Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM125635

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
LUSITANO 27-34 FED COM 713H

2. Name of Operator
DEVON ENERGY PRODUCTION COMPAN

Contact: LINDA GOOD
Email: linda.good@dvn.com

9. API Well No.
30-015-45658-00-X1

3a. Address
6488 SEVEN RIVERS HIGHWAY
ARTESIA, NM 88210

3b. Phone No. (include area code)
Ph: 405-552-6558

10. Field and Pool or Exploratory Area
WOLFCAMP

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 08 2019
RECEIVED

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 27 T25S R31E NENW 235FNL 1762FWL
32.107906 N Lat, 103.768791 W Lon

11. County or Parish, State
EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Devon Energy Production Co., LP respectfully request permission to change the Bottom Hole Location from 20 FSL 2310 FWL to 990 FNL 2310 FWL.

Updated MD at TD (section 1)
Updated casing program (section 2): casing point is shallower, removed flushmax / FJL from both primary and contingency designs, added variance request for TLW casing
Updated cementing program (section 3): updated volumes to reflect shorter lateral length

Attachments.

Carlsbad Field Office
OCD Artesia

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #451076 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION COMPAN, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 01/22/2019 (19PP0744SE)

Name *(Printed/Typed)* LINDA GOOD — Title REGULATORY SPECIALIST

Signature (Electronic Submission) — Date 01/18/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By LONG VO — Title PETROLEUM ENGINEER — Date 02/06/2019

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Carlsbad

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

RMP 3-22-19

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	DEVON ENERGY PRODUCTION COMPANY LP
LEASE NO.:	NMLC0061672A
WELL NAME & NO.:	LUSITANO 27-34 FED COM 713H
SURFACE HOLE FOOTAGE:	235'/N & 1762'/W
BOTTOM HOLE FOOTAGE	20'/S & 2310'/W
LOCATION:	SECTION 27, T25S, R31E, NMPM
COUNTY:	EDDY

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	○ Multibowl	◉ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☑ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

All Previous COAs Still Apply.

A. CASING

Primary Casing Design:

1. The **10-3/4** inch surface casing shall be set at approximately **924 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    d. If cement falls back, remedial cementing will be done prior to drilling out that

string.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- 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 or potash. Cement excess is less than 25%, more cement might be required.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash. Cement excess is less than 25%, more cement might be required.**

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 10-3/4" X 7-5/8" annulus. Operator must run a CBL from TD of the 7-5/8" casing to surface. Submit results to BLM.

3. 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.

Alternate Casing Design:

4. The **13-3/8** inch surface casing shall be set at approximately **924 feet** (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

    Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

5. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is:

    Option 1 (Single Stage):

    - 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 or potash.**

    Option 2:

    Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

    a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

    b. Second stage above DV tool:

        - Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

- ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 13-3/8" X 8-5/8" annulus. Operator must run a CBL from TD of the 8-5/8" casing to surface. Submit results to BLM.

Operator is NOT APPROVED for option to drill change intermediate 1 hole size to 9.625" with TLW connection. Clearance does not pass 0.422" requirement.

6. 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.
      Cement excess is less than 25%, more cement might be required.

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

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

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will 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 are located, this does not include the dog house or stairway area.

3. 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. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. 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.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

3. 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.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

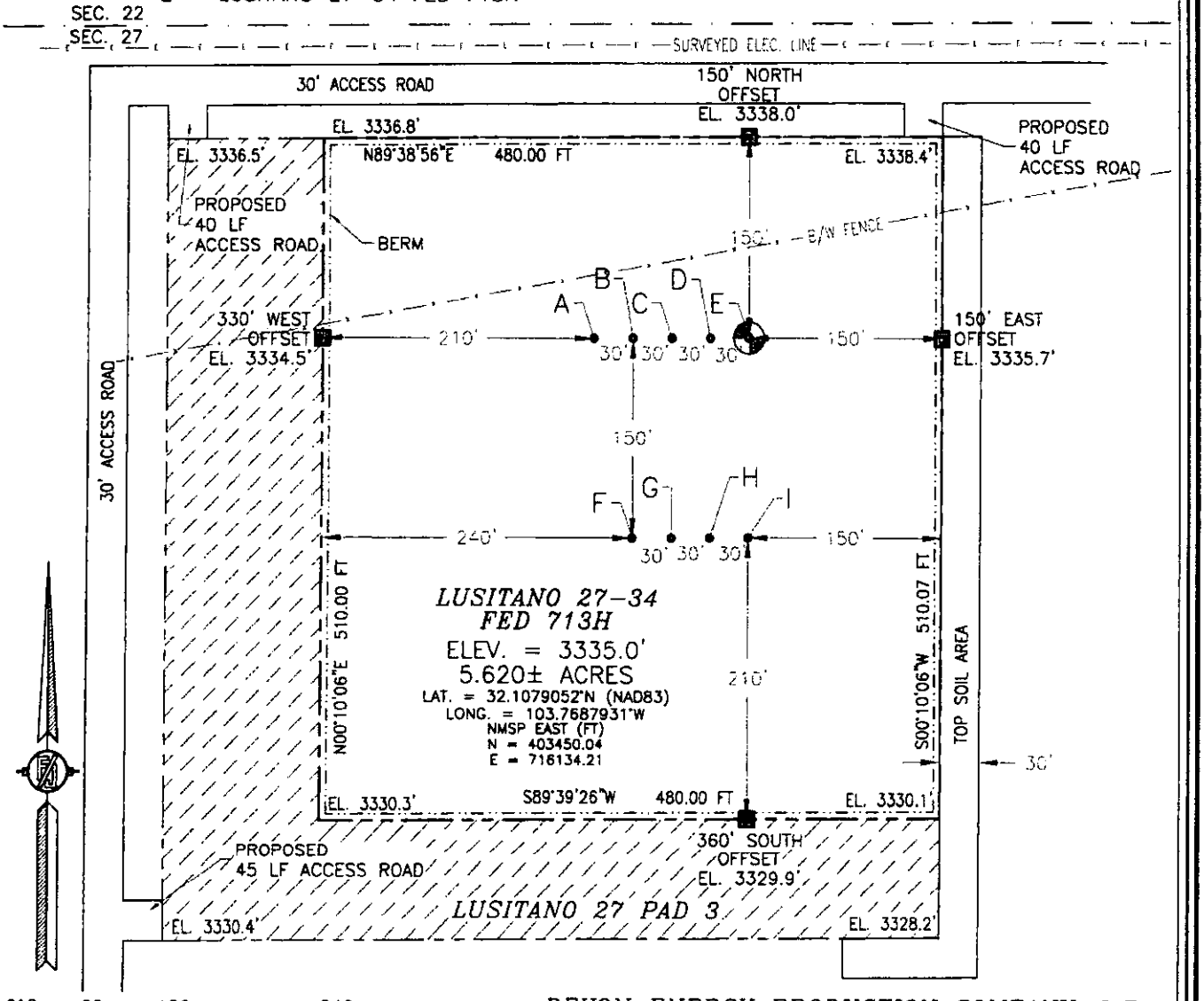
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

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.

A – LUSITANO 27–22 FED COM 232H
B – LUSITANO 27–34 FED 733H
C – LUSITANO 27–34 FED 622H
D – LUSITANO 27–34 FED 333H
E – LUSITANO 27–34 FED 713H
F – LUSITANO 27–34 FED COM 233H
G – LUSITANO 27–34 FED COM 533H
H – LUSITANO 27–34 FED COM 523H
I – LUSITANO 27–34 FED COM 534H



012 60 120 240
SCALE 1" = 120'

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 3437' (0.65 MILE), THEN SOUTH 40' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27–34 FED 713H

LOCATED 235 FT. FROM THE NORTH LINE AND 1762 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

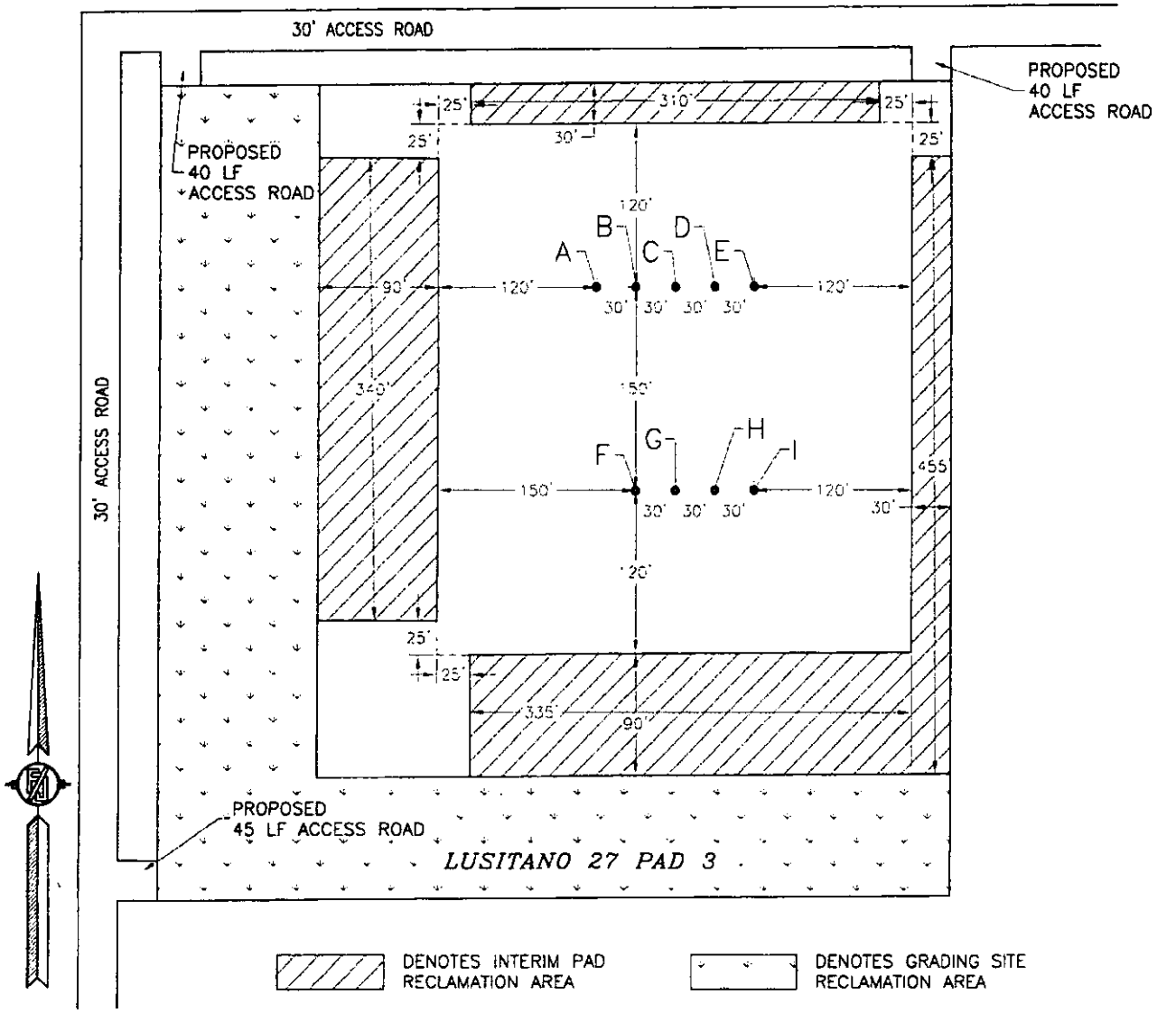
DECEMBER 11, 2018
SURVEY NO. 6427B

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

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

A – LUSITANO 27–22 FED COM 232H
B – LUSITANO 27–34 FED 733H
C – LUSITANO 27–34 FED 622H
D – LUSITANO 27–34 FED 333H
E – LUSITANO 27–34 FED 713H
F – LUSITANO 27–34 FED COM 233H
G – LUSITANO 27–34 FED COM 533H
H – LUSITANO 27–34 FED COM 523H
I – LUSITANO 27–34 FED COM 534H

SEC. 22
SEC. 27



1.921± ACRES INTERIM PAD RECLAMATION AREA
2.646± ACRES GRADING SITE RECLAMATION AREA
3.699± ACRES NON–RECLAIMED AREA
8.266± ACRES LUSITANO 27 PAD 3

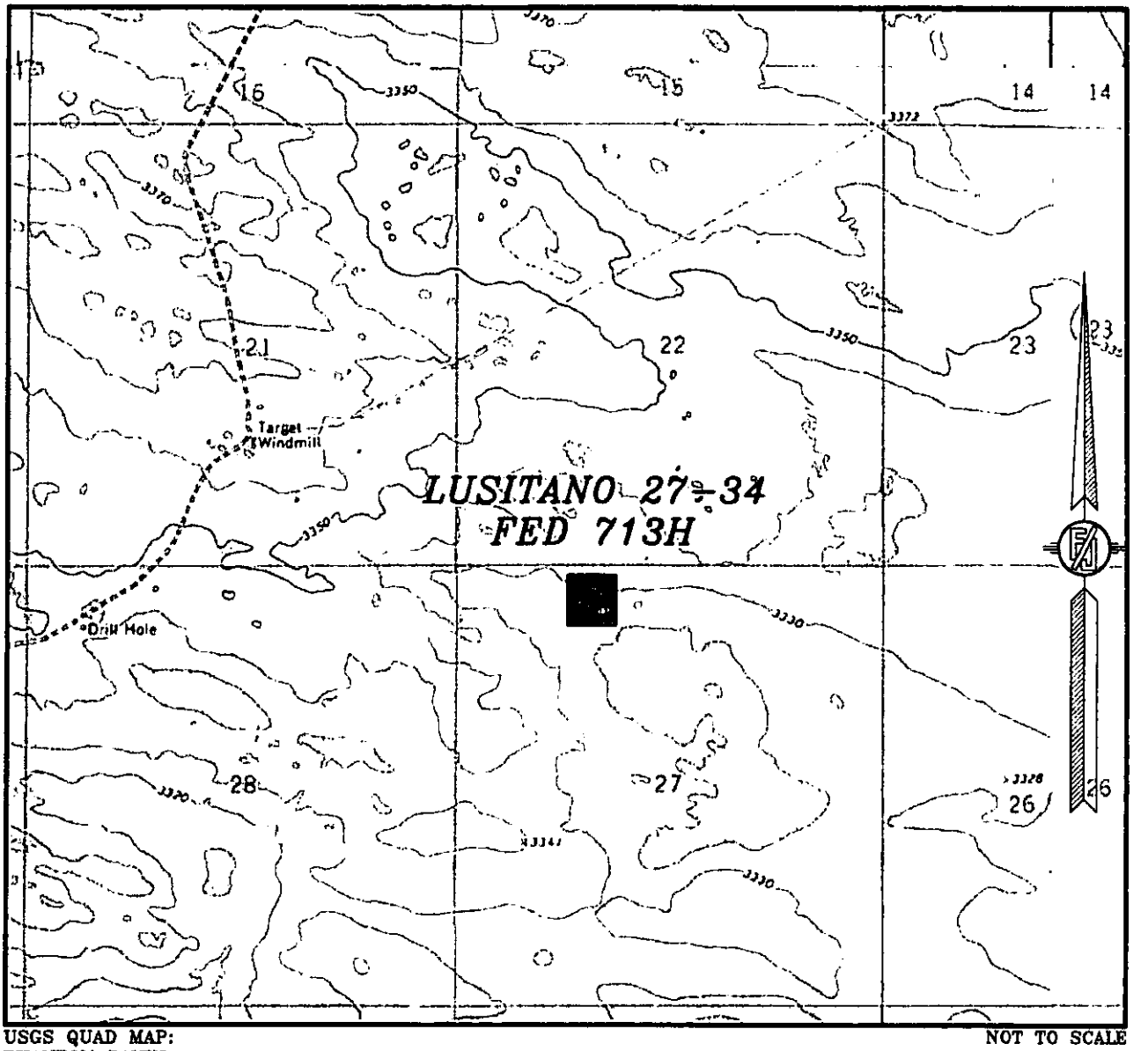
DEVON ENERGY PRODUCTION COMPANY, L.P.
LUSITANO 27–34 FED 713H
LOCATED 235 FT. FROM THE NORTH LINE AND 1762 FT. FROM THE WEST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

DECEMBER 11, 2018
SURVEY NO. 6427B

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

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 713H
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

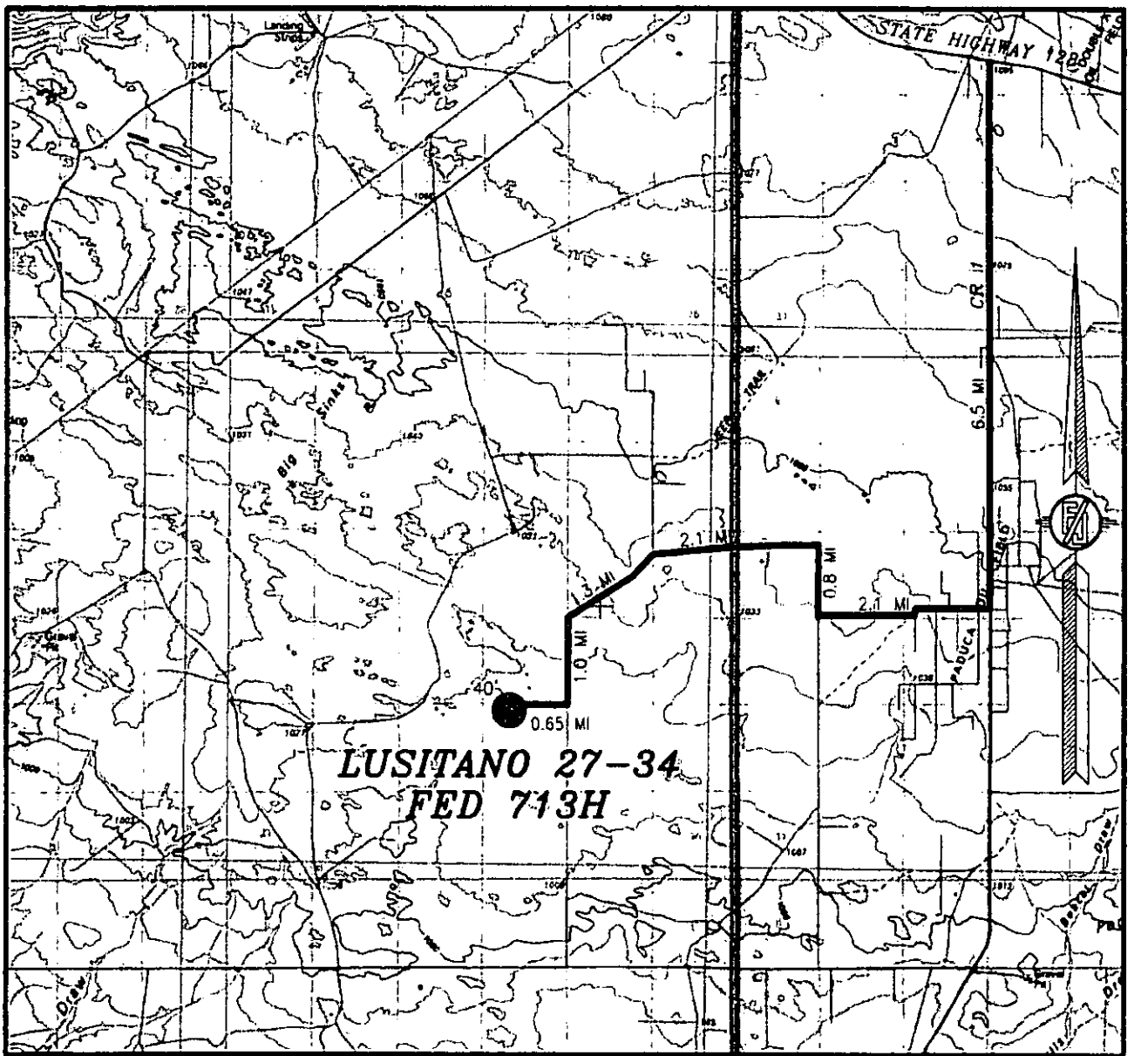
DECEMBER 11, 2018

SURVEY NO. 6427B

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

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 713H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

DECEMBER 11, 2018

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 3437' (0.65 MILE), THEN SOUTH 40' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

SURVEY NO. 6427B

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

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 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED 713H

LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

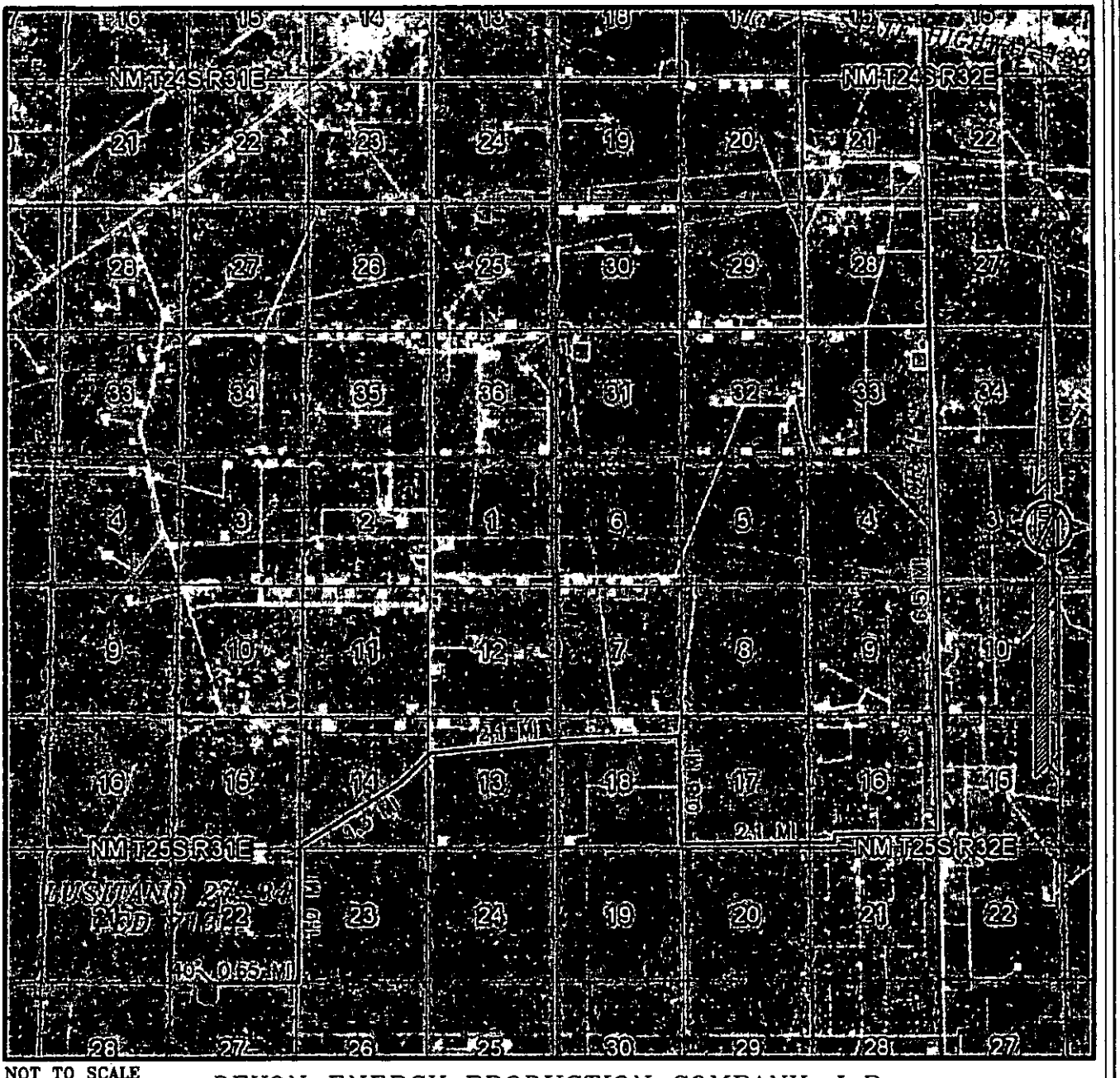
DECEMBER 11, 2018

SURVEY NO. 6427B

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

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 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.

LUSITANO 27-34 FED 713H

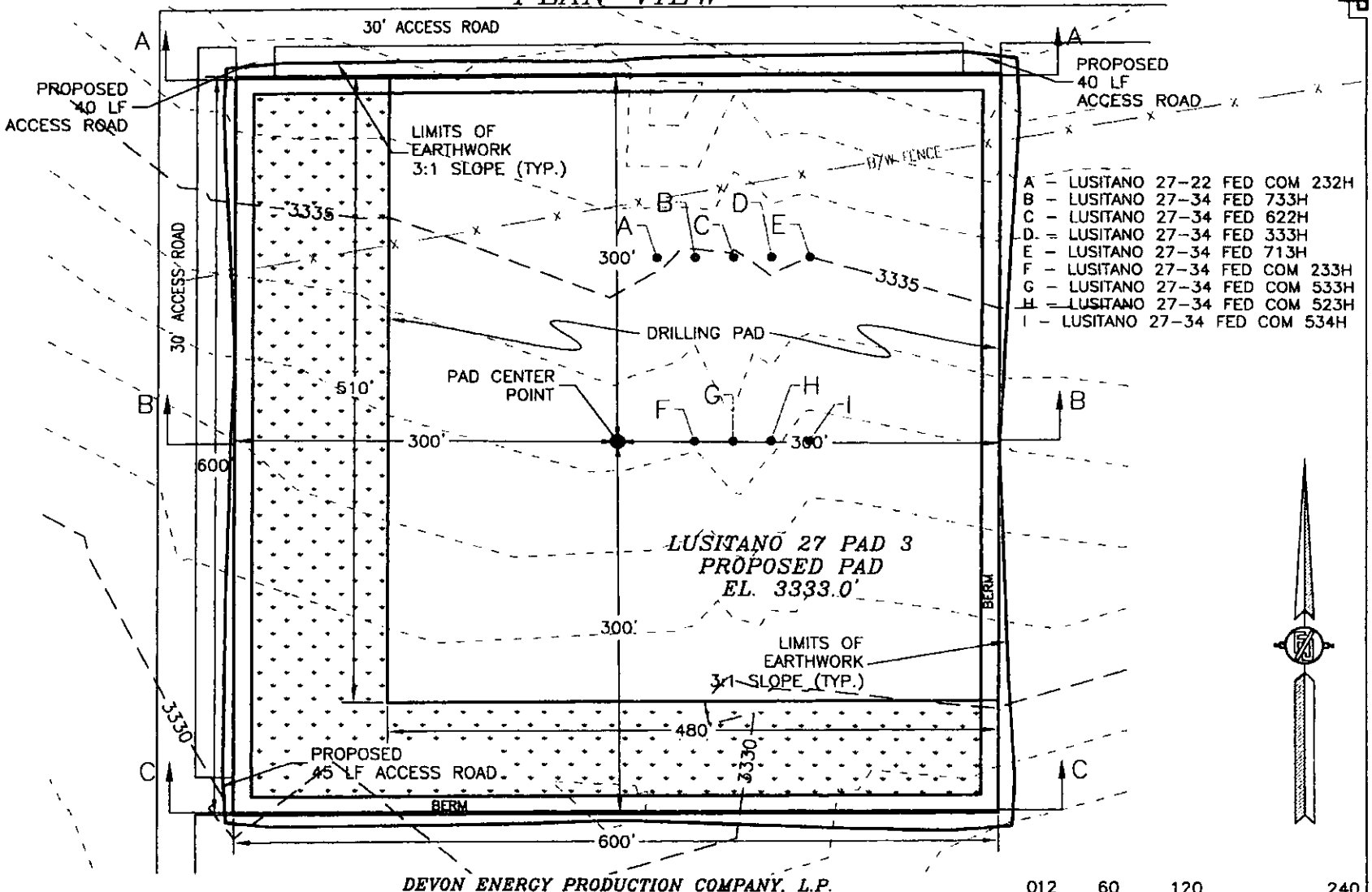
LOCATED 235 FT. FROM THE NORTH LINE
AND 1762 FT. FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LAND STATUS: BLM

DECEMBER 11, 2018

SURVEY NO. 6427B

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

PLAN VIEW



0 12 60 120 240

SCALE 1" = 120'

CUT	FILL	NET
14475 CU. YD	14269 CU. YD	207 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

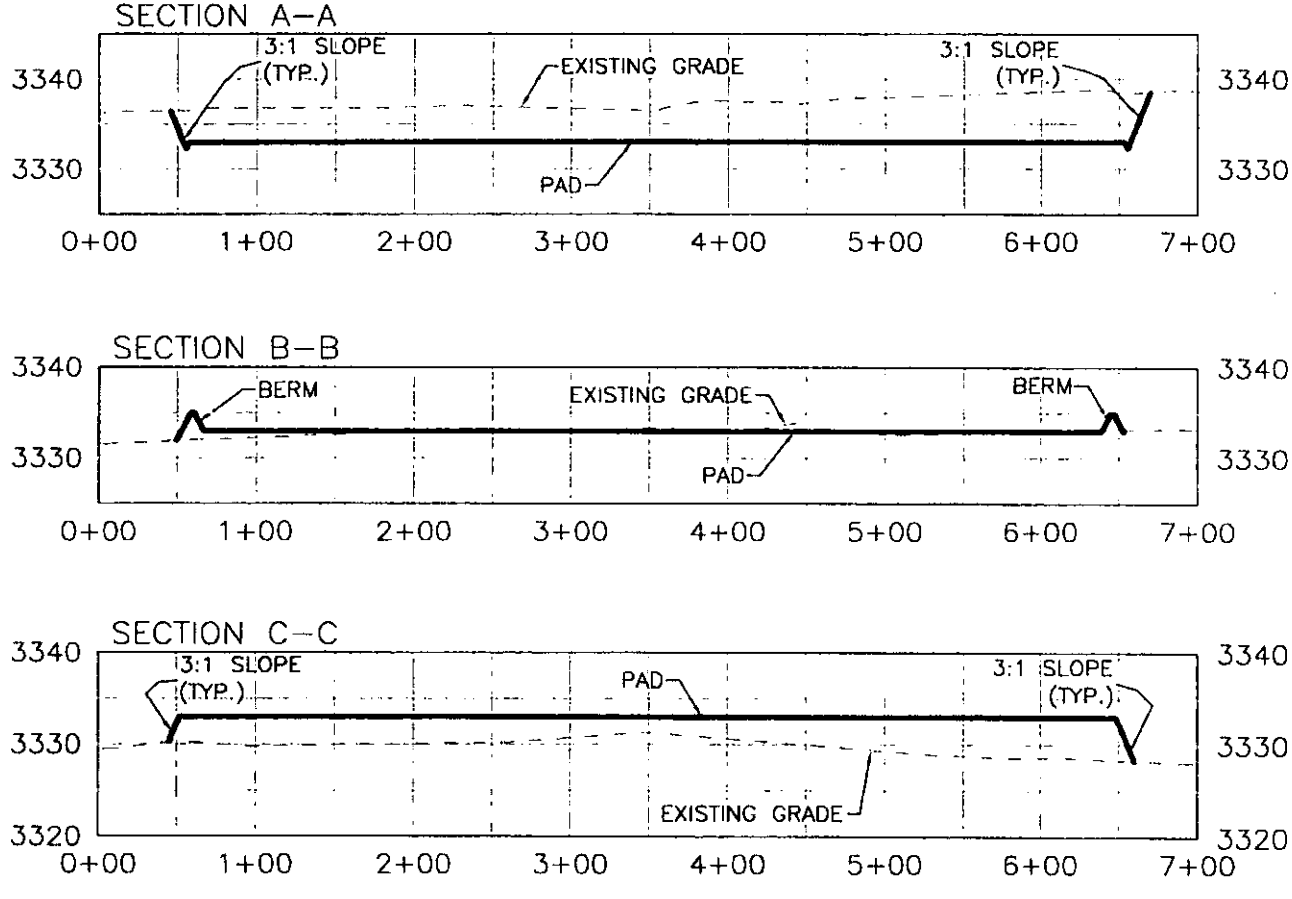
DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27-34 FED 713H
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 11, 2018

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

SHEET 1-2
SURVEY NO. 6427B

CROSS SECTIONS



DEVON ENERGY PRODUCTION COMPANY, L.P.
GRADING PLAN AND CROSS SECTIONS
FOR LUSITANO 27–34 FED 713H
SECTION 27, TOWNSHIP 25 SOUTH,
RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

DECEMBER 11, 2018

SCALE 1" = 120' – 1" = 20' VER

CUT	FILL	NET
14475 CU. YD	14269 CU. YD	207 CU. YD (CUT)

EARTHWORK QUANTITIES ARE ESTIMATED

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

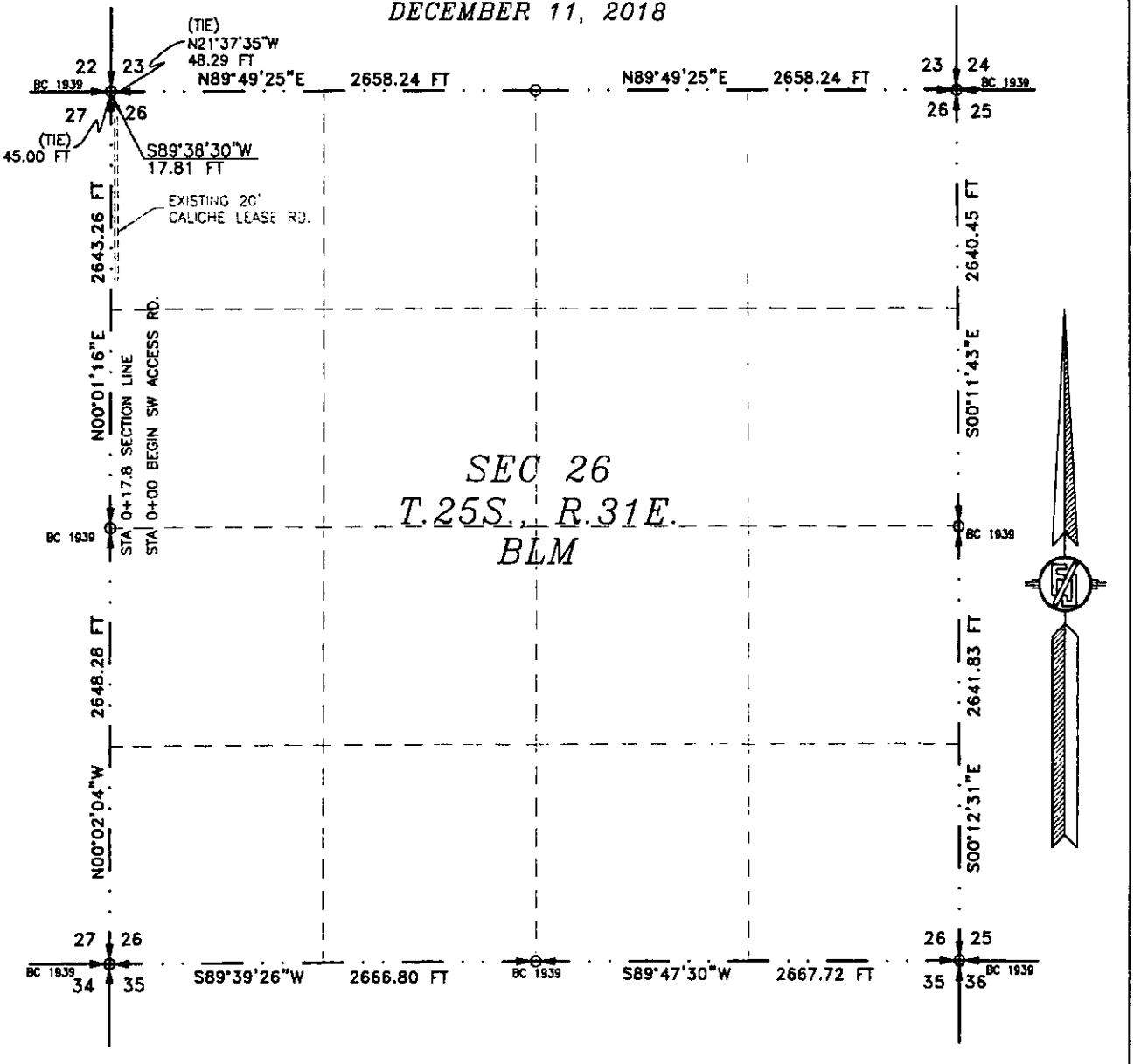
SHEET 2-2
SURVEY NO. 6427B

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 233H, 533H, 523H, 534H, LUSITANO 27-34 FED 713H, 333H, 622H, 733H)

DEVON ENERGY PRODUCTION COMPANY, L.P.

CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 11, 2018



SEE NEXT SHEET (2-4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

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

2.) BASIS OF BEARING AND DISTANCE 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 17 DAY OF DECEMBER 2018

FILIMON F. JARAMILLO NEW MEXICO 12797 REGISTERED PROFESSIONAL SURVEYOR

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

FILIMON F. JARAMILLO PLS 12797

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 233H, 533H, 523H, 534H, LUSITANO 27-34 FED 713H, 333H, 622H, 733H)

DEVON ENERGY PRODUCTION COMPANY, L.P.
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
DECEMBER 11, 2018

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 26, 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:

SOUTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NW/4 NW/4 OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N21°37'35"W, A DISTANCE OF 48.29 FEET;
THENCE S89°38'30"W A DISTANCE OF 17.81 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 26, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N00°01'16"E, A DISTANCE OF 45.00 FEET;

SAID STRIP OF LAND BEING 17.81 FEET OR 1.08 RODS IN LENGTH, CONTAINING 0.012 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NW/4 NW/4	17.81 L.F.	1.08 RODS	0.012 ACRES

GENERAL NOTES

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

2.) BASIS OF BEARING AND DISTANCE 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 ____ DAY OF DECEMBER 2018

FILIMON F. JARAMILLO, PLS, 12797

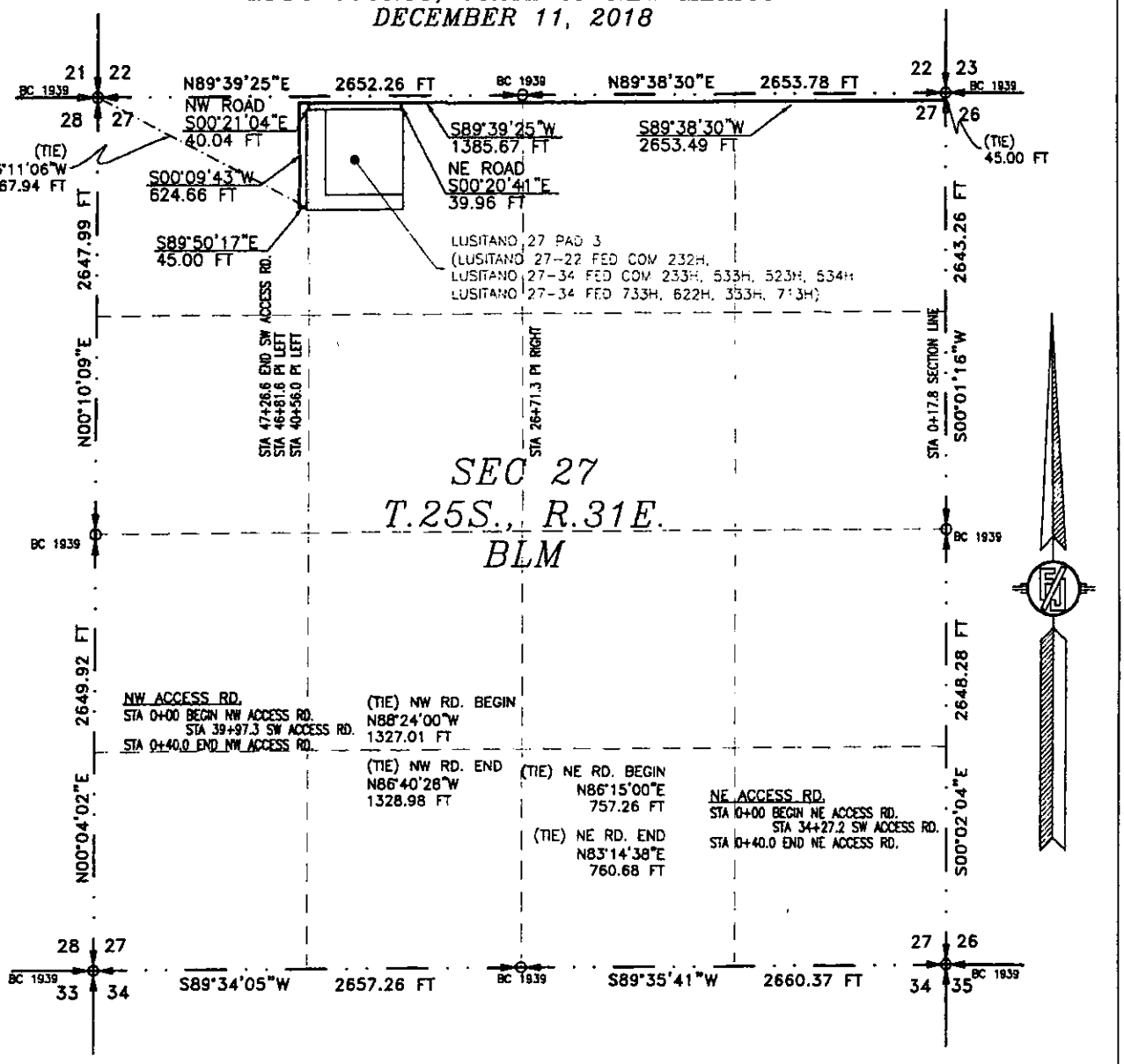
MADRON SURVEYING, INC
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 233H, 533H, 523H, 534H, LUSITANO 27-34 FED 713H, 333H, 622H, 733H)

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
DECEMBER 11, 2018



SEE NEXT SHEET (4-4) FOR DESCRIPTION

1000 0 1000
Scale: 1" = 1000'

GENERAL NOTES

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

2.) BASIS OF BEARING AND DISTANCE 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 19TH DAY OF DECEMBER 2018

FILIMON F. JARAMILLO
NEW MEXICO
12797
REGISTERED PROFESSIONAL SURVEYOR

FILIMON F. JARAMILLO PLS 12797

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

ACCESS ROAD PLAT

ACCESS ROAD TO THE LUSITANO 27 PAD 3 (LUSITANO 27-22 FED COM 232H, LUSITANO 27-34 FED COM 233H, 533H, 523H, 534H, LUSITANO 27-34 FED 713H, 333H, 622H, 733H)

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
DECEMBER 11, 2018

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:

SOUTHWEST 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 N00°01'16"E, A DISTANCE OF 45.00 FEET;
THENCE S89°38'30"W A DISTANCE OF 2653.49 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°39'25"W A DISTANCE OF 1385.67 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°09'43"W A DISTANCE OF 624.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S89°50'17"E A DISTANCE OF 45.00 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N63°11'06"W, A DISTANCE OF 1467.94 FEET;

SAID STRIP OF LAND BEING 4708.82 FEET OR 285.38 RODS IN LENGTH, CONTAINING 3.243 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NW/4 NE/4	1326.91 L.F.	80.42 RODS	0.914 ACRES
NE/4 NW/4	1326.17 L.F.	80.37 RODS	0.913 ACRES
NW/4 NW/4	728.83 L.F.	44.17 RODS	0.502 ACRES

NORTHEAST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/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 N86°15'00"E, A DISTANCE OF 757.26 FEET;
THENCE S00°20'41"E A DISTANCE OF 39.96 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 N83°14'38"E, A DISTANCE OF 760.68 FEET;

SAID STRIP OF LAND BEING 39.96 FEET OR 2.42 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	39.96 L.F.	2.42 RODS	0.028 ACRES

NORTHWEST ACCESS ROAD

BEGINNING AT A POINT WITHIN THE NE/4 NW/4 OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N88°24'00"W, A DISTANCE OF 1327.01 FEET;
THENCE S00°21'04"E A DISTANCE OF 40.04 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 27, TOWNSHIP 25 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N86°40'28"W, A DISTANCE OF 1328.98 FEET;

SAID STRIP OF LAND BEING 40.04 FEET OR 2.43 RODS IN LENGTH, CONTAINING 0.028 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

NE/4 NW/4	40.04 L.F.	2.43 RODS	0.028 ACRES

GENERAL NOTES

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

2.) BASIS OF BEARING AND DISTANCE 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 11TH DAY OF DECEMBER, 2018

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

SHEET: 4-4

SURVEY NO. 6427B

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

Lusitano 27-34 Fed com 713H

1. Geologic Formations

TVD of target	11788	Pilot hole depth	N/A
MD at TD:	17792	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	883		
Salado	1153		
Base of Salt	4238		
Delaware	4278		
L Brushy Canyon	7993		
Bone Spring	8218		
Leonard 'A'	8318		
Leonard 'B'	8723		
Leonard 'C'	8983		
1st BSPG Sand	9258		
2nd BSPG Lime	9648		
2nd BSPG Sand	9978		
L 2nd BSPG Sand	10283		
3rd BSPG Lime	10358		
3rd BSPG Sand	11153		
Wolfcamp	11643		
Wolfcamp 100	11788		

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

2. Casing Program (Primary Design) ~ See COA

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Wt (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
14.75"	0	~~908~~ 924	10.75"	40.5	J-55	STC	1.125	1.25	1.6
9.875"	0	11178 TVD	7.625"	29.7	P110	BTC	1.125	1.25	1.6
6.75"	0	TD	5.5"	20	P110	Vam SG	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

D = 11965

D = 17792

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.

Casing Program (Alternate Design) - see COA

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Wt. (PPF)	Grade	Conn	Min SF Collapse	Min SF Burst	Min SF Tension
17.5"	0	Same as above	13.375"	48	H-40	STC	1.125	1.25	1.6
10.625"	0	Same as above	8.625"	32	P110EC	BTC	1.125	1.25	1.6
7.875"	0	TD	5.5"	17	P110	BTC	1.125	1.25	1.6
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing
- Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.
- Int 1 casing shoe will be selected based on drilling data / gamma, setting depth with be revised accordingly if needed.
- ~~Option to drill change intermediate 1 hole size to 9.625, (8.625" connection will change from BTC to TLW)~~ Does not pass 0.422" requirement.
- Option to run 8.625" TLW connection for intermediate 1
- A variance is requested to wave the centralizer requirement for the Intermediate casing and production casing.
- Variance is requested for collapse rating on intermediate casing. Operator will keep pipe full while running casing. No losses are expected in subsequent hole section.

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

3. Cementing Program (Primary Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	568	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	1055	Surf	9	1.85	Lead: Class C Cement + additives
	847	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	550	Surf	9	1.85	1st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1st stage Tail: Class H / C + additives
	560	Surf	9	1.85	2st stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2st stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	1055	Surf	9	1.85	Lead: Class C Cement + additives
	847	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	500	500' tieback	13.2	1.33	Lead: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned top job will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

Cementing Program (Alternate Design)

Casing	# Sks	TOC	Wt. (lb/gal)	Yld (ft3/sack)	Slurry Description
Surface	752	Surf	13.2	1.33	Lead: Class C Cement + additives
Int 1	1152	Surf	9	1.85	Lead: Class C Cement + additives
	831	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Int 1 Two Stage w DV @ ~4500	590	Surf	9	1.85	1st stage Lead: Class C Cement + additives
	55	500' above shoe	13.2	1.33	1st stage Tail: Class H / C + additives
	600	Surf	9	1.85	2st stage Lead: Class C Cement + additives
	55	500' above DV	13.2	1.33	2st stage Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.33	Squeeze Lead: Class C Cement + additives
	1152	Surf	9	1.85	Lead: Class C Cement + additives
	831	4000' above shoe	13.2	1.33	Tail: Class H / C + additives
Production	907	500' tieback	13.2	1.33	Lead: Class H / C + additives

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned top job will be conducted immediately after completion of the primary job.

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
Y	A variance is requested to run a 5M annular on a 10M system.

5. Mud Program (3 String Design)

Section	Type	Weight (ppg)	Vis	Water Loss
Surface	FW Gel	8.5 - 9	28-34	N/C
Intermediate	DBE / Cut Brine	9 - 10	28-34	N/C
Production	OBM	10-10.5	28-34	N/C

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 fromTD 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	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6436 psi
Abnormal Temperature	No

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? Potentially

1. If operator elects, 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 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? Potentially

1. Spudder rig will move in and drill surface hole.
    a. Rig will utilize fresh water based mud to drill 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 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 nippled 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.

Attachments
_x_ Directional Plan
___ Other, describe

Devon Energy

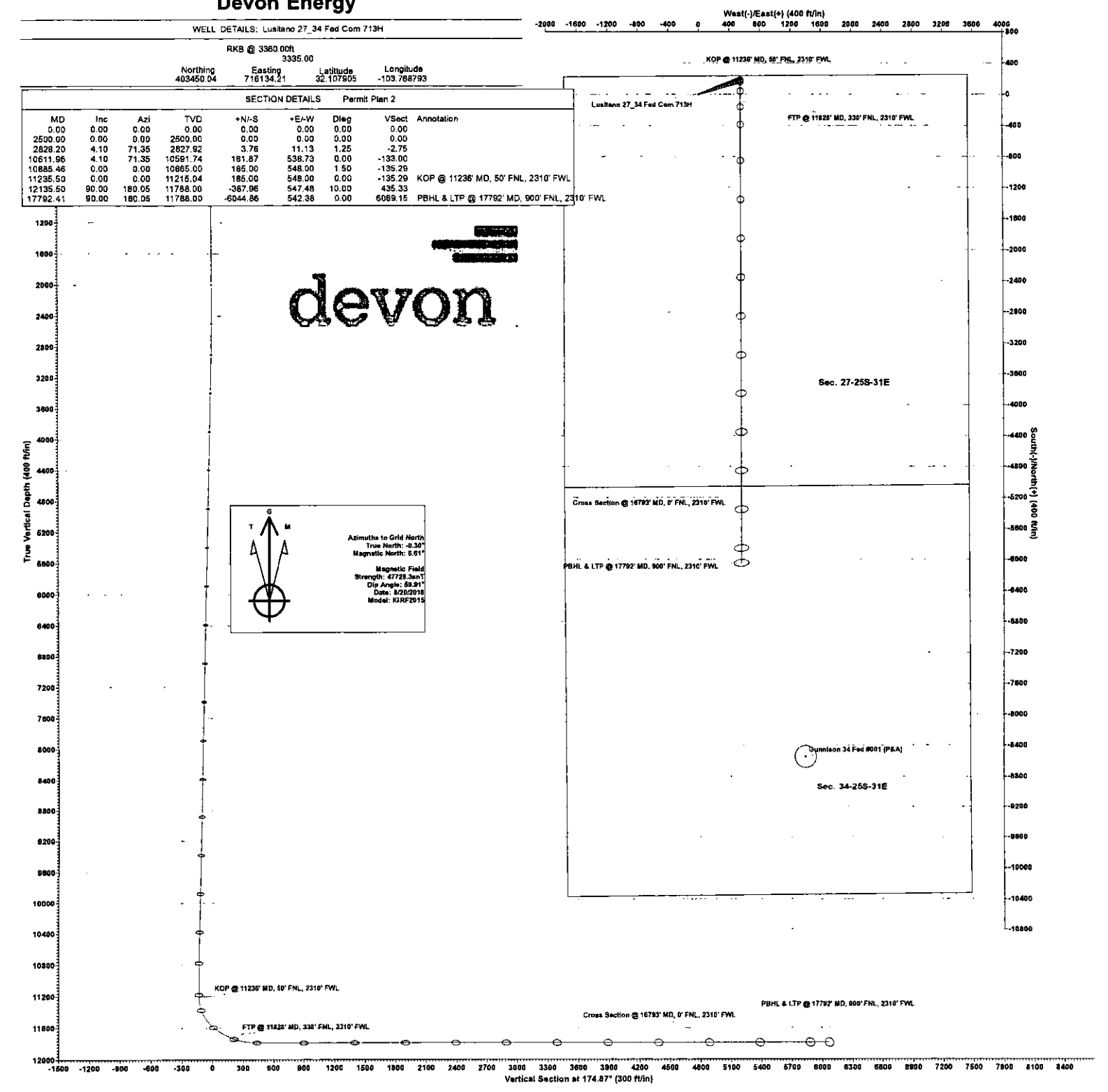
WELL DETAILS: Lusitano 27_34 Fed Com 713H

RKB @ 3360.00ft
3335.00

Northing	Easting	Latitude	Longitude
403450.04	716134.21	32.107905	-103.788793

SECTION DETAILS Permit Plan 2

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	
2828.20	4.10	71.35	2827.92	3.76	11.13	1.25	-2.75	
10611.96	4.10	71.35	10591.74	181.87	538.73	0.00	-133.00	
10885.46	0.00	0.00	10865.00	185.00	548.00	1.50	-135.29	
11235.50	0.00	0.00	11215.04	185.00	548.00	0.00	-135.29	KOP @ 11236' MD, 50' FNL, 2310' FWL
12135.50	90.00	180.05	11788.00	-387.96	547.48	10.00	435.33	
17792.41	90.00	180.05	11788.00	-6044.86	542.38	0.00	6069.15	PBHL & LTP @ 17792' MD, 900' FNL, 2310' FWL



WCDSC Permian NM

Eddy County (NAD 83 NM Eastern)
Sec 27-T25S-R31E
Lusitano 27_34 Fed Com 713H

Wellbore #1

Plan: Permit Plan 2

Standard Planning Report - Geographic

17 December, 2018

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27_34 Fed Com 713H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

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

Site	Sec 27-T25S-R31E				
Site Position:		**Northing:**	403,674.44 usft	**Latitude:**	32.108547
From:	Map	**Easting:**	714,373.23 usft	**Longitude:**	-103.774477
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.30 °

Well	Lusitano 27_34 Fed Com 713H					
Well Position	**+N/-S**	0.00 ft	**Northing:**	403,450.04 usft	**Latitude:**	32.107905
	+E/-W	0.00 ft	**Easting:**	716,134.21 usft	**Longitude:**	-103.768793
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,335.00 ft

Wellbore	Wellbore #1				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/20/2018	6.91	59.91	47,728.31780968

Design	Permit Plan 2				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.00	0.00	0.00	174.87	

Plan Survey Tool Program **Date** 12/17/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,792.41	Permit Plan 2 (Wellbore #1)	MWD+HDGM OWSG MWD + HDGM	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,828.20	4.10	71.35	2,827.92	3.76	11.13	1.25	1.25	0.00	71.35	
10,611.96	4.10	71.35	10,591.74	181.87	538.73	0.00	0.00	0.00	0.00	
10,885.46	0.00	0.00	10,865.00	185.00	548.00	1.50	-1.50	0.00	180.00	
11,235.50	0.00	0.00	11,215.04	185.00	548.00	0.00	0.00	0.00	0.00	
12,135.50	90.00	180.05	11,788.00	-387.96	547.48	10.00	10.00	0.00	180.05	PBHL - Lusitano 27_3
17,792.41	90.00	180.05	11,788.00	-6,044.86	542.38	0.00	0.00	0.00	0.00	PBHL - Lusitano 27_3

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27_34 Fed Com 713H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
100.00	0.00	0.00	100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
200.00	0.00	0.00	200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
300.00	0.00	0.00	300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
400.00	0.00	0.00	400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
500.00	0.00	0.00	500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
600.00	0.00	0.00	600.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
700.00	0.00	0.00	700.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
800.00	0.00	0.00	800.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
900.00	0.00	0.00	900.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,000.00	0.00	0.00	1,000.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,100.00	0.00	0.00	1,100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,200.00	0.00	0.00	1,200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,300.00	0.00	0.00	1,300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,400.00	0.00	0.00	1,400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,500.00	0.00	0.00	1,500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,600.00	0.00	0.00	1,600.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,700.00	0.00	0.00	1,700.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,800.00	0.00	0.00	1,800.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
1,900.00	0.00	0.00	1,900.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,000.00	0.00	0.00	2,000.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,100.00	0.00	0.00	2,100.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,200.00	0.00	0.00	2,200.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,300.00	0.00	0.00	2,300.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,400.00	0.00	0.00	2,400.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,500.00	0.00	0.00	2,500.00	0.00	0.00	403,450.04	716,134.21	32.107905	-103.768793
2,600.00	1.25	71.35	2,599.99	0.35	1.03	403,450.39	716,135.24	32.107906	-103.768790
2,700.00	2.50	71.35	2,699.94	1.40	4.13	403,451.43	716,138.34	32.107909	-103.768780
2,800.00	3.75	71.35	2,799.79	3.14	9.30	403,453.18	716,143.50	32.107914	-103.768763
2,828.20	4.10	71.35	2,827.92	3.76	11.13	403,453.80	716,145.33	32.107915	-103.768757
2,900.00	4.10	71.35	2,899.54	5.40	15.99	403,455.44	716,150.20	32.107920	-103.768742
3,000.00	4.10	71.35	2,999.28	7.69	22.77	403,457.73	716,156.98	32.107926	-103.768720
3,100.00	4.10	71.35	3,099.02	9.98	29.55	403,460.02	716,163.76	32.107932	-103.768698
3,200.00	4.10	71.35	3,198.77	12.26	36.33	403,462.30	716,170.54	32.107938	-103.768676
3,300.00	4.10	71.35	3,298.51	14.55	43.11	403,464.59	716,177.31	32.107945	-103.768654
3,400.00	4.10	71.35	3,398.25	16.84	49.89	403,466.88	716,184.09	32.107951	-103.768632
3,500.00	4.10	71.35	3,498.00	19.13	56.66	403,469.17	716,190.87	32.107957	-103.768610
3,600.00	4.10	71.35	3,597.74	21.42	63.44	403,471.46	716,197.65	32.107963	-103.768588
3,700.00	4.10	71.35	3,697.49	23.71	70.22	403,473.74	716,204.43	32.107969	-103.768566
3,800.00	4.10	71.35	3,797.23	25.99	77.00	403,476.03	716,211.20	32.107976	-103.768544
3,900.00	4.10	71.35	3,896.97	28.28	83.78	403,478.32	716,217.98	32.107982	-103.768522
4,000.00	4.10	71.35	3,996.72	30.57	90.55	403,480.61	716,224.76	32.107988	-103.768500
4,100.00	4.10	71.35	4,096.46	32.86	97.33	403,482.90	716,231.54	32.107994	-103.768478
4,200.00	4.10	71.35	4,196.20	35.15	104.11	403,485.19	716,238.32	32.108000	-103.768457
4,300.00	4.10	71.35	4,295.95	37.44	110.89	403,487.47	716,245.10	32.108007	-103.768435
4,400.00	4.10	71.35	4,395.69	39.72	117.67	403,489.76	716,251.87	32.108013	-103.768413
4,500.00	4.10	71.35	4,495.44	42.01	124.45	403,492.05	716,258.65	32.108019	-103.768391
4,600.00	4.10	71.35	4,595.18	44.30	131.22	403,494.34	716,265.43	32.108025	-103.768369
4,700.00	4.10	71.35	4,694.92	46.59	138.00	403,496.63	716,272.21	32.108031	-103.768347
4,800.00	4.10	71.35	4,794.67	48.88	144.78	403,498.92	716,278.99	32.108038	-103.768325
4,900.00	4.10	71.35	4,894.41	51.16	151.56	403,501.20	716,285.76	32.108044	-103.768303
5,000.00	4.10	71.35	4,994.15	53.45	158.34	403,503.49	716,292.54	32.108050	-103.768281
5,100.00	4.10	71.35	5,093.90	55.74	165.12	403,505.78	716,299.32	32.108056	-103.768259
5,200.00	4.10	71.35	5,193.64	58.03	171.89	403,508.07	716,306.10	32.108062	-103.768237
5,300.00	4.10	71.35	5,293.39	60.32	178.67	403,510.36	716,312.88	32.108068	-103.768215

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27_34 Fed Com 713H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	4.10	71.35	5,393.13	62.61	185.45	403,512.65	716,319.66	32.108075	-103.768193
5,500.00	4.10	71.35	5,492.87	64.89	192.23	403,514.93	716,326.43	32.108081	-103.768171
5,600.00	4.10	71.35	5,592.62	67.18	199.01	403,517.22	716,333.21	32.108087	-103.768150
5,700.00	4.10	71.35	5,692.36	69.47	205.78	403,519.51	716,339.99	32.108093	-103.768128
5,800.00	4.10	71.35	5,792.11	71.76	212.56	403,521.80	716,346.77	32.108099	-103.768106
5,900.00	4.10	71.35	5,891.85	74.05	219.34	403,524.09	716,353.55	32.108106	-103.768084
6,000.00	4.10	71.35	5,991.59	76.34	226.12	403,526.37	716,360.32	32.108112	-103.768062
6,100.00	4.10	71.35	6,091.34	78.62	232.90	403,528.66	716,367.10	32.108118	-103.768040
6,200.00	4.10	71.35	6,191.08	80.91	239.68	403,530.95	716,373.88	32.108124	-103.768018
6,300.00	4.10	71.35	6,290.82	83.20	246.45	403,533.24	716,380.66	32.108130	-103.767996
6,400.00	4.10	71.35	6,390.57	85.49	253.23	403,535.53	716,387.44	32.108137	-103.767974
6,500.00	4.10	71.35	6,490.31	87.78	260.01	403,537.82	716,394.22	32.108143	-103.767952
6,600.00	4.10	71.35	6,590.06	90.07	266.79	403,540.10	716,400.99	32.108149	-103.767930
6,700.00	4.10	71.35	6,689.80	92.35	273.57	403,542.39	716,407.77	32.108155	-103.767908
6,800.00	4.10	71.35	6,789.54	94.64	280.34	403,544.68	716,414.55	32.108161	-103.767886
6,900.00	4.10	71.35	6,889.29	96.93	287.12	403,546.97	716,421.33	32.108168	-103.767864
7,000.00	4.10	71.35	6,989.03	99.22	293.90	403,549.26	716,428.11	32.108174	-103.767843
7,100.00	4.10	71.35	7,088.77	101.51	300.68	403,551.55	716,434.88	32.108180	-103.767821
7,200.00	4.10	71.35	7,188.52	103.79	307.46	403,553.83	716,441.66	32.108186	-103.767799
7,300.00	4.10	71.35	7,288.26	106.08	314.24	403,556.12	716,448.44	32.108192	-103.767777
7,400.00	4.10	71.35	7,388.01	108.37	321.01	403,558.41	716,455.22	32.108199	-103.767755
7,500.00	4.10	71.35	7,487.75	110.66	327.79	403,560.70	716,462.00	32.108205	-103.767733
7,600.00	4.10	71.35	7,587.49	112.95	334.57	403,562.99	716,468.78	32.108211	-103.767711
7,700.00	4.10	71.35	7,687.24	115.24	341.35	403,565.28	716,475.55	32.108217	-103.767689
7,800.00	4.10	71.35	7,786.98	117.52	348.13	403,567.56	716,482.33	32.108223	-103.767667
7,900.00	4.10	71.35	7,886.72	119.81	354.90	403,569.85	716,489.11	32.108229	-103.767645
8,000.00	4.10	71.35	7,986.47	122.10	361.68	403,572.14	716,495.89	32.108236	-103.767623
8,100.00	4.10	71.35	8,086.21	124.39	368.46	403,574.43	716,502.67	32.108242	-103.767601
8,200.00	4.10	71.35	8,185.96	126.68	375.24	403,576.72	716,509.44	32.108248	-103.767579
8,300.00	4.10	71.35	8,285.70	128.97	382.02	403,579.00	716,516.22	32.108254	-103.767557
8,400.00	4.10	71.35	8,385.44	131.25	388.80	403,581.29	716,523.00	32.108260	-103.767536
8,500.00	4.10	71.35	8,485.19	133.54	395.57	403,583.58	716,529.78	32.108267	-103.767514
8,600.00	4.10	71.35	8,584.93	135.83	402.35	403,585.87	716,536.56	32.108273	-103.767492
8,700.00	4.10	71.35	8,684.67	138.12	409.13	403,588.16	716,543.34	32.108279	-103.767470
8,800.00	4.10	71.35	8,784.42	140.41	415.91	403,590.45	716,550.11	32.108285	-103.767448
8,900.00	4.10	71.35	8,884.16	142.70	422.69	403,592.73	716,556.89	32.108291	-103.767426
9,000.00	4.10	71.35	8,983.91	144.98	429.46	403,595.02	716,563.67	32.108298	-103.767404
9,100.00	4.10	71.35	9,083.65	147.27	436.24	403,597.31	716,570.45	32.108304	-103.767382
9,200.00	4.10	71.35	9,183.39	149.56	443.02	403,599.60	716,577.23	32.108310	-103.767360
9,300.00	4.10	71.35	9,283.14	151.85	449.80	403,601.89	716,584.00	32.108316	-103.767338
9,400.00	4.10	71.35	9,382.88	154.14	456.58	403,604.18	716,590.78	32.108322	-103.767316
9,500.00	4.10	71.35	9,482.62	156.42	463.36	403,606.46	716,597.56	32.108329	-103.767294
9,600.00	4.10	71.35	9,582.37	158.71	470.13	403,608.75	716,604.34	32.108335	-103.767272
9,700.00	4.10	71.35	9,682.11	161.00	476.91	403,611.04	716,611.12	32.108341	-103.767250
9,800.00	4.10	71.35	9,781.86	163.29	483.69	403,613.33	716,617.90	32.108347	-103.767229
9,900.00	4.10	71.35	9,881.60	165.58	490.47	403,615.62	716,624.67	32.108353	-103.767207
10,000.00	4.10	71.35	9,981.34	167.87	497.25	403,617.90	716,631.45	32.108360	-103.767185
10,100.00	4.10	71.35	10,081.09	170.15	504.03	403,620.19	716,638.23	32.108366	-103.767163
10,200.00	4.10	71.35	10,180.83	172.44	510.80	403,622.48	716,645.01	32.108372	-103.767141
10,300.00	4.10	71.35	10,280.57	174.73	517.58	403,624.77	716,651.79	32.108378	-103.767119
10,400.00	4.10	71.35	10,380.32	177.02	524.36	403,627.06	716,658.56	32.108384	-103.767097
10,500.00	4.10	71.35	10,480.06	179.31	531.14	403,629.35	716,665.34	32.108390	-103.767075
10,600.00	4.10	71.35	10,579.81	181.60	537.92	403,631.63	716,672.12	32.108397	-103.767053
10,611.96	4.10	71.35	10,591.74	181.87	538.73	403,631.91	716,672.93	32.108397	-103.767050
10,700.00	2.78	71.35	10,679.61	183.56	543.74	403,633.60	716,677.94	32.108402	-103.767034

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27_34 Fed Com 713H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,800.00	1.28	71.35	10,779.55	184.69	547.09	403,634.73	716,681.30	32.108405	-103.767023
10,885.46	0.00	0.00	10,865.00	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
10,900.00	0.00	0.00	10,879.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,000.00	0.00	0.00	10,979.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,100.00	0.00	0.00	11,079.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,200.00	0.00	0.00	11,179.54	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
11,235.50	0.00	0.00	11,215.04	185.00	548.00	403,635.04	716,682.20	32.108406	-103.767020
KOP @ 11236' MD, 50' FNL, 2310' FWL									
11,300.00	6.45	180.05	11,279.41	181.37	548.00	403,631.41	716,682.20	32.108396	-103.767021
11,400.00	16.45	180.05	11,377.29	161.55	547.98	403,611.59	716,682.18	32.108341	-103.767021
11,500.00	26.45	180.05	11,470.25	125.02	547.95	403,575.06	716,682.15	32.108241	-103.767022
11,600.00	36.45	180.05	11,555.45	72.91	547.90	403,522.95	716,682.10	32.108098	-103.767023
11,700.00	46.45	180.05	11,630.31	6.80	547.84	403,456.84	716,682.04	32.107916	-103.767024
11,800.00	56.45	180.05	11,692.55	-71.31	547.77	403,378.73	716,681.97	32.107701	-103.767026
11,827.99	59.25	180.05	11,707.44	-95.00	547.75	403,355.04	716,681.95	32.107636	-103.767026
FTP @ 11828' MD, 330' FNL, 2310' FWL									
11,900.00	66.45	180.05	11,740.28	-159.03	547.69	403,291.01	716,681.89	32.107460	-103.767027
12,000.00	76.45	180.05	11,772.05	-253.72	547.60	403,196.32	716,681.81	32.107200	-103.767029
12,100.00	86.45	180.05	11,786.90	-352.48	547.52	403,097.56	716,681.72	32.106928	-103.767031
12,135.50	90.00	180.05	11,788.00	-387.96	547.48	403,062.08	716,681.69	32.106831	-103.767032
12,200.00	90.00	180.05	11,788.00	-452.46	547.43	402,997.58	716,681.63	32.106654	-103.767033
12,300.00	90.00	180.05	11,788.00	-552.46	547.33	402,897.58	716,681.54	32.106379	-103.767035
12,400.00	90.00	180.05	11,788.00	-652.46	547.24	402,797.58	716,681.45	32.106104	-103.767037
12,500.00	90.00	180.05	11,788.00	-752.46	547.15	402,697.58	716,681.36	32.105829	-103.767039
12,600.00	90.00	180.05	11,788.00	-852.46	547.06	402,597.58	716,681.27	32.105554	-103.767041
12,700.00	90.00	180.05	11,788.00	-952.46	546.97	402,497.58	716,681.18	32.105279	-103.767043
12,800.00	90.00	180.05	11,788.00	-1,052.46	546.88	402,397.58	716,681.09	32.105004	-103.767045
12,900.00	90.00	180.05	11,788.00	-1,152.46	546.79	402,297.58	716,681.00	32.104729	-103.767047
13,000.00	90.00	180.05	11,788.00	-1,252.46	546.70	402,197.58	716,680.91	32.104455	-103.767049
13,100.00	90.00	180.05	11,788.00	-1,352.46	546.61	402,097.58	716,680.82	32.104180	-103.767051
13,200.00	90.00	180.05	11,788.00	-1,452.46	546.52	401,997.58	716,680.73	32.103905	-103.767053
13,300.00	90.00	180.05	11,788.00	-1,552.46	546.43	401,897.58	716,680.64	32.103630	-103.767055
13,400.00	90.00	180.05	11,788.00	-1,652.46	546.34	401,797.58	716,680.55	32.103355	-103.767057
13,500.00	90.00	180.05	11,788.00	-1,752.46	546.25	401,697.58	716,680.46	32.103080	-103.767059
13,600.00	90.00	180.05	11,788.00	-1,852.46	546.16	401,597.58	716,680.37	32.102805	-103.767061
13,700.00	90.00	180.05	11,788.00	-1,952.46	546.07	401,497.58	716,680.28	32.102530	-103.767063
13,800.00	90.00	180.05	11,788.00	-2,052.46	545.98	401,397.59	716,680.19	32.102256	-103.767065
13,900.00	90.00	180.05	11,788.00	-2,152.46	545.89	401,297.59	716,680.10	32.101981	-103.767067
14,000.00	90.00	180.05	11,788.00	-2,252.46	545.80	401,197.59	716,680.01	32.101706	-103.767069
14,100.00	90.00	180.05	11,788.00	-2,352.46	545.71	401,097.59	716,679.92	32.101431	-103.767071
14,200.00	90.00	180.05	11,788.00	-2,452.46	545.62	400,997.59	716,679.83	32.101156	-103.767073
14,300.00	90.00	180.05	11,788.00	-2,552.46	545.53	400,897.59	716,679.74	32.100881	-103.767075
14,400.00	90.00	180.05	11,788.00	-2,652.46	545.44	400,797.59	716,679.65	32.100606	-103.767077
14,500.00	90.00	180.05	11,788.00	-2,752.46	545.35	400,697.59	716,679.56	32.100331	-103.767079
14,600.00	90.00	180.05	11,788.00	-2,852.46	545.26	400,597.59	716,679.47	32.100056	-103.767081
14,700.00	90.00	180.05	11,788.00	-2,952.46	545.17	400,497.59	716,679.38	32.099782	-103.767083
14,800.00	90.00	180.05	11,788.00	-3,052.46	545.08	400,397.59	716,679.28	32.099507	-103.767085
14,900.00	90.00	180.05	11,788.00	-3,152.46	544.99	400,297.59	716,679.19	32.099232	-103.767087
15,000.00	90.00	180.05	11,788.00	-3,252.46	544.90	400,197.59	716,679.10	32.098957	-103.767089
15,100.00	90.00	180.05	11,788.00	-3,352.46	544.81	400,097.59	716,679.01	32.098682	-103.767091
15,200.00	90.00	180.05	11,788.00	-3,452.46	544.72	399,997.59	716,678.92	32.098407	-103.767093
15,300.00	90.00	180.05	11,788.00	-3,552.46	544.63	399,897.59	716,678.83	32.098132	-103.767095
15,400.00	90.00	180.05	11,788.00	-3,652.46	544.54	399,797.59	716,678.74	32.097857	-103.767097
15,500.00	90.00	180.05	11,788.00	-3,752.46	544.45	399,697.59	716,678.65	32.097583	-103.767099

Database:	EDM r5000.141_Prod US	**Local Co-ordinate Reference:**	Well Lusitano 27_34 Fed Com 713H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3360.00ft
Project:	Eddy County (NAD 83 NM Eastern)	**MD Reference:**	RKB @ 3360.00ft
Site:	Sec 27-T25S-R31E	**North Reference:**	Grid
Well:	Lusitano 27_34 Fed Com 713H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,600.00	90.00	180.05	11,788.00	-3,852.46	544.36	399,597.59	716,678.56	32.097308	-103.767101
15,700.00	90.00	180.05	11,788.00	-3,952.46	544.27	399,497.59	716,678.47	32.097033	-103.767103
15,800.00	90.00	180.05	11,788.00	-4,052.46	544.18	399,397.59	716,678.38	32.096758	-103.767105
15,900.00	90.00	180.05	11,788.00	-4,152.46	544.09	399,297.59	716,678.29	32.096483	-103.767107
16,000.00	90.00	180.05	11,788.00	-4,252.46	544.00	399,197.59	716,678.20	32.096208	-103.767109
16,100.00	90.00	180.05	11,788.00	-4,352.46	543.91	399,097.59	716,678.11	32.095933	-103.767111
16,200.00	90.00	180.05	11,788.00	-4,452.46	543.82	398,997.59	716,678.02	32.095658	-103.767113
16,300.00	90.00	180.05	11,788.00	-4,552.46	543.73	398,897.59	716,677.93	32.095384	-103.767115
16,400.00	90.00	180.05	11,788.00	-4,652.46	543.64	398,797.59	716,677.84	32.095109	-103.767117
16,500.00	90.00	180.05	11,788.00	-4,752.46	543.55	398,697.59	716,677.75	32.094834	-103.767119
16,600.00	90.00	180.05	11,788.00	-4,852.46	543.46	398,597.59	716,677.66	32.094559	-103.767121
16,700.00	90.00	180.05	11,788.00	-4,952.46	543.37	398,497.59	716,677.57	32.094284	-103.767123
16,793.00	90.00	180.05	11,788.00	-5,045.46	543.28	398,404.59	716,677.49	32.094028	-103.767124
Cross Section @ 16793' MD, 0' FNL, 2310' FWL									
16,800.00	90.00	180.05	11,788.00	-5,052.46	543.28	398,397.59	716,677.48	32.094009	-103.767125
16,900.00	90.00	180.05	11,788.00	-5,152.46	543.19	398,297.59	716,677.39	32.093734	-103.767127
17,000.00	90.00	180.05	11,788.00	-5,252.46	543.10	398,197.59	716,677.30	32.093459	-103.767129
17,100.00	90.00	180.05	11,788.00	-5,352.46	543.01	398,097.59	716,677.21	32.093184	-103.767130
17,200.00	90.00	180.05	11,788.00	-5,452.46	542.92	397,997.59	716,677.12	32.092910	-103.767132
17,300.00	90.00	180.05	11,788.00	-5,552.46	542.83	397,897.59	716,677.03	32.092635	-103.767134
17,400.00	90.00	180.05	11,788.00	-5,652.46	542.74	397,797.59	716,676.94	32.092360	-103.767136
17,500.00	90.00	180.05	11,788.00	-5,752.46	542.64	397,697.59	716,676.85	32.092085	-103.767138
17,600.00	90.00	180.05	11,788.00	-5,852.46	542.55	397,597.59	716,676.76	32.091810	-103.767140
17,700.00	90.00	180.05	11,788.00	-5,952.46	542.46	397,497.59	716,676.67	32.091535	-103.767142
17,792.40	90.00	180.05	11,788.00	-6,044.86	542.38	397,405.19	716,676.59	32.091281	-103.767144
PBHL & LTP @ 17792' MD, 900' FNL, 2310' FWL									
[redacted]	90.00	180.05	[redacted]	-6,044.86	542.38	397,405.19	716,676.59	32.091281	-103.767144

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Lusitano 27_34 I	0.00	0.00	0.00	-6,044.86	542.38	397,405.19	716,676.59	32.091281	-103.767144
- plan misses target center by 6069.15ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
11,235.50	11,215.04	185.00	548.00	KOP @ 11236' MD, 50' FNL, 2310' FWL
11,827.99	11,707.44	-95.00	547.75	FTP @ 11828' MD, 330' FNL, 2310' FWL
16,793.00	11,788.00	-5,045.46	543.28	Cross Section @ 16793' MD, 0' FNL, 2310' FWL
17,792.40	11,788.00	-6,044.86	542.38	PBHL & LTP @ 17792' MD, 900' FNL, 2310' FWL

WCDSC Permian NM
Lusitano 27_34 Fed Com 713H - Permit Plan 2

Eddy County (NAD 83 NM Eastern)
Sec 27-T25S-R31E
Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0	0	0	0	0	0	0	0
100	0	0	100	0	0	0	0
200	0	0	200	0	0	0	0
300	0	0	300	0	0	0	0
400	0	0	400	0	0	0	0
500	0	0	500	0	0	0	0
600	0	0	600	0	0	0	0
700	0	0	700	0	0	0	0
800	0	0	800	0	0	0	0
900	0	0	900	0	0	0	0
1000	0	0	1000	0	0	0	0
1100	0	0	1100	0	0	0	0
1200	0	0	1200	0	0	0	0
1300	0	0	1300	0	0	0	0
1400	0	0	1400	0	0	0	0
1500	0	0	1500	0	0	0	0
1600	0	0	1600	0	0	0	0
1700	0	0	1700	0	0	0	0
1800	0	0	1800	0	0	0	0
1900	0	0	1900	0	0	0	0
2000	0	0	2000	0	0	0	0
2100	0	0	2100	0	0	0	0
2200	0	0	2200	0	0	0	0
2300	0	0	2300	0	0	0	0
2400	0	0	2400	0	0	0	0
2500	0	0	2500	0	0	0	0
2600	1.25	71.346	2599.99	0.35	1.03	-0.26	1.25
2700	2.5	71.346	2699.94	1.4	4.13	-1.02	1.25
2800	3.75	71.346	2799.79	3.14	9.3	-2.3	1.25
2828.2	4.102	71.346	2827.92	3.76	11.13	-2.75	1.25
2900	4.102	71.346	2899.54	5.4	15.99	-3.95	0
3000	4.102	71.346	2999.28	7.69	22.77	-5.62	0

3100	4.102	71.346	3099.02	9.98	29.55	-7.3	0
3200	4.102	71.346	3198.77	12.26	36.33	-8.97	0
3300	4.102	71.346	3298.51	14.55	43.11	-10.64	0
3400	4.102	71.346	3398.25	16.84	49.89	-12.32	0
3500	4.102	71.346	3498	19.13	56.66	-13.99	0
3600	4.102	71.346	3597.74	21.42	63.44	-15.66	0
3700	4.102	71.346	3697.49	23.71	70.22	-17.34	0
3800	4.102	71.346	3797.23	25.99	77	-19.01	0
3900	4.102	71.346	3896.97	28.28	83.78	-20.68	0
4000	4.102	71.346	3996.72	30.57	90.55	-22.36	0
4100	4.102	71.346	4096.46	32.86	97.33	-24.03	0
4200	4.102	71.346	4196.2	35.15	104.11	-25.7	0
4300	4.102	71.346	4295.95	37.44	110.89	-27.38	0
4400	4.102	71.346	4395.69	39.72	117.67	-29.05	0
4500	4.102	71.346	4495.44	42.01	124.45	-30.72	0
4600	4.102	71.346	4595.18	44.3	131.22	-32.4	0
4700	4.102	71.346	4694.92	46.59	138	-34.07	0
4800	4.102	71.346	4794.67	48.88	144.78	-35.74	0
4900	4.102	71.346	4894.41	51.16	151.56	-37.42	0
5000	4.102	71.346	4994.15	53.45	158.34	-39.09	0
5100	4.102	71.346	5093.9	55.74	165.12	-40.76	0
5200	4.102	71.346	5193.64	58.03	171.89	-42.44	0
5300	4.102	71.346	5293.39	60.32	178.67	-44.11	0
5400	4.102	71.346	5393.13	62.61	185.45	-45.78	0
5500	4.102	71.346	5492.87	64.89	192.23	-47.46	0
5600	4.102	71.346	5592.62	67.18	199.01	-49.13	0
5700	4.102	71.346	5692.36	69.47	205.78	-50.8	0
5800	4.102	71.346	5792.11	71.76	212.56	-52.48	0
5900	4.102	71.346	5891.85	74.05	219.34	-54.15	0
6000	4.102	71.346	5991.59	76.34	226.12	-55.82	0
6100	4.102	71.346	6091.34	78.62	232.9	-57.5	0
6200	4.102	71.346	6191.08	80.91	239.68	-59.17	0
6300	4.102	71.346	6290.82	83.2	246.45	-60.84	0
6400	4.102	71.346	6390.57	85.49	253.23	-62.52	0
6500	4.102	71.346	6490.31	87.78	260.01	-64.19	0
6600	4.102	71.346	6590.06	90.07	266.79	-65.86	0
6700	4.102	71.346	6689.8	92.35	273.57	-67.54	0
6800	4.102	71.346	6789.54	94.64	280.34	-69.21	0
6900	4.102	71.346	6889.29	96.93	287.12	-70.88	0
7000	4.102	71.346	6989.03	99.22	293.9	-72.56	0
7100	4.102	71.346	7088.77	101.51	300.68	-74.23	0
7200	4.102	71.346	7188.52	103.79	307.46	-75.9	0
7300	4.102	71.346	7288.26	106.08	314.24	-77.58	0
7400	4.102	71.346	7388.01	108.37	321.01	-79.25	0
7500	4.102	71.346	7487.75	110.66	327.79	-80.92	0
7600	4.102	71.346	7587.49	112.95	334.57	-82.6	0
7700	4.102	71.346	7687.24	115.24	341.35	-84.27	0

7800	4.102	71.346	7786.98	117.52	348.13	-85.94	0
7900	4.102	71.346	7886.72	119.81	354.9	-87.62	0
8000	4.102	71.346	7986.47	122.1	361.68	-89.29	0
8100	4.102	71.346	8086.21	124.39	368.46	-90.96	0
8200	4.102	71.346	8185.96	126.68	375.24	-92.64	0
8300	4.102	71.346	8285.7	128.97	382.02	-94.31	0
8400	4.102	71.346	8385.44	131.25	388.8	-95.98	0
8500	4.102	71.346	8485.19	133.54	395.57	-97.66	0
8600	4.102	71.346	8584.93	135.83	402.35	-99.33	0
8700	4.102	71.346	8684.67	138.12	409.13	-101	0
8800	4.102	71.346	8784.42	140.41	415.91	-102.68	0
8900	4.102	71.346	8884.16	142.7	422.69	-104.35	0
9000	4.102	71.346	8983.91	144.98	429.46	-106.02	0
9100	4.102	71.346	9083.65	147.27	436.24	-107.7	0
9200	4.102	71.346	9183.39	149.56	443.02	-109.37	0
9300	4.102	71.346	9283.14	151.85	449.8	-111.04	0
9400	4.102	71.346	9382.88	154.14	456.58	-112.72	0
9500	4.102	71.346	9482.62	156.42	463.36	-114.39	0
9600	4.102	71.346	9582.37	158.71	470.13	-116.06	0
9700	4.102	71.346	9682.11	161	476.91	-117.74	0
9800	4.102	71.346	9781.86	163.29	483.69	-119.41	0
9900	4.102	71.346	9881.6	165.58	490.47	-121.08	0
10000	4.102	71.346	9981.34	167.87	497.25	-122.76	0
10100	4.102	71.346	10081.09	170.15	504.03	-124.43	0
10200	4.102	71.346	10180.83	172.44	510.8	-126.1	0
10300	4.102	71.346	10280.57	174.73	517.58	-127.78	0
10400	4.102	71.346	10380.32	177.02	524.36	-129.45	0
10500	4.102	71.346	10480.06	179.31	531.14	-131.12	0
10600	4.102	71.346	10579.81	181.6	537.92	-132.8	0
10611.96	4.102	71.346	10591.74	181.87	538.73	-133	0
10700	2.782	71.346	10679.61	183.56	543.74	-134.23	1.5
10800	1.282	71.346	10779.55	184.69	547.09	-135.06	1.5
10885.46	0	0	10865	185	548	-135.29	1.5
10900	0	0	10879.54	185	548	-135.29	0
11000	0	0	10979.54	185	548	-135.29	0
11100	0	0	11079.54	185	548	-135.29	0
11200	0	0	11179.54	185	548	-135.29	0
11235.5	0	0	11215.04	185	548	-135.29	0
11300	6.45	180.052	11279.41	181.37	548	-131.67	10
11400	16.45	180.052	11377.29	161.55	547.98	-111.93	10
11500	26.45	180.052	11470.25	125.02	547.95	-75.56	10
11600	36.45	180.052	11555.45	72.91	547.9	-23.66	10
11700	46.45	180.052	11630.31	6.8	547.84	42.18	10
11800	56.45	180.052	11692.55	-71.31	547.77	119.97	10
11900	66.45	180.052	11740.28	-159.03	547.69	207.34	10
12000	76.45	180.052	11772.05	-253.72	547.6	301.64	10
12100	86.45	180.052	11786.9	-352.48	547.52	400	10

12135.5	90	180.052	11788	-387.96	547.48	435.33	10
12200	90	180.052	11788	-452.46	547.43	499.57	0
12300	90	180.052	11788	-552.46	547.33	599.16	0
12400	90	180.052	11788	-652.46	547.24	698.75	0
12500	90	180.052	11788	-752.46	547.15	798.35	0
12600	90	180.052	11788	-852.46	547.06	897.94	0
12700	90	180.052	11788	-952.46	546.97	997.53	0
12800	90	180.052	11788	-1052.46	546.88	1097.12	0
12900	90	180.052	11788	-1152.46	546.79	1196.71	0
13000	90	180.052	11788	-1252.46	546.7	1296.3	0
13100	90	180.052	11788	-1352.46	546.61	1395.9	0
13200	90	180.052	11788	-1452.46	546.52	1495.49	0
13300	90	180.052	11788	-1552.46	546.43	1595.08	0
13400	90	180.052	11788	-1652.46	546.34	1694.67	0
13500	90	180.052	11788	-1752.46	546.25	1794.26	0
13600	90	180.052	11788	-1852.46	546.16	1893.85	0
13700	90	180.052	11788	-1952.46	546.07	1993.45	0
13800	90	180.052	11788	-2052.46	545.98	2093.04	0
13900	90	180.052	11788	-2152.46	545.89	2192.63	0
14000	90	180.052	11788	-2252.46	545.8	2292.22	0
14100	90	180.052	11788	-2352.46	545.71	2391.81	0
14200	90	180.052	11788	-2452.46	545.62	2491.41	0
14300	90	180.052	11788	-2552.46	545.53	2591	0
14400	90	180.052	11788	-2652.46	545.44	2690.59	0
14500	90	180.052	11788	-2752.46	545.35	2790.18	0
14600	90	180.052	11788	-2852.46	545.26	2889.77	0
14700	90	180.052	11788	-2952.46	545.17	2989.36	0
14800	90	180.052	11788	-3052.46	545.08	3088.96	0
14900	90	180.052	11788	-3152.46	544.99	3188.55	0
15000	90	180.052	11788	-3252.46	544.9	3288.14	0
15100	90	180.052	11788	-3352.46	544.81	3387.73	0
15200	90	180.052	11788	-3452.46	544.72	3487.32	0
15300	90	180.052	11788	-3552.46	544.63	3586.91	0
15400	90	180.052	11788	-3652.46	544.54	3686.51	0
15500	90	180.052	11788	-3752.46	544.45	3786.1	0
15600	90	180.052	11788	-3852.46	544.36	3885.69	0
15700	90	180.052	11788	-3952.46	544.27	3985.28	0
15800	90	180.052	11788	-4052.46	544.18	4084.87	0
15900	90	180.052	11788	-4152.46	544.09	4184.47	0
16000	90	180.052	11788	-4252.46	544	4284.06	0
16100	90	180.052	11788	-4352.46	543.91	4383.65	0
16200	90	180.052	11788	-4452.46	543.82	4483.24	0
16300	90	180.052	11788	-4552.46	543.73	4582.83	0
16400	90	180.052	11788	-4652.46	543.64	4682.42	0
16500	90	180.052	11788	-4752.46	543.55	4782.02	0
16600	90	180.052	11788	-4852.46	543.46	4881.61	0
16700	90	180.052	11788	-4952.46	543.37	4981.2	0

16800	90	180.052	11788	-5052.46	543.28	5080.79	0
16900	90	180.052	11788	-5152.46	543.19	5180.38	0
17000	90	180.052	11788	-5252.46	543.1	5279.98	0
17100	90	180.052	11788	-5352.46	543.01	5379.57	0
17200	90	180.052	11788	-5452.46	542.92	5479.16	0
17300	90	180.052	11788	-5552.46	542.83	5578.75	0
17400	90	180.052	11788	-5652.46	542.74	5678.34	0
17500	90	180.052	11788	-5752.46	542.64	5777.93	0
17600	90	180.052	11788	-5852.46	542.55	5877.53	0
17700	90	180.052	11788	-5952.46	542.46	5977.12	0
17792.41	90	180.052	11788	-6044.86	542.38	6069.15	0

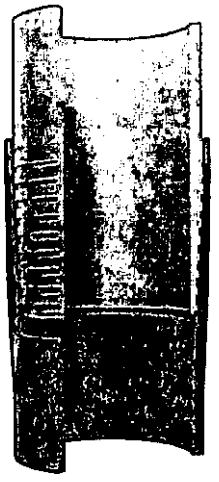
All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to RKB. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 174.873° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Central meridian is -104.333°.
Grid Convergence at Surface is 0.300°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 17792.41ft.,
the Bottom Hole Displacement is 6069.15ft., in the Direction of 174.873° (Grid).

TEC-LOCK WEDGE



8.625" 32.00 LB/FT (.352" Wall)
BORUSAN MANNESMANNP110 HSCY

Pipe Body Data

Nominal OD:	8.625	in
Nominal Wall:	.352	in
Nominal Weight:	32.00	lb/ft
Plain End Weight:	31.13	lb/ft
Material Grade:	P110 HSCY	
Mill/Specification:	BORUSAN MANNESMANN	
Yield Strength:	125,000	psi
Tensile Strength:	125,000	psi
Nominal ID:	7.921	in
API Drift Diameter:	7.796	in
Special Drift Diameter:	7.875	in
RBW:	87.5 %	
Body Yield:	1,144,000	lbf
Burst:	8,930	psi
Collapse:	4,230	psi

Connection Data

Standard OD:	9.000	in
Pin Bored ID:	7.921	in
Critical Section Area:	8.61433	in^2
Tensile Efficiency:	94.2 %	
Compressive Efficiency:	100.0 %	
Longitudinal Yield Strength:	1,077,000	lbf
Compressive Limit:	1,144,000	lbf
Internal Pressure Rating:	8,930	psi
External Pressure Rating:	4,230	psi
Maximum Bend:	62.6	°/100

Operational Data

Minimum Makeup Torque:	29,900	ft*lbf
Optimum Makeup Torque:	37,375	ft*lbf
Maximum Makeup Torque:	80,900	ft*lbf
Minimum Yield:	89,900	ft*lbf
Makeup Loss:	5.97	in

Notes

Operational Torque is equivalent to the Maximum Make-Up Torque.

HUNTING