

Well Name: CARDIGAN FED COM	Well Location: T19S / R27E / SEC 13 / NESW / 32.6586308 / -104.2351447	County or Parish/State: EDDY / NM
Well Number: 134H	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: 2837109

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 02/15/2025	Time Sundry Submitted: 08:31
Date proposed operation will begin: 03/01/2025	

Procedure Description: API# 30-015-56005. Request to move the Surface Hole Location from 2023' FSL & 1765' FWL, Section 13, T. 19S, R. 27E, NESW (32.6586308, -104.2351446) to 1983' FSL & 1764' FWL, Section 13, T. 19S, R. 27E, NESW (32.6585210, -104.2351449). 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_134H_SHL_Sundry_Attachment_20250215081848.pdf

Received by OCD: 3/11/2025 9:42:46 AM

Page 2 of 26

Well Name: CARDIGAN FED COM	Well Location: T19S / R27E / SEC 13 / NESW / 32.6586308 / -104.2351447	County or Parish/State: EDDY / NM
Well Number: 134H	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 08:18 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	

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- 56005	Pool Code 97569	Pool Name WINCHESTER; BONE SPRING, WEST
Property Code 336864	Property Name CARDIGAN FED COM	Well Number 134H
OGRID No. 374034	Operator Name FLAT CREEK RESOURCES, LLC.	Ground Level Elevation 3480'
Surface Owner: ☒ State ☐ Fee ☐ Tribal ☐ Federal		Mineral Owner: ☒ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
K	13	19-S	27-E	-	1983' S	1764' W	N 32.6585210	W 104.2351449	EDDY

Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
O	15	19-S	27-E	-	385' S	2628' E	N 32.6544419	W 104.2664043	EDDY

Dedicated Acres 960	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (Y/N)	Consolidated Code
Order Numbers			Well Setbacks are under Common Ownership: ☐ Yes ☐ No	

Kick Off Point (KOP)

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
N	13	19-S	27-E	-	479' S	2616' W	N 32.6543396	W 104.2322938	EDDY

First Take Point (FTP)

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
N	13	19-S	27-E	-	478' S	2531' W	N 32.6543404	W 104.2325700	EDDY

Last Take Point (LTP)

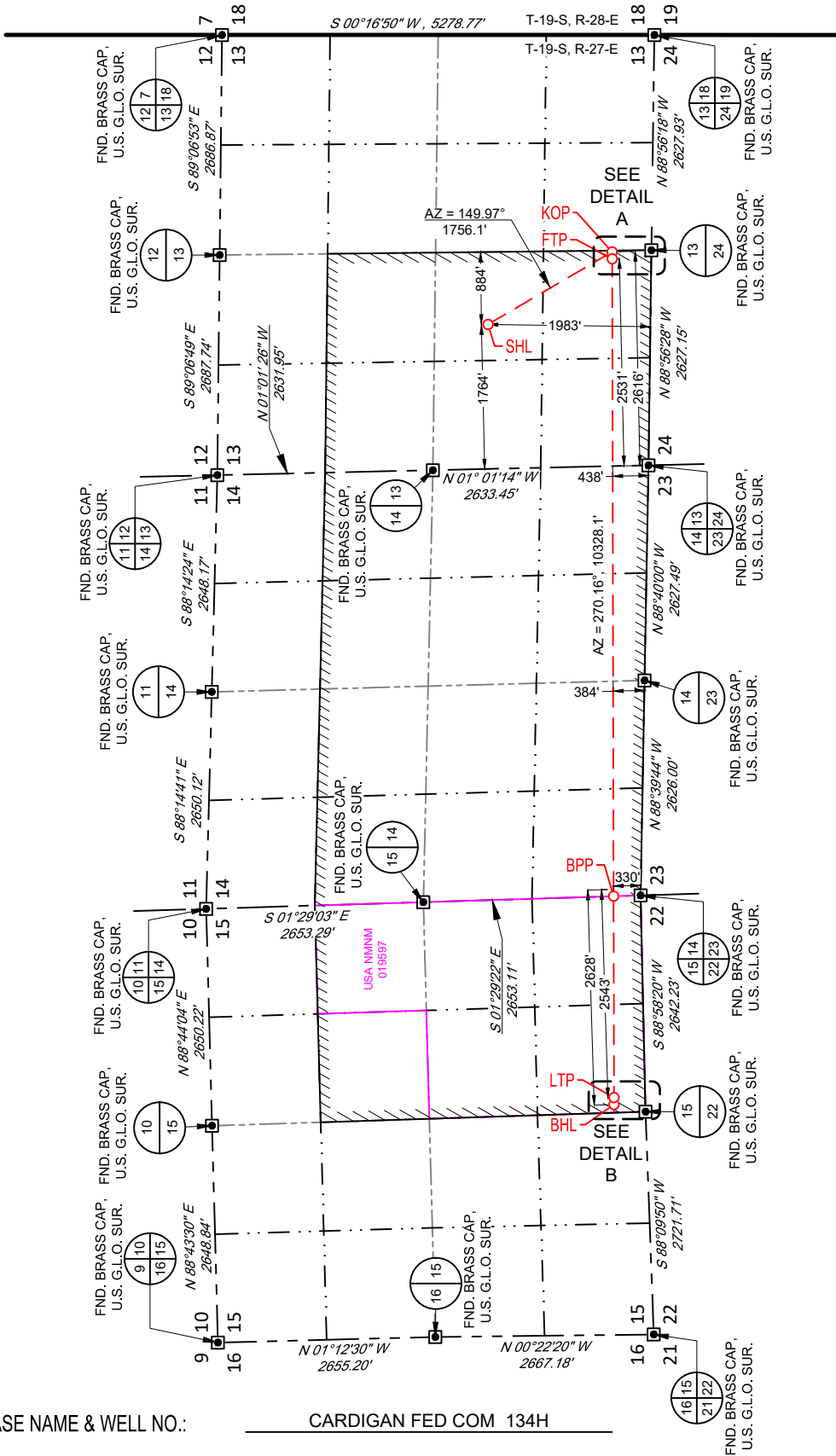
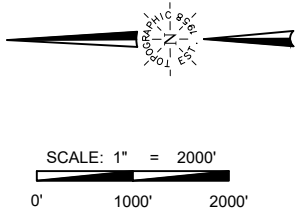
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the N/S	Feet from the E/W	Latitude	Longitude	County
O	15	19-S	27-E	-	383' S	2543' E	N 32.6544411	W 104.2661280	EDDY

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

OPERATOR CERTIFICATION <i>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.</i> <i>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.</i> <i>Rodney Littleton</i> 02/07/2025		SURVEYORS CERTIFICATION <i>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.</i> 2/6/2025 2:53:28 PM	
Signature _____ Date _____ Rodney Littleton		Signature and Seal of Professional Surveyor _____ Date _____	
Print Name _____ rlittleton@freedomenergy.com		Certificate Number _____ Date of Survey _____ 02/01/2024	
E-mail Address _____			



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



SURFACE LOCATION (SHL)

NEW MEXICO EAST
NAD 1983
X=571555 Y=603315
LAT.: N 32.6585210
LONG.: W 104.2351449
1983' FSL 1764' FWL

KICK OFF POINT (KOP)

NEW MEXICO EAST
NAD 1983
X=572434 Y=601795
LAT.: N 32.6543396
LONG.: W 104.2322938
479' FSL 2616' FWL

FIRST TAKE POINT (FTP)

NEW MEXICO EAST
NAD 1983
X=572349 Y=601795
LAT.: N 32.6543404
LONG.: W 104.2325700
478' FSL 2531' FWL

BLM PERF. POINT (BPP)

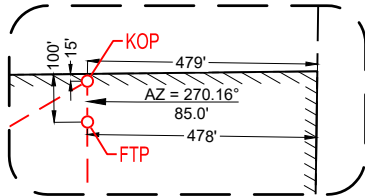
NEW MEXICO EAST
NAD 1983
X=564565 Y=601816
LAT.: N 32.6544171
LONG.: W 104.2578629
330' FSL 0' FWL

LAST TAKE POINT (LTP)

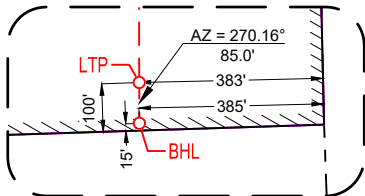
NEW MEXICO EAST
NAD 1983
X=562021 Y=601823
LAT.: N 32.6544411
LONG.: W 104.2661280
383' FSL 2543' FEL

BOTTOM HOLE LOCATION (BHL)

NEW MEXICO EAST
NAD 1983
X=561936 Y=601823
LAT.: N 32.6544419
LONG.: W 104.2664043
385' FSL 2628' FEL



DETAIL VIEW A
SCALE: 1" = 400'



DETAIL VIEW B
SCALE: 1" = 400'

LEASE NAME & WELL NO.: CARDIGAN FED COM 134H
SECTION 13 TWP 19-S RGE 27-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 1983' FSL & 1764' 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 ±295 FEET SOUTHEAST OF THE
LOCATION.



2/6/2025 2:53:29 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



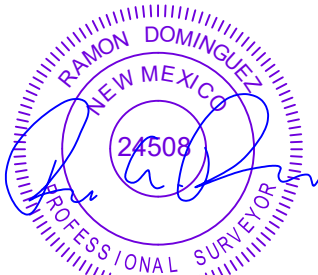
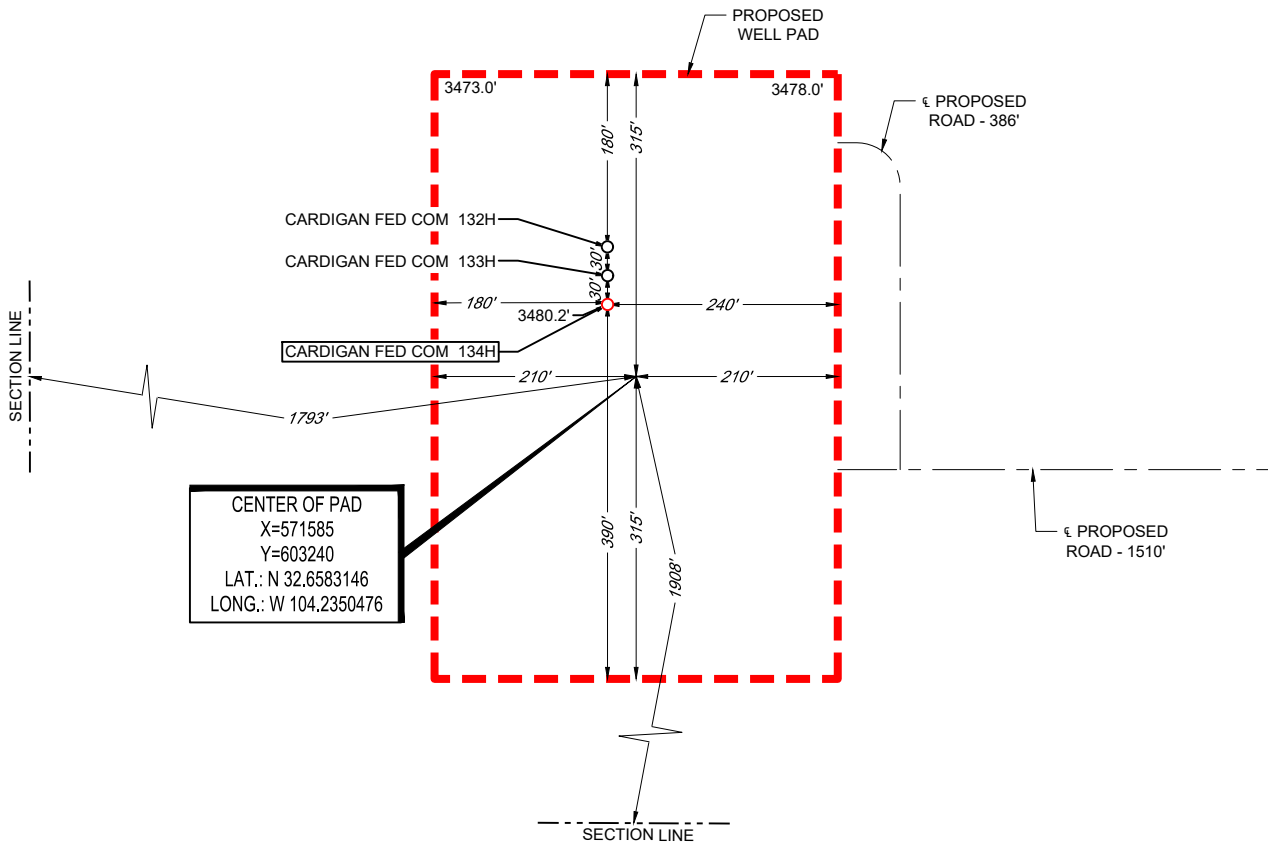
FLAT CREEK
RESOURCES

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 2:53:29 PM

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

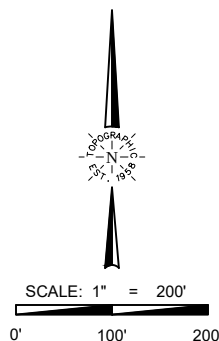
LEASE NAME & WELL NO.: CARDIGAN FED COM 134H
134H LATITUDE N 32.6585210 134H LONGITUDE W 104.2351449

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"

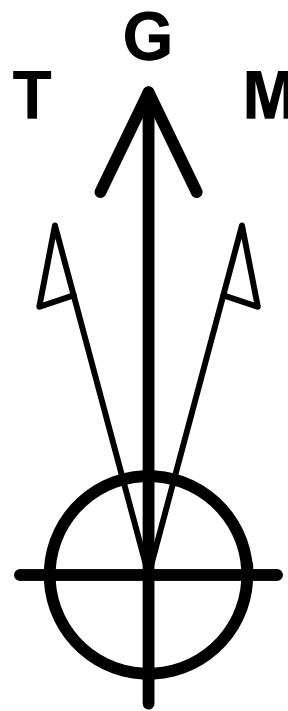


TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

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 134H
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: 47302.6nT
Dip Angle: 60.08°
Date: 2/7/2025
Model: IGRF2020



WELL DETAILS: Cardigan Fed Com 134H

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	603315.00	571555.00	32.658521	-104.235146

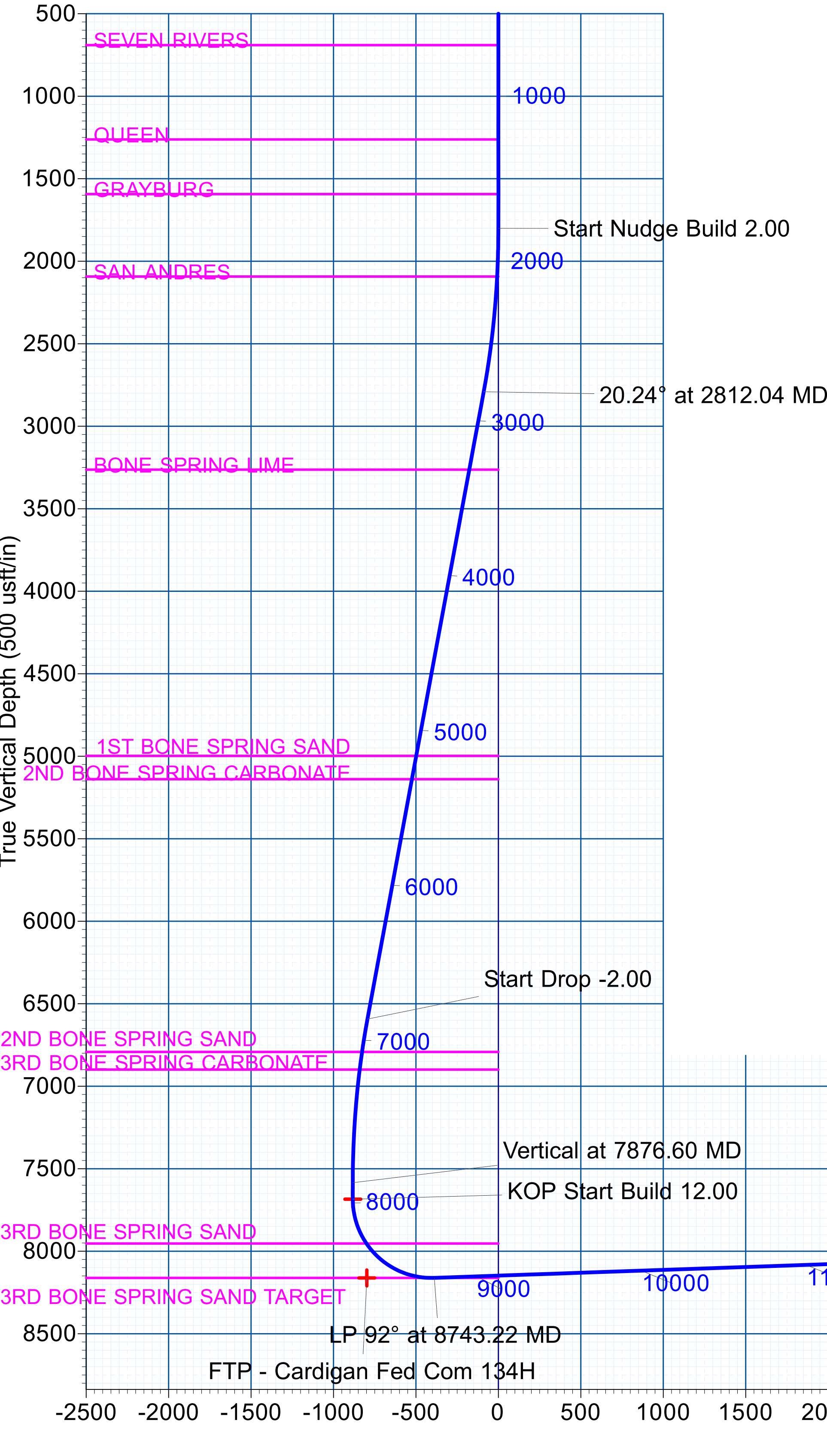
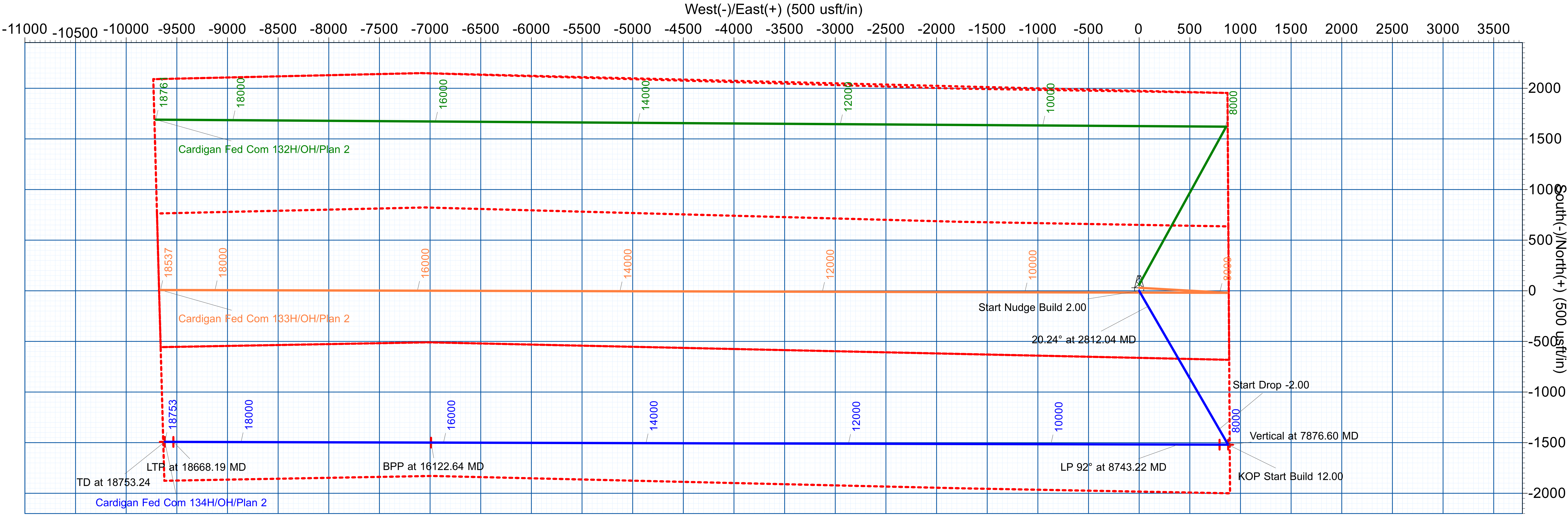
PROJECT DETAILS: Eddy County, NM NAD83

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 134H	7684.50	-1520.00	879.00	601795.00	572434.00	32.654341	-104.232294
BHL - Cardigan Fed Com 134H	7814.00	-1492.00	-9619.00	601823.00	561936.00	32.654441	-104.266404
LTP - Cardigan Fed Com 134H	7817.31	-1492.00	-9534.00	601823.00	562021.00	32.654441	-104.266128
BPP - Cardigan Fed Com 134H	7905.95	-1499.00	-6990.00	601816.00	564565.00	32.654417	-104.257862
FTP - Cardigan Fed Com 134H	8162.00	-1520.00	794.00	601795.00	572349.00	32.654341	-104.232570

Rig: H&P 370

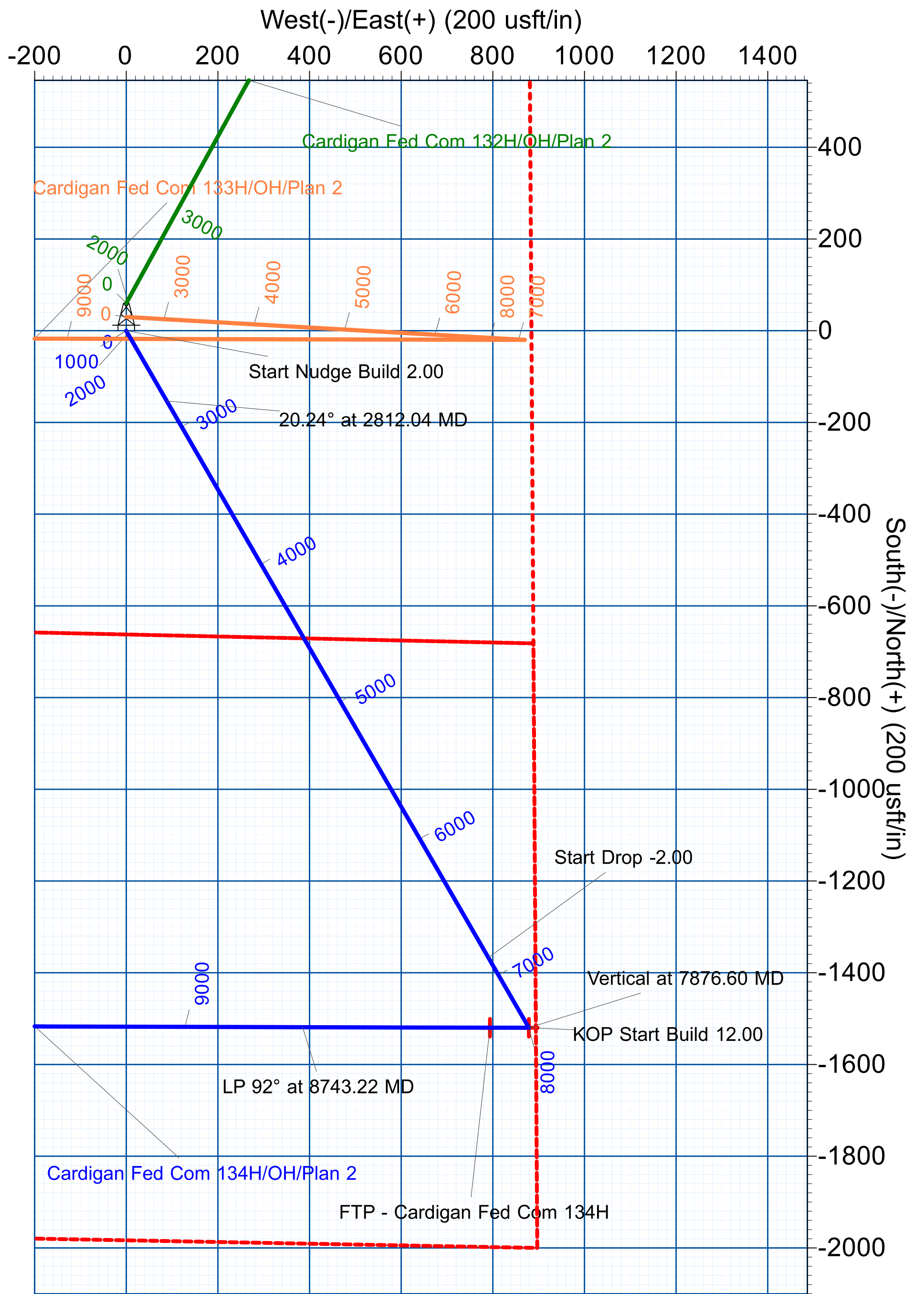


SECTION DETAILS: OH

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00
2812.04	20.24	149.96	2791.12	-153.15	88.56	2.00	149.96	-88.96
6864.55	20.24	149.96	6593.38	-1366.85	790.44	0.00	0.00	-794.01
7876.60	0.00	0.00	7584.50	-1520.00	879.00	2.00	180.00	-882.98
7976.60	0.00	0.00	7684.50	-1520.00	879.00	0.00	0.00	-882.98
8743.22	92.00	270.15	8161.68	-1518.68	384.91	12.00	270.15	-388.89
16122.64	92.00	270.15	7904.73	-1498.96	-6990.00	0.00	0.00	6986.05
18668.19	92.00	270.15	7816.09	-1492.16	-9534.00	0.00	0.00	9530.06
18753.24	92.00	270.15	7813.13	-1491.93	-9619.00	0.00	0.00	9615.06

Annotation

Start Nudge Build 2.00
20.24° at 2812.04 MD
Start Drop -2.00
Vertical at 7876.60 MD
KOP Start Build 12.00
LP 92° at 8743.22 MD
BPP at 16122.64 MD
LTP at 18668.19 MD
TD at 18753.24



Freedom Energy

Eddy County, NM NAD83

Cardigan Fed Com

Cardigan Fed Com 134H

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 134H
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 134H	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 134H					
Well Position	+N/-S	0.00 usft	Northing:	603,315.00 usft	Latitude:	32.658521
	+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	47,302.64582538

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	18,753.24 Plan 2 (OH)	MWD		
			OWSG MWD - Standard		

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2		

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	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,812.04	20.24	149.96	2,791.12	-153.15	88.56	2.00	2.00	0.00	149.96	
6,864.55	20.24	149.96	6,593.38	-1,366.85	790.44	0.00	0.00	0.00	0.00	
7,876.60	0.00	0.00	7,584.50	-1,520.00	879.00	2.00	-2.00	0.00	180.00	
7,976.60	0.00	0.00	7,684.50	-1,520.00	879.00	0.00	0.00	0.00	0.00	KOP - Cardigan Fed C
8,743.22	92.00	270.15	8,161.68	-1,518.68	384.91	12.00	12.00	0.00	270.15	
16,122.64	92.00	270.15	7,904.73	-1,498.96	-6,990.00	0.00	0.00	0.00	0.00	BPP - Cardigan Fed C
18,668.19	92.00	270.15	7,816.09	-1,492.16	-9,534.00	0.00	0.00	0.00	0.00	LTP - Cardigan Fed C
18,753.24	92.00	270.15	7,813.13	-1,491.93	-9,619.00	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 134H
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 134H	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									
99.00	0.00	0.00	99.00	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
351.00	0.00	0.00	351.00	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
690.00	0.00	0.00	690.00	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
1,262.00	0.00	0.00	1,262.00	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
1,593.00	0.00	0.00	1,593.00	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
Start Nudge Build 2.00									
1,900.00	2.00	149.96	1,899.98	-1.51	0.87	-0.88	2.00	2.00	0.00
2,000.00	4.00	149.96	1,999.84	-6.04	3.49	-3.51	2.00	2.00	0.00
2,093.78	5.88	149.96	2,093.26	-13.03	7.53	-7.57	2.00	2.00	0.00
SAN ANDRES									
2,100.00	6.00	149.96	2,099.45	-13.59	7.86	-7.89	2.00	2.00	0.00
2,200.00	8.00	149.96	2,198.70	-24.13	13.96	-14.02	2.00	2.00	0.00
2,300.00	10.00	149.96	2,297.47	-37.68	21.79	-21.89	2.00	2.00	0.00
2,400.00	12.00	149.96	2,395.62	-54.19	31.34	-31.48	2.00	2.00	0.00
2,500.00	14.00	149.96	2,493.06	-73.67	42.60	-42.79	2.00	2.00	0.00
2,600.00	16.00	149.96	2,589.64	-96.07	55.56	-55.81	2.00	2.00	0.00
2,700.00	18.00	149.96	2,685.27	-121.38	70.19	-70.51	2.00	2.00	0.00
2,800.00	20.00	149.96	2,779.82	-149.56	86.49	-86.88	2.00	2.00	0.00
2,812.04	20.24	149.96	2,791.12	-153.15	88.56	-88.96	2.00	2.00	0.00
20.24° at 2812.04 MD									
2,900.00	20.24	149.96	2,873.65	-179.49	103.80	-104.27	0.00	0.00	0.00
3,000.00	20.24	149.96	2,967.47	-209.44	121.12	-121.66	0.00	0.00	0.00
3,100.00	20.24	149.96	3,061.30	-239.39	138.44	-139.06	0.00	0.00	0.00
3,200.00	20.24	149.96	3,155.12	-269.34	155.76	-156.46	0.00	0.00	0.00
3,300.00	20.24	149.96	3,248.95	-299.29	173.07	-173.86	0.00	0.00	0.00
3,321.59	20.24	149.96	3,269.20	-305.75	176.81	-177.61	0.00	0.00	0.00
BONE SPRING LIME									

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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	20.24	149.96	3,342.77	-329.24	190.39	-191.26	0.00	0.00	0.00	
3,500.00	20.24	149.96	3,436.60	-359.19	207.71	-208.65	0.00	0.00	0.00	
3,600.00	20.24	149.96	3,530.42	-389.14	225.03	-226.05	0.00	0.00	0.00	
3,700.00	20.24	149.96	3,624.25	-419.09	242.35	-243.45	0.00	0.00	0.00	
3,800.00	20.24	149.96	3,718.07	-449.03	259.67	-260.85	0.00	0.00	0.00	
3,900.00	20.24	149.96	3,811.90	-478.98	276.99	-278.24	0.00	0.00	0.00	
4,000.00	20.24	149.96	3,905.72	-508.93	294.31	-295.64	0.00	0.00	0.00	
4,100.00	20.24	149.96	3,999.54	-538.88	311.63	-313.04	0.00	0.00	0.00	
4,200.00	20.24	149.96	4,093.37	-568.83	328.95	-330.44	0.00	0.00	0.00	
4,300.00	20.24	149.96	4,187.19	-598.78	346.27	-347.84	0.00	0.00	0.00	
4,400.00	20.24	149.96	4,281.02	-628.73	363.59	-365.23	0.00	0.00	0.00	
4,500.00	20.24	149.96	4,374.84	-658.68	380.91	-382.63	0.00	0.00	0.00	
4,600.00	20.24	149.96	4,468.67	-688.63	398.23	-400.03	0.00	0.00	0.00	
4,700.00	20.24	149.96	4,562.49	-718.58	415.55	-417.43	0.00	0.00	0.00	
4,800.00	20.24	149.96	4,656.32	-748.53	432.87	-434.83	0.00	0.00	0.00	
4,900.00	20.24	149.96	4,750.14	-778.48	450.19	-452.22	0.00	0.00	0.00	
5,000.00	20.24	149.96	4,843.97	-808.43	467.51	-469.62	0.00	0.00	0.00	
5,100.00	20.24	149.96	4,937.79	-838.38	484.83	-487.02	0.00	0.00	0.00	
5,182.83	20.24	149.96	5,015.51	-863.19	499.17	-501.43	0.00	0.00	0.00	
1ST BONE SPRING SAND										
5,200.00	20.24	149.96	5,031.62	-868.33	502.14	-504.42	0.00	0.00	0.00	
5,300.00	20.24	149.96	5,125.44	-898.28	519.46	-521.81	0.00	0.00	0.00	
5,334.09	20.24	149.96	5,157.43	-908.49	525.37	-527.75	0.00	0.00	0.00	
2ND BONE SPRING CARBONATE										
5,400.00	20.24	149.96	5,219.27	-928.23	536.78	-539.21	0.00	0.00	0.00	
5,500.00	20.24	149.96	5,313.09	-958.18	554.10	-556.61	0.00	0.00	0.00	
5,600.00	20.24	149.96	5,406.91	-988.13	571.42	-574.01	0.00	0.00	0.00	
5,700.00	20.24	149.96	5,500.74	-1,018.08	588.74	-591.41	0.00	0.00	0.00	
5,800.00	20.24	149.96	5,594.56	-1,048.02	606.06	-608.80	0.00	0.00	0.00	
5,900.00	20.24	149.96	5,688.39	-1,077.97	623.38	-626.20	0.00	0.00	0.00	
6,000.00	20.24	149.96	5,782.21	-1,107.92	640.70	-643.60	0.00	0.00	0.00	
6,100.00	20.24	149.96	5,876.04	-1,137.87	658.02	-661.00	0.00	0.00	0.00	
6,200.00	20.24	149.96	5,969.86	-1,167.82	675.34	-678.39	0.00	0.00	0.00	
6,300.00	20.24	149.96	6,063.69	-1,197.77	692.66	-695.79	0.00	0.00	0.00	
6,400.00	20.24	149.96	6,157.51	-1,227.72	709.98	-713.19	0.00	0.00	0.00	
6,500.00	20.24	149.96	6,251.34	-1,257.67	727.30	-730.59	0.00	0.00	0.00	
6,600.00	20.24	149.96	6,345.16	-1,287.62	744.62	-747.99	0.00	0.00	0.00	
6,700.00	20.24	149.96	6,438.99	-1,317.57	761.94	-765.38	0.00	0.00	0.00	
6,800.00	20.24	149.96	6,532.81	-1,347.52	779.26	-782.78	0.00	0.00	0.00	
6,864.55	20.24	149.96	6,593.38	-1,366.85	790.44	-794.01	0.00	0.00	0.00	
Start Drop -2.00										
6,900.00	19.53	149.96	6,626.71	-1,377.29	796.47	-800.08	2.00	-2.00	0.00	
7,000.00	17.53	149.96	6,721.52	-1,404.80	812.38	-816.06	2.00	-2.00	0.00	
7,100.00	15.53	149.96	6,817.38	-1,429.44	826.63	-830.37	2.00	-2.00	0.00	
7,103.77	15.46	149.96	6,821.01	-1,430.31	827.13	-830.87	2.00	-2.00	0.00	
2ND BONE SPRING SAND										
7,200.00	13.53	149.96	6,914.18	-1,451.16	839.19	-842.98	2.00	-2.00	0.00	
7,214.72	13.24	149.96	6,928.50	-1,454.11	840.89	-844.70	2.00	-2.00	0.00	
3RD BONE SPRING CARBONATE										
7,300.00	11.53	149.96	7,011.79	-1,469.94	850.05	-853.90	2.00	-2.00	0.00	
7,400.00	9.53	149.96	7,110.10	-1,485.76	859.20	-863.09	2.00	-2.00	0.00	
7,500.00	7.53	149.96	7,208.99	-1,498.60	866.63	-870.55	2.00	-2.00	0.00	
7,600.00	5.53	149.96	7,308.33	-1,508.45	872.32	-876.27	2.00	-2.00	0.00	

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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)
7,700.00	3.53	149.96	7,408.02	-1,515.29	876.28	-880.24	2.00	-2.00	0.00
7,800.00	1.53	149.96	7,507.91	-1,519.11	878.49	-882.46	2.00	-2.00	0.00
7,876.60	0.00	0.00	7,584.50	-1,520.00	879.00	-882.98	2.00	-2.00	0.00
Vertical at 7876.60 MD									
7,900.00	0.00	0.00	7,607.90	-1,520.00	879.00	-882.98	0.00	0.00	0.00
7,976.60	0.00	0.00	7,684.50	-1,520.00	879.00	-882.98	0.00	0.00	0.00
KOP Start Build 12.00									
8,000.00	2.81	270.15	7,707.89	-1,520.00	878.43	-882.40	12.00	12.00	0.00
8,025.00	5.81	270.15	7,732.82	-1,519.99	876.55	-880.52	12.00	12.00	0.00
8,050.00	8.81	270.15	7,757.62	-1,519.98	873.37	-877.35	12.00	12.00	0.00
8,075.00	11.81	270.15	7,782.21	-1,519.97	868.90	-872.87	12.00	12.00	0.00
8,100.00	14.81	270.15	7,806.53	-1,519.96	863.14	-867.12	12.00	12.00	0.00
8,125.00	17.81	270.15	7,830.53	-1,519.94	856.12	-860.10	12.00	12.00	0.00
8,150.00	20.81	270.15	7,854.12	-1,519.92	847.86	-851.83	12.00	12.00	0.00
8,175.00	23.81	270.15	7,877.24	-1,519.89	838.37	-842.34	12.00	12.00	0.00
8,200.00	26.81	270.15	7,899.84	-1,519.86	827.68	-831.66	12.00	12.00	0.00
8,225.00	29.81	270.15	7,921.85	-1,519.83	815.83	-819.80	12.00	12.00	0.00
8,250.00	32.81	270.15	7,943.21	-1,519.80	802.84	-806.81	12.00	12.00	0.00
8,275.00	35.81	270.15	7,963.85	-1,519.76	788.75	-792.72	12.00	12.00	0.00
8,295.54	38.27	270.15	7,980.25	-1,519.73	776.37	-780.35	12.00	12.00	0.00
3RD BONE SPRING SAND									
8,300.00	38.81	270.15	7,983.74	-1,519.72	773.60	-777.57	12.00	12.00	0.00
8,325.00	41.81	270.15	8,002.80	-1,519.68	757.43	-761.40	12.00	12.00	0.00
8,350.00	44.81	270.15	8,020.99	-1,519.63	740.28	-744.26	12.00	12.00	0.00
8,375.00	47.81	270.15	8,038.26	-1,519.58	722.21	-726.18	12.00	12.00	0.00
8,400.00	50.81	270.15	8,054.55	-1,519.53	703.25	-707.23	12.00	12.00	0.00
8,425.00	53.81	270.15	8,069.84	-1,519.48	683.47	-687.45	12.00	12.00	0.00
8,450.00	56.81	270.15	8,084.06	-1,519.42	662.92	-666.89	12.00	12.00	0.00
8,475.00	59.81	270.15	8,097.20	-1,519.37	641.65	-645.62	12.00	12.00	0.00
8,500.00	62.81	270.15	8,109.20	-1,519.31	619.72	-623.70	12.00	12.00	0.00
8,525.00	65.81	270.15	8,120.03	-1,519.25	597.20	-601.17	12.00	12.00	0.00
8,550.00	68.81	270.15	8,129.68	-1,519.18	574.13	-578.11	12.00	12.00	0.00
8,575.00	71.81	270.15	8,138.10	-1,519.12	550.60	-554.57	12.00	12.00	0.00
8,600.00	74.81	270.15	8,145.28	-1,519.06	526.65	-530.63	12.00	12.00	0.00
8,625.00	77.81	270.15	8,151.20	-1,518.99	502.37	-506.34	12.00	12.00	0.00
8,650.00	80.81	270.15	8,155.83	-1,518.93	477.80	-481.78	12.00	12.00	0.00
8,675.00	83.81	270.15	8,159.18	-1,518.86	453.03	-457.01	12.00	12.00	0.00
8,700.00	86.81	270.15	8,161.22	-1,518.79	428.12	-432.09	12.00	12.00	0.00
8,725.00	89.81	270.15	8,161.96	-1,518.73	403.13	-407.11	12.00	12.00	0.00
8,743.22	92.00	270.15	8,161.68	-1,518.68	384.91	-388.89	12.00	12.00	0.00
LP 92° at 8743.22 MD									
8,800.00	92.00	270.15	8,159.70	-1,518.53	328.17	-332.15	0.00	0.00	0.00
8,900.00	92.00	270.15	8,156.22	-1,518.26	228.23	-232.21	0.00	0.00	0.00
9,000.00	92.00	270.15	8,152.73	-1,517.99	128.29	-132.27	0.00	0.00	0.00
9,100.00	92.00	270.15	8,149.25	-1,517.73	28.35	-32.33	0.00	0.00	0.00
9,200.00	92.00	270.15	8,145.77	-1,517.46	-71.59	67.61	0.00	0.00	0.00
9,300.00	92.00	270.15	8,142.29	-1,517.19	-171.52	167.55	0.00	0.00	0.00
9,400.00	92.00	270.15	8,138.81	-1,516.92	-271.46	267.49	0.00	0.00	0.00
9,500.00	92.00	270.15	8,135.32	-1,516.66	-371.40	367.43	0.00	0.00	0.00
9,600.00	92.00	270.15	8,131.84	-1,516.39	-471.34	467.37	0.00	0.00	0.00
9,700.00	92.00	270.15	8,128.36	-1,516.12	-571.28	567.31	0.00	0.00	0.00
9,800.00	92.00	270.15	8,124.88	-1,515.86	-671.22	667.25	0.00	0.00	0.00
9,900.00	92.00	270.15	8,121.40	-1,515.59	-771.16	767.19	0.00	0.00	0.00

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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	8,117.91	-1,515.32	-871.10	867.13	0.00	0.00	0.00	
10,100.00	92.00	270.15	8,114.43	-1,515.05	-971.04	967.07	0.00	0.00	0.00	
10,200.00	92.00	270.15	8,110.95	-1,514.79	-1,070.98	1,067.01	0.00	0.00	0.00	
10,300.00	92.00	270.15	8,107.47	-1,514.52	-1,170.91	1,166.95	0.00	0.00	0.00	
10,400.00	92.00	270.15	8,103.99	-1,514.25	-1,270.85	1,266.88	0.00	0.00	0.00	
10,500.00	92.00	270.15	8,100.50	-1,513.99	-1,370.79	1,366.82	0.00	0.00	0.00	
10,600.00	92.00	270.15	8,097.02	-1,513.72	-1,470.73	1,466.76	0.00	0.00	0.00	
10,700.00	92.00	270.15	8,093.54	-1,513.45	-1,570.67	1,566.70	0.00	0.00	0.00	
10,800.00	92.00	270.15	8,090.06	-1,513.18	-1,670.61	1,666.64	0.00	0.00	0.00	
10,900.00	92.00	270.15	8,086.58	-1,512.92	-1,770.55	1,766.58	0.00	0.00	0.00	
11,000.00	92.00	270.15	8,083.10	-1,512.65	-1,870.49	1,866.52	0.00	0.00	0.00	
11,100.00	92.00	270.15	8,079.61	-1,512.38	-1,970.43	1,966.46	0.00	0.00	0.00	
11,200.00	92.00	270.15	8,076.13	-1,512.11	-2,070.37	2,066.40	0.00	0.00	0.00	
11,300.00	92.00	270.15	8,072.65	-1,511.85	-2,170.30	2,166.34	0.00	0.00	0.00	
11,400.00	92.00	270.15	8,069.17	-1,511.58	-2,270.24	2,266.28	0.00	0.00	0.00	
11,500.00	92.00	270.15	8,065.69	-1,511.31	-2,370.18	2,366.22	0.00	0.00	0.00	
11,600.00	92.00	270.15	8,062.20	-1,511.05	-2,470.12	2,466.16	0.00	0.00	0.00	
11,700.00	92.00	270.15	8,058.72	-1,510.78	-2,570.06	2,566.10	0.00	0.00	0.00	
11,800.00	92.00	270.15	8,055.24	-1,510.51	-2,670.00	2,666.04	0.00	0.00	0.00	
11,900.00	92.00	270.15	8,051.76	-1,510.24	-2,769.94	2,765.97	0.00	0.00	0.00	
12,000.00	92.00	270.15	8,048.28	-1,509.98	-2,869.88	2,865.91	0.00	0.00	0.00	
12,100.00	92.00	270.15	8,044.79	-1,509.71	-2,969.82	2,965.85	0.00	0.00	0.00	
12,200.00	92.00	270.15	8,041.31	-1,509.44	-3,069.76	3,065.79	0.00	0.00	0.00	
12,300.00	92.00	270.15	8,037.83	-1,509.18	-3,169.69	3,165.73	0.00	0.00	0.00	
12,400.00	92.00	270.15	8,034.35	-1,508.91	-3,269.63	3,265.67	0.00	0.00	0.00	
12,500.00	92.00	270.15	8,030.87	-1,508.64	-3,369.57	3,365.61	0.00	0.00	0.00	
12,600.00	92.00	270.15	8,027.38	-1,508.37	-3,469.51	3,465.55	0.00	0.00	0.00	
12,700.00	92.00	270.15	8,023.90	-1,508.11	-3,569.45	3,565.49	0.00	0.00	0.00	
12,800.00	92.00	270.15	8,020.42	-1,507.84	-3,669.39	3,665.43	0.00	0.00	0.00	
12,900.00	92.00	270.15	8,016.94	-1,507.57	-3,769.33	3,765.37	0.00	0.00	0.00	
13,000.00	92.00	270.15	8,013.46	-1,507.31	-3,869.27	3,865.31	0.00	0.00	0.00	
13,100.00	92.00	270.15	8,009.97	-1,507.04	-3,969.21	3,965.25	0.00	0.00	0.00	
13,200.00	92.00	270.15	8,006.49	-1,506.77	-4,069.15	4,065.19	0.00	0.00	0.00	
13,300.00	92.00	270.15	8,003.01	-1,506.50	-4,169.08	4,165.13	0.00	0.00	0.00	
13,400.00	92.00	270.15	7,999.53	-1,506.24	-4,269.02	4,265.07	0.00	0.00	0.00	
13,500.00	92.00	270.15	7,996.05	-1,505.97	-4,368.96	4,365.00	0.00	0.00	0.00	
13,600.00	92.00	270.15	7,992.56	-1,505.70	-4,468.90	4,464.94	0.00	0.00	0.00	
13,700.00	92.00	270.15	7,989.08	-1,505.44	-4,568.84	4,564.88	0.00	0.00	0.00	
13,800.00	92.00	270.15	7,985.60	-1,505.17	-4,668.78	4,664.82	0.00	0.00	0.00	
13,900.00	92.00	270.15	7,982.12	-1,504.90	-4,768.72	4,764.76	0.00	0.00	0.00	
14,000.00	92.00	270.15	7,978.64	-1,504.63	-4,868.66	4,864.70	0.00	0.00	0.00	
14,100.00	92.00	270.15	7,975.15	-1,504.37	-4,968.60	4,964.64	0.00	0.00	0.00	
14,200.00	92.00	270.15	7,971.67	-1,504.10	-5,068.54	5,064.58	0.00	0.00	0.00	
14,300.00	92.00	270.15	7,968.19	-1,503.83	-5,168.47	5,164.52	0.00	0.00	0.00	
14,400.00	92.00	270.15	7,964.71	-1,503.56	-5,268.41	5,264.46	0.00	0.00	0.00	
14,500.00	92.00	270.15	7,961.23	-1,503.30	-5,368.35	5,364.40	0.00	0.00	0.00	
14,600.00	92.00	270.15	7,957.74	-1,503.03	-5,468.29	5,464.34	0.00	0.00	0.00	
14,700.00	92.00	270.15	7,954.26	-1,502.76	-5,568.23	5,564.28	0.00	0.00	0.00	
14,800.00	92.00	270.15	7,950.78	-1,502.50	-5,668.17	5,664.22	0.00	0.00	0.00	
14,900.00	92.00	270.15	7,947.30	-1,502.23	-5,768.11	5,764.16	0.00	0.00	0.00	
15,000.00	92.00	270.15	7,943.82	-1,501.96	-5,868.05	5,864.10	0.00	0.00	0.00	
15,100.00	92.00	270.15	7,940.33	-1,501.69	-5,967.99	5,964.03	0.00	0.00	0.00	
15,200.00	92.00	270.15	7,936.85	-1,501.43	-6,067.93	6,063.97	0.00	0.00	0.00	
15,300.00	92.00	270.15	7,933.37	-1,501.16	-6,167.86	6,163.91	0.00	0.00	0.00	

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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	7,929.89	-1,500.89	-6,267.80	6,263.85	0.00	0.00	0.00
15,500.00	92.00	270.15	7,926.41	-1,500.63	-6,367.74	6,363.79	0.00	0.00	0.00
15,600.00	92.00	270.15	7,922.92	-1,500.36	-6,467.68	6,463.73	0.00	0.00	0.00
15,700.00	92.00	270.15	7,919.44	-1,500.09	-6,567.62	6,563.67	0.00	0.00	0.00
15,800.00	92.00	270.15	7,915.96	-1,499.82	-6,667.56	6,663.61	0.00	0.00	0.00
15,900.00	92.00	270.15	7,912.48	-1,499.56	-6,767.50	6,763.55	0.00	0.00	0.00
16,000.00	92.00	270.15	7,909.00	-1,499.29	-6,867.44	6,863.49	0.00	0.00	0.00
16,100.00	92.00	270.15	7,905.51	-1,499.02	-6,967.38	6,963.43	0.00	0.00	0.00
16,122.64	92.00	270.15	7,904.73	-1,498.96	-6,990.00	6,986.05	0.00	0.00	0.00
BPP at 16122.64 MD									
16,200.00	92.00	270.15	7,902.03	-1,498.76	-7,067.32	7,063.37	0.00	0.00	0.00
16,300.00	92.00	270.15	7,898.55	-1,498.49	-7,167.25	7,163.31	0.00	0.00	0.00
16,400.00	92.00	270.15	7,895.07	-1,498.22	-7,267.19	7,263.25	0.00	0.00	0.00
16,500.00	92.00	270.15	7,891.59	-1,497.95	-7,367.13	7,363.19	0.00	0.00	0.00
16,600.00	92.00	270.15	7,888.10	-1,497.69	-7,467.07	7,463.12	0.00	0.00	0.00
16,700.00	92.00	270.15	7,884.62	-1,497.42	-7,567.01	7,563.06	0.00	0.00	0.00
16,800.00	92.00	270.15	7,881.14	-1,497.15	-7,666.95	7,663.00	0.00	0.00	0.00
16,900.00	92.00	270.15	7,877.66	-1,496.88	-7,766.89	7,762.94	0.00	0.00	0.00
17,000.00	92.00	270.15	7,874.18	-1,496.62	-7,866.83	7,862.88	0.00	0.00	0.00
17,100.00	92.00	270.15	7,870.69	-1,496.35	-7,966.77	7,962.82	0.00	0.00	0.00
17,200.00	92.00	270.15	7,867.21	-1,496.08	-8,066.71	8,062.76	0.00	0.00	0.00
17,300.00	92.00	270.15	7,863.73	-1,495.82	-8,166.64	8,162.70	0.00	0.00	0.00
17,400.00	92.00	270.15	7,860.25	-1,495.55	-8,266.58	8,262.64	0.00	0.00	0.00
17,500.00	92.00	270.15	7,856.77	-1,495.28	-8,366.52	8,362.58	0.00	0.00	0.00
17,600.00	92.00	270.15	7,853.28	-1,495.01	-8,466.46	8,462.52	0.00	0.00	0.00
17,700.00	92.00	270.15	7,849.80	-1,494.75	-8,566.40	8,562.46	0.00	0.00	0.00
17,800.00	92.00	270.15	7,846.32	-1,494.48	-8,666.34	8,662.40	0.00	0.00	0.00
17,900.00	92.00	270.15	7,842.84	-1,494.21	-8,766.28	8,762.34	0.00	0.00	0.00
18,000.00	92.00	270.15	7,839.36	-1,493.95	-8,866.22	8,862.28	0.00	0.00	0.00
18,100.00	92.00	270.15	7,835.87	-1,493.68	-8,966.16	8,962.22	0.00	0.00	0.00
18,200.00	92.00	270.15	7,832.39	-1,493.41	-9,066.10	9,062.15	0.00	0.00	0.00
18,300.00	92.00	270.15	7,828.91	-1,493.14	-9,166.03	9,162.09	0.00	0.00	0.00
18,400.00	92.00	270.15	7,825.43	-1,492.88	-9,265.97	9,262.03	0.00	0.00	0.00
18,500.00	92.00	270.15	7,821.95	-1,492.61	-9,365.91	9,361.97	0.00	0.00	0.00
18,600.00	92.00	270.15	7,818.46	-1,492.34	-9,465.85	9,461.91	0.00	0.00	0.00
18,668.19	92.00	270.15	7,816.09	-1,492.16	-9,534.00	9,530.06	0.00	0.00	0.00
LTP at 18668.19 MD									
18,700.00	92.00	270.15	7,814.98	-1,492.08	-9,565.79	9,561.85	0.00	0.00	0.00
18,753.24	92.00	270.15	7,813.13	-1,491.93	-9,619.00	9,615.06	0.00	0.00	0.00
TD at 18753.24									

Legacy Directional Drilling

Planning Report

Database:	EDM_WA	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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	7,684.50	-1,520.00	879.00	601,795.00	572,434.00	32.654341	-104.232294
BHL - Cardigan Fed Cor - plan misses target center by 0.87usft at 18753.21usft MD (7813.13 TVD, -1491.93 N, -9618.97 E) - Point	0.00	0.08	7,814.00	-1,492.00	-9,619.00	601,823.00	561,936.00	32.654441	-104.266405
LTP - Cardigan Fed Cor - plan misses target center by 1.23usft at 18668.15usft MD (7816.09 TVD, -1492.16 N, -9533.96 E) - Point	0.00	0.08	7,817.31	-1,492.00	-9,534.00	601,823.00	562,021.00	32.654441	-104.266128
BPP - Cardigan Fed Cor - plan misses target center by 1.22usft at 16122.59usft MD (7904.73 TVD, -1498.96 N, -6989.96 E) - Point	0.00	0.08	7,905.95	-1,499.00	-6,990.00	601,816.00	564,565.00	32.654417	-104.257862
FTP - Cardigan Fed Cor - plan misses target center by 140.64usft at 8400.00usft MD (8054.55 TVD, -1519.53 N, 703.25 E) - Point	0.00	0.08	8,162.00	-1,520.00	794.00	601,795.00	572,349.00	32.654341	-104.232571

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
26.50	26.50	ALLUVIUM		-2.00	270.15
99.00	99.00	TANSILL		-2.00	270.15
351.00	351.00	YATES		-2.00	270.15
690.00	690.00	SEVEN RIVERS		-2.00	270.15
1,262.00	1,262.00	QUEEN		-2.00	270.15
1,593.00	1,593.00	GRAYBURG		-2.00	270.15
2,093.78	2,093.26	SAN ANDRES		-2.00	270.15
3,321.59	3,269.20	BONE SPRING LIME		-2.00	270.15
5,182.83	5,015.51	1ST BONE SPRING SAND		-2.00	270.15
5,334.09	5,157.43	2ND BONE SPRING CARBONATE		-2.00	270.15
7,103.77	6,821.01	2ND BONE SPRING SAND		-2.00	270.15
7,214.72	6,928.50	3RD BONE SPRING CARBONATE		-2.00	270.15
8,295.54	7,980.25	3RD BONE SPRING SAND		-2.00	270.15

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,800.00	1,800.00	0.00	0.00	Start Nudge Build 2.00
2,812.04	2,791.12	-153.15	88.56	20.24° at 2812.04 MD
6,864.55	6,593.38	-1,366.85	790.44	Start Drop -2.00
7,876.60	7,584.50	-1,520.00	879.00	Vertical at 7876.60 MD
7,976.60	7,684.50	-1,520.00	879.00	KOP Start Build 12.00
8,743.22	8,161.68	-1,518.68	384.91	LP 92° at 8743.22 MD
16,122.64	7,904.73	-1,498.96	-6,990.00	BPP at 16122.64 MD
18,668.19	7,816.09	-1,492.16	-9,534.00	LTP at 18668.19 MD
18,753.24	7,813.13	-1,491.93	-9,619.00	TD at 18753.24

Freedom Energy

Eddy County, NM NAD83

Cardigan Fed Com

Cardigan Fed Com 134H

OH

Plan 2

Anticollision Report

07 February, 2025

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 2,075.32usft	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	18,753.24	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	60.00	47.29	4.719	CC, ES
Cardigan Fed Com 132H - OH - Plan 2	1,900.00	1,898.11	63.01	49.61	4.701	SF
Cardigan Fed Com 133H - OH - Plan 2	1,800.00	1,800.00	30.00	17.29	2.359	CC, ES
Cardigan Fed Com 133H - OH - Plan 2	1,900.00	1,899.98	31.52	18.11	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											Offset Well Error:	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	0.00	60.00				
100.00	100.00	100.00	100.00	0.26	0.26	0.00	60.00	0.00	60.00	59.47	0.53	113.862	
200.00	200.00	200.00	200.00	0.62	0.62	0.00	60.00	0.00	60.00	58.76	1.24	48.236	
300.00	300.00	300.00	300.00	0.98	0.98	0.00	60.00	0.00	60.00	58.04	1.96	30.599	
400.00	400.00	400.00	400.00	1.34	1.34	0.00	60.00	0.00	60.00	57.32	2.68	22.407	
500.00	500.00	500.00	500.00	1.70	1.70	0.00	60.00	0.00	60.00	56.61	3.39	17.674	
600.00	600.00	600.00	600.00	2.06	2.06	0.00	60.00	0.00	60.00	55.89	4.11	14.593	
700.00	700.00	700.00	700.00	2.41	2.41	0.00	60.00	0.00	60.00	55.17	4.83	12.426	
800.00	800.00	800.00	800.00	2.77	2.77	0.00	60.00	0.00	60.00	54.45	5.55	10.819	
900.00	900.00	900.00	900.00	3.13	3.13	0.00	60.00	0.00	60.00	53.74	6.26	9.581	
1,000.00	1,000.00	1,000.00	1,000.00	3.49	3.49	0.00	60.00	0.00	60.00	53.02	6.98	8.597	
1,100.00	1,100.00	1,100.00	1,100.00	3.85	3.85	0.00	60.00	0.00	60.00	52.30	7.70	7.796	
1,200.00	1,200.00	1,200.00	1,200.00	4.21	4.21	0.00	60.00	0.00	60.00	51.59	8.41	7.132	
1,300.00	1,300.00	1,300.00	1,300.00	4.57	4.57	0.00	60.00	0.00	60.00	50.87	9.13	6.572	
1,400.00	1,400.00	1,400.00	1,400.00	4.92	4.92	0.00	60.00	0.00	60.00	50.15	9.85	6.093	
1,500.00	1,500.00	1,500.00	1,500.00	5.28	5.28	0.00	60.00	0.00	60.00	49.44	10.56	5.680	
1,600.00	1,600.00	1,600.00	1,600.00	5.64	5.64	0.00	60.00	0.00	60.00	48.72	11.28	5.319	
1,700.00	1,700.00	1,700.00	1,700.00	6.00	6.00	0.00	60.00	0.00	60.00	48.00	12.00	5.001	
1,800.00	1,800.00	1,800.00	1,800.00	6.36	6.36	0.00	60.00	0.00	60.00	47.29	12.71	4.719	CC, ES
1,900.00	1,899.98	1,898.11	1,898.09	6.70	6.71	-149.97	61.47	0.81	63.01	49.61	13.40	4.701	SF
2,000.00	1,999.84	1,995.69	1,995.54	7.03	7.06	-150.00	65.85	3.22	72.02	57.96	14.06	5.121	
2,100.00	2,099.45	2,092.22	2,091.72	7.36	7.40	-150.00	73.05	7.18	86.98	72.26	14.71	5.911	
2,200.00	2,198.70	2,187.22	2,186.04	7.70	7.74	-149.97	82.89	12.60	107.78	92.43	15.35	7.021	

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 134H
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 134H	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	2,297.47	2,280.21	2,277.97	8.05	8.08	-149.89	95.18	19.36	134.30	118.33	15.97	8.408	
2,400.00	2,395.62	2,370.80	2,367.03	8.41	8.42	-149.76	109.65	27.32	166.37	149.80	16.58	10.036	
2,500.00	2,493.06	2,458.60	2,452.82	8.79	8.76	-149.58	126.03	36.34	203.81	186.64	17.17	11.873	
2,600.00	2,589.64	2,543.31	2,535.00	9.19	9.10	-149.35	144.01	46.23	246.40	228.66	17.74	13.891	
2,700.00	2,685.27	2,624.68	2,613.33	9.62	9.44	-149.07	163.28	56.83	293.91	275.61	18.29	16.066	
2,800.00	2,779.82	2,700.00	2,685.27	10.07	9.76	-148.72	182.84	67.60	346.10	327.31	18.79	18.417	
2,900.00	2,873.65	2,777.18	2,758.34	10.56	10.11	-148.85	204.60	79.57	401.76	382.40	19.36	20.752	
3,000.00	2,967.47	2,849.85	2,826.50	11.07	10.46	-148.86	226.66	91.71	459.26	439.38	19.87	23.110	
3,100.00	3,061.30	2,931.06	2,902.34	11.59	10.86	-148.80	252.11	105.72	517.60	497.06	20.54	25.200	
3,200.00	3,155.12	3,012.27	2,978.18	12.13	11.27	-148.76	277.57	119.73	575.95	554.73	21.22	27.143	
3,300.00	3,248.95	3,093.48	3,054.01	12.69	11.69	-148.72	303.03	133.74	634.30	612.39	21.91	28.950	
3,400.00	3,342.77	3,174.69	3,129.85	13.25	12.13	-148.69	328.49	147.75	692.65	670.04	22.61	30.632	
3,500.00	3,436.60	3,255.91	3,205.68	13.83	12.57	-148.66	353.95	161.76	751.00	727.67	23.32	32.201	
3,600.00	3,530.42	3,337.12	3,281.52	14.41	13.02	-148.64	379.41	175.77	809.35	785.31	24.04	33.666	
3,700.00	3,624.25	3,418.33	3,357.35	15.00	13.48	-148.62	404.87	189.78	867.69	842.93	24.77	35.035	
3,800.00	3,718.07	3,499.54	3,433.19	15.60	13.94	-148.60	430.32	203.79	926.04	900.54	25.50	36.316	
3,900.00	3,811.90	3,580.75	3,509.02	16.21	14.41	-148.58	455.78	217.79	984.39	958.15	26.24	37.515	
4,000.00	3,905.72	3,661.96	3,584.86	16.82	14.89	-148.57	481.24	231.80	1,042.74	1,015.75	26.99	38.640	
4,100.00	3,999.54	3,743.18	3,660.69	17.43	15.37	-148.56	506.70	245.81	1,101.09	1,073.35	27.74	39.697	
4,200.00	4,093.37	3,824.39	3,736.53	18.05	15.85	-148.55	532.16	259.82	1,159.44	1,130.94	28.49	40.691	
4,300.00	4,187.19	3,905.60	3,812.36	18.68	16.34	-148.54	557.62	273.83	1,217.79	1,188.53	29.26	41.626	
4,400.00	4,281.02	3,986.81	3,888.20	19.30	16.83	-148.53	583.08	287.84	1,276.14	1,246.12	30.02	42.508	
4,500.00	4,374.84	4,068.02	3,964.03	19.93	17.32	-148.52	608.53	301.85	1,334.49	1,303.70	30.79	43.340	
4,600.00	4,468.67	4,149.24	4,039.87	20.57	17.82	-148.51	633.99	315.86	1,392.84	1,361.27	31.56	44.127	
4,700.00	4,562.49	4,230.45	4,115.70	21.20	18.32	-148.51	659.45	329.87	1,451.18	1,418.84	32.34	44.870	
4,800.00	4,656.32	4,311.66	4,191.54	21.84	18.82	-148.50	684.91	343.88	1,509.53	1,476.41	33.12	45.575	
4,900.00	4,750.14	4,392.87	4,267.37	22.48	19.33	-148.49	710.37	357.89	1,567.88	1,533.98	33.91	46.242	
5,000.00	4,843.97	4,474.08	4,343.21	23.13	19.83	-148.49	735.83	371.90	1,626.23	1,591.54	34.69	46.876	
5,100.00	4,937.79	4,555.29	4,419.04	23.77	20.34	-148.48	761.29	385.91	1,684.58	1,649.10	35.48	47.477	
5,200.00	5,031.62	4,636.51	4,494.88	24.42	20.85	-148.48	786.74	399.92	1,742.93	1,706.66	36.27	48.049	
5,300.00	5,125.44	4,717.72	4,570.71	25.07	21.36	-148.47	812.20	413.93	1,801.28	1,764.21	37.07	48.594	
5,400.00	5,219.27	4,798.93	4,646.55	25.72	21.88	-148.47	837.66	427.94	1,859.63	1,821.76	37.87	49.112	
5,500.00	5,313.09	4,880.14	4,722.38	26.37	22.39	-148.46	863.12	441.95	1,917.98	1,879.31	38.66	49.606	
5,600.00	5,406.91	4,961.35	4,798.22	27.02	22.91	-148.46	888.58	455.96	1,976.33	1,936.86	39.47	50.078	
5,700.00	5,500.74	5,042.57	4,874.05	27.68	23.43	-148.46	914.04	469.97	2,034.68	1,994.41	40.27	50.528	

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 134H
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 134H	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 133H - 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	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	1,899.98	1,899.98	1,899.98	6.70	6.72	-151.53	30.00	0.00	31.52	18.11	13.42	2.350 SF	
2,000.00	1,999.84	1,999.84	1,999.84	7.03	7.07	-155.44	30.00	0.00	36.21	22.11	14.10	2.568	
2,100.00	2,099.45	2,099.45	2,099.45	7.36	7.43	-160.08	30.00	0.00	44.29	29.50	14.79	2.995	
2,200.00	2,198.70	2,198.70	2,198.70	7.70	7.79	-164.27	30.00	0.00	55.91	40.43	15.48	3.612	
2,300.00	2,297.47	2,297.47	2,297.47	8.05	8.14	-167.62	30.00	0.00	71.10	54.93	16.17	4.398	
2,400.00	2,395.62	2,396.81	2,396.79	8.41	8.49	-169.21	29.91	1.63	89.20	72.35	16.85	5.294	
2,500.00	2,493.06	2,496.07	2,495.92	8.79	8.83	-168.88	29.62	6.70	109.38	91.85	17.53	6.240	
2,600.00	2,589.64	2,595.08	2,594.55	9.19	9.17	-167.50	29.13	15.16	131.65	113.44	18.21	7.229	
2,700.00	2,685.27	2,693.66	2,692.43	9.62	9.52	-165.58	28.45	26.96	156.11	137.20	18.90	8.259	
2,800.00	2,779.82	2,791.68	2,789.27	10.07	9.87	-163.39	27.59	42.02	182.89	163.28	19.61	9.327	
2,900.00	2,873.65	2,888.94	2,884.81	10.56	10.23	-161.17	26.54	60.16	210.90	190.56	20.33	10.372	
3,000.00	2,967.47	2,984.67	2,978.66	11.07	10.59	-159.26	25.46	79.05	238.90	217.82	21.07	11.336	
3,100.00	3,061.30	3,080.40	3,072.50	11.59	10.96	-157.76	24.37	97.93	267.09	245.26	21.83	12.234	
3,200.00	3,155.12	3,176.13	3,166.34	12.13	11.33	-156.54	23.29	116.82	295.42	272.81	22.60	13.069	
3,300.00	3,248.95	3,271.86	3,260.19	12.69	11.72	-155.53	22.20	135.70	323.85	300.46	23.39	13.845	
3,400.00	3,342.77	3,367.59	3,354.03	13.25	12.10	-154.69	21.12	154.58	352.36	328.17	24.19	14.566	
3,500.00	3,436.60	3,463.33	3,447.87	13.83	12.50	-153.97	20.03	173.47	380.93	355.93	25.00	15.236	
3,600.00	3,530.42	3,559.06	3,541.72	14.41	12.90	-153.35	18.95	192.35	409.54	383.72	25.82	15.859	
3,700.00	3,624.25	3,654.79	3,635.56	15.00	13.30	-152.81	17.86	211.24	438.20	411.54	26.65	16.440	
3,800.00	3,718.07	3,750.52	3,729.40	15.60	13.70	-152.34	16.77	230.12	466.88	439.39	27.49	16.981	
3,900.00	3,811.90	3,846.25	3,823.25	16.21	14.11	-151.92	15.69	249.01	495.59	467.25	28.34	17.486	
4,000.00	3,905.72	3,941.98	3,917.09	16.82	14.52	-151.55	14.60	267.89	524.33	495.13	29.20	17.958	
4,100.00	3,999.54	4,037.71	4,010.93	17.43	14.94	-151.22	13.52	286.78	553.08	523.02	30.06	18.400	
4,200.00	4,093.37	4,133.44	4,104.78	18.05	15.36	-150.92	12.43	305.66	581.84	550.92	30.93	18.814	
4,300.00	4,187.19	4,229.17	4,198.62	18.68	15.78	-150.65	11.35	324.55	610.62	578.82	31.80	19.202	
4,400.00	4,281.02	4,324.90	4,292.47	19.30	16.20	-150.40	10.26	343.43	639.41	606.74	32.68	19.567	
4,500.00	4,374.84	4,420.63	4,386.31	19.93	16.62	-150.18	9.18	362.32	668.22	634.65	33.56	19.910	
4,600.00	4,468.67	4,516.37	4,480.15	20.57	17.05	-149.97	8.09	381.20	697.03	662.58	34.45	20.233	
4,700.00	4,562.49	4,612.10	4,574.00	21.20	17.48	-149.78	7.01	400.08	725.84	690.50	35.34	20.538	
4,800.00	4,656.32	4,707.83	4,667.84	21.84	17.91	-149.60	5.92	418.97	754.67	718.43	36.24	20.826	
4,900.00	4,750.14	4,803.56	4,761.68	22.48	18.34	-149.44	4.84	437.85	783.50	746.36	37.14	21.098	
5,000.00	4,843.97	4,899.29	4,855.53	23.13	18.77	-149.29	3.75	456.74	812.33	774.29	38.04	21.355	
5,100.00	4,937.79	4,995.02	4,949.37	23.77	19.21	-149.15	2.67	475.62	841.17	802.23	38.94	21.599	

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 134H
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 134H	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 133H - 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)			
5,200.00	5,031.62	5,090.75	5,043.21	24.42	19.64	-149.01	1.58	494.51	870.02	830.17	39.85	21.830	
5,300.00	5,125.44	5,186.48	5,137.06	25.07	20.08	-148.89	0.49	513.39	898.87	858.10	40.76	22.050	
5,400.00	5,219.27	5,282.21	5,230.90	25.72	20.52	-148.77	-0.59	532.28	927.72	886.04	41.68	22.259	
5,500.00	5,313.09	5,377.94	5,324.74	26.37	20.96	-148.67	-1.68	551.16	956.58	913.98	42.59	22.458	
5,600.00	5,406.91	5,473.67	5,418.59	27.02	21.40	-148.56	-2.76	570.05	985.43	941.92	43.51	22.647	
5,700.00	5,500.74	5,569.41	5,512.43	27.68	21.84	-148.47	-3.85	588.93	1,014.30	969.86	44.43	22.827	
5,800.00	5,594.56	5,665.14	5,606.27	28.33	22.28	-148.38	-4.93	607.82	1,043.16	997.80	45.36	23.000	
5,900.00	5,688.39	5,760.87	5,700.12	28.99	22.72	-148.29	-6.02	626.70	1,072.03	1,025.75	46.28	23.164	
6,000.00	5,782.21	5,856.60	5,793.96	29.64	23.16	-148.21	-7.10	645.58	1,100.89	1,053.69	47.21	23.321	
6,100.00	5,876.04	5,952.33	5,887.80	30.30	23.61	-148.13	-8.19	664.47	1,129.77	1,081.63	48.13	23.472	
6,200.00	5,969.86	6,048.06	5,981.65	30.96	24.05	-148.06	-9.27	683.35	1,158.64	1,109.58	49.06	23.616	
6,300.00	6,063.69	6,143.79	6,075.49	31.62	24.50	-147.99	-10.36	702.24	1,187.51	1,137.52	49.99	23.754	
6,400.00	6,157.51	6,239.52	6,169.34	32.28	24.94	-147.92	-11.44	721.12	1,216.39	1,165.46	50.92	23.886	
6,500.00	6,251.34	6,335.25	6,263.18	32.94	25.39	-147.85	-12.53	740.01	1,245.26	1,193.41	51.86	24.013	
6,600.00	6,345.16	6,430.98	6,357.02	33.60	25.84	-147.79	-13.61	758.89	1,274.14	1,221.35	52.79	24.135	
6,700.00	6,438.99	6,526.71	6,450.87	34.26	26.28	-147.74	-14.70	777.78	1,303.02	1,249.29	53.73	24.252	
6,800.00	6,532.81	6,622.45	6,544.71	34.93	26.73	-147.68	-15.79	796.66	1,331.90	1,277.24	54.66	24.365	
6,900.00	6,626.71	6,718.02	6,638.41	35.59	27.18	-147.73	-16.87	815.50	1,360.61	1,305.01	55.60	24.472	
7,000.00	6,721.52	6,812.44	6,731.31	36.22	27.61	-147.99	-17.83	832.29	1,387.15	1,330.66	56.49	24.555	
7,100.00	6,817.38	6,907.53	6,825.38	36.80	28.01	-148.27	-18.63	846.10	1,410.97	1,353.63	57.33	24.609	
7,200.00	6,914.18	7,003.15	6,920.39	37.35	28.39	-148.57	-19.24	856.83	1,432.03	1,373.91	58.13	24.636	
7,300.00	7,011.79	7,100.00	7,016.94	37.85	28.75	-148.90	-19.68	864.47	1,450.34	1,391.47	58.87	24.636	
7,400.00	7,110.10	7,195.42	7,112.25	38.31	29.08	-149.24	-19.93	868.81	1,465.86	1,406.32	59.55	24.617	
7,500.00	7,208.99	7,292.17	7,208.99	38.72	29.38	-149.61	-20.00	870.00	1,478.61	1,418.43	60.17	24.572	
7,600.00	7,308.33	7,391.51	7,308.33	39.10	29.69	-149.93	-20.00	870.00	1,488.45	1,427.66	60.79	24.484	
7,700.00	7,408.02	7,491.20	7,408.02	39.43	30.00	-150.15	-20.00	870.00	1,495.30	1,433.90	61.40	24.352	
7,800.00	7,507.91	7,591.09	7,507.91	39.72	30.30	-150.28	-20.00	870.00	1,499.14	1,437.13	62.01	24.175	
7,900.00	7,607.90	7,691.08	7,607.90	39.97	30.61	-0.34	-20.00	870.00	1,500.03	1,437.42	62.60	23.960	
8,000.00	7,707.89	7,789.15	7,705.80	40.19	30.89	89.37	-19.99	866.11	1,500.06	1,436.94	63.12	23.764	
8,100.00	7,806.53	7,884.82	7,798.84	40.35	31.06	89.09	-19.93	844.54	1,500.16	1,436.73	63.43	23.652	
8,200.00	7,899.84	7,979.24	7,884.65	40.42	31.16	88.85	-19.83	805.50	1,500.28	1,436.70	63.58	23.598	
8,300.00	7,983.74	8,072.67	7,960.37	40.43	31.22	88.65	-19.68	751.02	1,500.39	1,436.75	63.64	23.577	
8,400.00	8,054.55	8,165.35	8,023.60	40.37	31.28	88.51	-19.50	683.46	1,500.48	1,436.77	63.70	23.555	
8,500.00	8,109.20	8,257.57	8,072.40	40.26	31.38	88.43	-19.30	605.38	1,500.53	1,436.67	63.86	23.496	
8,600.00	8,145.28	8,350.00	8,105.36	40.11	31.55	88.41	-19.07	519.18	1,500.54	1,436.34	64.20	23.373	
8,700.00	8,161.22	8,441.65	8,121.07	39.94	31.80	88.46	-18.83	429.03	1,500.50	1,435.75	64.76	23.171	
8,800.00	8,159.70	8,537.23	8,120.70	39.77	32.20	88.51	-18.57	333.52	1,500.47	1,434.91	65.56	22.886	
8,900.00	8,156.22	8,637.23	8,117.21	39.63	32.77	88.51	-18.31	233.58	1,500.47	1,433.79	66.68	22.501	
9,000.00	8,152.73	8,737.23	8,113.72	39.52	33.50	88.51	-18.04	133.64	1,500.47	1,432.33	68.14	22.020	
9,100.00	8,149.25	8,837.23	8,110.23	39.44	34.40	88.51	-17.78	33.70	1,500.47	1,430.55	69.92	21.461	
9,200.00	8,145.77	8,937.23	8,106.74	39.42	35.45	88.51	-17.51	-66.23	1,500.47	1,428.48	71.98	20.845	
9,300.00	8,142.29	9,037.23	8,103.26	39.50	36.63	88.51	-17.24	-166.17	1,500.46	1,426.15	74.32	20.190	
9,400.00	8,138.81	9,137.23	8,099.77	39.86	37.94	88.51	-16.98	-266.11	1,500.46	1,423.57	76.90	19.513	
9,500.00	8,135.32	9,237.23	8,096.28	40.74	39.35	88.51	-16.71	-366.05	1,500.46	1,420.77	79.69	18.828	
9,600.00	8,131.84	9,337.23	8,092.79	42.05	40.87	88.51	-16.45	-465.99	1,500.46	1,417.77	82.69	18.146	
9,700.00	8,128.36	9,437.23	8,089.31	43.58	42.47	88.51	-16.18	-565.93	1,500.46	1,414.60	85.86	17.475	
9,800.00	8,124.88	9,537.23	8,085.82	45.23	44.15	88.51	-15.92	-665.87	1,500.46	1,411.26	89.19	16.822	
9,900.00	8,121.40	9,637.23	8,082.33	46.97	45.90	88.51	-15.65	-765.81	1,500.46	1,407.79	92.67	16.192	
10,000.00	8,117.91	9,737.23	8,078.84	48.78	47.72	88.51	-15.38	-865.75	1,500.45	1,404.19	96.27	15.587	
10,100.00	8,114.43	9,837.23	8,075.35	50.64	49.59	88.51	-15.12	-965.68	1,500.45	1,400.48	99.98	15.008	
10,200.00	8,110.95	9,937.23	8,071.87	52.55	51.51	88.51	-14.85	-1,065.62	1,500.45	1,396.67	103.79	14.457	
10,300.00	8,107.47	10,037.23	8,068.38	54.51	53.47	88.51	-14.59	-1,165.56	1,500.45	1,392.76	107.69	13.934	

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 134H
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 134H	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 133H - 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)			
10,400.00	8,103.99	10,137.23	8,064.89	56.50	55.48	88.51	-14.32	-1,265.50	1,500.45	1,388.78	111.67	13.437	
10,500.00	8,100.50	10,237.23	8,061.40	58.53	57.52	88.51	-14.06	-1,365.44	1,500.45	1,384.73	115.72	12.966	
10,600.00	8,097.02	10,337.23	8,057.91	60.59	59.59	88.51	-13.79	-1,465.38	1,500.45	1,380.61	119.84	12.521	
10,700.00	8,093.54	10,437.23	8,054.43	62.68	61.68	88.51	-13.52	-1,565.32	1,500.45	1,376.44	124.01	12.099	
10,800.00	8,090.06	10,537.23	8,050.94	64.79	63.81	88.51	-13.26	-1,665.26	1,500.44	1,372.21	128.24	11.700	
10,900.00	8,086.58	10,637.23	8,047.45	66.93	65.96	88.50	-12.99	-1,765.19	1,500.44	1,367.93	132.51	11.323	
11,000.00	8,083.10	10,737.23	8,043.96	69.09	68.13	88.50	-12.73	-1,865.13	1,500.44	1,363.61	136.83	10.966	
11,100.00	8,079.61	10,837.23	8,040.47	71.26	70.31	88.50	-12.46	-1,965.07	1,500.44	1,359.25	141.19	10.627	
11,200.00	8,076.13	10,937.23	8,036.99	73.45	72.52	88.50	-12.20	-2,065.01	1,500.44	1,354.86	145.58	10.307	
11,300.00	8,072.65	11,037.23	8,033.50	75.66	74.74	88.50	-11.93	-2,164.95	1,500.44	1,350.43	150.00	10.003	
11,400.00	8,069.17	11,137.23	8,030.01	77.89	76.97	88.50	-11.66	-2,264.89	1,500.44	1,345.98	154.46	9.714	
11,500.00	8,065.69	11,237.23	8,026.52	80.12	79.22	88.50	-11.40	-2,364.83	1,500.44	1,341.49	158.94	9.440	
11,600.00	8,062.20	11,337.23	8,023.04	82.37	81.48	88.50	-11.13	-2,464.77	1,500.43	1,336.99	163.45	9.180	
11,700.00	8,058.72	11,437.23	8,019.55	84.63	83.76	88.50	-10.87	-2,564.70	1,500.43	1,332.46	167.98	8.932	
11,800.00	8,055.24	11,537.23	8,016.06	86.90	86.04	88.50	-10.60	-2,664.64	1,500.43	1,327.90	172.53	8.697	
11,900.00	8,051.76	11,637.23	8,012.57	89.18	88.33	88.50	-10.34	-2,764.58	1,500.43	1,323.33	177.10	8.472	
12,000.00	8,048.28	11,737.23	8,009.08	91.47	90.63	88.50	-10.07	-2,864.52	1,500.43	1,318.74	181.69	8.258	
12,100.00	8,044.79	11,837.23	8,005.60	93.77	92.94	88.50	-9.80	-2,964.46	1,500.43	1,314.14	186.29	8.054	
12,200.00	8,041.31	11,937.23	8,002.11	96.07	95.25	88.50	-9.54	-3,064.40	1,500.43	1,309.52	190.91	7.859	
12,300.00	8,037.83	12,037.23	7,998.62	98.39	97.58	88.50	-9.27	-3,164.34	1,500.43	1,304.88	195.55	7.673	
12,400.00	8,034.35	12,137.23	7,995.13	100.70	99.91	88.50	-9.01	-3,264.28	1,500.42	1,300.23	200.19	7.495	
12,500.00	8,030.87	12,237.23	7,991.64	103.03	102.24	88.50	-8.74	-3,364.22	1,500.42	1,295.57	204.85	7.324	
12,600.00	8,027.38	12,337.23	7,988.16	105.36	104.58	88.50	-8.48	-3,464.15	1,500.42	1,290.89	209.53	7.161	
12,700.00	8,023.90	12,437.23	7,984.67	107.70	106.93	88.50	-8.21	-3,564.09	1,500.42	1,286.21	214.21	7.004	
12,800.00	8,020.42	12,537.23	7,981.18	110.04	109.28	88.50	-7.94	-3,664.03	1,500.42	1,281.52	218.90	6.854	
12,900.00	8,016.94	12,637.23	7,977.69	112.39	111.64	88.50	-7.68	-3,763.97	1,500.42	1,276.81	223.61	6.710	
13,000.00	8,013.46	12,737.23	7,974.20	114.74	114.00	88.50	-7.41	-3,863.91	1,500.42	1,272.10	228.32	6.572	
13,100.00	8,009.97	12,837.23	7,970.72	117.09	116.36	88.50	-7.15	-3,963.85	1,500.41	1,267.38	233.04	6.439	
13,200.00	8,006.49	12,937.23	7,967.23	119.45	118.73	88.50	-6.88	-4,063.79	1,500.41	1,262.65	237.77	6.310	
13,300.00	8,003.01	13,037.23	7,963.74	121.81	121.10	88.50	-6.61	-4,163.73	1,500.41	1,257.91	242.50	6.187	
13,400.00	7,999.53	13,137.23	7,960.25	124.18	123.47	88.50	-6.35	-4,263.66	1,500.41	1,253.17	247.24	6.069	
13,500.00	7,996.05	13,237.23	7,956.77	126.55	125.85	88.50	-6.08	-4,363.60	1,500.41	1,248.42	251.99	5.954	
13,600.00	7,992.56	13,337.23	7,953.28	128.93	128.23	88.50	-5.82	-4,463.54	1,500.41	1,243.66	256.75	5.844	
13,700.00	7,989.08	13,437.23	7,949.79	131.30	130.62	88.50	-5.55	-4,563.48	1,500.41	1,238.90	261.51	5.738	
13,800.00	7,985.60	13,537.23	7,946.30	133.68	133.00	88.50	-5.29	-4,663.42	1,500.41	1,234.13	266.28	5.635	
13,900.00	7,982.12	13,637.23	7,942.81	136.06	135.39	88.50	-5.02	-4,763.36	1,500.40	1,229.36	271.05	5.536	
14,000.00	7,978.64	13,737.23	7,939.33	138.45	137.78	88.50	-4.75	-4,863.30	1,500.40	1,224.58	275.82	5.440	
14,100.00	7,975.15	13,837.23	7,935.84	140.83	140.18	88.50	-4.49	-4,963.24	1,500.40	1,219.80	280.61	5.347	
14,200.00	7,971.67	13,937.23	7,932.35	143.22	142.58	88.50	-4.22	-5,063.17	1,500.40	1,215.01	285.39	5.257	
14,300.00	7,968.19	14,037.23	7,928.86	145.62	144.97	88.50	-3.96	-5,163.11	1,500.40	1,210.22	290.18	5.171	
14,400.00	7,964.71	14,137.23	7,925.37	148.01	147.37	88.50	-3.69	-5,263.05	1,500.40	1,205.42	294.98	5.086	
14,500.00	7,961.23	14,237.23	7,921.89	150.41	149.78	88.50	-3.43	-5,362.99	1,500.40	1,200.62	299.78	5.005	
14,600.00	7,957.74	14,337.23	7,918.40	152.80	152.18	88.50	-3.16	-5,462.93	1,500.40	1,195.82	304.58	4.926	
14,700.00	7,954.26	14,437.23	7,914.91	155.20	154.59	88.50	-2.89	-5,562.87	1,500.39	1,191.01	309.39	4.850	
14,800.00	7,950.78	14,537.23	7,911.42	157.60	156.99	88.50	-2.63	-5,662.81	1,500.39	1,186.20	314.19	4.775	
14,900.00	7,947.30	14,637.23	7,907.94	160.01	159.40	88.50	-2.36	-5,762.75	1,500.39	1,181.38	319.01	4.703	
15,000.00	7,943.82	14,737.23	7,904.45	162.41	161.81	88.50	-2.10	-5,862.69	1,500.39	1,176.57	323.82	4.633	
15,100.00	7,940.33	14,837.23	7,900.96	164.82	164.22	88.50	-1.83	-5,962.62	1,500.39	1,171.75	328.64	4.565	
15,200.00	7,936.85	14,937.23	7,897.47	167.23	166.64	88.50	-1.57	-6,062.56	1,500.39	1,166.93	333.46	4.499	
15,300.00	7,933.37	15,037.23	7,893.98	169.64	169.05	88.49	-1.30	-6,162.50	1,500.39	1,162.10	338.29	4.435	
15,400.00	7,929.89	15,137.23	7,890.50	172.05	171.47	88.49	-1.03	-6,262.44	1,500.39	1,157.27	343.11	4.373	
15,500.00	7,926.41	15,237.23	7,887.01	174.46	173.88	88.49	-0.77	-6,362.38	1,500.38	1,152.44	347.94	4.312	

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 134H
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 134H	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 133H - 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	7,922.92	15,337.23	7,883.52	176.87	176.30	88.49	-0.50	-6,462.32	1,500.38	1,147.61	352.77	4.253		
15,700.00	7,919.44	15,437.23	7,880.03	179.29	178.72	88.49	-0.24	-6,562.26	1,500.38	1,142.77	357.61	4.196		
15,800.00	7,915.96	15,537.23	7,876.54	181.70	181.14	88.49	0.03	-6,662.20	1,500.38	1,137.94	362.44	4.140		
15,900.00	7,912.48	15,637.23	7,873.06	184.12	183.56	88.49	0.29	-6,762.13	1,500.38	1,133.10	367.28	4.085		
16,000.00	7,909.00	15,737.23	7,869.57	186.53	185.98	88.49	0.56	-6,862.07	1,500.38	1,128.26	372.12	4.032		
16,100.00	7,905.51	15,837.23	7,866.08	188.95	188.41	88.49	0.83	-6,962.01	1,500.38	1,123.41	376.96	3.980		
16,200.00	7,902.03	15,937.23	7,862.59	191.37	190.83	88.49	1.09	-7,061.95	1,500.37	1,118.57	381.81	3.930		
16,300.00	7,898.55	16,037.23	7,859.10	193.79	193.26	88.49	1.36	-7,161.89	1,500.37	1,113.72	386.65	3.880		
16,400.00	7,895.07	16,137.23	7,855.62	196.21	195.68	88.49	1.62	-7,261.83	1,500.37	1,108.87	391.50	3.832		
16,500.00	7,891.59	16,237.23	7,852.13	198.64	198.11	88.49	1.89	-7,361.77	1,500.37	1,104.02	396.35	3.785		
16,600.00	7,888.10	16,337.23	7,848.64	201.06	200.53	88.49	2.15	-7,461.71	1,500.37	1,099.17	401.20	3.740		
16,700.00	7,884.62	16,437.23	7,845.15	203.48	202.96	88.49	2.42	-7,561.64	1,500.37	1,094.32	406.05	3.695		
16,800.00	7,881.14	16,537.23	7,841.67	205.91	205.39	88.49	2.69	-7,661.58	1,500.37	1,089.46	410.91	3.651		
16,900.00	7,877.66	16,637.23	7,838.18	208.33	207.82	88.49	2.95	-7,761.52	1,500.37	1,084.61	415.76	3.609		
17,000.00	7,874.18	16,737.23	7,834.69	210.76	210.25	88.49	3.22	-7,861.46	1,500.36	1,079.75	420.62	3.567		
17,100.00	7,870.69	16,837.23	7,831.20	213.19	212.68	88.49	3.48	-7,961.40	1,500.36	1,074.89	425.47	3.526		
17,200.00	7,867.21	16,937.23	7,827.71	215.62	215.11	88.49	3.75	-8,061.34	1,500.36	1,070.03	430.33	3.487		
17,300.00	7,863.73	17,037.23	7,824.23	218.04	217.54	88.49	4.01	-8,161.28	1,500.36	1,065.17	435.19	3.448		
17,400.00	7,860.25	17,137.23	7,820.74	220.47	219.98	88.49	4.28	-8,261.22	1,500.36	1,060.30	440.06	3.409		
17,500.00	7,856.77	17,237.23	7,817.25	222.90	222.41	88.49	4.55	-8,361.16	1,500.36	1,055.44	444.92	3.372		
17,600.00	7,853.28	17,337.23	7,813.76	225.33	224.84	88.49	4.81	-8,461.09	1,500.36	1,050.57	449.78	3.336		
17,700.00	7,849.80	17,437.23	7,810.27	227.76	227.28	88.49	5.08	-8,561.03	1,500.36	1,045.71	454.65	3.300		
17,800.00	7,846.32	17,537.23	7,806.79	230.20	229.71	88.49	5.34	-8,660.97	1,500.35	1,040.84	459.51	3.265		
17,900.00	7,842.84	17,637.23	7,803.30	232.63	232.15	88.49	5.61	-8,760.91	1,500.35	1,035.97	464.38	3.231		
18,000.00	7,839.36	17,737.23	7,799.81	235.06	234.58	88.49	5.88	-8,860.85	1,500.35	1,031.10	469.25	3.197		
18,100.00	7,835.87	17,837.23	7,796.32	237.49	237.02	88.49	6.14	-8,960.79	1,500.35	1,026.23	474.12	3.165		
18,200.00	7,832.39	17,937.23	7,792.83	239.93	239.46	88.49	6.41	-9,060.73	1,500.35	1,021.36	478.99	3.132		
18,300.00	7,828.91	18,037.23	7,789.35	242.36	241.89	88.49	6.67	-9,160.67	1,500.35	1,016.49	483.86	3.101		
18,400.00	7,825.43	18,137.23	7,785.86	244.80	244.33	88.49	6.94	-9,260.60	1,500.35	1,011.62	488.73	3.070		
18,500.00	7,821.95	18,237.23	7,782.37	247.23	246.77	88.49	7.20	-9,360.54	1,500.35	1,006.74	493.60	3.040		
18,600.00	7,818.46	18,337.23	7,778.88	249.67	249.21	88.49	7.47	-9,460.48	1,500.34	1,001.87	498.48	3.010		
18,700.00	7,814.98	18,437.23	7,775.40	252.10	251.64	88.49	7.74	-9,560.42	1,500.34	996.99	503.35	2.981		
18,753.24	7,813.13	18,490.47	7,773.54	253.40	252.94	88.49	7.88	-9,613.63	1,500.34	994.40	505.95	2.965		

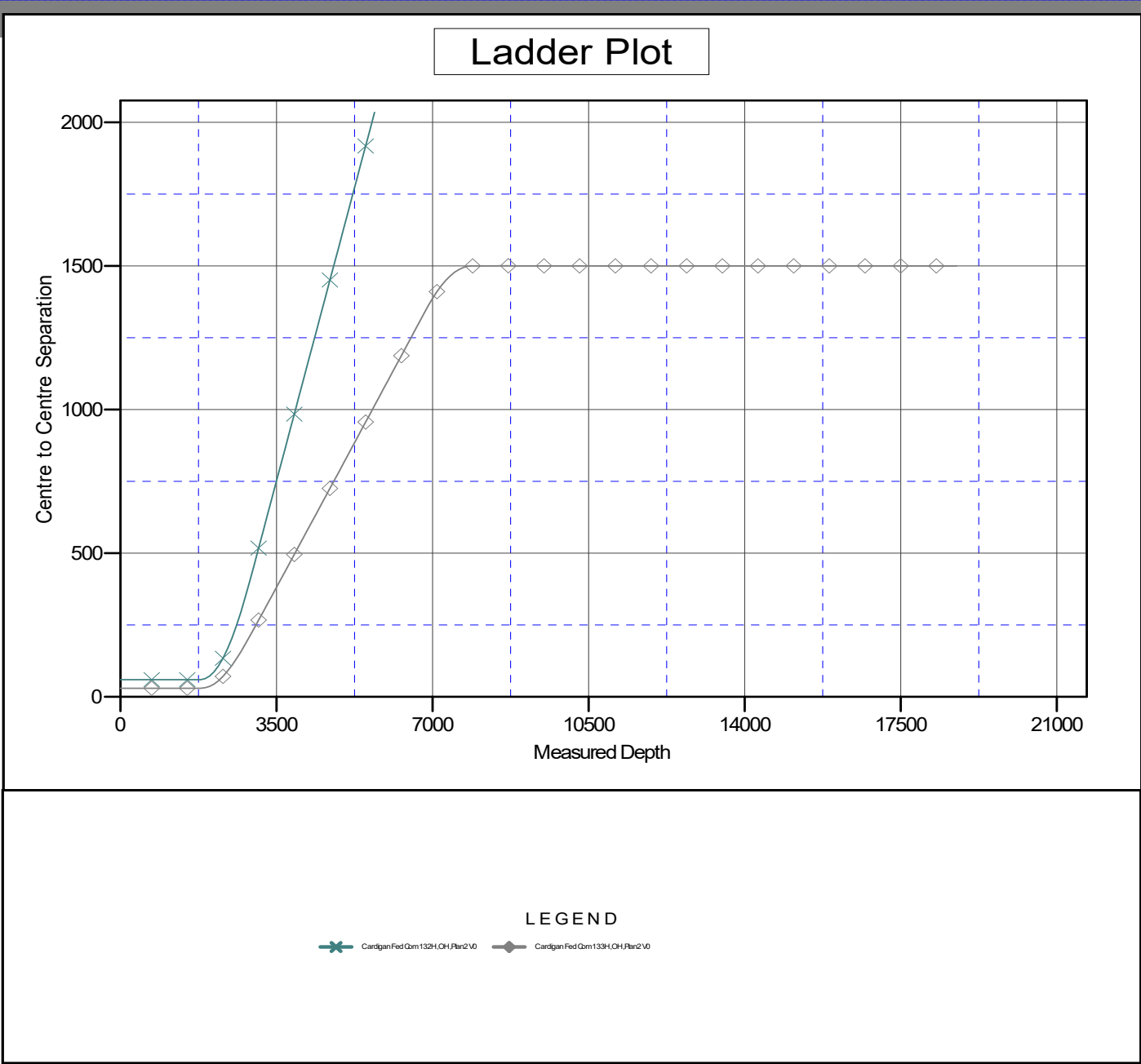
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Legacy Directional Drilling
Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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 134H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.05°



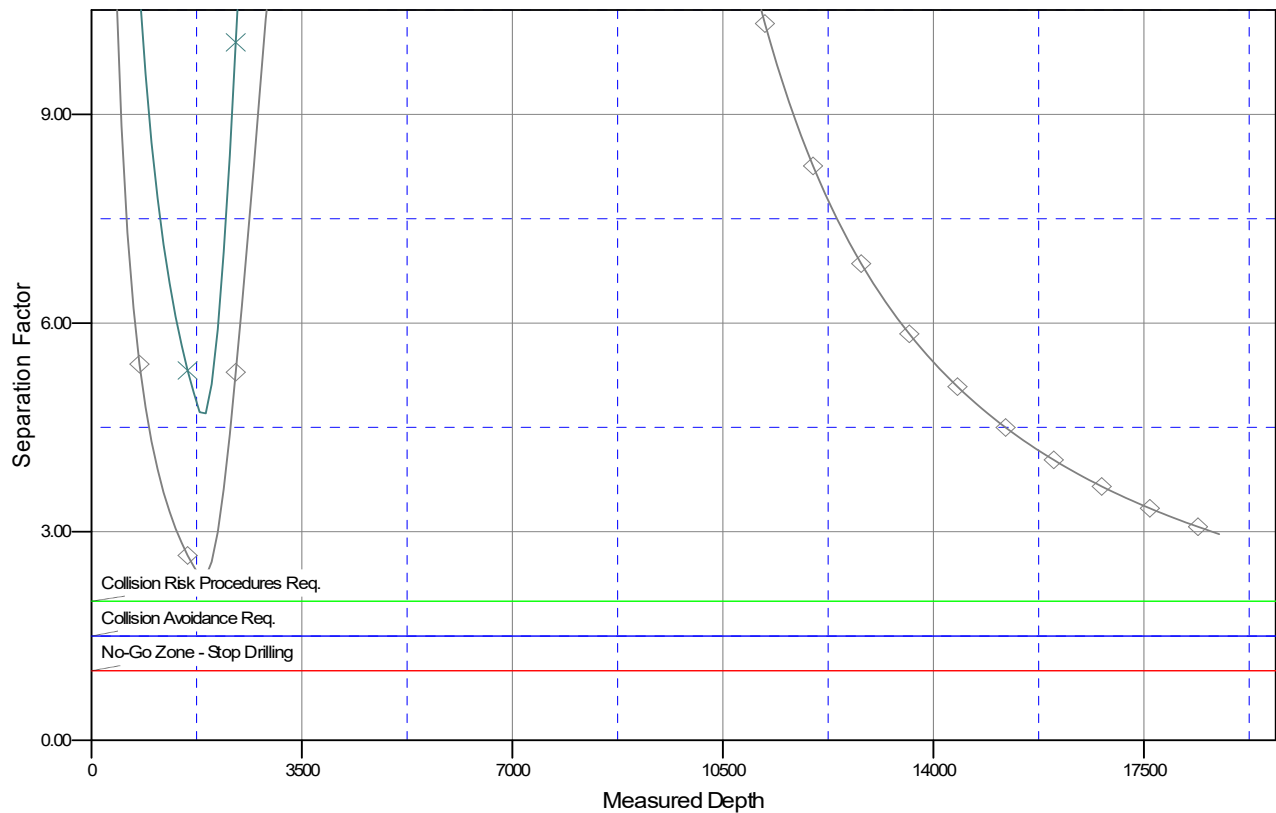
Legacy Directional Drilling Anticollision Report

Company:	Freedom Energy	Local Co-ordinate Reference:	Well Cardigan Fed Com 134H
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 134H	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 134H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.05°

Separation Factor Plot



LEGEND

Cardigan Fed Com 132H.OH.Plan2.V0 Cardigan Fed Com 133H.OH.Plan2.V0

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 441124

CONDITIONS

Operator: Flat Creek Resources, LLC 777 Main St. Fort Worth, TX 76102	OGRID: 374034
	Action Number: 441124
	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