AFMSS

U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

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
  -- Well Plat: 1 file(s)

- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 2 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 1 file(s)
  -- Casing Design Assumptions and Worksheet(s): 3 file(s)
  -- Hydrogen sulfide drilling operations plan: 1 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 3 file(s)
  -- Other Facets: 5 file(s)

- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 3 file(s)
  -- New Road Map: 1 file(s)
  -- Attach Well map: 1 file(s)
  -- Water source and transportation map: 1 file(s)
  -- Construction Materials source location attachment: 2 file(s)
  -- Well Site Layout Diagram: 2 file(s)
  -- Recontouring attachment: 2 file(s)
  -- Other SUPO Attachment: 5 file(s)

- PWD Report
- PWD Attachments
  -- None

- Bond Report

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- Bond Attachments
  -- None

Form 3160-3
(October 2024)

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2027

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☐ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.

2. Name of Operator

9. API Well No.
30-015-59157

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.*)*

At surface

At proposed prod. zone

11. Sec., T. R. M. or Blk. and Survey or Area

14. Distance in miles and direction from nearest town or post office*	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. Spacing 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 of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

25. Signature	Name *(Printed/Typed)*	Date

Title

Approved by *(Signature)*	Name *(Printed/Typed)*	Date

Title	Office

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

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

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 10/22/2026

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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.

Released to Imaging: 11/12/2026 1:37:22 PM

Approval Date: 10/22/2026

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Additional Operator Remarks

Location of Well

0. SHL: LOT 4 / 302 FNL / 1197 FWL / TWSP: 18S / RANGE: 27E / SECTION: 5 / LAT: 32.783136 / LONG: -104.305389 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 690 FNL / 0 FWL / TWSP: 18S / RANGE: 26E / SECTION: 1 / LAT: 32.782406 / LONG: -104.3265 (TVD: 1918 feet, MD: 7775 feet)

PPP: LOT 1 / 660 FNL / 100 FEL / TWSP: 18S / RANGE: 27E / SECTION: 6 / LAT: 32.782241 / LONG: -104.309601 (TVD: 1918 feet, MD: 2581 feet)

PPP: NWNE / 667 FNL / 1332 FEL / TWSP: 18S / RANGE: 27E / SECTION: 6 / LAT: 32.78228 / LONG: -104.313611 (TVD: 1918 feet, MD: 3813 feet)

PPP: NENW / 675 FNL / 2629 FWL / TWSP: 18S / RANGE: 27E / SECTION: 6 / LAT: 32.782323 / LONG: -104.317946 (TVD: 1918 feet, MD: 5146 feet)

BHL: NWNE / 660 FNL / 2643 FEL / TWSP: 18S / RANGE: 26E / SECTION: 1 / LAT: 32.782487 / LONG: -104.3351 (TVD: 1918 feet, MD: 10417 feet)

BLM Point of Contact

Name: JANET D ESTES
Title: ADJUDICATOR
Phone: (575) 234-6233
Email: JESTES@BLM.GOV

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT – CARLSBAD FIELD OFFICE

Applicant: RILEY PERMIAN OPERATING COMPANY LLC

Project Title: Liam Fed Com: Liam SA 6-1 Fed Com 101H Well

Original EA #: DOI-BLM-NM-P020-2026-0595-EA; Prepared by Frank Hernandez

NEPA #: DOI-BLM-NM-P020-2027-0066-CE

Location: Eddy County, New Mexico

Lease Number: NMLC0049648A, NMLC0026874F, NMLC0026874B, NMLC0069274

Project Type: Application for Permit to Drill (APD)

Surface Use Conditions of Approval (COAs)

Failure of the operator to comply with these requirements may result in the assessment of penalties pursuant to 43 CFR 3163.1 or 3163.2. ***A copy of these conditions of approval shall be present on the location during construction, drilling and reclamation activity.*** *Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5.*

Pad Name	Well Name with Location (with SHL & BHL[1])
Liam Fed Com	Liam SA 6-1 Fed Com 101H SHL: 302 feet FNL and 1197 feet FWL, Section 5, T. 18 S., R. 27 E. BHL: 660 feet FNL and 2643 feet FEL, Section 1, T. 18 S., R. 26 E.

Application Facilities

1. Construction Notification

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at BLM_NM_CFO_Construction_Reclamation@blm.gov at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and COAs on the well site and they shall be made available upon request by the Authorized Officer.

Special Stipulations

1. Archaeological, Paleontology & Historical Sites

Any cultural resource (historic or prehistoric site or object) discovered by the operator, or any person working on the operator's behalf, on the public or federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area (within 100 ft) 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, in conjunction with a BLM Cultural Resource Specialist, to determine appropriate actions to prevent the loss of significant scientific values. The operator shall be responsible for the cost of evaluation and any decision as

[1] SHL is an abbreviation for Surface Hole Location. BHL is an abbreviation for Bottom Hole Location.

to the proper mitigation measures will be made by the Authorized Officer after consulting with the operator.

Traditional Cultural Properties (TCPs) are protected by NHPA as codified in 36 CFR 800 for possessing traditional, religious, and cultural significance tied to a certain group of individuals. Though there are currently no designated TCPs within the project area or within a mile of the project area, it is possible for a TCP to be designated after the approval of this project. **If a TCP is designated in the project area after the project's approval, the BLM Authorized Officer will notify the operator of the following conditions and the duration for which these conditions are required.**

1. Temporary halting of all construction, drilling, and production activities to lower noise.
2. Temporary shut-off of all artificial lights at night.

The operator is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA), specifically NAGPRA Subpart B regarding discoveries, to protect human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered during project work. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and a BLM-CFO Authorized Officer will be notified immediately. The BLM will then be required to be notified, in writing, within 24 hours of the discovery. The written notification should include the geographic location by county and state, the contents of the discovery, and the steps taken to protect said discovery. You must also include any potential threats to the discovery and a confirmation that all activity within 100 ft of the discovery has ceased, and work will not resume until written certification is issued. All work on the entire project must halt for a minimum of 3 days and work cannot resume until an Authorized Officer grants permission to do so.

Any paleontological resource discovered by the operator, or any person working on the operator's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. The operator will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the operator.

2. HYDROLOGY

GENERAL CONSTRUCTION

- Any water erosion that may occur due to the construction of surface site and during the life of the surface site will be quickly corrected and proper measures will be taken to prevent future erosion.
    - Erosion control structures such as curled wood/straw fiber wattles/logs (plastic-free and weed-free), sandbags (with arsenic-free burlap), silt fences, diversion berms, or other soil erosion controls to slow water migration across disturbed areas should be installed during construction and reclamation or as needed.
    - Regular monitoring of any erosion control structures placed in or along the surface site is recommended, both following precipitation events and regularly during monsoon season (June – September.)
    - If during construction of this project any erosion control structures installed to protect adjacent permitted disturbance are damaged, the holder of the ROW/surface

site under construction must repair or replace those structures with an equivalent structure.
    - If erosion control structures are incorrectly installed or poorly maintained such that they result in erosional impacts on adjacent permitted disturbance, the operator responsible for the disturbance must repair any damage in addition to any damage within their own permitted ROW/surface site.
- Any spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

3. Cave / Karst

General Construction

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes, and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.
- This is a sensitive area, and all spills or leaks will be reported to the BLM immediately for their immediate and proper treatment, as defined in NTL 3A for Major Undesirable Events.

Production Mitigation

- Tank battery locations and facilities will be bermed and lined with a 20-mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Secondary containment holding capacity must be large enough to contain 1 ½ times the content of the largest tank or 24-hour production, whichever is greater (displaced volume from all tanks within the berms MUST be subtracted from total volume of containment in calculating holding capacity).
- Implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Residual and Cumulative Mitigation

The operator will perform annual pressure monitoring on all casing annuli. If the test results indicate a casing failure has occurred, contact a BLM Engineer immediately, and take remedial action to correct the problem.

Plugging and Abandonment Mitigation

Upon well abandonment in high cave karst areas, additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

4. Wildlife

Raptor Nest Mitigation (includes Burrowing Owls)

- A BLM Wildlife Biologist must be contacted by the operator prior to construction activities to determine if the raptor nest is active.
- Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests are considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines) and will not result in continuing activity in proximity to the nest.
- Exhaust noise from pump jack engines or other equipment must be muffled or otherwise controlled so as not to exceed 75 dB measured at 30 ft. from the source of the noise.

5. Special Status Plant Species

Special Status Plant Species (SSPS) Habitat Stipulations

Vehicles and equipment will be kept on existing roads and approved surfaces only and will avoid travel across undisturbed surfaces. Workers will be instructed not to park off the roads or in undisturbed areas. **Alterations to project design and additions of project components will require SSPS surveys and re-analysis of impacts if those project elements intersect SSPS suitable habitat.**

6. Visual Resource Management

General Requirements

- **Painting:** All permanent surface structures (except those subject to safety-color requirements), including piping 4 inches or greater, shall be painted with a flat, non-reflective finish selected from the BLM Standard Environmental Color Chart (CC-001: June 2008). The color specified for this project is **Shale Green**.
- **Form / Line / Texture Minimization:** The Holder shall minimize structure heights and lengths, avoid sky lining, break up continuous lines and planar faces, and orient facilities to reduce strong horizontal/vertical lines visible from KOPs.

Night Skies

- **Shielding:** All permanent exterior lighting fixtures associated with the project shall be full-cutoff (zero up-light) as defined by the Illuminating Engineering Society of North America (IESNA). Fixtures shall be installed such that no light is emitted above 80 degrees nadir and light distribution is confined to the intended work area.
- **Lighting Intensity:** Lighting intensity shall not exceed 0.5 foot-candles at the project boundary unless higher levels are required to meet OSHA or MUTCD safety standards.
- **Correlated Color Temperature (CCT):** All permanent lighting fixtures shall have a CCT of 3,500 Kelvin or lower. High-intensity discharge fixtures (mercury vapor, metal halide) are prohibited. Acceptable fixtures include low-pressure sodium or warm-spectrum LED. No bluish-white lighting shall be used in permanent outdoor lighting.

- **Temporary Lighting:** The Holder shall remove all temporary lighting within 30 days of construction completion or cessation of nighttime work unless otherwise approved in writing by the AO.

Reclamation

Stipulations required by the Authorized Officer on specific actions may differ from the following general guidelines.

1. Road And Site Reclamation

Any roads constructed during the life of the well will have the caliche removed or linear burial. If contaminants are indicated then testing will be required for chlorides and applicable contamination anomalies for final disposal determination (disposed of in a manner approved by the Authorized Officer within Federal, State and Local statutes, regulations, and ordinances) and seeded to the specifications listed below.

2. Erosion Control

Install erosion control berms, windrows, and hummocks. Windrows must be level and constructed perpendicular to down-slope drainage; steeper slopes will require greater windrow density. Topsoil between windrows must be ripped to at least 12”, unless bedrock is encountered. Any large boulders pulled up during ripping must be deep buried on location. Ripping must be perpendicular to down-slope. The surface must be left rough to catch and contain rainfall on-site. Any trenches resulting from erosion caused by run-off shall be addressed immediately.

3. Interim Reclamation

During the life of the development, all disturbed areas not needed for active support of production operations must undergo interim reclamation to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators must work with BLM surface protection specialists (BLM_NM_CFO_Construction_Reclamation@blm.gov) to devise the best strategies to reduce the size of the location. Interim reclamation must allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche and any other surface material is required. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. To operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions / exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notice, Subsequent Report of Reclamation (Form 3160-5).

4. Final Abandonment & Reclamation

Prior to surface abandonment, the operator shall submit a Notice of Intent Sundry Notice and reclamation plan.

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding will be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM. After earthwork and seeding is completed, the operator is required to submit a Sundry Notice, Subsequent Report of Reclamation.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (BLM_NM_CFO_Construction_Reclamation@blm.gov).

5. Seeding Requirements

Seeding Techniques

Seeds shall be hydro-seeded, mechanically drilled, or broadcast, with the broadcast-seeded area raked, ripped or dragged to aid in covering the seed. The seed mixture shall be evenly and uniformly planted over the disturbed area.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided within. Seeding will be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Soil Specific Seed Mixture

The holder shall seed all the disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

We encourage the addition of a cover crop to the seed mix, but it is not required. Depending on timing you can add:

- Oats in the spring,
- Triticale in the fall,
- Winter Wheat in the fall,
- Millet in the summer, and / or
- Sorghum in the summer.

Feel free to call Carlsbad BLM Field Office if you have any questions.

$$\textbf{\textit{Pounds of Pure Live Seed}} = Pounds\ of\ Seed * Percent\ Purity * Percent\ Germination$$

SEED MIXTURE 4 FOR GYPSUM SITES

Species to be planted in **Pounds of Pure Live Seed** per acre:

Species	lb/acre
Alkali Sacaton (*Sporobolus airoides*)	1.5
De-Winged Seed: Four-wing saltbush (*Atriplex canescens*)	8.0

For this mix, it is recommended to add **9 lbs./acre** of cover crop, if utilized.

General Provisions

1. The BLM shall administer compliance and monitor construction of the disturbance. Notify the Carlsbad Office at BLM_NM_CFO_Construction_Reclamation@blm.gov at least 3-working days prior to commencing construction of the access road and/or well pad.
2. The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties. A copy of these stipulations and survey plat and / or map will be on location during construction, drilling and reclamation activity. BLM personnel may request a copy of your permit during construction to ensure compliance with all stipulations.
3. The holder / operator shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.
4. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
5. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR § 2803 & 2883. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from fire or soil movement (including landslides and slumps as well as wind and water caused movement of particles) caused or substantially aggravated by any of the following within the right-of-way or permit area:
    a. Activities of the holder, including but not limited to, construction, operation, maintenance, and termination of the facility.
    b. Activities of other parties including but not limited to:
        i. Land clearing.

ii. Earth-disturbing and earth-moving work.
iii. Blasting.
iv. Vandalism and sabotage.

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction of in which the damage of injury occurred. This section shall not impose strict liability for damage or injury resulting primarily from the negligent acts of the United States.

If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil of other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

6. The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

7. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. §§ 2601) regarding any toxic substances that are used, generated by or stored. Additionally, any release of toxic substances (leaks, spills, etc.) more than the reportable quantity established by 40 CFR § 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government because of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the Federal agency or State government involved.

8. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. §§ 9601 or the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

9. Sites shall always be maintained in an orderly, sanitary condition. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations. All trash, debris and other waste materials shall be contained in trash cages or bins to prevent scattering. Burial on site is not permitted. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.
10. The BLM serial number assigned to this right-of-way grant shall be posted at the points of origin and completion of the right-of-way (or entry to and exit from public lands), all major road crossings, and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served. These signs will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the term of the right-of-way.
11. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. **Removal of any additional material from this location for construction or improvement of other well pads and other access or lease roads must first be purchased from BLM.** Removal of any material from the project boundary for use on other leases or roads must first be purchased from BLM.
12. The operator shall minimize disturbance to existing fences and other improvements on public lands. The operator is required to promptly repair improvements to at least their former state. Functional use of these improvements will be always maintained. The operator will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
13. In those areas where erosion control structures are required to stabilize soil conditions, the holder shall install such structures as are suitable for specific soil conditions being encountered and which are in accordance with sound management practices. Any earthwork will require prior approval by the Authorized Officer.
14. Any vegetation, soil, and rocks left because of construction, drilling, or maintenance activity will be randomly scattered over the project area and will not be left in rows, piles, or berms, unless otherwise approved by the authorized officer. The backfilled soil shall be compacted, and a 6-inch berm will be left over the ditch line to allow for settling back to grade. The holder shall stockpile an adequate amount of topsoil where blading occurs. The topsoil to be stripped is approximately 6-inches in depth. The topsoil will be segregated from other spoil piles. Following backfilling and recontouring, the topsoil will be evenly distributed over the bladed area for the preparation of seeding. The entire corridor shall be recontoured to match the surrounding landscape.
15. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer. All surface structures shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facilities or this grant, whichever comes first. This

will not apply where the facilities extend to serving an active, adjoining facility. At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	RILEY PERMIAN OPERATING COMPANY LLC
WELL NAME & NO.:	LIAM SA 6-1 FED COM 101H
LOCATION:	Section 5, T.18 S., R.27 E., -NMP
COUNTY:	Eddy County, New Mexico

Create COAs

H_2S	Cave / Karst	Waste Prevention Rule
Present	High	Waste Minimization Plan

Potash	R-111-Q Design
None	

Wellhead	Casing	Cementing
Conventional	2-String Well	
	☐ Liner ☐ Fluid Filled ☑ Casing Clearance	
☑ Flex Hose		☐ DV Tool ☐ Bradenhead ☐ Echometer
☐ Break Testing		☐ Offline Cement ☐ Open Annulus ☐ Pilot Hole

Special Requirements

☐ Capitan Reef ☐ Water Disposal ☑ COM ☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet 43 CFR part 3170 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **9-5/8** inch surface casing shall be set at approximately **4000** feet (a minimum of **70'** into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. **Set depth adjusted per BLM geologist.**
    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic-type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement

Approval Date: 10/22/2026

and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or **500 pounds compressive strength**, whichever is greater (including lead cement.)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

High cave/karst – contingency casing will be required If lost circulation occurs while drilling the surface hole. The surface hole will have to be reamed and a larger casing installed. If lost circulation occurs while drilling the 8-3/4" hole, the cement program for the 7x5-1/2" casing will need to be modified and the Blm is to be contacted PRIOR TO RUNNING THE CASING. A minimum of two casing strings cemented to surface IS required in high cave/karst areas. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE required.

2. The minimum required fill of cement behind the **7** inch x 5.5 inch production casing is **cement to surface**. If cement does not circulate, see B.1.a, c-d above.
    - **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry** due to the presence of cave/karst, Capitan Reef, or potash features.

C. PRESSURE CONTROL

1. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the production casing shoe shall be **5000 (5M)** psi.

3. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

D. SPECIAL REQUIREMENT(S)

Communitization Agreement:

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the

operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in 43 CFR 3171 and 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

Casing Clearance
Surface String does not meet clearance requirement per 43 CFR 3172.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

For multi-well pads, notifications for the following operations may be made together going from one well to the next. This does **NOT** apply to notifications for wells in the R111Q potash area:

- Casing run
- Offline cementing
- Break testing

Contact Eddy County Petroleum Engineering Inspection Staff:
Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220; **BLM_NM_CFO_DrillingNotifications@BLM.GOV**; (575) 361-2822

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
    a. In the event the operator proposed to drill multiple wells utilizing a skid / walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
    b. When the operator proposes to set surface casing with Spudder Rig
        i. Notify the BLM when moving in and removing the Spudder Rig.
        ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.

iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2nd Rig is rigged up on swell.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will always be operational during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the doghouse or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

A. CASING & CEMENT

1. The current acceptable methods of cement verification are as follows:
   i. Observing cement circulated to surface,
   ii. Cement Bond Log (CBL),
   iii. Temperature log within 8-10 hours after completing the cement job,
   iv. Echometer (if a second-stage bradenhead is being utilized and operator was granted approval prior to operations.)
2. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
3. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

5. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Well specific cement details must be onsite prior to pumping the cement for each casing string.
6. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
7. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
8. If hard band drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
9. Whenever a casing string is cemented in the R-111-Q potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR 3172**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
    i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    ii. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    iii. Manufacturer representative shall install the test plug for the initial BOP test.

iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
v. If the cement does not circulate and one-inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
   i. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
   ii. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (This only applies to single stage cement jobs, prior to the cement setting up.)
   iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
   iv. The test shall be run on a 5000-psi chart for a 2-3M BOP/BOP, on a 10000-psi chart for a 5M BOP/BOPE and on a 15000-psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one-hour chart. A circular chart shall have a maximum 2-hour clock. If a twelve hour or twenty-four-hour chart is used, tester shall make a notation that it is run with a two -our clock.
   v. The results of the test shall be reported to the appropriate BLM office.
   vi. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

vii. The BOP/BOPE test shall include a low-pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

viii. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR 3172**.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created because of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JS 10/16/2026

 Approval Date: 10/22/2026

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

Operator Certification Data Report

10/26/2026

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: ALEX RIZZO **Signed on:** 08/13/2026

Title: Senior Regulatory Specialist

Street Address: 29 E RENO AVE

City: OKLAHOMA CITY **State:** OK **Zip:** 73104

Phone: (405)415-8667

Email address: ALEXRIZZO@RILEYPERMIAN.COM

Field

Representative Name:

Street Address:

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

Phone:

Email address:

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

Application Data
10/26/2026

APD ID: 10400113358 **Submission Date:** 08/13/2026

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

Section 1 - General

APD ID: 10400113358 **Tie to previous NOS?** N **Submission Date:** 08/13/2026

BLM Office: Carlsbad **User:** ALEX RIZZO **Title:** Senior Regulatory Specialist

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMLC026874F **Lease Acres:** 520.96

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? NO **APD Operator:** RILEY PERMIAN OPERATING COMPANY LLC

Operator letter of

Operator Info

Operator Organization Name: RILEY PERMIAN OPERATING COMPANY LLC

Operator Address: 29 E RENO AVENUE SUITE 500 **Zip:** 73104

Operator PO Box:

Operator City: OKLAHOMA CITY **State:** OK

Operator Phone: (405)543-1411

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: LIAM SA 6-1 FED COM **Well Number:** 101H

Field/Pool or Exploratory? Field and Pool **Field Name:** Red Lake **Pool Name:** QUEEN-GRAYBURG - SAN ANDRES

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Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

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

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** Liam North **Number:** Pad

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 7 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 1217 FT

Reservoir well spacing assigned acres Measurement: 241.27 Acres

Well plat: Liam_SA_6_1_Fed_Com_101H_C102_R1_FINAL_SIGNED_20260810130439.pdf

Well work start Date: 02/12/2027 **Duration:** 8 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **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	302	FNL	1197	FWL	18S	27E	5	Lot 4	32.783136	-104.305389	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC049648A	3458			N
KOP Leg #1	518	FNL	542	FWL	18S	27E	5	Lot 4	32.782587	-104.307515	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC049648A	1856	1837	1602	N
PPP Leg #1-1	660	FNL	100	FEL	18S	27E	6	Lot 1	32.782241	-104.309601	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC026874F	1540	2581	1918	Y

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

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 Leg #1-2	667	FNL	1332	FEL	18S	27E	6	Aliquot NWNE	32.78228	-104.313611	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC026874B	1540	3813	1918	Y
PPP Leg #1-3	675	FNL	2629	FWL	18S	27E	6	Aliquot NENW	32.782323	-104.317946	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC069274	1540	5146	1918	Y
PPP Leg #1-4	690	FNL	0	FWL	18S	26E	1	Aliquot NENE	32.782406	-104.3265	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	1540	7775	1918	Y
EXIT Leg #1	660	FNL	2553	FEL	18S	26E	1	Aliquot NWNE	32.782487	-104.334807	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	1540	10328	1918	Y
BHL Leg #1	660	FNL	2643	FEL	18S	26E	1	Aliquot NWNE	32.782487	-104.3351	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	1540	10417	1918	Y

CONFIDENTIAL

C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024 Submittal Type: ☒ Initial Submittal ☐ Amended Report ☐ As Drilled

Property Name and Well Number: **LIAM SA 6-1 FED COM 101H**

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-59157	51300	Red Lake; Queen-Grayburg-SA

Property Code	Property Name	Well Number
339659	LIAM SA 6-1 FED COM	101H

OGRID No.	Operator Name	Ground Level Elevation
372290	RILEY PERMIAN OPERATING COMPANY LLC	3458'

Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal — Mineral Owner: ☐ State ☒ Fee ☐ Tribal ☒ Federal

Surface Location

UL or Lot No.	Section	Township	Range	Lot	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
4	5	18 S	27 E		302 FNL	1197 FWL	N 32.783136°	W 104.305389°	EDDY

Bottom Hole Location If Different From Surface

UL or Lot No.	Section	Township	Range	Lot	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
2	1	18 S	26 E		660 FNL	2643 FEL	N 32.782487°	W 104.335100°	EDDY

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidated Code
241.27	Defining	N/A	No	Pending Com Agreement

Order Numbers: pending — Well Setbacks are under Common Ownership: ☒ Yes ☐ No

Kick Off Point (KOP)

UL or lot no.	Section	Township	Range	Lot	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
4	5	18 S	27 E		518 FNL	542 FWL	N 32.782587°	W 104.307515°	EDDY

First Take Point (FTP)

UL or lot no.	Section	Township	Range	Lot	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
1	6	18 S	27 E		660 FNL	100 FEL	N 32.782241°	W 104.309601°	EDDY

Last Take Point (LTP)

UL or lot no.	Section	Township	Range	Lot	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
2	1	18 S	26 E		660 FNL	2553 FEL	N 32.782487°	W 104.334807°	EDDY

Unitized Area or Area of Uniform Interest	Spacing Unity Type	Ground Floor Elevation
	☒ Horizontal ☐ Vertical	3483'

OPERATOR CERTIFICATION

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

If this well is a horizontal well, I further certify that this organization has received The consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.

Signature: [signature] Date: 8/10/26

Print Name: Alex Rizzo

E-mail Address: alexrizzo@rileypermian.com

SURVEYORS CERTIFICATION

MITCHELL L. McDONALD — NEW MEXICO — 29821 — 07/30/2026 — PROFESSIONAL SURVEYOR

Signature and Seal of Professional Surveyor — Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MITCHELL L. MCDONALD, N.M. P.L.S.

Certificate Number	Date of Survey
29821	JULY 09, 2026

Note: No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

Received by OCD: 10/28/2026 9:13:30 AM

Released to Imaging: 11/12/2026 1:37:22 PM

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C-102	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024
Submit Electronically Via OCD Permitting		Submittal Type: ☒ Initial Submittal ☐ Amended Report ☐ As Drilled

Property Name and Well Number

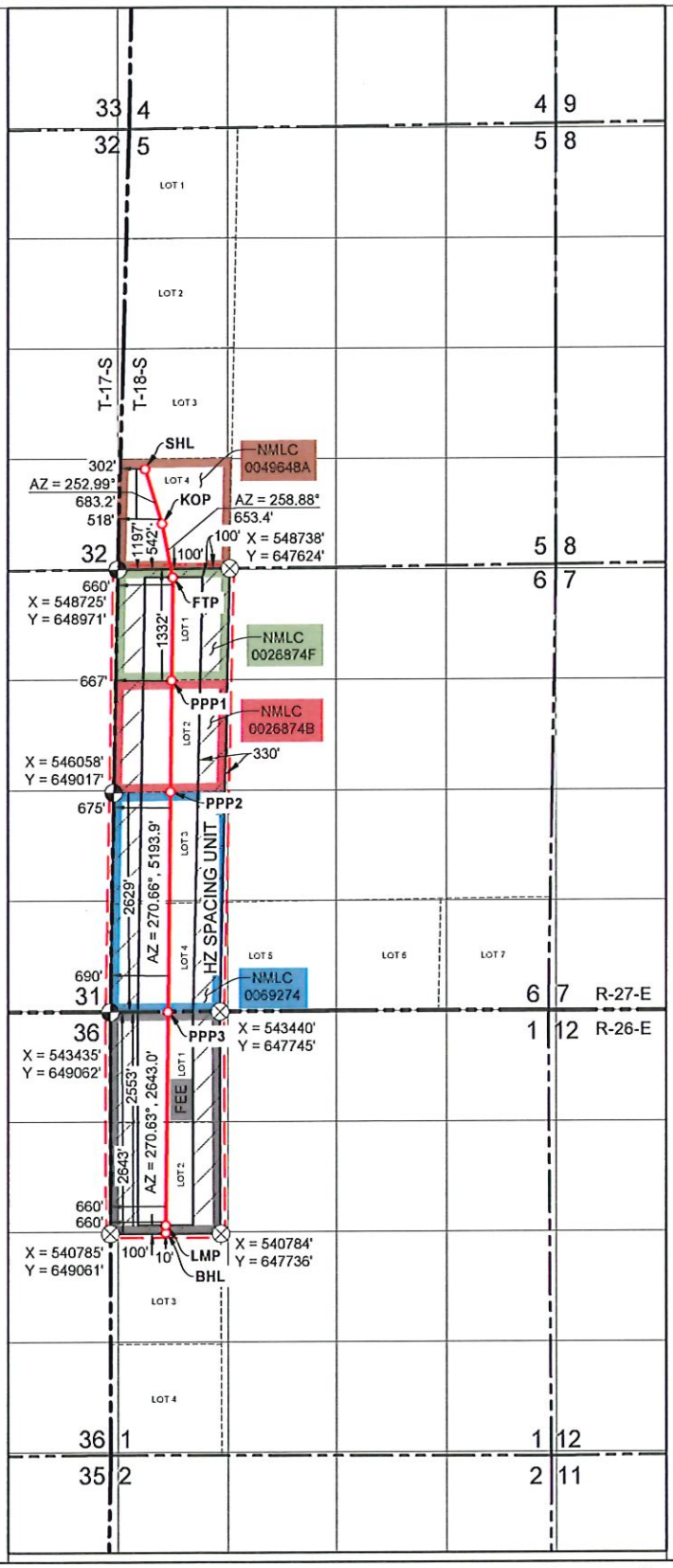
LIAM SA 6-1 FED COM 101H

SURFACE LOCATION
NEW MEXICO EAST
NAD 1983
X=549925' Y=648638'
LAT=N32.783136°
LONG=W104.305389°
NAD 1927
X=508746' Y=648575'
LAT=N32.783022°
LONG=W104.304874°
302' FNL 1197' FWL

KOP LOCATION
NEW MEXICO EAST
NAD 1983
X=549272' Y=648438'
LAT=N32.782587°
LONG=W104.307515°
NAD 1927
X=508093' Y=648376'
LAT=N32.782473°
LONG=W104.307000°
518' FNL 542' FWL

FIRST TAKE POINT
NEW MEXICO EAST
NAD 1983
X=548631' Y=648312'
LAT=N32.782241°
LONG=W104.309601°
NAD 1927
X=507452' Y=648250'
LAT=N32.782127°
LONG=W104.309086°
660' FNL 100' FEL

PROPOSED PENETRATION POINT 1
NNEW MEXICO EAST
NAD 1983
X=547399' Y=648326'
LAT=N32.782280°
LONG=W104.313611°
NAD 1927
X=506220' Y=648264'
LAT=N32.782166°
LONG=W104.313096°
667' FNL 1332' FEL



PROPOSED PENETRATION POINT 2
NEW MEXICO EAST
NAD 1983
X=546066' Y=648342'
LAT=N32.782323°
LONG=W104.317946°
NAD 1927
X=504887' Y=648279'
LAT=N32.782209°
LONG=W104.317431°
675' FNL 2629' FWL

PROPOSED PENETRATION POINT 3
NEW MEXICO EAST
NAD 1983
X=543437' Y=648372'
LAT=N32.782406°
LONG=W104.326500°
NAD 1927
X=502258' Y=648309'
LAT=N32.782292°
LONG=W104.325985°
690' FNL 0' FWL

LOWER MOST PERF.
NEW MEXICO EAST
NAD 1983
X=540885' Y=648401'
LAT=N32.782487°
LONG=W104.334807°
NAD 1927
X=499706' Y=648338'
LAT=N32.782373°
LONG=W104.334291°
660' FNL 2553' FEL

BOTTOM HOLE LOCATION
NEW MEXICO EAST
NAD 1983
X=540795' Y=648401'
LAT=N32.782487°
LONG=W104.335100°
NAD 1927
X=499616' Y=648338'
LAT=N32.782373°
LONG=W104.334584°
660' FNL 2643' FEL

Note: Bearings, coordinates, and distances (grid) shown hereon are based on the New Mexico State Plane Coordinate System, East Zone, NAD 83-2011 (EPOCH 2010) framework, as derived by OPUS Solution. The elevations shown hereon are based on NAVD 88.

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

Drilling Plan Data Report
10/26/2026

APD ID: 10400113358 **Submission Date:** 08/13/2026

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
19107262	RUSTLER	0	0	0	DOLOMITE, GYPSUM	NONE	N
19107263	SALADO	0	0	0	DOLOMITE, GYPSUM	NONE	N
19107264	TANSILL	0	0	0	DOLOMITE, GYPSUM, SILTSTONE	NONE	N
19107265	YATES	0	0	0	DOLOMITE, GYPSUM	NONE	N
19107266	SEVEN RIVERS	-208	208	208	DOLOMITE, SALT	USEABLE WATER	N
19107270	QUEEN	-639	639	639	ANHYDRITE, DOLOMITE	NONE	N
19107271	GRAYBURG	-1101	1101	1103	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	N
19107272	SAN ANDRES	-1308	1308	1316	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	N
19107273	SAN ANDRES	-1918	1918	2579	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 11000

Equipment: The blowout preventer equipment (BOP) shown in Exhibit 10 will consist of a double ram-type (3000 psi WP) minimum preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 5 drill pipe rams on bottom. The 13-5/8 BOP will be nippled up on the 13-3/8 surface casing and tested by a 3rd party to 2000 psi used continuously until TD is reached.
Requesting Variance? YES

Variance request: Riley Permian requests a variance to use a flex line from the BOP to the choke manifold. Documentation will be attached in the APD and be readily available from manufacturer on site. No external damage to the flex line. Flex line to be installed as straight as possible with no bends.
Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and 70% of working pressure high unless otherwise required, as per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed with be functional and tested. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics. Riley Exploration Permian LLC requests permission to adjust the BOP break testing requirements as follows: BOP break test under the following conditions: After a full BOP test is conducted When skidding to drill the production section, where the surface casing point is shallower than the 3 Bone Spring or 10,000 TVD When skidding to drill a production section that does not penetrate the 3rd Bone Spring or deeper If the kill line is broken prior to skid, four tests will be performed: The void between the wellhead and the spool (one on each side for two tests) The spool between the kill lines and the choke manifold (consisting of two tests) If the kill line is not broken prior to skid, two tests will be performed: The void between the wellhead and the pipe rams

Choke Diagram Attachment:

BOP_Choke_Diagram_20251120061012.pdf

H3_051622_1_Choke_Hose_5Yr_Cert__May_16_22__202206281108_20260204125432.pdf

BOP Diagram Attachment:

BOP_Choke_Diagram_20251120061018.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	400	0	400	3458	3058	400	J-55	48	ST&C	1.125	1.2	DRY	1.4	DRY	1.4
2	PRODUCTION	8.75	7.0	NEW	API	N	0	2500	0	1912	3459	1546	2500	HCL-80	32	BUTT	1.125	1.2	DRY	1.4	DRY	1.4
3	PRODUCTION	8.75	5.5	NEW	API	N	2500	10417	1912	1918	1546	1540	7917	HCL-80	20	BUTT	1.125	1.2	DRY	1.4	DRY	1.4

Casing Attachments

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Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Liam_SA_6_1_Fed_Com_101H_BLM_Casing_Assumptions_Updated_for_10_day_letter_20260922135711.pdf

Casing ID: 2 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Liam_SA_6_1_Fed_Com_101H_BLM_Casing_Assumptions_Updated_for_10_day_letter_20260922135615.pdf

Casing ID: 3 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Liam_SA_6_1_Fed_Com_101H_BLM_Casing_Assumptions_Updated_for_10_day_letter_20260922135648.pdf

Section 4 - Cement

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	400	420	1.34	14.8	520.9	100	Class C Premium Plus + 1%PF1	20 bbl gel spacer, 50x of 11# scavenger cement
PRODUCTION	Lead		0	2500	200	2.29	11.5	478.81	35	50/50 Poz Premium Plus	20bbl gel spacer, 50sx of 11# scavenger cement
PRODUCTION	Tail		2500	10414	1575	1.31	13.7	2233.59	35	35/65 Poz C Premium Plus	50sx of 11# scavenger cement
PRODUCTION	Lead		0	2500	200	2.29	11.5	478.84	35	50/50 Poz C Premiuim Plus	20bbl gel spacer, 50sx of 11# scavenger cement
PRODUCTION	Tail		2500	10417	1575	1.31	13.7	2233.59		35/65 Poz C Premium Plus	50 sx of 11# scavenger cement

Additional Cementing Information:

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 43 CFR 3172:

Diagram of the equipment for the circulating system in accordance with 43 CFR 3172:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The well will be drilled to TD with a combination of fresh and cut brine mud system. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Saltwater Clay, CACL2. Riley will utilize a closed mud system.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring will be used to monitor the loss or gain of fluid and digitally recorded.

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	400	SPUD MUD	8.6	8.9							
400	10417	SALT SATURATED	8.3	9							

Section 6 - Test, Logging, Coring

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

A. Logging will consist of a GR run from surface to TD
B. Drill stem test not anticipated
C. No conventional coring is anticipated
D. Further testing procedures will be determined at TD

Drilling information states that surface casing will be set at 400'. This is an estimate. Surface casing will be setno more than 50' above first oil shows as determined by mud log.

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

GAMMA RAY LOG,

Coring operation description for the well:

No coring anticipated

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 2750 **Anticipated Surface Pressure:** 2328

Anticipated Bottom Hole Temperature(F): 110

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

Liam_Fed_H2S_Drilling_Operation_Plan_20251120081459.pdf

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Riley___Liam_SA_6_1_Fed_Com_101H_OH__p1_20260810132546.pdf
Riley___Liam_SA_6_1_Fed_Com_101H_OH_p1_AC_20260810132558.pdf
Riley___Liam_SA_6_1_Fed_Com_101H_OH_p1_PlanRpt_20260810132603.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

Liam_SA_6_1_Fed_Com_101H_Gas_Plot_20260810132616.pdf
Liam_SA_6_1_Fed_Com_101H_NM_NGMP_FINAL_20260810132627.pdf
Liam_SA_Waste_Minimization_Plan_10292025_20260810132631.pdf
Liam_SA_6_1_Fed_Com_101H___Drilling_Program___Rev1_20260922135848.pdf
Liam_SA_6_1_Fed_Com_101H_Prelim_Geoprog_Updated_for_10_Day_Letter_20260922135857.pdf

Other Variance request(s)?: N

Other Variance attachment:

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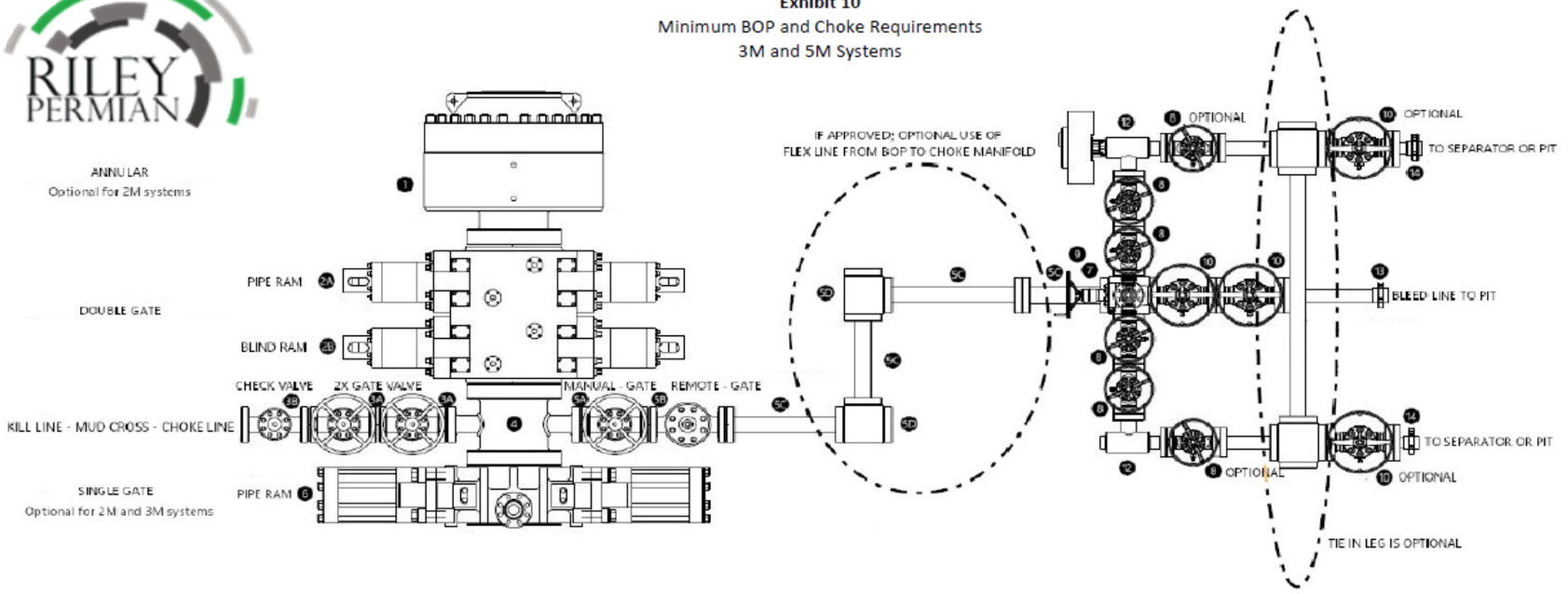
Exhibit 10

Minimum BOP and Choke Requirements

3M and 5M Systems



BOP - Minimum Requirements

	Description		ID (in.)	Nom. OD (in.)	Optional	Note
1	Annular				Yes - 2M	
2A	Double Gate	Pipe Ram	3 1/8		No	
2B		Blind Ram				
3A	Kill Line	Gate	2		No	
3A		Gate				
3B		Check Valve				
		Line		2		
4	Mud Cross		2 1/16		No	Kill Line - 2" min. Choke Line - 3" min.
5A	Choke Line	Gate - Manual (2)	3 1/8		No	
5B		Gate - Remote (2)				
5C		Line		3	No	
5D		Targeted Tee			No	
6	Single Gate - Pipe Ram				Yes - 2M and 3M	

(1) Only one required in 2M system
(2) Choke line valve order is interchangable
(3) Remote operated hydraulic choke required on 5M and 10M systems

Choke Manifold - Minimum Requirements

			3000 MWP			5000 MWP			10000 MWP		
	Description		ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)
7	Cross - 3" x 3" x 3" x 2"				3,000			5,000			10,000
8	Valve	Gate (2)	2 1/16		3,000	2 1/16		5,000	3 1/8		10,000
		Plug									
9	Pressure Gauge				3,000			5,000			10,000
10	Valve	Gate (2)	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
		Plug									
11	Remote Operated Adjustable Choke (3)		2 1/16		3,000			5,000			10,000
12	Manual Adjustable Choke		2 1/16		3,000			5,000			10,000
13	Line			3	3,000		3	5,000		3	10,000
14	Line			2	3,000		2	5,000		2	10,000
15	Gas Separator (4)			2' x 5'			2' x 5'			2' x 5'	

(1) Only one required in 2M system
(2) Gate valves only to be used for 10M system
(3) Remote chokes are required for 5M and 10M systems
(4) Gas separator is optional for 2M and 3M systems

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TEST REPORT

CUSTOMER

Company: [redacted]

Production description:

Sales order #: 523868

Customer reference:

TEST INFORMATION

Test procedure:	GTS-04-052	
Test pressure:	7500.00	psi
Test pressure hold:	3600.00	sec
Work pressure:	5000.00	psi
Work pressure hold:	900.00	sec
Length difference:	0.00	%
Length difference:	0.00	inch

Visual check:

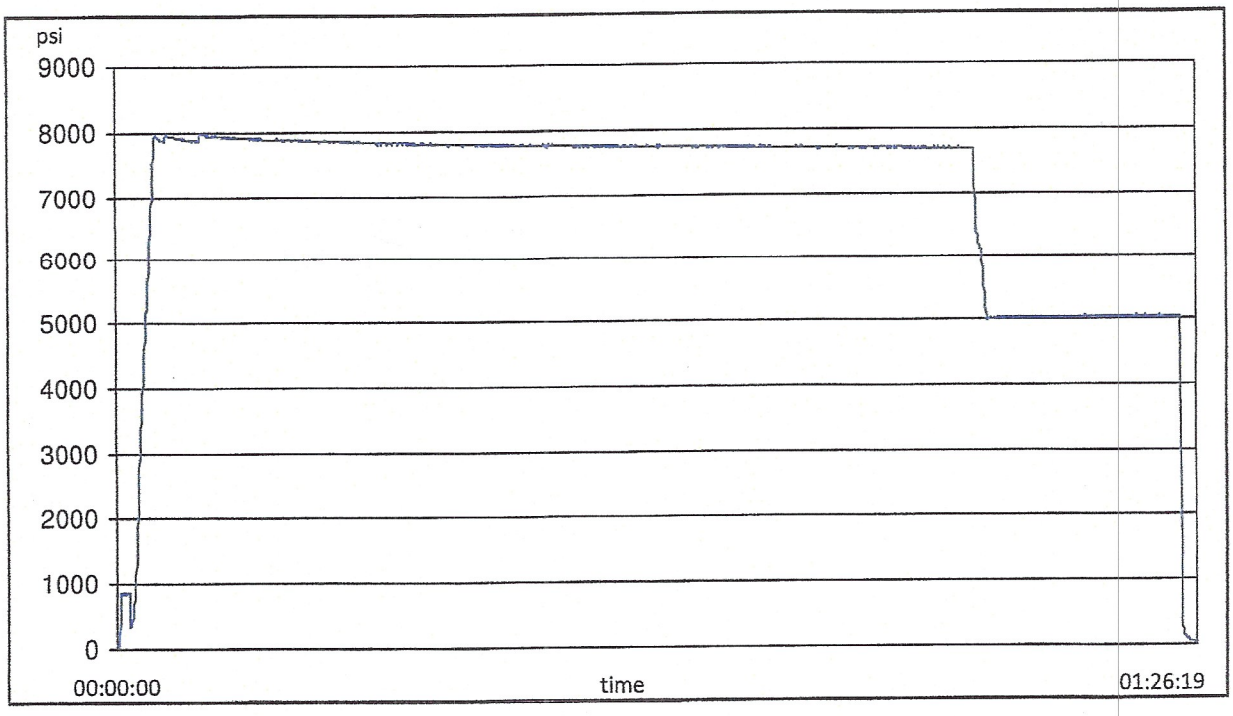
Pressure test result: PASS

Length measurement result:

Test operator: Martin

TEST OBJECT

Serial number:	H3-051622-1
Lot number:	L42089010720
Description:	
Hose ID:	3.5 5K MS C&K
Part number:	47741108
Fitting 1:	3.5 x 3 1/8 5k
Part number:	
Description:	3.5 x 3 1/8 5k
Fitting 2:	3.5 x 3 1/8 5k
Part number:	
Description:	3.5 x 3 1/8 5k
Length:	23 feet



Filename: D:\Certificates\Report_051622-H3-051622-1.pdf

BLACK GOLD®

GATES ENGINEERING & SERVICES NORTH AMERICA
7603 Prairie Oak Dr. Suite 190
Houston, TX. 77086

PHONE: +1 (281) 602-4100
FAX: +1 (281) 602-4147
EMAIL: gesna.quality@gates.com
WEB: www.gates.com/oilandgas

PRESSURE TEST CERTIFICATE

Customer:	[redacted]	Test Date:	5/16/2022
Customer Ref.:	643541	Hose Serial No.:	H3-051622-1
Invoice No.:	523868	Created By:	Cristian Rivera

Product Description:	3.5" X 23 FT GATES FIRE RATED CHOKE & KILL HOSE ASSEMBLY C/W 3 1/8" 5K FIXED X FLOAT H2S SUITED FLANGES WITH RED FIRE SLEEVE OVER EACH END SUPPLIED WITH LIFT EYE CLAMPS ATTACHED

End Fitting 1:	3 1/8" 5K FIXED	End Fitting 2:	3 1/8" 5K FLOAT
Oracle Star No.:	68503550-10095959	Assembly Code:	L42089 010720
CUSTOMER P/N:	FR3.523.0CK3185KFIXXFLTFLG RFS LE	Test Pressure:	7,500 PSI.
		Working Pressure:	5,000 PSI.

Gates Engineering & Services North America certifies that:

The following hose assembly has successfully passed all pressure testing requirements set forth in Gates specifications: GTS-04-052 (for 5K assemblies) or GTS-04-053 (10K assemblies) or GTS-04-048 (15K assemblies), which include reference to Specification API 16C (3rd Edition); sections 7.4.1, 7.4.5, and 10.7.7. A test graph will accompany this test certificate to illustrate conformity to test requirements. This hose assembly was pressure tested using equipment and instrumentation that has been calibrated in accordance with the requirements set-forth in the GESNA management system.

Quality:	QUALITY	Production:	PRODUCTION
Date :	5/16/2022	Date :	5/16/2022
Signature :		Signature :	

F-PRD-005B

Revision 7_03012022

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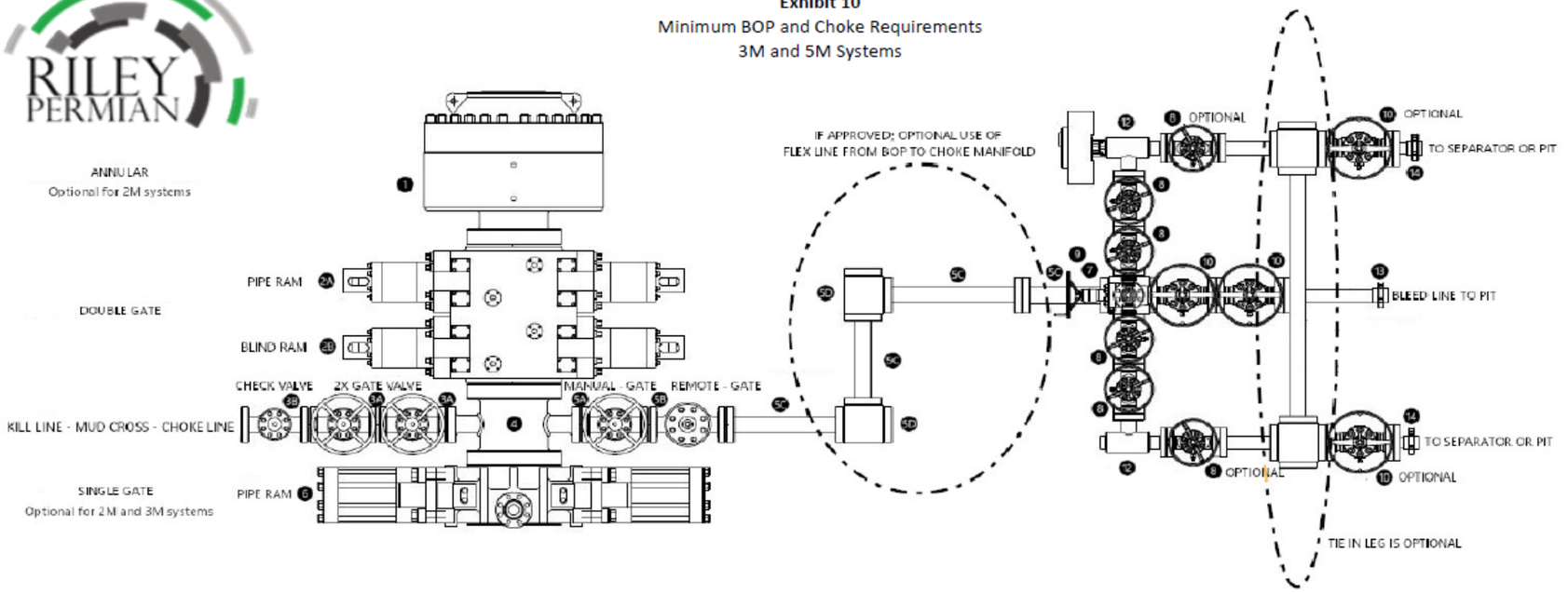
Riley Permian

Exhibit 10

Minimum BOP and Choke Requirements

3M and 5M Systems



BOP - Minimum Requirements						
	Description		ID (in.)	Nom. OD (in.)	Optional	Note
1	Annular				Yes - 2M	
2A	Double Gate	Pipe Ram	3 1/8		No	
2B		Blind Ram				
3A	Kill Line	Gate	2		No	
3A		Gate				
3B		Check Valve				
		Line		2		
4	Mud Cross		2 1/16		No	Kill Line - 2" min. Choke Line - 3" min.
5A	Choke Line	Gate - Manual (2)	3 1/8		No	
5B		Gate - Remote (2)				
5C		Line		3	No	
5D		Targeted Tee			No	
6	Single Gate - Pipe Ram				Yes - 2M and 3M	

(1) Only one required in 2M system
(2) Choke line valve order is interchangable
(3) Remote operated hydraulic choke required on 5M and 10M systems

Choke Manifold - Minimum Requirements											
			3000 MWP			5000 MWP			10000 MWP		
	Description		ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)
7	Cross - 3" x 3" x 3" x 2"				3,000			5,000			10,000
8	Valve	Gate (2)	2 1/16		3,000	2 1/16		5,000	3 1/8		10,000
		Plug									
9	Pressure Gauge				3,000			5,000			10,000
10	Valve	Gate (2)	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
		Plug									
11	Remote Operated Adjustable Choke (3)		2 1/16		3,000			5,000			10,000
12	Manual Adjustable Choke		2 1/16		3,000			5,000			10,000
13	Line			3	3,000		3	5,000		3	10,000
14	Line			2	3,000		2	5,000		2	10,000
15	Gas Separator (4)			2' x 5'			2' x 5'			2' x 5'	

(1) Only one required in 2M system
(2) Gate valves only to be used for 10M system
(3) Remote chokes are required for 5M and 10M systems
(4) Gas separator is optional for 2M and 3M systems

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Surface Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
9.625	36	J55	BTC	0'	350"	350"	$53.00
asing Details							
ID:	12.715 in		Collapse Rating:	740 psi			
Drift:	12.559 in		Burst Rating:	2,370 psi			
Connection OD:	14.375 in		Body Yield:	744 kips			
Capacity:	0.15705384 bbl/ft		Joint Strength:	433 kips			
Notes: All connections in the shoe track should be Thread Locked							

Estimated Casing Loads			
Hookload in Air	18.0 K-lbs		
Hookload (Buoyed)	15.5 K-lbs	with MW	9.2 ppg
Hookload with Cement to Shoe	29.3 K-lbs	with CW	14.8 ppg
Hookload with Cement in Place	13.9 K-lbs		
Min Pressure to Bump Plug	109.2 PSI		

Casing, Float Equipment and Accessories			
Item	Mfg.	Centralizers	Remarks
Float Shoe	Innovex		5K, Thread Lock
2 Joints: 13-3/8" 48# BTC		Bow Spring each joint	
Float Collar	Innovex (IIIC, SV, NR)		5K, Thread Lock, Top Plug to be used
13-3/8" 48# BTC		Bow Spring first 2 joint and then 1x every 4th	

Surface Casing Design

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	13.375	48	J55	STC	740	2,370	433,000	
				Min. Safety Factors	**1.125**	**1.100**	**1.500**	
Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	0	9.2	0	179	**4.1249**		**Dry/Fully Evacuated**
Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	9.2	0	179	0	**13.2107**		**Dry/Fully Evacuated**
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
	375'	9.2	18,000	15,472	115,472	**3.7498**		**100K Overpull**

Production Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
7	32	HCL-80	BTC	0'	2500'	2500'	$57.00
Casing Details							
ID:	6.094 in		Collapse Rating:	10,400 psi			
Drift:	5.969 in		Burst Rating:	8,460 psi			
Connection OD:	7.875 in		Body Yield:	745 kips			
Capacity:	0.0361 bbl/ft		Joint Stregth:	832 kips			
Size	**Wt./Ft.**	**Grade**	**Conn**	**Top**	**Bottom**	**Length**	**$/Ft.**
5.5	20	HCL-80	BTC	2500'	10,417'	7917'	$41.00
Casing Details							
ID:	4.778 in		Collapse Rating:	10,630 psi			
Drift:	4.653 in		Burst Rating:	8,990 psi			
Connection OD:	6.3 in		Body Yield:	466 kips			
Capacity:	0.0222 bbl/ft		Joint Stregth:	503 kips			
Notes: All connections in the shoe track should be Thread Locked							

Estimated Casing Loads			
Hookload in Air	228.0 K-lbs		
Hookload (Buoyed)	195.9 K-lbs	with MW	9.2 ppg
Hookload with Cement to Shoe	221.2 K-lbs	with CW	13.7 ppg
Hookload with Cement in Place	180.3 K-lbs		
Min Pressure to Bump Plug	819 PSI	Buoyancy	0.860

Production Casing Design

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	7	32	HCL-80	BTC	10,400	8,460	745,000	
	5.5	20	HCL-80	BTC	10,630	8,990	466,000	
				Min. Safety Factors	**1.125**	**1.100**	**1.500**	
Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
7	3,423'	0	9.2	0	1,638	**6.3509**		**Dry/Fully Evacuated**
5.5	3,500'	0	9.2	0	1,674	**6.3485**		
Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
7	3,423'	9.2	0	1,638	0	**5.1662**		**Dry/Fully Evacuated**
5.5	3,500'	9.2	0	1,674	0	**5.3691**		
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
7	3,423'	9.2	118,720	102,045	295,941	**2.5174**		**Total String + 100K Overpull**
5.5	3,500'	9.2	109,240	93,896		**1.5746**		

Surface Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
9.625	36	J55	BTC	0'	350"	350"	$53.00
asing Details							
ID:	12.715 in		Collapse Rating:	740 psi			
Drift:	12.559 in		Burst Rating:	2,370 psi			
Connection OD:	14.375 in		Body Yield:	744 kips			
Capacity:	0.15705384 bbl/ft		Joint Strength:	433 kips			
Notes: All connections in the shoe track should be Thread Locked							

Estimated Casing Loads			
Hookload in Air	18.0 K-lbs		
Hookload (Buoyed)	15.5 K-lbs	with MW	9.2 ppg
Hookload with Cement to Shoe	29.3 K-lbs	with CW	14.8 ppg
Hookload with Cement in Place	13.9 K-lbs		
Min Pressure to Bump Plug	109.2 PSI		

Casing, Float Equipment and Accessories			
Item	Mfg.	Centralizers	Remarks
Float Shoe	Innovex		5K, Thread Lock
2 Joints: 13-3/8" 48# BTC		Bow Spring each joint	
Float Collar	Innovex (IIIC, SV, NR)		5K, Thread Lock, Top Plug to be used
13-3/8" 48# BTC		Bow Spring first 2 joint and then 1x every 4th	

Surface Casing Design

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	13.375	48	J55	STC	740	2,370	433,000	
				Min. Safety Factors	**1.125**	**1.100**	**1.500**	
Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	0	9.2	0	179	**4.1249**		**Dry/Fully Evacuated**
Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	9.2	0	179	0	**13.2107**		**Dry/Fully Evacuated**
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
	375'	9.2	18,000	15,472	115,472	**3.7498**		**100K Overpull**

Production Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
7	32	HCL-80	BTC	0'	2500'	2500'	$57.00
Casing Details							
ID:	6.094 in		Collapse Rating:	10,400 psi			
Drift:	5.969 in		Burst Rating:	8,460 psi			
Connection OD:	7.875 in		Body Yield:	745 kips			
Capacity:	0.0361 bbl/ft		Joint Stregth:	832 kips			
Size	**Wt./Ft.**	**Grade**	**Conn**	**Top**	**Bottom**	**Length**	**$/Ft.**
5.5	20	HCL-80	BTC	2500'	10,417'	7917'	$41.00
Casing Details							
ID:	4.778 in		Collapse Rating:	10,630 psi			
Drift:	4.653 in		Burst Rating:	8,990 psi			
Connection OD:	6.3 in		Body Yield:	466 kips			
Capacity:	0.0222 bbl/ft		Joint Stregth:	503 kips			
Notes: All connections in the shoe track should be Thread Locked							

Estimated Casing Loads			
Hookload in Air	228.0 K-lbs		
Hookload (Buoyed)	195.9 K-lbs	with MW	9.2 ppg
Hookload with Cement to Shoe	221.2 K-lbs	with CW	13.7 ppg
Hookload with Cement in Place	180.3 K-lbs		
Min Pressure to Bump Plug	819 PSI	Buoyancy	0.860

Production Casing Design

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	7	32	HCL-80	BTC	10,400	8,460	745,000	
	5.5	20	HCL-80	BTC	10,630	8,990	466,000	
				Min. Safety Factors	**1.125**	**1.100**	**1.500**	
Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
7	3,423'	0	9.2	0	1,638	**6.3509**		**Dry/Fully Evacuated**
5.5	3,500'	0	9.2	0	1,674	**6.3485**		
Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
7	3,423'	9.2	0	1,638	0	**5.1662**		**Dry/Fully Evacuated**
5.5	3,500'	9.2	0	1,674	0	**5.3691**		
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
7	3,423'	9.2	118,720	102,045	295,941	**2.5174**		**Total String + 100K Overpull**
5.5	3,500'	9.2	109,240	93,896		**1.5746**		

Surface Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
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	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
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				Min. Safety Factors	**1.125**	**1.100**	**1.500**	
Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	0	9.2	0	179	**4.1249**		**Dry/Fully Evacuated**
Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
	375'	9.2	0	179	0	**13.2107**		**Dry/Fully Evacuated**
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
	375'	9.2	18,000	15,472	115,472	**3.7498**		**100K Overpull**

Production Casing							
Size	Wt./Ft.	Grade	Conn	Top	Bottom	Length	$/Ft.
7	32	HCL-80	BTC	0'	2500'	2500'	$57.00
Casing Details							
ID:	6.094 in		Collapse Rating:	10,400 psi			
Drift:	5.969 in		Burst Rating:	8,460 psi			
Connection OD:	7.875 in		Body Yield:	745 kips			
Capacity:	0.0361 bbl/ft		Joint Stregth:	832 kips			
Size	**Wt./Ft.**	**Grade**	**Conn**	**Top**	**Bottom**	**Length**	**$/Ft.**
5.5	20	HCL-80	BTC	2500'	10,417'	7917'	$41.00
Casing Details							
ID:	4.778 in		Collapse Rating:	10,630 psi			
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Connection OD:	6.3 in		Body Yield:	466 kips			
Capacity:	0.0222 bbl/ft		Joint Stregth:	503 kips			
Notes: All connections in the shoe track should be Thread Locked							

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Production Casing Design

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	7	32	HCL-80	BTC	10,400	8,460	745,000	
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Collapse	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
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Burst	**Casing Depth TVD**	**MW in**	**MW Out**	**Pres In**	**Pres Out**	**SF**		
7	3,423'	9.2	0	1,638	0	**5.1662**		**Dry/Fully Evacuated**
5.5	3,500'	9.2	0	1,674	0	**5.3691**		
Tension	**Casing Depth TVD**	**Mud Wt**	**Air Wt**	**Buoy Wt**	**BW + 100K**	**SF**		
7	3,423'	9.2	118,720	102,045	295,941	**2.5174**		**Total String + 100K Overpull**
5.5	3,500'	9.2	109,240	93,896		**1.5746**		

Riley Permian Operating Company, LLC

Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. Well Control Equipment:

A. Flare line.
B. Choke manifold.
C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

A. 3x portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

A. Wind direction indicators as shown on well site diagram (Exhibit #8).
B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

A. Radio communications in company vehicles including cellular telephone and 2-way radio.
B. Land line (telephone) communication at Office.

8. Well testing:

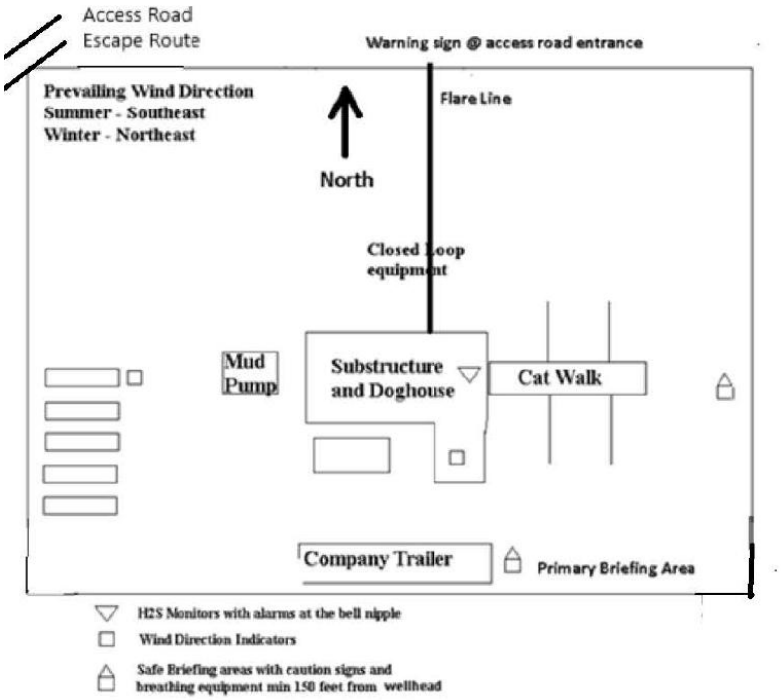
A. There will be no drill stem testing.

WARNING

YOU ARE ENTERING AN H2S AREA
AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH RILEY PERMIAN OPERATING COMPANY MAN AT OFFICE

RILEY PERMIAN OPERATING COMPANY, LLC
1-405-415-8699



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RILEY PERMIAN OPERATING CO,. LLC

Project: Eddy County, NM (NAD83) NMEZ Grid
Site: Liam Federal Pad
Well: Liam SA 6-1 Fed Com 101H
Wellbore: 101H
Design: Plan #1

3458+19 @ 3477.00usft (savanna)
GL+KB

Azimuths to Grid North
True North: -0.02°
Magnetic North: 6.52°

Magnetic Field
Strength: 47145.7nT
Dip Angle: 60.11°
Date: 07/21/2026
Model: NOAA IGRF 2025

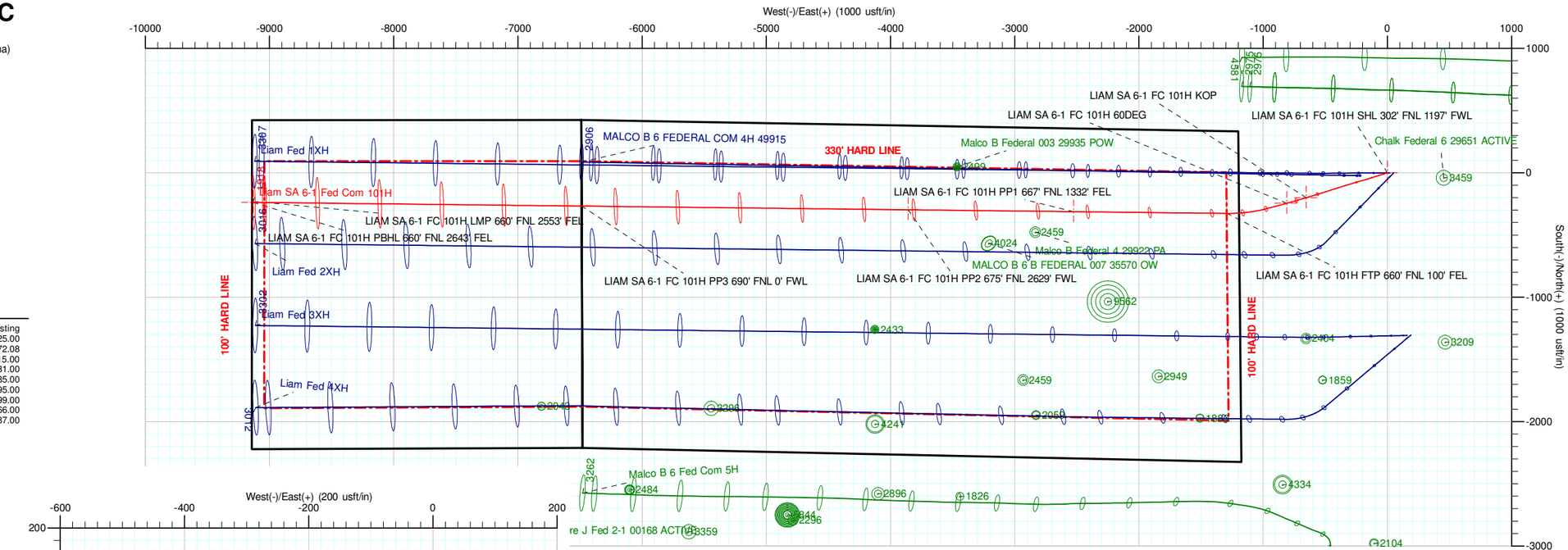
Magnetic North is 6.52° East of Grid North (Magnetic Convergence)
Magnetic North is 6.54° East of True North (Magnetic Declination)
To convert a Magnetic Direction to a Grid Direction, Add 6.52°
To convert a Magnetic Direction to a True Direction, Add 6.54° East

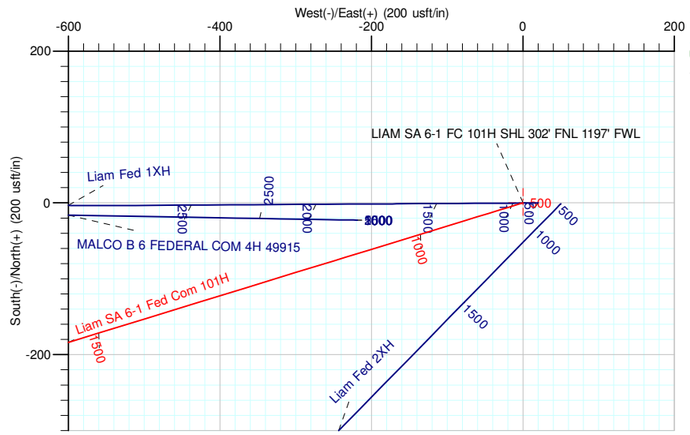
DESIGN TARGET DETAILS

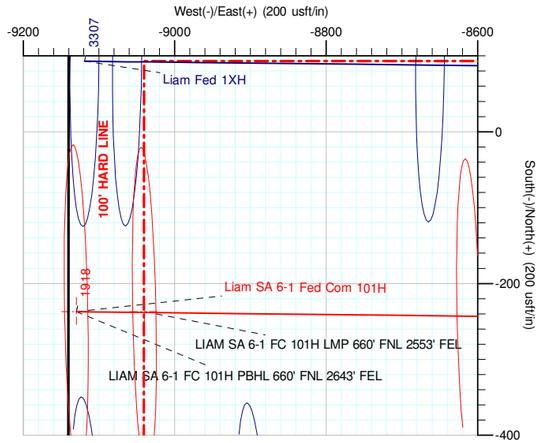
Name	TVD	+N/-S	+E/-W	Northing	Easting
LIAM SA 6-1 FC 101H SHL 302' FNL 1197' FWL	0.00	0.00	0.00	648638.00	549925.00
LIAM SA 6-1 FC 101H KOP	1602.69	-199.78	-652.92	648438.22	549272.08
LIAM SA 6-1 FC 101H 60DEG	1731.79	-244.50	-810.00	648393.50	549115.00
LIAM SA 6-1 FC 101H FTP 660' FNL 100' FEL	1918.00	-326.00	-1294.00	648312.00	548631.00
LIAM SA 6-1 FC 101H LMP 660' FNL 2553' FEL	1918.00	-237.00	-9040.00	648401.00	540885.00
LIAM SA 6-1 FC 101H PBHL 660' FNL 2643' FEL	1918.00	-237.00	-9130.00	648401.00	540795.00
LIAM SA 6-1 FC 101H PP1 667' FNL 1332' FEL	1918.00	-312.00	-2526.00	648326.00	547399.00
LIAM SA 6-1 FC 101H PP2 675' FNL 2629' FWL	1918.00	-296.00	-3859.00	648342.00	546066.00
LIAM SA 6-1 FC 101H PP3 690' FNL 0' FWL	1918.00	-266.00	-6488.00	648372.00	543437.00

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00
3	1222.65	43.36	252.99	1155.62	-76.26	-249.23	6.00	252.99	248.35
4	1837.54	43.36	252.99	1602.69	-199.78	-652.92	0.00	0.00	650.61
5	2046.47	60.00	255.00	1731.79	-244.50	-810.00	8.00	6.07	807.17
6	2246.47	60.00	255.00	1831.79	-289.33	-977.30	0.00	0.00	973.96
7	2581.44	90.00	270.65	1918.00	-326.02	-1293.95	10.00	29.26	1290.17
8	3813.57	90.00	270.65	1918.00	-312.02	-2526.00	0.00	0.00	2522.30
9	5146.66	90.00	270.65	1918.00	-296.88	-3859.01	0.00	0.00	3855.39
10	7775.83	90.00	270.65	1918.00	-267.01	-6488.01	0.00	0.00	6484.56
11	10328.00	90.00	270.65	1918.00	-238.02	-9040.01	0.00	0.00	9036.73
12	10417.99	90.00	270.65	1918.00	-237.00	-9130.00	0.00	0.00	9126.72







FORMATION TOPS

TVDPath	MDPath	Formation
208.00	208.00	Seven Rivers
639.00	639.50	Queen
1101.00	1150.06	Grayburg
1308.00	1432.23	San Andres
1918.00	2580.02	Target

Plan: Plan #1 (Liam SA 6-1 Fed Com 101H/101H)
Created By: Mekka Williams

mekka@esominawelldesign.com
10:58, July 22 2026

QUANTUM ENERGY TECHNOLOGIES
1521 E Richey Rd
Houston, TX 77073

RILEY PERMIAN OPERATING CO,. LLC

Eddy County, NM (NAD83) NMEZ Grid
Liam Federal Pad
Liam SA 6-1 Fed Com 101H

101H
Plan #1

Anticollision Report

22 July, 2026

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	**Error Model:**	ISCWSA
Depth Range:	0.00 to 10,417.99usft	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 0.00 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 07/22/26

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	10,417.99	Plan #1 (101H)	MWD	OWSG MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Calmer Than You 5 Fed Com Pad						
Carter Collier 5 Federal 2 29983 ACTIVE - 2 - 2 AsDrilled						Out of range
Carter Collier 5 Federal 3 29978 ACTIVE - 5 - 5 AsDrilled						Out of range
Carter Collier 5 Federal 4 29984 ACTIVE - 4 - 4 AsDrilled						Out of range
Carter Collier 5 Federal 5 29996 ACTIVE - 5 - 5 AsDrilled						Out of range
Carter Collier 5 Federal 6 29994 PA - 6 - 6 AsDrilled	500.00	491.00	2,255.90	2,245.74	222.010	CC, ES
Carter Collier 5 Federal 6 29994 PA - 6 - 6 AsDrilled	1,400.00	1,275.57	2,494.02	2,463.36	81.342	SF
Carter Collier 5 Federal 7 30102 ACTIVE - 7 - 7 AsDrilled						Out of range
Carter Collier 5 Federal 8 30103 ACTIVE - 8 - 8 AsDrilled						Out of range
Carter Collier 5 Federal 9 29975 PA - 9 - 9 AsDrilled	500.00	491.00	1,709.48	1,698.96	162.543	CC, ES
Carter Collier 5 Federal 9 29975 PA - 9 - 9 AsDrilled	2,000.00	1,698.27	2,485.14	2,445.11	62.077	SF
Carter Collier Federal #1 00790 Plugged - 1 - 1 AsDrilled						Out of range
Chalk Federal 2 29706 ACTIVE - 2 - 2 AsDrilled	500.00	491.00	2,047.41	2,037.23	201.040	CC
Chalk Federal 2 29706 ACTIVE - 2 - 2 AsDrilled	600.00	590.82	2,048.90	2,036.50	165.234	ES
Chalk Federal 2 29706 ACTIVE - 2 - 2 AsDrilled	2,100.00	1,749.56	2,458.22	2,411.23	52.317	SF
Chalk Federal 4 29707 ACTIVE - 4 - 4 AsDrilled	500.00	491.00	1,438.15	1,427.84	139.439	CC
Chalk Federal 4 29707 ACTIVE - 4 - 4 AsDrilled	800.00	786.09	1,440.46	1,423.86	86.786	ES
Chalk Federal 4 29707 ACTIVE - 4 - 4 AsDrilled	2,300.00	1,847.63	1,828.17	1,776.75	35.550	SF
Chalk Federal 5 29650 ACTIVE - 5 - 5 AsDrilled	500.00	491.00	1,329.95	1,319.76	130.524	CC, ES
Chalk Federal 5 29650 ACTIVE - 5 - 5 AsDrilled	2,000.00	1,698.27	1,952.59	1,910.58	46.476	SF
Chalk Federal 6 29651 ACTIVE - 6 - 6 AsDrilled	500.00	491.00	455.29	444.80	43.423	CC, ES
Chalk Federal 6 29651 ACTIVE - 6 - 6 AsDrilled	1,000.00	968.46	575.92	552.82	24.928	SF
Evarts Federal 1 00793 ACTIVE - 1 - 1 AsDrilled	2,777.11	1,871.00	1,648.47	1,583.19	25.249	CC
Evarts Federal 1 00793 ACTIVE - 1 - 1 AsDrilled	2,800.00	1,871.00	1,648.63	1,582.72	25.014	ES
Evarts Federal 1 00793 ACTIVE - 1 - 1 AsDrilled	3,400.00	1,871.00	1,762.23	1,682.69	22.156	SF
Federal BA Com 1 23542 ACTIVE - 1 - 1 AsDrilled						Out of range
Julia A Federal 003 Plugged 00779 - 003 - 003 AsDrilled	2,148.90	1,774.01	1,447.03	1,396.22	28.481	CC
Julia A Federal 003 Plugged 00779 - 003 - 003 AsDrilled	2,200.00	1,799.56	1,447.71	1,395.49	27.722	ES
Julia A Federal 003 Plugged 00779 - 003 - 003 AsDrilled	2,500.00	1,850.00	1,509.52	1,450.65	25.641	SF
Julie A Federal 5 30048 PA - 5 - 5 AsDrilled	2,197.72	1,798.42	1,090.39	1,038.25	20.911	CC
Julie A Federal 5 30048 PA - 5 - 5 AsDrilled	2,200.00	1,799.56	1,090.39	1,038.18	20.885	ES
Julie A Federal 5 30048 PA - 5 - 5 AsDrilled	2,500.00	1,903.77	1,151.61	1,091.87	19.275	SF
Kite 5 I Federal 2 PA 29067 - 1 - 1 AsDrilled						Out of range
Lago Rosa 4 Federal 4 30150 ACTIVE - 4 - 4 AsDrilled						Out of range
Malco 2-B 00796 Plugged - 2-B - 2-B AsDrilled	4,097.58	1,909.00	1,638.78	1,541.08	16.774	CC
Malco 2-B 00796 Plugged - 2-B - 2-B AsDrilled	4,100.00	1,909.00	1,638.78	1,541.01	16.763	ES
Malco 2-B 00796 Plugged - 2-B - 2-B AsDrilled	4,500.00	1,909.00	1,687.46	1,580.44	15.768	SF
Malco B Federal 4 29922 PA - 4 - 4 AsDrilled	4,120.03	1,909.00	168.58	70.34	1.716	CC, ES, SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Calmer Than You 5 Fed Com Pad						
Malco B Federal 6 29924 PA - 6 - 6 AsDrilled	4,203.44	1,909.00	1,358.03	1,257.76	13.543	CC, ES
Malco B Federal 6 29924 PA - 6 - 6 AsDrilled	4,500.00	1,909.00	1,390.04	1,282.76	12.958	SF
Red Raiders Federal 1 36260 ACTIVE - 1 - 1 AsDrilled	2,402.35	1,883.85	2,206.94	2,149.40	38.353	CC, ES
Red Raiders Federal 1 36260 ACTIVE - 1 - 1 AsDrilled	3,300.00	1,909.00	2,480.96	2,404.61	32.493	SF
Welch Federal 1 20049 PA - 1 - 1 AsDrilled	3,114.08	1,909.00	1,315.66	1,241.73	17.796	CC, ES
Welch Federal 1 20049 PA - 1 - 1 AsDrilled	3,500.00	1,909.00	1,371.10	1,287.95	16.489	SF
West Ribbon Federal 1 32717 ACTIVE - 1 - AsDrilled	3,528.54	1,909.00	719.74	635.86	8.580	CC, ES
West Ribbon Federal 1 32717 ACTIVE - 1 - AsDrilled	3,700.00	1,909.00	739.88	651.73	8.394	SF
Yates Federal Cellier #1 00781 Plugged - 1 - 1 AsDrilled						Out of range
Cherokee Rose 15 16 State Com Pad 1						
BASIN FEDERAL 001 29977 POW - 001 - 001 AsDrilled						Out of range
CATCLAW DRAW UNIT COM 021 33762 ACTIVE - 021 -						Out of range
COMO FEE 001 29448 POW - 001 - 001 AsDrilled						Out of range
DINERO EXXON 22 STATE #001 - OH - Active						Out of range
DINERO EXXON 22 STATE #001 26119 POW - OH - Act						Out of range
RIO BRAVO 17 20 W2AP FEDERAL COM #001H - OH -						Out of range
RIO BRAVO 17 20 W2AP FEDERAL COM #001H 44110 A						Out of range
ROCKY ARROYO #001 (P&A) - OH - P & A						Out of range
ROCKY ARROYO #001 (P&A) - OH - P & A						Out of range
SAMMY STATE #001 - OH - P & A						Out of range
SAMMY STATE #001 30983 PGW - OH - P & A						Out of range
STATE COM #001 - OH - P & A						Out of range
STATE COM #001 20221 POW - OH - P & A						Out of range
TOMCAT STATE #1 - OH - P & A						Out of range
TOMCAT STATE #1 26251 POW - OH - P & A						Out of range
UNION FEDERAL #001 - OH - Storage - P & A						Out of range
UNION FEDERAL #001 26181 PSW - OH - Storage - P &						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Creedence Fed						
Empire J Fed 1-1 00167 PLUGGED - #1 - #1 AsDrilled						Out of range
Empire J Fed 2-1 00168 ACTIVE - #2 - #2 AsDrilled						Out of range
Empire J Fed 3-1 00169 ACTIVE - #3 - #3 AsDrilled	8,079.40	1,741.00	1,611.89	1,419.30	8.370	CC
Empire J Fed 3-1 00169 ACTIVE - #3 - #3 AsDrilled	8,100.00	1,741.00	1,612.02	1,418.85	8.345	ES
Empire J Fed 3-1 00169 ACTIVE - #3 - #3 AsDrilled	8,300.00	1,741.00	1,626.92	1,429.52	8.242	SF
Fred 6 Fed 3 sec6 30218 PA - #3 - #3 AsDrilled	7,362.07	1,741.00	2,276.10	2,101.19	13.013	CC
Fred 6 Fed 3 sec6 30218 PA - #3 - #3 AsDrilled	7,400.00	1,741.00	2,276.42	2,100.48	12.939	ES
Fred 6 Fed 3 sec6 30218 PA - #3 - #3 AsDrilled	7,800.00	1,741.00	2,317.85	2,133.67	12.584	SF
Fred Federal 001 sec6 00799 ACTIVE - 001 - 001 AsDrille						Out of range
Fred Federal 002 sec6 00801 PA - 002 - 002 AsDrilled						Out of range
Higgins Cahoon Com 1 sec2 21418 PA - 001 - 001 AsDrille						Out of range
Patton 6 fed 005 sec6 29981 PA - 005 - 005 AsDrilled	6,089.93	1,741.00	2,464.05	2,320.45	17.159	CC
Patton 6 fed 005 sec6 29981 PA - 005 - 005 AsDrilled	6,200.00	1,741.00	2,466.50	2,320.01	16.838	ES
Patton 6 fed 005 sec6 29981 PA - 005 - 005 AsDrilled	6,500.00	1,741.00	2,497.93	2,344.81	16.313	SF
PreOnGard 1 sec1 21292 PA - 001 - 001 AsDrilled						Out of range
PreOnGard 1 sec1 21532 PA - 001 - 001 AsDrilled						Out of range
PreOnGard 1 sec1 21935 PA - #1 - #1 AsDrilled						Out of range
PreOnGard 1 sec1 21954 PA - #1 - #1 AsDrilled						Out of range
PreOnGard 1 sec1 22042 PA - #1 - #1 AsDrilled						Out of range
PreOnGard 1 sec2 21471 PA - 001 - 001 AsDrilled						Out of range
PreOnGard 1 sec2 21972 PA - #1 - #1 AsDrilled						Out of range
PreOnGard 1 sec3 21571 PA - 001 - 001 AsDrilled						Out of range
PreOnGard 1 sec6 00792 PA - #1 - #1 AsDrilled						Out of range
PreOnGard 1 sec6 21654 PA - 001 - 001 AsDrilled						Out of range
Stirling 6M 002 sec6 39454 PA - 002 - 002 AsDrilled						Out of range
Stirling 6M 003 sec6 40492 PA - 003 - 003 AsDrilled						Out of range
Stirling 6M 004 sec6 41069 ACTIVE - 004 - 004 AsDrilled						Out of range
Walker #1 00170 PA - #1 - #1 AsDrilled						Out of range
West red Lake 1 sec6 00802 ACTIVE - 001 - 001 AsDrilled						Out of range
West Red Lake 66 sec6 28874 ACTIVE - #1 - #1 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Eagle 33 Fed Com						
Compton 33 Federal 001 30046 ACTIVE - 001 - 001AsDril						Out of range
Eagle 33 L Federal 015 33829 ACTIVE - 015 - 015 AsDrille						Out of range
Eagle 33 N Federal 009 29080 POW - 009 - 009 AsDrilled						Out of range
Eagle 33 N Federal 010 29597 ACTIVE - 010 - 010 AsDrill						Out of range
Eagle 33 N Federal 026 41214 POW - 026 - 026 AsDrilled						Out of range
Eagle 33 N Federal 031 42263 ACTIVE - 031 - 031 AsDrill						Out of range
Eagle 33 O Federal 012 29598 POW - 012 - 012 AsDrilled						Out of range
Eagle 33 O Federal 019 39459 POW - 019 - 019 AsDrilled						Out of range
Eagle 33 O Federal 020 33832 ACTIVE - 020 - 020 AsDrill						Out of range
Eagle 33 P Federal 013 29082 ACTIVE - 013 - 013. AsDril						Out of range
Eagle 33 P Federal 014 29599 ACTIVE - 014 - 014 AsDrille						Out of range
Eagle 33 P Federal 016 34103 ACTIVE - 016 - 016 AsDrille						Out of range
Eagle 33P Fed 24 41288 POW - 24 - 24 AsDrilled						Out of range
Eagle 34 D Federal 35Q 32841 ACTIVE - 35 - 35 AsDrilled						Out of range
Eagle 34 L Federal 058 33353 POW - 058 - 058 AsDrilled						Out of range
Eagle 34 L Federal 068 41215 POW - 068 - 068 AsDrilled						Out of range
Eagle 34 L Federal 29643 ACTIVE - 01 - 01 AsDrilled						Out of range
Eagle 34 M Federal 025 29114 POW - 025 - 025 AsDrilled						Out of range
Eagle 34 M Federal 026 29644 ACTIVE - 026 - 026 AsDrill						Out of range
Eagle 34 M Federal 074 42640 ACTIVE - 074 - 074 AsDrill						Out of range
Eagle 34 N Federal 033Q 32839 POW - 033 - 033 AsDrille						Out of range
Falcon 3 D Federal 005 29162 POW - 005 - 005 AsDrilled						Out of range
Falcon 3 D Federal 030 39451 ACTIVE - 030 - 030 AsDrille						Out of range
Federal z 002 32494 ACTIVE - 002 - 002 AsDrilled						Out of range
Hondo Federal 003 29065 ACTIVE - 003 - 003 AsDrilled						Out of range
Hondo Federal 004 29051 ACTIVE - 004 - 004 AsDrilled						Out of range
Red Lake 32 State 2H 44948 ACTIVE - 2H - 2H AsDrilled	2,490.44	7,943.00	1,475.31	1,365.09	13.385	CC
Red Lake 32 State 2H 44948 ACTIVE - 2H - 2H AsDrilled	2,500.00	7,943.00	1,475.37	1,364.95	13.361	ES
Red Lake 32 State 2H 44948 ACTIVE - 2H - 2H AsDrilled	2,600.00	7,943.00	1,483.06	1,371.32	13.273	SF
Red Lake 32 State 3H 45374 ACTIVE - 3H - 3H AsDrilled						Out of range
Red Lake 32 State 4H 45375 ACTIVE - 4H - 4H AsDrilled	2,538.95	8,470.00	2,201.64	2,086.99	19.202	CC, ES
Red Lake 32 State 4H 45375 ACTIVE - 4H - 4H AsDrilled	2,800.00	8,470.00	2,224.26	2,106.34	18.861	SF
Trigg B Federal 002 32495 ACTIVE - 002 - 002 AsDrilled						Out of range
West Red Lake 4 Federal 002 30186 POW - 002 - 002 AsD						Out of range

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Eagle 33 Federal Com						
Compton 33 Federal 1 (Offset) - 1 - 1 AsDrilled						Out of range
Compton 33 Federal 2 (Offset) - 2 - 2 AsDrilled						Out of range
Eagle 33 A Federal 1 (Offset) - 1 - 1 AsDrilled						Out of range
Eagle 33 A Federal 2 (Offset) - 2 - 2 AsDrilled						Out of range
Eagle 33 B Federal 3 (Offset) - 3 - 3 AsDrilled						Out of range
Eagle 33 B Federal 4 (Offset) - 4 - 4 AsDrilled						Out of range
Eagle 33 D Federal 7 (Offset) - 7 - 7 AsDrilled						Out of range
Eagle 33 E Federal 9 (Offset) - 9 - 9 AsDrilled						Out of range
Eagle 33 Federal 27 (Offset) - 27 - 27 AsDrilled						Out of range
Eagle 33 Federal Com 10H - 10H - 10H AsDrilled						Out of range
Eagle 33 Federal Com 11H 29081 ACTIVE - 11H - 11H AsD						Out of range
Eagle 33 Federal Com 4H - 4H - 4H AsDrilled						Out of range
Eagle 33 Federal Com 5H - 5H - 5H AsDrilled						Out of range
Eagle 33 Federal Com 7H - 7H - 7H AsDrilled						Out of range
Eagle 33 Federal Com 8H - 8H - 8H AsDrilled						Out of range
Eagle 33 G Federal 5 (Offset) - 1 - 1 AsDrilled						Out of range
Eagle 33 G Federal 6 (Offset) - 6 - 6 AsDrilled						Out of range
Eagle 33 H Federal 23(Offset) - 23 - 23 AsDrilled						Out of range
Eagle 33 H Federal 7 (Offset) - 7 - 7 AsDrilled						Out of range
Eagle 33 H Federal 8 (Offset) - 8 - 8 AsDrilled						Out of range
Eagle 33 I Federal 17 (Offset) - 17 - 17 AsDrilled						Out of range
Eagle 33 L Federal 5 (Offset) - 1 - 1 AsDrilled						Out of range
Eagle 34 D Federal 50 (Offset) - 50 - 50 AsDrilled						Out of range
Eagle 34 E Federal 56 (Offset) - 56 - 56 AsDrilled						Out of range
Eagle 34 Federal 79 (Offset) - 79 - 79 AsDrilled						Out of range
Eagle 34 L Federal 58 Plugged (Offset) - 58 - 58 AsDrilled						Out of range
Evarts 2 (Offset) - 2 - 2 AsDrilled						Out of range
Evarts 33 Fed 10 (Offset) - 10 - 10 AsDrilled						Out of range
Evarts 33 Federal 1 (Offset) - 1 - 1 AsDrilled						Out of range
Evarts 33 Federal 4 (Offset) - 4 - 4 AsDrilled						Out of range
Evarts 33 Federal 6 (Offset) - 6 - 6 AsDrilled						Out of range
Exxon 33 Federal Com 1 (Offset) - 1 - 1 AsDrilled						Out of range
Fed X Com 1 (Offset) - 1 - 1 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Gutters 9 Fed Com						
CC FEDERAL 003 POW 33548 - 003 - 003 AsDrilled						Out of range
CC FEDERAL 005 POW 34163 - 005 - 005 AsDrilled						Out of range
CHALK BLUFF DR UT A 012 POW 00912 - 012 - 012 As						Out of range
EMPIRE ABO UNIT 005 ACTIVE 00839 - 005 - 005 AsDri						Out of range
EMPIRE ABO UNIT 005B ACTIVE 00841 - 005B - 005B A						Out of range
EMPIRE ABO UNIT 005C POW 00901 - 005C - 005C AsD						Out of range
EMPIRE ABO UNIT 006A ACTIVE 00835 - 006A - 006A As						Out of range
EMPIRE ABO UNIT 006B POW 00837 - 006B - 006B AsD						Out of range
EMPIRE ABO UNIT 006D ACTIVE 00900 - 006D - 006D A						Out of range
EMPIRE ABO UNIT 007B POW 00845 - 007B - 007B AsD						Out of range
EMPIRE ABO UNIT 007E POW 00915 - 007E - 007E AsD						Out of range
EMPIRE ABO UNIT 007G POW 00908 - 007G - 007G AsD						Out of range
EMPIRE ABO UNIT 008C ACTIVE 00844 - 008C - 008C A						Out of range
EMPIRE ABO UNIT 008D POW 00848 - 008D - 008D AsD						Out of range
EMPIRE ABO UNIT 008G ACTIVE 00912 - 008G - 008G A						Out of range
EMPIRE ABO UNIT 09F POW 00862 - 09F - 09F AsDrilled						Out of range
EMPIRE ABO UNIT 09G ACTIVE 00898 - 09G - 09G AsD						Out of range
EMPIRE ABO UNIT 418 POW 34171 - 418 - 418 AsDrilled						Out of range
EMPIRE ABO UNIT 4A ACTIVE 00824 - 4A - 4A AsDrilled						Out of range
EMPIRE ABO UNIT 4B TEMP ABD 00825 - 4B - 4B AsDri						Out of range
EMPIRE ABO UNIT 701P POW 00849 - 701P - 701P AsD						Out of range
HAWK 8 P FEDERAL 011 ACTIVE 29027 - 011 - 011 AsD						Out of range
HAWK 8 P FEDERAL 012 ACTIVE 29057 - 012 - 012 AsD						Out of range
HAWK 8 P FEDERAL 055 ACTIVE 43722 - 055 - 055 AsD						Out of range
HAWK 9 I FEDERAL 013 POW 29515 - 013 - 013 AsDrille						Out of range
HAWK 9 I FEDERAL 014 POW 29482 - 014 - 014 AsDrille						Out of range
HAWK 9 J FEDERAL 015 POW 29516 - 015 - 015 AsDrill						Out of range
HAWK 9 J FEDERAL 016 ACTIVE 29483 - 016 - 016 AsD						Out of range
HAWK 9 O FEDERAL 017 POW 29484 - 017 - 017 AsDril						Out of range
HAWK 9 P FEDERAL 019 POW 29517 - 019 - 019 AsDrill						Out of range
HORSETAIL 9-1 ACTIVE 34171 - 9-1 - 9-1 AsDrilled						Out of range
MANN POW 00850 - 1 - 1 AsDrilled						Out of range
SCOGGIN DRAW STATE C COM 002 PGW 30966 - 002						Out of range
SPARKPLUG 17 FEDERAL COM 1H ACTIVE 49680 - 1H						Out of range
SPARKPLUG 17 FEDERAL COM 2H ACTIVE 49681 - 2H						Out of range
SPARKPLUG 17 FEDERAL COM 3H ACTIVE 53677 - 3H						Out of range
SPARKPLUG 17 FEDERAL COM 4H ACTIVE 53890 - 4H						Out of range
SPARKPLUG RIDGE 17 FEDERAL COM 002 POW 3227						Out of range
WEST RED LAKE 020 POW 00827 - 020 - 020 AsDrilled						Out of range
WEST RED LAKE UNIT 048 ACTIVE 28277 - 048 - 048 A						Out of range
WEST RED LAKE UNIT 26 INJ 00821 - 26 - 26 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Liam Federal Pad						
HIGGINS TRUST 1 1 27970 PGW - 1-1 - 1-1 AsDrilled	10,400.00	1,728.00	1,682.00	1,610.95	23.675	CC, ES, SF
Liam Fed 1XH - 1XH - Plan #2	500.71	502.72	20.00	16.03	5.038	CC, ES
Liam Fed 1XH - 1XH - Plan #2	600.00	602.46	23.69	18.33	4.423	SF
Liam Fed 2XH - 2XH - Plan #2	500.97	504.01	50.01	46.06	12.661	CC, ES
Liam Fed 2XH - 2XH - Plan #2	10,400.00	11,518.59	1,146.75	962.94	6.239	SF
Liam Fed 3XH - 3XH - Plan #1a	1,688.96	1,693.71	1,268.76	1,248.55	62.784	CC
Liam Fed 3XH - 3XH - Plan #1a	1,900.00	1,917.47	1,270.54	1,246.17	52.121	ES
Liam Fed 3XH - 3XH - Plan #1a	10,400.00	11,718.88	1,701.52	1,421.21	6.070	SF
Liam Fed 4XH - 4XH - Plan #1a	410.32	426.32	1,317.77	1,314.64	420.763	CC
Liam Fed 4XH - 4XH - Plan #1a	900.00	831.58	1,318.95	1,312.54	205.597	ES
Liam Fed 4XH - 4XH - Plan #1a	10,400.00	11,593.33	1,979.54	1,604.51	5.278	SF
MALCO B 6 B FEDERAL 007 35570 OW - 007 - 007 AsD	4,494.05	1,894.00	262.98	157.35	2.490	CC, ES, SF
MALCO B 6 FEDERAL COM 4H 49915 - 4H - SURVEYS	1,154.66	1,077.57	42.32	32.72	4.408	CC, ES, SF
Malco B Federal 003 29935 POW - 003. - 003. AsDrilled	4,756.70	1,869.00	348.84	243.43	3.309	CC, ES, SF
Paton Federal 001 00797 POW - 001 - 001 AsDrilled	5,402.85	1,935.00	964.66	842.53	7.899	CC, ES
Paton Federal 001 00797 POW - 001 - 001 AsDrilled	5,500.00	1,935.00	969.54	844.87	7.777	SF
Red Lake 32 Stae 2H - 2H - 2H AsDrilled	2,527.09	8,010.00	1,473.37	1,361.00	13.111	CC, ES
Red Lake 32 Stae 2H - 2H - 2H AsDrilled	2,600.00	8,010.00	1,477.00	1,363.57	13.022	SF
Vandagriff 8 D Federal 4 01540805 plugged - 4 - 4 AsDrille						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Malco B 6 Fed Com						
AA #1 PA 00778 - #1 - #1 AsDrilled						Out of range
Compton 6 Federal 2 30104 PA - 2 - 22 AsDrilled						Out of range
Compton Federal 1 00798 PA - 1 - 1 AsDrilled						Out of range
Condor 8 Federal 3H ACTIVE 46915 - 3 - 3 AsDrilled						Out of range
Fred Federal 1 ACTIVE 00799 - #1 - #1 AsDrlled						Out of range
Fred Federal 2 PA 00801 - #2 - #2 AsDrlled	6,713.29	1,922.00	1,613.98	1,451.88	9.957	CC, ES
Fred Federal 2 PA 00801 - #2 - #2 AsDrlled	7,000.00	1,922.00	1,639.25	1,471.00	9.743	SF
Julia A Federal 1 ACTIVE 00782 - #1 - #1 AsDrilled						Out of range
Julia B Federal 1 PA 00791 - #1 - #1 AsDrilled						Out of range
Longhorns Federal 1 ACTIVE 36259 - 1 - 1 AsDrilled	5,391.77	1,922.00	1,725.10	1,595.50	13.311	CC
Longhorns Federal 1 ACTIVE 36259 - 1 - 1 AsDrilled	5,400.00	1,922.00	1,725.12	1,595.29	13.287	ES
Longhorns Federal 1 ACTIVE 36259 - 1 - 1 AsDrilled	5,800.00	1,922.00	1,772.74	1,634.40	12.814	SF
Lucky Mack Federal 1 PA 30265 - 1 - 1 AsDrilled						Out of range
Malco B 6 Fed Com 5H - OH - OH AsDrilled						Out of range
Malco B 6 Fed Com 6H - OH - OH Asdrilled						Out of range
Malco B 6 Fed Com 7H - OH - OH AsDrilled						Out of range
Malco B 6 Fed Com 8H - OH - OH AsDrilled						Out of range
Malco B 6 J Federal 10 ACTIVE 43875 - 10 - 10 AsDrilled						Out of range
Malco B 6 P 43876 ACTIVE - 7 - 7 AsDrilled						Out of range
Malco B 6 P Federal 11 42319 ACTIVE - 11 - 11 AsDrilled						Out of range
Malco B Federal 1 ACTIVE 00795 - 1 - 1 AsDrilled	4,702.78	1,830.00	2,300.57	2,189.54	20.721	CC
Malco B Federal 1 ACTIVE 00795 - 1 - 1 AsDrilled	4,800.00	1,830.00	2,302.62	2,189.01	20.267	ES
Malco B Federal 1 ACTIVE 00795 - 1 - 1 AsDrilled	5,400.00	1,830.00	2,403.90	2,277.95	19.087	SF
Patton 6 Federal 5 PA 29981 - 5 - 5 AsDrilled						Out of range
Patton Federal 2 00800 PA - 2 - 2AsDrilled						Out of range
Red Lake Fed Com 1 PA 21654 - #1 - #1 AsDrilled						Out of range
Simon A 5 M Federal 002 41640 ACTIVE - 2 - 2 AsDrilled						Out of range
Smith EtAl #1 00830 PA - #1 - #1 AsDrilled	5,361.87	1,922.00	2,285.46	2,156.60	17.735	CC
Smith EtAl #1 00830 PA - #1 - #1 AsDrilled	5,400.00	1,922.00	2,285.78	2,155.88	17.597	ES
Smith EtAl #1 00830 PA - #1 - #1 AsDrilled	6,000.00	1,922.00	2,372.88	2,230.58	16.676	SF
Stirling 6 M 002 39454 P - 2 - 2 AsDrilled						Out of range
Stirling 6 M 003 40492 P - 3 - 3 AsDrilled						Out of range
Stirling 6 M 004 41069 ACTIVE - 4 - 4 AsDrilled						Out of range
West Red Lake 017 Acive Inj 00788 - 017 - 017 AsDrilled						Out of range
West Red Lake 12 PA 00794 - 12 - 12 AsDrilled						Out of range
West Red Lake Unit 1 00802 ACTIVE - 1 - 1 AsDrilled						Out of range
West Red Lake Unit 13 00804 ACTIVE - 13 - 13AsDrilled						Out of range
West Red Lake Unit 57 28539 ACTIVE - 57 - 57 AsDrilled						Out of range
West Red Lake Unit 58 28780 PA - 58 - 58 AsDrilled						Out of range
West Red Lake Unit 59 28750 PA - 59 - 59 AsDrilled						Out of range
West Red Lake Unit 66 28874 ACTIVE - 66 - 66 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Marty Fee North/South						
Atoka San Andres 100 00298 Active Inj - 100 - 100 AsDrille						Out of range
Atoka San Andres 106 00178 Active Inj - 106 - 106 AsDrille						Out of range
Atoka San Andres 107 00180 Active - 107 - 107 AsDrilled						Out of range
Atoka San Andres 108 10142 Plugged Inj - 108 - 108 AsDr						Out of range
Atoka San Andres 110 00295 POW - 110 - 110 AsDrilled						Out of range
Atoka San Andres 164 29791 Active - 164 - 164 AsDrilled						Out of range
Brainard 11 2h Active Oil 48887 - 11-2 - 11-2 AsDrilled						Out of range
Brainard 11-3 Active Oil 48886 - 11-3 - 11-3 AsDrilled						Out of range
Brainard 12-2 Active Oil 45364 - 12 2H - 12 2H AsDrilled						Out of range
Brainard Gas 2 21582 Active Gas - 2 - 2 AsDrilled						Out of range
Condor 7 3H 53697 Active Oil - 7-3H - 7-3H AsDrilled						Out of range
Condor 7 3H 53697 POW - 7-3 - 7-3 AsDrilled						Out of range
Condor 7 7H 53694 Active Oil - 7-7H - 7-7H AsDrilled						Out of range
Flemont Atoka 1 20931 PGW - 1 - 1 AsDrilled						Out of range
Gilbert 1 00814 POW - 1 - 1AsDrilled						Out of range
Higgins Cahoon 12 D3 43116 ACTIVE - D3 - D3 AsDrilled						Out of range
Johnson 1Y 05956 POW - 1Y - 1Y AsDrilled						Out of range
Marty Fee North 11-7 1H - 1H - 1H AsDrilled						Out of range
Marty Fee North 11-7 2H - 2H - 2H AsDrilled						Out of range
Marty Fee South 11-7 3H - 3H - 3H AsDrilled						Out of range
Marty Fee South 11-7 4H - 4H - 4H AsDrilled						Out of range
Peterson 7 Federal 10H 50038 OW - 10H - 10H AsDrilled						Out of range
Sand Crossing 32 State Com 1 29412 PGW - 1 - 1 AsDrille						Out of range
Stirling 1 POW 21528 - 1 - 1 AsDrilled						Out of range
Stirling 6M 4 41069 Active OW - 4 - 4 AsDrilled						Out of range
Stirling 7 C4 34838 POW - 4 - 4 AsDrilled						Out of range
Stirling 7 D5 35243 POW - 5 - 5 AsDrilled						Out of range
Stirling 7 F6 35271 ACTIVE - 6 - 6 AsDrilled						Out of range
Stirling 7 F9 POW 40875 - 9 - 9 AsDrilled						Out of range
West Red Lake 3 00809 Active OW - 3 - 3 AsDrilled						Out of range
West Red Lake 37 27439 ACTIVE - 37 - 37 AsDrilled						Out of range
West Red Lake 38 28190 POW - 1 - 1 AsDrilled						Out of range
West Red Lake 39 28189 POW - 39 - 39 AsDrilled						Out of range
West Red Lake 4 00810 POW - 4 - 4 AsDrilled						Out of range
West Red Lake 5 00818 POW - 5 - 5AsDrilled						Out of range
West Red Lake 52 28226 ACTIVE - 52 - 52 AsDrilled						Out of range
West Red Lake 6 00813 POW - 6 - 6 AsDrilled						Out of range
West Red Lake 67 28875 Active OW - 67 - 67 AsDrilled						Out of range
West Red Lake 68 28838 ACTIVE - 68 - 68 AsDrilled						Out of range
West Red Lake UT 002 POW 00808 - 002 - 002 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
The Dude/Jackie Pad						
ARCO B FEDERAL COM 001 21047 PGW - 001 AS DRIL						Out of range
ARCO FEDERAL 001 23855 POW - 001 NO DATA - 001						Out of range
BARRIENTOS 007 01230 POW - 007 NO DATA - 007 NO						Out of range
BEECH 25 FEDERAL 009H 40208 ACTIVE - 009H AS DR						Out of range
BEECH 25 FEDERAL 010H 42363 ACTIVE - 010h AS DR						Out of range
BEECH 25 FEDERAL 011H 43176 ACTIVE - 011H AS DR						Out of range
BEECH 25 FEDERAL 012H 43181 ACTIVE - 012H AS DR						Out of range
BEECH FEDERAL 001 30812 ACTIVE - 001 AS DRILLED						Out of range
Berry 007 00475 POW - 007 NO DATA - 007 NO DATA						Out of range
BIG EAGLE 27 FEDERAL 001H 47052 ACTIVE - 001H AS						Out of range
BROOKS A 001 005203 POW - 003 NO DATA - 003 NO D						Out of range
BROOKS A 001 01237 POW - 001 NO DATA - 001 NO DA						Out of range
BROOKS A 002 00524 POW - 002 NO DATA - 002 NO DA						Out of range
CUCCA BARRENTOS 001 00584 POW - 003 NO DATA -						Out of range
DB ANDERAL FED 001 00583 POW - 001 NO DATA - 00						Out of range
EAGEL 35 D FEDERAL 017 33267 POW - 017 AS DRILL						Out of range
EAGLE 26 M FEDERAL 008 42373 AS DRILLED - 008 AS						Out of range
EAGLE 26 M FEDERAL 34014 POW - 001 AS DRILLED -						Out of range
EAGLE 26 N FEDERAL 002 34007 POW - 002 AS DRILL						Out of range
EAGLE 26 N FEDERAL 006 39564 ACTIVE - 006 AS DRI						Out of range
EAGLE 26 P FEDERAL 003 34082 POW - 003 AS DRILL						Out of range
EAGLE 26 P FEDERAL 004 39360 ACTIVE - 004 AS DRI						Out of range
EAGLE 26 P FEDERAL 005 39452 ACTIVE - 005 AS DRI						Out of range
EAGLE 27 FEDERAL 001 29936 POW - 001 OH - 001 OH						Out of range
EAGLE 34 A FEDERAL 001 29108 POW - 001 OH - 001 O						Out of range
EAGLE 34 A FEDERAL 049 33624 ACTIVE - 049 AS DRI						Out of range
EAGLE 34 A FEDERAL 082 43887 ACTIVE - 082 AS DRI						Out of range
EAGLE 35 A FEDERAL 021 40810 ACTIVE - 021 AS DRI						Out of range
EAGLE 35 C FEDERAL 018 33266 ACTIVE - 018 AS DRI						Out of range
ENRON FEDERAL 001 32551 ACTIVE - 001 AS DRILLED						Out of range
ENRON FEDERAL 008 32662 - 008 AS DRILLED - 008 A						Out of range
FEDERAL 242 001 00589 POW - 001 NO DATA - 001 NO						Out of range
FEDERAL 242A 001 00581 POW - 001 NO DATA - 001 N						Out of range
FIR FEDERAL 001 32069 ACTIVE - 001 AS DRILLED - 0						Out of range
FIR FEDERAL 002 39465 ACTIVE - 002 AS DRILLED - 0						Out of range
FIR FEDERAL 003 39466 ACTIVE - 003 AS DRILLED - 0						Out of range
FIR FEDERAL 004 397462 ACTIVE - 004 AS DRILLED -						Out of range
HANSON TRIGG FEDERAL 001 00594 POW - 001 NO D						Out of range
HANSON TRIGG FEDERAL 002 00595 POW - 002 NO D						Out of range
HARBOLD 001 00587 POW - 001 NO DATA - 001 NO DA						Out of range
HARBOLD 002 00598 POW - 002 NO DATA - 002 NO DA						Out of range
HARBOLD 003 00590 POW - 003 NO DATA - 003 NO DA						Out of range
HARBOLD 004 05962 POW - 004 NO DATA - 004 NO DA						Out of range
HARBOLD 005 00599 POW - 005 NO DATA - 005 NO DA						Out of range
HARBOLD 006 00580 POW - 003 NO DATA - 003 NO DA						Out of range
HARBOLD 010 00588 POW - 010 NO DATA - 010 NO DA						Out of range
HARBOLD 014 00585 POW - 014 NO DATA - 014 NO DA						Out of range
HARBOLD 017 10426 POW - 017 AS DRILLED - 017						Out of range
HARBOLD FED 002 00597 POW - 002 NO DATA - 002 N						Out of range
HARBOLD FED 004 00596 POW - 004 NO DATA - 004 N						Out of range
HARBOLD FED 012 00610 POW - 012 NO DATA - 012 N						Out of range
HARBOLD FEDERAL 001 00591 - 001 NO DATA - 001 NO						Out of range
HARBOLD FEDERAL 001 00593 POW - 001 NO DATA -						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
The Dude/Jackie Pad						
HARBOLD FEDERAL 016 10168 ACTIVE - 016 AS DRILL						Out of range
HARBOLD FEDERAL 016 25374 POW - 016 OH - 016 OH						Out of range
HARBOLD PERMIT 001 00579 POW - 001 .NO DATA - 0						Out of range
HB TRAVIS 001 00582 POW - 001 NO DATA - 001 NO DA						Out of range
HEGWER 001 24703 POW - 001 NO DATA - 001 NO DAT						Out of range
HONDO FEDERAL 001 00592 POW - 001 NO DATA - 00						Out of range
J TRAVIS 003 00519 POW - 003 NO DATA - 003 NO DAT						Out of range
MALCO FEDERAL 001 00612 ACTIVE - 001 - 001						Out of range
MATTHEWS 25 FEDERAL 001 40804 POW - 001 AS DR						Out of range
MATTHEWS 25 FEDERAL 002 41721 ACTIVE - 002 AS D						Out of range
MATTHEWS 25 FEDERAL 003 41698 ACTIVE - 003 AS D						Out of range
MIDNIGHT MATADOR 009 35713 ACTIVE - 009 AS DRIL						Out of range
MIDNIGHT MATADOR 010 00621 PLUGGED INJ - 010 O						Out of range
MIDNIGHT MATADOR A 001 25156 ACTIVE - 001 OH - 0						Out of range
MIDNIGHT MATADOR A 005 35620 ACTIVE - 005 AS DR						Out of range
NO BLUFF 36 STATE COM 010 37672 ACTIVE - 010 AS						Out of range
OXY CHARLEMAGNE FEDERAL 001 30181 ACTIVE - 00						Out of range
OXY HARVESTER FEDERAL 001 30882 ACTIVE - 001 A						Out of range
RJ UNIT 105 29803 POW - 105 OH - 105 OH						Out of range
SRLG UT 045 24622 POW - 045 NO DATA - 045 NO DAT						Out of range
TRAVIS 002 00686 POW - 002 NO DATA - 002 NO DATA						Out of range
TRIGG 001 10427 POW - 001 AS DRILLED - 001						Out of range
TRIGG FED 001 10104 POW - 001 NO DATA - 001 NO D						Out of range
TRIGG FED 003 00600 POW - 003 NO DATA - 003 NO D						Out of range
TRIGG FEDERAL 001 30956 ACTIVE - 001 AS DRILLED						Out of range
TRIGG FEDERAL 001 31571 RECLAMATION - 001 AS D						Out of range
TRIGG FEDERQAL 002 31193 POW - 002 AS DRILLED						Out of range
The Horned Frog / The Aggie						
Fair 001 20385 Plugged - #1 - #1 AsDrilled						Out of range
Falkenberg 1 00230 Plugged - #1 - #1 AsDrilled						Out of range
Kathleen Steckel #1 00924 Plugged - #1 - #1 AsDrilled						Out of range
Rio Pecos 19 #1 54437 Plugged - 19-1 - 19-1 AsDrilled						Out of range
Terry Evans #1 21609 Plugged - #1 - #1 AsDrilled						Out of range
The Aggie 2H - 2H - 2H AsDrilled						Out of range
The Horned Frog 1H - 1H - 1H AsDrilled						Out of range
The Horned Frog 2H ABD(FISH) - 2H ABD(FISH) - 2H As						Out of range
The Horned Frog 2HY - 2HY - 2HY AsDrilled						Out of range
The Horned Frog 31H - 31H - 31H AsDrilled						Out of range
The Horned Frog 32H - 32H - 32H AsDrilled						Out of range
The Horned Frog 3H - 3H - 3H AsDrilled						Out of range
Waldrop 1 00232 Plugged - #1 - #1 AsDrilled						Out of range

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
The Rug 14						
Atoka San Andres 136 00193 ACTIVE - 136 - 136 AsDrille						Out of range
Atoka San Andres 142 00184 ACTIVE - 142 - 142 AsDrille						Out of range
Atoka San Andres 143 00191 ACTIVE - 143 - 143 AsDrille						Out of range
Atoka San Andres 144 00196 ACTIVE - 144 - 144 AsDrille						Out of range
Atoka San Andres 145 00197 ACTIVE - 145 - 145 AsDrille						Out of range
Atoka San Andres 146 00205 ACTIVE - 146 - 146 AsDrille						Out of range
Atoka San Andres 147 00203 ACTIVE - 147 - 147 AsDrille						Out of range
Atoka San Andres 149 00204 ACTIVE - 149 - 149 AsDrille						Out of range
Atoka San Andres 150 00287 ACTIVE - 150 - 150 AsDrille						Out of range
Atoka San Andres 151 00290 PA - 151 - 151 AsDrilled						Out of range
Atoka San Andres 152 10144 ACTIVE - 152 - 152 AsDrille						Out of range
Atoka San Andres 157 24461 ACTIVE - 157 - 157 AsDrille						Out of range
Everest 14M 9 40980 ACTIVE - 9 - 9 AsDrilled						Out of range
Everest 14N 5 34760 ACTIVE - 5 - 5 AsDrilled						Out of range
Everest 14N 8 40488 plugged - 8 - 8 AsDrilled						Out of range
Everest 14O 7 41015 ACTIVE - 7 - 7 AsDrilled						Out of range
Everest 14P 6 35745 ACTIVE - 5 - 5 AsDrilled						Out of range
Everest 2 00285 PA - 2 - 2AsDrilled						Out of range
Everest 3 25844 PA - 3 - 3 AsDrilled						Out of range
Fanning #3 00198 PA - 3 - 3 AsDrilled						Out of range
J H Everest 1 00289 PA - 1 - 1 AsDrilled						Out of range
J H Everest et al 2-1 00288 PA - 2-1 - 2-1 AsDrilled						Out of range
Leavitt 13 5H 49486 ACTIVE - 5H - 5H AsDrilled						Out of range
McNatt Vandergriff 14 P 2 40489 ACTIVE - 2 - 2 AsDrilled						Out of range
Terry 14E 4 43297 ACTIVE - 4 - 4 AsDrilled						Out of range
Terry 14G 3 44494 ACTIVE - 3 - 3 AsDrilled						Out of range
Terry 14G 7 44495 ACTIVE - 7 - 7 AsDrilled						Out of range
Vandergriff 13 M 1 40493 plugged - 1 - 1 AsDrilled						Out of range

Offset Design Calmer Than You 5 Fed Com Pad - Carter Collier 5 Federal 6 29994 PA - 6 - 6 AsDrilled

Offset Site Error: 0.00 usft

Survey Program: 100-INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	128.18	-1,394.47	1,773.29	2,255.92				
100.00	100.00	91.00	100.00	0.31	1.59	128.18	-1,394.47	1,773.29	2,255.90	2,254.17	1.74	1,298.602	
200.00	200.00	191.00	200.00	0.96	3.33	128.18	-1,394.47	1,773.29	2,255.90	2,252.06	3.85	586.479	
300.00	300.00	291.00	300.00	1.46	5.08	128.18	-1,394.47	1,773.29	2,255.90	2,249.95	5.95	378.994	
400.00	400.00	391.00	400.00	1.90	6.82	128.18	-1,394.47	1,773.29	2,255.90	2,247.85	8.06	279.993	
500.00	500.00	491.00	500.00	2.31	8.57	128.18	-1,394.47	1,773.29	2,255.90	2,245.74	10.16	222.010	CC, ES
600.00	599.82	590.82	599.82	3.10	10.31	-124.77	-1,394.47	1,773.29	2,258.89	2,246.28	12.61	179.083	
700.00	698.54	689.54	698.54	4.13	12.03	-124.64	-1,394.47	1,773.29	2,267.88	2,252.78	15.10	150.205	
800.00	795.09	786.09	795.09	4.97	13.72	-124.42	-1,394.47	1,773.29	2,282.90	2,265.44	17.47	130.710	
900.00	888.40	879.40	888.40	5.68	15.35	-124.05	-1,394.47	1,773.29	2,304.02	2,284.26	19.77	116.559	
1,000.00	977.46	968.46	977.46	6.31	16.90	-123.50	-1,394.47	1,773.29	2,331.30	2,309.27	22.03	105.832	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-122.70	-1,394.47	1,773.29	2,364.75	2,340.49	24.26	97.476	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-121.59	-1,394.47	1,773.29	2,404.36	2,377.90	26.46	90.863	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-122.15	-1,394.47	1,773.29	2,448.57	2,420.03	28.55	85.772	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-123.25	-1,394.47	1,773.29	2,494.02	2,463.36	30.66	81.342	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Carter Collier 5 Federal 9 29975 PA - 9 - 9 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	92.42	-72.30	1,707.95	1,709.50				
100.00	100.00	91.00	100.00	0.31	1.59	92.42	-72.30	1,707.95	1,709.48	1,707.65	1.83	936.004	
200.00	200.00	191.00	200.00	0.96	3.33	92.42	-72.30	1,707.95	1,709.48	1,705.40	4.08	418.774	
300.00	300.00	291.00	300.00	1.46	5.08	92.42	-72.30	1,707.95	1,709.48	1,703.23	6.25	273.343	
400.00	400.00	391.00	400.00	1.90	6.82	92.42	-72.30	1,707.95	1,709.48	1,701.09	8.39	203.700	
500.00	500.00	491.00	500.00	2.31	8.57	92.42	-72.30	1,707.95	1,709.48	1,698.96	10.52	162.543	CC, ES
600.00	599.82	590.82	599.82	3.10	10.31	-160.52	-72.30	1,707.95	1,714.41	1,701.20	13.21	129.775	
700.00	698.54	689.54	698.54	4.13	12.03	-160.40	-72.30	1,707.95	1,729.17	1,713.18	15.99	108.140	
800.00	795.09	786.09	795.09	4.97	13.72	-160.17	-72.30	1,707.95	1,753.62	1,735.10	18.52	94.675	
900.00	888.40	879.40	888.40	5.68	15.35	-159.82	-72.30	1,707.95	1,787.54	1,766.66	20.88	85.603	
1,000.00	977.46	968.46	977.46	6.31	16.90	-159.32	-72.30	1,707.95	1,830.62	1,807.53	23.09	79.288	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-158.60	-72.30	1,707.95	1,882.44	1,857.29	25.15	74.863	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-157.60	-72.30	1,707.95	1,942.49	1,915.45	27.05	71.820	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-157.89	-72.30	1,707.95	2,008.05	1,979.41	28.65	70.094	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-158.58	-72.30	1,707.95	2,073.99	2,043.76	30.23	68.601	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-159.23	-72.30	1,707.95	2,140.10	2,108.26	31.84	67.216	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-159.85	-72.30	1,707.95	2,206.36	2,172.90	33.46	65.941	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-160.43	-72.30	1,707.95	2,272.76	2,237.67	35.09	64.767	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-160.97	-72.30	1,707.95	2,339.30	2,302.56	36.73	63.685	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-160.90	-72.30	1,707.95	2,407.88	2,369.49	38.39	62.720	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-159.63	-72.30	1,707.95	2,485.14	2,445.11	40.03	62.077	SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Chalk Federal 2 29706 ACTIVE - 2 - 2 AsDrilled

Offset Site Error: 0.00 usft

Survey Program: 100-INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	146.52	-1,707.79	1,129.30	2,047.43				
100.00	100.00	91.00	100.00	0.31	1.59	146.52	-1,707.79	1,129.30	2,047.41	2,045.67	1.74	1,174.125	
200.00	200.00	191.00	200.00	0.96	3.33	146.52	-1,707.79	1,129.30	2,047.41	2,043.55	3.86	529.990	
300.00	300.00	291.00	300.00	1.46	5.08	146.52	-1,707.79	1,129.30	2,047.41	2,041.44	5.97	342.795	
400.00	400.00	391.00	400.00	1.90	6.82	146.52	-1,707.79	1,129.30	2,047.41	2,039.33	8.08	253.425	
500.00	500.00	491.00	500.00	2.31	8.57	146.52	-1,707.79	1,129.30	2,047.41	2,037.23	10.18	201.040	CC
600.00	599.82	590.82	599.82	3.10	10.31	-106.52	-1,707.79	1,129.30	2,048.90	2,036.50	12.40	165.234	ES
700.00	698.54	689.54	698.54	4.13	12.03	-106.67	-1,707.79	1,129.30	2,053.42	2,038.79	14.64	140.303	
800.00	795.09	786.09	795.09	4.97	13.72	-106.89	-1,707.79	1,129.30	2,061.14	2,044.29	16.86	122.275	
900.00	888.40	879.40	888.40	5.68	15.35	-107.14	-1,707.79	1,129.30	2,072.32	2,053.22	19.09	108.528	
1,000.00	977.46	968.46	977.46	6.31	16.90	-107.35	-1,707.79	1,129.30	2,087.27	2,065.90	21.37	97.665	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-107.44	-1,707.79	1,129.30	2,106.37	2,082.67	23.70	88.887	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-107.35	-1,707.79	1,129.30	2,129.95	2,103.88	26.06	81.717	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-108.32	-1,707.79	1,129.30	2,157.40	2,128.98	28.42	75.910	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-109.62	-1,707.79	1,129.30	2,186.74	2,155.93	30.81	70.974	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-110.90	-1,707.79	1,129.30	2,217.82	2,184.62	33.21	66.790	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-112.16	-1,707.79	1,129.30	2,250.57	2,214.98	35.59	63.239	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-113.40	-1,707.79	1,129.30	2,284.91	2,246.96	37.95	60.209	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-114.61	-1,707.79	1,129.30	2,320.77	2,280.48	40.29	57.606	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-114.45	-1,707.79	1,129.30	2,359.39	2,316.80	42.59	55.399	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-112.58	-1,707.79	1,129.30	2,405.46	2,360.59	44.87	53.615	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-111.91	-1,707.79	1,129.30	2,458.22	2,411.23	46.99	52.317	SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Chalk Federal 4 29707 ACTIVE - 4 - 4 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	161.09	-1,360.56	466.01	1,438.18				
100.00	100.00	91.00	100.00	0.31	1.59	161.09	-1,360.56	466.01	1,438.15	1,436.38	1.78	808.706	
200.00	200.00	191.00	200.00	0.96	3.33	161.09	-1,360.56	466.01	1,438.15	1,434.20	3.95	363.845	
300.00	300.00	291.00	300.00	1.46	5.08	161.09	-1,360.56	466.01	1,438.15	1,432.07	6.09	236.335	
400.00	400.00	391.00	400.00	1.90	6.82	161.09	-1,360.56	466.01	1,438.15	1,429.95	8.20	175.335	
500.00	500.00	491.00	500.00	2.31	8.57	161.09	-1,360.56	466.01	1,438.15	1,427.84	10.31	139.439	CC
600.00	599.82	590.82	599.82	3.10	10.31	-92.09	-1,360.56	466.01	1,438.34	1,425.94	12.39	116.063	
700.00	698.54	689.54	698.54	4.13	12.03	-92.66	-1,360.56	466.01	1,438.99	1,424.52	14.48	99.386	
800.00	795.09	786.09	795.09	4.97	13.72	-93.57	-1,360.56	466.01	1,440.46	1,423.86	16.60	86.786	ES
900.00	888.40	879.40	888.40	5.68	15.35	-94.73	-1,360.56	466.01	1,443.24	1,424.46	18.78	76.857	
1,000.00	977.46	968.46	977.46	6.31	16.90	-96.03	-1,360.56	466.01	1,448.04	1,426.99	21.04	68.809	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-97.37	-1,360.56	466.01	1,455.64	1,432.23	23.40	62.194	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-98.61	-1,360.56	466.01	1,466.89	1,441.04	25.85	56.746	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-100.36	-1,360.56	466.01	1,482.07	1,453.74	28.34	52.304	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-102.27	-1,360.56	466.01	1,500.29	1,469.43	30.85	48.629	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-104.15	-1,360.56	466.01	1,521.38	1,488.02	33.36	45.606	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-106.01	-1,360.56	466.01	1,545.24	1,509.41	35.84	43.118	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-107.83	-1,360.56	466.01	1,571.74	1,533.47	38.28	41.061	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-109.62	-1,360.56	466.01	1,600.75	1,560.08	40.68	39.354	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-110.26	-1,360.56	466.01	1,633.30	1,590.28	43.02	37.967	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-109.35	-1,360.56	466.01	1,673.68	1,628.37	45.32	36.934	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-109.37	-1,360.56	466.01	1,721.46	1,674.01	47.45	36.280	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-110.92	-1,360.56	466.01	1,772.68	1,723.21	49.48	35.828	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-111.35	-1,360.56	466.01	1,828.17	1,776.75	51.43	35.550	SF
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-108.16	-1,360.56	466.01	1,895.26	1,842.06	53.20	35.628	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-100.58	-1,360.56	466.01	1,972.74	1,918.23	54.51	36.188	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,360.56	466.01	2,057.63	2,002.29	55.35	37.178	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,360.56	466.01	2,145.20	2,089.24	55.96	38.334	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,360.56	466.01	2,233.81	2,177.28	56.53	39.518	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,360.56	466.01	2,323.35	2,266.30	57.05	40.727	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,360.56	466.01	2,413.71	2,356.18	57.52	41.960	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Chalk Federal 5 29650 ACTIVE - 5 - 5 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	122.64	-717.22	1,119.98	1,329.98				
100.00	100.00	91.00	100.00	0.31	1.59	122.64	-717.22	1,119.98	1,329.95	1,328.20	1.75	762.038	
200.00	200.00	191.00	200.00	0.96	3.33	122.64	-717.22	1,119.98	1,329.95	1,326.08	3.87	343.936	
300.00	300.00	291.00	300.00	1.46	5.08	122.64	-717.22	1,119.98	1,329.95	1,323.97	5.98	222.500	
400.00	400.00	391.00	400.00	1.90	6.82	122.64	-717.22	1,119.98	1,329.95	1,321.87	8.08	164.517	
500.00	500.00	491.00	500.00	2.31	8.57	122.64	-717.22	1,119.98	1,329.95	1,319.76	10.19	130.524	CC, ES
600.00	599.82	590.82	599.82	3.10	10.31	-130.37	-717.22	1,119.98	1,333.34	1,320.63	12.71	104.925	
700.00	698.54	689.54	698.54	4.13	12.03	-130.40	-717.22	1,119.98	1,343.55	1,328.29	15.27	87.997	
800.00	795.09	786.09	795.09	4.97	13.72	-130.43	-717.22	1,119.98	1,360.68	1,342.99	17.69	76.927	
900.00	888.40	879.40	888.40	5.68	15.35	-130.38	-717.22	1,119.98	1,384.83	1,364.81	20.02	69.159	
1,000.00	977.46	968.46	977.46	6.31	16.90	-130.20	-717.22	1,119.98	1,416.15	1,393.85	22.30	63.516	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-129.79	-717.22	1,119.98	1,454.69	1,430.18	24.51	59.361	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-129.05	-717.22	1,119.98	1,500.45	1,473.81	26.64	56.314	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-130.12	-717.22	1,119.98	1,551.62	1,523.02	28.60	54.256	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-131.73	-717.22	1,119.98	1,604.23	1,573.69	30.55	52.516	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-133.27	-717.22	1,119.98	1,658.02	1,625.52	32.50	51.016	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-134.73	-717.22	1,119.98	1,712.87	1,678.43	34.44	49.733	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-136.12	-717.22	1,119.98	1,768.68	1,732.32	36.37	48.635	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-137.44	-717.22	1,119.98	1,825.37	1,787.10	38.27	47.691	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-136.96	-717.22	1,119.98	1,884.63	1,844.46	40.16	46.925	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-134.21	-717.22	1,119.98	1,952.59	1,910.58	42.01	46.476	SF
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-133.08	-717.22	1,119.98	2,027.79	1,984.20	43.59	46.519	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-134.43	-717.22	1,119.98	2,104.56	2,059.50	45.06	46.710	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-135.04	-717.22	1,119.98	2,183.52	2,137.04	46.48	46.974	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-131.96	-717.22	1,119.98	2,271.11	2,223.40	47.71	47.602	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-120.33	-717.22	1,119.98	2,365.57	2,317.11	48.47	48.807	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-717.22	1,119.98	2,463.78	2,415.01	48.78	50.513	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Chalk Federal 6 29651 ACTIVE - 6 - 6 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	94.96	-39.40	453.58	455.37				
100.00	100.00	91.00	100.00	0.31	1.59	94.96	-39.40	453.58	455.29	453.47	1.82	250.285	
200.00	200.00	191.00	200.00	0.96	3.33	94.96	-39.40	453.58	455.29	451.22	4.06	112.079	
300.00	300.00	291.00	300.00	1.46	5.08	94.96	-39.40	453.58	455.29	449.06	6.23	73.107	
400.00	400.00	391.00	400.00	1.90	6.82	94.96	-39.40	453.58	455.29	446.92	8.36	54.446	
500.00	500.00	491.00	500.00	2.31	8.57	94.96	-39.40	453.58	455.29	444.80	10.48	43.423	CC, ES
600.00	599.82	590.82	599.82	3.10	10.31	-158.16	-39.40	453.58	460.14	446.96	13.18	34.916	
700.00	698.54	689.54	698.54	4.13	12.03	-158.54	-39.40	453.58	474.70	458.74	15.96	29.744	
800.00	795.09	786.09	795.09	4.97	13.72	-159.09	-39.40	453.58	498.93	480.43	18.50	26.964	
900.00	888.40	879.40	888.40	5.68	15.35	-159.72	-39.40	453.58	532.74	511.86	20.88	25.514	
1,000.00	977.46	968.46	977.46	6.31	16.90	-160.32	-39.40	453.58	575.92	552.82	23.10	24.928	SF
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-160.79	-39.40	453.58	628.13	602.96	25.17	24.957	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-161.04	-39.40	453.58	688.88	661.82	27.07	25.453	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-162.34	-39.40	453.58	755.41	726.76	28.64	26.374	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-163.76	-39.40	453.58	822.44	792.25	30.19	27.244	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-164.98	-39.40	453.58	889.72	857.97	31.75	28.026	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-166.03	-39.40	453.58	957.20	923.88	33.31	28.733	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-166.94	-39.40	453.58	1,024.83	989.94	34.89	29.374	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-167.75	-39.40	453.58	1,092.59	1,056.12	36.47	29.956	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-168.45	-39.40	453.58	1,162.39	1,124.31	38.08	30.526	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-168.67	-39.40	453.58	1,240.87	1,201.20	39.67	31.280	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-168.95	-39.40	453.58	1,326.25	1,285.33	40.91	32.415	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-169.61	-39.40	453.58	1,412.46	1,370.43	42.04	33.601	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-175.13	-39.40	453.58	1,499.85	1,456.71	43.14	34.765	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	170.34	-39.40	453.58	1,593.17	1,549.13	44.04	36.174	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	136.71	-39.40	453.58	1,690.55	1,646.03	44.53	37.966	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	90.00	-39.40	453.58	1,789.16	1,744.52	44.64	40.079	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	90.00	-39.40	453.58	1,887.76	1,843.12	44.64	42.290	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	90.00	-39.40	453.58	1,986.50	1,941.86	44.64	44.498	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	90.00	-39.40	453.58	2,085.36	2,040.71	44.65	46.705	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	90.00	-39.40	453.58	2,184.33	2,139.67	44.66	48.910	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	90.00	-39.40	453.58	2,283.38	2,238.71	44.67	51.113	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	90.00	-39.40	453.58	2,382.51	2,337.82	44.69	53.313	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	90.00	-39.40	453.58	2,481.72	2,437.01	44.71	55.510	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Evarts Federal 1 00793 ACTIVE - 1 - 1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	-142.58	-1,971.72	-1,508.33	2,482.51				
100.00	100.00	91.00	100.00	0.31	1.59	-142.58	-1,971.72	-1,508.33	2,482.49	2,480.59	1.90	1,306.199	
200.00	200.00	191.00	200.00	0.96	3.33	-142.58	-1,971.72	-1,508.33	2,482.49	2,478.20	4.29	578.873	
300.00	300.00	291.00	300.00	1.46	5.08	-142.58	-1,971.72	-1,508.33	2,482.49	2,475.96	6.53	380.045	
400.00	400.00	391.00	400.00	1.90	6.82	-142.58	-1,971.72	-1,508.33	2,482.49	2,473.78	8.71	284.908	
500.00	500.00	491.00	500.00	2.31	8.57	-142.58	-1,971.72	-1,508.33	2,482.49	2,471.62	10.87	228.423	
600.00	599.82	590.82	599.82	3.10	10.31	-35.79	-1,971.72	-1,508.33	2,478.24	2,465.01	13.23	187.382	
700.00	698.54	689.54	698.54	4.13	12.03	-36.46	-1,971.72	-1,508.33	2,465.55	2,449.84	15.71	156.963	
800.00	795.09	786.09	795.09	4.97	13.72	-37.59	-1,971.72	-1,508.33	2,444.63	2,426.58	18.04	135.487	
900.00	888.40	879.40	888.40	5.68	15.35	-39.22	-1,971.72	-1,508.33	2,415.82	2,395.55	20.26	119.224	
1,000.00	977.46	968.46	977.46	6.31	16.90	-41.40	-1,971.72	-1,508.33	2,379.59	2,357.21	22.38	106.305	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-44.18	-1,971.72	-1,508.33	2,336.56	2,312.13	24.43	95.657	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-47.61	-1,971.72	-1,508.33	2,287.44	2,261.03	26.41	86.615	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-49.35	-1,971.72	-1,508.33	2,234.76	2,206.48	28.29	79.003	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-50.51	-1,971.72	-1,508.33	2,182.82	2,152.56	30.25	72.149	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-51.71	-1,971.72	-1,508.33	2,131.82	2,099.49	32.32	65.950	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-52.95	-1,971.72	-1,508.33	2,081.83	2,047.34	34.49	60.362	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-54.23	-1,971.72	-1,508.33	2,032.94	1,996.20	36.74	55.335	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-55.56	-1,971.72	-1,508.33	1,985.21	1,946.14	39.07	50.814	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-59.89	-1,971.72	-1,508.33	1,937.68	1,896.20	41.49	46.704	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-66.30	-1,971.72	-1,508.33	1,887.17	1,843.15	44.03	42.866	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-70.13	-1,971.72	-1,508.33	1,835.52	1,788.91	46.61	39.383	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-71.62	-1,971.72	-1,508.33	1,786.17	1,736.87	49.29	36.235	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-77.05	-1,971.72	-1,508.33	1,740.25	1,688.14	52.11	33.397	
2,400.00	1,892.19	1,871.00	1,880.00	24.89	32.66	-83.53	-1,971.72	-1,508.33	1,701.77	1,646.88	54.89	31.005	
2,500.00	1,912.77	1,871.00	1,880.00	27.14	32.66	-87.16	-1,971.72	-1,508.33	1,673.86	1,616.29	57.57	29.077	
2,600.00	1,918.00	1,871.00	1,880.00	29.38	32.66	-88.68	-1,971.72	-1,508.33	1,657.96	1,597.59	60.37	27.463	
2,700.00	1,918.00	1,871.00	1,880.00	31.62	32.66	-88.68	-1,971.72	-1,508.33	1,650.28	1,587.11	63.16	26.128	
2,777.11	1,918.00	1,871.00	1,880.00	33.37	32.66	-88.68	-1,971.72	-1,508.33	1,648.47	1,583.19	65.29	25.249	CC
2,800.00	1,918.00	1,871.00	1,880.00	33.89	32.66	-88.68	-1,971.72	-1,508.33	1,648.63	1,582.72	65.91	25.014	ES
2,900.00	1,918.00	1,871.00	1,880.00	36.19	32.66	-88.68	-1,971.72	-1,508.33	1,653.05	1,584.48	68.57	24.109	
3,000.00	1,918.00	1,871.00	1,880.00	38.52	32.66	-88.68	-1,971.72	-1,508.33	1,663.47	1,592.38	71.10	23.397	
3,100.00	1,918.00	1,871.00	1,880.00	40.86	32.66	-88.68	-1,971.72	-1,508.33	1,679.80	1,606.32	73.48	22.861	
3,200.00	1,918.00	1,871.00	1,880.00	43.21	32.66	-88.68	-1,971.72	-1,508.33	1,701.85	1,626.17	75.68	22.486	
3,300.00	1,918.00	1,871.00	1,880.00	45.58	32.66	-88.68	-1,971.72	-1,508.33	1,729.42	1,651.71	77.71	22.256	
3,400.00	1,918.00	1,871.00	1,880.00	47.95	32.66	-88.68	-1,971.72	-1,508.33	1,762.23	1,682.69	79.54	22.156	SF
3,500.00	1,918.00	1,871.00	1,880.00	50.34	32.66	-88.68	-1,971.72	-1,508.33	1,800.01	1,718.83	81.18	22.174	
3,600.00	1,918.00	1,871.00	1,880.00	52.73	32.66	-88.68	-1,971.72	-1,508.33	1,842.45	1,759.82	82.63	22.297	
3,700.00	1,918.00	1,871.00	1,880.00	55.14	32.66	-88.68	-1,971.72	-1,508.33	1,889.23	1,805.32	83.91	22.515	
3,800.00	1,918.00	1,871.00	1,880.00	57.54	32.66	-88.68	-1,971.72	-1,508.33	1,940.04	1,855.02	85.02	22.818	
3,900.00	1,918.00	1,871.00	1,880.00	59.95	32.66	-88.68	-1,971.72	-1,508.33	1,994.58	1,908.60	85.98	23.197	
4,000.00	1,918.00	1,871.00	1,880.00	62.37	32.66	-88.68	-1,971.72	-1,508.33	2,052.54	1,965.73	86.81	23.645	
4,100.00	1,918.00	1,871.00	1,880.00	64.79	32.66	-88.68	-1,971.72	-1,508.33	2,113.65	2,026.14	87.51	24.153	
4,200.00	1,918.00	1,871.00	1,880.00	67.21	32.66	-88.68	-1,971.72	-1,508.33	2,177.63	2,089.53	88.10	24.717	
4,300.00	1,918.00	1,871.00	1,880.00	69.64	32.66	-88.68	-1,971.72	-1,508.33	2,244.25	2,155.65	88.60	25.330	
4,400.00	1,918.00	1,871.00	1,880.00	72.07	32.66	-88.68	-1,971.72	-1,508.33	2,313.28	2,224.26	89.01	25.988	
4,500.00	1,918.00	1,871.00	1,880.00	74.51	32.66	-88.68	-1,971.72	-1,508.33	2,384.50	2,295.14	89.35	26.686	
4,600.00	1,918.00	1,871.00	1,880.00	76.94	32.66	-88.68	-1,971.72	-1,508.33	2,457.72	2,368.09	89.63	27.421	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Julia A Federal 003 Plugged 00779 - 003 - 003 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	-162.62	-1,665.18	-521.17	1,744.86				
100.00	100.00	91.00	100.00	0.31	1.59	-162.62	-1,665.18	-521.17	1,744.84	1,742.96	1.87	930.636	
200.00	200.00	191.00	200.00	0.96	3.33	-162.62	-1,665.18	-521.17	1,744.84	1,740.62	4.22	413.812	
300.00	300.00	291.00	300.00	1.46	5.08	-162.62	-1,665.18	-521.17	1,744.84	1,738.40	6.43	271.184	
400.00	400.00	391.00	400.00	1.90	6.82	-162.62	-1,665.18	-521.17	1,744.84	1,736.24	8.60	202.905	
500.00	500.00	491.00	500.00	2.31	8.57	-162.62	-1,665.18	-521.17	1,744.84	1,734.09	10.74	162.423	
600.00	599.82	590.82	599.82	3.10	10.31	-55.90	-1,665.18	-521.17	1,741.89	1,728.98	12.91	134.965	
700.00	698.54	689.54	698.54	4.13	12.03	-56.76	-1,665.18	-521.17	1,733.14	1,717.99	15.14	114.461	
800.00	795.09	786.09	795.09	4.97	13.72	-58.20	-1,665.18	-521.17	1,718.87	1,701.56	17.31	99.300	
900.00	888.40	879.40	888.40	5.68	15.35	-60.19	-1,665.18	-521.17	1,699.57	1,680.14	19.43	87.455	
1,000.00	977.46	968.46	977.46	6.31	16.90	-62.71	-1,665.18	-521.17	1,675.90	1,654.36	21.54	77.787	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-65.71	-1,665.18	-521.17	1,648.70	1,625.02	23.68	69.617	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-69.09	-1,665.18	-521.17	1,618.99	1,593.10	25.89	62.539	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-71.26	-1,665.18	-521.17	1,588.85	1,560.68	28.18	56.389	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-73.06	-1,665.18	-521.17	1,561.06	1,530.46	30.61	51.006	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-74.89	-1,665.18	-521.17	1,535.84	1,502.70	33.14	46.347	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-76.76	-1,665.18	-521.17	1,513.31	1,477.57	35.75	42.335	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-78.66	-1,665.18	-521.17	1,493.61	1,455.20	38.41	38.886	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-80.58	-1,665.18	-521.17	1,476.83	1,435.72	41.11	35.921	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-83.69	-1,665.18	-521.17	1,463.03	1,419.19	43.85	33.368	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-86.98	-1,665.18	-521.17	1,452.82	1,406.18	46.64	31.150	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-89.16	-1,665.18	-521.17	1,447.65	1,398.21	49.44	29.281	
2,148.90	1,783.01	1,774.01	1,783.01	19.86	30.96	-90.00	-1,665.18	-521.17	1,447.03	1,396.22	50.81	28.481	CC
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-90.88	-1,665.18	-521.17	1,447.71	1,395.49	52.22	27.722	ES
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-93.48	-1,665.18	-521.17	1,454.24	1,399.29	54.95	26.463	
2,400.00	1,892.19	1,850.00	1,859.00	24.89	32.29	-93.50	-1,665.18	-521.17	1,474.64	1,417.65	56.99	25.877	
2,500.00	1,912.77	1,850.00	1,859.00	27.14	32.29	-91.12	-1,665.18	-521.17	1,509.52	1,450.65	58.87	25.641	SF
2,600.00	1,918.00	1,850.00	1,859.00	29.38	32.29	-87.46	-1,665.18	-521.17	1,556.80	1,496.25	60.55	25.711	
2,700.00	1,918.00	1,850.00	1,859.00	31.62	32.29	-87.46	-1,665.18	-521.17	1,610.88	1,548.86	62.02	25.972	
2,800.00	1,918.00	1,850.00	1,859.00	33.89	32.29	-87.46	-1,665.18	-521.17	1,669.20	1,605.86	63.34	26.351	
2,900.00	1,918.00	1,850.00	1,859.00	36.19	32.29	-87.46	-1,665.18	-521.17	1,731.34	1,666.82	64.52	26.835	
3,000.00	1,918.00	1,850.00	1,859.00	38.52	32.29	-87.46	-1,665.18	-521.17	1,796.90	1,731.34	65.56	27.409	
3,100.00	1,918.00	1,850.00	1,859.00	40.86	32.29	-87.46	-1,665.18	-521.17	1,865.51	1,799.03	66.48	28.061	
3,200.00	1,918.00	1,850.00	1,859.00	43.21	32.29	-87.46	-1,665.18	-521.17	1,936.86	1,869.57	67.29	28.782	
3,300.00	1,918.00	1,850.00	1,859.00	45.58	32.29	-87.46	-1,665.18	-521.17	2,010.66	1,942.65	68.01	29.563	
3,400.00	1,918.00	1,850.00	1,859.00	47.95	32.29	-87.46	-1,665.18	-521.17	2,086.64	2,017.99	68.65	30.397	
3,500.00	1,918.00	1,850.00	1,859.00	50.34	32.29	-87.46	-1,665.18	-521.17	2,164.57	2,095.36	69.21	31.277	
3,600.00	1,918.00	1,850.00	1,859.00	52.73	32.29	-87.46	-1,665.18	-521.17	2,244.25	2,174.54	69.70	32.197	
3,700.00	1,918.00	1,850.00	1,859.00	55.14	32.29	-87.46	-1,665.18	-521.17	2,325.50	2,255.36	70.14	33.153	
3,800.00	1,918.00	1,850.00	1,859.00	57.54	32.29	-87.46	-1,665.18	-521.17	2,408.16	2,337.63	70.53	34.142	
3,900.00	1,918.00	1,850.00	1,859.00	59.95	32.29	-87.46	-1,665.18	-521.17	2,492.10	2,421.22	70.88	35.159	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Julie A Federal 5 30048 PA - 5 - 5 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	-153.83	-1,331.64	-654.31	1,483.74				
100.00	100.00	91.00	100.00	0.31	1.59	-153.83	-1,331.64	-654.31	1,483.71	1,481.82	1.89	785.221	
200.00	200.00	191.00	200.00	0.96	3.33	-153.83	-1,331.64	-654.31	1,483.71	1,479.45	4.26	348.489	
300.00	300.00	291.00	300.00	1.46	5.08	-153.83	-1,331.64	-654.31	1,483.71	1,477.22	6.49	228.618	
400.00	400.00	391.00	400.00	1.90	6.82	-153.83	-1,331.64	-654.31	1,483.71	1,475.04	8.66	171.248	
500.00	500.00	491.00	500.00	2.31	8.57	-153.83	-1,331.64	-654.31	1,483.71	1,472.90	10.81	137.206	
600.00	599.82	590.82	599.82	3.10	10.31	-47.12	-1,331.64	-654.31	1,480.13	1,467.08	13.06	113.352	
700.00	698.54	689.54	698.54	4.13	12.03	-48.04	-1,331.64	-654.31	1,469.51	1,454.11	15.40	95.438	
800.00	795.09	786.09	795.09	4.97	13.72	-49.59	-1,331.64	-654.31	1,452.13	1,434.50	17.63	82.369	
900.00	888.40	879.40	888.40	5.68	15.35	-51.78	-1,331.64	-654.31	1,428.48	1,408.70	19.78	72.224	
1,000.00	977.46	968.46	977.46	6.31	16.90	-54.61	-1,331.64	-654.31	1,399.27	1,377.40	21.87	63.977	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-58.08	-1,331.64	-654.31	1,365.40	1,341.45	23.95	57.020	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-62.12	-1,331.64	-654.31	1,327.96	1,301.91	26.05	50.981	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-64.76	-1,331.64	-654.31	1,289.47	1,261.28	28.20	45.733	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-66.96	-1,331.64	-654.31	1,253.44	1,222.94	30.50	41.092	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-69.23	-1,331.64	-654.31	1,220.22	1,187.27	32.95	37.033	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-71.58	-1,331.64	-654.31	1,190.02	1,154.52	35.51	33.513	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-73.99	-1,331.64	-654.31	1,163.11	1,124.95	38.16	30.482	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-76.46	-1,331.64	-654.31	1,139.70	1,098.82	40.88	27.882	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-80.46	-1,331.64	-654.31	1,119.80	1,076.15	43.65	25.656	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-84.83	-1,331.64	-654.31	1,103.76	1,057.26	46.50	23.736	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-87.78	-1,331.64	-654.31	1,093.67	1,044.30	49.37	22.152	
2,197.72	1,807.42	1,798.42	1,807.42	20.77	31.39	-90.00	-1,331.64	-654.31	1,090.39	1,038.25	52.15	20.911	CC
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-90.05	-1,331.64	-654.31	1,090.39	1,038.18	52.21	20.885	ES
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-93.26	-1,331.64	-654.31	1,095.28	1,040.32	54.96	19.928	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-94.98	-1,331.64	-654.31	1,115.42	1,057.85	57.57	19.374	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-93.61	-1,331.64	-654.31	1,151.61	1,091.87	59.75	19.275	SF
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,331.64	-654.31	1,202.05	1,140.72	61.34	19.598	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,331.64	-654.31	1,260.49	1,197.95	62.55	20.153	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,331.64	-654.31	1,323.92	1,260.36	63.56	20.830	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,331.64	-654.31	1,391.64	1,327.25	64.40	21.611	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,331.64	-654.31	1,463.08	1,397.99	65.09	22.478	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-1,331.64	-654.31	1,537.70	1,472.04	65.66	23.419	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-1,331.64	-654.31	1,615.06	1,548.93	66.13	24.423	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-1,331.64	-654.31	1,694.80	1,628.28	66.52	25.480	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-1,331.64	-654.31	1,776.59	1,709.75	66.83	26.582	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-1,331.64	-654.31	1,860.15	1,793.06	67.10	27.724	
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-1,331.64	-654.31	1,945.27	1,877.96	67.31	28.899	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-1,331.64	-654.31	2,031.75	1,964.26	67.49	30.104	
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-1,331.64	-654.31	2,119.42	2,051.78	67.64	31.334	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-1,331.64	-654.31	2,208.13	2,140.37	67.76	32.587	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-1,331.64	-654.31	2,297.77	2,229.91	67.86	33.859	
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-1,331.64	-654.31	2,388.24	2,320.29	67.95	35.148	
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-1,331.64	-654.31	2,479.43	2,411.41	68.02	36.453	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Malco 2-B 00796 Plugged - 2-B - 2-B AsDrilled

Offset Site Error: 0.00 usft

Survey Program: 100-INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-53.79	-1,947.47	-2,828.62	2,443.69	2,397.82	45.87	53.271	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-69.03	-1,947.47	-2,828.62	2,365.76	2,318.03	47.73	49.563	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-81.97	-1,947.47	-2,828.62	2,290.20	2,240.51	49.69	46.094	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,947.47	-2,828.62	2,219.99	2,168.25	51.73	42.913	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,947.47	-2,828.62	2,153.79	2,099.84	53.95	39.919	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,947.47	-2,828.62	2,090.29	2,033.89	56.39	37.065	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,947.47	-2,828.62	2,029.73	1,970.69	59.04	34.381	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,947.47	-2,828.62	1,972.38	1,910.51	61.86	31.883	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-1,947.47	-2,828.62	1,918.53	1,853.67	64.86	29.580	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-1,947.47	-2,828.62	1,868.49	1,800.48	68.00	27.476	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-1,947.47	-2,828.62	1,822.56	1,751.29	71.27	25.571	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-1,947.47	-2,828.62	1,781.07	1,706.43	74.64	23.861	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-1,947.47	-2,828.62	1,744.33	1,666.25	78.08	22.340	
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-1,947.47	-2,828.62	1,712.65	1,631.11	81.55	21.002	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-1,947.47	-2,828.62	1,686.31	1,601.32	85.00	19.839	
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-1,947.47	-2,828.62	1,665.58	1,577.18	88.39	18.843	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-1,947.47	-2,828.62	1,650.64	1,558.96	91.68	18.005	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-1,947.47	-2,828.62	1,641.68	1,546.86	94.82	17.314	
4,097.58	1,918.00	1,909.00	1,918.00	64.73	33.32	-90.00	-1,947.47	-2,828.62	1,638.78	1,541.08	97.70	16.774	CC
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-1,947.47	-2,828.62	1,638.78	1,541.01	97.76	16.763	ES
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-1,947.47	-2,828.62	1,641.97	1,541.49	100.48	16.341	
4,300.00	1,918.00	1,909.00	1,918.00	69.64	33.32	-90.00	-1,947.47	-2,828.62	1,651.23	1,548.29	102.94	16.041	
4,400.00	1,918.00	1,909.00	1,918.00	72.07	33.32	-90.00	-1,947.47	-2,828.62	1,666.45	1,561.32	105.12	15.852	
4,500.00	1,918.00	1,909.00	1,918.00	74.51	33.32	-90.00	-1,947.47	-2,828.62	1,687.46	1,580.44	107.02	15.768	SF
4,600.00	1,918.00	1,909.00	1,918.00	76.94	33.32	-90.00	-1,947.47	-2,828.62	1,714.06	1,605.43	108.63	15.779	
4,700.00	1,918.00	1,909.00	1,918.00	79.38	33.32	-90.00	-1,947.47	-2,828.62	1,745.99	1,636.03	109.96	15.878	
4,800.00	1,918.00	1,909.00	1,918.00	81.82	33.32	-90.00	-1,947.47	-2,828.62	1,782.97	1,671.94	111.03	16.058	
4,900.00	1,918.00	1,909.00	1,918.00	84.26	33.32	-90.00	-1,947.47	-2,828.62	1,824.68	1,712.82	111.86	16.313	
5,000.00	1,918.00	1,909.00	1,918.00	86.71	33.32	-90.00	-1,947.47	-2,828.62	1,870.81	1,758.35	112.46	16.635	
5,100.00	1,918.00	1,909.00	1,918.00	89.15	33.32	-90.00	-1,947.47	-2,828.62	1,921.05	1,808.17	112.87	17.019	
5,200.00	1,918.00	1,909.00	1,918.00	91.59	33.32	-90.00	-1,947.47	-2,828.62	1,975.07	1,861.96	113.11	17.461	
5,300.00	1,918.00	1,909.00	1,918.00	94.04	33.32	-90.00	-1,947.47	-2,828.62	2,032.58	1,919.38	113.21	17.955	
5,400.00	1,918.00	1,909.00	1,918.00	96.49	33.32	-90.00	-1,947.47	-2,828.62	2,093.29	1,980.12	113.17	18.496	
5,500.00	1,918.00	1,909.00	1,918.00	98.94	33.32	-90.00	-1,947.47	-2,828.62	2,156.93	2,043.89	113.04	19.081	
5,600.00	1,918.00	1,909.00	1,918.00	101.39	33.32	-90.00	-1,947.47	-2,828.62	2,223.25	2,110.43	112.82	19.706	
5,700.00	1,918.00	1,909.00	1,918.00	103.84	33.32	-90.00	-1,947.47	-2,828.62	2,292.01	2,179.48	112.53	20.368	
5,800.00	1,918.00	1,909.00	1,918.00	106.29	33.32	-90.00	-1,947.47	-2,828.62	2,363.01	2,250.82	112.19	21.063	
5,900.00	1,918.00	1,909.00	1,918.00	108.75	33.32	-90.00	-1,947.47	-2,828.62	2,436.04	2,324.24	111.80	21.790	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Malco B Federal 4 29922 PA - 4 - 4 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	11.75	-477.11	-2,834.36	2,495.57	2,465.42	30.15	82.763	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	12.07	-477.11	-2,834.36	2,427.71	2,396.00	31.71	76.569	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	12.42	-477.11	-2,834.36	2,359.89	2,326.60	33.28	70.904	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	12.78	-477.11	-2,834.36	2,292.12	2,257.24	34.88	65.711	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	13.17	-477.11	-2,834.36	2,224.41	2,187.90	36.50	60.938	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	13.77	-477.11	-2,834.36	2,154.82	2,116.66	38.16	56.471	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	15.34	-477.11	-2,834.36	2,076.71	2,036.89	39.81	52.164	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	16.91	-477.11	-2,834.36	1,991.83	1,950.70	41.14	48.418	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	17.64	-477.11	-2,834.36	1,906.26	1,863.89	42.37	44.995	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	15.01	-477.11	-2,834.36	1,819.57	1,775.98	43.60	41.736	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	6.68	-477.11	-2,834.36	1,726.49	1,681.90	44.59	38.720	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-19.21	-477.11	-2,834.36	1,628.76	1,583.68	45.08	36.127	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-477.11	-2,834.36	1,529.35	1,484.25	45.10	33.908	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-477.11	-2,834.36	1,430.00	1,385.04	44.97	31.802	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-477.11	-2,834.36	1,330.75	1,285.92	44.83	29.682	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-477.11	-2,834.36	1,231.62	1,186.91	44.71	27.546	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-477.11	-2,834.36	1,132.65	1,088.03	44.62	25.387	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-477.11	-2,834.36	1,033.87	989.30	44.57	23.197	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-477.11	-2,834.36	935.35	890.74	44.61	20.966	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-477.11	-2,834.36	837.18	792.36	44.82	18.681	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-477.11	-2,834.36	739.50	694.21	45.30	16.326	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-477.11	-2,834.36	642.54	596.28	46.25	13.891	
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-477.11	-2,834.36	546.67	498.66	48.01	11.386	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-477.11	-2,834.36	452.60	401.49	51.11	8.855	
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-477.11	-2,834.36	361.72	305.27	56.45	6.408	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-477.11	-2,834.36	277.19	211.58	65.61	4.225	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-477.11	-2,834.36	206.95	126.50	80.45	2.572	
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-477.11	-2,834.36	169.77	73.23	96.53	1.759	
4,120.03	1,918.00	1,909.00	1,918.00	65.28	33.32	-90.00	-477.11	-2,834.36	168.58	70.34	98.24	1.716	CC, ES, SF
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-477.11	-2,834.36	186.59	89.80	96.79	1.928	
4,300.00	1,918.00	1,909.00	1,918.00	69.64	33.32	-90.00	-477.11	-2,834.36	246.59	160.34	86.25	2.859	
4,400.00	1,918.00	1,909.00	1,918.00	72.07	33.32	-90.00	-477.11	-2,834.36	326.81	249.60	77.20	4.233	
4,500.00	1,918.00	1,909.00	1,918.00	74.51	33.32	-90.00	-477.11	-2,834.36	415.69	344.63	71.06	5.850	
4,600.00	1,918.00	1,909.00	1,918.00	76.94	33.32	-90.00	-477.11	-2,834.36	508.71	441.81	66.90	7.604	
4,700.00	1,918.00	1,909.00	1,918.00	79.38	33.32	-90.00	-477.11	-2,834.36	603.97	540.00	63.98	9.441	
4,800.00	1,918.00	1,909.00	1,918.00	81.82	33.32	-90.00	-477.11	-2,834.36	700.56	638.72	61.84	11.328	
4,900.00	1,918.00	1,909.00	1,918.00	84.26	33.32	-90.00	-477.11	-2,834.36	797.98	737.75	60.23	13.250	
5,000.00	1,918.00	1,909.00	1,918.00	86.71	33.32	-90.00	-477.11	-2,834.36	895.97	837.00	58.97	15.193	
5,100.00	1,918.00	1,909.00	1,918.00	89.15	33.32	-90.00	-477.11	-2,834.36	994.36	936.39	57.98	17.151	
5,200.00	1,918.00	1,909.00	1,918.00	91.59	33.32	-90.00	-477.11	-2,834.36	1,093.05	1,035.88	57.17	19.119	
5,300.00	1,918.00	1,909.00	1,918.00	94.04	33.32	-90.00	-477.11	-2,834.36	1,191.95	1,135.44	56.51	21.094	
5,400.00	1,918.00	1,909.00	1,918.00	96.49	33.32	-90.00	-477.11	-2,834.36	1,291.02	1,235.07	55.95	23.073	
5,500.00	1,918.00	1,909.00	1,918.00	98.94	33.32	-90.00	-477.11	-2,834.36	1,390.23	1,334.74	55.49	25.054	
5,600.00	1,918.00	1,909.00	1,918.00	101.39	33.32	-90.00	-477.11	-2,834.36	1,489.54	1,434.45	55.09	27.037	
5,700.00	1,918.00	1,909.00	1,918.00	103.84	33.32	-90.00	-477.11	-2,834.36	1,588.94	1,534.19	54.75	29.020	
5,800.00	1,918.00	1,909.00	1,918.00	106.29	33.32	-90.00	-477.11	-2,834.36	1,688.41	1,633.95	54.46	31.003	
5,900.00	1,918.00	1,909.00	1,918.00	108.75	33.32	-90.00	-477.11	-2,834.36	1,787.94	1,733.73	54.21	32.985	
6,000.00	1,918.00	1,909.00	1,918.00	111.20	33.32	-90.00	-477.11	-2,834.36	1,887.51	1,833.53	53.98	34.965	
6,100.00	1,918.00	1,909.00	1,918.00	113.66	33.32	-90.00	-477.11	-2,834.36	1,987.13	1,933.34	53.79	36.943	
6,200.00	1,918.00	1,909.00	1,918.00	116.11	33.32	-90.00	-477.11	-2,834.36	2,086.79	2,033.17	53.62	38.919	
6,300.00	1,918.00	1,909.00	1,918.00	118.57	33.32	-90.00	-477.11	-2,834.36	2,186.48	2,133.01	53.47	40.893	
6,400.00	1,918.00	1,909.00	1,918.00	121.02	33.32	-90.00	-477.11	-2,834.36	2,286.19	2,232.86	53.34	42.863	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Malco B Federal 4 29922 PA - 4 - 4 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,500.00	1,918.00	1,909.00	1,918.00	123.48	33.32	-90.00	-477.11	-2,834.36	2,385.93	2,332.71	53.22	44.831	
6,600.00	1,918.00	1,909.00	1,918.00	125.94	33.32	-90.00	-477.11	-2,834.36	2,485.69	2,432.58	53.12	46.796	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Malco B Federal 6 29924 PA - 6 - 6 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-35.80	-1,665.54	-2,931.27	2,427.79	2,384.72	43.07	56.372	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-45.46	-1,665.54	-2,931.27	2,345.98	2,301.37	44.60	52.595	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-63.38	-1,665.54	-2,931.27	2,262.45	2,216.30	46.15	49.021	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-79.67	-1,665.54	-2,931.27	2,179.83	2,132.10	47.74	45.664	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,665.54	-2,931.27	2,101.26	2,051.84	49.41	42.526	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,665.54	-2,931.27	2,025.98	1,974.68	51.30	39.495	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,665.54	-2,931.27	1,952.92	1,899.47	53.45	36.540	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,665.54	-2,931.27	1,882.34	1,826.50	55.84	33.707	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,665.54	-2,931.27	1,814.53	1,756.04	58.49	31.025	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-1,665.54	-2,931.27	1,749.81	1,688.45	61.36	28.517	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-1,665.54	-2,931.27	1,688.53	1,624.08	64.46	26.196	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-1,665.54	-2,931.27	1,631.09	1,563.33	67.76	24.071	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-1,665.54	-2,931.27	1,577.90	1,506.65	71.25	22.146	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-1,665.54	-2,931.27	1,529.41	1,454.51	74.90	20.421	
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-1,665.54	-2,931.27	1,486.07	1,407.41	78.66	18.893	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-1,665.54	-2,931.27	1,448.35	1,365.87	82.48	17.560	
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-1,665.54	-2,931.27	1,416.69	1,330.39	86.31	16.415	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-1,665.54	-2,931.27	1,391.52	1,301.46	90.06	15.451	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-1,665.54	-2,931.27	1,373.19	1,279.51	93.67	14.659	
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-1,665.54	-2,931.27	1,361.97	1,264.90	97.07	14.031	
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-1,665.54	-2,931.27	1,358.04	1,257.86	100.18	13.557	
4,203.44	1,918.00	1,909.00	1,918.00	67.30	33.32	-90.00	-1,665.54	-2,931.27	1,358.03	1,257.76	100.28	13.543	CC, ES
4,300.00	1,918.00	1,909.00	1,918.00	69.64	33.32	-90.00	-1,665.54	-2,931.27	1,361.46	1,258.53	102.94	13.226	
4,400.00	1,918.00	1,909.00	1,918.00	72.07	33.32	-90.00	-1,665.54	-2,931.27	1,372.19	1,266.88	105.31	13.030	
4,500.00	1,918.00	1,909.00	1,918.00	74.51	33.32	-90.00	-1,665.54	-2,931.27	1,390.04	1,282.76	107.27	12.958	SF
4,600.00	1,918.00	1,909.00	1,918.00	76.94	33.32	-90.00	-1,665.54	-2,931.27	1,414.75	1,305.92	108.83	12.999	
4,700.00	1,918.00	1,909.00	1,918.00	79.38	33.32	-90.00	-1,665.54	-2,931.27	1,445.97	1,335.97	110.00	13.146	
4,800.00	1,918.00	1,909.00	1,918.00	81.82	33.32	-90.00	-1,665.54	-2,931.27	1,483.29	1,372.49	110.80	13.387	
4,900.00	1,918.00	1,909.00	1,918.00	84.26	33.32	-90.00	-1,665.54	-2,931.27	1,526.26	1,414.97	111.28	13.715	
5,000.00	1,918.00	1,909.00	1,918.00	86.71	33.32	-90.00	-1,665.54	-2,931.27	1,574.41	1,462.92	111.49	14.122	
5,100.00	1,918.00	1,909.00	1,918.00	89.15	33.32	-90.00	-1,665.54	-2,931.27	1,627.29	1,515.84	111.45	14.600	
5,200.00	1,918.00	1,909.00	1,918.00	91.59	33.32	-90.00	-1,665.54	-2,931.27	1,684.46	1,573.23	111.23	15.144	
5,300.00	1,918.00	1,909.00	1,918.00	94.04	33.32	-90.00	-1,665.54	-2,931.27	1,745.48	1,634.63	110.85	15.746	
5,400.00	1,918.00	1,909.00	1,918.00	96.49	33.32	-90.00	-1,665.54	-2,931.27	1,809.98	1,699.62	110.36	16.401	
5,500.00	1,918.00	1,909.00	1,918.00	98.94	33.32	-90.00	-1,665.54	-2,931.27	1,877.59	1,767.81	109.78	17.104	
5,600.00	1,918.00	1,909.00	1,918.00	101.39	33.32	-90.00	-1,665.54	-2,931.27	1,947.98	1,838.85	109.13	17.850	
5,700.00	1,918.00	1,909.00	1,918.00	103.84	33.32	-90.00	-1,665.54	-2,931.27	2,020.88	1,912.44	108.44	18.636	
5,800.00	1,918.00	1,909.00	1,918.00	106.29	33.32	-90.00	-1,665.54	-2,931.27	2,096.01	1,988.30	107.72	19.459	
5,900.00	1,918.00	1,909.00	1,918.00	108.75	33.32	-90.00	-1,665.54	-2,931.27	2,173.15	2,066.17	106.98	20.313	
6,000.00	1,918.00	1,909.00	1,918.00	111.20	33.32	-90.00	-1,665.54	-2,931.27	2,252.09	2,145.85	106.24	21.198	
6,100.00	1,918.00	1,909.00	1,918.00	113.66	33.32	-90.00	-1,665.54	-2,931.27	2,332.64	2,227.14	105.50	22.110	
6,200.00	1,918.00	1,909.00	1,918.00	116.11	33.32	-90.00	-1,665.54	-2,931.27	2,414.65	2,309.87	104.77	23.047	
6,300.00	1,918.00	1,909.00	1,918.00	118.57	33.32	-90.00	-1,665.54	-2,931.27	2,497.96	2,393.91	104.06	24.006	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Red Raiders Federal 1 36260 ACTIVE - 1 - 1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-67.48	-2,506.10	-843.38	2,474.69	2,446.51	28.19	87.800	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-68.62	-2,506.10	-843.38	2,441.41	2,410.88	30.53	79.964	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-69.79	-2,506.10	-843.38	2,409.62	2,376.65	32.97	73.087	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-70.97	-2,506.10	-843.38	2,379.39	2,343.91	35.48	67.066	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-72.16	-2,506.10	-843.38	2,350.77	2,312.73	38.04	61.790	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-73.38	-2,506.10	-843.38	2,323.84	2,283.18	40.66	57.155	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-76.41	-2,506.10	-843.38	2,298.23	2,254.91	43.32	53.054	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-80.27	-2,506.10	-843.38	2,273.06	2,227.00	46.06	49.347	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-82.52	-2,506.10	-843.38	2,249.63	2,200.78	48.85	46.051	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-83.65	-2,506.10	-843.38	2,229.21	2,177.53	51.69	43.129	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-86.80	-2,506.10	-843.38	2,213.02	2,158.46	54.56	40.563	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-89.95	-2,506.10	-843.38	2,206.94	2,149.47	57.48	38.398	
2,402.35	1,892.85	1,883.85	1,892.85	24.94	32.88	-90.00	-2,506.10	-843.38	2,206.94	2,149.40	57.54	38.353	CC, ES
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-90.88	-2,506.10	-843.38	2,212.66	2,152.41	60.24	36.730	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-2,506.10	-843.38	2,230.19	2,167.51	62.69	35.577	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-2,506.10	-843.38	2,254.45	2,189.52	64.93	34.723	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-2,506.10	-843.38	2,282.83	2,215.74	67.09	34.027	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-2,506.10	-843.38	2,315.18	2,246.03	69.15	33.479	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-2,506.10	-843.38	2,351.35	2,280.24	71.12	33.064	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-2,506.10	-843.38	2,391.16	2,318.18	72.97	32.768	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-2,506.10	-843.38	2,434.42	2,359.70	74.72	32.582	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-2,506.10	-843.38	2,480.96	2,404.61	76.35	32.493	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Welch Federal 1 20049 PA - 1 - 1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	-131.61	-1,635.55	-1,841.51	2,462.97				
100.00	100.00	91.00	100.00	0.31	1.59	-131.61	-1,635.55	-1,841.51	2,462.96	2,461.06	1.90	1,294.743	
200.00	200.00	191.00	200.00	0.96	3.33	-131.61	-1,635.55	-1,841.51	2,462.96	2,458.66	4.29	573.667	
300.00	300.00	291.00	300.00	1.46	5.08	-131.61	-1,635.55	-1,841.51	2,462.96	2,456.42	6.54	376.671	
400.00	400.00	391.00	400.00	1.90	6.82	-131.61	-1,635.55	-1,841.51	2,462.96	2,454.24	8.72	282.414	
500.00	500.00	491.00	500.00	2.31	8.57	-131.61	-1,635.55	-1,841.51	2,462.96	2,452.08	10.88	226.447	
600.00	599.82	590.82	599.82	3.10	10.31	-24.77	-1,635.55	-1,841.51	2,458.20	2,444.86	13.34	184.248	
700.00	698.54	689.54	698.54	4.13	12.03	-25.29	-1,635.55	-1,841.51	2,444.00	2,428.06	15.94	153.284	
800.00	795.09	786.09	795.09	4.97	13.72	-26.18	-1,635.55	-1,841.51	2,420.54	2,402.18	18.36	131.839	
900.00	888.40	879.40	888.40	5.68	15.35	-27.49	-1,635.55	-1,841.51	2,388.14	2,367.51	20.63	115.764	
1,000.00	977.46	968.46	977.46	6.31	16.90	-29.28	-1,635.55	-1,841.51	2,347.23	2,324.47	22.77	103.094	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-31.63	-1,635.55	-1,841.51	2,298.38	2,273.60	24.78	92.738	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-34.67	-1,635.55	-1,841.51	2,242.26	2,215.58	26.69	84.026	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-36.21	-1,635.55	-1,841.51	2,181.60	2,153.22	28.38	76.863	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-37.21	-1,635.55	-1,841.51	2,121.24	2,091.12	30.12	70.420	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-38.25	-1,635.55	-1,841.51	2,061.40	2,029.46	31.94	64.539	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-39.35	-1,635.55	-1,841.51	2,002.13	1,968.29	33.83	59.175	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-40.50	-1,635.55	-1,841.51	1,943.47	1,907.67	35.80	54.284	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-41.70	-1,635.55	-1,841.51	1,885.49	1,847.65	37.84	49.824	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-46.33	-1,635.55	-1,841.51	1,826.83	1,786.85	39.98	45.695	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-53.90	-1,635.55	-1,841.51	1,762.92	1,720.71	42.22	41.759	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-58.68	-1,635.55	-1,841.51	1,695.70	1,651.27	44.43	38.166	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-60.40	-1,635.55	-1,841.51	1,629.72	1,582.97	46.75	34.861	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-67.85	-1,635.55	-1,841.51	1,565.86	1,516.62	49.24	31.803	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-78.39	-1,635.55	-1,841.51	1,506.14	1,454.18	51.96	28.987	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-86.02	-1,635.55	-1,841.51	1,454.02	1,399.12	54.90	26.487	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,635.55	-1,841.51	1,412.53	1,354.62	57.92	24.389	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,635.55	-1,841.51	1,379.29	1,318.28	61.01	22.607	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,635.55	-1,841.51	1,352.63	1,288.44	64.19	21.072	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,635.55	-1,841.51	1,332.97	1,265.58	67.39	19.781	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,635.55	-1,841.51	1,320.60	1,250.08	70.52	18.727	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-1,635.55	-1,841.51	1,315.74	1,242.22	73.52	17.896	
3,114.08	1,918.00	1,909.00	1,918.00	41.19	33.32	-90.00	-1,635.55	-1,841.51	1,315.66	1,241.73	73.93	17.796	CC, ES
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-1,635.55	-1,841.51	1,318.47	1,242.14	76.33	17.274	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-1,635.55	-1,841.51	1,328.74	1,249.85	78.89	16.843	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-1,635.55	-1,841.51	1,346.37	1,265.20	81.17	16.587	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-1,635.55	-1,841.51	1,371.10	1,287.95	83.15	16.489	SF
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-1,635.55	-1,841.51	1,402.53	1,317.70	84.83	16.534	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-1,635.55	-1,841.51	1,440.23	1,354.02	86.21	16.706	
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-1,635.55	-1,841.51	1,483.73	1,396.41	87.32	16.991	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-1,635.55	-1,841.51	1,532.53	1,444.34	88.19	17.378	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-1,635.55	-1,841.51	1,586.13	1,497.29	88.84	17.854	
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-1,635.55	-1,841.51	1,644.08	1,554.77	89.31	18.409	
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-1,635.55	-1,841.51	1,705.93	1,616.31	89.62	19.035	
4,300.00	1,918.00	1,909.00	1,918.00	69.64	33.32	-90.00	-1,635.55	-1,841.51	1,771.26	1,681.46	89.81	19.723	
4,400.00	1,918.00	1,909.00	1,918.00	72.07	33.32	-90.00	-1,635.55	-1,841.51	1,839.72	1,749.83	89.88	20.468	
4,500.00	1,918.00	1,909.00	1,918.00	74.51	33.32	-90.00	-1,635.55	-1,841.51	1,910.95	1,821.07	89.88	21.261	
4,600.00	1,918.00	1,909.00	1,918.00	76.94	33.32	-90.00	-1,635.55	-1,841.51	1,984.67	1,894.86	89.81	22.099	
4,700.00	1,918.00	1,909.00	1,918.00	79.38	33.32	-90.00	-1,635.55	-1,841.51	2,060.61	1,970.92	89.68	22.976	
4,800.00	1,918.00	1,909.00	1,918.00	81.82	33.32	-90.00	-1,635.55	-1,841.51	2,138.53	2,049.00	89.52	23.889	
4,900.00	1,918.00	1,909.00	1,918.00	84.26	33.32	-90.00	-1,635.55	-1,841.51	2,218.21	2,128.89	89.33	24.833	
5,000.00	1,918.00	1,909.00	1,918.00	86.71	33.32	-90.00	-1,635.55	-1,841.51	2,299.49	2,210.38	89.11	25.806	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - Welch Federal 1 20049 PA - 1 - 1 AsDrilled

Survey Program: 100-INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	1,918.00	1,909.00	1,918.00	89.15	33.32	-90.00	-1,635.55	-1,841.51	2,382.19	2,293.32	88.88	26.804	
5,200.00	1,918.00	1,909.00	1,918.00	91.59	33.32	-90.00	-1,635.55	-1,841.51	2,466.18	2,377.55	88.63	27.826	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - West Ribbon Federal 1 32717 ACTIVE - 1 - AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	9.00	0.00	0.00	-114.71	-1,034.96	-2,249.18	2,475.89				
100.00	100.00	91.00	100.00	0.31	1.59	-114.71	-1,034.96	-2,249.18	2,475.87	2,473.98	1.89	1,311.745	
200.00	200.00	191.00	200.00	0.96	3.33	-114.71	-1,034.96	-2,249.18	2,475.87	2,471.62	4.25	582.323	
300.00	300.00	291.00	300.00	1.46	5.08	-114.71	-1,034.96	-2,249.18	2,475.87	2,469.39	6.48	381.964	
400.00	400.00	391.00	400.00	1.90	6.82	-114.71	-1,034.96	-2,249.18	2,475.87	2,467.21	8.65	286.068	
500.00	500.00	491.00	500.00	2.31	8.57	-114.71	-1,034.96	-2,249.18	2,475.87	2,465.07	10.80	229.172	
600.00	599.82	590.82	599.82	3.10	10.31	-7.75	-1,034.96	-2,249.18	2,470.68	2,457.28	13.41	184.281	
700.00	698.54	689.54	698.54	4.13	12.03	-7.93	-1,034.96	-2,249.18	2,455.19	2,439.05	16.14	152.080	
800.00	795.09	786.09	795.09	4.97	13.72	-8.24	-1,034.96	-2,249.18	2,429.56	2,410.91	18.65	130.282	
900.00	888.40	879.40	888.40	5.68	15.35	-8.70	-1,034.96	-2,249.18	2,394.08	2,373.10	20.98	114.124	
1,000.00	977.46	968.46	977.46	6.31	16.90	-9.35	-1,034.96	-2,249.18	2,349.15	2,326.00	23.15	101.489	
1,100.00	1,061.29	1,052.29	1,061.29	6.87	18.37	-10.23	-1,034.96	-2,249.18	2,295.27	2,270.11	25.16	91.241	
1,200.00	1,138.97	1,129.97	1,138.97	7.37	19.72	-11.42	-1,034.96	-2,249.18	2,233.04	2,206.04	27.00	82.705	
1,300.00	1,211.86	1,202.86	1,211.86	7.66	20.99	-12.03	-1,034.96	-2,249.18	2,165.36	2,136.83	28.54	75.882	
1,400.00	1,284.57	1,275.57	1,284.57	8.59	22.26	-12.42	-1,034.96	-2,249.18	2,097.54	2,067.49	30.05	69.797	
1,500.00	1,357.27	1,348.27	1,357.27	9.93	23.53	-12.83	-1,034.96	-2,249.18	2,029.78	1,998.18	31.60	64.242	
1,600.00	1,429.98	1,420.98	1,429.98	11.29	24.80	-13.27	-1,034.96	-2,249.18	1,962.08	1,928.91	33.16	59.162	
1,700.00	1,502.69	1,493.69	1,502.69	12.67	26.07	-13.74	-1,034.96	-2,249.18	1,894.44	1,859.68	34.76	54.505	
1,800.00	1,575.39	1,566.39	1,575.39	14.06	27.34	-14.24	-1,034.96	-2,249.18	1,826.88	1,790.51	36.37	50.225	
1,900.00	1,646.19	1,637.19	1,646.19	15.48	28.57	-17.14	-1,034.96	-2,249.18	1,757.59	1,719.55	38.04	46.207	
2,000.00	1,707.27	1,698.27	1,707.27	17.12	29.64	-22.73	-1,034.96	-2,249.18	1,680.35	1,640.64	39.71	42.312	
2,100.00	1,758.56	1,749.56	1,758.56	18.95	30.54	-26.80	-1,034.96	-2,249.18	1,596.98	1,555.86	41.11	38.842	
2,200.00	1,808.56	1,799.56	1,808.56	20.81	31.41	-28.15	-1,034.96	-2,249.18	1,513.16	1,470.70	42.46	35.634	
2,300.00	1,856.63	1,847.63	1,856.63	22.73	32.25	-38.58	-1,034.96	-2,249.18	1,429.02	1,385.15	43.88	32.569	
2,400.00	1,892.19	1,883.19	1,892.19	24.89	32.87	-58.98	-1,034.96	-2,249.18	1,342.52	1,297.20	45.31	29.628	
2,500.00	1,912.77	1,903.77	1,912.77	27.14	33.23	-78.22	-1,034.96	-2,249.18	1,256.54	1,209.70	46.85	26.822	
2,600.00	1,918.00	1,909.00	1,918.00	29.38	33.32	-90.00	-1,034.96	-2,249.18	1,174.83	1,126.18	48.65	24.149	
2,700.00	1,918.00	1,909.00	1,918.00	31.62	33.32	-90.00	-1,034.96	-2,249.18	1,097.51	1,046.61	50.90	21.562	
2,800.00	1,918.00	1,909.00	1,918.00	33.89	33.32	-90.00	-1,034.96	-2,249.18	1,024.11	970.43	53.68	19.078	
2,900.00	1,918.00	1,909.00	1,918.00	36.19	33.32	-90.00	-1,034.96	-2,249.18	955.56	898.57	56.99	16.767	
3,000.00	1,918.00	1,909.00	1,918.00	38.52	33.32	-90.00	-1,034.96	-2,249.18	892.97	832.15	60.82	14.683	
3,100.00	1,918.00	1,909.00	1,918.00	40.86	33.32	-90.00	-1,034.96	-2,249.18	837.67	772.57	65.09	12.868	
3,200.00	1,918.00	1,909.00	1,918.00	43.21	33.32	-90.00	-1,034.96	-2,249.18	791.18	721.48	69.70	11.351	
3,300.00	1,918.00	1,909.00	1,918.00	45.58	33.32	-90.00	-1,034.96	-2,249.18	755.16	680.75	74.41	10.148	
3,400.00	1,918.00	1,909.00	1,918.00	47.95	33.32	-90.00	-1,034.96	-2,249.18	731.13	652.21	78.93	9.264	
3,500.00	1,918.00	1,909.00	1,918.00	50.34	33.32	-90.00	-1,034.96	-2,249.18	720.31	637.41	82.90	8.689	
3,528.54	1,918.00	1,909.00	1,918.00	51.02	33.32	-90.00	-1,034.96	-2,249.18	719.74	635.86	83.89	8.580	CC, ES
3,600.00	1,918.00	1,909.00	1,918.00	52.73	33.32	-90.00	-1,034.96	-2,249.18	723.28	637.26	86.02	8.408	
3,700.00	1,918.00	1,909.00	1,918.00	55.14	33.32	-90.00	-1,034.96	-2,249.18	739.88	651.73	88.15	8.394	SF
3,800.00	1,918.00	1,909.00	1,918.00	57.54	33.32	-90.00	-1,034.96	-2,249.18	769.23	679.95	89.28	8.616	
3,900.00	1,918.00	1,909.00	1,918.00	59.95	33.32	-90.00	-1,034.96	-2,249.18	809.94	720.39	89.55	9.044	
4,000.00	1,918.00	1,909.00	1,918.00	62.37	33.32	-90.00	-1,034.96	-2,249.18	860.41	771.22	89.19	9.647	
4,100.00	1,918.00	1,909.00	1,918.00	64.79	33.32	-90.00	-1,034.96	-2,249.18	919.01	830.62	88.40	10.397	
4,200.00	1,918.00	1,909.00	1,918.00	67.21	33.32	-90.00	-1,034.96	-2,249.18	984.32	896.97	87.35	11.269	
4,300.00	1,918.00	1,909.00	1,918.00	69.64	33.32	-90.00	-1,034.96	-2,249.18	1,055.07	968.90	86.17	12.245	
4,400.00	1,918.00	1,909.00	1,918.00	72.07	33.32	-90.00	-1,034.96	-2,249.18	1,130.25	1,045.30	84.94	13.306	
4,500.00	1,918.00	1,909.00	1,918.00	74.51	33.32	-90.00	-1,034.96	-2,249.18	1,209.03	1,125.29	83.73	14.439	
4,600.00	1,918.00	1,909.00	1,918.00	76.94	33.32	-90.00	-1,034.96	-2,249.18	1,290.75	1,208.18	82.57	15.632	
4,700.00	1,918.00	1,909.00	1,918.00	79.38	33.32	-90.00	-1,034.96	-2,249.18	1,374.89	1,293.43	81.47	16.877	
4,800.00	1,918.00	1,909.00	1,918.00	81.82	33.32	-90.00	-1,034.96	-2,249.18	1,461.03	1,380.60	80.43	18.165	
4,900.00	1,918.00	1,909.00	1,918.00	84.26	33.32	-90.00	-1,034.96	-2,249.18	1,548.84	1,469.37	79.47	19.490	
5,000.00	1,918.00	1,909.00	1,918.00	86.71	33.32	-90.00	-1,034.96	-2,249.18	1,638.05	1,559.47	78.58	20.846	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Calmer Than You 5 Fed Com Pad - West Ribbon Federal 1 32717 ACTIVE - 1 - AsDrilled

Offset Site Error: 0.00 usft

Survey Program: 100-INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	1,918.00	1,909.00	1,918.00	89.15	33.32	-90.00	-1,034.96	-2,249.18	1,728.44	1,650.69	77.75	22.230	
5,200.00	1,918.00	1,909.00	1,918.00	91.59	33.32	-90.00	-1,034.96	-2,249.18	1,819.83	1,742.84	76.99	23.638	
5,300.00	1,918.00	1,909.00	1,918.00	94.04	33.32	-90.00	-1,034.96	-2,249.18	1,912.09	1,835.80	76.28	25.066	
5,400.00	1,918.00	1,909.00	1,918.00	96.49	33.32	-90.00	-1,034.96	-2,249.18	2,005.08	1,929.45	75.63	26.512	
5,500.00	1,918.00	1,909.00	1,918.00	98.94	33.32	-90.00	-1,034.96	-2,249.18	2,098.73	2,023.70	75.03	27.973	
5,600.00	1,918.00	1,909.00	1,918.00	101.39	33.32	-90.00	-1,034.96	-2,249.18	2,192.93	2,118.46	74.47	29.448	
5,700.00	1,918.00	1,909.00	1,918.00	103.84	33.32	-90.00	-1,034.96	-2,249.18	2,287.63	2,213.68	73.95	30.935	
5,800.00	1,918.00	1,909.00	1,918.00	106.29	33.32	-90.00	-1,034.96	-2,249.18	2,382.76	2,309.29	73.47	32.433	
5,900.00	1,918.00	1,909.00	1,918.00	108.75	33.32	-90.00	-1,034.96	-2,249.18	2,478.27	2,405.25	73.02	33.940	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Creedence Fed - Empire J Fed 3-1 00169 ACTIVE - #3 - #3 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,200.00	1,918.00	1,741.00	1,918.00	116.11	30.39	-90.00	-1,875.35	-6,809.87	2,475.95	2,374.52	101.44	24.408	
6,300.00	1,918.00	1,741.00	1,918.00	118.57	30.39	-90.00	-1,875.35	-6,809.87	2,400.93	2,295.42	105.51	22.755	
6,400.00	1,918.00	1,741.00	1,918.00	121.02	30.39	-90.00	-1,875.35	-6,809.87	2,327.79	2,218.00	109.79	21.203	
6,500.00	1,918.00	1,741.00	1,918.00	123.48	30.39	-90.00	-1,875.35	-6,809.87	2,256.70	2,142.43	114.27	19.749	
6,600.00	1,918.00	1,741.00	1,918.00	125.94	30.39	-90.00	-1,875.35	-6,809.87	2,187.88	2,068.92	118.96	18.392	
6,700.00	1,918.00	1,741.00	1,918.00	128.40	30.39	-90.00	-1,875.35	-6,809.87	2,121.54	1,997.69	123.85	17.130	
6,800.00	1,918.00	1,741.00	1,918.00	130.86	30.39	-90.00	-1,875.35	-6,809.87	2,057.93	1,928.99	128.94	15.961	
6,900.00	1,918.00	1,741.00	1,918.00	133.32	30.39	-90.00	-1,875.35	-6,809.87	1,997.29	1,863.10	134.19	14.884	
7,000.00	1,918.00	1,741.00	1,918.00	135.77	30.39	-90.00	-1,875.35	-6,809.87	1,939.92	1,800.32	139.60	13.896	
7,100.00	1,918.00	1,741.00	1,918.00	138.23	30.39	-90.00	-1,875.35	-6,809.87	1,886.11	1,740.98	145.13	12.996	
7,200.00	1,918.00	1,741.00	1,918.00	140.69	30.39	-90.00	-1,875.35	-6,809.87	1,836.18	1,685.44	150.73	12.182	
7,300.00	1,918.00	1,741.00	1,918.00	143.16	30.39	-90.00	-1,875.35	-6,809.87	1,790.44	1,634.08	156.36	11.451	
7,400.00	1,918.00	1,741.00	1,918.00	145.62	30.39	-90.00	-1,875.35	-6,809.87	1,749.22	1,587.28	161.95	10.801	
7,500.00	1,918.00	1,741.00	1,918.00	148.08	30.39	-90.00	-1,875.35	-6,809.87	1,712.86	1,545.45	167.42	10.231	
7,600.00	1,918.00	1,741.00	1,918.00	150.54	30.39	-90.00	-1,875.35	-6,809.87	1,681.67	1,508.98	172.69	9.738	
7,700.00	1,918.00	1,741.00	1,918.00	153.00	30.39	-90.00	-1,875.35	-6,809.87	1,655.94	1,478.26	177.68	9.320	
7,800.00	1,918.00	1,741.00	1,918.00	155.46	30.39	-90.00	-1,875.35	-6,809.87	1,635.93	1,453.62	182.30	8.974	
7,900.00	1,918.00	1,741.00	1,918.00	157.92	30.39	-90.00	-1,875.35	-6,809.87	1,621.84	1,435.37	186.47	8.698	
8,000.00	1,918.00	1,741.00	1,918.00	160.39	30.39	-90.00	-1,875.35	-6,809.87	1,613.85	1,423.73	190.11	8.489	
8,079.40	1,918.00	1,741.00	1,918.00	162.34	30.39	-90.00	-1,875.35	-6,809.87	1,611.89	1,419.30	192.59	8.370	CC
8,100.00	1,918.00	1,741.00	1,918.00	162.85	30.39	-90.00	-1,875.35	-6,809.87	1,612.02	1,418.85	193.17	8.345	ES
8,200.00	1,918.00	1,741.00	1,918.00	165.31	30.39	-90.00	-1,875.35	-6,809.87	1,616.40	1,420.79	195.60	8.264	
8,300.00	1,918.00	1,741.00	1,918.00	167.77	30.39	-90.00	-1,875.35	-6,809.87	1,626.92	1,429.52	197.39	8.242	SF
8,400.00	1,918.00	1,741.00	1,918.00	170.24	30.39	-90.00	-1,875.35	-6,809.87	1,643.46	1,444.92	198.54	8.278	
8,500.00	1,918.00	1,741.00	1,918.00	172.70	30.39	-90.00	-1,875.35	-6,809.87	1,665.86	1,466.78	199.08	8.368	
8,600.00	1,918.00	1,741.00	1,918.00	175.17	30.39	-90.00	-1,875.35	-6,809.87	1,693.87	1,494.82	199.05	8.510	
8,700.00	1,918.00	1,741.00	1,918.00	177.63	30.39	-90.00	-1,875.35	-6,809.87	1,727.23	1,528.73	198.50	8.701	
8,800.00	1,918.00	1,741.00	1,918.00	180.09	30.39	-90.00	-1,875.35	-6,809.87	1,765.63	1,568.13	197.50	8.940	
8,900.00	1,918.00	1,741.00	1,918.00	182.56	30.39	-90.00	-1,875.35	-6,809.87	1,808.75	1,612.64	196.11	9.223	
9,000.00	1,918.00	1,741.00	1,918.00	185.02	30.39	-90.00	-1,875.35	-6,809.87	1,856.26	1,661.86	194.40	9.549	
9,100.00	1,918.00	1,741.00	1,918.00	187.49	30.39	-90.00	-1,875.35	-6,809.87	1,907.83	1,715.40	192.43	9.915	
9,200.00	1,918.00	1,741.00	1,918.00	189.95	30.39	-90.00	-1,875.35	-6,809.87	1,963.14	1,772.88	190.26	10.318	
9,300.00	1,918.00	1,741.00	1,918.00	192.42	30.39	-90.00	-1,875.35	-6,809.87	2,021.89	1,833.94	187.95	10.758	
9,400.00	1,918.00	1,741.00	1,918.00	194.88	30.39	-90.00	-1,875.35	-6,809.87	2,083.79	1,898.25	185.53	11.231	
9,500.00	1,918.00	1,741.00	1,918.00	197.35	30.39	-90.00	-1,875.35	-6,809.87	2,148.55	1,965.50	183.06	11.737	
9,600.00	1,918.00	1,741.00	1,918.00	199.81	30.39	-90.00	-1,875.35	-6,809.87	2,215.94	2,035.39	180.55	12.273	
9,700.00	1,918.00	1,741.00	1,918.00	202.28	30.39	-90.00	-1,875.35	-6,809.87	2,285.72	2,107.68	178.04	12.838	
9,800.00	1,918.00	1,741.00	1,918.00	204.74	30.39	-90.00	-1,875.35	-6,809.87	2,357.68	2,182.13	175.55	13.431	
9,900.00	1,918.00	1,741.00	1,918.00	207.21	30.39	-90.00	-1,875.35	-6,809.87	2,431.62	2,258.53	173.09	14.049	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Creedence Fed - Fred 6 Fed 3 sec6 30218 PA - #3 - #3 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,400.00	1,918.00	1,741.00	1,918.00	121.02	30.39	-90.00	-2,547.67	-6,100.13	2,471.08	2,331.87	139.21	17.751	
6,500.00	1,918.00	1,741.00	1,918.00	123.48	30.39	-90.00	-2,547.67	-6,100.13	2,433.89	2,290.46	143.43	16.970	
6,600.00	1,918.00	1,741.00	1,918.00	125.94	30.39	-90.00	-2,547.67	-6,100.13	2,400.29	2,252.69	147.60	16.262	
6,700.00	1,918.00	1,741.00	1,918.00	128.40	30.39	-90.00	-2,547.67	-6,100.13	2,370.44	2,218.74	151.70	15.626	
6,800.00	1,918.00	1,741.00	1,918.00	130.86	30.39	-90.00	-2,547.67	-6,100.13	2,344.48	2,188.77	155.70	15.057	
6,900.00	1,918.00	1,741.00	1,918.00	133.32	30.39	-90.00	-2,547.67	-6,100.13	2,322.53	2,162.96	159.57	14.555	
7,000.00	1,918.00	1,741.00	1,918.00	135.77	30.39	-90.00	-2,547.67	-6,100.13	2,304.72	2,141.44	163.28	14.115	
7,100.00	1,918.00	1,741.00	1,918.00	138.23	30.39	-90.00	-2,547.67	-6,100.13	2,291.14	2,124.34	166.80	13.736	
7,200.00	1,918.00	1,741.00	1,918.00	140.69	30.39	-90.00	-2,547.67	-6,100.13	2,281.87	2,111.77	170.10	13.415	
7,300.00	1,918.00	1,741.00	1,918.00	143.16	30.39	-90.00	-2,547.67	-6,100.13	2,276.95	2,103.80	173.15	13.150	
7,362.07	1,918.00	1,741.00	1,918.00	144.68	30.39	-90.00	-2,547.67	-6,100.13	2,276.10	2,101.19	174.91	13.013	CC
7,400.00	1,918.00	1,741.00	1,918.00	145.62	30.39	-90.00	-2,547.67	-6,100.13	2,276.42	2,100.48	175.94	12.939	ES
7,500.00	1,918.00	1,741.00	1,918.00	148.08	30.39	-90.00	-2,547.67	-6,100.13	2,280.28	2,101.83	178.45	12.779	
7,600.00	1,918.00	1,741.00	1,918.00	150.54	30.39	-90.00	-2,547.67	-6,100.13	2,288.51	2,107.85	180.66	12.668	
7,700.00	1,918.00	1,741.00	1,918.00	153.00	30.39	-90.00	-2,547.67	-6,100.13	2,301.05	2,118.48	182.57	12.603	
7,800.00	1,918.00	1,741.00	1,918.00	155.46	30.39	-90.00	-2,547.67	-6,100.13	2,317.85	2,133.67	184.18	12.584	SF
7,900.00	1,918.00	1,741.00	1,918.00	157.92	30.39	-90.00	-2,547.67	-6,100.13	2,338.81	2,153.31	185.50	12.608	
8,000.00	1,918.00	1,741.00	1,918.00	160.39	30.39	-90.00	-2,547.67	-6,100.13	2,363.81	2,177.29	186.52	12.673	
8,100.00	1,918.00	1,741.00	1,918.00	162.85	30.39	-90.00	-2,547.67	-6,100.13	2,392.74	2,205.46	187.27	12.777	
8,200.00	1,918.00	1,741.00	1,918.00	165.31	30.39	-90.00	-2,547.67	-6,100.13	2,425.45	2,237.68	187.76	12.918	
8,300.00	1,918.00	1,741.00	1,918.00	167.77	30.39	-90.00	-2,547.67	-6,100.13	2,461.78	2,273.78	188.00	13.094	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Creedence Fed - Patton 6 fed 005 sec6 29981 PA - 005 - 005 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,700.00	1,918.00	1,741.00	1,918.00	103.84	30.39	-90.00	-2,750.05	-4,830.21	2,494.71	2,362.99	131.72	18.940	
5,800.00	1,918.00	1,741.00	1,918.00	106.29	30.39	-90.00	-2,750.05	-4,830.21	2,481.04	2,346.07	134.97	18.382	
5,900.00	1,918.00	1,741.00	1,918.00	108.75	30.39	-90.00	-2,750.05	-4,830.21	2,471.35	2,333.26	138.10	17.896	
6,000.00	1,918.00	1,741.00	1,918.00	111.20	30.39	-90.00	-2,750.05	-4,830.21	2,465.69	2,324.62	141.07	17.478	
6,089.93	1,918.00	1,741.00	1,918.00	113.41	30.39	-90.00	-2,750.05	-4,830.21	2,464.05	2,320.45	143.60	17.159	CC
6,100.00	1,918.00	1,741.00	1,918.00	113.66	30.39	-90.00	-2,750.05	-4,830.21	2,464.07	2,320.19	143.87	17.127	
6,200.00	1,918.00	1,741.00	1,918.00	116.11	30.39	-90.00	-2,750.05	-4,830.21	2,466.50	2,320.01	146.49	16.838	ES
6,300.00	1,918.00	1,741.00	1,918.00	118.57	30.39	-90.00	-2,750.05	-4,830.21	2,472.98	2,324.08	148.91	16.608	
6,400.00	1,918.00	1,741.00	1,918.00	121.02	30.39	-90.00	-2,750.05	-4,830.21	2,483.48	2,332.36	151.12	16.434	
6,500.00	1,918.00	1,741.00	1,918.00	123.48	30.39	-90.00	-2,750.05	-4,830.21	2,497.93	2,344.81	153.12	16.313	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Eagle 33 Fed Com - Red Lake 32 State 2H 44948 ACTIVE - 2H - 2H AsDrilled

Offset Site Error: 0.00 usft

Survey Program: 58-MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
600.00	599.82	6,785.78	2,978.56	3.10	96.38	128.57	664.69	50.27	2,470.90	2,428.45	42.44	58.218	
700.00	698.54	6,802.00	2,978.86	4.13	96.78	138.87	665.00	34.05	2,377.64	2,334.26	43.38	54.809	
800.00	795.09	6,830.01	2,979.40	4.97	97.47	145.11	665.48	6.05	2,288.02	2,243.37	44.65	51.247	
900.00	888.40	6,872.78	2,980.07	5.68	98.52	148.86	666.27	-36.71	2,203.08	2,156.77	46.31	47.572	
1,000.00	977.46	6,929.10	2,980.67	6.31	99.90	151.08	667.43	-93.00	2,123.80	2,075.41	48.39	43.885	
1,100.00	1,061.29	6,997.52	2,980.77	6.87	101.58	152.31	669.17	-161.41	2,051.01	2,000.09	50.92	40.280	
1,200.00	1,138.97	7,075.29	2,979.91	7.37	103.49	152.87	671.79	-239.13	1,985.44	1,931.55	53.89	36.842	
1,300.00	1,211.86	7,125.62	2,979.12	7.66	104.72	152.22	673.77	-289.41	1,925.98	1,869.28	56.70	33.968	
1,400.00	1,284.57	7,178.00	2,978.82	8.59	106.01	151.02	675.80	-341.75	1,868.56	1,808.77	59.79	31.252	
1,500.00	1,357.27	7,229.78	2,979.10	9.93	107.28	149.82	677.43	-393.50	1,812.97	1,749.84	63.13	28.717	
1,600.00	1,429.98	7,294.47	2,980.18	11.29	108.87	148.31	678.55	-458.17	1,759.13	1,692.27	66.85	26.313	
1,700.00	1,502.69	7,374.11	2,981.15	12.67	110.82	146.36	679.80	-537.80	1,706.54	1,635.48	71.06	24.017	
1,800.00	1,575.39	7,439.46	2,981.30	14.06	112.43	144.68	681.46	-603.12	1,655.46	1,580.01	75.45	21.940	
1,900.00	1,646.19	7,504.89	2,981.16	15.48	114.04	144.20	683.61	-668.52	1,608.14	1,527.91	80.23	20.044	
2,000.00	1,707.27	7,587.98	2,981.73	17.12	116.08	143.86	685.24	-751.59	1,571.61	1,486.04	85.57	18.366	
2,100.00	1,758.56	7,687.93	2,981.57	18.95	118.54	142.43	686.40	-851.53	1,544.29	1,453.19	91.11	16.951	
2,200.00	1,808.56	7,773.44	2,980.43	20.81	120.64	140.70	688.05	-937.02	1,519.32	1,422.71	96.61	15.727	
2,300.00	1,856.63	7,861.39	2,978.37	22.73	122.80	138.68	690.46	-1,024.92	1,496.71	1,394.34	102.37	14.621	
2,400.00	1,892.19	7,943.00	2,975.44	24.89	124.80	137.14	693.42	-1,106.41	1,480.68	1,372.99	107.69	13.750	
2,490.44	1,911.47	7,943.00	2,975.44	26.92	124.80	136.78	693.42	-1,106.41	1,475.31	1,365.09	110.22	13.385	CC
2,500.00	1,912.77	7,943.00	2,975.44	27.14	124.80	136.72	693.42	-1,106.41	1,475.37	1,364.95	110.42	13.361	ES
2,600.00	1,918.00	7,943.00	2,975.44	29.38	124.80	135.99	693.42	-1,106.41	1,483.06	1,371.32	111.74	13.273	SF
2,700.00	1,918.00	7,943.00	2,975.44	31.62	124.80	135.99	693.42	-1,106.41	1,499.46	1,387.23	112.22	13.361	
2,800.00	1,918.00	7,943.00	2,975.44	33.89	124.80	135.99	693.42	-1,106.41	1,522.26	1,410.00	112.26	13.560	
2,900.00	1,918.00	7,943.00	2,975.44	36.19	124.80	135.99	693.42	-1,106.41	1,551.19	1,439.30	111.89	13.864	
3,000.00	1,918.00	7,943.00	2,975.44	38.52	124.80	135.99	693.42	-1,106.41	1,585.90	1,474.75	111.15	14.268	
3,100.00	1,918.00	7,943.00	2,975.44	40.86	124.80	135.99	693.42	-1,106.41	1,626.03	1,515.93	110.10	14.769	
3,200.00	1,918.00	7,943.00	2,975.44	43.21	124.80	135.99	693.42	-1,106.41	1,671.19	1,562.40	108.79	15.361	
3,300.00	1,918.00	7,943.00	2,975.44	45.58	124.80	135.99	693.42	-1,106.41	1,720.98	1,613.70	107.29	16.041	
3,400.00	1,918.00	7,943.00	2,975.44	47.95	124.80	135.99	693.42	-1,106.41	1,775.02	1,669.39	105.63	16.804	
3,500.00	1,918.00	7,943.00	2,975.44	50.34	124.80	135.99	693.42	-1,106.41	1,832.92	1,729.05	103.87	17.647	
3,600.00	1,918.00	7,943.00	2,975.44	52.73	124.80	135.99	693.42	-1,106.41	1,894.33	1,792.29	102.04	18.565	
3,700.00	1,918.00	7,943.00	2,975.44	55.14	124.80	135.99	693.42	-1,106.41	1,958.93	1,858.75	100.17	19.555	
3,800.00	1,918.00	7,943.00	2,975.44	57.54	124.80	135.99	693.42	-1,106.41	2,026.40	1,928.10	98.30	20.614	
3,900.00	1,918.00	7,943.00	2,975.44	59.95	124.80	135.99	693.42	-1,106.41	2,096.47	2,000.03	96.45	21.737	
4,000.00	1,918.00	7,943.00	2,975.44	62.37	124.80	135.99	693.42	-1,106.41	2,168.89	2,074.28	94.62	22.923	
4,100.00	1,918.00	7,943.00	2,975.44	64.79	124.80	135.99	693.42	-1,106.41	2,243.43	2,150.61	92.83	24.168	
4,200.00	1,918.00	7,943.00	2,975.44	67.21	124.80	135.99	693.42	-1,106.41	2,319.89	2,228.80	91.09	25.468	
4,300.00	1,918.00	7,943.00	2,975.44	69.64	124.80	135.99	693.42	-1,106.41	2,398.08	2,308.68	89.41	26.822	
4,400.00	1,918.00	7,943.00	2,975.44	72.07	124.80	135.99	693.42	-1,106.41	2,477.84	2,390.06	87.78	28.227	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Eagle 33 Fed Com - Red Lake 32 State 4H 45375 ACTIVE - 4H - 4H AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 164-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,600.00	1,429.98	7,820.26	3,488.82	11.29	110.94	142.04	1,219.61	-519.46	2,474.03	2,398.42	75.61	32.720	
1,700.00	1,502.69	7,903.27	3,485.31	12.67	112.97	140.47	1,222.87	-602.33	2,424.55	2,344.92	79.63	30.447	
1,800.00	1,575.39	7,939.68	3,484.04	14.06	113.86	139.77	1,224.22	-638.70	2,376.84	2,293.70	83.14	28.588	
1,900.00	1,646.19	7,987.11	3,482.74	15.48	115.03	140.08	1,225.91	-686.08	2,332.89	2,245.90	86.99	26.818	
2,000.00	1,707.27	8,063.01	3,481.38	17.12	116.89	140.32	1,228.35	-761.93	2,299.24	2,207.69	91.55	25.114	
2,100.00	1,758.56	8,166.78	3,479.61	18.95	119.43	139.38	1,230.50	-865.66	2,274.49	2,177.99	96.49	23.572	
2,200.00	1,808.56	8,280.36	3,476.86	20.81	122.21	137.80	1,231.64	-979.20	2,250.93	2,149.30	101.63	22.148	
2,300.00	1,856.63	8,381.69	3,473.60	22.73	124.70	136.21	1,231.96	-1,080.47	2,228.46	2,121.77	106.69	20.888	
2,400.00	1,892.19	8,470.00	3,470.34	24.89	126.86	135.22	1,231.91	-1,168.72	2,211.19	2,099.87	111.32	19.863	
2,500.00	1,912.77	8,470.00	3,470.34	27.14	126.86	135.14	1,231.91	-1,168.72	2,202.36	2,088.47	113.88	19.339	
2,538.95	1,916.80	8,470.00	3,470.34	28.01	126.86	135.06	1,231.91	-1,168.72	2,201.64	2,086.99	114.66	19.202	CC, ES
2,600.00	1,918.00	8,470.00	3,470.34	29.38	126.86	134.87	1,231.91	-1,168.72	2,203.84	2,088.23	115.61	19.062	
2,700.00	1,918.00	8,470.00	3,470.34	31.62	126.86	134.87	1,231.91	-1,168.72	2,211.82	2,094.94	116.88	18.924	
2,800.00	1,918.00	8,470.00	3,470.34	33.89	126.86	134.87	1,231.91	-1,168.72	2,224.26	2,106.34	117.93	18.861	SF
2,900.00	1,918.00	8,470.00	3,470.34	36.19	126.86	134.87	1,231.91	-1,168.72	2,241.11	2,122.35	118.76	18.872	
3,000.00	1,918.00	8,470.00	3,470.34	38.52	126.86	134.87	1,231.91	-1,168.72	2,262.25	2,142.89	119.37	18.952	
3,100.00	1,918.00	8,470.00	3,470.34	40.86	126.86	134.87	1,231.91	-1,168.72	2,287.58	2,167.81	119.76	19.101	
3,200.00	1,918.00	8,470.00	3,470.34	43.21	126.86	134.87	1,231.91	-1,168.72	2,316.94	2,196.98	119.96	19.315	
3,300.00	1,918.00	8,470.00	3,470.34	45.58	126.86	134.87	1,231.91	-1,168.72	2,350.20	2,230.23	119.96	19.591	
3,400.00	1,918.00	8,470.00	3,470.34	47.95	126.86	134.87	1,231.91	-1,168.72	2,387.18	2,267.39	119.80	19.927	
3,500.00	1,918.00	8,470.00	3,470.34	50.34	126.86	134.87	1,231.91	-1,168.72	2,427.73	2,308.26	119.47	20.320	
3,600.00	1,918.00	8,470.00	3,470.34	52.73	126.86	134.87	1,231.91	-1,168.72	2,471.66	2,352.65	119.01	20.769	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - HIGGINS TRUST 1 1 27970 PGW - 1-1 - 1-1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-DIPMETER — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,600.00	1,918.00	1,728.00	1,918.00	199.81	34.14	-90.00	-552.38	-10,764.21	2,471.18	2,415.68	55.50	44.522	
9,700.00	1,918.00	1,728.00	1,918.00	202.28	34.14	-90.00	-552.38	-10,764.21	2,372.14	2,315.32	56.82	41.752	
9,800.00	1,918.00	1,728.00	1,918.00	204.74	34.14	-90.00	-552.38	-10,764.21	2,273.18	2,214.92	58.26	39.018	
9,900.00	1,918.00	1,728.00	1,918.00	207.21	34.14	-90.00	-552.38	-10,764.21	2,174.31	2,114.45	59.86	36.324	
10,000.00	1,918.00	1,728.00	1,918.00	209.67	34.14	-90.00	-552.38	-10,764.21	2,075.55	2,013.92	61.63	33.677	
10,100.00	1,918.00	1,728.00	1,918.00	212.14	34.14	-90.00	-552.38	-10,764.21	1,976.92	1,913.32	63.60	31.083	
10,200.00	1,918.00	1,728.00	1,918.00	214.61	34.14	-90.00	-552.38	-10,764.21	1,878.44	1,812.63	65.80	28.547	
10,300.00	1,918.00	1,728.00	1,918.00	217.07	34.14	-90.00	-552.38	-10,764.21	1,780.12	1,711.85	68.27	26.075	
10,400.00	1,918.00	1,728.00	1,918.00	219.54	34.14	-90.00	-552.38	-10,764.21	1,682.00	1,610.95	71.05	23.675	CC, ES, SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 1XH - 1XH - Plan #2 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	2.00	0.00	0.00	0.01	90.00	0.00	20.00	20.00				
100.00	100.00	102.00	100.00	0.31	0.32	90.00	0.00	20.00	20.00	19.50	0.50	40.380	
200.00	200.00	202.00	200.00	0.96	0.96	90.00	0.00	20.00	20.00	18.46	1.54	12.999	
300.00	300.00	302.00	300.00	1.46	1.47	90.00	0.00	20.00	20.00	17.60	2.40	8.319	
400.00	400.00	402.00	400.00	1.90	1.90	90.00	0.00	20.00	20.00	16.80	3.20	6.256	
500.00	500.00	502.01	500.01	2.31	2.31	90.00	0.00	20.00	20.00	16.04	3.96	5.050	
500.71	500.71	502.72	500.72	2.31	2.31	-162.99	0.00	20.00	20.00	16.03	3.97	5.038	CC, ES
600.00	599.82	602.46	600.45	3.10	2.56	-166.64	-0.01	18.63	23.69	18.33	5.36	4.423	SF
700.00	698.54	702.47	700.38	4.13	3.18	-172.87	-0.03	14.64	35.17	27.91	7.26	4.843	
800.00	795.09	801.59	799.27	4.97	3.88	-177.37	-0.07	8.10	54.68	45.96	8.72	6.271	
900.00	888.40	899.34	896.61	5.68	4.50	179.91	-0.13	-0.86	82.11	72.16	9.95	8.250	
1,000.00	977.46	995.26	991.87	6.31	5.06	178.23	-0.20	-12.06	117.28	106.22	11.06	10.603	
1,100.00	1,061.29	1,088.84	1,084.51	6.87	5.58	177.12	-0.28	-25.30	159.96	147.87	12.09	13.233	
1,200.00	1,138.97	1,179.56	1,173.98	7.37	6.06	176.31	-0.38	-40.29	209.90	196.85	13.05	16.083	
1,300.00	1,211.86	1,268.71	1,261.54	7.66	6.51	175.82	-0.48	-57.09	264.23	250.49	13.74	19.234	
1,400.00	1,284.57	1,360.24	1,350.98	8.59	6.96	175.39	-0.60	-76.46	316.91	302.50	14.41	21.994	
1,500.00	1,357.27	1,454.28	1,442.38	9.93	7.42	174.94	-0.74	-98.58	367.66	352.54	15.12	24.317	
1,600.00	1,429.98	1,550.83	1,535.62	11.29	7.88	174.46	-0.90	-123.63	416.40	400.53	15.87	26.245	
1,700.00	1,502.69	1,649.86	1,630.57	12.67	8.34	173.96	-1.07	-151.77	463.06	446.41	16.65	27.812	
1,800.00	1,575.39	1,747.15	1,723.15	14.06	8.72	173.45	-1.26	-181.68	507.68	490.29	17.40	29.181	
1,900.00	1,646.19	1,835.59	1,807.13	15.48	9.01	171.99	-1.43	-209.40	554.19	536.02	18.17	30.505	
2,000.00	1,707.27	1,917.48	1,884.90	17.12	9.29	170.10	-1.59	-235.06	611.44	592.23	19.20	31.839	
2,100.00	1,758.56	1,992.19	1,955.85	18.95	9.58	169.43	-1.74	-258.47	677.80	657.79	20.01	33.867	
2,200.00	1,808.56	2,065.93	2,025.87	20.81	9.87	169.78	-1.89	-281.57	745.27	724.60	20.67	36.055	
2,300.00	1,856.63	2,138.24	2,094.54	22.73	10.18	165.44	-2.03	-304.23	814.14	792.77	21.36	38.109	
2,400.00	1,892.19	2,200.88	2,154.02	24.89	10.46	156.39	-2.15	-323.86	890.84	868.71	22.12	40.265	
2,500.00	1,912.77	2,250.94	2,201.57	27.14	10.70	145.13	-2.25	-339.55	974.56	951.83	22.72	42.892	
2,600.00	1,918.00	2,287.17	2,235.97	29.38	10.88	133.56	-2.32	-350.90	1,063.23	1,040.08	23.15	45.935	
2,700.00	1,918.00	2,318.50	2,265.72	31.62	11.04	136.13	-2.38	-360.72	1,153.71	1,130.22	23.49	49.112	
2,800.00	1,918.00	2,349.83	2,295.48	33.89	11.20	138.49	-2.44	-370.53	1,244.86	1,221.03	23.83	52.244	
2,900.00	1,918.00	2,381.16	2,325.23	36.19	11.36	140.65	-2.50	-380.35	1,336.54	1,312.38	24.16	55.328	
3,000.00	1,918.00	4,245.51	3,307.00	38.52	37.60	166.64	8.68	-1,708.75	1,427.66	1,395.93	31.73	44.999	
3,100.00	1,918.00	4,345.51	3,307.00	40.86	39.88	166.64	9.82	-1,808.74	1,427.65	1,394.34	33.31	42.855	
3,200.00	1,918.00	4,445.51	3,307.00	43.21	42.17	166.64	10.95	-1,908.73	1,427.65	1,392.72	34.93	40.868	
3,300.00	1,918.00	4,545.51	3,307.00	45.58	44.49	166.64	12.09	-2,008.73	1,427.65	1,391.07	36.58	39.029	
3,400.00	1,918.00	4,645.51	3,307.00	47.95	46.82	166.64	13.22	-2,108.72	1,427.65	1,389.40	38.25	37.325	
3,500.00	1,918.00	4,745.51	3,307.00	50.34	49.16	166.64	14.36	-2,208.71	1,427.65	1,387.71	39.94	35.745	
3,600.00	1,918.00	4,845.51	3,307.00	52.73	51.52	166.64	15.49	-2,308.71	1,427.65	1,386.00	41.65	34.278	
3,700.00	1,918.00	4,945.51	3,307.00	55.14	53.89	166.64	16.62	-2,408.70	1,427.65	1,384.28	43.37	32.915	
3,800.00	1,918.00	5,045.51	3,307.00	57.54	56.26	166.64	17.76	-2,508.69	1,427.65	1,382.54	45.11	31.647	
3,821.42	1,918.00	5,066.92	3,307.00	58.06	56.77	166.64	18.00	-2,530.10	1,427.65	1,382.17	45.48	31.387	
3,900.00	1,918.00	5,145.29	3,307.00	59.95	58.63	166.64	18.94	-2,608.47	1,427.66	1,380.80	46.86	30.467	
4,000.00	1,918.00	5,245.29	3,307.00	62.37	61.02	166.63	20.14	-2,708.46	1,427.68	1,379.05	48.62	29.362	
4,100.00	1,918.00	5,345.29	3,307.00	64.79	63.42	166.63	21.34	-2,808.45	1,427.69	1,377.29	50.40	28.327	
4,200.00	1,918.00	5,445.29	3,307.00	67.21	65.82	166.63	22.54	-2,908.45	1,427.71	1,375.52	52.19	27.358	
4,300.00	1,918.00	5,545.29	3,307.00	69.64	68.23	166.63	23.74	-3,008.44	1,427.72	1,373.74	53.98	26.449	
4,400.00	1,918.00	5,645.29	3,307.00	72.07	70.64	166.62	24.94	-3,108.43	1,427.74	1,371.95	55.78	25.595	
4,500.00	1,918.00	5,745.29	3,307.00	74.51	73.05	166.62	26.14	-3,208.42	1,427.75	1,370.16	57.59	24.791	
4,600.00	1,918.00	5,845.29	3,307.00	76.94	75.47	166.62	27.34	-3,308.42	1,427.77	1,368.36	59.41	24.034	
4,700.00	1,918.00	5,945.29	3,307.00	79.38	77.89	166.62	28.54	-3,408.41	1,427.78	1,366.56	61.23	23.320	
4,800.00	1,918.00	6,045.29	3,307.00	81.82	80.31	166.61	29.74	-3,508.40	1,427.80	1,364.74	63.05	22.645	
4,900.00	1,918.00	6,145.29	3,307.00	84.26	82.74	166.61	30.94	-3,608.40	1,427.81	1,362.93	64.88	22.006	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 1XH - 1XH - Plan #2 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	1,918.00	6,245.29	3,307.00	86.71	85.17	166.61	32.14	-3,708.39	1,427.83	1,361.11	66.72	21.401	
5,100.00	1,918.00	6,345.29	3,307.00	89.15	87.60	166.61	33.34	-3,808.38	1,427.84	1,359.28	68.56	20.827	
5,200.00	1,918.00	6,445.48	3,307.00	91.59	90.04	166.60	34.52	-3,908.57	1,427.85	1,357.45	70.40	20.283	
5,300.00	1,918.00	6,545.48	3,307.00	94.04	92.47	166.60	35.66	-4,008.56	1,427.85	1,355.62	72.24	19.766	
5,400.00	1,918.00	6,645.48	3,307.00	96.49	94.91	166.60	36.81	-4,108.55	1,427.85	1,353.77	74.08	19.274	
5,500.00	1,918.00	6,745.48	3,307.00	98.94	97.34	166.60	37.95	-4,208.55	1,427.86	1,351.92	75.93	18.804	
5,600.00	1,918.00	6,845.48	3,307.00	101.39	99.78	166.60	39.09	-4,308.54	1,427.86	1,350.07	77.78	18.357	
5,700.00	1,918.00	6,945.48	3,307.00	103.84	102.23	166.60	40.23	-4,408.53	1,427.86	1,348.22	79.64	17.930	
5,800.00	1,918.00	7,045.48	3,307.00	106.29	104.67	166.60	41.38	-4,508.53	1,427.86	1,346.37	81.49	17.521	
5,900.00	1,918.00	7,145.48	3,307.00	108.75	107.11	166.60	42.52	-4,608.52	1,427.86	1,344.51	83.35	17.130	
6,000.00	1,918.00	7,245.48	3,307.00	111.20	109.56	166.60	43.66	-4,708.51	1,427.86	1,342.65	85.21	16.757	
6,100.00	1,918.00	7,345.48	3,307.00	113.66	112.00	166.60	44.80	-4,808.51	1,427.86	1,340.79	87.07	16.398	
6,200.00	1,918.00	7,445.48	3,307.00	116.11	114.45	166.60	45.94	-4,908.50	1,427.87	1,338.93	88.94	16.054	
6,300.00	1,918.00	7,545.48	3,307.00	118.57	116.90	166.60	47.09	-5,008.49	1,427.87	1,337.06	90.80	15.725	
6,400.00	1,918.00	7,645.48	3,307.00	121.02	119.34	166.60	48.23	-5,108.49	1,427.87	1,335.20	92.67	15.408	
6,500.00	1,918.00	7,745.48	3,307.00	123.48	121.79	166.60	49.37	-5,208.48	1,427.87	1,333.33	94.54	15.103	
6,600.00	1,918.00	7,845.48	3,307.00	125.94	124.24	166.60	50.51	-5,308.47	1,427.87	1,331.46	96.41	14.810	
6,700.00	1,918.00	7,945.48	3,307.00	128.40	126.70	166.60	51.66	-5,408.47	1,427.87	1,329.59	98.28	14.528	
6,800.00	1,918.00	8,045.48	3,307.00	130.86	129.15	166.60	52.80	-5,508.46	1,427.87	1,327.72	100.15	14.257	
6,900.00	1,918.00	8,145.48	3,307.00	133.32	131.60	166.60	53.94	-5,608.46	1,427.88	1,325.85	102.03	13.995	
7,000.00	1,918.00	8,245.48	3,307.00	135.77	134.05	166.60	55.08	-5,708.45	1,427.88	1,323.97	103.90	13.742	
7,100.00	1,918.00	8,345.48	3,307.00	138.23	136.50	166.60	56.23	-5,808.44	1,427.88	1,322.10	105.78	13.499	
7,200.00	1,918.00	8,445.48	3,307.00	140.69	138.96	166.60	57.37	-5,908.44	1,427.88	1,320.22	107.66	13.263	
7,300.00	1,918.00	8,545.48	3,307.00	143.16	141.41	166.60	58.51	-6,008.43	1,427.88	1,318.35	109.53	13.036	
7,400.00	1,918.00	8,645.48	3,307.00	145.62	143.87	166.60	59.65	-6,108.42	1,427.88	1,316.47	111.41	12.816	
7,500.00	1,918.00	8,745.48	3,307.00	148.08	146.32	166.60	60.79	-6,208.42	1,427.89	1,314.59	113.29	12.604	
7,600.00	1,918.00	8,845.48	3,307.00	150.54	148.78	166.60	61.94	-6,308.41	1,427.89	1,312.71	115.17	12.398	
7,700.00	1,918.00	8,945.48	3,307.00	153.00	151.23	166.60	63.08	-6,408.40	1,427.89	1,310.83	117.05	12.199	
7,800.00	1,918.00	9,045.61	3,307.00	155.46	153.69	166.60	64.22	-6,508.53	1,427.89	1,308.95	118.93	12.006	
7,900.00	1,918.00	9,145.61	3,307.00	157.92	156.15	166.60	65.32	-6,608.52	1,427.88	1,307.07	120.81	11.819	
8,000.00	1,918.00	9,245.61	3,307.00	160.39	158.61	166.60	66.42	-6,708.52	1,427.87	1,305.18	122.69	11.638	
8,100.00	1,918.00	9,345.61	3,307.00	162.85	161.06	166.60	67.52	-6,808.51	1,427.86	1,303.30	124.57	11.463	
8,200.00	1,918.00	9,445.61	3,307.00	165.31	163.52	166.60	68.63	-6,908.50	1,427.86	1,301.41	126.45	11.292	
8,300.00	1,918.00	9,545.61	3,307.00	167.77	165.98	166.60	69.73	-7,008.50	1,427.85	1,299.52	128.33	11.127	
8,400.00	1,918.00	9,645.61	3,307.00	170.24	168.44	166.61	70.83	-7,108.49	1,427.84	1,297.63	130.21	10.966	
8,500.00	1,918.00	9,745.61	3,307.00	172.70	170.90	166.61	71.93	-7,208.49	1,427.83	1,295.74	132.09	10.810	
8,600.00	1,918.00	9,845.61	3,307.00	175.17	173.36	166.61	73.04	-7,308.48	1,427.83	1,293.86	133.97	10.658	
8,700.00	1,918.00	9,945.61	3,307.00	177.63	175.82	166.61	74.14	-7,408.47	1,427.82	1,291.97	135.85	10.510	
8,800.00	1,918.00	10,045.61	3,307.00	180.09	178.28	166.61	75.24	-7,508.47	1,427.81	1,290.08	137.73	10.366	
8,900.00	1,918.00	10,145.61	3,307.00	182.56	180.73	166.61	76.34	-7,608.46	1,427.80	1,288.19	139.62	10.227	
9,000.00	1,918.00	10,245.61	3,307.00	185.02	183.19	166.61	77.45	-7,708.46	1,427.80	1,286.30	141.50	10.090	
9,100.00	1,918.00	10,345.61	3,307.00	187.49	185.66	166.61	78.55	-7,808.45	1,427.79	1,284.41	143.38	9.958	
9,200.00	1,918.00	10,445.61	3,307.00	189.95	188.12	166.62	79.65	-7,908.44	1,427.78	1,282.51	145.27	9.829	
9,300.00	1,918.00	10,545.61	3,307.00	192.42	190.58	166.62	80.75	-8,008.44	1,427.77	1,280.62	147.15	9.703	
9,400.00	1,918.00	10,645.61	3,307.00	194.88	193.04	166.62	81.86	-8,108.43	1,427.76	1,278.73	149.03	9.580	
9,500.00	1,918.00	10,745.61	3,307.00	197.35	195.50	166.62	82.96	-8,208.42	1,427.76	1,276.84	150.92	9.461	
9,600.00	1,918.00	10,845.61	3,307.00	199.81	197.96	166.62	84.06	-8,308.42	1,427.75	1,274.95	152.80	9.344	
9,700.00	1,918.00	10,945.61	3,307.00	202.28	200.42	166.62	85.16	-8,408.41	1,427.74	1,273.06	154.68	9.230	
9,800.00	1,918.00	11,045.61	3,307.00	204.74	202.88	166.62	86.27	-8,508.41	1,427.73	1,271.16	156.57	9.119	
9,900.00	1,918.00	11,145.61	3,307.00	207.21	205.34	166.62	87.37	-8,608.40	1,427.73	1,269.27	158.45	9.010	
10,000.00	1,918.00	11,245.61	3,307.00	209.67	207.81	166.63	88.47	-8,708.39	1,427.72	1,267.38	160.34	8.904	
10,100.00	1,918.00	11,345.61	3,307.00	212.14	210.27	166.63	89.58	-8,808.39	1,427.71	1,265.49	162.22	8.801	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 1XH - 1XH - Plan #2

Survey Program: 0-MWD

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,200.00	1,918.00	11,445.61	3,307.00	214.61	212.73	166.63	90.68	-8,908.38	1,427.70	1,263.59	164.11	8.700	
10,300.00	1,918.00	11,545.61	3,307.00	217.07	215.19	166.63	91.78	-9,008.38	1,427.70	1,261.70	165.99	8.601	
10,400.00	1,918.00	11,645.61	3,307.00	219.54	217.65	166.63	92.88	-9,108.37	1,427.69	1,259.81	167.88	8.504	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 2XH - 2XH - Plan #2 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	3.00	0.00	0.00	0.01	91.15	-1.00	50.00	50.01				
100.00	100.00	103.00	100.00	0.31	0.33	91.15	-1.00	50.00	50.01	49.52	0.49	101.224	
200.00	200.00	203.00	200.00	0.96	0.97	91.15	-1.00	50.00	50.01	48.48	1.53	32.787	
300.00	300.00	303.00	300.00	1.46	1.47	91.15	-1.00	50.00	50.01	47.63	2.38	20.970	
400.00	400.00	403.00	400.00	1.90	1.91	91.15	-1.00	50.00	50.01	46.84	3.17	15.755	
500.00	500.00	503.04	500.04	2.31	2.32	91.15	-1.00	50.00	50.01	46.07	3.94	12.703	
500.97	500.97	504.01	501.01	2.32	2.32	-161.84	-1.00	50.00	50.01	46.06	3.95	12.661	CC, ES
600.00	599.82	604.19	601.16	3.10	2.71	-162.06	-2.35	48.67	53.70	48.38	5.32	10.091	
700.00	698.54	704.96	701.79	4.13	3.82	-162.69	-6.23	44.87	64.91	57.52	7.39	8.787	
800.00	795.09	804.98	801.41	4.97	4.69	-163.35	-12.58	38.65	83.59	74.52	9.07	9.216	
900.00	888.40	903.86	899.53	5.68	5.44	-163.82	-21.30	30.11	109.65	99.11	10.55	10.399	
1,000.00	977.46	1,001.21	995.66	6.31	6.11	-164.06	-32.23	19.39	142.98	131.10	11.89	12.029	
1,100.00	1,061.29	1,096.61	1,089.31	6.87	6.72	-164.09	-45.21	6.67	183.40	170.27	13.13	13.966	
1,200.00	1,138.97	1,189.64	1,180.00	7.37	7.27	-163.92	-60.00	-7.82	230.70	216.40	14.31	16.124	
1,300.00	1,211.86	1,281.57	1,268.91	7.66	7.79	-164.20	-76.67	-24.16	282.09	266.89	15.20	18.558	
1,400.00	1,284.57	1,376.05	1,359.46	8.59	8.31	-164.17	-95.92	-43.03	331.59	315.51	16.08	20.625	
1,500.00	1,357.27	1,473.15	1,451.54	9.93	8.83	-163.78	-117.91	-64.59	378.91	361.90	17.00	22.283	
1,600.00	1,429.98	1,572.72	1,544.83	11.29	9.34	-163.14	-142.77	-88.95	423.97	405.99	17.99	23.570	
1,700.00	1,502.69	1,674.63	1,638.99	12.67	9.85	-162.29	-170.59	-116.21	466.75	447.71	19.04	24.513	
1,800.00	1,575.39	1,778.68	1,733.65	14.06	10.37	-161.27	-201.44	-146.46	507.22	487.05	20.18	25.140	
1,900.00	1,646.19	1,883.54	1,827.38	15.48	10.89	-160.13	-234.99	-179.34	547.81	526.35	21.46	25.529	
2,000.00	1,707.27	1,984.35	1,915.82	17.12	11.40	-158.69	-269.54	-213.21	597.41	574.35	23.06	25.907	
2,100.00	1,758.56	2,081.02	1,998.98	18.95	11.91	-157.64	-304.74	-247.70	654.73	630.22	24.51	26.710	
2,200.00	1,808.56	2,179.74	2,082.14	20.81	12.46	-157.02	-342.73	-284.94	711.32	685.40	25.92	27.445	
2,300.00	1,856.63	2,279.64	2,164.37	22.73	13.09	-157.98	-383.24	-324.64	767.99	740.49	27.50	27.927	
2,400.00	1,892.19	2,357.16	2,227.09	24.89	13.61	-159.83	-415.77	-356.53	835.47	806.39	29.08	28.726	
2,500.00	1,912.77	2,417.49	2,275.86	27.14	14.07	-161.34	-441.13	-381.38	914.68	884.33	30.35	30.138	
2,600.00	1,918.00	2,463.37	2,312.95	29.38	14.43	-162.54	-460.42	-400.29	1,003.13	971.89	31.23	32.120	
2,700.00	1,918.00	2,504.09	2,345.87	31.62	14.78	-161.69	-477.54	-417.07	1,094.23	1,062.29	31.94	34.263	
2,800.00	1,918.00	3,918.59	3,016.00	33.89	35.66	-163.23	-654.43	-1,516.26	1,146.78	1,115.87	30.91	37.096	
2,900.00	1,918.00	4,018.59	3,016.00	36.19	37.77	-163.23	-653.29	-1,616.26	1,146.78	1,114.16	32.62	35.154	
3,000.00	1,918.00	4,118.59	3,016.00	38.52	39.92	-163.23	-652.15	-1,716.25	1,146.78	1,112.41	34.37	33.365	
3,100.00	1,918.00	4,218.59	3,016.00	40.86	42.11	-163.23	-651.02	-1,816.24	1,146.78	1,110.63	36.15	31.719	
3,200.00	1,918.00	4,318.59	3,016.00	43.21	44.33	-163.23	-649.88	-1,916.24	1,146.78	1,108.81	37.97	30.204	
3,300.00	1,918.00	4,418.59	3,016.00	45.58	46.57	-163.23	-648.74	-2,016.23	1,146.78	1,106.97	39.81	28.808	
3,400.00	1,918.00	4,518.59	3,016.00	47.95	48.84	-163.23	-647.61	-2,116.22	1,146.78	1,105.11	41.67	27.521	
3,500.00	1,918.00	4,618.59	3,016.00	50.34	51.13	-163.23	-646.47	-2,216.22	1,146.78	1,103.23	43.55	26.332	
3,600.00	1,918.00	4,718.59	3,016.00	52.73	53.43	-163.23	-645.33	-2,316.21	1,146.78	1,101.33	45.45	25.233	
3,700.00	1,918.00	4,818.59	3,016.00	55.14	55.75	-163.23	-644.19	-2,416.21	1,146.78	1,099.42	47.36	24.213	
3,800.00	1,918.00	4,918.59	3,016.00	57.54	58.08	-163.23	-643.06	-2,516.20	1,146.78	1,097.49	49.29	23.267	
3,900.00	1,918.00	5,018.59	3,016.00	59.95	60.42	-163.23	-641.92	-2,616.19	1,146.78	1,095.56	51.22	22.390	
4,000.00	1,918.00	5,118.59	3,016.00	62.37	62.78	-163.23	-640.78	-2,716.19	1,146.78	1,093.61	53.16	21.570	
4,100.00	1,918.00	5,218.59	3,016.00	64.79	65.14	-163.23	-639.65	-2,816.18	1,146.78	1,091.65	55.12	20.804	
4,200.00	1,918.00	5,318.59	3,016.00	67.21	67.51	-163.23	-638.51	-2,916.17	1,146.78	1,089.69	57.09	20.087	
4,300.00	1,918.00	5,418.59	3,016.00	69.64	69.88	-163.23	-637.37	-3,016.17	1,146.78	1,087.71	59.06	19.416	
4,400.00	1,918.00	5,518.59	3,016.00	72.07	72.26	-163.23	-636.23	-3,116.16	1,146.78	1,085.73	61.05	18.786	
4,500.00	1,918.00	5,618.59	3,016.00	74.51	74.65	-163.23	-635.10	-3,216.15	1,146.78	1,083.74	63.03	18.193	
4,600.00	1,918.00	5,718.59	3,016.00	76.94	77.04	-163.23	-633.96	-3,316.15	1,146.78	1,081.75	65.03	17.636	
4,700.00	1,918.00	5,818.59	3,016.00	79.38	79.44	-163.23	-632.82	-3,416.14	1,146.78	1,079.75	67.02	17.110	
4,800.00	1,918.00	5,918.59	3,016.00	81.82	81.84	-163.23	-631.69	-3,516.13	1,146.77	1,077.75	69.03	16.613	
4,900.00	1,918.00	6,018.59	3,016.00	84.26	84.25	-163.23	-630.55	-3,616.13	1,146.77	1,075.74	71.03	16.144	
5,000.00	1,918.00	6,118.59	3,016.00	86.71	86.66	-163.23	-629.41	-3,716.12	1,146.77	1,073.73	73.04	15.700	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 2XH - 2XH - Plan #2 — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	1,918.00	6,218.59	3,016.00	89.15	89.07	-163.23	-628.27	-3,816.11	1,146.77	1,071.71	75.06	15.278	
5,200.00	1,918.00	6,318.59	3,016.00	91.59	91.49	-163.23	-627.14	-3,916.11	1,146.77	1,069.70	77.07	14.879	
5,300.00	1,918.00	6,418.59	3,016.00	94.04	93.91	-163.23	-626.00	-4,016.10	1,146.77	1,067.68	79.09	14.500	
5,400.00	1,918.00	6,518.59	3,016.00	96.49	96.33	-163.23	-624.86	-4,116.10	1,146.77	1,065.66	81.11	14.138	
5,500.00	1,918.00	6,618.59	3,016.00	98.94	98.75	-163.23	-623.72	-4,216.09	1,146.77	1,063.63	83.14	13.793	
5,600.00	1,918.00	6,718.59	3,016.00	101.39	101.18	-163.23	-622.59	-4,316.08	1,146.77	1,061.60	85.17	13.465	
5,700.00	1,918.00	6,818.59	3,016.00	103.84	103.61	-163.23	-621.45	-4,416.08	1,146.77	1,059.57	87.20	13.151	
5,800.00	1,918.00	6,918.59	3,016.00	106.29	106.04	-163.23	-620.31	-4,516.07	1,146.77	1,057.54	89.23	12.851	
5,900.00	1,918.00	7,018.59	3,016.00	108.75	108.47	-163.23	-619.18	-4,616.06	1,146.77	1,055.50	91.27	12.565	
6,000.00	1,918.00	7,118.59	3,016.00	111.20	110.90	-163.23	-618.04	-4,716.06	1,146.77	1,053.47	93.31	12.291	
6,100.00	1,918.00	7,218.59	3,016.00	113.66	113.33	-163.23	-616.90	-4,816.05	1,146.77	1,051.43	95.34	12.028	
6,200.00	1,918.00	7,318.59	3,016.00	116.11	115.77	-163.23	-615.76	-4,916.04	1,146.77	1,049.39	97.38	11.776	
6,300.00	1,918.00	7,418.59	3,016.00	118.57	118.21	-163.23	-614.63	-5,016.04	1,146.77	1,047.34	99.43	11.534	
6,400.00	1,918.00	7,518.59	3,016.00	121.02	120.65	-163.23	-613.49	-5,116.03	1,146.77	1,045.30	101.47	11.302	
6,500.00	1,918.00	7,618.59	3,016.00	123.48	123.09	-163.23	-612.35	-5,216.02	1,146.77	1,043.25	103.51	11.078	
6,600.00	1,918.00	7,718.59	3,016.00	125.94	125.53	-163.23	-611.22	-5,316.02	1,146.77	1,041.21	105.56	10.864	
6,700.00	1,918.00	7,818.59	3,016.00	128.40	127.97	-163.23	-610.08	-5,416.01	1,146.77	1,039.16	107.61	10.657	
6,800.00	1,918.00	7,918.59	3,016.00	130.86	130.41	-163.23	-608.94	-5,516.00	1,146.77	1,037.11	109.66	10.458	
6,900.00	1,918.00	8,018.59	3,016.00	133.32	132.86	-163.23	-607.80	-5,616.00	1,146.77	1,035.06	111.70	10.266	
7,000.00	1,918.00	8,118.59	3,016.00	135.77	135.30	-163.23	-606.67	-5,715.99	1,146.77	1,033.01	113.76	10.081	
7,100.00	1,918.00	8,218.59	3,016.00	138.23	137.75	-163.23	-605.53	-5,815.99	1,146.77	1,030.96	115.81	9.902	
7,200.00	1,918.00	8,318.59	3,016.00	140.69	140.19	-163.23	-604.39	-5,915.98	1,146.77	1,028.91	117.86	9.730	
7,300.00	1,918.00	8,418.59	3,016.00	143.16	142.64	-163.23	-603.26	-6,015.97	1,146.77	1,026.85	119.91	9.563	
7,400.00	1,918.00	8,518.59	3,016.00	145.62	145.09	-163.23	-602.12	-6,115.97	1,146.77	1,024.80	121.97	9.402	
7,500.00	1,918.00	8,618.59	3,016.00	148.08	147.54	-163.23	-600.98	-6,215.96	1,146.76	1,022.75	124.02	9.247	
7,600.00	1,918.00	8,718.59	3,016.00	150.54	149.99	-163.23	-599.84	-6,315.95	1,146.76	1,020.69	126.07	9.096	
7,700.00	1,918.00	8,818.59	3,016.00	153.00	152.44	-163.23	-598.71	-6,415.95	1,146.76	1,018.63	128.13	8.950	
7,800.00	1,918.00	8,918.59	3,016.00	155.46	154.89	-163.23	-597.57	-6,515.94	1,146.76	1,016.58	130.18	8.809	
7,900.00	1,918.00	9,018.59	3,016.00	157.92	157.34	-163.23	-596.43	-6,615.93	1,146.76	1,014.52	132.24	8.672	
8,000.00	1,918.00	9,118.59	3,016.00	160.39	159.79	-163.23	-595.30	-6,715.93	1,146.76	1,012.47	134.30	8.539	
8,100.00	1,918.00	9,218.59	3,016.00	162.85	162.24	-163.23	-594.16	-6,815.92	1,146.76	1,010.41	136.36	8.410	
8,200.00	1,918.00	9,318.59	3,016.00	165.31	164.70	-163.23	-593.02	-6,915.91	1,146.76	1,008.35	138.42	8.285	
8,300.00	1,918.00	9,418.59	3,016.00	167.77	167.15	-163.23	-591.88	-7,015.91	1,146.76	1,006.29	140.47	8.163	
8,400.00	1,918.00	9,518.59	3,016.00	170.24	169.60	-163.23	-590.75	-7,115.90	1,146.76	1,004.23	142.53	8.045	
8,500.00	1,918.00	9,618.59	3,016.00	172.70	172.06	-163.23	-589.61	-7,215.89	1,146.76	1,002.17	144.60	7.931	
8,600.00	1,918.00	9,718.59	3,016.00	175.17	174.51	-163.23	-588.47	-7,315.89	1,146.76	1,000.10	146.66	7.819	
8,700.00	1,918.00	9,818.59	3,016.00	177.63	176.97	-163.23	-587.33	-7,415.88	1,146.76	998.04	148.72	7.711	
8,800.00	1,918.00	9,918.59	3,016.00	180.09	179.42	-163.23	-586.20	-7,515.88	1,146.76	995.98	150.78	7.606	
8,900.00	1,918.00	10,018.59	3,016.00	182.56	181.88	-163.23	-585.06	-7,615.87	1,146.76	993.92	152.84	7.503	
9,000.00	1,918.00	10,118.59	3,016.00	185.02	184.33	-163.23	-583.92	-7,715.86	1,146.76	991.86	154.90	7.403	
9,100.00	1,918.00	10,218.59	3,016.00	187.49	186.79	-163.23	-582.79	-7,815.86	1,146.76	989.79	156.97	7.306	
9,200.00	1,918.00	10,318.59	3,016.00	189.95	189.25	-163.23	-581.65	-7,915.85	1,146.76	987.73	159.03	7.211	
9,300.00	1,918.00	10,418.59	3,016.00	192.42	191.70	-163.23	-580.51	-8,015.84	1,146.76	985.66	161.09	7.119	
9,400.00	1,918.00	10,518.59	3,016.00	194.88	194.16	-163.23	-579.37	-8,115.84	1,146.76	983.60	163.16	7.029	
9,500.00	1,918.00	10,618.59	3,016.00	197.35	196.62	-163.23	-578.24	-8,215.83	1,146.76	981.54	165.22	6.941	
9,600.00	1,918.00	10,718.59	3,016.00	199.81	199.07	-163.23	-577.10	-8,315.82	1,146.76	979.47	167.29	6.855	
9,700.00	1,918.00	10,818.59	3,016.00	202.28	201.53	-163.23	-575.96	-8,415.82	1,146.76	977.41	169.35	6.771	
9,800.00	1,918.00	10,918.59	3,016.00	204.74	203.99	-163.23	-574.83	-8,515.81	1,146.76	975.34	171.42	6.690	
9,900.00	1,918.00	11,018.59	3,016.00	207.21	206.45	-163.23	-573.69	-8,615.80	1,146.76	973.27	173.48	6.610	
10,000.00	1,918.00	11,118.59	3,016.00	209.67	208.91	-163.23	-572.55	-8,715.80	1,146.76	971.21	175.55	6.532	
10,100.00	1,918.00	11,218.59	3,016.00	212.14	211.37	-163.23	-571.41	-8,815.79	1,146.76	969.14	177.61	6.456	
10,200.00	1,918.00	11,318.59	3,016.00	214.61	213.83	-163.23	-570.28	-8,915.78	1,146.76	967.08	179.68	6.382	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 2XH - 2XH - Plan #2

Survey Program: 0-MWD

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.00	1,918.00	11,418.59	3,016.00	217.07	216.29	-163.23	-569.14	-9,015.78	1,146.75	965.01	181.75	6.310	
10,400.00	1,918.00	11,518.59	3,016.00	219.54	218.74	-163.23	-568.00	-9,115.77	1,146.75	962.94	183.81	6.239	SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 3XH - 3XH - Plan #1a — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	16.00	0.00	0.00	0.05	173.02	-1,307.00	160.00	1,316.76				
100.00	100.00	116.00	100.00	0.31	0.41	173.02	-1,307.00	160.00	1,316.76	1,316.23	0.52	2,514.842	
200.00	200.00	216.00	200.00	0.96	1.03	173.02	-1,307.00	160.00	1,316.76	1,315.27	1.49	885.024	
300.00	300.00	316.00	300.00	1.46	1.53	173.02	-1,307.00	160.00	1,316.76	1,314.44	2.31	568.988	
400.00	400.00	416.00	400.00	1.90	1.96	173.02	-1,307.00	160.00	1,316.76	1,313.67	3.09	426.738	
500.00	500.00	516.58	500.58	2.31	2.34	173.02	-1,307.00	159.96	1,316.75	1,312.91	3.84	342.618	
600.00	599.82	620.12	604.10	3.10	2.62	-80.18	-1,307.04	158.11	1,315.67	1,311.10	4.56	288.381	
700.00	698.54	723.24	707.11	4.13	3.32	-80.86	-1,307.13	153.48	1,312.57	1,307.26	5.31	247.250	
800.00	795.09	825.50	809.10	4.97	4.03	-81.98	-1,307.29	146.14	1,307.69	1,301.56	6.13	213.332	
900.00	888.40	926.43	909.55	5.68	4.66	-83.52	-1,307.49	136.23	1,301.42	1,294.36	7.06	184.347	
1,000.00	977.46	1,025.57	1,007.92	6.31	5.23	-85.43	-1,307.75	123.91	1,294.32	1,286.16	8.16	158.644	
1,100.00	1,061.29	1,122.43	1,103.68	6.87	5.76	-87.65	-1,308.05	109.41	1,287.08	1,277.61	9.47	135.891	
1,200.00	1,138.97	1,216.47	1,196.28	7.37	6.25	-90.10	-1,308.39	93.02	1,280.55	1,269.53	11.02	116.176	
1,300.00	1,211.86	1,309.03	1,287.00	7.66	6.71	-92.39	-1,308.77	74.66	1,275.55	1,262.77	12.78	99.836	
1,400.00	1,284.57	1,404.11	1,379.69	8.59	7.18	-94.60	-1,309.20	53.52	1,272.14	1,257.50	14.63	86.946	
1,500.00	1,357.27	1,501.84	1,474.39	9.93	7.65	-96.79	-1,309.70	29.40	1,270.04	1,253.51	16.54	76.794	
1,600.00	1,429.98	1,602.22	1,570.99	11.29	8.12	-98.95	-1,310.27	2.11	1,269.01	1,250.54	18.47	68.698	
1,688.96	1,494.66	1,693.71	1,658.37	12.52	8.55	-100.83	-1,310.83	-24.97	1,268.76	1,248.55	20.21	62.784 CC	
1,700.00	1,502.69	1,705.20	1,669.31	12.67	8.60	-101.06	-1,310.90	-28.52	1,268.77	1,248.34	20.42	62.120	
1,800.00	1,575.39	1,810.74	1,769.17	14.06	9.10	-103.12	-1,311.61	-62.65	1,269.04	1,246.65	22.39	56.688	
1,900.00	1,646.19	1,917.47	1,869.16	15.48	9.61	-105.60	-1,312.38	-99.95	1,270.54	1,246.17	24.38	52.121 ES	
2,000.00	1,707.27	2,019.93	1,964.14	17.12	10.11	-108.06	-1,313.17	-138.37	1,277.35	1,250.80	26.54	48.121	
2,100.00	1,758.56	2,117.95	2,054.00	18.95	10.62	-110.44	-1,313.98	-177.50	1,290.06	1,261.30	28.77	44.847	
2,200.00	1,808.56	2,213.22	2,140.38	20.81	11.11	-112.90	-1,314.81	-217.68	1,304.87	1,273.98	30.88	42.251	
2,300.00	1,856.63	2,293.26	2,212.69	22.73	11.52	-115.61	-1,315.52	-251.99	1,323.74	1,290.89	32.85	40.299	
2,400.00	1,892.19	2,364.97	2,277.47	24.89	11.94	-117.33	-1,316.16	-282.73	1,357.25	1,322.34	34.92	38.873	
2,500.00	1,912.77	2,425.37	2,332.04	27.14	12.32	-116.91	-1,316.69	-308.62	1,406.32	1,369.60	36.71	38.304	
2,600.00	1,918.00	2,472.87	2,374.95	29.38	12.64	-115.00	-1,317.12	-328.98	1,469.29	1,431.17	38.13	38.538	
2,700.00	1,918.00	2,515.72	2,413.67	31.62	12.93	-116.81	-1,317.50	-347.35	1,538.16	1,498.90	39.26	39.183	
2,800.00	1,918.00	2,558.58	2,452.38	33.89	13.24	-118.57	-1,317.88	-365.72	1,609.15	1,568.86	40.29	39.940	
2,900.00	1,918.00	2,601.43	2,491.10	36.19	13.55	-120.27	-1,318.26	-384.09	1,682.00	1,640.77	41.23	40.793	
3,000.00	1,918.00	4,328.14	3,302.00	38.52	40.77	-144.43	-1,310.99	-1,723.73	1,701.51	1,650.27	51.24	33.208	
3,100.00	1,918.00	4,428.14	3,302.00	40.86	43.05	-144.43	-1,309.85	-1,823.73	1,701.51	1,647.40	54.11	31.445	
3,200.00	1,918.00	4,528.14	3,302.00	43.21	45.36	-144.43	-1,308.71	-1,923.72	1,701.51	1,644.50	57.01	29.845	
3,300.00	1,918.00	4,628.14	3,302.00	45.58	47.69	-144.43	-1,307.58	-2,023.72	1,701.51	1,641.57	59.94	28.388	
3,400.00	1,918.00	4,728.14	3,302.00	47.95	50.02	-144.43	-1,306.44	-2,123.71	1,701.51	1,638.62	62.89	27.057	
3,500.00	1,918.00	4,828.14	3,302.00	50.34	52.37	-144.43	-1,305.30	-2,223.70	1,701.51	1,635.66	65.85	25.838	
3,600.00	1,918.00	4,928.14	3,302.00	52.73	54.73	-144.43	-1,304.17	-2,323.70	1,701.51	1,632.67	68.83	24.719	
3,700.00	1,918.00	5,028.14	3,302.00	55.14	57.10	-144.43	-1,303.03	-2,423.69	1,701.51	1,629.68	71.83	23.687	
3,800.00	1,918.00	5,128.14	3,302.00	57.54	59.48	-144.43	-1,301.90	-2,523.68	1,701.51	1,626.67	74.84	22.735	
3,900.00	1,918.00	5,228.14	3,302.00	59.95	61.87	-144.43	-1,300.76	-2,623.68	1,701.51	1,623.65	77.85	21.855	
4,000.00	1,918.00	5,328.14	3,302.00	62.37	64.26	-144.43	-1,299.62	-2,723.67	1,701.51	1,620.62	80.88	21.036	
4,100.00	1,918.00	5,428.14	3,302.00	64.79	66.65	-144.43	-1,298.49	-2,823.66	1,701.51	1,617.58	83.92	20.274	
4,200.00	1,918.00	5,528.14	3,302.00	67.21	69.06	-144.43	-1,297.35	-2,923.66	1,701.51	1,614.54	86.97	19.564	
4,300.00	1,918.00	5,628.14	3,302.00	69.64	71.46	-144.43	-1,296.21	-3,023.65	1,701.51	1,611.48	90.03	18.900	
4,400.00	1,918.00	5,728.14	3,302.00	72.07	73.87	-144.43	-1,295.08	-3,123.64	1,701.51	1,608.42	93.09	18.279	
4,500.00	1,918.00	5,828.14	3,302.00	74.51	76.29	-144.43	-1,293.94	-3,223.64	1,701.51	1,605.35	96.15	17.696	
4,600.00	1,918.00	5,928.14	3,302.00	76.94	78.70	-144.43	-1,292.80	-3,323.63	1,701.51	1,602.28	99.23	17.148	
4,700.00	1,918.00	6,028.14	3,302.00	79.38	81.12	-144.43	-1,291.67	-3,423.63	1,701.51	1,599.20	102.30	16.632	
4,800.00	1,918.00	6,128.14	3,302.00	81.82	83.55	-144.43	-1,290.53	-3,523.62	1,701.50	1,596.12	105.38	16.146	
4,900.00	1,918.00	6,228.14	3,302.00	84.26	85.97	-144.43	-1,289.40	-3,623.61	1,701.50	1,593.04	108.47	15.687	
5,000.00	1,918.00	6,328.14	3,302.00	86.71	88.40	-144.43	-1,288.26	-3,723.61	1,701.50	1,589.95	111.56	15.252	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 3XH - 3XH - Plan #1a — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	1,918.00	6,428.14	3,302.00	89.15	90.83	-144.43	-1,287.12	-3,823.60	1,701.50	1,586.85	114.65	14.841	
5,200.00	1,918.00	6,528.14	3,302.00	91.59	93.27	-144.43	-1,285.99	-3,923.59	1,701.50	1,583.76	117.74	14.451	
5,300.00	1,918.00	6,628.14	3,302.00	94.04	95.70	-144.43	-1,284.85	-4,023.59	1,701.50	1,580.67	120.84	14.081	
5,400.00	1,918.00	6,728.14	3,302.00	96.49	98.14	-144.43	-1,283.71	-4,123.58	1,701.50	1,577.57	123.94	13.729	
5,500.00	1,918.00	6,828.14	3,302.00	98.94	100.57	-144.43	-1,282.58	-4,223.57	1,701.50	1,574.46	127.04	13.393	
5,600.00	1,918.00	6,928.14	3,302.00	101.39	103.01	-144.43	-1,281.44	-4,323.57	1,701.50	1,571.36	130.15	13.074	
5,700.00	1,918.00	7,028.14	3,302.00	103.84	105.45	-144.43	-1,280.30	-4,423.56	1,701.50	1,568.25	133.25	12.769	
5,800.00	1,918.00	7,128.14	3,302.00	106.29	107.89	-144.43	-1,279.17	-4,523.55	1,701.50	1,565.14	136.36	12.478	
5,900.00	1,918.00	7,228.14	3,302.00	108.75	110.34	-144.43	-1,278.03	-4,623.55	1,701.50	1,562.03	139.47	12.199	
6,000.00	1,918.00	7,328.14	3,302.00	111.20	112.78	-144.43	-1,276.90	-4,723.54	1,701.50	1,558.91	142.59	11.933	
6,100.00	1,918.00	7,428.14	3,302.00	113.66	115.23	-144.43	-1,275.76	-4,823.53	1,701.50	1,555.80	145.70	11.678	
6,200.00	1,918.00	7,528.14	3,302.00	116.11	117.67	-144.43	-1,274.62	-4,923.53	1,701.50	1,552.68	148.82	11.433	
6,300.00	1,918.00	7,628.14	3,302.00	118.57	120.12	-144.43	-1,273.49	-5,023.52	1,701.50	1,549.57	151.94	11.199	
6,400.00	1,918.00	7,728.14	3,302.00	121.02	122.57	-144.43	-1,272.35	-5,123.52	1,701.50	1,546.45	155.05	10.974	
6,500.00	1,918.00	7,828.14	3,302.00	123.48	125.02	-144.43	-1,271.21	-5,223.51	1,701.50	1,543.33	158.18	10.757	
6,600.00	1,918.00	7,928.14	3,302.00	125.94	127.47	-144.43	-1,270.08	-5,323.50	1,701.50	1,540.20	161.30	10.549	
6,700.00	1,918.00	8,028.14	3,302.00	128.40	129.92	-144.43	-1,268.94	-5,423.50	1,701.50	1,537.08	164.42	10.349	
6,800.00	1,918.00	8,128.14	3,302.00	130.86	132.37	-144.43	-1,267.80	-5,523.49	1,701.50	1,533.96	167.54	10.156	
6,900.00	1,918.00	8,228.14	3,302.00	133.32	134.82	-144.43	-1,266.67	-5,623.48	1,701.50	1,530.83	170.67	9.970	
7,000.00	1,918.00	8,328.14	3,302.00	135.77	137.27	-144.43	-1,265.53	-5,723.48	1,701.50	1,527.71	173.79	9.790	
7,100.00	1,918.00	8,428.14	3,302.00	138.23	139.72	-144.43	-1,264.40	-5,823.47	1,701.50	1,524.58	176.92	9.617	
7,200.00	1,918.00	8,528.14	3,302.00	140.69	142.18	-144.43	-1,263.26	-5,923.46	1,701.50	1,521.45	180.05	9.450	
7,300.00	1,918.00	8,628.14	3,302.00	143.16	144.63	-144.43	-1,262.12	-6,023.46	1,701.50	1,518.32	183.17	9.289	
7,400.00	1,918.00	8,728.14	3,302.00	145.62	147.08	-144.43	-1,260.99	-6,123.45	1,701.50	1,515.19	186.30	9.133	
7,500.00	1,918.00	8,828.14	3,302.00	148.08	149.54	-144.43	-1,259.85	-6,223.44	1,701.50	1,512.07	189.43	8.982	
7,600.00	1,918.00	8,928.14	3,302.00	150.54	151.99	-144.43	-1,258.71	-6,323.44	1,701.50	1,508.93	192.56	8.836	
7,700.00	1,918.00	9,028.14	3,302.00	153.00	154.45	-144.43	-1,257.58	-6,423.43	1,701.50	1,505.80	195.69	8.695	
7,800.00	1,918.00	9,128.14	3,302.00	155.46	156.90	-144.43	-1,256.44	-6,523.43	1,701.50	1,502.67	198.82	8.558	
7,900.00	1,918.00	9,228.14	3,302.00	157.92	159.36	-144.43	-1,255.30	-6,623.42	1,701.50	1,499.54	201.95	8.425	
8,000.00	1,918.00	9,328.14	3,302.00	160.39	161.82	-144.43	-1,254.17	-6,723.41	1,701.50	1,496.41	205.09	8.297	
8,100.00	1,918.00	9,428.14	3,302.00	162.85	164.27	-144.43	-1,253.03	-6,823.41	1,701.50	1,493.28	208.22	8.172	
8,200.00	1,918.00	9,528.14	3,302.00	165.31	166.73	-144.43	-1,251.90	-6,923.40	1,701.50	1,490.14	211.35	8.050	
8,300.00	1,918.00	9,628.14	3,302.00	167.77	169.19	-144.43	-1,250.76	-7,023.39	1,701.50	1,487.01	214.49	7.933	
8,400.00	1,918.00	9,728.14	3,302.00	170.24	171.65	-144.43	-1,249.62	-7,123.39	1,701.50	1,483.87	217.62	7.819	
8,500.00	1,918.00	9,828.14	3,302.00	172.70	174.11	-144.43	-1,248.49	-7,223.38	1,701.50	1,480.74	220.76	7.708	
8,600.00	1,918.00	9,928.14	3,302.00	175.17	176.56	-144.43	-1,247.35	-7,323.37	1,701.50	1,477.60	223.89	7.600	
8,700.00	1,918.00	10,028.14	3,302.00	177.63	179.02	-144.43	-1,246.21	-7,423.37	1,701.49	1,474.47	227.03	7.495	
8,800.00	1,918.00	10,128.14	3,302.00	180.09	181.48	-144.43	-1,245.08	-7,523.36	1,701.49	1,471.33	230.16	7.393	
8,900.00	1,918.00	10,228.14	3,302.00	182.56	183.94	-144.43	-1,243.94	-7,623.35	1,701.49	1,468.19	233.30	7.293	
9,000.00	1,918.00	10,328.14	3,302.00	185.02	186.40	-144.43	-1,242.80	-7,723.35	1,701.49	1,465.06	236.44	7.196	
9,100.00	1,918.00	10,428.14	3,302.00	187.49	188.86	-144.43	-1,241.67	-7,823.34	1,701.49	1,461.92	239.58	7.102	
9,200.00	1,918.00	10,528.14	3,302.00	189.95	191.32	-144.43	-1,240.53	-7,923.33	1,701.49	1,458.78	242.71	7.010	
9,300.00	1,918.00	10,628.14	3,302.00	192.42	193.78	-144.43	-1,239.39	-8,023.33	1,701.49	1,455.64	245.85	6.921	
9,400.00	1,918.00	10,728.14	3,302.00	194.88	196.24	-144.43	-1,238.26	-8,123.32	1,701.49	1,452.50	248.99	6.834	
9,500.00	1,918.00	10,828.14	3,302.00	197.35	198.70	-144.43	-1,237.12	-8,223.32	1,701.49	1,449.36	252.13	6.748	
9,600.00	1,918.00	10,928.14	3,302.00	199.81	201.16	-144.43	-1,235.99	-8,323.31	1,701.49	1,446.22	255.27	6.666	
9,700.00	1,918.00	11,028.14	3,302.00	202.28	203.62	-144.43	-1,234.85	-8,423.30	1,701.49	1,443.08	258.41	6.585	
9,800.00	1,918.00	11,128.14	3,302.00	204.74	206.09	-144.43	-1,233.71	-8,523.30	1,701.49	1,439.94	261.55	6.505	
9,900.00	1,918.00	11,228.14	3,302.00	207.21	208.55	-144.43	-1,232.58	-8,623.29	1,701.49	1,436.80	264.69	6.428	
10,000.00	1,918.00	11,328.14	3,302.00	209.67	211.01	-144.43	-1,231.44	-8,723.28	1,701.49	1,433.66	267.83	6.353	
10,100.00	1,918.00	11,428.14	3,302.00	212.14	213.47	-144.43	-1,230.30	-8,823.28	1,701.49	1,430.52	270.97	6.279	
10,200.00	1,918.00	11,528.14	3,302.00	214.61	215.93	-144.43	-1,229.17	-8,923.27	1,701.49	1,427.38	274.11	6.207	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 3XH - 3XH - Plan #1a

Offset Site Error: 0.00 usft

Survey Program: 0-MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,300.00	1,918.00	11,628.14	3,302.00	217.07	218.39	-144.43	-1,228.03	-9,023.26	1,701.49	1,424.24	277.25	6.137	
10,387.29	1,918.00	11,715.43	3,302.00	219.22	220.54	-144.43	-1,227.04	-9,110.55	1,701.49	1,421.50	279.99	6.077	
10,400.00	1,918.00	11,718.88	3,302.00	219.54	220.63	-144.43	-1,227.00	-9,114.00	1,701.52	1,421.21	280.31	6.070	SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 4XH - 4XH - Plan #1a — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	16.00	0.00	0.00	0.05	171.71	-1,304.00	190.00	1,317.77				
100.00	100.00	116.00	100.00	0.31	0.41	171.71	-1,304.00	190.00	1,317.77	1,317.25	0.51	2,558.975	
200.00	200.00	216.00	200.00	0.96	1.03	171.71	-1,304.00	190.00	1,317.77	1,316.30	1.47	898.571	
300.00	300.00	316.00	300.00	1.46	1.53	171.71	-1,304.00	190.00	1,317.77	1,315.48	2.29	576.306	
400.00	400.00	416.00	400.00	1.90	1.96	171.71	-1,304.00	190.00	1,317.77	1,314.71	3.05	431.417	
410.32	410.32	426.32	410.32	1.94	2.00	171.71	-1,304.00	190.00	1,317.77	1,314.64	3.13	420.763	CC
500.00	500.00	512.90	496.90	2.31	2.35	171.71	-1,304.02	189.98	1,317.79	1,314.01	3.78	348.413	
600.00	599.82	600.00	583.98	3.10	2.66	-81.41	-1,305.12	188.66	1,317.99	1,313.65	4.34	303.400	
606.01	605.79	600.00	583.98	3.16	2.66	-81.41	-1,305.12	188.66	1,317.98	1,313.62	4.36	302.047	
700.00	698.54	673.64	657.54	4.13	3.46	-81.78	-1,307.37	185.96	1,318.09	1,313.13	4.96	265.675	
800.00	795.09	753.15	736.82	4.97	4.23	-82.44	-1,311.16	181.42	1,318.33	1,312.69	5.64	233.614	
900.00	888.40	831.58	814.84	5.68	4.88	-83.33	-1,316.28	175.28	1,318.95	1,312.54	6.42	205.597	ES
1,000.00	977.46	900.00	882.70	6.31	5.41	-84.26	-1,321.86	168.59	1,320.37	1,313.08	7.29	181.134	
1,100.00	1,061.29	983.73	965.43	6.87	5.98	-85.62	-1,330.11	158.72	1,322.96	1,314.54	8.42	157.094	
1,200.00	1,138.97	1,056.63	1,037.14	7.37	6.45	-86.92	-1,338.54	148.61	1,327.36	1,317.64	9.73	136.441	
1,300.00	1,211.86	1,128.32	1,107.29	7.66	6.90	-88.49	-1,347.97	137.31	1,334.22	1,323.00	11.22	118.874	
1,400.00	1,284.57	1,200.00	1,177.06	8.59	7.33	-90.08	-1,358.52	124.67	1,343.91	1,331.10	12.81	104.902	
1,500.00	1,357.27	1,277.40	1,251.89	9.93	7.76	-91.71	-1,371.17	109.51	1,356.17	1,341.68	14.49	93.608	
1,600.00	1,429.98	1,354.87	1,326.24	11.29	8.19	-93.24	-1,385.12	92.80	1,370.77	1,354.57	16.20	84.612	
1,700.00	1,502.69	1,434.25	1,401.78	12.67	8.62	-94.70	-1,400.75	74.07	1,387.44	1,369.49	17.95	77.280	
1,800.00	1,575.39	1,515.48	1,478.35	14.06	9.04	-96.09	-1,418.12	53.26	1,405.94	1,386.20	19.74	71.211	
1,900.00	1,646.19	1,600.00	1,557.17	15.48	9.47	-96.94	-1,437.66	29.84	1,426.63	1,405.02	21.61	66.010	
2,000.00	1,707.27	1,675.59	1,626.87	17.12	9.85	-97.01	-1,456.39	7.39	1,451.77	1,428.12	23.65	61.390	
2,100.00	1,758.56	1,749.79	1,694.52	18.95	10.22	-97.83	-1,475.92	-16.01	1,481.43	1,455.60	25.83	57.344	
2,200.00	1,808.56	1,825.61	1,762.81	20.81	10.60	-99.51	-1,497.03	-41.30	1,513.52	1,485.47	28.05	53.952	
2,300.00	1,856.63	1,902.45	1,831.10	22.73	10.99	-100.84	-1,519.59	-68.34	1,548.93	1,518.62	30.31	51.107	
2,400.00	1,892.19	1,971.74	1,891.85	24.89	11.34	-100.21	-1,540.94	-93.92	1,594.98	1,562.31	32.67	48.815	
2,500.00	1,912.77	2,030.27	1,942.52	27.14	11.64	-97.18	-1,559.70	-116.40	1,651.86	1,617.00	34.86	47.381	
2,600.00	1,918.00	2,076.15	1,981.82	29.38	11.88	-92.96	-1,574.87	-134.58	1,718.07	1,681.33	36.74	46.763	
2,700.00	1,918.00	2,118.68	2,017.91	31.62	12.12	-94.57	-1,589.29	-151.85	1,788.43	1,749.99	38.45	46.516	
2,800.00	1,918.00	2,163.30	2,055.41	33.89	12.37	-96.19	-1,604.79	-170.42	1,860.56	1,820.43	40.12	46.371	
2,900.00	1,918.00	2,210.14	2,094.37	36.19	12.66	-97.83	-1,621.46	-190.39	1,934.17	1,892.42	41.76	46.321	
3,000.00	1,918.00	4,221.11	3,012.00	38.52	43.20	-123.55	-1,970.84	-1,731.24	1,979.47	1,912.04	67.43	29.356	
3,100.00	1,918.00	4,321.11	3,012.00	40.86	45.41	-123.55	-1,969.70	-1,831.23	1,979.47	1,908.08	71.38	27.730	
3,200.00	1,918.00	4,421.11	3,012.00	43.21	47.64	-123.55	-1,968.57	-1,931.23	1,979.47	1,904.10	75.36	26.265	
3,300.00	1,918.00	4,521.11	3,012.00	45.58	49.90	-123.55	-1,967.43	-2,031.22	1,979.47	1,900.10	79.37	24.940	
3,400.00	1,918.00	4,621.11	3,012.00	47.95	52.18	-123.55	-1,966.29	-2,131.21	1,979.47	1,896.07	83.39	23.736	
3,500.00	1,918.00	4,721.11	3,012.00	50.34	54.47	-123.55	-1,965.16	-2,231.21	1,979.46	1,892.03	87.44	22.639	
3,600.00	1,918.00	4,821.11	3,012.00	52.73	56.78	-123.55	-1,964.02	-2,331.20	1,979.46	1,887.97	91.49	21.635	
3,700.00	1,918.00	4,921.11	3,012.00	55.14	59.10	-123.55	-1,962.88	-2,431.19	1,979.46	1,883.90	95.57	20.713	
3,800.00	1,918.00	5,030.08	3,012.00	57.54	61.64	-123.55	-1,961.56	-2,540.16	1,979.41	1,879.68	99.73	19.848	
3,900.00	1,918.00	5,137.42	3,012.00	59.95	64.15	-123.57	-1,959.34	-2,647.48	1,978.62	1,874.76	103.87	19.050	
4,000.00	1,918.00	5,237.42	3,012.00	62.37	66.50	-123.58	-1,957.21	-2,747.45	1,977.80	1,869.85	107.95	18.322	
4,100.00	1,918.00	5,337.41	3,012.00	64.79	68.86	-123.60	-1,955.08	-2,847.42	1,976.97	1,864.93	112.04	17.645	
4,200.00	1,918.00	5,437.41	3,012.00	67.21	71.23	-123.62	-1,952.96	-2,947.40	1,976.15	1,860.01	116.14	17.015	
4,300.00	1,918.00	5,537.40	3,012.00	69.64	73.61	-123.63	-1,950.83	-3,047.37	1,975.32	1,855.08	120.24	16.428	
4,400.00	1,918.00	5,637.40	3,012.00	72.07	75.99	-123.65	-1,948.71	-3,147.34	1,974.50	1,850.15	124.35	15.878	
4,500.00	1,918.00	5,737.39	3,012.00	74.51	78.37	-123.66	-1,946.58	-3,247.31	1,973.67	1,845.21	128.46	15.364	
4,600.00	1,918.00	5,837.39	3,012.00	76.94	80.77	-123.68	-1,944.46	-3,347.29	1,972.85	1,840.27	132.58	14.881	
4,700.00	1,918.00	5,937.38	3,012.00	79.38	83.16	-123.70	-1,942.33	-3,447.26	1,972.03	1,835.33	136.70	14.426	
4,800.00	1,918.00	6,037.38	3,012.00	81.82	85.56	-123.71	-1,940.20	-3,547.23	1,971.20	1,830.38	140.82	13.998	
4,900.00	1,918.00	6,137.37	3,012.00	84.26	87.97	-123.73	-1,938.08	-3,647.20	1,970.38	1,825.44	144.94	13.594	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 4XH - 4XH - Plan #1a — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	1,918.00	6,237.37	3,012.00	86.71	90.37	-123.74	-1,935.95	-3,747.18	1,969.56	1,820.49	149.07	13.213	
5,100.00	1,918.00	6,339.54	3,012.00	89.15	92.84	-123.76	-1,933.77	-3,849.32	1,968.73	1,815.52	153.21	12.850	
5,200.00	1,918.00	6,439.53	3,012.00	91.59	95.25	-123.78	-1,931.51	-3,949.29	1,967.79	1,810.46	157.33	12.508	
5,300.00	1,918.00	6,539.53	3,012.00	94.04	97.66	-123.80	-1,929.25	-4,049.26	1,966.86	1,805.41	161.45	12.182	
5,400.00	1,918.00	6,639.52	3,012.00	96.49	100.08	-123.81	-1,927.00	-4,149.23	1,965.93	1,800.35	165.58	11.873	
5,500.00	1,918.00	6,739.52	3,012.00	98.94	102.51	-123.83	-1,924.74	-4,249.20	1,964.99	1,795.29	169.71	11.579	
5,600.00	1,918.00	6,839.51	3,012.00	101.39	104.93	-123.85	-1,922.48	-4,349.16	1,964.06	1,790.23	173.83	11.298	
5,700.00	1,918.00	6,939.50	3,012.00	103.84	107.36	-123.87	-1,920.22	-4,449.13	1,963.13	1,785.17	177.96	11.031	
5,800.00	1,918.00	7,039.50	3,012.00	106.29	109.78	-123.89	-1,917.96	-4,549.10	1,962.20	1,780.11	182.09	10.776	
5,900.00	1,918.00	7,139.49	3,012.00	108.75	112.21	-123.91	-1,915.70	-4,649.07	1,961.26	1,775.04	186.22	10.532	
6,000.00	1,918.00	7,239.48	3,012.00	111.20	114.65	-123.92	-1,913.44	-4,749.04	1,960.33	1,769.98	190.35	10.299	
6,100.00	1,918.00	7,339.48	3,012.00	113.66	117.08	-123.94	-1,911.18	-4,849.01	1,959.40	1,764.92	194.48	10.075	
6,200.00	1,918.00	7,439.47	3,012.00	116.11	119.51	-123.96	-1,908.93	-4,948.97	1,958.47	1,759.86	198.60	9.861	
6,300.00	1,918.00	7,539.46	3,012.00	118.57	121.95	-123.98	-1,906.67	-5,048.94	1,957.54	1,754.81	202.73	9.656	
6,400.00	1,918.00	7,639.46	3,012.00	121.02	124.39	-124.00	-1,904.41	-5,148.91	1,956.61	1,749.75	206.86	9.459	
6,500.00	1,918.00	7,739.84	3,012.00	123.48	126.83	-124.02	-1,902.12	-5,249.26	1,955.66	1,744.67	210.98	9.269	
6,600.00	1,918.00	7,839.83	3,012.00	125.94	129.27	-124.04	-1,899.84	-5,349.23	1,954.71	1,739.60	215.11	9.087	
6,700.00	1,918.00	7,939.82	3,012.00	128.40	131.71	-124.05	-1,897.56	-5,449.20	1,953.76	1,734.52	219.23	8.912	
6,800.00	1,918.00	8,039.82	3,012.00	130.86	134.16	-124.07	-1,895.27	-5,549.16	1,952.81	1,729.45	223.36	8.743	
6,900.00	1,918.00	8,139.81	3,012.00	133.32	136.60	-124.09	-1,892.99	-5,649.13	1,951.86	1,724.38	227.48	8.580	
7,000.00	1,918.00	8,239.80	3,012.00	135.77	139.04	-124.11	-1,890.71	-5,749.10	1,950.91	1,719.31	231.60	8.423	
7,100.00	1,918.00	8,339.80	3,012.00	138.23	141.49	-124.13	-1,888.43	-5,849.07	1,949.96	1,714.23	235.73	8.272	
7,200.00	1,918.00	8,439.79	3,012.00	140.69	143.94	-124.15	-1,886.15	-5,949.03	1,949.01	1,709.16	239.85	8.126	
7,300.00	1,918.00	8,539.78	3,012.00	143.16	146.38	-124.17	-1,883.86	-6,049.00	1,948.06	1,704.10	243.97	7.985	
7,400.00	1,918.00	8,639.78	3,012.00	145.62	148.83	-124.19	-1,881.58	-6,148.97	1,947.11	1,699.03	248.08	7.849	
7,500.00	1,918.00	8,739.77	3,012.00	148.08	151.28	-124.21	-1,879.30	-6,248.94	1,946.16	1,693.96	252.20	7.717	
7,600.00	1,918.00	8,839.76	3,012.00	150.54	153.73	-124.22	-1,877.02	-6,348.90	1,945.22	1,688.90	256.32	7.589	
7,700.00	1,918.00	8,939.76	3,012.00	153.00	156.18	-124.24	-1,874.73	-6,448.87	1,944.27	1,683.83	260.43	7.466	
7,800.00	1,918.00	9,024.89	3,012.00	155.46	158.26	-124.26	-1,873.04	-6,533.99	1,943.58	1,679.17	264.41	7.351	
7,816.27	1,918.00	9,037.60	3,012.00	155.86	158.57	-124.26	-1,872.88	-6,546.69	1,943.56	1,678.52	265.05	7.333	
7,900.00	1,918.00	9,100.00	3,012.00	157.92	160.10	-124.25	-1,872.51	-6,609.09	1,943.96	1,675.66	268.30	7.246	
8,000.00	1,918.00	9,193.68	3,012.00	160.39	162.40	-124.22	-1,872.94	-6,702.77	1,945.28	1,672.83	272.45	7.140	
8,100.00	1,918.00	9,293.67	3,012.00	162.85	164.85	-124.20	-1,873.52	-6,802.76	1,946.70	1,670.01	276.69	7.036	
8,200.00	1,918.00	9,393.65	3,012.00	165.31	167.30	-124.17	-1,874.11	-6,902.74	1,948.12	1,667.18	280.94	6.934	
8,300.00	1,918.00	9,493.64	3,012.00	167.77	169.75	-124.14	-1,874.69	-7,002.72	1,949.55	1,664.36	285.19	6.836	
8,400.00	1,918.00	9,593.62	3,012.00	170.24	172.21	-124.11	-1,875.28	-7,102.71	1,950.97	1,661.53	289.45	6.740	
8,500.00	1,918.00	9,693.61	3,012.00	172.70	174.66	-124.08	-1,875.86	-7,202.69	1,952.40	1,658.69	293.70	6.648	
8,600.00	1,918.00	9,793.59	3,012.00	175.17	177.11	-124.05	-1,876.44	-7,302.68	1,953.82	1,655.86	297.96	6.557	
8,700.00	1,918.00	9,893.58	3,012.00	177.63	179.57	-124.03	-1,877.03	-7,402.66	1,955.24	1,653.02	302.22	6.470	
8,800.00	1,918.00	9,993.56	3,012.00	180.09	182.02	-124.00	-1,877.61	-7,502.64	1,956.67	1,650.19	306.49	6.384	
8,900.00	1,918.00	10,093.55	3,012.00	182.56	184.48	-123.97	-1,878.19	-7,602.63	1,958.10	1,647.35	310.75	6.301	
9,000.00	1,918.00	10,193.53	3,012.00	185.02	186.93	-123.94	-1,878.78	-7,702.61	1,959.52	1,644.50	315.02	6.220	
9,100.00	1,918.00	10,293.52	3,012.00	187.49	189.39	-123.91	-1,879.36	-7,802.59	1,960.95	1,641.66	319.29	6.142	
9,200.00	1,918.00	10,393.50	3,012.00	189.95	191.84	-123.89	-1,879.95	-7,902.58	1,962.38	1,638.81	323.57	6.065	
9,300.00	1,918.00	10,493.49	3,012.00	192.42	194.30	-123.86	-1,880.53	-8,002.56	1,963.81	1,635.96	327.84	5.990	
9,400.00	1,918.00	10,593.48	3,012.00	194.88	196.75	-123.83	-1,881.11	-8,102.54	1,965.23	1,633.11	332.12	5.917	
9,500.00	1,918.00	10,693.46	3,012.00	197.35	199.21	-123.80	-1,881.70	-8,202.53	1,966.66	1,630.26	336.40	5.846	
9,600.00	1,918.00	10,793.45	3,012.00	199.81	201.67	-123.77	-1,882.28	-8,302.51	1,968.09	1,627.41	340.68	5.777	
9,700.00	1,918.00	10,893.43	3,012.00	202.28	204.12	-123.75	-1,882.86	-8,402.49	1,969.52	1,624.55	344.97	5.709	
9,800.00	1,918.00	10,993.42	3,012.00	204.74	206.58	-123.72	-1,883.45	-8,502.48	1,970.95	1,621.69	349.26	5.643	
9,900.00	1,918.00	11,093.40	3,012.00	207.21	209.04	-123.69	-1,884.03	-8,602.46	1,972.38	1,618.83	353.55	5.579	
10,000.00	1,918.00	11,193.39	3,012.00	209.67	211.49	-123.66	-1,884.61	-8,702.44	1,973.81	1,615.97	357.84	5.516	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Liam Fed 4XH - 4XH - Plan #1a

Survey Program: 0-MWD

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,100.00	1,918.00	11,293.37	3,012.00	212.14	213.95	-123.64	-1,885.20	-8,802.43	1,975.24	1,613.11	362.14	5.454	
10,200.00	1,918.00	11,393.36	3,012.00	214.61	216.41	-123.61	-1,885.78	-8,902.41	1,976.68	1,610.24	366.43	5.394	
10,300.00	1,918.00	11,493.34	3,012.00	217.07	218.87	-123.58	-1,886.37	-9,002.40	1,978.11	1,607.38	370.73	5.336	
10,400.00	1,918.00	11,593.33	3,012.00	219.54	221.32	-123.55	-1,886.95	-9,102.38	1,979.54	1,604.51	375.03	5.278	SF

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - MALCO B 6 B FEDERAL 007 35570 OW - 007 - 007 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-DIPMETER — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,000.00	1,707.27	1,683.27	1,707.27	17.12	33.44	13.51	-567.26	-3,209.43	2,460.17	2,420.21	39.96	61.561	
2,100.00	1,758.56	1,734.56	1,758.56	18.95	34.25	14.72	-567.26	-3,209.43	2,375.07	2,333.99	41.08	57.812	
2,200.00	1,808.56	1,784.56	1,808.56	20.81	35.01	15.25	-567.26	-3,209.43	2,289.24	2,247.15	42.08	54.398	
2,300.00	1,856.63	1,832.63	1,856.63	22.73	35.75	11.91	-567.26	-3,209.43	2,202.27	2,159.19	43.08	51.115	
2,400.00	1,892.19	1,868.19	1,892.19	24.89	36.30	1.43	-567.26	-3,209.43	2,109.05	2,065.14	43.91	48.030	
2,500.00	1,912.77	1,888.77	1,912.77	27.14	36.61	-29.28	-567.26	-3,209.43	2,011.37	1,967.04	44.33	45.368	
2,600.00	1,918.00	1,894.00	1,918.00	29.38	36.69	-90.00	-567.26	-3,209.43	1,912.23	1,867.83	44.39	43.074	
2,700.00	1,918.00	1,894.00	1,918.00	31.62	36.69	-90.00	-567.26	-3,209.43	1,813.23	1,768.88	44.35	40.881	
2,800.00	1,918.00	1,894.00	1,918.00	33.89	36.69	-90.00	-567.26	-3,209.43	1,714.35	1,670.01	44.34	38.664	
2,900.00	1,918.00	1,894.00	1,918.00	36.19	36.69	-90.00	-567.26	-3,209.43	1,615.60	1,571.24	44.36	36.418	
3,000.00	1,918.00	1,894.00	1,918.00	38.52	36.69	-90.00	-567.26	-3,209.43	1,517.03	1,472.59	44.44	34.137	
3,100.00	1,918.00	1,894.00	1,918.00	40.86	36.69	-90.00	-567.26	-3,209.43	1,418.65	1,374.05	44.59	31.814	
3,200.00	1,918.00	1,894.00	1,918.00	43.21	36.69	-90.00	-567.26	-3,209.43	1,320.51	1,275.66	44.85	29.441	
3,300.00	1,918.00	1,894.00	1,918.00	45.58	36.69	-90.00	-567.26	-3,209.43	1,222.67	1,177.41	45.27	27.009	
3,400.00	1,918.00	1,894.00	1,918.00	47.95	36.69	-90.00	-567.26	-3,209.43	1,125.22	1,079.32	45.90	24.516	
3,500.00	1,918.00	1,894.00	1,918.00	50.34	36.69	-90.00	-567.26	-3,209.43	1,028.26	981.43	46.82	21.961	
3,600.00	1,918.00	1,894.00	1,918.00	52.73	36.69	-90.00	-567.26	-3,209.43	931.93	883.78	48.15	19.355	
3,700.00	1,918.00	1,894.00	1,918.00	55.14	36.69	-90.00	-567.26	-3,209.43	836.47	786.45	50.02	16.722	
3,800.00	1,918.00	1,894.00	1,918.00	57.54	36.69	-90.00	-567.26	-3,209.43	742.21	689.57	52.64	14.101	
3,900.00	1,918.00	1,894.00	1,918.00	59.95	36.69	-90.00	-567.26	-3,209.43	649.66	593.42	56.24	11.551	
4,000.00	1,918.00	1,894.00	1,918.00	62.37	36.69	-90.00	-567.26	-3,209.43	559.69	498.48	61.21	9.144	
4,100.00	1,918.00	1,894.00	1,918.00	64.79	36.69	-90.00	-567.26	-3,209.43	473.75	405.73	68.02	6.964	
4,200.00	1,918.00	1,894.00	1,918.00	67.21	36.69	-90.00	-567.26	-3,209.43	394.50	317.28	77.22	5.109	
4,300.00	1,918.00	1,894.00	1,918.00	69.64	36.69	-90.00	-567.26	-3,209.43	326.83	238.03	88.80	3.681	
4,400.00	1,918.00	1,894.00	1,918.00	72.07	36.69	-90.00	-567.26	-3,209.43	279.30	178.90	100.40	2.782	
4,494.05	1,918.00	1,894.00	1,918.00	74.36	36.69	-90.00	-567.26	-3,209.43	262.98	157.35	105.63	2.490	CC, ES, SF
4,500.00	1,918.00	1,894.00	1,918.00	74.51	36.69	-90.00	-567.26	-3,209.43	263.05	157.40	105.65	2.490	
4,600.00	1,918.00	1,894.00	1,918.00	76.94	36.69	-90.00	-567.26	-3,209.43	283.52	182.47	101.05	2.806	
4,700.00	1,918.00	1,894.00	1,918.00	79.38	36.69	-90.00	-567.26	-3,209.43	334.02	241.87	92.15	3.625	
4,800.00	1,918.00	1,894.00	1,918.00	81.82	36.69	-90.00	-567.26	-3,209.43	403.44	319.35	84.09	4.798	
4,900.00	1,918.00	1,894.00	1,918.00	84.26	36.69	-90.00	-567.26	-3,209.43	483.68	405.78	77.91	6.209	
5,000.00	1,918.00	1,894.00	1,918.00	86.71	36.69	-90.00	-567.26	-3,209.43	570.21	496.91	73.30	7.780	
5,100.00	1,918.00	1,894.00	1,918.00	89.15	36.69	-90.00	-567.26	-3,209.43	660.55	590.73	69.82	9.461	
5,200.00	1,918.00	1,894.00	1,918.00	91.59	36.69	-90.00	-567.26	-3,209.43	753.34	686.20	67.14	11.221	
5,300.00	1,918.00	1,894.00	1,918.00	94.04	36.69	-90.00	-567.26	-3,209.43	847.76	782.74	65.03	13.037	
5,400.00	1,918.00	1,894.00	1,918.00	96.49	36.69	-90.00	-567.26	-3,209.43	943.34	880.00	63.34	14.894	
5,500.00	1,918.00	1,894.00	1,918.00	98.94	36.69	-90.00	-567.26	-3,209.43	1,039.75	977.79	61.96	16.782	
5,600.00	1,918.00	1,894.00	1,918.00	101.39	36.69	-90.00	-567.26	-3,209.43	1,136.78	1,075.96	60.82	18.692	
5,700.00	1,918.00	1,894.00	1,918.00	103.84	36.69	-90.00	-567.26	-3,209.43	1,234.28	1,174.42	59.86	20.619	
5,800.00	1,918.00	1,894.00	1,918.00	106.29	36.69	-90.00	-567.26	-3,209.43	1,332.16	1,273.11	59.05	22.560	
5,900.00	1,918.00	1,894.00	1,918.00	108.75	36.69	-90.00	-567.26	-3,209.43	1,430.33	1,371.97	58.36	24.510	
6,000.00	1,918.00	1,894.00	1,918.00	111.20	36.69	-90.00	-567.26	-3,209.43	1,528.73	1,470.98	57.76	26.468	
6,100.00	1,918.00	1,894.00	1,918.00	113.66	36.69	-90.00	-567.26	-3,209.43	1,627.33	1,570.10	57.24	28.432	
6,200.00	1,918.00	1,894.00	1,918.00	116.11	36.69	-90.00	-567.26	-3,209.43	1,726.09	1,669.31	56.78	30.399	
6,300.00	1,918.00	1,894.00	1,918.00	118.57	36.69	-90.00	-567.26	-3,209.43	1,824.99	1,768.61	56.38	32.369	
6,400.00	1,918.00	1,894.00	1,918.00	121.02	36.69	-90.00	-567.26	-3,209.43	1,924.00	1,867.97	56.03	34.341	
6,500.00	1,918.00	1,894.00	1,918.00	123.48	36.69	-90.00	-567.26	-3,209.43	2,023.11	1,967.40	55.71	36.314	
6,600.00	1,918.00	1,894.00	1,918.00	125.94	36.69	-90.00	-567.26	-3,209.43	2,122.30	2,066.87	55.43	38.287	
6,700.00	1,918.00	1,894.00	1,918.00	128.40	36.69	-90.00	-567.26	-3,209.43	2,221.56	2,166.38	55.18	40.260	
6,800.00	1,918.00	1,894.00	1,918.00	130.86	36.69	-90.00	-567.26	-3,209.43	2,320.89	2,265.93	54.96	42.231	
6,900.00	1,918.00	1,894.00	1,918.00	133.32	36.69	-90.00	-567.26	-3,209.43	2,420.27	2,365.52	54.76	44.202	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - MALCO B 6 FEDERAL COM 4H 49915 - 4H - SURVEYS NEEDED — **Offset Site Error:** 0.00 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	27.00	0.00	0.00	-95.92	-22.66	-218.69	221.51				
100.00	100.00	73.00	100.00	0.31	0.67	-95.92	-22.66	-218.69	219.86	219.05	0.81	271.776	
200.00	200.00	173.00	200.00	0.96	1.27	-95.92	-22.66	-218.69	219.86	217.99	1.87	117.414	
300.00	300.00	273.00	300.00	1.46	1.71	-95.92	-22.66	-218.69	219.86	217.14	2.72	80.793	
400.00	400.00	373.00	400.00	1.90	2.12	-95.92	-22.66	-218.69	219.86	216.35	3.51	62.655	
500.00	500.00	473.00	500.00	2.31	2.51	-95.92	-22.66	-218.69	219.86	215.59	4.27	51.474	
600.00	599.82	572.82	599.82	3.10	2.89	11.43	-22.66	-218.69	214.73	209.15	5.58	38.486	
700.00	698.54	671.54	698.54	4.13	3.26	12.52	-22.66	-218.69	199.42	192.44	6.99	28.546	
800.00	795.09	768.09	795.09	4.97	3.62	14.75	-22.66	-218.69	174.23	166.09	8.14	21.403	
900.00	888.40	861.40	888.40	5.68	3.97	19.18	-22.66	-218.69	139.75	130.66	9.10	15.363	
1,000.00	977.46	950.46	977.46	6.31	4.30	29.09	-22.66	-218.69	97.48	87.71	9.77	9.974	
1,100.00	1,061.29	1,034.29	1,061.29	6.87	4.61	57.46	-22.66	-218.69	53.90	44.27	9.63	5.598	
1,154.66	1,104.57	1,077.57	1,104.57	7.14	4.77	90.00	-22.66	-218.69	42.32	32.72	9.60	4.408	CC, ES, SF
1,200.00	1,138.97	1,111.97	1,138.97	7.37	4.89	117.41	-22.66	-218.69	51.60	40.57	11.03	4.677	
1,300.00	1,211.86	1,184.86	1,211.86	7.66	5.16	149.29	-22.66	-218.69	106.74	94.16	12.58	8.485	
1,400.00	1,284.57	1,257.57	1,284.57	8.59	5.42	160.75	-22.66	-218.69	171.94	158.77	13.16	13.061	
1,500.00	1,357.27	1,330.27	1,357.27	9.93	5.69	166.11	-22.66	-218.69	239.08	225.40	13.68	17.480	
1,600.00	1,429.98	1,402.98	1,429.98	11.29	5.95	169.16	-22.66	-218.69	306.89	292.70	14.19	21.620	
1,700.00	1,502.69	1,475.69	1,502.69	12.67	6.22	171.12	-22.66	-218.69	375.01	360.29	14.73	25.467	
1,800.00	1,575.39	1,548.39	1,575.39	14.06	6.48	172.49	-22.66	-218.69	443.30	428.03	15.27	29.029	
1,900.00	1,646.19	1,619.19	1,646.19	15.48	6.74	171.91	-22.66	-218.69	513.57	497.69	15.88	32.350	
2,000.00	1,707.27	1,680.27	1,707.27	17.12	6.96	170.07	-22.66	-218.69	592.28	575.68	16.60	35.682	
2,100.00	1,758.56	1,731.56	1,758.56	18.95	7.14	169.71	-22.66	-218.69	677.71	660.60	17.11	39.599	
2,200.00	1,808.56	1,781.56	1,808.56	20.81	7.33	170.86	-22.66	-218.69	764.00	746.47	17.53	43.587	
2,300.00	1,856.63	1,829.63	1,856.63	22.73	7.50	164.11	-22.66	-218.69	851.28	833.33	17.95	47.421	
2,400.00	1,892.19	1,865.19	1,892.19	24.89	7.63	145.77	-22.66	-218.69	943.47	925.14	18.33	51.479	
2,500.00	1,912.77	1,885.77	1,912.77	27.14	7.70	117.11	-22.66	-218.69	1,038.89	1,020.36	18.53	56.062	
2,600.00	1,918.00	3,596.39	2,906.13	29.38	26.68	161.94	-3.67	-1,306.89	1,039.33	1,012.97	26.35	39.437	
2,700.00	1,918.00	3,696.39	2,906.13	31.62	28.94	161.91	-1.92	-1,406.87	1,039.52	1,011.37	28.15	36.928	
2,800.00	1,918.00	3,796.38	2,906.13	33.89	31.23	161.88	-0.17	-1,506.86	1,039.71	1,009.71	30.00	34.659	
2,900.00	1,918.00	3,896.38	2,906.13	36.19	33.54	161.85	1.57	-1,606.84	1,039.90	1,008.01	31.89	32.611	
3,000.00	1,918.00	3,996.38	2,906.13	38.52	35.87	161.81	3.32	-1,706.82	1,040.09	1,006.27	33.81	30.760	
3,100.00	1,918.00	4,096.38	2,906.13	40.86	38.22	161.78	5.06	-1,806.80	1,040.28	1,004.51	35.77	29.084	
3,200.00	1,918.00	4,196.38	2,906.13	43.21	40.59	161.75	6.81	-1,906.79	1,040.47	1,002.72	37.75	27.563	
3,300.00	1,918.00	4,296.37	2,906.13	45.58	42.96	161.72	8.55	-2,006.77	1,040.66	1,000.91	39.75	26.178	
3,400.00	1,918.00	4,396.37	2,906.13	47.95	45.35	161.69	10.30	-2,106.75	1,040.85	999.07	41.78	24.915	
3,500.00	1,918.00	4,496.37	2,906.13	50.34	47.74	161.65	12.04	-2,206.74	1,041.04	997.22	43.82	23.758	
3,600.00	1,918.00	4,596.37	2,906.13	52.73	50.15	161.62	13.79	-2,306.72	1,041.23	995.36	45.88	22.697	
3,700.00	1,918.00	4,696.37	2,906.13	55.14	52.56	161.59	15.53	-2,406.70	1,041.43	993.48	47.95	21.721	
3,800.00	1,918.00	4,796.37	2,906.13	57.54	54.97	161.56	17.28	-2,506.68	1,041.62	991.59	50.03	20.820	
3,900.00	1,918.00	4,896.36	2,906.13	59.95	57.39	161.53	19.02	-2,606.67	1,041.81	989.69	52.12	19.987	
4,000.00	1,918.00	4,996.36	2,906.13	62.37	59.81	161.50	20.77	-2,706.65	1,042.01	987.77	54.23	19.214	
4,100.00	1,918.00	5,096.36	2,906.13	64.79	62.24	161.46	22.51	-2,806.63	1,042.20	985.85	56.35	18.496	
4,200.00	1,918.00	5,196.36	2,906.13	67.21	64.67	161.43	24.26	-2,906.62	1,042.39	983.92	58.47	17.827	
4,300.00	1,918.00	5,296.36	2,906.13	69.64	67.10	161.40	26.00	-3,006.60	1,042.59	981.98	60.61	17.202	
4,400.00	1,918.00	5,396.35	2,906.13	72.07	69.54	161.37	27.75	-3,106.58	1,042.78	980.03	62.75	16.618	
4,500.00	1,918.00	5,496.35	2,906.13	74.51	71.97	161.34	29.49	-3,206.57	1,042.98	978.07	64.90	16.070	
4,600.00	1,918.00	5,596.35	2,906.13	76.94	74.41	161.30	31.24	-3,306.55	1,043.17	976.11	67.06	15.556	
4,700.00	1,918.00	5,696.35	2,906.13	79.38	76.85	161.27	32.98	-3,406.53	1,043.37	974.14	69.23	15.072	
4,800.00	1,918.00	5,796.35	2,906.13	81.82	79.30	161.24	34.73	-3,506.51	1,043.56	972.17	71.40	14.616	
4,900.00	1,918.00	5,896.34	2,906.13	84.26	81.74	161.21	36.47	-3,606.50	1,043.76	970.18	73.58	14.186	
5,000.00	1,918.00	5,996.34	2,906.13	86.71	84.19	161.18	38.22	-3,706.48	1,043.96	968.20	75.76	13.780	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - MALCO B 6 FEDERAL COM 4H 49915 - 4H - SURVEYS NEEDED

Offset Site Error: 0.00 usft

Survey Program: 0-MWD

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	1,918.00	6,096.34	2,906.13	89.15	86.64	161.15	39.96	-3,806.46	1,044.15	966.20	77.95	13.395	
5,200.00	1,918.00	6,196.34	2,906.13	91.59	89.09	161.11	41.71	-3,906.45	1,044.35	964.21	80.14	13.031	
5,300.00	1,918.00	6,296.34	2,906.13	94.04	91.54	161.08	43.46	-4,006.43	1,044.55	962.20	82.34	12.685	
5,400.00	1,918.00	6,396.34	2,906.13	96.49	93.99	161.05	45.20	-4,106.41	1,044.74	960.19	84.55	12.356	
5,500.00	1,918.00	6,496.33	2,906.13	98.94	96.44	161.02	46.95	-4,206.39	1,044.94	958.18	86.76	12.044	
5,600.00	1,918.00	6,596.33	2,906.13	101.39	98.89	160.99	48.69	-4,306.38	1,045.14	956.16	88.98	11.746	
5,700.00	1,918.00	6,696.33	2,906.13	103.84	101.35	160.96	50.44	-4,406.36	1,045.34	954.14	91.20	11.462	
5,800.00	1,918.00	6,796.33	2,906.13	106.29	103.80	160.93	52.18	-4,506.34	1,045.54	952.11	93.43	11.191	
5,900.00	1,918.00	6,896.33	2,906.13	108.75	106.26	160.89	53.93	-4,606.33	1,045.74	950.08	95.66	10.932	
6,000.00	1,918.00	6,996.32	2,906.13	111.20	108.71	160.86	55.67	-4,706.31	1,045.94	948.04	97.90	10.684	
6,100.00	1,918.00	7,096.32	2,906.13	113.66	111.17	160.83	57.42	-4,806.29	1,046.14	946.00	100.14	10.447	
6,200.00	1,918.00	7,196.32	2,906.13	116.11	113.63	160.80	59.16	-4,906.27	1,046.34	943.96	102.38	10.220	
6,300.00	1,918.00	7,296.32	2,906.13	118.57	116.08	160.77	60.91	-5,006.26	1,046.54	941.91	104.63	10.002	
6,400.00	1,918.00	7,396.32	2,906.13	121.02	118.54	160.74	62.65	-5,106.24	1,046.74	939.85	106.89	9.793	
6,500.00	1,918.00	7,496.31	2,906.13	123.48	121.00	160.70	64.40	-5,206.22	1,046.94	937.80	109.14	9.592	
6,600.00	1,918.00	7,596.31	2,906.13	125.94	123.46	160.67	66.14	-5,306.21	1,047.14	935.73	111.41	9.399	
6,700.00	1,918.00	7,696.31	2,906.13	128.40	125.92	160.64	67.89	-5,406.19	1,047.34	933.67	113.67	9.214	
6,800.00	1,918.00	7,796.31	2,906.13	130.86	128.38	160.61	69.63	-5,506.17	1,047.55	931.60	115.95	9.035	
6,900.00	1,918.00	7,896.31	2,906.13	133.32	130.84	160.58	71.38	-5,606.16	1,047.75	929.53	118.22	8.863	
7,000.00	1,918.00	7,996.31	2,906.13	135.77	133.30	160.55	73.12	-5,706.14	1,047.95	927.45	120.50	8.697	
7,100.00	1,918.00	8,096.30	2,906.13	138.23	135.76	160.52	74.87	-5,806.12	1,048.15	925.37	122.78	8.537	
7,200.00	1,918.00	8,196.30	2,906.13	140.69	138.22	160.48	76.61	-5,906.10	1,048.36	923.29	125.07	8.382	
7,300.00	1,918.00	8,296.30	2,906.13	143.16	140.68	160.45	78.36	-6,006.09	1,048.56	921.20	127.36	8.233	
7,400.00	1,918.00	8,396.30	2,906.13	145.62	143.14	160.42	80.10	-6,106.07	1,048.77	919.11	129.66	8.089	
7,500.00	1,918.00	8,496.30	2,906.13	148.08	145.61	160.39	81.85	-6,206.05	1,048.97	917.01	131.96	7.949	
7,600.00	1,918.00	8,596.29	2,906.13	150.54	148.07	160.36	83.60	-6,306.04	1,049.17	914.91	134.26	7.814	
7,700.00	1,918.00	8,696.29	2,906.13	153.00	150.53	160.33	85.34	-6,406.02	1,049.38	912.81	136.57	7.684	
7,703.94	1,918.00	8,700.23	2,906.13	153.10	150.63	160.33	85.41	-6,409.96	1,049.39	912.73	136.66	7.679	
7,800.00	1,918.00	8,778.00	2,906.13	155.46	152.54	160.30	86.77	-6,487.71	1,049.74	911.07	138.68	7.570	
7,900.00	1,918.00	8,778.00	2,906.13	157.92	152.54	160.30	86.77	-6,487.71	1,056.43	917.25	139.18	7.590	
8,000.00	1,918.00	8,778.00	2,906.13	160.39	152.54	160.30	86.77	-6,487.71	1,072.45	933.93	138.52	7.742	
8,100.00	1,918.00	8,778.00	2,906.13	162.85	152.54	160.30	86.77	-6,487.71	1,097.37	960.57	136.81	8.021	
8,200.00	1,918.00	8,778.00	2,906.13	165.31	152.54	160.30	86.77	-6,487.71	1,130.63	996.40	134.23	8.423	
8,300.00	1,918.00	8,778.00	2,906.13	167.77	152.54	160.30	86.77	-6,487.71	1,171.50	1,040.51	130.99	8.944	
8,400.00	1,918.00	8,778.00	2,906.13	170.24	152.54	160.30	86.77	-6,487.71	1,219.22	1,091.93	127.29	9.579	
8,500.00	1,918.00	8,778.00	2,906.13	172.70	152.54	160.30	86.77	-6,487.71	1,273.02	1,149.71	123.32	10.323	
8,600.00	1,918.00	8,778.00	2,906.13	175.17	152.54	160.30	86.77	-6,487.71	1,332.17	1,212.94	119.23	11.174	
8,700.00	1,918.00	8,778.00	2,906.13	177.63	152.54	160.30	86.77	-6,487.71	1,395.98	1,280.85	115.13	12.125	
8,800.00	1,918.00	8,778.00	2,906.13	180.09	152.54	160.30	86.77	-6,487.71	1,463.85	1,352.72	111.13	13.173	
8,900.00	1,918.00	8,778.00	2,906.13	182.56	152.54	160.30	86.77	-6,487.71	1,535.24	1,427.98	107.26	14.313	
9,000.00	1,918.00	8,778.00	2,906.13	185.02	152.54	160.30	86.77	-6,487.71	1,609.67	1,506.10	103.57	15.542	
9,100.00	1,918.00	8,778.00	2,906.13	187.49	152.54	160.30	86.77	-6,487.71	1,686.75	1,586.67	100.08	16.855	
9,200.00	1,918.00	8,778.00	2,906.13	189.95	152.54	160.30	86.77	-6,487.71	1,766.13	1,669.34	96.79	18.247	
9,300.00	1,918.00	8,778.00	2,906.13	192.42	152.54	160.30	86.77	-6,487.71	1,847.51	1,753.81	93.71	19.716	
9,400.00	1,918.00	8,778.00	2,906.13	194.88	152.54	160.30	86.77	-6,487.71	1,930.65	1,839.82	90.82	21.257	
9,500.00	1,918.00	8,778.00	2,906.13	197.35	152.54	160.30	86.77	-6,487.71	2,015.31	1,927.18	88.14	22.866	
9,600.00	1,918.00	8,778.00	2,906.13	199.81	152.54	160.30	86.77	-6,487.71	2,101.33	2,015.70	85.63	24.540	
9,700.00	1,918.00	8,778.00	2,906.13	202.28	152.54	160.30	86.77	-6,487.71	2,188.53	2,105.24	83.29	26.275	
9,800.00	1,918.00	8,778.00	2,906.13	204.74	152.54	160.30	86.77	-6,487.71	2,276.79	2,195.67	81.12	28.067	
9,900.00	1,918.00	8,778.00	2,906.13	207.21	152.54	160.30	86.77	-6,487.71	2,365.98	2,286.88	79.09	29.915	
10,000.00	1,918.00	8,778.00	2,906.13	209.67	152.54	160.30	86.77	-6,487.71	2,456.00	2,378.80	77.20	31.813	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Malco B Federal 003 29935 POW - 003. - 003. AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-DIPMETER — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,300.00	1,856.63	1,807.63	1,856.63	22.73	24.25	40.76	47.51	-3,465.11	2,466.38	2,428.66	37.72	65.382	
2,400.00	1,892.19	1,843.19	1,892.19	24.89	24.72	45.54	47.51	-3,465.11	2,377.65	2,338.59	39.06	60.871	
2,500.00	1,912.77	1,863.77	1,912.77	27.14	24.99	59.30	47.51	-3,465.11	2,282.86	2,242.85	40.01	57.062	
2,600.00	1,918.00	1,869.00	1,918.00	29.38	25.06	90.00	47.51	-3,465.11	2,184.73	2,144.17	40.55	53.875	
2,700.00	1,918.00	1,869.00	1,918.00	31.62	25.06	90.00	47.51	-3,465.11	2,086.07	2,045.09	40.98	50.899	
2,800.00	1,918.00	1,869.00	1,918.00	33.89	25.06	90.00	47.51	-3,465.11	1,987.55	1,946.08	41.47	47.925	
2,900.00	1,918.00	1,869.00	1,918.00	36.19	25.06	90.00	47.51	-3,465.11	1,889.18	1,847.16	42.02	44.956	
3,000.00	1,918.00	1,869.00	1,918.00	38.52	25.06	90.00	47.51	-3,465.11	1,791.00	1,748.35	42.65	41.995	
3,100.00	1,918.00	1,869.00	1,918.00	40.86	25.06	90.00	47.51	-3,465.11	1,693.02	1,649.67	43.36	39.047	
3,200.00	1,918.00	1,869.00	1,918.00	43.21	25.06	90.00	47.51	-3,465.11	1,595.30	1,551.13	44.17	36.114	
3,300.00	1,918.00	1,869.00	1,918.00	45.58	25.06	90.00	47.51	-3,465.11	1,497.88	1,452.77	45.11	33.203	
3,400.00	1,918.00	1,869.00	1,918.00	47.95	25.06	90.00	47.51	-3,465.11	1,400.83	1,354.63	46.20	30.321	
3,500.00	1,918.00	1,869.00	1,918.00	50.34	25.06	90.00	47.51	-3,465.11	1,304.21	1,256.75	47.47	27.475	
3,600.00	1,918.00	1,869.00	1,918.00	52.73	25.06	90.00	47.51	-3,465.11	1,208.15	1,159.19	48.96	24.677	
3,700.00	1,918.00	1,869.00	1,918.00	55.14	25.06	90.00	47.51	-3,465.11	1,112.79	1,062.06	50.73	21.937	
3,800.00	1,918.00	1,869.00	1,918.00	57.54	25.06	90.00	47.51	-3,465.11	1,018.31	965.47	52.84	19.272	
3,900.00	1,918.00	1,869.00	1,918.00	59.95	25.06	90.00	47.51	-3,465.11	925.00	869.60	55.39	16.699	
4,000.00	1,918.00	1,869.00	1,918.00	62.37	25.06	90.00	47.51	-3,465.11	833.23	774.73	58.51	14.241	
4,100.00	1,918.00	1,869.00	1,918.00	64.79	25.06	90.00	47.51	-3,465.11	743.60	681.25	62.35	11.926	
4,200.00	1,918.00	1,869.00	1,918.00	67.21	25.06	90.00	47.51	-3,465.11	656.96	589.84	67.12	9.788	
4,300.00	1,918.00	1,869.00	1,918.00	69.64	25.06	90.00	47.51	-3,465.11	574.68	501.62	73.06	7.866	
4,400.00	1,918.00	1,869.00	1,918.00	72.07	25.06	90.00	47.51	-3,465.11	498.92	418.56	80.36	6.209	
4,500.00	1,918.00	1,869.00	1,918.00	74.51	25.06	90.00	47.51	-3,465.11	433.11	344.22	88.89	4.872	
4,600.00	1,918.00	1,869.00	1,918.00	76.94	25.06	90.00	47.51	-3,465.11	382.42	284.78	97.63	3.917	
4,700.00	1,918.00	1,869.00	1,918.00	79.38	25.06	90.00	47.51	-3,465.11	353.42	249.37	104.05	3.397	
4,756.70	1,918.00	1,869.00	1,918.00	80.76	25.06	90.00	47.51	-3,465.11	348.84	243.43	105.41	3.309	CC, ES, SF
4,800.00	1,918.00	1,869.00	1,918.00	81.82	25.06	90.00	47.51	-3,465.11	351.52	246.44	105.08	3.345	
4,900.00	1,918.00	1,869.00	1,918.00	84.26	25.06	90.00	47.51	-3,465.11	377.13	276.80	100.32	3.759	
5,000.00	1,918.00	1,869.00	1,918.00	86.71	25.06	90.00	47.51	-3,465.11	425.31	332.81	92.50	4.598	
5,100.00	1,918.00	1,869.00	1,918.00	89.15	25.06	90.00	47.51	-3,465.11	489.44	405.08	84.35	5.802	
5,200.00	1,918.00	1,869.00	1,918.00	91.59	25.06	90.00	47.51	-3,465.11	564.10	486.92	77.18	7.309	
5,300.00	1,918.00	1,869.00	1,918.00	94.04	25.06	90.00	47.51	-3,465.11	645.65	574.39	71.26	9.060	
5,400.00	1,918.00	1,869.00	1,918.00	96.49	25.06	90.00	47.51	-3,465.11	731.80	665.33	66.47	11.010	
5,500.00	1,918.00	1,869.00	1,918.00	98.94	25.06	90.00	47.51	-3,465.11	821.09	758.49	62.60	13.117	
5,600.00	1,918.00	1,869.00	1,918.00	101.39	25.06	90.00	47.51	-3,465.11	912.61	853.16	59.45	15.351	
5,700.00	1,918.00	1,869.00	1,918.00	103.84	25.06	90.00	47.51	-3,465.11	1,005.74	948.87	56.87	17.686	
5,800.00	1,918.00	1,869.00	1,918.00	106.29	25.06	90.00	47.51	-3,465.11	1,100.08	1,045.35	54.73	20.100	
5,900.00	1,918.00	1,869.00	1,918.00	108.75	25.06	90.00	47.51	-3,465.11	1,195.34	1,142.39	52.94	22.578	
6,000.00	1,918.00	1,869.00	1,918.00	111.20	25.06	90.00	47.51	-3,465.11	1,291.32	1,239.88	51.44	25.105	
6,100.00	1,918.00	1,869.00	1,918.00	113.66	25.06	90.00	47.51	-3,465.11	1,387.86	1,337.70	50.16	27.670	
6,200.00	1,918.00	1,869.00	1,918.00	116.11	25.06	90.00	47.51	-3,465.11	1,484.86	1,435.80	49.06	30.265	
6,300.00	1,918.00	1,869.00	1,918.00	118.57	25.06	90.00	47.51	-3,465.11	1,582.24	1,534.12	48.12	32.882	
6,400.00	1,918.00	1,869.00	1,918.00	121.02	25.06	90.00	47.51	-3,465.11	1,679.92	1,632.62	47.30	35.514	
6,500.00	1,918.00	1,869.00	1,918.00	123.48	25.06	90.00	47.51	-3,465.11	1,777.86	1,731.27	46.59	38.158	
6,600.00	1,918.00	1,869.00	1,918.00	125.94	25.06	90.00	47.51	-3,465.11	1,876.02	1,830.05	45.97	40.808	
6,700.00	1,918.00	1,869.00	1,918.00	128.40	25.06	90.00	47.51	-3,465.11	1,974.37	1,928.94	45.43	43.462	
6,800.00	1,918.00	1,869.00	1,918.00	130.86	25.06	90.00	47.51	-3,465.11	2,072.87	2,027.92	44.95	46.117	
6,900.00	1,918.00	1,869.00	1,918.00	133.32	25.06	90.00	47.51	-3,465.11	2,171.51	2,126.98	44.53	48.770	
7,000.00	1,918.00	1,869.00	1,918.00	135.77	25.06	90.00	47.51	-3,465.11	2,270.26	2,226.11	44.15	51.419	
7,100.00	1,918.00	1,869.00	1,918.00	138.23	25.06	90.00	47.51	-3,465.11	2,369.13	2,325.31	43.82	54.063	
7,200.00	1,918.00	1,869.00	1,918.00	140.69	25.06	90.00	47.51	-3,465.11	2,468.08	2,424.55	43.53	56.701	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Paton Federal 001 00797 POW - 001 - 001 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-DIPMETER — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,100.00	1,918.00	1,935.00	1,918.00	40.86	25.94	-90.00	-1,258.57	-4,126.14	2,496.73	2,456.67	40.06	62.324	
3,200.00	1,918.00	1,935.00	1,918.00	43.21	25.94	-90.00	-1,258.57	-4,126.14	2,404.81	2,363.68	41.13	58.472	
3,300.00	1,918.00	1,935.00	1,918.00	45.58	25.94	-90.00	-1,258.57	-4,126.14	2,313.55	2,271.18	42.38	54.597	
3,400.00	1,918.00	1,935.00	1,918.00	47.95	25.94	-90.00	-1,258.57	-4,126.14	2,223.05	2,179.24	43.81	50.741	
3,500.00	1,918.00	1,935.00	1,918.00	50.34	25.94	-90.00	-1,258.57	-4,126.14	2,133.40	2,087.95	45.45	46.943	
3,600.00	1,918.00	1,935.00	1,918.00	52.73	25.94	-90.00	-1,258.57	-4,126.14	2,044.71	1,997.41	47.29	43.235	
3,700.00	1,918.00	1,935.00	1,918.00	55.14	25.94	-90.00	-1,258.57	-4,126.14	1,957.10	1,907.74	49.36	39.648	
3,800.00	1,918.00	1,935.00	1,918.00	57.54	25.94	-90.00	-1,258.57	-4,126.14	1,870.74	1,819.07	51.67	36.204	
3,900.00	1,918.00	1,935.00	1,918.00	59.95	25.94	-90.00	-1,258.57	-4,126.14	1,785.81	1,731.57	54.24	32.925	
4,000.00	1,918.00	1,935.00	1,918.00	62.37	25.94	-90.00	-1,258.57	-4,126.14	1,702.51	1,645.43	57.08	29.825	
4,100.00	1,918.00	1,935.00	1,918.00	64.79	25.94	-90.00	-1,258.57	-4,126.14	1,621.10	1,560.87	60.23	26.915	
4,200.00	1,918.00	1,935.00	1,918.00	67.21	25.94	-90.00	-1,258.57	-4,126.14	1,541.88	1,478.19	63.70	24.207	
4,300.00	1,918.00	1,935.00	1,918.00	69.64	25.94	-90.00	-1,258.57	-4,126.14	1,465.21	1,397.70	67.51	21.705	
4,400.00	1,918.00	1,935.00	1,918.00	72.07	25.94	-90.00	-1,258.57	-4,126.14	1,391.50	1,319.82	71.68	19.414	
4,500.00	1,918.00	1,935.00	1,918.00	74.51	25.94	-90.00	-1,258.57	-4,126.14	1,321.25	1,245.04	76.21	17.336	
4,600.00	1,918.00	1,935.00	1,918.00	76.94	25.94	-90.00	-1,258.57	-4,126.14	1,255.04	1,173.93	81.11	15.473	
4,700.00	1,918.00	1,935.00	1,918.00	79.38	25.94	-90.00	-1,258.57	-4,126.14	1,193.55	1,107.21	86.34	13.823	
4,800.00	1,918.00	1,935.00	1,918.00	81.82	25.94	-90.00	-1,258.57	-4,126.14	1,137.54	1,045.69	91.85	12.385	
4,900.00	1,918.00	1,935.00	1,918.00	84.26	25.94	-90.00	-1,258.57	-4,126.14	1,087.85	990.32	97.53	11.154	
5,000.00	1,918.00	1,935.00	1,918.00	86.71	25.94	-90.00	-1,258.57	-4,126.14	1,045.40	942.16	103.24	10.126	
5,100.00	1,918.00	1,935.00	1,918.00	89.15	25.94	-90.00	-1,258.57	-4,126.14	1,011.08	902.30	108.78	9.295	
5,200.00	1,918.00	1,935.00	1,918.00	91.59	25.94	-90.00	-1,258.57	-4,126.14	985.76	871.84	113.92	8.653	
5,300.00	1,918.00	1,935.00	1,918.00	94.04	25.94	-90.00	-1,258.57	-4,126.14	970.13	851.72	118.41	8.193	
5,400.00	1,918.00	1,935.00	1,918.00	96.49	25.94	-90.00	-1,258.57	-4,126.14	964.67	842.62	122.04	7.904	
5,402.85	1,918.00	1,935.00	1,918.00	96.56	25.94	-90.00	-1,258.57	-4,126.14	964.66	842.53	122.13	7.899	CC, ES
5,500.00	1,918.00	1,935.00	1,918.00	98.94	25.94	-90.00	-1,258.57	-4,126.14	969.54	844.87	124.67	7.777	SF
5,600.00	1,918.00	1,935.00	1,918.00	101.39	25.94	-90.00	-1,258.57	-4,126.14	984.60	858.37	126.23	7.800	
5,700.00	1,918.00	1,935.00	1,918.00	103.84	25.94	-90.00	-1,258.57	-4,126.14	1,009.39	882.61	126.79	7.961	
5,800.00	1,918.00	1,935.00	1,918.00	106.29	25.94	-90.00	-1,258.57	-4,126.14	1,043.22	916.77	126.45	8.250	
5,900.00	1,918.00	1,935.00	1,918.00	108.75	25.94	-90.00	-1,258.57	-4,126.14	1,085.23	959.85	125.39	8.655	
6,000.00	1,918.00	1,935.00	1,918.00	111.20	25.94	-90.00	-1,258.57	-4,126.14	1,134.53	1,010.75	123.78	9.165	
6,100.00	1,918.00	1,935.00	1,918.00	113.66	25.94	-90.00	-1,258.57	-4,126.14	1,190.21	1,068.40	121.81	9.771	
6,200.00	1,918.00	1,935.00	1,918.00	116.11	25.94	-90.00	-1,258.57	-4,126.14	1,251.41	1,131.80	119.61	10.463	
6,300.00	1,918.00	1,935.00	1,918.00	118.57	25.94	-90.00	-1,258.57	-4,126.14	1,317.37	1,200.08	117.29	11.232	
6,400.00	1,918.00	1,935.00	1,918.00	121.02	25.94	-90.00	-1,258.57	-4,126.14	1,387.40	1,272.47	114.93	12.071	
6,500.00	1,918.00	1,935.00	1,918.00	123.48	25.94	-90.00	-1,258.57	-4,126.14	1,460.93	1,348.33	112.61	12.974	
6,600.00	1,918.00	1,935.00	1,918.00	125.94	25.94	-90.00	-1,258.57	-4,126.14	1,537.45	1,427.11	110.34	13.933	
6,700.00	1,918.00	1,935.00	1,918.00	128.40	25.94	-90.00	-1,258.57	-4,126.14	1,616.53	1,508.36	108.17	14.944	
6,800.00	1,918.00	1,935.00	1,918.00	130.86	25.94	-90.00	-1,258.57	-4,126.14	1,697.83	1,591.72	106.10	16.002	
6,900.00	1,918.00	1,935.00	1,918.00	133.32	25.94	-90.00	-1,258.57	-4,126.14	1,781.02	1,676.88	104.14	17.102	
7,000.00	1,918.00	1,935.00	1,918.00	135.77	25.94	-90.00	-1,258.57	-4,126.14	1,865.87	1,763.57	102.30	18.240	
7,100.00	1,918.00	1,935.00	1,918.00	138.23	25.94	-90.00	-1,258.57	-4,126.14	1,952.15	1,851.59	100.56	19.413	
7,200.00	1,918.00	1,935.00	1,918.00	140.69	25.94	-90.00	-1,258.57	-4,126.14	2,039.69	1,940.76	98.93	20.617	
7,300.00	1,918.00	1,935.00	1,918.00	143.16	25.94	-90.00	-1,258.57	-4,126.14	2,128.32	2,030.92	97.40	21.851	
7,400.00	1,918.00	1,935.00	1,918.00	145.62	25.94	-90.00	-1,258.57	-4,126.14	2,217.93	2,121.96	95.97	23.111	
7,500.00	1,918.00	1,935.00	1,918.00	148.08	25.94	-90.00	-1,258.57	-4,126.14	2,308.38	2,213.76	94.62	24.395	
7,600.00	1,918.00	1,935.00	1,918.00	150.54	25.94	-90.00	-1,258.57	-4,126.14	2,399.60	2,306.23	93.36	25.702	
7,700.00	1,918.00	1,935.00	1,918.00	153.00	25.94	-90.00	-1,258.57	-4,126.14	2,491.48	2,399.30	92.18	27.029	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Liam Federal Pad - Red Lake 32 Stae 2H - 2H - 2H AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 58-MWD — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
600.00	599.82	6,785.79	2,981.56	3.10	96.29	128.59	664.55	50.32	2,473.75	2,431.34	42.41	58.335	
700.00	698.54	6,802.00	2,981.86	4.13	96.69	138.90	664.86	34.12	2,380.48	2,337.14	43.34	54.925	
800.00	795.09	6,830.03	2,982.40	4.97	97.38	145.15	665.34	6.10	2,290.84	2,246.24	44.60	51.361	
900.00	888.40	6,872.82	2,983.07	5.68	98.43	148.89	666.13	-36.67	2,205.88	2,159.62	46.26	47.684	
1,000.00	977.46	6,929.17	2,983.67	6.31	99.81	151.12	667.29	-93.01	2,126.59	2,078.25	48.34	43.993	
1,100.00	1,061.29	6,997.64	2,983.77	6.87	101.48	152.34	669.03	-161.45	2,053.76	2,002.91	50.86	40.384	
1,200.00	1,138.97	7,075.46	2,982.91	7.37	103.39	152.90	671.65	-239.23	1,988.16	1,934.34	53.82	36.941	
1,300.00	1,211.86	7,125.70	2,982.12	7.66	104.62	152.26	673.63	-289.42	1,928.68	1,872.06	56.62	34.064	
1,400.00	1,284.57	7,178.00	2,981.82	8.59	105.90	151.06	675.65	-341.68	1,871.22	1,811.52	59.70	31.344	
1,500.00	1,357.27	7,229.81	2,982.10	9.93	107.18	149.87	677.28	-393.47	1,815.59	1,752.56	63.03	28.805	
1,600.00	1,429.98	7,294.49	2,983.18	11.29	108.76	148.35	678.40	-458.12	1,761.70	1,694.96	66.74	26.395	
1,700.00	1,502.69	7,374.17	2,984.15	12.67	110.72	146.41	679.65	-537.79	1,709.07	1,638.13	70.93	24.094	
1,800.00	1,575.39	7,439.54	2,984.30	14.06	112.32	144.73	681.31	-603.14	1,657.94	1,582.62	75.32	22.012	
1,900.00	1,646.19	7,504.95	2,984.16	15.48	113.93	144.25	683.46	-668.51	1,610.55	1,530.47	80.08	20.111	
2,000.00	1,707.27	7,588.05	2,984.73	17.12	115.97	143.92	685.09	-751.59	1,573.96	1,488.55	85.41	18.428	
2,100.00	1,758.56	7,688.02	2,984.57	18.95	118.43	142.49	686.25	-851.56	1,546.58	1,455.65	90.93	17.008	
2,200.00	1,808.56	7,773.57	2,983.43	20.81	120.52	140.77	687.91	-937.08	1,521.54	1,425.12	96.42	15.780	
2,300.00	1,856.63	7,861.57	2,981.37	22.73	122.68	138.75	690.32	-1,025.02	1,498.86	1,396.69	102.17	14.670	
2,400.00	1,892.19	7,960.64	2,977.64	24.89	125.11	136.98	693.98	-1,123.95	1,482.67	1,374.84	107.83	13.751	
2,500.00	1,912.77	8,010.00	2,975.43	27.14	126.32	136.32	695.94	-1,173.22	1,473.81	1,362.02	111.79	13.184	
2,527.09	1,915.78	8,010.00	2,975.43	27.74	126.32	136.25	695.94	-1,173.22	1,473.37	1,361.00	112.37	13.111	CC, ES
2,600.00	1,918.00	8,010.00	2,975.43	29.38	126.32	135.94	695.94	-1,173.22	1,477.00	1,363.57	113.43	13.022	SF
2,700.00	1,918.00	8,010.00	2,975.43	31.62	126.32	135.94	695.94	-1,173.22	1,488.98	1,374.76	114.22	13.037	
2,800.00	1,918.00	8,010.00	2,975.43	33.89	126.32	135.94	695.94	-1,173.22	1,507.51	1,392.98	114.53	13.162	
2,900.00	1,918.00	8,010.00	2,975.43	36.19	126.32	135.94	695.94	-1,173.22	1,532.36	1,417.96	114.40	13.394	
3,000.00	1,918.00	8,010.00	2,975.43	38.52	126.32	135.94	695.94	-1,173.22	1,563.22	1,449.35	113.87	13.728	
3,100.00	1,918.00	8,010.00	2,975.43	40.86	126.32	135.94	695.94	-1,173.22	1,599.75	1,486.77	112.98	14.160	
3,200.00	1,918.00	8,010.00	2,975.43	43.21	126.32	135.94	695.94	-1,173.22	1,641.56	1,529.77	111.79	14.684	
3,300.00	1,918.00	8,010.00	2,975.43	45.58	126.32	135.94	695.94	-1,173.22	1,688.27	1,577.91	110.36	15.298	
3,400.00	1,918.00	8,010.00	2,975.43	47.95	126.32	135.94	695.94	-1,173.22	1,739.48	1,630.74	108.74	15.996	
3,500.00	1,918.00	8,010.00	2,975.43	50.34	126.32	135.94	695.94	-1,173.22	1,794.81	1,687.82	106.99	16.775	
3,600.00	1,918.00	8,010.00	2,975.43	52.73	126.32	135.94	695.94	-1,173.22	1,853.88	1,748.73	105.15	17.631	
3,700.00	1,918.00	8,010.00	2,975.43	55.14	126.32	135.94	695.94	-1,173.22	1,916.35	1,813.10	103.25	18.561	
3,800.00	1,918.00	8,010.00	2,975.43	57.54	126.32	135.94	695.94	-1,173.22	1,981.90	1,880.58	101.32	19.560	
3,900.00	1,918.00	8,010.00	2,975.43	59.95	126.32	135.94	695.94	-1,173.22	2,050.24	1,950.84	99.40	20.626	
4,000.00	1,918.00	8,010.00	2,975.43	62.37	126.32	135.94	695.94	-1,173.22	2,121.09	2,023.59	97.50	21.755	
4,100.00	1,918.00	8,010.00	2,975.43	64.79	126.32	135.94	695.94	-1,173.22	2,194.21	2,098.58	95.63	22.945	
4,200.00	1,918.00	8,010.00	2,975.43	67.21	126.32	135.94	695.94	-1,173.22	2,269.38	2,175.57	93.81	24.192	
4,300.00	1,918.00	8,010.00	2,975.43	69.64	126.32	135.94	695.94	-1,173.22	2,346.40	2,254.37	92.04	25.494	
4,400.00	1,918.00	8,010.00	2,975.43	72.07	126.32	135.94	695.94	-1,173.22	2,425.11	2,334.78	90.33	26.848	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Malco B 6 Fed Com - Fred Federal 2 PA 00801 - #2 - #2 AsDrlled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	1,918.00	1,922.00	1,918.00	84.26	33.55	-90.00	-1,892.96	-5,443.87	2,427.54	2,342.35	85.19	28.495	
5,000.00	1,918.00	1,922.00	1,918.00	86.71	33.55	-90.00	-1,892.96	-5,443.87	2,353.78	2,265.11	88.67	26.546	
5,100.00	1,918.00	1,922.00	1,918.00	89.15	33.55	-90.00	-1,892.96	-5,443.87	2,282.02	2,189.69	92.33	24.716	
5,200.00	1,918.00	1,922.00	1,918.00	91.59	33.55	-90.00	-1,892.96	-5,443.87	2,212.46	2,116.28	96.17	23.005	
5,300.00	1,918.00	1,922.00	1,918.00	94.04	33.55	-90.00	-1,892.96	-5,443.87	2,145.30	2,045.09	100.21	21.409	
5,400.00	1,918.00	1,922.00	1,918.00	96.49	33.55	-90.00	-1,892.96	-5,443.87	2,080.78	1,976.36	104.42	19.927	
5,500.00	1,918.00	1,922.00	1,918.00	98.94	33.55	-90.00	-1,892.96	-5,443.87	2,019.16	1,910.35	108.81	18.558	
5,600.00	1,918.00	1,922.00	1,918.00	101.39	33.55	-90.00	-1,892.96	-5,443.87	1,960.70	1,847.35	113.35	17.298	
5,700.00	1,918.00	1,922.00	1,918.00	103.84	33.55	-90.00	-1,892.96	-5,443.87	1,905.70	1,787.68	118.02	16.147	
5,800.00	1,918.00	1,922.00	1,918.00	106.29	33.55	-90.00	-1,892.96	-5,443.87	1,854.46	1,731.66	122.80	15.101	
5,900.00	1,918.00	1,922.00	1,918.00	108.75	33.55	-90.00	-1,892.96	-5,443.87	1,807.31	1,679.66	127.65	14.159	
6,000.00	1,918.00	1,922.00	1,918.00	111.20	33.55	-90.00	-1,892.96	-5,443.87	1,764.57	1,632.06	132.51	13.317	
6,100.00	1,918.00	1,922.00	1,918.00	113.66	33.55	-90.00	-1,892.96	-5,443.87	1,726.57	1,589.24	137.34	12.572	
6,200.00	1,918.00	1,922.00	1,918.00	116.11	33.55	-90.00	-1,892.96	-5,443.87	1,693.63	1,551.57	142.06	11.922	
6,300.00	1,918.00	1,922.00	1,918.00	118.57	33.55	-90.00	-1,892.96	-5,443.87	1,666.05	1,519.44	146.62	11.363	
6,400.00	1,918.00	1,922.00	1,918.00	121.02	33.55	-90.00	-1,892.96	-5,443.87	1,644.10	1,493.18	150.93	10.893	
6,500.00	1,918.00	1,922.00	1,918.00	123.48	33.55	-90.00	-1,892.96	-5,443.87	1,628.01	1,473.09	154.92	10.509	
6,600.00	1,918.00	1,922.00	1,918.00	125.94	33.55	-90.00	-1,892.96	-5,443.87	1,617.95	1,459.41	158.54	10.206	
6,700.00	1,918.00	1,922.00	1,918.00	128.40	33.55	-90.00	-1,892.96	-5,443.87	1,614.03	1,452.32	161.71	9.981	
6,713.29	1,918.00	1,922.00	1,918.00	128.72	33.55	-90.00	-1,892.96	-5,443.87	1,613.98	1,451.88	162.10	9.957	CC, ES
6,800.00	1,918.00	1,922.00	1,918.00	130.86	33.55	-90.00	-1,892.96	-5,443.87	1,616.31	1,451.90	164.40	9.831	
6,900.00	1,918.00	1,922.00	1,918.00	133.32	33.55	-90.00	-1,892.96	-5,443.87	1,624.74	1,458.16	166.58	9.753	
7,000.00	1,918.00	1,922.00	1,918.00	135.77	33.55	-90.00	-1,892.96	-5,443.87	1,639.25	1,471.00	168.25	9.743	SF
7,100.00	1,918.00	1,922.00	1,918.00	138.23	33.55	-90.00	-1,892.96	-5,443.87	1,659.66	1,490.26	169.40	9.797	
7,200.00	1,918.00	1,922.00	1,918.00	140.69	33.55	-90.00	-1,892.96	-5,443.87	1,685.77	1,515.70	170.07	9.912	
7,300.00	1,918.00	1,922.00	1,918.00	143.16	33.55	-90.00	-1,892.96	-5,443.87	1,717.31	1,547.02	170.29	10.085	
7,400.00	1,918.00	1,922.00	1,918.00	145.62	33.55	-90.00	-1,892.96	-5,443.87	1,753.99	1,583.90	170.10	10.312	
7,500.00	1,918.00	1,922.00	1,918.00	148.08	33.55	-90.00	-1,892.96	-5,443.87	1,795.51	1,625.95	169.55	10.590	
7,600.00	1,918.00	1,922.00	1,918.00	150.54	33.55	-90.00	-1,892.96	-5,443.87	1,841.52	1,672.81	168.71	10.915	
7,700.00	1,918.00	1,922.00	1,918.00	153.00	33.55	-90.00	-1,892.96	-5,443.87	1,891.70	1,724.09	167.61	11.286	
7,800.00	1,918.00	1,922.00	1,918.00	155.46	33.55	-90.00	-1,892.96	-5,443.87	1,945.73	1,779.42	166.31	11.700	
7,900.00	1,918.00	1,922.00	1,918.00	157.92	33.55	-90.00	-1,892.96	-5,443.87	2,003.30	1,838.45	164.85	12.152	
8,000.00	1,918.00	1,922.00	1,918.00	160.39	33.55	-90.00	-1,892.96	-5,443.87	2,064.11	1,900.84	163.27	12.642	
8,100.00	1,918.00	1,922.00	1,918.00	162.85	33.55	-90.00	-1,892.96	-5,443.87	2,127.88	1,966.28	161.60	13.167	
8,200.00	1,918.00	1,922.00	1,918.00	165.31	33.55	-90.00	-1,892.96	-5,443.87	2,194.36	2,034.48	159.88	13.725	
8,300.00	1,918.00	1,922.00	1,918.00	167.77	33.55	-90.00	-1,892.96	-5,443.87	2,263.31	2,105.18	158.13	14.313	
8,400.00	1,918.00	1,922.00	1,918.00	170.24	33.55	-90.00	-1,892.96	-5,443.87	2,334.51	2,178.14	156.36	14.930	
8,500.00	1,918.00	1,922.00	1,918.00	172.70	33.55	-90.00	-1,892.96	-5,443.87	2,407.75	2,253.15	154.60	15.574	
8,600.00	1,918.00	1,922.00	1,918.00	175.17	33.55	-90.00	-1,892.96	-5,443.87	2,482.86	2,330.01	152.86	16.243	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Malco B 6 Fed Com - Longhorns Federal 1 ACTIVE 36259 - 1 - 1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,600.00	1,918.00	1,922.00	1,918.00	52.73	33.55	-90.00	-2,019.08	-4,123.70	2,487.25	2,421.14	66.11	37.624	
3,700.00	1,918.00	1,922.00	1,918.00	55.14	33.55	-90.00	-2,019.08	-4,123.70	2,416.20	2,347.31	68.90	35.070	
3,800.00	1,918.00	1,922.00	1,918.00	57.54	33.55	-90.00	-2,019.08	-4,123.70	2,347.27	2,275.43	71.85	32.671	
3,900.00	1,918.00	1,922.00	1,918.00	59.95	33.55	-90.00	-2,019.08	-4,123.70	2,280.64	2,205.69	74.95	30.427	
4,000.00	1,918.00	1,922.00	1,918.00	62.37	33.55	-90.00	-2,019.08	-4,123.70	2,216.52	2,138.30	78.22	28.336	
4,100.00	1,918.00	1,922.00	1,918.00	64.79	33.55	-90.00	-2,019.08	-4,123.70	2,155.14	2,073.49	81.65	26.396	
4,200.00	1,918.00	1,922.00	1,918.00	67.21	33.55	-90.00	-2,019.08	-4,123.70	2,096.73	2,011.52	85.21	24.606	
4,300.00	1,918.00	1,922.00	1,918.00	69.64	33.55	-90.00	-2,019.08	-4,123.70	2,041.55	1,952.64	88.91	22.961	
4,400.00	1,918.00	1,922.00	1,918.00	72.07	33.55	-90.00	-2,019.08	-4,123.70	1,989.87	1,897.14	92.73	21.459	
4,500.00	1,918.00	1,922.00	1,918.00	74.51	33.55	-90.00	-2,019.08	-4,123.70	1,941.96	1,845.33	96.64	20.096	
4,600.00	1,918.00	1,922.00	1,918.00	76.94	33.55	-90.00	-2,019.08	-4,123.70	1,898.12	1,797.51	100.61	18.866	
4,700.00	1,918.00	1,922.00	1,918.00	79.38	33.55	-90.00	-2,019.08	-4,123.70	1,858.63	1,754.01	104.62	17.766	
4,800.00	1,918.00	1,922.00	1,918.00	81.82	33.55	-90.00	-2,019.08	-4,123.70	1,823.77	1,715.16	108.62	16.791	
4,900.00	1,918.00	1,922.00	1,918.00	84.26	33.55	-90.00	-2,019.08	-4,123.70	1,793.82	1,681.26	112.56	15.936	
5,000.00	1,918.00	1,922.00	1,918.00	86.71	33.55	-90.00	-2,019.08	-4,123.70	1,769.02	1,652.61	116.41	15.196	
5,100.00	1,918.00	1,922.00	1,918.00	89.15	33.55	-90.00	-2,019.08	-4,123.70	1,749.60	1,629.49	120.11	14.567	
5,200.00	1,918.00	1,922.00	1,918.00	91.59	33.55	-90.00	-2,019.08	-4,123.70	1,735.72	1,612.12	123.61	14.042	
5,300.00	1,918.00	1,922.00	1,918.00	94.04	33.55	-90.00	-2,019.08	-4,123.70	1,727.54	1,600.68	126.86	13.617	
5,391.77	1,918.00	1,922.00	1,918.00	96.29	33.55	-90.00	-2,019.08	-4,123.70	1,725.10	1,595.50	129.60	13.311	CC
5,400.00	1,918.00	1,922.00	1,918.00	96.49	33.55	-90.00	-2,019.08	-4,123.70	1,725.12	1,595.29	129.83	13.287	ES
5,500.00	1,918.00	1,922.00	1,918.00	98.94	33.55	-90.00	-2,019.08	-4,123.70	1,728.49	1,596.01	132.48	13.047	
5,600.00	1,918.00	1,922.00	1,918.00	101.39	33.55	-90.00	-2,019.08	-4,123.70	1,737.62	1,602.83	134.79	12.891	
5,700.00	1,918.00	1,922.00	1,918.00	103.84	33.55	-90.00	-2,019.08	-4,123.70	1,752.42	1,615.67	136.75	12.815	
5,800.00	1,918.00	1,922.00	1,918.00	106.29	33.55	-90.00	-2,019.08	-4,123.70	1,772.74	1,634.40	138.35	12.814	SF
5,900.00	1,918.00	1,922.00	1,918.00	108.75	33.55	-90.00	-2,019.08	-4,123.70	1,798.41	1,658.81	139.60	12.883	
6,000.00	1,918.00	1,922.00	1,918.00	111.20	33.55	-90.00	-2,019.08	-4,123.70	1,829.18	1,688.66	140.52	13.017	
6,100.00	1,918.00	1,922.00	1,918.00	113.66	33.55	-90.00	-2,019.08	-4,123.70	1,864.82	1,723.69	141.14	13.213	
6,200.00	1,918.00	1,922.00	1,918.00	116.11	33.55	-90.00	-2,019.08	-4,123.70	1,905.05	1,763.58	141.47	13.466	
6,300.00	1,918.00	1,922.00	1,918.00	118.57	33.55	-90.00	-2,019.08	-4,123.70	1,949.58	1,808.02	141.55	13.773	
6,400.00	1,918.00	1,922.00	1,918.00	121.02	33.55	-90.00	-2,019.08	-4,123.70	1,998.12	1,856.70	141.42	14.129	
6,500.00	1,918.00	1,922.00	1,918.00	123.48	33.55	-90.00	-2,019.08	-4,123.70	2,050.40	1,909.30	141.10	14.532	
6,600.00	1,918.00	1,922.00	1,918.00	125.94	33.55	-90.00	-2,019.08	-4,123.70	2,106.13	1,965.51	140.62	14.977	
6,700.00	1,918.00	1,922.00	1,918.00	128.40	33.55	-90.00	-2,019.08	-4,123.70	2,165.05	2,025.03	140.02	15.463	
6,800.00	1,918.00	1,922.00	1,918.00	130.86	33.55	-90.00	-2,019.08	-4,123.70	2,226.90	2,087.60	139.30	15.986	
6,900.00	1,918.00	1,922.00	1,918.00	133.32	33.55	-90.00	-2,019.08	-4,123.70	2,291.45	2,152.94	138.51	16.544	
7,000.00	1,918.00	1,922.00	1,918.00	135.77	33.55	-90.00	-2,019.08	-4,123.70	2,358.47	2,220.82	137.65	17.134	
7,100.00	1,918.00	1,922.00	1,918.00	138.23	33.55	-90.00	-2,019.08	-4,123.70	2,427.76	2,291.02	136.75	17.754	
7,200.00	1,918.00	1,922.00	1,918.00	140.69	33.55	-90.00	-2,019.08	-4,123.70	2,499.13	2,363.33	135.81	18.402	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Malco B 6 Fed Com - Malco B Federal 1 ACTIVE 00795 - 1 - 1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
3,800.00	1,918.00	1,830.00	1,826.00	57.54	31.94	-87.71	-2,600.50	-3,441.27	2,471.36	2,388.49	82.87	29.823	
3,900.00	1,918.00	1,830.00	1,826.00	59.95	31.94	-87.71	-2,600.50	-3,441.27	2,436.61	2,350.50	86.11	28.297	
4,000.00	1,918.00	1,830.00	1,826.00	62.37	31.94	-87.71	-2,600.50	-3,441.27	2,405.52	2,316.15	89.37	26.918	
4,100.00	1,918.00	1,830.00	1,826.00	64.79	31.94	-87.71	-2,600.50	-3,441.27	2,378.23	2,285.60	92.62	25.676	
4,200.00	1,918.00	1,830.00	1,826.00	67.21	31.94	-87.71	-2,600.50	-3,441.27	2,354.87	2,259.01	95.86	24.566	
4,300.00	1,918.00	1,830.00	1,826.00	69.64	31.94	-87.71	-2,600.50	-3,441.27	2,335.56	2,236.51	99.05	23.579	
4,400.00	1,918.00	1,830.00	1,826.00	72.07	31.94	-87.71	-2,600.50	-3,441.27	2,320.41	2,218.23	102.18	22.710	
4,500.00	1,918.00	1,830.00	1,826.00	74.51	31.94	-87.71	-2,600.50	-3,441.27	2,309.49	2,204.27	105.22	21.950	
4,600.00	1,918.00	1,830.00	1,826.00	76.94	31.94	-87.71	-2,600.50	-3,441.27	2,302.86	2,194.71	108.15	21.294	
4,700.00	1,918.00	1,830.00	1,826.00	79.38	31.94	-87.71	-2,600.50	-3,441.27	2,300.57	2,189.62	110.95	20.735	
4,702.78	1,918.00	1,830.00	1,826.00	79.45	31.94	-87.71	-2,600.50	-3,441.27	2,300.57	2,189.54	111.03	20.721	CC
4,800.00	1,918.00	1,830.00	1,826.00	81.82	31.94	-87.71	-2,600.50	-3,441.27	2,302.62	2,189.01	113.61	20.267	ES
4,900.00	1,918.00	1,830.00	1,826.00	84.26	31.94	-87.71	-2,600.50	-3,441.27	2,309.01	2,192.89	116.12	19.885	
5,000.00	1,918.00	1,830.00	1,826.00	86.71	31.94	-87.71	-2,600.50	-3,441.27	2,319.69	2,201.24	118.45	19.584	
5,100.00	1,918.00	1,830.00	1,826.00	89.15	31.94	-87.71	-2,600.50	-3,441.27	2,334.61	2,214.01	120.60	19.358	
5,200.00	1,918.00	1,830.00	1,826.00	91.59	31.94	-87.71	-2,600.50	-3,441.27	2,353.69	2,231.12	122.57	19.203	
5,300.00	1,918.00	1,830.00	1,826.00	94.04	31.94	-87.71	-2,600.50	-3,441.27	2,376.82	2,252.47	124.35	19.114	
5,400.00	1,918.00	1,830.00	1,826.00	96.49	31.94	-87.71	-2,600.50	-3,441.27	2,403.90	2,277.95	125.95	19.087	SF
5,500.00	1,918.00	1,830.00	1,826.00	98.94	31.94	-87.71	-2,600.50	-3,441.27	2,434.78	2,307.42	127.36	19.117	
5,600.00	1,918.00	1,830.00	1,826.00	101.39	31.94	-87.71	-2,600.50	-3,441.27	2,469.33	2,340.74	128.60	19.202	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Offset Design Malco B 6 Fed Com - Smith EtAl #1 00830 PA - #1 - #1 AsDrilled — **Offset Site Error:** 0.00 usft

Survey Program: 100-INC-ONLY — **Offset Well Error:** 0.00 usft

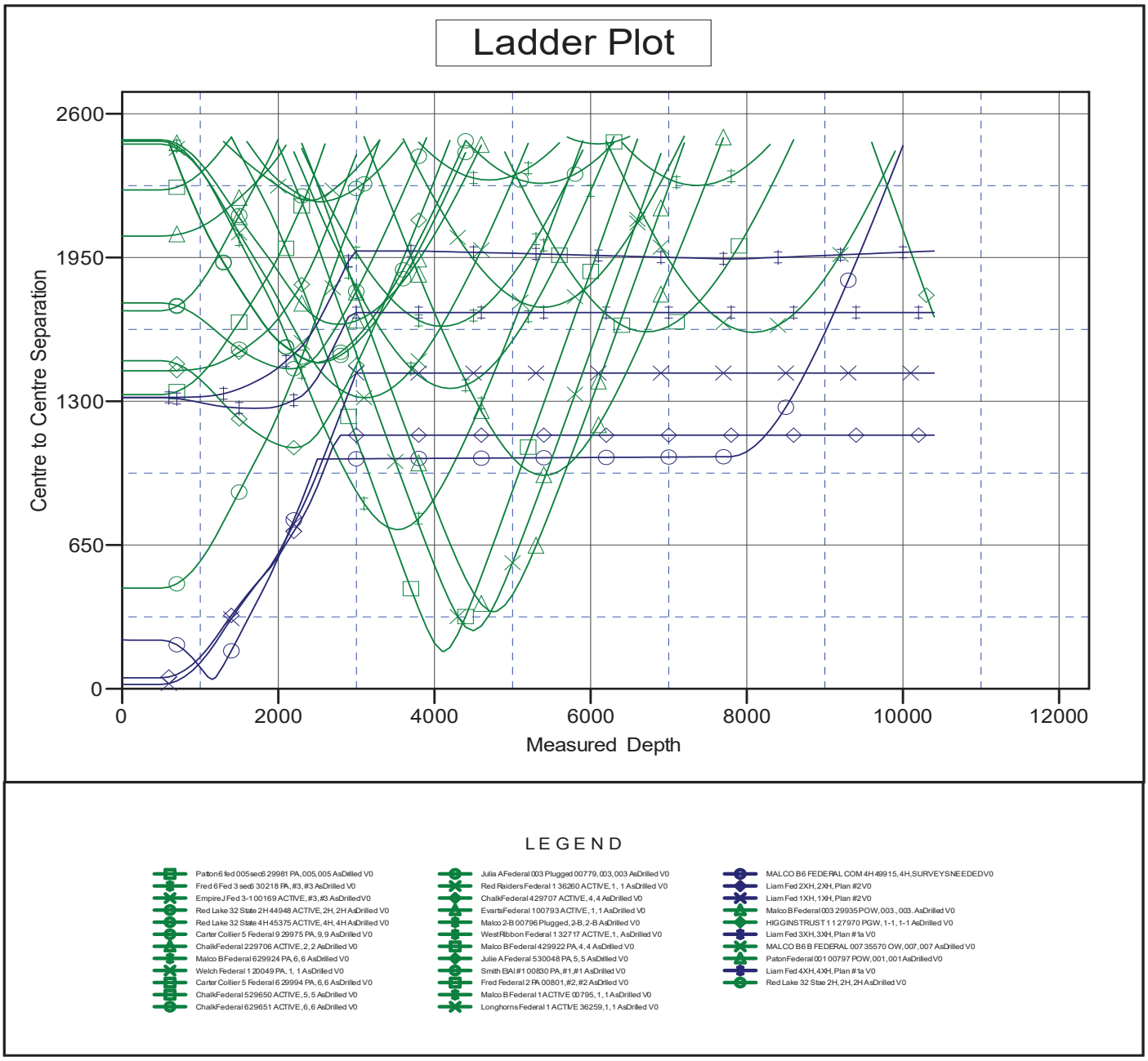
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,400.00	1,918.00	1,922.00	1,918.00	72.07	33.55	-90.00	-2,579.75	-4,100.17	2,479.63	2,382.36	97.26	25.494	
4,500.00	1,918.00	1,922.00	1,918.00	74.51	33.55	-90.00	-2,579.75	-4,100.17	2,442.57	2,341.82	100.75	24.243	
4,600.00	1,918.00	1,922.00	1,918.00	76.94	33.55	-90.00	-2,579.75	-4,100.17	2,409.11	2,304.85	104.25	23.108	
4,700.00	1,918.00	1,922.00	1,918.00	79.38	33.55	-90.00	-2,579.75	-4,100.17	2,379.37	2,271.63	107.74	22.084	
4,800.00	1,918.00	1,922.00	1,918.00	81.82	33.55	-90.00	-2,579.75	-4,100.17	2,353.52	2,242.32	111.19	21.166	
4,900.00	1,918.00	1,922.00	1,918.00	84.26	33.55	-90.00	-2,579.75	-4,100.17	2,331.67	2,217.08	114.59	20.348	
5,000.00	1,918.00	1,922.00	1,918.00	86.71	33.55	-90.00	-2,579.75	-4,100.17	2,313.94	2,196.03	117.91	19.625	
5,100.00	1,918.00	1,922.00	1,918.00	89.15	33.55	-90.00	-2,579.75	-4,100.17	2,300.42	2,179.30	121.12	18.993	
5,200.00	1,918.00	1,922.00	1,918.00	91.59	33.55	-90.00	-2,579.75	-4,100.17	2,291.19	2,166.99	124.20	18.448	
5,300.00	1,918.00	1,922.00	1,918.00	94.04	33.55	-90.00	-2,579.75	-4,100.17	2,286.30	2,159.17	127.13	17.984	
5,361.87	1,918.00	1,922.00	1,918.00	95.56	33.55	-90.00	-2,579.75	-4,100.17	2,285.46	2,156.60	128.87	17.735	CC
5,400.00	1,918.00	1,922.00	1,918.00	96.49	33.55	-90.00	-2,579.75	-4,100.17	2,285.78	2,155.88	129.90	17.597	ES
5,500.00	1,918.00	1,922.00	1,918.00	98.94	33.55	-90.00	-2,579.75	-4,100.17	2,289.63	2,157.15	132.48	17.283	
5,600.00	1,918.00	1,922.00	1,918.00	101.39	33.55	-90.00	-2,579.75	-4,100.17	2,297.84	2,162.97	134.87	17.038	
5,700.00	1,918.00	1,922.00	1,918.00	103.84	33.55	-90.00	-2,579.75	-4,100.17	2,310.34	2,173.30	137.04	16.858	
5,800.00	1,918.00	1,922.00	1,918.00	106.29	33.55	-90.00	-2,579.75	-4,100.17	2,327.08	2,188.07	139.01	16.740	
5,900.00	1,918.00	1,922.00	1,918.00	108.75	33.55	-90.00	-2,579.75	-4,100.17	2,347.96	2,207.20	140.76	16.681	
6,000.00	1,918.00	1,922.00	1,918.00	111.20	33.55	-90.00	-2,579.75	-4,100.17	2,372.88	2,230.58	142.30	16.676	SF
6,100.00	1,918.00	1,922.00	1,918.00	113.66	33.55	-90.00	-2,579.75	-4,100.17	2,401.70	2,258.08	143.63	16.722	
6,200.00	1,918.00	1,922.00	1,918.00	116.11	33.55	-90.00	-2,579.75	-4,100.17	2,434.30	2,289.55	144.75	16.817	
6,300.00	1,918.00	1,922.00	1,918.00	118.57	33.55	-90.00	-2,579.75	-4,100.17	2,470.51	2,324.83	145.69	16.958	

Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to 3458+19 @ 3477.00usft (savanna)
Offset Depths are relative to Offset Datum
Central Meridian is -104.3333333

Coordinates are relative to: Liam SA 6-1 Fed Com 101H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.02°



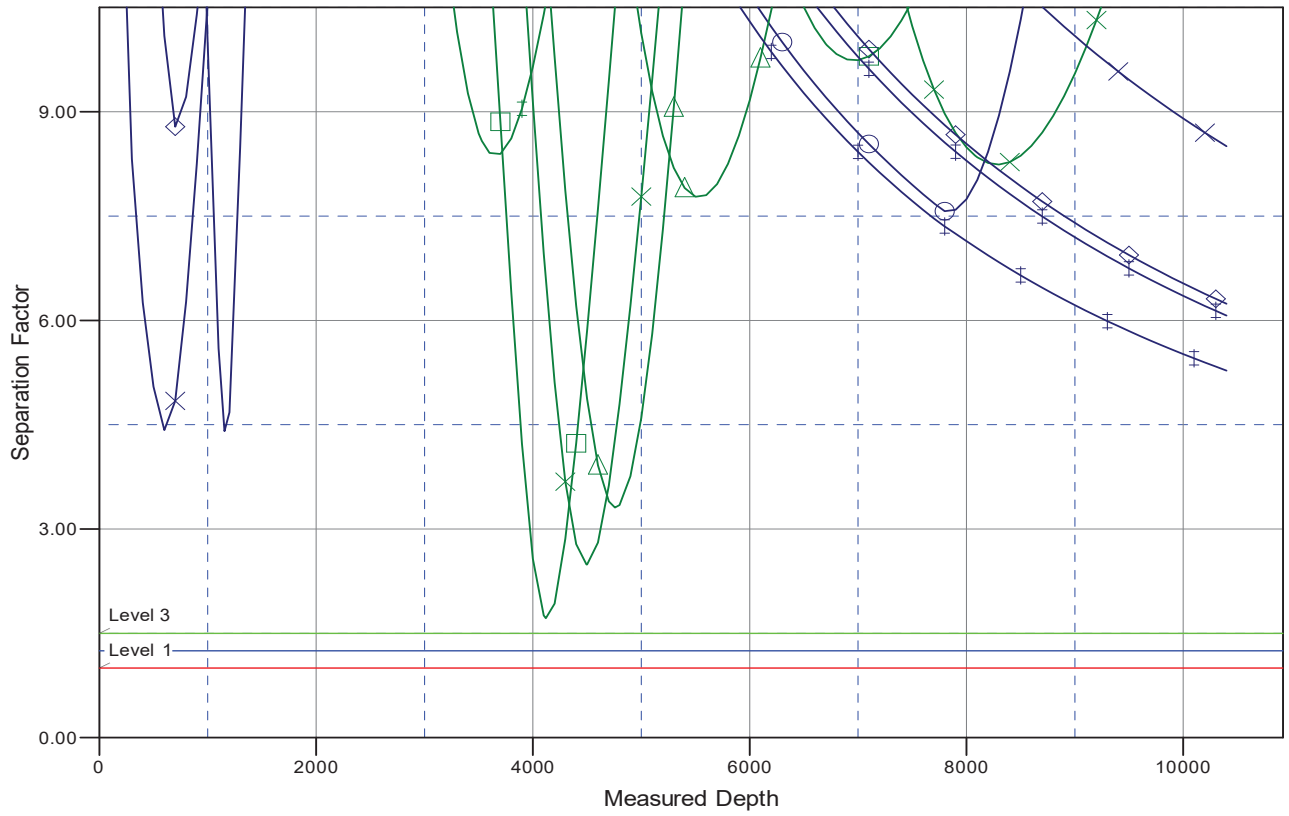
Anticollision Report

Company:	RILEY PERMIAN OPERATING CO,. LLC	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Project:	Eddy County, NM (NAD83) NMEZ Grid	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Reference Site:	Liam Federal Pad	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site Error:	0.00 usft	**North Reference:**	Grid
Reference Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	101H	**Database:**	EDM 5000.1 Single User Db
Reference Design:	Plan #1	**Offset TVD Reference:**	Reference Datum

Reference Depths are relative to 3458+19 @ 3477.00usft (savanna)
Offset Depths are relative to Offset Datum
Central Meridian is -104.3333333

Coordinates are relative to: Liam SA 6-1 Fed Com 101H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.02°

Separation Factor Plot



LEGEND

Patton 6 fed 005 sec6 29981 PA, 005,005 AsDrilled V0
Fred 6 Fed 3 sec6 30218 PA, #3, #3 AsDrilled V0
Empire J Fed 3-1 00169 ACTIVE, #3, #3 AsDrilled V0
Red Lake 32 State 2H 44948 ACTIVE, 2H, 2H AsDrilled V0
Red Lake 32 State 4H 45375 ACTIVE, 4H, 4H AsDrilled V0
Carter Collier 5 Federal 9 29975 PA, 9, 9 AsDrilled V0
ChalkFederal 229706 ACTIVE, 2, 2 AsDrilled V0
Malco B Federal 629924 PA, 6, 6 AsDrilled V0
Welch Federal 1 20049 PA, 1, 1 AsDrilled V0
Carter Collier 5 Federal 6 29994 PA, 6, 6 AsDrilled V0
ChalkFederal 529650 ACTIVE, 5, 5 AsDrilled V0
ChalkFederal 629651 ACTIVE, 6, 6 AsDrilled V0
Julia A Federal 003 Plugged 00779, 003, 003 AsDrilled V0
Red Raiders Federal 1 36260 ACTIVE, 1, 1 AsDrilled V0
ChalkFederal 429707 ACTIVE, 4, 4 AsDrilled V0
EvartsFederal 100793 ACTIVE, 1, 1 AsDrilled V0
Malco 2-B 00796 Plugged, 2-B, 2-B AsDrilled V0
West Ribbon Federal 1 32717 ACTIVE, 1, AsDrilled V0
Malco B Federal 429922 PA, 4, 4 AsDrilled V0
Julie A Federal 530048 PA, 5, 5 AsDrilled V0
Smith Etal #1 00830 PA, #1, #1 AsDrilled V0
Fred Federal 2 PA 00801, #2, #2 AsDrilled V0
Malco B Federal 1 ACTIVE 00795, 1, 1 AsDrilled V0
Longhorns Federal 1 ACTIVE 36259, 1, 1 AsDrilled V0
MALCO B6 FEDERAL COM 4H 49915, 4H, SURVEYS NEEDED V0
Liam Fed 2XH, 2XH, Plan #2 V0
Liam Fed 1XH, 1XH, Plan #2 V0
Malco B Federal 003 29935 POW, 003 , 003. AsDrilled V0
HIGGINS TRUST 1 1 27970 PGW, 1-1, 1-1 AsDrilled V0
Liam Fed 3XH, 3XH, Plan #1a V0
MALCO B6 B FEDERAL 007 35570 OW, 007, 007 AsDrilled V0
Paton Federal 001 00797 POW, 001, 001 AsDrilled V0
Liam Fed 4XH, 4XH, Plan #1a V0
Red Lake 32 Stae 2H, 2H, 2H AsDrilled V0

RILEY PERMIAN OPERATING CO,. LLC

Eddy County, NM (NAD83) NMEZ Grid
Liam Federal Pad
Liam SA 6-1 Fed Com 101H

101H

Plan: Plan #1

Standard Planning Report

22 July, 2026

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Project Eddy County, NM (NAD83) NMEZ Grid

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

Site Liam Federal Pad

Site Position:		**Northing:**	643,369.14 usft	**Latitude:**	32.7686532
From:	Lat/Long	**Easting:**	549,799.14 usft	**Longitude:**	-104.3058045
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.01 °

Well Liam SA 6-1 Fed Com 101H

Well Position	**+N/-S**	5,268.87 usft	**Northing:**	648,638.00 usft	**Latitude:**	32.7831354
	+E/-W	125.86 usft	**Easting:**	549,925.00 usft	**Longitude:**	-104.3053905
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,458.00 usft

Wellbore 101H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	07/21/26	6.54	60.11	47,145.70000000

Design Plan #1

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	270.65

Plan Survey Tool Program **Date** 07/22/26

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	10,417.99	Plan #1 (101H)	MWD	
				OWSG MWD - Standard	

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,222.65	43.36	252.99	1,155.62	-76.26	-249.23	6.00	6.00	0.00	252.99	
1,837.54	43.36	252.99	1,602.69	-199.78	-652.92	0.00	0.00	0.00	0.00	
2,046.47	60.00	255.00	1,731.79	-244.50	-810.00	8.00	7.96	0.96	6.07	
2,246.47	60.00	255.00	1,831.79	-289.33	-977.30	0.00	0.00	0.00	0.00	
2,581.44	90.00	270.65	1,918.00	-326.02	-1,293.95	10.00	8.96	4.67	29.26	
3,813.57	90.00	270.65	1,918.00	-312.02	-2,526.00	0.00	0.00	0.00	0.00	LIAM SA 6-1 FC 101H
5,146.66	90.00	270.65	1,918.00	-296.88	-3,859.01	0.00	0.00	0.00	0.00	LIAM SA 6-1 FC 101H
7,775.83	90.00	270.65	1,918.00	-267.01	-6,488.01	0.00	0.00	0.00	0.00	LIAM SA 6-1 FC 101H
10,328.00	90.00	270.65	1,918.00	-238.02	-9,040.01	0.00	0.00	0.00	0.00	LIAM SA 6-1 FC 101H
10,417.99	90.00	270.65	1,918.00	-237.00	-9,130.00	0.00	0.00	0.00	0.00	LIAM SA 6-1 FC 101H

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
208.00	0.00	0.00	208.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 6.00									
550.00	3.00	252.99	549.98	-0.38	-1.25	1.25	6.00	6.00	0.00
600.00	6.00	252.99	599.82	-1.53	-5.00	4.98	6.00	6.00	0.00
639.50	8.37	252.99	639.00	-2.98	-9.73	9.69	6.00	6.00	0.00
Queen									
650.00	9.00	252.99	649.38	-3.44	-11.24	11.20	6.00	6.00	0.00
700.00	12.00	252.99	698.54	-6.11	-19.95	19.88	6.00	6.00	0.00
750.00	15.00	252.99	747.15	-9.52	-31.11	31.00	6.00	6.00	0.00
800.00	18.00	252.99	795.09	-13.68	-44.69	44.53	6.00	6.00	0.00
850.00	21.00	252.99	842.22	-18.56	-60.65	60.44	6.00	6.00	0.00
900.00	24.00	252.99	888.40	-24.16	-78.95	78.67	6.00	6.00	0.00
950.00	27.00	252.99	933.53	-30.45	-99.53	99.17	6.00	6.00	0.00
1,000.00	30.00	252.99	977.46	-37.43	-122.34	121.91	6.00	6.00	0.00
1,050.00	33.00	252.99	1,020.09	-45.08	-147.32	146.80	6.00	6.00	0.00
1,100.00	36.00	252.99	1,061.29	-53.36	-174.39	173.78	6.00	6.00	0.00
1,150.00	39.00	252.99	1,100.96	-62.27	-203.50	202.78	6.00	6.00	0.00
1,150.06	39.00	252.99	1,101.00	-62.28	-203.53	202.81	0.00	0.00	0.00
Grayburg									
1,200.00	42.00	252.99	1,138.97	-71.77	-234.54	233.72	6.01	6.01	0.00
1,222.65	43.36	252.99	1,155.62	-76.26	-249.23	248.35	6.00	6.00	0.00
Start 614.89 hold at 1222.65 MD									
1,300.00	43.36	252.99	1,211.86	-91.80	-300.01	298.95	0.00	0.00	0.00
1,400.00	43.36	252.99	1,284.57	-111.89	-365.66	364.37	0.00	0.00	0.00
1,432.23	43.36	252.99	1,308.00	-118.36	-386.82	385.45	0.00	0.00	0.00
San Andres									
1,500.00	43.36	252.99	1,357.27	-131.98	-431.31	429.79	0.00	0.00	0.00
1,600.00	43.36	252.99	1,429.98	-152.06	-496.97	495.21	0.00	0.00	0.00
1,700.00	43.36	252.99	1,502.69	-172.15	-562.62	560.63	0.00	0.00	0.00
1,800.00	43.36	252.99	1,575.39	-192.24	-628.27	626.05	0.00	0.00	0.00
1,837.54	43.36	252.99	1,602.69	-199.78	-652.92	650.61	0.00	0.00	0.00
KOP Start DLS 8.00 TFO 6.07									
1,850.00	44.35	253.14	1,611.67	-202.30	-661.17	658.84	8.00	7.96	1.21
1,900.00	48.33	253.69	1,646.19	-212.61	-695.84	693.38	8.00	7.96	1.11
1,950.00	52.31	254.18	1,678.10	-223.25	-732.81	730.23	8.00	7.96	0.98
2,000.00	56.30	254.63	1,707.27	-234.16	-771.91	769.21	8.00	7.97	0.88
2,046.47	60.00	255.00	1,731.79	-244.50	-810.00	807.17	8.00	7.97	0.81
60DEG Start 200.00 hold at 2046.47 MD									
2,100.00	60.00	255.00	1,758.56	-256.50	-854.78	851.82	0.00	0.00	0.00
2,200.00	60.00	255.00	1,808.56	-278.91	-938.43	935.21	0.00	0.00	0.00
2,246.47	60.00	255.00	1,831.79	-289.33	-977.30	973.96	0.00	0.00	0.00
Start DLS 10.00 TFO 29.26									
2,250.00	60.31	255.20	1,833.55	-290.12	-980.26	976.91	10.00	8.73	5.63
2,300.00	64.70	257.89	1,856.63	-300.41	-1,023.39	1,019.91	10.00	8.79	5.39
2,350.00	69.14	260.39	1,876.23	-309.06	-1,068.55	1,064.97	10.00	8.88	5.01
2,400.00	73.61	262.75	1,892.19	-315.99	-1,115.41	1,111.75	10.00	8.95	4.72

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,450.00	78.11	265.01	1,904.40	-321.14	-1,163.60	1,159.88	10.00	9.00	4.50
2,500.00	82.63	267.18	1,912.77	-324.49	-1,212.77	1,209.01	10.00	9.03	4.36
2,550.00	87.15	269.32	1,917.22	-326.01	-1,262.53	1,258.75	10.00	9.05	4.27
2,580.02	89.87	270.59	1,918.00	-326.03	-1,292.54	1,288.75	10.00	9.06	4.24
Target									
2,581.44	90.00	270.65	1,918.00	-326.02	-1,293.95	1,290.17	10.00	9.06	4.23
FTP Start 1232.13 hold at 2581.44 MD									
2,600.00	90.00	270.65	1,918.00	-325.81	-1,312.51	1,308.73	0.00	0.00	0.00
2,700.00	90.00	270.65	1,918.00	-324.67	-1,412.51	1,408.73	0.00	0.00	0.00
2,800.00	90.00	270.65	1,918.00	-323.54	-1,512.50	1,508.73	0.00	0.00	0.00
2,900.00	90.00	270.65	1,918.00	-322.40	-1,612.49	1,608.73	0.00	0.00	0.00
3,000.00	90.00	270.65	1,918.00	-321.26	-1,712.49	1,708.73	0.00	0.00	0.00
3,100.00	90.00	270.65	1,918.00	-320.13	-1,812.48	1,808.73	0.00	0.00	0.00
3,200.00	90.00	270.65	1,918.00	-318.99	-1,912.47	1,908.73	0.00	0.00	0.00
3,300.00	90.00	270.65	1,918.00	-317.86	-2,012.47	2,008.73	0.00	0.00	0.00
3,400.00	90.00	270.65	1,918.00	-316.72	-2,112.46	2,108.73	0.00	0.00	0.00
3,500.00	90.00	270.65	1,918.00	-315.58	-2,212.45	2,208.73	0.00	0.00	0.00
3,600.00	90.00	270.65	1,918.00	-314.45	-2,312.45	2,308.73	0.00	0.00	0.00
3,700.00	90.00	270.65	1,918.00	-313.31	-2,412.44	2,408.73	0.00	0.00	0.00
3,800.00	90.00	270.65	1,918.00	-312.18	-2,512.44	2,508.73	0.00	0.00	0.00
3,813.57	90.00	270.65	1,918.00	-312.02	-2,526.00	2,522.30	0.00	0.00	0.00
PP1 Start 1333.10 hold at 3813.57 MD									
3,900.00	90.00	270.65	1,918.00	-311.04	-2,612.43	2,608.73	0.00	0.00	0.00
4,000.00	90.00	270.65	1,918.00	-309.90	-2,712.42	2,708.73	0.00	0.00	0.00
4,100.00	90.00	270.65	1,918.00	-308.77	-2,812.42	2,808.73	0.00	0.00	0.00
4,200.00	90.00	270.65	1,918.00	-307.63	-2,912.41	2,908.73	0.00	0.00	0.00
4,300.00	90.00	270.65	1,918.00	-306.50	-3,012.40	3,008.73	0.00	0.00	0.00
4,400.00	90.00	270.65	1,918.00	-305.36	-3,112.40	3,108.73	0.00	0.00	0.00
4,500.00	90.00	270.65	1,918.00	-304.22	-3,212.39	3,208.73	0.00	0.00	0.00
4,600.00	90.00	270.65	1,918.00	-303.09	-3,312.38	3,308.73	0.00	0.00	0.00
4,700.00	90.00	270.65	1,918.00	-301.95	-3,412.38	3,408.73	0.00	0.00	0.00
4,800.00	90.00	270.65	1,918.00	-300.82	-3,512.37	3,508.73	0.00	0.00	0.00
4,900.00	90.00	270.65	1,918.00	-299.68	-3,612.36	3,608.73	0.00	0.00	0.00
5,000.00	90.00	270.65	1,918.00	-298.54	-3,712.36	3,708.73	0.00	0.00	0.00
5,100.00	90.00	270.65	1,918.00	-297.41	-3,812.35	3,808.73	0.00	0.00	0.00
5,146.66	90.00	270.65	1,918.00	-296.88	-3,859.01	3,855.39	0.00	0.00	0.00
PP2 Start 2629.17 hold at 5146.66 MD									
5,200.00	90.00	270.65	1,918.00	-296.27	-3,912.35	3,908.73	0.00	0.00	0.00
5,300.00	90.00	270.65	1,918.00	-295.14	-4,012.34	4,008.73	0.00	0.00	0.00
5,400.00	90.00	270.65	1,918.00	-294.00	-4,112.33	4,108.73	0.00	0.00	0.00
5,500.00	90.00	270.65	1,918.00	-292.86	-4,212.33	4,208.73	0.00	0.00	0.00
5,600.00	90.00	270.65	1,918.00	-291.73	-4,312.32	4,308.73	0.00	0.00	0.00
5,700.00	90.00	270.65	1,918.00	-290.59	-4,412.31	4,408.73	0.00	0.00	0.00
5,800.00	90.00	270.65	1,918.00	-289.46	-4,512.31	4,508.73	0.00	0.00	0.00
5,900.00	90.00	270.65	1,918.00	-288.32	-4,612.30	4,608.73	0.00	0.00	0.00
6,000.00	90.00	270.65	1,918.00	-287.19	-4,712.29	4,708.73	0.00	0.00	0.00
6,100.00	90.00	270.65	1,918.00	-286.05	-4,812.29	4,808.73	0.00	0.00	0.00
6,200.00	90.00	270.65	1,918.00	-284.91	-4,912.28	4,908.73	0.00	0.00	0.00
6,300.00	90.00	270.65	1,918.00	-283.78	-5,012.27	5,008.73	0.00	0.00	0.00
6,400.00	90.00	270.65	1,918.00	-282.64	-5,112.27	5,108.73	0.00	0.00	0.00
6,500.00	90.00	270.65	1,918.00	-281.51	-5,212.26	5,208.73	0.00	0.00	0.00
6,600.00	90.00	270.65	1,918.00	-280.37	-5,312.25	5,308.73	0.00	0.00	0.00
6,700.00	90.00	270.65	1,918.00	-279.23	-5,412.25	5,408.73	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,800.00	90.00	270.65	1,918.00	-278.10	-5,512.24	5,508.73	0.00	0.00	0.00
6,900.00	90.00	270.65	1,918.00	-276.96	-5,612.24	5,608.73	0.00	0.00	0.00
7,000.00	90.00	270.65	1,918.00	-275.83	-5,712.23	5,708.73	0.00	0.00	0.00
7,100.00	90.00	270.65	1,918.00	-274.69	-5,812.22	5,808.73	0.00	0.00	0.00
7,200.00	90.00	270.65	1,918.00	-273.55	-5,912.22	5,908.73	0.00	0.00	0.00
7,300.00	90.00	270.65	1,918.00	-272.42	-6,012.21	6,008.73	0.00	0.00	0.00
7,400.00	90.00	270.65	1,918.00	-271.28	-6,112.20	6,108.73	0.00	0.00	0.00
7,500.00	90.00	270.65	1,918.00	-270.15	-6,212.20	6,208.73	0.00	0.00	0.00
7,600.00	90.00	270.65	1,918.00	-269.01	-6,312.19	6,308.73	0.00	0.00	0.00
7,700.00	90.00	270.65	1,918.00	-267.87	-6,412.18	6,408.73	0.00	0.00	0.00
7,775.83	90.00	270.65	1,918.00	-267.01	-6,488.01	6,484.57	0.00	0.00	0.00
PP3 Start 2552.16 hold at 7775.83 MD									
7,800.00	90.00	270.65	1,918.00	-266.74	-6,512.18	6,508.73	0.00	0.00	0.00
7,900.00	90.00	270.65	1,918.00	-265.60	-6,612.17	6,608.73	0.00	0.00	0.00
8,000.00	90.00	270.65	1,918.00	-264.47	-6,712.16	6,708.73	0.00	0.00	0.00
8,100.00	90.00	270.65	1,918.00	-263.33	-6,812.16	6,808.73	0.00	0.00	0.00
8,200.00	90.00	270.65	1,918.00	-262.19	-6,912.15	6,908.73	0.00	0.00	0.00
8,300.00	90.00	270.65	1,918.00	-261.06	-7,012.15	7,008.73	0.00	0.00	0.00
8,400.00	90.00	270.65	1,918.00	-259.92	-7,112.14	7,108.73	0.00	0.00	0.00
8,500.00	90.00	270.65	1,918.00	-258.79	-7,212.13	7,208.73	0.00	0.00	0.00
8,600.00	90.00	270.65	1,918.00	-257.65	-7,312.13	7,308.73	0.00	0.00	0.00
8,700.00	90.00	270.65	1,918.00	-256.52	-7,412.12	7,408.73	0.00	0.00	0.00
8,800.00	90.00	270.65	1,918.00	-255.38	-7,512.11	7,508.73	0.00	0.00	0.00
8,900.00	90.00	270.65	1,918.00	-254.24	-7,612.11	7,608.73	0.00	0.00	0.00
9,000.00	90.00	270.65	1,918.00	-253.11	-7,712.10	7,708.73	0.00	0.00	0.00
9,100.00	90.00	270.65	1,918.00	-251.97	-7,812.09	7,808.73	0.00	0.00	0.00
9,200.00	90.00	270.65	1,918.00	-250.84	-7,912.09	7,908.73	0.00	0.00	0.00
9,300.00	90.00	270.65	1,918.00	-249.70	-8,012.08	8,008.73	0.00	0.00	0.00
9,400.00	90.00	270.65	1,918.00	-248.56	-8,112.07	8,108.73	0.00	0.00	0.00
9,500.00	90.00	270.65	1,918.00	-247.43	-8,212.07	8,208.73	0.00	0.00	0.00
9,600.00	90.00	270.65	1,918.00	-246.29	-8,312.06	8,308.73	0.00	0.00	0.00
9,700.00	90.00	270.65	1,918.00	-245.16	-8,412.05	8,408.73	0.00	0.00	0.00
9,800.00	90.00	270.65	1,918.00	-244.02	-8,512.05	8,508.73	0.00	0.00	0.00
9,900.00	90.00	270.65	1,918.00	-242.88	-8,612.04	8,608.73	0.00	0.00	0.00
10,000.00	90.00	270.65	1,918.00	-241.75	-8,712.04	8,708.73	0.00	0.00	0.00
10,100.00	90.00	270.65	1,918.00	-240.61	-8,812.03	8,808.73	0.00	0.00	0.00
10,200.00	90.00	270.65	1,918.00	-239.48	-8,912.02	8,908.73	0.00	0.00	0.00
10,300.00	90.00	270.65	1,918.00	-238.34	-9,012.02	9,008.73	0.00	0.00	0.00
10,328.00	90.00	270.65	1,918.00	-238.02	-9,040.01	9,036.73	0.00	0.00	0.00
LMP Start 89.99 hold at 10328.00 MD									
10,400.00	90.00	270.65	1,918.00	-237.20	-9,112.01	9,108.73	0.00	0.00	0.00
10,417.99	90.00	270.65	1,918.00	-237.00	-9,130.00	9,126.72	0.00	0.00	0.00
PBHL TD at 10417.99									

Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LIAM SA 6-1 FC 101H S - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	648,638.00	549,925.00	32.7831354	-104.3053905
LIAM SA 6-1 FC 101H K - plan hits target center - Point	0.00	0.00	1,602.69	-199.78	-652.92	648,438.22	549,272.08	32.7825867	-104.3075152
LIAM SA 6-1 FC 101H 6 - plan hits target center - Point	0.00	0.00	1,731.79	-244.50	-810.00	648,393.50	549,115.00	32.7824639	-104.3080264
LIAM SA 6-1 FC 101H L - plan misses target center by 1.02usft at 10328.00usft MD (1918.00 TVD, -238.02 N, -9040.01 E) - Point	0.00	0.01	1,918.00	-237.00	-9,040.00	648,401.00	540,885.00	32.7824871	-104.3348057
LIAM SA 6-1 FC 101H P - plan misses target center by 1.01usft at 7775.83usft MD (1918.00 TVD, -267.01 N, -6488.01 E) - Point	0.00	0.00	1,918.00	-266.00	-6,488.00	648,372.00	543,437.00	32.7824072	-104.3265018
LIAM SA 6-1 FC 101H P - plan misses target center by 0.88usft at 5146.66usft MD (1918.00 TVD, -296.88 N, -3859.01 E) - Point	0.00	0.00	1,918.00	-296.00	-3,859.00	648,342.00	546,066.00	32.7823240	-104.3179474
LIAM SA 6-1 FC 101H P - plan misses target center by 0.02usft at 3813.57usft MD (1918.00 TVD, -312.02 N, -2526.00 E) - Point	0.00	0.00	1,918.00	-312.00	-2,526.00	648,326.00	547,399.00	32.7822794	-104.3136100
LIAM SA 6-1 FC 101H P - plan hits target center - Point	0.00	0.01	1,918.00	-237.00	-9,130.00	648,401.00	540,795.00	32.7824871	-104.3350985
LIAM SA 6-1 FC 101H F - plan misses target center by 0.02usft at 2581.49usft MD (1918.00 TVD, -326.02 N, -1294.00 E) - Point	0.00	0.00	1,918.00	-326.00	-1,294.00	648,312.00	548,631.00	32.7822402	-104.3096013

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
208.00	208.00	Seven Rivers			
639.50	639.00	Queen			
1,150.06	1,101.00	Grayburg			
1,432.23	1,308.00	San Andres			
2,580.02	1,918.00	Target			

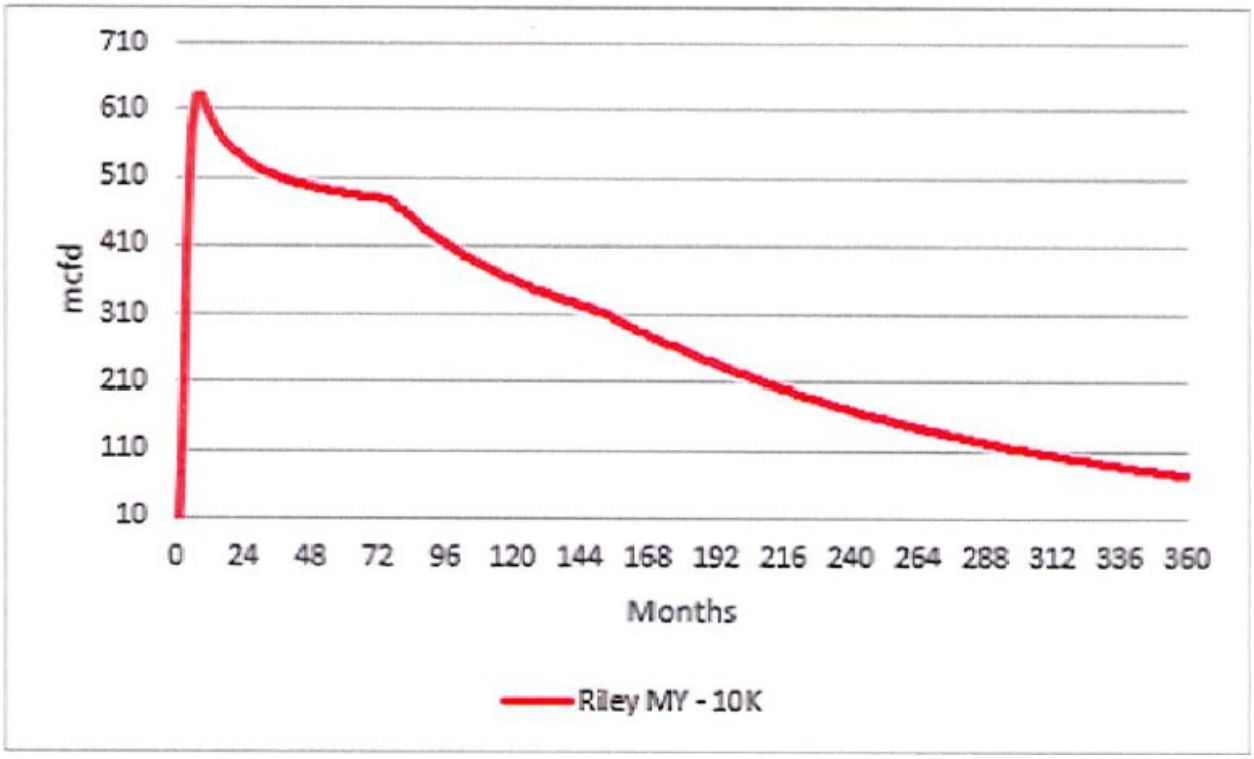
Planning Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Liam SA 6-1 Fed Com 101H
Company:	RILEY PERMIAN OPERATING CO,. LLC	**TVD Reference:**	3458+19 @ 3477.00usft (savanna)
Project:	Eddy County, NM (NAD83) NMEZ Grid	**MD Reference:**	3458+19 @ 3477.00usft (savanna)
Site:	Liam Federal Pad	**North Reference:**	Grid
Well:	Liam SA 6-1 Fed Com 101H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	101H		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 6.00
1,222.65	1,155.62	-76.26	-249.23	Start 614.89 hold at 1222.65 MD
1,837.54	1,602.69	-199.78	-652.92	KOP Start DLS 8.00 TFO 6.07
2,046.47	1,731.79	-244.50	-810.00	60DEG Start 200.00 hold at 2046.47 MD
2,246.47	1,831.79	-289.33	-977.30	Start DLS 10.00 TFO 29.26
2,581.44	1,918.00	-326.02	-1,293.95	FTP Start 1232.13 hold at 2581.44 MD
3,813.57	1,918.00	-312.02	-2,526.00	PP1 Start 1333.10 hold at 3813.57 MD
5,146.66	1,918.00	-296.88	-3,859.01	PP2 Start 2629.17 hold at 5146.66 MD
7,775.83	1,918.00	-267.01	-6,488.01	PP3 Start 2552.16 hold at 7775.83 MD
10,328.00	1,918.00	-238.02	-9,040.01	LMP Start 89.99 hold at 10328.00 MD
10,417.99	1,918.00	-237.00	-9,130.00	PBHL TD at 10417.99

Liam SA 6-1 Fed Com 101H Gas Plot



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State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

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.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: Riley Permian Operating Company, LLC **OGRID:** 372290 **Date:** 7 / 22 / 2026

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ 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 BBL/D
Liam SA 6-1 Fed Com 101H	30-015-Pending	4-5-18S-27E	302FNL – 1197FWL	450	700	4,000

IV. Central Delivery Point Name: Liam Fed North CTB [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
Liam SA 6-1 Fed Com 101H	30-015-Pending	2/12/2027	2/19/2027	4/19/2027	5/22/2027	7/6/2027

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

VII. Operational Practices: ☒ 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.

☒ 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. ☐ 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 ☐ will ☐ 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 ☐ does ☐ 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: ☐ 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.

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Section 3 - Certifications

Effective May 25, 2021

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

☒ 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

☐ 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. ☐ 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. ☐ 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.

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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:
Printed Name: Alex Rizzo
Title: Lead Regulatory and Government Affairs Advisor
E-mail Address: Alexrizzo@rileypermian.com
Date:
Phone: 918-839-2995

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**
Approved By:
Title:
Approval Date:
Conditions of Approval:

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Natural Gas Management Plan – Attachment

VI. Separation equipment will be sized by construction engineering staff based on anticipated daily production to ensure adequate capacity.

VII. Riley Permian Operating Company LLC ("Riley") will take the following actions to comply with the regulations listed in 19.15.27.8:

A. Riley will maximize the recovery of natural gas by minimizing waste, as defined by 19.15.2 NMAC, of natural gas through venting and flaring. Spur will ensure that our wells will be connected to a natural gas gathering system with sufficient capacity to transport natural gas.

B. All drilling operations will be equipped with a rig flare at least 100 feet from the nearest surface hole location. Rig flare will be utilized to combust any natural gas that is brought to surface during normal operations. In the case of emergency, flaring volumes will be reported appropriately.

C. During completion operations any natural gas brought to surface will be flared. Immediately following completion operations, wells will flow to permanent separation equipment. Produced natural gas from separation equipment will be sent to sales. If natural gas does not meet gathering pipeline specifications, Riley will flare for 60 days or until natural gas meets the pipeline specifications. Riley will ensure flare is properly sized and is equipped with an automatic igniter or continuous pilot. Gas samples will be taken twice per week and natural gas will be routed into a gathering system as soon as the pipeline specifications are met.

D. Natural gas will not be flared with the exception of 19.15.27.8(D)(1-4). If there is no adequate takeaway for the separator gas, wells will be shut-in until that natural gas gathering system is available with exception of emergency or malfunction situations. Volumes will be reported appropriately.

E. Riley will comply with performance standards pursuant to 19.15.27.8(E)(1-8). All equipment will be designed and sized to handle maximum pressures to minimize waste. Storage tanks constructed after May 25, 2021 will be equipped with an automatic gauging system that reduces venting of natural gas. Flare stacks installed or replaced after May 25, 2021 will be equipped with an automatic ignitor or continuous pilot. Riley will conduct AVO inspections as described in 19.15.27.8(E)(5)(a) with frequencies specified in 19.15.27.8(E)(5)(b) and (c). All emergencies or malfunctions will be resolved as quickly and safely as possible to minimize waste.

F. The volume of natural gas that is vented or flared as the result of an emergency or malfunction during drilling and/or completion operations will be estimated and reported accordingly. The volume of natural gas that is vented, flared, or beneficially used during production operations will be measured and reported accordingly. Riley will install equipment to measure the volume of natural gas flared from existing piping or a flowline piped from equipment such as high-pressure separators, heater treaters, or VRUs associated with a well of facility associated with a well authorized by an APD after May 25, 2021 that has an average daily production of less than 60,000 cubic feet of natural gas.

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If metering is not practicable due to circumstances such as low flow rate or low pressure venting or flaring, Riley will estimate the volume of flared or vented natural gas. Measuring equipment will conform to industry standards and will not be equipped with a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing equipment.

VIII. For maintenance activities involving production equipment and compression, venting be limited to the depressurization of the subject equipment to ensure safe working conditions. For maintenance of production equipment, the associated producing wells will be shut-in to eliminate venting. For maintenance of VRUs, all natural gas normally routed to the VRU will be routed to flare.

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Waste Minimization Plan

Riley Exploration-Permian, LLC

Wells: Liam SA 6-1 Fed Com 101H

I. Anticipated Oil Production Rates

The anticipated initial oil production rates for the proposed Liam SA 6-1 Fed Com 101H oil-well is ~450 bopd, reducing to under 100 bopd over the first 3 years of production.

II. Anticipated Gas Production Rates

The anticipated initial gas production rates for the proposed Liam SA 6-1 Fed Com 101H oil-well is ~700 mcfd, reducing to under 600 mcfd over the first 3 years of production.

III. Gas Sales Contract Certification

Please see attached for the self-certification of an executed gas sales contract to sell to a purchaser 100 percent of the produced oil-well gas, less gas anticipated for use on-lease pursuant to 43 CFR subpart 3178.

IV. Minimization of Production Gas Waste

Riley Permian commits to the sale of 100 percent of produced oil-well gas barring emergency situations where flaring may be required. Field staff will regularly test pipes, fittings, and production equipment for leaks and will repair leaks as soon as practicable to minimize production gas waste.

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RILEY PERMIAN

29 E. Reno Avenue, Suite 500
Oklahoma City, Oklahoma 73104
(405) 415-8699

Bureau of Land Management
Carlsbad Field Office
620 E. Greene Street
Carlsbad, New Mexico 88220

Re: Certification of Executed Gas Sales Contract

Dear Bureau of Land Management – Carlsbad Field Office:

I, Spence Laird, Manager of EHSR for Riley Permian Operating Company, LLC ("Riley"), hereby attest and provide notice that Riley has a valid, executed gas sales contract to sell to a purchaser 100 percent of the produced oil-well gas, less gas anticipated for use on-lease pursuant to 43 CFR subpart 3178.

Sincerely,

Spence Laird
EHS&R Manager
Riley Permian Operating Company, LLC
spencelaird@rileypermian.com
405-543-1411 (O)
405-420-8415 (C)

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RILEY PERMIAN

29 E. Reno Avenue, Suite 500
Oklahoma City, Oklahoma 73104
(405) 415-8699

ACKNOWLEDGMENT

State of Oklahoma }

County of Oklahoma }

The foregoing instrument was acknowledged before me on 10/29/25
(Date) by Spence Laird (Name(s) of Person(s)
as EHSR Manager (Title) of Riley Permian Operating Company, LLC
(Company)

(Seal, if any)

KIM MCAULIFFE
NOTARY PUBLIC - STATE OF OKLAHOMA
MY COMMISSION EXPIRES AUG. 07, 2027
COMMISSION # 23010522

Kim McAuliffe
Signature of Notarial Officer

Kim McAuliffe
Printed or typed name of Notarial Officer

Sr. Land Analyst
Title (and Rank)

My Commission Expires: 8/7/2027

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DRILLING PROGRAM

Riley Exploration-Permian, LLC

Liam Pad

Liam SA 6-1 Fed Com 101H

Lot 4 Section 5, Township 18 South, Range 27 East, 6th P.M.

Eddy County, New Mexico

Owner: Bureau of Land Management

Land code: Exempt Agricultural Land

1. Geologic Name of Surface Formation

Quaternary

Estimated Tops of Important Geologic Markers:

Top	Subsea	Top from KB	Lithology	Expected Fluids
Alluvium		0	Mixed surface sediment	None
Rustler		0	Dolomite/gypsum	None
Salado		0	Dolomite/gypsum	None
Tansill		0	Dolomite/siltstone/gypsum	None
Yates		0	Dolomite/gypsum	None
Seven Rivers	3,270	**208**	Salt	Usable Water
Queen	2,839	**639**	ANHY/Dolomite	None
Grayburg	2,377	**1,101**	ANHY/Dolomite	Natural Gas, Oil
San Andres	2,170	**1,308**	ANHY/Dolomite	Natural Gas, Oil
Target	1,560	**1,918**		Natural Gas, Oil
Glorieta	838	**2,640**	ANHY/Dolomite	Natural Gas, Oil

Target @ 0' VS	TVD	INC
	1,918	**90.00**

2. Blowout Prevention

Variance Requested for flex hose

Riley Permian requests a variance to use a flex line from the BOP to the choke manifold. Documentation will be attached in the APD and be readily available from manufacturer on site. No external damage to the flex line. Flex line to be installed as straight as possible with no bends.

Riley Permian will be utilizing a 5M BOP

Condition	Specify what type and where?
BH Pressure at Deepest TVD	~2,750 psi
Abnormal Temperature	No
BH Temperature at Deepest TVD	110-deg F

BOP/BOPE will be tested by an independent service company to 250 psi low and 70% of working pressure high unless otherwise required, as per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed with be functional and tested.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

	Y	Are anchors required by manufacturer?
	A conventional wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. See attached schematics.	

3. BOP Break Testing Request

Riley Exploration Permian LLC requests permission to adjust the BOP break testing requirements as follows:

BOP break test under the following conditions:

- After a full BOP test is conducted
- When skidding to drill the production section, where the surface casing point is shallower than the 3 Bone Spring or 10,000' TVD
- When skidding to drill a production section that does not penetrate the 3rd Bone Spring or deeper

If the kill line is broken prior to skid, four tests will be performed:

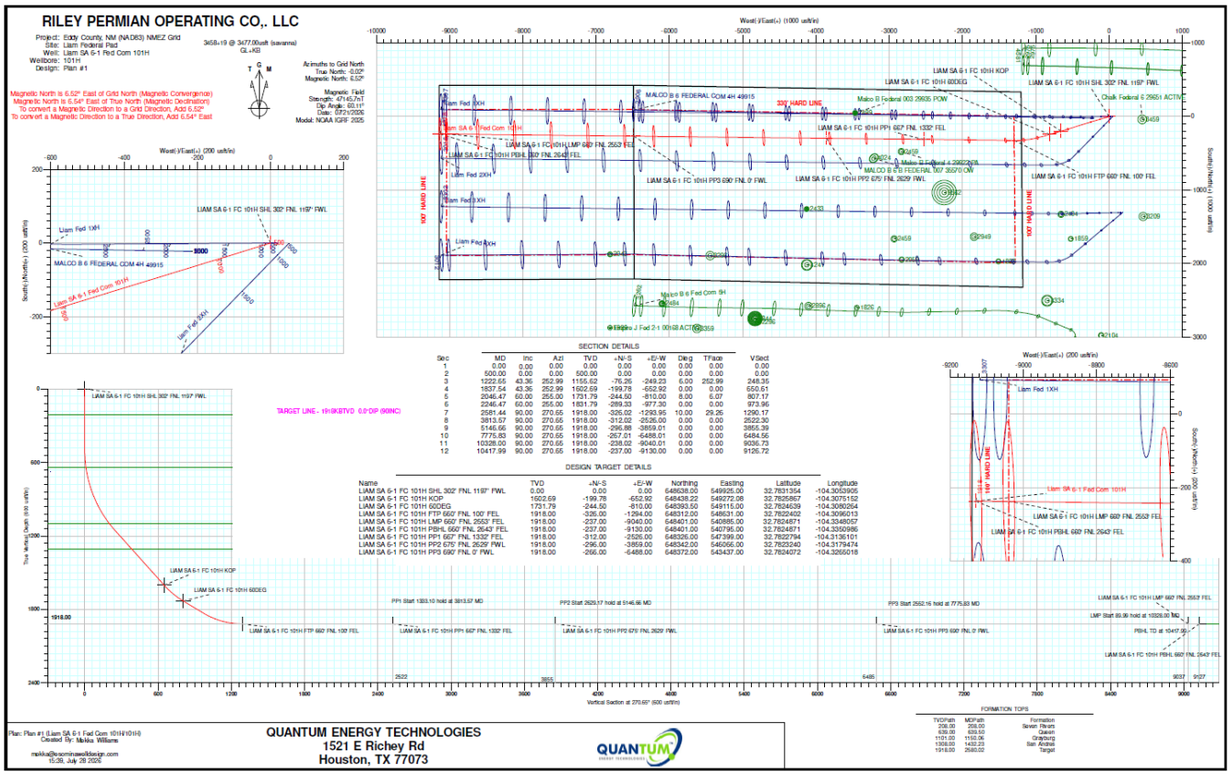
- The void between the wellhead and the spool (one on each side for two tests)
- The spool between the kill lines and the choke manifold (consisting of two tests)

If the kill line is not broken prior to skid, two tests will be performed:

- The void between the wellhead and the pipe rams

4. Proposed Directional Plan

	MD	TVD	Latitude	Longitude
Surface Hole Location	-	-	32.7831354	-104.3053905
Kick Off Point	1,837	1,602	32.7825867	-104.3075152
Bottom Hole Location	10,417	1,918	32.7824072	-104.3265018



5. Proposed Casing Program

All casing strings will be test in accordance with onshore oil and gas order #2 III.B.1.h.

Casing String Type	Hole Size (in.)	Casing Interval		Casing Size (in.)	Weight (lbs.)	Grade	Conn.	SF Collapse	SF Burst	Body SF Tension	Joint SF Tension
		From (ft.)	To (ft.)								
Surface	12.25	0	400*	9.625	36	J-55	BTC	1.125	1.2	1.4	1.4
Production	8.75	0	2500	7	32	HCL-80	BTC	1.125	1.2	1.4	1.4
Production	8.75	2500	10417	5.5	20	HCL-80	BTC	1.125	1.2	1.4	1.4
								SF Values will MEET or EXCEED			

*Surface casing will be set 50’ above first oil shows as determined by mud log.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

High Karst Potential Minimization Measures

This pad and associated wells are located within an area identified as having a high potential for karst development, with known cave and karst features present in the surrounding area. A site-specific karst survey was conducted, and the well pad and associated infrastructure were intentionally sited to avoid all identified karst features.

Surface casing will be set at a depth of 50 feet above first oil shows in the mud log, and cement will be circulated to surface on all casing strings.

In the event of lost circulation, the encounter of subsurface voids or cavernous intervals, inability to establish adequate isolation, or any other condition that, in the judgment of the Operator and BLM, presents an unacceptable drilling, cementing, or well-control risk, the approved casing design may be modified as necessary to isolate the affected interval and allow drilling operations to safely continue. Any such modifications will be coordinated with the BLM, and all required notifications and approvals will be obtained prior to implementation.

The proposed casing design consists of a two-string program utilizing surface and production casing. Should drilling operations encounter lost circulation, voids, cavernous zones, significant karst development, unstable borehole conditions, inability to establish adequate zonal isolation, or other unforeseen subsurface conditions that could adversely affect well integrity, cementing operations, well control, protection of usable water, or safe drilling operations, the Operator may elect to install an intermediate casing string.

Any contingency casing string will be designed and cemented to isolate the affected interval, protect usable water zones, ensure wellbore stability, and maintain operational safety. Cement will be designed to achieve circulation to surface where practicable and sufficient zonal isolation across the interval of concern. The Operator will coordinate any proposed casing design modifications with the BLM and obtain the appropriate approvals prior to implementation.

6. Proposed Cement Program:

Casing String	Top (ft.)	Bottom (ft.)	% Excess
Surface (Lead)	0	400*	100%
Production (Lead)	0	1300	35%+
Production (Tail)	1300	10,417	35%+

*Surface casing will be set 50' above first oil shows as determined by mud log.

Casing String	# Sx	Wt. (lb./gal)	Yld (ft3/sk)	H20 (gal/sk)	500# Compressive Strength (hours)	Slurry Description	Additives, Comments
Surface (lead)	450	12.8	1.43	6.65	6:44	50/50 Poz C Premium Plus	20 bbl gel spacer, 50sx of 11# scavenger cement
Production (lead)	200	11.5	2.29	12.63	N/A	50/50 Poz C Premium Plus	20 bbl gel spacer, 50sx of 11# scavenger cement
Production (tail)	1575	13.7	1.31	5.61	N/A	35/65 Poz C Premium Plus	50sx of 11# scavenger cement

7. Types and Characteristics of the Proposed Mud System:

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Saltwater Clay, CACL2. Riley will utilize a closed mud system.

Depth		Type	Weight (ppg)	PH	Viscosity (cp)	Water Loss
From (ft.)	To (ft.)					
0	400	Water-Based Spud Mud	8.6 – 8.9	11	29-33	N/C
400	TD	Water-Based Mud (Cut Brine)	8.3 – 9.0	11	29-33	N/C

PVT/Pason/Visual Monitoring will be used to monitor the loss or gain of fluid and digitally recorded.

8. Logging, Testing and Coring Program:

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). The first well drilling on this pad will have a Compensated Neutron Log will be run across the interval of potential karst development. Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned		Interval
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	SCP - TD
No	PEX	

9. Drilling Conditions

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT (Pason), digitally recorded. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

Estimated bottom hole at TD is 110 degrees. Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

NOTES REGARDING THE BLOWOUT PREVENTERS

Liam SA 6-1 Fed Com 101H

Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.

2. Wear ring to be properly installed in head.

3. Blow out preventer and all fittings must be in good condition, 3000 psi WP minimum.

4. All fittings to be flanged.

5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 3000 psi WP minimum.

6. All choke and fill lines to be securely anchored especially ends of choke lines.

7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.

8. Kelly cock on Kelly.

9. Extension wrenches and hands wheels to be properly installed.

10. Blow out preventer control to be located as close to driller's position as feasible.

11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

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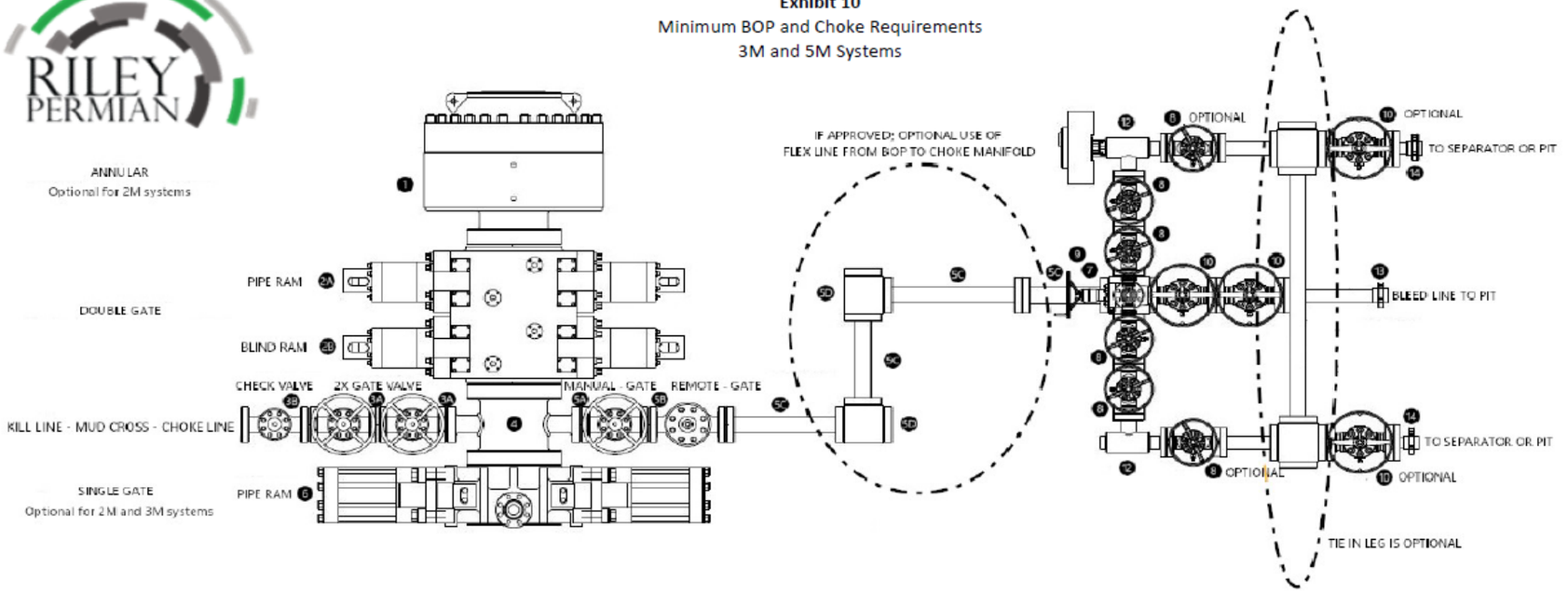
Riley Permian

Exhibit 10

Minimum BOP and Choke Requirements

3M and 5M Systems



BOP - Minimum Requirements

	Description		ID (in.)	Nom. OD (in.)	Optional	Note
1	Annular				Yes - 2M	
2A	Double Gate	Pipe Ram	3 1/8		No	
2B		Blind Ram				
3A	Kill Line	Gate	2		No	
3A		Gate				
3B		Check Valve				
		Line		2		
4	Mud Cross		2 1/16		No	Kill Line - 2" min. Choke Line - 3" min.
5A	Choke Line	Gate - Manual (2)	3 1/8		No	
5B		Gate - Remote (2)				
5C		Line		3	No	
5D		Targeted Tee			No	
6	Single Gate - Pipe Ram				Yes - 2M and 3M	

(1) Only one required in 2M system
(2) Choke line valve order is interchangable
(3) Remote operated hydraulic choke required on 5M and 10M systems

Choke Manifold - Minimum Requirements

			3000 MWP			5000 MWP			10000 MWP		
	Description		ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)	ID (in.)	Nominal OD (in. unless otherwise noted)	Rating (psi)
7	Cross - 3" x 3" x 3" x 2"				3,000			5,000			10,000
8	Valve	Gate (2)	2 1/16		3,000	2 1/16		5,000	3 1/8		10,000
		Plug									
9	Pressure Gauge				3,000			5,000			10,000
10	Valve	Gate (2)	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
		Plug									
11	Remote Operated Adjustable Choke (3)		2 1/16		3,000			5,000			10,000
12	Manual Adjustable Choke		2 1/16		3,000			5,000			10,000
13	Line			3	3,000		3	5,000		3	10,000
14	Line			2	3,000		2	5,000		2	10,000
15	Gas Separator (4)			2' x 5'			2' x 5'			2' x 5'	

(1) Only one required in 2M system
(2) Gate valves only to be used for 10M system
(3) Remote chokes are required for 5M and 10M systems
(4) Gas separator is optional for 2M and 3M systems

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Riley Permian Operating Company, LLC

Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. **Well Control Equipment:**

   A. Flare line.
   B. Choke manifold.
   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. **Protective equipment for essential personnel:**

A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

A. 3x portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

A. Wind direction indicators as shown on well site diagram (Exhibit #8).
B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

A. Radio communications in company vehicles including cellular telephone and 2-way radio.
B. Land line (telephone) communication at Office.

8. Well testing:

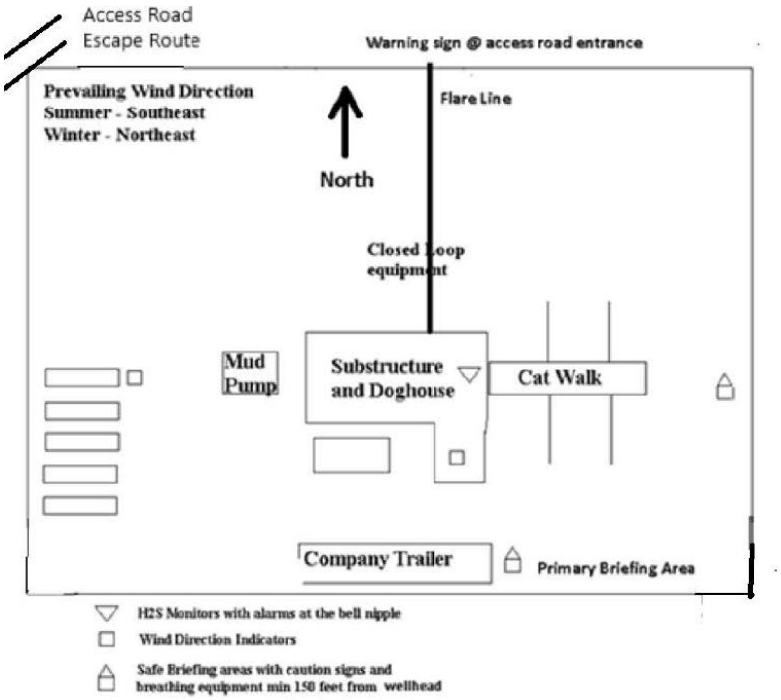
A. There will be no drill stem testing.

WARNING

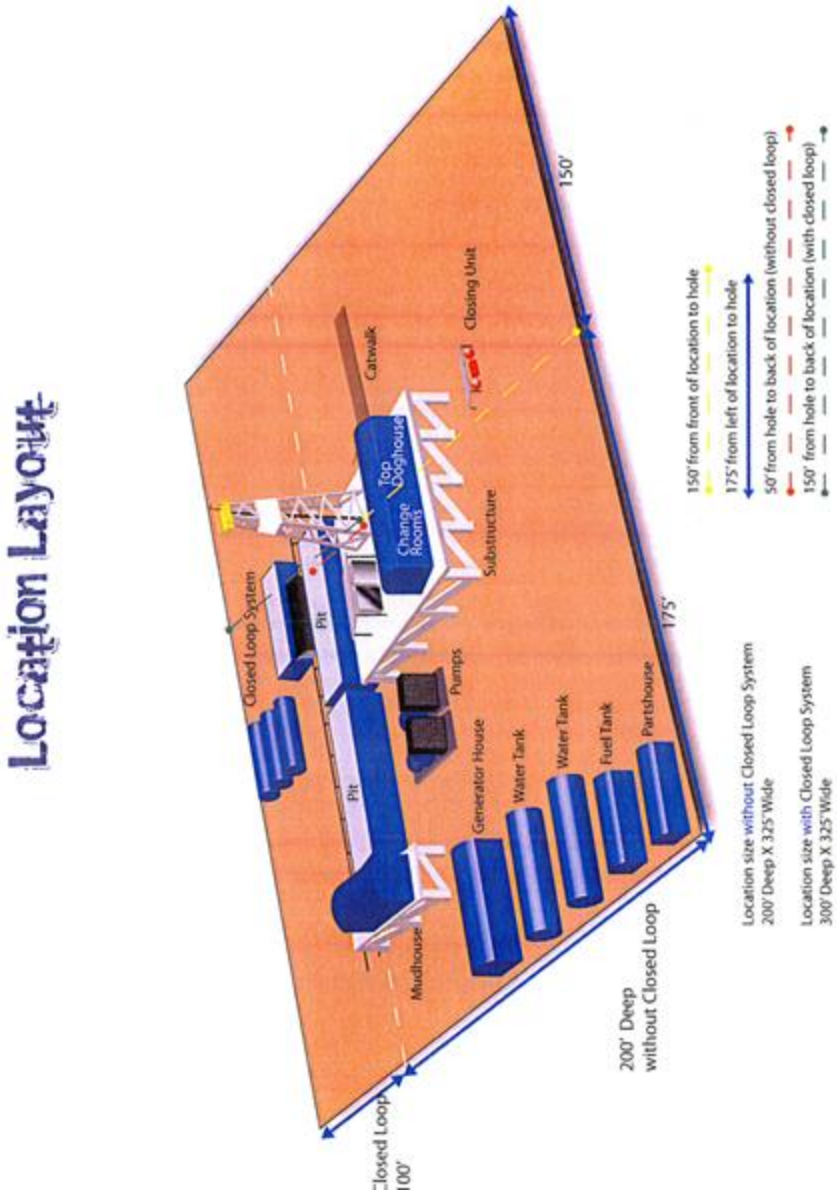
YOU ARE ENTERING AN H2S AREA
AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH RILEY PERMIAN OPERATING COMPANY MAN AT OFFICE

RILEY PERMIAN OPERATING COMPANY, LLC
1-405-415-8699



DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



EMERGENCY CONTACT LIST – EDDY COUNTY

Artesia	Cellular	Office
Spence Laird	575-703-7382	405-420-8415
Steve Forister	505-400-4571	405-666-0113
Travis Kerr	713-823-6933	
Justing Sappington	361-550-0494	

Agency Call List (575)

Artesia

State Police……..746-2703

City Police……..746-2703

Sheriff's Office……746-9888

Ambulance……..911

Fire Department……..746-2701

LEPC (Local Emergency Planning Committee…….746-2122

NMOCD……..748-1283

Carlsbad

State Police……..885-3137

City Police……..885-2111

Sheriff's Office……887-7551

Ambulance……..911

Fire Department……..885-2111

LEPC (Local Emergency Planning Committee…….887-3798

Bureau of Land Management……..887-6544

New Mexico Emergency Response Commission……(505)476-9690

24 Hour……(505)827-9126

National Emergency Response Center (Washington)……(800)424-8802

Emergency Services

Boots & Coots IWC……1-800-256-9688 or (281)931-8884

Cudd pressure Control……(915)699-0139 or (915)563-3356

Halliburton……..746-2757

Par Five……..748-9539

Flight For Life-Lubbock, TX……(806)743-9911

Aerocare-Lubbock, TX……..(806)747-8923

Med Flight Air Amb-Albuquerque, NM…….(505)842-4433

Lifeguard Air Med Svc. Albuquerque, NM……(505)272-3115

Geological Prognosis

Last Update 22-Sep-26

Riley Permian Operating Co.

Author Doug Standart

Well Name	**LIAM SA 6-1 FED COM 101H**
County, State	**Eddy, NM**
API	
Rig	

Ground Elevation (ft)	**3458**
Rig KB (ft)	**20**
Reference Datum (ft)	**3478**

Rec Permit Depth TVD
Rec Permit Depth MD
Estimated MD TD - 10,417.99
Completed Lateral Length - 7720

Coordinate System: *NAD 83 Grid - NM East*

		Section
SHL N	648638.0	5
SHL E	549925	5
Lease Line Callouts (SHL)		
Township & Range	18S 27E	
Lateral Orientation (azimuth)		

Typelog:	

Top	Subsea	Top from KB	Lithology	Comments
Alluvium		0	Mixed surface sediment	
Rustler		0	Dolomite/gypsum	
Salado		0	Dolomite/gypsum	
Tansill		0	Dolomite/siltstone/gypsum	
Yates		0	Dolomite/gypsum	
Seven Rivers	3,270	**20**	Salt	Surface Formation
Queen	2,839	**639**	ANHY/Dolomite	
Grayburg	2,377	**1,101**	ANHY/Dolomite	
San Andres	2,170	**1,308**	ANHY/Dolomite	Surface Casing
Target	1,560	**1,918**		
Glorieta	838	**2,640**	ANHY/Dolomite	

Target @ 0' VS	TVD	INC
	1,918	**90.00**

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

SUPO Data Report
10/26/2026

APD ID: 10400113358 **Submission Date:** 08/13/2026

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Liam_Fed_Drone_Review_Meeting_Notes_R2_CONTOURS_20251119141453.pdf
Liam_Fed_Drone_Review_Meeting_Notes_R2_IMAGERY_20251119141500.pdf
Liam_SA_6_1_Fed_Com_101H_C102_Vicinity_Map_20260813130113.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

EP_LIAM_FED_NORTH_PAD_ACCESS_ROAD_SEC5_20251118131831.pdf

New road type: RESOURCE

Length: 716 Feet **Width (ft.):** 30

Max slope (%): 1 **Max grade (%):** 1

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 24

New road access erosion control: The access road will have an 18" culvert installed at the entrance to the location where it intersects the planned water diversion ditch for the Liam North location. Each side of the culvert will be armored with 6-12" rip rap.

New road access plan or profile prepared? N

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

New road access plan

Access road engineering design? N

Access road engineering design

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: 0

Access other construction information: Topsoil will be stockpiled along side the pad and then used for interim reclamation where caliche is picked up. Access roads are constructed to provide safe and reliable transportation of equipment, materials, and personnel to the well site. The process begins with route selection to minimize environmental impacts and avoid sensitive areas such as wetlands, steep slopes, and riparian zones. Clearing and grubbing remove vegetation and obstacles, and topsoil is salvaged and stockpiled for use in reclamation. Grading establishes a stable roadbed, and where necessary, cut-and-fill operations are used to achieve proper alignment and drainage. The road surface is typically built using locally sourced aggregate or stabilized soil to support heavy loads and reduce maintenance. Drainage structures such as culverts and ditches are installed to manage runoff and prevent erosion. Roads are designed to accommodate large vehicles and maintain safe travel under varying weather conditions.

Access miscellaneous information: The Maximum width of the running surface will be 30. The road will be crowned and ditched and constructed of 6 rolled and compacted caliche. Ditches will be at 3:1 slope and 3 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns. If fugitive dust becomes a concern during construction, drilling, or other surface-disturbing activities, fresh water will be applied to affected areas to suppress dust and minimize air quality impacts. Water applications will be conducted as needed to maintain compliance with applicable air quality standards and to reduce visibility hazards and nuisance conditions.

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: The average grade will be less than 1%. No turnouts are planned. A culvert will be required for the Liam North Pad access road where it intersects the planned water diversion ditch for that location. An 18-inch culvert will be used, and each side of the culvert will be armored with 6-12 rip rap. No, cattleguard, gates, low water crossings or fence cuts are planned.
Road Drainage Control Structures (DCS) description: The average grade will be less than 1%. No turnouts are planned. A culvert will be required for the Liam North Pad access road where it intersects the planned water diversion ditch for that location. An 18-inch culvert will be used, and each side of the culvert will be armored with 6-12 rip rap. No, cattleguard, gates, low water crossings or fence cuts are planned.
Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Existing Well map Attachment:

Liam_SA_6_1_Fed_Com_101H_C102_Nearby_Wells_20260813130144.pdf

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Production Facility will be located on west side of pad and be in an area 85' x 350' 1) Number, size, and material of oil tanks (e.g., (4) 750 bbl steel oil tanks)? a. Yeso (4) 750 bbl steel oil tanks b. SA (2) 750 bbl steel oil tanks 2) Number, size, and material of water tanks (e.g., (2) 750 bbl FG water tanks)? a. (3) 750 bbl FG water tanks 3) Number and size heater? a. Yeso 1 6 x 20 heater treater b. Yeso 1-8x20 heater treater c. SA (1) 6 x 20 heater treater 4) Number and size FWKO? a. Yeso 1 8 x 20 FWKO b. Yeso 1 6 x 15 FWKO c. SA (1) 6 x 15 FWKO 5) Number and size gas meters for production and test side? a. Yeso 1 4 Meter for each train total of 2 for Yeso b. SA 1 4 Meter for the train total of 1 for SA 6) Number and size separator? a. Listed in 3 & 4 7) Number of water transfer pumps? a. - 2 8) Number VRU units? a. 1 for Yeso b. 1 for SA 9) Number, size, and material of flowlines? a. qty 2 4 SDR 7 HDPE per well. 10) Working pressure of flowlines? a. -100 psi 11) Max pressure of flowlines? a. 150 psi 12) Burst pressure of flowlines? a. 336 psi 13) Generators? a. None 14) Flare gas scrubber a. 4'x 10' horizontal 2ph 250psi Separator

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: DUST CONTROL
CAMP USE
SURFACE CASING
INTERMEDIATE/PRODUCTION CASING

Source latitude: 32.769419 **Source longitude:** -104.286844

Source datum: NAD83

City:

Water source permit type: OTHER

Water source transport method: TRUCKING
PIPELINE

Source land ownership: PRIVATE

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Source transportation land ownership: PRIVATE

Water source volume (barrels): 2000 **Source volume (acre-feet):** 0.25778619

Source volume (gal): 84000

Water source and transportation

Liam_North_Water_Source_Map_20251118132142.pdf

Water source comments: The well will be drilled with combination brine and freshwater mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Exhibit #6. If a commercial fresh water source is nearby, fasline may be laid along existing road ROWs and fresh water pumped to the well. No water well will be drilled on the location. City/Municipal Water: Town of Hageman, Sec 10 T14S R26E, Mor-West Sec 20 T17S R30E. Brine Water: Salty Dog Sec 5 T19S R36E, Wasserhund Sec 36 T16S R34E

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 thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: 1. What type of surfacing material will be used for construction of pad - CALICHE a. Where does it come from Clinton Key Livestock at 32.743139, -104.18325 b. Who owns it Clinton Key Livestock Caliche required will be obtained from a third-party pit located in Sec. 16 T18SS R28E, or BLM approved pit located at NESW Sec. 19 T15S R29E and SWNE Sec. 34 T15S R29E. Obtaining caliche method: One primary way of obtaining caliche to build locations and roads will be by turning over the location. This means, caliche will be obtained from the actual well site and any additional needed will be obtained from Clinton Key Livestock. Amount will vary for each pad. The procedure below has been previously approved by BLM personnel: A. The top 6 inches of topsoil is pushed off and stockpiled along the side of the location. B. An

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

approximate 160 X 160 area is used within the proposed well site to remove caliche. C. Subsoil is removed and stockpiled within the surveyed well pad. D. When caliche is found, material will be stockpiled within the pad site to build the location and road. E. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road. F. Once well is drilled, the stockpiled topsoil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. G. Neither caliche, nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the Well Site Layout or survey plat.

Construction Materials source location

Liam_Fed_Construction_Materials_Map_Sec_19_20251119101156.pdf

Liam_Fed_Construction_Materials_Map_Sec_34_20251119101203.pdf

Section 7 - Methods for Handling

Waste type: GARBAGE

Waste content description: Trash

Amount of waste: 10 barrels

Waste disposal frequency : Daily

Safe containment description: Portable trash cage

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** OTHER

Disposal type description: Public

Disposal location description: Eddy County Landfill. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved local landfill. No toxic waste or hazardous chemicals will be produced by this operation.

Waste type: DRILLING

Waste content description: Drill cuttings, mud, salts, and other chemicals

Amount of waste: 1120.21 barrels

Waste disposal frequency : Daily

Safe containment description: Steel Cuttings Bins

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Drill cuttings and fluids will be disposed into the steel tanks and hauled to R-360 disposal facility, permit number NM-01-0006. Located on Hwy 62 at MM 66.

Waste type: SEWAGE

Waste content description: Black and grey matter

Amount of waste: 5 barrels

Waste disposal frequency : Daily

Safe containment description: Plastic holding tanks and chemical toilets

Safe containmant attachment:

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Waste disposal type: OTHER **Disposal location ownership:** OTHER

Disposal type description: Public

Disposal location description: Artesia Wastewater Treatment Plant. Sewage and Gray Water will be placed in container and hauled to an approved facility. Container and disposal handled by Black Hawk.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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?

Cuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities

Comments:

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Section 9 - Well Site

Well Site Layout Diagram:

Rig_Layout_20251119123517.pdf

Liam_SA_6_1_Fed_Com_101H_C102_Pad_Layout_20260813130217.pdf

Comments:

Section 10 - Plans for Surface

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: Liam North

Multiple Well Pad Number: Pad

Recontouring

Liam_SA_6_1_Fed_Com_101H_C102_Pad_Construction_Details_20260813130312.pdf

Liam_SA_6_1_Fed_Com_101H_C102_Reclamation_Diagram_20260813130317.pdf

Drainage/Erosion control construction: Edges of location will be bermed to prevent runoff or erosion

Drainage/Erosion control reclamation: Ditches will be at 3:1 slope and 3' wide, water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and be consistent with location drainage patterns. Liam North Pad and Liam South Pad Utilities and ROWs are being included in this APD.

Well pad proposed disturbance (acres): 3.41	**Well pad interim reclamation (acres):** 0.24	**Well pad long term disturbance (acres):** 3.17
Road proposed disturbance (acres): 0.49	**Road interim reclamation (acres):** 0	**Road long term disturbance (acres):** 0.49
Powerline proposed disturbance (acres): 0	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres): 1.85	**Pipeline interim reclamation (acres):** 1.85	**Pipeline long term disturbance (acres):** 0
Other proposed disturbance (acres): 0	**Other interim reclamation (acres):** 0	**Other long term disturbance (acres):** 0
Total proposed disturbance: 5.75	**Total interim reclamation:** 2.09	**Total long term disturbance:** 3.66

Disturbance Comments:

Reconstruction method: Caliche will be removed, ground ripped and stockpiled topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding water. Area will be reseeded as per BLM specifications, seeding will be done when moisture is available and weather is permitting, pure live seed will be used to prevent noxious weeds, annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

Topsoil redistribution: Caliche will be removed, ground ripped and stockpiles topsoil used to recontoured as close as possible to the original natural level to prevent erosion and ponding of water. Area will be reseeded as per BLM specifications, seeding will be done when moisture is available and weather permitting, pure live seed will be used to prevent noxious weeds, annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds.

Soil treatment: Soils underlying the proposed project include Gypsum land (GA) and Gypsum land-Cottonwood complex (GC). Neither are listed as hydric or shallow soils. Soil stabilization methods will be employed as needed to minimize erosion, support safe access, and reduce dust generation. Treatments may include the use of water, mechanical compaction, or other approved methods appropriate to site conditions and regulatory requirements.

Existing Vegetation at the well pad: Vegetation in the project area was dominated by shrubs, intermixed with forbs and grasses. Species observed include creosote, acacia, broom snakeweed, prickly pear cactus,

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Texas rainbow cactus, burro grass, lovegrass, and black grama.

Existing Vegetation at the well pad

Existing Vegetation Community at the road: Vegetation in the project area was dominated by shrubs, intermixed with forbs and grasses. Species observed include creosote, acacia, broom snakeweed, prickly pear cactus, Texas rainbow cactus, burro grass, lovegrass, and black grama.
Existing Vegetation Community at the road

Existing Vegetation Community at the pipeline: Vegetation in the project area was dominated by shrubs, intermixed with forbs and grasses. Species observed include creosote, acacia, broom snakeweed, prickly pear cactus, Texas rainbow cactus, burro grass, lovegrass, and black grama.
Existing Vegetation Community at the pipeline

Existing Vegetation Community at other disturbances: Vegetation in the project area was dominated by shrubs, intermixed with forbs and grasses. Species observed include creosote, acacia, broom snakeweed, prickly pear cactus, Texas rainbow cactus, burro grass, lovegrass, and black grama.
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? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? N

Seed harvest description:

Seed harvest description attachment:

Seed

Seed Table

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation

Operator Contact/Responsible Official

First Name: **Last Name:**

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment

Weed treatment plan description: Operator understands they are responsible if noxious weeds become established within the areas of operations. Weed control will be performed on disturbed land where noxious weeds exist, which includes roads, pads, and associated pipeline corridors. Operator shall be responsible for segregating the topsoil, backfilling, repacking, reseeding, and recontouring the surface of any disturbed area so as not to interfere with Owners operations and shall reclaim such area to be returned to pre-existing conditions as best as reasonably practicable with control of all weeds. Operator will maintain the location in such a manner as to precent noxious weeds and keep the surface use area, as well as any roads or other areas, safe and in good order. Operator shall consult with the BLM for acceptable weed control methods that comply with BLM requirements and policies.

Weed treatment plan

Monitoring plan description: Annual inspection of growth will be done and necessary measures taken to eliminate noxious weeds

Monitoring plan

Success standards: Seeding will be repeated until satisfactory stand is established as determined by authorized office. Evaluation of growth will be made before completion of at least one full growing season after season.

Pit closure description: No Pits

Pit closure attachment:

Section 11 - Surface

Disturbance type: WELL PAD

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:

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: NEW 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:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

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:

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: TRANSMISSION LINE

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 Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other

Right of Way needed? N **Use APD as ROW?**

ROW Type(s):

ROW

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

SUPO Additional Information: There will be no new required disturbance for this well. All disturbance previously permitted under the original Liam APDs. There will be changed to the production facilities to accommodate this well. Those changes were outlined in SUPO on page 4.
Use a previously conducted onsite? Y

Previous Onsite information: Previous Onsite Information: Onsite completed on 10/14/2025 by the following attendees: i. Spence Laird (Riley) ii. Alex Rizzo (Riley) iii. Kevin Hayes (Riley) iv. Josh Gonzales (Ascent) v. Jordan Lukasik (Ascent) vi. John Giovanni (Ascent) vii. Kevin McElvaney (Ascent) viii. Frank Hernandez (BLM) ix. Brandon Carico (BLM) During the onsite, BLM requested minor modifications to the gas and water pipelines and the OHE where the waterway/drainage south of the Liam South location was crossed. BLM requested that the pipelines cross at a 90-degree angle, and the OHE span the waterway/drainage. Those changes were made and are reflected in the final plats and design of the infrastructure.

Other SUPO

BO_LIAM_FED_NORTH_PAD_OVERHEAD_ELECTRIC_LINE_EASEMENT_SEC5_20251118132256.pdf

EP_LIAM_FED_NORTH_PAD_ACCESS_ROAD_SEC5_20251119120215.pdf

EP_LIAM_FED_NORTH_PAD_WATER_LINE_SEC5_20251118132308.pdf

OHE__Waterline__Access_Details_for_Liam_North_20251125115347.pdf

Liam_Fed_North_Pad_Hydrology_Map_20260922140032.pdf

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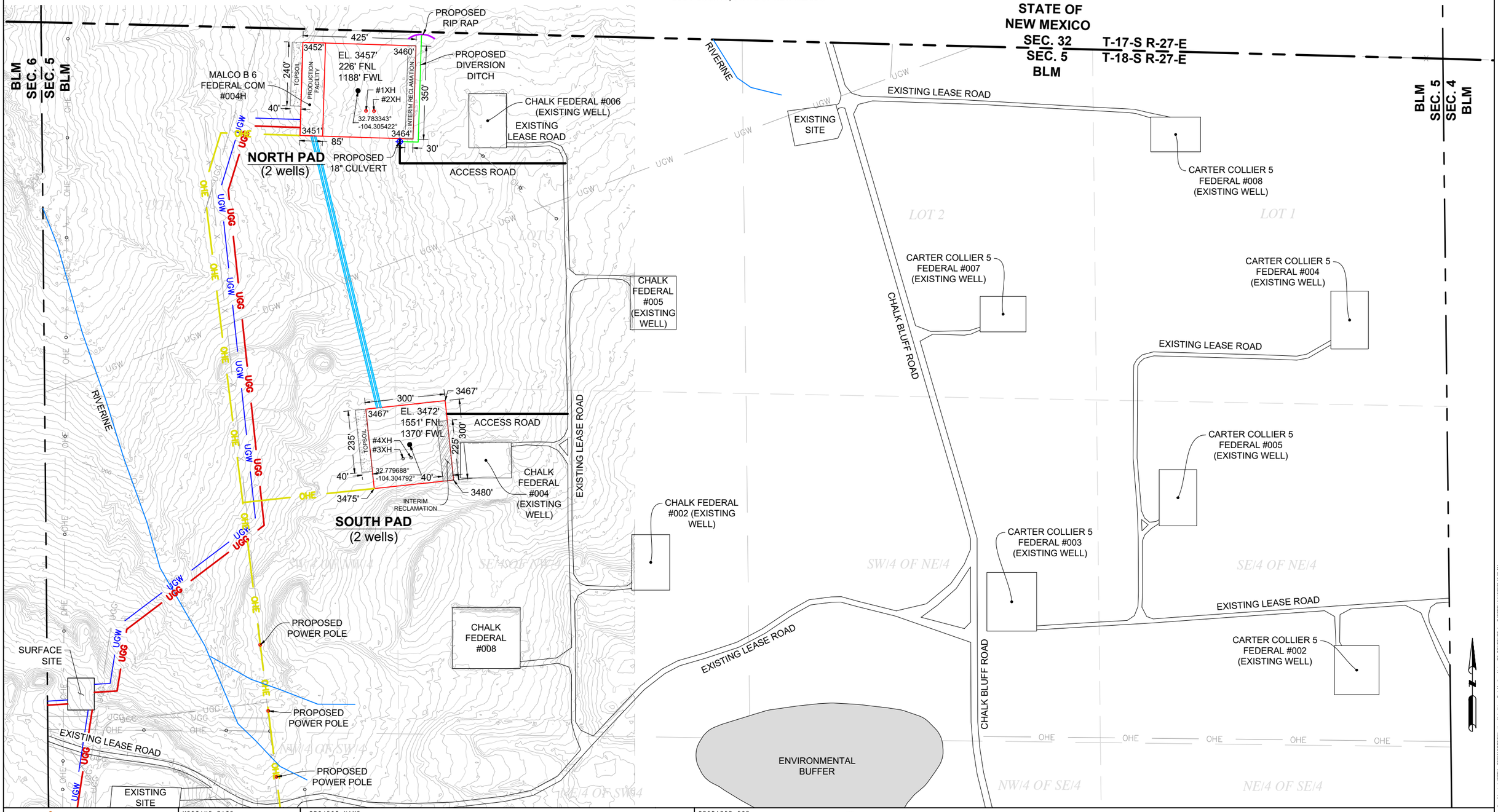
LIAM FED
DESKTOP DRONE REVIEW / MEETING NOTES
SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST
EDDY COUNTY, STATE OF NEW MEXICO



Ascent Geomatics Solutions 8620 Wolff Ct. Suite 200 Westminster, CO 80031 Office: (303) 928-7128 www.AscentGeomatics.com	MEETING DATE: 11/18/2025 DRAWING DATE: 11/17/2025 BY: CJ CHECKED: RH	PROJECT NAME: LIAM FED REV. 2 SURFACE LOCATION: SEC. 5, T18S, R27E, N.M.P.M. EDDY COUNTY, NEW MEXICO PROJECT NUMBER: B25.REPX.0015	PREPARED FOR: RILEY PERMIAN

0 175' 350'
SCALE: 1"= 350'

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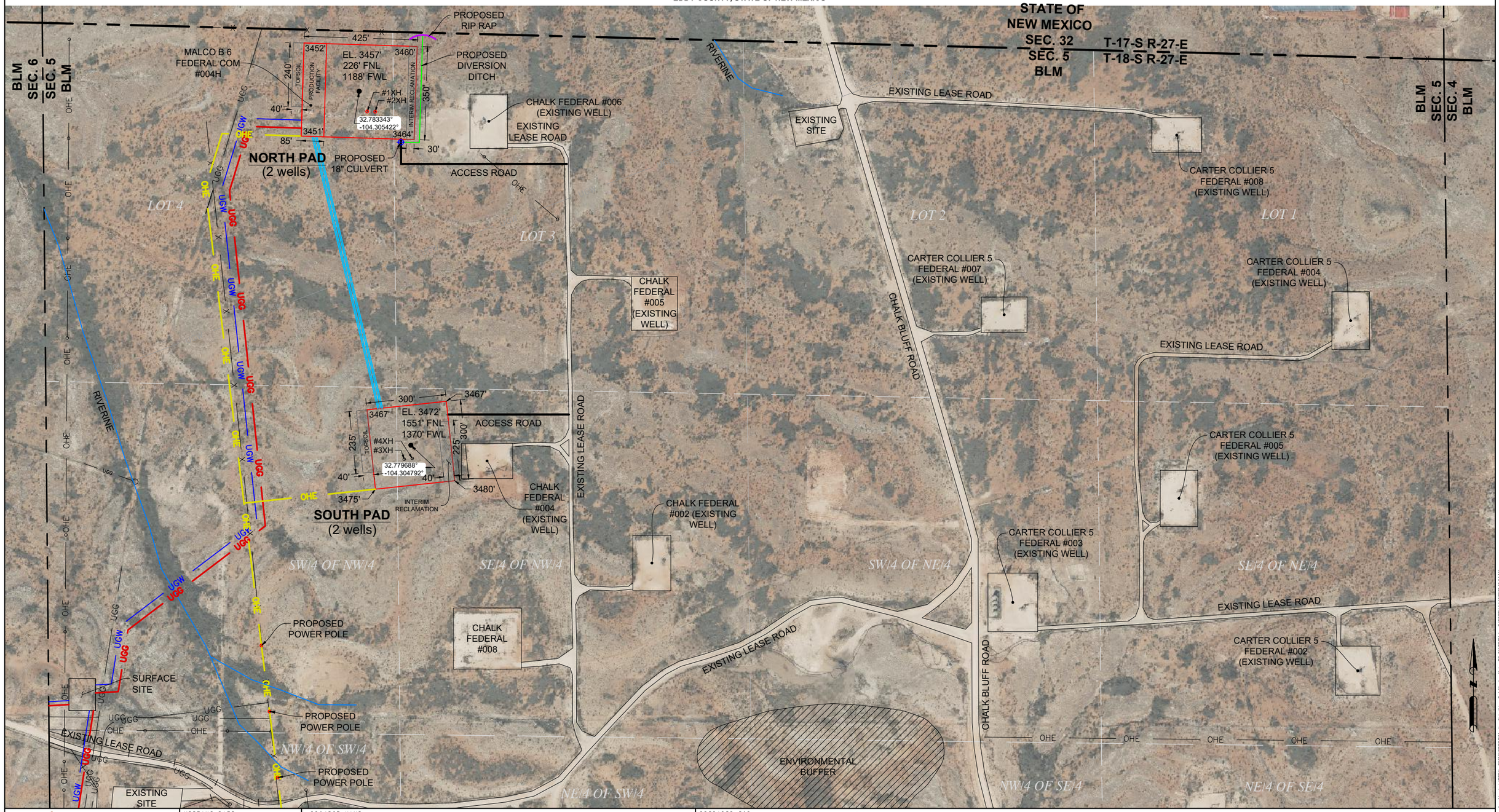
LIAM FED
DESKTOP DRONE REVIEW / MEETING NOTES
SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST
EDDY COUNTY, STATE OF NEW MEXICO



Ascent Geomatics Solutions 8620 Wolff Ct. Suite 200 Westminster, CO 80031 Office: (303) 928-7128 www.AscentGeomatics.com	MEETING DATE: 11/18/2025 DRAWING DATE: 11/17/2025 BY: CJ / CHECKED: RH	PROJECT NAME: LIAM FED — REV. 2 SURFACE LOCATION: SEC. 5, T18S, R27E, N.M.P.M. EDDY COUNTY, NEW MEXICO PROJECT NUMBER: B25.REPX.0015	PREPARED FOR: RILEY PERMIAN

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SCALE: 1"= 350'

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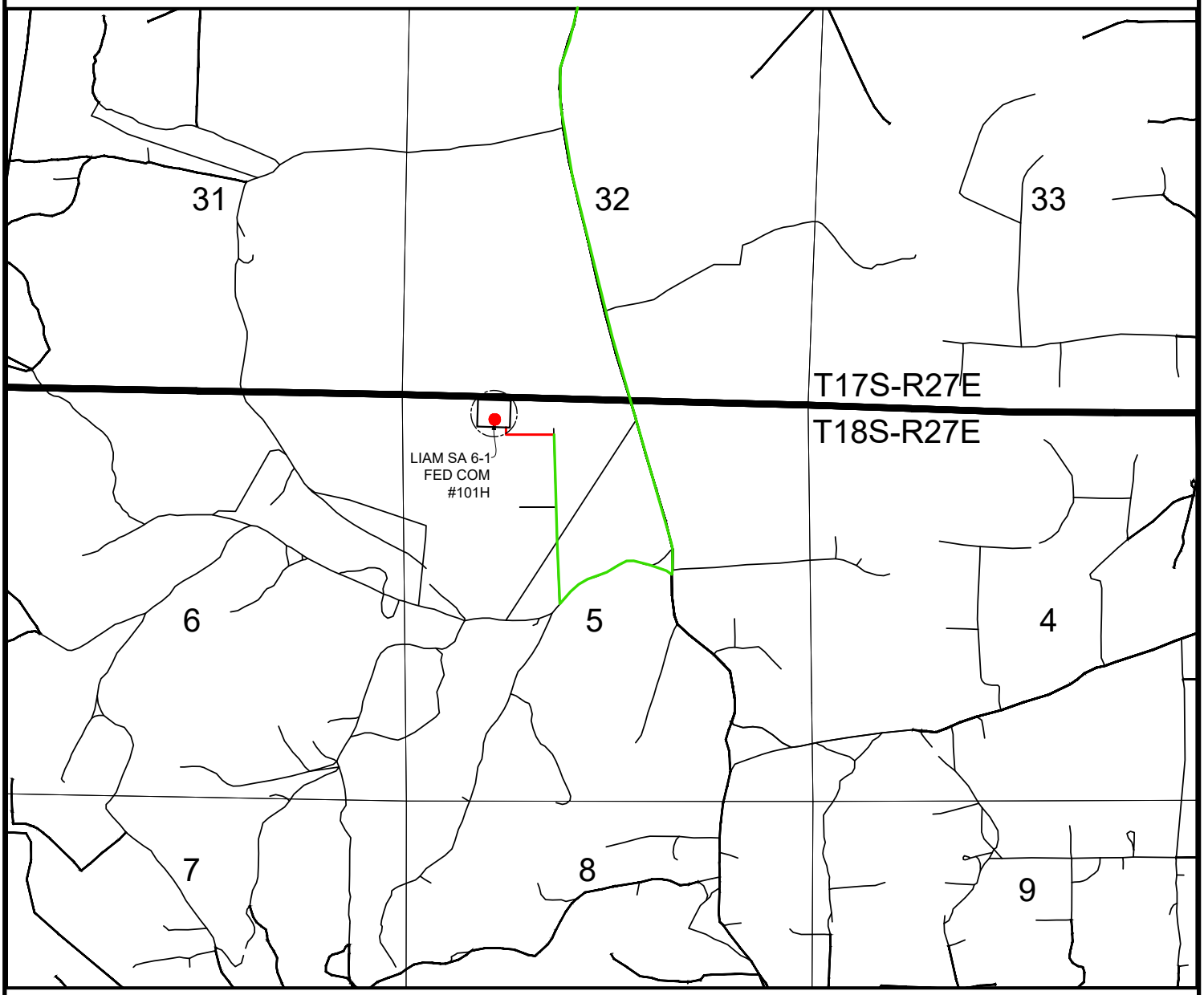
EXHIBIT 2
VICINITY MAP



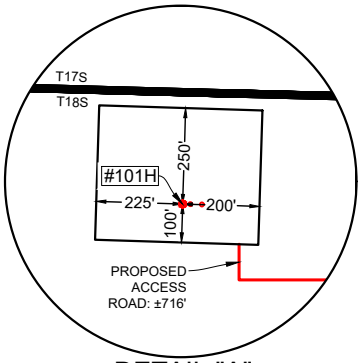
LEGEND

- = PROPOSED WELL
- = PROPOSED ACCESS ROADS
- = PROPOSED ACCESS ROUTE
- = PROPOSED PAD
- = SECTION
- = TOWNSHIP

N

0 1000' 2000'

SCALE: 1"= 2000'



DETAIL "A"
SCALE: 1" = 500'

FROM THE INTERSECTION OF LOVINGTON HIGHWAY, ALSO KNOWN AS US HIGHWAY 82, AND CHALK BLUFF ROAD, GO SOUTH ON CHALK BLUFF ROAD ±4.05 MILES; THENCE WEST (RIGHT) ON AN EXISTING ACCESS ROAD ±0.31 MILES; THENCE NORTH (RIGHT) ON AN EXISTING ACCESS ROAD ±0.42 MILES; THENCE WEST (LEFT) ON A PROPOSED ACCESS ROAD ±623 FEET; THENCE NORTH (RIGHT) ON A PROPOSED ACCESS ROAD ±93 FEET TO THE EDGE OF PAD.

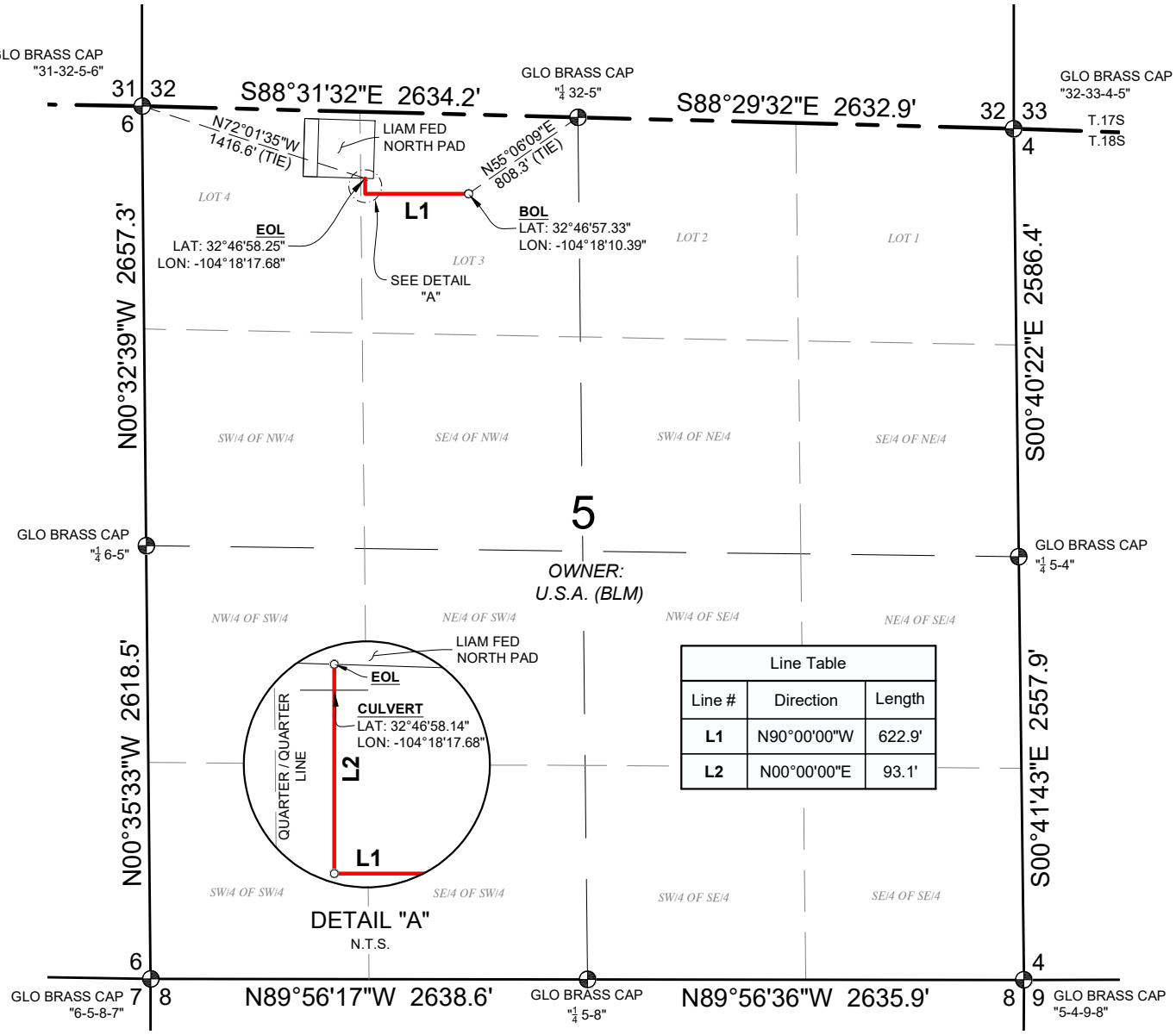
(PROPOSED ACCESS ROAD LENGTH = ±716')

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
Suite 200
Westminster, CO 80031
Office: (303) 928-7128
www.AscentGeomatics.com

FIELD DATE:	PROJECT NO.:	SITE NAME:	PREPARED FOR:
07-09-2026	B25.REPX.0015	LIAM SA 6-1 FED COM #101H REV. 0	RILEY PERMIAN
DRAWING DATE: 08-05-2026	DISCLAIMER: THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE FOLLOWING COORDINATE SYSTEM: NAD83 NEW MEXICO STATE PLANE, EAST ZONE, U.S.. SURVEY FEET.	SURFACE LOCATION: SEC. 5, T18S, R27E, N.M.P.M. EDDY COUNTY, NEW MEXICO	
BY: MB CHECKED: RH			

PLAT: \\AGSFS\PROJECTS\REPX__B250015\PROD\C102_PACKAGE\VICINITY_MAPS\1_LIAM_SA_6-1_FED_101H_VICINITY_MAP 8/6/26 10:36 AM Mbenson

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO



Line Table		
Line #	Direction	Length
L1	N90°00'00"W	622.9'
L2	N00°00'00"E	93.1'

LIAM FED NORTH PAD PROPOSED ACCESS ROAD
CENTERLINE DESCRIPTION

A STRIP OF LAND 30 FEET IN WIDTH AND 716.0 FEET, 43.4 RODS OR 0.14 MILES IN LENGTH, CONTAINING 0.49 ACRES, SITUATED IN SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15 FEET ON EACH SIDE OF THE CENTERLINE SHOWN HEREON.

LEGEND

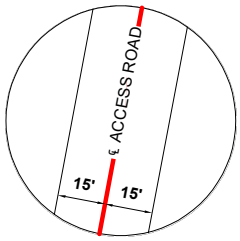
BOL / EOL BEGINNING/END OF LINE

PROPOSED ACCESS ROAD

POINT FOR BEGIN/END OR ANGLE POINT

NOTES:
- BEARINGS, COORDINATES, AND DISTANCES (GRID) SHOWN HEREON ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83- 2011 (EPOCH 2010) FRAMEWORK, AS DERIVED BY OPUS SOLUTION. THE ELEVATIONS SHOWN HEREON AREA BASED ON NAVD 88.
- LAND OWNERSHIP INFORMATION REFLECTED HEREON WAS PROVIDED BY CLIENT AND/OR OBTAINED FROM PUBLIC DOMAIN DATA, NO INDEPENDENT OWNERSHIP SEARCH WAS PERFORMED BY ASCENT

0 500' 1000'
SCALE: 1"= 1000'



TYPICAL
RIGHT-OF-WAY EASEMENT CONFIGURATION



I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0015
SHEET: 1 OF 1

DRAFTED BY: BF
CHECKED BY: OP
REV: 0

RILEY PERMIAN

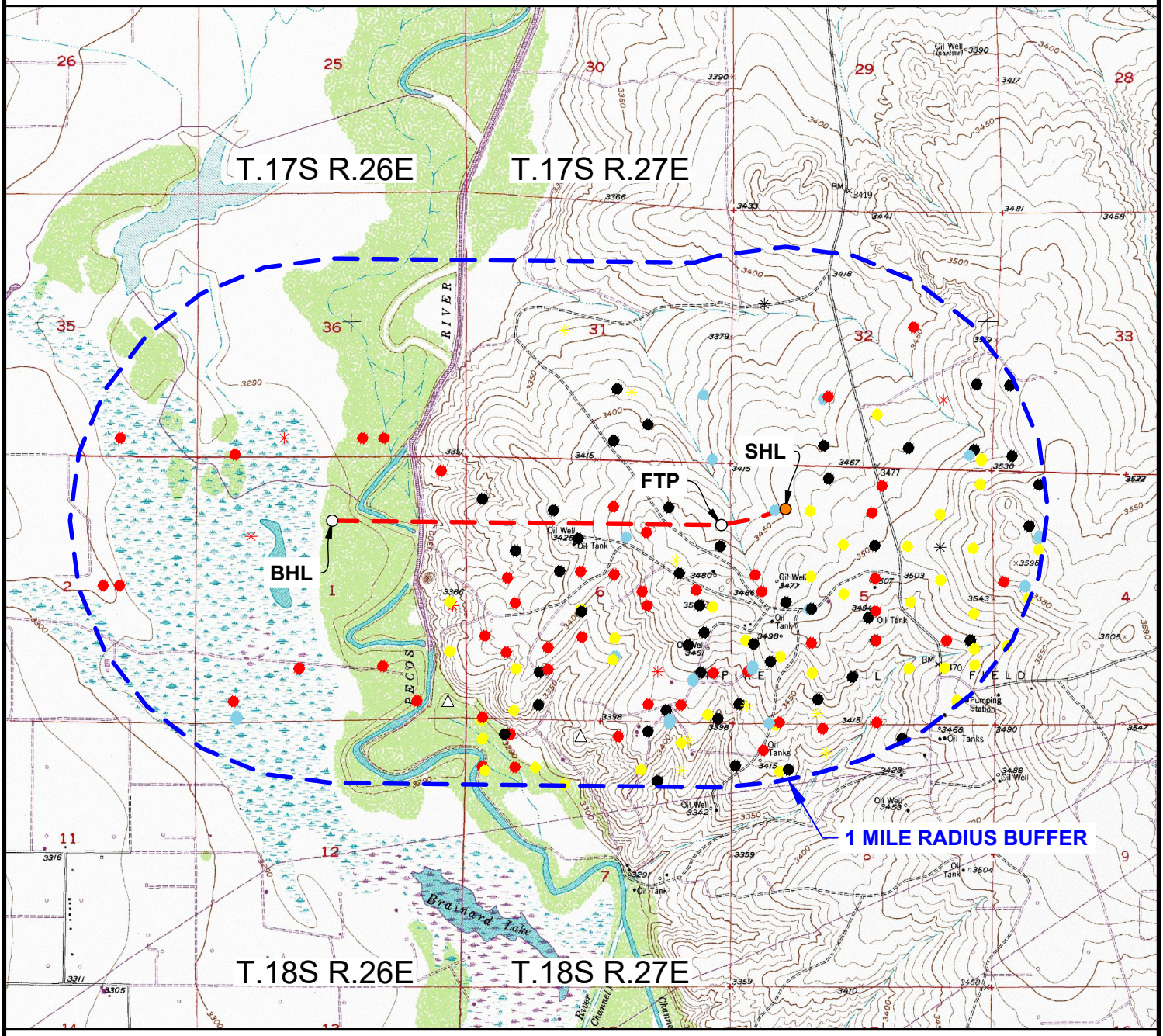
LIAM FED NORTH PAD PROPOSED ACCESS ROAD
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
Suite 200
Westminster, CO 80031
Office: (303) 928-7128
www.AscentGeomatics.com

PLAT: P:\REPX_ B250015\PROD\ROW_EXHIBITS\ACCESS_ROADS\EP_LIAM_FED_NORTH_PAD_ACCESS_ROAD 11/17/25 5:53 PM Openez

EXHIBIT 3

1-MILE RADIUS MAP



LEGEND

- = SHL
- = FTP, BHL
- = BORE LINE
- = SECTION
- = TOWNSHIP/RANGE
- = ONE MILE RADIUS
- = OIL WELL CANCELLED
- = OIL WELL PLUGGED
- = OIL WELL NEW
- = OIL WELL ACTIVE
- = GAS WELL ACTIVE
- = GAS WELL PLUGGED
- = GAS WELL CANCELLED
- = SALT WATER INJECTION PLUGGED

N

0 1500' 3000'

SCALE: 1"= 3000'

LATITUDE: N 32.783136°
LONGITUDE: W 104.305389°
SURFACE HOLE: 302' FNL & 1197' FWL
SURFACE HOLE ELEVATION: 3458'
CENTER OF PAD: 226' FNL & 1188' FWL

Ascent Geomatics Solutions
8620 Wolff Ct.
Suite 200
Westminster, CO 80031
Office: (303) 928-7128
www.AscentGeomatics.com

FIELD DATE:	PROJECT NO.:	SITE NAME:	REV.
07-09-2026	B25.REPX.0015	LIAM SA 6-1 FED COM #101H	0

DRAWING DATE:	BY:	CHECKED:
08-05-2026	MB	RH

DISCLAIMER:
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE FOLLOWING COORDINATE SYSTEM: NAD83 NEW MEXICO STATE PLANE, EAST ZONE, U.S.. SURVEY FEET.

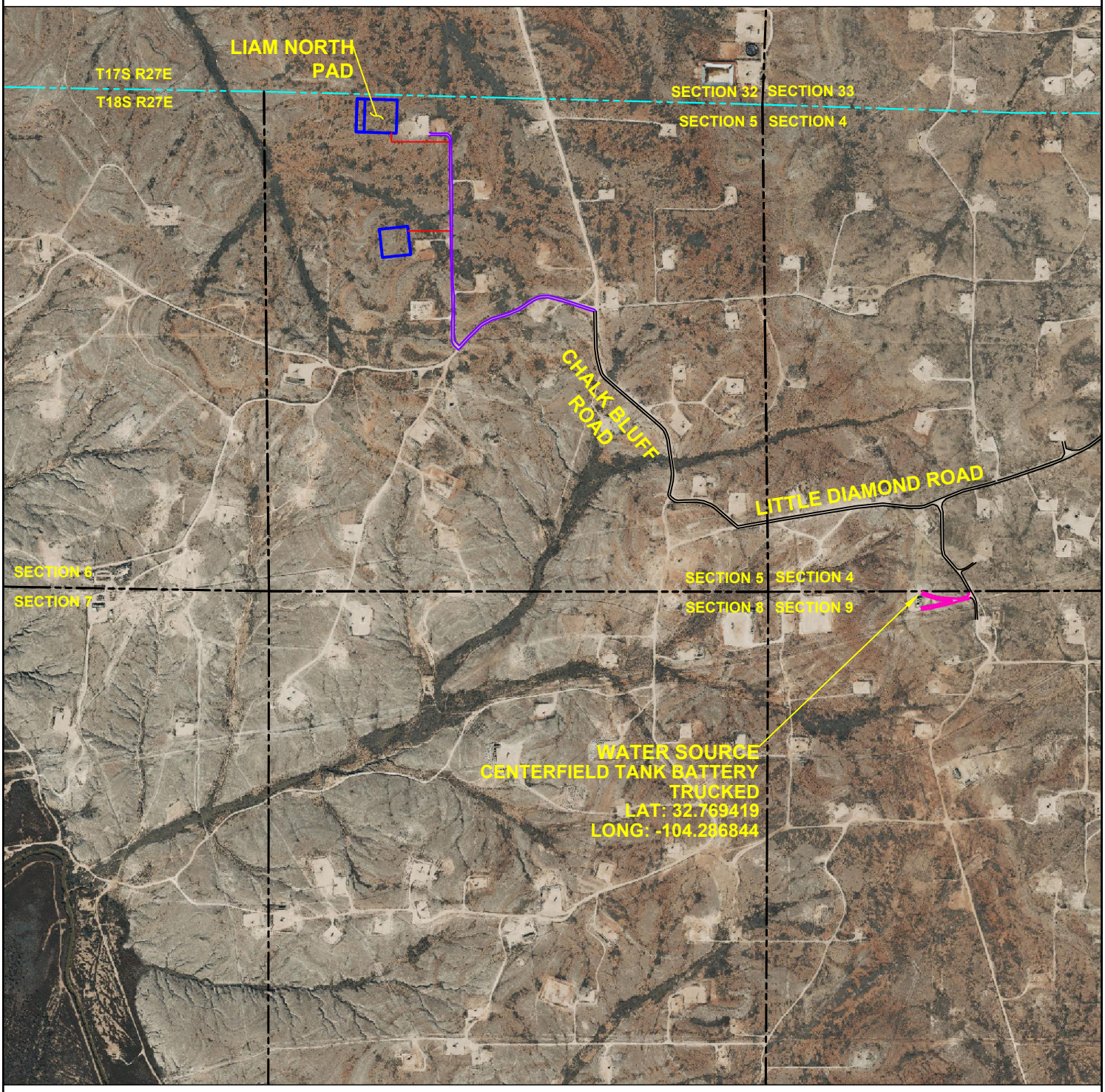
SURFACE LOCATION:
SEC. 5, T18S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

PREPARED FOR:
RILEY PERMIAN

PLAT: \\AGSFS\PROJECTS\REPX__B250015\PROD\C102_PACKAGE\1_MILE_RADIUS\2_LIAM_SA_6-1_FED_COM_101H_1MILE_RADIUS 8/6/26 10:40 AM Mbenson

EXHIBIT A

WATER SOURCE MAP



N

0 750' 1500'

SCALE: 1"= 1500'

LEGEND

- = EXISTING ACCESS ROADS
- = EXISTING LEASE ROADS
- = EXISTING ROADS
- = PROPOSED ACCESS ROADS
- = PROPOSED PAD
- = SECTION
- = TOWNSHIP

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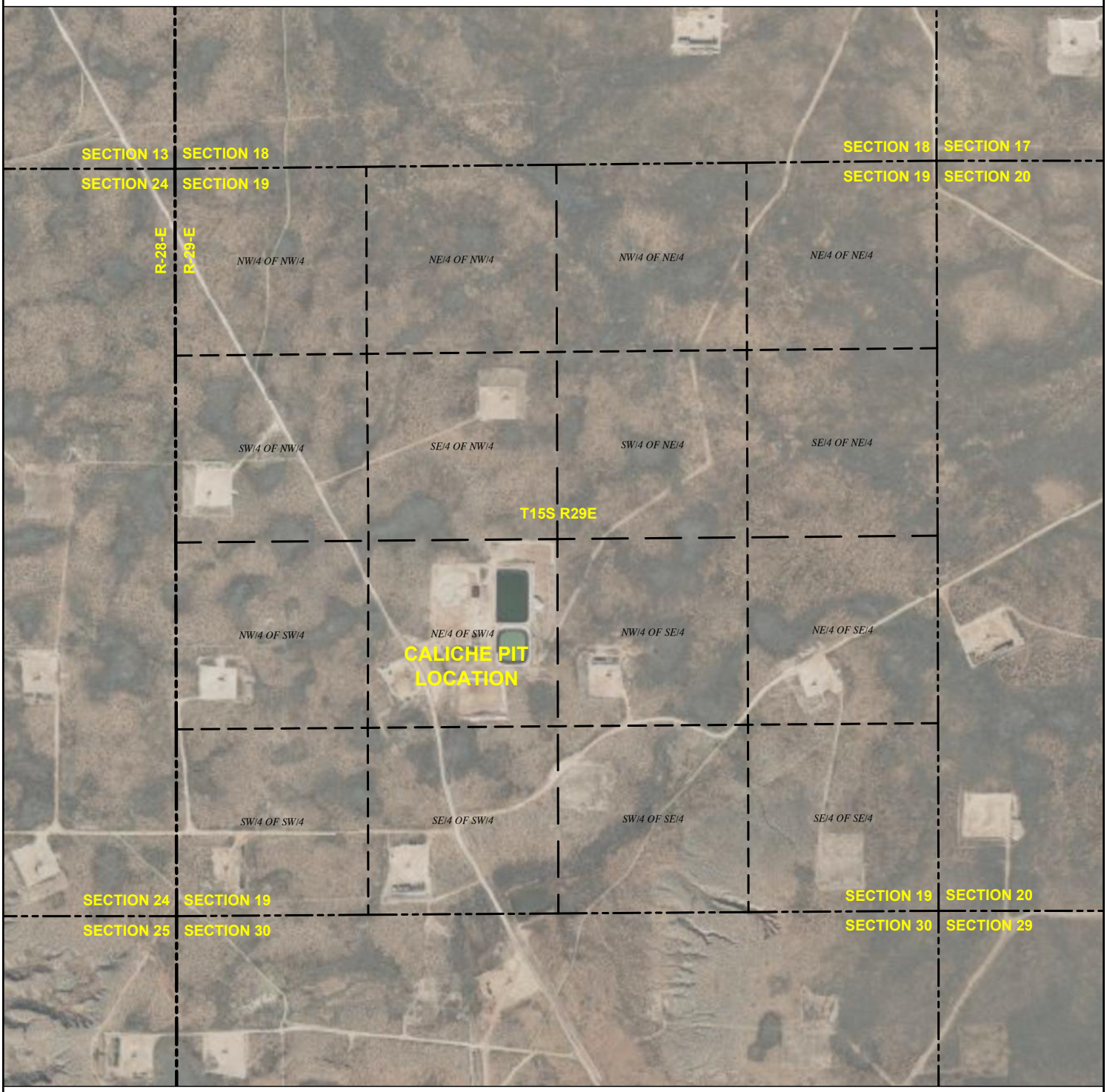
ASCENT GEOMATICS SOLUTIONS

FIELD DATE:	PROJECT NO.:	SITE NAME:	PREPARED FOR:
09-18-2025	B25.REPX.0015	LIAM NORTH PAD REV. 0	RILEY PERMIAN
DRAWING DATE:	DISCLAIMER:	SURFACE LOCATION:	
10-29-2025	THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE FOLLOWING COORDINATE SYSTEM: NAD83 NEW MEXICO STATE PLANE, EAST ZONE, U.S.. SURVEY FEET.	SEC. 4, T18S, R27E, N.M.P.M. EDDY COUNTY, NEW MEXICO	
BY: CJ / CHECKED: CLP			

EXHIBIT A
CONSTRUCTION MATERIAL MAP



N

0 500' 1000'

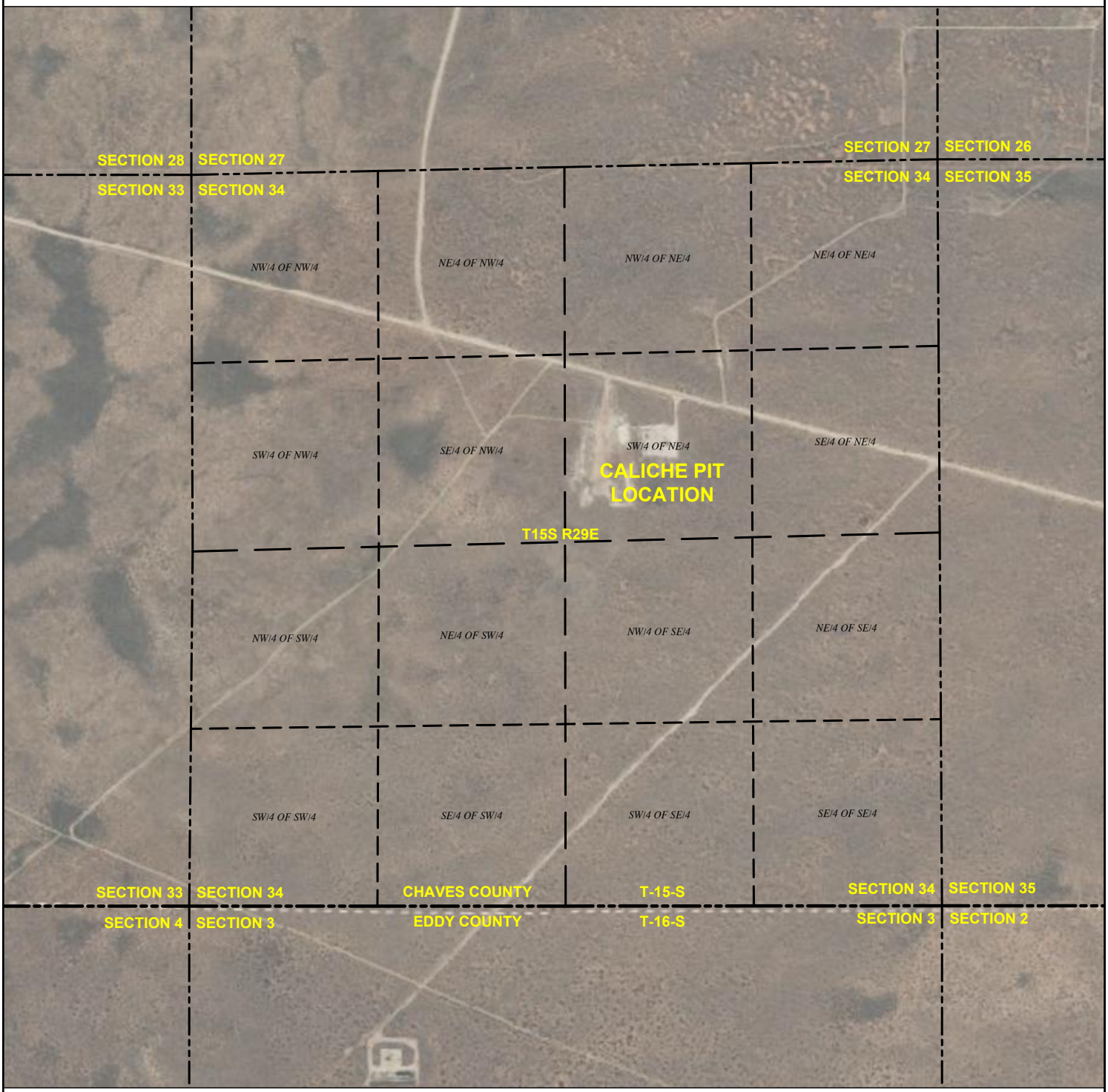
SCALE: 1"= 1000'

LEGEND

- = SECTION
- = QUARTER SECTION LINES
- = QUARTER QUARTER SECTION LINES

Ascent Geomatics Solutions 8620 Wolff Ct. Suite 200 Westminster, CO 80031 Office: (303) 928-7128 www.AscentGeomatics.com	FIELD DATE: 09-18-2025 DRAWING DATE: 10-29-2025 BY: CJ CHECKED: RH	PROJECT NO.: B25.REPX.0015 DISCLAIMER: THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE FOLLOWING COORDINATE SYSTEM: NAD83 NEW MEXICO STATE PLANE, EAST ZONE, U.S.. SURVEY FEET.	SITE NAME: LIAM FED REV. 0 SURFACE LOCATION: SEC. 19, T15S, R29E, N.M.P.M. CHAVES COUNTY, NEW MEXICO	PREPARED FOR: RILEY PERMIAN

EXHIBIT A
CONSTRUCTION MATERIAL MAP



N

0 500' 1000'

SCALE: 1"= 1000'

LEGEND

- = SECTION
- = QUARTER SECTION LINES
- = QUARTER QUARTER SECTION LINES

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FIELD DATE:	PROJECT NO.:	SITE NAME:	
09-18-2025	B25.REPX.0015	LIAM FED	REV. 0

DRAWING DATE:	BY:	CHECKED:
10-29-2025	CJ	RH

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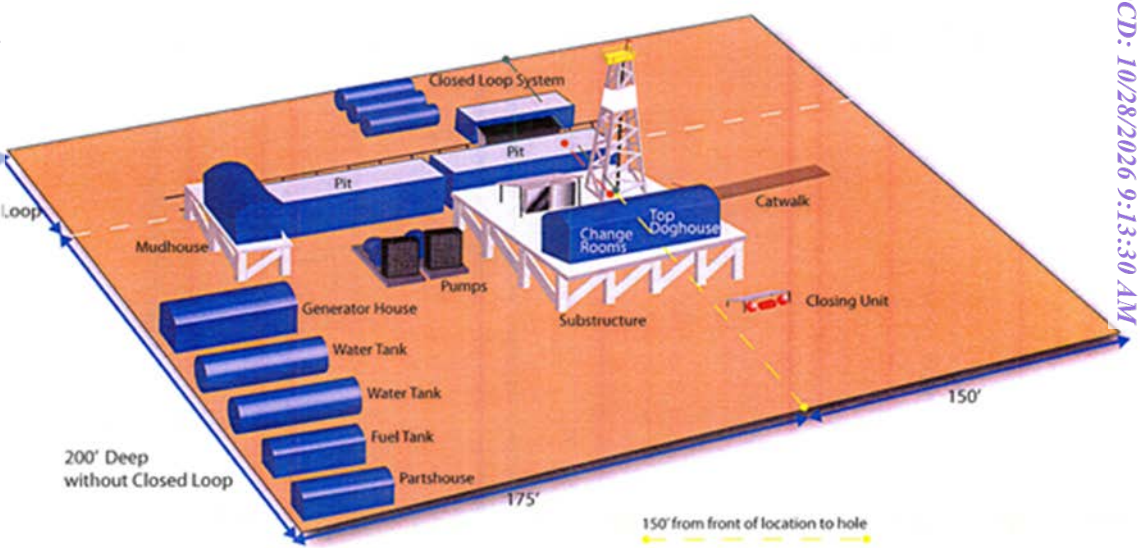
SURFACE LOCATION:
SEC. 34, T15S, R29E, N.M.P.M.
CHAVES COUNTY, NEW MEXICO

PREPARED FOR:
RILEY PERMIAN

Released to Imaging: 11/12/2026 1:37:22 PM
Received by OCD: 10/28/2026 9:13:30 AM

Location Layout



150' from front of location to hole

175' from left of location to hole

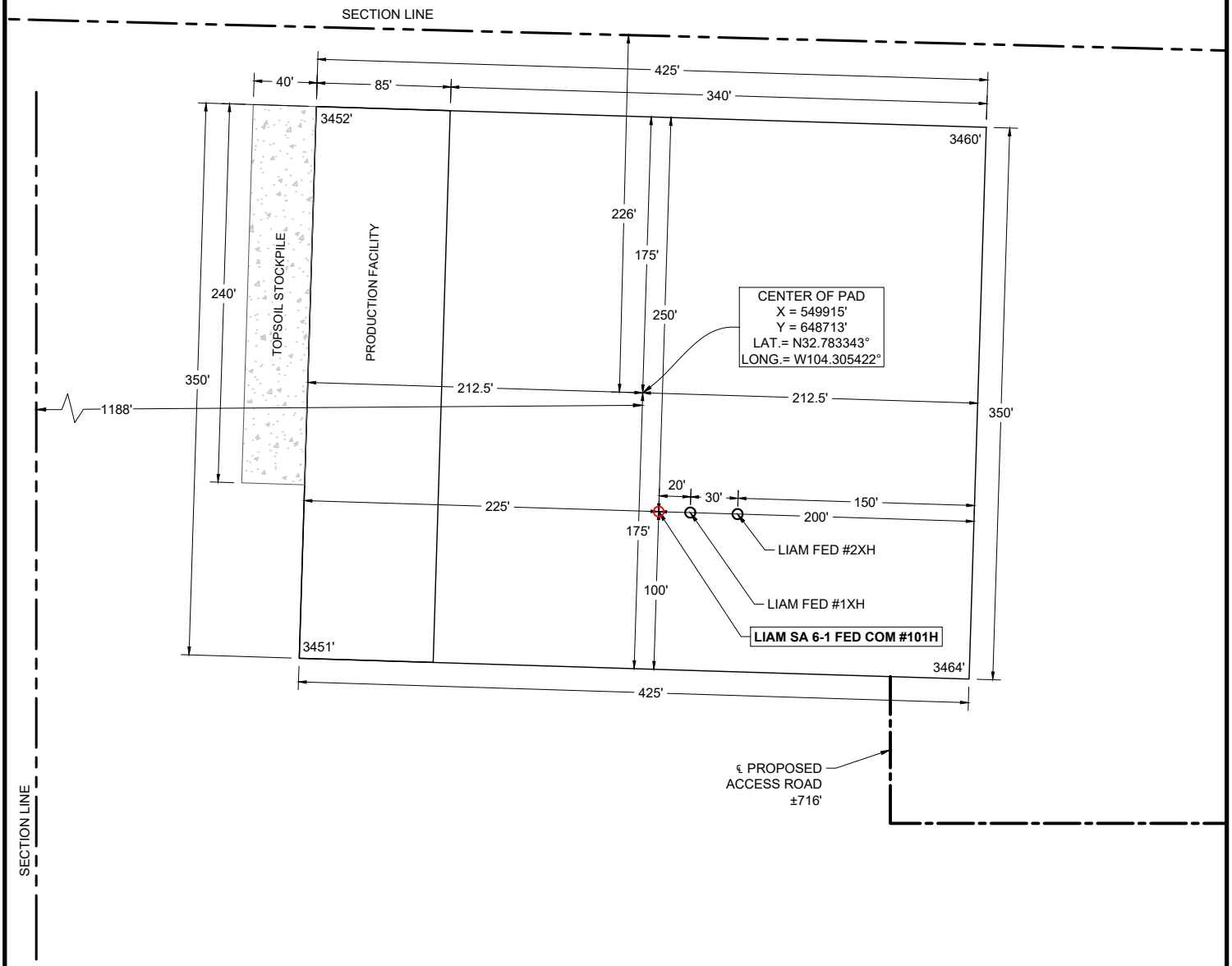
50' from hole to back of location (without closed loop)

150' from hole to back of location (with closed loop)

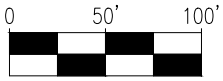
Location size without Closed Loop System
200' Deep X 325' Wide

Location size with Closed Loop System
300' Deep X 325' Wide

EXHIBIT 5
PAD LAYOUT







LEGEND

- = PROPOSED WELL
- = PROPOSED ACCESS ROAD
- = SECTION LINE

LATITUDE: N 32.783136°
LONGITUDE: W 104.305389°
SURFACE HOLE: 302' FNL & 1197' FWL
SURFACE HOLE ELEVATION: 3458'
CENTER OF PAD: 226' FNL & 1188' FWL

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ASCENT GEOMATICS SOLUTIONS

FIELD DATE:	PROJECT NO.:	SITE NAME:	REV.
07-09-2026	B25.REPX.0015	LIAM SA 6-1 FED COM #101H	0

DRAWING DATE: 08-05-2026
BY: MB CHECKED: RH

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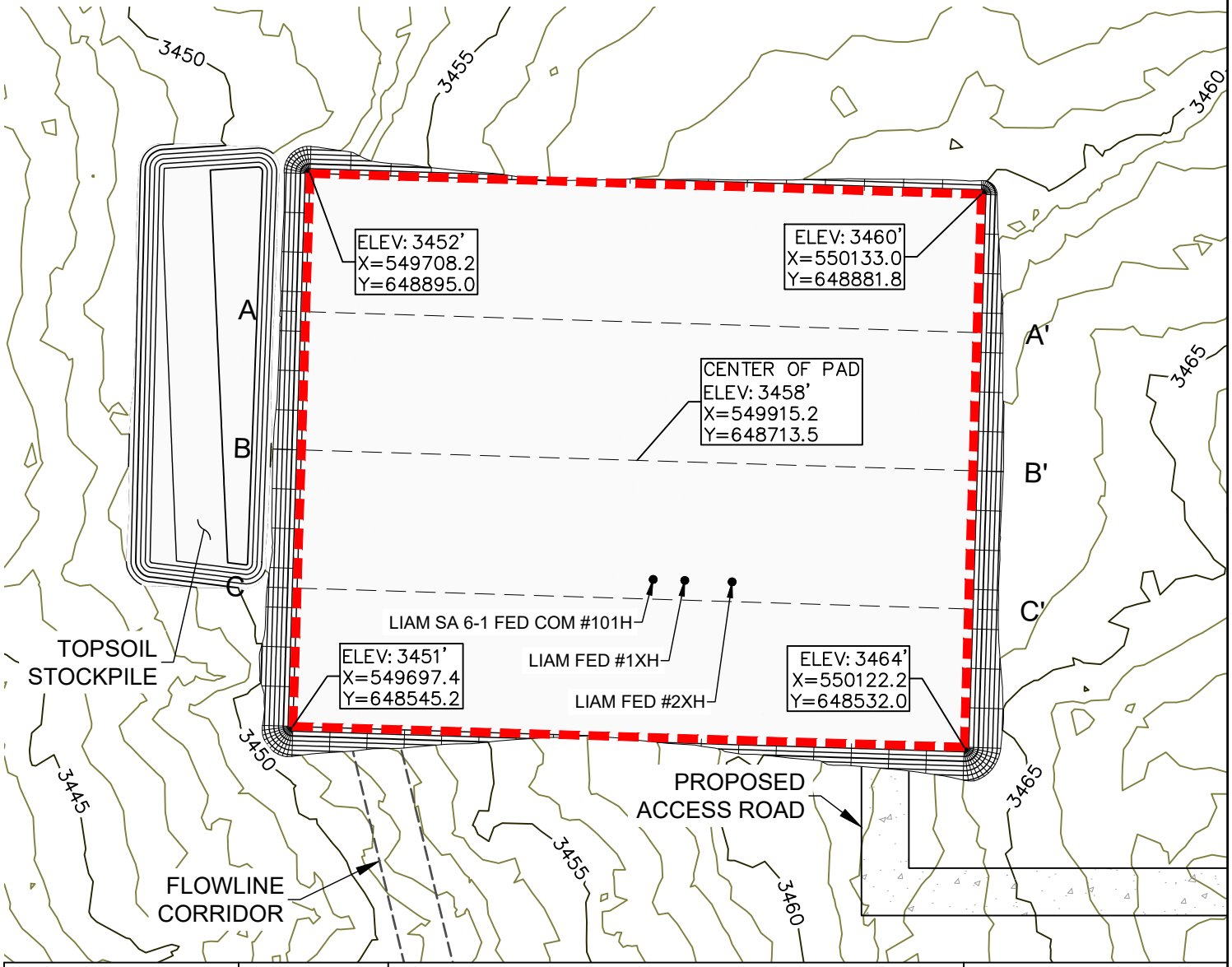
SURFACE LOCATION:
SEC. 5, T18S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

PREPARED FOR:
RILEY PERMIAN

PLAT: \\AGSFS\PROJECTS\REPX__B250015\PROD\C102_PACKAGE\PADSITES\3_LIAM_SA_6-1_FED_COM_101H_PADSITE_2_NORTH 8/6/26 10:45 AM Mbenson

EXHIBIT 6
LIAM FED
NORTH PAD

SECTION 5, TOWNSHIP 18-S, RANGE 27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



PROPOSED QUANTITIES

TOP OF PAD ELEVATION: 3457.0'
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): ±0%
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT: 237,033 C.F., 8,779 C.Y.
FILL: 237,033 C.F., 8,779 C.Y.
AREA: 168,645 SQ.FT., 3.9 ACRES
TOPSOIL: 3,123 C.Y.

SITE ACREAGE
DISTURBANCE AREA: 4.4 ACRES

NOTES:
1. A COMPLETE UTILITIES LOCATION IS RECOMMENDED BEFORE CONSTRUCTION.
2. ALL BEARING, DISTANCE, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON NAD83 NEW MEXICO STATE PLANE, EAST ZONE, U.S. SURVEY FOOT.
3. EARTHWORK QUANTITIES ARE APPROXIMATE & FOR INFORMATION ONLY. 6" OF TOPSOIL HAS BEEN SUBTRACTED FROM EXISTING SURFACE PRIOR TO PERFORMING EARTHWORK CALCULATIONS.
4. SITE QUANTITIES HAVE BEEN BALANCED TO WITHIN A TENTH OF A FOOT IN ACCORDANCE WITH ACCEPTABLE CONSTRUCTION TOLERANCES.

DISCLAIMER:
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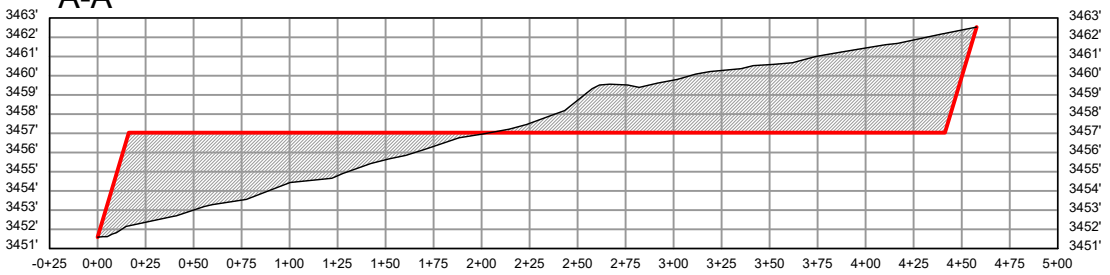
www.AscentGeomatics.com

FIELD DATE:	SITE NAME:	REV.	PREPARED FOR:
07/09/2026	LIAM FED NORTH PAD	1	RILEY PERMIAN
DRAWING DATE:	SURFACE LOCATION:		
08/05/2026	LOT 3 & LOT 4, SEC. 5, T18S, R27E, N.M. P.M.		
BY: MB / CHECKED: DP	EDDY COUNTY, NEW MEXICO		

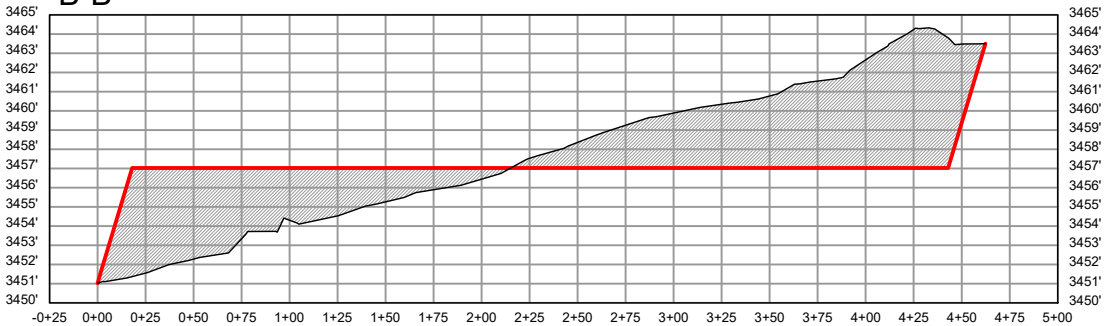
EXHIBIT 6A
LIAM FED
NORTH PAD

SECTION 5, TOWNSHIP 18-S, RANGE 27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

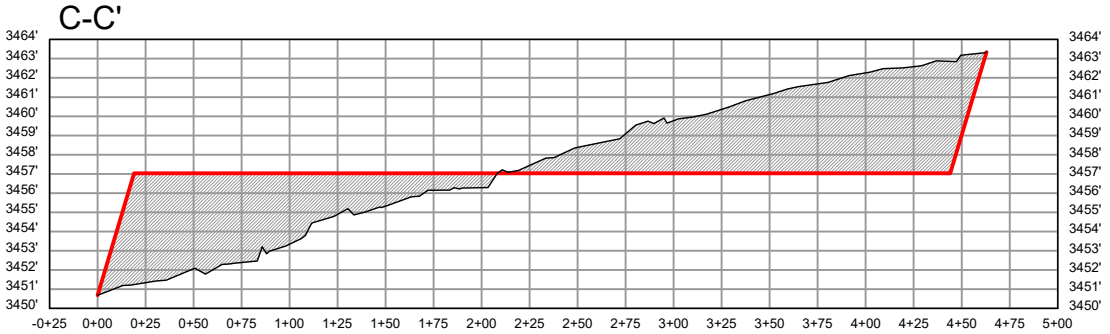
A-A'

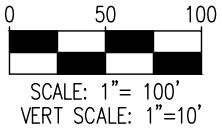


B-B'



C-C'





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8620 Wolff Ct.
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Westminster, CO 80031
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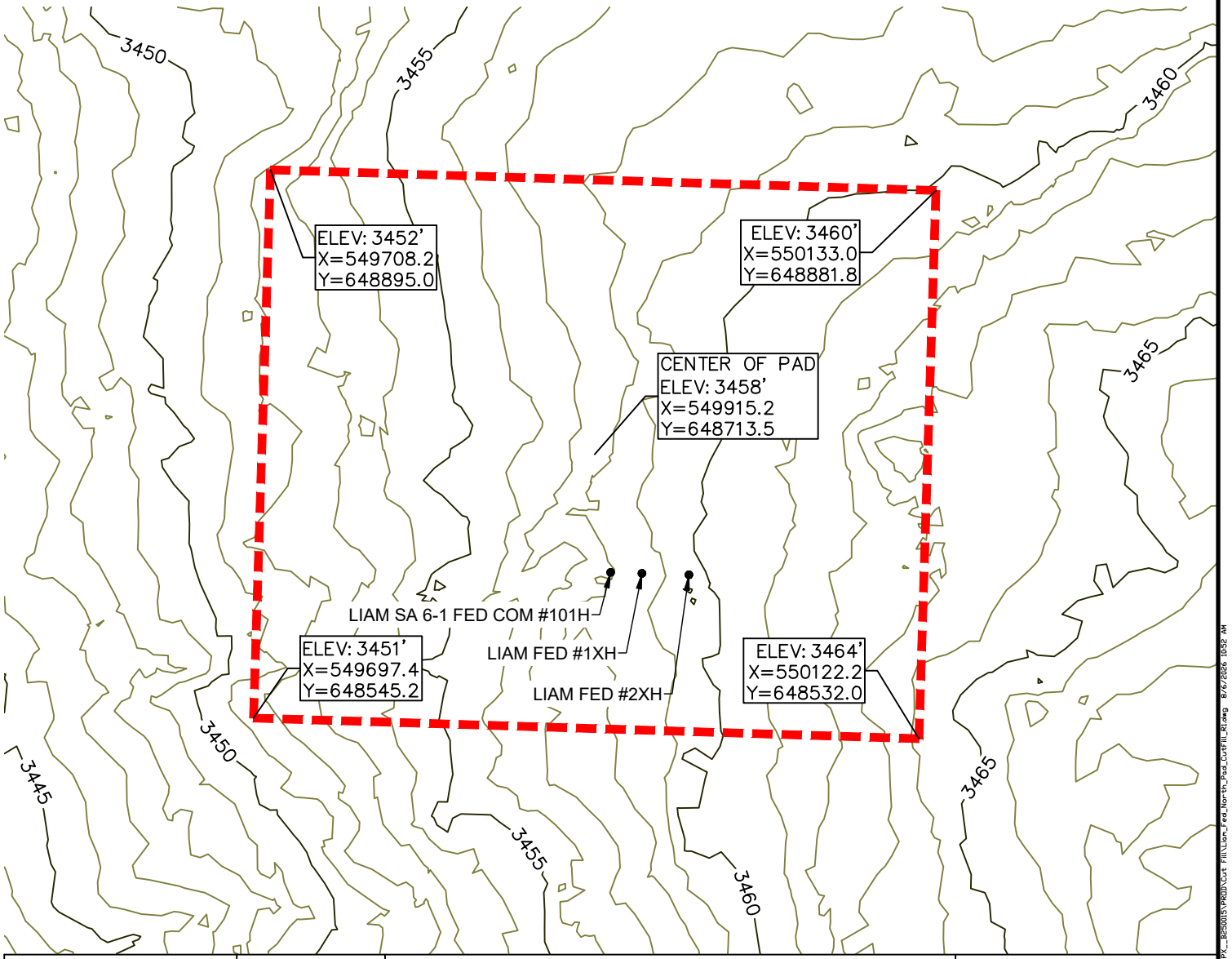
www.AscentGeomatics.com

FIELD DATE:	SITE NAME:	PREPARED FOR:
07/09/2026	LIAM FED NORTH PAD REV. 1	
DRAWING DATE:	SURFACE LOCATION:	
08/05/2026	LOT 3 & LOT 4, SEC. 5, T18S, R27E, N.M. P.M.	
BY: MB / CHECKED: DP	EDDY COUNTY, NEW MEXICO	

EXHIBIT 6B
LIAM FED
NORTH PAD

SECTION 5, TOWNSHIP 18-S, RANGE 27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

0 50 100
SCALE: 1"= 100'



PROPOSED QUANTITIES

TOP OF PAD ELEVATION: 3457.0'
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): ±0%
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT: 237,033 C.F., 8,779 C.Y.
FILL: 237,033 C.F., 8,779 C.Y.
AREA: 168,645 SQ.FT., 3.9 ACRES
TOPSOIL: 3,123 C.Y.

SITE ACREAGE
DISTURBANCE AREA: 4.4 ACRES

NOTES:
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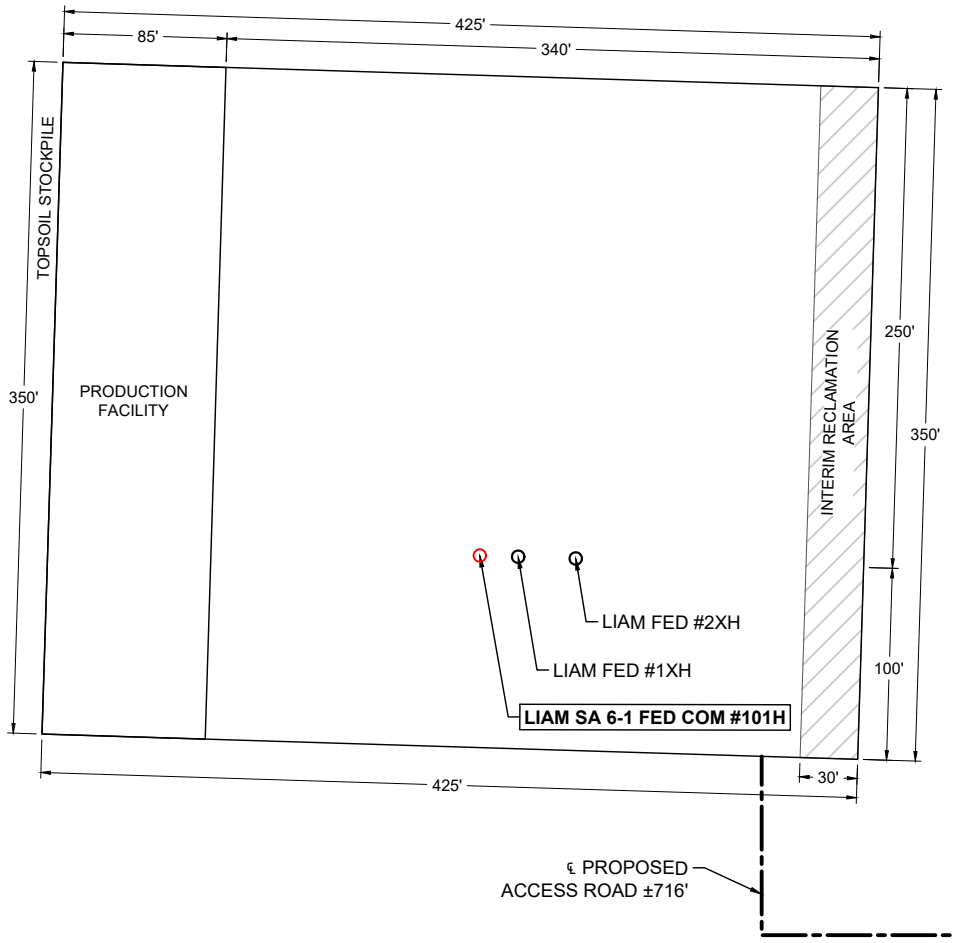
Office: (303) 928-7128
www.AscentGeomatics.com

FIELD DATE:	07/09/2026
DRAWING DATE:	08/05/2026
BY:	MB
CHECKED:	DP
SITE NAME:	LIAM FED NORTH PAD REV. 1
SURFACE LOCATION:	LOT 3 & LOT 4, SEC. 5, T18S, R27E, N.M. P.M. EDDY COUNTY, NEW MEXICO
PREPARED FOR:	RILEY PERMIAN

\\agsfs\projects\REPX__B250015\PROD\Cut Fill\Liam_Fed_North_Pad_CutFill_R1.dwg 8/6/2026 10:52 AM

EXHIBIT 6
RECLAMATION DIAGRAM





0 50 100

SCALE: 1"= 100'

LEGEND

= PROPOSED WELL

= PROPOSED ACCESS ROAD

INTERIM RECLAMATION AREA: 0.24 ACRES
LATITUDE: N 32.783136°
LONGITUDE: W 104.305389°
SURFACE HOLE: 302' FNL & 1197' FWL
SURFACE HOLE ELEVATION: 3458'
CENTER OF PAD: 226' FNL & 1188' FWL

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FIELD DATE:	PROJECT NO.:	SITE NAME:	REV.
07-09-2026	B25.REPX.0015	LIAM SA 6-1 FED COM #101H	0

DRAWING DATE:	BY:	CHECKED:
08-06-2026	MB	RH

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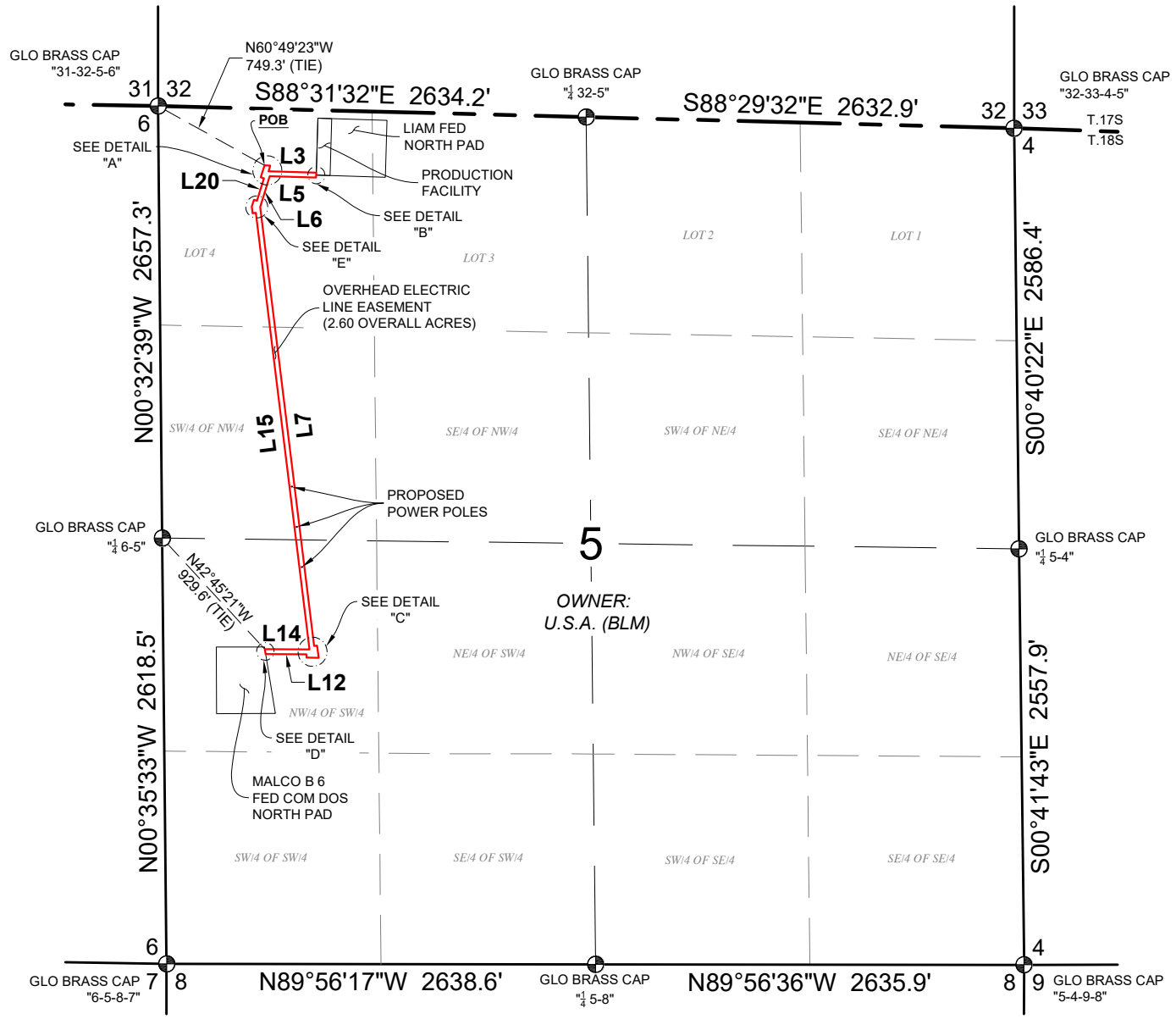
SURFACE LOCATION:
SEC. 5, T18S, R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

PREPARED FOR:
RILEY PERMIAN

PLAT: \\AGSFS\PROJECTS\REPX__B250015\PROD\C102_PACKAGE\REC_DIAGRAMS\4_LIAM_SA_6-1_FED_COM_REC_DIAGRAM_101H_NORTHPAD 8/12/26 1:59 PM Mbenson

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO



*SEE SHEET 2 OF 3 FOR THE DETAIL VIEWS AND LINE TABLES
*SEE SHEET 3 OF 3 FOR THE METES AND BOUNDS DESCRIPTION.

LEGEND

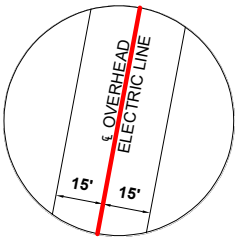
POB POINT OF BEGINNING

PROPOSED OVERHEAD ELECTRIC LINE EASEMENT

POINT FOR BEGIN/END OR ANGLE POINT

NOTES:
- BEARINGS, COORDINATES, AND DISTANCES (GRID) SHOWN HEREON ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83- 2011 (EPOCH 2010) FRAMEWORK, AS DERIVED BY OPUS SOLUTION. THE ELEVATIONS SHOWN HEREON AREA BASED ON NAVD 88.
- LAND OWNERSHIP INFORMATION REFLECTED HEREON WAS PROVIDED BY CLIENT AND/OR OBTAINED FROM PUBLIC DOMAIN DATA, NO INDEPENDENT OWNERSHIP SEARCH WAS PERFORMED BY ASCENT

0 500' 1000'
SCALE: 1"= 1000'



TYPICAL
RIGHT-OF-WAY EASEMENT CONFIGURATION



I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0024
SHEET: 1 OF 3
DRAFTED BY: JC
CHECKED BY: OP
REV: 0

RILEY PERMIAN

LIAM FED NORTH PAD PROPOSED
OVERHEAD ELECTRIC LINE EASEMENT
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
Suite 200
Westminster, CO 80031
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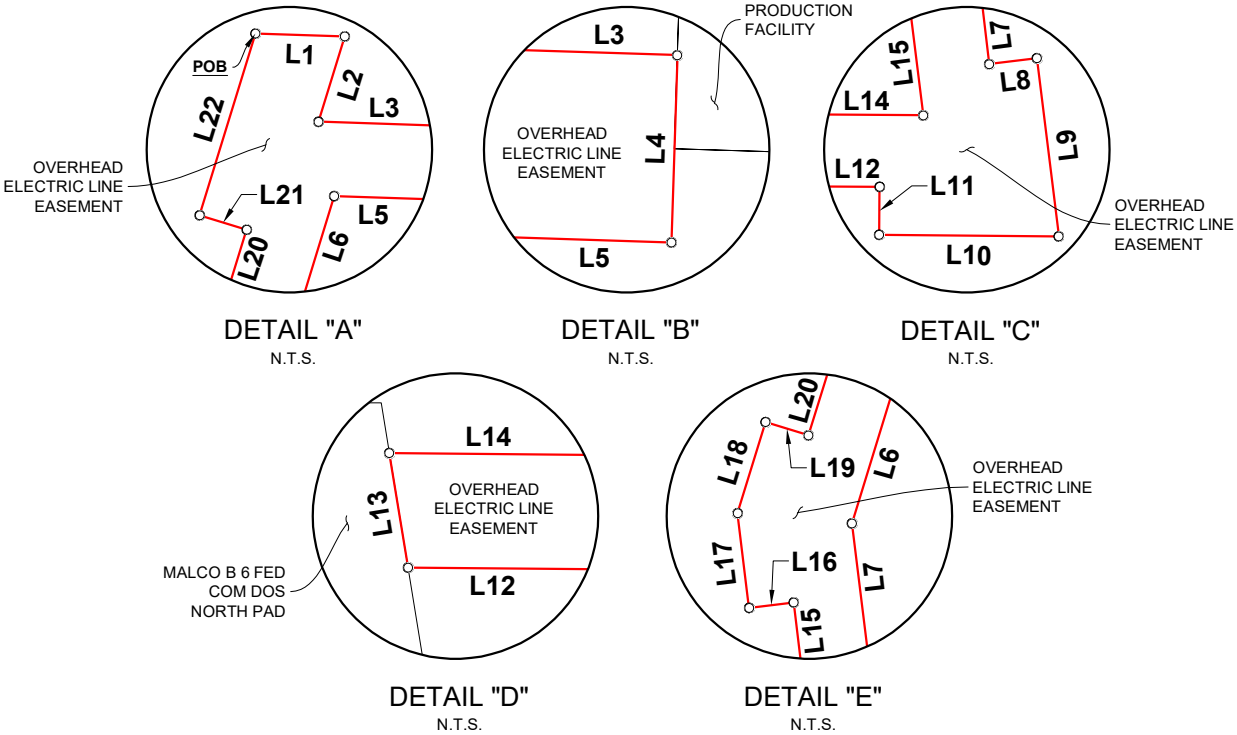
www.AscentGeomatics.com

PLAT: P:\REPX_ B25\0024\PROD\ROW_EXHIBIT\SIUTILITIES\LIAM_FED_NORTH_PAD_OHEEP_LIAM_FED_NORTH_PAD_OVERHEAD_ELECTRIC_LINE_EASEMENT 11/17/25 9:06 AM Jcastro

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO

Line Table		
Line #	Direction	Length
L1	S88°10'04"E	36.3'
L2	S17°05'25"W	36.3'
L3	S88°10'04"E	293.5'
L4	S01°49'56"W	30.0'
L5	N88°10'04"W	286.1'
L6	S17°05'25"W	199.6'
L7	S07°00'02"E	2719.0'
L8	N82°59'58"E	20.0'
L9	S07°00'02"E	74.9'
L10	N89°28'34"W	74.9'
L11	N00°31'26"E	20.0'

Line Table		
Line #	Direction	Length
L12	N89°28'34"W	252.0'
L13	N09°17'29"W	30.4'
L14	S89°28'34"E	275.1'
L15	N07°00'02"W	2705.1'
L16	S82°59'58"W	20.0'
L17	N07°00'02"W	42.5'
L18	N17°05'25"E	42.5'
L19	S72°54'35"E	20.0'
L20	N17°05'25"E	144.2'
L21	N72°54'35"W	20.0'
L22	N17°05'25"E	77.3'



LEGEND

POB POINT OF BEGINNING

PROPOSED OVERHEAD ELECTRIC LINE EASEMENT

POINT FOR BEGIN/END OR ANGLE POINT

*SEE SHEET 1 OF 3 FOR ADDITIONAL INFORMATION.
*SEE SHEET 3 OF 3 FOR THE METES AND BOUNDS DESCRIPTION.

NOTES:
- BEARINGS, COORDINATES, AND DISTANCES (GRID) SHOWN HEREON ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83- 2011 (EPOCH 2010) FRAMEWORK, AS DERIVED BY OPUS SOLUTION. THE ELEVATIONS SHOWN HEREON AREA BASED ON NAVD 88.
- LAND OWNERSHIP INFORMATION REFLECTED HEREON WAS PROVIDED BY CLIENT AND/OR OBTAINED FROM PUBLIC DOMAIN DATA, NO INDEPENDENT OWNERSHIP SEARCH WAS PERFORMED BY ASCENT

MITCHELL L. McDONALD NEW MEXICO 29821 PROFESSIONAL SURVEYOR 11/17/2025

I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0024
SHEET: 2 OF 3

DRAFTED BY: JC
CHECKED BY: OP
REV: 0

RILEY PERMIAN

LIAM FED NORTH PAD PROPOSED
OVERHEAD ELECTRIC LINE EASEMENT
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
Suite 200
Westminster, CO 80031
Office: (303) 928-7128
www.AscentGeomatics.com

PLAT: P:\REPX_B25\0024\PROD\ROW_EXHIBIT\SIUTILITIES\LIAM_FED_NORTH_PAD_OHEEP_LIAM_FED_NORTH_PAD_OVERHEAD_ELECTRIC_LINE_EASEMENT 11/14/25 3:55 PM Jcastro

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO

LIAM FED NORTH PAD PROPOSED OVERHEAD ELECTRIC LINE EASEMENT

METES & BOUNDS DESCRIPTION

A PROPOSED EASEMENT SITUATED IN THE WEST HALF OF THE WEST HALF OF SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, FROM WHICH A GLO BRASS CAP FOUND AND ACCEPTED AS THE NORTHWEST CORNER OF SAID SECTION 5 BEARS N60°49'23"W, 749.3 FEET, SAID POINT BEING THE NORTHWEST CORNER HEREOF;

THENCE THE FOLLOWING TWENTY-TWO (22) COURSES AND DISTANCES:
S88°10'04"E, 36.3 FEET;
S17°05'25"W, 36.3 FEET;
S88°10'04"E, 293.5 FEET;
S01°49'56"W, 30.0 FEET;
N88°10'04"W, 286.1 FEET;
S17°05'25"W, 199.6 FEET;
S07°00'02"E, 2719.0 FEET;
N82°59'58"E, 20.0 FEET;
S07°00'02"E, 74.9 FEET;
N89°28'34"W, 74.9 FEET;
N00°31'26"E, 20.0 FEET;
N89°28'34"W, 252.0 FEET;
N09°17'29"W, 30.4 FEET;
S89°28'34"E, 275.1 FEET;
N07°00'02"W, 2705.1 FEET;
S82°59'58"W, 20.0 FEET;
N07°00'02"W, 42.5 FEET;
N17°05'25"E, 42.5 FEET;
S72°54'35"E, 20.0 FEET;
N17°05'25"E, 144.2 FEET;
N72°54'35"W, 20.0 FEET;
N17°05'25"E, 77.3 FEET TO THE POINT OF **BEGINNING**, CONTAINING 2.60 ACRES

*SEE SHEET 1 OF 3 FOR ADDITIONAL INFORMATION.
*SEE SHEET 2 OF 3 FOR THE DETAIL VIEWS AND LINE TABLES.

NOTES:
- BEARINGS, COORDINATES, AND DISTANCES (GRID) SHOWN HEREON ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83- 2011 (EPOCH 2010) FRAMEWORK, AS DERIVED BY OPUS SOLUTION. THE ELEVATIONS SHOWN HEREON AREA BASED ON NAVD 88.
- LAND OWNERSHIP INFORMATION REFLECTED HEREON WAS PROVIDED BY CLIENT AND/OR OBTAINED FROM PUBLIC DOMAIN DATA, NO INDEPENDENT OWNERSHIP SEARCH WAS PERFORMED BY ASCENT

MITCHELL L. McDONALD NEW MEXICO 29821 PROFESSIONAL SURVEYOR
11/17/2025

I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0024
SHEET: 3 OF 3
DRAFTED BY: JC
CHECKED BY: OP
REV: 0

RILEY PERMIAN

LIAM FED NORTH PAD PROPOSED
OVERHEAD ELECTRIC LINE EASEMENT
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
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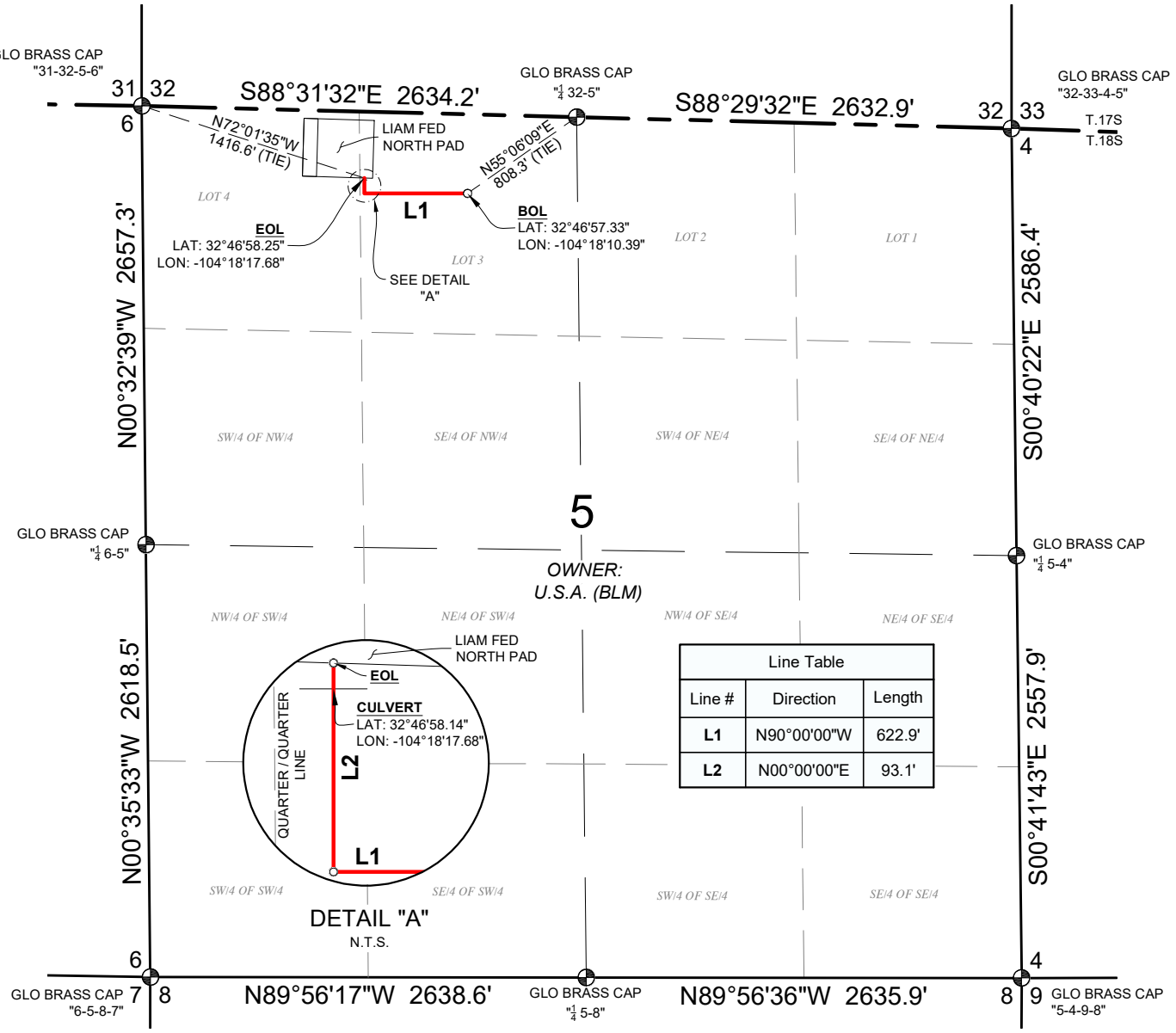
PLAT: P:\REPX_B25\0024\PROD\ROW_EXHIBIT\SIUTILITIES\LIAM_FED_NORTH_PAD_OHEIEP_LIAM_FED_NORTH_PAD_OVERHEAD_ELECTRIC_LINE_EASEMENT 11/14/25 3:57 PM Jcastro

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO



Line Table		
Line #	Direction	Length
L1	N90°00'00"W	622.9'
L2	N00°00'00"E	93.1'

LIAM FED NORTH PAD PROPOSED ACCESS ROAD
CENTERLINE DESCRIPTION

A STRIP OF LAND 30 FEET IN WIDTH AND 716.0 FEET, 43.4 RODS OR 0.14 MILES IN LENGTH, CONTAINING 0.49 ACRES, SITUATED IN SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15 FEET ON EACH SIDE OF THE CENTERLINE SHOWN HEREON.

LEGEND

BOL / EOL BEGINNING/END OF LINE

PROPOSED ACCESS ROAD

POINT FOR BEGIN/END OR ANGLE POINT

NOTES:
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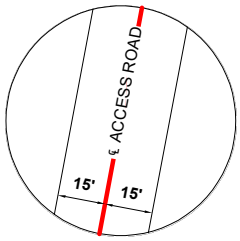
- LAND OWNERSHIP INFORMATION REFLECTED HEREON WAS PROVIDED BY CLIENT AND/OR OBTAINED FROM PUBLIC DOMAIN DATA, NO INDEPENDENT OWNERSHIP SEARCH WAS PERFORMED BY ASCENT

0 500' 1000'
SCALE: 1"= 1000'



TYPICAL
RIGHT-OF-WAY EASEMENT CONFIGURATION



I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0015
SHEET: 1 OF 1
DRAFTED BY: BF
CHECKED BY: OP
REV: 0

RILEY PERMIAN

LIAM FED NORTH PAD PROPOSED ACCESS ROAD
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

ASCENT GEOMATICS SOLUTIONS
Ascent Geomatics Solutions
8620 Wolff Ct.
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Westminster, CO 80031
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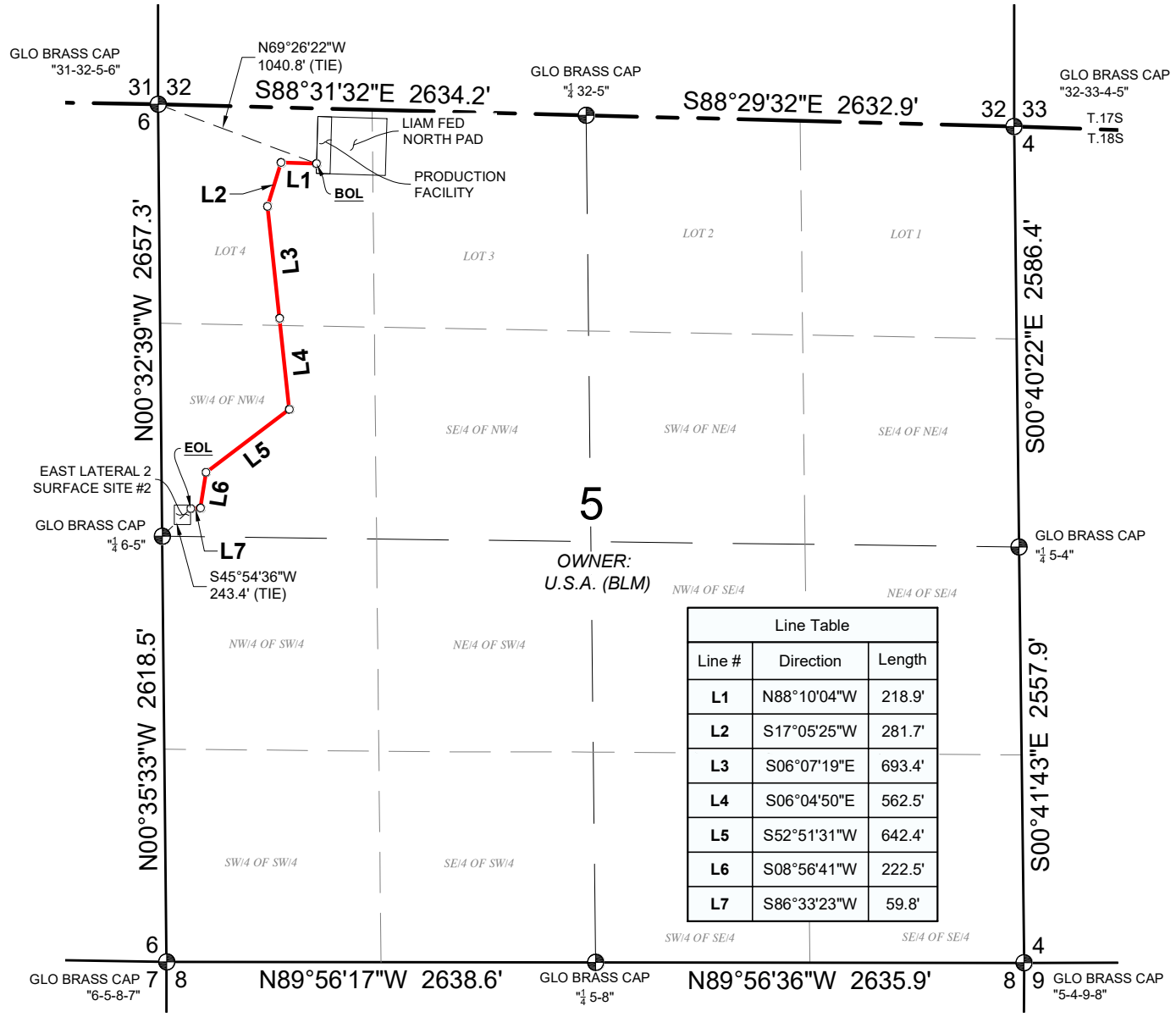
PLAT: P:\REPX_ B250015\PROD\ROW_EXHIBITS\ACCESS_ROADS\EP_LIAM_FED_NORTH_PAD_ACCESS_ROAD 11/17/25 5:53 PM Openez

SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST,
EDDY COUNTY, NEW MEXICO



Line Table		
Line #	Direction	Length
L1	N88°10'04"W	218.9'
L2	S17°05'25"W	281.7'
L3	S06°07'19"E	693.4'
L4	S06°04'50"E	562.5'
L5	S52°51'31"W	642.4'
L6	S08°56'41"W	222.5'
L7	S86°33'23"W	59.8'

LIAM FED NORTH PAD PROPOSED WATER LINE
CENTERLINE DESCRIPTION

A STRIP OF LAND 30 FEET IN WIDTH AND 2681.2 FEET, 162.5 RODS OR 0.51 MILES IN LENGTH, CONTAINING 1.85 ACRES, SITUATED IN SECTION 5, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15 FEET ON EACH SIDE OF THE CENTERLINE SHOWN HEREON.

LEGEND

BOL / EOL BEGINNING/END OF LINE

PROPOSED WATER LINE

POINT FOR BEGIN/END OR ANGLE POINT

NOTES:
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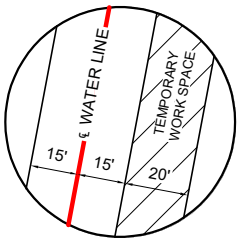
0 500' 1000'
SCALE: 1"= 1000'



TYPICAL N.T.S.
RIGHT-OF-WAY EASEMENT, TEMPORARY WORK SPACE CONFIGURATION



I, MITCHELL L. MCDONALD, NEW MEXICO PROFESSIONAL SURVEYOR NO. 29821, DO HEREBY CERTIFY THAT THIS EASEMENT PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT AND THAT THIS INSTRUMENT IS AN EASEMENT PLAT OF A PROPOSED EASEMENT.

MITCHELL L. MCDONALD, N.M. P.L.S. **No.29821**

SURVEY DATE: 09/03/2025
JOB NO.: B25.REPX.0024
SHEET: 1 OF 1
DRAFTED BY: BF
CHECKED BY: OP
REV: 0

RILEY PERMIAN

LIAM FED NORTH PAD PROPOSED WATER LINE
SEC. 5, T-18-S, R-27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

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PLAT: P:\REPX_B25\0024\PROD\ROW_EXHIBIT\SIUTILITIES\LIAM_FED_NORTH_PAD_WATER\EP_LIAM_FED_NORTH_PAD_WATER_LINE 11/14/25 4:42 PM Jcastro

We will need ROWs for OHE and Water Pipeline as part of this APD. See all attached plats for location specifics.

Liam North Pad Electric Line Details as follows -

Primary voltage will be 12.47kV (Phase to Phase)

Secondary voltage will be 7.2kV (Phase to ground).

ROW width 30'.

Length of ROW 3,558.29 ft.

Acres – 2.60

Were the OHE crosses an unnamed waterway, we will span the waterway at the shortest possible crossing based on comments from Brandon Carico during October 14,2025 onsite.

Overhead Electric Line Construction

The construction of overhead electric distribution lines begins with route selection and staking in accordance with approved plans and regulatory requirements. The alignment is chosen to minimize environmental impacts and avoid sensitive resources such as wetlands and riparian zones to the extent practicable. Where wetlands or riparian areas must be crossed, the shortest practicable crossing area will be chosen. Known cultural sites and karst areas will be avoided. In areas of high karst potential, construction activities will follow BLM-approved measures to prevent subsurface impacts.

In this area of New Mexico, clearing and grading are typically not required for overhead electric line installation. In rare circumstances, the right-of-way may be mowed to reduce vegetation height for safe construction access. Because ground disturbance is minimal, reclamation practices such as regrading and revegetation are generally not required. Drainage and erosion control measures are implemented throughout construction to protect soil and water resources.

Temporary access routes may be established to allow safe movement of equipment and materials. Pole installation typically involves drilling or augering holes for foundations, which may include concrete footings depending on soil conditions and structural requirements. Poles—wood, steel, or composite—are then set and secured. Crossarms, insulators, and hardware are installed to support conductors. Once structures are in place, conductors are strung using tension-controlled methods to maintain proper clearances and prevent damage. Stringing may involve specialized equipment such as tensioners and pullers.

Construction practices follow BLM standards and best management practices to minimize surface disturbance, protect sensitive resources, and maintain long-term land health.

Liam North Pad Water Pipeline Details –

Water pipeline length – 2862.2 feet.

ROW width 30'.

Acres – 1.85

Pipeline Diameter – up to 12"

Anticipated water volume – Up to 35,000 BBL per day.

Pipeline Material - HDPE

Where the water pipeline crosses the unnamed waterway, we will cross at the shortest possible crossing based on comments from Brandon Carico during October 15,2025 onsite.

Pipeline Construction

Pipeline installation begins with preparation of the right-of-way (ROW). If necessary, survey stakes are re-established to define the construction corridor. The ROW is then cleared and graded to create a smooth, stable work surface suitable for equipment and personnel. Following site preparation, a trench is excavated to accommodate the pipeline.

For steel pipelines, bending machines are used to shape the pipe to match trench contours. The pipe is then cribbed—typically with wood blocks—to elevate it for welding. Welders operate from trucks equipped with mounted welding machines, moving from joint to joint to complete welds. Once welding is complete, each joint is inspected to ensure compliance with applicable quality standards. While steel pipe is typically delivered with a factory-applied corrosion coating, field-applied coating is added to protect welded areas.

If Polyethylene (poly) pipe is used, installation differs in that it does not require bending machines, as the pipe will conform naturally to the trench contours, or welding trucks. Instead, joints are fused using a plastic welding machine that evenly heats and melts the pipe joints, permanently bonding them. These joints are also tested to verify they meet quality requirements.

After the pipe is positioned, side boom tractors travel along the ROW to lower it into the trench. Excavated soil is then backfilled using motor graders or similar equipment and compacted with wheeled machinery to minimize future settling. Once the main line is installed, ancillary facilities such as pig launchers, side taps, and meter stations are constructed. The final step is hydrostatic testing, during which the pipeline is filled with water and pressurized above its normal operating level to confirm structural integrity and ensure safe operation.

Liam North Pad Access Road Details -

Access Road Length – 716’

ROW Width – 30’

Acres – 0.49

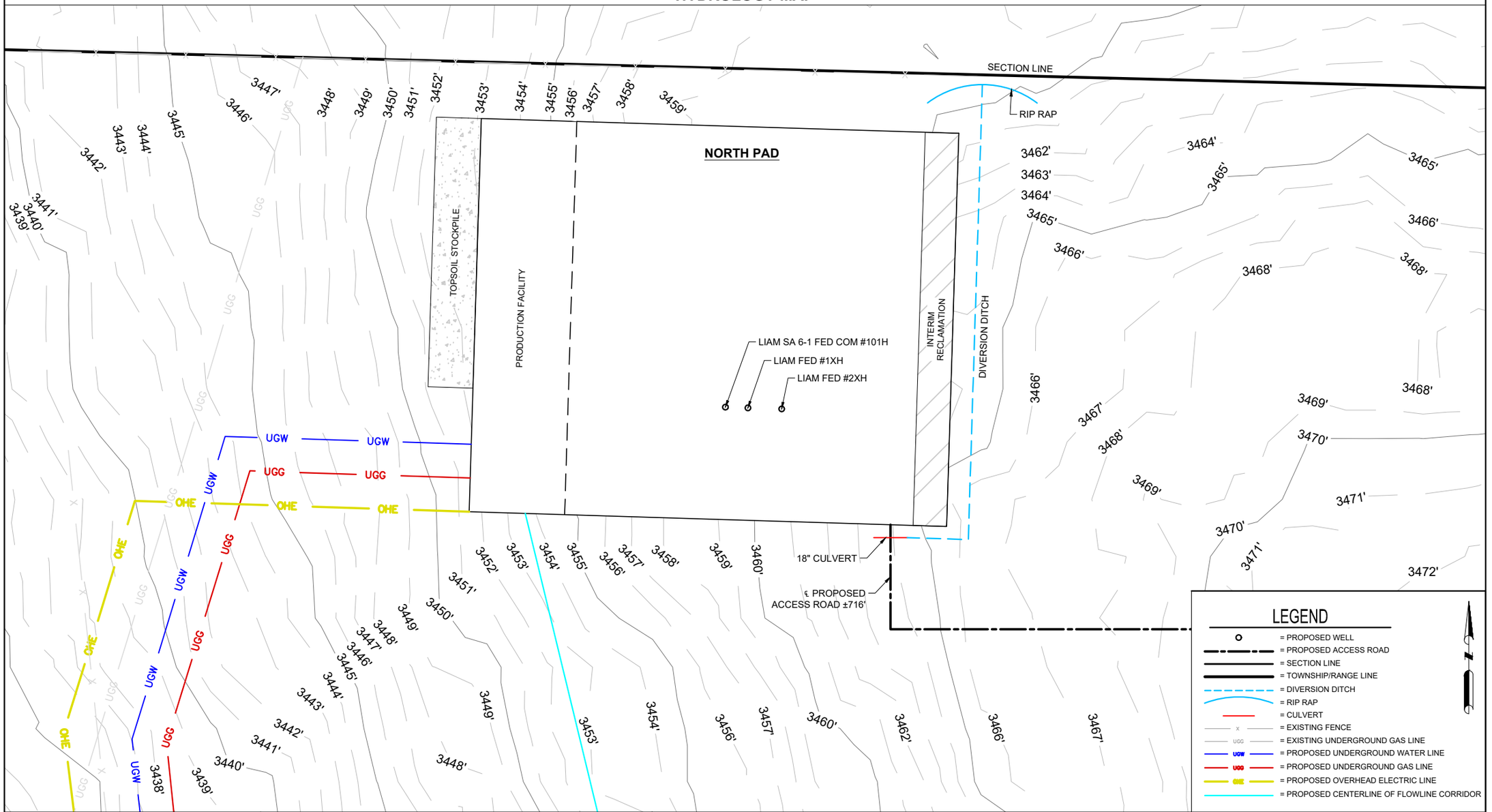
Access Road Construction

Access roads are constructed to provide safe and reliable transportation of equipment, materials, and personnel to the well site. The process begins with route selection to minimize environmental impacts and avoid sensitive areas such as wetlands, steep slopes, and riparian zones. Clearing and grubbing remove vegetation and obstacles, and topsoil is salvaged and stockpiled for use in reclamation. Grading establishes a stable roadbed, and where necessary, cut-and-fill operations are used to achieve proper alignment and drainage.

The road surface is typically built using locally sourced aggregate or stabilized soil to support heavy loads and reduce maintenance. Drainage structures such as culverts and ditches are installed to manage runoff and prevent erosion. Roads are designed to accommodate large vehicles and maintain safe travel under varying weather conditions. Construction practices prioritize minimizing surface disturbance and maintaining reclamation potential, consistent with BLM standards and best management practices.

Page 172 of 179

LIAM FED
HYDROLOGY MAP



ASCENT GEOMATICS SOLUTIONS
8620 WOLFF CT, SUITE 200
WESTMINSTER, CO 80031
(303) 926-7128
www.ascentgeomatics.com

FIELD DATE:	09/03/2025
DRAWING DATE:	09/08/2026
BY:	RH
CHECKED:	CJ
WELL NAME:	LIAM FED NORTH PAD
SURFACE LOCATION:	SEC. 5, T18S, R27E, N.M.P.M. EDDY COUNTY, NEW MEXICO
PROJECT NUMBER:	B25.REPX.0015
	REV. 0

CENTER OF PAD: 226' FNL & 1188' FWL

0 50' 100'
SCALE: 1"= 100'

PREPARED FOR: RILEY PERMIAN

Received by OCD: 10/28/2026 9:13:30 AM
Released to Imaging: 11/12/2026 1:37:22 PM

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

PWD Data Report
10/26/2026

APD ID: 10400113358 **Submission Date:** 08/13/2026

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Well Type: OIL WELL **Well Work Type:** Drill

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: **PWD disturbance (acres):**

Other PWD Surface Owner Description:

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

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

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:**

Other PWD Surface Owner Description:

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):

Precipitated Solids Permit

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

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

State

Unlined Produced Water Pit Estimated

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

Is the reclamation bond a rider under the BLM bond?

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:

PWD surface owner: **PWD disturbance (acres):**

Other PWD Surface Owner Description:

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **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):**

Other PWD Surface Owner Description :

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Section 6 -

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

PWD Surface Owner Description:

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type

Have other regulatory requirements been met?

Other regulatory requirements

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

Bond Info Data
10/26/2026

APD ID: 10400113358 **Submission Date:** 08/13/2026

Operator Name: RILEY PERMIAN OPERATING COMPANY LLC

Well Name: LIAM SA 6-1 FED COM **Well Number:** 101H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes
Show Final Text

Bond

Federal/Indian APD: FED

BLM Bond number: NMB001563

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 attachment:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

ACKNOWLEDGMENTS

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 636720
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

ACKNOWLEDGMENTS

☑	I hereby certify that no additives containing PFAS chemicals will be added to the completion or recompletion of this well.

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 636720
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
ascentrepx	Cement is required to circulate on both surface and intermediate1 strings of casing.	10/28/2026
ascentrepx	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	10/28/2026
ward.rikala	Notify the OCD 24 hours prior to casing & cement.	11/12/2026
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	11/12/2026
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.	11/12/2026
ward.rikala	Cement is required to circulate on both surface and production strings of casing.	11/12/2026
ward.rikala	If the method of isolation was not by circulation, a CBL must be performed; if strata isolation is not achieved, then remediation will be required before further operations.	11/12/2026
ward.rikala	If a DV tool is utilized during the casing cementing operations, the following COA applies: 1- Once the DV tool is opened and circulation is established, it needs to be noted if cement is circulated off of the top of the DV tool and how much. 2- If cement is not circulated off of the top of the DV tool, then a CBL will be required. Depending upon the results of the CBL, remedial action may be required prior to drilling operations continuing.	11/12/2026