

Well Name: CARDIGAN FED COM	Well Location: T19S / R27E / SEC 13 / NESW / 32.6587133 / -104.2351446	County or Parish/State: EDDY / NM
Well Number: 133H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM19597	Unit or CA Name:	Unit or CA Number:
US Well Number:	Operator: FLAT CREEK RESOURCES LLC	

Notice of Intent

Sundry ID: 2837108

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 02/15/2025	Time Sundry Submitted: 08:30
Date proposed operation will begin: 03/01/2025	

Procedure Description: API# 30-015-56004. Request to move the Surface Hole Location from 2053' FSL & 1766' FWL, Section 13, T. 19S, R. 27E, NESW (32.6587133, -104.2351444) to 2013' FSL & 1765' FWL, Section 13, T. 19S, R. 27E, NESW (32.6586035, -104.2351447). Please see attached directional plan, anticollision report, and C102 plat for more detailed information. Please see Sundry 2837105 for request to change well pad configuration.

NOI Attachments

Procedure Description

Cardigan_133H_SHL_Sundry_Attachment_20250215081608.pdf

Received by OCD: 3/11/2025 9:41:01 AM

Page 2 of 28

Well Name: CARDIGAN FED COM	Well Location: T19S / R27E / SEC 13 / NESW / 32.6587133 / -104.2351446	County or Parish/State: EDDY / NM
Well Number: 133H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM19597	Unit or CA Name:	Unit or CA Number:
US Well Number:	Operator: FLAT CREEK RESOURCES LLC	

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: BRIAN WOOD	Signed on: FEB 15, 2025 08:16 AM
Name: FLAT CREEK RESOURCES LLC	
Title: Permitting Agent	
Street Address: 37 VERANO LOOP	
City: SANTA FE	State: NM
Phone: (505) 466-8120	
Email address: AFMSS@PERMITSWEST.COM	

Field

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752342234	BLM POC Email Address: cwalls@blm.gov
Disposition: Approved	Disposition Date: 03/11/2025
Signature: Chris Walls	

WELL LOCATION AND ACREAGE DEDICATION PLAT

Surface Location

Bottom Hole Location

Kick Off Point (KOP)

First Take Point (FTP)

Last Take Point (LTP)

OPERATOR CERTIFICATION

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

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

Rodney Littleton 02/07/2025

Signature _____ Date _____
Rodney Littleton

Print Name _____

rlittleton@freedomenergy.com
E-mail Address _____

SURVEYORS 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.

2/6/2025 2:57:00 PM

Signature and Seal of Professional Surveyor
Date

Certificate Number	Date of Survey
	02/01/2024

C-102

Submit Electronically
Via OCD PermittingState of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION

Revised July 9, 2024

Submittal
Type:

- ☐ Initial Submittal
- ☒ Amended Report
- ☐ As Drilled

Property Name and Well Number

CARDIGAN FED COM 133H

SURFACE LOCATION (SHL)

NEW MEXICO EAST
NAD 1983
X=571555 Y=603345
LAT.: N 32.6586035
LONG.: W 104.2351447
NAD 1927
X=530375 Y=603283
LAT.: N 32.6584874
LONG.: W 104.2346344
2013' FSL 1765' FWL

KICK OFF POINT (KOP)

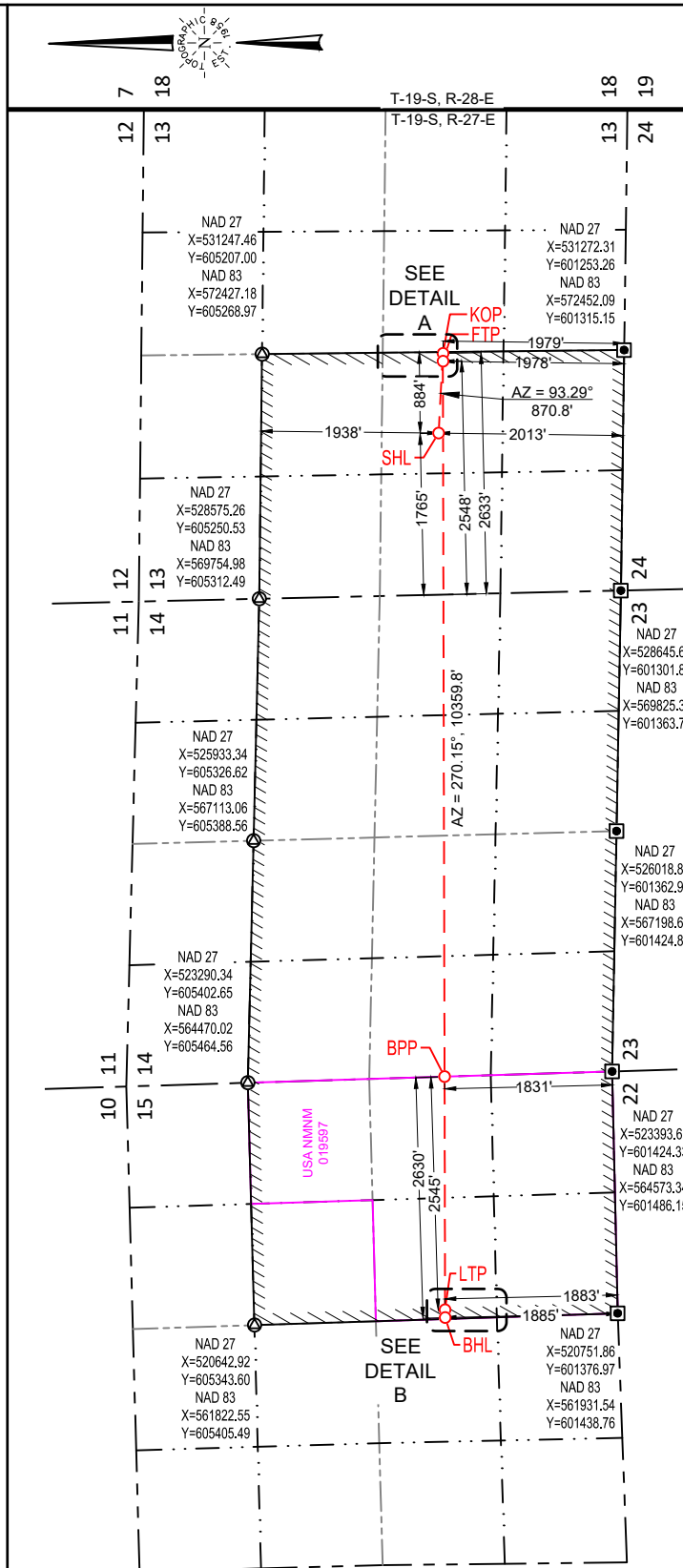
NEW MEXICO EAST
NAD 1983
X=572425 Y=603295
LAT.: N 32.6584640
LONG.: W 104.2323199
NAD 1927
X=531245 Y=603233
LAT.: N 32.6583478
LONG.: W 104.2318097
1979' FSL 2633' FWL

FIRST TAKE POINT (FTP)

NEW MEXICO EAST
NAD 1983
X=572340 Y=603295
LAT.: N 32.6584648
LONG.: W 104.2325961
NAD 1927
X=531160 Y=603233
LAT.: N 32.6583487
LONG.: W 104.2320859
1978' FSL 2548' FWL

BLM PERF. POINT (BPP)

NEW MEXICO EAST
NAD 1983
X=564526 Y=603316
LAT.: N 32.6585402
LONG.: W 104.2579861
NAD 1927
X=523346 Y=603254
LAT.: N 32.6584243
LONG.: W 104.2574751
1831' FSL 0' FWL

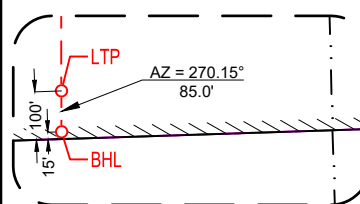
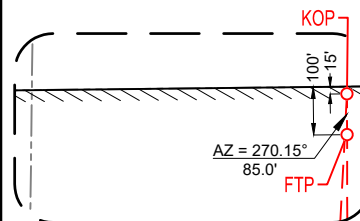


LAST TAKE POINT (LTP)

NEW MEXICO EAST
NAD 1983
X=561980 Y=603323
LAT.: N 32.6585636
LONG.: W 104.2662588
NAD 1927
X=520800 Y=603261
LAT.: N 32.6584478
LONG.: W 104.2657475
1883' FSL 2545' FEL

BOTTOM HOLE LOCATION (BHL)

NEW MEXICO EAST
NAD 1983
X=561895 Y=603323
LAT.: N 32.6585644
LONG.: W 104.2665352
NAD 1927
X=520715 Y=603261
LAT.: N 32.6584486
LONG.: W 104.2660238
1885' FSL 2630' FEL



SURVEYORS 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.

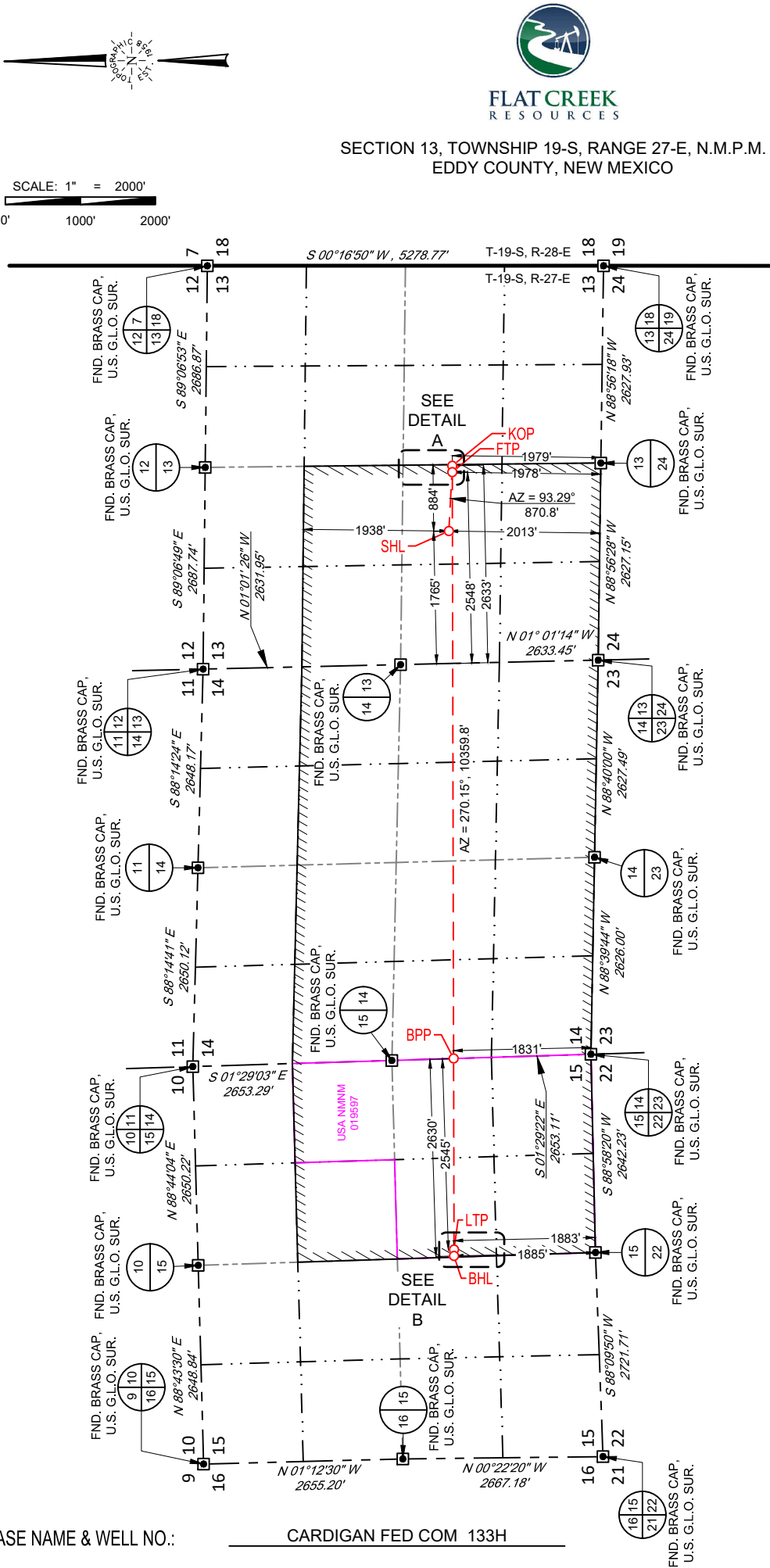
02/01/2024

Date of Survey

Signature and Seal of Professional Surveyor:



2/6/2025 2:57:01 PM



SURFACE LOCATION (SHL)

NEW MEXICO EAST
NAD 1983
X=571555 Y=603345
LAT.: N 32.6586035
LONG.: W 104.2351447
2013' FSL 1765' FWL

KICK OFF POINT (KOP)

NEW MEXICO EAST
NAD 1983
X=572425 Y=603295
LAT.: N 32.6584640
LONG.: W 104.2323199
1979' FSL 2633' FWL

FIRST TAKE POINT (FTP)

NEW MEXICO EAST
NAD 1983
X=572340 Y=603295
LAT.: N 32.6584648
LONG.: W 104.2325961
1978' FSL 2548' FWL

BLM PERF. POINT (BPP)

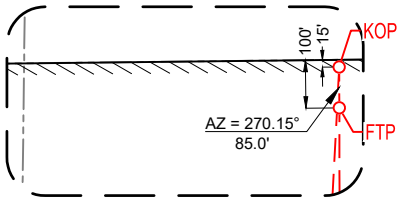
NEW MEXICO EAST
NAD 1983
X=564526 Y=603316
LAT.: N 32.6585402
LONG.: W 104.2579861
1831' FSL 0' FWL

LAST TAKE POINT (LTP)

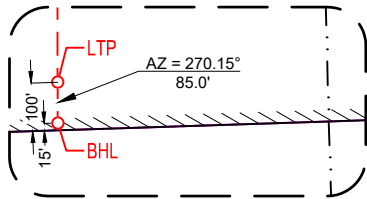
NEW MEXICO EAST
NAD 1983
X=561980 Y=603323
LAT.: N 32.6585636
LONG.: W 104.262588
1883' FSL 2545' FEL

BOTTOM HOLE LOCATION (BHL)

NEW MEXICO EAST
NAD 1983
X=561895 Y=603323
LAT.: N 32.6585644
LONG.: W 104.2665352
1885' FSL 2630' FEL



DETAIL VIEW A
SCALE: 1" = 400'

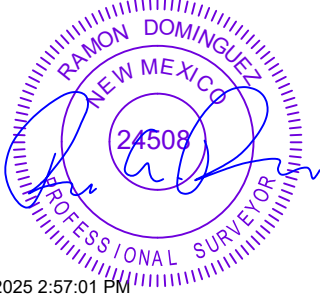


DETAIL VIEW B
SCALE: 1" = 400'

LEASE NAME & WELL NO.: CARDIGAN FED COM 133H

SECTION 13 TWP 19-S RGE 27-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 2013' FSL & 1765' FWL

DISTANCE & DIRECTION
FROM INT. OF NM-529 & US-82W, GO WEST ON US-82W ±18.9 MILES.
THENCE LEFT ON ILLINOIS CAMP RD ±9.4 MILES, THENCE RIGHT ON
NETHERLIN RD. ±0.2 MILES, THENCE SOUTHWEST (LEFT) ON A
PROPOSED RD. ±1510 FEET TO A POINT ±314 FEET SOUTHEAST OF THE
LOCATION.



2/6/2025 2:57:01 PM

Ramon A. Dominguez, P.S. No. 24508

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID
BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY
FEET.

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND
UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF
SURVEY, AND DATA PROVIDED BY FLAT CREEK RESOURCES, LLC. THIS CERTIFICATION IS MADE AND
LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS
NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.



481 WINSOTT ROAD, Ste. 200 • BENBROOK, TEXAS 76126
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM



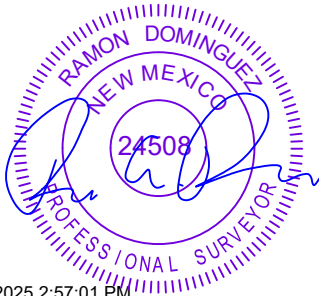
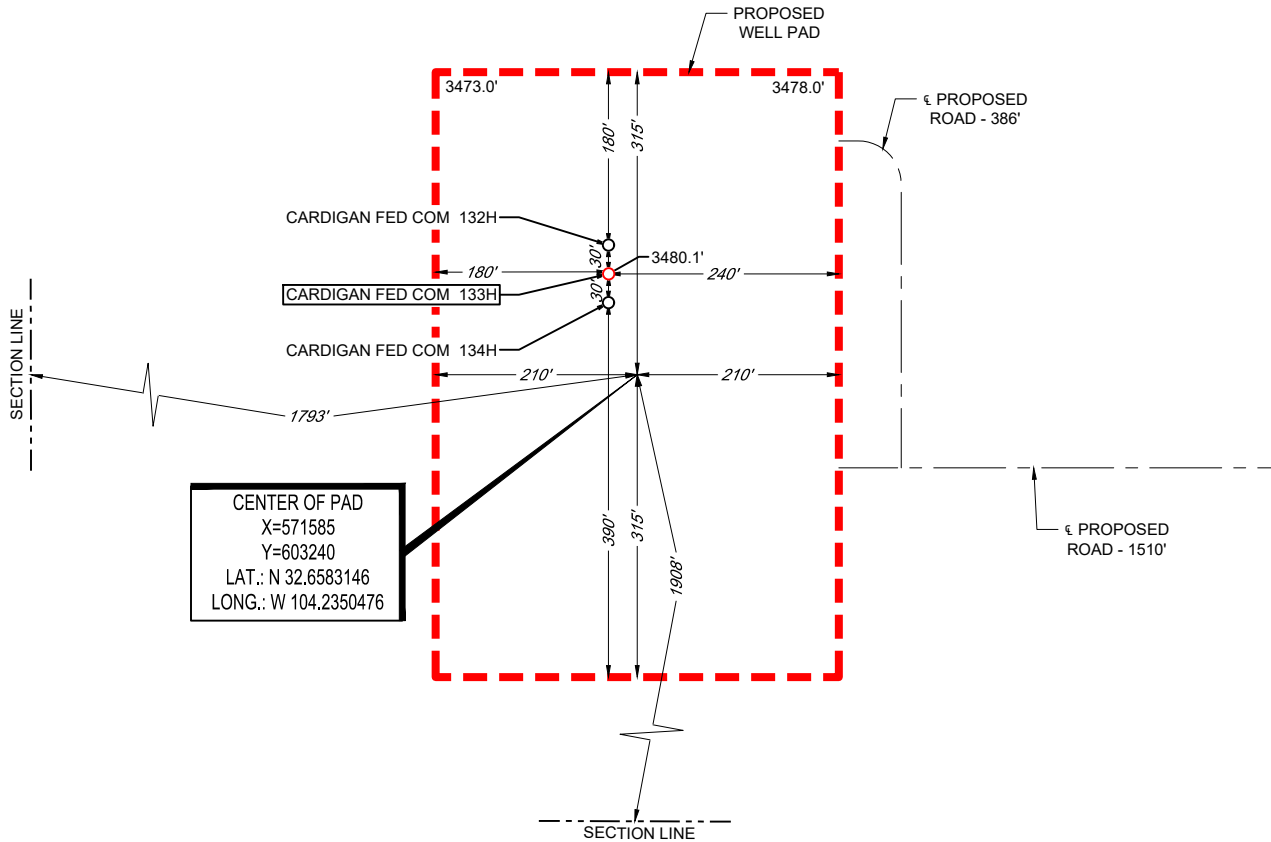
FLAT CREEK
RESOURCES

LEGEND

--- SECTION LINE
--- PROPOSED ROAD

DETAIL VIEW
SCALE: 1" = 200'

SECTION 13, TOWNSHIP 19-S, RANGE 27-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



2/6/2025 2:57:01 PM

Ramon A. Dominguez, P.S. No. 24508

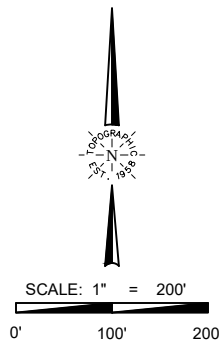
LEASE NAME & WELL NO.: CARDIGAN FED COM 133H
133H LATITUDE N 32.6586035 133H LONGITUDE W 104.2351447

CENTER OF PAD IS 1908' FSL & 1793' FWL

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET. ELEVATIONS USED ARE NAVD88, OBTAINED THROUGH AN OPUS SOLUTION.

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY FLAT CREEK RESOURCES, LLC. ONLY THE DATA SHOWN ABOVE IS BEING CERTIFIED TO, ALL OTHER INFORMATION WAS INTENTIONALLY OMITTED. THIS PLAT IS ONLY INTENDED TO BE USED FOR A PERMIT AND IS NOT A BOUNDARY SURVEY. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ORIGINAL DOCUMENT SIZE: 8.5" X 11"

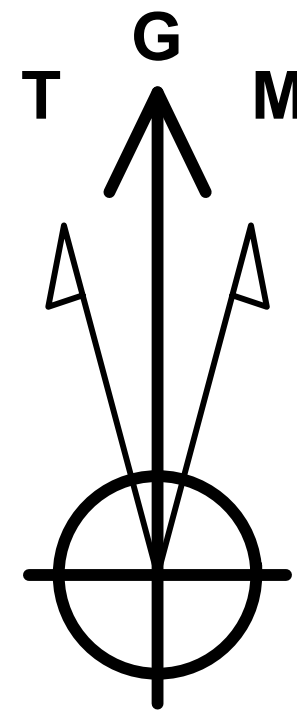


TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

481 WINSOTT ROAD, Ste. 200 • BENBROOK, TEXAS 76126
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

Freedom Energy

Company: Freedom Energy
Field: Eddy County, NM NAD83
Location: Cardigan Fed Com
Well: Cardigan Fed Com 133H
Wellbore: OH
Plan: Plan 2
GL: 3480' GL + 26.5'KB @ 3506.50usft



Azimuths to Grid North
True North: -0.05°
Magnetic North: 6.41°

Magnetic Field
Strength: 47302.7nT
Dip Angle: 60.08°
Date: 2/7/2025
Model: IGRF2020



WELL DETAILS: Cardigan Fed Com 133H

To convert a Magnetic Direction to a Grid Direction, Add 6.41°

		3480' GL + 26.5'KB @ 3506.50usft		3480.00	
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	603345.00	571555.00	32.658604	-104.235145

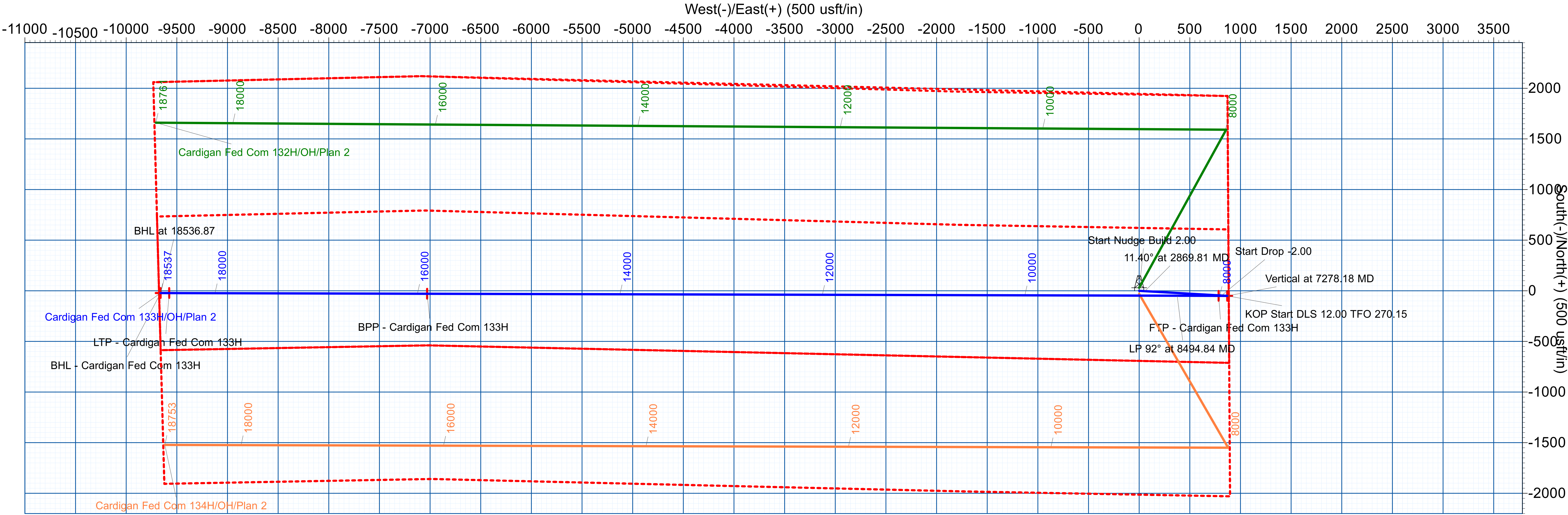
PROJECT DETAILS: Eddy County, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

DESIGN TARGET DETAILS

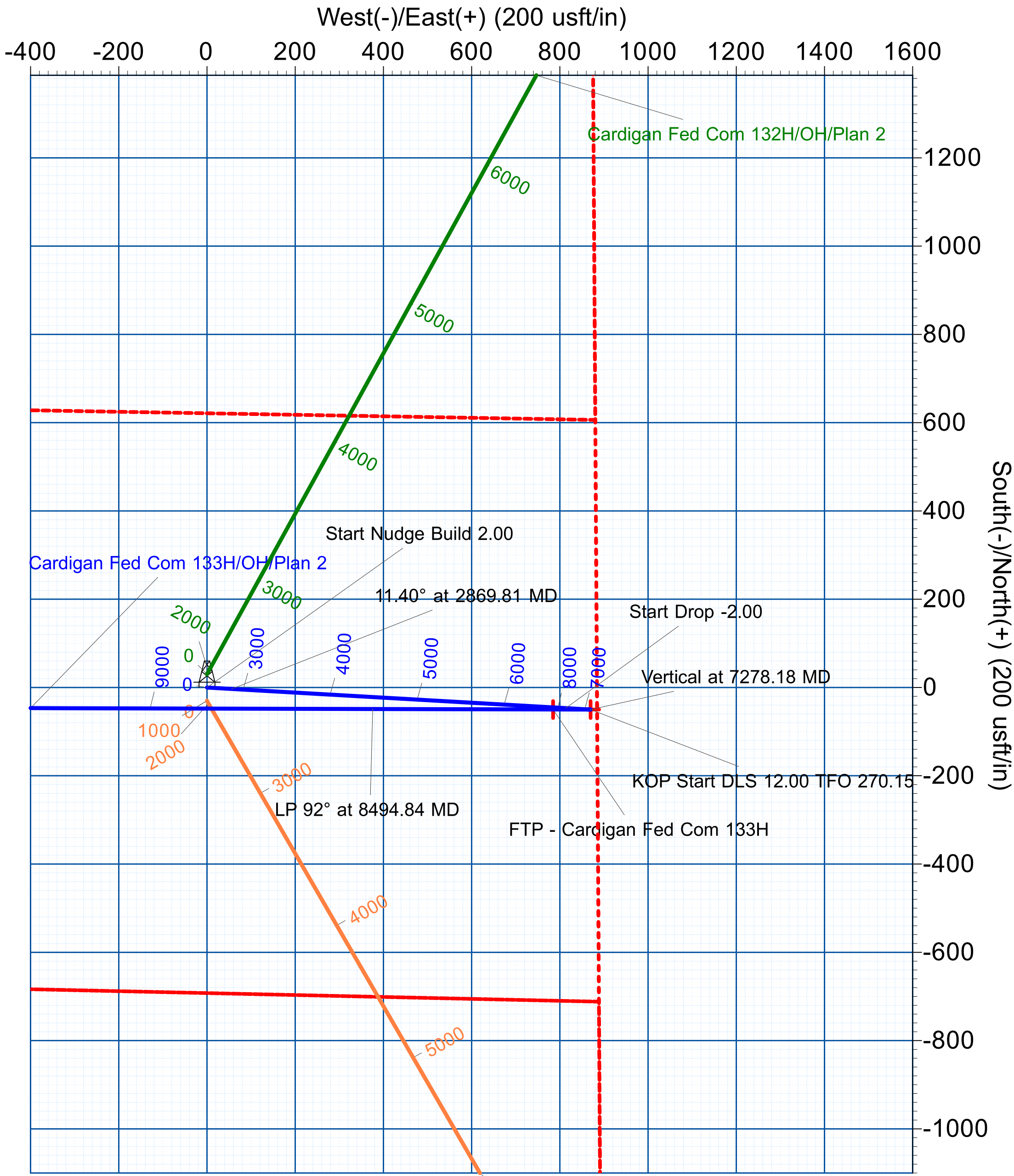
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
KOP - Cardigan Fed Com 133H	7645.00	-50.00	870.00	603295.00	572425.00	32.658464	-104.232319
BHL - Cardigan Fed Com 133H	7771.92	-22.00	-9660.00	603323.00	561895.00	32.658564	-104.266534
LTP - Cardigan Fed Com 133H	7775.23	-22.00	-9575.00	603323.00	561980.00	32.658564	-104.266258
BPP - Cardigan Fed Com 133H	7864.06	-29.00	-7029.00	603316.00	564526.00	32.658540	-104.257985
FTP - Cardigan Fed Com 133H	8125.00	-50.00	785.00	603295.00	572340.00	32.658464	-104.232595

Rig: H&P 370



SECTION DETAILS: OH

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00	Start Nudge Build 2.00
2869.81	11.40	93.29	2866.06	-3.24	56.39	2.00	93.29	-56.40	11.40° at 2869.81 MD
6708.37	11.40	93.29	6628.94	-46.76	813.61	0.00	0.00	-813.73	Start Drop -2.00
7278.18	0.00	0.00	7195.00	-50.00	870.00	2.00	180.00	-870.13	Vertical at 7278.18 MD
7728.18	0.00	0.00	7645.00	-50.00	870.00	0.00	0.00	-870.13	KOP Start DLS 12.00 TFO 270.15
8494.84	92.00	270.15	8122.17	-48.69	375.88	12.00	270.15	-376.01	LP 92° at 8494.84 MD
18536.87	92.00	270.15	7771.92	-22.00	-9660.00	0.00	0.00	9659.91	BHL at 18536.87



Freedom Energy

Eddy County, NM NAD83

Cardigan Fed Com

Cardigan Fed Com 133H

OH

Plan: Plan 2

Standard Planning Report

07 February, 2025

Legacy Directional Drilling
Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Project	Eddy County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Cardigan Fed Com			
Site Position:		Northing:	603,414.93 usft	Latitude:	32.658796
From:	Map	Easting:	571,554.75 usft	Longitude:	-104.235146
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Cardigan Fed Com 133H					
Well Position	+N/-S	0.00 usft	Northing:	603,345.00 usft	Latitude:	32.658604
	+E/-W	0.00 usft	Easting:	571,555.00 usft	Longitude:	-104.235146
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,480.00 usft
Grid Convergence:		0.05 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2/7/2025	6.46	60.08	47,302.69429387

Design	Plan 2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	270.15	

Plan Survey Tool Program	Date	2/7/2025			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,535.89 Plan 2 (OH)	MWD		
			OWSG MWD - Standard		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,869.81	11.40	93.29	2,866.06	-3.24	56.39	2.00	2.00	0.00	93.29	
6,708.37	11.40	93.29	6,628.94	-46.76	813.61	0.00	0.00	0.00	0.00	
7,278.18	0.00	0.00	7,195.00	-50.00	870.00	2.00	-2.00	0.00	180.00	
7,728.18	0.00	0.00	7,645.00	-50.00	870.00	0.00	0.00	0.00	0.00	KOP - Cardigan Fed C
8,494.84	92.00	270.15	8,122.17	-48.69	375.88	12.00	12.00	-11.72	270.15	
18,536.87	92.00	270.15	7,771.92	-22.00	-9,660.00	0.00	0.00	0.00	0.00	BHL - Cardigan Fed C

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	0.00	0.00
ALLUVIUM									
98.00	0.00	0.00	98.00	0.00	0.00	0.00	0.00	0.00	0.00
TANSILL									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
YATES									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
689.00	0.00	0.00	689.00	0.00	0.00	0.00	0.00	0.00	0.00
SEVEN RIVERS									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,261.00	0.00	0.00	1,261.00	0.00	0.00	0.00	0.00	0.00	0.00
QUEEN									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,592.00	0.00	0.00	1,592.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAYBURG									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,092.00	0.00	0.00	2,092.00	0.00	0.00	0.00	0.00	0.00	0.00
SAN ANDRES									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Nudge Build 2.00									
2,400.00	2.00	93.29	2,399.98	-0.10	1.74	-1.74	2.00	2.00	0.00
2,500.00	4.00	93.29	2,499.84	-0.40	6.97	-6.97	2.00	2.00	0.00
2,600.00	6.00	93.29	2,599.45	-0.90	15.67	-15.67	2.00	2.00	0.00
2,700.00	8.00	93.29	2,698.70	-1.60	27.83	-27.84	2.00	2.00	0.00
2,800.00	10.00	93.29	2,797.47	-2.50	43.45	-43.46	2.00	2.00	0.00
2,869.81	11.40	93.29	2,866.06	-3.24	56.39	-56.40	2.00	2.00	0.00
11.40° at 2869.81 MD									
2,900.00	11.40	93.29	2,895.66	-3.58	62.34	-62.35	0.00	0.00	0.00
3,000.00	11.40	93.29	2,993.68	-4.72	82.07	-82.08	0.00	0.00	0.00
3,100.00	11.40	93.29	3,091.71	-5.85	101.80	-101.81	0.00	0.00	0.00
3,200.00	11.40	93.29	3,189.74	-6.98	121.52	-121.54	0.00	0.00	0.00
3,273.46	11.40	93.29	3,261.75	-7.82	136.02	-136.04	0.00	0.00	0.00
BONE SPRING LIME									
3,300.00	11.40	93.29	3,287.77	-8.12	141.25	-141.27	0.00	0.00	0.00

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,400.00	11.40	93.29	3,385.80	-9.25	160.98	-161.00	0.00	0.00	0.00
3,500.00	11.40	93.29	3,483.83	-10.39	180.70	-180.73	0.00	0.00	0.00
3,600.00	11.40	93.29	3,581.85	-11.52	200.43	-200.46	0.00	0.00	0.00
3,700.00	11.40	93.29	3,679.88	-12.65	220.16	-220.19	0.00	0.00	0.00
3,800.00	11.40	93.29	3,777.91	-13.79	239.88	-239.92	0.00	0.00	0.00
3,900.00	11.40	93.29	3,875.94	-14.92	259.61	-259.65	0.00	0.00	0.00
4,000.00	11.40	93.29	3,973.97	-16.05	279.34	-279.38	0.00	0.00	0.00
4,100.00	11.40	93.29	4,072.00	-17.19	299.06	-299.11	0.00	0.00	0.00
4,200.00	11.40	93.29	4,170.02	-18.32	318.79	-318.84	0.00	0.00	0.00
4,300.00	11.40	93.29	4,268.05	-19.46	338.52	-338.57	0.00	0.00	0.00
4,400.00	11.40	93.29	4,366.08	-20.59	358.25	-358.30	0.00	0.00	0.00
4,500.00	11.40	93.29	4,464.11	-21.72	377.97	-378.03	0.00	0.00	0.00
4,600.00	11.40	93.29	4,562.14	-22.86	397.70	-397.76	0.00	0.00	0.00
4,700.00	11.40	93.29	4,660.17	-23.99	417.43	-417.49	0.00	0.00	0.00
4,800.00	11.40	93.29	4,758.20	-25.12	437.15	-437.22	0.00	0.00	0.00
4,900.00	11.40	93.29	4,856.22	-26.26	456.88	-456.95	0.00	0.00	0.00
5,000.00	11.40	93.29	4,954.25	-27.39	476.61	-476.68	0.00	0.00	0.00
5,076.43	11.40	93.29	5,029.17	-28.26	491.68	-491.75	0.00	0.00	0.00
1ST BONE SPRING SAND									
5,100.00	11.40	93.29	5,052.28	-28.52	496.33	-496.41	0.00	0.00	0.00
5,200.00	11.40	93.29	5,150.31	-29.66	516.06	-516.14	0.00	0.00	0.00
5,212.04	11.40	93.29	5,162.11	-29.80	518.43	-518.51	0.00	0.00	0.00
2ND BONE SPRING CARBONATE									
5,300.00	11.40	93.29	5,248.34	-30.79	535.79	-535.86	0.00	0.00	0.00
5,400.00	11.40	93.29	5,346.37	-31.93	555.51	-555.59	0.00	0.00	0.00
5,500.00	11.40	93.29	5,444.39	-33.06	575.24	-575.32	0.00	0.00	0.00
5,600.00	11.40	93.29	5,542.42	-34.19	594.97	-595.05	0.00	0.00	0.00
5,700.00	11.40	93.29	5,640.45	-35.33	614.69	-614.78	0.00	0.00	0.00
5,800.00	11.40	93.29	5,738.48	-36.46	634.42	-634.51	0.00	0.00	0.00
5,900.00	11.40	93.29	5,836.51	-37.59	654.15	-654.24	0.00	0.00	0.00
6,000.00	11.40	93.29	5,934.54	-38.73	673.87	-673.97	0.00	0.00	0.00
6,100.00	11.40	93.29	6,032.56	-39.86	693.60	-693.70	0.00	0.00	0.00
6,200.00	11.40	93.29	6,130.59	-41.00	713.33	-713.43	0.00	0.00	0.00
6,300.00	11.40	93.29	6,228.62	-42.13	733.05	-733.16	0.00	0.00	0.00
6,400.00	11.40	93.29	6,326.65	-43.26	752.78	-752.89	0.00	0.00	0.00
6,500.00	11.40	93.29	6,424.68	-44.40	772.51	-772.62	0.00	0.00	0.00
6,600.00	11.40	93.29	6,522.71	-45.53	792.23	-792.35	0.00	0.00	0.00
6,708.37	11.40	93.29	6,628.94	-46.76	813.61	-813.73	0.00	0.00	0.00
Start Drop -2.00									
6,800.00	9.56	93.29	6,719.04	-47.72	830.25	-830.37	2.00	-2.00	0.00
6,885.40	7.86	93.29	6,803.45	-48.46	843.16	-843.28	2.00	-2.00	0.00
2ND BONE SPRING SAND									
6,900.00	7.56	93.29	6,817.92	-48.57	845.12	-845.24	2.00	-2.00	0.00
6,992.60	5.71	93.29	6,909.89	-49.18	855.80	-855.93	2.00	-2.00	0.00
3RD BONE SPRING CARBONATE									
7,000.00	5.56	93.29	6,917.26	-49.23	856.53	-856.65	2.00	-2.00	0.00
7,100.00	3.56	93.29	7,016.94	-49.68	864.47	-864.60	2.00	-2.00	0.00
7,200.00	1.56	93.29	7,116.83	-49.94	868.94	-869.06	2.00	-2.00	0.00
7,278.18	0.00	0.00	7,195.00	-50.00	870.00	-870.13	2.00	-2.00	0.00
Vertical at 7278.18 MD									
7,300.00	0.00	0.00	7,216.82	-50.00	870.00	-870.13	0.00	0.00	0.00
7,400.00	0.00	0.00	7,316.82	-50.00	870.00	-870.13	0.00	0.00	0.00
7,500.00	0.00	0.00	7,416.82	-50.00	870.00	-870.13	0.00	0.00	0.00

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,600.00	0.00	0.00	7,516.82	-50.00	870.00	-870.13	0.00	0.00	0.00
7,700.00	0.00	0.00	7,616.82	-50.00	870.00	-870.13	0.00	0.00	0.00
7,728.18	0.00	0.00	7,645.00	-50.00	870.00	-870.13	0.00	0.00	0.00
KOP Start DLS 12.00 TFO 270.15									
7,750.00	2.62	270.15	7,666.81	-50.00	869.50	-869.63	12.00	12.00	0.00
7,775.00	5.62	270.15	7,691.75	-49.99	867.71	-867.83	12.00	12.00	0.00
7,800.00	8.62	270.15	7,716.55	-49.99	864.61	-864.74	12.00	12.00	0.00
7,825.00	11.62	270.15	7,741.16	-49.97	860.22	-860.34	12.00	12.00	0.00
7,850.00	14.62	270.15	7,765.50	-49.96	854.54	-854.67	12.00	12.00	0.00
7,875.00	17.62	270.15	7,789.52	-49.94	847.60	-847.73	12.00	12.00	0.00
7,900.00	20.62	270.15	7,813.14	-49.92	839.42	-839.54	12.00	12.00	0.00
7,925.00	23.62	270.15	7,836.29	-49.89	830.00	-830.13	12.00	12.00	0.00
7,950.00	26.62	270.15	7,858.93	-49.87	819.39	-819.52	12.00	12.00	0.00
7,975.00	29.62	270.15	7,880.97	-49.83	807.61	-807.74	12.00	12.00	0.00
8,000.00	32.62	270.15	7,902.37	-49.80	794.69	-794.82	12.00	12.00	0.00
8,025.00	35.62	270.15	7,923.07	-49.76	780.67	-780.80	12.00	12.00	0.00
8,026.44	35.79	270.15	7,924.24	-49.76	779.83	-779.96	12.00	12.00	0.00
3RD BONE SPRING SAND									
8,050.00	38.62	270.15	7,943.00	-49.72	765.59	-765.72	12.00	12.00	0.00
8,075.00	41.62	270.15	7,962.12	-49.68	749.48	-749.61	12.00	12.00	0.00
8,100.00	44.62	270.15	7,980.36	-49.63	732.40	-732.52	12.00	12.00	0.00
8,125.00	47.62	270.15	7,997.69	-49.59	714.38	-714.51	12.00	12.00	0.00
8,150.00	50.62	270.15	8,014.05	-49.54	695.48	-695.61	12.00	12.00	0.00
8,175.00	53.62	270.15	8,029.40	-49.48	675.75	-675.88	12.00	12.00	0.00
8,200.00	56.62	270.15	8,043.70	-49.43	655.24	-655.37	12.00	12.00	0.00
8,225.00	59.62	270.15	8,056.90	-49.37	634.02	-634.14	12.00	12.00	0.00
8,250.00	62.62	270.15	8,068.97	-49.31	612.13	-612.26	12.00	12.00	0.00
8,275.00	65.62	270.15	8,079.88	-49.25	589.64	-589.77	12.00	12.00	0.00
8,300.00	68.62	270.15	8,089.60	-49.19	566.61	-566.74	12.00	12.00	0.00
8,325.00	71.62	270.15	8,098.10	-49.13	543.10	-543.23	12.00	12.00	0.00
8,350.00	74.62	270.15	8,105.36	-49.07	519.18	-519.31	12.00	12.00	0.00
8,375.00	77.62	270.15	8,111.36	-49.00	494.92	-495.04	12.00	12.00	0.00
8,400.00	80.62	270.15	8,116.08	-48.94	470.37	-470.49	12.00	12.00	0.00
8,425.00	83.62	270.15	8,119.51	-48.87	445.61	-445.73	12.00	12.00	0.00
8,450.00	86.62	270.15	8,121.63	-48.81	420.70	-420.83	12.00	12.00	0.00
8,475.00	89.62	270.15	8,122.45	-48.74	395.72	-395.84	12.00	12.00	0.00
8,494.84	92.00	270.15	8,122.17	-48.69	375.88	-376.01	12.00	12.00	0.00
LP 92° at 8494.84 MD									
8,500.00	92.00	270.15	8,121.99	-48.67	370.72	-370.85	0.00	0.00	0.00
8,600.00	92.00	270.15	8,118.51	-48.41	270.78	-270.91	0.00	0.00	0.00
8,700.00	92.00	270.15	8,115.02	-48.14	170.85	-170.97	0.00	0.00	0.00
8,800.00	92.00	270.15	8,111.53	-47.88	70.91	-71.03	0.00	0.00	0.00
8,900.00	92.00	270.15	8,108.04	-47.61	-29.03	28.91	0.00	0.00	0.00
9,000.00	92.00	270.15	8,104.55	-47.34	-128.97	128.85	0.00	0.00	0.00
9,100.00	92.00	270.15	8,101.07	-47.08	-228.91	228.79	0.00	0.00	0.00
9,200.00	92.00	270.15	8,097.58	-46.81	-328.85	328.72	0.00	0.00	0.00
9,300.00	92.00	270.15	8,094.09	-46.55	-428.79	428.66	0.00	0.00	0.00
9,400.00	92.00	270.15	8,090.60	-46.28	-528.73	528.60	0.00	0.00	0.00
9,500.00	92.00	270.15	8,087.12	-46.01	-628.66	628.54	0.00	0.00	0.00
9,600.00	92.00	270.15	8,083.63	-45.75	-728.60	728.48	0.00	0.00	0.00
9,700.00	92.00	270.15	8,080.14	-45.48	-828.54	828.42	0.00	0.00	0.00
9,800.00	92.00	270.15	8,076.65	-45.22	-928.48	928.36	0.00	0.00	0.00
9,900.00	92.00	270.15	8,073.16	-44.95	-1,028.42	1,028.30	0.00	0.00	0.00

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,000.00	92.00	270.15	8,069.68	-44.69	-1,128.36	1,128.24	0.00	0.00	0.00	
10,100.00	92.00	270.15	8,066.19	-44.42	-1,228.30	1,228.18	0.00	0.00	0.00	
10,200.00	92.00	270.15	8,062.70	-44.15	-1,328.24	1,328.12	0.00	0.00	0.00	
10,300.00	92.00	270.15	8,059.21	-43.89	-1,428.18	1,428.06	0.00	0.00	0.00	
10,400.00	92.00	270.15	8,055.72	-43.62	-1,528.11	1,527.99	0.00	0.00	0.00	
10,500.00	92.00	270.15	8,052.24	-43.36	-1,628.05	1,627.93	0.00	0.00	0.00	
10,600.00	92.00	270.15	8,048.75	-43.09	-1,727.99	1,727.87	0.00	0.00	0.00	
10,700.00	92.00	270.15	8,045.26	-42.83	-1,827.93	1,827.81	0.00	0.00	0.00	
10,800.00	92.00	270.15	8,041.77	-42.56	-1,927.87	1,927.75	0.00	0.00	0.00	
10,900.00	92.00	270.15	8,038.29	-42.29	-2,027.81	2,027.69	0.00	0.00	0.00	
11,000.00	92.00	270.15	8,034.80	-42.03	-2,127.75	2,127.63	0.00	0.00	0.00	
11,100.00	92.00	270.15	8,031.31	-41.76	-2,227.69	2,227.57	0.00	0.00	0.00	
11,200.00	92.00	270.15	8,027.82	-41.50	-2,327.62	2,327.51	0.00	0.00	0.00	
11,300.00	92.00	270.15	8,024.33	-41.23	-2,427.56	2,427.45	0.00	0.00	0.00	
11,400.00	92.00	270.15	8,020.85	-40.97	-2,527.50	2,527.39	0.00	0.00	0.00	
11,500.00	92.00	270.15	8,017.36	-40.70	-2,627.44	2,627.33	0.00	0.00	0.00	
11,600.00	92.00	270.15	8,013.87	-40.43	-2,727.38	2,727.26	0.00	0.00	0.00	
11,700.00	92.00	270.15	8,010.38	-40.17	-2,827.32	2,827.20	0.00	0.00	0.00	
11,800.00	92.00	270.15	8,006.89	-39.90	-2,927.26	2,927.14	0.00	0.00	0.00	
11,900.00	92.00	270.15	8,003.41	-39.64	-3,027.20	3,027.08	0.00	0.00	0.00	
12,000.00	92.00	270.15	7,999.92	-39.37	-3,127.13	3,127.02	0.00	0.00	0.00	
12,100.00	92.00	270.15	7,996.43	-39.11	-3,227.07	3,226.96	0.00	0.00	0.00	
12,200.00	92.00	270.15	7,992.94	-38.84	-3,327.01	3,326.90	0.00	0.00	0.00	
12,300.00	92.00	270.15	7,989.45	-38.57	-3,426.95	3,426.84	0.00	0.00	0.00	
12,400.00	92.00	270.15	7,985.97	-38.31	-3,526.89	3,526.78	0.00	0.00	0.00	
12,500.00	92.00	270.15	7,982.48	-38.04	-3,626.83	3,626.72	0.00	0.00	0.00	
12,600.00	92.00	270.15	7,978.99	-37.78	-3,726.77	3,726.66	0.00	0.00	0.00	
12,700.00	92.00	270.15	7,975.50	-37.51	-3,826.71	3,826.60	0.00	0.00	0.00	
12,800.00	92.00	270.15	7,972.02	-37.25	-3,926.65	3,926.53	0.00	0.00	0.00	
12,900.00	92.00	270.15	7,968.53	-36.98	-4,026.58	4,026.47	0.00	0.00	0.00	
13,000.00	92.00	270.15	7,965.04	-36.71	-4,126.52	4,126.41	0.00	0.00	0.00	
13,100.00	92.00	270.15	7,961.55	-36.45	-4,226.46	4,226.35	0.00	0.00	0.00	
13,200.00	92.00	270.15	7,958.06	-36.18	-4,326.40	4,326.29	0.00	0.00	0.00	
13,300.00	92.00	270.15	7,954.58	-35.92	-4,426.34	4,426.23	0.00	0.00	0.00	
13,400.00	92.00	270.15	7,951.09	-35.65	-4,526.28	4,526.17	0.00	0.00	0.00	
13,500.00	92.00	270.15	7,947.60	-35.39	-4,626.22	4,626.11	0.00	0.00	0.00	
13,600.00	92.00	270.15	7,944.11	-35.12	-4,726.16	4,726.05	0.00	0.00	0.00	
13,700.00	92.00	270.15	7,940.62	-34.85	-4,826.09	4,825.99	0.00	0.00	0.00	
13,800.00	92.00	270.15	7,937.14	-34.59	-4,926.03	4,925.93	0.00	0.00	0.00	
13,900.00	92.00	270.15	7,933.65	-34.32	-5,025.97	5,025.86	0.00	0.00	0.00	
14,000.00	92.00	270.15	7,930.16	-34.06	-5,125.91	5,125.80	0.00	0.00	0.00	
14,100.00	92.00	270.15	7,926.67	-33.79	-5,225.85	5,225.74	0.00	0.00	0.00	
14,200.00	92.00	270.15	7,923.19	-33.52	-5,325.79	5,325.68	0.00	0.00	0.00	
14,300.00	92.00	270.15	7,919.70	-33.26	-5,425.73	5,425.62	0.00	0.00	0.00	
14,400.00	92.00	270.15	7,916.21	-32.99	-5,525.67	5,525.56	0.00	0.00	0.00	
14,500.00	92.00	270.15	7,912.72	-32.73	-5,625.60	5,625.50	0.00	0.00	0.00	
14,600.00	92.00	270.15	7,909.23	-32.46	-5,725.54	5,725.44	0.00	0.00	0.00	
14,700.00	92.00	270.15	7,905.75	-32.20	-5,825.48	5,825.38	0.00	0.00	0.00	
14,800.00	92.00	270.15	7,902.26	-31.93	-5,925.42	5,925.32	0.00	0.00	0.00	
14,900.00	92.00	270.15	7,898.77	-31.66	-6,025.36	6,025.26	0.00	0.00	0.00	
15,000.00	92.00	270.15	7,895.28	-31.40	-6,125.30	6,125.20	0.00	0.00	0.00	
15,100.00	92.00	270.15	7,891.79	-31.13	-6,225.24	6,225.13	0.00	0.00	0.00	
15,200.00	92.00	270.15	7,888.31	-30.87	-6,325.18	6,325.07	0.00	0.00	0.00	
15,300.00	92.00	270.15	7,884.82	-30.60	-6,425.12	6,425.01	0.00	0.00	0.00	

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,400.00	92.00	270.15	7,881.33	-30.34	-6,525.05	6,524.95	0.00	0.00	0.00
15,500.00	92.00	270.15	7,877.84	-30.07	-6,624.99	6,624.89	0.00	0.00	0.00
15,600.00	92.00	270.15	7,874.35	-29.80	-6,724.93	6,724.83	0.00	0.00	0.00
15,700.00	92.00	270.15	7,870.87	-29.54	-6,824.87	6,824.77	0.00	0.00	0.00
15,800.00	92.00	270.15	7,867.38	-29.27	-6,924.81	6,924.71	0.00	0.00	0.00
15,900.00	92.00	270.15	7,863.89	-29.01	-7,024.75	7,024.65	0.00	0.00	0.00
16,000.00	92.00	270.15	7,860.40	-28.74	-7,124.69	7,124.59	0.00	0.00	0.00
16,100.00	92.00	270.15	7,856.92	-28.48	-7,224.63	7,224.53	0.00	0.00	0.00
16,200.00	92.00	270.15	7,853.43	-28.21	-7,324.56	7,324.47	0.00	0.00	0.00
16,300.00	92.00	270.15	7,849.94	-27.94	-7,424.50	7,424.40	0.00	0.00	0.00
16,400.00	92.00	270.15	7,846.45	-27.68	-7,524.44	7,524.34	0.00	0.00	0.00
16,500.00	92.00	270.15	7,842.96	-27.41	-7,624.38	7,624.28	0.00	0.00	0.00
16,600.00	92.00	270.15	7,839.48	-27.15	-7,724.32	7,724.22	0.00	0.00	0.00
16,700.00	92.00	270.15	7,835.99	-26.88	-7,824.26	7,824.16	0.00	0.00	0.00
16,800.00	92.00	270.15	7,832.50	-26.62	-7,924.20	7,924.10	0.00	0.00	0.00
16,900.00	92.00	270.15	7,829.01	-26.35	-8,024.14	8,024.04	0.00	0.00	0.00
17,000.00	92.00	270.15	7,825.52	-26.08	-8,124.07	8,123.98	0.00	0.00	0.00
17,100.00	92.00	270.15	7,822.04	-25.82	-8,224.01	8,223.92	0.00	0.00	0.00
17,200.00	92.00	270.15	7,818.55	-25.55	-8,323.95	8,323.86	0.00	0.00	0.00
17,300.00	92.00	270.15	7,815.06	-25.29	-8,423.89	8,423.80	0.00	0.00	0.00
17,400.00	92.00	270.15	7,811.57	-25.02	-8,523.83	8,523.74	0.00	0.00	0.00
17,500.00	92.00	270.15	7,808.08	-24.76	-8,623.77	8,623.67	0.00	0.00	0.00
17,600.00	92.00	270.15	7,804.60	-24.49	-8,723.71	8,723.61	0.00	0.00	0.00
17,700.00	92.00	270.15	7,801.11	-24.22	-8,823.65	8,823.55	0.00	0.00	0.00
17,800.00	92.00	270.15	7,797.62	-23.96	-8,923.59	8,923.49	0.00	0.00	0.00
17,900.00	92.00	270.15	7,794.13	-23.69	-9,023.52	9,023.43	0.00	0.00	0.00
18,000.00	92.00	270.15	7,790.65	-23.43	-9,123.46	9,123.37	0.00	0.00	0.00
18,100.00	92.00	270.15	7,787.16	-23.16	-9,223.40	9,223.31	0.00	0.00	0.00
18,200.00	92.00	270.15	7,783.67	-22.90	-9,323.34	9,323.25	0.00	0.00	0.00
18,300.00	92.00	270.15	7,780.18	-22.63	-9,423.28	9,423.19	0.00	0.00	0.00
18,400.00	92.00	270.15	7,776.69	-22.36	-9,523.22	9,523.13	0.00	0.00	0.00
18,500.00	92.00	270.15	7,773.21	-22.10	-9,623.16	9,623.07	0.00	0.00	0.00
18,535.87	92.00	270.15	7,771.95	-22.00	-9,659.01	9,658.91	0.00	0.00	0.00
BHL at 18536.87									
18,536.87	92.00	270.15	7,771.92	-22.00	-9,660.00	9,659.91	0.00	0.00	0.00

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Company:	Freedom Energy	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Project:	Eddy County, NM NAD83	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site:	Cardigan Fed Com	North Reference:	Grid
Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
KOP - Cardigan Fed Cor - plan hits target center - Point	0.00	0.08	7,645.00	-50.00	870.00	603,295.00	572,425.00	32.658464	-104.232319
BHL - Cardigan Fed Cor - plan hits target center - Point	0.00	0.08	7,771.92	-22.00	-9,660.00	603,323.00	561,895.00	32.658564	-104.266535
LTP - Cardigan Fed Cor - plan misses target center by 0.41usft at 18451.80usft MD (7774.89 TVD, -22.23 N, -9574.99 E) - Point	0.00	0.08	7,775.23	-22.00	-9,575.00	603,323.00	561,980.00	32.658564	-104.266258
BPP - Cardigan Fed Cor - plan misses target center by 0.32usft at 15904.24usft MD (7863.74 TVD, -29.00 N, -7028.99 E) - Point	0.00	0.08	7,864.06	-29.00	-7,029.00	603,316.00	564,526.00	32.658540	-104.257986
FTP - Cardigan Fed Cor - plan misses target center by 142.56usft at 8150.00usft MD (8014.05 TVD, -49.54 N, 695.48 E) - Point	0.00	0.08	8,125.00	-50.00	785.00	603,295.00	572,340.00	32.658464	-104.232595

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
26.50	26.50	ALLUVIUM		-2.00	270.15
98.00	98.00	TANSILL		-2.00	270.15
350.00	350.00	YATES		-2.00	270.15
689.00	689.00	SEVEN RIVERS		-2.00	270.15
1,261.00	1,261.00	QUEEN		-2.00	270.15
1,592.00	1,592.00	GRAYBURG		-2.00	270.15
2,092.00	2,092.00	SAN ANDRES		-2.00	270.15
3,273.46	3,261.75	BONE SPRING LIME		-2.00	270.15
5,076.43	5,029.17	1ST BONE SPRING SAND		-2.00	270.15
5,212.04	5,162.11	2ND BONE SPRING CARBONATE		-2.00	270.15
6,885.40	6,803.45	2ND BONE SPRING SAND		-2.00	270.15
6,992.60	6,909.89	3RD BONE SPRING CARBONATE		-2.00	270.15
8,026.44	7,924.24	3RD BONE SPRING SAND		-2.00	270.15

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,300.00	2,300.00	0.00	0.00	Start Nudge Build 2.00	
2,869.81	2,866.06	-3.24	56.39	11.40° at 2869.81 MD	
6,708.37	6,628.94	-46.76	813.61	Start Drop -2.00	
7,278.18	7,195.00	-50.00	870.00	Vertical at 7278.18 MD	
7,728.18	7,645.00	-50.00	870.00	KOP Start DLS 12.00 TFO 270.15	
8,494.84	8,122.17	-48.69	375.88	LP 92° at 8494.84 MD	
18,535.87	7,771.95	-22.00	-9,659.01	BHL at 18536.87	

Freedom Energy

Eddy County, NM NAD83

Cardigan Fed Com

Cardigan Fed Com 133H

OH

Plan 2

Anticollision Report

07 February, 2025

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Reference	Plan 2		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 2,053.69usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	2/7/2025		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,535.89	Plan 2 (OH)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Cardigan Fed Com						
Cardigan Fed Com 132H - OH - Plan 2	1,800.00	1,800.00	30.00	17.29	2.359	CC, ES
Cardigan Fed Com 132H - OH - Plan 2	1,900.00	1,899.05	31.53	18.10	2.349	SF
Cardigan Fed Com 134H - OH - Plan 2	1,800.00	1,800.00	30.00	17.29	2.359	CC, ES
Cardigan Fed Com 134H - OH - Plan 2	1,900.00	1,899.06	31.51	18.10	2.350	SF

Offset Design:		Cardigan Fed Com - Cardigan Fed Com 132H - OH - Plan 2											Offset Site Error:		0.00 usft	
Survey Program:		0-MWD						Rule Assigned:						Offset Well Error:		0.00 usft
Measured Depth	Vertical	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning			
Depth (usft)	Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	30.00							
100.00	100.00	100.00	100.00	0.26	0.26	0.00	30.00	0.00	30.00	29.47	0.53	56.931				
200.00	200.00	200.00	200.00	0.62	0.62	0.00	30.00	0.00	30.00	28.76	1.24	24.118				
300.00	300.00	300.00	300.00	0.98	0.98	0.00	30.00	0.00	30.00	28.04	1.96	15.300				
400.00	400.00	400.00	400.00	1.34	1.34	0.00	30.00	0.00	30.00	27.32	2.68	11.203				
500.00	500.00	500.00	500.00	1.70	1.70	0.00	30.00	0.00	30.00	26.61	3.39	8.837				
600.00	600.00	600.00	600.00	2.06	2.06	0.00	30.00	0.00	30.00	25.89	4.11	7.296				
700.00	700.00	700.00	700.00	2.41	2.41	0.00	30.00	0.00	30.00	25.17	4.83	6.213				
800.00	800.00	800.00	800.00	2.77	2.77	0.00	30.00	0.00	30.00	24.45	5.55	5.410				
900.00	900.00	900.00	900.00	3.13	3.13	0.00	30.00	0.00	30.00	23.74	6.26	4.790				
1,000.00	1,000.00	1,000.00	1,000.00	3.49	3.49	0.00	30.00	0.00	30.00	23.02	6.98	4.298				
1,100.00	1,100.00	1,100.00	1,100.00	3.85	3.85	0.00	30.00	0.00	30.00	22.30	7.70	3.898				
1,200.00	1,200.00	1,200.00	1,200.00	4.21	4.21	0.00	30.00	0.00	30.00	21.59	8.41	3.566				
1,300.00	1,300.00	1,300.00	1,300.00	4.57	4.57	0.00	30.00	0.00	30.00	20.87	9.13	3.286				
1,400.00	1,400.00	1,400.00	1,400.00	4.92	4.92	0.00	30.00	0.00	30.00	20.15	9.85	3.047				
1,500.00	1,500.00	1,500.00	1,500.00	5.28	5.28	0.00	30.00	0.00	30.00	19.44	10.56	2.840				
1,600.00	1,600.00	1,600.00	1,600.00	5.64	5.64	0.00	30.00	0.00	30.00	18.72	11.28	2.659				
1,700.00	1,700.00	1,700.00	1,700.00	6.00	6.00	0.00	30.00	0.00	30.00	18.00	12.00	2.500				
1,800.00	1,800.00	1,800.00	1,800.00	6.36	6.36	0.00	30.00	0.00	30.00	17.29	12.71	2.359	CC, ES			
1,900.00	1,900.00	1,899.05	1,899.03	6.72	6.71	1.50	31.50	0.83	31.53	18.10	13.42	2.349	SF			
2,000.00	2,000.00	1,997.87	1,997.71	7.07	7.06	5.23	35.98	3.29	36.21	22.09	14.12	2.565				
2,100.00	2,100.00	2,096.21	2,095.69	7.43	7.42	9.65	43.40	7.38	44.24	29.45	14.79	2.991				
2,200.00	2,200.00	2,193.86	2,192.62	7.79	7.77	13.65	53.68	13.03	55.73	40.29	15.45	3.608				

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

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 132H - OH - Plan 2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
2,300.00	2,300.00	2,290.60	2,288.21	8.15	8.12	16.85	66.71	20.20	70.70	54.62	16.08	4.397		
2,400.00	2,399.98	2,386.35	2,382.27	8.50	8.48	-74.73	82.39	28.83	88.61	71.93	16.69	5.311		
2,500.00	2,499.84	2,481.07	2,474.67	8.84	8.85	-74.89	100.59	38.85	108.86	91.59	17.27	6.304		
2,600.00	2,599.45	2,574.60	2,565.19	9.19	9.23	-76.00	121.19	50.18	131.42	113.58	17.84	7.367		
2,700.00	2,698.70	2,666.79	2,653.63	9.54	9.62	-77.56	144.01	62.74	156.37	137.97	18.41	8.496		
2,800.00	2,797.47	2,757.53	2,739.80	9.90	10.02	-79.28	168.90	76.43	183.82	164.84	18.97	9.687		
2,900.00	2,895.66	2,846.69	2,823.56	10.27	10.44	-81.15	195.67	91.17	213.84	194.29	19.55	10.938		
3,000.00	2,993.68	2,941.17	2,911.78	10.65	10.91	-83.07	225.28	107.46	245.46	225.16	20.31	12.086		
3,100.00	3,091.71	3,035.75	3,000.10	11.03	11.39	-84.55	254.93	123.78	277.28	256.20	21.08	13.151		
3,200.00	3,189.74	3,130.34	3,088.43	11.43	11.89	-85.73	284.59	140.10	309.23	287.36	21.87	14.139		
3,300.00	3,287.77	3,224.92	3,176.75	11.83	12.40	-86.69	314.24	156.41	341.27	318.60	22.67	15.054		
3,400.00	3,385.80	3,319.51	3,265.07	12.24	12.92	-87.49	343.89	172.73	373.39	349.91	23.48	15.904		
3,500.00	3,483.83	3,414.10	3,353.40	12.65	13.46	-88.16	373.54	189.05	405.56	381.26	24.30	16.692		
3,600.00	3,581.85	3,508.68	3,441.72	13.07	14.00	-88.73	403.19	205.36	437.77	412.65	25.12	17.425		
3,700.00	3,679.88	3,603.27	3,530.04	13.49	14.54	-89.22	432.84	221.68	470.02	444.06	25.96	18.107		
3,800.00	3,777.91	3,697.85	3,618.37	13.91	15.10	-89.65	462.49	238.00	502.29	475.49	26.80	18.742		
3,900.00	3,875.94	3,792.44	3,706.69	14.34	15.66	-90.03	492.14	254.31	534.59	506.94	27.65	19.334		
4,000.00	3,973.97	3,887.03	3,795.02	14.78	16.22	-90.36	521.79	270.63	566.90	538.40	28.51	19.887		
4,100.00	4,072.00	3,981.61	3,883.34	15.21	16.80	-90.66	551.45	286.95	599.23	569.87	29.37	20.405		
4,200.00	4,170.02	4,076.20	3,971.66	15.65	17.37	-90.93	581.10	303.26	631.58	601.34	30.23	20.889		
4,300.00	4,268.05	4,170.78	4,059.99	16.09	17.95	-91.17	610.75	319.58	663.93	632.83	31.11	21.344		
4,400.00	4,366.08	4,265.37	4,148.31	16.53	18.53	-91.39	640.40	335.90	696.30	664.31	31.98	21.772		
4,500.00	4,464.11	4,359.95	4,236.63	16.98	19.12	-91.59	670.05	352.21	728.67	695.81	32.86	22.173		
4,600.00	4,562.14	4,454.54	4,324.96	17.43	19.71	-91.78	699.70	368.53	761.05	727.30	33.75	22.552		
4,700.00	4,660.17	4,549.13	4,413.28	17.87	20.30	-91.94	729.35	384.85	793.43	758.80	34.63	22.909		
4,800.00	4,758.20	4,643.71	4,501.60	18.32	20.90	-92.10	759.00	401.16	825.83	790.30	35.53	23.246		
4,900.00	4,856.22	4,738.30	4,589.93	18.78	21.49	-92.24	788.65	417.48	858.22	821.80	36.42	23.565		
5,000.00	4,954.25	4,832.88	4,678.25	19.23	22.09	-92.38	818.31	433.80	890.62	853.31	37.32	23.867		
5,100.00	5,052.28	4,927.47	4,766.58	19.69	22.69	-92.50	847.96	450.11	923.03	884.81	38.22	24.153		
5,200.00	5,150.31	5,022.06	4,854.90	20.14	23.30	-92.61	877.61	466.43	955.44	916.32	39.12	24.424		
5,300.00	5,248.34	5,116.64	4,943.22	20.60	23.90	-92.72	907.26	482.75	987.85	947.83	40.02	24.682		
5,400.00	5,346.37	5,211.23	5,031.55	21.06	24.51	-92.82	936.91	499.06	1,020.27	979.34	40.93	24.927		
5,500.00	5,444.39	5,305.81	5,119.87	21.52	25.12	-92.92	966.56	515.38	1,052.68	1,010.84	41.84	25.160		
5,600.00	5,542.42	5,400.40	5,208.19	21.98	25.72	-93.01	996.21	531.70	1,085.10	1,042.35	42.75	25.382		
5,700.00	5,640.45	5,494.98	5,296.52	22.44	26.33	-93.09	1,025.86	548.01	1,117.53	1,073.86	43.66	25.594		
5,800.00	5,738.48	5,589.57	5,384.84	22.90	26.95	-93.17	1,055.51	564.33	1,149.95	1,105.37	44.58	25.796		
5,900.00	5,836.51	5,684.16	5,473.16	23.37	27.56	-93.24	1,085.17	580.65	1,182.38	1,136.88	45.49	25.990		
6,000.00	5,934.54	5,778.74	5,561.49	23.83	28.17	-93.31	1,114.82	596.96	1,214.80	1,168.39	46.41	26.174		
6,100.00	6,032.56	5,873.33	5,649.81	24.30	28.79	-93.38	1,144.47	613.28	1,247.23	1,199.90	47.33	26.351		
6,200.00	6,130.59	5,967.91	5,738.13	24.76	29.40	-93.45	1,174.12	629.60	1,279.66	1,231.41	48.25	26.520		
6,300.00	6,228.62	6,062.50	5,826.46	25.23	30.02	-93.51	1,203.77	645.91	1,312.10	1,262.92	49.17	26.683		
6,400.00	6,326.65	6,157.09	5,914.78	25.69	30.63	-93.56	1,233.42	662.23	1,344.53	1,294.43	50.10	26.838		
6,500.00	6,424.68	6,251.67	6,003.11	26.16	31.25	-93.62	1,263.07	678.55	1,376.96	1,325.94	51.02	26.988		
6,600.00	6,522.71	6,346.26	6,091.43	26.63	31.87	-93.67	1,292.72	694.86	1,409.40	1,357.45	51.95	27.131		
6,700.00	6,620.73	6,440.84	6,179.75	27.10	32.49	-93.72	1,322.37	711.18	1,441.84	1,388.96	52.87	27.269		
6,800.00	6,719.04	6,535.46	6,268.11	27.55	33.11	-94.33	1,352.04	727.50	1,474.18	1,420.39	53.78	27.409		
6,900.00	6,817.92	6,630.09	6,356.47	27.98	33.73	-94.86	1,381.70	743.83	1,506.28	1,451.63	54.65	27.563		
7,000.00	6,917.26	6,724.62	6,444.74	28.38	34.35	-95.25	1,411.33	760.13	1,538.12	1,482.65	55.47	27.729		
7,100.00	7,016.94	6,864.76	6,576.18	28.75	35.25	-95.32	1,453.91	783.56	1,568.95	1,512.23	56.72	27.659		
7,200.00	7,116.83	7,048.29	6,751.48	29.10	36.32	-95.11	1,501.42	809.71	1,594.90	1,536.65	58.25	27.381		
7,300.00	7,216.82	7,237.60	6,935.55	29.41	37.28	-1.41	1,540.02	830.95	1,615.18	1,555.60	59.58	27.110		
7,400.00	7,316.82	7,431.92	7,127.11	29.72	38.12	-0.83	1,568.48	846.61	1,629.73	1,569.02	60.71	26.844		

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 132H - OH - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
7,500.00	7,416.82	7,629.87	7,324.03	30.03	38.82	-0.49	1,585.71	856.09	1,638.39	1,576.76	61.63	26.583	
7,600.00	7,516.82	7,822.79	7,516.82	30.33	39.36	-0.38	1,591.00	859.00	1,641.04	1,578.71	62.33	26.328	
7,614.23	7,531.05	7,837.02	7,531.05	30.38	39.39	-0.38	1,591.00	859.00	1,641.04	1,578.62	62.42	26.292	
7,700.00	7,616.82	7,922.49	7,616.52	30.64	39.60	-0.39	1,591.00	858.96	1,641.04	1,578.10	62.93	26.076	
7,800.00	7,716.55	8,017.44	7,710.71	30.92	39.77	89.25	1,591.07	848.26	1,641.15	1,577.69	63.45	25.863	
7,900.00	7,813.14	8,111.27	7,799.90	31.09	39.86	89.05	1,591.26	819.61	1,641.35	1,577.57	63.78	25.735	
8,000.00	7,902.37	8,204.27	7,881.10	31.18	39.88	88.88	1,591.55	774.57	1,641.61	1,577.66	63.95	25.671	
8,100.00	7,980.36	8,296.70	7,951.65	31.24	39.83	88.76	1,591.94	715.08	1,641.92	1,577.89	64.03	25.643	
8,200.00	8,043.70	8,388.82	8,009.26	31.31	39.72	88.69	1,592.41	643.38	1,642.24	1,578.13	64.11	25.615	
8,300.00	8,089.60	8,480.91	8,052.05	31.45	39.57	88.67	1,592.94	562.00	1,642.57	1,578.27	64.30	25.546	
8,400.00	8,116.08	8,573.23	8,078.49	31.68	39.39	88.70	1,593.52	473.70	1,642.89	1,578.23	64.66	25.408	
8,500.00	8,121.99	8,666.05	8,087.46	32.02	39.20	88.79	1,594.12	381.46	1,643.19	1,577.97	65.22	25.194	
8,600.00	8,118.51	8,764.86	8,084.31	32.52	39.01	88.80	1,594.76	282.71	1,643.57	1,577.42	66.15	24.846	
8,700.00	8,115.02	8,864.86	8,080.82	33.20	38.84	88.80	1,595.42	182.77	1,643.96	1,576.54	67.42	24.385	
8,800.00	8,111.53	8,964.86	8,077.34	34.04	38.69	88.80	1,596.07	82.84	1,644.34	1,575.33	69.01	23.827	
8,900.00	8,108.04	9,064.86	8,073.85	35.04	38.56	88.80	1,596.72	-17.10	1,644.73	1,573.82	70.91	23.194	
9,000.00	8,104.55	9,164.86	8,070.36	36.17	38.45	88.80	1,597.37	-117.04	1,645.12	1,572.02	73.09	22.507	
9,100.00	8,101.07	9,264.86	8,066.88	37.44	38.41	88.80	1,598.03	-216.97	1,645.50	1,569.97	75.53	21.786	
9,200.00	8,097.58	9,364.85	8,063.39	38.82	39.26	88.80	1,598.68	-316.91	1,645.89	1,567.69	78.20	21.046	
9,300.00	8,094.09	9,464.85	8,059.91	40.30	40.70	88.80	1,599.33	-416.85	1,646.28	1,565.19	81.09	20.303	
9,400.00	8,090.60	9,564.85	8,056.42	41.87	42.26	88.80	1,599.99	-516.78	1,646.66	1,562.51	84.16	19.567	
9,500.00	8,087.12	9,664.85	8,052.93	43.53	43.90	88.80	1,600.64	-616.72	1,647.05	1,559.65	87.40	18.846	
9,600.00	8,083.63	9,764.85	8,049.45	45.26	45.61	88.80	1,601.29	-716.65	1,647.44	1,556.65	90.79	18.146	
9,700.00	8,080.14	9,864.85	8,045.96	47.05	47.38	88.80	1,601.94	-816.59	1,647.82	1,553.51	94.31	17.472	
9,800.00	8,076.65	9,964.85	8,042.48	48.91	49.21	88.80	1,602.60	-916.53	1,648.21	1,550.25	97.96	16.825	
9,900.00	8,073.16	10,064.85	8,038.99	50.81	51.09	88.80	1,603.25	-1,016.46	1,648.60	1,546.89	101.71	16.208	
10,000.00	8,069.68	10,164.85	8,035.50	52.76	53.01	88.80	1,603.90	-1,116.40	1,648.99	1,543.42	105.56	15.621	
10,100.00	8,066.19	10,264.85	8,032.02	54.75	54.97	88.80	1,604.55	-1,216.34	1,649.37	1,539.88	109.50	15.063	
10,200.00	8,062.70	10,364.85	8,028.53	56.78	56.97	88.80	1,605.21	-1,316.27	1,649.76	1,536.25	113.51	14.535	
10,300.00	8,059.21	10,464.85	8,025.05	58.84	59.01	88.81	1,605.86	-1,416.21	1,650.15	1,532.56	117.59	14.033	
10,400.00	8,055.72	10,564.85	8,021.56	60.93	61.07	88.81	1,606.51	-1,516.15	1,650.53	1,528.80	121.73	13.559	
10,500.00	8,052.24	10,664.84	8,018.07	63.05	63.16	88.81	1,607.16	-1,616.08	1,650.92	1,524.99	125.93	13.110	
10,600.00	8,048.75	10,764.84	8,014.59	65.19	65.27	88.81	1,607.82	-1,716.02	1,651.31	1,521.13	130.17	12.685	
10,700.00	8,045.26	10,864.84	8,011.10	67.36	67.41	88.81	1,608.47	-1,815.95	1,651.69	1,517.23	134.47	12.283	
10,800.00	8,041.77	10,964.84	8,007.62	69.54	69.56	88.81	1,609.12	-1,915.89	1,652.08	1,513.28	138.80	11.902	
10,900.00	8,038.29	11,064.84	8,004.13	71.74	71.74	88.81	1,609.78	-2,015.83	1,652.47	1,509.29	143.18	11.542	
11,000.00	8,034.80	11,164.84	8,000.64	73.96	73.93	88.81	1,610.43	-2,115.76	1,652.85	1,505.27	147.58	11.200	
11,100.00	8,031.31	11,264.84	7,997.16	76.19	76.14	88.81	1,611.08	-2,215.70	1,653.24	1,501.22	152.02	10.875	
11,200.00	8,027.82	11,364.84	7,993.67	78.43	78.36	88.81	1,611.73	-2,315.64	1,653.63	1,497.14	156.49	10.567	
11,300.00	8,024.33	11,464.84	7,990.19	80.69	80.60	88.81	1,612.39	-2,415.57	1,654.01	1,493.03	160.98	10.275	
11,400.00	8,020.85	11,564.84	7,986.70	82.96	82.84	88.81	1,613.04	-2,515.51	1,654.40	1,488.90	165.50	9.996	
11,500.00	8,017.36	11,664.84	7,983.21	85.24	85.10	88.81	1,613.69	-2,615.44	1,654.79	1,484.75	170.04	9.732	
11,600.00	8,013.87	11,764.84	7,979.73	87.53	87.37	88.81	1,614.34	-2,715.38	1,655.17	1,480.58	174.60	9.480	
11,700.00	8,010.38	11,864.84	7,976.24	89.83	89.65	88.81	1,615.00	-2,815.32	1,655.56	1,476.38	179.18	9.240	
11,800.00	8,006.89	11,964.83	7,972.76	92.14	91.94	88.81	1,615.65	-2,915.25	1,655.95	1,472.17	183.77	9.011	
11,900.00	8,003.41	12,064.83	7,969.27	94.45	94.24	88.81	1,616.30	-3,015.19	1,656.33	1,467.95	188.39	8.792	
12,000.00	7,999.92	12,164.83	7,965.78	96.77	96.54	88.81	1,616.96	-3,115.13	1,656.72	1,463.71	193.02	8.583	
12,100.00	7,996.43	12,264.83	7,962.30	99.10	98.85	88.81	1,617.61	-3,215.06	1,657.11	1,459.45	197.66	8.384	
12,200.00	7,992.94	12,364.83	7,958.81	101.44	101.17	88.81	1,618.26	-3,315.00	1,657.50	1,455.18	202.31	8.193	
12,300.00	7,989.45	12,464.83	7,955.33	103.78	103.49	88.81	1,618.91	-3,414.94	1,657.88	1,450.90	206.98	8.010	
12,400.00	7,985.97	12,564.83	7,951.84	106.12	105.82	88.81	1,619.57	-3,514.87	1,658.27	1,446.61	211.66	7.835	
12,500.00	7,982.48	12,664.83	7,948.35	108.48	108.16	88.81	1,620.22	-3,614.81	1,658.66	1,442.31	216.35	7.667	

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 132H - OH - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,600.00	7,978.99	12,764.83	7,944.87	110.83	110.50	88.81	1,620.87	-3,714.74	1,659.04	1,438.00	221.05	7.505	
12,700.00	7,975.50	12,864.83	7,941.38	113.19	112.84	88.81	1,621.52	-3,814.68	1,659.43	1,433.68	225.75	7.351	
12,800.00	7,972.02	12,964.83	7,937.90	115.56	115.19	88.81	1,622.18	-3,914.62	1,659.82	1,429.35	230.47	7.202	
12,900.00	7,968.53	13,064.83	7,934.41	117.92	117.55	88.81	1,622.83	-4,014.55	1,660.20	1,425.01	235.20	7.059	
13,000.00	7,965.04	13,164.83	7,930.92	120.30	119.91	88.81	1,623.48	-4,114.49	1,660.59	1,420.66	239.93	6.921	
13,100.00	7,961.55	13,264.83	7,927.44	122.67	122.27	88.81	1,624.13	-4,214.43	1,660.98	1,416.31	244.67	6.789	
13,200.00	7,958.06	13,364.82	7,923.95	125.05	124.64	88.82	1,624.79	-4,314.36	1,661.36	1,411.95	249.42	6.661	
13,300.00	7,954.58	13,464.82	7,920.47	127.43	127.01	88.82	1,625.44	-4,414.30	1,661.75	1,407.58	254.17	6.538	
13,400.00	7,951.09	13,564.82	7,916.98	129.82	129.38	88.82	1,626.09	-4,514.24	1,662.14	1,403.21	258.93	6.419	
13,500.00	7,947.60	13,664.82	7,913.49	132.20	131.75	88.82	1,626.75	-4,614.17	1,662.52	1,398.83	263.70	6.305	
13,600.00	7,944.11	13,764.82	7,910.01	134.59	134.13	88.82	1,627.40	-4,714.11	1,662.91	1,394.44	268.47	6.194	
13,700.00	7,940.62	13,864.82	7,906.52	136.99	136.51	88.82	1,628.05	-4,814.04	1,663.30	1,390.05	273.24	6.087	
13,800.00	7,937.14	13,964.82	7,903.04	139.38	138.90	88.82	1,628.70	-4,913.98	1,663.68	1,385.66	278.02	5.984	
13,900.00	7,933.65	14,064.82	7,899.55	141.78	141.28	88.82	1,629.36	-5,013.92	1,664.07	1,381.26	282.81	5.884	
14,000.00	7,930.16	14,164.82	7,896.06	144.18	143.67	88.82	1,630.01	-5,113.85	1,664.46	1,376.86	287.60	5.787	
14,100.00	7,926.67	14,264.82	7,892.58	146.58	146.06	88.82	1,630.66	-5,213.79	1,664.84	1,372.45	292.39	5.694	
14,200.00	7,923.19	14,364.82	7,889.09	148.98	148.46	88.82	1,631.31	-5,313.73	1,665.23	1,368.04	297.19	5.603	
14,300.00	7,919.70	14,464.82	7,885.61	151.39	150.85	88.82	1,631.97	-5,413.66	1,665.62	1,363.62	302.00	5.515	
14,400.00	7,916.21	14,564.82	7,882.12	153.79	153.25	88.82	1,632.62	-5,513.60	1,666.01	1,359.20	306.80	5.430	
14,500.00	7,912.72	14,664.81	7,878.63	156.20	155.65	88.82	1,633.27	-5,613.54	1,666.39	1,354.78	311.61	5.348	
14,600.00	7,909.23	14,764.81	7,875.15	158.61	158.05	88.82	1,633.92	-5,713.47	1,666.78	1,350.35	316.42	5.268	
14,700.00	7,905.75	14,864.81	7,871.66	161.02	160.45	88.82	1,634.58	-5,813.41	1,667.17	1,345.93	321.24	5.190	
14,800.00	7,902.26	14,964.81	7,868.18	163.44	162.86	88.82	1,635.23	-5,913.34	1,667.55	1,341.49	326.06	5.114	
14,900.00	7,898.77	15,064.81	7,864.69	165.85	165.26	88.82	1,635.88	-6,013.28	1,667.94	1,337.06	330.88	5.041	
15,000.00	7,895.28	15,164.81	7,861.20	168.26	167.67	88.82	1,636.54	-6,113.22	1,668.33	1,332.62	335.71	4.970	
15,100.00	7,891.79	15,264.81	7,857.72	170.68	170.08	88.82	1,637.19	-6,213.15	1,668.71	1,328.18	340.53	4.900	
15,200.00	7,888.31	15,364.81	7,854.23	173.10	172.49	88.82	1,637.84	-6,313.09	1,669.10	1,323.74	345.36	4.833	
15,300.00	7,884.82	15,464.81	7,850.75	175.52	174.90	88.82	1,638.49	-6,413.03	1,669.49	1,319.29	350.20	4.767	
15,400.00	7,881.33	15,564.81	7,847.26	177.94	177.31	88.82	1,639.15	-6,512.96	1,669.87	1,314.84	355.03	4.703	
15,500.00	7,877.84	15,664.81	7,843.77	180.36	179.73	88.82	1,639.80	-6,612.90	1,670.26	1,310.39	359.87	4.641	
15,600.00	7,874.35	15,764.81	7,840.29	182.78	182.14	88.82	1,640.45	-6,712.83	1,670.65	1,305.94	364.71	4.581	
15,700.00	7,870.87	15,864.81	7,836.80	185.21	184.56	88.82	1,641.10	-6,812.77	1,671.03	1,301.49	369.55	4.522	
15,800.00	7,867.38	15,964.81	7,833.32	187.63	186.98	88.82	1,641.76	-6,912.71	1,671.42	1,297.03	374.39	4.464	
15,900.00	7,863.89	16,064.80	7,829.83	190.06	189.40	88.82	1,642.41	-7,012.64	1,671.81	1,292.57	379.24	4.408	
16,000.00	7,860.40	16,164.80	7,826.34	192.48	191.82	88.82	1,643.06	-7,112.58	1,672.19	1,288.11	384.08	4.354	
16,100.00	7,856.92	16,264.80	7,822.86	194.91	194.24	88.82	1,643.72	-7,212.52	1,672.58	1,283.65	388.93	4.300	
16,200.00	7,853.43	16,364.80	7,819.37	197.34	196.66	88.83	1,644.37	-7,312.45	1,672.97	1,279.19	393.78	4.248	
16,300.00	7,849.94	16,464.80	7,815.89	199.76	199.08	88.83	1,645.02	-7,412.39	1,673.36	1,274.72	398.64	4.198	
16,400.00	7,846.45	16,564.80	7,812.40	202.19	201.50	88.83	1,645.67	-7,512.33	1,673.74	1,270.25	403.49	4.148	
16,500.00	7,842.96	16,664.80	7,808.91	204.62	203.93	88.83	1,646.33	-7,612.26	1,674.13	1,265.78	408.34	4.100	
16,600.00	7,839.48	16,764.80	7,805.43	207.05	206.35	88.83	1,646.98	-7,712.20	1,674.52	1,261.31	413.20	4.053	
16,700.00	7,835.99	16,864.80	7,801.94	209.49	208.78	88.83	1,647.63	-7,812.13	1,674.90	1,256.84	418.06	4.006	
16,800.00	7,832.50	16,964.80	7,798.46	211.92	211.20	88.83	1,648.28	-7,912.07	1,675.29	1,252.37	422.92	3.961	
16,900.00	7,829.01	17,064.80	7,794.97	214.35	213.63	88.83	1,648.94	-8,012.01	1,675.68	1,247.90	427.78	3.917	
17,000.00	7,825.52	17,164.80	7,791.48	216.78	216.06	88.83	1,649.59	-8,111.94	1,676.06	1,243.42	432.64	3.874	
17,100.00	7,822.04	17,264.80	7,788.00	219.22	218.49	88.83	1,650.24	-8,211.88	1,676.45	1,238.94	437.51	3.832	
17,200.00	7,818.55	17,364.79	7,784.51	221.65	220.92	88.83	1,650.89	-8,311.82	1,676.84	1,234.47	442.37	3.791	
17,300.00	7,815.06	17,464.79	7,781.03	224.09	223.34	88.83	1,651.55	-8,411.75	1,677.22	1,229.99	447.24	3.750	
17,400.00	7,811.57	17,564.79	7,777.54	226.52	225.78	88.83	1,652.20	-8,511.69	1,677.61	1,225.51	452.10	3.711	
17,500.00	7,808.08	17,664.79	7,774.05	228.96	228.21	88.83	1,652.85	-8,611.63	1,678.00	1,221.03	456.97	3.672	
17,600.00	7,804.60	17,764.79	7,770.57	231.40	230.64	88.83	1,653.51	-8,711.56	1,678.38	1,216.54	461.84	3.634	
17,700.00	7,801.11	17,864.79	7,767.08	233.83	233.07	88.83	1,654.16	-8,811.50	1,678.77	1,212.06	466.71	3.597	

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 132H - OH - Plan 2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
17,800.00	7,797.62	17,964.79	7,763.60	236.27	235.50	88.83	1,654.81	-8,911.43	1,679.16	1,207.58	471.58	3.561		
17,900.00	7,794.13	18,064.79	7,760.11	238.71	237.94	88.83	1,655.46	-9,011.37	1,679.54	1,203.09	476.45	3.525		
18,000.00	7,790.65	18,164.79	7,756.62	241.15	240.37	88.83	1,656.12	-9,111.31	1,679.93	1,198.61	481.33	3.490		
18,100.00	7,787.16	18,264.79	7,753.14	243.59	242.80	88.83	1,656.77	-9,211.24	1,680.32	1,194.12	486.20	3.456		
18,200.00	7,783.67	18,364.79	7,749.65	246.02	245.24	88.83	1,657.42	-9,311.18	1,680.70	1,189.63	491.07	3.423		
18,300.00	7,780.18	18,464.79	7,746.17	248.46	247.67	88.83	1,658.07	-9,411.12	1,681.09	1,185.14	495.95	3.390		
18,400.00	7,776.69	18,564.79	7,742.68	250.90	250.11	88.83	1,658.73	-9,511.05	1,681.48	1,180.65	500.83	3.357		
18,500.00	7,773.21	18,664.78	7,739.19	253.34	252.54	88.83	1,659.38	-9,610.99	1,681.87	1,176.16	505.70	3.326		
18,536.87	7,771.92	18,701.65	7,737.91	253.94	253.44	88.83	1,659.62	-9,647.83	1,682.01	1,174.81	507.20	3.316		

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

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 134H - OH - Plan 2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	0.00	0.00	180.00	-30.00	0.00	30.00				
100.00	100.00	100.00	100.00	0.26	0.26	180.00	-30.00	0.00	30.00	29.47	0.53	56.931	
200.00	200.00	200.00	200.00	0.62	0.62	180.00	-30.00	0.00	30.00	28.76	1.24	24.118	
300.00	300.00	300.00	300.00	0.98	0.98	180.00	-30.00	0.00	30.00	28.04	1.96	15.300	
400.00	400.00	400.00	400.00	1.34	1.34	180.00	-30.00	0.00	30.00	27.32	2.68	11.203	
500.00	500.00	500.00	500.00	1.70	1.70	180.00	-30.00	0.00	30.00	26.61	3.39	8.837	
600.00	600.00	600.00	600.00	2.06	2.06	180.00	-30.00	0.00	30.00	25.89	4.11	7.296	
700.00	700.00	700.00	700.00	2.41	2.41	180.00	-30.00	0.00	30.00	25.17	4.83	6.213	
800.00	800.00	800.00	800.00	2.77	2.77	180.00	-30.00	0.00	30.00	24.45	5.55	5.410	
900.00	900.00	900.00	900.00	3.13	3.13	180.00	-30.00	0.00	30.00	23.74	6.26	4.790	
1,000.00	1,000.00	1,000.00	1,000.00	3.49	3.49	180.00	-30.00	0.00	30.00	23.02	6.98	4.298	
1,100.00	1,100.00	1,100.00	1,100.00	3.85	3.85	180.00	-30.00	0.00	30.00	22.30	7.70	3.898	
1,200.00	1,200.00	1,200.00	1,200.00	4.21	4.21	180.00	-30.00	0.00	30.00	21.59	8.41	3.566	
1,300.00	1,300.00	1,300.00	1,300.00	4.57	4.57	180.00	-30.00	0.00	30.00	20.87	9.13	3.286	
1,400.00	1,400.00	1,400.00	1,400.00	4.92	4.92	180.00	-30.00	0.00	30.00	20.15	9.85	3.047	
1,500.00	1,500.00	1,500.00	1,500.00	5.28	5.28	180.00	-30.00	0.00	30.00	19.44	10.56	2.840	
1,600.00	1,600.00	1,600.00	1,600.00	5.64	5.64	180.00	-30.00	0.00	30.00	18.72	11.28	2.659	
1,700.00	1,700.00	1,700.00	1,700.00	6.00	6.00	180.00	-30.00	0.00	30.00	18.00	12.00	2.500	
1,800.00	1,800.00	1,800.00	1,800.00	6.36	6.36	180.00	-30.00	0.00	30.00	17.29	12.71	2.359 CC, ES	
1,900.00	1,900.00	1,899.06	1,899.04	6.72	6.70	178.44	-31.48	0.86	31.51	18.10	13.41	2.350 SF	
2,000.00	2,000.00	1,997.89	1,997.73	7.07	7.02	174.56	-35.91	3.42	36.15	22.08	14.07	2.569	
2,100.00	2,100.00	2,096.24	2,095.72	7.43	7.35	169.95	-43.25	7.66	44.13	29.41	14.72	2.998	
2,200.00	2,200.00	2,193.91	2,192.67	7.79	7.68	165.78	-53.41	13.54	55.58	40.23	15.35	3.620	
2,300.00	2,300.00	2,290.65	2,288.26	8.15	8.01	162.43	-66.28	20.98	70.51	54.54	15.97	4.416	
2,400.00	2,399.98	2,386.46	2,382.37	8.50	8.36	67.30	-81.78	29.95	88.19	71.64	16.55	5.328	
2,500.00	2,499.84	2,481.33	2,474.92	8.84	8.72	67.31	-99.81	40.37	107.79	90.67	17.12	6.297	
2,600.00	2,599.45	2,575.15	2,565.73	9.19	9.09	68.30	-120.23	52.18	129.27	111.59	17.67	7.314	
2,700.00	2,698.70	2,667.82	2,654.60	9.54	9.48	69.77	-142.92	65.30	152.71	134.48	18.23	8.378	
2,800.00	2,797.47	2,759.22	2,741.40	9.90	9.89	71.45	-167.72	79.64	178.19	159.41	18.78	9.487	
2,900.00	2,895.66	2,851.80	2,828.43	10.27	10.33	73.39	-195.05	95.45	205.61	186.19	19.42	10.587	
3,000.00	2,993.68	2,947.53	2,918.24	10.65	10.80	75.39	-223.72	112.03	233.57	213.39	20.18	11.575	
3,100.00	3,091.71	3,043.26	3,008.06	11.03	11.30	76.96	-252.40	128.61	261.73	240.77	20.95	12.492	
3,200.00	3,189.74	3,138.99	3,097.88	11.43	11.80	78.23	-281.07	145.19	290.03	268.30	21.74	13.343	
3,300.00	3,287.77	3,234.72	3,187.70	11.83	12.33	79.27	-309.74	161.77	318.45	295.91	22.54	14.131	
3,400.00	3,385.80	3,330.45	3,277.52	12.24	12.86	80.15	-338.41	178.35	346.94	323.60	23.35	14.861	
3,500.00	3,483.83	3,426.19	3,367.34	12.65	13.40	80.89	-367.08	194.93	375.50	351.33	24.17	15.537	
3,600.00	3,581.85	3,521.92	3,457.16	13.07	13.95	81.52	-395.75	211.51	404.11	379.11	25.00	16.165	
3,700.00	3,679.88	3,617.65	3,546.98	13.49	14.52	82.07	-424.42	228.09	432.76	406.92	25.84	16.749	
3,800.00	3,777.91	3,713.38	3,636.80	13.91	15.08	82.56	-453.09	244.67	461.44	434.75	26.69	17.291	
3,900.00	3,875.94	3,809.11	3,726.62	14.34	15.66	82.98	-481.76	261.25	490.14	462.60	27.54	17.796	
4,000.00	3,973.97	3,904.84	3,816.44	14.78	16.24	83.36	-510.43	277.83	518.87	490.47	28.40	18.268	
4,100.00	4,072.00	4,000.57	3,906.26	15.21	16.82	83.70	-539.10	294.41	547.62	518.35	29.27	18.708	
4,200.00	4,170.02	4,096.30	3,996.07	15.65	17.41	84.01	-567.78	310.99	576.38	546.24	30.15	19.119	
4,300.00	4,268.05	4,192.03	4,085.89	16.09	18.00	84.28	-596.45	327.57	605.16	574.14	31.03	19.505	
4,400.00	4,366.08	4,287.76	4,175.71	16.53	18.60	84.53	-625.12	344.15	633.95	602.04	31.91	19.866	
4,500.00	4,464.11	4,383.49	4,265.53	16.98	19.20	84.76	-653.79	360.73	662.75	629.95	32.80	20.206	
4,600.00	4,562.14	4,479.23	4,355.35	17.43	19.80	84.97	-682.46	377.31	691.56	657.86	33.69	20.525	
4,700.00	4,660.17	4,574.96	4,445.17	17.87	20.41	85.17	-711.13	393.89	720.37	685.78	34.59	20.826	
4,800.00	4,758.20	4,670.69	4,534.99	18.32	21.02	85.35	-739.80	410.47	749.20	713.71	35.49	21.109	
4,900.00	4,856.22	4,766.42	4,624.81	18.78	21.63	85.51	-768.47	427.05	778.03	741.63	36.40	21.377	
5,000.00	4,954.25	4,862.15	4,714.63	19.23	22.24	85.67	-797.14	443.63	806.86	769.56	37.30	21.630	
5,100.00	5,052.28	4,957.88	4,804.45	19.69	22.86	85.81	-825.81	460.21	835.70	797.49	38.21	21.870	

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 134H - OH - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.00	5,150.31	5,053.61	4,894.27	20.14	23.47	85.94	-854.49	476.79	864.55	825.42	39.13	22.097	
5,300.00	5,248.34	5,149.34	4,984.09	20.60	24.09	86.07	-883.16	493.37	893.39	853.35	40.04	22.312	
5,400.00	5,346.37	5,245.07	5,073.91	21.06	24.71	86.19	-911.83	509.95	922.25	881.29	40.96	22.517	
5,500.00	5,444.39	5,340.80	5,163.72	21.52	25.33	86.30	-940.50	526.53	951.10	909.22	41.88	22.711	
5,600.00	5,542.42	5,436.53	5,253.54	21.98	25.96	86.40	-969.17	543.11	979.96	937.16	42.80	22.896	
5,700.00	5,640.45	5,532.27	5,343.36	22.44	26.58	86.50	-997.84	559.69	1,008.82	965.10	43.72	23.073	
5,800.00	5,738.48	5,628.00	5,433.18	22.90	27.20	86.59	-1,026.51	576.27	1,037.68	993.03	44.65	23.241	
5,900.00	5,836.51	5,723.73	5,523.00	23.37	27.83	86.68	-1,055.18	592.85	1,066.55	1,020.97	45.58	23.401	
6,000.00	5,934.54	5,819.46	5,612.82	23.83	28.46	86.76	-1,083.85	609.43	1,095.42	1,048.91	46.51	23.554	
6,100.00	6,032.56	5,915.19	5,702.64	24.30	29.09	86.84	-1,112.52	626.01	1,124.29	1,076.85	47.44	23.701	
6,200.00	6,130.59	6,010.92	5,792.46	24.76	29.71	86.91	-1,141.19	642.59	1,153.16	1,104.79	48.37	23.841	
6,300.00	6,228.62	6,106.65	5,882.28	25.23	30.34	86.98	-1,169.87	659.17	1,182.03	1,132.73	49.30	23.975	
6,400.00	6,326.65	6,202.38	5,972.10	25.69	30.98	87.05	-1,198.54	675.75	1,210.91	1,160.67	50.24	24.104	
6,500.00	6,424.68	6,298.11	6,061.92	26.16	31.61	87.11	-1,227.21	692.33	1,239.78	1,188.61	51.17	24.227	
6,600.00	6,522.71	6,393.84	6,151.74	26.63	32.24	87.18	-1,255.88	708.91	1,268.66	1,216.55	52.11	24.346	
6,700.00	6,620.73	6,489.57	6,241.55	27.10	32.87	87.24	-1,284.55	725.49	1,297.54	1,244.49	53.05	24.459	
6,800.00	6,719.04	6,585.29	6,331.36	27.55	33.50	87.78	-1,313.22	742.07	1,326.48	1,272.52	53.97	24.579	
6,900.00	6,817.92	6,680.89	6,421.06	27.98	34.14	88.22	-1,341.85	758.63	1,355.56	1,300.73	54.83	24.721	
7,000.00	6,917.26	6,776.27	6,510.55	28.38	34.77	88.53	-1,370.41	775.15	1,384.76	1,329.12	55.65	24.884	
7,100.00	7,016.94	6,876.22	6,604.33	28.75	35.43	88.68	-1,400.33	792.45	1,414.10	1,357.63	56.47	25.044	
7,200.00	7,116.83	7,042.79	6,762.42	29.10	36.47	88.38	-1,445.70	818.68	1,440.93	1,383.04	57.89	24.890	
7,300.00	7,216.82	7,214.22	6,928.01	29.41	37.42	-178.83	-1,484.01	840.84	1,463.09	1,403.93	59.16	24.730	
7,400.00	7,316.82	7,390.31	7,100.55	29.72	38.26	-179.55	-1,514.36	858.39	1,480.29	1,420.01	60.28	24.556	
7,500.00	7,416.82	7,570.19	7,278.68	30.03	38.99	179.97	-1,535.83	870.80	1,492.24	1,430.99	61.25	24.365	
7,600.00	7,516.82	7,752.53	7,460.47	30.33	39.58	179.71	-1,547.67	877.66	1,498.75	1,436.72	62.04	24.159	
7,700.00	7,616.82	7,908.92	7,616.82	30.64	39.99	179.66	-1,550.00	879.00	1,500.03	1,437.37	62.66	23.940	
7,800.00	7,716.55	8,009.88	7,717.75	30.92	40.21	-90.66	-1,550.00	877.84	1,500.07	1,436.90	63.17	23.747	
7,900.00	7,813.14	8,114.21	7,820.22	31.09	40.36	-90.95	-1,549.95	859.30	1,500.18	1,436.72	63.46	23.639	
8,000.00	7,902.37	8,220.29	7,917.75	31.18	40.43	-91.20	-1,549.84	818.15	1,500.30	1,436.70	63.60	23.591	
8,100.00	7,980.36	8,327.86	8,004.92	31.24	40.41	-91.40	-1,549.67	755.52	1,500.41	1,436.76	63.65	23.572	
8,200.00	8,043.70	8,436.55	8,076.54	31.31	40.33	-91.53	-1,549.45	674.07	1,500.50	1,436.76	63.75	23.539	
8,300.00	8,089.60	8,545.91	8,128.18	31.45	40.19	-91.59	-1,549.20	577.94	1,500.54	1,436.55	64.00	23.448	
8,400.00	8,116.08	8,655.42	8,156.67	31.68	40.02	-91.57	-1,548.91	472.45	1,500.53	1,436.04	64.49	23.268	
8,500.00	8,121.99	8,762.79	8,160.99	32.02	39.83	-91.49	-1,548.63	365.35	1,500.47	1,435.25	65.22	23.005	
8,600.00	8,118.51	8,862.79	8,157.51	32.52	39.68	-91.49	-1,548.36	265.42	1,500.47	1,434.24	66.23	22.655	
8,700.00	8,115.02	8,962.79	8,154.03	33.20	39.56	-91.49	-1,548.09	165.48	1,500.47	1,432.90	67.57	22.207	
8,800.00	8,111.53	9,062.79	8,150.55	34.04	39.47	-91.49	-1,547.83	65.54	1,500.47	1,431.24	69.23	21.674	
8,900.00	8,108.04	9,162.79	8,147.07	35.04	39.42	-91.49	-1,547.56	-34.40	1,500.47	1,429.27	71.19	21.077	
9,000.00	8,104.55	9,262.79	8,143.58	36.17	39.45	-91.49	-1,547.29	-134.34	1,500.46	1,427.03	73.43	20.434	
9,100.00	8,101.07	9,362.79	8,140.10	37.44	39.68	-91.49	-1,547.02	-234.28	1,500.46	1,424.54	75.92	19.763	
9,200.00	8,097.58	9,462.79	8,136.62	38.82	40.35	-91.49	-1,546.76	-334.22	1,500.46	1,421.82	78.64	19.079	
9,300.00	8,094.09	9,562.79	8,133.14	40.30	41.54	-91.49	-1,546.49	-434.16	1,500.46	1,418.89	81.57	18.395	
9,400.00	8,090.60	9,662.79	8,129.66	41.87	43.00	-91.49	-1,546.22	-534.10	1,500.46	1,415.78	84.68	17.719	
9,500.00	8,087.12	9,762.79	8,126.17	43.53	44.62	-91.49	-1,545.95	-634.04	1,500.46	1,412.50	87.96	17.059	
9,600.00	8,083.63	9,862.79	8,122.69	45.26	46.32	-91.49	-1,545.69	-733.97	1,500.46	1,409.07	91.38	16.420	
9,700.00	8,080.14	9,962.79	8,119.21	47.05	48.10	-91.49	-1,545.42	-833.91	1,500.46	1,405.52	94.94	15.805	
9,800.00	8,076.65	10,062.79	8,115.73	48.91	49.94	-91.49	-1,545.15	-933.85	1,500.45	1,401.85	98.61	15.216	
9,900.00	8,073.16	10,162.79	8,112.25	50.81	51.84	-91.49	-1,544.89	-1,033.79	1,500.45	1,398.07	102.39	14.655	
10,000.00	8,069.68	10,262.79	8,108.76	52.76	53.78	-91.49	-1,544.62	-1,133.73	1,500.45	1,394.20	106.26	14.121	
10,100.00	8,066.19	10,362.79	8,105.28	54.75	55.76	-91.49	-1,544.35	-1,233.67	1,500.45	1,390.24	110.21	13.615	
10,200.00	8,062.70	10,462.79	8,101.80	56.78	57.78	-91.49	-1,544.08	-1,333.61	1,500.45	1,386.21	114.24	13.135	
10,300.00	8,059.21	10,562.79	8,098.32	58.84	59.82	-91.49	-1,543.82	-1,433.55	1,500.45	1,382.12	118.33	12.680	

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Offset Design: Cardigan Fed Com - Cardigan Fed Com 134H - OH - Plan 2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,400.00	8,055.72	10,662.79	8,094.84	60.93	61.90	-91.49	-1,543.55	-1,533.49	1,500.45	1,377.96	122.49	12.250	
10,500.00	8,052.24	10,762.79	8,091.35	63.05	64.01	-91.49	-1,543.28	-1,633.43	1,500.45	1,373.75	126.70	11.843	
10,600.00	8,048.75	10,862.79	8,087.87	65.19	66.13	-91.50	-1,543.02	-1,733.36	1,500.44	1,369.49	130.96	11.458	
10,700.00	8,045.26	10,962.79	8,084.39	67.36	68.28	-91.50	-1,542.75	-1,833.30	1,500.44	1,365.18	135.26	11.093	
10,800.00	8,041.77	11,062.79	8,080.91	69.54	70.45	-91.50	-1,542.48	-1,933.24	1,500.44	1,360.84	139.61	10.748	
10,900.00	8,038.29	11,162.79	8,077.43	71.74	72.64	-91.50	-1,542.21	-2,033.18	1,500.44	1,356.45	143.99	10.421	
11,000.00	8,034.80	11,262.79	8,073.94	73.96	74.84	-91.50	-1,541.95	-2,133.12	1,500.44	1,352.04	148.40	10.111	
11,100.00	8,031.31	11,362.79	8,070.46	76.19	77.06	-91.50	-1,541.68	-2,233.06	1,500.44	1,347.59	152.85	9.817	
11,200.00	8,027.82	11,462.79	8,066.98	78.43	79.29	-91.50	-1,541.41	-2,333.00	1,500.44	1,343.11	157.32	9.537	
11,300.00	8,024.33	11,562.79	8,063.50	80.69	81.54	-91.50	-1,541.15	-2,432.94	1,500.43	1,338.61	161.82	9.272	
11,400.00	8,020.85	11,662.79	8,060.02	82.96	83.79	-91.50	-1,540.88	-2,532.88	1,500.43	1,334.09	166.34	9.020	
11,500.00	8,017.36	11,762.79	8,056.53	85.24	86.06	-91.50	-1,540.61	-2,632.82	1,500.43	1,329.54	170.89	8.780	
11,600.00	8,013.87	11,862.79	8,053.05	87.53	88.33	-91.50	-1,540.34	-2,732.75	1,500.43	1,324.98	175.45	8.552	
11,700.00	8,010.38	11,962.79	8,049.57	89.83	90.62	-91.50	-1,540.08	-2,832.69	1,500.43	1,320.39	180.04	8.334	
11,800.00	8,006.89	12,062.79	8,046.09	92.14	92.91	-91.50	-1,539.81	-2,932.63	1,500.43	1,315.79	184.64	8.126	
11,900.00	8,003.41	12,162.79	8,042.61	94.45	95.22	-91.50	-1,539.54	-3,032.57	1,500.43	1,311.17	189.25	7.928	
12,000.00	7,999.92	12,262.79	8,039.12	96.77	97.53	-91.50	-1,539.28	-3,132.51	1,500.43	1,306.54	193.88	7.739	
12,100.00	7,996.43	12,362.79	8,035.64	99.10	99.84	-91.50	-1,539.01	-3,232.45	1,500.42	1,301.90	198.53	7.558	
12,200.00	7,992.94	12,462.79	8,032.16	101.44	102.16	-91.50	-1,538.74	-3,332.39	1,500.42	1,297.24	203.19	7.384	
12,300.00	7,989.45	12,562.79	8,028.68	103.78	104.49	-91.50	-1,538.47	-3,432.33	1,500.42	1,292.57	207.86	7.219	
12,400.00	7,985.97	12,662.79	8,025.20	106.12	106.83	-91.50	-1,538.21	-3,532.27	1,500.42	1,287.88	212.54	7.060	
12,500.00	7,982.48	12,762.79	8,021.72	108.48	109.17	-91.50	-1,537.94	-3,632.21	1,500.42	1,283.19	217.23	6.907	
12,600.00	7,978.99	12,862.79	8,018.23	110.83	111.51	-91.50	-1,537.67	-3,732.14	1,500.42	1,278.49	221.93	6.761	
12,700.00	7,975.50	12,962.79	8,014.75	113.19	113.86	-91.50	-1,537.40	-3,832.08	1,500.42	1,273.78	226.64	6.620	
12,800.00	7,972.02	13,062.79	8,011.27	115.56	116.22	-91.50	-1,537.14	-3,932.02	1,500.42	1,269.06	231.36	6.485	
12,900.00	7,968.53	13,162.79	8,007.79	117.92	118.57	-91.50	-1,536.87	-4,031.96	1,500.41	1,264.33	236.08	6.355	
13,000.00	7,965.04	13,262.79	8,004.31	120.30	120.94	-91.50	-1,536.60	-4,131.90	1,500.41	1,259.59	240.82	6.230	
13,100.00	7,961.55	13,362.79	8,000.82	122.67	123.30	-91.50	-1,536.34	-4,231.84	1,500.41	1,254.85	245.56	6.110	
13,200.00	7,958.06	13,462.79	7,997.34	125.05	125.67	-91.50	-1,536.07	-4,331.78	1,500.41	1,250.10	250.31	5.994	
13,300.00	7,954.58	13,562.79	7,993.86	127.43	128.04	-91.50	-1,535.80	-4,431.72	1,500.41	1,245.35	255.06	5.883	
13,400.00	7,951.09	13,662.79	7,990.38	129.82	130.42	-91.50	-1,535.53	-4,531.66	1,500.41	1,240.58	259.82	5.775	
13,500.00	7,947.60	13,762.79	7,986.90	132.20	132.80	-91.50	-1,535.27	-4,631.60	1,500.41	1,235.82	264.59	5.671	
13,600.00	7,944.11	13,862.79	7,983.41	134.59	135.18	-91.50	-1,535.00	-4,731.53	1,500.41	1,231.04	269.36	5.570	
13,700.00	7,940.62	13,962.79	7,979.93	136.99	137.56	-91.50	-1,534.73	-4,831.47	1,500.40	1,226.27	274.14	5.473	
13,800.00	7,937.14	14,062.79	7,976.45	139.38	139.95	-91.50	-1,534.47	-4,931.41	1,500.40	1,221.48	278.92	5.379	
13,900.00	7,933.65	14,162.79	7,972.97	141.78	142.34	-91.50	-1,534.20	-5,031.35	1,500.40	1,216.69	283.71	5.289	
14,000.00	7,930.16	14,262.79	7,969.49	144.18	144.73	-91.50	-1,533.93	-5,131.29	1,500.40	1,211.90	288.50	5.201	
14,100.00	7,926.67	14,362.79	7,966.00	146.58	147.12	-91.50	-1,533.66	-5,231.23	1,500.40	1,207.11	293.29	5.116	
14,200.00	7,923.19	14,462.79	7,962.52	148.98	149.51	-91.50	-1,533.40	-5,331.17	1,500.40	1,202.31	298.09	5.033	
14,300.00	7,919.70	14,562.79	7,959.04	151.39	151.91	-91.50	-1,533.13	-5,431.11	1,500.40	1,197.50	302.89	4.954	
14,400.00	7,916.21	14,662.79	7,955.56	153.79	154.31	-91.50	-1,532.86	-5,531.05	1,500.39	1,192.70	307.70	4.876	
14,500.00	7,912.72	14,762.79	7,952.08	156.20	156.71	-91.50	-1,532.60	-5,630.99	1,500.39	1,187.88	312.51	4.801	
14,600.00	7,909.23	14,862.79	7,948.59	158.61	159.11	-91.50	-1,532.33	-5,730.92	1,500.39	1,183.07	317.32	4.728	
14,700.00	7,905.75	14,962.79	7,945.11	161.02	161.52	-91.50	-1,532.06	-5,830.86	1,500.39	1,178.25	322.14	4.658	
14,800.00	7,902.26	15,062.79	7,941.63	163.44	163.92	-91.50	-1,531.79	-5,930.80	1,500.39	1,173.43	326.96	4.589	
14,900.00	7,898.77	15,162.79	7,938.15	165.85	166.33	-91.50	-1,531.53	-6,030.74	1,500.39	1,168.61	331.78	4.522	
15,000.00	7,895.28	15,262.79	7,934.67	168.26	168.74	-91.51	-1,531.26	-6,130.68	1,500.39	1,163.78	336.60	4.457	
15,100.00	7,891.79	15,362.79	7,931.18	170.68	171.15	-91.51	-1,530.99	-6,230.62	1,500.39	1,158.95	341.43	4.394	
15,200.00	7,888.31	15,462.79	7,927.70	173.10	173.56	-91.51	-1,530.72	-6,330.56	1,500.38	1,154.12	346.26	4.333	
15,300.00	7,884.82	15,562.79	7,924.22	175.52	175.97	-91.51	-1,530.46	-6,430.50	1,500.38	1,149.29	351.09	4.273	
15,400.00	7,881.33	15,662.79	7,920.74	177.94	178.39	-91.51	-1,530.19	-6,530.44	1,500.38	1,144.45	355.93	4.215	
15,500.00	7,877.84	15,762.79	7,917.26	180.36	180.80	-91.51	-1,529.92	-6,630.38	1,500.38	1,139.62	360.76	4.159	

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

Legacy Directional Drilling

Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

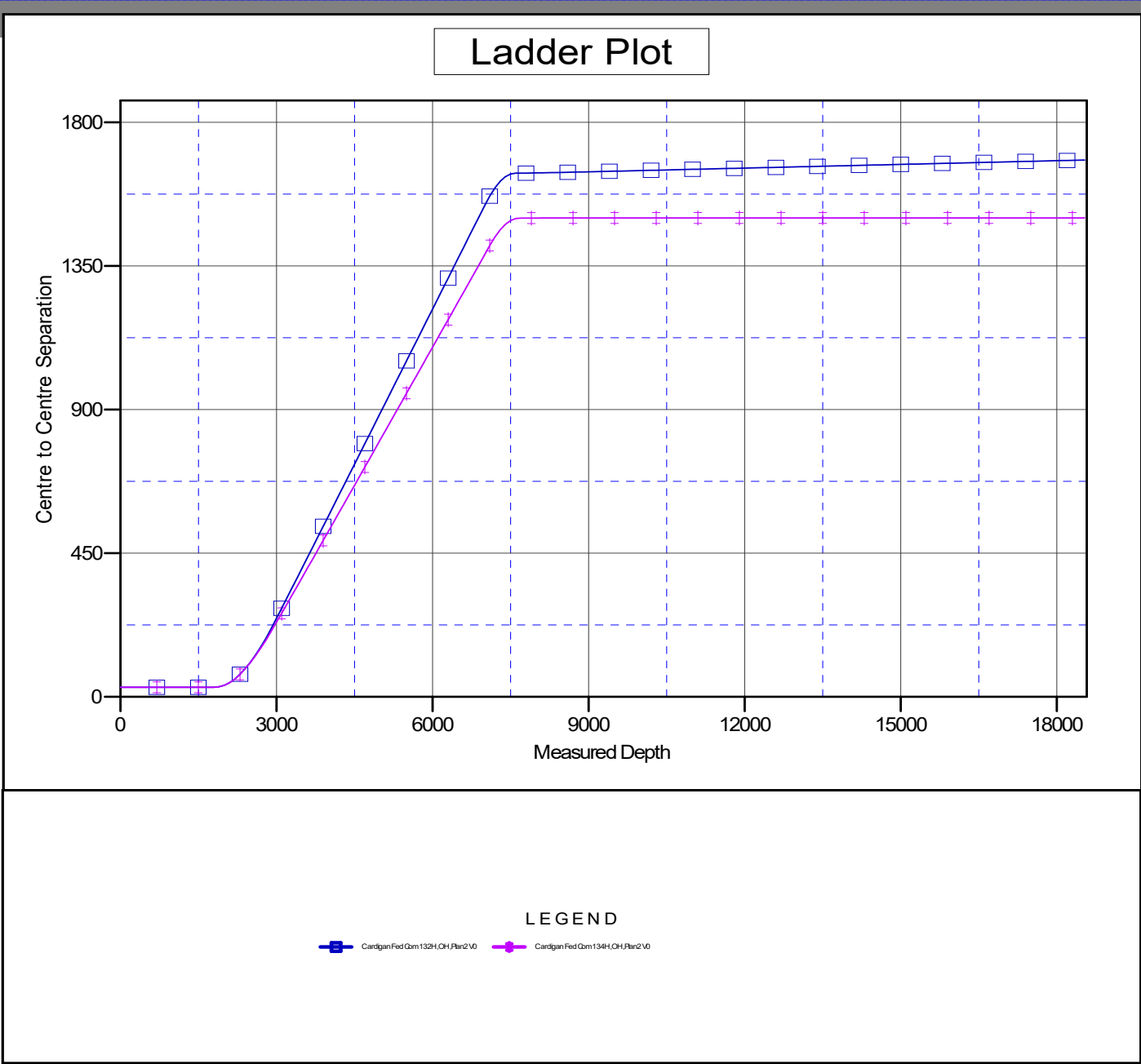
Offset Design: Cardigan Fed Com - Cardigan Fed Com 134H - OH - Plan 2													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
15,600.00	7,874.35	15,862.79	7,913.77	182.78	183.22	-91.51	-1,529.66	-6,730.31	1,500.38	1,134.78	365.60	4.104		
15,700.00	7,870.87	15,962.79	7,910.29	185.21	185.64	-91.51	-1,529.39	-6,830.25	1,500.38	1,129.93	370.44	4.050		
15,800.00	7,867.38	16,062.79	7,906.81	187.63	188.05	-91.51	-1,529.12	-6,930.19	1,500.38	1,125.09	375.29	3.998		
15,900.00	7,863.89	16,162.79	7,903.33	190.06	190.47	-91.51	-1,528.85	-7,030.13	1,500.38	1,120.24	380.13	3.947		
16,000.00	7,860.40	16,262.79	7,899.85	192.48	192.89	-91.51	-1,528.59	-7,130.07	1,500.37	1,115.40	384.98	3.897		
16,100.00	7,856.92	16,362.79	7,896.36	194.91	195.31	-91.51	-1,528.32	-7,230.01	1,500.37	1,110.55	389.83	3.849		
16,200.00	7,853.43	16,462.79	7,892.88	197.34	197.74	-91.51	-1,528.05	-7,329.95	1,500.37	1,105.69	394.68	3.802		
16,300.00	7,849.94	16,562.79	7,889.40	199.76	200.16	-91.51	-1,527.79	-7,429.89	1,500.37	1,100.84	399.53	3.755		
16,400.00	7,846.45	16,662.79	7,885.92	202.19	202.58	-91.51	-1,527.52	-7,529.83	1,500.37	1,095.99	404.38	3.710		
16,500.00	7,842.96	16,762.79	7,882.44	204.62	205.01	-91.51	-1,527.25	-7,629.77	1,500.37	1,091.13	409.24	3.666		
16,600.00	7,839.48	16,862.79	7,878.95	207.05	207.43	-91.51	-1,526.98	-7,729.71	1,500.37	1,086.27	414.09	3.623		
16,700.00	7,835.99	16,962.79	7,875.47	209.49	209.86	-91.51	-1,526.72	-7,829.64	1,500.37	1,081.41	418.95	3.581		
16,800.00	7,832.50	17,062.79	7,871.99	211.92	212.28	-91.51	-1,526.45	-7,929.58	1,500.36	1,076.55	423.81	3.540		
16,900.00	7,829.01	17,162.79	7,868.51	214.35	214.71	-91.51	-1,526.18	-8,029.52	1,500.36	1,071.69	428.67	3.500		
17,000.00	7,825.52	17,262.79	7,865.03	216.78	217.14	-91.51	-1,525.92	-8,129.46	1,500.36	1,066.83	433.53	3.461		
17,100.00	7,822.04	17,362.79	7,861.54	219.22	219.57	-91.51	-1,525.65	-8,229.40	1,500.36	1,061.97	438.39	3.422		
17,200.00	7,818.55	17,462.79	7,858.06	221.65	222.00	-91.51	-1,525.38	-8,329.34	1,500.36	1,057.10	443.26	3.385		
17,300.00	7,815.06	17,562.79	7,854.58	224.09	224.43	-91.51	-1,525.11	-8,429.28	1,500.36	1,052.23	448.12	3.348		
17,400.00	7,811.57	17,662.79	7,851.10	226.52	226.86	-91.51	-1,524.85	-8,529.22	1,500.36	1,047.37	452.99	3.312		
17,500.00	7,808.08	17,762.79	7,847.62	228.96	229.29	-91.51	-1,524.58	-8,629.16	1,500.35	1,042.50	457.86	3.277		
17,600.00	7,804.60	17,862.79	7,844.13	231.40	231.72	-91.51	-1,524.31	-8,729.10	1,500.35	1,037.63	462.72	3.242		
17,700.00	7,801.11	17,962.79	7,840.65	233.83	234.16	-91.51	-1,524.05	-8,829.03	1,500.35	1,032.76	467.59	3.209		
17,800.00	7,797.62	18,062.79	7,837.17	236.27	236.59	-91.51	-1,523.78	-8,928.97	1,500.35	1,027.89	472.46	3.176		
17,900.00	7,794.13	18,162.79	7,833.69	238.71	239.02	-91.51	-1,523.51	-9,028.91	1,500.35	1,023.01	477.34	3.143		
18,000.00	7,790.65	18,262.79	7,830.21	241.15	241.46	-91.51	-1,523.24	-9,128.85	1,500.35	1,018.14	482.21	3.111		
18,100.00	7,787.16	18,362.79	7,826.72	243.59	243.89	-91.51	-1,522.98	-9,228.79	1,500.35	1,013.27	487.08	3.080		
18,200.00	7,783.67	18,462.79	7,823.24	246.02	246.32	-91.51	-1,522.71	-9,328.73	1,500.35	1,008.39	491.95	3.050		
18,300.00	7,780.18	18,562.79	7,819.76	248.46	248.76	-91.51	-1,522.44	-9,428.67	1,500.34	1,003.51	496.83	3.020		
18,400.00	7,776.69	18,662.79	7,816.28	250.90	251.20	-91.51	-1,522.17	-9,528.61	1,500.34	998.64	501.70	2.990		
18,487.26	7,773.65	18,750.06	7,813.24	253.03	253.32	-91.51	-1,521.94	-9,615.82	1,500.34	994.38	505.96	2.965		
18,500.00	7,773.21	18,753.24	7,813.13	253.34	253.40	-91.51	-1,521.93	-9,619.00	1,500.37	993.98	506.39	2.963		
18,536.87	7,771.92	18,753.24	7,813.13	253.94	253.40	-91.51	-1,521.93	-9,619.00	1,501.06	994.09	506.97	2.961		

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Reference Depths are relative to 3480' GL + 26.5'KB @ 3506.50usft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Cardigan Fed Com 133H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.05°

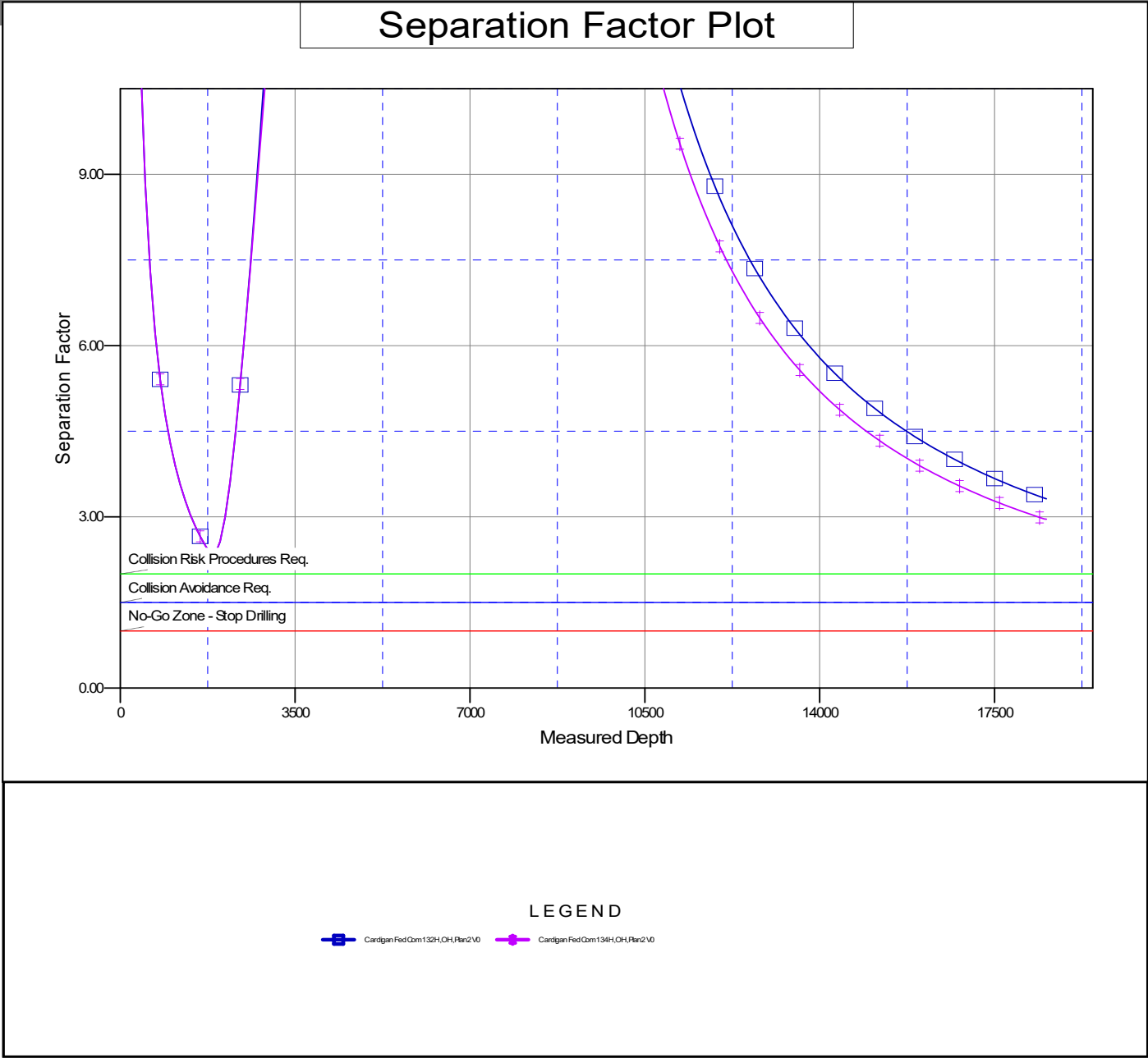


Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 133H
Project:	Eddy County, NM NAD83	TVD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Reference Site:	Cardigan Fed Com	MD Reference:	3480' GL + 26.5'KB @ 3506.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Cardigan Fed Com 133H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM_WA
Reference Design:	Plan 2	Offset TVD Reference:	Reference Datum

Reference Depths are relative to 3480' GL + 26.5'KB @ 3506.50usft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Cardigan Fed Com 133H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.05°



Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/oed/contact-us>

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

CONDITIONS

Action 441120

CONDITIONS

Operator: Flat Creek Resources, LLC 777 Main St. Fort Worth, TX 76102	OGRID: 374034
	Action Number: 441120
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Any previous COA's not addressed within the updated COA's still apply.	4/7/2025