

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

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

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

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

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

Form C-101
August 1, 2011
Permit 272432

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102		2. OGRID Number 6137
4. Property Code 3263119		3. API Number 30-015-46285
5. Property Name ZUNI 26 27		6. Well No. 623H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
I	26	22S	27E		1582	S	350	E	Eddy

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
M	27	22S	27E	M	330	S	20	W	Eddy

9. Pool Information

PURPLE SAGE;WOLFCAMP (GAS)	98220
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Additional Well Information

11. Work Type New Well	12. Well Type GAS	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 3075
16. Multiple N	17. Proposed Depth 19542	18. Formation Wolfcamp	19. Contractor	20. Spud Date 5/10/2020
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	48	200	183	0
Int1	9.875	7.625	29.7	8549	1189	0
Prod	7.875	5.5	17	19542	752	6727

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	5000	
Blind	5000	5000	
Double Ram	5000	5000	
Annular	5000	5000	
Blind	5000	5000	
Double Ram	5000	5000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
 I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Electronically filed by Jeff Walla	Approved By: Raymond Podany
Title: Supervisor Land	Title: Geologist
Email Address: Jeff.Walla@dmv.com	Approved Date: 9/20/2019 Expiration Date: 9/20/2021
Date: 9/18/2019 Phone: 575-748-9925	Conditions of Approval Attached

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Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 98220	Pool Name PURPLE SAGE; WOLFCAMP
Property Code	Property Name ZUNI 26-27	Well Number 623H
OGRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY, L.P.	Elevation 3074.7'

Surface Location

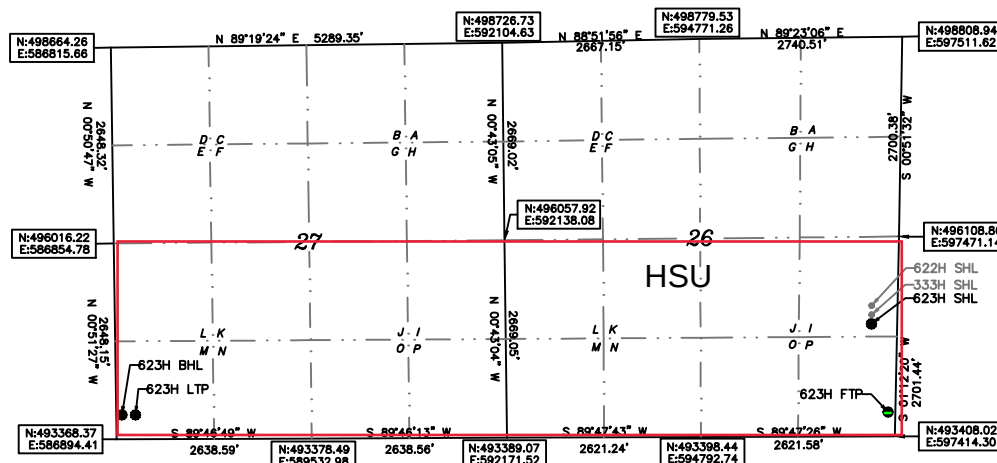
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	26	22-S	27-E		1582	SOUTH	350	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	27	22-S	27-E		330	SOUTH	20	WEST	EDDY

Dedicated Acres 640	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



ZUNI 26-27 623H

EL: 3074.7'
LAT: 32.360666
LON: 104.152745
N: 494988.93
E: 597097.53

FIRST TAKE POINT

330' FSL 100' FEL SEC. 26
LAT: 32.357225
LON: 104.152027
N: 493737.68
E: 597321.22

LAST TAKE POINT

330' FSL 100' FWL SEC. 27
LAT: 32.357162
LON: 104.185487
N: 493698.73
E: 586909.48

BOTTOM OF HOLE

330' FSL 20' FWL SEC. 27
LAT: 32.357161
LON: 104.185468
N: 493698.43
E: 586909.47

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.

OPERATOR CERTIFICATION

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

Erin Workman 09/12/19
Signature Date
Erin Workman
Printed Name
Erin.workman@dmv.com
E-mail Address

SURVEYOR CERTIFICATION

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

06/2019

Date of Survey

Signature & Seal of Professional Surveyor



06/28/19

Certificate No. 22404 B.L. LAMAN
DRAWN BY: CM

Intent ☒ As Drilled ☐

API #		
Operator Name:	Property Name:	Well Number

Kick Off Point (KOP)

UL	Section 26	Township 22S	Range 27E	Lot	Feet 330	From N/S SOUTH	Feet 50	From E/W EAST	County EDDY
Latitude 32.357223					Longitude -104.151781				NAD 83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

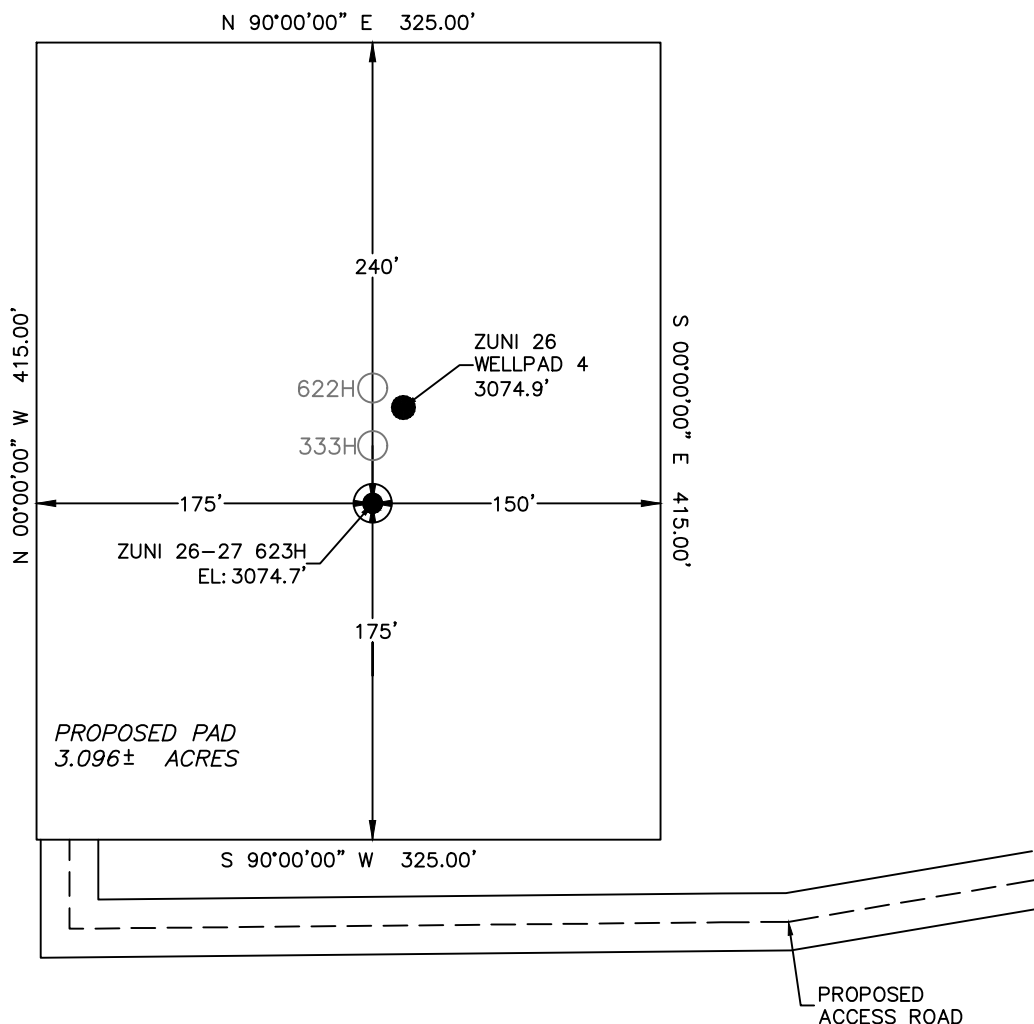
Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP



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.

DEVON ENERGY PRODUCTION COMPANY, L.P.
ZUNI 26-27 623H
LOCATED 1582 FT. FROM THE SOUTH LINE
AND 350 FT. FROM THE EAST LINE OF
SECTION 26, TOWNSHIP 22 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF SMEDLEY AND PORTER ROADS, HEAD NORTH ON PORTER ROAD FOR 0.27 MILES TO AN EXISTING ACCESS ROAD. TURN LEFT AND HEAD WEST ONTO THE EXISTING ACCESS ROAD FOR 0.10 MILES AND THE TURN RIGHT AND HEAD NORTH OFF OF THE EXISTING ACCESS ROAD FOR 46' TO THE SOUTHWEST CORNER OF THE ZUNI 26 WELLPAD 4 SUBPAD.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

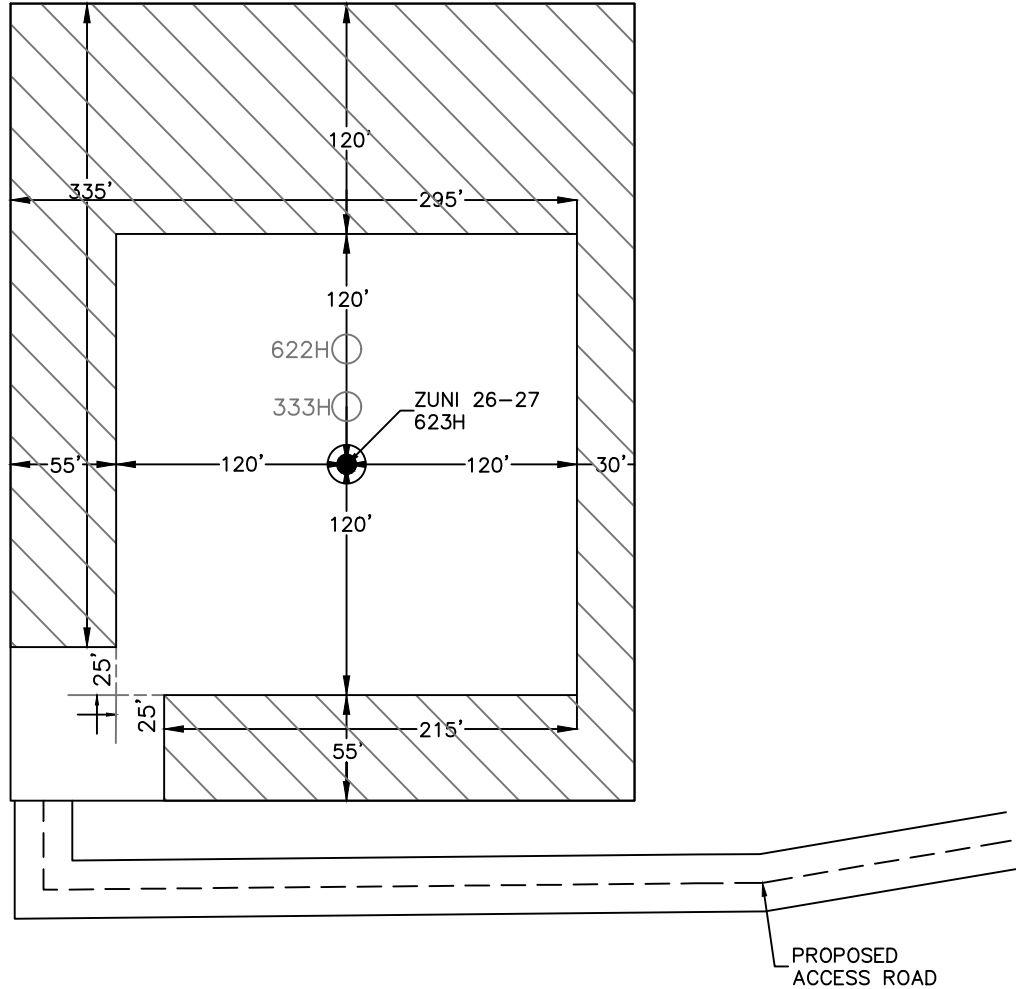
Drawn by:
CHRIS MAAS

Date: 06/27/2019

Drawn for:



SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
INTERIM SITE BUILD PLAN



 DENOTES INTERIM PAD RECLAMATION AREA

1.641± ACRES INTERIM PAD RECLAMATION AREA

1.455± ACRES NON-RECLAIMED AREA

3.096± ACRES GRADING SITE RECLAMATION AREA



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EDDY COUNTY, STATE OF NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

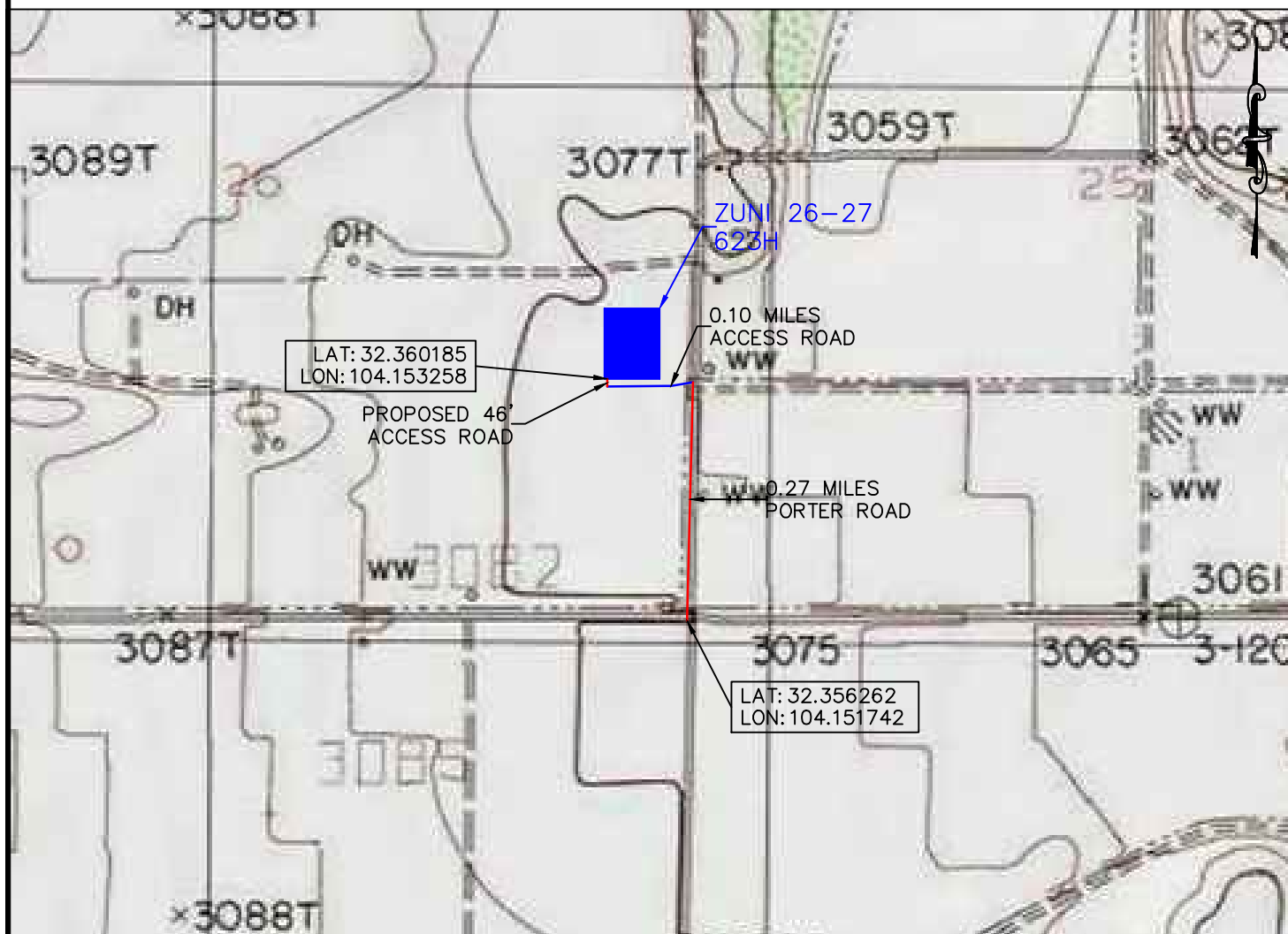
Drawn by:
CHRIS MAAS

Date: 06/27/2019

Drawn for:



SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
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RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOT TO SCALE

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF SMEDLEY AND PORTER ROADS, HEAD NORTH ON PORTER ROAD FOR 0.27 MILES TO AN EXISTING ACCESS ROAD. TURN LEFT AND HEAD WEST ONTO THE EXISTING ACCESS ROAD FOR 0.10 MILES AND THE TURN RIGHT AND HEAD NORTH OFF OF THE EXISTING ACCESS ROAD FOR 46' TO THE SOUTHWEST CORNER OF THE ZUNI 26 WELLPAD 4 SUBPAD.

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

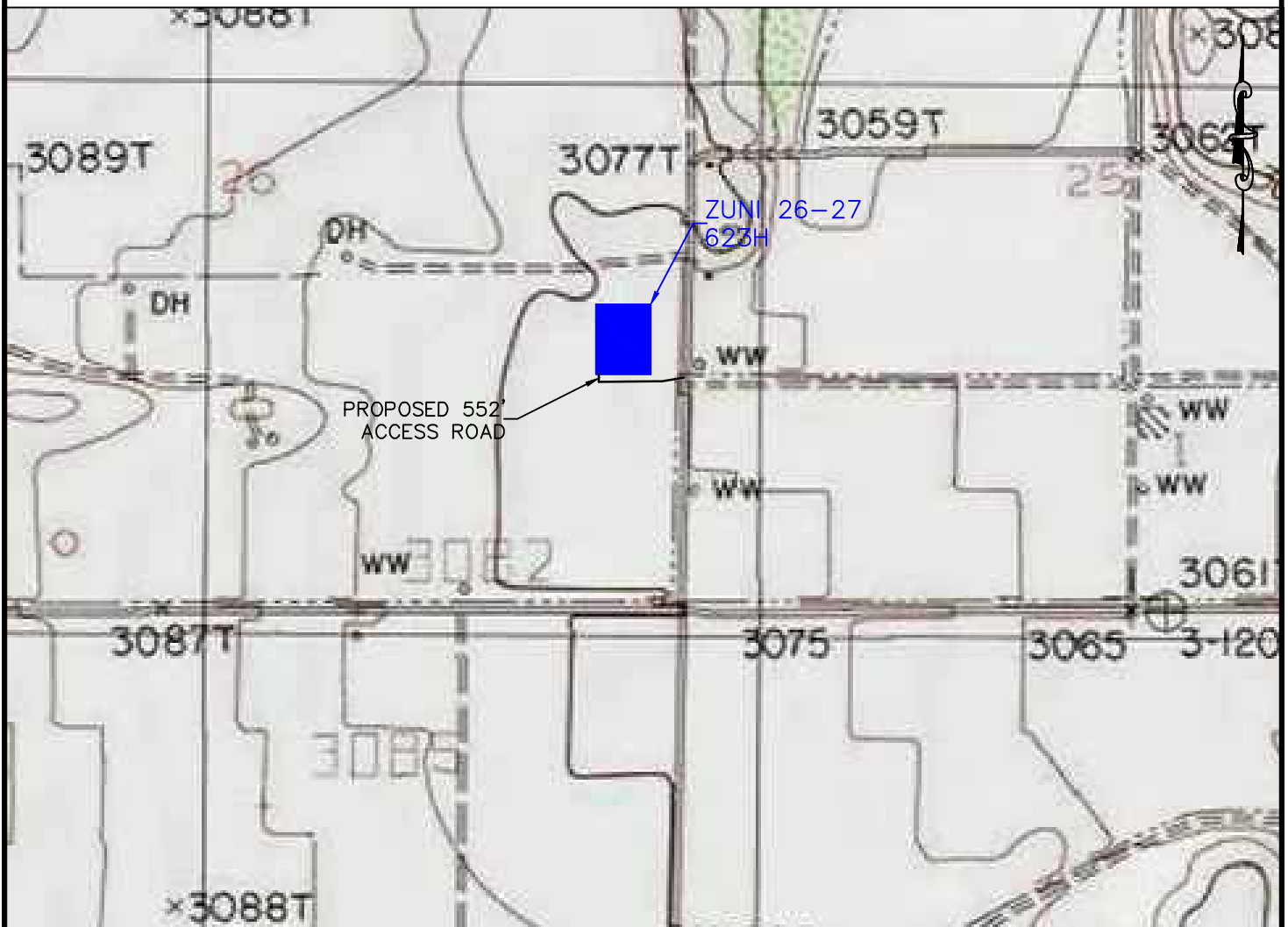
Drawn by:
CHRIS MAAS

Date: 06/27/2019

Drawn for:



SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
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RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOT TO SCALE

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

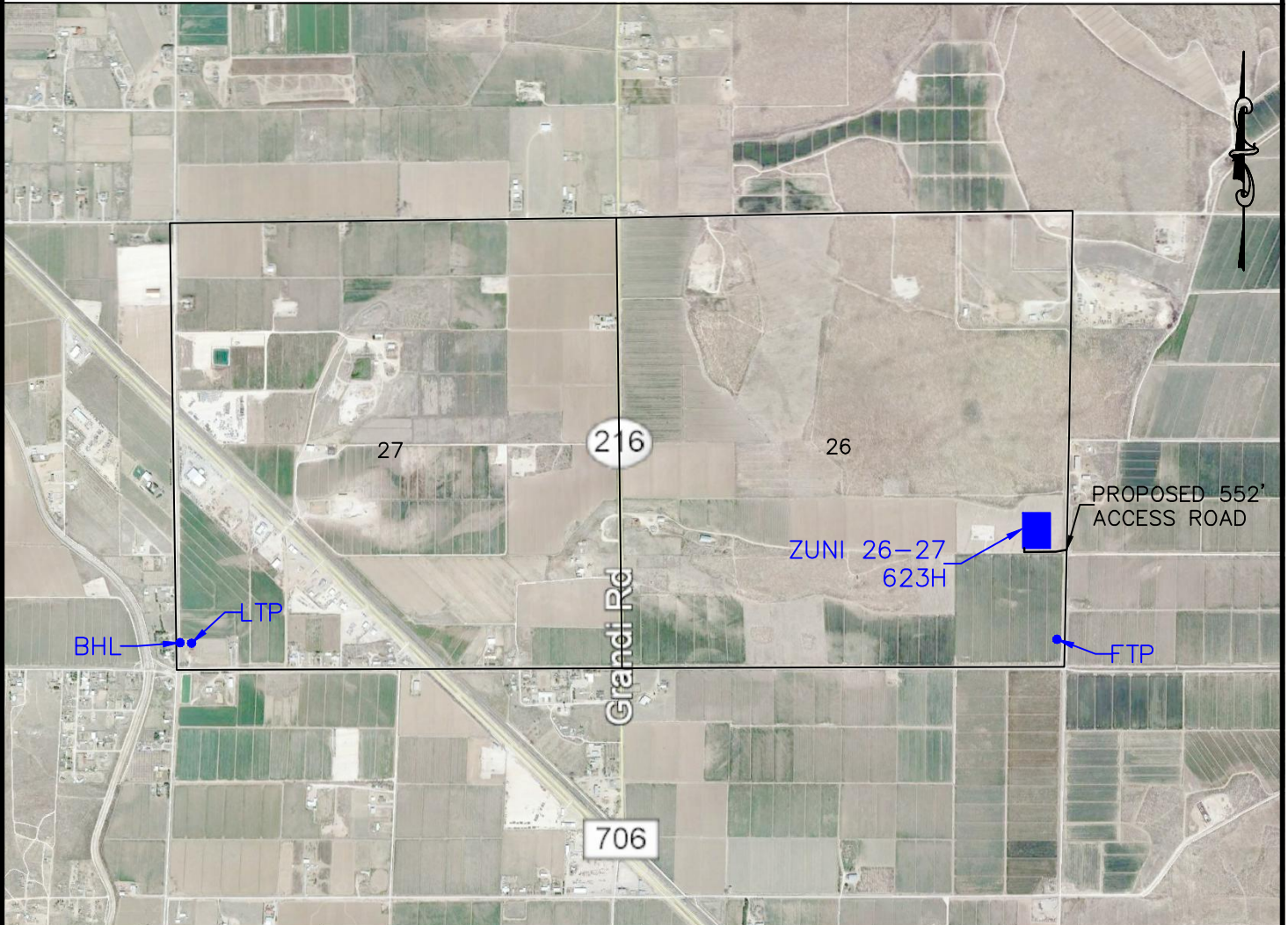
Drawn by:
CHRIS MAAS

Date: 06/27/2019

Drawn for:



SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



DEVON ENERGY PRODUCTION COMPANY, L.P.
ZUNI 26-27 623H
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AND 350 FT. FROM THE EAST LINE OF
SECTION 26, TOWNSHIP 22 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

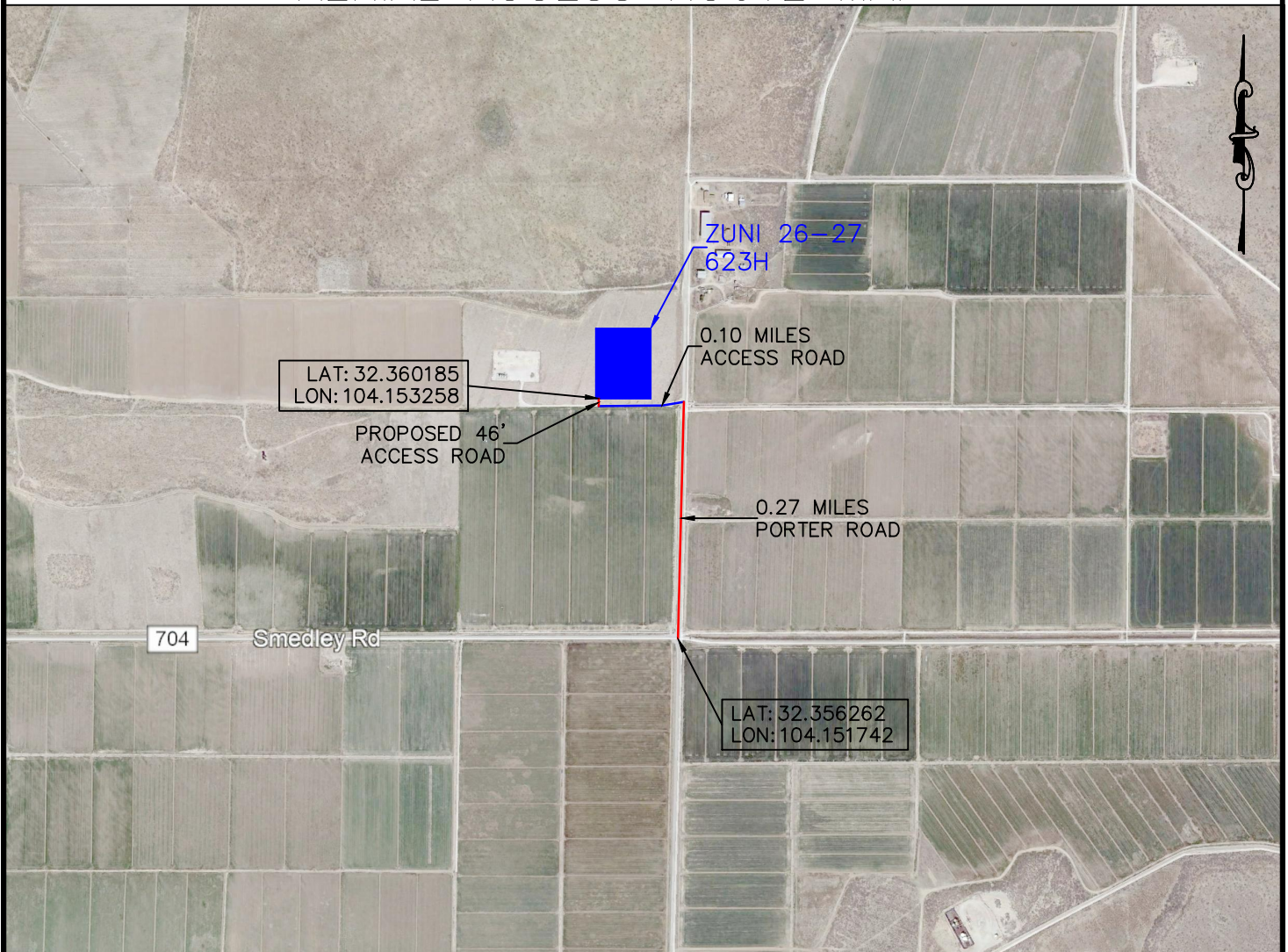
Drawn by
CHRIS MAAS

Date: 06/27/2019

Drawn for:



SECTION 26, TOWNSHIP 22 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
AERIAL ACCESS ROUTE MAP



DEVON ENERGY PRODUCTION COMPANY, L.P.
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SECTION 26, TOWNSHIP 22 SOUTH,
RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

NOT TO SCALE

HORIZON ROW LLC

DEVON ENERGY PRODUCTION CO., L.P.

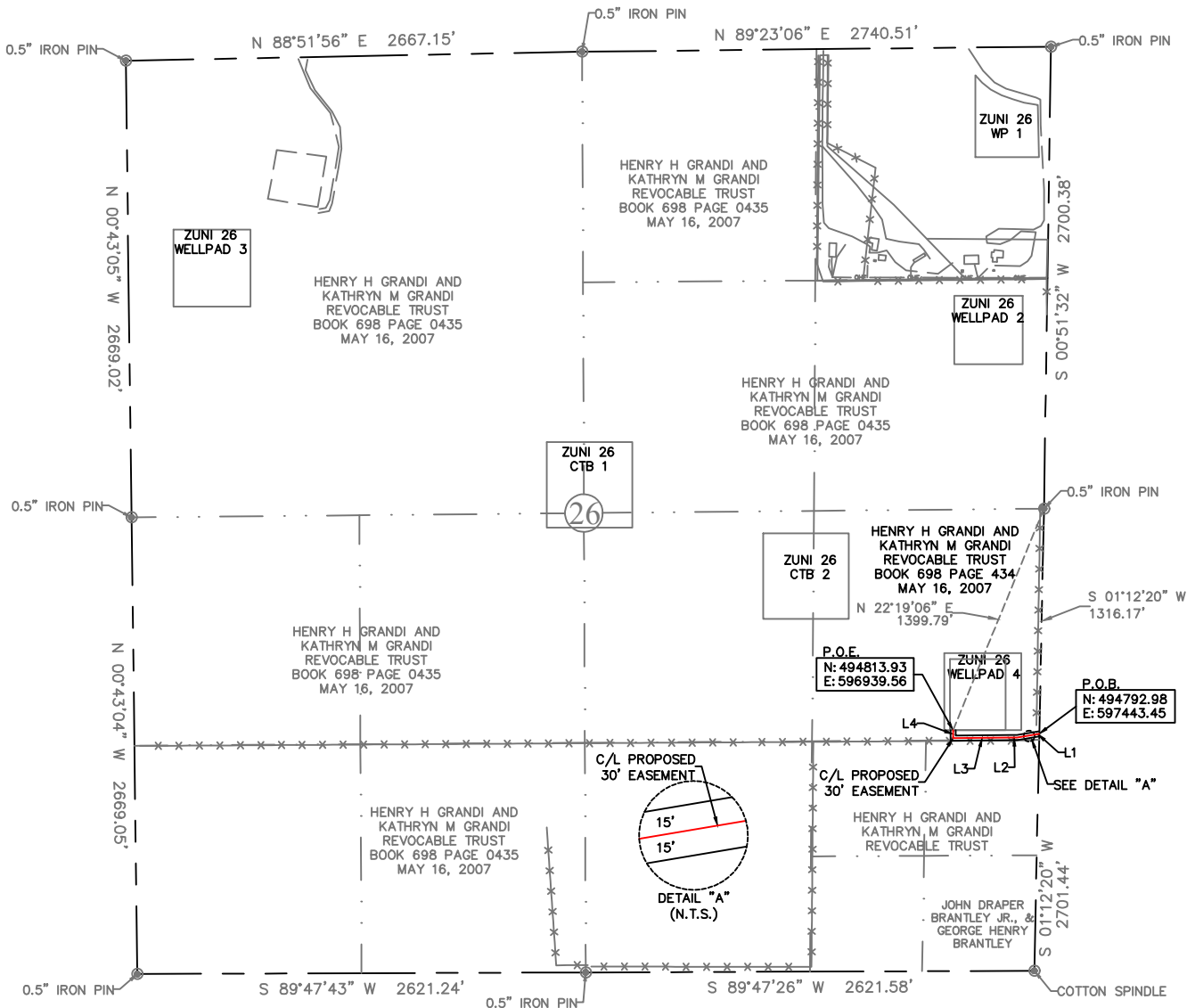
Drawn by:
CHRIS MAAS

Date: 06/27/2019

Drawn for:

devon

EXHIBIT "A"
ACCESS ROAD PLAT
SECTION 26, T22S-R27E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



30' EASEMENT AREA = 0.380 ACRE(S)
552.22 FEET OR 33.47 RODS

LINE	BEARING	DISTANCE
L1	S 80°23'35" W	131.14'
L2	S 89°28'17" W	35.02'
L3	S 89°26'30" W	339.59'
L4	N 00°00'00" W	46.47'

0+00.0 P.O.B./PORTER ROAD
5+11.9 EDGE OF ROAD
5+52.2 P.O.E./ZUNI 26 WELLPAD 4

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.

0 1000 2000



B.L. Laman
Date Signed: 06-28-2019
P.O. Box 548, Dry Creek, La.
(903) 388-3045 70637
Employee of Horizonrow, LLC

HORIZON ROW LLC

Drawn for:

devon

Drawn by: CHRIS MAAS
Date: 06/26/2019

DEVON ENERGY PRODUCTION COMPANY, L.P.	LINE NUMBER: 7670035R
ZUNI 26 WELLPAD 4 ACCESS ROAD	WBS NUMBER: XX-130839.01.SLC
PROPOSED 30' EASEMENT ON THE PROPERTY OF HENRY H. GRANDI & KATHRYN M. GRANDI REVOCABLE TRUST SECTION 26, T22S-R27E, N.M.P.M.	SCALE: 1" = 1000'
	REVISIONS:
	SURVEY DATA: 06/25/2019

**SECTION 26, T22S-R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO**

ACCESS ROAD PLAT

LEGAL DESCRIPTION

FOR

DEVON ENERGY PRODUCTION COMPANY, L.P.

HENRY H. GRANDI & KATHRYN M. GRANDI REVOCABLE TRUST

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 of the southeast quarter (NE 1/4 SE 1/4) of Section 26, Township 24 South, Range 27 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by Henry H. Grandi & Kathryn M. Grandi Revocable Trust as recorded in Book 698 Page 434, N.M.P.M., Eddy County, New Mexico. Said centerline of easement being more particularly described as follows:

Commencing from a 0.5" iron pin for the east quarter corner of Section 26, T22S-R27E, N.M.P.M., Eddy County, New Mexico;

Thence S 01°12'20" W a distance of 1316.17' to the **Point of Beginning** of this easement in the east line of Section 26, having coordinates of Northing=494792.98, Easting=597443.45 feet and continuing the following courses;

Thence S 80°23'35" W a distance of 131.14' to an angle point;

Thence S 89°28'17" W a distance of 35.02' to an angle point;

Thence S 89°26'30" W a distance of 339.59' to an angle point;

Thence N 00°00'00" W a distance of 46.47' to the **Point of Ending** having coordinates of Northing=494813.93, Easting=596939.56 feet, from said point a 0.5" iron pin for the east quarter corner of Section 26, T22S-R27E bears N 22°19'06" E a distance of 1399.79', covering **552.22' or 33.47 rods** and having an area of **0.380 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: 06/28/2019

Horizon Row, LLC

P.O. Box 548, Dry Creek, La.

(903) 388-3045 70637

Employee of Horizon Row, LLC



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

GAS CAPTURE PLAN

Date: 9/20/2019

☒ Original

Operator & OGRID No.: [6137] DEVON ENERGY PRODUCTION COMPANY, LP

☐ Amended - Reason for
Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
ZUNI 26 27 #623H	30-015-46285	I-26-22S-27E	1582S 0350E	12	None	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to DCP OPERATING COMPANY, LP and will be connected to DCP OPERATING COMPANY, LP Low Pressure gathering system located in Eddy County, New Mexico. It will require 5000' of pipeline to connect the facility to Low Pressure gathering system. DEVON ENERGY PRODUCTION COMPANY, LP provides (periodically) to DCP OPERATING COMPANY, LP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, DEVON ENERGY PRODUCTION COMPANY, LP and DCP OPERATING COMPANY, LP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP OPERATING COMPANY, LP Processing Plant located in Sec. 36 Twn. 22S, Rng. 27E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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

Form APD Comments

Permit 272432

PERMIT COMMENTS

Operator Name and Address: DEVON ENERGY PRODUCTION COMPANY, LP [6137] 333 West Sheridan Ave. Oklahoma City, OK 73102		API Number: 30-015-46285
		Well: ZUNI 26 27 #623H
Created By	Comment	Comment Date

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

Form APD Conditions

Permit 272432

PERMIT CONDITIONS OF APPROVAL

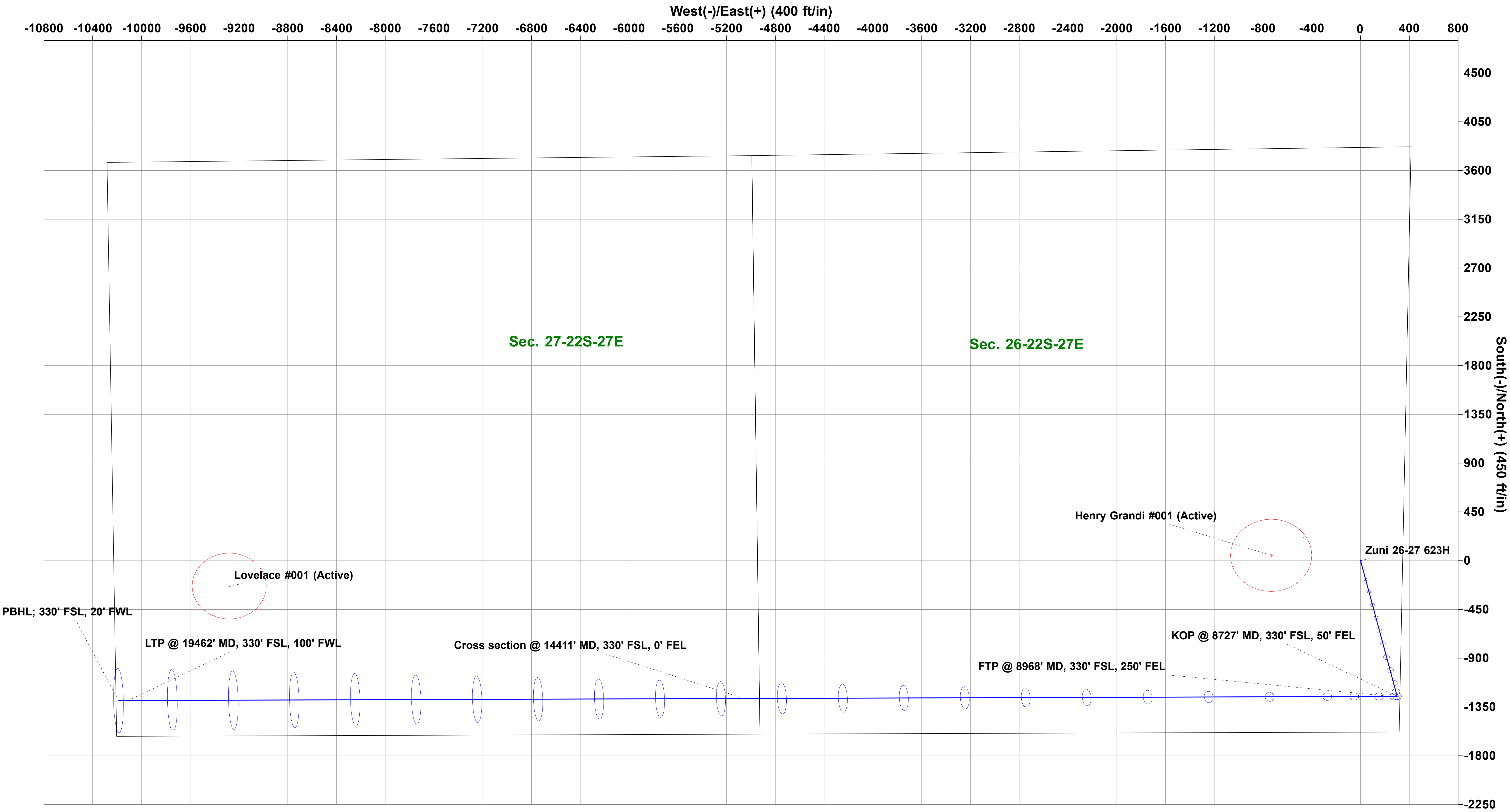
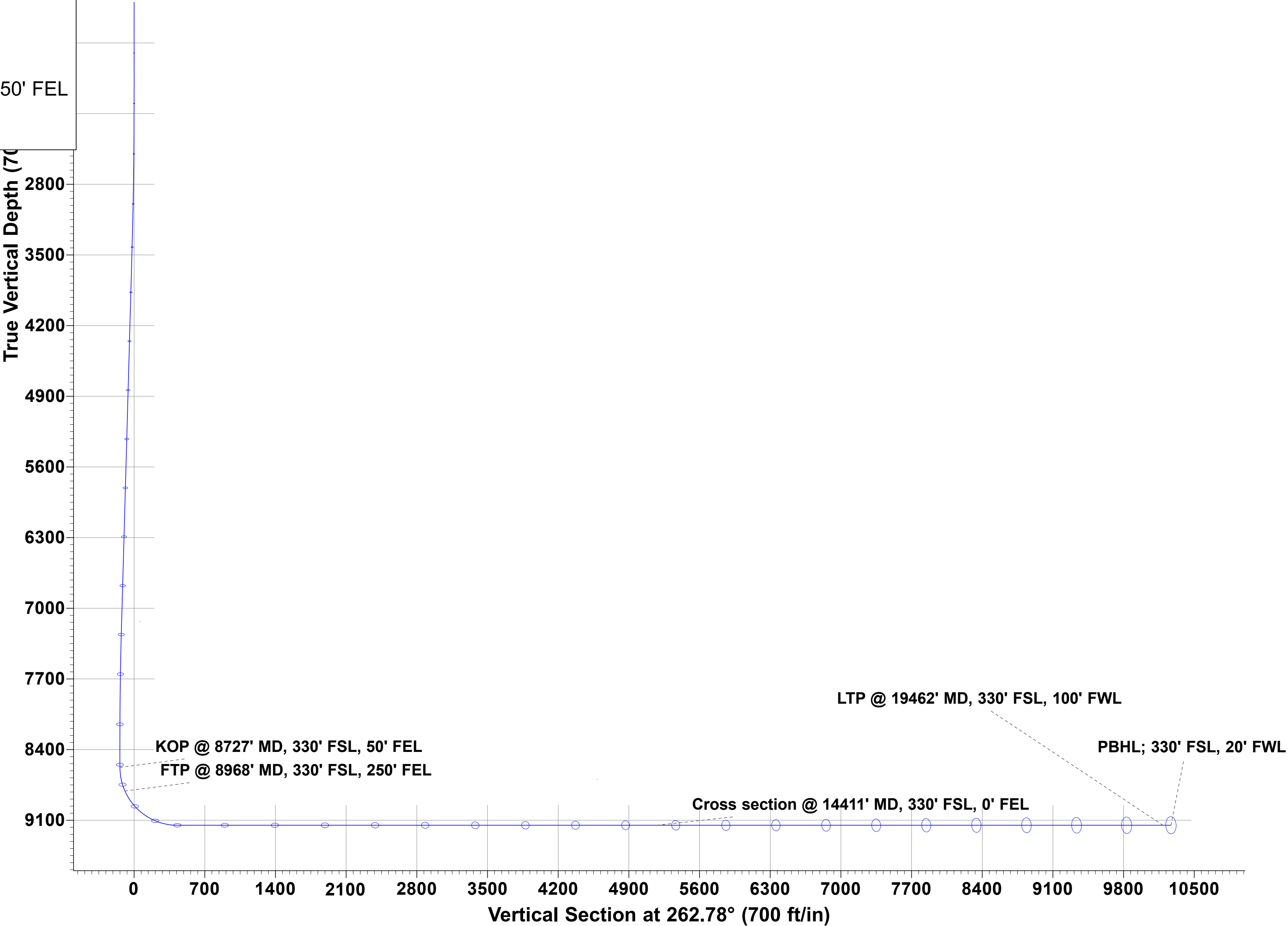
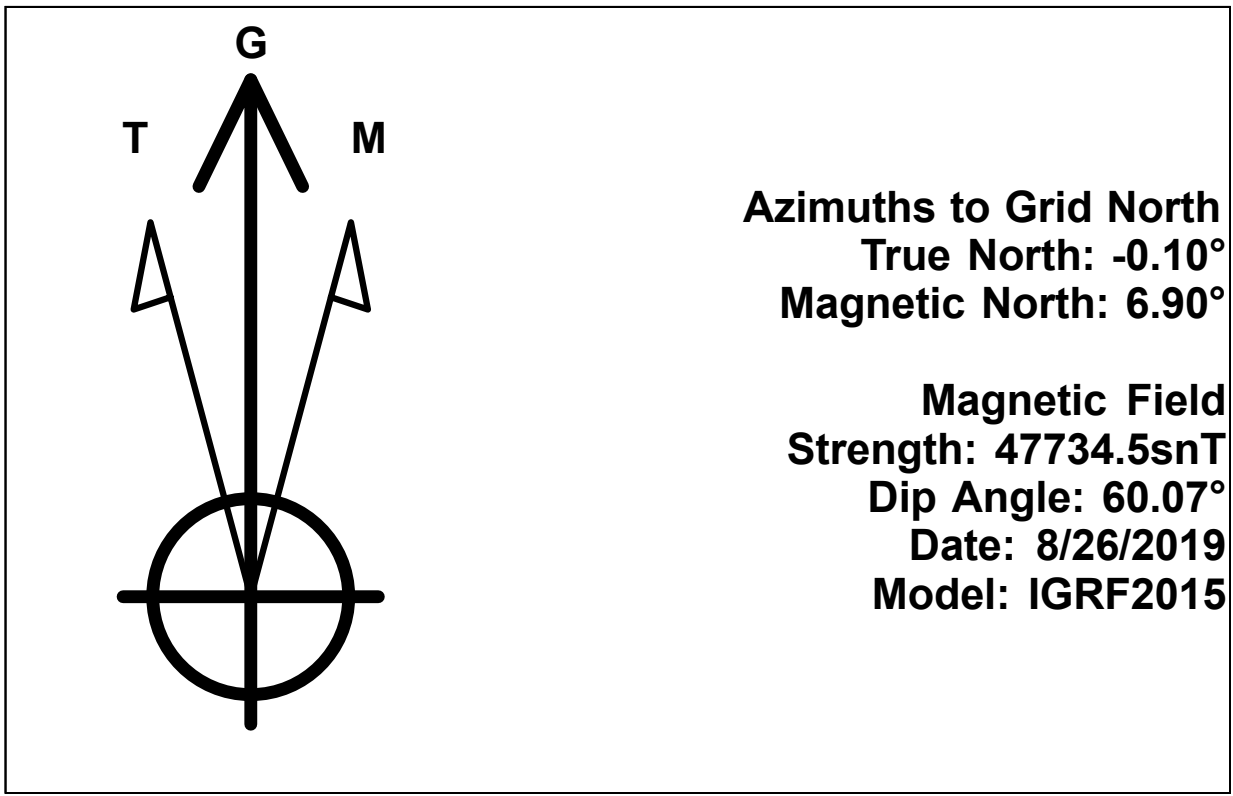
Operator Name and Address: DEVON ENERGY PRODUCTION COMPANY, LP [6137] 333 West Sheridan Ave. Oklahoma City, OK 73102		API Number: 30-015-46285
		Well: ZUNI 26 27 #623H
OCD Reviewer	Condition	
rpodany	Will require a directional survey with the C-104	
rpodany	Cement is required to circulate on both surface and intermediate1 strings of casing	
rpodany	NSL Required	

WCDSC Permian NM

WELL DETAILS: Zuni 26-27 623H

RKB @ 3099.70ft 3074.70			
Northing 494988.93	Easting 597097.53	Latitude 32.360666	Longitude -104.152745

SECTION DETAILS				Permit Plan 1				
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	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	
3437.71	14.38	166.53	3422.67	-174.50	41.81	1.00	-19.55	
7418.25	14.38	166.53	7278.55	-1135.67	272.13	0.00	-127.26	
5 8376.73	0.00	0.00	8227.00	-1252.00	300.00	1.50	-140.29	
6 8726.77	0.00	0.00	8577.04	-1252.00	300.00	0.00	-140.29	KOP @ 8727' MD, 330' FSL, 50' FEL
7 9626.77	90.00	269.79	9150.00	-1254.10	-272.96	10.00	428.39	
8 19541.96	90.00	269.79	9150.00	-1290.50	-10188.08	0.00	10269.49	PBHL; 330' FSL, 20' FWL

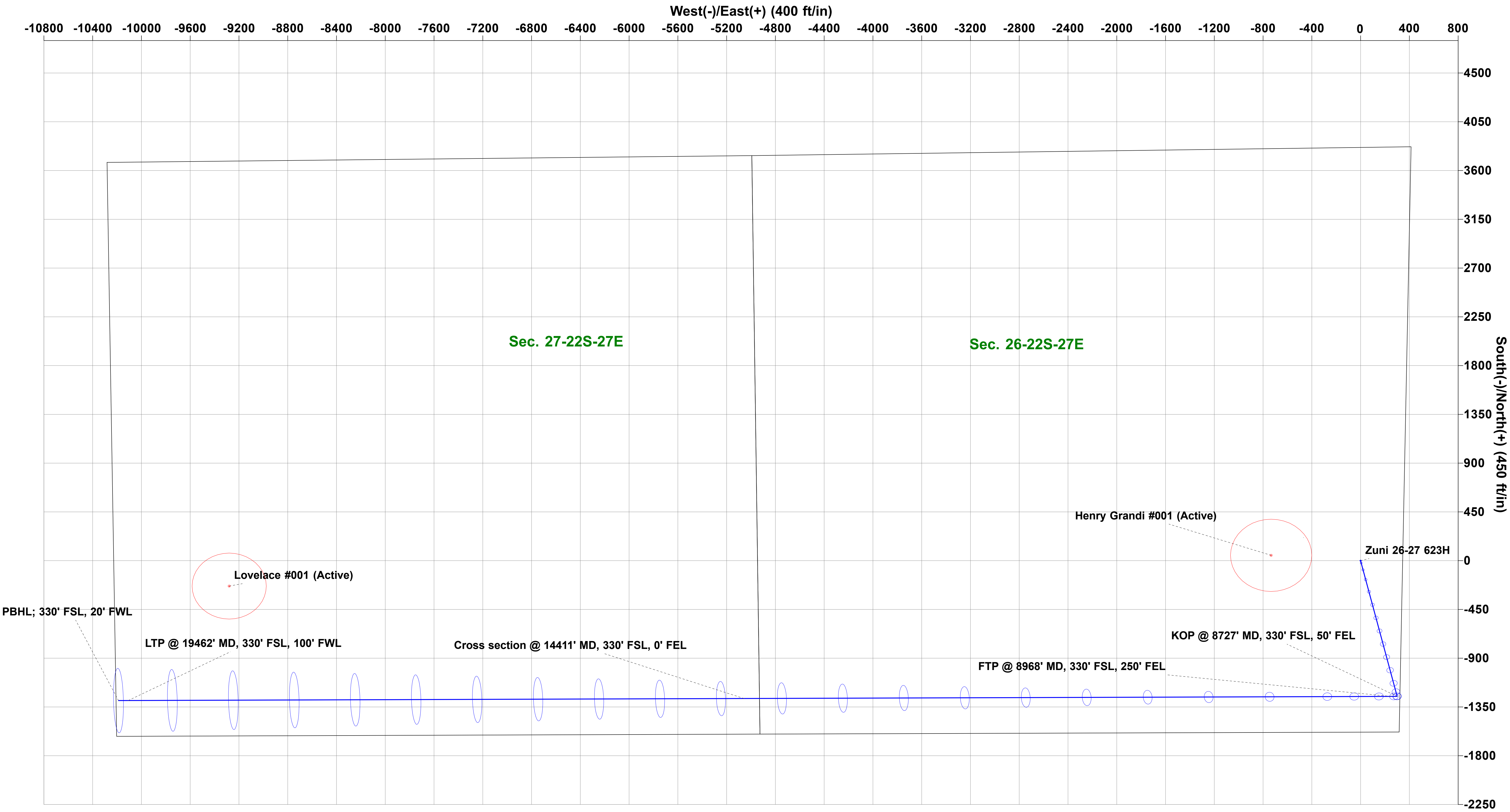
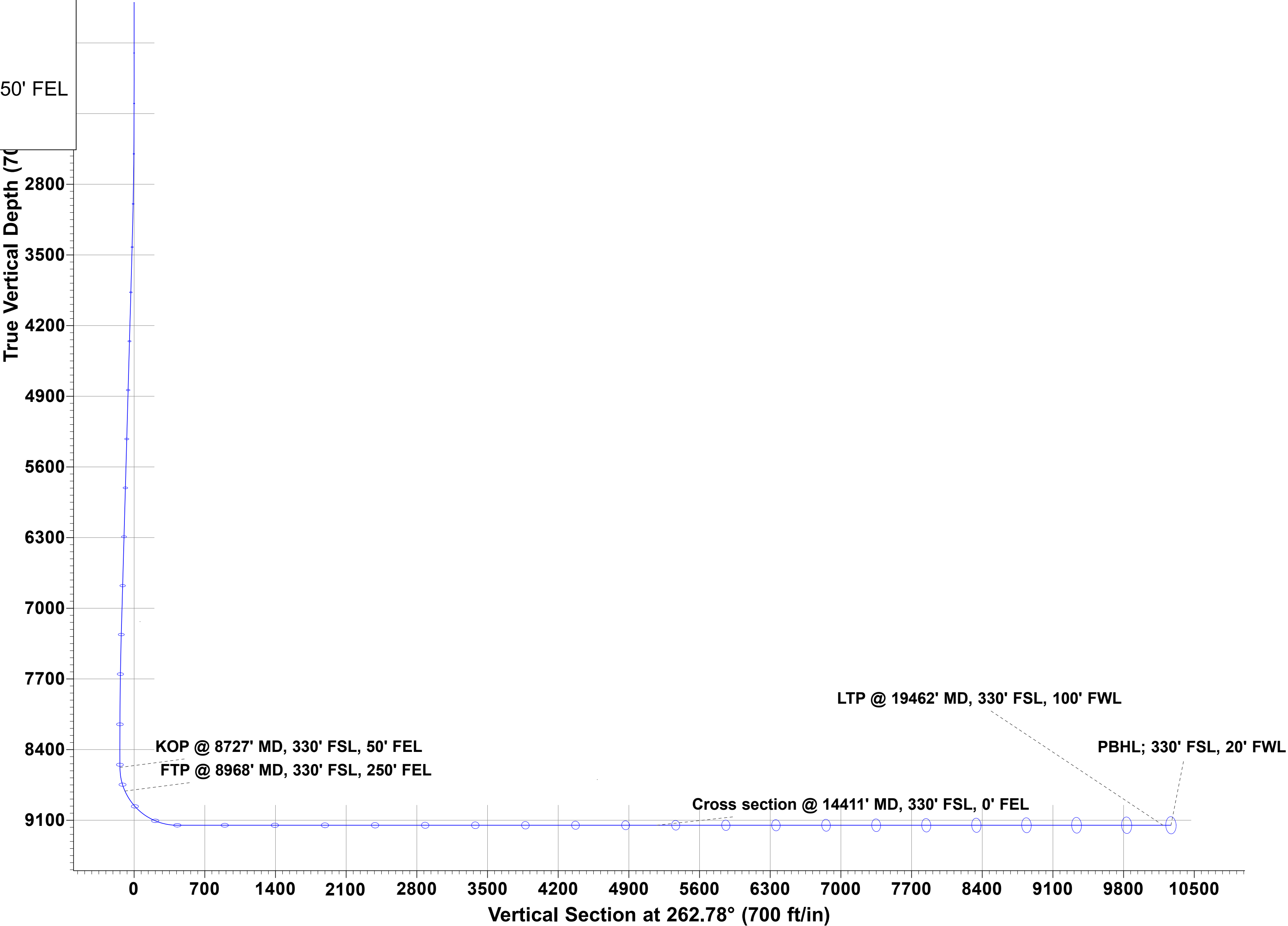
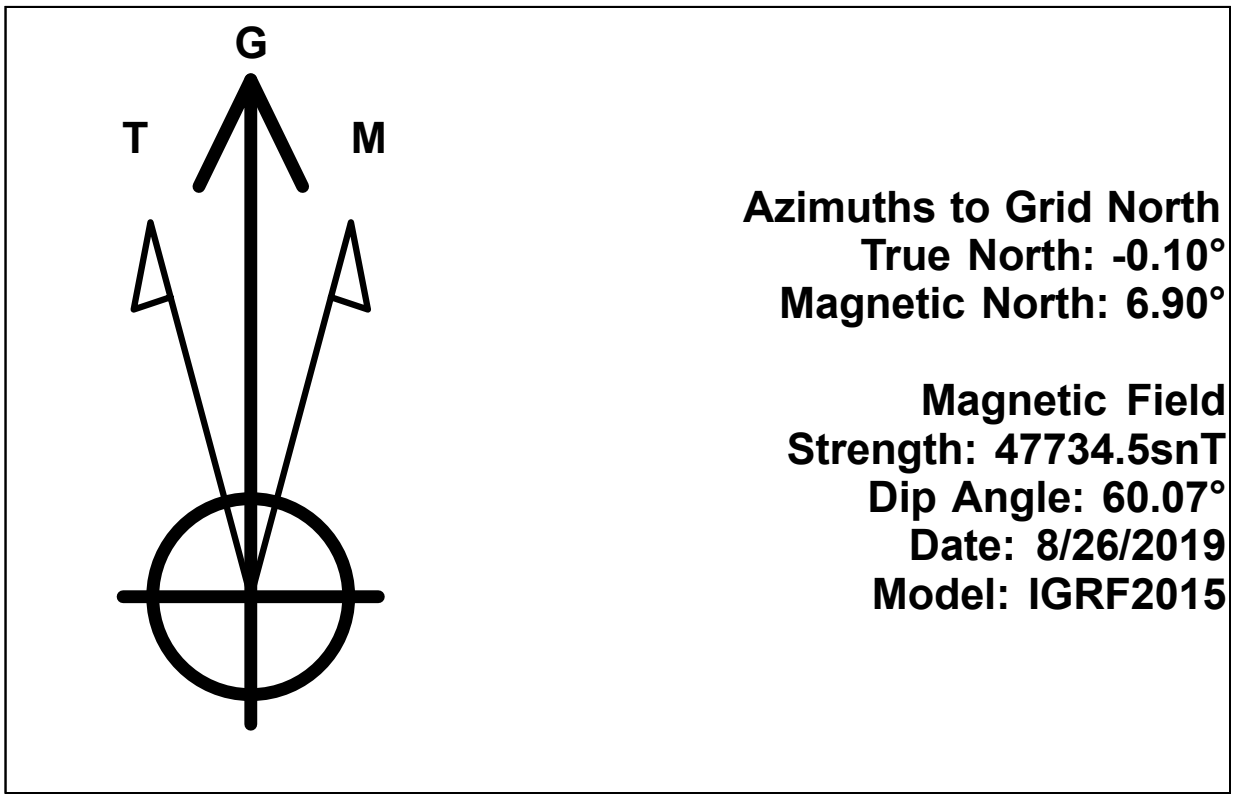


WCDSC Permian NM

WELL DETAILS: Zuni 26-27 623H

RKB @ 3099.70ft 3074.70			
Northing 494988.93	Easting 597097.53	Latitude 32.360666	Longitude -104.152745

SECTION DETAILS				Permit Plan 1				
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	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	
3437.71	14.38	166.53	3422.67	-174.50	41.81	1.00	-19.55	
7418.25	14.38	166.53	7278.55	-1135.67	272.13	0.00	-127.26	
5 8376.73	0.00	0.00	8227.00	-1252.00	300.00	1.50	-140.29	
6 8726.77	0.00	0.00	8577.04	-1252.00	300.00	0.00	-140.29	KOP @ 8727' MD, 330' FSL, 50' FEL
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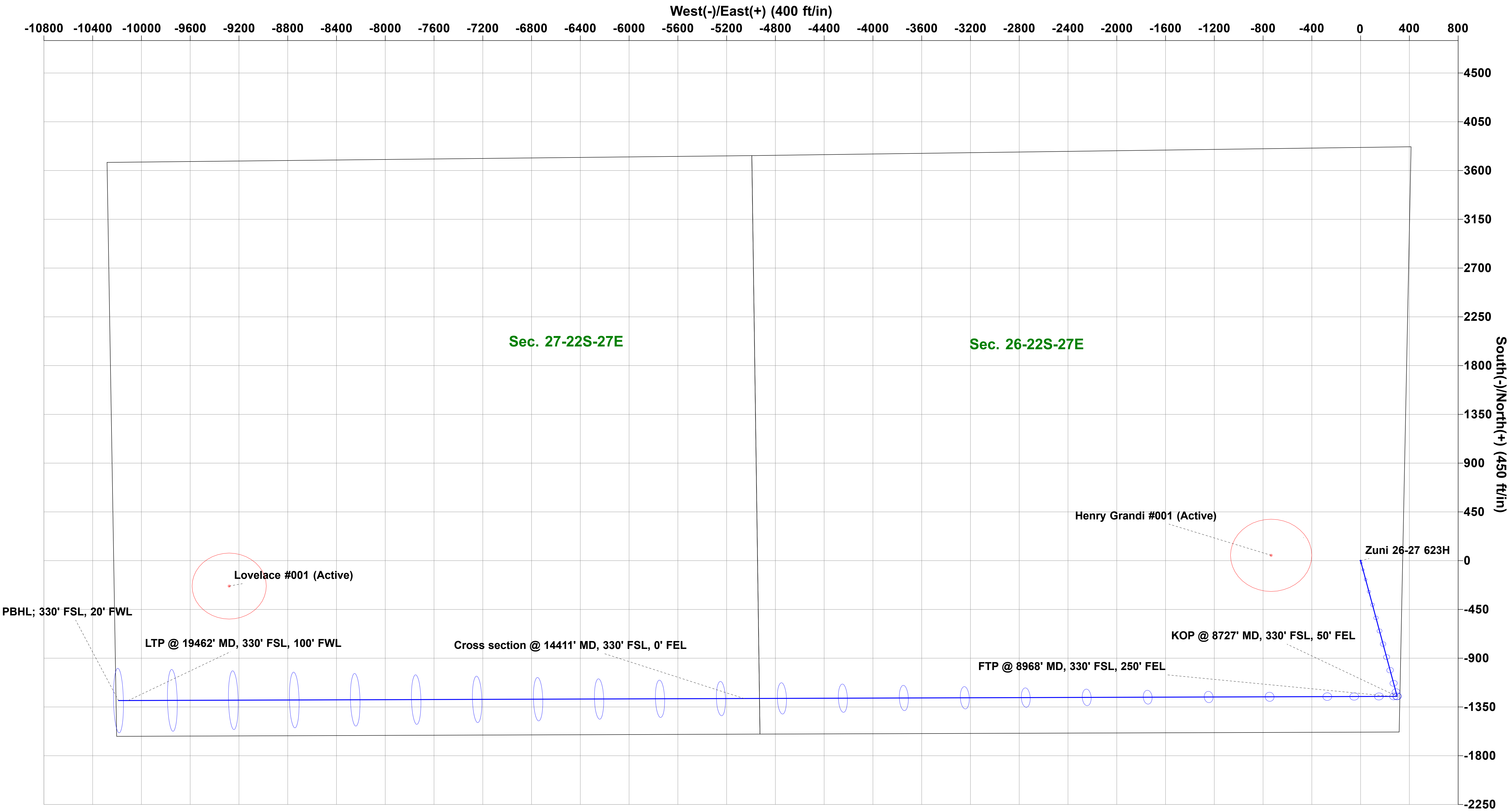
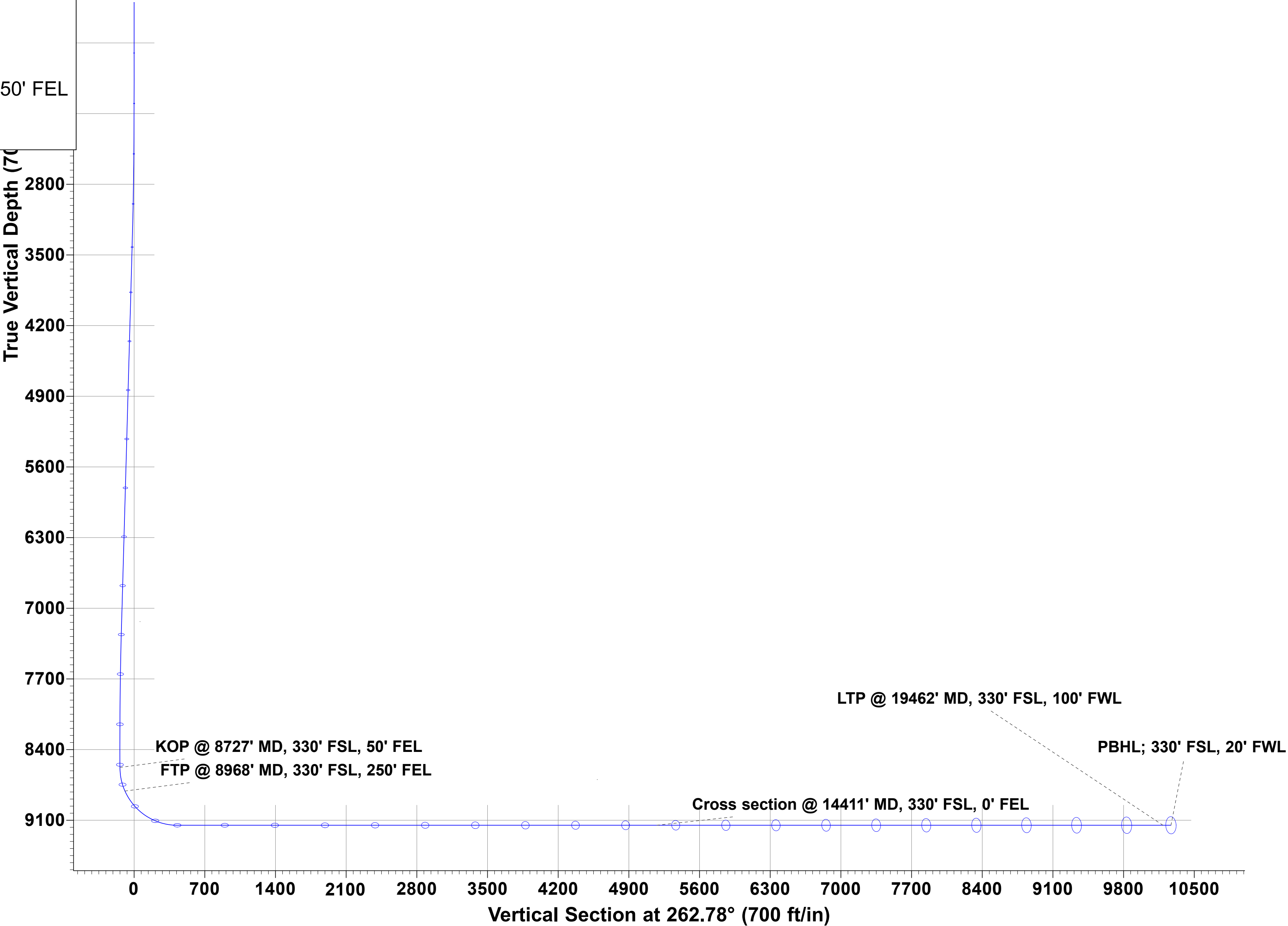
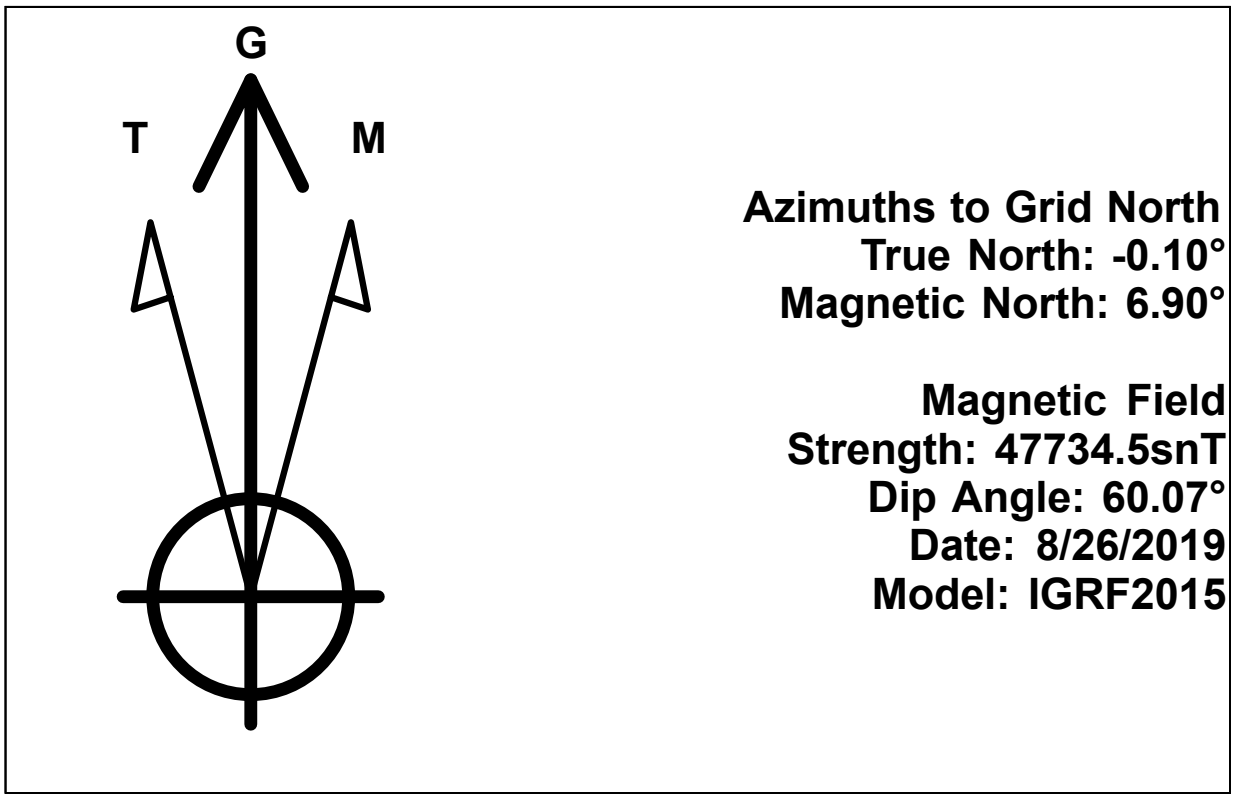


WCDSC Permian NM

WELL DETAILS: Zuni 26-27 623H

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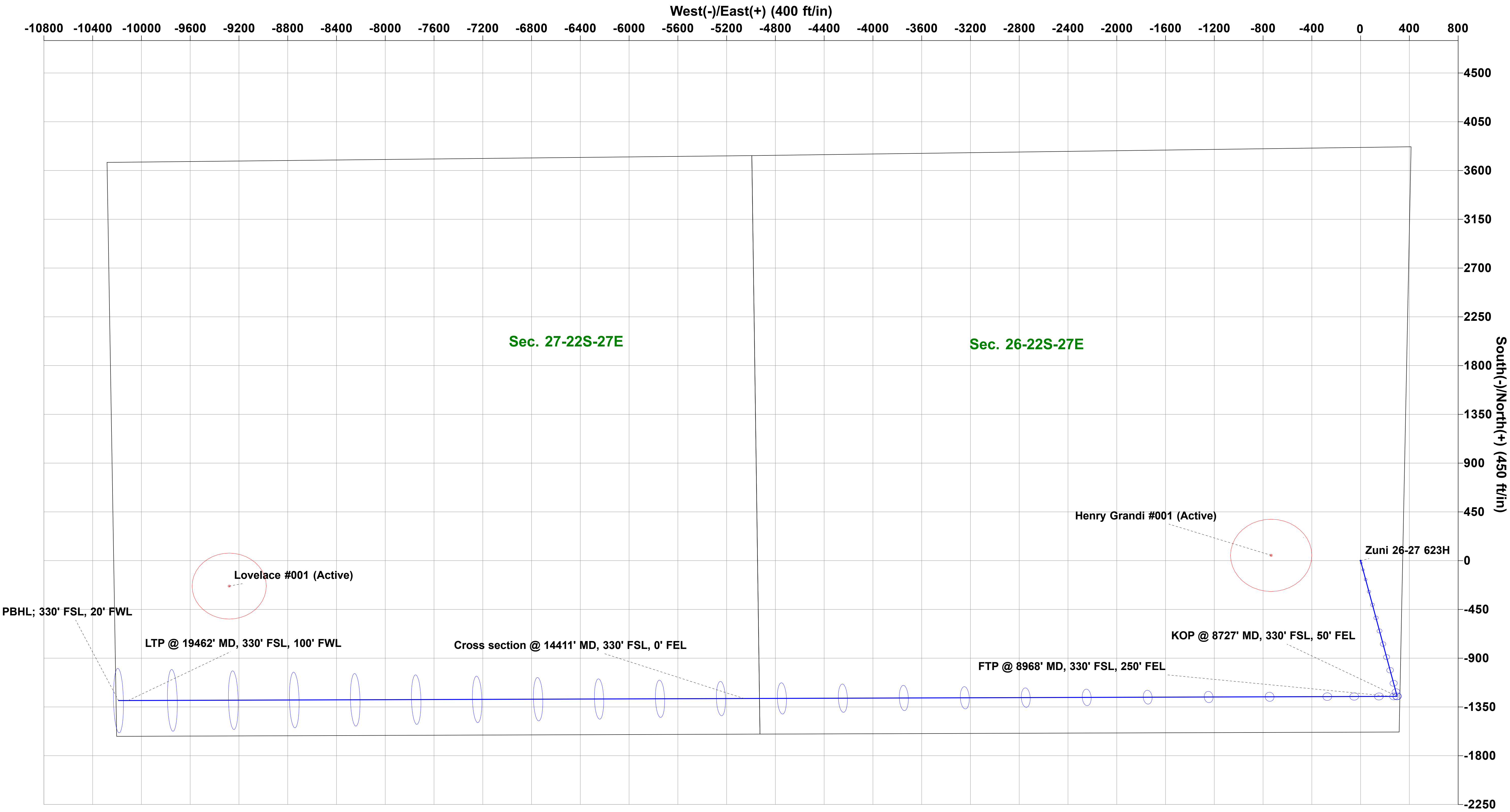
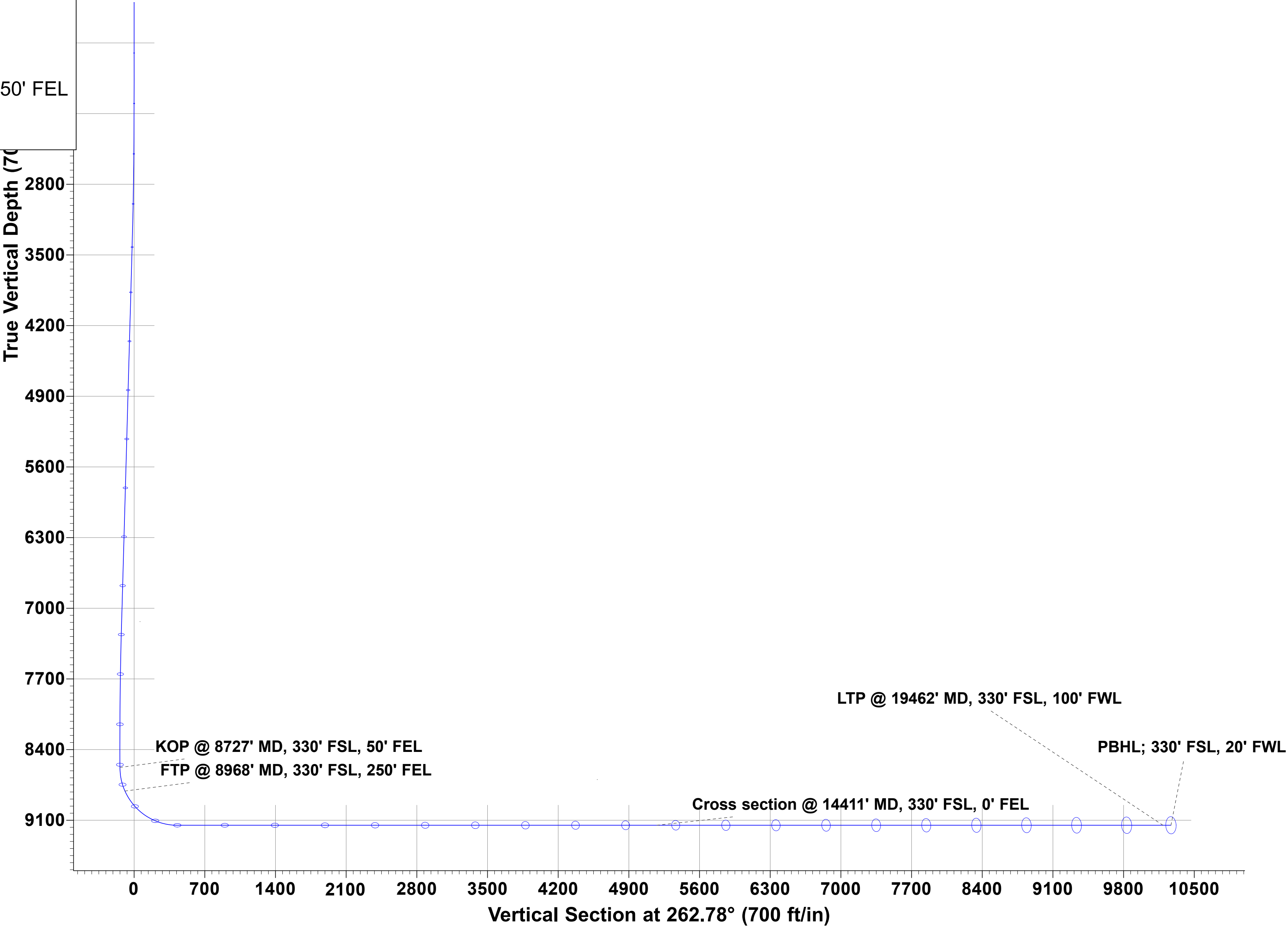
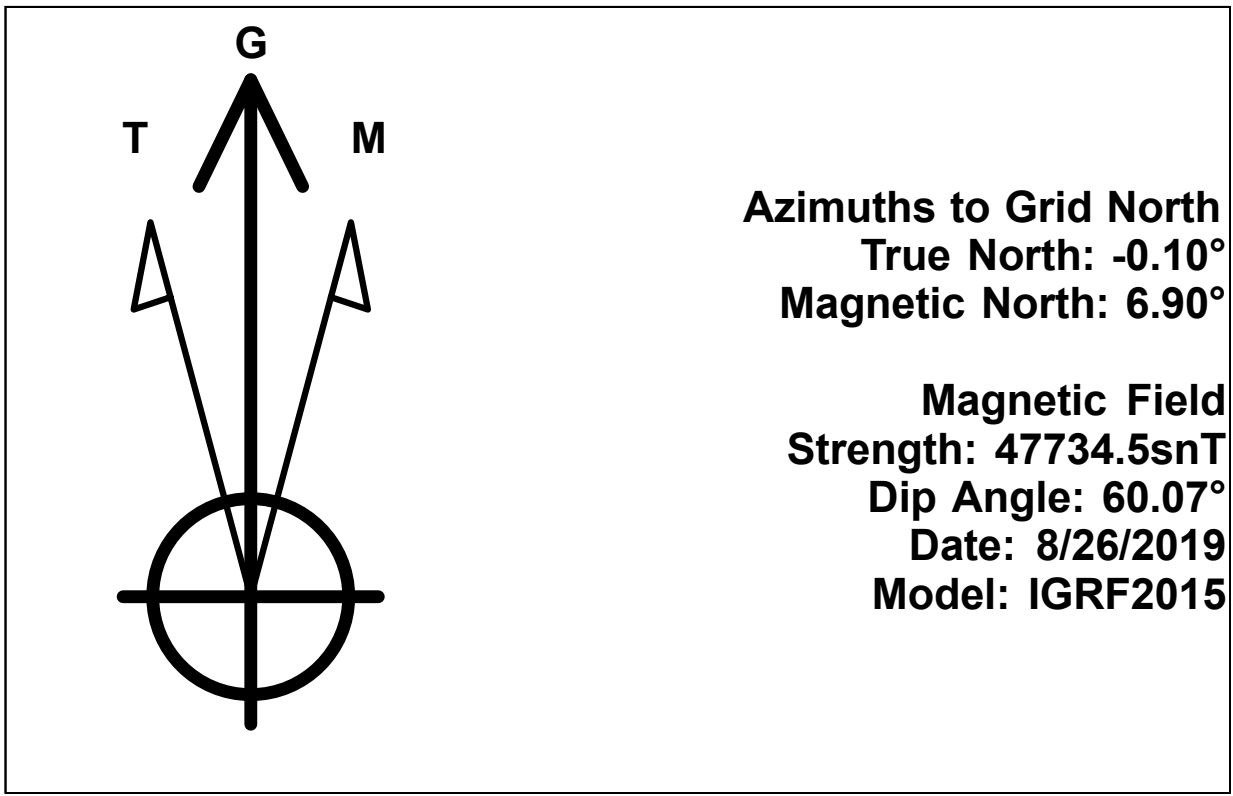


WCDSC Permian NM

WELL DETAILS: Zuni 26-27 623H

RKB @ 3099.70ft 3074.70			
Northing 494988.93	Easting 597097.53	Latitude 32.360666	Longitude -104.152745

SECTION DETAILS				Permit Plan 1				
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2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	
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**Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015**

Hydrogen Sulfide (H₂S) Contingency Plan

For

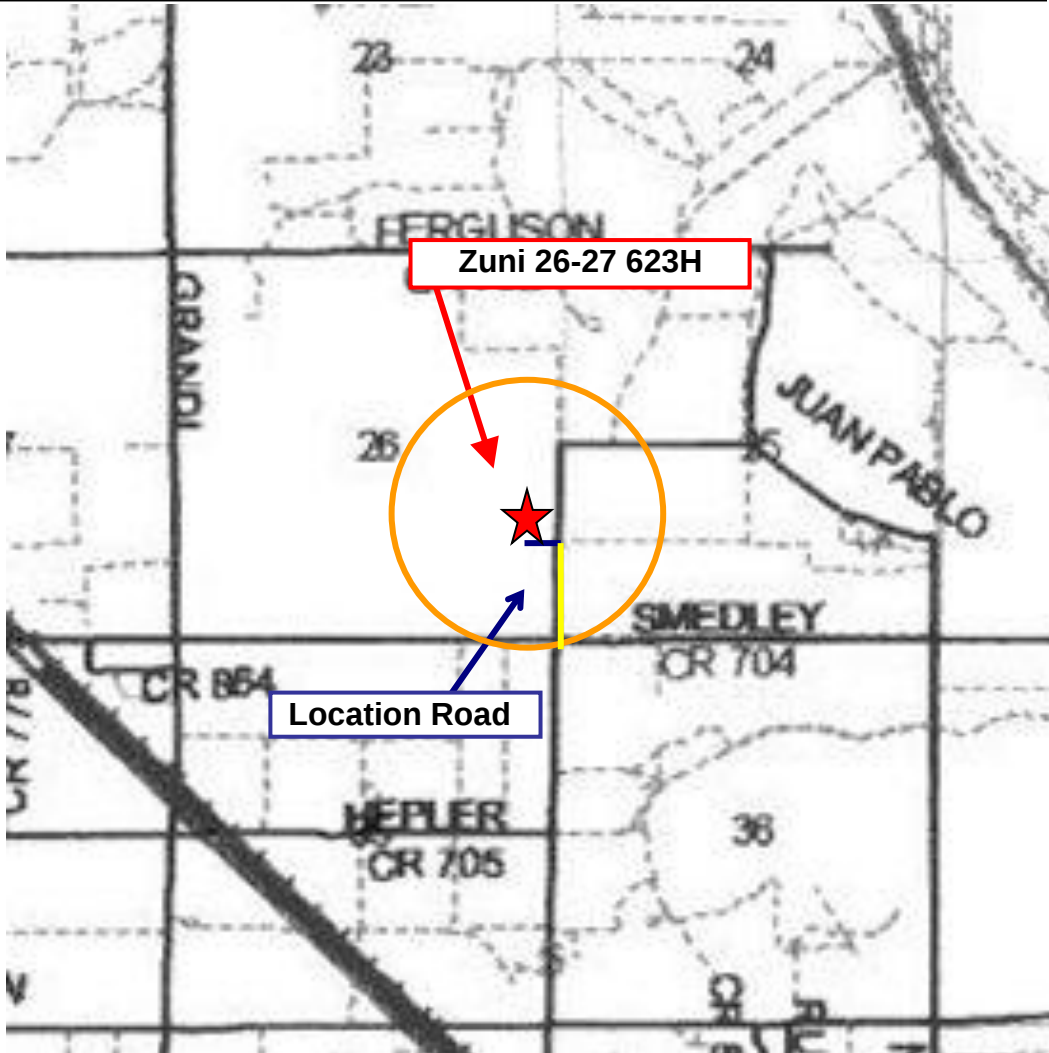
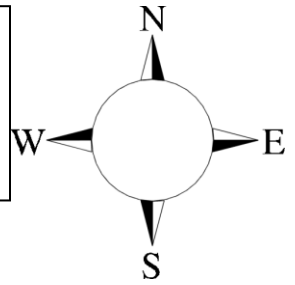
Zuni 26-27 623H

**Sec-26 T-22S R-27E
1582' FSL & 350' FEL
LAT. = 32.360666' N (NAD83)
LONG = 104.152745' W**

Eddy County NM

Zuni 26-27 623H

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.



Assumed 100 ppm ROE = 3000' (Radius of Exposure)
100 ppm H₂S concentration shall trigger activation of this plan.

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	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	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 escape units 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 15 ppm. Sensor locations:

- Bell nipple
- Possum Belly/Shale shaker
- Rig floor
- Choke manifold
- Cellar

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. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H₂S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

<u>Devon Energy Corp. Company Call List</u>		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
EHS Professional – Laura Wright		405-439-8129
<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 (TX & NM)	(800) 642-7828
	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 - Well Pad Rig Location Layout Safety Equipment Location

