature and full sight distance from the new access road takeoff to the well pad.
- L. There are no Army Corps of Engineers designated Waters of the United States impacted by the proposed access road. No low water crossings would be required associated with the proposed action.
- M. The existing access road does not cross any existing fence lines.
- N. Enduring would maximize the use of native material within the project area to reduce or eliminate the need to haul in foreign material. This includes the use of sandstone surfacing material as opposed to foreign rock in this area. However, foreign materials such as pit run, gravel, road base, rip-rap cobblestone, and large boulders may be imported and used for reasons such as but not limited to elevating roadways, low water crossings, road surfacing, erosion control, culvert and cattle guard installations, natural barricade, surface replacement, and spot repairs. A map of potential borrowing sites where Enduring may obtain material can be found in Appendix D. The material sources have been labeled with the operator's name (if applicable) and legal location to the quarter-quarter. Material excavated during the establishment of silt traps and erosion control may also be used in construction project features.
- O. BMPs for dust abatement will be utilized along the roads to reduce fugitive dust during construction, drilling, completion, and any other heavy traffic activities during the life of the project. Water application using a rearspraying truck or other suitable means will be the primary method of dust suppression. If it is found to be necessary to apply commercial dust mitigation materials such as magnesium chloride, organic-based compounds, or polymer compounds; Enduring will seek approval from the appropriate surface managing agency. These dust mitigation measures may also be included as COAs attached to the approved APDs.
- P. The final reclamation of the proposed access road is discussed in the associated Surface Reclamation Plan.
- Q. Topsoil removal, storage, and protection are described in detail in the associated Surface Reclamation Plan.

5. LOCATION OF EXISTING WELLS

Water wells and oil and gas wells (plugged and abandoned, active, and proposed) within a one-mile radius of the HCU 432H Project are depicted in Appendix B. There are 1 water well, 9 oil and gas wells (plugged and abandoned, active, or proposed) within a one-mile radius of the proposed well pad location.

6. WATER USE AND APPLICATIONS

Please see Appendix C for the water transportation map identifying the locations of the supply wells.

During construction, freshwater sources would be used for the drill point and concrete casing. Fresh water would be used to dampen native soils as fill material is placed in lifts. This would promote adequate compaction on the fill slopes of the access road and well pad, as well as control fugitive dust.

During initial drilling, and post completion drill out operations, Enduring will use a consolidated 15,562 bbls of fresh water. This is inclusive of the HCU 432H (2,330 bbls), 434H (2,520 bbls), 436H (1,040 bbls), 438H (1,971 bbls) wells, and estimated 130 bbl rig wash. During well pad, road improvements and dust abatement, an estimated 7,571 bbls of water is estimated to meet improvement requirements.

The estimates are general and predicted using average past water volume usage for similar activities. Variables that can significantly affect these volumes include but are not limited to, soil type, grain size, grain shape, recent weather events, relative humidity, time of year, and soil moisture holding capacity.

Fresh water is additionally used on an as-needed basis for dampening native soils to maximum dry density using American Society for Testing and Materials (ASTM) standards to achieve acceptable engineered compaction, dust suppression along dirt roadways during drilling, completion, and any other operations where heavy traffic may be anticipated. The total amount applied during these activities is all dependent upon, but not limited to, the length of the dirt road, weather conditions, relative humidity, density of traffic, and duration of traffic.

During completion operations, Enduring predicts using a consolidated 650,912 bbls of non-potable brine water from a non-potable formation, produced water, and recycled water. This is inclusive of the HCU 432H (191,900 bbls), 434H (207,100 bbls), 436H (88,700 bbls), and 438H (163,212 bbls). Sources of these fluids and the process of recycling are discussed further below.

During completion operations, Enduring would use non-potable water from a non-potable water-bearing formation. Enduring may also utilize produced water gathered from their existing wells within the Mancos Gallup area. Produced water may be gathered and delivered to the HCU 432H Project via existing underground pipeline infrastructure and trucks. Produced water gathered at Shiprock San Juan, LLC's 4-1 CDP may also be tracked and used during completion operations. Flowback water from completion operations will be recycled for reuse. These non-potable sources will be gathered, stored, treated, and recycled at any of Enduring's Water Recycling Facilities.

Enduring filters and separates water contained within their recycling facilities in three phases. Phase one includes the retention of water within a 750 bbl water leg that separates 100-micron oil droplets and sediment/particles. Phase two, downstream of the water leg, water passes through a large coalesquer filter with estimated 30-micron oil droplet removal capabilities. The final phase of filtration before entering the containment includes passing through two filter pots in parallel containing bag or cartridge filters. These filters can vary in micron filtration sizing dictated by the solids recovered, likely, a range between 10-50 microns. Enduring will size bag or cartridge filters as necessary during operations. The average Entrada water supply well total dissolved solids (TDS) are 10,000+.

Flowback water from completion activities will be recycled and returned to an Enduring water recycling facility for reuse. Flowback water may contain solids, oil, and produced water when immediately returned from the wellbore. Before the water leaves the completion location, it will pass through the permanent facilities on location if built and commissioned or pass through a temporary treatment facility on location. Treatment will remove oil and solids before leaving the location. Flowback water may additionally pass through the permanent water treatment facility at the containment location before entering the containment if necessary. Flowback water within containment after treatment and filtration may contain a mixture of produced water and supply water from the Entrada Formation used for the stimulation process.

Enduring will fill and store water in all their water recycling containments and Above-Ground Storage Tanks (ASTs) for anticipated use during drilling and completion activities. Filling containments and ASTs via Entrada supply wells will begin no later than four to five working weeks before drilling and completion activities commence unless supplementary sources are used in addition thereto. Enduring provides all stimulation fluid properties and additives through the Frac Focus site established for reporting to State and Federal Agencies. See Frac Focus for stimulation fluid components.

7. LOCATIONS AND TYPES OF WATER SUPPLY

Fresh water would be obtained from the following location(s):

5.3. Smelser (POD No. RG06855)

The Smelser Well is located in the northeast ¼ of the northeast ¼ of Section 9, Township 21, North Range 2 West, NMPM. The well is located at Latitude 36.069826° North and Longitude -107.04718° West. This source is located on private lands. Transportation from source will be via truck.

5.4. Blanco Trading Post (POD No. SJ02105)

 The Blanco Trading Post Well is located in the southwest ¹/₄ of the northeast ¹/₄ of Section 32, Township 25 North, Range 9 West, NMPM. The well is located at Latitude 36.359802° North and Longitude - 107.810310° West. This source is located on State of New Mexico lands managed by the New Mexico State Lands Office (NMSLO). Transportation from source will be via truck.

Non-Potable water would be obtained from the following location(s):

Enduring Resources NEU 2207-16B Water Recycling Facility

The NEU 2207-16B Water Recycling Facility is located in the Northwest ¼ of the Northeast ¼ of Section 16, Township 22 North, Range 9 West, NMPM. The supply well is located at Latitude 36.143567° North and Longitude -107.576013° West. This water recycling Facility is located on State of New Mexico lands managed by the NMSLO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

Enduring Resources WLU 2309-24N Water Recycling Facility

The WLU 2309-24N Water Recycling Facility is located in the Southeast ¹/₄ of the Southwest ¹/₄ and Southwest ¹/₄ of the Southeast ¹/₄ of Section 24, Township 23 North, Range 9 West, NMPM. The supply well is located at Latitude 36.205932° North and Longitude -107.741568° West. This water recycling Facility is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

Enduring Resources KWU 2309-19K Water Recycling Facility

The KWU 2309-19K Water Recycling Facility is located in the Northeast ¼ of the Southwest ¼ of Section 19, Township 23 North, Range 9 West, NMPM. The supply well is located at Latitude 36.210181° North and Longitude -107.831776° West. This water recycling Facility is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

Enduring Resources SEU 2206-200 Water Recycling Facility

The SEU 2206-200 Water Recycling Facility is located in the Southwest ¼ of the Southeast ¼ of Section 20, Township 22 North, Range 6 West, NMPM. The supply well is located at Latitude 36.117342° North and Longitude -107.488712° West. This water supply well is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

Enduring Resources NEL 2306-06P Water Recycling Facility

The NELC 2306-06P Water Recycling Facility is located in the South ½ of Section 14, Township 22 North, Range 8 West, NMPM. The supply well is located at Latitude 36.310147° North and Longitude -107.651626° West. This water supply well is located on public lands managed by the BLM-FFO. Transportation from the source would be via truck unless alternate methods are otherwise permitted.

8. CONSTRUCTION MATERIALS

- A. Enduring will maximize the use of native material within the proposed project area to reduce or eliminate the need to haul in foreign material.
- B. All surface infrastructure would be constructed utilizing native borrow within the permitted area to create a balanced working surface. Surfacing material or fill material, such as sandstone, gravel, pit run, or road base would be used if needed and economically viable and obtained from an approved location.
- C. Material may be imported and used for any of the following reasons; low water crossings (pit run and road base), road surfacing (road base, gravel, or sandstone), erosion control (riprap cobblestone), barricades (boulders), under and surrounding equipment (gravel), and filling soft or muddy areas (sandstone, pit run, road base, or gravel).
- D. A map of borrow pit locations where Enduring may obtain material can be found in Appendix D. The borrow pits are labeled with the operating company name if applicable and the legal location of the quarter-quarter.

E. Range ponds are not currently proposed to be constructed for the construction of the HCU 432H Project.

9. METHODS FOR HANDLING WASTE

- A. Cuttings:
 - Drilling operations will utilize a closed-loop system. Drilling of the horizontal laterals will be accomplished with water-based mud. Oil-based mud could be used contingent on the formation properties encountered.
 - All cuttings will be placed in roll-off bins and hauled to a commercial disposal facility or land farm. Enduring will follow Onshore Oil and Gas Order No. 1 regarding the placement, operation, and removal of closed-loop systems. No blow pit will be used.
 - Closed-loop tanks will be adequately sized for the containment of all fluids.
- B. Drilling Fluids:
 - Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or disposed of at a designated facility.
- C. Spills:
 - Any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.
- D. Sewage
 - Portable toilets will be provided and maintained as needed during construction.
- E. Garbage and other waste material
 - All garbage and trash will be placed in enclosed metal trash containers. The trash and garbage will be hauled off-site and dumped in an approved landfill, as needed.
- F. Hazardous Waste
 - No chemicals subject to reporting under Superfund Amendments and Reauthorization Act Title III in an
 amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of
 annually in association with the drilling, testing, or completion of these wells.
 - No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.
 - All fluids (i.e., scrubber cleaners) used during the washing of production equipment will be properly disposed of to avoid ground contamination or hazards to livestock or wildlife.
- G. Flowback:
 - Flowback transported off location/through temporary flowback equipment will consist of approximately 1,000 bbls of produced water per day per well for approximately 14 days. After this flow-back period, production will be sent to the permanent facility for processing.
 - Flowback fluid will be gathered, recycled, and reused as described in Section 5. If there are no foreseeable drilling and completion operations, flow back will be disposed of at one of the disposal wells listed below.
- H. Produced water will be hauled by truck and/or if permitted, transported through below-grade or surface pipeline infrastructure to any of Enduring's water recycling facilities. Produced water may be gathered and used in future drilling and completion operations as an alternative disposal method.
- I. Enduring will dispose of produced water at the following facilities:
 - Disposal 001, API 30-045-26862, operated by Basin Disposal Inc., located in the Southeast ¼ of the Northwest ¼, Section 3, Township 29 North, Range 11 West.
 - Sunco Disposal 001, API 30-045-28653, operated by Agua Moss, LLC, located in the Southwest ¼ of the Northwest ¼, Section 2, Township 29 North, Range 12 West.
 - Pretty Lady 30 11 34 001, API 30-045-30922, operated by Agua Moss, LLC, located in the Northwest ¼ of the Southeast ¼, Section 34, Township 30 North, Range 11 West.

- NE Lybrook SWD 001, API 30-039-31378, operated by Enduring Resources IV, LLC, located in the Northwest ¼ of the Southeast ¼ of Section 13, Township 23 North, Range 7 West.
- W Lybrook 2309 24N SWD 001, API 30-045-38292, operated by Enduring Resources IV, LLC, located in the Southeast ¹/₄ of the Southwest ¹/₄ of Section 24, Township 23 North, Range 9 West.

10. PLANS FOR SURFACE RECLAMATION

A Surface Reclamation Plan for the HCU 432H Project has been provided as a separate document. The projectassociated Surface Reclamation Plan was prepared in accordance with Onshore Oil and Gas Order No. 1 and the BLM Bare Soil Reclamation Procedures.

The Surface Reclamation plan addresses:

- Configuration of the reshaped topography;
- Drainage systems;
- Segregation of spoil material;
- Surface disturbances;
- Backfill requirements;
- Redistribution of topsoil;
- Soil treatments;
- Seeding or other steps to reestablish vegetation;
- Weed control;
- and practices necessary to reclaim all disturbed areas.

11. SURFACE OWNERSHIP

The project is located on public lands managed by the BLM-FFO

Bureau of Land Management Farmington Field Office 6251 College Boulevard, Suite A Farmington, New Mexico 87402 (505) 564-7600

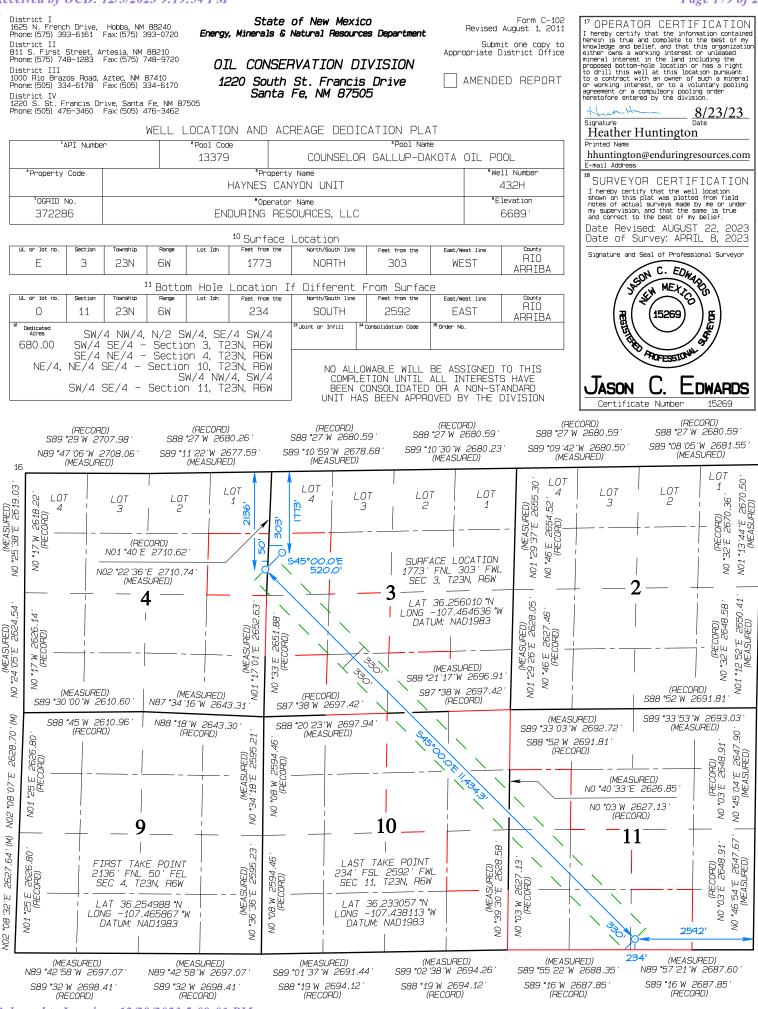
12. OTHER INFORMATION

- A. Enduring's appointed construction contractors will call New Mexico One-Call (or equivalent) to identify the location of any marked or unmarked pipelines or cables located in proximity to the proposed HCU 432H Project or any other areas proposed to have ground disturbances at least two working days before ground disturbance.
- B. The construction phase of the project will commence upon receipt of an approved APD. The BLM-FFO will be notified via phone or email at least 48 hours before the start of construction activities associated with the project.
- C. All activities associated with the construction, use/operation, maintenance, and abandonment or termination of the HCU 432H Project will be limited to areas approved in the APDs.
- D. The project area has been surveyed by the Division of Conservation Archeology (DCA). The cultural survey report has been submitted directly to the surface managing agencies. Cultural mitigation, monitoring, and implementation of site protection barriers will occur if stipulated in the COAs attached to the approved APDs.

- E. Per BLM at the June 27, 2023, onsite, a biological survey would not be required as no new surface is permitted or anticipated disturbance resultant of project approval and implementation. Any necessary protection of flora and fauna, Special Status Species (SSS), wildlife, migratory birds, water resources, and air resources will occur if stipulated in the COAs attached to the approved APDs or stipulations in the ROW grants.
- F. Construction and maintenance activities will cease if soil or road surfaces become saturated to the extent that construction equipment is unable to stay within the project area and/or when activities cause irreparable harm to roads, soils, or streams.
- G. All BLM-FFO general COAs will apply to this proposed action.

Appendix A. SURVEY PLATS

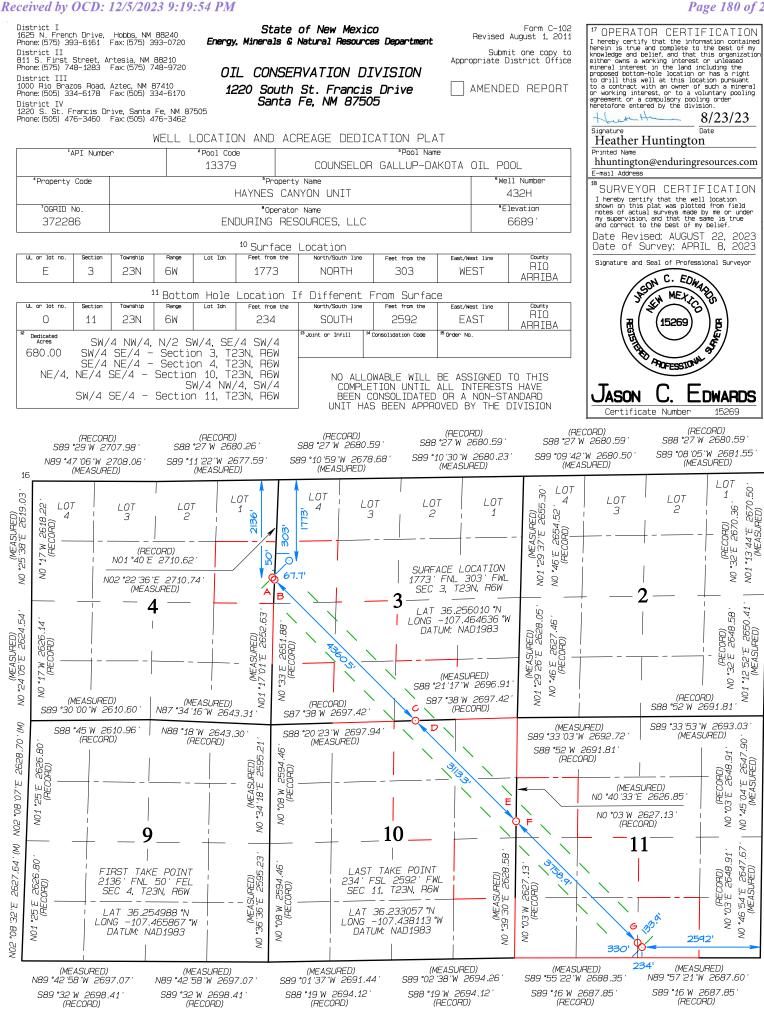
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- LEASE X-ING (A) 2187' FNL O' FEL SEC 4, T23N, R6W
- LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

- LEASE X-ING (B) 2187' FNL 0' FWL SEC 3, T23N, R6W
- LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

LEASE X-ING (C) 0'FSL 2229'FEL SEC 3, T23N, R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

LEASE X-ING (D) 0' FNL 2229' FEL SEC 10, T23N. R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

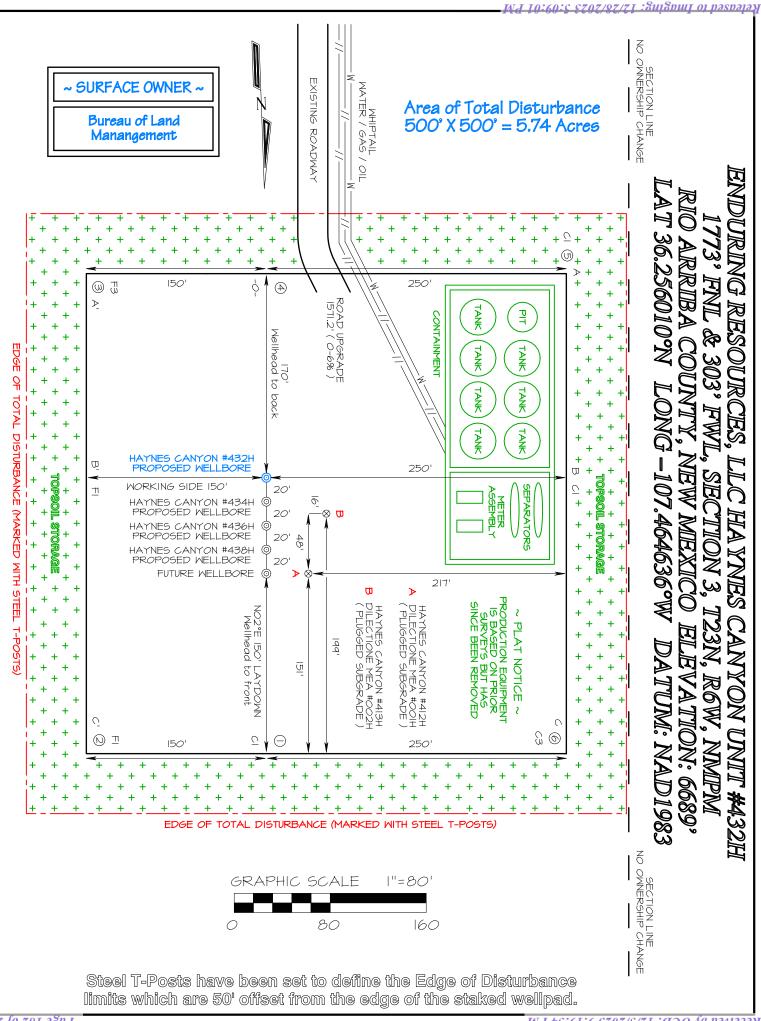
LEASE X-ING (E) 2266' FNL 0' FEL SEC 10, T23N, R6W

LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983 LEASE X-ING (F) 2266' FNL 0' FWL SEC 11, T23N, R6W

LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983

LEASE X-ING (G) 328' FSL 2688' FWL SEC 11, T23N, R6W

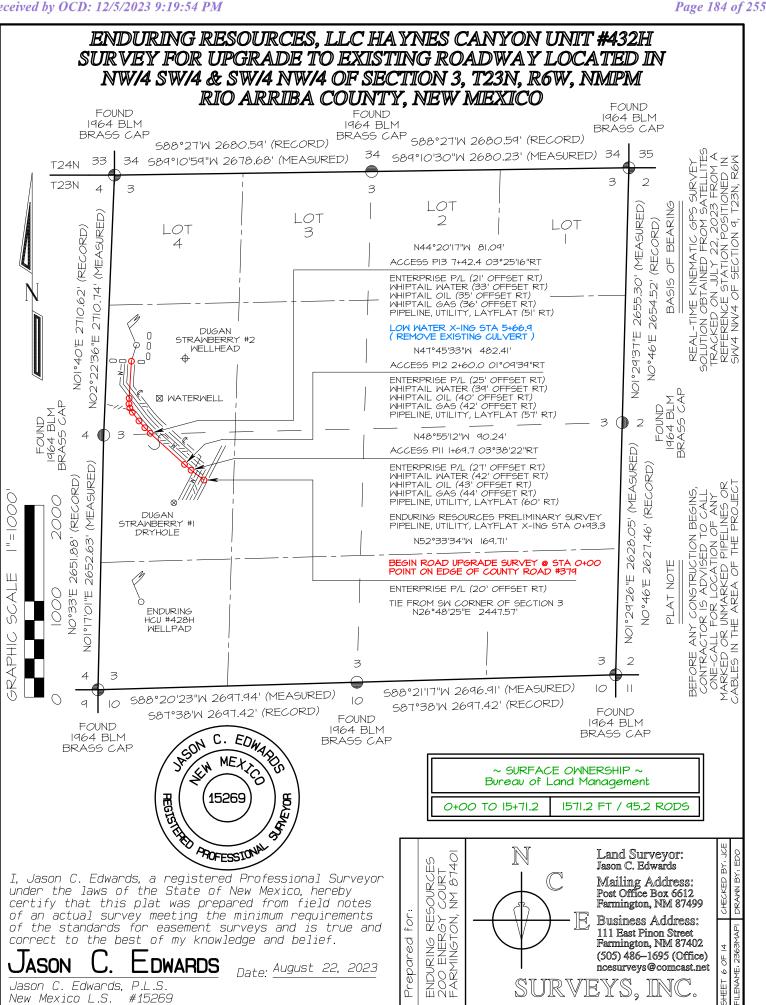
LAT 36.233314 °N LONG -107.438438 °W DATUM: NAD1983



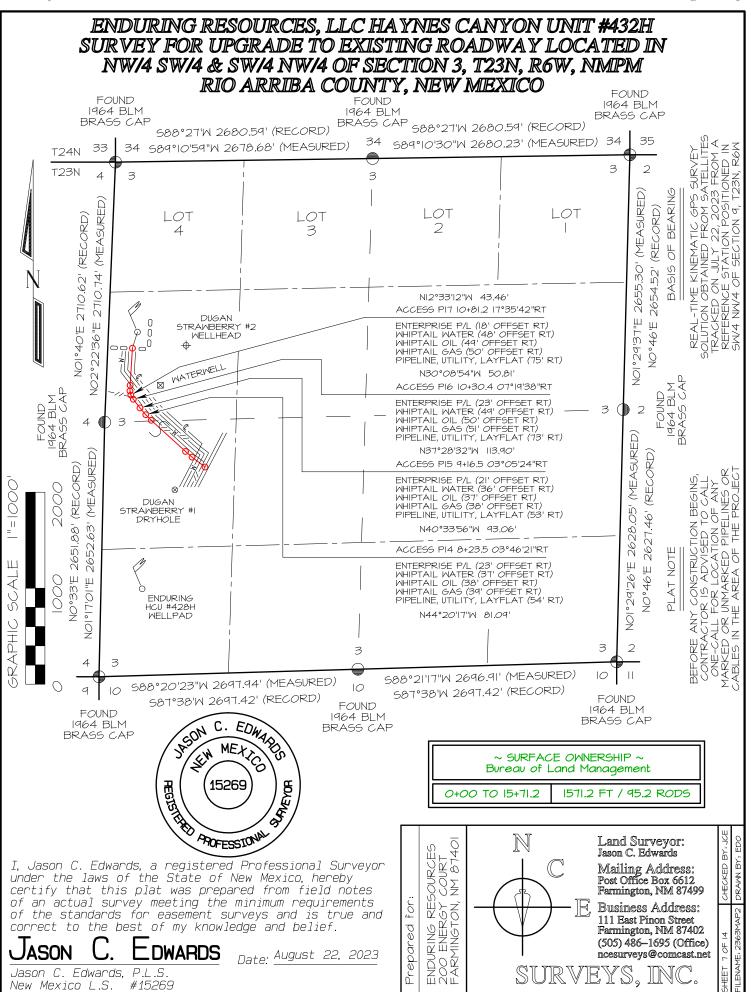
	ENDURING RESOURCES, LLC HAYNES CANYON UNIT #432H 1773' FNL & 303' FWL, SECTION 3, T23N, R6W, NMPM RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6689'
A - A	HORIZONTAL SCALE I"=55' C/L VERTICAL SCALE I"=30'
-06dd	
-1b899	
6679'	
	C/L
₽-₽_	
6699	
-b899	
6679	
	C/L
C - C	
66dd	
-12000	
66791	
	EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

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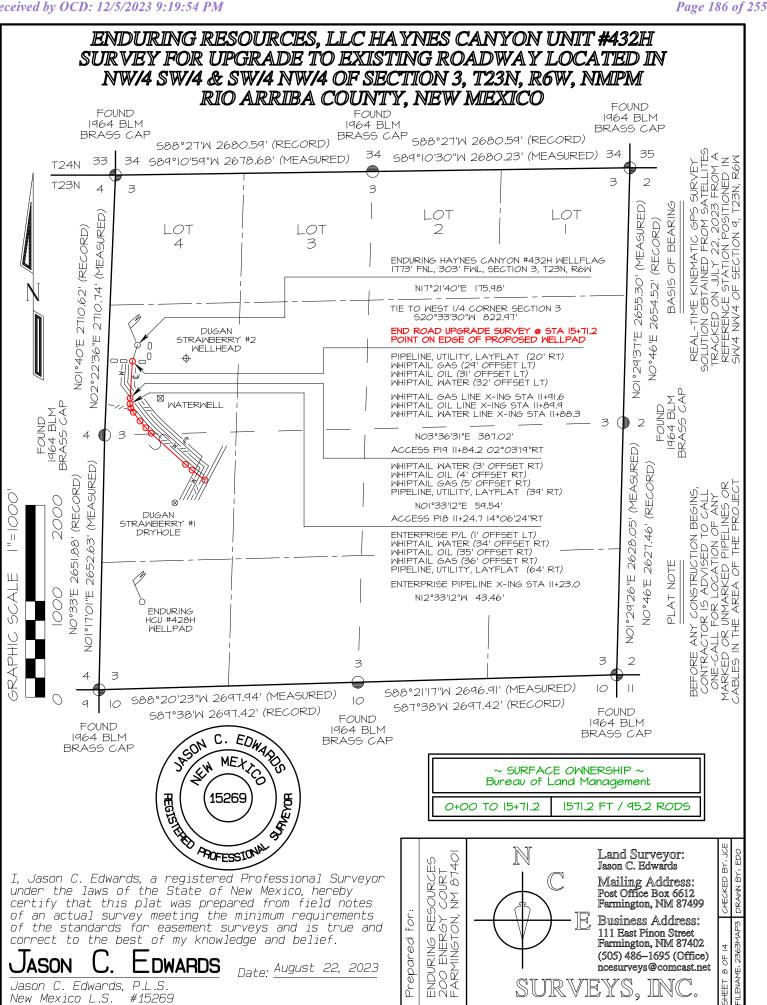


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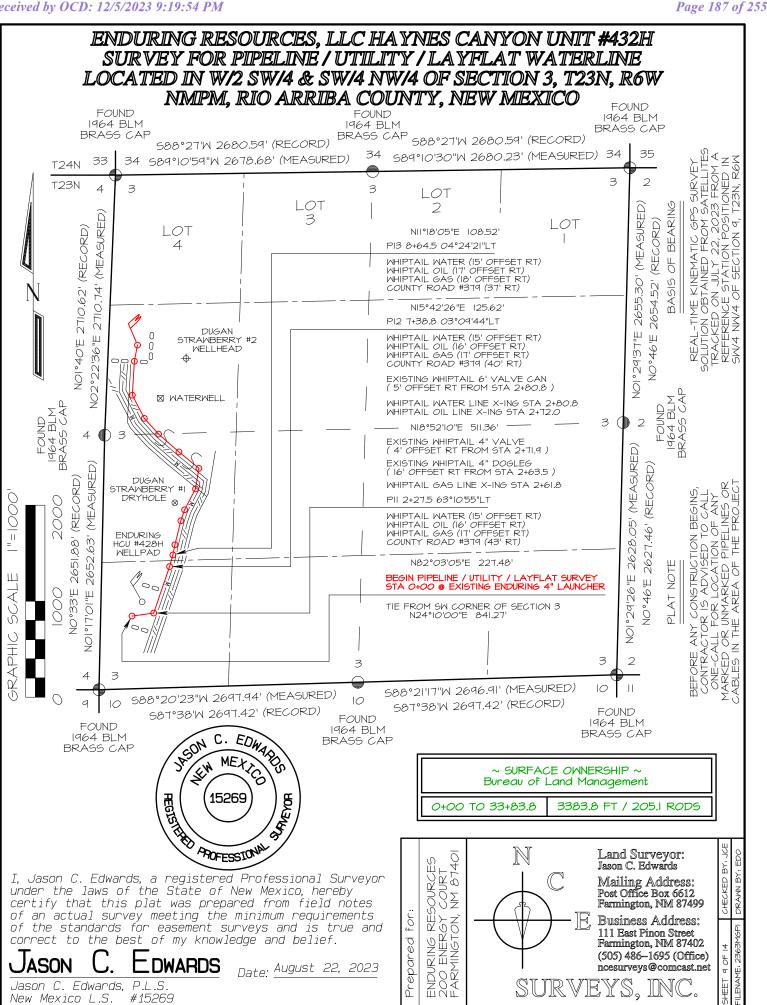


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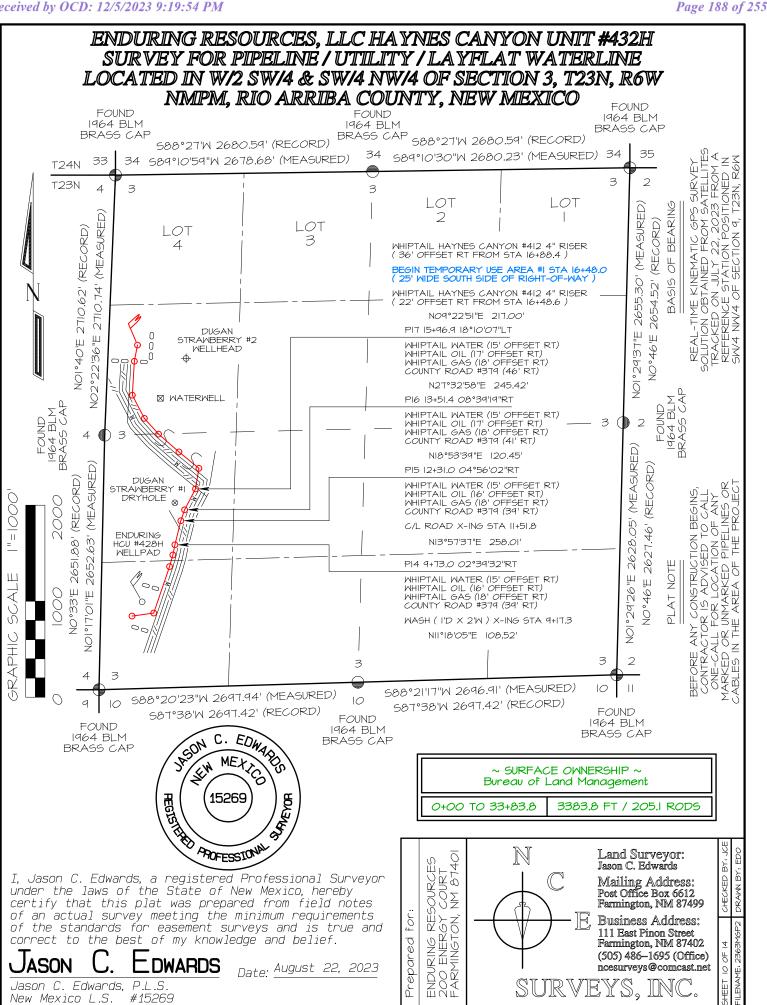
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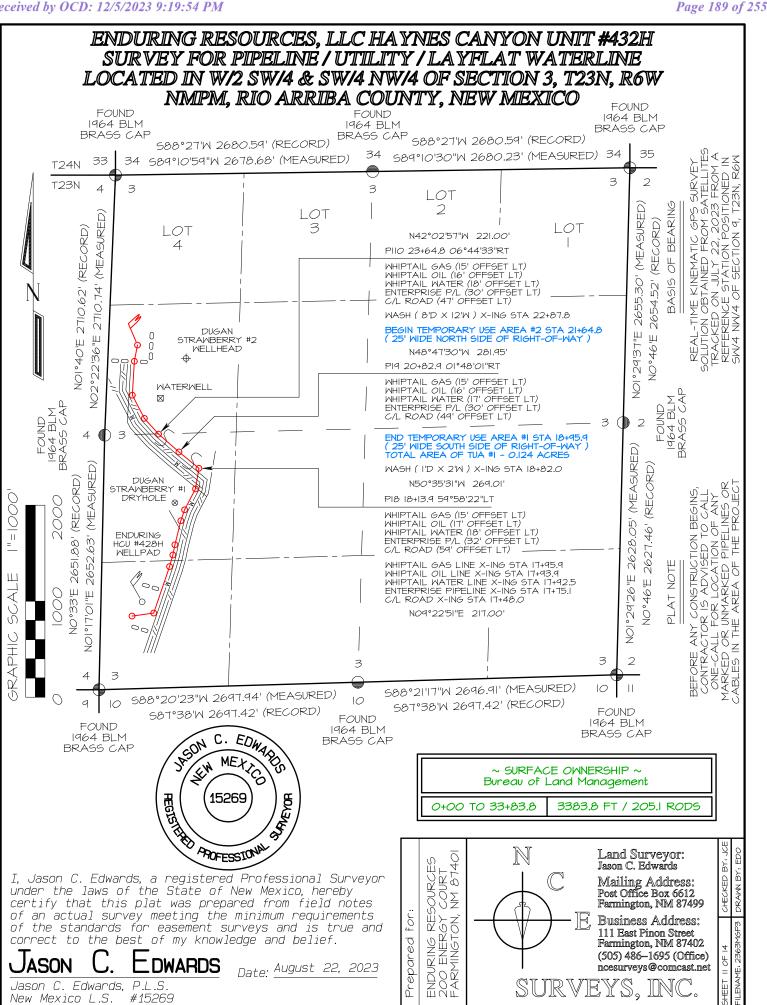
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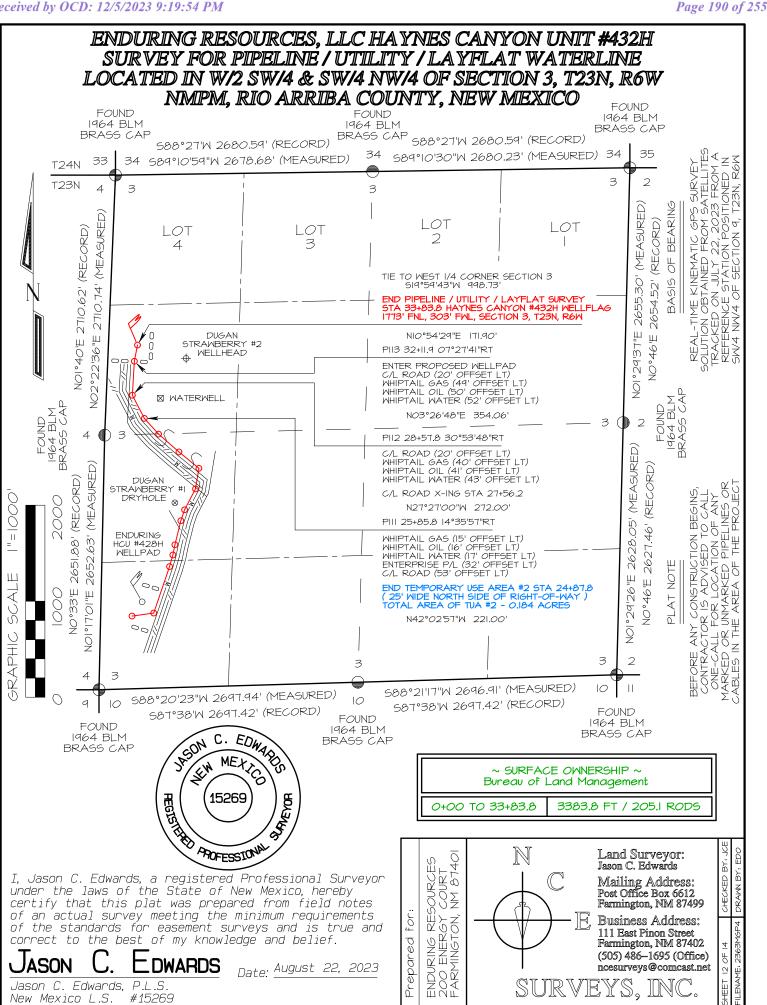
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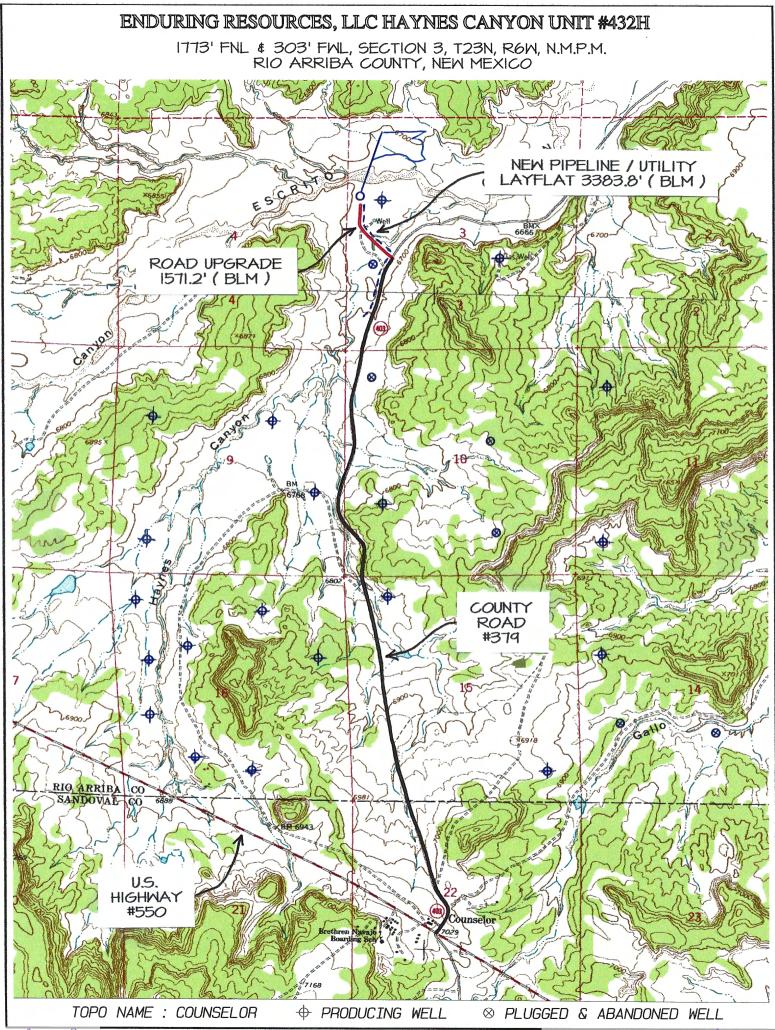
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Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #432H

1773' FNL & 303' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM

Latitude 36.256010°N Longitude -107.464636°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

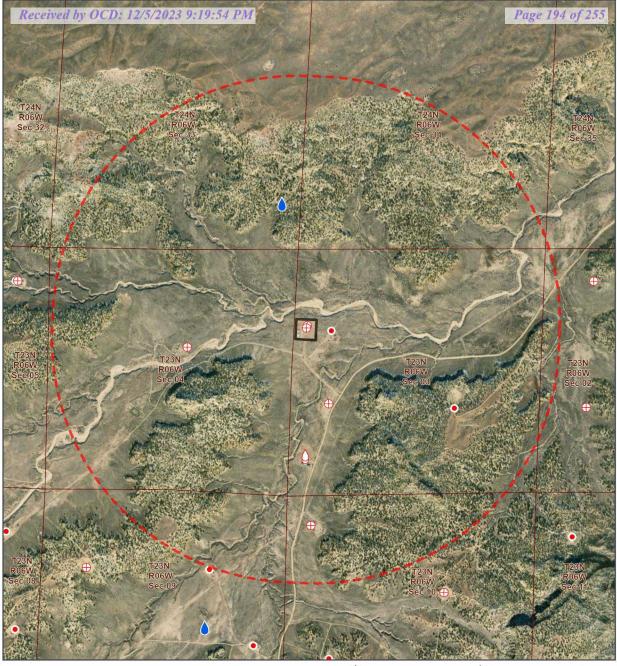
Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.7 miles to fork in roadway;

Go Left (North-westerly) exiting County Road #379 (aka State Highway #403) for 0.2 miles to fork in road;

Go Right (Northerly) for 0.1 miles to Enduring Haynes Canyon Unit #432H existing location.

Appendix B. EXISTING WELLS WITHIN 1 MILE

.



HCU 432H Project | Wells Within 1 Mile

OSE Points of Diversion

Oil and Gas Well Status

- Active
- New
- Plugged (site released)

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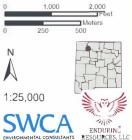
Wells	Within 1 Mile	Within Map Extent
OSE Points of Diversion	1	2
Active O&G	2	9
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Plugged (site released) O&G		9

Wellpad

1 Mile Buffer

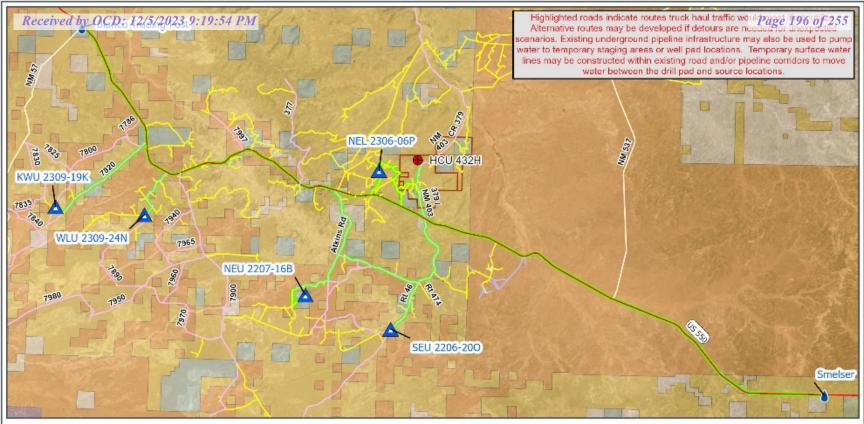
Rio Arriba County, NM NAD 1983 BLM Zone 13N 36.2561°N 107.4645°W

Base Map: ESRI ArcGIS Online, accessed August 2023 Update: 8/4/2023 Project No. 75253p36 Layout: 253p36_HCU_432_Wells_Within_1Mile Aprx: 75253p36_HCU432



Appendix C. WATER TRANSPORTATION MAP

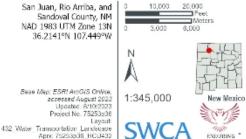
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HCU 432H Project | Water Transportation



Unit Boundary

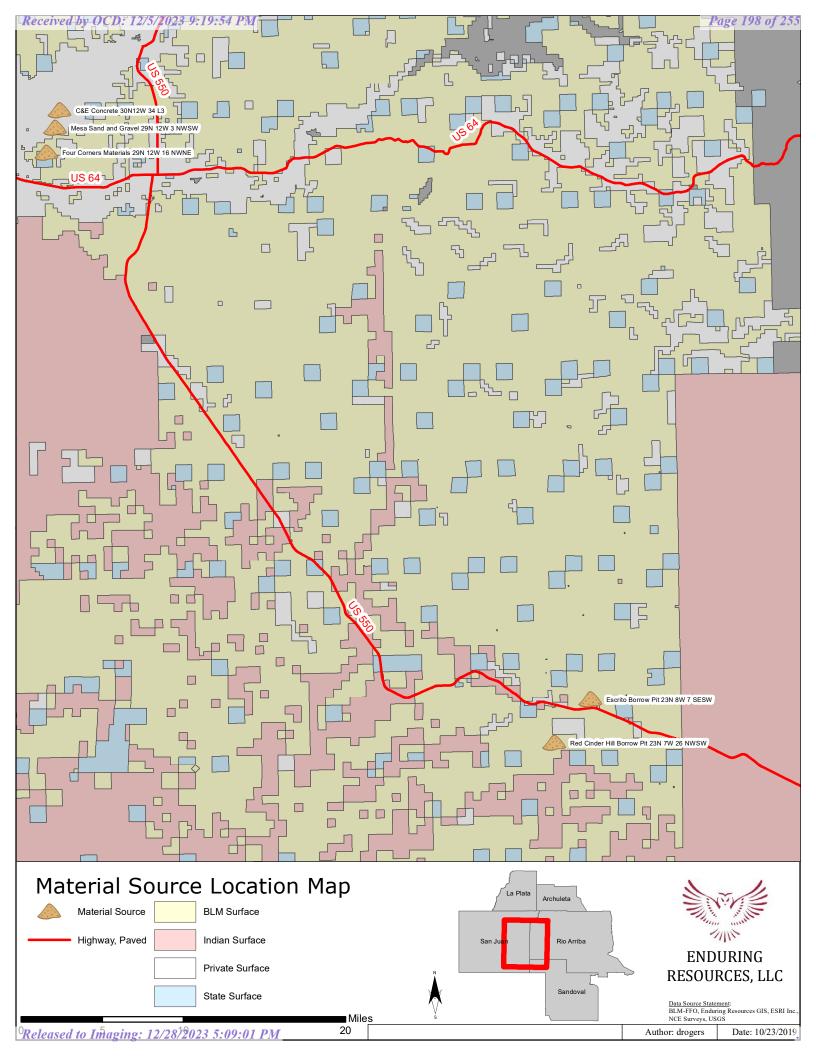


PRVIDONMENTAL COMPLETANTS

RESOURCES, LLC

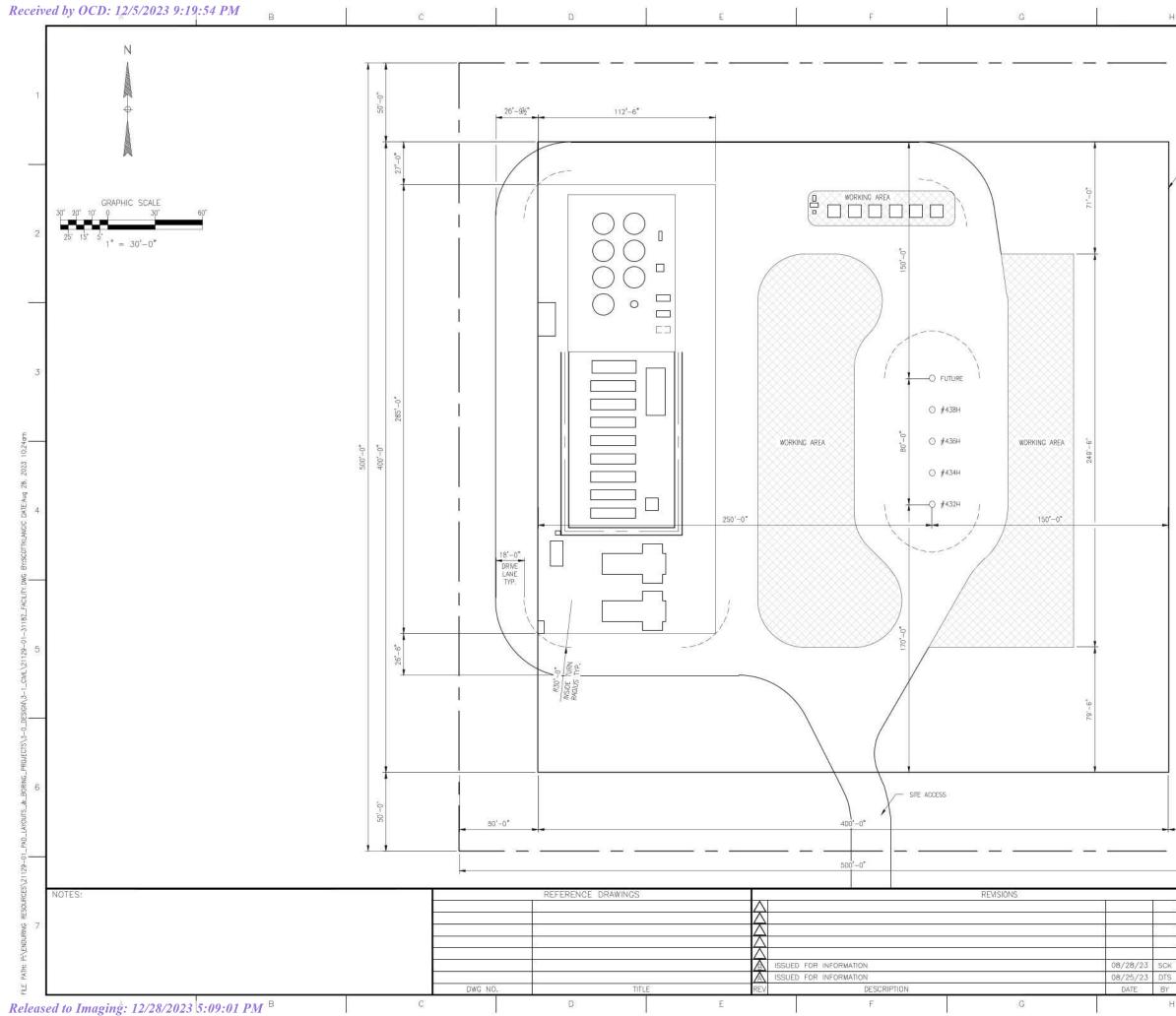
Appendix D. CONSTRUCTION MATERIALS MAP

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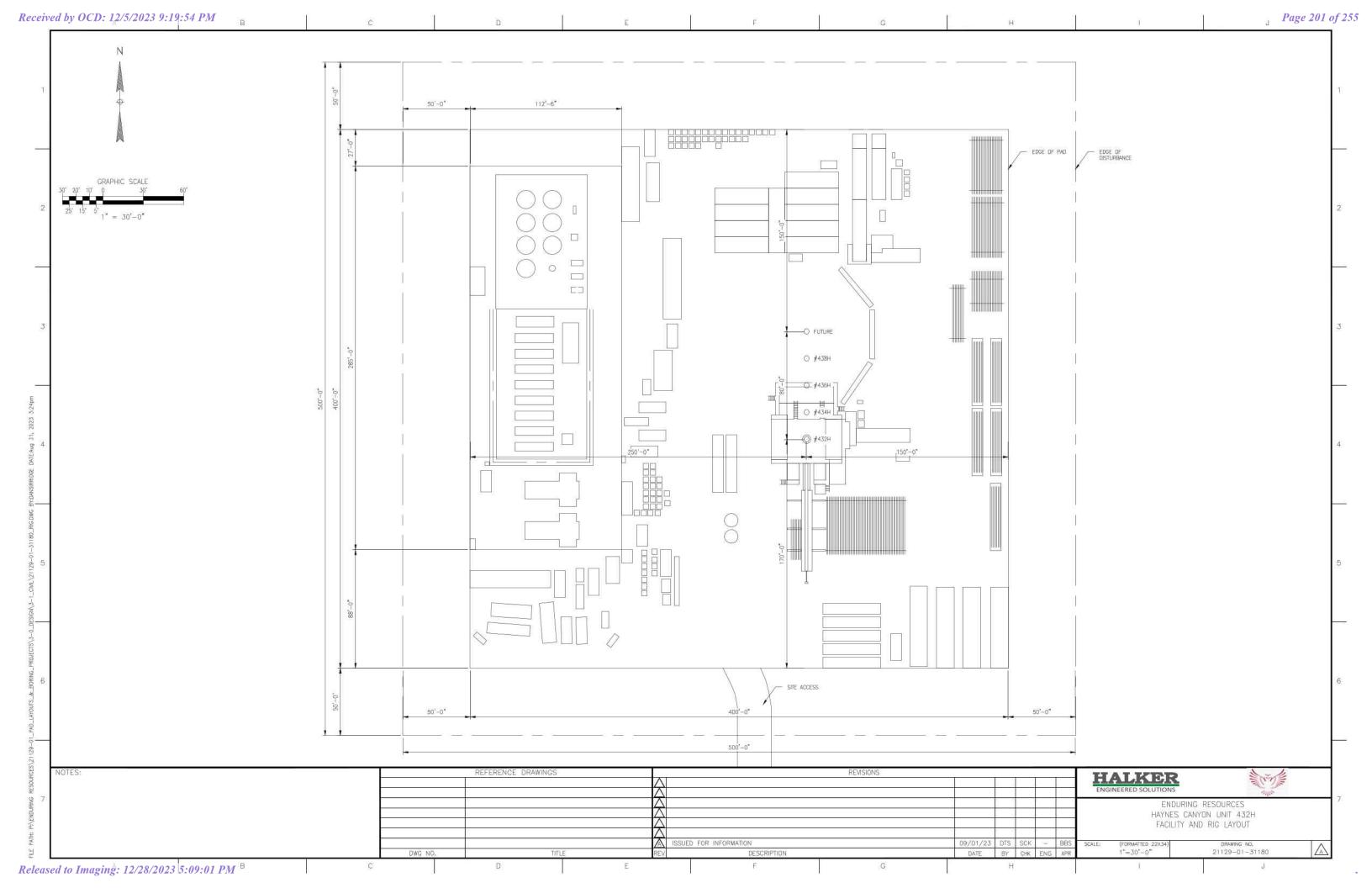


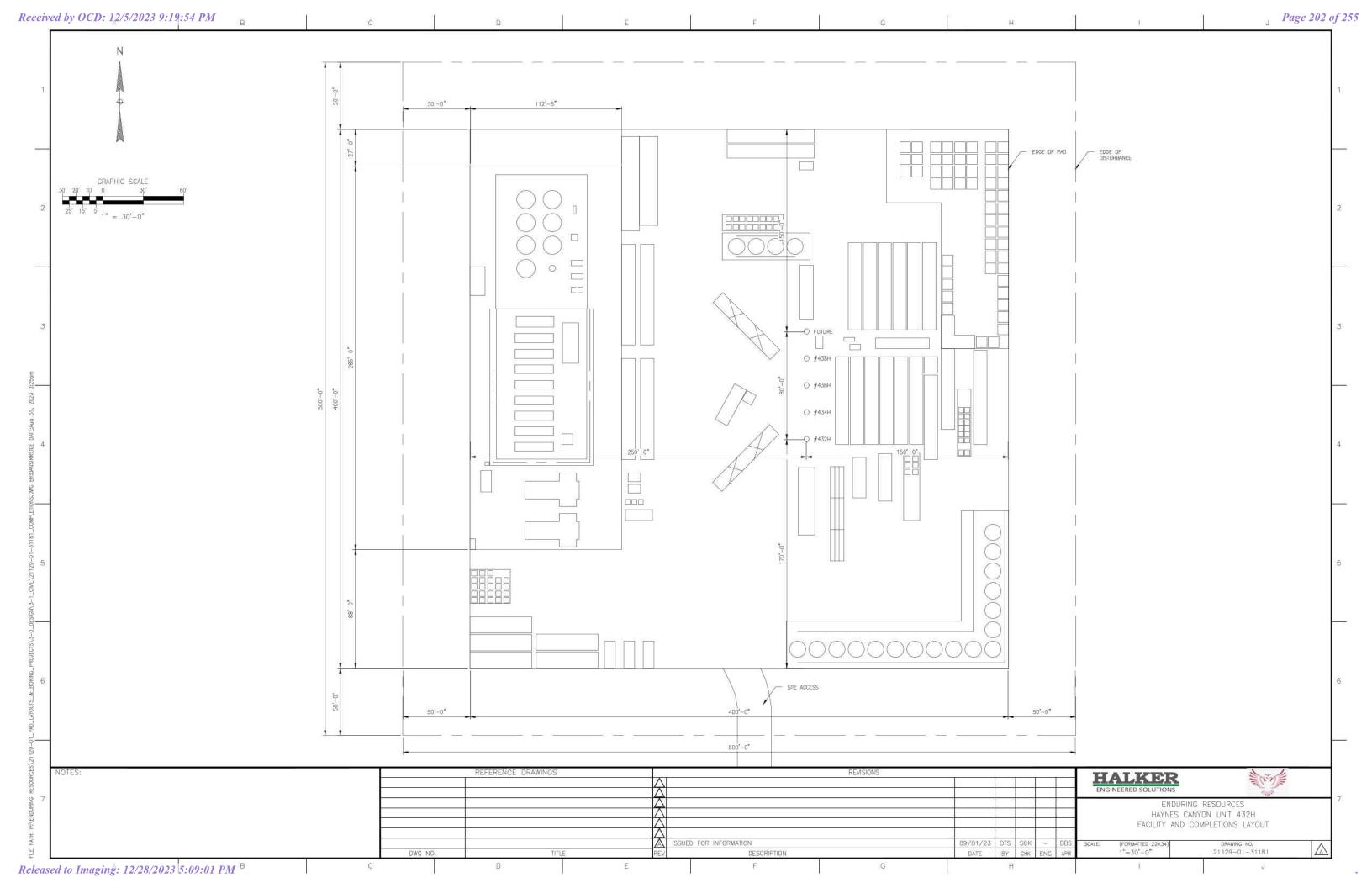
Appendix E. WELL PAD LAYOUT DIAGRAMS

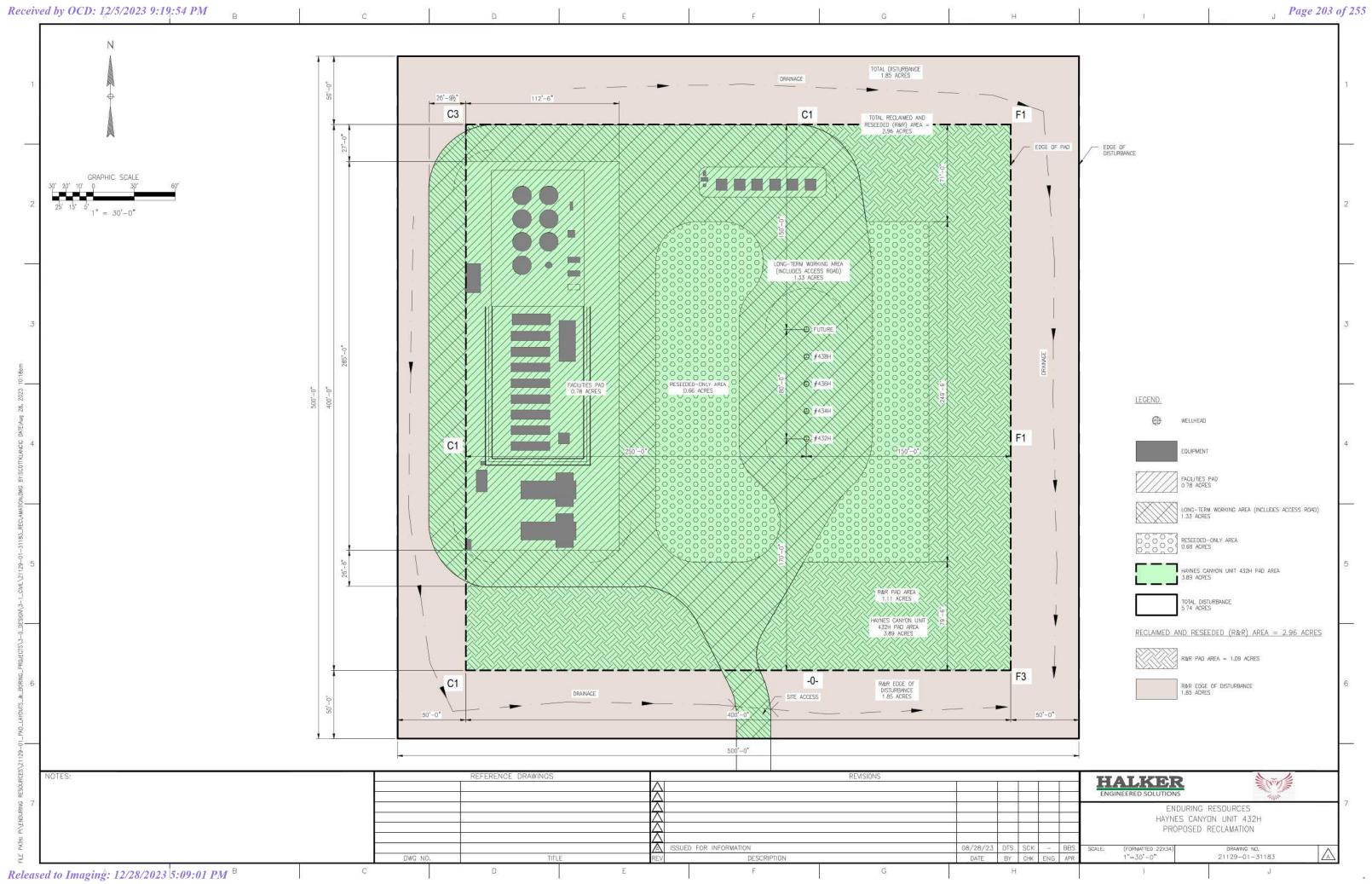
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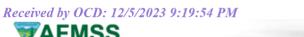
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Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined

Would you like to utilize Lined Pit PWD options? N Produced Water Disposal (PWD) Location: PWD surface owner: Lined pit PWD on or off channel: Lined pit PWD discharge volume (bbl/day): Lined pit Pit liner description: **Pit liner manufacturers** Precipitated solids disposal: Decribe precipitated solids disposal: Precipitated solids disposal Lined pit precipitated solids disposal schedule: Lined pit precipitated solids disposal schedule Lined pit reclamation description: Lined pit reclamation Leak detection system description: Leak detection system

PWD disturbance (acres):

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

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Lined pit Monitor description:

Lined pit Monitor

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information

Section 3 - Unlined

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD disturbance (acres):

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule

Unlined pit reclamation description:

Unlined pit reclamation

Unlined pit Monitor description:

Unlined pit Monitor

Do you propose to put the produced water to beneficial use?

Beneficial use user

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic

State

Unlined Produced Water Pit Estimated

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

PWD disturbance (acres):

Injection well name:

Injection well API number:

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information

Section 4 -

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

PWD surface owner:

Injection well number:

Assigned injection well API number?

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection

Underground Injection Control (UIC) Permit?

UIC Permit

Section 5 - Surface

Would you like to utilize Surface Discharge PWD options? N

 Produced Water Disposal (PWD) Location:

 PWD surface owner:
 PWD disturbance (acres):

 Surface discharge PWD discharge volume (bbl/day):
 PWD disturbance (acres):

 Surface Discharge NPDES Permit?
 Surface Discharge NPDES Permit attachment:

 Surface Discharge site facilities information:
 Surface discharge site facilities map:

 Section 6 Section 6

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner:

Other PWD discharge volume (bbl/day):

PWD disturbance (acres):

Operator Name: ENDURING RESOURCES LLC

Well Name: HAYNES CANYON UNIT

Well Number: 432H

Other PWD type description:

Other PWD type

Have other regulatory requirements been met?

Other regulatory requirements

WAFMSS

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

APD ID: 10400093992 Operator Name: ENDURING RESOURCES LLC Well Name: HAYNES CANYON UNIT Well Type: OIL WELL

Submission Date: 09/22/2023

ALL STREET ALL STREET

Well Number: 432H Well Work Type: Drill Highlighted data reflects the most recent changes <u>Show Final Text</u>

Bond Info Data

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12/05/2023

Bond

Federal/Indian APD: FED

BLM Bond number:

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

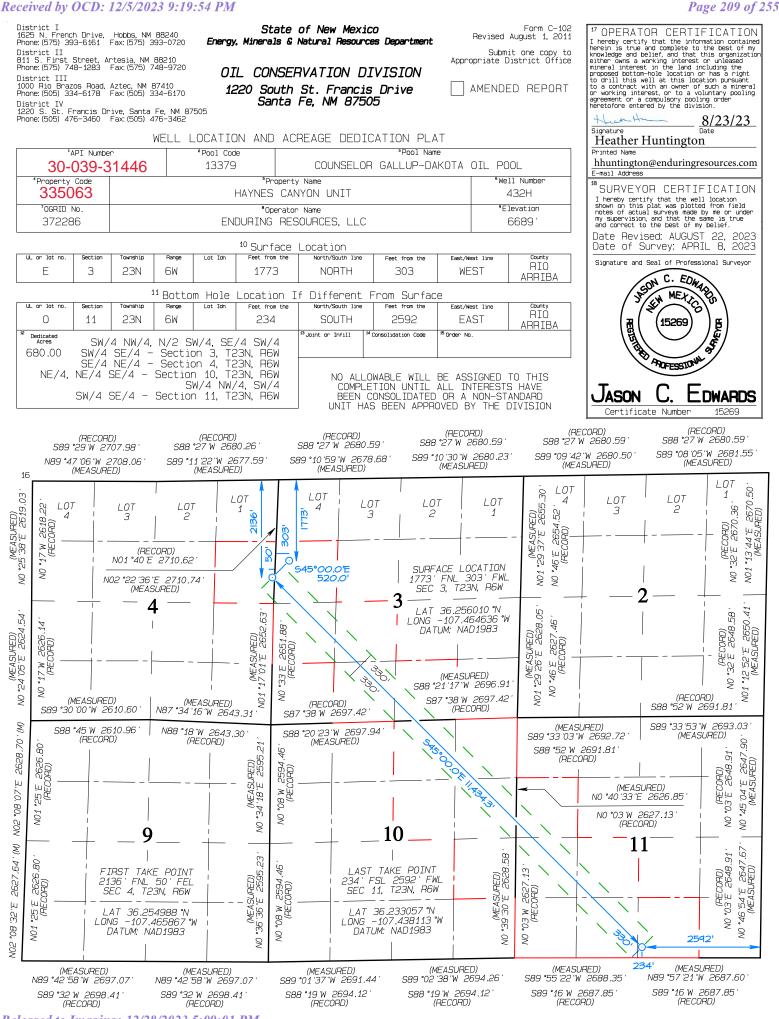
Forest Service reclamation bond

Reclamation bond number:

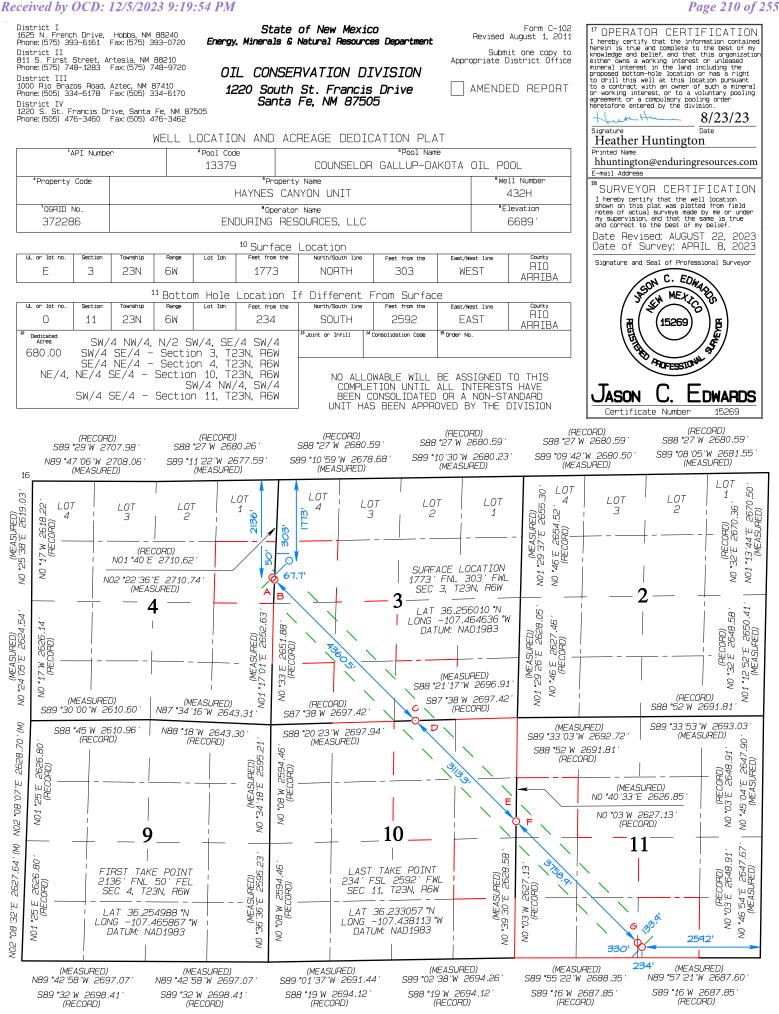
Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information



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LEASE X-ING (A) 2187' FNL O' FEL SEC 4, T23N, R6W

LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

- LEASE X-ING (B) 2187' FNL 0' FWL SEC 3, T23N, R6W
- LAT 36.254858 °N LONG -107.465703 °W DATUM: NAD1983

LEASE X-ING (C) 0'FSL 2229'FEL SEC 3, T23N, R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

LEASE X-ING (D) 0' FNL 2229' FEL SEC 10, T23N. R6W

LAT 36.246496 °N LONG -107.455117 °W DATUM: NAD1983

LEASE X-ING (E) 2266' FNL 0' FEL SEC 10, T23N, R6W

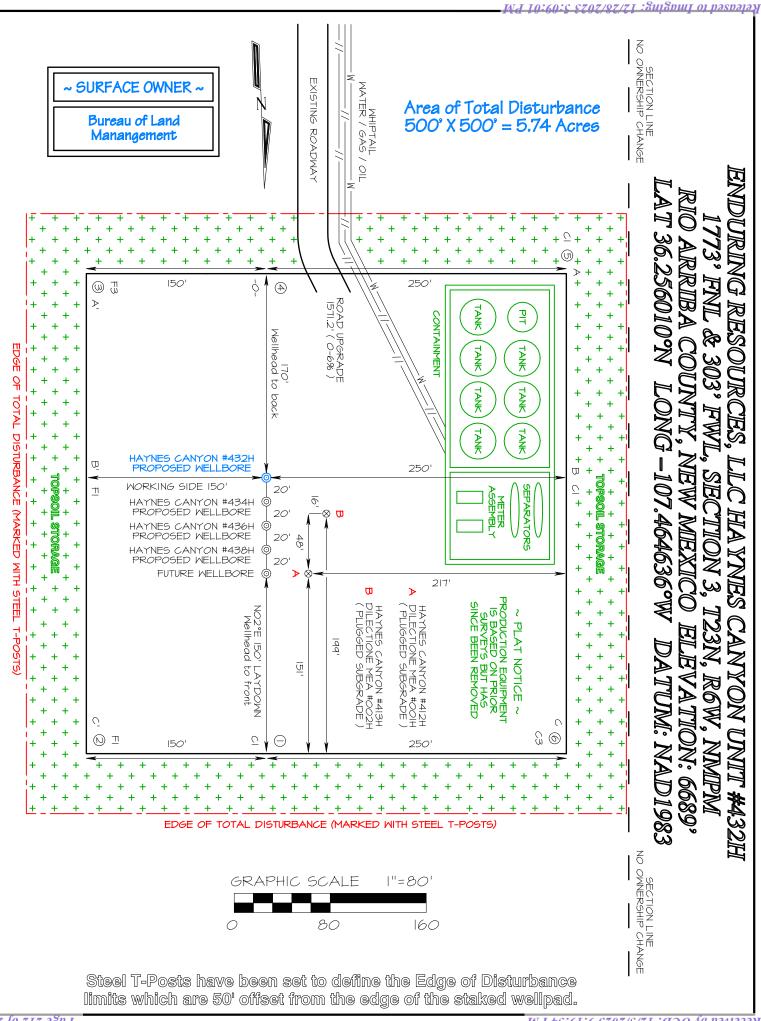
LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983 LEASE X-ING (F) 2266' FNL 0' FWL SEC 11, T23N, R6W

LAT 36.240524 °N LONG -107.447560 °W DATUM: NAD1983

LEASE X-ING (G) 328' FSL 2688' FWL SEC 11, T23N, R6W

LAT 36.233314 °N LONG -107.438438 °W DATUM: NAD1983

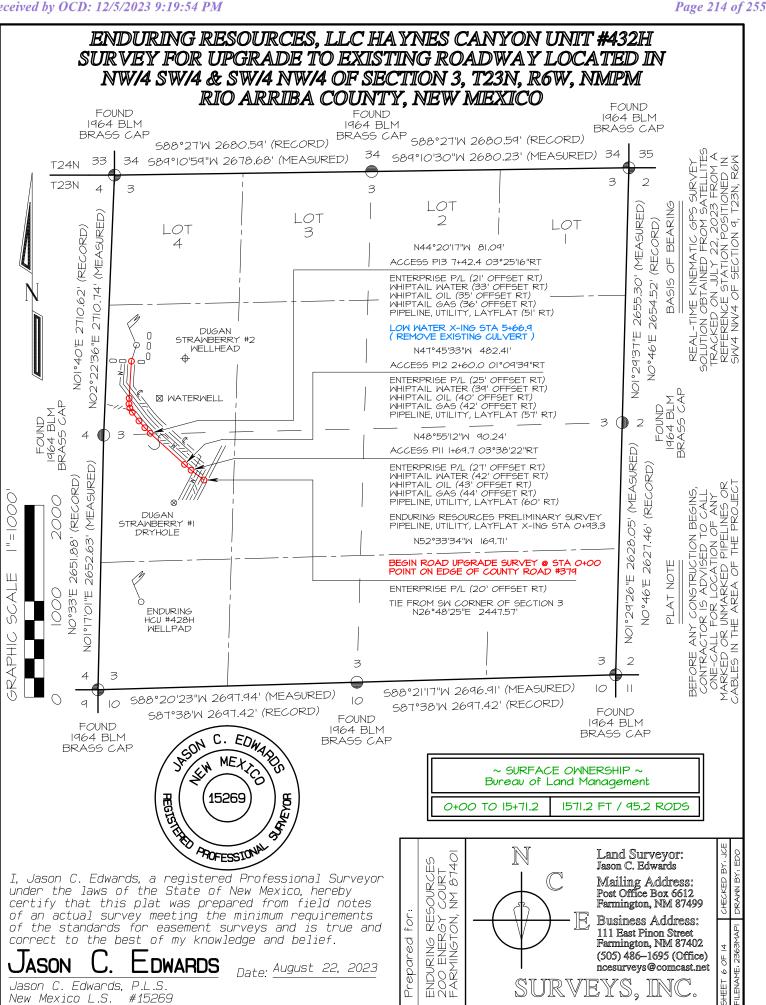
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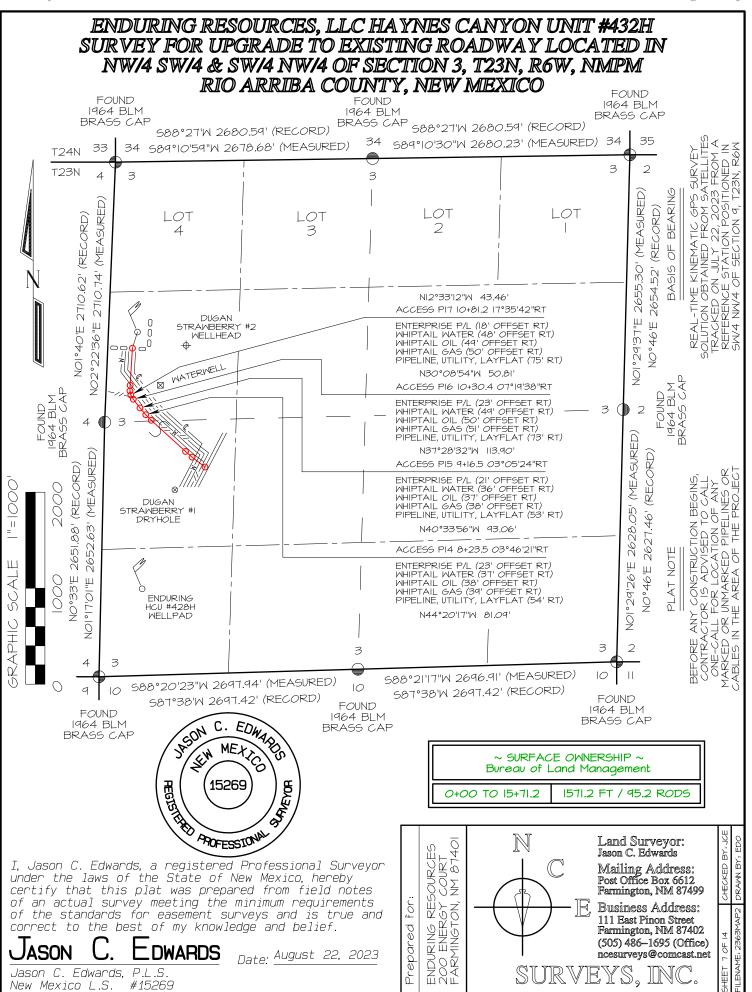
	ENDURING RESOURCES, LLC HAYNES CANYON UNIT #432H 1773' FNL & 303' FWL, SECTION 3, T23N, R6W, NMPM RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6689'
A - A	HORIZONTAL SCALE I"=55' C/L VERTICAL SCALE I"=30'
-06dd	
-b899	
6679'	
	C/L
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6699	
-b899	
6679	
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66dd	
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	EDWARDS SURVEYING, INC. IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

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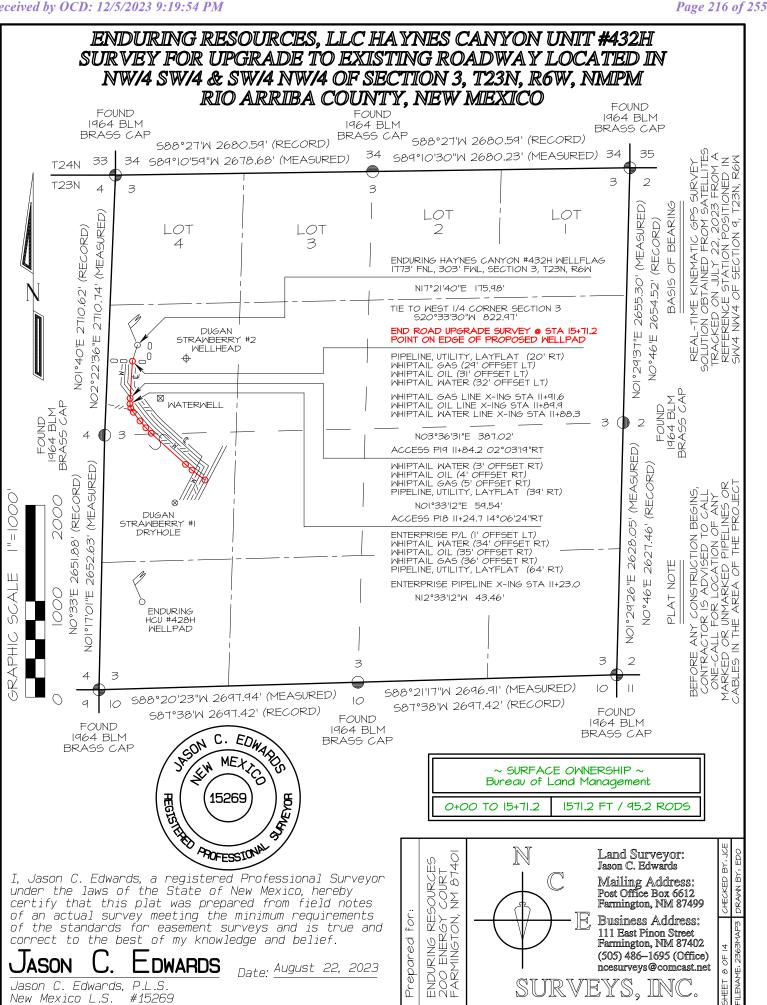


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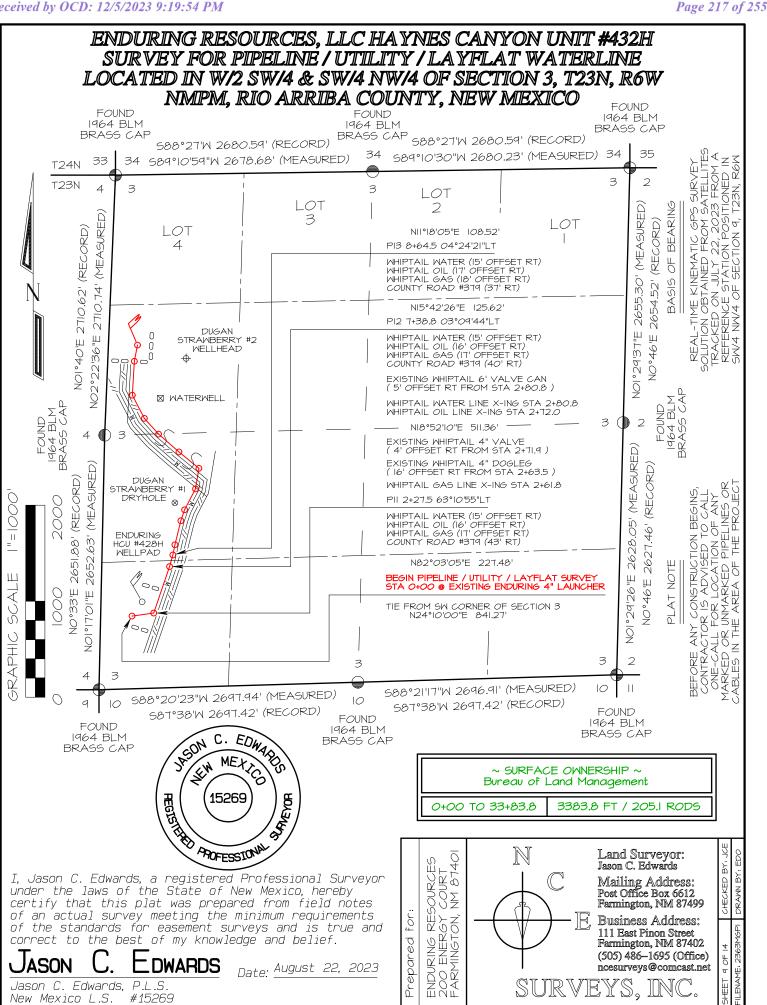


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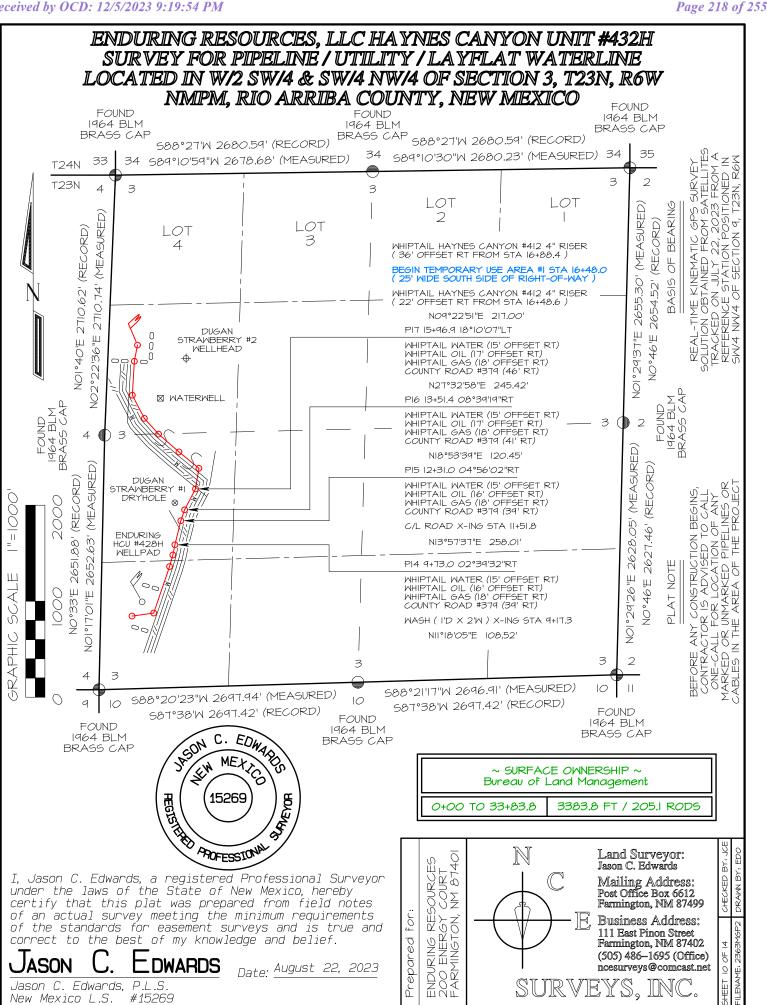
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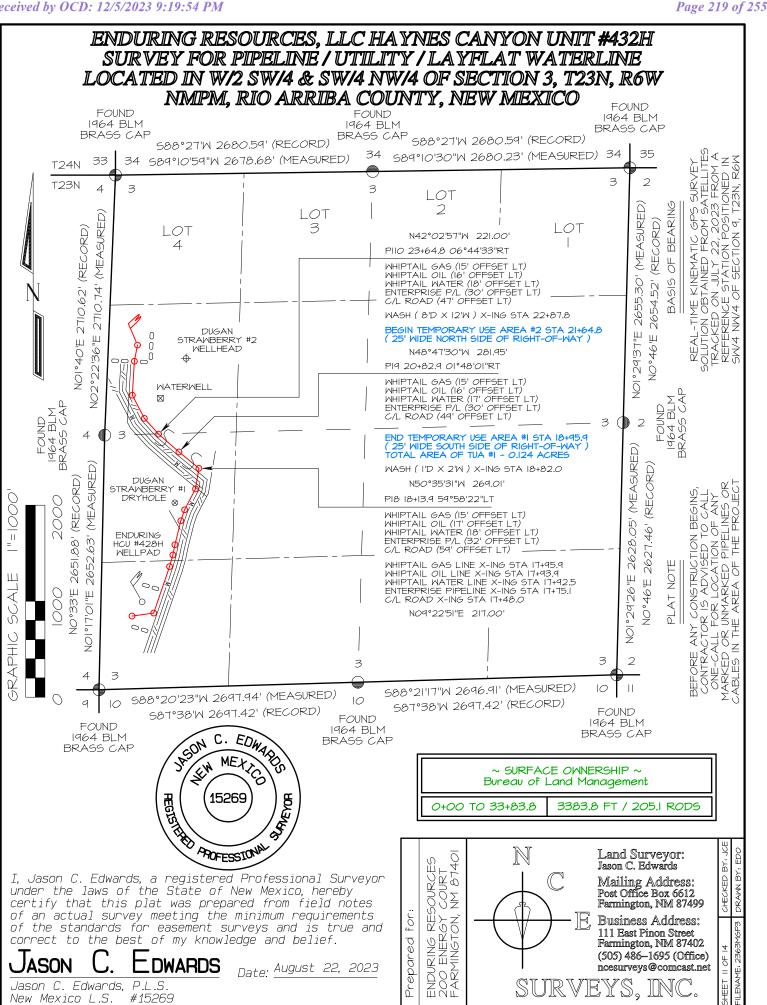
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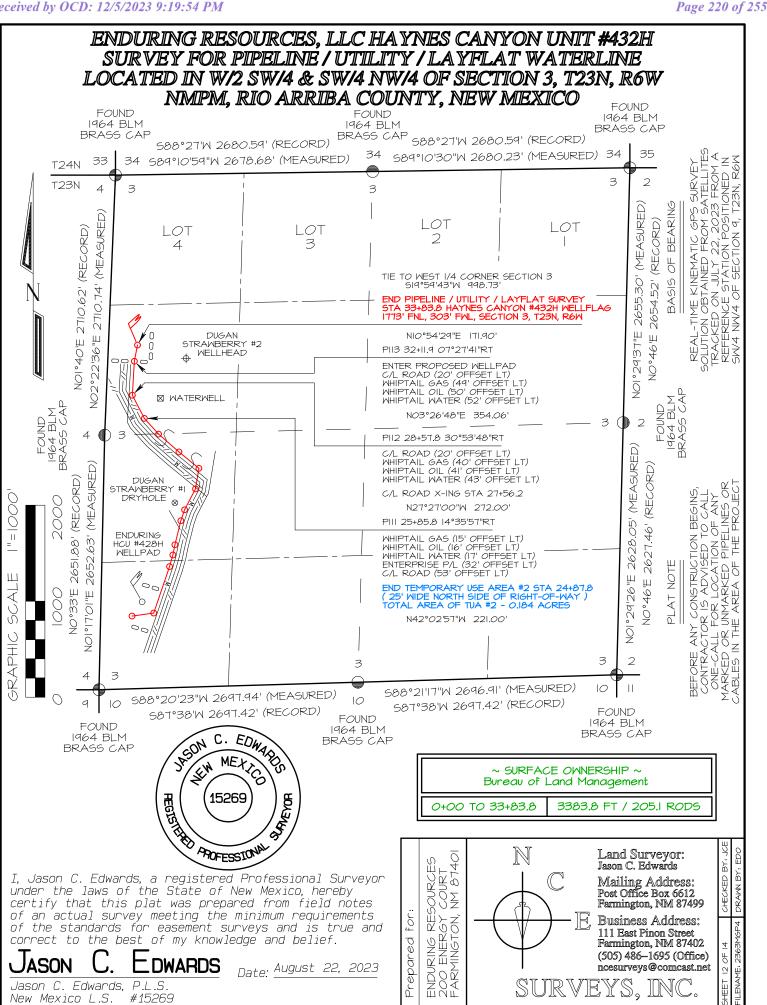
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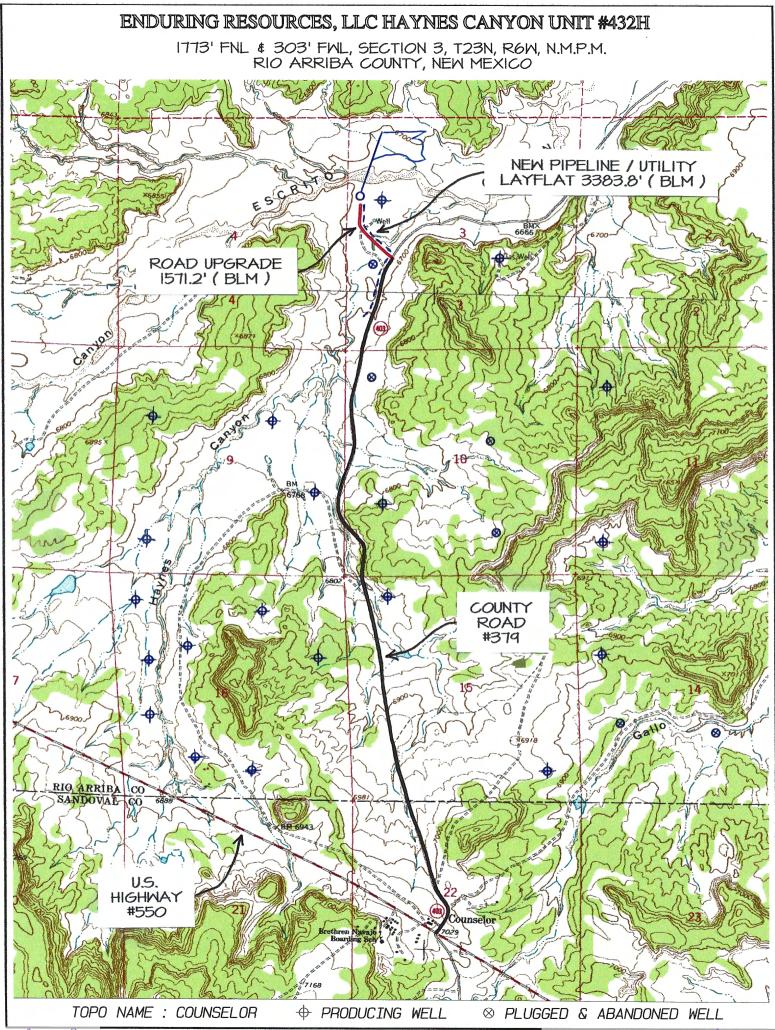
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Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Enduring Resources, LLC Haynes Canyon Unit #432H

1773' FNL & 303' FWL, Section 3, T23N, R6W, N.M.P.M., Rio Arriba County, NM

Latitude 36.256010°N Longitude -107.464636°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.8 miles to Mile Marker 97.6

Go Left (Northerly) on County Road #379 (aka State Highway #403) for 1.5 miles to fork in roadway;

Go Right (Northerly) which is straight remaining on County Road #379 (aka State Highway #403) for 1.7 miles to fork in roadway;

Go Left (North-westerly) exiting County Road #379 (aka State Highway #403) for 0.2 miles to fork in road;

Go Right (Northerly) for 0.1 miles to Enduring Haynes Canyon Unit #432H existing location.

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
Haynes Canyon Unit 432H	pending	Sec. 3, T23N, R6W	UL:E SHL:1773' FNL & 303' FWL	412	1925	550
Haynes Canyon Unit 434H	pending	Sec. 3, T23N, R6W	UL:E SHL:1753' FNL & 303' FWL	412	1925	550
Haynes Canyon Unit 436H	pending	Sec. 3, T23N, R6W	UL:E SHL:1733' FNL & 303' FWL	412	1925	550
Haynes Canyon Unit 438H	pending	Sec. 3, T23N, R6W	UL:E SHL:1713' FNL & 303' FWL	412	1925	550

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 Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Haynes Canyon Unit 432H	pending	6/10/2024	6/30/2024	7/26/2024	8/26/2024	8/28/2024
Haynes Canyon Unit 434H	pending	6/23/2024	7/3/2024	7/26/2024	8/26/2024	8/28/2024
Haynes Canyon Unit 436H	pending	7/6/2024	7/20/2024	7/26/2024	8/27/2024	8/29/2024
Haynes Canyon Unit 438H	pending	7/18/2024	7/24/2024	7/26/2024	8/27/2024	8/29/2024

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 Start Date	Available Maximum Daily Capacity of System Segment Tie-in

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)
(Only applicable when submitted as a standalone form)
(Only applicable when submitted as a standalone form) Approved By:
(Only applicable when submitted as a standalone form) Approved By:
(Only applicable when submitted as a standalone form) Approved By: Title: Approval Date:

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

.

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.



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

WELL INFORMATION	N:						
Name:	Haynes Canyon Unit 432H						
API Number:	Not yet assigned						
AFE Number:	Not yet assigned						
ER Well Number:	Not yet assigned						
State:	New Mexico						
County:	Rio Arriba						
Surface Elevation:	6,689 ft ASL (GL)	6,714	ft ASL (KB)				
Surface Location:	3-23-6 Sec-Twn-Rng	1,773	ft FNL	303	ft FWL		
	36.25601 ° N latitude	107.464636	$^{\circ}$ W longitude		(NAD 83)		
BH Location:	11-23-6 Sec-Twn-Rng	234	ft FSL	2,592	ft FEL		
	36.233057 ° N latitude	107.438113	$^{\circ}$ W longitude		(NAD 83)		
Driving Directions:	FROM THE INTERSECTION OF	F US HWY 550	& US HWY 64 I	N BLOOMFIEL	D, NM:		
	South on US Hwy 550 for 53.8	8 miles to MM	97.6; Left (Nor	th) on CR #379	(State Hwy 403)	for 1.3 miles to fork; F	Right
	(North) remaining on CR #379	9/403 for 1.8 r	niles to T inters	ection of CR 49	8, Left (NorthWe	est) on CR 498 for .2 m	niles
	to location access on right int	o Haynes Can	yon Unit 432H P	ad. From Sout	h to North will b	e Haynes Canyon Unit	
	432H, 434H, 436H, and 438H						

GEOLOGIC AND RESERVOIR INFORMATION:

Proano

Formation Tops	TVD (ft ASL)	TVD (ft KB)	MD (ft KB)	0/G/W	Pressure
Ojo Alamo	5,300	1,414	1,418	W	normal
Kirtland	5,190	1,524	1,531	W	normal
Fruitland	4,970	1,744	1,758	G, W	sub
Pictured Cliffs	4,745	1,969	1,990	G, W	sub
Lewis	4,599	2,115	2,139	G, W	normal
Chacra	4,299	2,415	2,448	G, W	normal
Cliff House	3,187	3,527	3,592	G, W	sub
Menefee	3,187	3,527	3,592	G, W	normal
Point Lookout	2,476	4,238	4,324	G, W	normal
Mancos	2,186	4,528	4,621	0,G	sub (~0.38
Gallup (MNCS_A)	1,846	4,868	4,962	0,G	sub (~0.38
MNCS_B	1,756	4,958	5,052	0,G	sub (~0.38
MNCS_C	1,606	5,108	5,205	0,G	sub (~0.38
MNCS_Cms	1,536	5,178	5,280	0,G	sub (~0.38
MNCS_D	1,481	5,233	5,342	0,G	sub (~0.38
MNCS_E	1,402	5,312	5,441	0,G	sub (~0.38
MNCS_F	1,347	5,367	5,519	0,G	sub (~0.38
MNCS_G	1,268	5,446	5,660	0,G	sub (~0.38
MNCS_H	1,218	5,496	5,768	0,G	sub (~0.38
MNCS_I	0	0	0	0,G	sub (~0.38
FTP TARGET	1,270	5,444	5,660	0,G	sub (~0.38
PROJECTED LTP	1,257	5,457	17,427	0,G	sub (~0.38

Surface: Nacim

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

 Pressure:
 Normal (0.43 psi/ft) or sub-normal pressure gradients anticipated in all formations

 Max. pressure gradient:
 0.43 psi/ft

 Maximum anticipated BH pressure, assuming maximum pressure gradient:
 2,350 psi

 Maximum anticipated surface pressure, assuming partially evacuated hole:
 1,150 psi/ft

 Temperature:
 Maximum anticipated BHT is 125° F or less

H₂S INFORMATION:

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

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

LOGGING, CORING, AND TESTING:

Mud Logs: None planned; 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:

Contractor: Aztec

Enduring Resources IV, LLC

Haynes Canyon Unit 432H Drilling Package 8-17-2023

Ria 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 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 (505) 564-7750 see note BOP BLM is to be notified minimum of 24 hours prior to BOPE testing. Casing / cementing BLM and state are to be notified minimum of 24 hours prior to running casing and (505) 564-7750 (505) 334-6178 cementing. Plugging BLM and state are to be notified minimum of 24 hours prior to plugging ops. (505) 564-7750 see note All notifications are to be recorded in the WellView report with time, date, name or number that notifications were made to. Note: Monica Keuhling with the OCD requests state notifications 24 hrs in advance for spud, BOP tests, casing & cementing and any plugging be given to her in both phone message and email: (505) 320-0243, monica.keuhling@emnrd.nm.gov BOPE REQUIREMENTS: See attached diagram for details regarding BOPE specifications and configuration. 1) Rig will be equipped with upper and lower kelly cocks with handles available. 2) Inside BOP and TIW valves will be available to use on all sizes and threads of drill pipe used while drilling the well. 2) BOP accumulator will have enough capacity to open the HCR valve, close all rams and annular preventer, and retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity, and the fluid level shall be maintained at manufacturer's recommendation. There will be two additional sources of power for the closing pumps (electric and air). Sufficient nitrogen bottles will be available and will be recharged when pressure falls below manufacturer's recommended minimum 3) BOP testing shall be conducted (a) when initially installed, (b) whenever any seal is broken or repaired, (c) if the time since the previous test exceeds 30 days. Tests will be conducted using a test plug. BOP ram preventers will be tested to 3,000 psig for 10 minutes, and the annular preventer will be tested to 1,500 psi for 10 minutes. Ram and annular preventers will be tested to 250 psi for 5 minutes. Additionally, BOP and casing strings will be tested to .22 psi/ft or

- 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).
A fully, closed-loop system will be utilized. The system will consist of above-ground piping and above-ground storage tanks and bins. The system will not entail any earthen pits, below-grade storage, or drying pads. All equipment will be disassembled and removed from the site when drilling operations cease. The system will be capable of storing all fluids and generated cuttings and of preventing uncontrolled releases of the same. The system will be operated in an efficient manner to allow the recycling and reuse of as much fluid as possible and to minimize the amount of fluids that require 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.).
Drilling solids will be stored (until haul-off) on-site in separate containers with no other waste, debris, or garbage

solids Disposar: Drining solids will be stored (until haufor) 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.).

DETAILED DRILLING PLAN:

Enduring Resources IV, LLC

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.

<u>SURFACE:</u>	0	ft (MD)	to	350	ft (MD)	Hole S	ection Length:	350 f
		ft (TVD)	to		ft (TVD)		sing Required:	350 f
					with a smaller r			
Fluid:	Туре	MW (ppg)	FL (mL/30 min)	PV (cp)	YP (lb/100 sqft)	pН	Comr	nents
	Fresh Water	8.4	N/C	2 - 8	2 - 12	9.0	Spud	mud
Hole Size:	17-1/2"							
	Mill Tooth or I							
MWD / Survey:		iation survey						
Logging:		40 (4111-1)	1 1 47 4	(a)) (c)	1.00.00.47.4	(a))	1	
Procedure:					o drill with 17-1, asing running as			
					t job and note c			
	wellhead.							
Casing Specs:		Wt (lb/ft)	Grade	Conn.	Collapse (psi)	Burst (psi)	Tens. Body (lbs)	Tens. Conn (lbs)
Specs	13.375	54.5	J-55	BTC	1,130	2,730	853,000	909,000
Loading					153	792	116,634	116,634
Min. S.F.					7.39	3.45	7.31	7.79
	Assumptions:	Collapse: fully	evacuated casi	ng with 8.4 pp	g equivalent ex	ternal pressure	e gradient	
		Burst: maximu	um anticipated	surface pressu	re with 9.5 ppg	fluid inside ca	sing while drillir	ng
					xternal pressure			
		-	-		h 100,000 lbs ov	-		
U Torque (ft lbs):	Minumum:	N/A	Optimum:	N/A	Maximum:	N/A		
acina Summer			Connection run		е.			
asing Summary: Centralizers					ottom 3 jts, 1 c	entralizer por	2 its to surface	
centrulizers:	- contralizers	per je stop-udli	Yield	Water	Hole Cap.	entranzer per .	Planned TOC	Total Cmt
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	(cuft/ft)	% Excess	(ft MD)	(sx)
	TYPE III	14.6	1.39	6.686	0.6946	100%	0	364
Annulan Conseiter	0.6046	cuft/ft	13-3/8" casing	x 17-1/2" hol	e annulus	Csg capacity	0.8680	ft3/ft
Annular Capacity	0.6946	carcyre						
				ssume gauge	hole and the exc	ess noted in to	able	Cu Ft Slurry
Annular Capacity Drake Er		Calculated cer	ment volumes a	ssume gauge		ess noted in to	able	Cu Ft Slurry 505.3
			ment volumes a			ress noted in to	able	
Drake Er	nergy Services:	Calculated cer	D-CD2 .3% BWOC Dispersant/Friction			ess noted in to	able	
Drake Er	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator	D-CD2 .3% BWOC Dispersant/Friction reducer	.25 lbs/sx Cello Flake - seepage				505.3
Drake Er	ASTM Type III Blend	Calcium Chloride 2% BWOC Accelerator & BLM if cem	D-CD2 .3% BWOC Dispersant/Friction reducer	.25 lbs/sx Cello Flake - seepage	hole and the exc			505.3
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem 5 out.	D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circul	.25 lbs/sx Cello Flake - seepage lated to surfa	hole and the exc ce. Cement mus	st achieve 500	psi compressiv	505.3
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per dia	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cern g out.	ment volumes a D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu to casing settin	.25 lbs/sx Cello Flake - seepage lated to surfa g depth, run c	hole and the exc ce. Cement mus asing, cement c	at achieve 500 Casing to surfa	psi compressiv ce.	505.3 ve strength
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per din 350	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD)	ment volumes a D-CD2.3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747	hole and the exc ce. Cement mus asing, cement c ft (MD)	st achieve 500 Tasing to surfa Hole S	psi compressiv <i>ce.</i> ection Length:	505.3 ve strength 3,397 f
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per din 350	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cern g out.	ment volumes a D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu to casing settin	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747	hole and the exc ce. Cement mus asing, cement c	st achieve 500 Tasing to surfa Hole S	psi compressiv ce.	505.3 ve strength
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per din 350	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD)	ment volumes a D-CD2.3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747	hole and the exc ce. Cement mus asing, cement c ft (MD)	st achieve 500 Tasing to surfa Hole S	psi compressiv <i>ce.</i> ection Length:	505.3 ve strength 3,397 f
Drake Er Tail	ASTM Type III Blend Notify COGCC before drilling Drill as per din 350	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan i ft (MD) ft (TVD)	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747	tole and the exc ce. Cement mus asing, cement of ft (MD) ft (TVD)	st achieve 500 Tasing to surfa Hole S	psi compressiv <i>ce.</i> ection Length:	505.3 ve strength 3,397 f 3,747 f
Drake Er Tail NTERMEDIATE:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD)	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL	.25 lbs/sx Cello Flake - seepage lated to surfa g depth, run c 3,747 3,677	the condition of the exc condition of the exc condi	at achieve 500 Tasing to surfa Hole S Ca	psi compressiv <i>ce.</i> ection Length: sing Required:	505.3 /e strength 3,397 f 3,747 f nents
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4"	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cerm g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to FL (mL/30 min) 20	.25 lbs/sx Cello Flake - seepage lated to surfa g depth, run c 3,747 3,677 PV (cp)	ce. Cement mus ce. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft)	asing to surfa Hole S Ca pH	psi compressiv ce. ection Length: sing Required: Comr	505.3 /e strength 3,397 f 3,747 f nents
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI)	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cerm g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to FL (mL/30 min) 20	.25 lbs/sx Cello Flake - seepage lated to surfa g depth, run c 3,747 3,677 PV (cp)	ce. Cement mus ce. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft)	asing to surfa Hole S Ca pH	psi compressiv ce. ection Length: sing Required: Comr	505.3 /e strength 3,397 f 3,747 f nents
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cerm g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mote	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circu to casing settin to to FL (mL/30 min) 20 Dr	.25 lbs/sx Celio Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14	ce. Cement mus ce. Cement mus asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft)	it achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5	psi compressiv ce. ection Length: sing Required: Comr No (505.3 /e strength 3,397 f 3,747 f nents
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCl) 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I	Calculated cert Calcium Chioride 2% BWOC Accelerator & BLM if cem g out. rectional plan i ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutte	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 G rev/gal, 1.83 rrs, TFA = 0.67	the exception of the ex	t achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max),	psi compressiv ce. ection Length: sing Required: Comm No C	505.3 ve strength 3,397 f 3,747 f nents DBM
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor:	ASTM Type III Biend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCl) 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I	Calculated cert Calcium Chioride 2% BWOC Accelerator & BLM if cem g out. rectional plan i ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutte	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 G rev/gal, 1.83 rrs, TFA = 0.67	the exception of the ex	t achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max),	psi compressiv ce. ection Length: sing Required: Comm No C	505.3 ve strength 3,397 f 3,747 f nents DBM
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Logging:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE MWD Survey 'None	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (MD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cuttee n and azimuth s	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 irev/gal, 1.83 rs, TFA = 0.67 urvey (every 1	the exception of the ex	it achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option	psi compressiv ce. ection Length: sing Required: No C jet with 6 - 12s al	505.3 re strength 3,397 f 3,747 f nents DBM
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MUTO Survey 'N None NU BOPE and	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (MD) MW (ppg) 8.8 - 9.5 it w/mud mote 087840 - 7/8, PDC w16 mm with inclination test (as noted	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutten a and azimuth s above); pressur	.25 ibs/sx Celio Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 i rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8"	the exception of the ex	t achieve 500 tasing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500	psi compressiv ce. ection Length: sing Required: Comm No (jet with 6 - 12s al psi for 30 minu	505.3 ve strength 3,397 f 3,747 f nents DBM
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Logging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey : None NUB OPE and Drill to TD foll	Calculated cer Calcium Chloride 2% BWOC Accelerator & & BLM if cem g out. rectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud motu 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.166 or 19 mm cutter a and azimuth s above); pressur	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 irev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas	An and the exc asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep	tt achieve 500 asing to surfa Hole S Ca 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep o	505.3 ve strength 3,397 f 3,747 f nents DBM
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Ungging: Pressure Test:	ASTM Type III Biend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey ' NOIE NUB OPE and Drill to TD foll Keep DLS < 3 of	Calculated cert Calcium Chioride 2% BWOC Accelerator & BLM if cem g out. rectional plan i ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k	ment volumes a D-CD2 .3% BWOC Dispersant/Friction reducer ent is not circu to casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cuttee n and azimuth s above); pressur al plan (20' rat eep slide length	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 Grev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas < 10', when p	ce. Cement mus asing, cement of ft (MD) ft (TVD) VP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su	t achieve 500 asing to surfa Hole S Ca 950 DIFF PSIG 5 - 0.90 max), mm), GR option 1,500 th). Steer as n mrveys every st	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim	505.3 re strength 3,397 f 3,747 f nents DBM ; utes. well on plan. tum. Target
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Ungging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling <u>350</u> <u>350</u> <u>12-1/4"</u> 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey ' None NU BOPE and Drill to TD foll Drill to TD foll Ceep DLS < 3 flow-rates of 7	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 750 GPM (higher	nent volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutter a and azimuth s above); pressur hal plan (20' rat eep slide length	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 i rev/gal, 1.83 irs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas i < 10', when p trol return rat	the exception of the ex	t achieve 500 trasing to surfa Hole S Ca PH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n rrveys every st esired flow-ra	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM.	505.3 re strength 3,397 f 3,747 f nents DBM Jtes. well on plan. num. Target At TD,
Drake Er Tail ITERMEDIATE: Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE MWD Survey None NU BOPE and Drill to TD foll Keep DLS < 3 condition hole	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (MD) MW (ppg) 8.8 - 9.5 it w/mud mote 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction jeg/100' and k 20 GPM (high- e and fluid for co	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cuttee a and azimuth s above); pressur al plan (20' rat above); pressur al plan (20' rat above); pressur al plan (20' rat boxe); pressur boxe);	.25 lbs/sx Celio Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 ir ev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas to < 10', when g < 10', when to rol return rat TOOH. Run ca	the exception of the ex	t achieve 500 tasing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n irveys every st esired flow-ra and washing ,	psi compressiv ce. ection Length: sing Required: Comm No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim et is 650 GPM. / circulating as	505.3 ve strength 3,397 f 3,747 f ments DBM utes. well on plan. transci well on plan. transci
Drake Er Tail ITERMEDIATE: Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 30 flow-rates of J condition hole casing. ND BO	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 750 GPM (higher and fluid for c PE. Walk rig to	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 1 And azimuth s above); pressur al plan (20' rat eep slide length er if able to con asing running. next well. Perfi	25 ibs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas > 10", when s trol return rat corr off-line cas	Able and the exc asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 .00' at a minimu casing to ing setting dep oossible. Take su es). Minimum d sing using a CRT ement job. Pump	t achieve 500 tasing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n irveys every st esired flow-ra and washing ,	psi compressiv ce. ection Length: sing Required: Comm No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim et is 650 GPM. / circulating as	505.3 ve strength 3,397 f 3,747 f ments DBM utes. well on plan. transci well on plan. transci
Drake Er Tail ITERMEDIATE: Fluid: Bit / Motor: Bit / Motor: Bit / Motor: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 30 flow-rates of J condition hole casing. ND BO	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 750 GPM (higher and fluid for c PE. Walk rig to	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cuttee a and azimuth s above); pressur al plan (20' rat above); pressur al plan (20' rat above); pressur al plan (20' rat boxe); pressur boxe);	25 ibs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas > 10", when s trol return rat corr off-line cas	Able and the exc asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 .00' at a minimu casing to ing setting dep oossible. Take su es). Minimum d sing using a CRT ement job. Pump	t achieve 500 tasing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n irveys every st esired flow-ra and washing ,	psi compressiv ce. ection Length: sing Required: Comm No (jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim et is 650 GPM. / circulating as	505.3 ve strength 3,397 f 3,747 f ments DBM utes. well on plan. transci well on plan. transci
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 30 flow-rates of J condition hole casing. ND BO	Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 750 GPM (higher and fluid for c PE. Walk rig to	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 1 And azimuth s above); pressur al plan (20' rat eep slide length er if able to con asing running. next well. Perfi	25 ibs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas > 10", when s trol return rat corr off-line cas	Able and the exc asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 .00' at a minimu casing to ing setting dep oossible. Take su es). Minimum d sing using a CRT ement job. Pump	t achieve 500 tasing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n irveys every st esired flow-ra and washing ,	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim et is 650 GPM / circulating as i etailed below. N	505.3 ve strength 3,397 f 3,747 f nents DBM utes. vell on plan. um. Target At TD, required. Lano Aonitor
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 30 flow-rates of J condition hole casing. ND BO	Calculated cer Calcium Chloride 2% BWOC Accelerator & & BLM if cerm g out. rectional plan ti ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k r250 GPM (hight or pE. Walk rig to c cerent job an	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to to FL (mL/30 min) 20 F	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 i rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas o 10', when p trol return rat COOH. Run ca orm off-line co volume to su	Able and the exc asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su es). Minimum d ing using a CRT imment job. Pump rface.	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n rrveys every st esired flow-ra and washing, o cement as de	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (circulating as i etailed below. N	505.3 re strength 3,397 f 3,747 f nents DBM Jtes. Jtes. well on plan. num. Target At TD, required. Land Aonitor Tens. Conn
Drake Er Tail <u>NTERMEDIATE:</u> Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs:	ASTM Type III Biend Notify COGCC before drilling Drill as per dii 350 350 LSND (5% KCl) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey : NOB NUB OPE and Drill to TD foll Keep DLS < 3 : flow-rates of 7 condition hole casing. ND BO returns during	Calculated cer Calcium Chloride 2% BWOC Accelerator & & BLM if cem g out. rectional plan t ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud motu 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k r50 GPM (high c and fluid for c PE. Walk rig to c cement job an Wt (lb/ft)	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.166 or 19 mm cuttee n and azimuth s above); pressur hal plan (20' rat eep slide length er if able to con rasing running. next well. Perfn d note cement Grade	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 Frev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas i < 10', when p trol return rat TOOH. Run ca orm off-line cc volume to su	An example and the exc asing, cement of ft (MD) ft (TVD) YP (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep yossible. Take su es). Minimum d sing using a CRT ment job. Pump rface.	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), mm), GR option 1,500 th). Steer as n triveys every st esired flow-ra and washing , o cement as do	psi compressiv ce. ection Length: sing Required: Comr No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM / circulating as tailed below. N	505.3 re strength 3,397 f 3,747 f nents DBM utes. well on plan. nerty required. Land Anonitor Tens. Conn (lbs)
Tail Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Casing Specs: Specs	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 30 flow-rates of J condition hole casing. ND BO	Calculated cer Calcium Chloride 2% BWOC Accelerator & & BLM if cerm g out. rectional plan ti ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k r250 GPM (hight or pE. Walk rig to c cerent job an	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to to FL (mL/30 min) 20 F	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 i rev/gal, 1.83 rs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas o 10', when p trol return rat COOH. Run ca orm off-line co volume to su	ce. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su es). Minimum d ing using a CRT ement job. Pump rface. Collapse (psi) 2,020	t achieve 500 asing to surfa Hole S Ca PH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), mm), GR option 1,500 th). Steer as n inveys every st esired flow-ra and washing , o cement as de Burst (psi) 3,520	psi compressiv ce. ection Length: sing Required: Comr No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minir te is 650 GPM / circulating as etailed below. N	505.3 re strength 3,397 f 3,747 f nents DBM s utes. well on plan. trequired. Land Anotior Tens. Conn (lbs) 453,000
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Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: Uogging: Pressure Test: Procedure: Procedure:	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 LISND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 0 flow-rates of 7 condition hole casing. ND BO returns during 9.625	Calculated cert Calcium Chloride 2% BWOC Accelerator & BLM if cerm g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 20 GPM (higher and fluid for c PE. Walk rig to a cement job ar Wt (lb/ft) 36.0	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutter a and azimuth s above); pressur al plan (20' rat eep slide length eri f able loc con asing running. next well. Perfn dd note cement Grade J-55	25 ibs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas > 10', when p trol return rat trol return rat trol return rat trol return rat corm off-line cas y volume to su Conn. LTC	ce. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep toossible. Take su sol, Minimum d sing using a CRT ment job. Pump frace. Collapse (psi) 2,020 1,606 1.26	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n irveys every st esired flow-ra and washing, o cement as do Burst (psi) 3,520 1,360 2.59	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM / circulating as i etailed below. N Tens. Body (lbs) 564,000 215,435 2.62	505.3 re strength 3,397 f 3,747 f nents DBM s utes. well on plan. trequired. Land Anotior Tens. Conn (lbs) 453,000
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: Uogging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 LISND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 0 flow-rates of 7 condition hole casing. ND BO returns during 9.625	Calculated cer Calcium Chloride 2% BWOC Accelerator & & BLM if cerm g out. rectional plan ti ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k r50 GPM (hight) 2.6 GPM (hight) 2.6 GPM (hight) 3.6.0 Wt (lb/ft) 3.6.0	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to to FL (mL/30 min) 20 F	.25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 irev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas i < 10', when p trol return rat TOOH. Run ca orm off-line co : volume to su Conn. LTC	A content of the excellent of the excell	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), rm), GR option 1,500 th). Steer as n rrveys every st esired flow-ra and washing , o cement as defined Burst (psi) 3,520 1,360 2.59 ternal pressure	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (inculating as u stailed below. N Tens. Body (lbs) 564,000 215,435 2.62 2 gradient	505.3 re strength 3,397 f 3,747 f nents DBM regulared Land Anonitor Tens. Conn (lbs) 453,000 215,435 2.10
Tail Tail VITERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: MWD / Survey: Logging: Pressure Test: Procedure: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 LISND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 0 flow-rates of 7 condition hole casing. ND BO returns during 9.625	Calculated cer Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cerm g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, pDC w/16 mm 250 GPM (higher and fluid for c PE. Walk rig to c cement job ar Wt (lb/ft) 36.0 Collapse: fully Burst: maximut	nent volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circul to casing settin to to To FL (mL/30 min) 20 Dr 4.0, stage, 0.16 n and azimuth s above); pressur hal plan (20' rat eep slide length er if able to con asing running, next well. Perfi d note cement Grade J-55	25 lbs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 Frev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas o < 10', when p trol return rat TOOH. Run ca orm off-line cc volume to su Conn. LTC	ce. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su es). Minimum d ing using a CRT wment job. Pum frace. Collapse (psi) 2,020 1,606 1.26 g equivalent exit re with 9.5 ppg.	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), rm), GR option 1,500 th). Steer as n rrveys every st esired flow-ra and washing , o cement as defined Burst (psi) 3,520 1,360 2.59 ternal pressure	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (inculating as u stailed below. N Tens. Body (lbs) 564,000 215,435 2.62 2 gradient	505.3 re strength 3,397 f 3,747 f nents DBM regulared Land Anonitor Tens. Conn (lbs) 453,000 215,435 2.10
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: Uogging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 LISND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 0 flow-rates of 7 condition hole casing. ND BO returns during 9.625	Calculated cer Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mote 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction Collapse: fully Burst: maximu hole and 8.4 p	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cuttee a and azimuth s above); pressur hal plan (20' rat above); pressur hal plan (20' rat br c fiable to con asing running, next well. Perfn ad note cement Grade J-55 evacuated casi m anticipated pg equivalent e	25 ibs/sx Celio Flake - seepage lated to surfai g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas trol return rat TOOH. Run ca orm off-line cs volume to su Conn. LTC	ce. Cement mus ce. Cement mus ft (MD) ft (TVD) (lb/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su es). Minimum d sing using a CRT mment job. Pumur fface. Collapse (psi) 2,020 1,606 1.26 g equivalent exit	tachieve 500 tacing to surfate Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n prevey st esired flow-ra and washing , o cement as def Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (inculating as u stailed below. N Tens. Body (lbs) 564,000 215,435 2.62 2 gradient	505.3 re strength 3,397 f 3,747 f nents DBM regulared Land Anonitor Tens. Conn (lbs) 453,000 215,435 2.10
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: Bit / Motor: Dogging: Pressure Test: Procedure: Casing Specs: Specs Loading Min. S.F.	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 LISND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 0 flow-rates of 7 condition hole casing. ND BO returns during 9.625	Calculated cer Calculated cer Calcium Chloride 2% BWOC Accelerator & BLM if cem g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mote 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction Collapse: fully Burst: maximu hole and 8.4 p	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to FL (mL/30 min) 20 Fr 4.0, stage, 0.16 or 19 mm cuttee a and azimuth s above); pressur hal plan (20' rat above); pressur hal plan (20' rat br c fiable to con asing running, next well. Perfn ad note cement Grade J-55 evacuated casi m anticipated pg equivalent e	25 ibs/sx Celio Flake - seepage lated to surfai g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas trol return rat TOOH. Run ca orm off-line cs volume to su Conn. LTC	ce. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep possible. Take su es). Minimum d ing using a CRT wment job. Pum frace. Collapse (psi) 2,020 1,606 1.26 g equivalent exit re with 9.5 ppg.	tachieve 500 tacing to surfate Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n prevey st esired flow-ra and washing , o cement as def Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cas	psi compressiv ce. ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (inculating as u stailed below. N Tens. Body (lbs) 564,000 215,435 2.62 2 gradient	505.3 re strength 3,397 f 3,747 f nents DBM regulared Land Anonitor Tens. Conn (lbs) 453,000 215,435 2.10
Drake Er Tail NTERMEDIATE: Fluid: Hole Size: Bit / Motor: Bit / Motor: Bit / Motor: Uogging: Pressure Test: Procedure: Casing Specs: Specs Loading	ASTM Type III Blend Notify COGCC before drilling Drill as per dii 350 350 Type LSND (5% KCI) 12-1/4" 12-1/4" PDC b MOTOR: NOV BIT: 6-BLADE I MWD Survey NUB OPE and Drill to TD foll Keep DLS < 3 (condition hole casing. ND BO returns during 9.625 Assumptions: Minumum:	Calculated cert Calculated cert Calculated cert Accelerator & BLM if cern g out. rectional plan if ft (MD) ft (TVD) MW (ppg) 8.8 - 9.5 it w/mud mott 087840 - 7/8, PDC w/16 mm with inclination test (as noted owing direction deg/100' and k 20 GPM (higher and fluid for c PE. Walk rig to ; cement job ar Wt (lb/ft) 36.0 Collapse: fully Burst: maximu hole and 8.4 p Tension: buoy 3,400	ment volumes a D-CD2 3% BWOC Dispersant/Friction reducer ent is not circui to casing settin to to to FL (mL/30 min) 20 Dr 4.0, stage, 0.16 or 19 mm cutter a and azimuth s above); pressur above); pressur above); pressur al plan (20' rat eep slide length cor 19 mm cutter b and azimuth s above); pressur al plan (20' rat eep slide length J-55 evacuated casi um anticipated pg equivalent e ged weight in 8.4 Optimum:	25 ibs/sx Cello Flake - seepage lated to surfar g depth, run c 3,747 3,677 PV (cp) 8 - 14 rev/gal, 1.83 rrs, TFA = 0.67 urvey (every 1 e test 13-3/8" -hole past cas > 10', when p trol return rat trol return rat trol return rat Conn. LTC Conn. LTC ng with 8.4 pp surface pressu A ppg fluid wit 4,530	ce. Cement mus asing, cement of ft (MD) ft (TVD) (Ib/100 sqft) 8 - 14 DEG, 900 GPM, sq-in (range 0.6 00' at a minimu casing to ing setting dep tossible. Take su collapse (psi) 2,020 1,606 1.26 g equivalent exir re with 9.5 ppg re gradient h 100,000 lbs ov Maximum:	tt achieve 500 asing to surfa Hole S Ca pH 9.0 - 9.5 950 DIFF PSIG 5 - 0.90 max), m), GR option 1,500 th). Steer as n trycys every st esired flow-ra and washing, o cement as do Burst (psi) 3,520 1,360 2.59 ternal pressure fluid inside cos er-pull 5,660	psi compressiv ection Length: sing Required: Comm No C jet with 6 - 12s al psi for 30 minu eeded to keep and, at a minim te is 650 GPM (is 650 GPM) for all below. N Tens. Body (lbs) 564,000 215,435 2.62 e gradient sing while drillin	505.3 re strength 3,397 f 3,747 f nents DBM regulared Land Anonitor Tens. Conn (lbs) 453,000 215,435 2.10

Enduring Resources IV, LLC

Haynes Canyon Unit 432H Drilling Package 8-17-2023

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Cement: age 1 Type Weight (ppg) (cuft/sk) (gal/sk) % Excess (ft MD) (sx) age 1 Spacer 0 10 bbls 0 0 10 bbls 0	Fotal Cmt (cu ft) 1,669 207 -R1 .5% Retarder
Cement: Type Weight (ppg) (cuft/sk) (gal/sk) % Excess (ft MD) (sx) ge 1 Spacer ->Mud Breaker 8.5 0 0 10 bbls 90:10 Type - - 0 10 bbls - 7ail Tail 12.5 2.140 12.05 70% 0 780 Displacement 286 est bbls - - - - - - - Annular Capacity 0.3627 cuft/ft 9-5/8" casing x 13-3/8" casing annulus - 9-5/8" 36# ID 8.921 0.4341 cuft/ft 9-5/8" casing vol est shoe jt ft 44 Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table - Spacer D-Mud Breaker SAP - <th>ft) 1,669 207 </th>	ft) 1,669 207
age 1 Spacer Lead Lead Lead Lead Lead Lead Lead Lead	1,669 207
90:10 Type 12.5 2.140 12.05 70% 0 780 Toil Type III 14.6 1.380 6.64 20% 3,247 150 Displacement 286 est bbls	207 207 207 207 207 207 207 207
Lead Tail III:POZ 12.5 2.140 12.05 70% 0 780 Displacement Type III 14.6 1.380 6.64 20% 3,247 150 Annular Capacity 0.3627 cuft/ft 9-5/8" casing x 13-3/8" casing annulus 0.3132 cuft/ft 9-5/8" casing x 12-1/4" hole annulus 9-5/8" 36# ID 8.921 0.4341 cuft/ft 9-5/8" casing vol est shoe jt ft 44 Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table D D Spacer D-Mud Breaker SAPP D-MPA-1.4% D D D-MPA-1.4% BWOC Fluid Loss & BWOC Fluid Loss & BWOC Fluid Loss & D D D D D D ASTM Type III Gas Migration D-SA 11.4% BWOC Collo Flace LCM .25 D-FP1 0.5% BWOC D	207 207 207 207 207 207 207 207
Tail Type III 14.6 1.380 6.64 20% 3,247 150 Displacement 286 est bbls	207 207 207 207 207 207 207 207
Displacement 286 est bbls	-R1 .5% Retarder -R1 .2% Retarder
Annular Capacity 0.3627 cuft/ft 9-5/8" casing x 13-3/8" casing annulus 0.3132 cuft/ft 9-5/8" casing x 12-1/4" hole annulus 9-5/8" 36# ID 8.921 0.4341 cuft/ft 9-5/8" casing vol est shoe jt ft 44 Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table Spacer D-Mud Breaker SAPP D-CSE 15.0% BWOC Fluid Loss & ASTM Type III D-CSE 15.0% BWOC Fluid Loss & ASTM Type III D-CSE 15.0% BWOC Fluid Loss & ASTM Type III D-CSE 1.5.0% BWOC Fluid Loss & ASTM Type III Gas Migration D-SA 11.4% BWOC D-CD 2.4% BWOC Cello Flace LCM.25 D-FP1 0.5% BWOC D-MPA-1.4% BWOC Fluid Loss & ASTM Type III Gas Migration ASTM Type III Gas Migration D-CD 2.5% BWOC Cello Flace LCM.25 D-MPA-1.4% Blend Control Dispersant Ib/sx D- Drake Intermediate Cementing Program Cement must achieve 500 psi compressive strength before drilling out. Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive before drilling out. PRODUCTION: Drill to TD following directional plan, run casing, cement	0-R1 .2% Retarder
0.4341 cuft/ft 9-5/8" casing vol est shoe jt ft 44 Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table Spacer D-Mud Breaker SAPP D-CSE 15.0% BWOC Fluid Loss & ASTM Type III D-CSE 15.0% BWOC Fluid Loss & ASTM Type III BWOC Strength Gas Migration D-SA 11.4% BWOC D-CD 2.4% BWOC Cello Flace LCM .25 D-FP1 0.5% BWOC Lead 90/10 Poz Enhancer Control Na Metasilikate Dispersant Ib/sx Defoamer D ASTM Type III Gas Migration D-SA 11.4% BWOC D-CD 2.5% BWOC Cello Flace LCM .25 D-FP1 0.5% BWOC Defoamer D ASTM Type III BWOC Strength Gas Migration D-SA 11.4% BWOC D-CD 2.5% BWOC Cello Flace LCM .25 D Tail Bend Control D-DEP3 at the program D D Dispersant Ib/sx D Cement must achieve 500 psi compressive strength before drilling out. Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive before drilling out. PRODUCTION: Drill to TD following directional plan, run casing, cement casing to surface.	-R1 .2% Retarder
Calculated cement volumes assume gauge hole and the excess (open hole only) noted in table Spacer D-MBA:1.4% D-MPA:1.4% BWOC Strength D-MPA:1.4% BWOC Collo Flace LCM .25 D-MPA:1.4% BWOC Fluid Loss & ASTM Type III BWOC Fluid Loss & ASTM Type III BWOC Fluid Loss & D-MPA:1.4% BWOC Fluid Loss & ASTM Type III BWOC Fluid Loss & D-MPA:1.4% <	-R1 .2% Retarder
Spacer D-Mul Breeker SAPP D-CSE 1.5.0% BWOC Fluid Loss & ASTM Type III D-CSE 1.5.0% BWOC Fluid Loss & Jecker 90/10 Poz BWOC Strength BWOC Fluid Loss & ASTM Type III Enhancer Control Na Metasilkate Dispersant Ib/sx Defoamer Dr BWOC Fluid Loss & Dispersant Ib/sx Defoamer Dr ASTM Type III Gas Migration D-CD 2.5% BWOC Cello Flace LCM.25 Dispersant Ib/sx Defoamer Dr ASTM Type III Gas Migration D-CD 2.5% BWOC Cello Flace LCM.25 Dispersant Ib/sx Dr Table Control Dispersant Ib/sx Dispersant Ib/sx Dispersant Drake Intermediate Cementing Program Cement must achieve 500 psi compressive strength before drilling out. Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive before drilling out. PRODUCTION: Drill to TD following directional plan, run casing, cement casing to surface.	-R1 .2% Retarder
D-MPA-1.4% D-MPA-1.4% D-CSE 15.0% BWOC Strength D-GSE 15.0% BWOC Strength D-MPA-1.4% BWOC Strength BWOC Strength Control Na Metasilkate Dispersant BWOC Fluid Loss & BWOC Fluid Loss & ASTM Type III Gas Migration D-CD 2.5% BWOC Drail Biend Control Drake Intermediate Cementing Program Dispersant Ib/sx Cement must achieve 500 psi compressive strength before drilling out. Notify NMOCD & BLM if cement is not circulated to surface. Cement must achieve 500 psi compressive before drilling out. PRODUCTION: Drill to TD following directional plan, run casing, cement casing to surface.	-R1 .2% Retarder
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before drilling out. <u>PRODUCTION:</u> Drill to TD following directional plan, run casing, cement casing to surface.	e strength
PRODUCTION: Drill to TD following directional plan, run casing, cement casing to surface.	
	13,680 ft
3,677 ft (TVD) to 5,457 ft (TVD) Casing Required:	17,427 ft
Estimated KOP: 5,050 ft (MD) 4,956 ft (TVD)	
Estimated Landing Point (FTP): 5,660 ft (MD) 5,444 ft (TVD)	
Estimated Lateral Length: 11,767 ft (MD)	
YP	
Fluid: Type MW (ppg) WPS ppm HTHP (lb/100 sqft) ES OWR	Comment
	WBM as
	contingency
uids / Solids Notes: Newpark OptiDrill OBM system. Ensure that drying shakers are rigged up after the rig (2nd set) of shaker	
control will burn retorts on cuttings samples one per tour to check % ROC. Add diesel and products as re maintain mud in program specs. Reference Newpark's mud program for additional details. No asphalt p	
to be added to the OBM system. Any changes to the mud systems are to be discussed with engineerin	
application.	
Hole Size: 8-1/2"	
Bit / Motor: 8-1/2" PDC bit w/mud motor	
Bit / Motor: MOTOR: NOV 077857 - 6.5" 7/8, 5.0 stage, 0.23 rev/gal, 1.83 deg, 750 GPM, 1,580 DIFF PSIG (or similar);	; on demand
friction breaking device(s) as required, bottom tool spaced ~3,000' behind the bit.	
BIT: 5-BLADE PDC w/16 mm - 19 mm cutters, matrix body, target TFA = 1.0 - 1.5 sq-in	
MWD / Survey: MWD with GR, inclination, and azimuth (survey every joint from KOP to Landing Point and survey every 3	100'
minimum before KOP and after Landing Point)	
Logging: GR MWD for entire section, no mud-log or cuttings sampling, no OH WL logs	
Pressure Test: NU BOPE and test (as noted above); pressure test 9-5/8" casing to 1,500 psi for 30 minut Procedure: Drill to KOP following directional plan. Target flow-rate is 650 - 700 GPM. Target differential is pressure is	
1,000 psig. Target ROP 500 - 600 ft/hr. Steer as needed to keep well on plan. Keep DLS < 3 deg/100' and	
length < 10' until KOP, when feasible. Take surveys every stand, at a minimum. Confirm landing target, p	
for curve, and KOP with Geology and Engineering. Drill curve following directional plan and updated land	
Take survey every joint during curve. Land curve. Continue drilling in lateral section, steering as needed t	
on plan and in the target window. Keep DLS < 2 deg/100' and keep slide length < 20', when feasible. Take	e surveys
every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff	ferential is
every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT). After reachin	ferential is ng TD,
every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT) . After reachin perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate ad	ferential is ng TD, dditional
every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT). After reachin perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate ad cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). W	ferential is ng TD, dditional When
every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT). After reachin perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate ad cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). W pumping hole cleaning sweeps, fine LCM product is to be used -Do not use barite for sweeps. Run casin	ferential is ng TD, dditional When ng as
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every stand, at a minimum. Target rotating parameters / performance: flow-rate is 650 - 700 GPM, diff pressure is 700 - 1,000 psig, ROP 500 - 600 ft/hr, torque 38K ft-lbs (MAX drill pipe MUT) . After reachin perform no more than one clean-up cycle to condition hole for casing running unless shakers indicate ad cleaning needed. TOOH & LD drill pipe (ROOH, if required; should NOT be required with OBM system). W pumping hole cleaning sweeps, fine LCM product is to be used -Do not use barite for sweeps . Run casin described below. Use CRT for casing running only if necessary (should NOT be required with OBM). Verifi torque when running casing. Space out casing getting the toe sleeve as close to LTP as possible. Land cas pack-off. Open floatation sub, fill casing, and circulate as required. Pump cement as detailed below. Note volume circulated to surface. Nipple down BOPE. Clean pits. RDMO to next pad.	ferential is ng TD, dditional When ng as fy make up sing and test e cement

Enduring Resources IV, LLC

Haynes Canyon Unit 432H Drilling Package 8-17-2023

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Loading Min S F					2,696	9,011	355,645	355,645
Min. S.F.	Accumption	Collanso full	ouncurred and	ing with 0 F	2.77	1.18	1.54	1.25
J Torque (ft lbs): asing Summary:	<i>Minumum:</i> Float shoe, flo joints spaced	Burst: 8,500 p fluid with 8.4 Tension: buoy 3,470 pat collar, 1 jt c evenly in latera	si maximum su ppg equivalent ed weight in 9. Optimum: asing, float coll al every 2,000',		oressure with 1 ure gradient n 100,000 lbs o Maximum: joint, toe-intitia at KOP, casing	20.2 ppg equiva ver-pull 5,780 ation sleeve, ca to surface. The	lent mud weig using to KOP w toe-initiation	ith 20' marker sleeve (last-
Casing Summary:	joint, toe-intit ~2,000', floata no closer to th azimuth drille the maximum	tiation sleeve (N ation sub (NCS he unit bounda ad wellbore. We n depth of the t	WFT RD 8,500 Air-Lock 2,500 ry than 300' m ellbore path m toe sleeve and	it casing, float c psi), casing to k psi from WFT) leasured perpei ust be no closer <i>is noted on the</i> e toe sleeve as	OP with 20' m , casing to surf ndicular to the than 600' from Well Plan. Dr	arker joints spa ace. The toe-in East or West lo n the parallel lo ill past the LTP	aced evenly in itiation sleeve ease lines for a ease lines. Not as required for	lateral every shall be placed a East-West e: the LTP is or necessary
Centralizers:	Lateral: 1 cen	tralizer per 3 jo	oints (purchase	<i>djusted based o</i> centralizers fro			d surveys.	
		to 9-5/8" shoe						
	J-J/6 SHUET	o surface: 1 ce	Yield	Water		Planned TOC	Total Cmt	Total Cmt (cu
Cement:	Туре	Weight (ppg)	(cuft/sk)	(gal/sk)	% Excess	(ft MD)	(sx)	ft)
Spacer	IntegraGuard Star	11		31.6		0	60 bbls	
Lead	ASTM type I/II	12.4	2.370	13.40	50%	0	552	1,309
Tail	G:POZ blend	13.3	1.570	7.70	10%	4,621	2,063	3,240
Displacement	384]					
Annular Capacity	0.2691	cuft/ft		x 9-5/8" casing				
	0.2291 0.1245	cuft/ft		x 8-1/2" hole a		100		
		cuft/ft ment volumes (5-1/2" casing	hole and the ex	est shoe jt ft			
		nenting Liner &			Less noted in tt	IDIE		
	American cen	nenting Enter d	in our choir bit	IntegraGuard Star				
C	S-8 Silica Flour	Avis 616 viscosifier 11.6 lb/bbl	FP24 Defoamer .5 lb/bbl	Plus 3K LCM 15 lb/bbl	SS201 Surfactant 1			
Spacer	163.7 lbs/bbl	11.0 10/001	10/001	10/001	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 Ib/sx
Note:	Notify NMOC This well will n NMAC 19.15.3 boundary that The boundarie point, as defin point will be t initiation slee	D & BLM if cer not be consider 16.15.C.1.a and n 100' measure es of the comp ned by NMAC 1 the bottom toe eve nor the top	nent is not cirr red an unortho 19.15.16.15.C ed along the az leted interval, 9.15.16.7.E an -initiation sleev perforation s	hole and the ex culated to surfa dox well locations i.1.b, no point in imuth of the w as defined by N as defined by N (NIMAC 19.15 ve, and the first hall be closer t pendicular to the	ace. on as definted long the complete ell or 330' mea MAC 19.15.16. .16.7.J, respect take point will o the unit bout	by NMAC19.15 td interval shall sured perpend .7.B, are the la tively. In the ca l be the top per ndary than 100	be closer to the action of the closer to the action of the closer of this well, of this well, of this well, of this well, of the closer of the	he unit zimuth well. nd first take the last take her the toe-
<u>FINISH WELL:</u> Procedure:			p and cover we	ell. Continue dri	lling operation	s on subsequer	nt wells on pac	ł.
DMPLETION AND F Est Lateral Length: Est Frac Inform: Flowback:	11,667 <i>49</i>			bbls slick wate	er	15,170,000	lbs proppant	
Production:		ugh production	tubing via gas	-lift into perma	nent productio	in and storage f	facilities	
	JATES:							
TIMATED START [
Drilling:	11/1/2023							
	11/1/2023 12/31/2023							

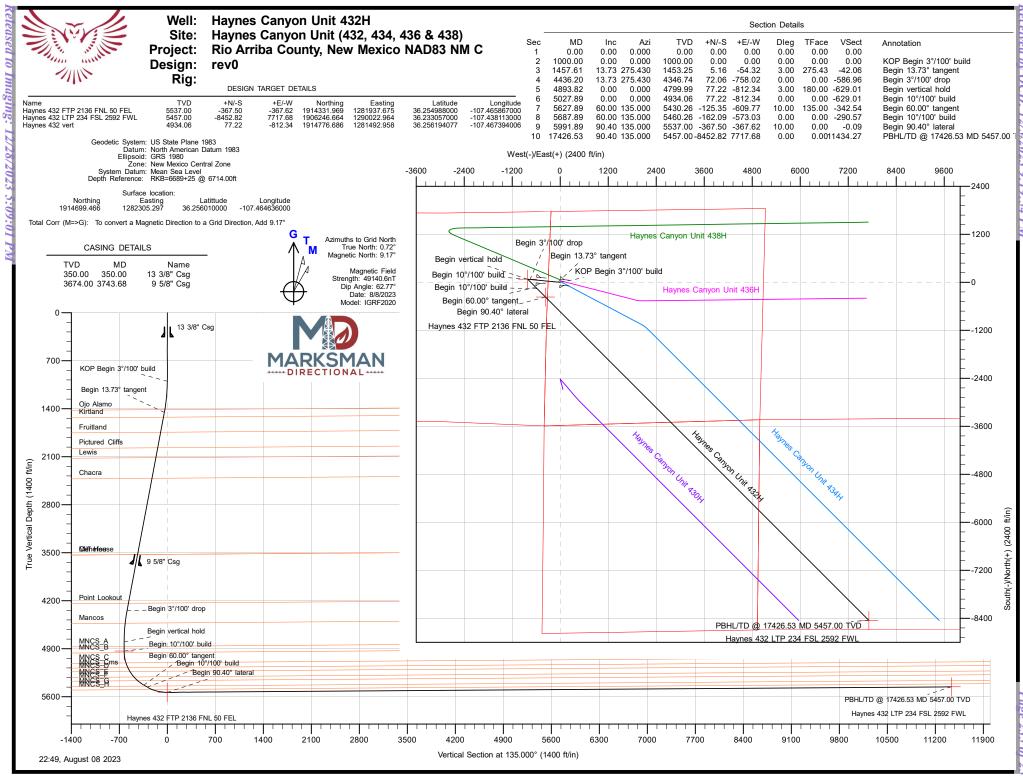
Enduring Resources IV, LLC

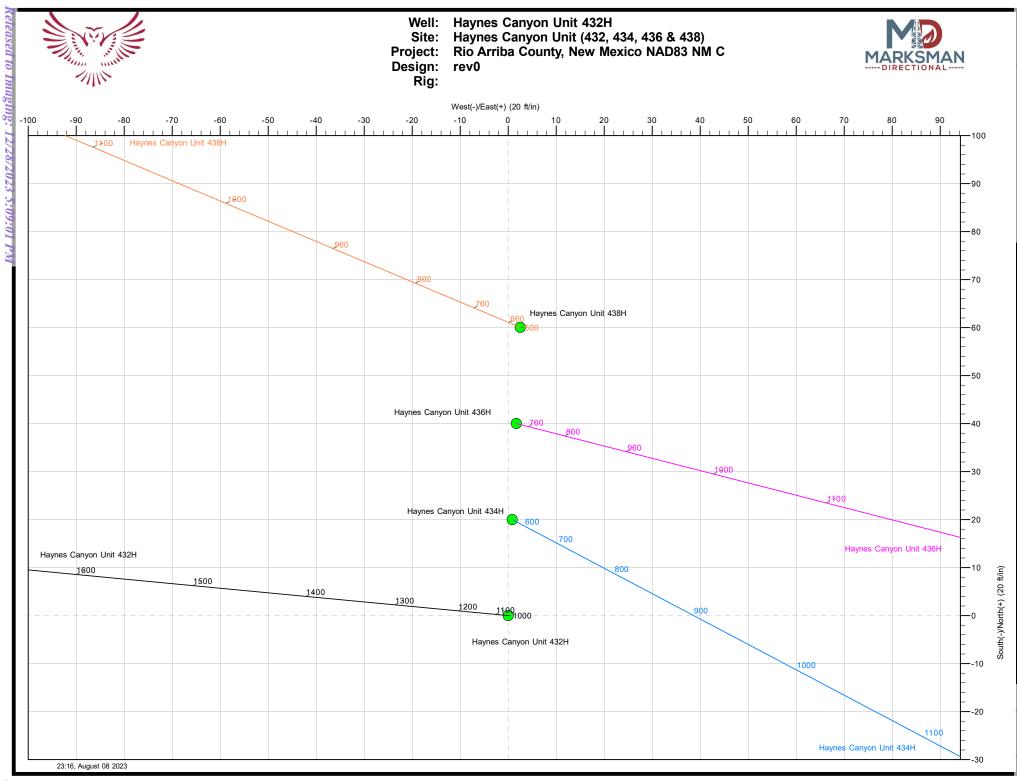
Haynes Canyon Unit 432H Drilling Package 8-17-2023

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OBJECTIVE: Drill, complete, and equip single lateral in the Mancos-H formation API Number: Not yet assigned API Number: Not yet assigned Surface location: 3236 Sec-Twin-Rig 1,773 th FAS (18) Surface location: 12326 Sec-Twin-Rig 1,773 th FAS (18) Surface 1,17,200 5,250 th FAS (10) Surface 1,17,200 5,250 th FAS (10) Surface 1,17,200 5,250 th FAS (10) Froduction Surface (10) Surface 1,12,250 1,13,12 5,250 th FAS (10) Surface 1,12,250 1,17,427 5,500 th FAS (10) Froduction Surface (10) Surface 1,10,257 th FAS (10) Surface 1,10,257 th FAS (10) Surface 1,10,257 th FAS (10) Froduction Surface 1,12,250 1,2,37 th FAS (10) Surface 1,12,250 1,2,37 th FAS (10) Surface 1,12,25 1,2,38 6,666 1,000% 0,0 3,247 1,37 Surface 1,10,67 1,2,4 1,2,50 7,7 1,00% 4,621 1,3,60 Froduction Too Surface 1,10,67 1,12,4 1,2,30 1,2,37 th FAS (10) Surface 1,10,67 1,12,4 1,3,9 1,5,70 7,7 1,00% 4,621 1,3,80 Surface 1,10,67 1,13,8 1,5,70 7,7 1,00% 4,6,21 1,3,8 1,5,90 1,1,7 1,1,90 Too Surface 1,10,10 1,10,10 1,10,10 1,10 1,10 1,10	Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL Sec Twn- Sing 2.34 ft FSL 2.592 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito Total (st) III.1 Ito Total (st) Ito Total (st) Ito Total (st) Ito Total (st) Ito State State State State State State State State State S	Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sur TD (MD) 31 Corrent Ring 2.34 ft FSL 2.92 ft FNL Sur TD (MD) 32 Corrent Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 4.9 Sec Town Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 3.0 Sec Town Ring 2.34 ft FSL 2.92 ft FNL To (MD) 3.7 Sofor 338 miles to MM 97.6. Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Sec Town-Ring 1.3 Sofo 1.3 1.2 Sofo 1.1 Sec Town-Ring Sec Town-Ring (North) Sec	Flowback: Flow b Production: Produ		Prod. (Tail)	Prod. (Lead) ASTM type I/	Inter. (Tail)	Inter. (Lead)	Surface		CEMENT PROPERTIES SUMMARY:	Production	Intermediate	Surface		WELL CONSTRUCTION SUMMARY:				DUMING DIFECTIONS:		Surface Location:	Surface Elev.:	County:	State:	ER Well Number: Not yet assigned	AFE Number:	API Number:	OBJECTIVE:
Quick REFER Quick REFER ASL (GL) 6,714 ft ASL (KB) ASL (GL) G,714 ft ASL (KB) Colspan="2">Support FER. Support FER. <td>Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL Sec Twn- Sing 2.34 ft FSL 2.592 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito Total (st) III.1 Ito Total (st) Ito Total (st) Ito Total (st) Ito Total (st) Ito State State State State State State State State State S</td> <td>Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sur TD (MD) 31 Corrent Ring 2.34 ft FSL 2.92 ft FNL Sur TD (MD) 32 Corrent Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 4.9 Sec Town Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 3.0 Sec Town Ring 2.34 ft FSL 2.92 ft FNL To (MD) 3.7 Sofor 338 miles to MM 97.6. Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Sec Town-Ring 1.3 Sofo 1.3 1.2 Sofo 1.1 Sec Town-Ring Sec Town-Ring (North) Sec Sec Sec Sec Sec Sec Sec Sec Sec Sec</td> <td>Flow back th Produce thrc</td> <td></td> <td>G:POZ blend</td> <td>ASTM type I/I</td> <td>Type III</td> <td>:10 Type III:P</td> <td>TYPE III</td> <td>Туре</td> <td>ES SUMMAR</td> <td>8.500</td> <td>12.250</td> <td>17.500</td> <td>Hole (in)</td> <td>ON SUMMAI</td> <td></td> <td>432H Pad. From</td> <td>#3 79/403 for 1.3</td> <td>Courth on LIC LIVE</td> <td>11-23-0</td> <td></td> <td>6,689</td> <td>Rio Arriba</td> <td>New Mexico</td> <td>Not yet assign</td> <td>Not yet assign</td> <td>Not yet assign</td> <td>Drill, comple</td>	Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL Sec Twn- Sing 2.34 ft FSL 2.592 ft FNL Sec Twn- Ring 2.34 ft FSL 2.592 ft FNL So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron So for 338 miles to MM 97.6 Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (In/th) Sg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito MD (ft) Csg (In/th) Csg (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Ito Total (st) III.1 Ito Total (st) Ito Total (st) Ito Total (st) Ito Total (st) Ito State State State State State State State State State S	Quick REFER Quick REFER Sur TD (MD) 30 ASL (GL) 6,714 ft ASL (KB) 303 ft FNL Sur TD (MD) 31 Corrent Ring 2.34 ft FSL 2.92 ft FNL Sur TD (MD) 32 Corrent Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 4.9 Sec Town Ring 2.34 ft FSL 2.92 ft FNL Traget (TVD) 3.0 Sec Town Ring 2.34 ft FSL 2.92 ft FNL To (MD) 3.7 Sofor 338 miles to MM 97.6. Left (North) on CR #379 (State Hwy 403) for 1.3 miles to Tofk: Right (North) iron Sec Town-Ring 1.3 Sofo 1.3 1.2 Sofo 1.1 Sec Town-Ring Sec Town-Ring (North) Sec	Flow back th Produce thrc		G:POZ blend	ASTM type I/I	Type III	:10 Type III:P	TYPE III	Туре	ES SUMMAR	8.500	12.250	17.500	Hole (in)	ON SUMMAI		432H Pad. From	#3 79/403 for 1.3	Courth on LIC LIVE	11-23-0		6,689	Rio Arriba	New Mexico	Not yet assign	Not yet assign	Not yet assign	Drill, comple
QUICK REFERE Sur TD (MD) QUICK REFERE Sur TD (MD) 6,714 ft ASL (KB) 303 ft FWL 303 ft FWL 2,773 ft FNL 303 ft FWL 303 ft FWL 303 ft FWL 2,773 ft FNL 303 ft FWL 2592 ft FLL Int TD (MD) 3,7 1,773 ft FNL 2,592 ft FLL Int TD (MD) 5,6 1,774 ft FNL 2,592 ft FLL Int TD (MD) 5,6 1,775 S,6 (Ib/ft) Csg (Ib/ft) Csg (Israde) Csg (conn) Csg Top (ft) Csg Bot (1,1,2) 1,375 S,45. J.55 BTC 0 3,24 1,375 S,45. J.55 LTC 0 3,747 5,500 17.0 P-110 LTC 0 3,747 1,38 6,64 20% 0 3,54 1,7,22 1,370 13.4 50% 0 4,80 1,328 2,370 13.4	QUICK REFERE Sur TD (MD) QUICK REFERE Sur TD (MD) 6,714 ft ASL (KB) 303 ft FVL FVL 303 303	QUICK REFERE Sur TD (MD) QUICK REFERE Sur TD (MD) 6,714 ft ASL (KB) 303 ft FVL FVL 1,773 Colspan="2">Gr (MD) Sur TD (MD) 3,3 Int TD (MD) 3,3 Sur TD (MD) 5,6 Sur TD (MD) 3,3 Sur TD (MD) 1,1 Sur TD (MD) 5,6 Sur TD (MD) 1,1 Sur TD (MD) 1,1 Sur TD (MD) 1,1 Sur TD (MD) 1,1 Sur TD (MD) 1,2 Sur TD (MD) 1,2 Sur	rough produc		13.3	12.4	14.6	12.5	14.6	Wt (ppg)	Y	17,427	3,747	350	TD MD (ft)	RY:		South to North v	3 miles to T inter	ERSECTION OF	Sec-IMI- VIB	Sec-Iwn- Rng	ft ASL (GL)			ed	ed	ed	, te, and equip
REFERE 3,7 17,427	Signed Signed 3,7 17,427	Signature Signature <t< td=""><td>tion tubing a on tubing via</td><td></td><td>1.570</td><td>2.370</td><td>1.38</td><td>2.14</td><td>1.39</td><td>Yd (cuft/sk)</td><td></td><td>5.500</td><td>9.625</td><td>13.375</td><td>Csg (in)</td><td></td><td></td><td>vill be Haynes Ca</td><td>section of CR 49</td><td>US HWY SSU &</td><td>234</td><td>1,773</td><td>6,714</td><td></td><td></td><td></td><td></td><td></td><td>single latera</td></t<>	tion tubing a on tubing via		1.570	2.370	1.38	2.14	1.39	Yd (cuft/sk)		5.500	9.625	13.375	Csg (in)			vill be Haynes Ca	section of CR 49	US HWY SSU &	234	1,773	6,714						single latera
REFERE 3,7 17,427	Signed Signed 3,7 17,427	Signature Signature <t< td=""><td>s pressures al gas-lift into p</td><td></td><td>7.7</td><td>13.4</td><td>6.64</td><td>12.05</td><td>6.686</td><td>Wtr (gal/sk)</td><td></td><td>17.0</td><td>36.0</td><td>54.5</td><td>Csg (lb/ft)</td><td></td><td></td><td>anyon Unit 432H,</td><td>8, Left (NorthWe</td><td>US HVY 64 IN</td><td>ILESE</td><td></td><td>ft ASL (KB)</td><td></td><td></td><td></td><td></td><td></td><td>l in the Manc</td></t<>	s pressures al gas-lift into p		7.7	13.4	6.64	12.05	6.686	Wtr (gal/sk)		17.0	36.0	54.5	Csg (lb/ft)			anyon Unit 432H,	8, Left (NorthWe	US HVY 64 IN	ILESE		ft ASL (KB)						l in the Manc
REFERE 3,7 17,427	Signed Signed 3,7 17,427	Signature Signature <t< td=""><td>low ermanent pro</td><td></td><td>10%</td><td>50%</td><td>20%</td><td>70%</td><td>100%</td><td></td><td></td><td>P-110</td><td>J-55</td><td>J-55</td><td>Csg (grade)</td><td></td><td></td><td>. 434H, 436H, and</td><td>st) on CR 498 for</td><td>TB #370 (State Live</td><td>2627</td><td>303</td><td></td><td></td><td></td><td></td><td></td><td></td><td>os-H formatic</td></t<>	low ermanent pro		10%	50%	20%	70%	100%			P-110	J-55	J-55	Csg (grade)			. 434H, 436H, and	st) on CR 498 for	TB #370 (State Live	2627	303							os-H formatic
REFERE 3,7 17,427	Signed Signed 3,7 17,427	Signature Signature <t< td=""><td>oduction and</td><td></td><td>4621</td><td>0</td><td>3247</td><td>0</td><td>0</td><td>TOC (ft MD)</td><td></td><td>LTC</td><td>LTC</td><td>BTC</td><td></td><td></td><td></td><td>d 438H.</td><td>.2 miles to locat</td><td></td><td>וו דבר</td><td></td><td>,</td><td></td><td></td><td></td><td></td><td></td><td>on</td></t<>	oduction and		4621	0	3247	0	0	TOC (ft MD)		LTC	LTC	BTC				d 438H.	.2 miles to locat		וו דבר		,						on
REFERE 3,7 17,427	REFERE 3,7 17,427	REFERE 3,7 17,427	storage facilit		1368	480	137	519	354	Total (sx)		0	0	0	Csg Top (ft)				ion access on rig	Lat Len (it.			Curve BUR	Target (TVD	KOP (TVD)	KOP (MD)	Int TD (MD)	Sur TD (MD)	QU
			ies									17,427	3,747	350					nt into Haynes Canyon Unit	LL,/U/ IL			1	5,4				350 ft	CK REFERENCE
				PRO.	FTP	~	MN	MNC	MNC	MNC	MNCS	MNCS Cm	MNCS_E	Gallup (MNCS_A)	Mancos	Point Lookout	Menefee	Cliff House	Chacra	Pictured Cliffs	Fruitiand	Kirtland	Ojo Alamo	Tops	ļ				
Tops Op Aimo Kirland Fruitiand Pictured Liffs Liewis Chara Cliff House Point Lookout Mancos Galup (MNICS_A) MNICS_E MNICS_Cms MNICS_C MNICS_C MNICS_C MNICS_C MNICS_F MNICS_T MNICS_F MNICS_T MNICS_F MNICS_T PROJECTED LPP PROJECTED LPP	Tops Ojo Alamo Kiriland Fruitland Pictured Cliffs Charra Cliff House PointLockout Mancos Gallup (MNCS_E MNCS_Cms MNCS_C MNCS_C MNCS_C MNCS_F MNCS_F MNCS_F MNCS_F MNCS_F MNCS_F MNCS_F MNCS_F MNCS_F PROJECTED LTP PROJECTED LTP	Tops Ojo Alamo Kirtland Fruitland Pictured Cliffs Chacra Cliff House Menefee Point Lookout MNCS_C MNCS_C MNCS_C MNCS_C MNCS_F MNCS_C MNCS_F MNCS_L MN		JECTED LTP	TARGET	ANCS_I	сs_н	-S_G	'F	SE	0	7 'O	ω																
Tops Top (fx6) Ojo Alamo 1,41 Kritand 1,524 Fruitland 1,524 Fruitland 1,744 Pictured Liffs 1,99 Limos 2,115 Cliff House 3,527 Point Lookout 4,238 MARCS_C 5,108 MNICS_C 5,108 MNICS_C 5,108 MNICS_C 5,108 MNICS_C 5,233 MNICS_C 5,244 PROJECTED IPP 5,454 PROJECTED IP 5,457				-										4,868	4,528	4,238	3,527	3,527	2,115	1,969	1,/44	1,524	1,414						

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19e 236 of 25



Database: Company: Project: Site: Well: Wellbore: Design:		ew Mexico NAD83 NM C (432, 434, 436 & 438)	Local Co-ordir TVD Reference MD Reference North Referen Survey Calcula	ce:	Well Haynes Ca RKB=6689+25 RKB=6689+25 Grid Minimum Curva	@ 6714.00ft
Project	Rio Arriba County, Ne	w Mexico NAD83 NM C				
Geo Datum:	US State Plane 1983 North American Datum New Mexico Central Zo		System Datum:		Mean Sea Level	
Site	Haynes Canyon Unit ((432, 434, 436 & 438)				
Site Position: From: Position Uncertainty:	Lat/Long 0.00	Northing: Easting: ft Slot Radius:	1,914,699.46 1,282,305.29 13-3/	97 usft Longitu		36.256010000 -107.464636000
Well	Haynes Canyon Unit 4	32H, Surf loc: 1773 FNL 3	303 FWL Section 03-T2	3N-R06W		
Well Position		00 ft Northing: 00 ft Easting:	,	4,699.466 usft 2,305.297 usft	Latitude: Longitude:	36.256010000 -107.464636000
Position Uncertainty Grid Convergence:		00 ft Wellhead Ele	vation:	ft	Ground Level:	6,689.00 ft
Wellbore	Original Hole					
Magnetics	Model Name	Sample Date	Declination (°)		Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/8/2023		8.46	62.77	49,140.56879999
Design	rev0					
Audit Notes:						
Version:		Phase:	PLAN	Tie On Dep	th:	0.00
Vertical Section:	C	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)		rection (°)
		0.00	0.00	0.00	13	35.000
Plan Survey Tool Pro Depth From (ft)	Depth To	8/8/2023 (Wellbore)	Tool Name	Rema	rks	
	17,426.53 rev0 (O		MWD			

8/8/2023 11:21:02PM

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Database:	DB Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Target	TFO (°)	Turn Rate (°/100ft)	Build Rate (°/100ft)	Dogleg Rate (°/100ft)	+E/-W (ft)	+N/-S (ft)	Vertical Depth (ft)	Azimuth (°)	Inclination (°)	Measured Depth (ft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	0.000	0.00	1,000.00
	275.43	0.00	3.00	3.00	-54.32	5.16	1,453.25	275.430	13.73	1,457.61
	0.00	0.00	0.00	0.00	-758.02	72.06	4,346.74	275.430	13.73	4,436.20
	180.00	0.00	-3.00	3.00	-812.34	77.22	4,799.99	0.000	0.00	4,893.82
Haynes 432 vert	0.00	0.00	0.00	0.00	-812.34	77.22	4,934.06	0.000	0.00	5,027.89
	135.00	0.00	10.00	10.00	-609.77	-125.35	5,430.26	135.000	60.00	5,627.89
	0.00	0.00	0.00	0.00	-573.03	-162.09	5,460.26	135.000	60.00	5,687.89
	0.00	0.00	10.00	10.00	-367.62	-367.50	5,537.00	135.000	90.40	5,991.89
Haynes 432 LTP 23	0.00	0.00	0.00	0.00	7.717.68	-8,452.82	5.457.00	135.000	90.40	17,426.53



Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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
600.00	0.00	0.000	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.000	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.000	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.000	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 3		075 400	4 000 05	0.05	0.04	0.00	0.00	0.00	0.00
1,100.00	3.00	275.430	1,099.95	0.25	-2.61	-2.02	3.00	3.00	0.00
1,200.00	6.00	275.430	1,199.63 1,298.77	0.99	-10.42	-8.06	3.00	3.00	0.00
1,300.00	9.00	275.430	1,290.77	2.23	-23.41	-18.13	3.00	3.00	0.00
1,400.00	12.00	275.430	1,397.08	3.95	-41.55	-32.17	3.00	3.00	0.00
1,417.56	12.53	275.430	1,414.24	4.30	-45.26	-35.05	3.00	3.00	0.00
Ojo Alamo									
1,457.61	13.73	275.430	1,453.25	5.16	-54.32	-42.06	3.00	3.00	0.00
Begin 13.73°	-								
1,500.00	13.73	275.430	1,494.42	6.12	-64.33	-49.81	0.00	0.00	0.00
1,530.85	13.73	275.430	1,524.39	6.81	-71.62	-55.46	0.00	0.00	0.00
Kirtland									
1,600.00	13.73	275.430	1,591.57	8.36	-87.96	-68.11	0.00	0.00	0.00
1,700.00	13.73	275.430	1,688.71	10.61	-111.58	-86.40	0.00	0.00	0.00
1,757.61	13.73	275.430	1,744.68	11.90	-125.19	-96.94	0.00	0.00	0.00
Fruitland									
1,800.00	13.73	275.430	1,785.85	12.85	-135.21	-104.69	0.00	0.00	0.00
1,900.00	13.73	275.430	1,883.00	15.10	-158.83	-122.99	0.00	0.00	0.00
1,989.54	13.73	275.430	1,969.97	17.11	-179.99	-139.37	0.00	0.00	0.00
Pictured Clif	fs								
2,000.00	13.73	275.430	1,980.14	17.34	-182.46	-141.28	0.00	0.00	0.00
2,100.00	13.73	275.430	2,077.28	19.59	-206.08	-159.58	0.00	0.00	0.00
2,139.00	13.73	275.430	2,115.16	20.47	-215.30	-166.71	0.00	0.00	0.00
Lewis									
2,200.00	13.73	275.430	2,174.43	21.84	-229.71	-177.87	0.00	0.00	0.00
2,300.00	13.73	275.430	2,271.57	24.08	-253.33	-196.16	0.00	0.00	0.00
2,400.00	13.73	275.430	2,368.71	26.33	-276.96	-214.46	0.00	0.00	0.00
2,448.23	13.73	275.430	2,415.56	27.41	-288.35	-223.28	0.00	0.00	0.00
Chacra									
2,500.00	13.73	275.430	2,465.85	28.57	-300.59	-232.75	0.00	0.00	0.00
2,600.00	13.73	275.430	2,563.00	30.82	-324.21	-251.04	0.00	0.00	0.00
2.700.00	13.73	275.430	2,660.14	33.06	-347.84	-269.34	0.00	0.00	0.00
2,800.00	13.73	275.430	2,757.28	35.31	-371.46	-287.63	0.00	0.00	0.00
2,900.00	13.73	275.430	2,854.43	37.56	-395.09	-305.93	0.00	0.00	0.00
3,000.00	13.73	275.430	2,951.57	39.80	-418.71	-324.22	0.00	0.00	0.00
3,100.00	13.73	275.430	3,048.71	42.05	-442.34	-342.51	0.00	0.00	0.00
3,200.00	13.73	275.430	3,145.86	44.29	-465.96	-360.81	0.00	0.00	0.00
3,200.00 3,300.00	13.73	275.430 275.430	3,145.86 3,243.00	44.29 46.54	-465.96 -489.59	-360.81	0.00	0.00	0.00
3,300.00	13.73	275.430	3,243.00 3,340.14	40.54 48.79	-469.59 -513.22	-379.10	0.00	0.00	0.00
0.700.00	15.75	210.400	0,040.14	-0.15	-010.22	-031.05	0.00	0.00	0.00



Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth In (ft)	clination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,592.37	13.73	275.430	3,527.02	53.11	-558.66	-432.59	0.00	0.00	0.00
Cliff House - Me	nefee								
3,600.00	13.73	275.430	3,534.43	53.28	-560.47	-433.98	0.00	0.00	0.00
3,700.00	13.73	275.430	3,631.57	55.52	-584.09	-452.28	0.00	0.00	0.00
3,743.68	13.73	275.430	3,674.00	56.50	-594.41	-460.27	0.00	0.00	0.00
9 5/8" Csg									
3,800.00	13.73	275.430	3,728.72	57.77	-607.72	-470.57	0.00	0.00	0.00
3,900.00	13.73	275.430	3,825.86	60.01	-631.34	-488.86	0.00	0.00	0.00
4,000.00	13.73	275.430	3,923.00	62.26	-654.97	-507.16	0.00	0.00	0.00
4,100.00	13.73	275.430	4,020.15	64.51	-678.59	-525.45	0.00	0.00	0.00
4,200.00	13.73	275.430	4,117.29	66.75	-702.22	-543.74	0.00	0.00	0.00
4,300.00	13.73	275.430	4,214.43	69.00	-725.84	-562.04	0.00	0.00	0.00
4,324.22	13.73	275.430	4,237.95	69.54	-731.57	-566.47	0.00	0.00	0.00
Point Lookout									
4,400.00	13.73	275.430	4,311.57	71.24	-749.47	-580.33	0.00	0.00	0.00
4,436.20	13.73	275.430	4,346.74	72.06	-758.02	-586.96	0.00	0.00	0.00
Begin 3°/100' dr	ор								
4,500.00	. 11.81	275.430	4,408.96	73.39	-772.06	-597.83	3.00	-3.00	0.00
4,600.00	8.81	275.430	4,507.33	75.09	-789.89	-611.63	3.00	-3.00	0.00
4,621.19	8.18	275.430	4,528.29	75.38	-793.00	-614.04	3.00	-3.00	0.00
Mancos									
4,700.00	5.81	275.430	4,606.51	76.29	-802.56	-621.44	3.00	-3.00	0.00
4,800.00	2.81	275.430	4,706.21	77.00	-810.05	-627.24	3.00	-3.00	0.00
4,893.82	0.00	0.000	4,799.99	77.22	-812.34	-629.01	3.00	-3.00	0.00
Begin vertical h	old								
4,900.00	0.00	0.000	4,806.17	77.22	-812.34	-629.01	0.00	0.00	0.00
4,962.22	0.00	0.000	4,868.39	77.22	-812.34	-629.01	0.00	0.00	0.00
MNCS_A									
5,000.00	0.00	0.000	4,906.17	77.22	-812.34	-629.01	0.00	0.00	0.00
5,027.89	0.00	0.000	4,934.06	77.22	-812.34	-629.01	0.00	0.00	0.00
Begin 10°/100' b	uild								
5,050.00	2.21	135.000	4,956.17	76.92	-812.04	-628.59	10.00	10.00	0.00
5,052.22	2.43	135.000	4,958.39	76.85	-811.97	-628.50	10.00	10.00	0.00
MNCS_B	7.04	405 000	5 005 00	74.00	000.44	004.40	10.00	10.00	0.00
5,100.00	7.21	135.000	5,005.98	74.02	-809.14	-624.48	10.00	10.00	0.00
5,150.00	12.21	135.000	5,055.25	68.05	-803.17	-616.05	10.00	10.00	0.00
5,200.00	17.21	135.000	5,103.60	59.08	-794.20	-603.36	10.00	10.00	0.00
5,204.83	17.69	135.000	5,108.20	58.05	-793.17	-601.91	10.00	10.00	0.00
MNCS_C	00.01	405 000	E 450.05	17.10	700.00	500 50	40.00	10.00	0.05
5,250.00	22.21	135.000	5,150.65	47.16	-782.28	-586.50	10.00	10.00	0.00
5,279.88	25.20	135.000	5,178.01	38.66	-773.78	-574.49	10.00	10.00	0.00
MNCS_Cms									
5,300.00	27.21	135.000	5,196.06	32.38	-767.50	-565.60	10.00	10.00	0.00
5,342.15	31.43	135.000	5,232.80	17.79	-752.91	-544.97	10.00	10.00	0.00
MNCS_D									
5,350.00	32.21	135.000	5,239.47	14.86	-749.98	-540.83	10.00	10.00	0.00
5,400.00	37.21	135.000	5,280.56	-5.26	-729.86	-512.37	10.00	10.00	0.00
5,441.13	41.32	135.000	5,312.40	-23.67	-711.45	-486.34	10.00	10.00	0.00
MNCS_E									
5,450.00	42.21	135.000	5,319.01	-27.85	-707.27	-480.43	10.00	10.00	0.00
5,500.00	47.21	135.000	5,354.53	-52.71	-682.41	-445.26	10.00	10.00	0.00
5,518.70	49.08	135.000	5,367.01	-62.56	-672.56	-431.33	10.00	10.00	0.00

8/8/2023 11:21:02PM

COMPASS 5000.16 Build 96



	Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
1	Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
	Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
:	Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
1	Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
1	Wellbore:	Original Hole		
	Design:	rev0		

Planned Survey

Measure Depth (ft)		Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
MNCS_									
5,550 5,600			5,386.86 5,415.73	-79.67 -108.52	-655.45 -626.60	-407.14 -366.34	10.00 10.00	10.00 10.00	0.00 0.00
5,627	.89 60.00	135.000	5,430.26	-125.35	-609.77	-342.54	10.00	10.00	0.00
Begin 6	0.00° tangent								
5,659 MNCS		135.000	5,446.20	-144.88	-590.24	-314.92	0.00	0.00	0.00
5,687		135.000	5,460.26	-162.09	-573.03	-290.57	0.00	0.00	0.00
Begin 1	0°/100' build								
5,700	.00 61.21	135.000	5,466.20	-169.56	-565.56	-280.02	10.00	10.00	0.00
5,750			5,488.34	-201.25	-533.87	-235.20	10.00	10.00	0.00
5,768	.49 68.06	135.000	5,495.52	-213.29	-521.83	-218.17	10.00	10.00	0.00
MNCS_		100.000	0,400.02	-210.25	-021.00	-210.17	10.00	10.00	0.00
5,800		135.000	5,506.49	-234.18	-500.94	-188.63	10.00	10.00	0.00
5,800			5,520.51	-268.10	-467.02	-140.65	10.00	10.00	0.00
5,850			5,530.29	-302.76	-407.02	-140.05	10.00	10.00	0.00
5,900			5,535.77	-337.89	-432.30	-91.04	10.00	10.00	0.00
5,991		135.000	5,537.00	-367.50	-367.62	-0.09	10.00	10.00	0.00
-	0.40° lateral								
6,000			5,536.95	-373.23	-361.89	8.02	0.00	0.00	0.00
6,100			5,536.25	-443.94	-291.18	108.02	0.00	0.00	0.00
6,200			5,535.55	-514.65	-220.47	208.01	0.00	0.00	0.00
6,300	.00 90.40	135.000	5,534.85	-585.36	-149.76	308.01	0.00	0.00	0.00
6,400	.00 90.40	135.000	5,534.15	-656.07	-79.05	408.01	0.00	0.00	0.00
6,500			5,533.45	-726.78	-8.35	508.01	0.00	0.00	0.00
6,600			5,532.75	-797.48	62.36	608.00	0.00	0.00	0.00
6,700			5,532.05	-868.19	133.07	708.00	0.00	0.00	0.00
6,800			5,531.35	-938.90	203.78	808.00	0.00	0.00	0.00
6,900			5,530.65	-1,009.61	274.49	908.00	0.00	0.00	0.00
7,000			5,529.95	-1,080.32	345.20	1,007.99	0.00	0.00	0.00
7,100			5,529.25	-1,151.03	415.91	1,107.99	0.00	0.00	0.00
7,200			5,528.55	-1,221.74	486.62	1,207.99	0.00	0.00	0.00
7,300	.00 90.40	135.000	5,527.85	-1,292.45	557.33	1,307.99	0.00	0.00	0.00
7,400	.00 90.40	135.000	5,527.15	-1,363.16	628.03	1,407.98	0.00	0.00	0.00
7,500			5,526.45	-1,433.87	698.74	1,507.98	0.00	0.00	0.00
7,600			5,525.75	-1,504.57	769.45	1,607.98	0.00	0.00	0.00
7,700			5,525.05	-1,575.28	840.16	1,707.98	0.00	0.00	0.00
7,800			5,524.35	-1,645.99	910.87	1,807.98	0.00	0.00	0.00
,									
7,900			5,523.65	-1,716.70	981.58	1,907.97	0.00	0.00	0.00
8,000			5,522.95	-1,787.41	1,052.29	2,007.97	0.00	0.00	0.00
8,100			5,522.25	-1,858.12	1,123.00	2,107.97	0.00	0.00	0.00
8,200			5,521.55	-1,928.83	1,193.71	2,207.97	0.00	0.00	0.00
8,300	.00 90.40	135.000	5,520.85	-1,999.54	1,264.41	2,307.96	0.00	0.00	0.00
8,400			5,520.16	-2,070.25	1,335.12	2,407.96	0.00	0.00	0.00
8,500	.00 90.40	135.000	5,519.46	-2,140.96	1,405.83	2,507.96	0.00	0.00	0.00
8,600	.00 90.40	135.000	5,518.76	-2,211.67	1,476.54	2,607.96	0.00	0.00	0.00
8,700	.00 90.40	135.000	5,518.06	-2,282.37	1,547.25	2,707.95	0.00	0.00	0.00
8,800	.00 90.40	135.000	5,517.36	-2,353.08	1,617.96	2,807.95	0.00	0.00	0.00
8,900	.00 90.40	135.000	5,516.66	-2,423.79	1,688.67	2,907.95	0.00	0.00	0.00
9,000			5,515.96	-2,494.50	1,759.38	3,007.95	0.00	0.00	0.00
9,000			5,515.26	-2,565.21	1,830.09	3,107.94	0.00	0.00	0.00
9,100			5,514.56	-2,635.92	1,830.09	3,107.94	0.00	0.00	0.00
9,200			5,513.86	-2,706.63	1,900.79	3,207.94	0.00	0.00	0.00
9,300	.00 90.40	133.000	5,515.00	-2,100.03	1,971.00	5,507.94	0.00	0.00	0.00



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Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,400.00	90.40	135.000	5,513.16	-2,777.34	2,042.21	3,407.94	0.00	0.00	0.00
9,500.00	90.40	135.000	5,512.46	-2,848.05	2,112.92	3,507.93	0.00	0.00	0.00
9,600.00	90.40	135.000	5,511.76	-2,918.76	2,183.63	3,607.93	0.00	0.00	0.00
9,700.00	90.40	135.000	5,511.06	-2,989.46	2,254.34	3,707.93	0.00	0.00	0.00
9,800.00	90.40	135.000	5,510.36	-3,060.17	2,325.05	3,807.93	0.00	0.00	0.00
-									
9,900.00	90.40	135.000	5,509.66	-3,130.88	2,395.76	3,907.92	0.00	0.00	0.00
10,000.00	90.40	135.000	5,508.96	-3,201.59	2,466.47	4,007.92	0.00	0.00	0.00
10,100.00	90.40	135.000	5,508.26	-3,272.30	2,537.17	4,107.92	0.00	0.00	0.00
10,200.00	90.40	135.000	5,507.56	-3,343.01	2,607.88	4,207.92	0.00	0.00	0.00
10,300.00	90.40	135.000	5,506.86	-3,413.72	2,678.59	4,307.91	0.00	0.00	0.00
10,400.00	90.40	135.000	5,506.16	-3,484.43	2,749.30	4,407.91	0.00	0.00	0.00
10,500.00	90.40	135.000	5,505.46	-3,555.14	2,820.01	4,507.91	0.00	0.00	0.00
10,600.00	90.40	135.000	5,504.76	-3,625.85	2,890.72	4,607.91	0.00	0.00	0.00
10,700.00	90.40	135.000	5,504.06	-3,696.55	2,961.43	4,707.90	0.00	0.00	0.00
10,800.00	90.40	135.000	5,503.36	-3,767.26	3,032.14	4,807.90	0.00	0.00	0.00
10,900.00	90.40	135.000	5,502.66	-3,837.97	3,102.85	4,907.90	0.00	0.00	0.00
11,000.00	90.40	135.000	5,501.96	-3,908.68	3,173.55	5,007.90	0.00	0.00	0.00
11,100.00	90.40	135.000	5,501.26	-3,979.39	3,244.26	5,107.89	0.00	0.00	0.00
11,200.00	90.40	135.000	5,500.56	-4,050.10	3,314.97	5,207.89	0.00	0.00	0.00
11,300.00	90.40	135.000	5,499.87	-4,120.81	3,385.68	5,307.89	0.00	0.00	0.00
11,400.00	90.40	135.000	5,499.17	-4,191.52	3,456.39	5,407.89	0.00	0.00	0.00
11,500.00	90.40	135.000	5,498.47	-4,262.23	3,527.10	5,507.88	0.00	0.00	0.00
11,600.00	90.40	135.000	5,497.77	-4,332.94	3,597.81	5,607.88	0.00	0.00	0.00
11,700.00	90.40	135.000	5,497.07	-4,403.64	3,668.52	5,707.88	0.00	0.00	0.00
11,800.00	90.40	135.000	5,496.37	-4,474.35	3,739.23	5,807.88	0.00	0.00	0.00
11,900.00	90.40	135.000	5,495.67	-4,545.06	3,809.93	5,907.87	0.00	0.00	0.00
12,000.00	90.40	135.000	5,494.97	-4,615.77	3,880.64	6,007.87	0.00	0.00	0.00
12,100.00	90.40	135.000	5,494.27	-4,686.48	3,951.35	6,107.87	0.00	0.00	0.00
12,200.00	90.40	135.000	5,493.57	-4,757.19	4,022.06	6,207.87	0.00	0.00	0.00
12,300.00	90.40	135.000	5,492.87	-4,827.90	4,092.77	6,307.87	0.00	0.00	0.00
12,400.00	90.40	135.000	5,492.17	-4,898.61	4,163.48	6,407.86	0.00	0.00	0.00
12,500.00	90.40	135.000	5,491.47	-4,969.32	4,234.19	6,507.86	0.00	0.00	0.00
12,600.00	90.40	135.000	5,490.77	-5,040.03	4,304.90	6,607.86	0.00	0.00	0.00
12,700.00	90.40	135.000	5,490.07	-5,110.73	4,375.61	6,707.86	0.00	0.00	0.00
12,800.00	90.40	135.000	5,489.37	-5,181.44	4,446.31	6,807.85	0.00	0.00	0.00
12,900.00	90.40	135.000	5,488.67	-5,252.15	4,517.02	6,907.85	0.00	0.00	0.00
13,000.00	90.40	135.000	5,487.97	-5,322.86	4,587.73	7,007.85	0.00	0.00	0.00
13,100.00	90.40	135.000	5,487.27	-5,393.57	4,658.44	7,107.85	0.00	0.00	0.00
13,200.00	90.40	135.000	5,486.57	-5,464.28	4,729.15	7,207.84	0.00	0.00	0.00
13,300.00	90.40	135.000	5,485.87	-5,534.99	4,799.86	7,307.84	0.00	0.00	0.00
13,400.00	90.40	135.000	5,485.17	-5,605.70	4,870.57	7,407.84	0.00	0.00	0.00
13,500.00	90.40	135.000	5,484.47	-5,676.41	4,941.28	7,507.84	0.00	0.00	0.00
13,600.00	90.40	135.000	5,483.77	-5,747.12	5,011.99	7,607.83	0.00	0.00	0.00
13,700.00	90.40	135.000	5,483.07	-5,817.83	5,082.69	7,707.83	0.00	0.00	0.00
13,800.00	90.40	135.000	5,482.37	-5,888.53	5,153.40	7,807.83	0.00	0.00	0.00
13,900.00	90.40	135.000	5,481.67	-5,959.24	5,224.11	7,907.83	0.00	0.00	0.00
14,000.00	90.40	135.000	5,480.97	-6,029.95	5,294.82	8,007.82	0.00	0.00	0.00
14,100.00	90.40	135.000	5,480.27	-6,100.66	5,365.53	8,107.82	0.00	0.00	0.00
14,200.00	90.40	135.000	5,479.57	-6,171.37	5,436.24	8,207.82	0.00	0.00	0.00
14,300.00	90.40	135.000	5,478.88	-6,242.08	5,506.95	8,307.82	0.00	0.00	0.00
14,400.00	90.40	135.000	5,478.18	-6,312.79	5,577.66	8,407.81	0.00	0.00	0.00
14,500.00	90.40	135.000	5,477.48	-6,383.50	5,648.36	8,507.81	0.00	0.00	0.00
14,600.00	90.40	135.000	5,476.78	-6,454.21	5,719.07	8,607.81	0.00	0.00	0.00
14,700.00	90.40	135.000	5,476.08	-6,524.92	5,789.78	8,707.81	0.00	0.00	0.00



Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	90.40	135.000	5,475.38	-6,595.62	5,860.49	8,807.80	0.00	0.00	0.00
$\begin{array}{c} 14,900.00\\ 15,000.00\\ 15,100.00\\ 15,200.00\\ 15,300.00\\ 15,400.00\\ 15,500.00\\ 15,600.00\\ \end{array}$	90.40 90.40 90.40 90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000 135.000 135.000 135.000	5,474.68 5,473.98 5,473.28 5,472.58 5,471.88 5,471.18 5,470.48 5,469.78	-6,666.33 -6,737.04 -6,807.75 -6,878.46 -6,949.17 -7,019.88 -7,090.59 -7,161.30	5,931.20 6,001.91 6,072.62 6,143.33 6,214.04 6,284.74 6,355.45 6,426.16	8,907.80 9,007.80 9,107.80 9,207.79 9,307.79 9,407.79 9,507.79 9,607.78	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
15,700.00 15,800.00	90.40 90.40	135.000 135.000	5,469.08 5,468.38	-7,232.01 -7,302.71	6,496.87 6,567.58	9,707.78 9,807.78	0.00 0.00	0.00 0.00	0.00 0.00
15,900.00 16,000.00 16,100.00 16,200.00 16,300.00	90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000	5,467.68 5,466.98 5,466.28 5,465.58 5,464.88	-7,373.42 -7,444.13 -7,514.84 -7,585.55 -7,656.26	6,638.29 6,709.00 6,779.71 6,850.42 6,921.12	9,907.78 10,007.77 10,107.77 10,207.77 10,307.77	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00
16,400.00 16,500.00 16,600.00 16,700.00 16,800.00	90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000	5,464.18 5,463.48 5,462.78 5,462.08 5,461.38	-7,726.97 -7,797.68 -7,868.39 -7,939.10 -8,009.80	6,991.83 7,062.54 7,133.25 7,203.96 7,274.67	10,407.76 10,507.76 10,607.76 10,707.76 10,807.76	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
16,900.00 17,000.00 17,100.00 17,200.00 17,300.00	90.40 90.40 90.40 90.40 90.40	135.000 135.000 135.000 135.000 135.000	5,460.68 5,459.98 5,459.28 5,458.59 5,457.89	-8,080.51 -8,151.22 -8,221.93 -8,292.64 -8,363.35	7,345.38 7,416.09 7,486.80 7,557.50 7,628.21	10,907.75 11,007.75 11,107.75 11,207.75 11,307.74	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00
17,400.00 17,426.53 PBHL/TD @	90.40 90.40 17426.53 MD 54	135.000 135.000 57.00 TVD	5,457.19 5,457.00	-8,434.06 -8,452.82	7,698.92 7,717.68	11,407.74 11,434.27	0.00 0.00	0.00 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
Haynes 432 vert - plan hits target cento - Point	0.00 er	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
Haynes 432 LTP 234 FS - plan hits target cento - Point	0.00 er	0.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
Haynes 432 FTP 2136 F - plan hits target cente - Point	0.00 er	0.000	5,537.00	-367.50	-367.62	1,914,331.969	1,281,937.675	36.254988000	-107.465867000



Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	
3,743.68	3,674.00	9 5/8" Csg		9-5/8	12-1/4	

Formations

ormations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Litt	Dip nology (°)	Dip Direction (°)
	1,417.56	1,414.24	Ojo Alamo		-0.4	0 135.000
	1,530.85	1,524.39	Kirtland		-0.4	0 135.000
	1,757.61	1,744.68	Fruitland		-0.4	0 135.000
	1,989.54	1,969.97	Pictured Cliffs		-0.4	0 135.000
	2,139.00	2,115.16	Lewis		-0.4	0 135.000
	2,448.23	2,415.56	Chacra		-0.4	0 135.000
	3,592.37	3,527.02	Cliff House		-0.4	0 135.000
	3,592.37	3,527.02	Menefee		-0.4	0 135.000
	4,324.22	4,237.95	Point Lookout		-0.4	0 135.000
	4,621.19	4,528.29	Mancos		-0.4	0 135.000
	4,962.22	4,868.39	MNCS_A		-0.4	0 135.000
	5,052.22	4,958.39	MNCS_B		-0.4	0 135.000
	5,204.83	5,108.20	MNCS_C		-0.4	0 135.000
	5,279.88	5,178.01	MNCS_Cms		-0.4	0 135.000
	5,342.15	5,232.80	MNCS_D		-0.4	0 135.000
	5,441.13	5,312.40	MNCS_E		-0.4	0 135.000
	5,518.70	5,367.01	MNCS_F		-0.4	0 135.000
	5,659.77	5,446.20	MNCS_G		-0.4	0 135.000
	5,768.49	5,495.52	MNCS_H		-0.4	0 135.000

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coor +N/-S (ft)	dinates +E/-W (ft)	Comment
1,000.00) 1,000.00	0.00	0.00	KOP Begin 3°/100' build
1,457.6 ⁻	1,453.25	5.16	-54.32	Begin 13.73° tangent
4,436.20	4,346.74	72.06	-758.02	Begin 3°/100' drop
4,893.82	4,799.99	77.22	-812.34	Begin vertical hold
5,027.89	4,934.06	77.22	-812.34	Begin 10°/100' build
5,627.89	5,430.26	-125.35	-609.77	Begin 60.00° tangent
5,687.89	5,460.26	-162.09	-573.03	Begin 10°/100' build
5,991.89	5,537.00	-367.50	-367.62	Begin 90.40° lateral
17,426.53	5,457.00	-8,452.82	7,717.68	PBHL/TD @ 17426.53 MD 5457.00 TVD



Planning Report - Geographic

Database: Company: Project: Site: Well: Wellbore: Design:	Rio Arriba Co Haynes Can	sources LLC ounty, New Me yon Unit (432, yon Unit 432H	exico NAD83 NM C 434, 436 & 438)	Local Co-ordin TVD Reference MD Reference North Referen Survey Calcul	: ce:	Well Haynes (RKB=6689+2 RKB=6689+2 Grid Minimum Curv	5 @ 6714.0 5 @ 6714.0	Oft
Project	Rio Arriba Co	unty, New Me	xico NAD83 NM C					
oco Batann	US State Plane North Americar New Mexico Ce	n Datum 1983		System Datum:		Mean Sea Level		
Site	Haynes Cany	on Unit (432, 4	434, 436 & 438)					
Site Position: From: Position Uncertainty:	Lat/Long	0.00 ft	Northing: Easting: Slot Radius:	1,914,699.4(1,282,305.29 13-3/	97 usft Longit			36.25601000 -107.46463600
Well	Haynes Canyo	on Unit 432H,	Surf loc: 1773 FNL 3	03 FWL Section 03-T2	23N-R06W			
Well Position	+N/-S +E/-W	0.00 ft 0.00 ft	Northing: Easting:		4,699.466 usft 2,305.297 usft	Latitude: Longitude:		36.25601000 -107.46463600
Position Uncertainty Grid Convergence:		0.00 ft -0.72 °	Wellhead Elev	vation:	ft	Ground Level:		6,689.00 ft
Wellbore	Original Hole)						
Magnetics	Model Na	ame	Sample Date	Declination (°)		Dip Angle (°)	F	ield Strength (nT)
	IG	RF2020	8/8/2023		8.46	62.77		49,140.56879999
Design	rev0							
Audit Notes:								
Version:			Phase:	PLAN	Tie On De	pth:	0.00	
Vertical Section:		Depth	From (TVD) (ft)	+N/-S (ft)	+E/-W (ft))irection (°)	
			0.00	0.00	0.00		135.000	
Plan Survey Tool Pro Depth From	Depth To		2023	Teal Mana	_			
(ft) 1 0.00	(ft) 17,426.53	Survey (Well rev0 (Origina		Tool Name MWD OWSG MWD - Sta	Rem	arks		



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Target	TFO (°)	Turn Rate (°/100ft)	Build Rate (°/100ft)	Dogleg Rate (°/100ft)	+E/-W (ft)	+N/-S (ft)	Vertical Depth (ft)	Azimuth (°)	Inclination (°)	Measured Depth (ft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	0.000	0.00	1,000.00
	275.43	0.00	3.00	3.00	-54.32	5.16	1,453.25	275.430	13.73	1,457.61
	0.00	0.00	0.00	0.00	-758.02	72.06	4,346.74	275.430	13.73	4,436.20
	180.00	0.00	-3.00	3.00	-812.34	77.22	4,799.99	0.000	0.00	4,893.82
Haynes 432 vert	0.00	0.00	0.00	0.00	-812.34	77.22	4,934.06	0.000	0.00	5,027.89
	135.00	0.00	10.00	10.00	-609.77	-125.35	5,430.26	135.000	60.00	5,627.89
	0.00	0.00	0.00	0.00	-573.03	-162.09	5,460.26	135.000	60.00	5,687.89
	0.00	0.00	10.00	10.00	-367.62	-367.50	5,537.00	135.000	90.40	5,991.89
Haynes 432 LTP 23	0.00	0.00	0.00	0.00	7.717.68	-8,452.82	5.457.00	135.000	90.40	17.426.53



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
100.00	0.00	0.000	100.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
200.00	0.00	0.000	200.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
300.00	0.00	0.000	300.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
350.00	0.00	0.000	350.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
13 3/8" 0									
400.00	0.00	0.000	400.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
500.00	0.00	0.000	500.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
600.00	0.00	0.000	600.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
700.00	0.00	0.000	700.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
800.00	0.00	0.000	800.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
900.00	0.00	0.000	900.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
1,000.00	0.00	0.000	1,000.00	0.00	0.00	1,914,699.466	1,282,305.297	36.256010000	-107.464636000
	gin 3°/100' bui								
1,100.00	3.00	275.430	1,099.95	0.25	-2.61	1,914,699.714	1,282,302.691	36.256010591	-107.464644847
1,200.00	6.00	275.430	1,199.63	0.99	-10.42	1,914,700.456	1,282,294.882	36.256012361	-107.464671362
1,300.00	9.00	275.430	1,298.77	2.23	-23.41	1,914,701.691	1,282,281.889	36.256015306	-107.464715474
1,400.00 1,417.56	12.00 12.53	275.430 275.430	1,397.08 1,414.24	3.95 4.30	-41.55 -45.26	1,914,703.416 1,914,703.769	1,282,263.749 1,282,260.035	36.256019417 36.256020258	-107.464777060
		275.450	1,414.24	4.30	-45.20	1,914,703.709	1,202,200.035	30.230020236	-107.464789669
Ojo Alan 1,457.61	13.73	275.430	1,453.25	5.16	-54.32	1,914,704.630	1,282,250.980	36.256022311	-107.464820413
	8.73° tangent	2101100	1,100120	0110	0.1102	1,011,1011000	.,202,200.000	00.200022011	1011101020110
1,500.00	13.73	275.430	1,494.42	6.12	-64.33	1,914,705.581	1,282,240.966	36.256024580	-107.464854412
1,530.85	13.73	275.430	1,524.39	6.81	-71.62	1,914,706.274	1,282,233.679	36.256026232	-107.464879154
Kirtland									
1,600.00	13.73	275.430	1,591.57	8.36	-87.96	1,914,707.827	1,282,217.341	36.256029934	-107.464934624
1,700.00	13.73	275.430	1,688.71	10.61	-111.58	1,914,710.073	1,282,193.715	36.256035289	-107.465014835
1,757.61	13.73	275.430	1,744.68	11.90	-125.19	1,914,711.367	1,282,180.104	36.256038373	-107.465061048
Fruitland	k								
1,800.00	13.73	275.430	1,785.85	12.85	-135.21	1,914,712.319	1,282,170.090	36.256040643	-107.465095047
1,900.00	13.73	275.430	1,883.00	15.10	-158.83	1,914,714.565	1,282,146.464	36.256045997	-107.465175259
1,989.54	13.73	275.430	1,969.97	17.11	-179.99	1,914,716.575	1,282,125.311	36.256050791	-107.465247076
Pictured		075 100	1 000 11	17.04	100.10		4 000 400 000	00.050054054	107 105055 170
2,000.00	13.73	275.430	1,980.14	17.34	-182.46	1,914,716.810	1,282,122.839	36.256051351	-107.465255470
2,100.00	13.73	275.430	2,077.28	19.59	-206.08	1,914,719.056	1,282,099.214	36.256056705	-107.465335682
2,139.00	13.73	275.430	2,115.16	20.47	-215.30	1,914,719.932	1,282,090.001	36.256058793	-107.465366962
Lewis 2,200.00	13.73	275.430	2,174.43	21.84	-229.71	1,914,721.302	1,282,075.588	36.256062059	-107.465415894
2,200.00	13.73	275.430	2,174.43	24.08	-253.33	1,914,723.548	1,282,051.963	36.256067413	-107.465496106
2,400.00	13.73	275.430	2,368.71	26.33	-276.96	1,914,725.794	1,282,028.337	36.256072767	-107.465576317
2,448.23	13.73	275.430	2,415.56	27.41	-288.35	1,914,726.877	1,282,016.944	36.256075349	-107.465615000
Chacra									
2,500.00	13.73	275.430	2,465.85	28.57	-300.59	1,914,728.039	1,282,004.712	36.256078121	-107.465656529
2,600.00	13.73	275.430	2,563.00	30.82	-324.21	1,914,730.285	1,281,981.086	36.256083475	-107.465736741
2,700.00	13.73	275.430	2,660.14	33.06	-347.84	1,914,732.531	1,281,957.461	36.256088828	-107.465816953
2,800.00	13.73	275.430	2,757.28	35.31	-371.46	1,914,734.777	1,281,933.835	36.256094182	-107.465897164
2,900.00	13.73	275.430	2,854.43	37.56	-395.09	1,914,737.023	1,281,910.210	36.256099536	-107.465977376
3,000.00	13.73	275.430	2,951.57	39.80	-418.71	1,914,739.268	1,281,886.585	36.256104889	-107.466057588
3,100.00	13.73	275.430	3,048.71	42.05	-442.34	1,914,741.514	1,281,862.959	36.256110243	-107.466137800
3,200.00	13.73	275.430	3,145.86	44.29	-465.96	1,914,743.760	1,281,839.334	36.256115596	-107.466218012
3,300.00	13.73	275.430	3,243.00	46.54	-489.59	1,914,746.006	1,281,815.708	36.256120949	-107.466298224
3,400.00 3,500.00	13.73 13.73	275.430 275.430	3,340.14 3,437.29	48.79 51.03	-513.22 -536.84	1,914,748.252 1,914,750.498	1,281,792.083 1,281,768.457	36.256126303 36.256131656	-107.466378435 -107.466458647
5,500.00	15.75	210.400	5,751.28	31.03	-000.04	1,317,730.430	1,201,700.407	00.200101000	-107.+00430047



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Meas Dep (ft	oth	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3.5	592.37	13.73	275.430	3,527.02	53.11	-558.66	1,914,752.572	1,281,746.634	36.256136601	-107.466532741
		se - Menefee		-,			,- ,	, - ,		
	600.00	13.73	275.430	3,534.43	53.28	-560.47	1,914,752.743	1,281,744.832	36.256137009	-107.466538859
	700.00	13.73	275.430	3,631.57	55.52	-584.09	1,914,754.989	1,281,721.206	36.256142362	-107.466619071
3,7	743.68	13.73	275.430	3,674.00	56.50	-594.41	1,914,755.970	1,281,710.888	36.256144700	-107.466654104
9	5/8" Csg	9								
3,8	300.00	13.73	275.430	3,728.72	57.77	-607.72	1,914,757.235	1,281,697.581	36.256147716	-107.466699283
3,9	900.00	13.73	275.430	3,825.86	60.01	-631.34	1,914,759.481	1,281,673.956	36.256153069	-107.466779495
4,0	00.00	13.73	275.430	3,923.00	62.26	-654.97	1,914,761.727	1,281,650.330	36.256158422	-107.466859707
	100.00	13.73	275.430	4,020.15	64.51	-678.59	1,914,763.972	1,281,626.705	36.256163775	-107.466939919
	200.00	13.73	275.430	4,117.29	66.75	-702.22	1,914,766.218	1,281,603.079	36.256169128	-107.467020131
	300.00	13.73	275.430	4,214.43	69.00	-725.84	1,914,768.464	1,281,579.454	36.256174480	-107.467100343
	324.22	13.73	275.430	4,237.95	69.54	-731.57	1,914,769.008	1,281,573.733	36.256175777	-107.467119766
	oint Loo									
	400.00	13.73	275.430	4,311.57	71.24	-749.47	1,914,770.710	1,281,555.828	36.256179833	-107.467180554
	436.20	13.73	275.430	4,346.74	72.06	-758.02	1,914,771.523	1,281,547.275	36.256181771	-107.467209593
	-	100' drop	075 100	4 400 00	70.00	770.00	4 0 4 4 770 0 57	4 004 500 000	00.050404050	
	500.00	11.81	275.430	4,408.96	73.39	-772.06	1,914,772.857	1,281,533.236	36.256184952	-107.467257259
	500.00	8.81	275.430	4,507.33	75.09	-789.89	1,914,774.552	1,281,515.413	36.256188990	-107.467317769
	621.19	8.18	275.430	4,528.29	75.38	-793.00	1,914,774.848	1,281,512.297	36.256189696	-107.467328350
	ancos	5.04	075 400	4 000 54	70.00	000 50	4 044 775 750	4 004 500 740	20.050404004	407 407000700
	700.00	5.81	275.430	4,606.51	76.29	-802.56	1,914,775.756	1,281,502.740	36.256191861	-107.467360796
	300.00 393.82	2.81 0.00	275.430 0.000	4,706.21 4,799.99	77.00 77.22	-810.05 -812.34	1,914,776.468 1,914,776.686	1,281,495.252 1,281,492.959	36.256193558 36.256194077	-107.467386220 -107.467394007
			0.000	4,799.99	11.22	-012.34	1,914,770.000	1,201,492.909	30.230194011	-107.407394007
	egin ver 900.00	tical hold 0.00	0.000	4,806.17	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
	962.22	0.00	0.000	4,868.39	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
		0.00	0.000	4,000.00	11.22	-012.04	1,314,770.000	1,201,432.333	30.230134011	-107.407334007
	NCS_A	0.00	0.000	4,906.17	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
,)27.89	0.00	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
		/100' build	0.000	1,001.00	11.22	012.01	1,011,110.000	1,201,102.000	00.200101011	
)50.00	2.21	135.000	4,956.17	76.92	-812.04	1,914,776.384	1,281,493.260	36.256193259	-107.467392970
,)52.22	2.43	135.000	4,958.39	76.85	-811.97	1,914,776.321	1,281,493.324	36.256193086	-107.467392752
	NCS_B			,			,- ,	, - ,		
	100.00	7.21	135.000	5,005.98	74.02	-809.14	1,914,773.481	1,281,496.163	36.256185386	-107.467383002
	150.00	12.21	135.000	5,055.25	68.05	-803.17	1,914,767.519	1,281,502.125	36.256169217	-107.467362530
5,2	200.00	17.21	135.000	5,103.60	59.08	-794.20	1,914,758.544	1,281,511.101	36.256144875	-107.467331711
5,2	204.83	17.69	135.000	5,108.20	58.05	-793.17	1,914,757.520	1,281,512.125	36.256142099	-107.467328195
M	NCS_C									
5,2	250.00	22.21	135.000	5,150.65	47.16	-782.28	1,914,746.623	1,281,523.022	36.256112546	-107.467290777
5,2	279.88	25.20	135.000	5,178.01	38.66	-773.78	1,914,738.128	1,281,531.516	36.256089510	-107.467261611
M	NCS_Cr	ns								
5,3	300.00	27.21	135.000	5,196.06	32.38	-767.50	1,914,731.847	1,281,537.797	36.256072475	-107.467240043
5,3	342.15	31.43	135.000	5,232.80	17.79	-752.91	1,914,717.255	1,281,552.390	36.256032901	-107.467189937
M	NCS_D									
	350.00	32.21	135.000	5,239.47	14.86	-749.98	1,914,714.330	1,281,555.315	36.256024967	-107.467179892
5,4	400.00	37.21	135.000	5,280.56	-5.26	-729.86	1,914,694.203	1,281,575.442	36.255970384	-107.467110784
5,4	141.13	41.32	135.000	5,312.40	-23.67	-711.45	1,914,675.800	1,281,593.845	36.255920474	-107.467047592
	NCS_E									
	450.00	42.21	135.000	5,319.01	-27.85	-707.27	1,914,671.621	1,281,598.024	36.255909142	-107.467033244
	500.00	47.21	135.000	5,354.53	-52.71	-682.41	1,914,646.755	1,281,622.889	36.255841706	-107.466947863
	518.70	49.08	135.000	5,367.01	-62.56	-672.56	1,914,636.906	1,281,632.739	36.255814994	-107.466914043
M	NCS_F									



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
									Ū
5,550.00		135.000	5,386.86	-79.67	-655.45	1,914,619.795	1,281,649.850	36.255768590	-107.466855289
5,600.00		135.000	5,415.73	-108.52	-626.60	1,914,590.945	1,281,678.699	36.255690349	-107.466756229
5,627.89		135.000	5,430.26	-125.35	-609.77	1,914,574.115	1,281,695.529	36.255644706	-107.466698440
•	0.00° tangent	125 000	E 446 20	144.00	500.04	1 014 554 500	1 001 715 055	26 255501752	107 466621206
5,659.77		135.000	5,446.20	-144.88	-590.24	1,914,554.590	1,281,715.055	36.255591753	-107.466631396
MNCS_C		125 000	E 460.06	162.00	E72 02	1 014 527 272	1 001 700 070	26 255545064	107 466570000
5,687.89		135.000	5,460.26	-162.09	-573.03	1,914,537.373	1,281,732.272	36.255545061	-107.466572280
5,700.00	0°/100' build 61.21	135.000	5,466.20	-169.56	-565.56	1,914,529.910	1 201 720 725	26 255524924	-107.466546654
5,750.00		135.000	5,488.34	-201.25	-533.87	1,914,498.221	1,281,739.735 1,281,771.423	36.255524821 36.255438882	-107.466437847
5,768.49		135.000	5,495.52	-213.29	-521.83	1,914,486.175	1,281,783.470	36.255406211	-107.466396483
MNCS_H		100.000	0,100.02	210.20	021.00	1,011,100.110	1,201,100.110	00.200100211	101.100000100
5,800.00		135.000	5,506.49	-234.18	-500.94	1,914,465.289	1,281,804.356	36.255349569	-107.466324769
5,850.00		135.000	5,520.51	-268.10	-467.02	1,914,431.364	1,281,838.281	36.255257562	-107.466208281
5,900.00		135.000	5,530.29	-302.76	-432.36	1,914,396.703	1,281,872.941	36.255163563	-107.466089271
5,950.00	86.21	135.000	5,535.77	-337.89	-397.23	1,914,361.572	1,281,908.072	36.255068286	-107.465968643
5,991.89	90.40	135.000	5,537.00	-367.50	-367.62	1,914,331.968	1,281,937.677	36.254987997	-107.465866993
Begin 90	0.40° lateral								
6,000.00	90.40	135.000	5,536.95	-373.23	-361.89	1,914,326.236	1,281,943.408	36.254972454	-107.465847314
6,100.00	90.40	135.000	5,536.25	-443.94	-291.18	1,914,255.528	1,282,014.117	36.254780689	-107.465604528
6,200.00		135.000	5,535.55	-514.65	-220.47	1,914,184.819	1,282,084.825	36.254588924	-107.465361744
6,300.00		135.000	5,534.85	-585.36	-149.76	1,914,114.110	1,282,155.534	36.254397158	-107.465118961
6,400.00		135.000	5,534.15	-656.07	-79.05	1,914,043.401	1,282,226.243	36.254205391	-107.464876178
6,500.00		135.000	5,533.45	-726.78	-8.35	1,913,972.692	1,282,296.952	36.254013624	-107.464633397
6,600.00		135.000	5,532.75	-797.48	62.36	1,913,901.983	1,282,367.660	36.253821857	-107.464390618
6,700.00 6,800.00		135.000 135.000	5,532.05 5,531.35	-868.19 -938.90	133.07 203.78	1,913,831.274 1,913,760.565	1,282,438.369 1,282,509.078	36.253630089 36.253438320	-107.464147839 -107.463905062
6,900.00		135.000	5,530.65	-1,009.61	203.78	1,913,689.857	1,282,579.787	36.253246551	-107.463662285
7,000.00		135.000	5,529.95	-1,080.32	345.20	1,913,619.148	1,282,650.495	36.253054781	-107.463419510
7,100.00		135.000	5,529.25	-1,151.03	415.91	1,913,548.439	1,282,721.204	36.252863011	-107.463176736
7,200.00		135.000	5,528.55	-1,221.74	486.62	1,913,477.730	1,282,791.913	36.252671241	-107.462933964
7,300.00	90.40	135.000	5,527.85	-1,292.45	557.33	1,913,407.021	1,282,862.622	36.252479469	-107.462691192
7,400.00	90.40	135.000	5,527.15	-1,363.16	628.03	1,913,336.312	1,282,933.330	36.252287698	-107.462448422
7,500.00	90.40	135.000	5,526.45	-1,433.87	698.74	1,913,265.603	1,283,004.039	36.252095925	-107.462205653
7,600.00	90.40	135.000	5,525.75	-1,504.57	769.45	1,913,194.894	1,283,074.748	36.251904153	-107.461962885
7,700.00		135.000	5,525.05	-1,575.28	840.16	1,913,124.186	1,283,145.456	36.251712379	-107.461720118
7,800.00		135.000	5,524.35	-1,645.99	910.87	1,913,053.477	1,283,216.165	36.251520605	-107.461477353
7,900.00		135.000	5,523.65	-1,716.70	981.58	1,912,982.768	1,283,286.874	36.251328831	-107.461234588
8,000.00		135.000	5,522.95	-1,787.41	1,052.29	1,912,912.059	1,283,357.583	36.251137056	-107.460991825
8,100.00		135.000	5,522.25 5,521.55	-1,858.12	1,123.00	1,912,841.350 1,912,770.641	1,283,428.291	36.250945281	-107.460749063 -107.460506302
8,200.00 8,300.00		135.000 135.000	5,521.55 5,520.85	-1,928.83 -1,999.54	1,193.71 1,264.41	1,912,699.932	1,283,499.000 1,283,569.709	36.250753505 36.250561729	-107.460506302
8,400.00		135.000	5,520.05	-2,070.25	1,335.12	1,912,629.223	1,283,640.418	36.250369952	-107.4600203343
8,500.00		135.000	5,519.46	-2,140.96	1,405.83	1,912,558.515	1,283,711.126	36.250178174	-107.459778027
8,600.00		135.000	5,518.76	-2,211.67	1,476.54	1,912,487.806	1,283,781.835	36.249986396	-107.459535271
8,700.00		135.000	5,518.06	-2,282.37	1,547.25	1,912,417.097	1,283,852.544	36.249794618	-107.459292516
8,800.00		135.000	5,517.36	-2,353.08	1,617.96	1,912,346.388	1,283,923.253	36.249602839	-107.459049762
8,900.00	90.40	135.000	5,516.66	-2,423.79	1,688.67	1,912,275.679	1,283,993.961	36.249411059	-107.458807010
9,000.00	90.40	135.000	5,515.96	-2,494.50	1,759.38	1,912,204.970	1,284,064.670	36.249219279	-107.458564258
9,100.00		135.000	5,515.26	-2,565.21	1,830.09	1,912,134.261	1,284,135.379	36.249027499	-107.458321508
9,200.00		135.000	5,514.56	-2,635.92	1,900.79	1,912,063.552	1,284,206.087	36.248835717	-107.458078759
9,300.00		135.000	5,513.86	-2,706.63	1,971.50	1,911,992.844	1,284,276.796	36.248643936	-107.457836011
9,400.00		135.000	5,513.16	-2,777.34	2,042.21	1,911,922.135	1,284,347.505	36.248452154	-107.457593265
9,500.00	90.40	135.000	5,512.46	-2,848.05	2,112.92	1,911,851.426	1,284,418.214	36.248260371	-107.457350519



Planning Report - Geographic

Database:	DB Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
									_
9,600.00	90.40	135.000	5,511.76	-2,918.76	2,183.63	1,911,780.717	1,284,488.922	36.248068588	-107.457107775
9,700.00	90.40 90.40	135.000	5,511.06	-2,989.46	2,254.34 2,325.05	1,911,710.008 1,911,639.299	1,284,559.631	36.247876804 36.247685020	-107.456865032 -107.456622290
9,800.00 9,900.00	90.40 90.40	135.000 135.000	5,510.36 5,509.66	-3,060.17 -3,130.88	2,325.05	1,911,568.590	1,284,630.340 1,284,701.049	36.247493235	-107.456379550
10,000.00	90.40	135.000	5,509.00	-3,201.59	2,395.76	1,911,497.882	1,284,771.757	36.247301450	-107.456136810
10,100.00	90.40	135.000	5,508.26	-3,272.30	2,537.17	1,911,427.173	1,284,842.466	36.247109664	-107.455894072
10,200.00	90.40	135.000	5,507.56	-3,343.01	2,607.88	1,911,356.464	1,284,913.175	36.246917878	-107.455651335
10,300.00	90.40	135.000	5,506.86	-3,413.72	2,678.59	1,911,285.755	1,284,983.883	36.246726091	-107.455408599
10,400.00	90.40	135.000	5,506.16	-3,484.43	2,749.30	1,911,215.046	1,285,054.592	36.246534303	-107.455165864
10,500.00	90.40	135.000	5,505.46	-3,555.14	2,820.01	1,911,144.337	1,285,125.301	36.246342516	-107.454923131
10,600.00	90.40	135.000	5,504.76	-3,625.85	2,890.72	1,911,073.628	1,285,196.010	36.246150727	-107.454680398
10,700.00	90.40	135.000	5,504.06	-3,696.55	2,961.43	1,911,002.919	1,285,266.718	36.245958938	-107.454437667
10,800.00	90.40	135.000	5,503.36	-3,767.26	3,032.14	1,910,932.211	1,285,337.427	36.245767149	-107.454194937
10,900.00	90.40	135.000	5,502.66	-3,837.97	3,102.85	1,910,861.502	1,285,408.136	36.245575359	-107.453952208
11,000.00	90.40	135.000	5,501.96	-3,908.68	3,173.55	1,910,790.793	1,285,478.845	36.245383568	-107.453709481
11,100.00	90.40	135.000	5,501.26	-3,979.39	3,244.26	1,910,720.084	1,285,549.553	36.245191777	-107.453466754
11,200.00	90.40	135.000	5,500.56	-4,050.10	3,314.97	1,910,649.375	1,285,620.262	36.244999986	-107.453224029
11,300.00	90.40	135.000	5,499.87	-4,120.81	3,385.68	1,910,578.666	1,285,690.971	36.244808194	-107.452981305
11,400.00	90.40	135.000	5,499.17	-4,191.52	3,456.39	1,910,507.957	1,285,761.680	36.244616401	-107.452738582
11,500.00	90.40	135.000	5,498.47	-4,262.23	3,527.10	1,910,437.248	1,285,832.388	36.244424608	-107.452495860
11,600.00	90.40	135.000	5,497.77	-4,332.94	3,597.81	1,910,366.540	1,285,903.097	36.244232815	-107.452253140
11,700.00	90.40 90.40	135.000	5,497.07	-4,403.64	3,668.52	1,910,295.831	1,285,973.806	36.244041020 36.243849226	-107.452010421 -107.451767702
11,800.00 11,900.00	90.40	135.000 135.000	5,496.37 5,495.67	-4,474.35 -4,545.06	3,739.23 3,809.93	1,910,225.122 1,910,154.413	1,286,044.514 1,286,115.223	36.243657431	-107.451524986
12,000.00	90.40	135.000	5,494.97	-4,615.77	3,880.64	1,910,083.704	1,286,185.932	36.243465635	-107.451282270
12,100.00	90.40	135.000	5,494.27	-4,686.48	3,951.35	1,910,012.995	1,286,256.641	36.243273839	-107.451039555
12,200.00	90.40	135.000	5,493.57	-4,757.19	4,022.06	1,909,942.286	1,286,327.349	36.243082042	-107.450796842
12,300.00	90.40	135.000	5,492.87	-4,827.90	4,092.77	1,909,871.577	1,286,398.058	36.242890245	-107.450554130
12,400.00	90.40	135.000	5,492.17	-4,898.61	4,163.48	1,909,800.869	1,286,468.767	36.242698447	-107.450311419
12,500.00	90.40	135.000	5,491.47	-4,969.32	4,234.19	1,909,730.160	1,286,539.476	36.242506649	-107.450068709
12,600.00	90.40	135.000	5,490.77	-5,040.03	4,304.90	1,909,659.451	1,286,610.184	36.242314850	-107.449826000
12,700.00	90.40	135.000	5,490.07	-5,110.73	4,375.61	1,909,588.742	1,286,680.893	36.242123050	-107.449583293
12,800.00	90.40	135.000	5,489.37	-5,181.44	4,446.31	1,909,518.033	1,286,751.602	36.241931251	-107.449340586
12,900.00	90.40	135.000	5,488.67	-5,252.15	4,517.02	1,909,447.324	1,286,822.311	36.241739450	-107.449097881
13,000.00	90.40	135.000	5,487.97	-5,322.86	4,587.73	1,909,376.615	1,286,893.019	36.241547649	-107.448855177
13,100.00	90.40	135.000	5,487.27	-5,393.57	4,658.44	1,909,305.906	1,286,963.728	36.241355848	-107.448612475
13,200.00	90.40	135.000	5,486.57	-5,464.28	4,729.15	1,909,235.198	1,287,034.437	36.241164046	-107.448369773
13,300.00	90.40	135.000	5,485.87	-5,534.99	4,799.86	1,909,164.489	1,287,105.145	36.240972243	-107.448127073
13,400.00	90.40	135.000	5,485.17	-5,605.70	4,870.57	1,909,093.780	1,287,175.854	36.240780440	-107.447884374 -107.447641676
13,500.00	90.40	135.000	5,484.47	-5,676.41	4,941.28	1,909,023.071	1,287,246.563	36.240588637	-107.447641676
13,600.00 13,700.00	90.40 90.40	135.000 135.000	5,483.77 5,483.07	-5,747.12 -5,817.83	5,011.99 5,082.69	1,908,952.362 1,908,881.653	1,287,317.272 1,287,387.980	36.240396833 36.240205028	-107.447398979
13,800.00	90.40	135.000	5,482.37	-5,888.53	5,153.40	1,908,810.944	1,287,458.689	36.240203028	-107.446913589
13,900.00	90.40	135.000	5,481.67	-5,959.24	5,224.11	1,908,740.235	1,287,529.398	36.239821418	-107.446670896
14,000.00	90.40	135.000	5,480.97	-6,029.95	5,294.82	1,908,669.527	1,287,600.107	36.239629612	-107.446428204
14,100.00	90.40	135.000	5,480.27	-6,100.66	5,365.53	1,908,598.818	1,287,670.815	36.239437805	-107.446185513
14,200.00	90.40	135.000	5,479.57	-6,171.37	5,436.24	1,908,528.109	1,287,741.524	36.239245998	-107.445942823
14,300.00	90.40	135.000	5,478.88	-6,242.08	5,506.95	1,908,457.400	1,287,812.233	36.239054190	-107.445700135
14,400.00	90.40	135.000	5,478.18	-6,312.79	5,577.66	1,908,386.691	1,287,882.941	36.238862382	-107.445457447
14,500.00	90.40	135.000	5,477.48	-6,383.50	5,648.36	1,908,315.982	1,287,953.650	36.238670573	-107.445214761
14,600.00	90.40	135.000	5,476.78	-6,454.21	5,719.07	1,908,245.273	1,288,024.359	36.238478764	-107.444972076
14,700.00	90.40	135.000	5,476.08	-6,524.92	5,789.78	1,908,174.564	1,288,095.068	36.238286954	-107.444729392
14,800.00	90.40	135.000	5,475.38	-6,595.62	5,860.49	1,908,103.856	1,288,165.776	36.238095144	-107.444486710
14,900.00	90.40	135.000	5,474.68	-6,666.33	5,931.20	1,908,033.147	1,288,236.485	36.237903333	-107.444244028
15,000.00	90.40	135.000	5,473.98	-6,737.04	6,001.91	1,907,962.438	1,288,307.194	36.237711522	-107.444001348

8/8/2023 11:21:54PM

COMPASS 5000.16 Build 96



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)	Latitude	Longitude
15,100.00	90.40	135.000	5,473.28	-6,807.75	6,072.62	1,907,891.729	1,288,377.903	36.237519710	-107.443758669
15,200.00	90.40	135.000	5,472.58	-6,878.46	6,143.33	1,907,821.020	1,288,448.611	36.237327898	-107.443515991
15,300.00	90.40	135.000	5,471.88	-6,949.17	6,214.04	1,907,750.311	1,288,519.320	36.237136085	-107.443273315
15,400.00	90.40	135.000	5,471.18	-7,019.88	6,284.74	1,907,679.602	1,288,590.029	36.236944271	-107.443030639
15,500.00	90.40	135.000	5,470.48	-7,090.59	6,355.45	1,907,608.893	1,288,660.738	36.236752457	-107.442787965
15,600.00	90.40	135.000	5,469.78	-7,161.30	6,426.16	1,907,538.185	1,288,731.446	36.236560643	-107.442545292
15,700.00	90.40	135.000	5,469.08	-7,232.01	6,496.87	1,907,467.476	1,288,802.155	36.236368828	-107.442302620
15,800.00	90.40	135.000	5,468.38	-7,302.71	6,567.58	1,907,396.767	1,288,872.864	36.236177013	-107.442059949
15,900.00	90.40	135.000	5,467.68	-7,373.42	6,638.29	1,907,326.058	1,288,943.572	36.235985197	-107.441817280
16,000.00	90.40	135.000	5,466.98	-7,444.13	6,709.00	1,907,255.349	1,289,014.281	36.235793380	-107.441574612
16,100.00	90.40	135.000	5,466.28	-7,514.84	6,779.71	1,907,184.640	1,289,084.990	36.235601563	-107.441331944
16,200.00	90.40	135.000	5,465.58	-7,585.55	6,850.42	1,907,113.931	1,289,155.699	36.235409745	-107.441089278
16,300.00	90.40	135.000	5,464.88	-7,656.26	6,921.12	1,907,043.222	1,289,226.407	36.235217927	-107.440846614
16,400.00	90.40	135.000	5,464.18	-7,726.97	6,991.83	1,906,972.514	1,289,297.116	36.235026109	-107.440603950
16,500.00	90.40	135.000	5,463.48	-7,797.68	7,062.54	1,906,901.805	1,289,367.825	36.234834290	-107.440361288
16,600.00	90.40	135.000	5,462.78	-7,868.39	7,133.25	1,906,831.096	1,289,438.534	36.234642470	-107.440118626
16,700.00	90.40	135.000	5,462.08	-7,939.10	7,203.96	1,906,760.387	1,289,509.242	36.234450650	-107.439875966
16,800.00	90.40	135.000	5,461.38	-8,009.80	7,274.67	1,906,689.678	1,289,579.951	36.234258829	-107.439633307
16,900.00	90.40	135.000	5,460.68	-8,080.51	7,345.38	1,906,618.969	1,289,650.660	36.234067008	-107.439390650
17,000.00	90.40	135.000	5,459.98	-8,151.22	7,416.09	1,906,548.260	1,289,721.369	36.233875186	-107.439147993
17,100.00	90.40	135.000	5,459.28	-8,221.93	7,486.80	1,906,477.552	1,289,792.077	36.233683364	-107.438905338
17,200.00	90.40	135.000	5,458.59	-8,292.64	7,557.50	1,906,406.843	1,289,862.786	36.233491541	-107.438662684
17,300.00	90.40	135.000	5,457.89	-8,363.35	7,628.21	1,906,336.134	1,289,933.495	36.233299718	-107.438420031
17,400.00	90.40	135.000	5,457.19	-8,434.06	7,698.92	1,906,265.425	1,290,004.203	36.233107894	-107.438177379
17,426.53	90.40	135.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
PBHL/TC	0 @ 17426.53	MD 5457.00 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
Haynes 432 vert - plan hits target ce - Point	0.00 nter	0.000	4,934.06	77.22	-812.34	1,914,776.686	1,281,492.959	36.256194077	-107.467394007
Haynes 432 LTP 234 FS - plan hits target ce - Point		0.000	5,457.00	-8,452.82	7,717.68	1,906,246.665	1,290,022.964	36.233057000	-107.438113000
Haynes 432 FTP 2136 F - plan hits target ce - Point		0.000	5,537.00	-367.50	-367.62	1,914,331.969	1,281,937.675	36.254988000	-107.465867000

Casing	Point	2

Casing Points							
	Measured Depth (ft)	Vertical Depth (ft)		Name	Casing Diameter (")	Hole Diameter (")	
	350.00 3,743.68	350.00 3,674.00	13 3/8" Csg 9 5/8" Csg		13-3/8 9-5/8	17-1/2 12-1/4	



Planning Report - Geographic

Database:	DB_Decv0422v16	Local Co-ordinate Reference:	Well Haynes Canyon Unit 432H
Company:	Enduring Resources LLC	TVD Reference:	RKB=6689+25 @ 6714.00ft
Project:	Rio Arriba County, New Mexico NAD83 NM C	MD Reference:	RKB=6689+25 @ 6714.00ft
Site:	Haynes Canyon Unit (432, 434, 436 & 438)	North Reference:	Grid
Well:	Haynes Canyon Unit 432H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,417.56	1,414.24	Ojo Alamo		-0.40	135.000	
1,530.85	1,524.39	Kirtland		-0.40	135.000	
1,757.61	1,744.68	Fruitland		-0.40	135.000	
1,989.54	1,969.97	Pictured Cliffs		-0.40	135.000	
2,139.00	2,115.16	Lewis		-0.40	135.000	
2,448.23	2,415.56	Chacra		-0.40	135.000	
3,592.37	3,527.02	Cliff House		-0.40	135.000	
3,592.37	3,527.02	Menefee		-0.40	135.000	
4,324.22	4,237.95	Point Lookout		-0.40	135.000	
4,621.19	4,528.29	Mancos		-0.40	135.000	
4,962.22	4,868.39	MNCS_A		-0.40	135.000	
5,052.22	4,958.39	MNCS_B		-0.40	135.000	
5,204.83	5,108.20	MNCS_C		-0.40	135.000	
5,279.88	5,178.01	MNCS_Cms		-0.40	135.000	
5,342.15	5,232.80	MNCS_D		-0.40	135.000	
5,441.13	5,312.40	MNCS_E		-0.40	135.000	
5,518.70	5,367.01	MNCS_F		-0.40	135.000	
5,659.77	5,446.20	 MNCS_G		-0.40	135.000	
5,768.49	5,495.52	MNCS_H		-0.40	135.000	

Plan Annotations

Measured	Vertical	Local Coor	dinates	
Depth	Depth	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	Comment
1,000.00	1,000.00	0.00	0.00	KOP Begin 3°/100' build
1,457.61	1,453.25	5.16	-54.32	Begin 13.73° tangent
4,436.20	4,346.74	72.06	-758.02	Begin 3°/100' drop
4,893.82	4,799.99	77.22	-812.34	Begin vertical hold
5,027.89	4,934.06	77.22	-812.34	Begin 10°/100' build
5,627.89	5,430.26	-125.35	-609.77	Begin 60.00° tangent
5,687.89	5,460.26	-162.09	-573.03	Begin 10°/100' build
5,991.89	5,537.00	-367.50	-367.62	Begin 90.40° lateral
17,426.53	5,457.00	-8,452.82	7,717.68	PBHL/TD @ 17426.53 MD 5457.00 TVD

VELL NAME: Haynes Canyon Unit 432H

OBJECTIVE:	Drill, comple	ete, and equip si	ngle lateral	l in the Mancos-	H formation		
API Number:	Not yet assigne	ed					S
AFE Number:	Not yet assigne	ed					
/ell Number:	Not yet assigne	ed					
State:	New Mexico						
County:	Rio Arriba						
Surface Elev.:	6,689	ft ASL (GL)	6,714	ft ASL (KB)			
rface Location:	3-23-6	Sec-Twn- Rng	1,773	ft FNL	303	ft FWL	
BH Location:	11-23-6	Sec-Twn- Rng	234	ft FSL	2592	ft FEL	
Directions:	FROM THE IN	TERSECTION OF L	IS HWY 550	& US HWY 64 IN B	LOOMFIELD,	NM:	

QUICK REFERENCE							
Sur TD (MD)	350 ft						
Int TD (MD)	3,747 ft						
KOP (MD)	5,050 ft						
KOP (TVD)	4,956 ft						
Target (TVD)	5,444 ft						
Curve BUR	10 °/100 ft						
POE (MD)	5,660 ft						
TD (MD)	17,427 ft						
Lat Len (ft)	11,767 ft						

South on US Hwy 550 for 53.8 miles to MM 97.6; Left (North) on CR #379 (State Hwy 403) for 1.3 miles to fork; Right (North) remaining on CR #379/403 for 1.8 miles to Tintersection of CR 498, Left (NorthWest) on CR 498 for .2 miles to location access on right into Haynes Canyon Unit 432H Pad. From South to North will be Haynes Canyon Unit 432H, 434H, 436H, and 438H.

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
ntermediate	12.250	3,747	9.625	36.0	J-55	LTC	0	3,747
Production	8.500	17,427	5.500	17.0	P-110	LTC	0	17,427

NT PROPERTIES SUMMARY:

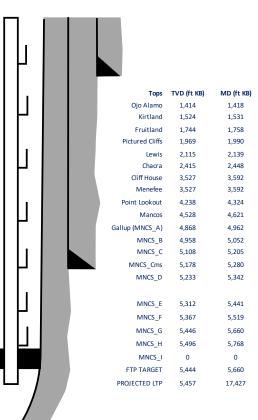
						TOC (ft		
	Туре	Wt (ppg)	Yd (cuft/sk)	Wtr (gal/sk)	% Excess	MD)	Total (sx)	Cu Ft Slurry
Surface	TYPE III	14.6	1.39	6.686	100%	0	364	505
Inter. (Lead)	0:10 Type III:P	12.5	2.14	12.05	70%	0	780	1,669
Inter. (Tail)	Type III	14.6	1.38	6.64	20%	3247	150	207
Prod. (Lead)	ASTM type I/II	12.4	2.370	13.4	50%	0	552	1,309
Prod. (Tail)	G:POZ blend	13.3	1.570	7.7	10%	4621	2063	3,240

LETION / PRODUCTION SUMMARY:

Frac: 11667

Flowback: Flow back through production tubing as pressures allow

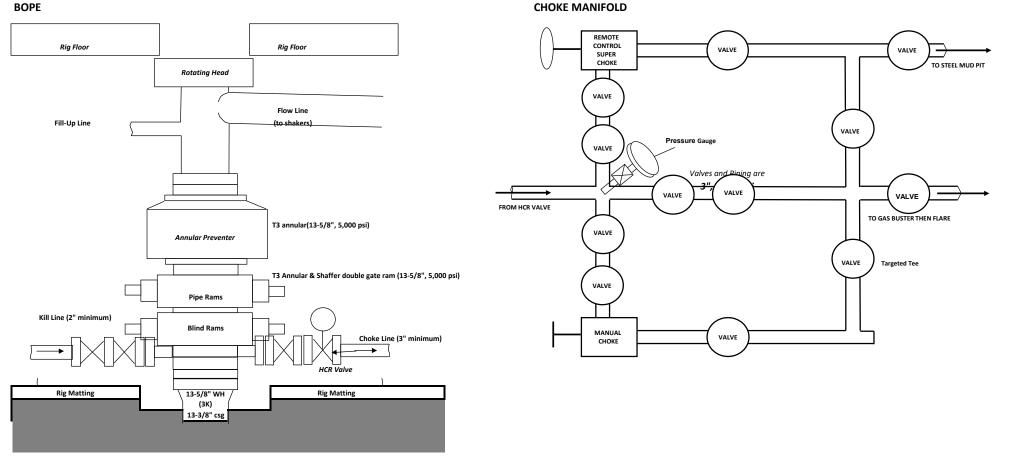
Production: Produce through production tubing via gas-lift into permanent production and storage facilities



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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

CONDITIONS

Operator:	OGRID:
ENDURING RESOURCES, LLC	372286
6300 S Syracuse Way, Suite 525	Action Number:
Centennial, CO 80111	291551
	Action Type:
	[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

One start Dr.	Our diffus	Ora dition Data
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

CONDITIONS

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Action 291551