

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM16348

6. If Indian, Allottee or Tribe Name

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

1a. Type of work: DRILL REENTER

1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone

8. Lease Name and Well No.
LUSITANO 27-34 FED COM 718H 312562

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP

9. API Well No.
30-015-44429

3a. Address
333 West Sheridan Avenue Oklahoma City OK

3b. Phone No. (include area code)
(405)552-6571

10. Field and Pool, or Exploratory
PURPLE SAGE / WOLFCAMP

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface NENE / 235 FNL / 355 FEL / LAT 32.1079131 / LONG -103.7583974

At proposed prod. zone SESE / 330 FSL / 330 FEL / LAT 32.0803706 / LONG -103.7585014

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 27 / T25S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
235 feet

16. No. of acres in lease
840

17. Spacing Unit dedicated to this well
320

18. Distance from proposed location* to nearest well, drilling, completed, 3000 feet applied for, on this lease, ft.

19. Proposed Depth
11900 feet / 21984 feet

20. BLM/BIA Bond No. on file
FED: CO1104

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3336 feet

22. Approximate date work will start*
11/16/2017

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- | | |
|---|---|
| <ul style="list-style-type: none"> 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). | <ul style="list-style-type: none"> 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 required by the BLM. |
|---|---|

25. Signature (Electronic Submission)	Name (Printed/Typed) Linda Good / Ph: (405)552-6558	Date 06/27/2017
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Title
Regulatory Compliance Professional

Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 08/31/2017
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Title
Supervisor Multiple Resources
Office
CARLSBAD

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.

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*(Instructions on page 2)



RVF - 9-15-17
NISP Required (649/2500)

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Prod Co
LEASE NO.:	NM16348
WELL NAME & NO.:	Lusitano 27 15 Fed Com – 718H
SURFACE HOLE FOOTAGE:	235'/N & 355'/E, sec 27
BOTTOM HOLE FOOTAGE:	330'/S & 330'/E, sec. 34
LOCATION:	Sec. 27, T. 25 S, R. 31 E
COUNTY:	Eddy County

I. SPECIAL REQUIREMENT(S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, 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.
- 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

I. DRILLING OPERATIONS 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)

Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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 be operational at all times 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 is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

II. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst

Possibility of water flows in the Castile, and Salado.

Possibility of lost circulation in the Rustler, Red Beds, and Delaware.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

A. The 13-3/8 inch surface casing shall be set at approximately 920 feet and cemented to the surface. If salt is encountered, set casing at least 25 feet above the salt.

1. 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 and ideally between 8-10 hours after completing the cement job.
2. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
3. 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.
4. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

Medium Cave/Karst: If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

B. The minimum required fill of cement behind the 7-5/8 inch intermediate 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 cave/karst. Excess calculates to -8% - Additional cement may be required.**

Operator has proposed DV tool at depth of 4300', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

- Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage. **Excess calculates to 20% - Additional cement may be required.**

b. Second stage above DV tool:

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to -38% - Additional cement may be required.**

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

C. The minimum required fill of cement behind the 5-1/2 inch production casing is:

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 1% - Additional cement may be required.**

4. If hardband 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.

III. PRESSURE CONTROL

- A. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
- B. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

- C. 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.**

5M 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.

- D. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

1. 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 when specified), 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).
2. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.**
3. 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 hour clock.
4. The results of the test shall be reported to the appropriate BLM office.
5. 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.**
6. 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.

IV. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

V. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result 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.

CLN 08272017

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NMNM16348
WELL NAME & NO.:	718H –Lusitano 27 34 Fed Com
SURFACE HOLE FOOTAGE:	235'/N & 355'/E
BOTTOM HOLE FOOTAGE:	330'/S & 330'/E
LOCATION:	Section 27 T.25 S., R.34 E., NENE
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

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- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
 - Lesser Prairie-Chicken Timing Stipulations
 - Below Ground-level Abandoned Well Marker
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 - Watershed
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
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- Road Section Diagram**
- Production (Post Drilling)**
 - Well Structures & Facilities
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- Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period.

Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted.

Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at below ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Livestock Watering Requirement

The operator must contact the allotment holder prior to construction to identify the location of the water pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the water pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the water pipelines immediately. The operator must notify the BLM office (575-234-5972) and the

private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. 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.

As stated above, the applicant through the CCA program contributes funds that are used for habitat restoration projects identified by USFWS and BLM. Although the CCA program may not fully mitigate for impacts to habitat at the project site, it complies with the BLM mitigation rule.

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

The presence of short-eared owls is a surprising and scientifically interesting incident. The preparation and construction of CDU 34-34 pad and CTB #1 and CDU 27-27 pad and CTB #1 should be delayed until after September to allow confirmation and documentation of the nesting status.

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminants.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required.

- Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See Drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- Leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

Residual and Cumulative Mitigation

- Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Abandonment Cementing: 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.

- The entire well pads and CTB pads will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad and CTB pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pads shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and CTB and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pads and CTB pads during the life of the wells and CTB's will be corrected within two weeks and proper measures will be taken to prevent future erosion.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 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 Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

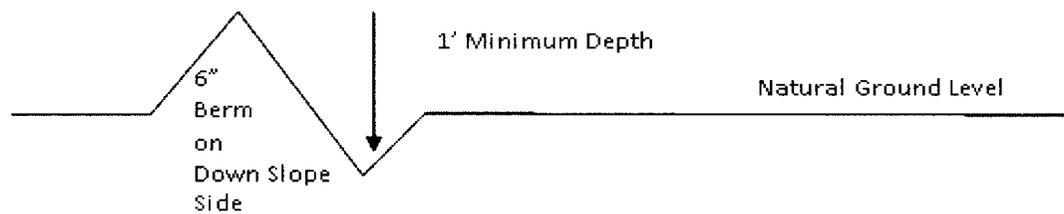
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

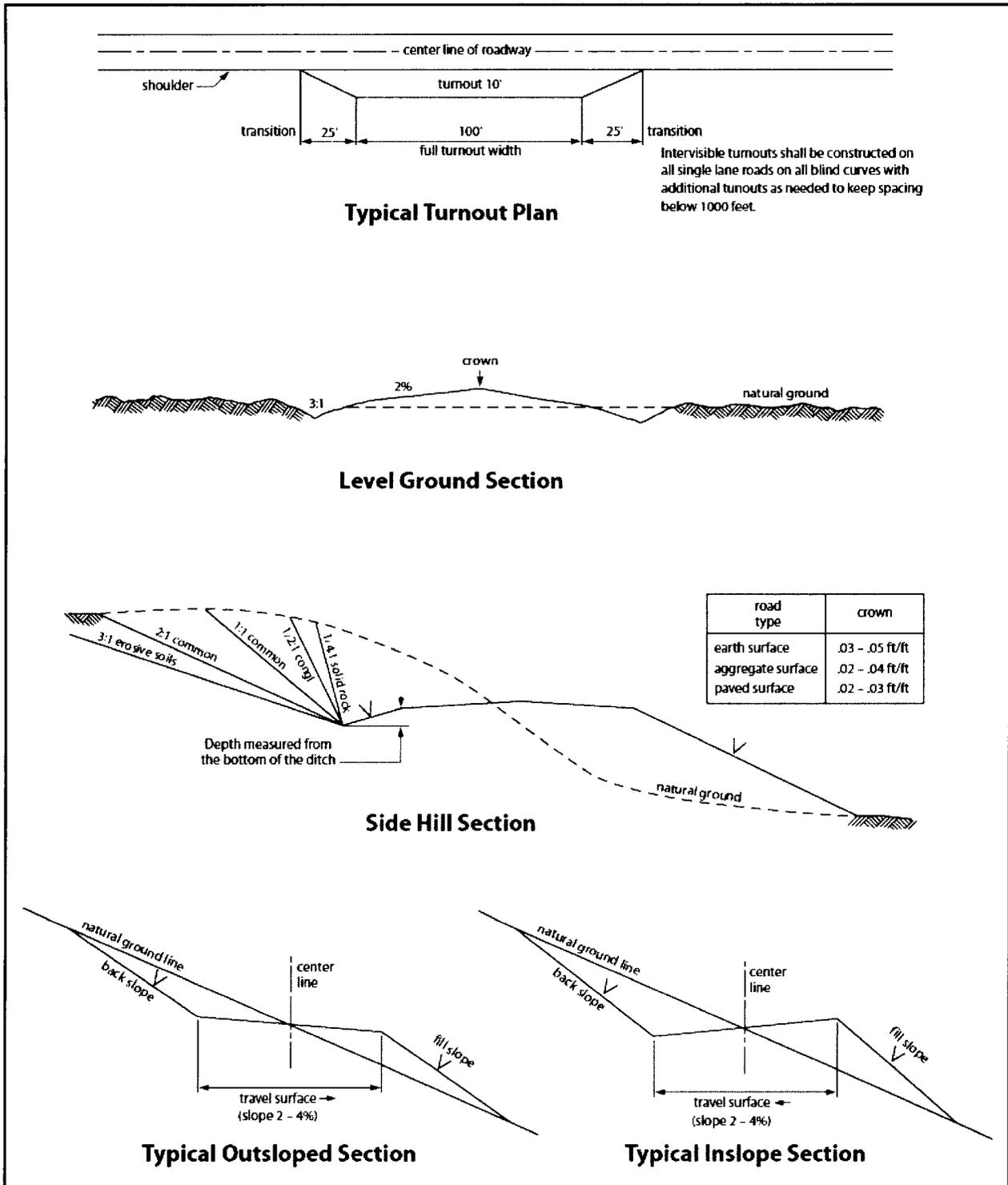


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. 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.

2. 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 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 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 as a result 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 involved Federal agency or State government.

3. 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) 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), or resulting from the activity of the Right-of-Way holder 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.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting

Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up 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 holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder 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.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. 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.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| <input type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4 |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates “Standard Environmental Colors” – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder’s name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

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

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. 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.
2. 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 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 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 as a result 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 involved Federal agency or State government.
3. 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) 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), or resulting from the activity of the Right-of-Way holder 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.
4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching

deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder 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 the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads 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.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

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

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be

allowed within up to 200 meters of leaks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

VIII. INTERIM RECLAMATION

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

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order 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 Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

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 should 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.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at below ground level on a plate containing the pertinent information for the plugged well. A GPS point will be given to the BLM.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all 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 shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall 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). 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. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NMNM16348
WELL NAME & NO.:	718H -Lusitano 27 34 Fed Com
SURFACE HOLE FOOTAGE:	235'/N & 355'/E
BOTTOM HOLE FOOTAGE:	330'/S & 330'/E
LOCATION:	Section 27 T.25 S., R.34 E., NENE
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

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- Noxious Weeds**
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 - Well Structures & Facilities
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I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at below ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Livestock Watering Requirement

The operator must contact the allotment holder prior to construction to identify the location of the water pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the water pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the water pipelines immediately. The operator must notify the BLM office (575-234-5972) and the

private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. 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.

As stated above, the applicant through the CCA program contributes funds that are used for habitat restoration projects identified by USFWS and BLM. Although the CCA program may not fully mitigate for impacts to habitat at the project site, it complies with the BLM mitigation rule.

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

The presence of short-eared owls is a surprising and scientifically interesting incident. The preparation and construction of CDU 34-34 pad and CTB #1 and CDU 27-27 pad and CTB #1 should be delayed until after September to allow confirmation and documentation of the nesting status.

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD:

- In the event that any underground voids are encountered during construction activities, construction activities will be halted and the BLM will be notified immediately.
- No Blasting to prevent geologic structure instabilities.
- Pad Berming to minimize effects of any spilled contaminants.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required.

- Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional Drilling allowed after at least 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost Circulation zones logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See Drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrain, the following Conditions of Approval will apply to this APD:

- Tank battery liners and berms to minimize the impact resulting from leaks.
- Leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of line failures used in production or drilling.

Residual and Cumulative Mitigation

- Annual pressure monitoring will be performed by the operator. If the test results indicate a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Abandonment Cementing: 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.

- The entire well pads and CTB pads will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad and CTB pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pads shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and CTB and after interim reclamation has been completed.
- Any water erosion that may occur due to the construction of the well pads and CTB pads during the life of the wells and CTB's will be corrected within two weeks and proper measures will be taken to prevent future erosion.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 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 Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

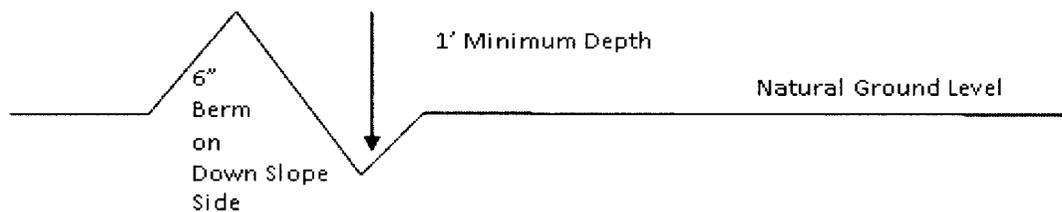
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

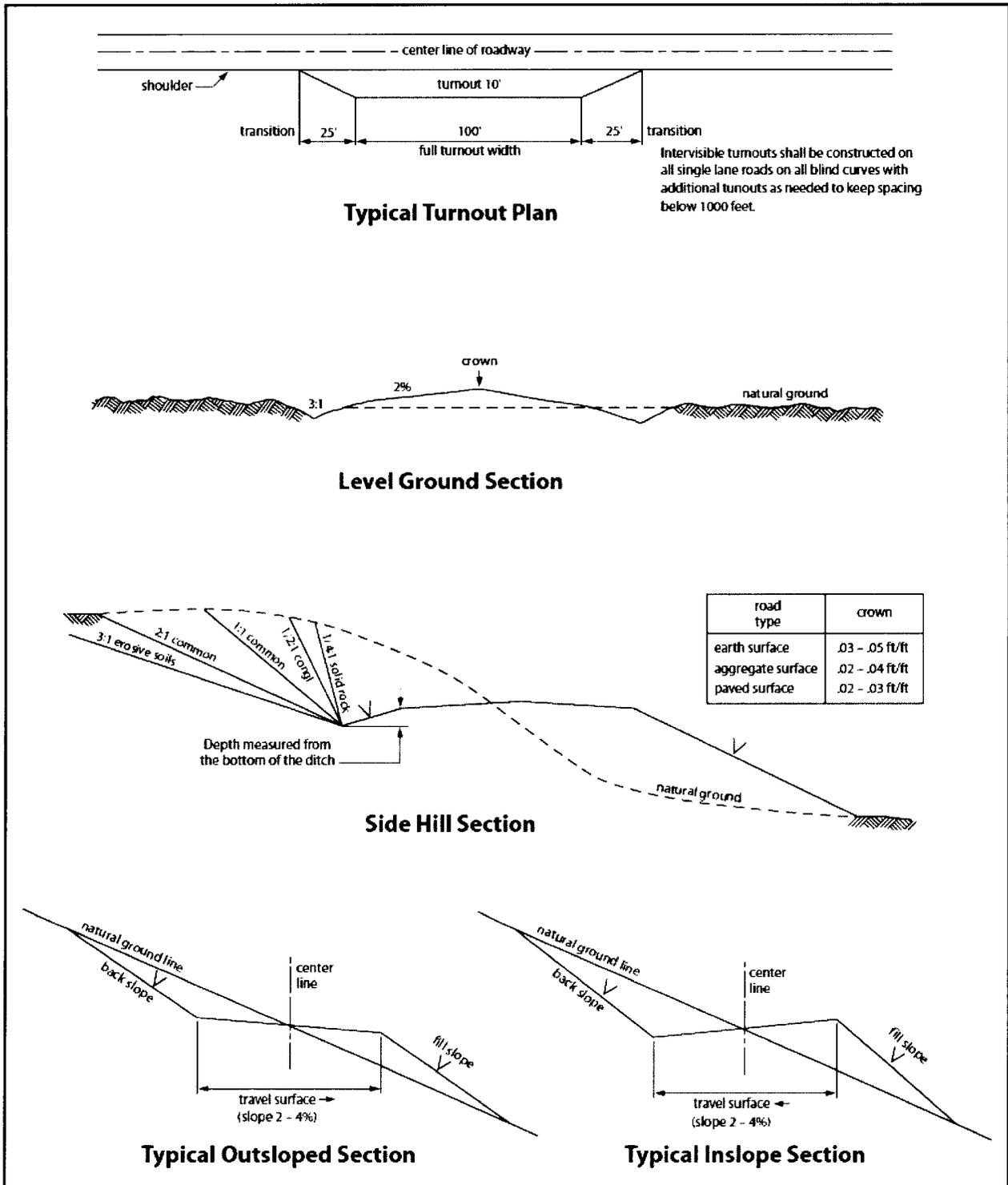


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. 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.
2. 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 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 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 as a result 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 involved Federal agency or State government.
3. 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) 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), or resulting from the activity of the Right-of-Way holder 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.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting

Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up 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 holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder 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.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. 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.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| <input type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4 |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates “Standard Environmental Colors” – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder’s name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

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

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. 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.

2. 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 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 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 as a result 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 involved Federal agency or State government.

3. 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, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) 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), or resulting from the activity of the Right-of-Way holder 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.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching

deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder 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 the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads 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.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

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

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be

allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

VIII. INTERIM RECLAMATION

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

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order 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 Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

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 should 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.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at below ground level on a plate containing the pertinent information for the plugged well. A GPS point will be given to the BLM.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all 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 shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall 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). 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. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed



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

Operator Certification Data Report

09/05/2017

Operator Certification

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: Linda Good

Signed on: 06/27/2017

Title: Regulatory Compliance Professional

Street Address: 333 West Sheridan Avenue

City: Oklahoma City

State: OK

Zip: 73102

Phone: (405)552-6558

Email address: Linda.Good@dvn.com

Field Representative

Representative Name: Ray Vaz

Street Address: 6488 Seven Rivers Hwy

City: Artesia

State: NM

Zip: 88210

Phone: (575)748-1871

Email address: ray.vaz@dvn.com



APD ID: 10400015474

Submission Date: 06/27/2017

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400015474

Tie to previous NOS?

Submission Date: 06/27/2017

BLM Office: CARLSBAD

User: Linda Good

Title: Regulatory Compliance
Professional

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM16348

Lease Acres: 840

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City State: OK

Operator Phone: (405)552-6571

Operator Internet Address: aletha.dewbre@dvn.com

Section 2 - Well Information

Well in Master Development Plan? EXISTING

Mater Development Plan name: Cotton Draw 1 MDP

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: PURPLE SAGE

Pool Name: WOLFCAMP

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

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Describe other minerals:

Is the proposed well in a Helium production area? N

Use Existing Well Pad? NO

New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name:

Number:

Well Class: HORIZONTAL

LUSITANO 27-34 FED COM

234H/336H/626H/235H/536H/528H

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: APPRAISAL

Describe sub-type:

Distance to town:

Distance to nearest well: 3000 FT

Distance to lease line: 235 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Lusitano_27_34_Fed_Com_718H_C_102_with_FTP_08-11-2017.pdf

Well work start Date: 11/16/2017

Duration: 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number: 5275

	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
SHL Leg #1	235	FNL	355	FEL	25S	31E	27	Aliquot NENE	32.10791 31	- 103.7583 974	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 16348	333 6	0	0
KOP Leg #1	0	FNL	330	FEL	25S	31E	27	Aliquot NENE	32.10791 31	- 103.7583 974	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 16348	- 799 1	113 34	113 27
PPP Leg #1	330	FNL	330	FEL	25S	31E	27	Aliquot NENE	32.10791 31	- 103.7583 974	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 16348	- 851 4	121 00	118 50

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

	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
PPP Leg #1	0	FSL	330	FEL	25S	31E	27	Aliquot SESE	32.10791 31	- 103.7583 974	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 128360	- 123 57	156 93	156 93
EXIT Leg #1	330	FSL	330	FEL	25S	31E	34	Aliquot SESE	32.08037 06	- 103.7585 014	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 125635	- 856 4	219 84	119 00
BHL Leg #1	330	FSL	330	FEL	25S	31E	34	Aliquot SESE	32.08037 06	- 103.7585 014	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 125635	- 856 4	219 84	119 00



APD ID: 10400015474

Submission Date: 06/27/2017

Highlighted data reflects the most recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
17691	UNKNOWN	3336	0	0	ALLUVIUM	NONE	No
17746	RUSTLER	2471	865	865	SALT	NONE	No
18574	SALADO	-435	3771	3771	SALT	NONE	No
17722	BASE OF SALT	-955	4291	4291	SALT	NONE	No
15315	DELAWARE	-956	4292	4292	SANDSTONE	NATURAL GAS,OIL	No
15338	BONE SPRING 1ST	-4844	8180	8180	LIMESTONE	NATURAL GAS,OIL	No
15338	BONE SPRING 1ST	-5918	9254	9254	SANDSTONE	NATURAL GAS,OIL	No
17737	BONE SPRING 2ND	-6118	9454	9454	LIMESTONE	NATURAL GAS,OIL	No
17737	BONE SPRING 2ND	-6529	9865	9865	SANDSTONE	NATURAL GAS,OIL	No
17738	BONE SPRING 3RD	-7074	10410	10410	LIMESTONE	NATURAL GAS,OIL	No
17738	BONE SPRING 3RD	-7958	11294	11294	SANDSTONE	NATURAL GAS,OIL	No
17709	WOLFCAMP	-8336	11672	11672	SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 11300

Equipment: (SAME AS COTTON DRAW 1 MDP) BOP/BOPE will be installed per Onshore Oil &&&&&& Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil &&&&&& Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

Variance request: (SAME AS COTTON DRAW 1 MDP) A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Testing Procedure: (SAME AS COTTON DRAW 1 MDP) A multibowl wellhead may be used. 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. If any seal subject to test pressure is broken the system must be tested.

Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_718H_Cotton_Draw_1_MDP_Reference_06-27-2017.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_718H_Cotton_Draw_1_MDP_Reference_06-27-2017.pdf

Pressure Rating (PSI): 5M

Rating Depth: 11900

Equipment: (SAME AS COTTON DRAW 1 MDP) BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

Requesting Variance? YES

Variance request: (SAME AS COTTON DRAW 1 MDP) A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

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Choke Diagram Attachment:

Lusitano_27_34_Fed_Com_718H_Cotton_Draw_1_MDP_Reference_06-27-2017.pdf

BOP Diagram Attachment:

Lusitano_27_34_Fed_Com_718H_Cotton_Draw_1_MDP_Reference_06-27-2017.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	890	0	890	-8564	-9454	890	H-40	48	STC	1.74	2.45	BUOY	4.13	BUOY	4.13
2	INTERMEDIATE	8.75	7.625	NEW	NON API	N	0	11300	0	11296	-8564	-18961	11300	P-110	29.7	OTHER - FLUSHMAX III	1.125	1.25	BUOY	1.6	BUOY	1.6
3	PRODUCTION	6.75	5.5	NEW	NON API	N	0	21984	0	11900	-8564	-20204	21984	P-110	20	OTHER - SF/FLUSH	1.125	1.25	BUOY	1.6	BUOY	1.6

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

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
1130 0	2198 4	OIL-BASED MUD	9.5	12							

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.

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

DS,GR,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7425

Anticipated Surface Pressure: 3972.54

Anticipated Bottom Hole Temperature(F): 174

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Lusitano_27_34_Fed_Com_718H_H2S_Plan_06-27-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Lusitano_27_34_Fed_Com_718H_Dir_Plan_06-27-2017.pdf

Other proposed operations facets description:

Drilling Plan - See attached

Multi-Bowl Wellhead - See attached

Gas Capture Plan - See attached

Closed Loop Design - See Cotton Draw 1 MDP

Other proposed operations facets attachment:

Lusitano_27_34_Fed_Com_718H_Drlg_Plan_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_MB_Wellhd_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_GasCapturePlan_06-27-2017.pdf

Other Variance attachment:

Lusitano_27_34_Fed_Com_718H_Cotton_Draw_1_MDP_Reference_06-27-2017.pdf

This item is addressed in the Cotton Draw 1 Master Development Plan. This page is used only to satisfy the AFMSSII attachment requirements.

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		Date	25-Jan-17
		Rev.	N - 1

FLUSHMAX-III

Geometry

Imperial

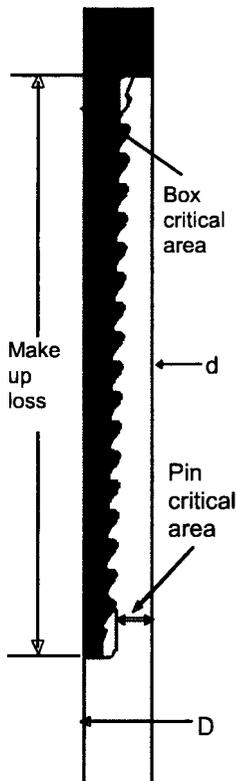
S.I.

Pipe Body

Grade	P110		P110	
Pipe OD (D)	7 5/8	in	193.68	mm
Weight	29.70	lb/ft	44.20	kg/m
Actual weight	29.04		43.21	kg/m
Wall Thickness (t)	0.375	in	9.53	mm
Pipe ID (d)	6.875	in	174.63	mm
Pipe body cross section	8.537	in ²	5,508	mm ²
Drift Dia.	6.750	in	171.45	mm

Connection

Box OD (W)	7.625	in	193.68	mm
PIN ID	6.875	in	174.63	mm
Make up Loss	3.040	in	77.22	mm
Box Critical Area	4.424	in ²	2854	mm ²
Joint load efficiency	60	%	60	%
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			



Performance

Performance Properties for Pipe Body

S.M.Y.S.	939	kips	4,177	kN
M.I.Y.P.	9,470	psi	65.31	MPa
Collapse Strength	5,350	psi	36.90	MPa

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body

Performance Properties for Connection

Tensile Yield load	563 kips (60% of S.M.Y.S.)			
Min. Compression Yield	563 kips (60% of S.M.Y.S.)			
Internal Pressure	7,580 psi (80% of M.I.Y.P.)			
External Pressure	100% of Collapse Strength			
Max. DLS (deg. /100ft)	25			

Recommended Torque

Min.	15,500	ft-lb	21,000	N-m
Opti.	17,200	ft-lb	23,300	N-m
Max.	18,900	ft-lb	25,600	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

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The products described in this Connection Data Sheet are not recommended for use in deep water offshore applications. For more information, please refer to http://www.mto.co.jp/mo-con/images/top/WebsiteTerms_Active_20333287_1.pdf the contents of which are incorporated by reference into this Connection Data Sheet.

Metal One Corp. Metal One	FLUSHMAX-III Connection Data Sheet	Page	44-O
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		Rev.	N - 1

Geometry

Imperial

S.I.

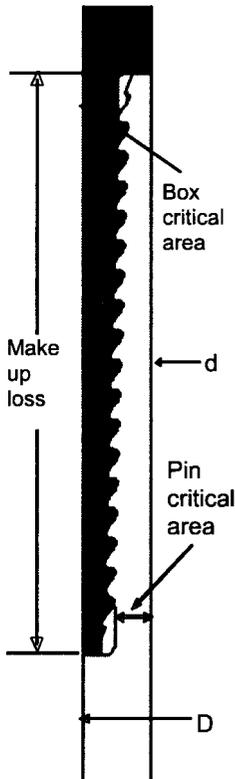
FLUSHMAX-III

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Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

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Casing Assumptions and Load Cases

Surface

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Surface Casing Burst Design		
Load Case	External Pressure	Internal Pressure
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Displace to Gas	Formation Pore Pressure	Dry gas from next casing point

Surface Casing Collapse Design		
Load Case	External Pressure	Internal Pressure
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Surface Casing Tension Design	
Load Case	Assumptions
Overpull	100kips
Runing in hole	3 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Intermediate Casing Burst Design		
Load Case	External Pressure	Internal Pressure
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

Intermediate Casing Collapse Design		
Load Case	External Pressure	Internal Pressure
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

Intermediate Casing Tension Design	
Load Case	Assumptions
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Production

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

Production Casing Burst Design		
Load Case	External Pressure	Internal Pressure
Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Stimulation	Formation Pore Pressure	Max frac pressure with heaviest frac fluid

Production Casing Collapse Design		
Load Case	External Pressure	Internal Pressure
Full Evacuation	Water gradient in cement, mud above TOC.	None
Cementing	Wet cement weight	Water (8.33ppg)

Production Casing Tension Design	
Load Case	Assumptions
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A



**Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015**

Hydrogen Sulfide (H₂S) Contingency Plan

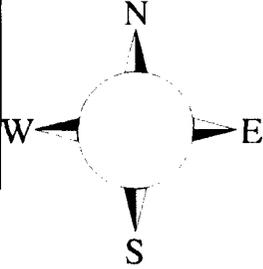
For

Lusitano 27-34 Fed Com 718H

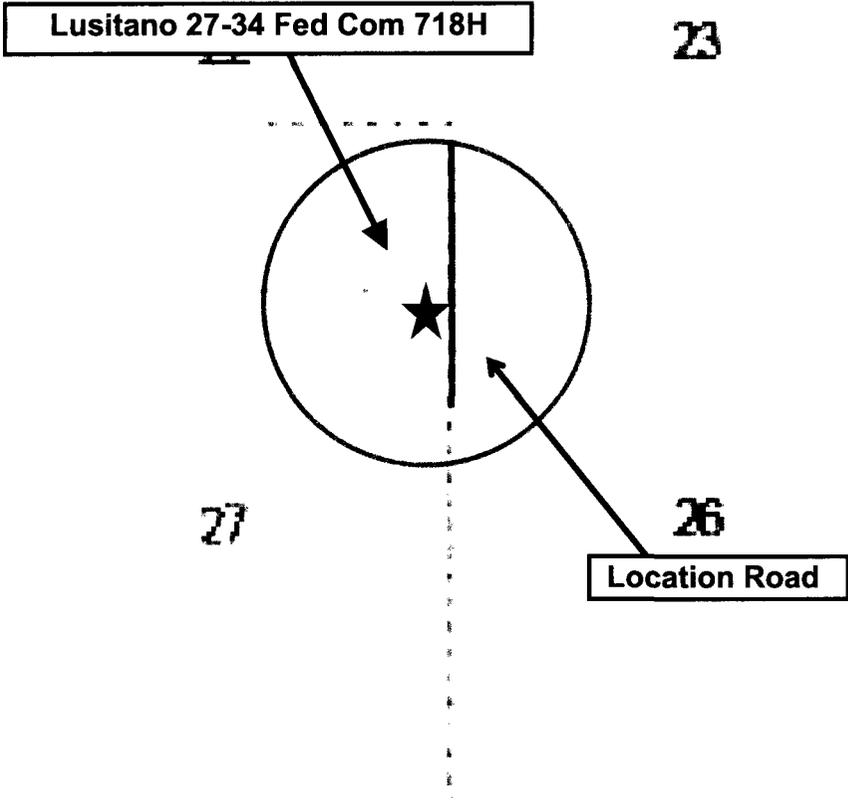
**Sec-27 T-25S R-31E
235' FNL & 355 FEL
LAT. = 32.1079130' N (NAD83)
LONG = 103.7584944 W**

Eddy County NM

Lusitano 27-34 Fed Com 718H
This is an open drilling site. H₂S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H₂S, including warning signs, wind indicators and H₂S monitor.



231E



Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H₂S monitors and air packs in order to control the release.**
- **Use the “buddy system” to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
 - **Detection of H₂S, and**
 - **Measures for protection against the gas,**
 - **Equipment used for protection and emergency response.**

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H₂S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO₂	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico’s ‘Hazardous Materials Emergency Response Plan’ (HMER)

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) 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 and 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 metal components. If high tensile tubulars are to be used, personnel will 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.

II. HYDROGEN SULFIDE TRAINING

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 reasonably expected to contain H₂S.

1. Well Control Equipment

- A. Flare line
- B. Choke manifold – Remotely Operated
- 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 and rotating head.
- E. Mud/Gas Separator

2. Protective equipment for essential personnel:

30-minute SCBA units located at briefing areas, as indicated on well site diagram, with one escape unit available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. H₂S detection and monitoring equipment:

Portable H₂S monitors positioned on location for best coverage and response. These units have warning lights which activate when H₂S levels reach 10 ppm and audible sirens which activate at 10 ppm. Sensor locations:

- Bell nipple
- Shale shaker
- Trip tank
- Suction pit
- Rig floor
- Cellar
- Choke manifold
- Living Quarters (usually the company man's trailer stairs.)

Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. Mud program:

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.

5. Metallurgy:

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

6. Communication:

- A. Company personnel have/use cellular telephones in the field.
- B. Land line (telephone) communications at Office

7. Well testing:

- A. There will be no drill stem testing.

<u>Devon Energy Corp. Company Call List</u>		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
Jerry Matthews – Day: 575-748-0161	Cell: 575-748-5234	
EHS Professional – Jason Robison		405-541-2841
<u>Agency Call List</u>		
<u>Lea County (575)</u>	Hobbs	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	Ambulance	911
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
<u>Eddy County (575)</u>	Carlsbad	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	Ambulance	911
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	Emergency Services	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control	(915) 699-0139 (915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
<u>Give GPS position:</u>	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - www.nhc.noaa.gov	

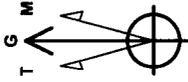
Prepared in conjunction with
Dave Small



Devon Energy

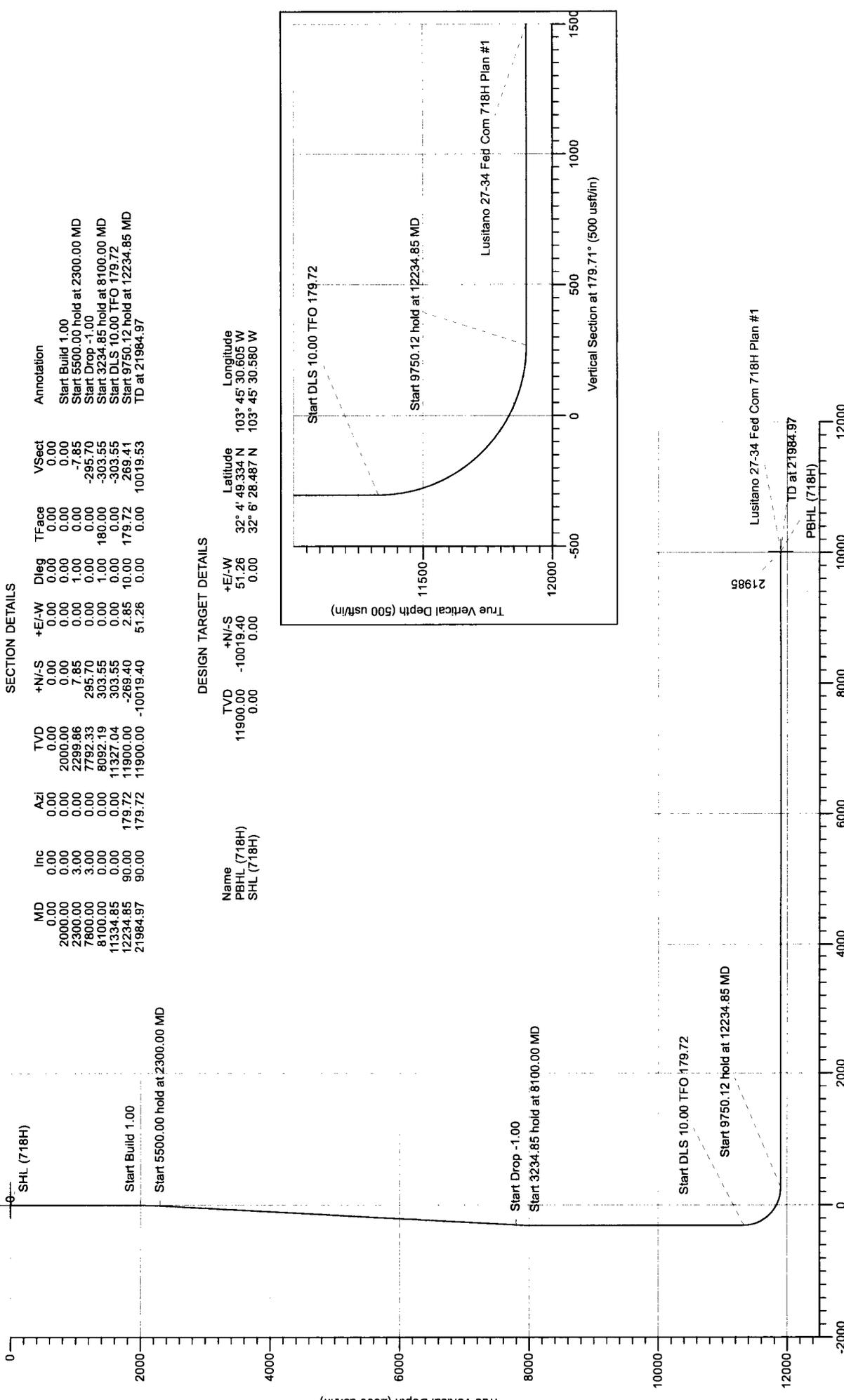
Project: Eddy County, NM (NAD-83)
 Site: Lusitano
 Well: Lusitano 27-34 Fed Com 718H
 Wellbore: OH
 Design: Plan #1

3336.1' GE + 21' KB @ 3357.10usft
 Ground Level: 3336.10



Azimuths to Grid North
 True North: -0.31°
 Magnetic North: 6.56°
 Strength: 48022.7enT
 Dip Angle: 59.85°
 Date: 6/13/2017
 Model: HDGM

PROJECT DETAILS: Eddy County, NM (NAD-83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

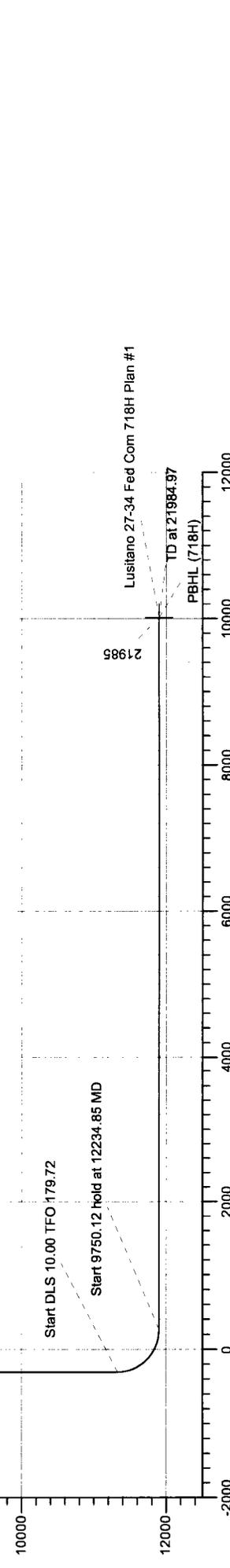
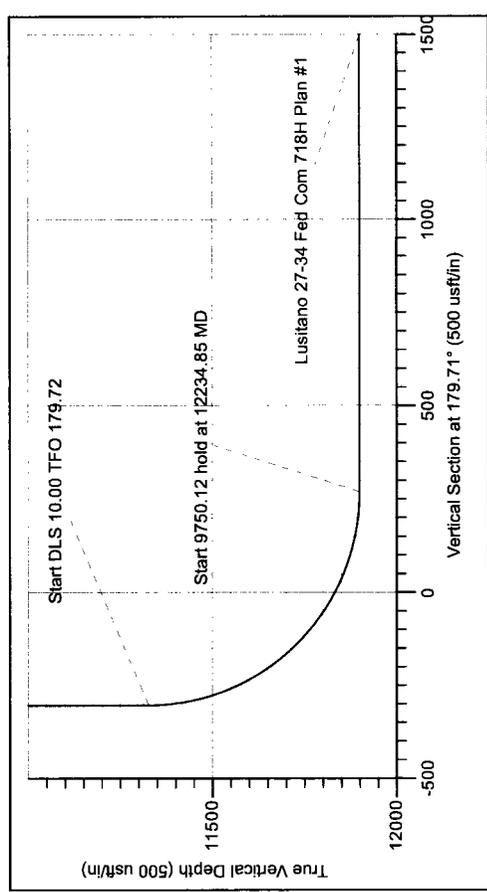


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	Start 5500.00 hold at 2300.00 MD
2300.00	3.00	0.00	2299.86	7.85	0.00	1.00	0.00	-7.85	Start Drop -1.00
7800.00	3.00	0.00	7792.33	295.70	0.00	0.00	0.00	-295.70	Start 3234.85 hold at 8100.00 MD
8100.00	0.00	0.00	8092.19	303.55	0.00	1.00	180.00	0.00	Start DLS 10.00 TFO 179.72
11334.85	0.00	0.00	11327.04	303.55	0.00	0.00	0.00	0.00	Start 9750.12 hold at 12234.85 MD
12234.85	90.00	179.72	11900.00	-269.40	2.85	10.00	179.72	269.41	TD at 21984.97
21984.97	90.00	179.72	11900.00	-10019.40	51.26	0.00	0.00	10019.53	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL (718H)	11900.00	-10019.40	51.26	32° 4' 49.334 N	103° 45' 30.605 W
SHL (718H)	0.00	0.00	0.00	32° 6' 28.487 N	103° 45' 30.580 W



LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax: 936/756-7595

Plan: Plan #1 (Lusitano 27-34 Fed Com 718H)OH)
 Lusitano
 Created By: Dustin Ault
 Date: 16:41, June 19 2017
 Approved: _____
 Date: _____

Devon Energy

Project: Eddy County, NM (NAD-83)
 Site: Lusitano
 Well: Lusitano 27-34 Fed Com 718H
 Wellbore: OH
 Design: Plan #1

Azimuths to Grid North
 True North: -0.31°
 Magnetic North: 6.56°

Magnetic Field
 Strength: 48022.7 snT
 Dip Angle: 59.85°
 Date: 6/13/2017
 Model: HDGM

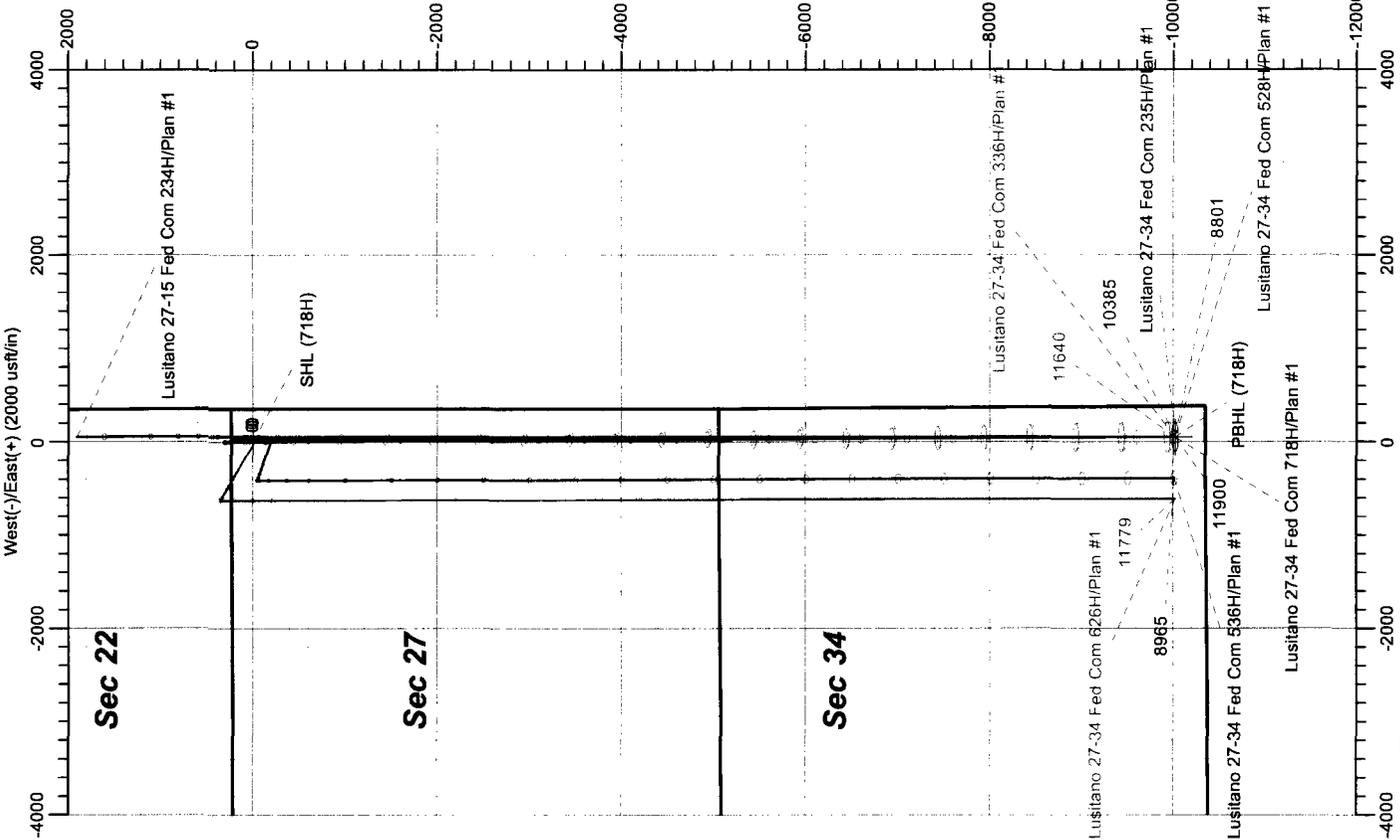
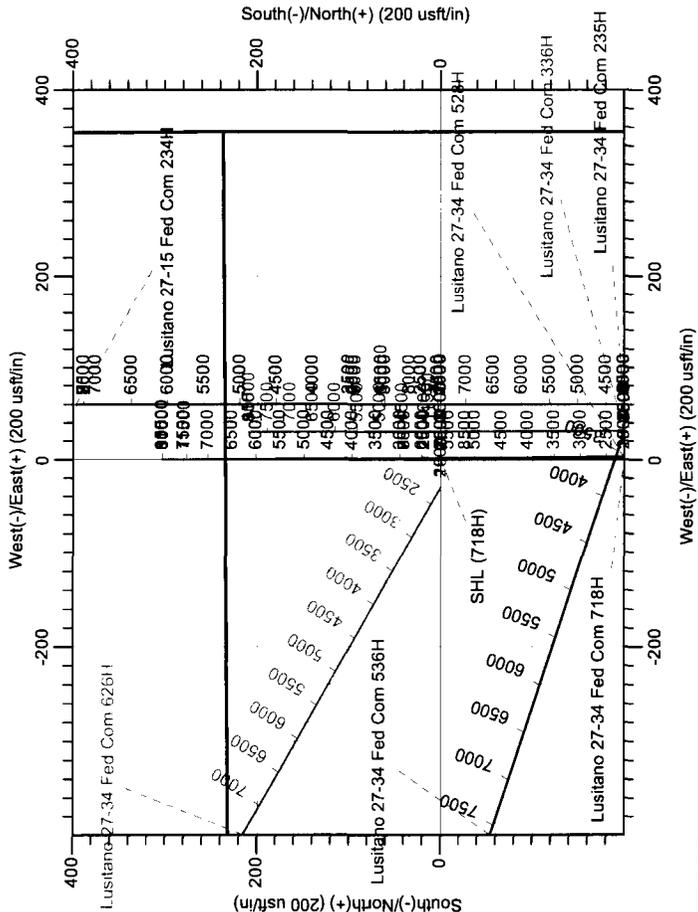
PROJECT DETAILS: Eddy County, NM (NAD-83)
 Geodetic System: US State Plane, 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	MD	Inc	Azi	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (718H)	0.00	0.00	0.00	0.00	-10019.40	51.26	393450.33	719374.25	32° 4' 49.334 N	103° 45' 30.605 W
SHL (718H)	2300.00	3.00	0.00	2000.00	0.00	0.00	403469.73	719322.99	32° 6' 28.487 N	103° 45' 30.580 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
2300.00	3.00	0.00	2299.86	7.85	0.00	1.00	0.00	-7.85	Start 5500.00 hold at 2300.00 MD
7800.00	3.00	0.00	7782.33	295.70	0.00	0.00	0.00	-295.70	Start Drop -1.00
8100.00	0.00	0.00	8082.19	303.55	0.00	1.00	180.00	-303.55	Start 3234.85 hold at 8100.00 MD
11334.85	0.00	0.00	11327.04	303.55	0.00	0.00	0.00	-303.55	Start DLS 10.00 TFO 179.72
12234.85	90.00	179.72	11900.00	-269.40	2.85	10.00	179.72	269.41	Start 9750.12 hold at 12234.85 MD
21984.97	90.00	179.72	11900.00	-10019.40	51.26	0.00	0.00	10019.53	TD at 21984.97



LEAM
 Drilling Services

LEAM DRILLING SYSTEMS LLC
 2010 East Davis, Conroe, Texas 77301
 Phone: 936/756-7577, Fax: 936/756-7595

West(-)/East(+) (2000 usf/in) Plan: Plan #1 (Lusitano 27-34 Fed Com 718H/OH)
 Lusitano
 Created By: Dustin Ault Date: 16:42, June 19 2017
 Approved: _____ Date: _____

Devon Energy

Eddy County, NM (NAD-83)

Lusitano

Lusitano 27-34 Fed Com 718H

OH

Plan: Plan #1

Standard Planning Report

19 June, 2017

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db	Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
Company: Devon Energy	TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Project: Eddy County, NM (NAD-83)	MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Site: Lusitano	North Reference: Grid
Well: Lusitano 27-34 Fed Com 718H	Survey Calculation Method: Minimum Curvature
Wellbore: OH	
Design: Plan #1	

Project	Eddy County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Lusitano

Site Position:		Northing:	403,470.13 usft	Latitude:	32° 6' 28.487 N
From:	Map	Easting:	719,383.01 usft	Longitude:	103° 45' 29.882 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well Lusitano 27-34 Fed Com 718H

Well Position	+N/-S	-0.40 usft	Northing:	403,469.73 usft	Latitude:	32° 6' 28.487 N
	+E/-W	-60.02 usft	Easting:	719,322.99 usft	Longitude:	103° 45' 30.580 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,336.10 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/13/2017	6.87	59.85	48,023

Design Plan #1

Audit Notes:

Version:	Phase: PLAN	Tie On Depth:	0.00
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.71

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	3.00	0.00	2,299.86	7.85	0.00	1.00	1.00	0.00	0.00	
7,800.00	3.00	0.00	7,792.33	295.70	0.00	0.00	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,092.19	303.55	0.00	1.00	-1.00	0.00	180.00	
11,334.85	0.00	0.00	11,327.04	303.55	0.00	0.00	0.00	0.00	0.00	
12,234.85	90.00	179.72	11,900.00	-269.40	2.85	10.00	10.00	19.97	179.72	
21,984.97	90.00	179.72	11,900.00	-10,019.40	51.26	0.00	0.00	0.00	0.00	PBHL (718H)

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Lusitano
Well: Lusitano 27-34 Fed Com 718H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (718H)									
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
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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.00									
2,100.00	1.00	0.00	2,099.99	0.87	0.00	-0.87	1.00	1.00	0.00
2,200.00	2.00	0.00	2,199.96	3.49	0.00	-3.49	1.00	1.00	0.00
2,300.00	3.00	0.00	2,299.86	7.85	0.00	-7.85	1.00	1.00	0.00
Start 5500.00 hold at 2300.00 MD									
2,400.00	3.00	0.00	2,399.73	13.09	0.00	-13.09	0.00	0.00	0.00
2,500.00	3.00	0.00	2,499.59	18.32	0.00	-18.32	0.00	0.00	0.00
2,600.00	3.00	0.00	2,599.45	23.55	0.00	-23.55	0.00	0.00	0.00
2,700.00	3.00	0.00	2,699.31	28.79	0.00	-28.79	0.00	0.00	0.00
2,800.00	3.00	0.00	2,799.18	34.02	0.00	-34.02	0.00	0.00	0.00
2,900.00	3.00	0.00	2,899.04	39.25	0.00	-39.25	0.00	0.00	0.00
3,000.00	3.00	0.00	2,998.90	44.49	0.00	-44.49	0.00	0.00	0.00
3,100.00	3.00	0.00	3,098.77	49.72	0.00	-49.72	0.00	0.00	0.00
3,200.00	3.00	0.00	3,198.63	54.95	0.00	-54.95	0.00	0.00	0.00
3,300.00	3.00	0.00	3,298.49	60.19	0.00	-60.19	0.00	0.00	0.00
3,400.00	3.00	0.00	3,398.36	65.42	0.00	-65.42	0.00	0.00	0.00
3,500.00	3.00	0.00	3,498.22	70.66	0.00	-70.65	0.00	0.00	0.00
3,600.00	3.00	0.00	3,598.08	75.89	0.00	-75.89	0.00	0.00	0.00
3,700.00	3.00	0.00	3,697.94	81.12	0.00	-81.12	0.00	0.00	0.00
3,800.00	3.00	0.00	3,797.81	86.36	0.00	-86.35	0.00	0.00	0.00
3,900.00	3.00	0.00	3,897.67	91.59	0.00	-91.59	0.00	0.00	0.00
4,000.00	3.00	0.00	3,997.53	96.82	0.00	-96.82	0.00	0.00	0.00
4,100.00	3.00	0.00	4,097.40	102.06	0.00	-102.06	0.00	0.00	0.00
4,200.00	3.00	0.00	4,197.26	107.29	0.00	-107.29	0.00	0.00	0.00
4,300.00	3.00	0.00	4,297.12	112.52	0.00	-112.52	0.00	0.00	0.00
4,400.00	3.00	0.00	4,396.99	117.76	0.00	-117.76	0.00	0.00	0.00
4,500.00	3.00	0.00	4,496.85	122.99	0.00	-122.99	0.00	0.00	0.00
4,600.00	3.00	0.00	4,596.71	128.22	0.00	-128.22	0.00	0.00	0.00
4,700.00	3.00	0.00	4,696.57	133.46	0.00	-133.46	0.00	0.00	0.00
4,800.00	3.00	0.00	4,796.44	138.69	0.00	-138.69	0.00	0.00	0.00
4,900.00	3.00	0.00	4,896.30	143.93	0.00	-143.92	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Lusitano
Well: Lusitano 27-34 Fed Com 718H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.00	3.00	0.00	4,996.16	149.16	0.00	-149.16	0.00	0.00	0.00
5,100.00	3.00	0.00	5,096.03	154.39	0.00	-154.39	0.00	0.00	0.00
5,200.00	3.00	0.00	5,195.89	159.63	0.00	-159.62	0.00	0.00	0.00
5,300.00	3.00	0.00	5,295.75	164.86	0.00	-164.86	0.00	0.00	0.00
5,400.00	3.00	0.00	5,395.61	170.09	0.00	-170.09	0.00	0.00	0.00
5,500.00	3.00	0.00	5,495.48	175.33	0.00	-175.32	0.00	0.00	0.00
5,600.00	3.00	0.00	5,595.34	180.56	0.00	-180.56	0.00	0.00	0.00
5,700.00	3.00	0.00	5,695.20	185.79	0.00	-185.79	0.00	0.00	0.00
5,800.00	3.00	0.00	5,795.07	191.03	0.00	-191.03	0.00	0.00	0.00
5,900.00	3.00	0.00	5,894.93	196.26	0.00	-196.26	0.00	0.00	0.00
6,000.00	3.00	0.00	5,994.79	201.50	0.00	-201.49	0.00	0.00	0.00
6,100.00	3.00	0.00	6,094.66	206.73	0.00	-206.73	0.00	0.00	0.00
6,200.00	3.00	0.00	6,194.52	211.96	0.00	-211.96	0.00	0.00	0.00
6,300.00	3.00	0.00	6,294.38	217.20	0.00	-217.19	0.00	0.00	0.00
6,400.00	3.00	0.00	6,394.24	222.43	0.00	-222.43	0.00	0.00	0.00
6,500.00	3.00	0.00	6,494.11	227.66	0.00	-227.66	0.00	0.00	0.00
6,600.00	3.00	0.00	6,593.97	232.90	0.00	-232.89	0.00	0.00	0.00
6,700.00	3.00	0.00	6,693.83	238.13	0.00	-238.13	0.00	0.00	0.00
6,800.00	3.00	0.00	6,793.70	243.36	0.00	-243.36	0.00	0.00	0.00
6,900.00	3.00	0.00	6,893.56	248.60	0.00	-248.59	0.00	0.00	0.00
7,000.00	3.00	0.00	6,993.42	253.83	0.00	-253.83	0.00	0.00	0.00
7,100.00	3.00	0.00	7,093.28	259.06	0.00	-259.06	0.00	0.00	0.00
7,200.00	3.00	0.00	7,193.15	264.30	0.00	-264.29	0.00	0.00	0.00
7,300.00	3.00	0.00	7,293.01	269.53	0.00	-269.53	0.00	0.00	0.00
7,400.00	3.00	0.00	7,392.87	274.77	0.00	-274.76	0.00	0.00	0.00
7,500.00	3.00	0.00	7,492.74	280.00	0.00	-280.00	0.00	0.00	0.00
7,600.00	3.00	0.00	7,592.60	285.23	0.00	-285.23	0.00	0.00	0.00
7,700.00	3.00	0.00	7,692.46	290.47	0.00	-290.46	0.00	0.00	0.00
7,800.00	3.00	0.00	7,792.33	295.70	0.00	-295.70	0.00	0.00	0.00
Start Drop -1.00									
7,900.00	2.00	0.00	7,892.23	300.06	0.00	-300.06	1.00	-1.00	0.00
8,000.00	1.00	0.00	7,992.19	302.68	0.00	-302.68	1.00	-1.00	0.00
8,100.00	0.00	0.00	8,092.19	303.55	0.00	-303.55	1.00	-1.00	0.00
Start 3234.85 hold at 8100.00 MD									
8,200.00	0.00	0.00	8,192.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,300.00	0.00	0.00	8,292.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,400.00	0.00	0.00	8,392.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,500.00	0.00	0.00	8,492.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,600.00	0.00	0.00	8,592.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,700.00	0.00	0.00	8,692.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,800.00	0.00	0.00	8,792.19	303.55	0.00	-303.55	0.00	0.00	0.00
8,900.00	0.00	0.00	8,892.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,000.00	0.00	0.00	8,992.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,100.00	0.00	0.00	9,092.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,200.00	0.00	0.00	9,192.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,300.00	0.00	0.00	9,292.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,400.00	0.00	0.00	9,392.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,500.00	0.00	0.00	9,492.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,600.00	0.00	0.00	9,592.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,700.00	0.00	0.00	9,692.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,800.00	0.00	0.00	9,792.19	303.55	0.00	-303.55	0.00	0.00	0.00
9,900.00	0.00	0.00	9,892.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,000.00	0.00	0.00	9,992.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,100.00	0.00	0.00	10,092.19	303.55	0.00	-303.55	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db	Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
Company: Devon County	TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Project: Eddy County, NM (NAD-83)	MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Site: Lusitano	North Reference: Grid
Well: Lusitano 27-34 Fed Com 718H	Survey Calculation Method: Minimum Curvature
Wellbore: OH	
Design: Plan #1	

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,200.00	0.00	0.00	10,192.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,300.00	0.00	0.00	10,292.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,400.00	0.00	0.00	10,392.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,500.00	0.00	0.00	10,492.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,600.00	0.00	0.00	10,592.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,700.00	0.00	0.00	10,692.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,800.00	0.00	0.00	10,792.19	303.55	0.00	-303.55	0.00	0.00	0.00
10,900.00	0.00	0.00	10,892.19	303.55	0.00	-303.55	0.00	0.00	0.00
11,000.00	0.00	0.00	10,992.19	303.55	0.00	-303.55	0.00	0.00	0.00
11,100.00	0.00	0.00	11,092.19	303.55	0.00	-303.55	0.00	0.00	0.00
11,200.00	0.00	0.00	11,192.19	303.55	0.00	-303.55	0.00	0.00	0.00
11,300.00	0.00	0.00	11,292.19	303.55	0.00	-303.55	0.00	0.00	0.00
11,334.85	0.00	0.00	11,327.04	303.55	0.00	-303.55	0.00	0.00	0.00
Start DLS 10.00 TFO 179.72									
11,350.00	1.52	179.72	11,342.19	303.35	0.00	-303.35	10.00	10.00	1,186.24
11,400.00	6.52	179.72	11,392.05	299.85	0.02	-299.85	10.00	10.00	0.00
11,450.00	11.52	179.72	11,441.41	292.02	0.06	-292.02	10.00	10.00	0.00
11,500.00	16.52	179.72	11,489.91	279.92	0.12	-279.91	10.00	10.00	0.00
11,550.00	21.52	179.72	11,537.17	263.63	0.20	-263.63	10.00	10.00	0.00
11,600.00	26.52	179.72	11,582.83	243.29	0.30	-243.28	10.00	10.00	0.00
11,650.00	31.52	179.72	11,626.54	219.04	0.42	-219.04	10.00	10.00	0.00
11,700.00	36.52	179.72	11,667.97	191.08	0.56	-191.08	10.00	10.00	0.00
11,750.00	41.52	179.72	11,706.80	159.62	0.71	-159.61	10.00	10.00	0.00
11,800.00	46.52	179.72	11,742.75	124.89	0.89	-124.88	10.00	10.00	0.00
11,850.00	51.52	179.72	11,775.53	87.15	1.07	-87.15	10.00	10.00	0.00
11,900.00	56.52	179.72	11,804.90	46.71	1.28	-46.70	10.00	10.00	0.00
11,950.00	61.52	179.72	11,830.64	3.86	1.49	-3.85	10.00	10.00	0.00
12,000.00	66.52	179.72	11,852.54	-41.07	1.71	41.08	10.00	10.00	0.00
12,050.00	71.52	179.72	11,870.44	-87.74	1.94	87.75	10.00	10.00	0.00
12,100.00	76.52	179.72	11,884.20	-135.79	2.18	135.80	10.00	10.00	0.00
12,150.00	81.52	179.72	11,893.73	-184.86	2.43	184.87	10.00	10.00	0.00
12,200.00	86.52	179.72	11,898.94	-234.57	2.67	234.58	10.00	10.00	0.00
12,234.85	90.00	179.72	11,900.00	-269.40	2.85	269.41	10.00	10.00	0.00
Start 9750.12 hold at 12234.85 MD									
12,300.00	90.00	179.72	11,900.00	-334.55	3.17	334.56	0.00	0.00	0.00
12,400.00	90.00	179.72	11,900.00	-434.55	3.67	434.56	0.00	0.00	0.00
12,500.00	90.00	179.72	11,900.00	-534.55	4.16	534.56	0.00	0.00	0.00
12,600.00	90.00	179.72	11,900.00	-634.54	4.66	634.56	0.00	0.00	0.00
12,700.00	90.00	179.72	11,900.00	-734.54	5.15	734.56	0.00	0.00	0.00
12,800.00	90.00	179.72	11,900.00	-834.54	5.65	834.56	0.00	0.00	0.00
12,900.00	90.00	179.72	11,900.00	-934.54	6.15	934.56	0.00	0.00	0.00
13,000.00	90.00	179.72	11,900.00	-1,034.54	6.64	1,034.56	0.00	0.00	0.00
13,100.00	90.00	179.72	11,900.00	-1,134.54	7.14	1,134.56	0.00	0.00	0.00
13,200.00	90.00	179.72	11,900.00	-1,234.54	7.64	1,234.56	0.00	0.00	0.00
13,300.00	90.00	179.72	11,900.00	-1,334.54	8.13	1,334.56	0.00	0.00	0.00
13,400.00	90.00	179.72	11,900.00	-1,434.53	8.63	1,434.56	0.00	0.00	0.00
13,500.00	90.00	179.72	11,900.00	-1,534.53	9.13	1,534.56	0.00	0.00	0.00
13,600.00	90.00	179.72	11,900.00	-1,634.53	9.62	1,634.56	0.00	0.00	0.00
13,700.00	90.00	179.72	11,900.00	-1,734.53	10.12	1,734.56	0.00	0.00	0.00
13,800.00	90.00	179.72	11,900.00	-1,834.53	10.62	1,834.56	0.00	0.00	0.00
13,900.00	90.00	179.72	11,900.00	-1,934.53	11.11	1,934.56	0.00	0.00	0.00
14,000.00	90.00	179.72	11,900.00	-2,034.53	11.61	2,034.56	0.00	0.00	0.00
14,100.00	90.00	179.72	11,900.00	-2,134.53	12.11	2,134.56	0.00	0.00	0.00
14,200.00	90.00	179.72	11,900.00	-2,234.52	12.60	2,234.56	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database: EDM 5000.1 Multi User Db
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Site: Lusitano
Well: Lusitano 27-34 Fed Com 718H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,300.00	90.00	179.72	11,900.00	-2,334.52	13.10	2,334.56	0.00	0.00	0.00
14,400.00	90.00	179.72	11,900.00	-2,434.52	13.60	2,434.56	0.00	0.00	0.00
14,500.00	90.00	179.72	11,900.00	-2,534.52	14.09	2,534.56	0.00	0.00	0.00
14,600.00	90.00	179.72	11,900.00	-2,634.52	14.59	2,634.56	0.00	0.00	0.00
14,700.00	90.00	179.72	11,900.00	-2,734.52	15.09	2,734.56	0.00	0.00	0.00
14,800.00	90.00	179.72	11,900.00	-2,834.52	15.58	2,834.56	0.00	0.00	0.00
14,900.00	90.00	179.72	11,900.00	-2,934.52	16.08	2,934.56	0.00	0.00	0.00
15,000.00	90.00	179.72	11,900.00	-3,034.51	16.58	3,034.56	0.00	0.00	0.00
15,100.00	90.00	179.72	11,900.00	-3,134.51	17.07	3,134.56	0.00	0.00	0.00
15,200.00	90.00	179.72	11,900.00	-3,234.51	17.57	3,234.56	0.00	0.00	0.00
15,300.00	90.00	179.72	11,900.00	-3,334.51	18.07	3,334.56	0.00	0.00	0.00
15,400.00	90.00	179.72	11,900.00	-3,434.51	18.56	3,434.56	0.00	0.00	0.00
15,500.00	90.00	179.72	11,900.00	-3,534.51	19.06	3,534.56	0.00	0.00	0.00
15,600.00	90.00	179.72	11,900.00	-3,634.51	19.55	3,634.56	0.00	0.00	0.00
15,700.00	90.00	179.72	11,900.00	-3,734.51	20.05	3,734.56	0.00	0.00	0.00
15,800.00	90.00	179.72	11,900.00	-3,834.50	20.55	3,834.56	0.00	0.00	0.00
15,900.00	90.00	179.72	11,900.00	-3,934.50	21.04	3,934.56	0.00	0.00	0.00
16,000.00	90.00	179.72	11,900.00	-4,034.50	21.54	4,034.56	0.00	0.00	0.00
16,100.00	90.00	179.72	11,900.00	-4,134.50	22.04	4,134.56	0.00	0.00	0.00
16,200.00	90.00	179.72	11,900.00	-4,234.50	22.53	4,234.56	0.00	0.00	0.00
16,300.00	90.00	179.72	11,900.00	-4,334.50	23.03	4,334.56	0.00	0.00	0.00
16,400.00	90.00	179.72	11,900.00	-4,434.50	23.53	4,434.56	0.00	0.00	0.00
16,500.00	90.00	179.72	11,900.00	-4,534.50	24.02	4,534.56	0.00	0.00	0.00
16,600.00	90.00	179.72	11,900.00	-4,634.49	24.52	4,634.56	0.00	0.00	0.00
16,700.00	90.00	179.72	11,900.00	-4,734.49	25.02	4,734.56	0.00	0.00	0.00
16,800.00	90.00	179.72	11,900.00	-4,834.49	25.51	4,834.56	0.00	0.00	0.00
16,900.00	90.00	179.72	11,900.00	-4,934.49	26.01	4,934.56	0.00	0.00	0.00
17,000.00	90.00	179.72	11,900.00	-5,034.49	26.51	5,034.56	0.00	0.00	0.00
17,100.00	90.00	179.72	11,900.00	-5,134.49	27.00	5,134.56	0.00	0.00	0.00
17,200.00	90.00	179.72	11,900.00	-5,234.49	27.50	5,234.56	0.00	0.00	0.00
17,300.00	90.00	179.72	11,900.00	-5,334.49	28.00	5,334.56	0.00	0.00	0.00
17,400.00	90.00	179.72	11,900.00	-5,434.49	28.49	5,434.56	0.00	0.00	0.00
17,500.00	90.00	179.72	11,900.00	-5,534.48	28.99	5,534.56	0.00	0.00	0.00
17,600.00	90.00	179.72	11,900.00	-5,634.48	29.49	5,634.56	0.00	0.00	0.00
17,700.00	90.00	179.72	11,900.00	-5,734.48	29.98	5,734.56	0.00	0.00	0.00
17,800.00	90.00	179.72	11,900.00	-5,834.48	30.48	5,834.56	0.00	0.00	0.00
17,900.00	90.00	179.72	11,900.00	-5,934.48	30.98	5,934.56	0.00	0.00	0.00
18,000.00	90.00	179.72	11,900.00	-6,034.48	31.47	6,034.56	0.00	0.00	0.00
18,100.00	90.00	179.72	11,900.00	-6,134.48	31.97	6,134.56	0.00	0.00	0.00
18,200.00	90.00	179.72	11,900.00	-6,234.48	32.47	6,234.56	0.00	0.00	0.00
18,300.00	90.00	179.72	11,900.00	-6,334.47	32.96	6,334.56	0.00	0.00	0.00
18,400.00	90.00	179.72	11,900.00	-6,434.47	33.46	6,434.56	0.00	0.00	0.00
18,500.00	90.00	179.72	11,900.00	-6,534.47	33.96	6,534.56	0.00	0.00	0.00
18,600.00	90.00	179.72	11,900.00	-6,634.47	34.45	6,634.56	0.00	0.00	0.00
18,700.00	90.00	179.72	11,900.00	-6,734.47	34.95	6,734.56	0.00	0.00	0.00
18,800.00	90.00	179.72	11,900.00	-6,834.47	35.44	6,834.56	0.00	0.00	0.00
18,900.00	90.00	179.72	11,900.00	-6,934.47	35.94	6,934.56	0.00	0.00	0.00
19,000.00	90.00	179.72	11,900.00	-7,034.47	36.44	7,034.56	0.00	0.00	0.00
19,100.00	90.00	179.72	11,900.00	-7,134.46	36.93	7,134.56	0.00	0.00	0.00
19,200.00	90.00	179.72	11,900.00	-7,234.46	37.43	7,234.56	0.00	0.00	0.00
19,300.00	90.00	179.72	11,900.00	-7,334.46	37.93	7,334.56	0.00	0.00	0.00
19,400.00	90.00	179.72	11,900.00	-7,434.46	38.42	7,434.56	0.00	0.00	0.00
19,500.00	90.00	179.72	11,900.00	-7,534.46	38.92	7,534.56	0.00	0.00	0.00
19,600.00	90.00	179.72	11,900.00	-7,634.46	39.42	7,634.56	0.00	0.00	0.00

LEAM Drilling Systems LLC

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Well: Lusitano 27-34 Fed Com 718H
Wellbore: OH
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TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
19,700.00	90.00	179.72	11,900.00	-7,734.46	39.91	7,734.56	0.00	0.00	0.00
19,800.00	90.00	179.72	11,900.00	-7,834.46	40.41	7,834.56	0.00	0.00	0.00
19,900.00	90.00	179.72	11,900.00	-7,934.45	40.91	7,934.56	0.00	0.00	0.00
20,000.00	90.00	179.72	11,900.00	-8,034.45	41.40	8,034.56	0.00	0.00	0.00
20,100.00	90.00	179.72	11,900.00	-8,134.45	41.90	8,134.56	0.00	0.00	0.00
20,200.00	90.00	179.72	11,900.00	-8,234.45	42.40	8,234.56	0.00	0.00	0.00
20,300.00	90.00	179.72	11,900.00	-8,334.45	42.89	8,334.56	0.00	0.00	0.00
20,400.00	90.00	179.72	11,900.00	-8,434.45	43.39	8,434.56	0.00	0.00	0.00
20,500.00	90.00	179.72	11,900.00	-8,534.45	43.89	8,534.56	0.00	0.00	0.00
20,600.00	90.00	179.72	11,900.00	-8,634.45	44.38	8,634.56	0.00	0.00	0.00
20,700.00	90.00	179.72	11,900.00	-8,734.44	44.88	8,734.56	0.00	0.00	0.00
20,800.00	90.00	179.72	11,900.00	-8,834.44	45.38	8,834.56	0.00	0.00	0.00
20,900.00	90.00	179.72	11,900.00	-8,934.44	45.87	8,934.56	0.00	0.00	0.00
21,000.00	90.00	179.72	11,900.00	-9,034.44	46.37	9,034.56	0.00	0.00	0.00
21,100.00	90.00	179.72	11,900.00	-9,134.44	46.87	9,134.56	0.00	0.00	0.00
21,200.00	90.00	179.72	11,900.00	-9,234.44	47.36	9,234.56	0.00	0.00	0.00
21,300.00	90.00	179.72	11,900.00	-9,334.44	47.86	9,334.56	0.00	0.00	0.00
21,400.00	90.00	179.72	11,900.00	-9,434.44	48.36	9,434.56	0.00	0.00	0.00
21,500.00	90.00	179.72	11,900.00	-9,534.43	48.85	9,534.56	0.00	0.00	0.00
21,600.00	90.00	179.72	11,900.00	-9,634.43	49.35	9,634.56	0.00	0.00	0.00
21,700.00	90.00	179.72	11,900.00	-9,734.43	49.84	9,734.56	0.00	0.00	0.00
21,800.00	90.00	179.72	11,900.00	-9,834.43	50.34	9,834.56	0.00	0.00	0.00
21,900.00	90.00	179.72	11,900.00	-9,934.43	50.84	9,934.56	0.00	0.00	0.00
21,984.97	90.00	179.72	11,900.00	-10,019.40	51.26	10,019.53	0.00	0.00	0.00

TD at 21984.97 - PBHL (718H)

Design Targets

Target Name

Target Name	- hi/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (718H)	- plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	403,469.73	719,322.99	32° 6' 28.487 N	103° 45' 30.580 W
PBHL (718H)	- plan hits target center - Point	0.00	0.00	11,900.00	-10,019.40	51.26	393,450.33	719,374.25	32° 4' 49.334 N	103° 45' 30.605 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
2,000.00	2,000.00	0.00	0.00	Start Build 1.00
2,300.00	2,299.86	7.85	0.00	Start 5500.00 hold at 2300.00 MD
7,800.00	7,792.33	295.70	0.00	Start Drop -1.00
8,100.00	8,092.19	303.55	0.00	Start 3234.85 hold at 8100.00 MD
11,334.85	11,327.04	303.55	0.00	Start DLS 10.00 TFO 179.72
12,234.85	11,900.00	-269.40	2.85	Start 9750.12 hold at 12234.85 MD
21,984.97	11,900.00	-10,019.40	51.26	TD at 21984.97

Devon Energy

Eddy County, NM (NAD-83)

Lusitano

Lusitano 27-34 Fed Com 718H

OH

Plan #1

Anticollision Report

19 June, 2017

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy	Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
Project: Eddy County, NM (NAD-83)	TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Reference Site: Lusitano	MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
Site Error: 0.00 usft	North Reference: Grid
Reference Well: Lusitano 27-34 Fed Com 718H	Survey Calculation Method: Minimum Curvature
Well Error: 0.00 usft	Output errors are at: 2.00 sigma
Reference Wellbore: OH	Database: EDM 5000.1 Multi User Db
Reference Design: Plan #1	Offset TVD Reference: Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program **Date** 6/13/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,984.97	Plan #1 (OH)	LEAM MWD+HDGM	MWD+HDGM

Site Name	Reference		Offset		Distance		Separation Factor	Warning
	Measured Depth (usft)	Offset Depth (usft)	Between Centres (usft)	Between Ellipses (usft)				
Offset Well - Wellbore - Design								
Lusitano								
Lusitano 27-15 Fed Com 234H - OH - Plan #1	1,916.60	1,916.80	60.02	51.68	7.193	CC		
Lusitano 27-15 Fed Com 234H - OH - Plan #1	2,800.00	2,800.01	61.12	48.78	4.954	ES		
Lusitano 27-15 Fed Com 234H - OH - Plan #1	9,734.73	9,741.91	104.25	60.66	2.392	SF		
Lusitano 27-34 Fed Com 235H - OH - Plan #1	2,000.00	1,999.90	208.40	199.68	23.904	CC		
Lusitano 27-34 Fed Com 235H - OH - Plan #1	9,800.00	9,800.92	215.56	171.96	4.944	ES, SF		
Lusitano 27-34 Fed Com 336H - OH - Plan #1	2,051.31	2,051.40	30.03	21.08	3.356	CC		
Lusitano 27-34 Fed Com 336H - OH - Plan #1	2,200.00	2,200.06	30.21	20.59	3.141	ES		
Lusitano 27-34 Fed Com 336H - OH - Plan #1	21,984.97	21,627.81	260.10	106.86	1.697	SF		
Lusitano 27-34 Fed Com 528H - OH - Plan #1	6,196.80	6,206.72	179.86	152.11	6.480	CC		
Lusitano 27-34 Fed Com 528H - OH - Plan #1	6,200.00	6,209.82	179.86	152.10	6.477	ES		
Lusitano 27-34 Fed Com 528H - OH - Plan #1	6,300.00	6,306.77	180.76	152.60	6.418	SF		
Lusitano 27-34 Fed Com 536H - OH - Plan #1	2,000.00	1,999.50	202.03	193.31	23.175	CC, ES		
Lusitano 27-34 Fed Com 536H - OH - Plan #1	8,500.00	8,476.89	544.79	506.40	14.189	SF		
Lusitano 27-34 Fed Com 626H - OH - Plan #1	2,000.00	1,999.40	29.91	21.19	3.431	CC, ES		
Lusitano 27-34 Fed Com 626H - OH - Plan #1	21,984.97	21,930.57	670.92	341.45	2.036	SF		

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1											Offset Site Error:	0.00 usft	
Survey Program: 0-LEAM MWD+HDGM											Offset Well Error:	0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance		Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)				Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.20	0.20	0.00	0.00	89.62	0.40	60.02	60.02				
100.00	100.00	100.20	100.20	0.09	0.09	89.62	0.40	60.02	60.02	59.84	0.18	337.170	
200.00	200.00	200.20	200.20	0.31	0.31	89.62	0.40	60.02	60.02	59.39	0.63	95.644	
300.00	300.00	300.20	300.20	0.54	0.54	89.62	0.40	60.02	60.02	58.94	1.08	55.726	
400.00	400.00	400.20	400.20	0.76	0.76	89.62	0.40	60.02	60.02	58.49	1.53	39.317	
500.00	500.00	500.20	500.20	0.99	0.99	89.62	0.40	60.02	60.02	58.05	1.98	30.373	
600.00	600.00	600.20	600.20	1.21	1.21	89.62	0.40	60.02	60.02	57.60	2.43	24.744	
700.00	700.00	700.20	700.20	1.44	1.44	89.62	0.40	60.02	60.02	57.15	2.88	20.875	
800.00	800.00	800.20	800.20	1.66	1.66	89.62	0.40	60.02	60.02	56.70	3.32	18.053	
900.00	900.00	900.20	900.20	1.89	1.89	89.62	0.40	60.02	60.02	56.25	3.77	15.903	
1,000.00	1,000.00	1,000.20	1,000.20	2.11	2.11	89.62	0.40	60.02	60.02	55.80	4.22	14.210	
1,100.00	1,100.00	1,100.20	1,100.20	2.34	2.34	89.62	0.40	60.02	60.02	55.35	4.67	12.843	
1,200.00	1,200.00	1,200.20	1,200.20	2.56	2.56	89.62	0.40	60.02	60.02	54.90	5.12	11.716	

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
1,300.00	1,300.00	1,300.20	1,300.20	2.79	2.79	89.62	0.40	60.02	60.02	54.45	5.57	10.771		
1,400.00	1,400.00	1,400.20	1,400.20	3.01	3.01	89.62	0.40	60.02	60.02	54.00	6.02	9.967		
1,500.00	1,500.00	1,500.20	1,500.20	3.24	3.24	89.62	0.40	60.02	60.02	53.55	6.47	9.275		
1,600.00	1,600.00	1,600.20	1,600.20	3.46	3.46	89.62	0.40	60.02	60.02	53.10	6.92	8.672		
1,700.00	1,700.00	1,700.20	1,700.20	3.69	3.69	89.62	0.40	60.02	60.02	52.65	7.37	8.143		
1,800.00	1,800.00	1,800.20	1,800.20	3.91	3.91	89.62	0.40	60.02	60.02	52.20	7.82	7.675		
1,900.00	1,900.00	1,900.20	1,900.20	4.13	4.14	89.62	0.40	60.02	60.02	51.75	8.27	7.258		
1,916.60	1,916.60	1,916.80	1,916.80	4.17	4.17	89.62	0.40	60.02	60.02	51.68	8.34	7.193 CC		
2,000.00	2,000.00	2,000.20	2,000.20	4.36	4.36	89.62	0.40	60.02	60.02	51.30	8.72	6.884		
2,100.00	2,099.99	2,100.19	2,100.19	4.58	4.58	89.61	1.28	60.02	60.02	50.85	9.17	6.547		
2,200.00	2,199.96	2,200.19	2,200.15	4.81	4.81	89.61	3.90	60.02	60.02	50.41	9.62	6.242		
2,300.00	2,299.86	2,300.18	2,300.04	5.03	5.04	89.61	8.26	60.02	60.02	49.96	10.06	5.965		
2,400.00	2,399.73	2,400.16	2,399.84	5.26	5.26	88.77	14.37	60.02	60.03	49.52	10.51	5.711		
2,500.00	2,499.59	2,500.12	2,499.50	5.48	5.49	86.49	21.99	60.02	60.13	49.17	10.96	5.485		
2,600.00	2,599.45	2,600.08	2,599.16	5.71	5.71	84.01	29.84	60.02	60.35	48.93	11.42	5.285		
2,700.00	2,699.31	2,700.05	2,698.81	5.94	5.94	81.55	37.68	60.02	60.68	48.80	11.88	5.109		
2,800.00	2,799.18	2,800.01	2,798.47	6.16	6.17	79.12	45.52	60.02	61.12	48.78	12.34	4.954 ES		
2,900.00	2,899.04	2,899.98	2,898.13	6.39	6.41	76.73	53.37	60.02	61.67	48.87	12.80	4.818		
3,000.00	2,998.90	2,999.95	2,997.79	6.62	6.64	74.39	61.21	60.02	62.32	49.06	13.26	4.699		
3,100.00	3,098.77	3,099.91	3,097.45	6.85	6.88	72.10	69.05	60.02	63.08	49.35	13.73	4.595		
3,200.00	3,198.63	3,199.88	3,197.10	7.08	7.12	69.87	76.90	60.02	63.93	49.74	14.19	4.504		
3,300.00	3,298.49	3,299.84	3,296.76	7.31	7.36	67.70	84.74	60.02	64.88	50.22	14.66	4.426		
3,400.00	3,398.36	3,399.81	3,396.42	7.54	7.60	65.59	92.58	60.02	65.91	50.79	15.13	4.358		
3,500.00	3,498.22	3,499.77	3,496.08	7.78	7.84	63.55	100.43	60.02	67.04	51.45	15.59	4.300		
3,600.00	3,598.08	3,599.74	3,595.73	8.01	8.08	61.59	108.27	60.02	68.25	52.19	16.06	4.250		
3,700.00	3,697.94	3,699.71	3,695.39	8.24	8.32	59.69	116.11	60.02	69.53	53.01	16.52	4.208		
3,800.00	3,797.81	3,799.67	3,795.05	8.47	8.57	57.86	123.96	60.02	70.89	53.90	16.99	4.172		
3,900.00	3,897.67	3,899.64	3,894.71	8.71	8.81	56.11	131.80	60.02	72.31	54.86	17.45	4.143		
4,000.00	3,997.53	3,999.60	3,994.36	8.94	9.06	54.42	139.64	60.02	73.81	55.89	17.92	4.119		
4,100.00	4,097.40	4,099.57	4,094.02	9.17	9.30	52.80	147.49	60.02	75.36	56.98	18.38	4.099		
4,200.00	4,197.26	4,199.53	4,193.68	9.41	9.55	51.25	155.33	60.02	76.97	58.12	18.85	4.084		
4,300.00	4,297.12	4,299.50	4,293.34	9.64	9.79	49.76	163.17	60.02	78.64	59.33	19.31	4.072		
4,400.00	4,396.99	4,399.47	4,392.99	9.87	10.04	48.34	171.02	60.02	80.35	60.58	19.77	4.064		
4,500.00	4,496.85	4,499.43	4,492.65	10.11	10.28	46.97	178.86	60.02	82.12	61.88	20.23	4.058		
4,600.00	4,596.71	4,599.40	4,592.31	10.34	10.53	45.67	186.70	60.02	83.92	63.23	20.70	4.055		
4,700.00	4,696.57	4,699.36	4,691.97	10.58	10.78	44.42	194.55	60.02	85.77	64.62	21.16	4.054		
4,800.00	4,796.44	4,799.33	4,791.62	10.81	11.03	43.22	202.39	60.02	87.66	66.04	21.62	4.055		
4,900.00	4,896.30	4,899.29	4,891.28	11.04	11.27	42.07	210.23	60.02	89.59	67.51	22.08	4.058		
5,000.00	4,996.16	4,999.26	4,990.94	11.28	11.52	40.98	218.08	60.02	91.55	69.01	22.54	4.062		
5,100.00	5,096.03	5,099.23	5,090.60	11.51	11.77	39.92	225.92	60.02	93.54	70.54	23.00	4.067		
5,200.00	5,195.89	5,199.19	5,190.25	11.75	12.02	38.92	233.76	60.02	95.56	72.11	23.46	4.074		
5,300.00	5,295.75	5,299.16	5,289.91	11.98	12.27	37.95	241.60	60.02	97.61	73.70	23.92	4.081		
5,400.00	5,395.61	5,399.12	5,389.57	12.22	12.52	37.03	249.45	60.02	99.69	75.32	24.38	4.090		
5,500.00	5,495.48	5,499.09	5,489.23	12.45	12.77	36.14	257.29	60.02	101.79	76.96	24.83	4.099		
5,600.00	5,595.34	5,599.05	5,588.88	12.69	13.02	35.29	265.13	60.02	103.92	78.63	25.29	4.109		
5,700.00	5,695.20	5,699.02	5,688.54	12.92	13.27	34.47	272.98	60.02	106.07	80.32	25.75	4.119		
5,800.00	5,795.07	5,798.99	5,788.20	13.16	13.52	33.69	280.82	60.02	108.24	82.03	26.21	4.130		
5,900.00	5,894.93	5,898.95	5,887.86	13.40	13.77	32.93	288.66	60.02	110.42	83.76	26.67	4.141		
6,000.00	5,994.79	5,998.92	5,987.51	13.63	14.02	32.21	296.51	60.02	112.63	85.51	27.12	4.152		
6,100.00	6,094.66	6,098.88	6,087.17	13.87	14.27	31.51	304.35	60.02	114.85	87.27	27.58	4.164		
6,200.00	6,194.52	6,198.85	6,186.83	14.10	14.52	30.84	312.19	60.02	117.09	89.05	28.04	4.176		
6,300.00	6,294.38	6,298.81	6,286.49	14.34	14.77	30.20	320.04	60.02	119.35	90.85	28.50	4.188		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,400.00	6,394.24	6,398.78	6,386.15	14.57	15.02	29.58	327.88	60.02	121.62	92.66	28.95	4.200		
6,500.00	6,494.11	6,498.75	6,485.80	14.81	15.27	28.98	335.72	60.02	123.90	94.49	29.41	4.213		
6,600.00	6,593.97	6,598.71	6,585.46	15.05	15.52	28.41	343.57	60.02	126.20	96.33	29.87	4.225		
6,700.00	6,693.83	6,698.68	6,685.12	15.28	15.77	27.85	351.41	60.02	128.51	98.18	30.33	4.237		
6,800.00	6,793.70	6,798.64	6,784.78	15.52	16.02	27.32	359.25	60.02	130.83	100.04	30.78	4.250		
6,900.00	6,893.56	6,898.61	6,884.43	15.75	16.27	26.80	367.10	60.02	133.16	101.92	31.24	4.262		
7,000.00	6,993.42	6,999.63	6,985.15	15.99	16.51	26.34	374.81	60.02	135.51	103.62	31.69	4.270		
7,100.00	7,093.28	7,101.79	7,087.13	16.23	16.70	26.17	381.03	60.02	136.08	103.98	32.11	4.239		
7,200.00	7,193.15	7,203.96	7,189.20	16.46	16.89	26.35	385.44	60.02	135.26	102.74	32.52	4.160		
7,300.00	7,293.01	7,306.06	7,291.27	16.70	17.07	26.88	388.02	60.02	132.84	99.92	32.92	4.035		
7,400.00	7,392.87	7,407.87	7,393.07	16.93	17.24	27.79	388.79	60.02	128.86	95.53	33.33	3.866		
7,500.00	7,492.74	7,507.73	7,492.94	17.17	17.43	28.92	388.79	60.02	124.25	90.48	33.77	3.679		
7,600.00	7,592.60	7,607.60	7,592.80	17.41	17.64	30.13	388.79	60.02	119.69	85.46	34.24	3.496		
7,700.00	7,692.46	7,707.46	7,692.66	17.64	17.84	31.44	388.79	60.02	115.20	80.49	34.71	3.319		
7,800.00	7,792.33	7,807.32	7,792.53	17.88	18.06	32.85	388.79	60.02	110.76	75.58	35.18	3.148		
7,900.00	7,892.23	7,907.23	7,892.43	18.09	18.27	34.09	388.79	60.02	107.12	71.50	35.62	3.007		
8,000.00	7,992.19	8,007.19	7,992.39	18.26	18.48	34.88	388.79	60.02	104.96	68.94	36.02	2.914		
8,100.00	8,092.19	8,107.19	8,092.39	18.43	18.69	35.15	388.79	60.02	104.25	67.84	36.41	2.863		
8,109.67	8,101.85	8,116.85	8,102.05	18.45	18.71	35.15	388.79	60.02	104.25	67.80	36.45	2.860		
8,200.00	8,192.19	8,207.19	8,192.39	18.62	18.90	35.15	388.79	60.02	104.25	67.42	36.83	2.831		
8,300.00	8,292.19	8,307.19	8,292.39	18.84	19.11	35.15	388.79	60.02	104.25	66.98	37.27	2.797		
8,300.86	8,293.05	8,308.04	8,293.25	18.84	19.11	35.15	388.79	60.02	104.25	66.98	37.27	2.797		
8,336.36	8,328.55	8,343.54	8,328.75	18.91	19.19	35.15	388.79	60.02	104.25	66.82	37.43	2.786		
8,400.00	8,392.19	8,407.19	8,392.39	19.05	19.32	35.15	388.79	60.02	104.25	66.54	37.70	2.765		
8,500.00	8,492.19	8,507.19	8,492.39	19.27	19.54	35.15	388.79	60.02	104.25	66.11	38.14	2.733		
8,500.86	8,493.05	8,508.04	8,493.25	19.27	19.54	35.15	388.79	60.02	104.25	66.10	38.15	2.733		
8,578.87	8,571.06	8,586.05	8,571.26	19.44	19.70	35.15	388.79	60.02	104.25	65.76	38.49	2.708		
8,600.00	8,592.19	8,607.19	8,592.39	19.49	19.75	35.15	388.79	60.02	104.25	65.67	38.58	2.702		
8,630.36	8,622.55	8,637.54	8,622.75	19.55	19.81	35.15	388.79	60.02	104.25	65.53	38.72	2.693		
8,700.00	8,692.19	8,707.19	8,692.39	19.70	19.96	35.15	388.79	60.02	104.25	65.23	39.02	2.671		
8,728.87	8,721.06	8,736.05	8,721.26	19.77	20.02	35.15	388.79	60.02	104.25	65.10	39.15	2.663		
8,800.00	8,792.19	8,807.19	8,792.39	19.92	20.18	35.15	388.79	60.02	104.25	64.78	39.47	2.642		
8,900.00	8,892.19	8,907.19	8,892.39	20.14	20.39	35.15	388.79	60.02	104.25	64.34	39.91	2.612		
9,000.00	8,992.19	9,007.19	8,992.39	20.36	20.60	35.15	388.79	60.02	104.25	63.90	40.35	2.584		
9,001.44	8,993.62	9,008.62	8,993.82	20.36	20.61	35.15	388.79	60.02	104.25	63.90	40.35	2.583		
9,078.87	9,071.06	9,086.05	9,071.26	20.53	20.77	35.15	388.79	60.02	104.25	63.56	40.69	2.562		
9,100.00	9,092.19	9,107.19	9,092.39	20.58	20.82	35.15	388.79	60.02	104.25	63.46	40.79	2.556		
9,200.00	9,192.19	9,207.19	9,192.39	20.79	21.03	35.15	388.79	60.02	104.25	63.02	41.23	2.529		
9,300.00	9,292.19	9,307.19	9,292.39	21.01	21.25	35.15	388.79	60.02	104.25	62.58	41.67	2.502		
9,312.96	9,305.15	9,320.15	9,305.35	21.04	21.27	35.15	388.79	60.02	104.25	62.52	41.73	2.498		
9,330.36	9,322.55	9,337.54	9,322.75	21.08	21.31	35.15	388.79	60.02	104.25	62.45	41.80	2.494		
9,400.00	9,392.19	9,407.19	9,392.39	21.23	21.46	35.15	388.79	60.02	104.25	62.14	42.11	2.476		
9,500.00	9,492.19	9,507.19	9,492.39	21.45	21.68	35.15	388.79	60.02	104.25	61.70	42.55	2.450		
9,500.86	9,493.05	9,508.04	9,493.25	21.45	21.68	35.15	388.79	60.02	104.25	61.69	42.56	2.450		
9,528.87	9,521.06	9,536.05	9,521.26	21.51	21.74	35.15	388.79	60.02	104.25	61.57	42.68	2.443		
9,600.00	9,592.19	9,607.19	9,592.39	21.67	21.89	35.15	388.79	60.02	104.25	61.26	42.99	2.425		
9,636.36	9,628.55	9,643.54	9,628.75	21.75	21.97	35.15	388.79	60.02	104.25	61.09	43.16	2.416		
9,700.00	9,692.19	9,707.19	9,692.39	21.89	22.11	35.15	388.79	60.02	104.25	60.81	43.44	2.400		
9,734.73	9,726.91	9,741.91	9,727.11	21.96	22.18	35.15	388.79	60.02	104.25	60.66	43.59	2.392 SF		
9,800.00	9,792.19	9,800.00	9,785.15	22.11	22.31	34.52	390.81	60.01	106.15	62.31	43.84	2.421		
9,900.00	9,892.19	9,884.69	9,868.71	22.33	22.55	30.80	404.12	59.95	119.45	75.64	43.81	2.727		
10,000.00	9,992.19	9,963.96	9,944.35	22.55	22.81	25.75	427.61	59.83	145.87	102.65	43.22	3.375		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,100.00	10,092.19	10,035.58	10,009.33	22.76	23.09	21.18	457.62	59.69	184.93	142.73	42.20	4.382		
10,200.00	10,192.19	10,100.00	10,064.17	22.98	23.37	17.59	491.35	59.52	235.06	194.00	41.05	5.725		
10,300.00	10,292.19	10,150.00	10,103.92	23.20	23.61	15.23	521.66	59.37	294.30	254.78	39.52	7.447		
10,400.00	10,392.19	10,200.00	10,140.88	23.42	23.87	13.23	555.31	59.21	360.75	322.22	38.53	9.363		
10,500.00	10,492.19	10,250.00	10,174.77	23.64	24.15	11.56	592.05	59.03	433.12	395.19	37.94	11.417		
10,600.00	10,592.19	10,276.18	10,191.20	23.86	24.31	10.80	612.43	58.93	509.74	473.05	36.69	13.894		
10,700.00	10,692.19	10,300.00	10,205.32	24.08	24.46	10.17	631.61	58.84	590.18	554.41	35.77	16.501		
10,800.00	10,792.19	10,332.45	10,223.26	24.30	24.67	9.39	658.64	58.71	673.38	637.97	35.41	19.018		
10,900.00	10,892.19	10,350.00	10,232.32	24.52	24.78	9.00	673.67	58.63	759.03	724.20	34.82	21.797		
11,000.00	10,992.19	10,375.26	10,244.53	24.74	24.96	8.49	695.78	58.53	846.50	811.88	34.62	24.453		
11,100.00	11,092.19	10,400.00	10,255.54	24.96	25.13	8.02	717.94	58.42	935.65	901.14	34.51	27.110		
11,200.00	11,192.19	10,400.00	10,255.54	25.18	25.13	8.02	717.94	58.42	1,026.07	992.03	34.03	30.149		
11,300.00	11,292.19	10,422.56	10,264.73	25.40	25.30	7.64	738.53	58.32	1,117.45	1,083.36	34.08	32.786		
11,334.85	11,327.04	10,427.08	10,266.48	25.48	25.34	7.56	742.70	58.30	1,149.55	1,115.49	34.06	33.752		
11,350.00	11,342.19	10,428.93	10,267.18	25.51	25.35	-171.65	744.42	58.29	1,163.61	1,129.56	34.05	34.172		
11,400.00	11,392.05	10,450.00	10,274.82	25.58	25.51	-169.74	764.05	58.19	1,211.41	1,177.11	34.30	35.315		
11,450.00	11,441.41	10,450.00	10,274.82	25.65	25.51	-165.23	764.05	58.19	1,260.01	1,225.72	34.29	36.745		
11,500.00	11,489.91	10,450.00	10,274.82	25.70	25.51	-152.94	764.05	58.19	1,309.47	1,275.13	34.34	38.133		
11,550.00	11,537.17	10,450.00	10,274.82	25.74	25.51	-92.13	764.05	58.19	1,359.35	1,324.91	34.44	39.469		
11,600.00	11,582.83	10,450.00	10,274.82	25.77	25.51	-27.08	764.05	58.19	1,409.24	1,374.65	34.59	40.745		
11,650.00	11,626.54	10,450.00	10,274.82	25.80	25.51	-14.01	764.05	58.19	1,458.79	1,424.02	34.77	41.952		
11,700.00	11,667.97	10,450.00	10,274.82	25.82	25.51	-9.31	764.05	58.19	1,507.66	1,472.67	34.99	43.086		
11,750.00	11,706.80	10,430.36	10,267.72	25.85	25.36	-6.69	745.74	58.28	1,555.11	1,520.11	35.00	44.430		
11,800.00	11,742.75	10,425.45	10,265.85	25.88	25.32	-5.33	741.20	58.31	1,601.55	1,566.32	35.22	45.469		
11,850.00	11,775.53	10,419.72	10,263.62	25.91	25.28	-4.43	735.92	58.33	1,646.41	1,610.95	35.46	46.429		
11,900.00	11,804.90	10,400.00	10,255.54	25.95	25.13	-3.75	717.94	58.42	1,689.66	1,654.10	35.56	47.515		
11,950.00	11,830.64	10,400.00	10,255.54	26.00	25.13	-3.31	717.94	58.42	1,730.52	1,694.61	35.91	48.188		
12,000.00	11,852.54	10,400.00	10,255.54	26.06	25.13	-2.98	717.94	58.42	1,769.28	1,732.99	36.28	48.762		
12,050.00	11,870.44	10,400.00	10,255.54	26.14	25.13	-2.71	717.94	58.42	1,805.78	1,769.11	36.67	49.238		
12,100.00	11,884.20	10,400.00	10,255.54	26.24	25.13	-2.50	717.94	58.42	1,839.89	1,802.81	37.08	49.615		
12,150.00	11,893.73	10,371.95	10,242.98	26.36	24.94	-2.30	692.85	58.54	1,870.60	1,833.40	37.19	50.293		
12,200.00	11,898.94	10,350.00	10,232.32	26.49	24.78	-2.15	673.67	58.63	1,899.03	1,861.64	37.39	50.783		
12,234.85	11,900.00	10,350.00	10,232.32	26.60	24.78	-2.08	673.67	58.63	1,916.85	1,879.14	37.71	50.827		
12,300.00	11,900.00	10,350.00	10,232.32	26.82	24.78	-2.08	673.67	58.63	1,949.72	1,911.40	38.32	50.875		
12,400.00	11,900.00	10,323.47	10,218.45	27.24	24.61	-2.06	651.06	58.74	2,002.46	1,963.50	38.96	51.397		
12,500.00	11,900.00	10,300.00	10,205.32	27.75	24.46	-2.04	631.61	58.84	2,058.03	2,018.42	39.61	51.952		
12,600.00	11,900.00	10,300.00	10,205.32	28.35	24.46	-2.04	631.61	58.84	2,116.28	2,075.80	40.49	52.273		
12,700.00	11,900.00	10,270.86	10,187.94	29.02	24.28	-2.02	608.23	58.95	2,176.64	2,135.61	41.03	53.050		
12,800.00	11,900.00	10,250.00	10,174.77	29.77	24.15	-2.01	592.05	59.03	2,239.44	2,197.81	41.63	53.792		
12,900.00	11,900.00	10,250.00	10,174.77	30.59	24.15	-2.01	592.05	59.03	2,304.42	2,262.03	42.40	54.355		
13,000.00	11,900.00	10,224.85	10,158.13	31.48	24.01	-1.99	573.20	59.12	2,371.16	2,328.26	42.90	55.276		
13,100.00	11,900.00	10,200.00	10,140.88	32.42	23.87	-1.97	555.31	59.21	2,439.97	2,396.60	43.38	56.250		
13,200.00	11,900.00	10,200.00	10,140.88	33.42	23.87	-1.97	555.31	59.21	2,510.26	2,466.22	44.03	57.010		
13,300.00	11,900.00	10,200.00	10,140.88	34.46	23.87	-1.97	555.31	59.21	2,582.50	2,537.85	44.65	57.845		
13,400.00	11,900.00	10,172.60	10,120.99	35.55	23.73	-1.95	536.47	59.30	2,655.74	2,610.72	45.02	58.984		
13,500.00	11,900.00	10,150.00	10,103.92	36.68	23.61	-1.93	521.66	59.37	2,730.76	2,685.34	45.42	60.122		
13,600.00	11,900.00	10,150.00	10,103.92	37.85	23.61	-1.93	521.66	59.37	2,806.82	2,760.87	45.94	61.095		
13,700.00	11,900.00	10,150.00	10,103.92	39.05	23.61	-1.93	521.66	59.37	2,884.34	2,837.91	46.43	62.121		
13,800.00	11,900.00	10,150.00	10,103.92	40.29	23.61	-1.93	521.66	59.37	2,963.21	2,916.32	46.89	63.196		
13,900.00	11,900.00	10,100.00	10,064.17	41.55	23.37	-1.89	491.35	59.52	3,042.74	2,995.69	47.05	64.673		
14,000.00	11,900.00	10,100.00	10,064.17	42.83	23.37	-1.89	491.35	59.52	3,123.04	3,075.57	47.47	65.793		
14,100.00	11,900.00	10,100.00	10,064.17	44.14	23.37	-1.89	491.35	59.52	3,204.45	3,156.59	47.86	66.952		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	11,900.00	10,100.00	10,064.17	45.47	23.37	-1.89	491.35	59.52	3,286.89	3,238.65	48.23	68.147		
14,300.00	11,900.00	10,100.00	10,064.17	46.82	23.37	-1.89	491.35	59.52	3,370.27	3,321.69	48.58	69.372		
14,400.00	11,900.00	10,076.80	10,044.86	48.19	23.27	-1.87	478.50	59.58	3,453.99	3,405.18	48.82	70.752		
14,500.00	11,900.00	10,050.00	10,021.93	49.57	23.15	-1.84	464.63	59.65	3,539.05	3,490.02	49.03	72.177		
14,600.00	11,900.00	10,050.00	10,021.93	50.97	23.15	-1.84	464.63	59.65	3,624.18	3,574.84	49.34	73.453		
14,700.00	11,900.00	10,050.00	10,021.93	52.38	23.15	-1.84	464.63	59.65	3,710.05	3,660.42	49.63	74.752		
14,800.00	11,900.00	10,050.00	10,021.93	53.81	23.15	-1.84	464.63	59.65	3,796.61	3,746.70	49.91	76.072		
14,900.00	11,900.00	10,050.00	10,021.93	55.24	23.15	-1.84	464.63	59.65	3,883.81	3,833.64	50.17	77.411		
15,000.00	11,900.00	10,050.00	10,021.93	56.69	23.15	-1.84	464.63	59.65	3,971.62	3,921.20	50.42	78.768		
15,100.00	11,900.00	10,050.00	10,021.93	58.15	23.15	-1.84	464.63	59.65	4,060.00	4,009.34	50.66	80.140		
15,200.00	11,900.00	10,024.56	9,999.58	59.62	23.05	-1.82	452.48	59.71	4,148.26	4,097.43	50.83	81.614		
15,300.00	11,900.00	10,000.00	9,977.52	61.09	22.95	-1.80	441.70	59.76	4,237.71	4,186.72	50.99	83.103		
15,400.00	11,900.00	10,000.00	9,977.52	62.57	22.95	-1.80	441.70	59.76	4,327.05	4,275.84	51.21	84.493		
15,500.00	11,900.00	10,000.00	9,977.52	64.07	22.95	-1.80	441.70	59.76	4,416.85	4,365.43	51.42	85.895		
15,600.00	11,900.00	10,000.00	9,977.52	65.56	22.95	-1.80	441.70	59.76	4,507.08	4,455.45	51.62	87.306		
15,700.00	11,900.00	10,000.00	9,977.52	67.07	22.95	-1.80	441.70	59.76	4,597.71	4,545.89	51.82	88.726		
15,800.00	11,900.00	10,000.00	9,977.52	68.58	22.95	-1.80	441.70	59.76	4,688.72	4,636.72	52.01	90.155		
15,900.00	11,900.00	10,000.00	9,977.52	70.10	22.95	-1.80	441.70	59.76	4,780.10	4,727.91	52.19	91.590		
16,000.00	11,900.00	10,000.00	9,977.52	71.62	22.95	-1.80	441.70	59.76	4,871.81	4,819.44	52.37	93.032		
16,100.00	11,900.00	10,000.00	9,977.52	73.14	22.95	-1.80	441.70	59.76	4,963.84	4,911.30	52.54	94.480		
16,200.00	11,900.00	10,000.00	9,977.52	74.67	22.95	-1.80	441.70	59.76	5,056.17	5,003.47	52.71	95.932		
16,300.00	11,900.00	9,974.02	9,953.69	76.21	22.85	-1.78	431.33	59.81	5,148.14	5,095.30	52.84	97.432		
16,400.00	11,900.00	9,950.00	9,931.28	77.75	22.76	-1.76	422.72	59.85	5,241.23	5,188.26	52.97	98.940		
16,500.00	11,900.00	9,950.00	9,931.28	79.29	22.76	-1.76	422.72	59.85	5,334.03	5,280.90	53.13	100.390		
16,600.00	11,900.00	9,950.00	9,931.28	80.84	22.76	-1.76	422.72	59.85	5,427.09	5,373.80	53.29	101.842		
16,700.00	11,900.00	9,950.00	9,931.28	82.39	22.76	-1.76	422.72	59.85	5,520.39	5,466.95	53.44	103.297		
16,800.00	11,900.00	9,950.00	9,931.28	83.95	22.76	-1.76	422.72	59.85	5,613.92	5,560.33	53.59	104.754		
16,900.00	11,900.00	9,950.00	9,931.28	85.50	22.76	-1.76	422.72	59.85	5,707.67	5,653.93	53.74	106.212		
17,000.00	11,900.00	9,950.00	9,931.28	87.06	22.76	-1.76	422.72	59.85	5,801.63	5,747.74	53.88	107.671		
17,100.00	11,900.00	9,950.00	9,931.28	88.63	22.76	-1.76	422.72	59.85	5,895.78	5,841.76	54.03	109.130		
17,200.00	11,900.00	9,950.00	9,931.28	90.19	22.76	-1.76	422.72	59.85	5,990.13	5,935.97	54.17	110.589		
17,300.00	11,900.00	9,950.00	9,931.28	91.76	22.76	-1.76	422.72	59.85	6,084.66	6,030.35	54.30	112.048		
17,400.00	11,900.00	9,950.00	9,931.28	93.33	22.76	-1.76	422.72	59.85	6,179.36	6,124.92	54.44	113.507		
17,500.00	11,900.00	9,950.00	9,931.28	94.90	22.76	-1.76	422.72	59.85	6,274.22	6,219.65	54.58	114.964		
17,600.00	11,900.00	9,950.00	9,931.28	96.48	22.76	-1.76	422.72	59.85	6,369.24	6,314.53	54.71	116.421		
17,700.00	11,900.00	9,950.00	9,931.28	98.05	22.76	-1.76	422.72	59.85	6,464.41	6,409.57	54.84	117.875		
17,800.00	11,900.00	9,950.00	9,931.28	99.63	22.76	-1.76	422.72	59.85	6,559.73	6,504.76	54.97	119.328		
17,900.00	11,900.00	9,926.00	9,908.53	101.21	22.68	-1.74	415.06	59.89	6,654.64	6,599.54	55.10	120.778		
18,000.00	11,900.00	9,923.66	9,906.29	102.79	22.68	-1.74	414.36	59.90	6,750.11	6,694.88	55.23	122.223		
18,100.00	11,900.00	9,900.00	9,883.56	104.38	22.60	-1.72	407.84	59.93	6,846.13	6,790.78	55.35	123.677		
18,200.00	11,900.00	9,900.00	9,883.56	105.96	22.60	-1.72	407.84	59.93	6,941.75	6,886.27	55.48	125.113		
18,300.00	11,900.00	9,900.00	9,883.56	107.55	22.60	-1.72	407.84	59.93	7,037.50	6,981.88	55.61	126.545		
18,400.00	11,900.00	9,900.00	9,883.56	109.14	22.60	-1.72	407.84	59.93	7,133.36	7,077.62	55.74	127.975		
18,500.00	11,900.00	9,900.00	9,883.56	110.73	22.60	-1.72	407.84	59.93	7,229.33	7,173.46	55.87	129.401		
18,600.00	11,900.00	9,900.00	9,883.56	112.32	22.60	-1.72	407.84	59.93	7,325.41	7,269.42	55.99	130.824		
18,700.00	11,900.00	9,900.00	9,883.56	113.91	22.60	-1.72	407.84	59.93	7,421.59	7,365.47	56.12	132.244		
18,800.00	11,900.00	9,900.00	9,883.56	115.51	22.60	-1.72	407.84	59.93	7,517.88	7,461.63	56.25	133.660		
18,900.00	11,900.00	9,900.00	9,883.56	117.10	22.60	-1.72	407.84	59.93	7,614.26	7,557.88	56.37	135.072		
19,000.00	11,900.00	9,900.00	9,883.56	118.70	22.60	-1.72	407.84	59.93	7,710.73	7,654.23	56.50	136.480		
19,100.00	11,900.00	9,900.00	9,883.56	120.30	22.60	-1.72	407.84	59.93	7,807.29	7,750.66	56.62	137.883		
19,200.00	11,900.00	9,900.00	9,883.56	121.89	22.60	-1.72	407.84	59.93	7,903.93	7,847.18	56.75	139.283		
19,300.00	11,900.00	9,900.00	9,883.56	123.49	22.60	-1.72	407.84	59.93	8,000.66	7,943.79	56.87	140.677		

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

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Lusitano 27-34 Fed Com 718H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3336.1' GE + 21' KB @ 3357.10usft
Reference Site:	Lusitano	MD Reference:	3336.1' GE + 21' KB @ 3357.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Lusitano 27-34 Fed Com 718H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lusitano - Lusitano 27-15 Fed Com 234H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,400.00	11,900.00	9,900.00	9,883.56	125.09	22.60	-1.72	407.84	59.93	8,097.47	8,040.47	57.00	142.068	
19,500.00	11,900.00	9,900.00	9,883.56	126.69	22.60	-1.72	407.84	59.93	8,194.35	8,137.23	57.12	143.453	
19,600.00	11,900.00	9,900.00	9,883.56	128.30	22.60	-1.72	407.84	59.93	8,291.31	8,234.06	57.25	144.834	
19,700.00	11,900.00	9,900.00	9,883.56	129.90	22.60	-1.72	407.84	59.93	8,388.34	8,330.97	57.37	146.210	
19,800.00	11,900.00	9,900.00	9,883.56	131.50	22.60	-1.72	407.84	59.93	8,485.44	8,427.94	57.50	147.581	
19,900.00	11,900.00	9,900.00	9,883.56	133.11	22.60	-1.72	407.84	59.93	8,582.60	8,524.98	57.62	148.947	
20,000.00	11,900.00	9,900.00	9,883.56	134.71	22.60	-1.72	407.84	59.93	8,679.83	8,622.09	57.75	150.308	
20,100.00	11,900.00	9,900.00	9,883.56	136.32	22.60	-1.72	407.84	59.93	8,777.12	8,719.25	57.87	151.663	
20,200.00	11,900.00	9,900.00	9,883.56	137.93	22.60	-1.72	407.84	59.93	8,874.48	8,816.48	58.00	153.013	
20,300.00	11,900.00	9,900.00	9,883.56	139.53	22.60	-1.72	407.84	59.93	8,971.89	8,913.76	58.12	154.358	
20,400.00	11,900.00	9,900.00	9,883.56	141.14	22.60	-1.72	407.84	59.93	9,069.35	9,011.10	58.25	155.697	
20,500.00	11,900.00	9,900.00	9,883.56	142.75	22.60	-1.72	407.84	59.93	9,166.88	9,108.50	58.38	157.031	
20,600.00	11,900.00	9,900.00	9,883.56	144.36	22.60	-1.72	407.84	59.93	9,264.45	9,205.95	58.50	158.359	
20,700.00	11,900.00	9,900.00	9,883.56	145.97	22.60	-1.72	407.84	59.93	9,362.07	9,303.44	58.63	159.681	
20,800.00	11,900.00	9,876.36	9,860.59	147.58	22.53	-1.70	402.27	59.95	9,459.23	9,400.46	58.77	160.958	
20,900.00	11,900.00	9,875.14	9,859.40	149.19	22.52	-1.70	402.01	59.96	9,556.90	9,498.00	58.90	162.266	
21,000.00	11,900.00	9,873.95	9,858.23	150.80	22.52	-1.70	401.75	59.96	9,654.61	9,595.59	59.03	163.568	
21,100.00	11,900.00	9,850.00	9,834.72	152.42	22.45	-1.68	397.18	59.98	9,752.85	9,693.69	59.17	164.840	
21,200.00	11,900.00	9,850.00	9,834.72	154.03	22.45	-1.68	397.18	59.98	9,850.60	9,791.31	59.29	166.130	
21,300.00	11,900.00	9,850.00	9,834.72	155.64	22.45	-1.68	397.18	59.98	9,948.40	9,888.98	59.42	167.414	

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	163.28	-199.59	59.97	208.40					
100.00	100.00	99.90	99.90	0.09	0.09	163.28	-199.59	59.97	208.40	208.22	0.18	1,174.252		
200.00	200.00	199.90	199.90	0.31	0.31	163.28	-199.59	59.97	208.40	207.78	0.63	332.448		
300.00	300.00	299.90	299.90	0.54	0.54	163.28	-199.59	59.97	208.40	207.33	1.08	193.610		
400.00	400.00	399.90	399.90	0.76	0.76	163.28	-199.59	59.97	208.40	206.88	1.53	136.573		
500.00	500.00	499.90	499.90	0.99	0.99	163.28	-199.59	59.97	208.40	206.43	1.98	105.495		
600.00	600.00	599.90	599.90	1.21	1.21	163.28	-199.59	59.97	208.40	205.98	2.43	85.939		
700.00	700.00	699.90	699.90	1.44	1.44	163.28	-199.59	59.97	208.40	205.53	2.87	72.500		
800.00	800.00	799.90	799.90	1.66	1.66	163.28	-199.59	59.97	208.40	205.08	3.32	62.695		
900.00	900.00	899.90	899.90	1.89	1.89	163.28	-199.59	59.97	208.40	204.63	3.77	55.226		
1,000.00	1,000.00	999.90	999.90	2.11	2.11	163.28	-199.59	59.97	208.40	204.18	4.22	49.348		
1,100.00	1,100.00	1,099.90	1,099.90	2.34	2.34	163.28	-199.59	59.97	208.40	203.73	4.67	44.600		
1,200.00	1,200.00	1,199.90	1,199.90	2.56	2.56	163.28	-199.59	59.97	208.40	203.28	5.12	40.686		
1,300.00	1,300.00	1,299.90	1,299.90	2.79	2.79	163.28	-199.59	59.97	208.40	202.83	5.57	37.404		
1,400.00	1,400.00	1,399.90	1,399.90	3.01	3.01	163.28	-199.59	59.97	208.40	202.38	6.02	34.611		
1,500.00	1,500.00	1,499.90	1,499.90	3.24	3.24	163.28	-199.59	59.97	208.40	201.93	6.47	32.207		
1,600.00	1,600.00	1,599.90	1,599.90	3.46	3.46	163.28	-199.59	59.97	208.40	201.48	6.92	30.115		
1,700.00	1,700.00	1,699.90	1,699.90	3.69	3.68	163.28	-199.59	59.97	208.40	201.03	7.37	28.278		
1,800.00	1,800.00	1,799.90	1,799.90	3.91	3.91	163.28	-199.59	59.97	208.40	200.58	7.82	26.652		
1,900.00	1,900.00	1,899.90	1,899.90	4.13	4.13	163.28	-199.59	59.97	208.40	200.13	8.27	25.203		
2,000.00	2,000.00	1,999.90	1,999.90	4.36	4.36	163.28	-199.59	59.97	208.40	199.68	8.72	23.904	CC	
2,100.00	2,099.99	2,099.89	2,099.89	4.58	4.58	163.34	-199.59	59.97	209.24	200.07	9.17	22.823		
2,200.00	2,199.96	2,199.86	2,199.86	4.81	4.81	163.54	-199.59	59.97	211.75	202.13	9.62	22.017		
2,300.00	2,299.86	2,299.76	2,299.76	5.03	5.03	163.85	-199.59	59.97	215.93	205.87	10.07	21.449		
2,400.00	2,399.73	2,399.63	2,399.63	5.26	5.26	164.23	-199.59	59.97	220.97	210.45	10.52	21.011		
2,500.00	2,499.59	2,499.49	2,499.49	5.48	5.48	164.59	-199.59	59.97	226.01	215.04	10.97	20.610		
2,600.00	2,599.45	2,599.35	2,599.35	5.71	5.71	164.94	-199.59	59.97	231.06	219.64	11.42	20.240		
2,700.00	2,699.31	2,699.21	2,699.21	5.94	5.93	165.27	-199.59	59.97	236.12	224.25	11.87	19.899		
2,800.00	2,799.18	2,799.08	2,799.08	6.16	6.16	165.58	-199.59	59.97	241.18	228.87	12.32	19.583		
2,900.00	2,899.04	2,898.94	2,898.94	6.39	6.38	165.89	-199.59	59.97	246.25	233.49	12.77	19.290		
3,000.00	2,998.90	2,998.80	2,998.80	6.62	6.60	166.18	-199.59	59.97	251.33	238.12	13.22	19.017		
3,100.00	3,098.77	3,098.67	3,098.67	6.85	6.83	166.46	-199.59	59.97	256.42	242.75	13.67	18.762		
3,200.00	3,198.63	3,198.53	3,198.53	7.08	7.05	166.73	-199.59	59.97	261.51	247.39	14.12	18.524		
3,300.00	3,298.49	3,298.39	3,298.39	7.31	7.28	166.98	-199.59	59.97	266.61	252.04	14.57	18.301		
3,400.00	3,398.36	3,398.26	3,398.26	7.54	7.50	167.23	-199.59	59.97	271.71	256.69	15.02	18.091		
3,500.00	3,498.22	3,498.12	3,498.12	7.78	7.73	167.47	-199.59	59.97	276.82	261.35	15.47	17.894		
3,600.00	3,598.08	3,597.98	3,597.98	8.01	7.95	167.70	-199.59	59.97	281.93	266.01	15.92	17.708		
3,700.00	3,697.94	3,697.84	3,697.84	8.24	8.18	167.92	-199.59	59.97	287.04	270.67	16.37	17.533		
3,800.00	3,797.81	3,797.71	3,797.71	8.47	8.40	168.14	-199.59	59.97	292.16	275.34	16.82	17.367		
3,900.00	3,897.67	3,897.57	3,897.57	8.71	8.62	168.35	-199.59	59.97	297.29	280.01	17.27	17.210		
4,000.00	3,997.53	3,997.43	3,997.43	8.94	8.85	168.55	-199.59	59.97	302.42	284.69	17.73	17.062		
4,100.00	4,097.40	4,102.69	4,102.69	9.17	9.09	168.72	-198.67	59.97	306.69	288.50	18.19	16.861		
4,200.00	4,197.26	4,208.22	4,208.18	9.41	9.32	168.81	-195.80	59.97	309.17	290.52	18.65	16.579		
4,300.00	4,297.12	4,313.82	4,313.66	9.64	9.56	168.84	-191.00	59.97	309.83	290.73	19.10	16.220		
4,400.00	4,396.99	4,415.74	4,415.40	9.87	9.79	168.81	-184.89	59.97	309.08	289.53	19.55	15.807		
4,500.00	4,496.85	4,515.73	4,515.21	10.11	10.01	168.78	-178.78	59.97	308.23	288.22	20.01	15.407		
4,600.00	4,596.71	4,615.73	4,615.01	10.34	10.24	168.75	-172.68	59.97	307.37	286.91	20.46	15.025		
4,700.00	4,696.57	4,715.72	4,714.82	10.58	10.46	168.72	-166.57	59.97	306.52	285.61	20.91	14.659		
4,800.00	4,796.44	4,815.72	4,814.63	10.81	10.69	168.68	-160.47	59.97	305.66	284.30	21.36	14.308		
4,900.00	4,896.30	4,915.72	4,914.44	11.04	10.91	168.65	-154.36	59.97	304.81	282.99	21.82	13.972		
5,000.00	4,996.16	5,015.71	5,014.25	11.28	11.14	168.62	-148.26	59.97	303.95	281.68	22.27	13.649		
5,100.00	5,096.03	5,115.71	5,114.06	11.51	11.37	168.59	-142.16	59.97	303.09	280.37	22.72	13.339		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 235H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,195.89	5,215.71	5,213.87	11.75	11.60	168.56	-136.05	59.97	302.24	279.06	23.18	13.041		
5,300.00	5,295.75	5,315.70	5,313.68	11.98	11.83	168.52	-129.95	59.97	301.38	277.75	23.63	12.754		
5,400.00	5,395.61	5,415.70	5,413.49	12.22	12.06	168.49	-123.84	59.97	300.53	276.44	24.08	12.479		
5,500.00	5,495.48	5,515.69	5,513.30	12.45	12.29	168.46	-117.74	59.97	299.67	275.14	24.54	12.213		
5,600.00	5,595.34	5,615.69	5,613.11	12.69	12.52	168.42	-111.63	59.97	298.82	273.83	24.99	11.957		
5,700.00	5,695.20	5,715.69	5,712.92	12.92	12.75	168.39	-105.53	59.97	297.96	272.52	25.45	11.710		
5,800.00	5,795.07	5,815.68	5,812.73	13.16	12.98	168.35	-99.42	59.97	297.11	271.21	25.90	11.471		
5,900.00	5,894.93	5,915.68	5,912.54	13.40	13.21	168.32	-93.32	59.97	296.25	269.90	26.35	11.241		
6,000.00	5,994.79	6,015.67	6,012.35	13.63	13.44	168.29	-87.21	59.97	295.40	268.59	26.81	11.019		
6,100.00	6,094.66	6,115.67	6,112.16	13.87	13.68	168.25	-81.11	59.97	294.55	267.28	27.26	10.803		
6,200.00	6,194.52	6,215.67	6,211.97	14.10	13.91	168.22	-75.00	59.97	293.69	265.97	27.72	10.595		
6,300.00	6,294.38	6,315.66	6,311.78	14.34	14.14	168.18	-68.90	59.97	292.84	264.66	28.17	10.394		
6,400.00	6,394.24	6,415.66	6,411.59	14.57	14.38	168.15	-62.80	59.97	291.98	263.35	28.63	10.199		
6,500.00	6,494.11	6,515.66	6,511.40	14.81	14.61	168.11	-56.69	59.97	291.13	262.04	29.08	10.010		
6,600.00	6,593.97	6,615.65	6,611.21	15.05	14.85	168.08	-50.59	59.97	290.27	260.74	29.54	9.827		
6,700.00	6,693.83	6,715.65	6,711.02	15.28	15.08	168.04	-44.48	59.97	289.42	259.43	29.99	9.649		
6,800.00	6,793.70	6,815.64	6,810.83	15.52	15.31	168.00	-38.38	59.97	288.57	258.12	30.45	9.477		
6,900.00	6,893.56	6,915.64	6,910.64	15.75	15.55	167.97	-32.27	59.97	287.71	256.81	30.91	9.310		
7,000.00	6,993.42	7,015.64	7,010.45	15.99	15.78	167.93	-26.17	59.97	286.86	255.50	31.36	9.147		
7,100.00	7,093.28	7,115.63	7,110.26	16.23	16.02	167.90	-20.06	59.97	286.01	254.19	31.82	8.989		
7,200.00	7,193.15	7,215.63	7,210.07	16.46	16.26	167.86	-13.96	59.97	285.15	252.88	32.27	8.836		
7,300.00	7,293.01	7,315.63	7,309.88	16.70	16.49	167.82	-7.85	59.97	284.30	251.57	32.73	8.687		
7,400.00	7,392.87	7,415.62	7,409.69	16.93	16.73	167.78	-1.75	59.97	283.45	250.26	33.18	8.542		
7,500.00	7,492.74	7,515.62	7,509.50	17.17	16.96	167.75	4.36	59.97	282.59	248.96	33.64	8.401		
7,600.00	7,592.60	7,615.61	7,609.31	17.41	17.20	167.71	10.46	59.97	281.74	247.65	34.10	8.263		
7,700.00	7,692.46	7,715.61	7,709.12	17.64	17.44	167.67	16.57	59.97	280.89	246.34	34.55	8.130		
7,800.00	7,792.33	7,815.61	7,808.92	17.88	17.67	167.63	22.67	59.97	280.04	245.03	35.01	7.999		
7,900.00	7,892.23	7,915.59	7,908.72	18.09	17.91	167.55	28.77	59.97	278.33	242.90	35.43	7.855		
8,000.00	7,992.19	8,015.53	8,008.47	18.26	18.15	167.39	34.87	59.97	274.93	239.10	35.83	7.673		
8,100.00	8,092.19	8,115.39	8,108.15	18.43	18.38	167.14	40.97	59.97	269.82	233.59	36.23	7.448		
8,200.00	8,192.19	8,215.20	8,207.78	18.62	18.62	166.84	47.06	59.97	263.87	227.22	36.65	7.200		
8,300.00	8,292.19	8,315.02	8,307.40	18.84	18.86	166.53	53.16	59.97	257.93	220.83	37.10	6.952		
8,400.00	8,392.19	8,414.83	8,407.03	19.05	19.09	166.21	59.25	59.97	252.00	214.44	37.55	6.710		
8,500.00	8,492.19	8,514.64	8,506.66	19.27	19.33	165.87	65.34	59.97	246.07	208.07	38.01	6.475		
8,600.00	8,592.19	8,614.46	8,606.29	19.49	19.57	165.51	71.44	59.97	240.16	201.70	38.46	6.245		
8,700.00	8,692.19	8,714.27	8,705.91	19.70	19.81	165.14	77.53	59.97	234.25	195.34	38.91	6.020		
8,800.00	8,792.19	8,814.08	8,805.54	19.92	20.04	164.75	83.63	59.97	228.35	188.99	39.36	5.801		
8,900.00	8,892.19	8,911.59	8,902.89	20.14	20.25	164.37	89.75	59.97	222.80	183.00	39.80	5.598		
9,000.00	8,992.19	9,007.93	8,999.14	20.36	20.43	164.08	93.29	59.97	218.76	178.57	40.19	5.443		
9,100.00	9,092.19	9,104.38	9,095.56	20.58	20.59	163.91	95.71	59.97	216.35	175.78	40.58	5.332		
9,199.44	9,191.63	9,200.36	9,191.53	20.79	20.76	163.85	96.50	59.97	215.56	174.61	40.95	5.264		
9,200.00	9,192.19	9,200.92	9,192.09	20.79	20.76	163.85	96.50	59.97	215.56	174.60	40.95	5.264		
9,300.00	9,292.19	9,300.92	9,292.09	21.01	20.95	163.85	96.50	59.97	215.56	174.19	41.37	5.210		
9,400.00	9,392.19	9,400.92	9,392.09	21.23	21.17	163.85	96.50	59.97	215.56	173.74	41.82	5.155		
9,500.00	9,492.19	9,500.92	9,492.09	21.45	21.39	163.85	96.50	59.97	215.56	173.29	42.26	5.100		
9,600.00	9,592.19	9,600.92	9,592.09	21.67	21.61	163.85	96.50	59.97	215.56	172.85	42.71	5.047		
9,700.00	9,692.19	9,700.92	9,692.09	21.89	21.83	163.85	96.50	59.97	215.56	172.40	43.16	4.995		
9,800.00	9,792.19	9,800.92	9,792.09	22.11	22.05	163.85	96.50	59.97	215.56	171.96	43.60	4.944 ES, SF		
9,900.00	9,892.19	9,879.47	9,870.54	22.33	22.18	164.07	93.51	59.97	219.49	175.74	43.75	5.017		
10,000.00	9,992.19	9,950.00	9,940.08	22.55	22.27	164.86	82.01	59.96	235.33	191.93	43.39	5.423		
10,100.00	10,092.19	10,018.38	10,005.66	22.76	22.33	166.02	62.80	59.94	262.73	220.01	42.71	6.151		
10,200.00	10,192.19	10,080.66	10,063.02	22.98	22.37	167.26	38.61	59.92	300.74	258.99	41.75	7.203		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 235H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	10,292.19	10,136.99	10,112.36	23.20	22.39	168.41	11.49	59.90	348.12	307.47	40.65	8.563		
10,400.00	10,392.19	10,187.25	10,153.96	23.42	22.42	169.41	-16.70	59.87	403.55	364.01	39.54	10.207		
10,500.00	10,492.19	10,231.72	10,188.58	23.64	22.44	170.25	-44.60	59.85	465.73	427.26	38.48	12.104		
10,600.00	10,592.19	10,270.90	10,217.21	23.86	22.46	170.93	-71.33	59.83	533.53	496.01	37.52	14.219		
10,700.00	10,692.19	10,300.00	10,237.25	24.08	22.47	171.41	-92.42	59.81	606.01	569.49	36.52	16.592		
10,800.00	10,792.19	10,335.73	10,260.36	24.30	22.50	171.96	-119.67	59.78	682.22	646.24	35.99	18.958		
10,900.00	10,892.19	10,350.00	10,269.10	24.52	22.51	172.17	-130.94	59.77	761.89	726.78	35.10	21.704		
11,000.00	10,992.19	10,400.00	10,297.48	24.74	22.56	172.84	-172.09	59.74	843.98	808.73	35.24	23.947		
11,100.00	11,092.19	10,400.00	10,297.48	24.96	22.56	172.84	-172.09	59.74	928.02	893.58	34.44	26.945		
11,200.00	11,192.19	10,426.13	10,310.85	25.18	22.59	173.16	-194.54	59.72	1,014.03	979.72	34.31	29.554		
11,300.00	11,292.19	10,450.00	10,322.16	25.40	22.62	173.44	-215.56	59.70	1,101.73	1,067.51	34.23	32.190		
11,334.85	11,327.04	10,450.00	10,322.16	25.48	22.62	173.44	-215.56	59.70	1,132.53	1,098.44	34.09	33.222		
11,350.00	11,342.19	10,450.00	10,322.16	25.51	22.62	-5.97	-215.56	59.70	1,145.90	1,111.87	34.03	33.672		
11,400.00	11,392.05	10,450.00	10,322.16	25.58	22.62	-5.15	-215.56	59.70	1,188.98	1,155.16	33.82	35.156		
11,450.00	11,441.41	10,468.37	10,330.26	25.65	22.65	-4.43	-232.05	59.69	1,229.90	1,196.07	33.83	36.354		
11,500.00	11,489.91	10,478.22	10,334.38	25.70	22.66	-3.94	-240.99	59.68	1,268.82	1,235.12	33.70	37.647		
11,550.00	11,537.17	10,500.00	10,342.95	25.74	22.70	-3.51	-261.01	59.66	1,305.64	1,271.94	33.70	38.746		
11,600.00	11,582.83	10,500.00	10,342.95	25.77	22.70	-3.24	-261.01	59.66	1,339.73	1,306.31	33.42	40.085		
11,650.00	11,626.54	10,500.00	10,342.95	25.80	22.70	-3.01	-261.01	59.66	1,371.60	1,338.45	33.15	41.371		
11,700.00	11,667.97	10,523.05	10,351.19	25.82	22.74	-2.79	-282.54	59.64	1,400.52	1,367.40	33.12	42.291		
11,750.00	11,706.80	10,550.00	10,359.71	25.85	22.80	-2.61	-308.10	59.62	1,427.11	1,394.01	33.10	43.115		
11,800.00	11,742.75	10,550.00	10,359.71	25.88	22.80	-2.49	-308.10	59.62	1,450.33	1,417.49	32.84	44.164		
11,850.00	11,775.53	10,550.00	10,359.71	25.91	22.80	-2.39	-308.10	59.62	1,471.03	1,438.43	32.60	45.118		
11,900.00	11,804.90	10,573.78	10,366.22	25.95	22.86	-2.30	-330.98	59.60	1,488.48	1,455.91	32.56	45.712		
11,950.00	11,830.64	10,600.00	10,372.30	26.00	22.92	-2.22	-356.48	59.58	1,503.22	1,470.68	32.54	46.198		
12,000.00	11,852.54	10,600.00	10,372.30	26.06	22.92	-2.17	-356.48	59.58	1,514.48	1,482.12	32.36	46.800		
12,050.00	11,870.44	10,600.00	10,372.30	26.14	22.92	-2.14	-356.48	59.58	1,523.04	1,490.82	32.22	47.266		
12,100.00	11,884.20	10,627.52	10,377.41	26.24	23.00	-2.11	-383.52	59.56	1,528.00	1,495.75	32.25	47.383		
12,150.00	11,893.73	10,650.00	10,380.62	26.36	23.06	-2.10	-405.76	59.54	1,530.11	1,497.85	32.26	47.427		
12,200.00	11,898.94	10,650.00	10,380.62	26.49	23.06	-2.10	-405.76	59.54	1,528.89	1,496.68	32.22	47.454		
12,234.85	11,900.00	10,650.00	10,380.62	26.60	23.06	-2.11	-405.76	59.54	1,526.44	1,494.22	32.22	47.380		
12,300.00	11,900.00	10,700.00	10,384.62	26.82	23.23	-2.11	-455.59	59.49	1,521.15	1,488.78	32.37	46.990		
12,400.00	11,900.00	10,709.38	10,384.88	27.24	23.26	-2.10	-464.97	59.49	1,516.35	1,483.77	32.58	46.544		
12,500.00	11,900.00	10,779.01	10,385.00	27.75	23.54	-2.09	-534.59	59.43	1,515.90	1,482.95	32.95	46.001		
12,509.32	11,900.00	10,788.33	10,385.00	27.81	23.58	-2.09	-543.91	59.42	1,515.90	1,482.91	32.99	45.947		
12,600.00	11,900.00	10,879.01	10,385.00	28.35	24.02	-2.07	-634.59	59.34	1,515.88	1,482.49	33.39	45.393		
12,700.00	11,900.00	10,979.01	10,385.00	29.02	24.60	-2.05	-734.59	59.25	1,515.86	1,481.97	33.89	44.723		
12,800.00	11,900.00	11,079.01	10,385.00	29.77	25.28	-2.02	-834.59	59.17	1,515.84	1,481.39	34.45	44.000		
12,900.00	11,900.00	11,179.00	10,385.00	30.59	26.04	-2.00	-934.59	59.08	1,515.82	1,480.76	35.06	43.234		
13,000.00	11,900.00	11,279.00	10,385.00	31.48	26.87	-1.98	-1,034.58	59.00	1,515.80	1,480.08	35.72	42.434		
13,100.00	11,900.00	11,379.00	10,385.00	32.42	27.78	-1.96	-1,134.58	58.91	1,515.78	1,479.35	36.43	41.608		
13,200.00	11,900.00	11,479.00	10,385.00	33.42	28.75	-1.94	-1,234.58	58.82	1,515.76	1,478.58	37.18	40.764		
13,300.00	11,900.00	11,579.00	10,385.00	34.46	29.78	-1.91	-1,334.58	58.74	1,515.74	1,477.76	37.98	39.909		
13,400.00	11,900.00	11,679.00	10,385.00	35.55	30.86	-1.89	-1,434.58	58.65	1,515.72	1,476.91	38.82	39.049		
13,500.00	11,900.00	11,778.99	10,385.00	36.68	31.99	-1.87	-1,534.58	58.57	1,515.70	1,476.02	39.69	38.190		
13,600.00	11,900.00	11,878.99	10,385.00	37.85	33.16	-1.85	-1,634.57	58.48	1,515.68	1,475.09	40.60	37.336		
13,700.00	11,900.00	11,978.99	10,385.00	39.05	34.37	-1.83	-1,734.57	58.39	1,515.67	1,474.13	41.54	36.491		
13,800.00	11,900.00	12,078.99	10,385.00	40.29	35.62	-1.80	-1,834.57	58.31	1,515.65	1,473.14	42.50	35.659		
13,900.00	11,900.00	12,178.99	10,385.00	41.55	36.89	-1.78	-1,934.57	58.22	1,515.63	1,472.13	43.50	34.841		
14,000.00	11,900.00	12,278.99	10,385.00	42.83	38.19	-1.76	-2,034.57	58.14	1,515.61	1,471.09	44.52	34.040		
14,100.00	11,900.00	12,378.98	10,385.00	44.14	39.52	-1.74	-2,134.57	58.05	1,515.59	1,470.02	45.57	33.257		
14,200.00	11,900.00	12,478.98	10,385.00	45.47	40.87	-1.72	-2,234.56	57.96	1,515.56	1,468.93	46.64	32.494		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 235H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	11,900.00	12,578.98	10,385.00	46.82	42.23	-1.69	-2,334.56	57.88	1,515.56	1,467.83	47.73	31.750		
14,400.00	11,900.00	12,678.98	10,385.00	48.19	43.62	-1.67	-2,434.56	57.79	1,515.54	1,466.70	48.84	31.028		
14,500.00	11,900.00	12,778.98	10,385.00	49.57	45.02	-1.65	-2,534.56	57.70	1,515.53	1,465.55	49.97	30.327		
14,600.00	11,900.00	12,878.97	10,385.00	50.97	46.44	-1.63	-2,634.56	57.62	1,515.51	1,464.39	51.12	29.647		
14,700.00	11,900.00	12,978.97	10,385.00	52.38	47.88	-1.60	-2,734.55	57.53	1,515.49	1,463.21	52.28	28.988		
14,800.00	11,900.00	13,078.97	10,385.00	53.81	49.32	-1.58	-2,834.55	57.45	1,515.48	1,462.02	53.46	28.349		
14,900.00	11,900.00	13,178.97	10,385.00	55.24	50.78	-1.56	-2,934.55	57.36	1,515.46	1,460.81	54.65	27.731		
15,000.00	11,900.00	13,278.97	10,385.00	56.69	52.24	-1.54	-3,034.55	57.27	1,515.44	1,459.59	55.85	27.133		
15,100.00	11,900.00	13,378.97	10,385.00	58.15	53.72	-1.52	-3,134.55	57.19	1,515.43	1,458.36	57.07	26.555		
15,200.00	11,900.00	13,478.96	10,385.00	59.62	55.21	-1.49	-3,234.55	57.10	1,515.41	1,457.12	58.29	25.996		
15,300.00	11,900.00	13,578.96	10,385.00	61.09	56.70	-1.47	-3,334.54	57.02	1,515.40	1,455.87	59.53	25.455		
15,400.00	11,900.00	13,678.96	10,385.00	62.57	58.20	-1.45	-3,434.54	56.93	1,515.38	1,454.60	60.78	24.932		
15,500.00	11,900.00	13,778.96	10,385.00	64.07	59.71	-1.43	-3,534.54	56.84	1,515.37	1,453.33	62.04	24.427		
15,600.00	11,900.00	13,878.96	10,385.00	65.56	61.23	-1.41	-3,634.54	56.76	1,515.35	1,452.05	63.30	23.938		
15,700.00	11,900.00	13,978.96	10,385.00	67.07	62.75	-1.38	-3,734.54	56.67	1,515.34	1,450.76	64.58	23.465		
15,800.00	11,900.00	14,078.95	10,385.00	68.58	64.27	-1.36	-3,834.54	56.59	1,515.33	1,449.47	65.86	23.008		
15,900.00	11,900.00	14,178.95	10,385.00	70.10	65.81	-1.34	-3,934.53	56.50	1,515.31	1,448.16	67.15	22.566		
16,000.00	11,900.00	14,278.95	10,385.00	71.62	67.34	-1.32	-4,034.53	56.41	1,515.30	1,446.85	68.45	22.138		
16,100.00	11,900.00	14,378.95	10,385.00	73.14	68.88	-1.30	-4,134.53	56.33	1,515.29	1,445.54	69.75	21.724		
16,200.00	11,900.00	14,478.95	10,385.00	74.67	70.43	-1.27	-4,234.53	56.24	1,515.27	1,444.21	71.06	21.324		
16,300.00	11,900.00	14,578.95	10,385.00	76.21	71.98	-1.25	-4,334.53	56.15	1,515.26	1,442.88	72.38	20.936		
16,400.00	11,900.00	14,678.94	10,385.00	77.75	73.53	-1.23	-4,434.53	56.07	1,515.25	1,441.55	73.70	20.561		
16,500.00	11,900.00	14,778.94	10,385.00	79.29	75.09	-1.21	-4,534.52	55.98	1,515.24	1,440.21	75.02	20.197		
16,600.00	11,900.00	14,878.94	10,385.00	80.84	76.65	-1.19	-4,634.52	55.90	1,515.22	1,438.87	76.35	19.845		
16,700.00	11,900.00	14,978.94	10,385.00	82.39	78.21	-1.16	-4,734.52	55.81	1,515.21	1,437.52	77.69	19.503		
16,800.00	11,900.00	15,078.94	10,385.00	83.95	79.78	-1.14	-4,834.52	55.72	1,515.20	1,436.17	79.03	19.172		
16,900.00	11,900.00	15,178.94	10,385.00	85.50	81.34	-1.12	-4,934.52	55.64	1,515.19	1,434.81	80.38	18.851		
17,000.00	11,900.00	15,278.93	10,385.00	87.06	82.91	-1.10	-5,034.52	55.55	1,515.18	1,433.45	81.73	18.540		
17,100.00	11,900.00	15,378.93	10,385.00	88.63	84.49	-1.08	-5,134.51	55.47	1,515.17	1,432.09	83.08	18.238		
17,200.00	11,900.00	15,478.93	10,385.00	90.19	86.06	-1.05	-5,234.51	55.38	1,515.16	1,430.72	84.44	17.945		
17,300.00	11,900.00	15,578.93	10,385.00	91.76	87.64	-1.03	-5,334.51	55.29	1,515.14	1,429.35	85.80	17.660		
17,400.00	11,900.00	15,678.93	10,385.00	93.33	89.22	-1.01	-5,434.51	55.21	1,515.13	1,427.98	87.16	17.384		
17,500.00	11,900.00	15,778.93	10,385.00	94.90	90.80	-0.99	-5,534.51	55.12	1,515.12	1,426.60	88.53	17.115		
17,600.00	11,900.00	15,878.92	10,385.00	96.48	92.39	-0.97	-5,634.50	55.04	1,515.11	1,425.22	89.90	16.854		
17,700.00	11,900.00	15,978.92	10,385.00	98.05	93.97	-0.94	-5,734.50	54.95	1,515.10	1,423.84	91.27	16.601		
17,800.00	11,900.00	16,078.92	10,385.00	99.63	95.56	-0.92	-5,834.50	54.86	1,515.09	1,422.45	92.64	16.354		
17,900.00	11,900.00	16,178.92	10,385.00	101.21	97.15	-0.90	-5,934.50	54.78	1,515.09	1,421.06	94.02	16.114		
18,000.00	11,900.00	16,278.92	10,385.00	102.79	98.74	-0.88	-6,034.50	54.69	1,515.08	1,419.67	95.40	15.881		
18,100.00	11,900.00	16,378.92	10,385.00	104.38	100.33	-0.86	-6,134.50	54.60	1,515.07	1,418.28	96.79	15.654		
18,200.00	11,900.00	16,478.91	10,385.00	105.96	101.92	-0.83	-6,234.49	54.52	1,515.06	1,416.89	98.17	15.433		
18,300.00	11,900.00	16,578.91	10,385.00	107.55	103.52	-0.81	-6,334.49	54.43	1,515.05	1,415.49	99.56	15.218		
18,400.00	11,900.00	16,678.91	10,385.00	109.14	105.11	-0.79	-6,434.49	54.35	1,515.04	1,414.09	100.95	15.008		
18,500.00	11,900.00	16,778.91	10,385.00	110.73	106.71	-0.77	-6,534.49	54.26	1,515.04	1,412.69	102.34	14.804		
18,600.00	11,900.00	16,878.91	10,385.00	112.32	108.31	-0.75	-6,634.49	54.17	1,515.03	1,411.29	103.74	14.605		
18,700.00	11,900.00	16,978.91	10,385.00	113.91	109.90	-0.72	-6,734.49	54.09	1,515.02	1,409.89	105.13	14.411		
18,800.00	11,900.00	17,078.90	10,385.00	115.51	111.50	-0.70	-6,834.48	54.00	1,515.01	1,408.48	106.53	14.222		
18,900.00	11,900.00	17,178.90	10,385.00	117.10	113.11	-0.68	-6,934.48	53.92	1,515.01	1,407.08	107.93	14.037		
19,000.00	11,900.00	17,278.90	10,385.00	118.70	114.71	-0.66	-7,034.48	53.83	1,515.00	1,405.67	109.33	13.857		
19,100.00	11,900.00	17,378.90	10,385.00	120.30	116.31	-0.64	-7,134.48	53.74	1,514.99	1,404.26	110.73	13.681		
19,200.00	11,900.00	17,478.90	10,385.00	121.89	117.91	-0.61	-7,234.48	53.66	1,514.99	1,402.85	112.14	13.510		
19,300.00	11,900.00	17,578.90	10,385.00	123.49	119.52	-0.59	-7,334.48	53.57	1,514.98	1,401.44	113.54	13.343		
19,400.00	11,900.00	17,678.89	10,385.00	125.09	121.12	-0.57	-7,434.47	53.49	1,514.97	1,400.02	114.95	13.179		

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

LEAM Drilling Systems LLC

Anticollision Report

Company:	Devon Energy	Local Co-ordinate Reference:	Well Lusitano 27-34 Fed Com 718H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	3336.1' GE + 21' KB @ 3357.10usft
Reference Site:	Lusitano	MD Reference:	3336.1' GE + 21' KB @ 3357.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Lusitano 27-34 Fed Com 718H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 235H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	11,900.00	17,778.89	10,385.00	126.69	122.73	-0.55	-7,534.47	53.40	1,514.97	1,398.61	116.36	13.020		
19,600.00	11,900.00	17,878.89	10,385.00	128.30	124.34	-0.53	-7,634.47	53.31	1,514.96	1,397.19	117.77	12.864		
19,700.00	11,900.00	17,978.89	10,385.00	129.90	125.94	-0.50	-7,734.47	53.23	1,514.96	1,395.77	119.18	12.711		
19,800.00	11,900.00	18,078.89	10,385.00	131.50	127.55	-0.48	-7,834.47	53.14	1,514.95	1,394.36	120.60	12.562		
19,900.00	11,900.00	18,178.89	10,385.00	133.11	129.16	-0.46	-7,934.46	53.06	1,514.95	1,392.94	122.01	12.417		
20,000.00	11,900.00	18,278.88	10,385.00	134.71	130.77	-0.44	-8,034.46	52.97	1,514.94	1,391.52	123.43	12.274		
20,100.00	11,900.00	18,378.88	10,385.00	136.32	132.38	-0.42	-8,134.46	52.88	1,514.94	1,390.10	124.84	12.135		
20,200.00	11,900.00	18,478.88	10,385.00	137.93	133.99	-0.39	-8,234.46	52.80	1,514.94	1,388.67	126.26	11.998		
20,300.00	11,900.00	18,578.88	10,385.00	139.53	135.60	-0.37	-8,334.46	52.71	1,514.93	1,387.25	127.68	11.865		
20,400.00	11,900.00	18,678.88	10,385.00	141.14	137.21	-0.35	-8,434.46	52.62	1,514.93	1,385.83	129.10	11.735		
20,500.00	11,900.00	18,778.87	10,385.00	142.75	138.83	-0.33	-8,534.45	52.54	1,514.92	1,384.40	130.52	11.607		
20,600.00	11,900.00	18,878.87	10,385.00	144.36	140.44	-0.31	-8,634.45	52.45	1,514.92	1,382.98	131.94	11.482		
20,700.00	11,900.00	18,978.87	10,385.00	145.97	142.05	-0.28	-8,734.45	52.37	1,514.92	1,381.55	133.37	11.359		
20,800.00	11,900.00	19,078.87	10,385.00	147.58	143.67	-0.26	-8,834.45	52.28	1,514.92	1,380.13	134.79	11.239		
20,900.00	11,900.00	19,178.87	10,385.00	149.19	145.28	-0.24	-8,934.45	52.19	1,514.91	1,378.70	136.22	11.121		
21,000.00	11,900.00	19,278.87	10,385.00	150.80	146.90	-0.22	-9,034.45	52.11	1,514.91	1,377.27	137.64	11.006		
21,100.00	11,900.00	19,378.86	10,385.00	152.42	148.51	-0.20	-9,134.44	52.02	1,514.91	1,375.84	139.07	10.893		
21,200.00	11,900.00	19,478.86	10,385.00	154.03	150.13	-0.17	-9,234.44	51.94	1,514.91	1,374.41	140.50	10.783		
21,300.00	11,900.00	19,578.86	10,385.00	155.64	151.74	-0.15	-9,334.44	51.85	1,514.91	1,372.98	141.92	10.674		
21,400.00	11,900.00	19,678.86	10,385.00	157.26	153.36	-0.13	-9,434.44	51.76	1,514.90	1,371.55	143.35	10.568		
21,500.00	11,900.00	19,778.86	10,385.00	158.87	154.98	-0.11	-9,534.44	51.68	1,514.90	1,370.12	144.78	10.463		
21,600.00	11,900.00	19,878.86	10,385.00	160.49	156.59	-0.08	-9,634.44	51.59	1,514.90	1,368.69	146.21	10.361		
21,700.00	11,900.00	19,978.85	10,385.00	162.10	158.21	-0.06	-9,734.43	51.51	1,514.90	1,367.25	147.65	10.260		
21,800.00	11,900.00	20,078.85	10,385.00	163.72	159.83	-0.04	-9,834.43	51.42	1,514.90	1,365.82	149.08	10.162		
21,900.00	11,900.00	20,178.85	10,385.00	165.33	161.45	-0.02	-9,934.43	51.33	1,514.90	1,364.39	150.51	10.065		
21,970.96	11,900.00	20,249.81	10,385.00	166.48	162.60	0.00	-10,005.39	51.27	1,514.90	1,363.37	151.53	9.997		
21,984.97	11,900.00	20,263.82	10,385.00	166.71	162.82	0.00	-10,019.40	51.26	1,514.90	1,363.17	151.73	9.984		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Lusitano - Lusitano 27-34 Fed Com 336H - OH - Plan #1													Offset Well Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM														
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.10	0.10	0.00	0.00	89.56	0.23	30.03	30.03					
100.00	100.00	100.10	100.10	0.09	0.09	89.56	0.23	30.03	30.03	29.85	0.18	168.912		
200.00	200.00	200.10	200.10	0.31	0.31	89.56	0.23	30.03	30.03	29.40	0.63	47.872		
300.00	300.00	300.10	300.10	0.54	0.54	89.56	0.23	30.03	30.03	28.95	1.08	27.888		
400.00	400.00	400.10	400.10	0.76	0.76	89.56	0.23	30.03	30.03	28.50	1.53	19.674		
500.00	500.00	500.10	500.10	0.99	0.99	89.56	0.23	30.03	30.03	28.05	1.98	15.198		
600.00	600.00	600.10	600.10	1.21	1.21	89.56	0.23	30.03	30.03	27.61	2.43	12.382		
700.00	700.00	700.10	700.10	1.44	1.44	89.56	0.23	30.03	30.03	27.16	2.87	10.446		
800.00	800.00	800.10	800.10	1.66	1.66	89.56	0.23	30.03	30.03	26.71	3.32	9.033		
900.00	900.00	900.10	900.10	1.89	1.89	89.56	0.23	30.03	30.03	26.26	3.77	7.957		
1,000.00	1,000.00	1,000.10	1,000.10	2.11	2.11	89.56	0.23	30.03	30.03	25.81	4.22	7.110		
1,100.00	1,100.00	1,100.10	1,100.10	2.34	2.34	89.56	0.23	30.03	30.03	25.36	4.67	6.426		
1,200.00	1,200.00	1,200.10	1,200.10	2.56	2.56	89.56	0.23	30.03	30.03	24.91	5.12	5.862		
1,300.00	1,300.00	1,300.10	1,300.10	2.79	2.79	89.56	0.23	30.03	30.03	24.46	5.57	5.389		
1,400.00	1,400.00	1,400.10	1,400.10	3.01	3.01	89.56	0.23	30.03	30.03	24.01	6.02	4.987		
1,500.00	1,500.00	1,500.10	1,500.10	3.24	3.24	89.56	0.23	30.03	30.03	23.56	6.47	4.641		
1,600.00	1,600.00	1,600.10	1,600.10	3.46	3.46	89.56	0.23	30.03	30.03	23.11	6.92	4.339		
1,700.00	1,700.00	1,700.10	1,700.10	3.69	3.69	89.56	0.23	30.03	30.03	22.66	7.37	4.075		
1,800.00	1,800.00	1,800.10	1,800.10	3.91	3.91	89.56	0.23	30.03	30.03	22.21	7.82	3.840		
1,900.00	1,900.00	1,900.10	1,900.10	4.13	4.13	89.56	0.23	30.03	30.03	21.76	8.27	3.632		
2,000.00	2,000.00	2,000.10	2,000.10	4.36	4.36	89.56	0.23	30.03	30.03	21.31	8.72	3.444		
2,051.31	2,051.30	2,051.40	2,051.40	4.47	4.47	90.00	0.23	30.03	30.03	21.08	8.95	3.356	CC	
2,100.00	2,099.99	2,100.09	2,100.09	4.58	4.58	91.23	0.23	30.03	30.04	20.87	9.17	3.276		
2,200.00	2,199.96	2,200.06	2,200.06	4.81	4.81	96.19	0.23	30.03	30.21	20.59	9.62	3.141	ES	
2,300.00	2,299.86	2,299.96	2,299.96	5.03	5.03	104.22	0.23	30.03	30.98	20.92	10.06	3.078		
2,400.00	2,399.73	2,399.83	2,399.83	5.26	5.26	113.15	0.23	30.03	32.67	22.15	10.51	3.107		
2,500.00	2,499.59	2,499.69	2,499.69	5.48	5.48	121.03	0.23	30.03	35.06	24.09	10.96	3.198		
2,600.00	2,599.45	2,599.55	2,599.55	5.71	5.71	127.80	0.23	30.03	38.02	26.61	11.41	3.331		
2,700.00	2,699.31	2,699.41	2,699.41	5.94	5.93	133.52	0.23	30.03	41.44	29.57	11.87	3.492		
2,800.00	2,799.18	2,799.28	2,799.28	6.16	6.16	138.33	0.23	30.03	45.21	32.89	12.32	3.670		
2,900.00	2,899.04	2,899.14	2,899.14	6.39	6.38	142.38	0.23	30.03	49.24	36.47	12.77	3.857		
3,000.00	2,998.90	2,999.00	2,999.00	6.62	6.60	145.81	0.23	30.03	53.48	40.27	13.22	4.046		
3,100.00	3,098.77	3,098.87	3,098.87	6.85	6.83	148.72	0.23	30.03	57.89	44.22	13.67	4.235		
3,200.00	3,198.63	3,198.73	3,198.73	7.08	7.05	151.21	0.23	30.03	62.42	48.30	14.12	4.421		
3,300.00	3,298.49	3,298.59	3,298.59	7.31	7.28	153.36	0.23	30.03	67.06	52.49	14.57	4.602		
3,400.00	3,398.36	3,398.46	3,398.46	7.54	7.50	155.24	0.23	30.03	71.78	56.75	15.02	4.778		
3,500.00	3,498.22	3,498.32	3,498.32	7.78	7.73	156.88	0.23	30.03	76.56	61.09	15.47	4.948		
3,600.00	3,598.08	3,599.49	3,599.48	8.01	7.95	158.12	1.09	30.03	80.61	64.68	15.93	5.061		
3,700.00	3,697.94	3,700.80	3,700.76	8.24	8.18	158.80	3.75	30.03	83.04	66.66	16.38	5.071		
3,800.00	3,797.81	3,801.87	3,801.73	8.47	8.41	159.02	8.14	30.03	83.87	67.05	16.82	4.985		
3,900.00	3,897.67	3,901.87	3,901.61	8.71	8.63	159.10	13.02	30.03	84.20	66.92	17.28	4.874		
4,000.00	3,997.53	4,001.87	4,001.49	8.94	8.86	159.19	17.91	30.03	84.52	66.79	17.73	4.768		
4,100.00	4,097.40	4,101.87	4,101.37	9.17	9.08	159.27	22.79	30.03	84.85	66.67	18.18	4.667		
4,200.00	4,197.26	4,201.87	4,201.25	9.41	9.31	159.36	27.68	30.03	85.18	66.54	18.63	4.571		
4,300.00	4,297.12	4,301.87	4,301.13	9.64	9.53	159.44	32.56	30.03	85.50	66.42	19.09	4.480		
4,400.00	4,396.99	4,401.87	4,401.01	9.87	9.76	159.52	37.45	30.03	85.83	66.29	19.54	4.392		
4,500.00	4,496.85	4,501.87	4,500.89	10.11	9.98	159.60	42.33	30.03	86.16	66.16	19.99	4.309		
4,600.00	4,596.71	4,601.87	4,600.77	10.34	10.21	159.68	47.22	30.03	86.48	66.04	20.45	4.229		
4,700.00	4,696.57	4,701.86	4,700.65	10.58	10.44	159.76	52.10	30.03	86.81	65.91	20.90	4.153		
4,800.00	4,796.44	4,801.86	4,800.53	10.81	10.67	159.84	56.99	30.03	87.14	65.78	21.36	4.080		
4,900.00	4,896.30	4,901.86	4,900.41	11.04	10.91	159.92	61.87	30.03	87.47	65.66	21.81	4.010		
5,000.00	4,996.16	5,001.86	5,000.29	11.28	11.14	160.00	66.76	30.03	87.80	65.53	22.27	3.943		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 336H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,096.03	5,101.86	5,100.17	11.51	11.38	160.08	71.64	30.03	88.12	65.40	22.72	3.878		
5,200.00	5,195.89	5,201.86	5,200.05	11.75	11.61	160.15	76.53	30.03	88.45	65.27	23.18	3.816		
5,300.00	5,295.75	5,301.86	5,299.93	11.98	11.85	160.23	81.41	30.03	88.78	65.15	23.63	3.757		
5,400.00	5,395.61	5,401.86	5,399.81	12.22	12.09	160.31	86.30	30.03	89.11	65.02	24.09	3.699		
5,500.00	5,495.48	5,501.86	5,499.69	12.45	12.32	160.38	91.18	30.03	89.44	64.89	24.54	3.644		
5,600.00	5,595.34	5,601.86	5,599.57	12.69	12.56	160.46	96.07	30.03	89.77	64.77	25.00	3.591		
5,700.00	5,695.20	5,701.86	5,699.45	12.92	12.80	160.53	100.95	30.03	90.10	64.64	25.45	3.540		
5,800.00	5,795.07	5,801.86	5,799.33	13.16	13.04	160.60	105.84	30.03	90.42	64.51	25.91	3.490		
5,900.00	5,894.93	5,901.86	5,899.21	13.40	13.28	160.68	110.72	30.03	90.75	64.39	26.37	3.442		
6,000.00	5,994.79	6,001.86	5,999.09	13.63	13.52	160.75	115.61	30.03	91.08	64.26	26.82	3.396		
6,100.00	6,094.66	6,101.86	6,098.97	13.87	13.77	160.82	120.49	30.03	91.41	64.14	27.28	3.351		
6,200.00	6,194.52	6,201.86	6,198.85	14.10	14.01	160.89	125.38	30.03	91.74	64.01	27.73	3.308		
6,300.00	6,294.38	6,301.86	6,298.73	14.34	14.25	160.96	130.26	30.03	92.07	63.88	28.19	3.266		
6,400.00	6,394.24	6,401.86	6,398.61	14.57	14.49	161.03	135.15	30.03	92.40	63.76	28.65	3.226		
6,500.00	6,494.11	6,501.86	6,498.49	14.81	14.74	161.10	140.03	30.03	92.73	63.63	29.10	3.186		
6,600.00	6,593.97	6,601.86	6,598.37	15.05	14.98	161.17	144.92	30.03	93.06	63.50	29.56	3.148		
6,700.00	6,693.83	6,701.86	6,698.25	15.28	15.22	161.24	149.80	30.03	93.39	63.38	30.01	3.112		
6,800.00	6,793.70	6,801.86	6,798.13	15.52	15.47	161.31	154.69	30.03	93.72	63.25	30.47	3.076		
6,900.00	6,893.56	6,901.86	6,898.01	15.75	15.71	161.38	159.57	30.03	94.05	63.13	30.93	3.041		
7,000.00	6,993.42	7,001.86	6,997.89	15.99	15.96	161.45	164.46	30.03	94.39	63.00	31.38	3.007		
7,100.00	7,093.28	7,101.86	7,097.77	16.23	16.20	161.52	169.34	30.03	94.72	62.88	31.84	2.975		
7,200.00	7,193.15	7,201.86	7,197.65	16.46	16.45	161.58	174.23	30.03	95.05	62.75	32.30	2.943		
7,300.00	7,293.01	7,301.86	7,297.53	16.70	16.69	161.65	179.11	30.03	95.38	62.63	32.75	2.912		
7,400.00	7,392.87	7,401.86	7,397.41	16.93	16.94	161.71	184.00	30.03	95.71	62.50	33.21	2.882		
7,500.00	7,492.74	7,501.86	7,497.29	17.17	17.19	161.78	188.88	30.03	96.04	62.38	33.67	2.853		
7,600.00	7,592.60	7,601.86	7,597.17	17.41	17.43	161.84	193.77	30.03	96.37	62.25	34.12	2.824		
7,700.00	7,692.46	7,701.86	7,697.05	17.64	17.68	161.91	198.65	30.03	96.71	62.13	34.58	2.797		
7,800.00	7,792.33	7,801.86	7,796.59	17.88	17.92	161.98	203.48	30.03	97.08	62.05	35.03	2.771		
7,900.00	7,892.23	7,900.00	7,895.02	18.09	18.09	162.11	207.08	30.03	97.75	62.35	35.40	2.761		
8,000.00	7,992.19	7,998.30	7,993.30	18.26	18.26	162.23	208.98	30.03	98.40	62.67	35.73	2.754		
8,100.00	8,092.19	8,097.29	8,092.29	18.43	18.44	162.33	209.31	30.03	98.91	62.85	36.07	2.743		
8,200.00	8,192.19	8,197.29	8,192.29	18.62	18.65	162.33	209.31	30.03	98.91	62.43	36.48	2.711		
8,300.00	8,292.19	8,297.29	8,292.29	18.84	18.87	162.33	209.31	30.03	98.91	61.98	36.93	2.679		
8,400.00	8,392.19	8,397.29	8,392.29	19.05	19.08	162.33	209.31	30.03	98.91	61.54	37.37	2.647		
8,500.00	8,492.19	8,497.29	8,492.29	19.27	19.30	162.33	209.31	30.03	98.91	61.09	37.82	2.615		
8,600.00	8,592.19	8,597.29	8,592.29	19.49	19.51	162.33	209.31	30.03	98.91	60.65	38.26	2.585		
8,700.00	8,692.19	8,697.29	8,692.29	19.70	19.73	162.33	209.31	30.03	98.91	60.20	38.71	2.555		
8,800.00	8,792.19	8,797.29	8,792.29	19.92	19.94	162.33	209.31	30.03	98.91	59.76	39.16	2.526		
8,900.00	8,892.19	8,897.29	8,892.29	20.14	20.16	162.33	209.31	30.03	98.91	59.31	39.60	2.498		
9,000.00	8,992.19	8,997.29	8,992.29	20.36	20.37	162.33	209.31	30.03	98.91	58.86	40.05	2.470		
9,100.00	9,092.19	9,097.29	9,092.29	20.58	20.59	162.33	209.31	30.03	98.91	58.42	40.49	2.443		
9,200.00	9,192.19	9,197.29	9,192.29	20.79	20.81	162.33	209.31	30.03	98.91	57.97	40.94	2.416		
9,300.00	9,292.19	9,297.29	9,292.29	21.01	21.02	162.33	209.31	30.03	98.91	57.53	41.39	2.390		
9,400.00	9,392.19	9,397.29	9,392.29	21.23	21.24	162.33	209.31	30.03	98.91	57.08	41.83	2.365		
9,500.00	9,492.19	9,497.29	9,492.29	21.45	21.46	162.33	209.31	30.03	98.91	56.63	42.28	2.340		
9,600.00	9,592.19	9,597.29	9,592.29	21.67	21.67	162.33	209.31	30.03	98.91	56.19	42.72	2.315		
9,700.00	9,692.19	9,697.29	9,692.29	21.89	21.89	162.33	209.31	30.03	98.91	55.74	43.17	2.291		
9,800.00	9,792.19	9,797.29	9,792.29	22.11	22.11	162.33	209.31	30.03	98.91	55.29	43.62	2.268		
9,900.00	9,892.19	9,897.29	9,892.29	22.33	22.33	162.33	209.31	30.03	98.91	54.85	44.06	2.245		
10,000.00	9,992.19	9,997.29	9,992.29	22.55	22.54	162.33	209.31	30.03	98.91	54.40	44.51	2.222		
10,100.00	10,092.19	10,097.29	10,092.29	22.76	22.76	162.33	209.31	30.03	98.91	53.95	44.96	2.200		
10,200.00	10,192.19	10,197.29	10,192.29	22.98	22.98	162.33	209.31	30.03	98.91	53.51	45.40	2.178		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 336H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference				Offset			Semi Major Axis		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	10,292.19	10,297.29	10,292.29	23.20	23.20	162.33	209.31	30.03	98.91	53.06	45.85	2.157		
10,400.00	10,392.19	10,397.29	10,392.29	23.42	23.41	162.33	209.31	30.03	98.91	52.61	46.30	2.136		
10,500.00	10,492.19	10,497.29	10,492.29	23.64	23.63	162.33	209.31	30.03	98.91	52.17	46.74	2.116		
10,600.00	10,592.19	10,597.29	10,592.29	23.86	23.85	162.33	209.31	30.03	98.91	51.72	47.19	2.096		
10,700.00	10,692.19	10,697.29	10,692.29	24.08	24.07	162.33	209.31	30.03	98.91	51.27	47.64	2.076		
10,800.00	10,792.19	10,797.29	10,792.29	24.30	24.29	162.33	209.31	30.03	98.91	50.83	48.08	2.057		
10,900.00	10,892.19	10,897.29	10,892.29	24.52	24.51	162.33	209.31	30.03	98.91	50.38	48.53	2.038		
11,000.00	10,992.19	10,997.29	10,992.29	24.74	24.72	162.33	209.31	30.03	98.91	49.93	48.98	2.019		
11,100.00	10,992.19	10,997.29	10,992.29	24.74	24.72	162.33	209.31	30.03	98.91	49.93	48.98	2.019		
11,100.00	11,092.19	11,093.71	11,088.70	24.96	24.93	162.40	208.90	30.03	99.37	50.00	49.37	2.013		
11,200.00	11,192.19	11,178.35	11,172.74	25.18	25.04	163.89	199.48	30.05	110.08	60.88	49.19	2.238		
11,300.00	11,292.19	11,258.57	11,250.29	25.40	25.12	166.39	179.21	30.09	134.64	86.17	48.48	2.778		
11,334.85	11,327.04	11,285.00	11,275.13	25.48	25.15	167.28	170.19	30.11	146.28	98.15	48.13	3.039		
11,350.00	11,342.19	11,300.00	11,289.04	25.51	25.16	-11.85	164.56	30.12	151.68	103.45	48.23	3.145		
11,400.00	11,392.05	11,333.06	11,319.13	25.58	25.19	-10.64	150.87	30.15	168.62	121.28	47.34	3.562		
11,450.00	11,441.41	11,369.34	11,351.18	25.65	25.23	-9.62	133.89	30.19	184.59	137.95	46.64	3.958		
11,500.00	11,489.91	11,400.00	11,377.38	25.70	25.26	-8.89	117.98	30.22	199.53	154.04	45.50	4.386		
11,550.00	11,537.17	11,440.58	11,410.69	25.74	25.31	-8.17	94.82	30.27	213.13	168.06	45.07	4.729		
11,600.00	11,582.83	11,475.65	11,438.09	25.77	25.38	-7.65	72.93	30.31	225.61	181.39	44.22	5.102		
11,650.00	11,626.54	11,510.43	11,463.89	25.80	25.45	-7.22	49.62	30.36	236.83	193.49	43.34	5.465		
11,700.00	11,667.97	11,550.00	11,491.46	25.82	25.55	-6.85	21.25	30.42	246.83	204.04	42.79	5.769		
11,750.00	11,706.80	11,579.25	11,510.55	25.85	25.65	-6.59	-0.91	30.47	255.36	213.81	41.55	6.145		
11,800.00	11,742.75	11,613.38	11,531.36	25.88	25.78	-6.37	-27.96	30.52	262.62	221.94	40.68	6.456		
11,850.00	11,775.53	11,650.00	11,551.85	25.91	25.93	-6.18	-58.30	30.59	268.52	228.54	39.99	6.715		
11,900.00	11,804.90	11,681.23	11,567.77	25.95	26.10	-6.05	-85.17	30.64	273.01	233.97	39.04	6.993		
11,950.00	11,830.64	11,715.03	11,583.31	26.00	26.30	-5.96	-115.17	30.70	276.11	237.80	38.31	7.208		
12,000.00	11,852.54	11,750.00	11,597.51	26.06	26.53	-5.90	-147.12	30.77	277.81	240.10	37.71	7.367		
12,050.00	11,870.44	11,782.49	11,608.93	26.14	26.78	-5.87	-177.53	30.83	278.09	240.99	37.10	7.495		
12,100.00	11,884.20	11,816.21	11,618.94	26.24	27.07	-5.88	-209.74	30.90	276.96	240.30	36.66	7.555		
12,150.00	11,893.73	11,850.00	11,627.05	26.36	27.37	-5.92	-242.53	30.97	274.42	238.08	36.35	7.550		
12,200.00	11,898.94	11,883.81	11,633.22	26.49	27.71	-6.00	-275.77	31.04	270.48	234.31	36.17	7.479		
12,234.85	11,900.00	11,900.00	11,635.48	26.60	27.87	-6.06	-291.80	31.07	267.06	230.99	36.08	7.403		
12,300.00	11,900.00	11,950.00	11,639.58	26.82	28.43	-6.13	-341.61	31.17	262.12	225.86	36.26	7.229		
12,400.00	11,900.00	12,042.88	11,640.00	27.24	29.63	-6.08	-434.49	31.37	261.57	224.93	36.64	7.139		
12,405.75	11,900.00	12,048.63	11,640.00	27.27	29.71	-6.08	-440.24	31.38	261.57	224.91	36.66	7.135		
12,500.00	11,900.00	12,142.88	11,640.00	27.75	31.07	-6.02	-534.49	31.57	261.54	224.51	37.03	7.063		
12,600.00	11,900.00	12,242.88	11,640.00	28.35	32.68	-5.95	-634.49	31.78	261.51	224.03	37.48	6.977		
12,700.00	11,900.00	12,342.88	11,640.00	29.02	34.43	-5.89	-734.49	31.99	261.48	223.49	37.99	6.883		
12,800.00	11,900.00	12,442.88	11,640.00	29.77	36.30	-5.83	-834.49	32.20	261.45	222.90	38.54	6.783		
12,900.00	11,900.00	12,542.88	11,640.00	30.59	38.27	-5.76	-934.49	32.40	261.42	222.27	39.15	6.677		
13,000.00	11,900.00	12,642.88	11,640.00	31.48	40.33	-5.70	-1,034.49	32.61	261.39	221.58	39.81	6.566		
13,100.00	11,900.00	12,742.88	11,640.00	32.42	42.47	-5.64	-1,134.48	32.82	261.36	220.85	40.51	6.452		
13,200.00	11,900.00	12,842.88	11,640.00	33.42	44.67	-5.58	-1,234.48	33.03	261.33	220.08	41.25	6.335		
13,300.00	11,900.00	12,942.88	11,640.00	34.46	46.93	-5.51	-1,334.48	33.23	261.31	219.27	42.03	6.216		
13,400.00	11,900.00	13,042.88	11,640.00	35.55	49.24	-5.45	-1,434.48	33.44	261.28	218.42	42.85	6.097		
13,500.00	11,900.00	13,142.88	11,640.00	36.68	51.58	-5.39	-1,534.48	33.65	261.25	217.54	43.71	5.977		
13,600.00	11,900.00	13,242.88	11,640.00	37.85	53.97	-5.32	-1,634.48	33.86	261.22	216.62	44.60	5.857		
13,700.00	11,900.00	13,342.88	11,640.00	39.05	56.38	-5.26	-1,734.48	34.06	261.20	215.68	45.52	5.738		
13,800.00	11,900.00	13,442.88	11,640.00	40.29	58.83	-5.20	-1,834.48	34.27	261.17	214.71	46.47	5.621		
13,900.00	11,900.00	13,542.88	11,640.00	41.55	61.29	-5.13	-1,934.48	34.48	261.14	213.70	47.44	5.505		
14,000.00	11,900.00	13,642.88	11,640.00	42.83	63.78	-5.07	-2,034.48	34.69	261.12	212.68	48.44	5.391		
14,100.00	11,900.00	13,742.88	11,640.00	44.14	66.29	-5.01	-2,134.48	34.89	261.09	211.63	49.46	5.279		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 336H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	11,900.00	13,842.88	11,640.00	45.47	68.81	-4.94	-2,234.48	35.10	261.07	210.56	50.51	5.169		
14,300.00	11,900.00	13,942.87	11,640.00	46.82	71.35	-4.88	-2,334.48	35.31	261.04	209.47	51.57	5.062		
14,400.00	11,900.00	14,042.87	11,640.00	48.19	73.91	-4.82	-2,434.48	35.52	261.02	208.36	52.66	4.957		
14,500.00	11,900.00	14,142.87	11,640.00	49.57	76.47	-4.75	-2,534.48	35.72	261.00	207.24	53.76	4.855		
14,600.00	11,900.00	14,242.87	11,640.00	50.97	79.05	-4.69	-2,634.48	35.93	260.97	206.09	54.88	4.756		
14,700.00	11,900.00	14,342.87	11,640.00	52.38	81.64	-4.63	-2,734.47	36.14	260.95	204.94	56.01	4.659		
14,800.00	11,900.00	14,442.87	11,640.00	53.81	84.23	-4.56	-2,834.47	36.35	260.93	203.77	57.16	4.565		
14,900.00	11,900.00	14,542.87	11,640.00	55.24	86.84	-4.50	-2,934.47	36.56	260.90	202.58	58.32	4.474		
15,000.00	11,900.00	14,642.87	11,640.00	56.69	89.45	-4.44	-3,034.47	36.76	260.88	201.38	59.50	4.385		
15,100.00	11,900.00	14,742.87	11,640.00	58.15	92.07	-4.37	-3,134.47	36.97	260.86	200.18	60.68	4.299		
15,200.00	11,900.00	14,842.87	11,640.00	59.62	94.69	-4.31	-3,234.47	37.18	260.84	198.96	61.88	4.215		
15,300.00	11,900.00	14,942.87	11,640.00	61.09	97.33	-4.25	-3,334.47	37.39	260.81	197.73	63.09	4.134		
15,400.00	11,900.00	15,042.87	11,640.00	62.57	99.96	-4.18	-3,434.47	37.59	260.79	196.49	64.30	4.056		
15,500.00	11,900.00	15,142.87	11,640.00	64.07	102.60	-4.12	-3,534.47	37.80	260.77	195.24	65.53	3.980		
15,600.00	11,900.00	15,242.87	11,640.00	65.56	105.25	-4.06	-3,634.47	38.01	260.75	193.99	66.76	3.906		
15,700.00	11,900.00	15,342.87	11,640.00	67.07	107.90	-3.99	-3,734.47	38.22	260.73	192.73	68.00	3.834		
15,800.00	11,900.00	15,442.87	11,640.00	68.58	110.55	-3.93	-3,834.47	38.42	260.71	191.46	69.25	3.765		
15,900.00	11,900.00	15,542.87	11,640.00	70.10	113.21	-3.87	-3,934.47	38.63	260.69	190.18	70.51	3.697		
16,000.00	11,900.00	15,642.87	11,640.00	71.62	115.87	-3.80	-4,034.47	38.84	260.67	188.90	71.77	3.632		
16,100.00	11,900.00	15,742.87	11,640.00	73.14	118.54	-3.74	-4,134.47	39.05	260.65	187.61	73.04	3.569		
16,200.00	11,900.00	15,842.87	11,640.00	74.67	121.20	-3.68	-4,234.47	39.25	260.63	186.32	74.32	3.507		
16,300.00	11,900.00	15,942.87	11,640.00	76.21	123.87	-3.61	-4,334.46	39.46	260.62	185.02	75.60	3.447		
16,400.00	11,900.00	16,042.87	11,640.00	77.75	126.54	-3.55	-4,434.46	39.67	260.60	183.71	76.89	3.389		
16,500.00	11,900.00	16,142.87	11,640.00	79.29	129.22	-3.49	-4,534.46	39.88	260.58	182.40	78.18	3.333		
16,600.00	11,900.00	16,242.87	11,640.00	80.84	131.90	-3.42	-4,634.46	40.08	260.56	181.09	79.47	3.279		
16,700.00	11,900.00	16,342.86	11,640.00	82.39	134.58	-3.36	-4,734.46	40.29	260.55	179.77	80.77	3.226		
16,800.00	11,900.00	16,442.86	11,640.00	83.95	137.26	-3.30	-4,834.46	40.50	260.53	178.45	82.08	3.174		
16,900.00	11,900.00	16,542.86	11,640.00	85.50	139.94	-3.23	-4,934.46	40.71	260.51	177.13	83.39	3.124		
17,000.00	11,900.00	16,642.86	11,640.00	87.06	142.63	-3.17	-5,034.46	40.91	260.50	175.80	84.70	3.076		
17,100.00	11,900.00	16,742.86	11,640.00	88.63	145.31	-3.11	-5,134.46	41.12	260.48	174.47	86.01	3.028		
17,200.00	11,900.00	16,842.86	11,640.00	90.19	148.00	-3.04	-5,234.46	41.33	260.47	173.13	87.33	2.982		
17,300.00	11,900.00	16,942.86	11,640.00	91.76	150.69	-2.98	-5,334.46	41.54	260.45	171.79	88.66	2.938		
17,400.00	11,900.00	17,042.86	11,640.00	93.33	153.38	-2.92	-5,434.46	41.74	260.44	170.45	89.98	2.894		
17,500.00	11,900.00	17,142.86	11,640.00	94.90	156.08	-2.85	-5,534.46	41.95	260.42	169.11	91.31	2.852		
17,600.00	11,900.00	17,242.86	11,640.00	96.48	158.77	-2.79	-5,634.46	42.16	260.41	167.76	92.65	2.811		
17,700.00	11,900.00	17,342.86	11,640.00	98.05	161.47	-2.73	-5,734.46	42.37	260.39	166.41	93.98	2.771		
17,800.00	11,900.00	17,442.86	11,640.00	99.63	164.16	-2.66	-5,834.46	42.57	260.38	165.06	95.32	2.732		
17,900.00	11,900.00	17,542.86	11,640.00	101.21	166.86	-2.60	-5,934.45	42.78	260.37	163.71	96.66	2.694		
18,000.00	11,900.00	17,642.86	11,640.00	102.79	169.56	-2.54	-6,034.45	42.99	260.35	162.35	98.00	2.657		
18,100.00	11,900.00	17,742.86	11,640.00	104.38	172.26	-2.47	-6,134.45	43.20	260.34	160.99	99.35	2.621		
18,200.00	11,900.00	17,842.86	11,640.00	105.96	174.96	-2.41	-6,234.45	43.40	260.33	159.63	100.70	2.585		
18,300.00	11,900.00	17,942.86	11,640.00	107.55	177.66	-2.34	-6,334.45	43.61	260.32	158.27	102.05	2.551		
18,400.00	11,900.00	18,042.86	11,640.00	109.14	180.36	-2.28	-6,434.45	43.82	260.31	156.91	103.40	2.517		
18,500.00	11,900.00	18,142.86	11,640.00	110.73	183.07	-2.22	-6,534.45	44.03	260.29	155.54	104.75	2.485		
18,600.00	11,900.00	18,242.86	11,640.00	112.32	185.77	-2.15	-6,634.45	44.23	260.28	154.17	106.11	2.453		
18,700.00	11,900.00	18,342.86	11,640.00	113.91	188.47	-2.09	-6,734.45	44.44	260.27	152.80	107.47	2.422		
18,800.00	11,900.00	18,442.86	11,640.00	115.51	191.18	-2.03	-6,834.45	44.65	260.26	151.43	108.83	2.391		
18,900.00	11,900.00	18,542.86	11,640.00	117.10	193.89	-1.96	-6,934.45	44.86	260.25	150.06	110.20	2.362		
19,000.00	11,900.00	18,642.86	11,640.00	118.70	196.59	-1.90	-7,034.45	45.06	260.24	148.68	111.56	2.333		
19,100.00	11,900.00	18,742.85	11,640.00	120.30	199.30	-1.84	-7,134.45	45.27	260.23	147.30	112.93	2.304		
19,200.00	11,900.00	18,842.85	11,640.00	121.89	202.01	-1.77	-7,234.45	45.48	260.22	145.92	114.30	2.277		
19,300.00	11,900.00	18,942.85	11,640.00	123.49	204.72	-1.71	-7,334.45	45.69	260.21	144.54	115.67	2.250		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 336H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
19,400.00	11,900.00	19,042.85	11,640.00	125.09	207.43	-1.65	-7,434.44	45.89	260.21	143.16	117.05	2.223		
19,500.00	11,900.00	19,142.85	11,640.00	126.69	210.14	-1.58	-7,534.44	46.10	260.20	141.78	118.42	2.197		
19,600.00	11,900.00	19,242.85	11,640.00	128.30	212.85	-1.52	-7,634.44	46.31	260.19	140.39	119.80	2.172		
19,700.00	11,900.00	19,342.85	11,640.00	129.90	215.56	-1.45	-7,734.44	46.52	260.18	139.00	121.18	2.147		
19,800.00	11,900.00	19,442.85	11,640.00	131.50	218.27	-1.39	-7,834.44	46.73	260.18	137.62	122.56	2.123		
19,900.00	11,900.00	19,542.85	11,640.00	133.11	220.98	-1.33	-7,934.44	46.93	260.17	136.22	123.94	2.099		
20,000.00	11,900.00	19,642.85	11,640.00	134.71	223.69	-1.26	-8,034.44	47.14	260.16	134.83	125.33	2.076		
20,100.00	11,900.00	19,742.85	11,640.00	136.32	226.41	-1.20	-8,134.44	47.35	260.16	133.44	126.72	2.053		
20,200.00	11,900.00	19,842.85	11,640.00	137.93	229.12	-1.14	-8,234.44	47.56	260.15	132.04	128.11	2.031		
20,300.00	11,900.00	19,942.85	11,640.00	139.53	231.83	-1.07	-8,334.44	47.76	260.14	130.65	129.50	2.009		
20,400.00	11,900.00	20,042.85	11,640.00	141.14	234.55	-1.01	-8,434.44	47.97	260.14	129.25	130.89	1.987		
20,500.00	11,900.00	20,142.85	11,640.00	142.75	237.26	-0.95	-8,534.44	48.18	260.13	127.85	132.29	1.966		
20,600.00	11,900.00	20,242.85	11,640.00	144.36	239.98	-0.88	-8,634.44	48.39	260.13	126.45	133.68	1.946		
20,700.00	11,900.00	20,342.85	11,640.00	145.97	242.69	-0.82	-8,734.44	48.59	260.13	125.04	135.08	1.926		
20,800.00	11,900.00	20,442.85	11,640.00	147.58	245.41	-0.75	-8,834.44	48.80	260.12	123.64	136.48	1.906		
20,900.00	11,900.00	20,542.85	11,640.00	149.19	248.12	-0.69	-8,934.44	49.01	260.12	122.23	137.89	1.886		
21,000.00	11,900.00	20,642.85	11,640.00	150.80	250.84	-0.63	-9,034.43	49.22	260.12	120.82	139.29	1.867		
21,100.00	11,900.00	20,742.85	11,640.00	152.42	253.56	-0.56	-9,134.43	49.42	260.11	119.41	140.70	1.849		
21,200.00	11,900.00	20,842.85	11,640.00	154.03	256.27	-0.50	-9,234.43	49.63	260.11	118.00	142.11	1.830		
21,300.00	11,900.00	20,942.85	11,640.00	155.64	258.99	-0.44	-9,334.43	49.84	260.11	116.59	143.52	1.812		
21,400.00	11,900.00	21,042.85	11,640.00	157.26	261.71	-0.37	-9,434.43	50.05	260.11	115.17	144.93	1.795		
21,500.00	11,900.00	21,142.84	11,640.00	158.87	264.43	-0.31	-9,534.43	50.25	260.10	113.76	146.35	1.777		
21,600.00	11,900.00	21,242.84	11,640.00	160.49	267.14	-0.25	-9,634.43	50.46	260.10	112.34	147.77	1.760		
21,700.00	11,900.00	21,342.84	11,640.00	162.10	269.86	-0.18	-9,734.43	50.67	260.10	110.92	149.19	1.743		
21,800.00	11,900.00	21,442.84	11,640.00	163.72	272.58	-0.12	-9,834.43	50.88	260.10	109.49	150.61	1.727		
21,900.00	11,900.00	21,542.84	11,640.00	165.33	275.30	-0.05	-9,934.43	51.08	260.10	108.07	152.03	1.711		
21,974.03	11,900.00	21,616.87	11,640.00	166.53	277.31	-0.01	-10,008.46	51.24	260.10	107.01	153.09	1.699		
21,984.97	11,900.00	21,627.81	11,640.00	166.71	277.61	0.00	-10,019.40	51.26	260.10	106.86	153.24	1.697 SF		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9134-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-179.97	-199.97	-0.10	199.97					
100.00	100.00	99.40	99.40	0.09	0.09	-179.97	-199.97	-0.10	199.97	199.79	0.18	1,129.566		
200.00	200.00	199.40	199.40	0.31	0.31	-179.97	-199.97	-0.10	199.97	199.34	0.63	319.569		
300.00	300.00	299.40	299.40	0.54	0.54	-179.97	-199.97	-0.10	199.97	198.89	1.08	185.970		
400.00	400.00	399.40	399.40	0.76	0.76	-179.97	-199.97	-0.10	199.97	198.45	1.52	131.144		
500.00	500.00	499.40	499.40	0.99	0.99	-179.97	-199.97	-0.10	199.97	198.00	1.97	101.284		
600.00	600.00	599.40	599.40	1.21	1.21	-179.97	-199.97	-0.10	199.97	197.55	2.42	82.500		
700.00	700.00	699.40	699.40	1.44	1.44	-179.97	-199.97	-0.10	199.97	197.10	2.87	69.593		
800.00	800.00	799.40	799.40	1.66	1.66	-179.97	-199.97	-0.10	199.97	196.65	3.32	60.179		
900.00	900.00	899.40	899.40	1.89	1.89	-179.97	-199.97	-0.10	199.97	196.20	3.77	53.008		
1,000.00	1,000.00	999.40	999.40	2.11	2.11	-179.97	-199.97	-0.10	199.97	195.75	4.22	47.364		
1,100.00	1,100.00	1,099.40	1,099.40	2.34	2.34	-179.97	-199.97	-0.10	199.97	195.30	4.67	42.806		
1,200.00	1,200.00	1,199.40	1,199.40	2.56	2.56	-179.97	-199.97	-0.10	199.97	194.85	5.12	39.048		
1,300.00	1,300.00	1,299.40	1,299.40	2.79	2.78	-179.97	-199.97	-0.10	199.97	194.40	5.57	35.897		
1,400.00	1,400.00	1,399.40	1,399.40	3.01	3.01	-179.97	-199.97	-0.10	199.97	193.95	6.02	33.217		
1,500.00	1,500.00	1,499.40	1,499.40	3.24	3.23	-179.97	-199.97	-0.10	199.97	193.50	6.47	30.909		
1,600.00	1,600.00	1,599.40	1,599.40	3.46	3.46	-179.97	-199.97	-0.10	199.97	193.05	6.92	28.901		
1,700.00	1,700.00	1,699.40	1,699.40	3.69	3.68	-179.97	-199.97	-0.10	199.97	192.60	7.37	27.138		
1,800.00	1,800.00	1,799.40	1,799.40	3.91	3.91	-179.97	-199.97	-0.10	199.97	192.15	7.82	25.577		
1,900.00	1,900.00	1,899.40	1,899.40	4.13	4.13	-179.97	-199.97	-0.10	199.97	191.70	8.27	24.187		
2,000.00	2,000.00	1,999.40	1,999.40	4.36	4.36	-179.97	-199.97	-0.10	199.97	191.25	8.72	22.939		
2,100.00	2,099.99	2,102.99	2,102.99	4.58	4.59	-179.97	-199.04	-0.10	199.95	190.78	9.17	21.796		
2,200.00	2,199.96	2,206.61	2,206.57	4.81	4.82	-179.97	-196.25	-0.10	199.87	190.24	9.63	20.759		
2,300.00	2,299.86	2,310.22	2,310.07	5.03	5.06	-179.97	-191.57	-0.10	199.72	189.64	10.08	19.816		
2,400.00	2,399.73	2,410.89	2,410.57	5.26	5.28	-179.97	-185.82	-0.10	199.24	188.71	10.53	18.923		
2,500.00	2,499.59	2,510.89	2,510.41	5.48	5.51	-179.97	-180.08	-0.10	198.72	187.75	10.98	18.100		
2,600.00	2,599.45	2,610.89	2,610.24	5.71	5.73	-179.97	-174.33	-0.10	198.21	186.78	11.43	17.341		
2,700.00	2,699.31	2,710.88	2,710.07	5.94	5.96	-179.97	-168.59	-0.10	197.70	185.82	11.88	16.639		
2,800.00	2,799.18	2,810.88	2,809.91	6.16	6.19	-179.97	-162.84	-0.10	197.19	184.85	12.33	15.988		
2,900.00	2,899.04	2,910.88	2,909.74	6.39	6.42	-179.97	-157.10	-0.10	196.68	183.89	12.79	15.383		
3,000.00	2,998.90	3,010.88	3,009.57	6.62	6.65	-179.97	-151.35	-0.10	196.16	182.93	13.24	14.819		
3,100.00	3,098.77	3,110.88	3,109.41	6.85	6.88	-179.97	-145.61	-0.10	195.65	181.96	13.69	14.291		
3,200.00	3,198.63	3,210.88	3,209.24	7.08	7.11	-179.97	-139.86	-0.10	195.14	181.00	14.14	13.797		
3,300.00	3,298.49	3,310.88	3,309.07	7.31	7.35	-179.97	-134.12	-0.10	194.63	180.03	14.60	13.334		
3,400.00	3,398.36	3,410.88	3,408.91	7.54	7.58	-179.97	-128.37	-0.10	194.11	179.06	15.05	12.898		
3,500.00	3,498.22	3,510.87	3,508.74	7.78	7.81	-179.97	-122.63	-0.10	193.60	178.10	15.50	12.488		
3,600.00	3,598.08	3,610.87	3,608.57	8.01	8.05	-179.97	-116.88	-0.10	193.09	177.13	15.96	12.101		
3,700.00	3,697.94	3,710.87	3,708.41	8.24	8.28	-179.97	-111.14	-0.10	192.58	176.17	16.41	11.735		
3,800.00	3,797.81	3,810.87	3,808.24	8.47	8.51	-179.97	-105.39	-0.10	192.06	175.20	16.86	11.389		
3,900.00	3,897.67	3,910.87	3,908.08	8.71	8.75	-179.97	-99.65	-0.10	191.55	174.23	17.32	11.061		
4,000.00	3,997.53	4,010.87	4,007.91	8.94	8.98	-179.97	-93.90	-0.10	191.04	173.27	17.77	10.749		
4,100.00	4,097.40	4,110.87	4,107.74	9.17	9.22	-179.97	-88.16	-0.10	190.53	172.30	18.23	10.453		
4,200.00	4,197.26	4,210.86	4,207.58	9.41	9.45	-179.97	-82.41	-0.10	190.02	171.33	18.68	10.172		
4,300.00	4,297.12	4,310.86	4,307.41	9.64	9.69	-179.97	-76.67	-0.10	189.50	170.37	19.14	9.903		
4,400.00	4,396.99	4,410.86	4,407.24	9.87	9.93	-179.97	-70.92	-0.10	188.99	169.40	19.59	9.647		
4,500.00	4,496.85	4,510.86	4,507.08	10.11	10.16	-179.97	-65.18	-0.10	188.48	168.43	20.04	9.403		
4,600.00	4,596.71	4,610.86	4,606.91	10.34	10.40	-179.97	-59.43	-0.10	187.97	167.47	20.50	9.170		
4,700.00	4,696.57	4,710.86	4,706.74	10.58	10.64	-179.97	-53.69	-0.10	187.45	166.50	20.95	8.946		
4,800.00	4,796.44	4,810.86	4,806.58	10.81	10.87	-179.97	-47.94	-0.10	186.94	165.53	21.41	8.732		
4,900.00	4,896.30	4,910.86	4,906.41	11.04	11.11	-179.97	-42.20	-0.10	186.43	164.57	21.86	8.527		
5,000.00	4,996.16	5,010.85	5,006.24	11.28	11.35	-179.97	-36.45	-0.10	185.92	163.60	22.32	8.330		
5,100.00	5,096.03	5,110.85	5,106.08	11.51	11.58	-179.97	-30.71	-0.10	185.41	162.63	22.77	8.141		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Lusitano - Lusitano 27-34 Fed Com 528H - OH - Plan #1													Offset Well Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM, 9134-MWD+IFR1+MS														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,195.89	5,210.85	5,205.91	11.75	11.82	-179.97	-24.96	-0.10	184.89	161.66	23.23	7.960		
5,300.00	5,295.75	5,310.85	5,305.74	11.98	12.06	-179.97	-19.22	-0.10	184.38	160.70	23.68	7.785		
5,400.00	5,395.61	5,410.85	5,405.58	12.22	12.30	-179.97	-13.47	-0.10	183.87	159.73	24.14	7.617		
5,500.00	5,495.48	5,510.85	5,505.41	12.45	12.53	-179.97	-7.73	-0.10	183.36	158.76	24.59	7.455		
5,600.00	5,595.34	5,610.85	5,605.25	12.69	12.77	-179.97	-1.98	-0.10	182.84	157.79	25.05	7.299		
5,700.00	5,695.20	5,710.85	5,705.08	12.92	13.01	-179.97	3.76	-0.10	182.33	156.83	25.50	7.149		
5,800.00	5,795.07	5,810.84	5,804.91	13.16	13.25	-179.97	9.51	-0.10	181.82	155.86	25.96	7.004		
5,900.00	5,894.93	5,910.84	5,904.75	13.40	13.48	-179.97	15.25	-0.10	181.31	154.89	26.41	6.864		
6,000.00	5,994.79	6,010.84	6,004.58	13.63	13.72	-179.97	21.00	-0.10	180.79	153.92	26.87	6.728		
6,100.00	6,094.66	6,110.84	6,104.41	13.87	13.96	-179.97	26.74	-0.10	180.28	152.96	27.33	6.598		
6,196.80	6,191.32	6,206.72	6,200.14	14.10	14.18	-179.97	32.18	-0.10	179.86	152.11	27.76	6.480	CC	
6,200.00	6,194.52	6,209.82	6,203.23	14.10	14.18	-179.97	32.34	-0.10	179.86	152.10	27.77	6.477	ES	
6,300.00	6,294.38	6,306.77	6,300.09	14.34	14.36	-179.97	36.54	-0.10	180.76	152.60	28.17	6.418	SF	
6,400.00	6,394.24	6,403.66	6,396.94	14.57	14.53	-179.97	39.10	-0.10	183.36	154.80	28.55	6.421		
6,500.00	6,494.11	6,500.43	6,493.71	14.81	14.69	-179.97	40.03	-0.10	187.64	158.70	28.94	6.485		
6,600.00	6,593.97	6,600.09	6,593.37	15.05	14.88	-179.97	40.03	-0.10	192.87	163.51	29.36	6.570		
6,700.00	6,693.83	6,699.95	6,693.23	15.28	15.10	-179.97	40.03	-0.10	198.10	168.29	29.81	6.646		
6,800.00	6,793.70	6,799.81	6,793.10	15.52	15.32	-179.97	40.03	-0.10	203.33	173.08	30.26	6.721		
6,900.00	6,893.56	6,899.68	6,892.96	15.75	15.53	-179.97	40.03	-0.10	208.57	177.86	30.71	6.792		
7,000.00	6,993.42	6,999.54	6,992.82	15.99	15.75	-179.97	40.03	-0.10	213.80	182.65	31.16	6.862		
7,100.00	7,093.28	7,099.40	7,092.68	16.23	15.97	-179.97	40.03	-0.10	219.03	187.43	31.61	6.930		
7,200.00	7,193.15	7,199.27	7,192.55	16.46	16.18	-179.97	40.03	-0.10	224.27	192.21	32.06	6.996		
7,300.00	7,293.01	7,299.13	7,292.41	16.70	16.40	-179.98	40.03	-0.10	229.50	197.00	32.51	7.060		
7,400.00	7,392.87	7,398.99	7,392.27	16.93	16.62	-179.98	40.03	-0.10	234.74	201.78	32.96	7.123		
7,500.00	7,492.74	7,498.86	7,492.14	17.17	16.84	-179.98	40.03	-0.10	239.97	206.56	33.41	7.183		
7,600.00	7,592.60	7,598.72	7,592.00	17.41	17.06	-179.98	40.03	-0.10	245.20	211.35	33.86	7.242		
7,700.00	7,692.46	7,698.58	7,691.86	17.64	17.28	-179.98	40.03	-0.10	250.44	216.13	34.31	7.300		
7,800.00	7,792.33	7,798.44	7,791.73	17.88	17.49	-179.98	40.03	-0.10	255.67	220.91	34.76	7.356		
7,900.00	7,892.23	7,898.35	7,891.63	18.09	17.71	-179.98	40.03	-0.10	260.93	224.85	35.18	7.392		
8,000.00	7,992.19	7,998.31	7,991.59	18.26	17.93	-179.98	40.03	-0.10	262.65	227.08	35.57	7.384		
8,100.00	8,092.19	8,098.31	8,091.59	18.43	18.15	-179.98	40.03	-0.10	263.52	227.56	35.96	7.328		
8,200.00	8,192.19	8,198.31	8,191.59	18.62	18.37	-179.98	40.03	-0.10	263.52	227.14	36.38	7.244		
8,200.33	8,192.52	8,198.64	8,191.92	18.62	18.37	-179.98	40.03	-0.10	263.52	227.14	36.38	7.243		
8,300.00	8,292.19	8,277.88	8,271.12	18.84	18.52	-179.98	38.33	-0.09	266.01	229.40	36.61	7.267		
8,400.00	8,392.19	8,350.00	8,342.49	19.05	18.62	-179.99	28.28	-0.04	279.62	243.12	36.50	7.662		
8,500.00	8,492.19	8,409.26	8,399.81	19.27	18.67	179.99	13.36	0.04	304.36	268.55	35.81	8.500		
8,600.00	8,592.19	8,469.24	8,455.95	19.49	18.72	179.97	-7.68	0.14	339.51	304.53	34.98	9.706		
8,700.00	8,692.19	8,524.22	8,505.22	19.70	18.75	179.95	-32.03	0.27	383.86	349.86	34.00	11.289		
8,800.00	8,792.19	8,573.92	8,547.57	19.92	18.79	179.94	-58.01	0.40	436.21	403.24	32.97	13.232		
8,900.00	8,892.19	8,618.42	8,583.45	20.14	18.81	179.92	-84.31	0.53	495.37	463.43	31.94	15.510		
9,000.00	8,992.19	8,650.00	8,607.62	20.36	18.84	179.91	-104.63	0.64	560.40	529.70	30.70	18.255		
9,100.00	9,092.19	8,700.00	8,643.50	20.58	18.88	179.89	-139.43	0.82	630.09	599.79	30.30	20.796		
9,200.00	9,192.19	8,724.43	8,659.90	20.79	18.91	179.89	-157.54	0.91	703.78	674.47	29.31	24.014		
9,300.00	9,292.19	8,750.00	8,676.21	21.01	18.94	179.88	-177.22	1.01	780.92	752.34	28.57	27.331		
9,400.00	9,392.19	8,776.87	8,692.39	21.23	18.97	179.87	-198.67	1.12	860.87	832.82	28.05	30.688		
9,500.00	9,492.19	8,800.00	8,705.51	21.45	19.00	179.87	-217.72	1.22	943.22	915.62	27.59	34.182		
9,600.00	9,592.19	8,818.67	8,715.52	21.67	19.04	179.86	-233.48	1.30	1,027.57	1,000.39	27.18	37.811		
9,700.00	9,692.19	8,850.00	8,731.16	21.89	19.09	179.85	-260.62	1.44	1,113.88	1,086.78	27.10	41.100		
9,800.00	9,792.19	8,850.00	8,731.16	22.11	19.09	179.85	-260.62	1.44	1,201.17	1,174.60	26.57	45.201		
9,900.00	9,892.19	8,850.00	8,731.16	22.33	19.09	179.85	-260.62	1.44	1,290.31	1,264.13	26.18	49.288		
10,000.00	9,992.19	8,880.13	8,744.77	22.55	19.16	179.85	-287.50	1.57	1,379.82	1,353.52	26.30	52.465		
10,100.00	10,092.19	8,900.00	8,752.97	22.76	19.20	179.84	-305.60	1.66	1,470.70	1,444.38	26.32	55.884		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9134-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,200.00	10,192.19	8,900.00	8,752.97	22.98	19.20	179.84	-305.60	1.66	1,562.27	1,536.13	26.14	59.759		
10,300.00	10,292.19	8,900.00	8,752.97	23.20	19.20	179.84	-305.60	1.66	1,654.81	1,628.78	26.04	63.558		
10,400.00	10,392.19	8,922.47	8,761.48	23.42	19.27	179.84	-326.39	1.77	1,747.59	1,721.39	26.21	66.678		
10,500.00	10,492.19	8,950.00	8,770.78	23.64	19.34	179.83	-352.30	1.90	1,841.55	1,815.10	26.45	69.627		
10,600.00	10,592.19	8,950.00	8,770.78	23.86	19.34	179.83	-352.30	1.90	1,935.32	1,908.87	26.45	73.158		
10,700.00	10,692.19	8,950.00	8,770.78	24.08	19.34	179.83	-352.30	1.90	2,029.69	2,003.19	26.50	76.599		
10,800.00	10,792.19	8,950.00	8,770.78	24.30	19.34	179.83	-352.30	1.90	2,124.57	2,098.00	26.57	79.949		
10,900.00	10,892.19	8,950.00	8,770.78	24.52	19.34	179.83	-352.30	1.90	2,219.90	2,193.22	26.68	83.208		
11,000.00	10,992.19	8,950.00	8,770.78	24.74	19.34	179.83	-352.30	1.90	2,315.63	2,288.82	26.81	86.376		
11,100.00	11,092.19	8,970.98	8,777.03	24.96	19.41	179.83	-372.32	2.01	2,411.22	2,384.13	27.10	88.988		
11,200.00	11,192.19	8,976.19	8,778.47	25.18	19.43	179.83	-377.33	2.03	2,507.34	2,480.05	27.29	91.873		
11,300.00	11,292.19	9,000.00	8,784.46	25.40	19.51	179.83	-400.38	2.15	2,604.08	2,576.47	27.61	94.310		
11,334.85	11,327.04	9,000.00	8,784.46	25.48	19.51	179.83	-400.38	2.15	2,637.65	2,609.97	27.68	95.307		
11,350.00	11,342.19	9,000.00	8,784.46	25.51	19.51	0.10	-400.38	2.15	2,652.20	2,624.50	27.70	95.743		
11,400.00	11,392.05	9,000.00	8,784.46	25.58	19.51	0.08	-400.38	2.15	2,699.40	2,671.62	27.77	97.188		
11,450.00	11,441.41	9,000.00	8,784.46	25.65	19.51	0.06	-400.38	2.15	2,745.12	2,717.28	27.83	98.633		
11,500.00	11,489.91	9,000.00	8,784.46	25.70	19.51	0.05	-400.38	2.15	2,789.09	2,761.22	27.87	100.058		
11,550.00	11,537.17	9,000.00	8,784.46	25.74	19.51	0.05	-400.38	2.15	2,831.08	2,803.18	27.91	101.452		
11,600.00	11,582.83	9,000.00	8,784.46	25.77	19.51	0.04	-400.38	2.15	2,870.86	2,842.93	27.93	102.805		
11,650.00	11,626.54	9,000.00	8,784.46	25.80	19.51	0.04	-400.38	2.15	2,908.21	2,880.28	27.94	104.104		
11,700.00	11,667.97	9,000.00	8,784.46	25.82	19.51	0.04	-400.38	2.15	2,942.96	2,915.02	27.94	105.336		
11,750.00	11,706.80	9,021.18	8,788.97	25.85	19.59	0.03	-421.07	2.25	2,974.46	2,946.43	28.03	106.117		
11,800.00	11,742.75	9,027.76	8,790.22	25.88	19.61	0.03	-427.53	2.29	3,003.17	2,975.13	28.05	107.073		
11,850.00	11,775.53	9,050.00	8,793.89	25.91	19.70	0.03	-449.46	2.40	3,028.96	3,000.83	28.13	107.692		
11,900.00	11,804.90	9,050.00	8,793.89	25.95	19.70	0.03	-449.46	2.40	3,051.03	3,022.92	28.11	108.538		
11,950.00	11,830.64	9,050.00	8,793.89	26.00	19.70	0.03	-449.46	2.40	3,069.80	3,041.71	28.10	109.253		
12,000.00	11,852.54	9,050.00	8,793.89	26.06	19.70	0.03	-449.46	2.40	3,085.20	3,057.10	28.09	109.823		
12,050.00	11,870.44	9,050.00	8,793.89	26.14	19.70	0.03	-449.46	2.40	3,097.14	3,069.05	28.10	110.238		
12,100.00	11,884.20	9,071.77	8,796.65	26.24	19.79	0.02	-471.06	2.51	3,105.10	3,076.93	28.18	110.202		
12,150.00	11,893.73	9,100.00	8,799.00	26.36	19.91	0.02	-499.18	2.65	3,110.05	3,081.76	28.28	109.969		
12,200.00	11,898.94	9,100.00	8,799.00	26.49	19.91	0.02	-499.18	2.65	3,110.61	3,082.30	28.31	109.890		
12,234.85	11,900.00	9,100.00	8,799.00	26.60	19.91	0.02	-499.18	2.65	3,108.90	3,080.56	28.33	109.729		
12,300.00	11,900.00	9,100.00	8,799.00	26.82	19.91	0.02	-499.18	2.65	3,104.76	3,076.36	28.40	109.307		
12,400.00	11,900.00	9,118.42	8,799.79	27.24	20.00	0.02	-517.58	2.75	3,100.72	3,072.09	28.62	108.333		
12,498.44	11,900.00	9,133.84	8,800.00	27.74	20.07	0.02	-533.00	2.83	3,099.40	3,070.50	28.90	107.245		
12,500.00	11,900.00	9,135.39	8,800.00	27.75	20.08	0.02	-534.55	2.83	3,099.40	3,070.49	28.91	107.226		
12,600.00	11,900.00	9,235.39	8,800.00	28.35	23.54	0.02	-634.55	3.34	3,099.40	3,070.17	29.23	106.033		
12,700.00	11,900.00	9,335.39	8,800.00	29.02	23.61	0.02	-734.55	3.85	3,099.40	3,069.85	29.55	104.891		
12,800.00	11,900.00	9,435.39	8,800.00	29.77	23.69	0.02	-834.55	4.37	3,099.40	3,069.45	29.95	103.484		
12,900.00	11,900.00	9,535.39	8,800.00	30.59	23.77	0.02	-934.55	4.88	3,099.40	3,068.97	30.43	101.845		
13,000.00	11,900.00	9,635.39	8,800.00	31.48	23.85	0.02	-1,034.55	5.39	3,099.40	3,068.41	30.99	100.011		
13,100.00	11,900.00	9,735.39	8,800.00	32.42	23.93	0.02	-1,134.55	5.90	3,099.40	3,067.78	31.62	98.018		
13,200.00	11,900.00	9,835.39	8,800.00	33.42	24.01	0.02	-1,234.54	6.41	3,099.40	3,067.08	32.32	95.905		
13,300.00	11,900.00	9,935.39	8,800.00	34.46	24.09	0.02	-1,334.54	6.92	3,099.40	3,066.32	33.08	93.705		
13,400.00	11,900.00	10,035.39	8,800.00	35.55	24.18	0.02	-1,434.54	7.43	3,099.40	3,065.51	33.89	91.450		
13,500.00	11,900.00	10,135.39	8,800.00	36.68	24.26	0.02	-1,534.54	7.94	3,099.40	3,064.64	34.76	89.168		
13,600.00	11,900.00	10,235.39	8,800.00	37.85	24.35	0.02	-1,634.54	8.45	3,099.40	3,063.72	35.67	86.881		
13,700.00	11,900.00	10,335.39	8,800.00	39.05	24.43	0.02	-1,734.54	8.96	3,099.40	3,062.77	36.63	84.608		
13,800.00	11,900.00	10,435.39	8,800.00	40.29	24.52	0.02	-1,834.54	9.47	3,099.40	3,061.77	37.63	82.365		
13,900.00	11,900.00	10,535.39	8,800.00	41.55	24.61	0.02	-1,934.53	9.98	3,099.40	3,060.74	38.66	80.164		
14,000.00	11,900.00	10,635.39	8,800.00	42.83	24.70	0.02	-2,034.53	10.49	3,099.40	3,059.67	39.73	78.013		
14,100.00	11,900.00	10,735.39	8,800.00	44.14	24.79	0.02	-2,134.53	11.00	3,099.40	3,058.57	40.82	75.919		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9134-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	11,900.00	10,835.39	8,800.00	45.47	24.88	0.02	-2,234.53	11.51	3,099.40	3,057.45	41.95	73.887		
14,300.00	11,900.00	10,935.39	8,800.00	46.82	24.97	0.02	-2,334.53	12.02	3,099.40	3,056.30	43.10	71.920		
14,400.00	11,900.00	11,035.39	8,800.00	48.19	25.06	0.02	-2,434.53	12.53	3,099.40	3,055.13	44.27	70.019		
14,500.00	11,900.00	11,135.39	8,800.00	49.57	25.28	0.02	-2,534.53	13.04	3,099.40	3,053.94	45.46	68.185		
14,600.00	11,900.00	11,235.39	8,800.00	50.97	25.74	0.02	-2,634.53	13.56	3,099.40	3,052.73	46.67	66.417		
14,700.00	11,900.00	11,335.39	8,800.00	52.38	26.22	0.02	-2,734.52	14.07	3,099.40	3,051.51	47.89	64.715		
14,800.00	11,900.00	11,435.39	8,800.00	53.81	26.72	0.02	-2,834.52	14.58	3,099.40	3,050.26	49.14	63.077		
14,900.00	11,900.00	11,535.39	8,800.00	55.24	27.22	0.02	-2,934.52	15.09	3,099.40	3,049.00	50.39	61.503		
15,000.00	11,900.00	11,635.39	8,800.00	56.69	27.74	0.02	-3,034.52	15.60	3,099.40	3,047.73	51.67	59.989		
15,100.00	11,900.00	11,735.39	8,800.00	58.15	28.26	0.02	-3,134.52	16.11	3,099.40	3,046.45	52.95	58.533		
15,200.00	11,900.00	11,835.39	8,800.00	59.62	28.80	0.02	-3,234.52	16.62	3,099.40	3,045.15	54.25	57.134		
15,300.00	11,900.00	11,935.39	8,800.00	61.09	29.35	0.02	-3,334.52	17.13	3,099.40	3,043.84	55.55	55.790		
15,400.00	11,900.00	12,035.39	8,800.00	62.57	29.91	0.02	-3,434.52	17.64	3,099.40	3,042.53	56.87	54.497		
15,500.00	11,900.00	12,135.39	8,800.00	64.07	30.47	0.02	-3,534.51	18.15	3,099.40	3,041.20	58.20	53.255		
15,600.00	11,900.00	12,235.39	8,800.00	65.56	31.05	0.02	-3,634.51	18.66	3,099.40	3,039.86	59.54	52.060		
15,700.00	11,900.00	12,335.39	8,800.00	67.07	31.63	0.02	-3,734.51	19.17	3,099.40	3,038.52	60.88	50.910		
15,800.00	11,900.00	12,435.39	8,800.00	68.58	32.22	0.02	-3,834.51	19.68	3,099.40	3,037.17	62.23	49.804		
15,900.00	11,900.00	12,535.39	8,800.00	70.10	32.82	0.02	-3,934.51	20.19	3,099.40	3,035.81	63.59	48.740		
16,000.00	11,900.00	12,635.39	8,800.00	71.62	33.43	0.02	-4,034.51	20.70	3,099.40	3,034.44	64.96	47.715		
16,100.00	11,900.00	12,735.39	8,800.00	73.14	34.04	0.02	-4,134.51	21.21	3,099.40	3,033.07	66.33	46.728		
16,200.00	11,900.00	12,835.39	8,800.00	74.67	34.65	0.01	-4,234.50	21.72	3,099.40	3,031.69	67.71	45.777		
16,300.00	11,900.00	12,935.39	8,800.00	76.21	35.28	0.01	-4,334.50	22.23	3,099.40	3,030.31	69.09	44.860		
16,400.00	11,900.00	13,035.39	8,800.00	77.75	35.90	0.01	-4,434.50	22.75	3,099.40	3,028.92	70.48	43.975		
16,500.00	11,900.00	13,135.39	8,800.00	79.29	36.54	0.01	-4,534.50	23.26	3,099.40	3,027.52	71.87	43.122		
16,600.00	11,900.00	13,235.39	8,800.00	80.84	37.18	0.01	-4,634.50	23.77	3,099.40	3,026.13	73.27	42.299		
16,700.00	11,900.00	13,335.39	8,800.00	82.39	37.82	0.01	-4,734.50	24.28	3,099.40	3,024.72	74.68	41.504		
16,800.00	11,900.00	13,435.39	8,800.00	83.95	38.47	0.01	-4,834.50	24.79	3,099.40	3,023.31	76.08	40.736		
16,900.00	11,900.00	13,535.39	8,800.00	85.50	39.12	0.01	-4,934.50	25.30	3,099.40	3,021.90	77.50	39.994		
17,000.00	11,900.00	13,635.39	8,800.00	87.06	39.77	0.01	-5,034.49	25.81	3,099.40	3,020.49	78.91	39.277		
17,100.00	11,900.00	13,735.39	8,800.00	88.63	40.43	0.01	-5,134.49	26.32	3,099.40	3,019.07	80.33	38.583		
17,200.00	11,900.00	13,835.39	8,800.00	90.19	41.10	0.01	-5,234.49	26.83	3,099.40	3,017.65	81.75	37.911		
17,300.00	11,900.00	13,935.39	8,800.00	91.76	41.76	0.01	-5,334.49	27.34	3,099.40	3,016.22	83.18	37.261		
17,400.00	11,900.00	14,035.39	8,800.00	93.33	42.43	0.01	-5,434.49	27.85	3,099.40	3,014.79	84.61	36.632		
17,500.00	11,900.00	14,135.39	8,800.00	94.90	43.10	0.01	-5,534.49	28.36	3,099.40	3,013.36	86.04	36.023		
17,600.00	11,900.00	14,235.39	8,800.00	96.48	43.78	0.01	-5,634.49	28.87	3,099.40	3,011.92	87.48	35.432		
17,700.00	11,900.00	14,335.39	8,800.00	98.05	44.46	0.01	-5,734.49	29.38	3,099.40	3,010.49	88.91	34.859		
17,800.00	11,900.00	14,435.39	8,800.00	99.63	45.14	0.01	-5,834.48	29.89	3,099.40	3,009.05	90.35	34.303		
17,900.00	11,900.00	14,535.39	8,800.00	101.21	45.82	0.01	-5,934.48	30.40	3,099.40	3,007.60	91.79	33.764		
18,000.00	11,900.00	14,635.39	8,800.00	102.79	46.51	0.01	-6,034.48	30.91	3,099.40	3,006.16	93.24	33.241		
18,100.00	11,900.00	14,735.39	8,800.00	104.38	47.20	0.01	-6,134.48	31.42	3,099.40	3,004.71	94.69	32.733		
18,200.00	11,900.00	14,835.39	8,800.00	105.96	47.89	0.01	-6,234.48	31.94	3,099.40	3,003.26	96.14	32.240		
18,300.00	11,900.00	14,935.39	8,800.00	107.55	48.58	0.01	-6,334.48	32.45	3,099.40	3,001.81	97.59	31.761		
18,400.00	11,900.00	15,035.39	8,800.00	109.14	49.28	0.01	-6,434.48	32.96	3,099.40	3,000.36	99.04	31.295		
18,500.00	11,900.00	15,135.39	8,800.00	110.73	49.98	0.01	-6,534.47	33.47	3,099.40	2,998.91	100.49	30.842		
18,600.00	11,900.00	15,235.39	8,800.00	112.32	50.68	0.01	-6,634.47	33.98	3,099.40	2,997.45	101.95	30.401		
18,700.00	11,900.00	15,335.39	8,800.00	113.91	51.38	0.01	-6,734.47	34.49	3,099.40	2,995.99	103.41	29.972		
18,800.00	11,900.00	15,435.39	8,800.00	115.51	52.08	0.01	-6,834.47	35.00	3,099.40	2,994.53	104.87	29.555		
18,900.00	11,900.00	15,535.39	8,800.00	117.10	52.78	0.01	-6,934.47	35.51	3,099.40	2,993.07	106.33	29.149		
19,000.00	11,900.00	15,635.39	8,800.00	118.70	53.49	0.01	-7,034.47	36.02	3,099.40	2,991.61	107.79	28.753		
19,100.00	11,900.00	15,735.39	8,800.00	120.30	54.20	0.01	-7,134.47	36.53	3,099.40	2,990.14	109.26	28.368		
19,200.00	11,900.00	15,835.39	8,800.00	121.89	54.91	0.01	-7,234.47	37.04	3,099.40	2,988.68	110.72	27.992		
19,300.00	11,900.00	15,935.39	8,800.00	123.49	55.62	0.01	-7,334.46	37.55	3,099.40	2,987.21	112.19	27.626		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9134-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,400.00	11,900.00	16,035.39	8,800.00	125.09	56.33	0.01	-7,434.46	38.06	3,099.40	2,985.74	113.66	27.269		
19,500.00	11,900.00	16,135.39	8,800.00	126.69	57.04	0.01	-7,534.46	38.57	3,099.40	2,984.27	115.13	26.921		
19,600.00	11,900.00	16,235.39	8,800.00	128.30	57.76	0.01	-7,634.46	39.08	3,099.40	2,982.80	116.60	26.581		
19,700.00	11,900.00	16,335.39	8,800.00	129.90	58.47	0.01	-7,734.46	39.59	3,099.40	2,981.33	118.07	26.250		
19,800.00	11,900.00	16,435.39	8,800.00	131.50	59.19	0.01	-7,834.46	40.10	3,099.40	2,979.85	119.55	25.926		
19,900.00	11,900.00	16,535.39	8,800.00	133.11	59.91	0.01	-7,934.46	40.61	3,099.40	2,978.38	121.02	25.610		
20,000.00	11,900.00	16,635.39	8,800.00	134.71	60.63	0.01	-8,034.46	41.13	3,099.40	2,976.90	122.50	25.302		
20,100.00	11,900.00	16,735.39	8,800.00	136.32	61.35	0.00	-8,134.45	41.64	3,099.40	2,975.43	123.97	25.001		
20,200.00	11,900.00	16,835.39	8,800.00	137.93	62.07	0.00	-8,234.45	42.15	3,099.40	2,973.95	125.45	24.706		
20,300.00	11,900.00	16,935.39	8,800.00	139.53	62.79	0.00	-8,334.45	42.66	3,099.40	2,972.47	126.93	24.419		
20,400.00	11,900.00	17,035.39	8,800.00	141.14	63.52	0.00	-8,434.45	43.17	3,099.40	2,970.99	128.41	24.137		
20,500.00	11,900.00	17,135.39	8,800.00	142.75	64.24	0.00	-8,534.45	43.68	3,099.40	2,969.51	129.89	23.862		
20,600.00	11,900.00	17,235.39	8,800.00	144.36	64.97	0.00	-8,634.45	44.19	3,099.40	2,968.03	131.37	23.593		
20,700.00	11,900.00	17,335.39	8,800.00	145.97	65.69	0.00	-8,734.45	44.70	3,099.40	2,966.55	132.85	23.330		
20,800.00	11,900.00	17,435.39	8,800.00	147.58	66.42	0.00	-8,834.44	45.21	3,099.40	2,965.07	134.33	23.073		
20,900.00	11,900.00	17,535.39	8,800.00	149.19	67.15	0.00	-8,934.44	45.72	3,099.40	2,963.58	135.82	22.821		
21,000.00	11,900.00	17,635.39	8,800.00	150.80	67.88	0.00	-9,034.44	46.23	3,099.40	2,962.10	137.30	22.574		
21,100.00	11,900.00	17,735.39	8,800.00	152.42	68.61	0.00	-9,134.44	46.74	3,099.40	2,960.61	138.78	22.332		
21,200.00	11,900.00	17,835.39	8,800.00	154.03	69.34	0.00	-9,234.44	47.25	3,099.40	2,959.13	140.27	22.096		
21,300.00	11,900.00	17,935.39	8,800.00	155.64	70.07	0.00	-9,334.44	47.76	3,099.40	2,957.64	141.76	21.864		
21,400.00	11,900.00	18,035.39	8,800.00	157.26	70.80	0.00	-9,434.44	48.27	3,099.40	2,956.16	143.24	21.637		
21,500.00	11,900.00	18,135.39	8,800.00	158.87	71.53	0.00	-9,534.44	48.78	3,099.40	2,954.67	144.73	21.415		
21,600.00	11,900.00	18,235.39	8,800.00	160.49	72.26	0.00	-9,634.43	49.29	3,099.40	2,953.18	146.22	21.197		
21,700.00	11,900.00	18,335.39	8,800.00	162.10	73.00	0.00	-9,734.43	49.81	3,099.40	2,951.69	147.71	20.983		
21,800.00	11,900.00	18,435.39	8,800.00	163.72	73.73	0.00	-9,834.43	50.32	3,099.40	2,950.20	149.20	20.774		
21,900.00	11,900.00	18,535.39	8,800.00	165.33	74.47	0.00	-9,934.43	50.83	3,099.40	2,948.71	150.69	20.569		
21,984.97	11,900.00	18,620.36	8,800.00	166.71	75.09	0.00	-10,019.40	51.26	3,099.40	2,947.45	151.95	20.397		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 536H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9315-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	171.47	-199.80	29.95	202.03					
100.00	100.00	99.50	99.50	0.09	0.09	171.47	-199.80	29.95	202.03	201.86	0.18	1,140.642		
200.00	200.00	199.50	199.50	0.31	0.31	171.47	-199.80	29.95	202.03	201.41	0.63	322.749		
300.00	300.00	299.50	299.50	0.54	0.54	171.47	-199.80	29.95	202.03	200.96	1.08	187.849		
400.00	400.00	399.50	399.50	0.76	0.76	171.47	-199.80	29.95	202.03	200.51	1.53	132.477		
500.00	500.00	499.50	499.50	0.99	0.99	171.47	-199.80	29.95	202.03	200.06	1.97	102.317		
600.00	600.00	599.50	599.50	1.21	1.21	171.47	-199.80	29.95	202.03	199.61	2.42	83.343		
700.00	700.00	699.50	699.50	1.44	1.44	171.47	-199.80	29.95	202.03	199.16	2.87	70.306		
800.00	800.00	799.50	799.50	1.66	1.66	171.47	-199.80	29.95	202.03	198.71	3.32	60.795		
900.00	900.00	899.50	899.50	1.89	1.89	171.47	-199.80	29.95	202.03	198.26	3.77	53.551		
1,000.00	1,000.00	999.50	999.50	2.11	2.11	171.47	-199.80	29.95	202.03	197.81	4.22	47.850		
1,100.00	1,100.00	1,099.50	1,099.50	2.34	2.34	171.47	-199.80	29.95	202.03	197.36	4.67	43.245		
1,200.00	1,200.00	1,199.50	1,199.50	2.56	2.56	171.47	-199.80	29.95	202.03	196.91	5.12	39.449		
1,300.00	1,300.00	1,299.50	1,299.50	2.79	2.78	171.47	-199.80	29.95	202.03	196.46	5.57	36.266		
1,400.00	1,400.00	1,399.50	1,399.50	3.01	3.01	171.47	-199.80	29.95	202.03	196.01	6.02	33.558		
1,500.00	1,500.00	1,499.50	1,499.50	3.24	3.23	171.47	-199.80	29.95	202.03	195.56	6.47	31.227		
1,600.00	1,600.00	1,599.50	1,599.50	3.46	3.46	171.47	-199.80	29.95	202.03	195.11	6.92	29.198		
1,700.00	1,700.00	1,699.50	1,699.50	3.69	3.68	171.47	-199.80	29.95	202.03	194.66	7.37	27.417		
1,800.00	1,800.00	1,799.50	1,799.50	3.91	3.91	171.47	-199.80	29.95	202.03	194.21	7.82	25.840		
1,900.00	1,900.00	1,899.50	1,899.50	4.13	4.13	171.47	-199.80	29.95	202.03	193.76	8.27	24.435		
2,000.00	2,000.00	1,999.50	1,999.50	4.36	4.36	171.47	-199.80	29.95	202.03	193.31	8.72	23.175	CC, ES	
2,100.00	2,099.99	2,099.49	2,099.49	4.58	4.58	171.51	-199.80	29.95	202.90	193.73	9.17	22.133		
2,200.00	2,199.96	2,199.46	2,199.46	4.81	4.81	171.61	-199.80	29.95	205.48	195.87	9.62	21.367		
2,300.00	2,299.86	2,299.36	2,299.36	5.03	5.03	171.78	-199.80	29.95	209.80	199.73	10.07	20.841		
2,400.00	2,399.73	2,399.23	2,399.23	5.26	5.26	171.98	-199.80	29.95	214.98	204.47	10.52	20.443		
2,500.00	2,499.59	2,499.09	2,499.09	5.48	5.48	172.17	-199.80	29.95	220.17	209.20	10.97	20.078		
2,600.00	2,599.45	2,598.95	2,598.95	5.71	5.71	172.35	-199.80	29.95	225.35	213.94	11.42	19.741		
2,700.00	2,699.31	2,698.81	2,698.81	5.94	5.93	172.53	-199.80	29.95	230.54	218.68	11.86	19.430		
2,800.00	2,799.18	2,798.68	2,798.68	6.16	6.15	172.69	-199.80	29.95	235.73	223.42	12.31	19.142		
2,900.00	2,899.04	2,898.54	2,898.54	6.39	6.38	172.85	-199.80	29.95	240.92	228.16	12.76	18.874		
3,000.00	2,998.90	2,998.40	2,998.40	6.62	6.60	173.00	-199.80	29.95	246.12	232.90	13.22	18.624		
3,100.00	3,098.77	3,100.16	3,100.15	6.85	6.82	173.33	-199.52	29.12	250.94	237.28	13.66	18.370		
3,200.00	3,198.63	3,201.94	3,201.90	7.08	7.03	174.01	-198.65	26.58	255.02	240.93	14.10	18.090		
3,300.00	3,298.49	3,303.66	3,303.52	7.31	7.25	175.04	-197.20	22.34	258.42	243.88	14.54	17.778		
3,400.00	3,398.36	3,405.25	3,404.91	7.54	7.46	176.40	-195.18	16.39	261.21	246.23	14.98	17.441		
3,500.00	3,498.22	3,506.64	3,505.98	7.78	7.68	178.09	-192.58	8.76	263.51	248.09	15.42	17.087		
3,600.00	3,598.08	3,607.72	3,606.58	8.01	7.91	-179.89	-189.41	-0.53	265.45	249.58	15.87	16.727		
3,700.00	3,697.94	3,707.21	3,705.52	8.24	8.13	-177.77	-186.03	-10.43	267.48	251.16	16.32	16.387		
3,800.00	3,797.81	3,806.69	3,804.45	8.47	8.36	-175.68	-182.66	-20.33	269.88	253.10	16.78	16.085		
3,900.00	3,897.67	3,906.18	3,903.39	8.71	8.59	-173.63	-179.28	-30.23	272.63	255.39	17.24	15.816		
4,000.00	3,997.53	4,005.67	4,002.32	8.94	8.82	-171.62	-175.91	-40.14	275.72	258.02	17.70	15.578		
4,100.00	4,097.40	4,105.15	4,101.26	9.17	9.06	-169.67	-172.53	-50.04	279.14	260.98	18.16	15.369		
4,200.00	4,197.26	4,204.64	4,200.19	9.41	9.30	-167.76	-169.15	-59.94	282.89	264.26	18.63	15.185		
4,300.00	4,297.12	4,304.13	4,299.13	9.64	9.54	-165.90	-165.78	-69.85	286.94	267.85	19.10	15.024		
4,400.00	4,396.99	4,403.61	4,398.06	9.87	9.78	-164.09	-162.40	-79.75	291.29	271.72	19.57	14.885		
4,500.00	4,496.85	4,503.10	4,497.00	10.11	10.02	-162.34	-159.03	-89.65	295.93	275.88	20.04	14.765		
4,600.00	4,596.71	4,602.59	4,595.93	10.34	10.27	-160.65	-155.65	-99.56	300.83	280.31	20.52	14.663		
4,700.00	4,696.57	4,702.08	4,694.87	10.58	10.52	-159.01	-152.27	-109.46	305.98	284.99	20.99	14.576		
4,800.00	4,796.44	4,801.56	4,793.80	10.81	10.77	-157.42	-148.90	-119.36	311.38	289.92	21.47	14.504		
4,900.00	4,896.30	4,901.05	4,892.74	11.04	11.02	-155.89	-145.52	-129.27	317.02	295.07	21.95	14.445		
5,000.00	4,996.16	5,000.54	4,991.67	11.28	11.27	-154.42	-142.15	-139.17	322.87	300.44	22.42	14.398		
5,100.00	5,096.03	5,100.02	5,090.61	11.51	11.53	-152.99	-138.77	-149.07	328.92	306.02	22.90	14.362		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 536H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9315-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,195.89	5,199.51	5,189.54	11.75	11.78	-151.62	-135.39	-158.97	335.18	311.80	23.38	14.335		
5,300.00	5,295.75	5,299.00	5,288.48	11.98	12.04	-150.30	-132.02	-168.88	341.62	317.75	23.86	14.316		
5,400.00	5,395.61	5,398.48	5,387.41	12.22	12.29	-149.03	-128.64	-178.78	348.23	323.89	24.34	14.305		
5,500.00	5,495.48	5,497.97	5,486.35	12.45	12.55	-147.81	-125.27	-188.68	355.01	330.19	24.82	14.301		
5,600.00	5,595.34	5,597.46	5,585.28	12.69	12.81	-146.63	-121.89	-198.59	361.95	336.64	25.30	14.304		
5,700.00	5,695.20	5,696.94	5,684.22	12.92	13.07	-145.50	-118.51	-208.49	369.03	343.24	25.79	14.312		
5,800.00	5,795.07	5,796.43	5,783.15	13.16	13.33	-144.41	-115.14	-218.39	376.25	349.98	26.27	14.324		
5,900.00	5,894.93	5,895.92	5,882.09	13.40	13.59	-143.36	-111.76	-228.30	383.60	356.85	26.75	14.341		
6,000.00	5,994.79	5,995.40	5,981.02	13.63	13.85	-142.35	-108.39	-238.20	391.08	363.85	27.23	14.362		
6,100.00	6,094.66	6,094.89	6,079.96	13.87	14.12	-141.38	-105.01	-248.10	398.67	370.96	27.71	14.387		
6,200.00	6,194.52	6,194.38	6,178.89	14.10	14.38	-140.45	-101.63	-258.00	406.37	378.18	28.19	14.414		
6,300.00	6,294.38	6,293.86	6,277.83	14.34	14.64	-139.55	-98.26	-267.91	414.18	385.50	28.67	14.445		
6,400.00	6,394.24	6,393.35	6,376.76	14.57	14.91	-138.68	-94.88	-277.81	422.08	392.93	29.15	14.477		
6,500.00	6,494.11	6,492.84	6,475.70	14.81	15.17	-137.84	-91.51	-287.71	430.08	400.44	29.64	14.512		
6,600.00	6,593.97	6,592.32	6,574.63	15.05	15.44	-137.04	-88.13	-297.62	438.16	408.05	30.12	14.548		
6,700.00	6,693.83	6,691.81	6,673.57	15.28	15.70	-136.26	-84.75	-307.52	446.33	415.73	30.60	14.587		
6,800.00	6,793.70	6,791.30	6,772.50	15.52	15.97	-135.52	-81.38	-317.42	454.58	423.50	31.08	14.626		
6,900.00	6,893.56	6,890.78	6,871.44	15.75	16.24	-134.80	-78.00	-327.33	462.90	431.34	31.56	14.667		
7,000.00	6,993.42	6,990.27	6,970.37	15.99	16.51	-134.10	-74.63	-337.23	471.29	439.25	32.04	14.708		
7,100.00	7,093.28	7,089.76	7,069.31	16.23	16.77	-133.43	-71.25	-347.13	479.75	447.22	32.52	14.751		
7,200.00	7,193.15	7,189.24	7,168.24	16.46	17.04	-132.78	-67.87	-357.04	488.27	455.26	33.01	14.794		
7,300.00	7,293.01	7,288.73	7,267.18	16.70	17.31	-132.16	-64.50	-366.94	496.85	463.36	33.49	14.837		
7,400.00	7,392.87	7,388.22	7,366.12	16.93	17.58	-131.56	-61.12	-376.84	505.49	471.52	33.97	14.881		
7,500.00	7,492.74	7,490.91	7,468.29	17.17	17.83	-131.00	-57.78	-386.65	513.97	479.52	34.45	14.921		
7,600.00	7,592.60	7,595.33	7,572.34	17.41	18.05	-130.62	-54.96	-394.92	521.62	486.72	34.90	14.947		
7,700.00	7,692.46	7,699.97	7,676.75	17.64	18.25	-130.43	-52.74	-401.41	528.35	493.01	35.34	14.950		
7,800.00	7,792.33	7,804.76	7,781.42	17.88	18.45	-130.42	-51.15	-406.10	534.16	498.38	35.78	14.930		
7,900.00	7,892.23	7,909.67	7,886.29	18.09	18.64	-130.54	-50.16	-408.98	538.47	502.30	36.18	14.884		
8,000.00	7,992.19	8,014.67	7,991.28	18.26	18.82	-130.68	-49.80	-410.04	540.72	504.18	36.54	14.799		
8,100.00	8,092.19	8,115.08	8,091.69	18.43	19.01	-130.75	-49.80	-410.05	541.29	504.40	36.90	14.671		
8,200.00	8,192.19	8,215.08	8,191.69	18.62	19.21	-130.75	-49.80	-410.05	541.29	504.00	37.29	14.514		
8,300.00	8,292.19	8,315.08	8,291.69	18.84	19.41	-130.75	-49.80	-410.05	541.29	503.57	37.72	14.350		
8,400.00	8,392.19	8,415.08	8,391.69	19.05	19.62	-130.75	-49.80	-410.05	541.29	503.15	38.15	14.190		
8,500.00	8,492.19	8,476.89	8,453.38	19.27	19.72	-131.02	-53.09	-410.04	544.79	506.40	38.39	14.189 SF		
8,600.00	8,592.19	8,537.18	8,512.87	19.49	19.81	-131.77	-62.69	-410.02	555.39	516.93	38.47	14.439		
8,700.00	8,692.19	8,600.00	8,573.43	19.70	19.90	-133.04	-79.27	-409.99	573.26	534.85	38.41	14.923		
8,800.00	8,792.19	8,650.00	8,620.11	19.92	19.96	-134.35	-97.15	-409.95	598.38	560.32	38.06	15.721		
8,900.00	8,892.19	8,700.00	8,665.05	20.14	20.02	-135.87	-119.03	-409.90	630.84	593.26	37.58	16.787		
9,000.00	8,992.19	8,750.00	8,707.91	20.36	20.07	-137.56	-144.74	-409.85	670.42	633.40	37.02	18.108		
9,100.00	9,092.19	8,786.34	8,737.57	20.58	20.11	-138.87	-165.72	-409.80	716.62	680.43	36.19	19.802		
9,200.00	9,192.19	8,823.73	8,766.65	20.79	20.15	-140.26	-189.23	-409.75	769.02	733.63	35.39	21.732		
9,300.00	9,292.19	8,850.00	8,786.12	21.01	20.18	-141.25	-206.85	-409.71	827.03	792.59	34.44	24.016		
9,400.00	9,392.19	8,900.00	8,820.87	21.23	20.24	-143.14	-242.78	-409.64	890.01	855.99	34.01	26.167		
9,500.00	9,492.19	8,900.00	8,820.87	21.45	20.24	-143.14	-242.78	-409.64	957.22	924.46	32.77	29.213		
9,600.00	9,592.19	8,950.00	8,852.36	21.67	20.30	-145.01	-281.60	-409.55	1,027.98	995.45	32.53	31.599		
9,700.00	9,692.19	8,950.00	8,852.36	21.89	20.30	-145.01	-281.60	-409.55	1,102.10	1,070.55	31.54	34.937		
9,800.00	9,792.19	8,980.71	8,869.97	22.11	20.34	-146.14	-306.75	-409.50	1,178.86	1,147.68	31.18	37.808		
9,900.00	9,892.19	9,000.00	8,880.34	22.33	20.37	-146.84	-323.02	-409.47	1,258.20	1,227.48	30.73	40.948		
10,000.00	9,992.19	9,000.00	8,880.34	22.55	20.37	-146.84	-323.02	-409.47	1,339.91	1,309.81	30.10	44.516		
10,100.00	10,092.19	9,029.76	8,895.24	22.76	20.42	-147.89	-348.77	-409.41	1,422.89	1,392.92	29.97	47.476		
10,200.00	10,192.19	9,050.00	8,904.61	22.98	20.46	-148.59	-366.72	-409.37	1,507.79	1,478.01	29.78	50.636		
10,300.00	10,292.19	9,050.00	8,904.61	23.20	20.46	-148.59	-366.72	-409.37	1,594.00	1,564.59	29.41	54.197		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 536H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9315-MWD+HFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	10,392.19	9,050.00	8,904.61	23.42	20.46	-148.59	-366.72	-409.37	1,681.74	1,652.62	29.12	57.743		
10,500.00	10,492.19	9,077.58	8,916.33	23.64	20.52	-149.51	-391.67	-409.32	1,769.92	1,740.74	29.19	60.637		
10,600.00	10,592.19	9,100.00	8,924.97	23.86	20.57	-150.24	-412.36	-409.27	1,859.57	1,830.33	29.23	63.615		
10,700.00	10,692.19	9,100.00	8,924.97	24.08	20.57	-150.24	-412.36	-409.27	1,949.70	1,920.60	29.10	66.998		
10,800.00	10,792.19	9,100.00	8,924.97	24.30	20.57	-150.24	-412.36	-409.27	2,040.75	2,011.73	29.02	70.324		
10,900.00	10,892.19	9,100.00	8,924.97	24.52	20.57	-150.24	-412.36	-409.27	2,132.61	2,103.63	28.98	73.588		
11,000.00	10,992.19	9,100.00	8,924.97	24.74	20.57	-150.24	-412.36	-409.27	2,225.17	2,196.19	28.98	76.783		
11,100.00	11,092.19	9,126.22	8,934.04	24.96	20.64	-151.07	-436.96	-409.22	2,317.60	2,288.40	29.21	79.350		
11,200.00	11,192.19	9,150.00	8,941.28	25.18	20.71	-151.80	-459.61	-409.17	2,411.26	2,381.83	29.43	81.934		
11,300.00	11,292.19	9,150.00	8,941.28	25.40	20.71	-151.80	-459.61	-409.17	2,504.85	2,475.35	29.50	84.905		
11,334.85	11,327.04	9,150.00	8,941.28	25.48	20.71	-151.80	-459.61	-409.17	2,537.58	2,508.04	29.53	85.923		
11,350.00	11,342.19	9,150.00	8,941.28	25.51	20.71	26.61	-459.61	-409.17	2,551.76	2,522.22	29.55	86.369		
11,400.00	11,392.05	9,150.00	8,941.28	25.58	20.71	21.84	-459.61	-409.17	2,597.70	2,568.13	29.57	87.847		
11,450.00	11,441.41	9,150.00	8,941.28	25.65	20.71	18.51	-459.61	-409.17	2,642.08	2,612.50	29.58	89.322		
11,500.00	11,489.91	9,150.00	8,941.28	25.70	20.71	16.09	-459.61	-409.17	2,684.66	2,655.08	29.57	90.776		
11,550.00	11,537.17	9,150.00	8,941.28	25.74	20.71	14.28	-459.61	-409.17	2,725.20	2,695.64	29.56	92.198		
11,600.00	11,582.83	9,150.00	8,941.28	25.77	20.71	12.88	-459.61	-409.17	2,763.49	2,733.96	29.53	93.579		
11,650.00	11,626.54	9,150.00	8,941.28	25.80	20.71	11.78	-459.61	-409.17	2,799.33	2,769.84	29.50	94.907		
11,700.00	11,667.97	9,176.04	8,948.13	25.82	20.80	10.83	-484.74	-409.12	2,831.85	2,802.26	29.59	95.688		
11,750.00	11,706.80	9,200.00	8,953.41	25.85	20.88	10.08	-508.10	-409.07	2,862.20	2,832.53	29.67	96.472		
11,800.00	11,742.75	9,200.00	8,953.41	25.88	20.88	9.54	-508.10	-409.07	2,889.01	2,859.40	29.61	97.567		
11,850.00	11,775.53	9,200.00	8,953.41	25.91	20.88	9.10	-508.10	-409.07	2,912.75	2,883.20	29.55	98.559		
11,900.00	11,804.90	9,200.00	8,953.41	25.95	20.88	8.75	-508.10	-409.07	2,933.32	2,903.82	29.50	99.437		
11,950.00	11,830.64	9,200.00	8,953.41	26.00	20.88	8.48	-508.10	-409.07	2,950.63	2,921.18	29.45	100.187		
12,000.00	11,852.54	9,200.00	8,953.41	26.06	20.88	8.27	-508.10	-409.07	2,964.61	2,935.19	29.41	100.797		
12,050.00	11,870.44	9,228.12	8,958.36	26.14	20.99	8.10	-535.78	-409.01	2,974.37	2,944.88	29.50	100.832		
12,100.00	11,884.20	9,250.00	8,961.27	26.24	21.09	8.00	-557.46	-408.96	2,981.19	2,951.63	29.56	100.847		
12,150.00	11,893.73	9,250.00	8,961.27	26.36	21.09	7.96	-557.46	-408.96	2,984.03	2,954.49	29.55	100.988		
12,200.00	11,898.94	9,250.00	8,961.27	26.49	21.09	7.97	-557.46	-408.96	2,983.40	2,953.85	29.55	100.958		
12,234.85	11,900.00	9,250.00	8,961.27	26.60	21.09	8.01	-557.46	-408.96	2,980.90	2,951.34	29.56	100.833		
12,300.00	11,900.00	9,250.00	8,961.27	26.82	21.09	8.01	-557.46	-408.96	2,975.36	2,945.75	29.61	100.487		
12,400.00	11,900.00	9,300.00	8,964.79	27.24	21.33	8.02	-607.32	-408.86	2,968.59	2,938.70	29.89	99.312		
12,500.00	11,900.00	9,300.00	8,964.79	27.75	21.33	8.02	-607.32	-408.86	2,964.52	2,934.41	30.11	98.463		
12,586.16	11,900.00	9,315.43	8,965.00	28.26	25.07	8.02	-622.76	-408.82	2,963.48	2,933.22	30.26	97.935		
12,600.00	11,900.00	9,328.11	8,965.00	28.35	25.08	8.02	-635.43	-408.80	2,963.48	2,933.19	30.29	97.828		
12,700.00	11,900.00	9,428.11	8,965.00	29.02	25.15	8.03	-735.43	-408.58	2,963.52	2,932.93	30.59	96.864		
12,800.00	11,900.00	9,528.11	8,965.00	29.77	25.22	8.03	-835.43	-408.37	2,963.56	2,932.59	30.97	95.678		
12,900.00	11,900.00	9,628.11	8,965.00	30.59	25.30	8.04	-935.43	-408.16	2,963.60	2,932.17	31.43	94.284		
13,000.00	11,900.00	9,728.11	8,965.00	31.48	25.38	8.04	-1,035.43	-407.94	2,963.64	2,931.67	31.97	92.712		
13,100.00	11,900.00	9,828.10	8,965.00	32.42	25.46	8.05	-1,135.43	-407.73	2,963.68	2,931.11	32.57	90.990		
13,200.00	11,900.00	9,928.10	8,965.00	33.42	25.54	8.05	-1,235.43	-407.51	2,963.72	2,930.48	33.24	89.150		
13,300.00	11,900.00	10,028.10	8,965.00	34.46	25.62	8.06	-1,335.42	-407.30	2,963.76	2,929.78	33.98	87.221		
13,400.00	11,900.00	10,128.10	8,965.00	35.55	25.71	8.06	-1,435.42	-407.09	2,963.80	2,929.02	34.77	85.230		
13,500.00	11,900.00	10,228.10	8,965.00	36.68	25.80	8.07	-1,535.42	-406.87	2,963.84	2,928.22	35.62	83.201		
13,600.00	11,900.00	10,328.10	8,965.00	37.85	25.89	8.07	-1,635.42	-406.66	2,963.88	2,927.36	36.52	81.156		
13,700.00	11,900.00	10,428.10	8,965.00	39.05	25.98	8.08	-1,735.42	-406.44	2,963.92	2,926.45	37.46	79.113		
13,800.00	11,900.00	10,528.10	8,965.00	40.29	26.08	8.08	-1,835.42	-406.23	2,963.96	2,925.51	38.45	77.086		
13,900.00	11,900.00	10,628.10	8,965.00	41.55	26.18	8.09	-1,935.42	-406.02	2,964.00	2,924.52	39.47	75.087		
14,000.00	11,900.00	10,728.10	8,965.00	42.83	26.28	8.10	-2,035.42	-405.80	2,964.04	2,923.50	40.53	73.126		
14,100.00	11,900.00	10,828.10	8,965.00	44.14	26.39	8.10	-2,135.42	-405.59	2,964.08	2,922.45	41.62	71.210		
14,200.00	11,900.00	10,928.10	8,965.00	45.47	26.50	8.11	-2,235.42	-405.38	2,964.12	2,921.37	42.74	69.344		
14,300.00	11,900.00	11,028.10	8,965.00	46.82	26.62	8.11	-2,335.42	-405.16	2,964.16	2,920.26	43.89	67.533		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 536H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9315-MWD+IFR1+MS													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,400.00	11,900.00	11,128.10	8,965.00	48.19	26.76	8.12	-2,435.42	-404.95	2,964.20	2,919.13	45.06	65.777		
14,500.00	11,900.00	11,228.10	8,965.00	49.57	26.91	8.12	-2,535.42	-404.73	2,964.24	2,917.98	46.26	64.080		
14,600.00	11,900.00	11,328.10	8,965.00	50.97	27.08	8.13	-2,635.42	-404.52	2,964.28	2,916.80	47.47	62.440		
14,700.00	11,900.00	11,428.10	8,965.00	52.38	27.29	8.13	-2,735.42	-404.31	2,964.32	2,915.61	48.71	60.858		
14,800.00	11,900.00	11,528.10	8,965.00	53.81	27.54	8.14	-2,835.42	-404.09	2,964.36	2,914.40	49.96	59.334		
14,900.00	11,900.00	11,628.10	8,965.00	55.24	27.85	8.14	-2,935.41	-403.88	2,964.40	2,913.17	51.23	57.866		
15,000.00	11,900.00	11,728.10	8,965.00	56.69	28.21	8.15	-3,035.41	-403.66	2,964.44	2,911.93	52.51	56.453		
15,100.00	11,900.00	11,828.10	8,965.00	58.15	28.62	8.16	-3,135.41	-403.45	2,964.48	2,910.67	53.81	55.093		
15,200.00	11,900.00	11,928.10	8,965.00	59.62	29.08	8.16	-3,235.41	-403.24	2,964.52	2,909.40	55.12	53.784		
15,300.00	11,900.00	12,028.10	8,965.00	61.09	29.56	8.17	-3,335.41	-403.02	2,964.56	2,908.12	56.44	52.525		
15,400.00	11,900.00	12,128.10	8,965.00	62.57	30.07	8.17	-3,435.41	-402.81	2,964.60	2,906.82	57.77	51.314		
15,500.00	11,900.00	12,228.10	8,965.00	64.07	30.59	8.18	-3,535.41	-402.59	2,964.64	2,905.52	59.12	50.148		
15,600.00	11,900.00	12,328.10	8,965.00	65.56	31.13	8.18	-3,635.41	-402.38	2,964.68	2,904.21	60.47	49.027		
15,700.00	11,900.00	12,428.09	8,965.00	67.07	31.69	8.19	-3,735.41	-402.17	2,964.72	2,902.89	61.83	47.947		
15,800.00	11,900.00	12,528.09	8,965.00	68.58	32.26	8.19	-3,835.41	-401.95	2,964.76	2,901.55	63.20	46.908		
15,900.00	11,900.00	12,628.09	8,965.00	70.10	32.83	8.20	-3,935.41	-401.74	2,964.80	2,900.22	64.58	45.907		
16,000.00	11,900.00	12,728.09	8,965.00	71.62	33.42	8.20	-4,035.41	-401.53	2,964.84	2,898.87	65.97	44.943		
16,100.00	11,900.00	12,828.09	8,965.00	73.14	34.02	8.21	-4,135.41	-401.31	2,964.88	2,897.52	67.36	44.015		
16,200.00	11,900.00	12,928.09	8,965.00	74.67	34.62	8.21	-4,235.41	-401.10	2,964.92	2,896.16	68.76	43.119		
16,300.00	11,900.00	13,028.09	8,965.00	76.21	35.23	8.22	-4,335.41	-400.88	2,964.96	2,894.79	70.17	42.256		
16,400.00	11,900.00	13,128.09	8,965.00	77.75	35.84	8.23	-4,435.41	-400.67	2,965.00	2,893.42	71.58	41.423		
16,500.00	11,900.00	13,228.09	8,965.00	79.29	36.47	8.23	-4,535.40	-400.46	2,965.04	2,892.05	73.00	40.620		
16,600.00	11,900.00	13,328.09	8,965.00	80.84	37.09	8.24	-4,635.40	-400.24	2,965.08	2,890.66	74.42	39.844		
16,700.00	11,900.00	13,428.09	8,965.00	82.39	37.73	8.24	-4,735.40	-400.03	2,965.12	2,889.28	75.84	39.095		
16,800.00	11,900.00	13,528.09	8,965.00	83.95	38.37	8.25	-4,835.40	-399.81	2,965.16	2,887.89	77.28	38.371		
16,900.00	11,900.00	13,628.09	8,965.00	85.50	39.01	8.25	-4,935.40	-399.60	2,965.20	2,886.49	78.71	37.672		
17,000.00	11,900.00	13,728.09	8,965.00	87.06	39.66	8.26	-5,035.40	-399.39	2,965.24	2,885.09	80.15	36.995		
17,100.00	11,900.00	13,828.09	8,965.00	88.63	40.31	8.26	-5,135.40	-399.17	2,965.28	2,883.69	81.60	36.341		
17,200.00	11,900.00	13,928.09	8,965.00	90.19	40.96	8.27	-5,235.40	-398.96	2,965.33	2,882.28	83.04	35.708		
17,300.00	11,900.00	14,028.09	8,965.00	91.76	41.62	8.27	-5,335.40	-398.74	2,965.37	2,880.87	84.50	35.095		
17,400.00	11,900.00	14,128.09	8,965.00	93.33	42.29	8.28	-5,435.40	-398.53	2,965.41	2,879.46	85.95	34.501		
17,500.00	11,900.00	14,228.09	8,965.00	94.90	42.95	8.28	-5,535.40	-398.32	2,965.45	2,878.04	87.41	33.926		
17,600.00	11,900.00	14,328.09	8,965.00	96.48	43.62	8.29	-5,635.40	-398.10	2,965.49	2,876.62	88.87	33.369		
17,700.00	11,900.00	14,428.09	8,965.00	98.05	44.30	8.30	-5,735.40	-397.89	2,965.53	2,875.20	90.33	32.829		
17,800.00	11,900.00	14,528.09	8,965.00	99.63	44.97	8.30	-5,835.40	-397.68	2,965.57	2,873.77	91.80	32.305		
17,900.00	11,900.00	14,628.09	8,965.00	101.21	45.65	8.31	-5,935.40	-397.46	2,965.61	2,872.34	93.27	31.796		
18,000.00	11,900.00	14,728.09	8,965.00	102.79	46.33	8.31	-6,035.40	-397.25	2,965.65	2,870.91	94.74	31.302		
18,100.00	11,900.00	14,828.09	8,965.00	104.38	47.02	8.32	-6,135.39	-397.03	2,965.69	2,869.48	96.22	30.823		
18,200.00	11,900.00	14,928.08	8,965.00	105.96	47.70	8.32	-6,235.39	-396.82	2,965.73	2,868.04	97.69	30.358		
18,300.00	11,900.00	15,028.08	8,965.00	107.55	48.39	8.33	-6,335.39	-396.61	2,965.77	2,866.60	99.17	29.905		
18,400.00	11,900.00	15,128.08	8,965.00	109.14	49.08	8.33	-6,435.39	-396.39	2,965.82	2,865.16	100.65	29.466		
18,500.00	11,900.00	15,228.08	8,965.00	110.73	49.78	8.34	-6,535.39	-396.18	2,965.86	2,863.72	102.14	29.038		
18,600.00	11,900.00	15,328.08	8,965.00	112.32	50.47	8.34	-6,635.39	-395.96	2,965.90	2,862.28	103.62	28.622		
18,700.00	11,900.00	15,428.08	8,965.00	113.91	51.17	8.35	-6,735.39	-395.75	2,965.94	2,860.83	105.11	28.218		
18,800.00	11,900.00	15,528.08	8,965.00	115.51	51.87	8.36	-6,835.39	-395.54	2,965.98	2,859.38	106.60	27.824		
18,900.00	11,900.00	15,628.08	8,965.00	117.10	52.57	8.36	-6,935.39	-395.32	2,966.02	2,857.93	108.09	27.441		
19,000.00	11,900.00	15,728.08	8,965.00	118.70	53.27	8.37	-7,035.39	-395.11	2,966.06	2,856.48	109.58	27.067		
19,100.00	11,900.00	15,828.08	8,965.00	120.30	53.98	8.37	-7,135.39	-394.89	2,966.10	2,855.03	111.07	26.704		
19,200.00	11,900.00	15,928.08	8,965.00	121.89	54.68	8.38	-7,235.39	-394.68	2,966.14	2,853.57	112.57	26.349		
19,300.00	11,900.00	16,028.08	8,965.00	123.49	55.39	8.38	-7,335.39	-394.47	2,966.19	2,852.12	114.07	26.004		
19,400.00	11,900.00	16,128.08	8,965.00	125.09	56.10	8.39	-7,435.39	-394.25	2,966.23	2,850.66	115.57	25.667		
19,500.00	11,900.00	16,228.08	8,965.00	126.69	56.81	8.39	-7,535.39	-394.04	2,966.27	2,849.20	117.07	25.339		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Lusitano - Lusitano 27-34 Fed Com 536H - OH - Plan #1													Offset Well Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM, 9315-MWD+IFR1+MS														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,600.00	11,900.00	16,328.08	8,965.00	128.30	57.52	8.40	-7,635.39	-393.82	2,966.31	2,847.74	118.57	25.018		
19,700.00	11,900.00	16,428.08	8,965.00	129.90	58.24	8.40	-7,735.38	-393.61	2,966.35	2,846.28	120.07	24.705		
19,800.00	11,900.00	16,528.08	8,965.00	131.50	58.95	8.41	-7,835.38	-393.40	2,966.39	2,844.82	121.57	24.400		
19,900.00	11,900.00	16,628.08	8,965.00	133.11	59.67	8.41	-7,935.38	-393.18	2,966.43	2,843.36	123.08	24.102		
20,000.00	11,900.00	16,728.08	8,965.00	134.71	60.38	8.42	-8,035.38	-392.97	2,966.47	2,841.89	124.58	23.811		
20,100.00	11,900.00	16,828.08	8,965.00	136.32	61.10	8.43	-8,135.38	-392.76	2,966.52	2,840.42	126.09	23.527		
20,200.00	11,900.00	16,928.08	8,965.00	137.93	61.82	8.43	-8,235.38	-392.54	2,966.56	2,838.96	127.60	23.249		
20,300.00	11,900.00	17,028.08	8,965.00	139.53	62.54	8.44	-8,335.38	-392.33	2,966.60	2,837.49	129.11	22.978		
20,400.00	11,900.00	17,128.08	8,965.00	141.14	63.26	8.44	-8,435.38	-392.11	2,966.64	2,836.02	130.62	22.712		
20,500.00	11,900.00	17,228.08	8,965.00	142.75	63.98	8.45	-8,535.38	-391.90	2,966.68	2,834.55	132.13	22.453		
20,600.00	11,900.00	17,328.08	8,965.00	144.36	64.71	8.45	-8,635.38	-391.69	2,966.72	2,833.08	133.64	22.199		
20,700.00	11,900.00	17,428.07	8,965.00	145.97	65.43	8.46	-8,735.38	-391.47	2,966.76	2,831.61	135.16	21.951		
20,800.00	11,900.00	17,528.07	8,965.00	147.58	66.16	8.46	-8,835.38	-391.26	2,966.81	2,830.14	136.67	21.708		
20,900.00	11,900.00	17,628.07	8,965.00	149.19	66.88	8.47	-8,935.38	-391.04	2,966.85	2,828.66	138.19	21.470		
21,000.00	11,900.00	17,728.07	8,965.00	150.80	67.61	8.47	-9,035.38	-390.83	2,966.89	2,827.19	139.70	21.237		
21,100.00	11,900.00	17,828.07	8,965.00	152.42	68.34	8.48	-9,135.38	-390.62	2,966.93	2,825.71	141.22	21.010		
21,200.00	11,900.00	17,928.07	8,965.00	154.03	69.06	8.48	-9,235.38	-390.40	2,966.97	2,824.24	142.74	20.786		
21,300.00	11,900.00	18,028.07	8,965.00	155.64	69.79	8.49	-9,335.37	-390.19	2,967.01	2,822.76	144.25	20.568		
21,400.00	11,900.00	18,128.07	8,965.00	157.26	70.52	8.50	-9,435.37	-389.97	2,967.06	2,821.28	145.77	20.354		
21,500.00	11,900.00	18,228.07	8,965.00	158.87	71.25	8.50	-9,535.37	-389.76	2,967.10	2,819.81	147.29	20.144		
21,600.00	11,900.00	18,328.07	8,965.00	160.49	71.98	8.51	-9,635.37	-389.55	2,967.14	2,818.33	148.81	19.939		
21,700.00	11,900.00	18,428.07	8,965.00	162.10	72.72	8.51	-9,735.37	-389.33	2,967.18	2,816.85	150.34	19.737		
21,800.00	11,900.00	18,528.07	8,965.00	163.72	73.45	8.52	-9,835.37	-389.12	2,967.22	2,815.37	151.86	19.540		
21,900.00	11,900.00	18,628.07	8,965.00	165.33	74.18	8.52	-9,935.37	-388.91	2,967.27	2,813.89	153.38	19.346		
21,900.25	11,900.00	18,628.32	8,965.00	165.34	74.18	8.52	-9,935.62	-388.90	2,967.27	2,813.88	153.38	19.345		
21,984.97	11,900.00	18,705.43	8,965.00	166.71	74.75	8.53	-10,012.73	-388.74	2,967.31	2,812.69	154.62	19.190		

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 626H - OH - Plan #1												Offset Site Error:	0.00 usft	
Survey Program: 0-LEAM MWD+HDGM												Offset Well Error:	0.00 usft	
Reference		Offset		Semi Major Axis		Distance						Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.38	-0.20	-29.91	29.92					
100.00	100.00	99.40	99.40	0.09	0.09	-90.38	-0.20	-29.91	29.91	29.73	0.18	168.956		
200.00	200.00	199.40	199.40	0.31	0.31	-90.38	-0.20	-29.91	29.91	29.28	0.63	47.800		
300.00	300.00	299.40	299.40	0.54	0.54	-90.38	-0.20	-29.91	29.91	28.84	1.08	27.817		
400.00	400.00	399.40	399.40	0.76	0.76	-90.38	-0.20	-29.91	29.91	28.39	1.52	19.616		
500.00	500.00	499.40	499.40	0.99	0.99	-90.38	-0.20	-29.91	29.91	27.94	1.97	15.150		
600.00	600.00	599.40	599.40	1.21	1.21	-90.38	-0.20	-29.91	29.91	27.49	2.42	12.340		
700.00	700.00	699.40	699.40	1.44	1.44	-90.38	-0.20	-29.91	29.91	27.04	2.87	10.409		
800.00	800.00	799.40	799.40	1.66	1.66	-90.38	-0.20	-29.91	29.91	26.59	3.32	9.001		
900.00	900.00	899.40	899.40	1.89	1.89	-90.38	-0.20	-29.91	29.91	26.14	3.77	7.929		
1,000.00	1,000.00	999.40	999.40	2.11	2.11	-90.38	-0.20	-29.91	29.91	25.69	4.22	7.084		
1,100.00	1,100.00	1,099.40	1,099.40	2.34	2.34	-90.38	-0.20	-29.91	29.91	25.24	4.67	6.403		
1,200.00	1,200.00	1,199.40	1,199.40	2.56	2.56	-90.38	-0.20	-29.91	29.91	24.79	5.12	5.841		
1,300.00	1,300.00	1,299.40	1,299.40	2.79	2.78	-90.38	-0.20	-29.91	29.91	24.34	5.57	5.369		
1,400.00	1,400.00	1,399.40	1,399.40	3.01	3.01	-90.38	-0.20	-29.91	29.91	23.89	6.02	4.968		
1,500.00	1,500.00	1,499.40	1,499.40	3.24	3.23	-90.38	-0.20	-29.91	29.91	23.44	6.47	4.623		
1,600.00	1,600.00	1,599.40	1,599.40	3.46	3.46	-90.38	-0.20	-29.91	29.91	22.99	6.92	4.323		
1,700.00	1,700.00	1,699.40	1,699.40	3.69	3.68	-90.38	-0.20	-29.91	29.91	22.54	7.37	4.059		
1,800.00	1,800.00	1,799.40	1,799.40	3.91	3.91	-90.38	-0.20	-29.91	29.91	22.09	7.82	3.826		
1,900.00	1,900.00	1,899.40	1,899.40	4.13	4.13	-90.38	-0.20	-29.91	29.91	21.64	8.27	3.618		
2,000.00	2,000.00	1,999.40	1,999.40	4.36	4.36	-90.38	-0.20	-29.91	29.91	21.19	8.72	3.431	CC, ES	
2,100.00	2,099.99	2,098.95	2,098.94	4.58	4.57	-91.18	0.23	-30.65	30.66	21.50	9.16	3.348		
2,200.00	2,199.96	2,198.45	2,198.41	4.81	4.79	-93.35	1.53	-32.88	32.95	23.36	9.59	3.436		
2,300.00	2,299.86	2,297.86	2,297.73	5.03	5.00	-96.33	3.71	-36.59	36.86	26.84	10.02	3.678		
2,400.00	2,399.73	2,397.16	2,396.84	5.26	5.22	-98.46	6.74	-41.79	42.33	31.88	10.45	4.050		
2,500.00	2,499.59	2,496.48	2,495.87	5.48	5.44	-98.84	10.62	-48.42	49.13	38.24	10.89	4.512		
2,600.00	2,599.45	2,596.23	2,595.27	5.71	5.66	-98.82	14.74	-55.48	56.29	44.96	11.33	4.968		
2,700.00	2,699.31	2,695.97	2,694.68	5.94	5.89	-98.81	18.87	-62.55	63.46	51.68	11.78	5.388		
2,800.00	2,799.18	2,795.71	2,794.09	6.16	6.12	-98.80	23.00	-69.61	70.62	58.40	12.23	5.777		
2,900.00	2,899.04	2,895.46	2,893.50	6.39	6.35	-98.79	27.13	-76.68	77.79	65.11	12.68	6.137		
3,000.00	2,998.90	2,995.20	2,992.90	6.62	6.59	-98.78	31.25	-83.74	84.95	71.82	13.13	6.471		
3,100.00	3,098.77	3,094.94	3,092.31	6.85	6.82	-98.77	35.38	-90.80	92.12	78.53	13.58	6.782		
3,200.00	3,198.63	3,194.69	3,191.72	7.08	7.06	-98.77	39.51	-97.87	99.28	85.24	14.04	7.072		
3,300.00	3,298.49	3,294.43	3,291.12	7.31	7.30	-98.76	43.64	-104.93	106.45	91.95	14.50	7.343		
3,400.00	3,398.36	3,394.17	3,390.53	7.54	7.54	-98.76	47.76	-112.00	113.61	98.66	14.95	7.597		
3,500.00	3,498.22	3,493.91	3,489.94	7.78	7.78	-98.75	51.89	-119.06	120.78	105.36	15.41	7.835		
3,600.00	3,598.08	3,593.66	3,589.34	8.01	8.02	-98.75	56.02	-126.13	127.94	112.06	15.87	8.059		
3,700.00	3,697.94	3,693.40	3,688.75	8.24	8.27	-98.75	60.15	-133.19	135.10	118.77	16.34	8.270		
3,800.00	3,797.81	3,793.14	3,788.16	8.47	8.51	-98.75	64.27	-140.25	142.27	125.47	16.80	8.469		
3,900.00	3,897.67	3,892.89	3,887.56	8.71	8.76	-98.74	68.40	-147.32	149.43	132.17	17.26	8.656		
4,000.00	3,997.53	3,992.63	3,986.97	8.94	9.00	-98.74	72.53	-154.38	156.60	138.87	17.73	8.834		
4,100.00	4,097.40	4,092.37	4,086.38	9.17	9.25	-98.74	76.66	-161.45	163.76	145.57	18.19	9.002		
4,200.00	4,197.26	4,192.12	4,185.79	9.41	9.50	-98.74	80.78	-168.51	170.93	152.27	18.66	9.161		
4,300.00	4,297.12	4,291.86	4,285.19	9.64	9.75	-98.74	84.91	-175.57	178.09	158.97	19.12	9.312		
4,400.00	4,396.99	4,391.60	4,384.60	9.87	9.99	-98.73	89.04	-182.64	185.26	165.67	19.59	9.456		
4,500.00	4,496.85	4,491.34	4,484.01	10.11	10.24	-98.73	93.17	-189.70	192.42	172.36	20.06	9.593		
4,600.00	4,596.71	4,591.09	4,583.41	10.34	10.49	-98.73	97.30	-196.77	199.59	179.06	20.53	9.724		
4,700.00	4,696.57	4,690.83	4,682.82	10.58	10.74	-98.73	101.42	-203.83	206.75	185.76	20.99	9.848		
4,800.00	4,796.44	4,790.57	4,782.23	10.81	10.99	-98.73	105.55	-210.89	213.92	192.45	21.46	9.967		
4,900.00	4,896.30	4,890.32	4,881.63	11.04	11.24	-98.73	109.68	-217.96	221.08	199.15	21.93	10.080		
5,000.00	4,996.16	4,990.06	4,981.04	11.28	11.50	-98.73	113.81	-225.02	228.25	205.84	22.40	10.189		
5,100.00	5,096.03	5,089.80	5,080.45	11.51	11.75	-98.73	117.93	-232.09	235.41	212.54	22.87	10.293		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 626H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,195.89	5,189.55	5,179.85	11.75	12.00	-98.73	122.06	-239.15	242.57	219.23	23.34	10.392		
5,300.00	5,295.75	5,289.29	5,279.26	11.98	12.25	-98.73	126.19	-246.21	249.74	225.93	23.81	10.488		
5,400.00	5,395.61	5,389.03	5,378.67	12.22	12.50	-98.72	130.32	-253.28	256.90	232.62	24.28	10.580		
5,500.00	5,495.48	5,488.77	5,478.07	12.45	12.76	-98.72	134.44	-260.34	264.07	239.31	24.75	10.668		
5,600.00	5,595.34	5,588.52	5,577.48	12.69	13.01	-98.72	138.57	-267.41	271.23	246.01	25.23	10.752		
5,700.00	5,695.20	5,688.26	5,676.89	12.92	13.26	-98.72	142.70	-274.47	278.40	252.70	25.70	10.834		
5,800.00	5,795.07	5,788.00	5,776.30	13.16	13.52	-98.72	146.83	-281.54	285.56	259.39	26.17	10.912		
5,900.00	5,894.93	5,887.75	5,875.70	13.40	13.77	-98.72	150.95	-288.60	292.73	266.09	26.64	10.988		
6,000.00	5,994.79	5,987.49	5,975.11	13.63	14.02	-98.72	155.08	-295.66	299.89	272.78	27.11	11.061		
6,100.00	6,094.66	6,087.23	6,074.52	13.87	14.28	-98.72	159.21	-302.73	307.06	279.47	27.59	11.131		
6,200.00	6,194.52	6,186.98	6,173.92	14.10	14.53	-98.72	163.34	-309.79	314.22	286.16	28.06	11.199		
6,300.00	6,294.38	6,286.72	6,273.33	14.34	14.79	-98.72	167.46	-316.86	321.39	292.86	28.53	11.265		
6,400.00	6,394.24	6,386.46	6,372.74	14.57	15.04	-98.72	171.59	-323.92	328.55	299.55	29.00	11.328		
6,500.00	6,494.11	6,486.20	6,472.14	14.81	15.29	-98.72	175.72	-330.98	335.72	306.24	29.48	11.389		
6,600.00	6,593.97	6,585.95	6,571.55	15.05	15.55	-98.72	179.85	-338.05	342.88	312.93	29.95	11.448		
6,700.00	6,693.83	6,685.69	6,670.96	15.28	15.80	-98.72	183.97	-345.11	350.04	319.62	30.42	11.506		
6,800.00	6,793.70	6,785.43	6,770.36	15.52	16.06	-98.72	188.10	-352.18	357.21	326.31	30.90	11.561		
6,900.00	6,893.56	6,885.18	6,869.77	15.75	16.31	-98.72	192.23	-359.24	364.37	333.00	31.37	11.615		
7,000.00	6,993.42	6,984.92	6,969.18	15.99	16.57	-98.72	196.36	-366.30	371.54	339.69	31.84	11.667		
7,100.00	7,093.28	7,084.66	7,068.58	16.23	16.82	-98.72	200.48	-373.37	378.70	346.38	32.32	11.718		
7,200.00	7,193.15	7,184.41	7,167.99	16.46	17.08	-98.72	204.61	-380.43	385.87	353.07	32.79	11.767		
7,300.00	7,293.01	7,284.15	7,267.40	16.70	17.34	-98.72	208.74	-387.50	393.03	359.77	33.27	11.814		
7,400.00	7,392.87	7,383.89	7,366.81	16.93	17.59	-98.71	212.87	-394.56	400.20	366.46	33.74	11.861		
7,500.00	7,492.74	7,483.63	7,466.21	17.17	17.85	-98.71	217.00	-401.62	407.36	373.15	34.22	11.906		
7,600.00	7,592.60	7,583.38	7,565.62	17.41	18.10	-98.71	221.12	-408.69	414.53	379.84	34.69	11.949		
7,700.00	7,692.46	7,683.12	7,665.03	17.64	18.36	-98.71	225.25	-415.75	421.69	386.53	35.17	11.992		
7,800.00	7,792.33	7,782.86	7,764.43	17.88	18.62	-98.71	229.38	-422.82	428.86	393.22	35.64	12.033		
7,900.00	7,892.23	7,882.61	7,863.84	18.09	18.87	-98.67	233.51	-429.88	435.89	399.81	36.08	12.080		
8,000.00	7,992.19	7,982.35	7,963.24	18.26	19.13	-98.40	237.63	-436.94	442.67	406.18	36.49	12.132		
8,100.00	8,092.19	8,082.04	8,062.60	18.43	19.38	-97.92	241.76	-444.01	449.22	412.34	36.88	12.179		
8,200.00	8,192.19	8,181.70	8,161.93	18.62	19.64	-97.29	245.88	-451.06	455.70	418.40	37.30	12.217		
8,300.00	8,292.19	8,281.37	8,261.26	18.84	19.90	-96.67	250.01	-458.12	462.24	424.49	37.74	12.247		
8,400.00	8,392.19	8,381.03	8,360.58	19.05	20.15	-96.06	254.13	-465.18	468.82	430.64	38.19	12.277		
8,500.00	8,492.19	8,480.69	8,459.91	19.27	20.41	-95.48	258.26	-472.24	475.46	436.83	38.63	12.309		
8,600.00	8,592.19	8,580.36	8,559.24	19.49	20.66	-94.91	262.38	-479.30	482.15	443.08	39.07	12.340		
8,700.00	8,692.19	8,680.02	8,658.57	19.70	20.92	-94.36	266.50	-486.36	488.88	449.37	39.51	12.372		
8,800.00	8,792.19	8,779.68	8,757.89	19.92	21.18	-93.82	270.63	-493.41	495.66	455.70	39.96	12.405		
8,900.00	8,892.19	8,879.35	8,857.22	20.14	21.43	-93.29	274.75	-500.47	502.48	462.08	40.40	12.438		
9,000.00	8,992.19	8,979.01	8,956.55	20.36	21.69	-92.78	278.88	-507.53	509.34	468.49	40.84	12.471		
9,100.00	9,092.19	9,078.67	9,055.87	20.58	21.95	-92.29	283.00	-514.59	516.24	474.95	41.29	12.504		
9,200.00	9,192.19	9,178.33	9,155.20	20.79	22.20	-91.80	287.13	-521.65	523.17	481.44	41.73	12.537		
9,300.00	9,292.19	9,278.00	9,254.53	21.01	22.46	-91.33	291.25	-528.71	530.15	487.97	42.17	12.571		
9,400.00	9,392.19	9,377.66	9,353.86	21.23	22.72	-90.87	295.37	-535.76	537.15	494.54	42.62	12.604		
9,500.00	9,492.19	9,477.32	9,453.18	21.45	22.97	-90.43	299.50	-542.82	544.19	501.13	43.06	12.638		
9,600.00	9,592.19	9,576.99	9,552.51	21.67	23.23	-89.99	303.62	-549.88	551.27	507.76	43.51	12.671		
9,700.00	9,692.19	9,676.65	9,651.84	21.89	23.49	-89.57	307.75	-556.94	558.37	514.42	43.95	12.705		
9,800.00	9,792.19	9,776.31	9,751.16	22.11	23.75	-89.15	311.87	-564.00	565.51	521.11	44.39	12.738		
9,900.00	9,892.19	9,875.98	9,850.49	22.33	24.00	-88.75	316.00	-571.06	572.67	527.83	44.84	12.771		
10,000.00	9,992.19	9,975.64	9,949.82	22.55	24.26	-88.36	320.12	-578.11	579.86	534.57	45.28	12.805		
10,100.00	10,092.19	10,075.30	10,049.15	22.76	24.52	-87.97	324.24	-585.17	587.08	541.35	45.73	12.838		
10,200.00	10,192.19	10,174.96	10,148.47	22.98	24.77	-87.60	328.37	-592.23	594.32	548.14	46.18	12.871		
10,300.00	10,292.19	10,274.63	10,247.80	23.20	25.03	-87.24	332.49	-599.29	601.58	554.96	46.62	12.904		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 626H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	10,392.19	10,374.29	10,347.13	23.42	25.29	-86.88	336.62	-606.35	608.88	561.81	47.07	12.937		
10,500.00	10,492.19	10,475.70	10,448.20	23.64	25.54	-86.53	340.80	-613.51	616.17	568.65	47.52	12.968		
10,600.00	10,592.19	10,586.14	10,558.37	23.86	25.76	-86.21	344.66	-620.11	622.36	574.40	47.96	12.978		
10,700.00	10,692.19	10,696.83	10,668.92	24.08	25.96	-85.98	347.45	-624.88	626.83	578.45	48.38	12.956		
10,800.00	10,792.19	10,807.69	10,779.72	24.30	26.16	-85.84	349.16	-627.82	629.59	580.79	48.79	12.903		
10,900.00	10,892.19	10,918.64	10,890.67	24.52	26.34	-85.79	349.80	-628.90	630.60	581.41	49.20	12.818		
11,000.00	10,992.19	11,019.56	10,991.59	24.74	26.52	-85.79	349.80	-628.91	630.61	581.00	49.61	12.711		
11,100.00	11,092.19	11,119.56	11,091.59	24.96	26.72	-85.79	349.80	-628.91	630.61	580.57	50.04	12.602		
11,200.00	11,192.19	11,219.56	11,191.59	25.18	26.92	-85.79	349.80	-628.91	630.61	580.14	50.47	12.495		
11,300.00	11,292.19	11,326.54	11,298.15	25.40	27.08	-86.48	342.18	-628.90	630.11	579.25	50.87	12.387		
11,334.85	11,327.04	11,363.10	11,334.01	25.48	27.12	-87.13	335.10	-628.88	629.72	578.71	51.00	12.346		
11,350.00	11,342.19	11,378.73	11,349.19	25.51	27.14	92.85	331.37	-628.87	629.54	578.49	51.06	12.330		
11,400.00	11,392.05	11,429.61	11,397.80	25.58	27.18	91.85	316.40	-628.84	629.11	577.91	51.20	12.286		
11,450.00	11,441.41	11,479.45	11,443.95	25.65	27.22	90.84	297.62	-628.81	628.90	577.57	51.33	12.253		
11,474.25	11,465.07	11,503.26	11,465.38	25.67	27.23	90.35	287.24	-628.79	628.87	577.49	51.38	12.240		
11,500.00	11,489.91	11,528.31	11,487.44	25.70	27.24	89.83	275.37	-628.76	628.90	577.47	51.43	12.229		
11,550.00	11,537.17	11,576.26	11,528.12	25.74	27.26	88.83	250.02	-628.71	629.12	577.61	51.51	12.214		
11,600.00	11,582.83	11,623.36	11,565.88	25.77	27.27	87.85	221.90	-628.66	629.53	577.97	51.57	12.208		
11,650.00	11,626.54	11,669.67	11,600.64	25.80	27.27	86.89	191.31	-628.60	630.14	578.53	51.61	12.210		
11,700.00	11,667.97	11,715.26	11,632.33	25.82	27.27	85.96	158.55	-628.54	630.91	579.27	51.64	12.217		
11,750.00	11,706.80	11,760.19	11,660.92	25.85	27.27	85.06	123.91	-628.47	631.82	580.16	51.66	12.229		
11,800.00	11,742.75	11,804.51	11,686.38	25.88	27.27	84.20	87.64	-628.40	632.85	581.16	51.69	12.244		
11,850.00	11,775.53	11,850.00	11,709.51	25.91	27.28	83.36	48.49	-628.32	633.97	582.25	51.72	12.258		
11,900.00	11,804.90	11,891.56	11,727.87	25.95	27.28	82.62	11.21	-628.25	635.14	583.38	51.76	12.272		
11,950.00	11,830.64	11,934.39	11,743.91	26.00	27.29	81.90	-28.49	-628.17	636.34	584.52	51.82	12.280		
12,000.00	11,852.54	11,976.82	11,756.84	26.06	27.31	81.24	-68.89	-628.09	637.55	585.64	51.91	12.282		
12,050.00	11,870.44	12,018.90	11,766.67	26.14	27.34	80.64	-109.80	-628.01	638.72	586.70	52.03	12.277		
12,100.00	11,884.20	12,060.67	11,773.44	26.24	27.39	80.10	-151.01	-627.93	639.85	587.67	52.18	12.262		
12,150.00	11,893.73	12,100.00	11,777.05	26.36	27.45	79.65	-190.16	-627.85	640.90	588.52	52.37	12.237		
12,200.00	11,898.94	12,145.66	11,778.00	26.49	27.54	79.22	-235.81	-627.76	641.82	589.20	52.62	12.197		
12,234.85	11,900.00	12,180.49	11,778.00	26.60	27.63	79.10	-270.63	-627.69	642.12	589.29	52.83	12.154		
12,300.00	11,900.00	12,245.64	11,778.00	26.82	27.82	79.11	-335.78	-627.57	642.31	589.02	53.30	12.051		
12,400.00	11,900.00	12,345.64	11,778.00	27.24	28.22	79.11	-435.78	-627.37	642.61	588.45	54.15	11.866		
12,500.00	11,900.00	12,445.64	11,778.00	27.75	28.71	79.12	-535.78	-627.17	642.90	587.72	55.18	11.650		
12,600.00	11,900.00	12,545.64	11,778.00	28.35	29.29	79.12	-635.78	-626.98	643.20	586.82	56.38	11.408		
12,700.00	11,900.00	12,645.64	11,778.00	29.02	29.96	79.13	-735.78	-626.78	643.49	585.76	57.73	11.146		
12,800.00	11,900.00	12,745.64	11,778.00	29.77	30.70	79.13	-835.78	-626.59	643.79	584.56	59.23	10.869		
12,900.00	11,900.00	12,845.64	11,778.00	30.59	31.51	79.14	-935.78	-626.39	644.08	583.22	60.86	10.583		
13,000.00	11,900.00	12,945.64	11,778.00	31.48	32.38	79.14	-1,035.78	-626.19	644.38	581.76	62.62	10.291		
13,100.00	11,900.00	13,045.64	11,778.00	32.42	33.30	79.15	-1,135.78	-626.00	644.67	580.19	64.49	9.997		
13,200.00	11,900.00	13,145.64	11,778.00	33.42	34.28	79.15	-1,235.78	-625.80	644.97	578.51	66.46	9.705		
13,300.00	11,900.00	13,245.64	11,778.00	34.46	35.31	79.16	-1,335.78	-625.61	645.27	576.74	68.53	9.416		
13,400.00	11,900.00	13,345.63	11,778.00	35.55	36.39	79.16	-1,435.78	-625.41	645.56	574.88	70.68	9.133		
13,500.00	11,900.00	13,445.63	11,778.00	36.68	37.50	79.17	-1,535.78	-625.22	645.86	572.94	72.92	8.857		
13,600.00	11,900.00	13,545.63	11,778.00	37.85	38.65	79.17	-1,635.78	-625.02	646.15	570.93	75.23	8.590		
13,700.00	11,900.00	13,645.63	11,778.00	39.05	39.84	79.18	-1,735.77	-624.82	646.45	568.85	77.60	8.331		
13,800.00	11,900.00	13,745.63	11,778.00	40.29	41.05	79.18	-1,835.77	-624.63	646.74	566.71	80.03	8.081		
13,900.00	11,900.00	13,845.63	11,778.00	41.55	42.29	79.19	-1,935.77	-624.43	647.04	564.52	82.52	7.841		
14,000.00	11,900.00	13,945.63	11,778.00	42.83	43.56	79.19	-2,035.77	-624.24	647.33	562.28	85.05	7.611		
14,100.00	11,900.00	14,045.63	11,778.00	44.14	44.86	79.20	-2,135.77	-624.04	647.63	559.99	87.64	7.390		
14,200.00	11,900.00	14,145.63	11,778.00	45.47	46.17	79.20	-2,235.77	-623.84	647.92	557.66	90.26	7.179		
14,300.00	11,900.00	14,245.63	11,778.00	46.82	47.50	79.21	-2,335.77	-623.65	648.22	555.30	92.92	6.976		

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Lusitano - Lusitano 27-34 Fed Com 626H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
14,400.00	11,900.00	14,345.63	11,778.00	48.19	48.86	79.21	-2,435.77	-623.45	648.51	552.90	95.62	6.782			
14,500.00	11,900.00	14,445.63	11,778.00	49.57	50.23	79.22	-2,535.77	-623.26	648.81	550.46	98.35	6.597			
14,600.00	11,900.00	14,545.63	11,778.00	50.97	51.61	79.22	-2,635.77	-623.06	649.10	548.00	101.10	6.420			
14,700.00	11,900.00	14,645.63	11,778.00	52.38	53.01	79.23	-2,735.77	-622.86	649.40	545.51	103.89	6.251			
14,800.00	11,900.00	14,745.63	11,778.00	53.81	54.42	79.23	-2,835.77	-622.67	649.69	543.00	106.70	6.089			
14,900.00	11,900.00	14,845.63	11,778.00	55.24	55.85	79.24	-2,935.77	-622.47	649.99	540.46	109.53	5.934			
15,000.00	11,900.00	14,945.63	11,778.00	56.69	57.28	79.24	-3,035.77	-622.28	650.28	537.90	112.39	5.786			
15,100.00	11,900.00	15,045.63	11,778.00	58.15	58.73	79.25	-3,135.77	-622.08	650.58	535.32	115.26	5.644			
15,200.00	11,900.00	15,145.63	11,778.00	59.62	60.19	79.25	-3,235.77	-621.88	650.88	532.72	118.15	5.509			
15,300.00	11,900.00	15,245.63	11,778.00	61.09	61.65	79.26	-3,335.76	-621.69	651.17	530.11	121.06	5.379			
15,400.00	11,900.00	15,345.63	11,778.00	62.57	63.12	79.26	-3,435.76	-621.49	651.47	527.48	123.99	5.254			
15,500.00	11,900.00	15,445.63	11,778.00	64.07	64.60	79.27	-3,535.76	-621.30	651.76	524.83	126.93	5.135			
15,600.00	11,900.00	15,545.62	11,778.00	65.56	66.09	79.27	-3,635.76	-621.10	652.06	522.17	129.88	5.020			
15,700.00	11,900.00	15,645.62	11,778.00	67.07	67.59	79.28	-3,735.76	-620.90	652.35	519.50	132.85	4.910			
15,800.00	11,900.00	15,745.62	11,778.00	68.58	69.09	79.28	-3,835.76	-620.71	652.65	516.82	135.83	4.805			
15,900.00	11,900.00	15,845.62	11,778.00	70.10	70.60	79.28	-3,935.76	-620.51	652.94	514.13	138.82	4.704			
16,000.00	11,900.00	15,945.62	11,778.00	71.62	72.11	79.29	-4,035.76	-620.32	653.24	511.42	141.82	4.606			
16,100.00	11,900.00	16,045.62	11,778.00	73.14	73.63	79.29	-4,135.76	-620.12	653.53	508.71	144.83	4.512			
16,200.00	11,900.00	16,145.62	11,778.00	74.67	75.15	79.30	-4,235.76	-619.92	653.83	505.98	147.85	4.422			
16,300.00	11,900.00	16,245.62	11,778.00	76.21	76.68	79.30	-4,335.76	-619.73	654.12	503.25	150.88	4.336			
16,400.00	11,900.00	16,345.62	11,778.00	77.75	78.21	79.31	-4,435.76	-619.53	654.42	500.51	153.91	4.252			
16,500.00	11,900.00	16,445.62	11,778.00	79.29	79.75	79.31	-4,535.76	-619.34	654.72	497.76	156.96	4.171			
16,600.00	11,900.00	16,545.62	11,778.00	80.84	81.29	79.32	-4,635.76	-619.14	655.01	495.00	160.01	4.094			
16,700.00	11,900.00	16,645.62	11,778.00	82.39	82.83	79.32	-4,735.76	-618.94	655.31	492.24	163.07	4.019			
16,800.00	11,900.00	16,745.62	11,778.00	83.95	84.38	79.33	-4,835.75	-618.75	655.60	489.47	166.13	3.946			
16,900.00	11,900.00	16,845.62	11,778.00	85.50	85.93	79.33	-4,935.75	-618.55	655.90	486.69	169.20	3.876			
17,000.00	11,900.00	16,945.62	11,778.00	87.06	87.48	79.34	-5,035.75	-618.36	656.19	483.91	172.28	3.809			
17,100.00	11,900.00	17,045.62	11,778.00	88.63	89.04	79.34	-5,135.75	-618.16	656.49	481.13	175.36	3.744			
17,200.00	11,900.00	17,145.62	11,778.00	90.19	90.60	79.35	-5,235.75	-617.96	656.78	478.33	178.45	3.680			
17,300.00	11,900.00	17,245.62	11,778.00	91.76	92.16	79.35	-5,335.75	-617.77	657.08	475.54	181.54	3.619			
17,400.00	11,900.00	17,345.62	11,778.00	93.33	93.72	79.36	-5,435.75	-617.57	657.37	472.73	184.64	3.560			
17,500.00	11,900.00	17,445.62	11,778.00	94.90	95.29	79.36	-5,535.75	-617.38	657.67	469.93	187.74	3.503			
17,600.00	11,900.00	17,545.62	11,778.00	96.48	96.86	79.37	-5,635.75	-617.18	657.96	467.12	190.85	3.448			
17,700.00	11,900.00	17,645.62	11,778.00	98.05	98.43	79.37	-5,735.75	-616.99	658.26	464.30	193.96	3.394			
17,800.00	11,900.00	17,745.62	11,778.00	99.63	100.00	79.38	-5,835.75	-616.79	658.56	461.48	197.07	3.342			
17,900.00	11,900.00	17,845.61	11,778.00	101.21	101.58	79.38	-5,935.75	-616.59	658.85	458.66	200.19	3.291			
18,000.00	11,900.00	17,945.61	11,778.00	102.79	103.16	79.39	-6,035.75	-616.40	659.15	455.83	203.31	3.242			
18,100.00	11,900.00	18,045.61	11,778.00	104.38	104.74	79.39	-6,135.75	-616.20	659.44	453.00	206.44	3.194			
18,200.00	11,900.00	18,145.61	11,778.00	105.96	106.32	79.40	-6,235.75	-616.01	659.74	450.17	209.57	3.148			
18,300.00	11,900.00	18,245.61	11,778.00	107.55	107.90	79.40	-6,335.75	-615.81	660.03	447.33	212.70	3.103			
18,400.00	11,900.00	18,345.61	11,778.00	109.14	109.48	79.41	-6,435.74	-615.61	660.33	444.50	215.83	3.059			
18,500.00	11,900.00	18,445.61	11,778.00	110.73	111.07	79.41	-6,535.74	-615.42	660.62	441.65	218.97	3.017			
18,600.00	11,900.00	18,545.61	11,778.00	112.32	112.66	79.42	-6,635.74	-615.22	660.92	438.81	222.11	2.976			
18,700.00	11,900.00	18,645.61	11,778.00	113.91	114.24	79.42	-6,735.74	-615.03	661.22	435.96	225.25	2.935			
18,800.00	11,900.00	18,745.61	11,778.00	115.51	115.83	79.43	-6,835.74	-614.83	661.51	433.11	228.40	2.896			
18,900.00	11,900.00	18,845.61	11,778.00	117.10	117.42	79.43	-6,935.74	-614.63	661.81	430.26	231.55	2.858			
19,000.00	11,900.00	18,945.61	11,778.00	118.70	119.02	79.43	-7,035.74	-614.44	662.10	427.41	234.70	2.821			
19,100.00	11,900.00	19,045.61	11,778.00	120.30	120.61	79.44	-7,135.74	-614.24	662.40	424.55	237.85	2.785			
19,200.00	11,900.00	19,145.61	11,778.00	121.89	122.20	79.44	-7,235.74	-614.05	662.69	421.69	241.00	2.750			
19,300.00	11,900.00	19,245.61	11,778.00	123.49	123.80	79.45	-7,335.74	-613.85	662.99	418.83	244.16	2.715			
19,400.00	11,900.00	19,345.61	11,778.00	125.09	125.40	79.45	-7,435.74	-613.65	663.28	415.97	247.32	2.682			
19,500.00	11,900.00	19,445.61	11,778.00	126.69	126.99	79.46	-7,535.74	-613.46	663.58	413.10	250.48	2.649			

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

LEAM Drilling Systems LLC

Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Lusitano - Lusitano 27-34 Fed Com 626H - OH - Plan #1													Offset Well Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM														
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,600.00	11,900.00	19,545.61	11,778.00	128.30	128.59	79.46	-7,635.74	-613.26	663.87	410.24	253.64	2.617		
19,700.00	11,900.00	19,645.61	11,778.00	129.90	130.19	79.47	-7,735.74	-613.07	664.17	407.37	256.80	2.586		
19,800.00	11,900.00	19,745.61	11,778.00	131.50	131.79	79.47	-7,835.74	-612.87	664.47	404.50	259.97	2.556		
19,900.00	11,900.00	19,845.61	11,778.00	133.11	133.39	79.48	-7,935.74	-612.67	664.76	401.63	263.14	2.526		
20,000.00	11,900.00	19,945.61	11,778.00	134.71	134.99	79.48	-8,035.73	-612.48	665.06	398.75	266.30	2.497		
20,100.00	11,900.00	20,045.60	11,778.00	136.32	136.60	79.49	-8,135.73	-612.28	665.35	395.88	269.48	2.469		
20,200.00	11,900.00	20,145.60	11,778.00	137.93	138.20	79.49	-8,235.73	-612.09	665.65	393.00	272.65	2.441		
20,300.00	11,900.00	20,245.60	11,778.00	139.53	139.80	79.50	-8,335.73	-611.89	665.94	390.12	275.82	2.414		
20,400.00	11,900.00	20,345.60	11,778.00	141.14	141.41	79.50	-8,435.73	-611.69	666.24	387.24	279.00	2.388		
20,500.00	11,900.00	20,445.60	11,778.00	142.75	143.02	79.51	-8,535.73	-611.50	666.53	384.36	282.17	2.362		
20,600.00	11,900.00	20,545.60	11,778.00	144.36	144.62	79.51	-8,635.73	-611.30	666.83	381.48	285.35	2.337		
20,700.00	11,900.00	20,645.60	11,778.00	145.97	146.23	79.52	-8,735.73	-611.11	667.13	378.60	288.53	2.312		
20,800.00	11,900.00	20,745.60	11,778.00	147.58	147.84	79.52	-8,835.73	-610.91	667.42	375.71	291.71	2.288		
20,900.00	11,900.00	20,845.60	11,778.00	149.19	149.44	79.52	-8,935.73	-610.71	667.72	372.83	294.89	2.264		
21,000.00	11,900.00	20,945.60	11,778.00	150.80	151.05	79.53	-9,035.73	-610.52	668.01	369.94	298.07	2.241		
21,100.00	11,900.00	21,045.60	11,778.00	152.42	152.66	79.53	-9,135.73	-610.32	668.31	367.05	301.26	2.218		
21,200.00	11,900.00	21,145.60	11,778.00	154.03	154.27	79.54	-9,235.73	-610.13	668.60	364.16	304.44	2.196		
21,300.00	11,900.00	21,245.60	11,778.00	155.64	155.88	79.54	-9,335.73	-609.93	668.90	361.27	307.63	2.174		
21,400.00	11,900.00	21,345.60	11,778.00	157.26	157.49	79.55	-9,435.73	-609.73	669.20	358.38	310.81	2.153		
21,500.00	11,900.00	21,445.60	11,778.00	158.87	159.11	79.55	-9,535.72	-609.54	669.49	355.49	314.00	2.132		
21,600.00	11,900.00	21,545.60	11,778.00	160.49	160.72	79.56	-9,635.72	-609.34	669.79	352.60	317.19	2.112		
21,700.00	11,900.00	21,645.60	11,778.00	162.10	162.33	79.56	-9,735.72	-609.15	670.08	349.70	320.38	2.092		
21,800.00	11,900.00	21,745.60	11,778.00	163.72	163.94	79.57	-9,835.72	-608.95	670.38	346.81	323.57	2.072		
21,900.00	11,900.00	21,845.60	11,778.00	165.33	165.56	79.57	-9,935.72	-608.75	670.67	343.91	326.76	2.052		
21,984.97	11,900.00	21,930.57	11,778.00	166.71	166.93	79.58	-10,020.69	-608.59	670.92	341.45	329.47	2.036 SF		

LEAM Drilling Systems LLC

Anticollision Report

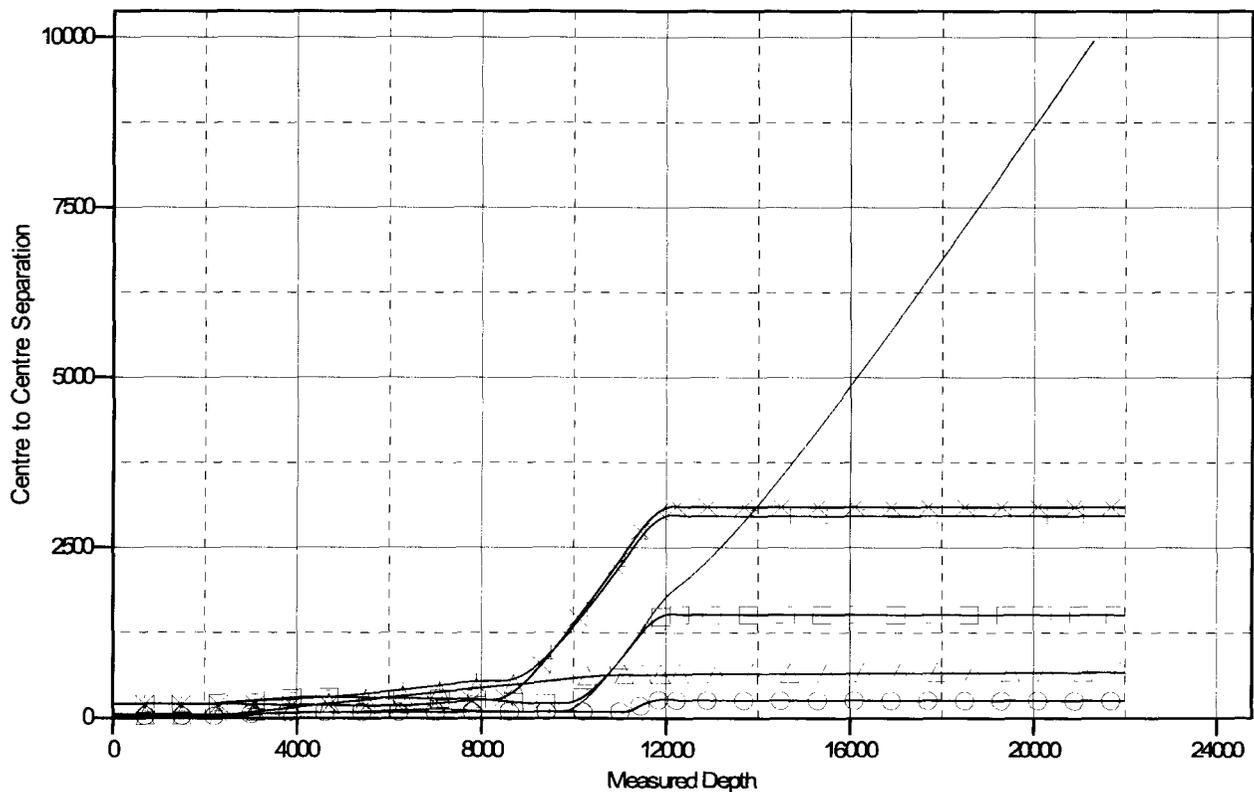
Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3336.1' GE + 21' KB @ 3357.10usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Lusitano 27-34 Fed Com 718H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.31°

Ladder Plot



LEGEND

- ▲ Lusitano 27-34 Fed Com 626H, OH, Plan #1 V0
- ◆ Lusitano 27-34 Fed Com 536H, OH, Plan #1 V0
- Lusitano 27-34 Fed Com 336H, OH, Plan #1 V0
- ✕ Lusitano 27-34 Fed Com 528H, OH, Plan #1 V0
- Lusitano 27-34 Fed Com 235H, OH, Plan #1 V0
- ◇ Lusitano 27-15 Fed Com 234H, OH, Plan #1 V0

LEAM Drilling Systems LLC

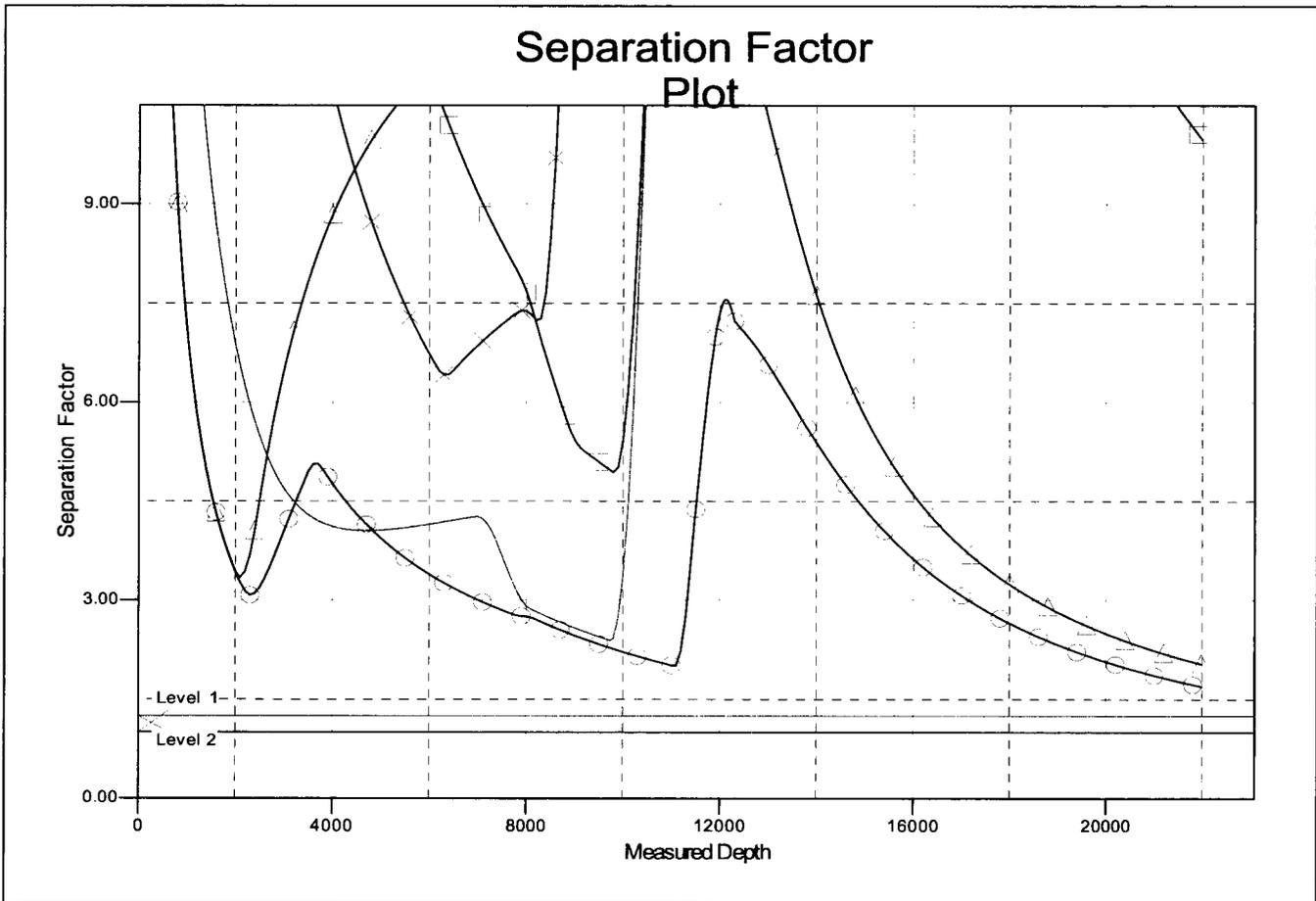
Anticollision Report

Company: Devon Energy
Project: Eddy County, NM (NAD-83)
Reference Site: Lusitano
Site Error: 0.00 usft
Reference Well: Lusitano 27-34 Fed Com 718H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lusitano 27-34 Fed Com 718H
TVD Reference: 3336.1' GE + 21' KB @ 3357.10usft
MD Reference: 3336.1' GE + 21' KB @ 3357.10usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to 3336.1' GE + 21' KB @ 3357.10usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Lusitano 27-34 Fed Com 718H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.31°



LEGEND

- ▲ Lusitano 27-34 Fed Com 626H, OH, Plan #1V0
- ◆ Lusitano 27-34 Fed Com 528H, OH, Plan #1V0
- Lusitano 27-34 Fed Com 336H, OH, Plan #1V0
- ◆ Lusitano 27-34 Fed Com 536H, OH, Plan #1V0
- Lusitano 27-34 Fed Com 235H, OH, Plan #1V0
- ◆ Lusitano 27-15 Fed Com 234H, OH, Plan #1V0

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

1. Geologic Formations

TVD of target	11900	Pilot hole depth	
MD at TD:	21984	Deepest expected fresh water:	400'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	865		
Salado	3771		
Base of Salt	4291		
Delaware	4292		
1st BSPG Lime	8180		
1st BSPG Sand	9254		
2nd BSPG Lime	9454		
2nd BSPG Sand	9865		
3 rd BSPG Lime	10410		
3 rd BSPG Sand	11294		
Wolfcamp 100	11793		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	890'	13.375"	48	H-40	STC	1.125	1.25	1.6
8.75"	0	11,300'	7.625"	29.7	P110	Flushmax III	1.125	1.25	1.6
6.75"	0	21,984'	5.5"	20	P110	SF/Flush	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

Must have table for contingency casing

	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 3 rd 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 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

2. Cementing Program

Casing	# Sks	Wt. lb/gal	H₂O gal/sk	Yld ft³/sack	Slurry Description
13-3/8" Surface	690	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
7-5/8" Int	335	9	13.5	3.27	Lead: Tuned Light® Cement
	292	14.5	5.31	1.2	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
7-5/8" Int Two Stage	154	10.9	20.6	3.31	1 st Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	292	14.5	5.31	1.2	1 st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	150	10.9	20.6	3.31	2 nd Stage Lead: (50:40:10) Class C: Silicalite: Enhancer 923 + 10% BWOC Bentonite + 0.05% BWOC SA-1015 + 0.3% BWOC HR-800 + 0.2% BWOC FE-2 + 0.125 lb/sk Pol-E-Flake + 0.5 lb/sk D-Air 5000
	30	14.8	6.32	1.33	2 nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Inter.	715	14.8	6.32	1.33	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
7-5/8" Intermediate	0'	30%
7-5/8" Intermediate Two Stage Option	1 st Stage = 4300' / 2 nd Stage = 0'	30%
5-1/2" Production Casing	10800'	25%

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
8-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	
			Pipe Ram	X	5M
			Double Ram	X	
			Other*		
6-3/4"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	
			Pipe Ram	X	5M
			Double Ram	X	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above 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 will 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.

Y	Formation integrity test will be performed per Onshore Order #2.
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Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

	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	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
Y	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead is being used. 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. If any seal subject to test pressure is broken the system must be tested.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 psi.</p> <ul style="list-style-type: none"> • Wellhead will be installed by wellhead representatives. • If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • Wellhead representative will install the test plug for the initial BOP test. • Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. <p>After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>After running the 7-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 5M will already be installed on the wellhead.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line</p>

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

<p>and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP.</p> <p>Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns</p>

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	890'	FW Gel	8.6-8.8	28-34	N/C
890'	11,300'	OBM/Cut Brine	8.6-9.8	34-65	N/C - 6
11,300'	21,984'	OBM	9.5-12.0	45-65	N/C - 6

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). 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.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
Resistivity	Int. shoe to KOP
Density	Int. shoe to KOP
X CBL	Production casing
X Mud log	Int shoe to TD
PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7425 psi
Abnormal Temperature	No

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

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

8. Other facets of operation

Is this a walking operation? Yes

1. In the event the spudder rig is unable to drill the surface holes the drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections with either OBM or cut brine and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Yes

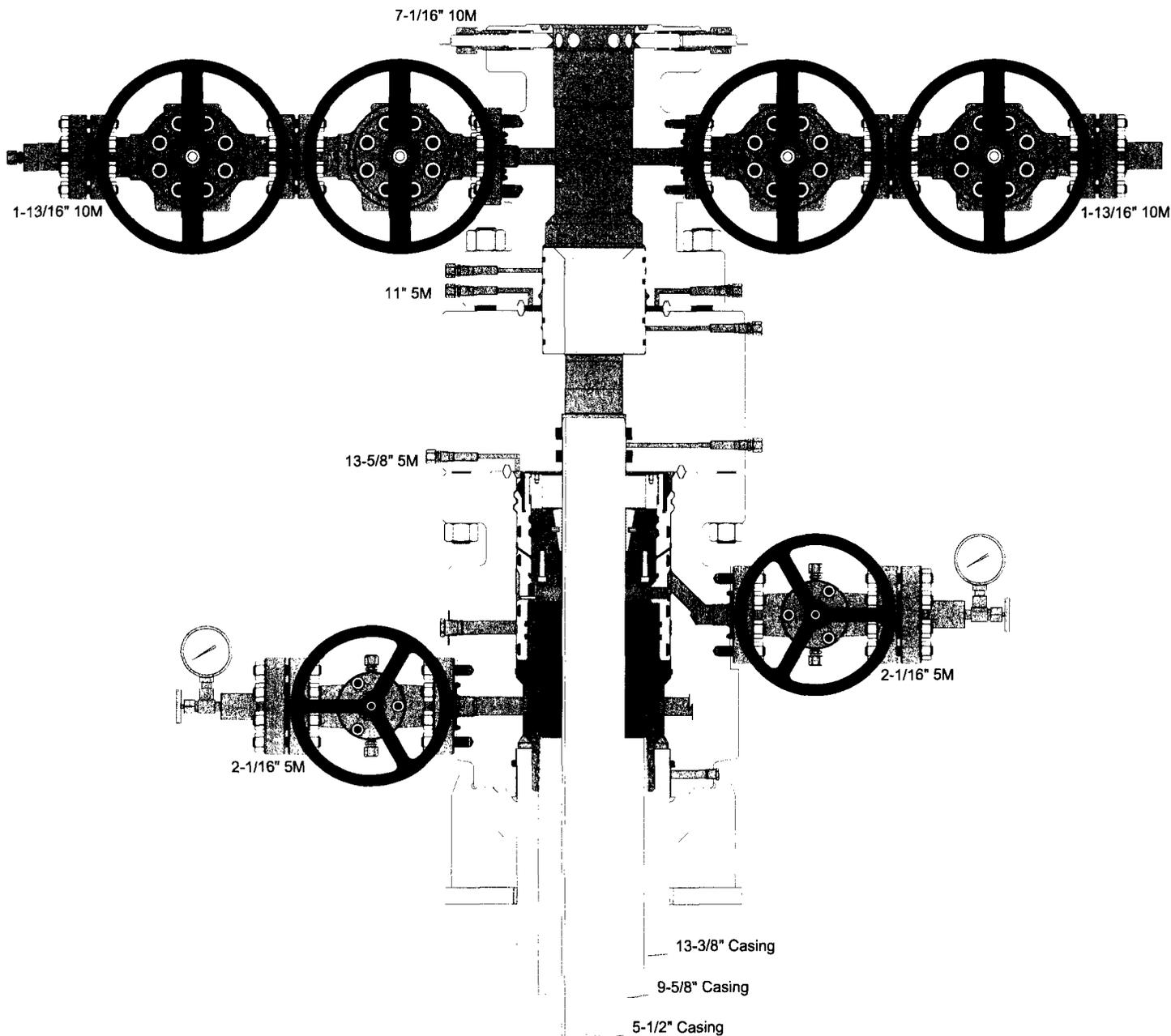
1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill 17½" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the 13-3/8" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Devon Energy Prod. Co., L.P./Lusitano 27-34 Fed Com 718H

Attachments

Directional Plan

Other, describe



This item is addressed in the Cotton Draw 1 Master Development Plan. This page is used only to satisfy the AFMSSII attachment requirements.



APD ID: 10400015474

Submission Date: 06/27/2017

Highlighted data
reflects the most
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Lusitano_27_34_Fed_Com_718H_Ex_Access_Rd_06-27-2017.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Any upgrades to existing roads prior to drilling will be done where necessary per Cotton Draw 1 MDP.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Lusitano_27_34_Fed_Com_718H_Access_Rd1_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_Access_Rd2_06-27-2017.pdf

New road type: COLLECTOR,RESOURCE

Length: 1399 Feet Width (ft.): 30

Max slope (%): 6 Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 20

New road access erosion control: WATER DRAINAGE DITCH

New road access plan or profile prepared? NO

New road access plan attachment:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Lusitano_27_34_Fed_Com_718H_Rig_Layout_06-27-2017.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: NEW

Recontouring attachment:

Lusitano_27_34_Fed_Com_718H_Reclamation_06-27-2017.pdf

Drainage/Erosion control construction: All areas disturbed shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable

Drainage/Erosion control reclamation: Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season.

Wellpad long term disturbance (acres): 4.251

Wellpad short term disturbance (acres): 7.067

Access road long term disturbance (acres): 0.44

Access road short term disturbance (acres): 1.197

Pipeline long term disturbance (acres): 0.048209365

Pipeline short term disturbance (acres): 0.048209365

Other long term disturbance (acres): 4.212

Other short term disturbance (acres): 4.212

Total long term disturbance: 8.951209

Total short term disturbance: 12.524209

Reconstruction method: Operator will use Best Management Practices"BMP" to mechanically recontour to obtain the desired outcome.

Topsoil redistribution: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Soil treatment: Topsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre
-----------	-------------

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Mark

Last Name: Smith

Phone: (575)746-5559

Email: mark.smith@dvn.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: MAINTAIN WEEDS ON AN AS NEED BASIS.

Weed treatment plan attachment:

Monitoring plan description: MONITOR AS NEEDED.

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Section 11 - Surface Ownership

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: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

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: 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:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Disturbance type: PIPELINE

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Section 12 - Other Information

Right of Way needed? NO

Use APD as ROW?

ROW Type(s):

ROW Applications

SUPO Additional Information: Flowline Plat - See attached Cotton Draw CTB 5 - See attached Grading Plan & X Section - See attached Misc Plats - See attached Electric Plat - See attached; covers electrical for all of section 27.

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

Lusitano_27_34_Fed_Com_718H_Flowline_Plat_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_CTB_5_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_Grading_Plan__X_Sec_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_Misc_Plats_06-27-2017.pdf

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: LUSITANO 27-34 FED COM

Well Number: 718H

Lusitano_27_34_Fed_Com_718H_Electric_06-27-2017.pdf

Lusitano_27_34_Fed_Com_718H_Belgian_Shire_Lateral_Extension_06-27-2017.pdf

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 ACCESS AERIAL ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 NOVEMBER 2015

DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 718H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 325 FT. FROM THE EAST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

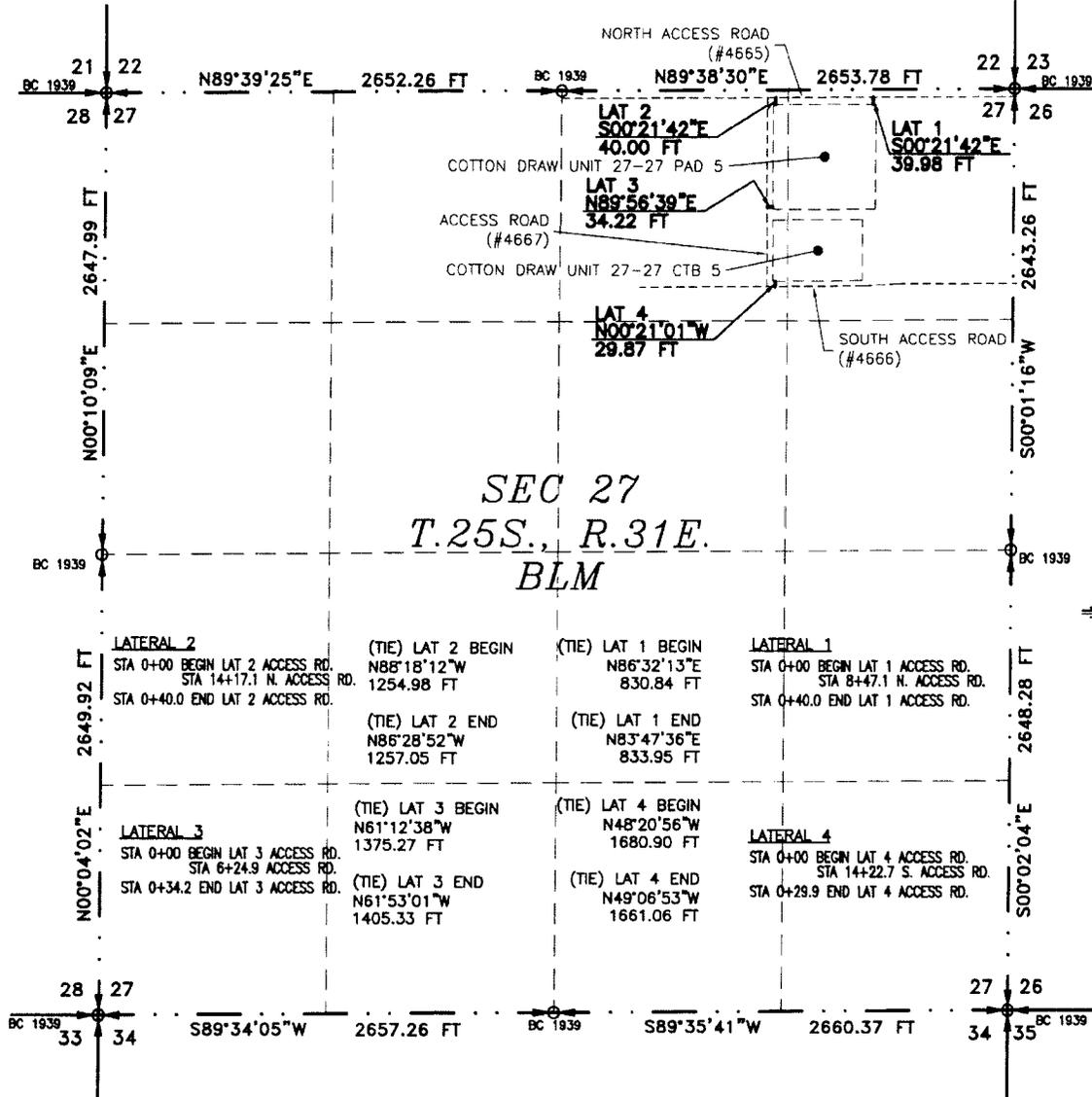
JUNE 1, 2017

SURVEY NO. 5275

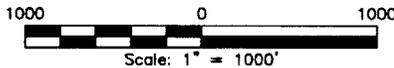
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(5/5) 234-3341

ACCESS ROAD PLAT (AA000055128)
 ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 5 & TO THE COTTON DRAW UNIT 27-27 CTB 5

DEVON ENERGY PRODUCTION COMPANY, L.P.
 CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
 SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 MAY 10, 2016



SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 10TH DAY OF MAY 2016

Filimon F. Jaramillo
 FILIMON F. JARAMILLO, PLS. 12797

MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SHEET: 1-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO SURVEY NO. 4668
 (575) 234-3341

ACCESS ROAD PLAT (AA000055128)

ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 5 & TO THE COTTON DRAW UNIT 27-27 CTB 5

**DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016**

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°32'13"E, A DISTANCE OF 830.84 FEET;

THENCE S00°21'42"E A DISTANCE OF 39.98 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°47'36"E, A DISTANCE OF 833.95 FEET;

SAID STRIP OF LAND BEING 39.98 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 39.98 L.F. 2.42 RODS 0.028 ACRES

LATERAL 2 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°18'12"W, A DISTANCE OF 1254.98 FEET;

THENCE S00°21'42"E A DISTANCE OF 40.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°28'52"W, A DISTANCE OF 1257.05 FEET;

SAID STRIP OF LAND BEING 40.00 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NE/4 40.00 L.F. 2.42 RODS 0.028 ACRES

LATERAL 3 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N61°12'38"W, A DISTANCE OF 1375.27 FEET;

THENCE N89°56'39"E A DISTANCE OF 34.22 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N61°53'01"W, A DISTANCE OF 1405.33 FEET;

SAID STRIP OF LAND BEING 34.22 FEET OR 2.07 RODS IN LENGTH, CONTAINING 0.024 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NE/4 34.22 L.F. 2.07 RODS 0.024 ACRES

LATERAL 4 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N48°20'56"W, A DISTANCE OF 1680.90 FEET;

THENCE N00°21'01"W A DISTANCE OF 29.87 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N49°06'53"W, A DISTANCE OF 1661.06 FEET;

SAID STRIP OF LAND BEING 29.87 FEET OR 1.81 RODS IN LENGTH, CONTAINING 0.021 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NE/4 29.87 L.F. 1.81 RODS 0.021 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 10th DAY OF MAY 2016

(Signature)
FILIMON F. JARAMILLO PLS 12797
301 SOUTH CANAL
(575) 234-3341

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 4668

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

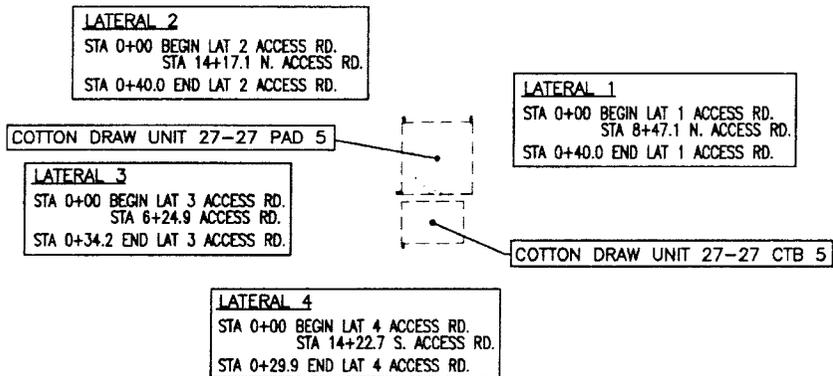
2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055128)
ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 5 & TO THE COTTON DRAW UNIT 27-27 CTB 5

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016



ACCESS ROAD PLAT (AA000055128)

ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 5 & TO THE COTTON DRAW UNIT 27-27 CTB 5

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

NM T25S R31E

22

23

LATERAL 2

STA 0+00 BEGIN LAT 2 ACCESS RD.
STA 14+17.1 N. ACCESS RD.
STA 0+40.0 END LAT 2 ACCESS RD.

LATERAL 1

STA 0+00 BEGIN LAT 1 ACCESS RD.
STA 8+47.1 N. ACCESS RD.
STA 0+40.0 END LAT 1 ACCESS RD.

COTTON DRAW UNIT 27-27 PAD 5

LATERAL 3

STA 0+00 BEGIN LAT 3 ACCESS RD.
STA 6+24.9 ACCESS RD.
STA 0+34.2 END LAT 3 ACCESS RD.

COTTON DRAW UNIT 27-27 CTB 5

LATERAL 4

STA 0+00 BEGIN LAT 4 ACCESS RD.
STA 14+22.7 S. ACCESS RD.
STA 0+29.9 END LAT 4 ACCESS RD.

27

26



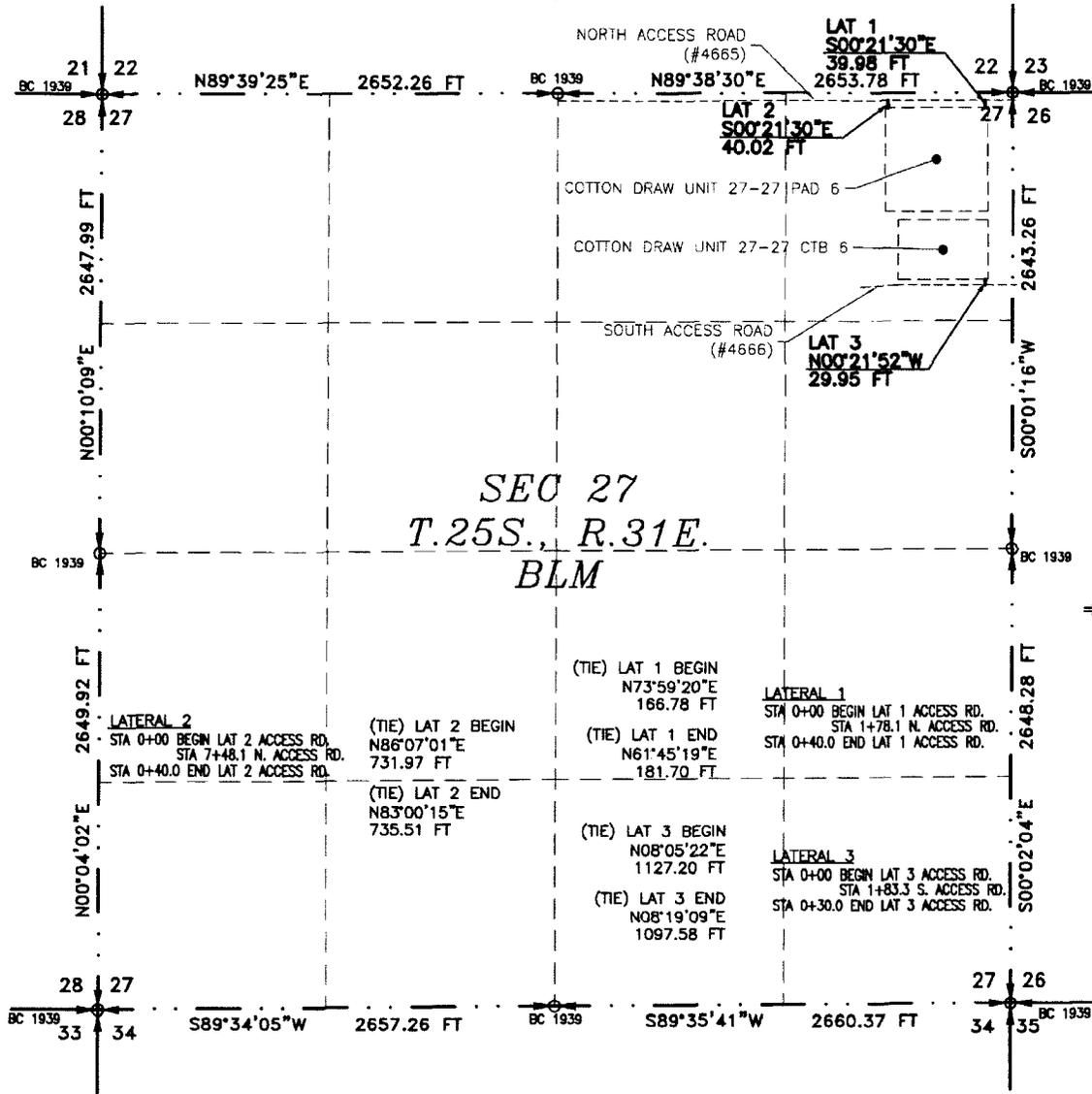
SHEET: 4-4

SURVEY NO. 4668

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT (AA000055101)
 ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 6 & TO THE COTTON DRAW UNIT 27-27 CTB 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
 CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
 SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 MAY 10, 2016



SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES, NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 12 DAY OF MAY 2016

Filimon F. Jaramillo
 FILIMON F. JARAMILLO 12797

MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SHEET: 1-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 4669

301 SOUTH CANAL
 (575) 234-3341

ACCESS ROAD PLAT (AA000055101)

ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 6 & TO THE COTTON DRAW UNIT 27-27 CTB 6

**DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016**

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

LATERAL 1 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N73°59'20"E, A DISTANCE OF 166.78 FEET;

THENCE S00°21'30"E A DISTANCE OF 39.98 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N61°45'19"E, A DISTANCE OF 181.70 FEET;

SAID STRIP OF LAND BEING 39.98 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 39.98 L.F. 2.42 RODS 0.028 ACRES

LATERAL 2 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°07'01"E, A DISTANCE OF 731.97 FEET;

THENCE S00°21'30"E A DISTANCE OF 40.02 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N83°00'15"E, A DISTANCE OF 735.51 FEET;

SAID STRIP OF LAND BEING 40.02 FEET OR 2.43 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 40.02 L.F. 2.43 RODS 0.028 ACRES

LATERAL 3 ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N08°05'22"E, A DISTANCE OF 1127.20 FEET;

THENCE N00°21'52"W A DISTANCE OF 29.95 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N08°19'09"E, A DISTANCE OF 1097.58 FEET;

SAID STRIP OF LAND BEING 29.95 FEET OR 1.82 RODS IN LENGTH, CONTAINING 0.021 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4 29.95 L.F. 1.82 RODS 0.021 ACRES

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 12 DAY OF MAY 2016.

FILIMON F. JARAMILLO, PLS. 12797
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SHEET: 2-4

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341 SURVEY NO. 4669

ACCESS ROAD PLAT (AA000055101)

ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 6 & TO THE COTTON DRAW UNIT 27-27 CTB 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

LATERAL 2
STA 0+00 BEGIN LAT 2 ACCESS RD.
STA 7+48.1 N. ACCESS RD.
STA 0+40.0 END LAT 2 ACCESS RD.

LATERAL 1
STA 0+00 BEGIN LAT 1 ACCESS RD.
STA 1+78.1 N. ACCESS RD.
STA 0+40.0 END LAT 1 ACCESS RD.

COTTON DRAW UNIT 27-27 PAD 6

COTTON DRAW UNIT 27-27 CTB 6

LATERAL 3
STA 0+00 BEGIN LAT 3 ACCESS RD.
STA 1+83.3 S. ACCESS RD.
STA 0+30.0 END LAT 3 ACCESS RD.



ACCESS ROAD PLAT (AA000055101)
ACCESS ROAD TO THE COTTON DRAW UNIT 27-27 PAD 6 & TO THE COTTON DRAW UNIT 27-27 CTB 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MAY 10, 2016

NM T25S R31E

22

23

LATERAL 2
STA 0+00 BEGIN LAT 2 ACCESS RD.
STA 7+48.1 N. ACCESS RD.
STA 0+40.0 END LAT 2 ACCESS RD.

LATERAL 1
STA 0+00 BEGIN LAT 1 ACCESS RD.
STA 1+78.1 N. ACCESS RD.
STA 0+40.0 END LAT 1 ACCESS RD.

COTTON DRAW UNIT 27-27 PAD 6

COTTON DRAW UNIT 27-27 CTB 6

LATERAL 3
STA 0+00 BEGIN LAT 3 ACCESS RD.
STA 1+83.3 S. ACCESS RD.
STA 0+30.0 END LAT 3 ACCESS RD.

27

28



SHEET: 4-4

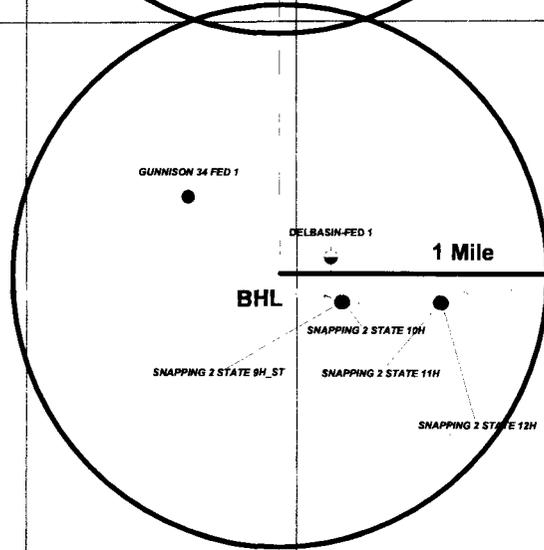
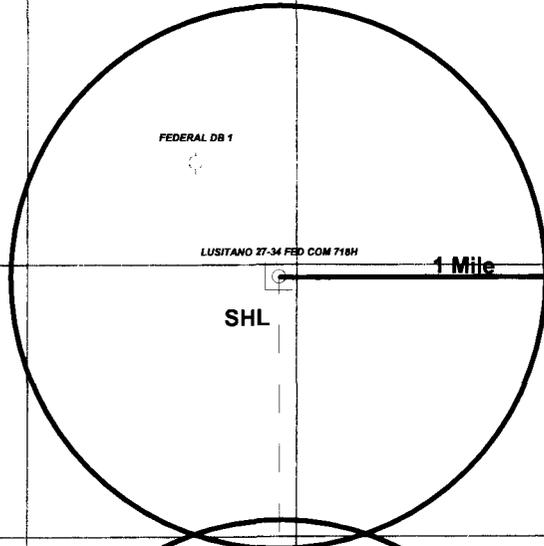
SURVEY NO. 4669

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

One Mile Radius Map

Estimated distances to the nearest wellbores:

- *From SHL
 FEDERAL DB 1 - 2769 ft NW
 SNAPPING 2 STATE 9H_ST - 957 ft SE
- *From BHL
 DELBASIN-FED 1 - 1068 ft NE



LUSITANO 27-34 FED COM 718H

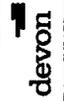
1 Mile Radius Map



- WELL SYMBOLS**
- DRY HOLE WITH SHOW OF O&G
 - GAS PRODUCING WELL
 - OIL PRODUCING WELL
 - PROPOSED

June 12, 2017

This map is for illustrative purposes only and is not intended to be used as one. Devon makes no warranty, representation or guarantee of any kind regarding this map.



WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: User
Map is current as of: 13-Jun-2017



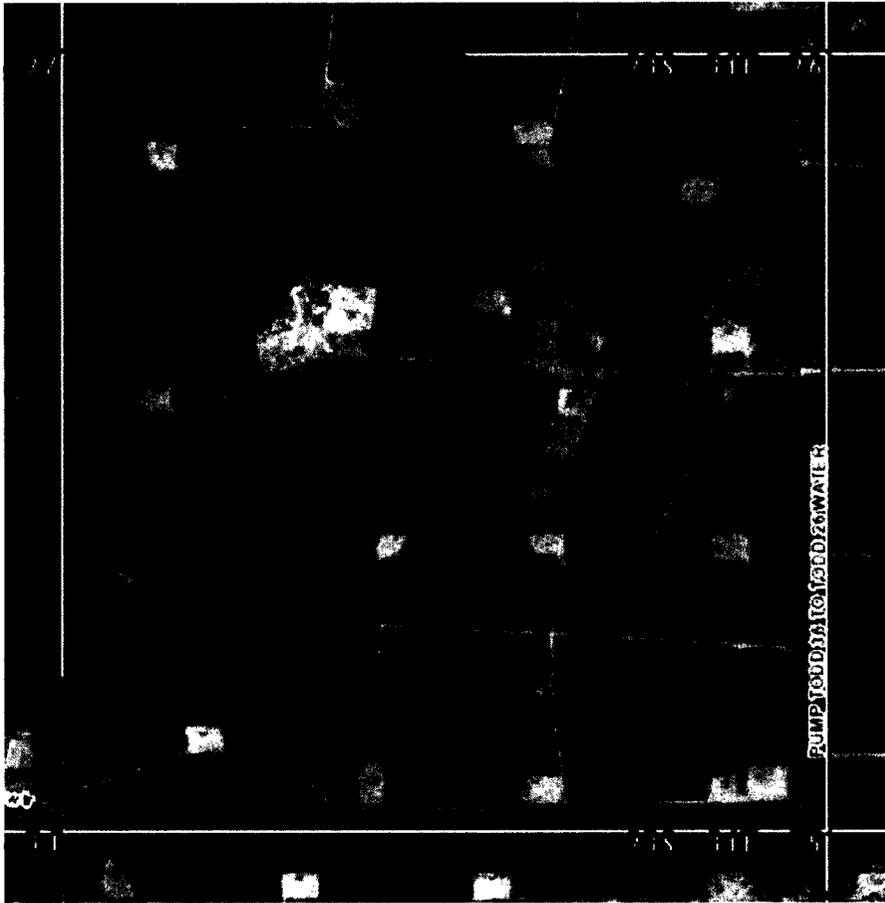
- State pit 616 and 617 32- 23S- 32E



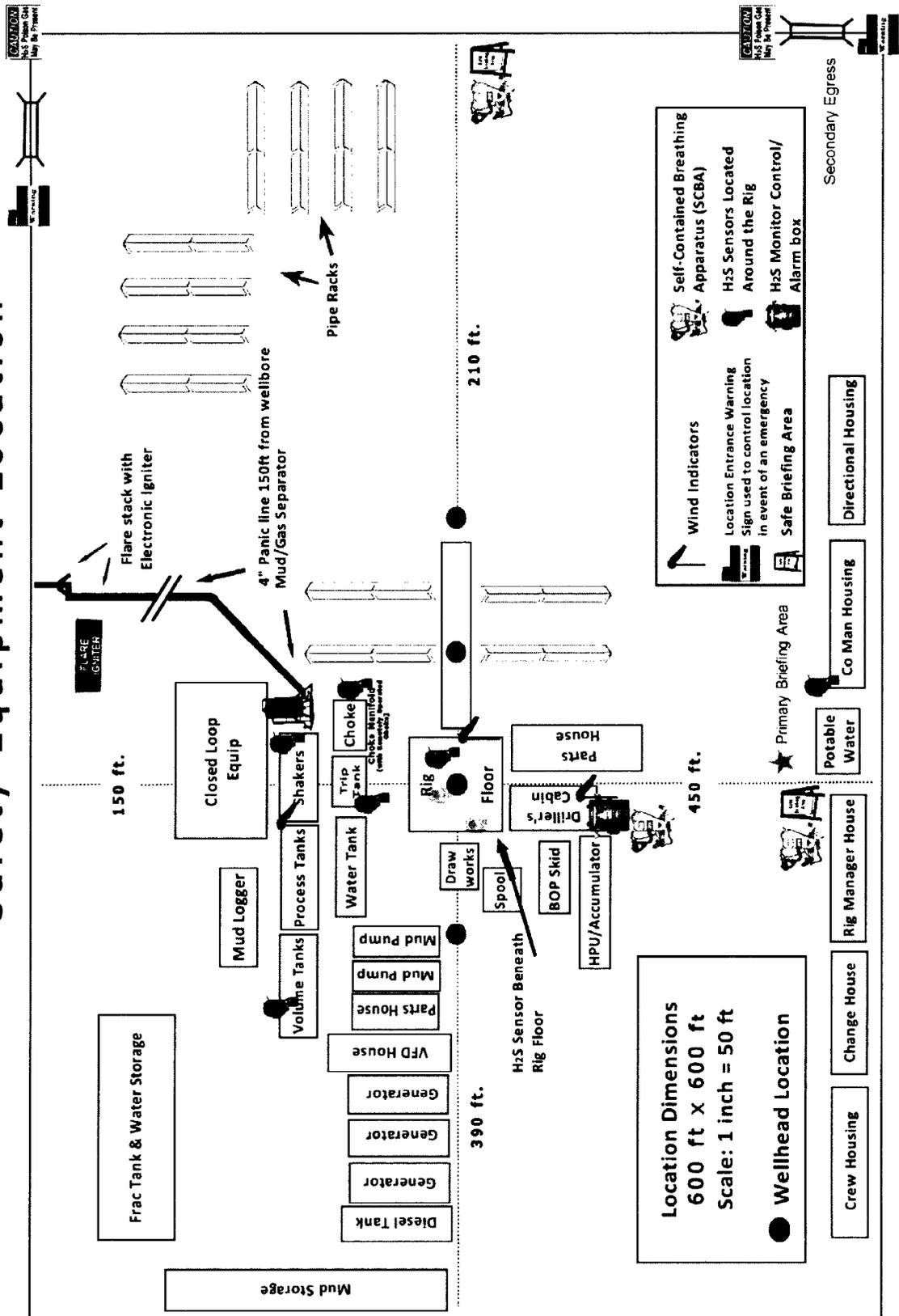
- Fed pit 25- 23S- 31E



- Private pit 26- 23S- 31E



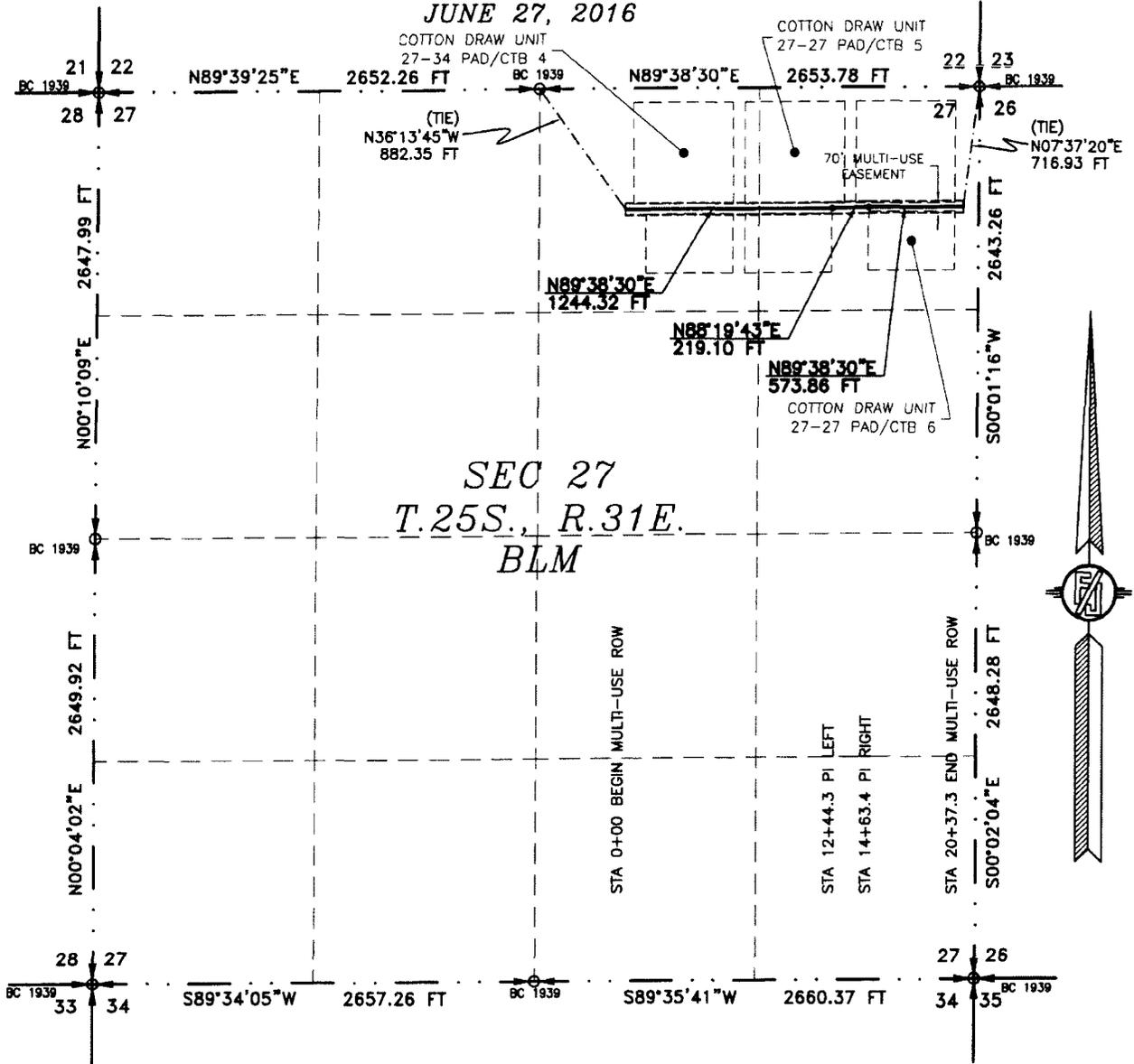
Devon Energy - Well Pad Rig Location Layout Safety Equipment Location



FLOWLINE PLAT (400684XYZ)

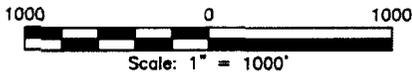
70' MULTI-USE RIGHT-OF-WAY TO CONNECT COTTON DRAW UNIT 27-34 PAD/CTB 4 & COTTON DRAW UNIT 27-27 PADS/CTBS 5 & 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 27, 2016



SEC 27
 T. 25 S., R. 31 E.
 BLM

SEE NEXT SHEET (2-4) FOR DESCRIPTION



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 28 DAY OF JUNE 2016

Filimon F. Jaramillo
 FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SHEET: 1-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SURVEY NO. 4769

301 SOUTH CANAL
 (575) 234-3341

FLOWLINE PLAT (400684XYZ)

**70' MULTI-USE RIGHT-OF-WAY TO CONNECT COTTON DRAW UNIT 27-34 PAD/CTB 4 &
COTTON DRAW UNIT 27-27 PADS/CTBS 5 & 6**

**DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 27, 2016**

DESCRIPTION

A STRIP OF LAND 70 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 35 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE NW/4 NE/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N36°13'45"W, A DISTANCE OF 882.35 FEET;

THENCE N89°38'30"E A DISTANCE OF 1244.32 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N88°19'43"E A DISTANCE OF 219.10 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;

THENCE N89°38'30"E A DISTANCE OF 573.86 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N07°37'20"E, A DISTANCE OF 716.93 FEET;

SAID STRIP OF LAND BEING 2037.28 FEET OR 123.47 RODS IN LENGTH, CONTAINING 3.273 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

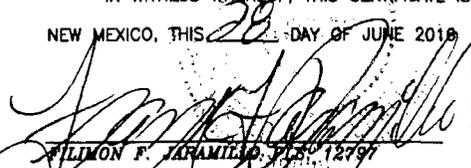
NW/4 NE/4 804.86 L.F. 48.78 RODS 1.293 ACRES
NE/4 NE/4 1232.42 L.F. 74.69 RODS 1.980 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD,

NEW MEXICO, THIS 28 DAY OF JUNE 2016



FILIMON F. JARAMILLO, PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 4769

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-4

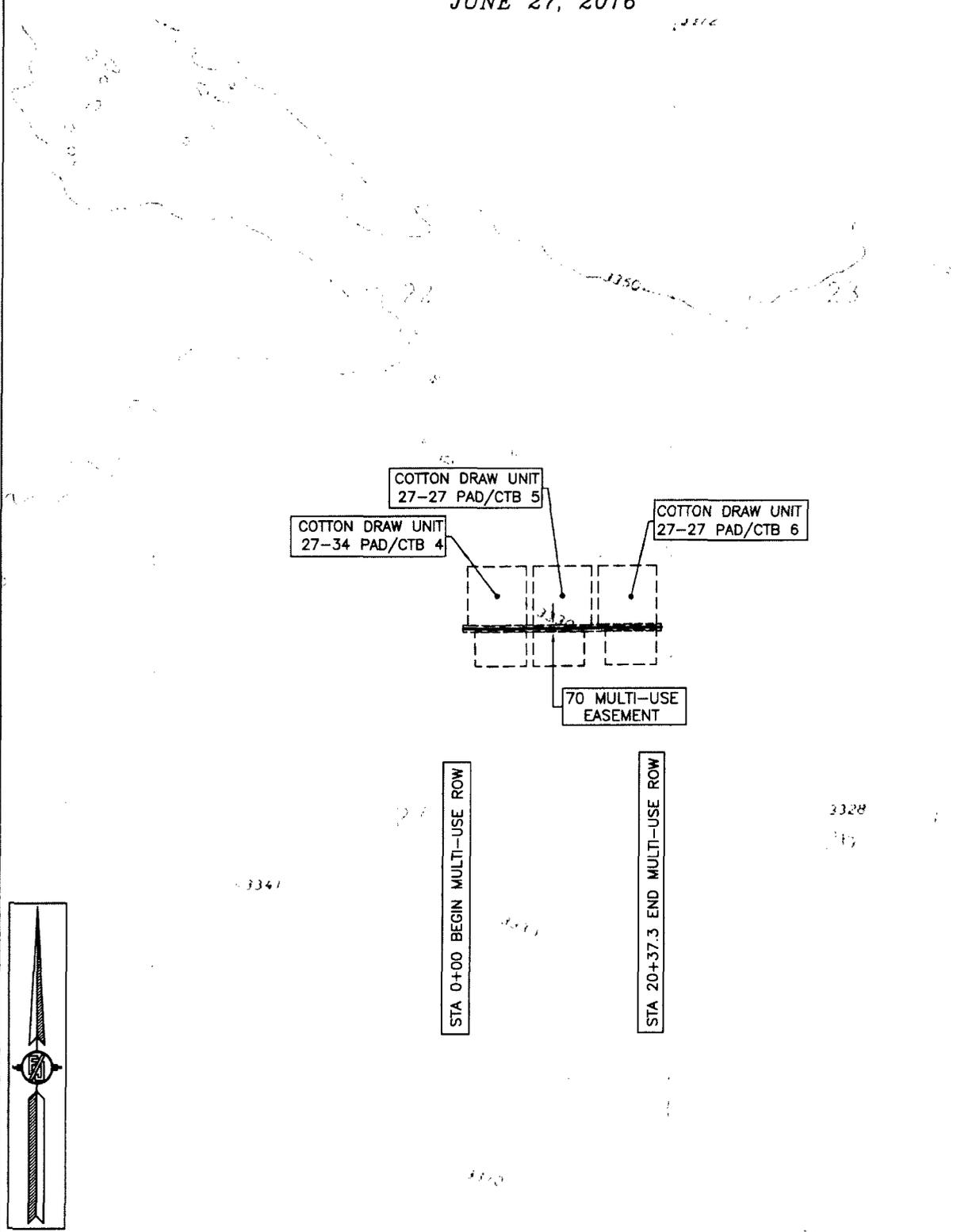
MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

301 SOUTH CANAL
(575) 234-3341

FLOWLINE PLAT (400684XYZ)

70' MULTI-USE RIGHT-OF-WAY TO CONNECT COTTON DRAW UNIT 27-34 PAD/CTB 4 &
COTTON DRAW UNIT 27-27 PADS/CTBS 5 & 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 27, 2016

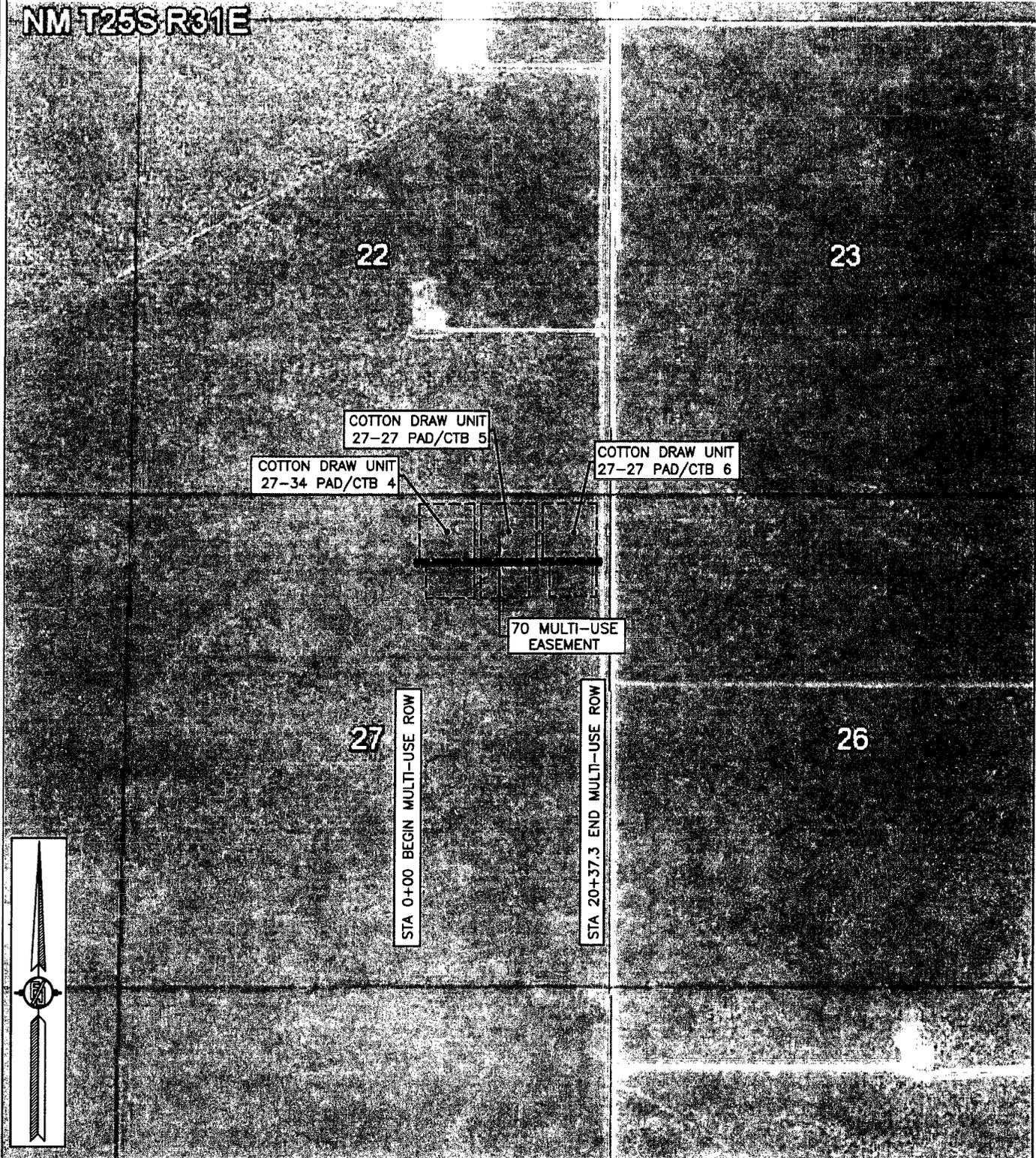


FLOWLINE PLAT (400684XYZ)

70' MULTI-USE RIGHT-OF-WAY TO CONNECT COTTON DRAW UNIT 27-34 PAD/CTB 4 &
COTTON DRAW UNIT 27-27 PADS/CTBS 5 & 6

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
JUNE 27, 2016

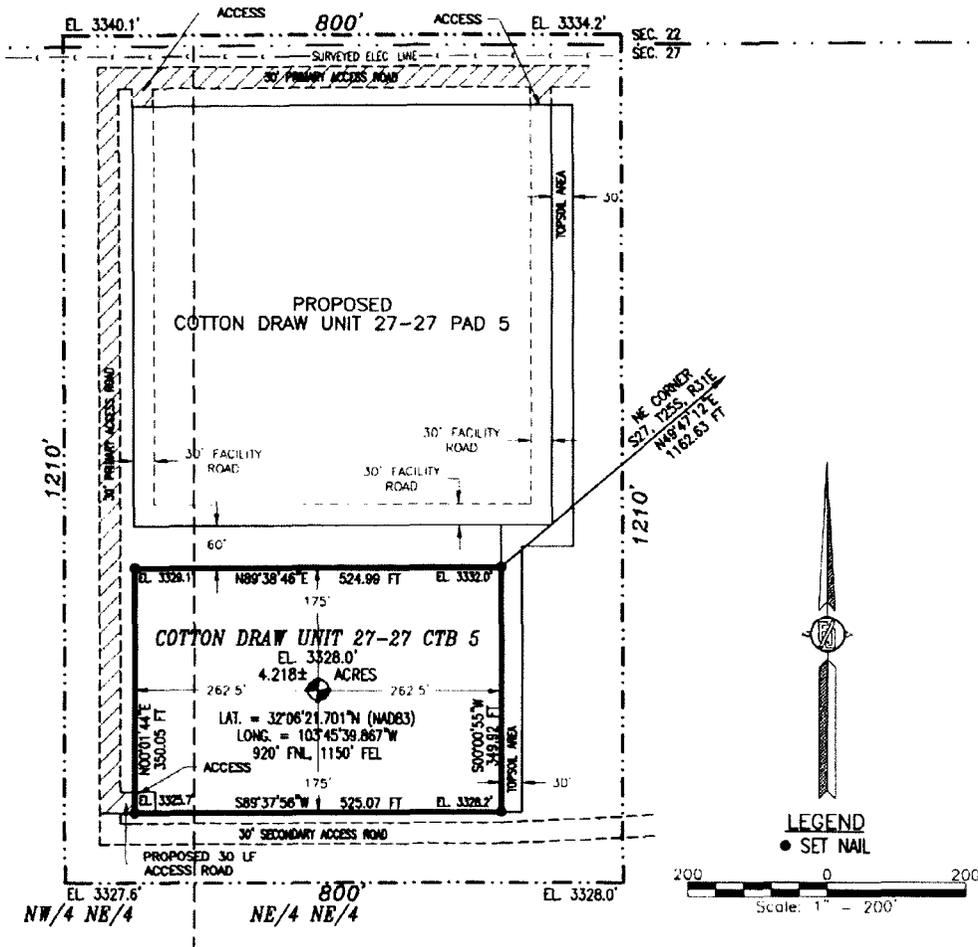
NM T25S R31E



COTTON DRAW UNIT 27-27 CTB 5 (AA000056001)

DEVON ENERGY PRODUCTION COMPANY, L.P.
 IN THE NE/4 NE/4 & NW/4 NE/4 OF
 SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN THE NE/4 NE/4 & NW/4 NE/4 OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL, WHENCE THE NORTHEAST CORNER OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N49°47'12"E, A DISTANCE OF 1162.63 FEET;
 THENCE S00°00'55"W A DISTANCE OF 349.92 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;
 THENCE S89°37'56"W A DISTANCE OF 525.07 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;
 THENCE N00°01'44"E A DISTANCE OF 350.05 FEET TO THE NORTHWEST CORNER OF THE PARCEL;
 THENCE N89°38'46"E A DISTANCE OF 524.99 FEET TO THE NORTHEAST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;
 CONTAINING 3.532 ACRES IN THE NE/4 NE/4 & 0.686 ACRES IN THE NW/4 NE/4 FOR A TOTAL 4.218 ACRES MORE OR LESS.

GENERAL NOTES

- THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY
- BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)

DRIVING DIRECTION: FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 8.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.6 OF A MILE, TURN LEFT GO WEST 2.1 MILES, ROAD LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE TO BEGIN ROAD SURVEY, GO WEST 143' TO THE NORTHEAST CORNER FOR CDU 27-27 PAD 6, THEN FROM NORTHEAST CORNER GO WEST APPROX. 860', TURN LEFT GO SOUTH APPROX. 1080', TURN LEFT GO EAST 30', TURN LEFT GO NORTH 30' TO THE SOUTHWEST CORNER FOR THIS LOCATION.

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 17 DAY OF JUNE 2016

Filmon F. Jaramillo
 FILMON F. JARAMILLO, SURVEYOR

MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SHEET: 1-3

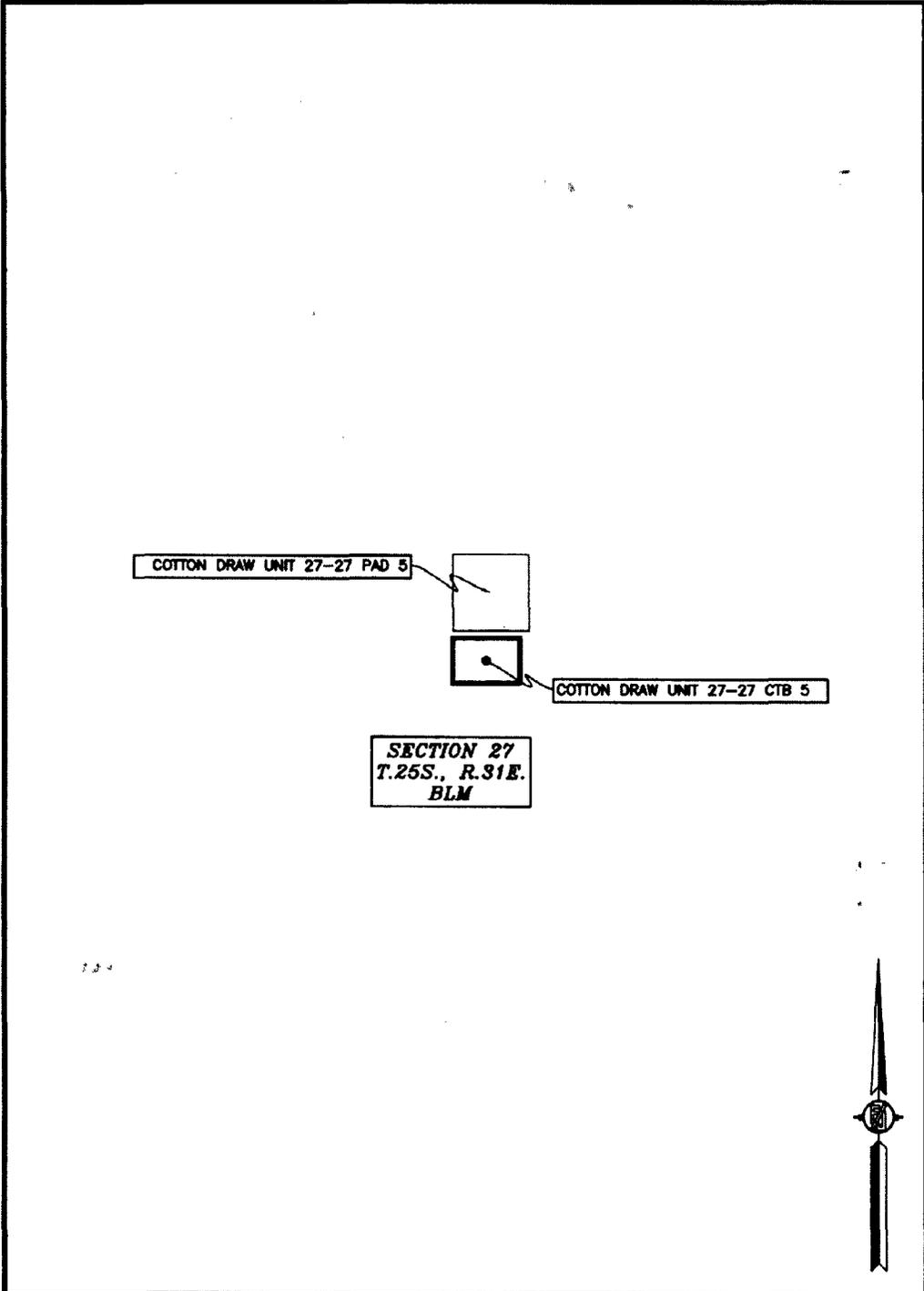
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341 SURVEY NO. 4496B

COTTON DRAW UNIT 27-27 CTB 5 (AA000056001)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NE/4 & NW/4 NE/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

QUAD MAP



COTTON DRAW UNIT 27-27 PAD 5

COTTON DRAW UNIT 27-27 CTB 5

SECTION 27
T.25S., R.31E.
BLM

SHEET: 2-3

SURVEY NO. 4496B

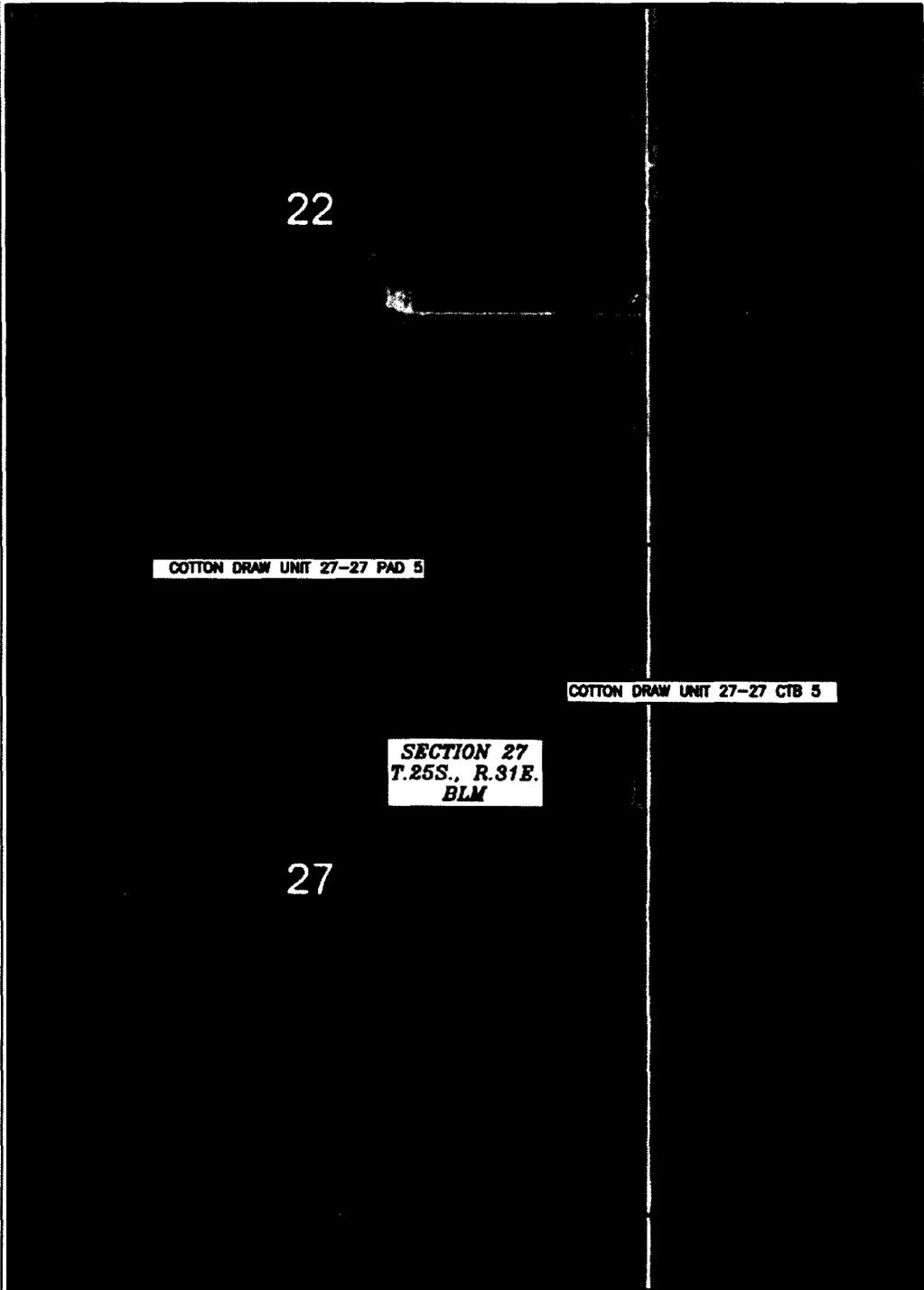
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(505) 234 3341

COTTON DRAW UNIT 27-27 CTB 5 (AA000056001)

DEVON ENERGY PRODUCTION COMPANY, L.P.
IN THE NE/4 NE/4 & NW/4 NE/4 OF
SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 17, 2016

AERIAL PHOTO



22

COTTON DRAW UNIT 27-27 PAD 5

COTTON DRAW UNIT 27-27 CTB 5

SECTION 27
T.25S., R.31E.
BLM

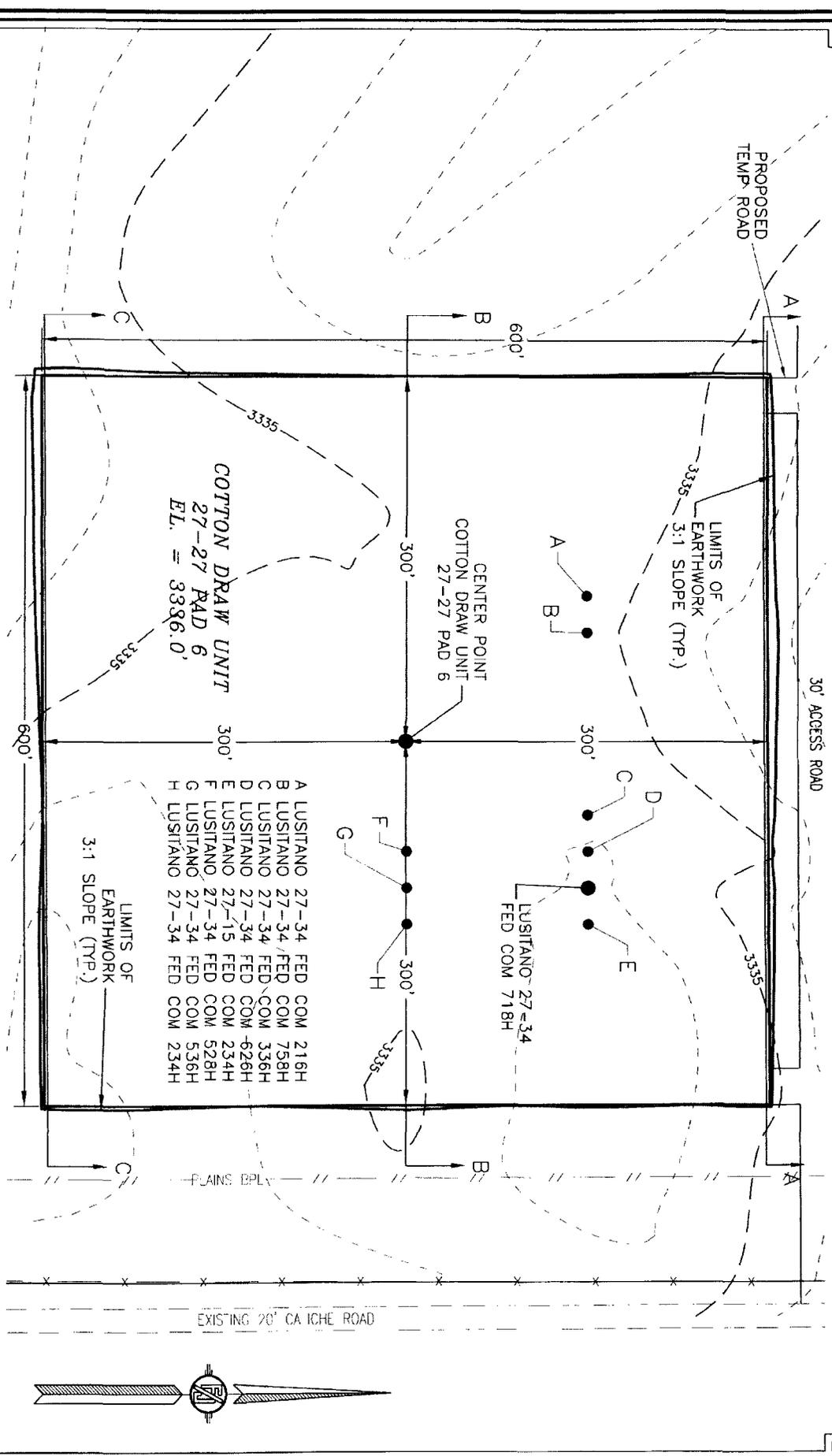
27

SHEET: 3-3

SURVEY NO. 4496B

MADRON SURVEYING, INC. 501 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

PLAN VIEW



COTTON DRAW UNIT
27-27 RAD 6'
EL. = 3336.0'

CENTER POINT
COTTON DRAW UNIT
27-27 PAD 6'

- A LUSITANO 27-34 FED COM 216H
- B LUSITANO 27-34 FED COM 758H
- C LUSITANO 27-34 FED COM 336H
- D LUSITANO 27-34 FED COM -626H
- E LUSITANO 27-15 FED COM 234H
- F LUSITANO 27-34 FED COM 528H
- G LUSITANO 27-34 FED COM 536H
- H LUSITANO 27-34 FED COM 234H

DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27-34 FED COM 718H
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO

CUT	FILL	NET
1099 CU. YD.	9300 CU. YD.	8200 CU. YD. (FILL)



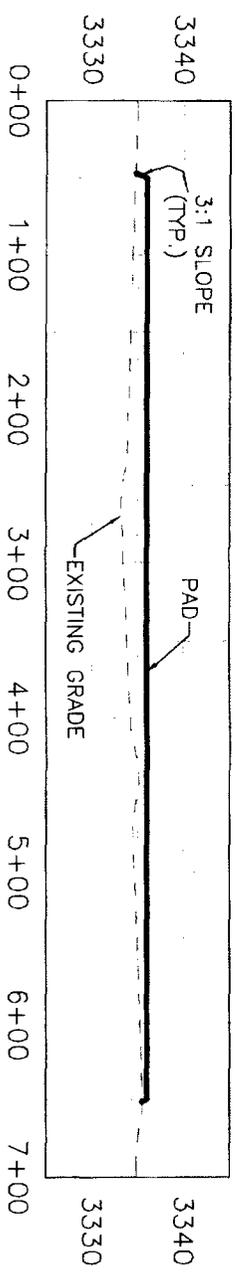
JUNE 1, 2017

SHEET 1-2
SURVEY NO. 5275

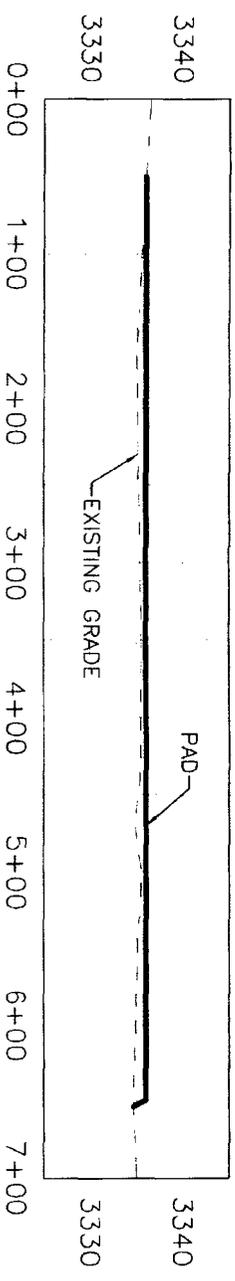
EARTHWORK QUANTITIES ARE ESTIMATED

CROSS SECTIONS

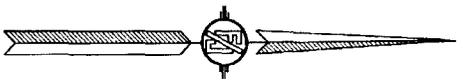
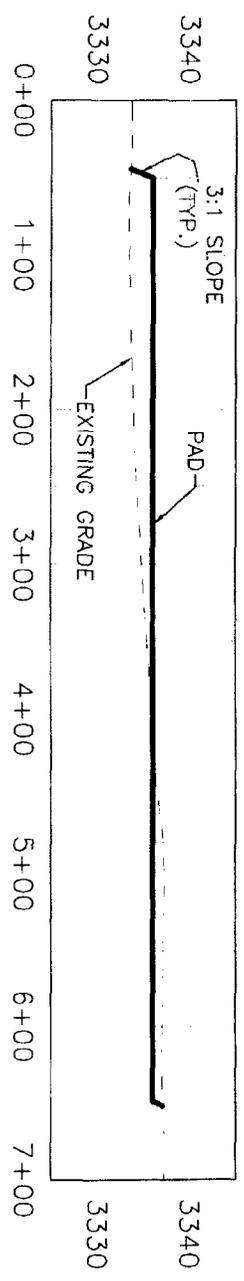
SECTION A-A



SECTION B-B



SECTION C-C



DEVON ENERGY PRODUCTION COMPANY, L.P.
 GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27-34 FED COM 718H
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

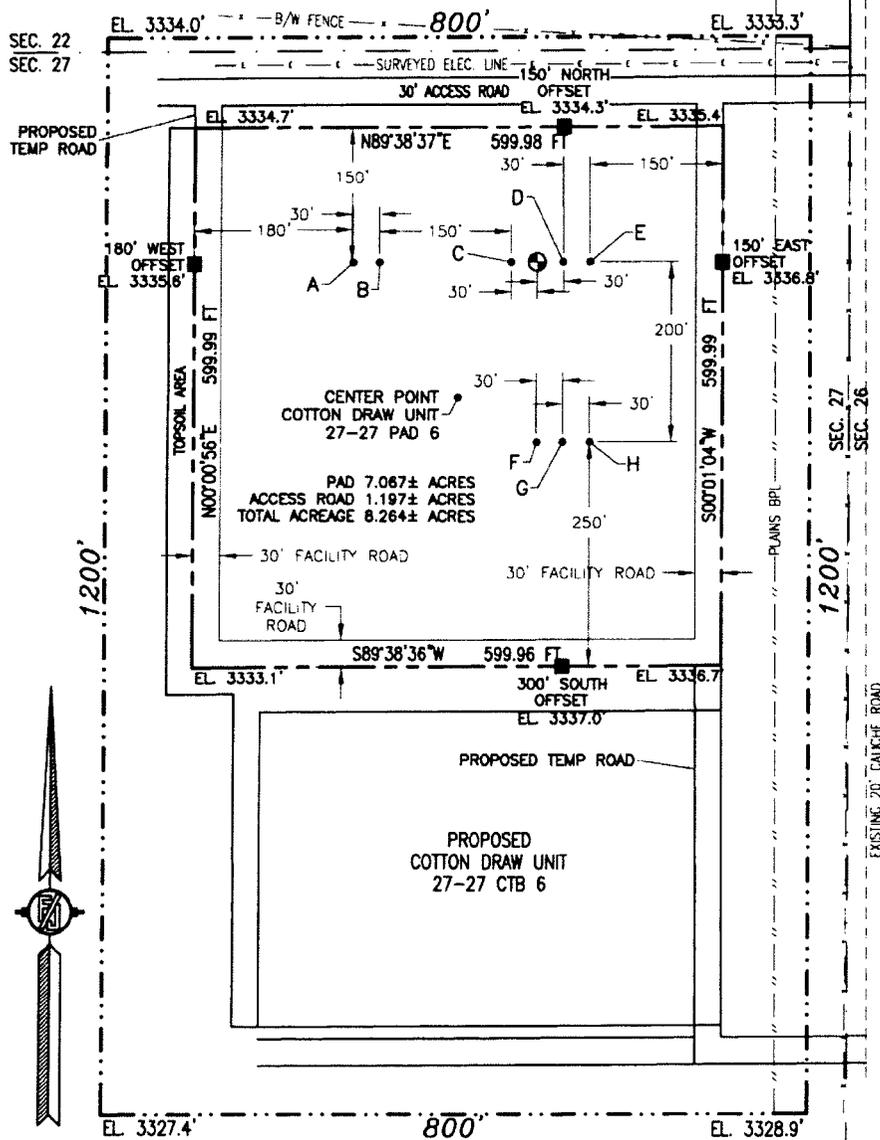
JUNE 1, 2017

MADRON SURVEYING, INC. 401 SOUTH CANAL CARLSBAD, NEW MEXICO

SHEET 2-2 SURVEY NO. 5275

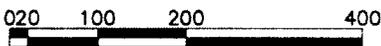
**SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP**

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.




LUSITANO 27-34 FED COM 718H
 ELEV. = 3336.1'
 LAT. = 32.1079130°N (NAD83)
 LONG. = 103.7584944°W
 NMSP EAST (FT)
 N = 403489.73
 E = 719322.99

- A LUSITANO 27-34 FED COM 216H
- B LUSITANO 27-34 FED COM 758H
- C LUSITANO 27-34 FED COM 626H
- D LUSITANO 27-34 FED COM 336H
- E LUSITANO 27-15 FED COM 234H
- F LUSITANO 27-34 FED COM 528H
- G LUSITANO 27-34 FED COM 536H
- H LUSITANO 27-34 FED COM 234H



DIRECTIONS TO LOCATION
 FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE TO BEGIN ROAD SURVEY, GO WEST 188', GO SOUTH 40' TO THE NORTHEAST CORNER FOR THIS LOCATION.

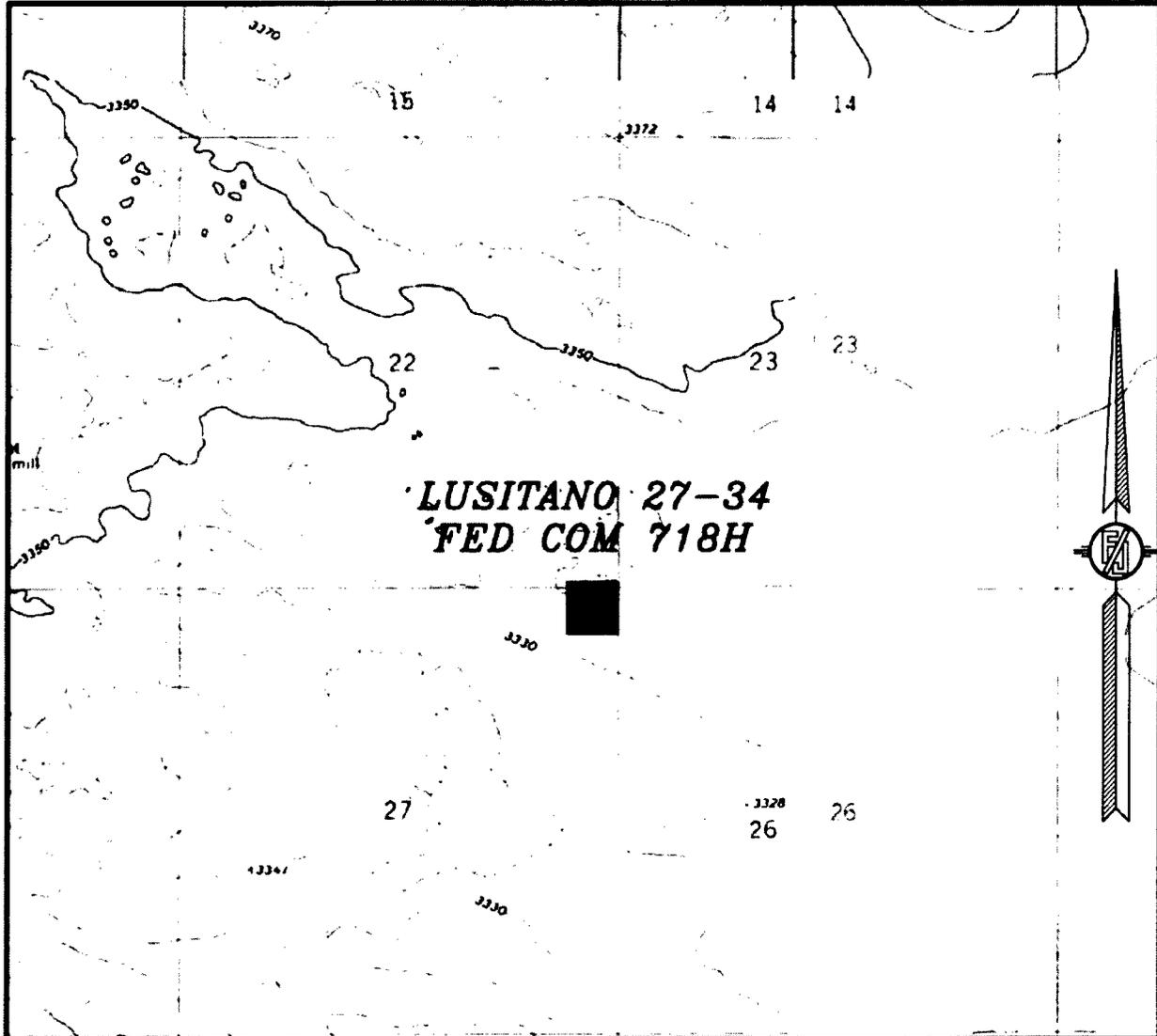
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 718H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 355 FT. FROM THE EAST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

JUNE 1, 2017

SURVEY NO. 5275

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



USGS QUAD MAP:
PHANTOM BANKS

NOT TO SCALE

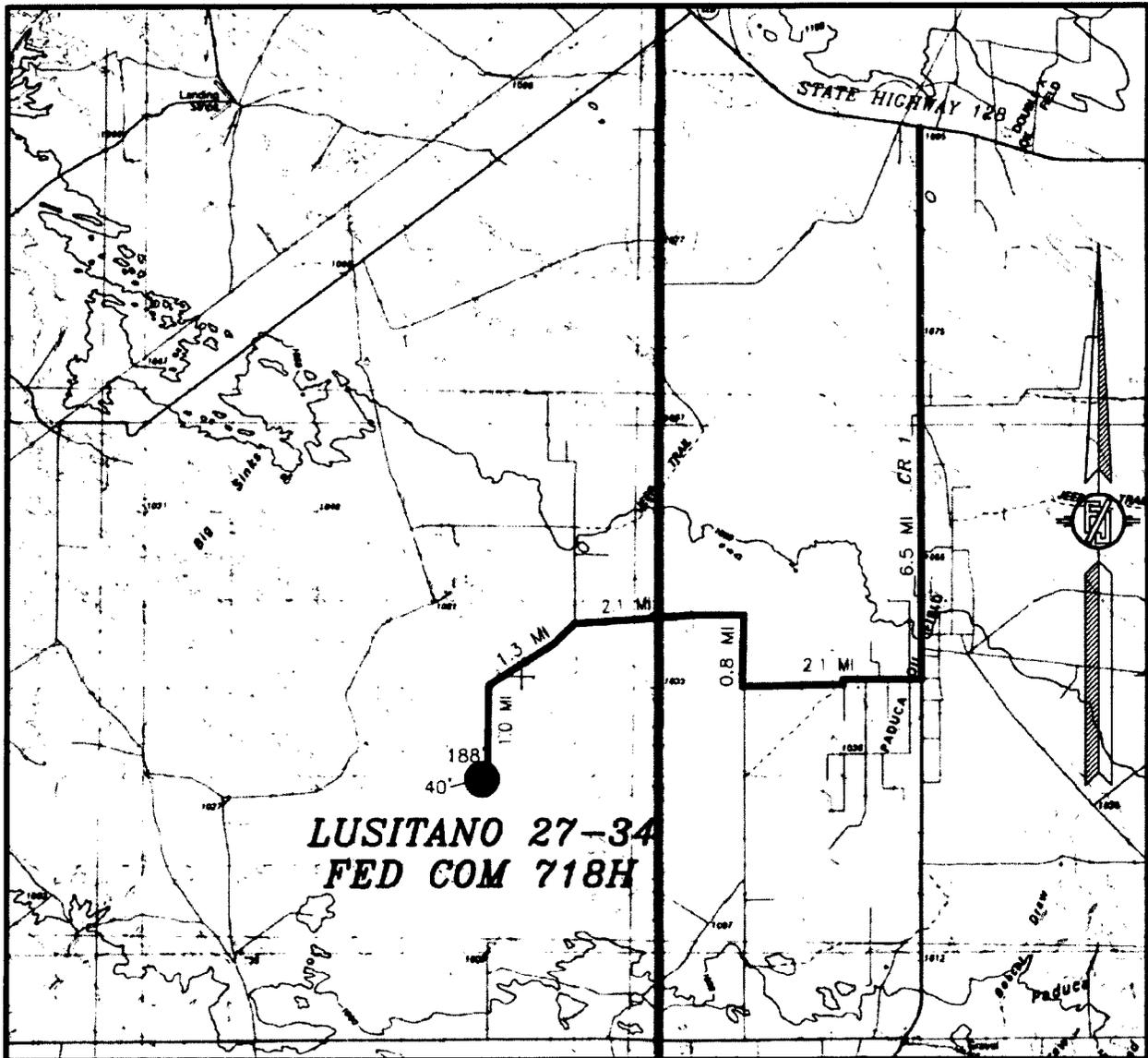
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 718H
LOCATED 235 FT. FROM THE NORTH LINE
AND 355 FT. FROM THE EAST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 1, 2017

SURVEY NO. 5275

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
(575) 234-3341

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 718H
 LOCATED 235 FT. FROM THE NORTH LINE
 AND 355 FT. FROM THE EAST LINE OF
 SECTION 27, TOWNSHIP 25 SOUTH,
 RANGE 31 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

DIRECTIONS TO LOCATION

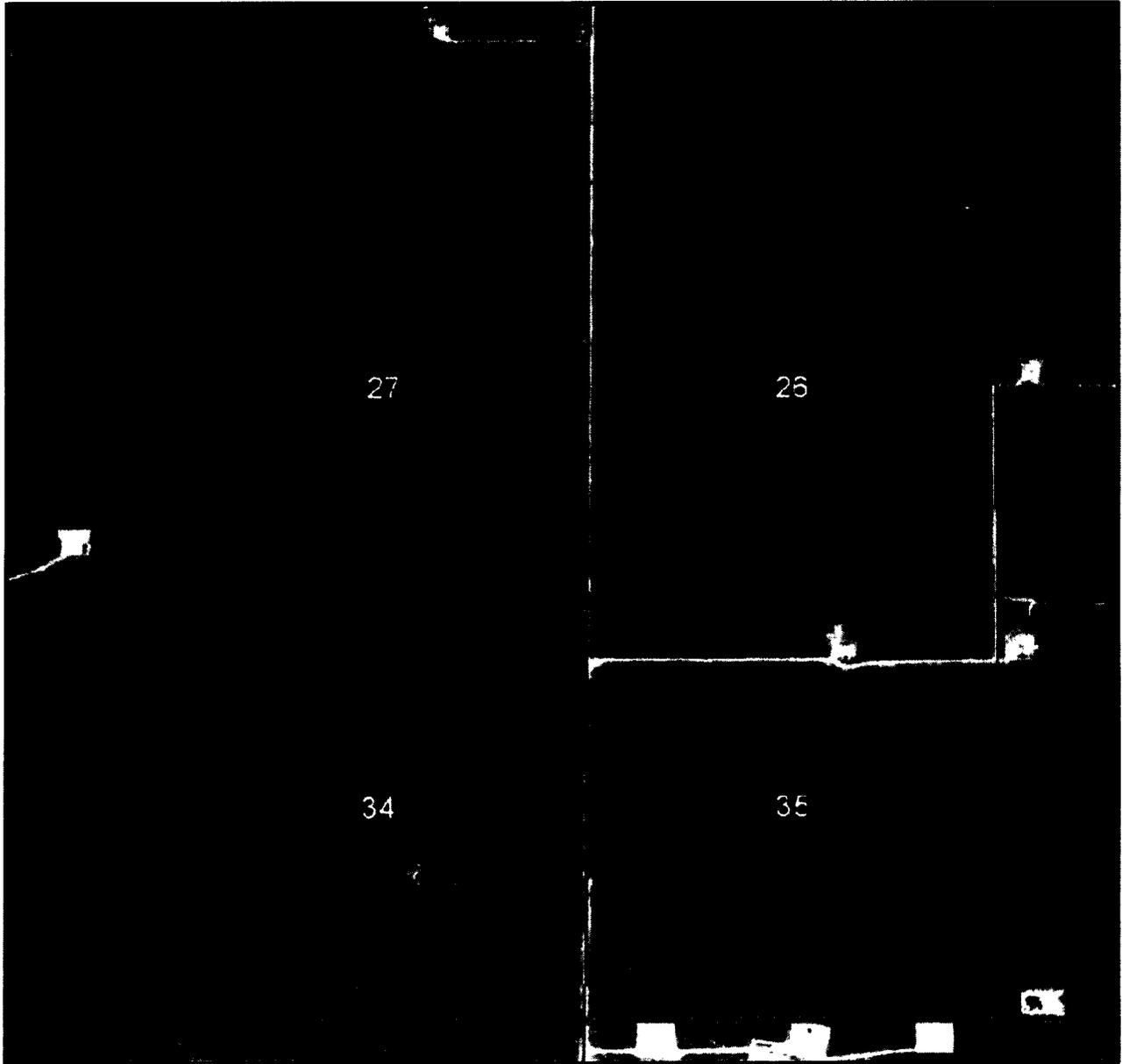
FROM STATE HIGHWAY 128 AND CR 1 (ORLA HIGHWAY) GO SOUTH ON CR 1 6.5 MILES TO MONSANTO ROAD, TURN RIGHT GO WEST 2.1 MILES, TURN RIGHT GO NORTH 0.8 OF A MILE, TURN LEFT GO WEST 2.1 MILES, BEND LEFT GO SOUTHWEST 1.3 MILES, TURN LEFT GO SOUTH 1.0 MILE TO BEGIN ROAD SURVEY, GO WEST 188', GO SOUTH 40' TO THE NORTHEAST CORNER FOR THIS LOCATION.

JUNE 1, 2017

SURVEY NO. 5275

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
NOVEMBER 2015

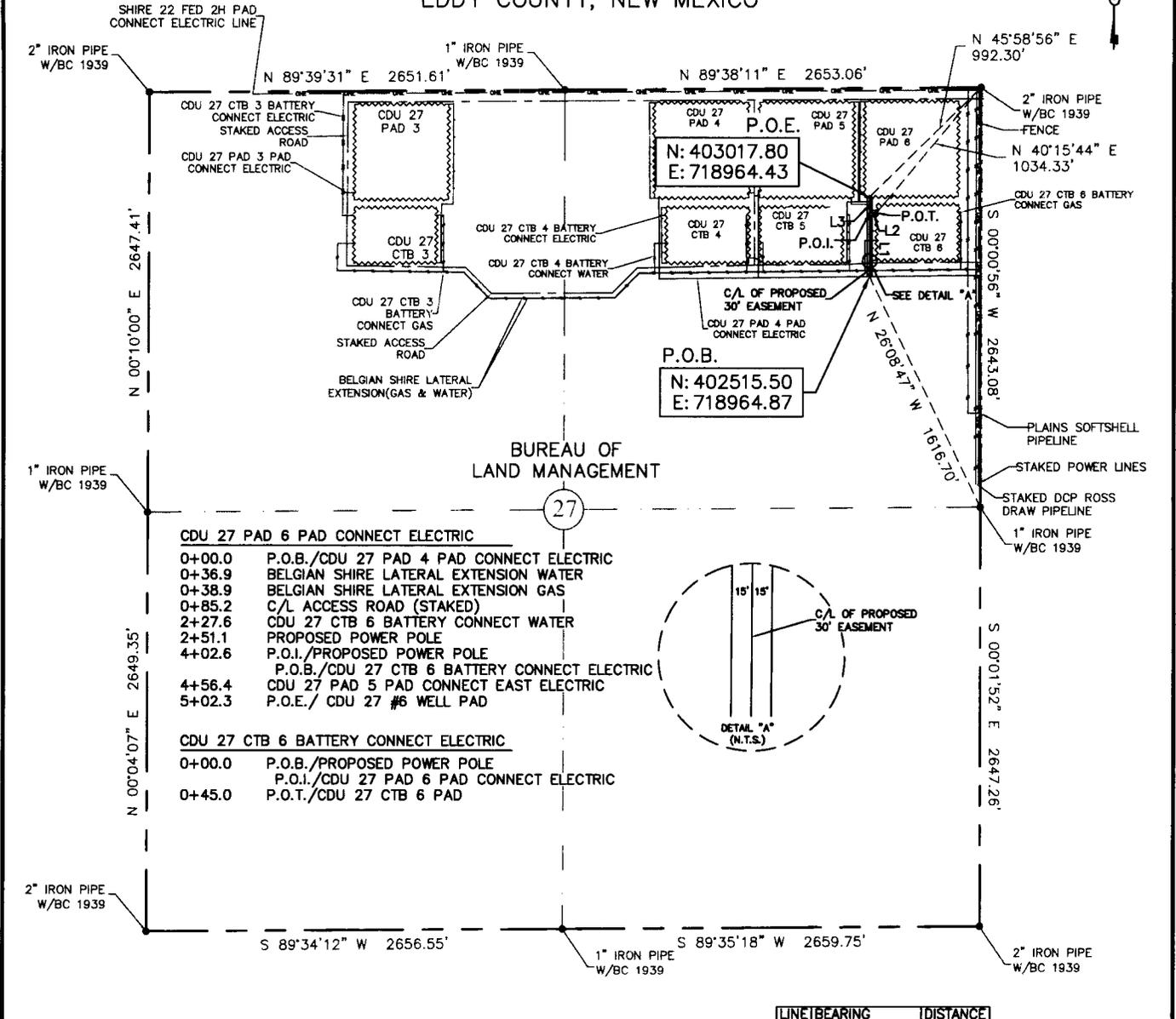
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27-34 FED COM 718H
LOCATED 235 FT. FROM THE NORTH LINE
AND 355 FT. FROM THE EAST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 1, 2017

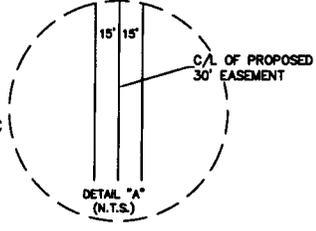
SURVEY NO. 5275

MADRON SURVEYING, INC. 301 SOUTH CANAL
(575) 234-3341 CARLSBAD, NEW MEXICO

EXHIBIT "A"
 PAGE 14 of 17
 ELECTRIC LINE PLAT
 SECTION 27, T25S-R31E, N.M.P.M.
 EDDY COUNTY, NEW MEXICO



- CDU 27 PAD 6 PAD CONNECT ELECTRIC**
- 0+00.0 P.O.B./CDU 27 PAD 4 PAD CONNECT ELECTRIC
 - 0+36.9 BELGIAN SHIRE LATERAL EXTENSION WATER
 - 0+38.9 BELGIAN SHIRE LATERAL EXTENSION GAS
 - 0+85.2 C/L ACCESS ROAD (STAKED)
 - 2+27.6 CDU 27 CTB 6 BATTERY CONNECT WATER
 - 2+51.1 PROPOSED POWER POLE
 - 4+02.6 P.O.I./PROPOSED POWER POLE
 - 4+56.4 P.O.B./CDU 27 CTB 6 BATTERY CONNECT ELECTRIC
 - 5+02.3 CDU 27 PAD 5 PAD CONNECT EAST ELECTRIC
 - P.O.E./CDU 27 #6 WELL PAD
- CDU 27 CTB 6 BATTERY CONNECT ELECTRIC**
- 0+00.0 P.O.B./PROPOSED POWER POLE
 - 0+45.0 P.O.I./CDU 27 PAD 6 PAD CONNECT ELECTRIC
 - 0+45.0 P.O.T./CDU 27 CTB 6 PAD



LINE	BEARING	DISTANCE
L1	N 00°03'00" W	402.56'
L2	S 89°58'05" E	45.02'
L3	N 00°03'00" W	99.74'

30' EASEMENT AREA = 0.367 ACRE(S)
 547.32 FEET OR 33.17 RODS



SEE THE ATTACHED LEGAL DESCRIPTION
 Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

B.L. Laman
 PLS #22404
 Date Signed: 05-13-2016
 Horizonrow, LLC
 571 State Street Jasper, TX.
 (409) 202-5111 75951
 Employee of Horizonrow, LLC

WBS NUMBER:		LINE NUMBER:
CDU 27 PAD 6 PAD CONNECT ELECTRIC LINE		CC-112971.AL EL7803
CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINE		CC-112971.AL EL7797
HORIZON ROW LLC		DEVON ENERGY PRODUCTION COMPANY, L.P. CDU 27 PAD 6 PAD CONNECT AND CDU 27 CTB 6 BATTERY CONNECT ELECTRIC LINES
Drawn for:		SCALE: 1" = 1000' REVISIONS:
devon		SHEET: 14 OF 17
Drawn by: WAYNE BEETS	Date: 05/09/2016	PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 27, T25S-R31E, N.M.P.M.

**SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

ELECTRIC LINE PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC 1939 for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 26°08'47" W a distance of 1616.70' to the **Point of Beginning** of this easement having coordinates of Northing=402515.50 feet, Easting=718964.87 feet, and continuing the following courses;

Thence N 00°03'00" W, a distance of 402.56' to the Point of Intersection;

Thence S 89°58'05" E, a distance of 45.02' to the point of termination of this portion of said easement, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 40°15'44" E a distance of 1034.33';

Thence continuing from said point of intersection the following course;

Thence N 00°03'00" W, a distance of 99.74' to the **Point of Ending** having coordinates of Northing=403017.80 feet, Easting=718964.43 feet, from said point a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears N 45°58'56" E a distance of 992.30', covering **547.32' or 33.17 rods** and having an area of **0.367 acres**.

NOTES:

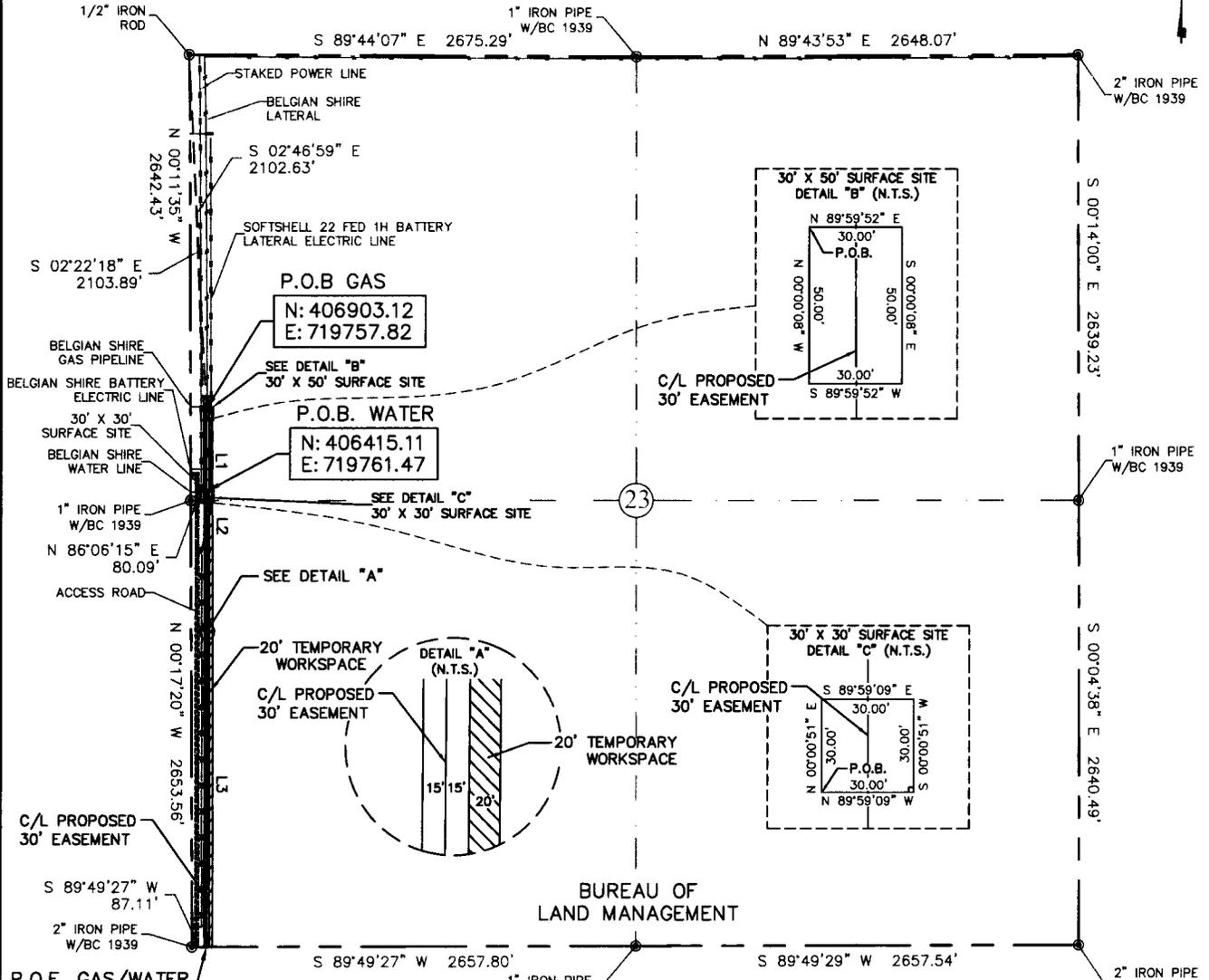
Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.


B.L. Laman PLS 22404
Date Signed: 05/13/2016
Horizon Row, LLC
571 State Street, Jasper, TX
(402) 202-5111 75951
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 1 of 12
SECTION 23, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



P.O.E. GAS/WATER
N: 403707.59
E: 719765.12

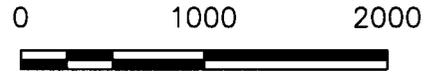
LINE	BEARING	DISTANCE
L1	S 00°11'40" E	586.77
L2	S 00°29'02" E	243.97
L3	S 00°04'44" E	2364.79

30' X 50' SURFACE SITE EASEMENT = 0.034 AREA(S)
30' X 30' SURFACE SITE EASEMENT = 0.021 AREA(S)
30' EASEMENT AREA = 2.201 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 1.467 ACRE(S)
3195.53 FEET OR 193.67 RODS

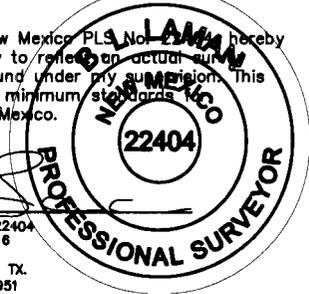
SEE THE ATTACHED LEGAL DESCRIPTION
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

GAS LINE STATIONING	
0+00.0	P.O.B. BELGIAN SHIRE GAS PIPELINE
0+01.9	ENTER 30' X 50' SURFACE SITE/EXIT 30' X 30' SURFACE SITE
0+51.9	EXIT 30' X 50' SURFACE SITE
3+57.0	BELGIAN SHIRE BATTERY ELEC. LINE
4+76.8	ENTER 30' X 30' SURFACE SITE
4+88.0	P.O.B. BELGIAN SHIRE LATERAL EXTENSION WATER
5+08.8	ENTER 30' X 30' SURFACE SITE/EXIT 30' X 30' SURFACE SITE
5+36.8	EXIT 30' X 30' SURFACE SITE
7+05.6	SOFTSHELL 22 FED 1H BATTERY LATERAL ELEC. LINE
31+95.5	P.O.E. SECTION LINE

WATER LINE STATIONING	
0+00.0	P.O.B. BELGIAN SHIRE WATER PIPELINE
0+18.8	ENTER 30' X 50' SURFACE SITE/EXIT 30' X 30' SURFACE SITE
0+48.8	EXIT 30' X 50' SURFACE SITE
2+09.4	SOFTSHELL 22 FED 1H BATTERY LATERAL ELEC. LINE
27+07.5	P.O.E. SECTION LINE



I, B.L. Laman, New Mexico PLS No. 22404 hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS #22404
Date Signed: 05-12-2016
Horizonrow, LLC
571 State Street Jasper, TX.
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for:

Date: 03/15/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.	LINE NUMBER: 780018XZ
BELGIAN SHIRE LATERAL EXTENSION-GAS AND WATER	WBS NUMBER: CC-110133.01
PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 23, T25S-R31E, N.M.P.M.	SCALE: 1" = 1000' REVISIONS: 5/2/18 CMAAS SHEET: 1 OF 12

**SECTION 23, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) and the southwest quarter (SW ¼) of Section 23, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1/2" iron rod found for the northwest corner of Section 23, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 02°46'59" E, a distance of 2102.63' to the **Point of Beginning** of this easement having coordinates of Northing=406903.12 feet, Easting=719757.82 feet and continuing the following courses;

Thence S 00°11'40" E, a distance of 586.77' to an angle point;

Thence S 00°29'02" E, a distance of 243.97' to an angle point;

Thence S 00°04'44" E, a distance of 2364.79' to the **Point of Ending** having coordinates of Northing=403707.59 feet, Easting=719765.12 feet, being in the south line of Section 23, T25S-R31E, from said point a 2" iron pipe w/ BC1939 found for the southwest corner of Section 23, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 89°49'27" W a distance of 87.11', covering **3195.53' or 193.67 rods** and having an area of **2.201 acres**.

20' TEMPORARY WORKSPACE DESCRIPTION:

Being a temporary workspace twenty (20) feet in width lying on the left side and adjoining the left side of the above described thirty (30) feet easement, having a total area of **1.467 acres**.

30' X 50' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and fifty (50) feet in length and out of the northwest quarter (NW ¼) of Section 23, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 1/2" iron rod for the northwest corner of Section 23, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 02°22'18" W a distance of 2103.89' to the **Point of Beginning** of this surface site and continuing the following courses;

N 89°59'52" E a distance of 30.00' to a point;

S 00°00'08" E a distance of 50.00' to a point;

S 89°59'52" W a distance of 30.00' to a point;

N 00°00'08" W a distance of 50.00' to the point of beginning, having an area of **0.034 acre**.

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northwest quarter (NW ¼) of Section 23, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 1" iron pipe w/ BC 1939 for the west quarter corner of Section 23, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 86°06'15" E a distance of 80.09' to the **Point of Beginning** of this surface site and continuing the following courses;

N 00°00'51" E a distance of 30.00' to a point;

S 89°59'09" E a distance of 30.00' to a point;

S 00°00'51" W a distance of 30.00' to a point;

N 89°59'09" W a distance of 30.00' to the point of beginning, having an area of **0.021 acre**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/12/2016

Horizon Row, LLC

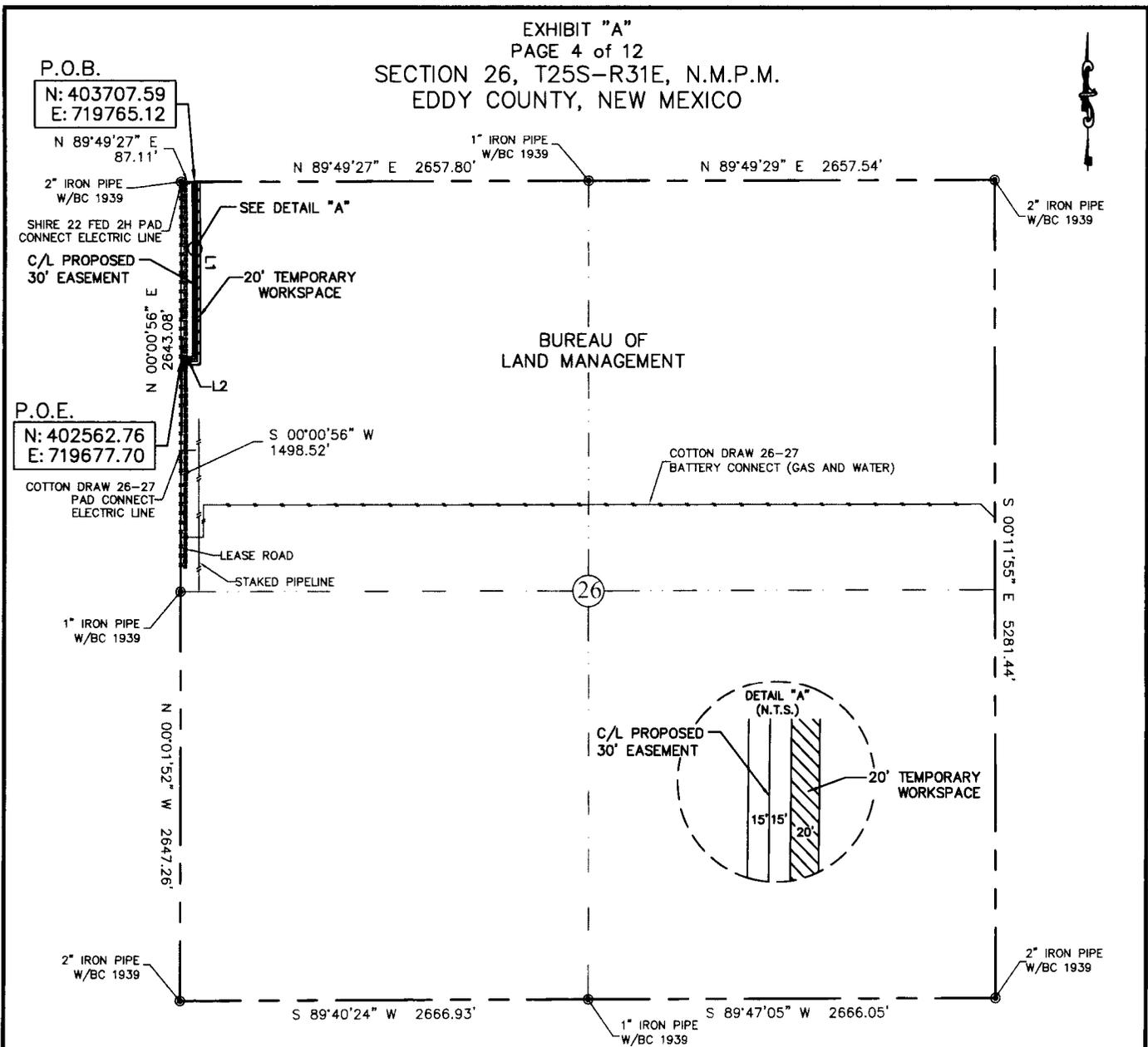
571 State Street, Jasper, TX

(409) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 4 of 12
SECTION 26, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



LINE	BEARING	DISTANCE
L1	S 00°04'44" E	1143.79'
L2	S 89°19'38" W	89.00'

GAS LINE STATIONING

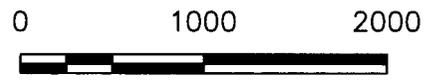
31+95.5	P.O.B. SECTION LINE
43+87.6	EDGE OF LEASE ROAD
43+98.6	CENTERLINE OF LEASE ROAD
44+09.3	EDGE OF LEASE ROAD
44+28.3	P.O.E. SECTION LINE

WATER LINE STATIONING

27+07.5	P.O.B. SECTION LINE
39+03.5	EDGE OF LEASE ROAD
39+14.3	CENTERLINE OF LEASE ROAD
39+25.7	EDGE OF LEASE ROAD
39+44.3	P.O.E. SECTION LINE

30' EASEMENT AREA = 0.849 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 0.589 ACRE(S)
1232.79 FEET OR 74.71 RODS

SEE THE ATTACHED LEGAL DESCRIPTION
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.



I, B.L. Laman, New Mexico Professional Surveyor No. 22404 hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards of surveying in New Mexico.



B.L. Laman PLS #22404
Date Signed: 05-12-2018
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for: **devon**
Drawn by: W.Beets Date: 03/15/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
BELGIAN SHIRE LATERAL
EXTENSION-GAS AND WATER
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 26, T25S-R31E, N.M.P.M.

LINE NUMBER: 780018X,Z
WBS NUMBER: CC-110133.01
SCALE: 1" = 1000'
REVISIONS: 5/2/16 CMAAS
SHEET: 4 OF 12

**SECTION 26, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northwest quarter (NW ¼) of Section 26, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 2" iron pipe w/ BC1939 found for the northwest corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 89°49'27" E, a distance of 87.11' to the **Point of Beginning** of this easement having coordinates of Northing=403707.59 feet, Easting=719765.12 feet, being in the north line of Section 26, T25S-R31E, and continuing the following courses;

Thence S 00°04'44" E, a distance of 1143.79' to an angle point;

Thence S 89°19'38" W, a distance of 89.00' to the **Point of Ending** having coordinates of Northing=402562.76 feet, Easting=719677.70 feet, being in the west line of Section 26, T25S-R31E, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 26, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 00°00'56" W a distance of 1498.52', covering **1232.79' or 74.71 rods** and having an area of **0.849 acres**.

20' TEMPORARY WORKSPACE DESCRIPTION:

Being a temporary workspace twenty (20) feet in width lying on the left side and adjoining the left side of the above described thirty (30) feet easement, having a total area of **0.589 acres**.

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/12/2016

Horizon Row, LLC

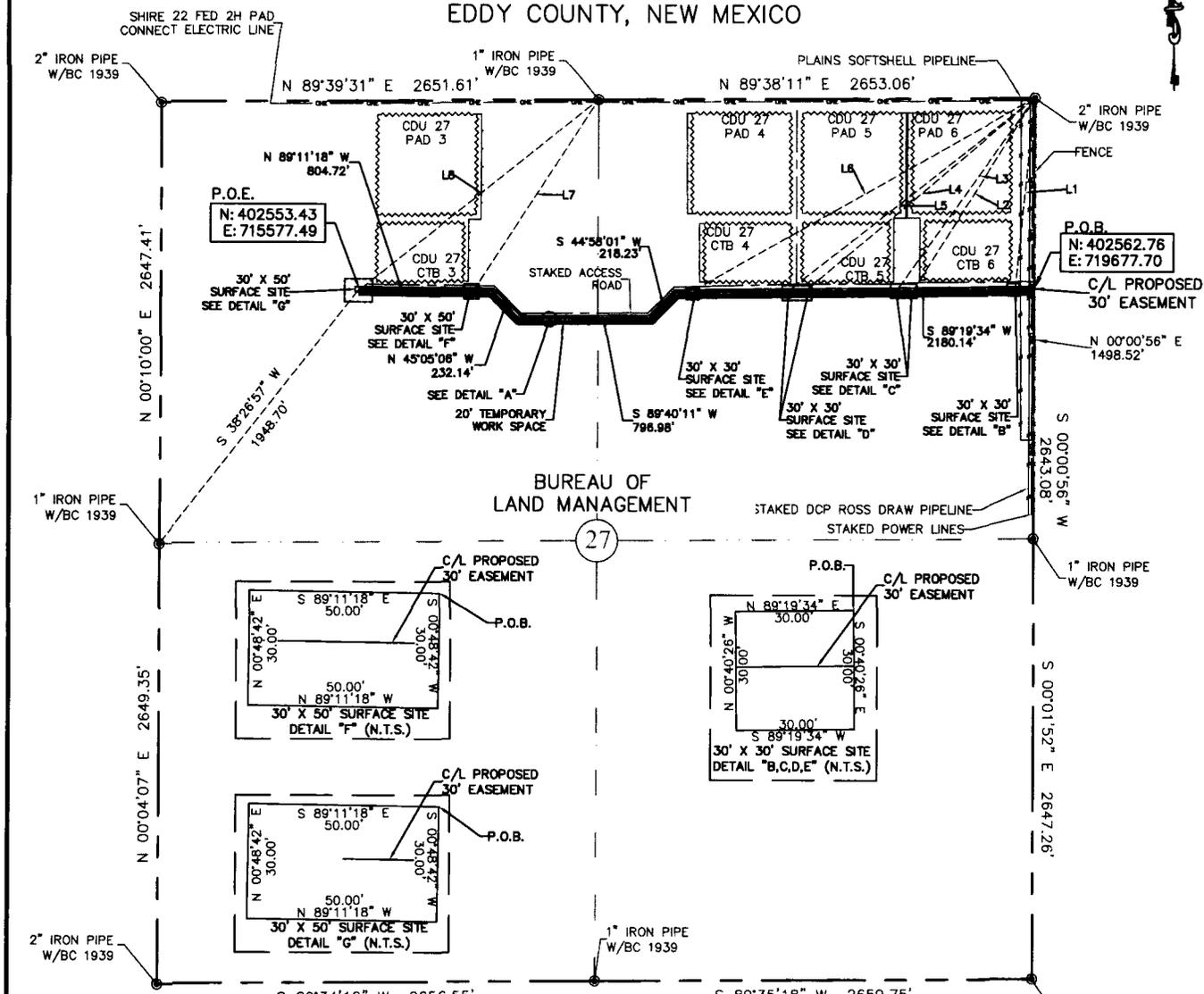
571 State Street, Jasper, TX

(409) 202-5111 75951

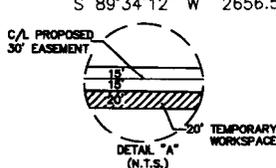
Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 6 of 12
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



LINE	BEARING	DISTANCE
L1	S 05°44'33" W	1137.61'
L2	S 32°35'47" W	1352.10'
L3	S 35°58'45" W	1409.11'
L4	S 50°13'36" W	1792.51'
L5	S 52°13'26" W	1874.02'
L6	S 60°47'43" W	2366.85'
L7	S 33°23'17" W	1356.05'
L8	S 51°42'00" W	1812.59'



GAS LINE STATIONING

44+28.3	P.O.B. SECTION LINE
44+30.5	FENCE
44+40.7	STAKED POWER LINE
44+58.1	STAKED DCP ROSS DRAW PIPELINE
45+11.0	PLAINS SOFTSHELL PIPELINE
45+41.7	ENTER 30'X30' SURFACE SITE
45+71.7	EXIT 30'X30' SURFACE SITE
51+56.3	ENTER 30'X30' SURFACE SITE
51+86.3	EXIT 30'X30' SURFACE SITE
52+55.7	ENTER 30'X30' SURFACE SITE
52+85.7	EXIT 30'X30' SURFACE SITE
58+05.6	ENTER 30'X30' SURFACE SITE
58+35.6	EXIT 30'X30' SURFACE SITE
59+09.2	ENTER 30'X30' SURFACE SITE
59+39.2	EXIT 30'X30' SURFACE SITE
64+94.0	ENTER 30'X30' SURFACE SITE
65+24.0	EXIT 30'X30' SURFACE SITE
79+60.5	ENTER 30'X50' SURFACE SITE
80+10.5	EXIT 30'X50' SURFACE SITE
86+35.7	ENTER 30'X50' SURFACE SITE
86+60.5	P.O.E.

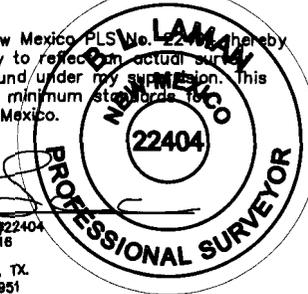
WATER LINE STATIONING

39+44.3	P.O.B. SECTION LINE
39+46.6	FENCE
39+59.7	STAKED POWER LINE
39+74.1	STAKED DCP ROSS DRAW PIPELINE
40+27.1	PLAINS SOFTSHELL PIPELINE
40+57.6	ENTER 30'X30' SURFACE SITE
40+87.6	EXIT 30'X30' SURFACE SITE
46+72.2	ENTER 30'X30' SURFACE SITE
47+02.2	EXIT 30'X30' SURFACE SITE
47+71.7	ENTER 30'X30' SURFACE SITE
48+01.7	EXIT 30'X30' SURFACE SITE
53+21.6	ENTER 30'X30' SURFACE SITE
53+51.6	EXIT 30'X30' SURFACE SITE
54+25.1	ENTER 30'X30' SURFACE SITE
54+55.1	EXIT 30'X30' SURFACE SITE
60+09.9	ENTER 30'X30' SURFACE SITE
60+39.9	EXIT 30'X30' SURFACE SITE
74+78.5	ENTER 30'X50' SURFACE SITE
75+28.5	EXIT 30'X50' SURFACE SITE
81+51.7	ENTER 30'X50' SURFACE SITE
81+76.6	P.O.E.

6-30' X 30' SURFACE SITE EASEMENT = 0.126 AREA(S)
2-30' X 50' SURFACE SITE EASEMENT = 0.088 AREA(S)
30' EASEMENT AREA = 2.915 ACRE(S)
20' TEMPORARY WORK SPACE AREA = 1.943 ACRE(S)
4232.21 FEET OR 256.50 RODS

SEE THE ATTACHED LEGAL DESCRIPTION
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico Professional Surveyor No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

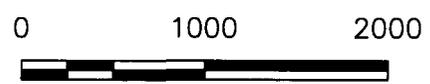


B.L. Laman PLS #22404
Date Signed: 05-12-2016
Horizonrow, LLC
571 State Street Jasper, TX
(409) 202-5111 75951
Employee of Horizonrow, LLC

HORIZON ROW LLC
Drawn for:
devon
Drawn by: W.Beets Date: 03/15/2016

DEVON ENERGY PRODUCTION COMPANY, L.P.
BELGIAN SHIRE LATERAL
EXTENSION-GAS AND WATER
PROPOSED 30' EASEMENT
ON THE PROPERTY OF
BUREAU OF LAND MANAGEMENT
SECTION 27, T25S-R31E, N.M.P.M.

LINE NUMBER: 780018X,2
WBS NUMBER: CC-110133.01
SCALE: 1" = 1000'
REVISIONS: 5/2/16 C.MAAS
SHEET: 6 OF 12



**SECTION 27, T25S-R31E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

BUREAU OF LAND MANAGEMENT

30' EASEMENT DESCRIPTION:

BEING an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of the northeast quarter (NE ¼) and the northwest quarter (NW ¼) of Section 27, Township 25 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1939 found for the east quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence N 00°00'56" E, a distance of 1498.52' to the **Point of Beginning** of this easement having coordinates of Northing=402562.76 feet, Easting=719677.70 feet, being in the east line of Section 27, T25S-R31E, and continuing the following courses;

Thence S 89°19'34" W, a distance of 2180.14' to an angle point;

Thence S 44°58'01" W, a distance of 218.23' to an angle point;

Thence S 89°40'11" W, a distance of 796.98' to an angle point;

Thence N 45°05'06" W, a distance of 232.14' to an angle point;

Thence N 89°11'18" W, a distance of 804.72' to the **Point of Ending** having coordinates of Northing=402553.43 feet, Easting=715577.49 feet, from said point a 1" iron pipe w/ BC1939 found for the west quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico bears S 38°26'57" W a distance of 1948.70', covering **4232.21' or 256.50 rods** and having an area of **2.915 acres**.

20' TEMPORARY WORKSPACE DESCRIPTION:

Being a temporary workspace twenty (20) feet in width lying on the left side and adjoining the left side of the above described thirty (30) feet easement, having a total area of **1.943 acres**.

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 05°44'33" W a distance of 1137.61' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 32°35'47" W a distance of 1352.10' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 35°58'45" W a distance of 1409.11' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 50°13'36" W a distance of 1792.51' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 52°13'26" W a distance of 1874.02' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 30' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and thirty (30) feet in length and out of the northeast quarter (NE ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 2" iron pipe w/ BC1939 found for the northeast corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 60°47'43" W a distance of 2366.85' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°40'26" E a distance of 30.00' to a point;

S 89°19'34" W a distance of 30.00' to a point;

N 00°40'26" W a distance of 30.00' to a point;

N 89°19'34" E a distance of 30.00' to the point of beginning, having an area of **0.021 acre.**

30' X 50' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and fifty (50) feet in length and out of the northwest quarter (NW ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 33°23'17" W a distance of 1358.05' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°48'42" W a distance of 30.00' to a point;

N 89°11'18" W a distance of 50.00' to a point;

N 00°48'42" E a distance of 30.00' to a point;

S 89°11'18" E a distance of 50.00' to the point of beginning, having an area of **0.034 acre.**

30' X 50' SURFACE SITE EASEMENT DESCRIPTION:

Being a surface site easement thirty (30) feet in width and fifty (50) feet in length and out of the northwest quarter (NW ¼) of Section 27, T25S-R31E, N.M.P.M. Eddy County, New Mexico, and being more particularly described as follows;

Commencing from a 1" iron pipe w/ BC1939 found for the north quarter corner of Section 27, T25S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 51°42'00" W a distance of 1812.59' to the **Point of Beginning** of this surface site and continuing the following courses;

S 00°48'42" W a distance of 30.00' to a point;

N 89°11'18" W a distance of 50.00' to a point;

N 00°48'42" E a distance of 30.00' to a point;

S 89°11'18" E a distance of 50.00' to the point of beginning, having an area of **0.034 acre.**

NOTES:

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS 22404

Date Signed: 05/12/2016

Horizon Row, LLC

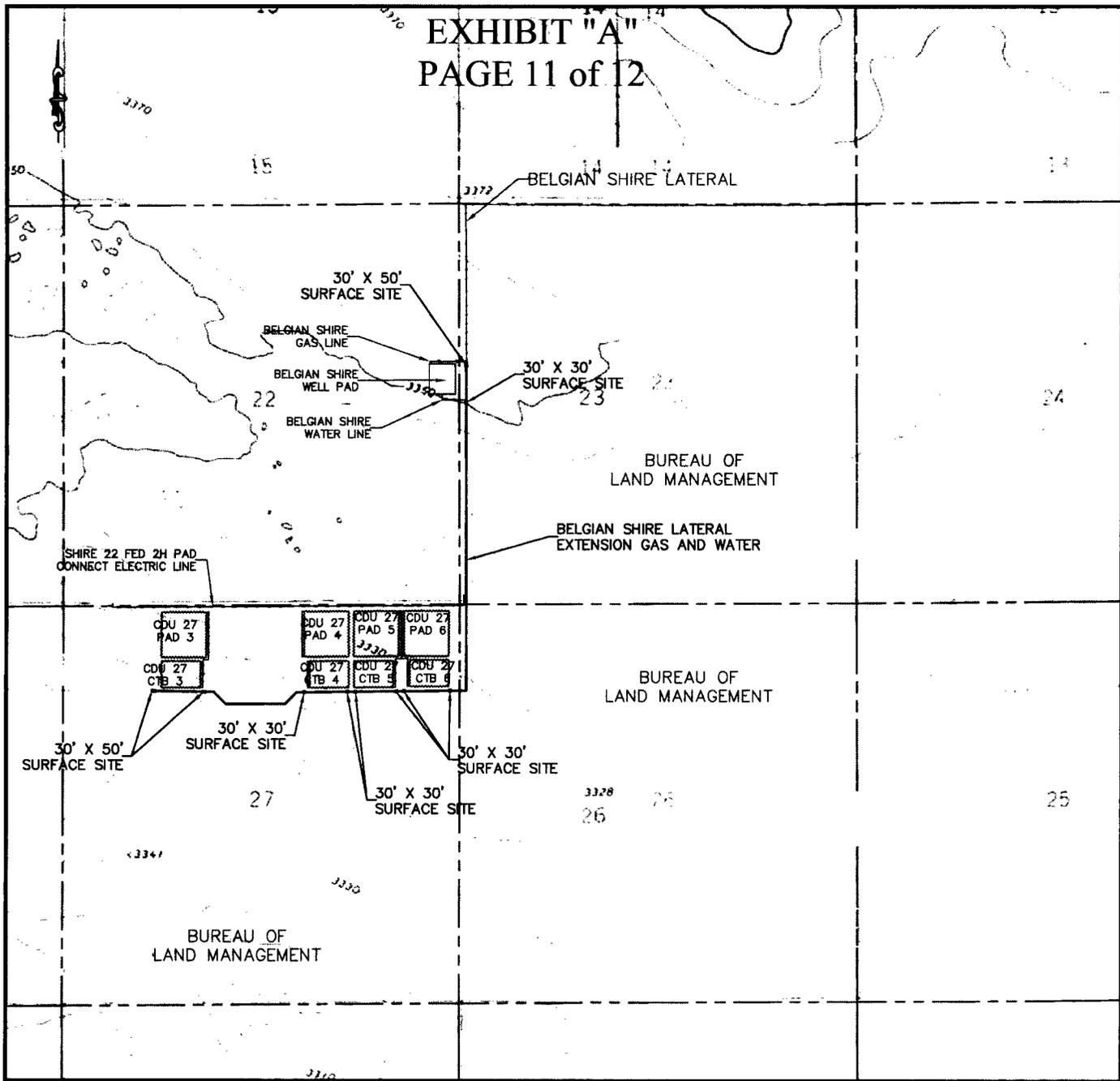
571 State Street, Jasper, TX

(409) 202-5111 75951

Employee of Horizon Row, LLC



EXHIBIT "A"
PAGE 11 of 12



QUAD MAP

SECTION 23, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
W.Beets

Date: 03/15/2016

Drawn for:



LINE NUMBER:
760018X,Z

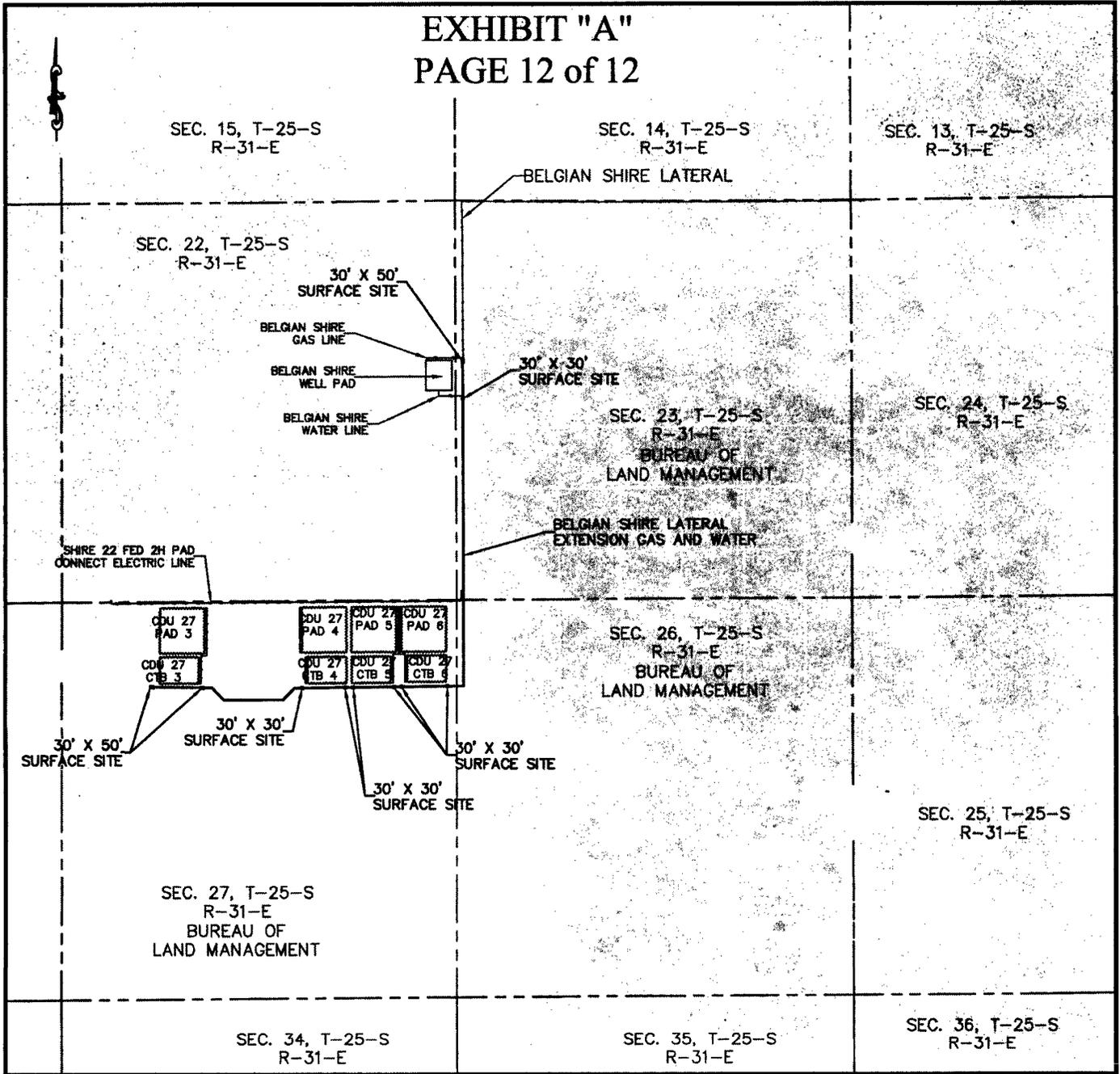
WBS NUMBER:
CC-110133.01

SCALE:
1" = 2000'

REVISIONS:
5/2/16 CMAAS

SHEET:
11 OF 12

EXHIBIT "A"
PAGE 12 of 12



AERIAL MAP

SECTION 23, T25S-R31E, N.M.P.M.
SECTION 26, T25S-R31E, N.M.P.M.
SECTION 27, T25S-R31E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:
W.Beets

Date: 03/15/2016

Drawn for:



LINE NUMBER:
760018X,2

WBS NUMBER:
CC-110133.01

SCALE:
1" = 2000'

REVISIONS:
5/2/16 CMAAS

SHEET:
12 OF 12



Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

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 attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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 attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

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 attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

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:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



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

Bond Info Data Report

09/05/2017

Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

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 number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: