

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTOCD Hobbs
HOBBS
APR 11 2019
EIVEDFORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

Lease Serial No.
NMNM0160973

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other		6. If Indian, Allottee or Tribe Name	
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr. Other _____		7. Unit or CA Agreement Name and No. NMNM138999	
2. Name of Operator COG OPERATING LLC		8. Lease Name and Well No. TIGERCAT FEDERAL COM 2H	
3. Address ONE CONCHO CENTER 600 W ILLINOIS AVENUE MIDLAND, TX 79701-4287		9. API Well No. 30-025-44303-00-S1	
4. Location of Well (Report location clearly and in accordance with Federal requirements)* Sec 8 T26S R33E Mer NMP At surface NWNE 355FNL 1650FEL 32.064315 N Lat, 103.591101 W Lon At top prod interval reported below NWNE 355FNL 1650FEL 32.064315 N Lat, 103.591101 W Lon At total depth SWSE 419FSL 1659FEL 32.037423 N Lat, 103.591136 W Lon		10. Field and Pool, or Exploratory WILDCAT BONE SPRING	
14. Date Spudded 02/22/2018		15. Date T.D. Reached 03/15/2018	
16. Date Completed ☐ D & A ☒ Ready to Prod. 09/25/2018		17. Elevations (DF, KB, RT, GL)* 3322 GL	
18. Total Depth: MD 19876 TVD 10341		19. Plug Back T.D.: MD 19601 TVD 10341	
20. Depth Bridge Plug Set: MD 19800 TVD 10341			

21. Type Electric & Other Mechanical Logs Run (Submit copy of each) 3322 GL	22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit analysis) Directional Survey? ☐ No ☒ Yes (Submit analysis)
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23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 J55	54.5		905		750		0	
12.250	9.625 J55	40.0		4807		1550		0	
8.750	5.500 P110			19876		3150		0	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	9680	9664						

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) BONE SPRING	10438	19775	10438 TO 19775		1620	
B)						
C)						
D)						

26. Perforation Record

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
10348 TO 19775	SEE ATTACHED

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
09/25/2018	09/25/2018	24	→	60.0	275.0	2490.0			ELECTRIC PUMP SUB-SURFACE
Choke Size	Tbg. Press. Flwg. 800 SI	Csg. Press. 1650.0	24 Hr. Rate →	Oil BBL 60	Gas MCF 275	Water BBL 2490	Gas:Oil Ratio	Well Status POW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #442834 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

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

ACCEPTED FOR RECORD

MAR 19 2019

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Reclamation Due 3-25-2019.

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
RUSTLER	874			RUSTLER	874
TOP OF SALT	1201			TOP OF SALT	1201
BASE OF SALT	4658			BASE OF SALT	4658
LAMAR LS	4896			LAMAR LS	4896
BELL CANYON	4920			BELL CANYON	4920
BONE SPRING 1ST	9962			BONE SPRING 1ST	9962

32. Additional remarks (include plugging procedure):

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7 Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #442834 Verified by the BLM Well Information System.
For COG OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by DEBORAH HAM on 12/11/2018 (19DMH0031SE)

Name (please print) AMANDA AVERYTitle AUTHORIZED REPRESENTATIVESignature (Electronic Submission)Date 11/06/2018

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.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-8161 Fax: (575) 393-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-0720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-44303	Pool Code 7280	Pool Name Bradley; Bone Spring
Property Code 320525	Property Name TIGERCAT FEDERAL COM	Well Number 2H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3322.3'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	8	26-S	33-E		355	NORTH	1650	EAST	LEA

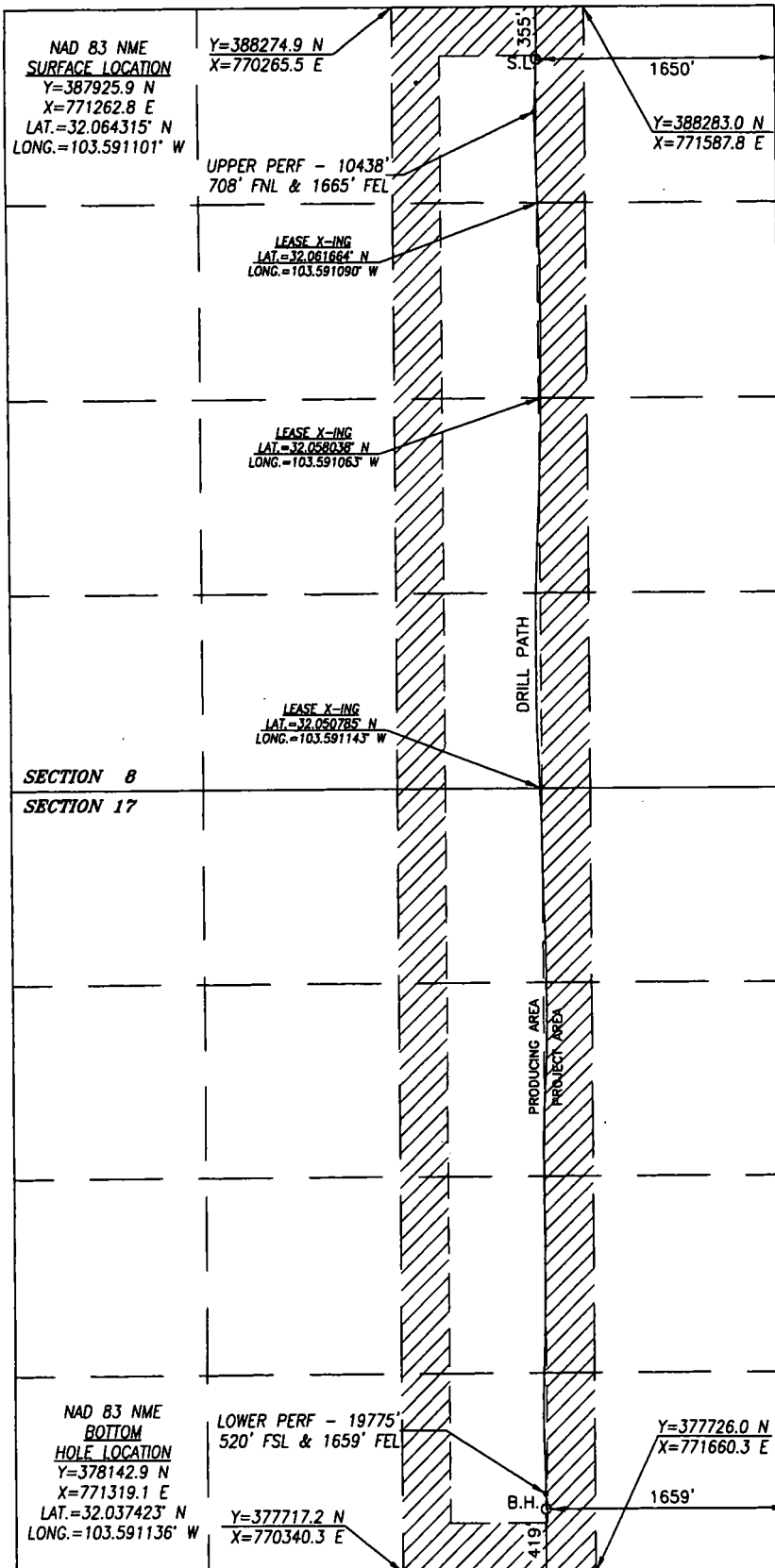
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	17	26-S	33-E		419	SOUTH	1659	EAST	LEA
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

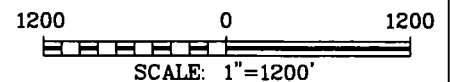
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SEE PAGE 2

Property Code	Property Name TIGERCAT FEDERAL COM	Well Number 2H
OGRID No.	Operator Name COG OPERATING, LLC	Elevation 3322.3'



BOREPATH SHOWN HEREON IS BASED ON DIRECTIONAL SURVEY REPORT PROVIDED BY COG OPERATING, LLC FOR THE TIGERCAT FEDERAL COM 2H SUPPLIED TO HARCROW SURVEYING, LLC ON OCTOBER 26, 2018.



OPERATOR CERTIFICATION

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

11/05/18

Signature

Date

Amanda Avery

Printed Name

aavery@concho.com

E-mail Address

SURVEYOR CERTIFICATION

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

AUG. 4, 2017, OCT. 25, 2018

Date of Survey/Date of Geographic Survey

Signature & Seal of Professional Surveyor



Chad Harcrow 11/5/18
Certificate No. CHAD HARCROW 17777



CONCHO

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

TIGERCAT FED COM #2H

OWB

Design: ACTUAL WELLPATH

Standard Survey Report

25 April, 2018



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM

Site: BULLDOG

Well: TIGERCAT FED COM #2H

Wellbore: OWB

Design: ACTUAL WELLPATH

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well TIGERCAT FED COM #2H

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

EDM_Users

Project LEA COUNTY, NM

Map System: US State Plane 1927 (Exact solution)

Geo Datum: NAD 1927 (NADCON CONUS)

Map Zone: New Mexico East 3001

System Datum:

Mean Sea Level

Site BULLDOG

Site Position: Northing: 398,637.10 usft Latitude: 32° 5' 36.820 N
From: Map Easting: 741,887.40 usft Longitude: 103° 33' 8.116 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.42 °

Well TIGERCAT FED COM #2H

Well Position +N/-S 0.0 usft Northing: 387,868.60 usft Latitude: 32° 3' 51.083 N
+E/-W 0.0 usft Easting: 730,075.80 usft Longitude: 103° 35' 26.275 W
Position Uncertainty 3.0 usft Wellhead Elevation: usft Ground Level: 3,322.3 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	11/8/2017	6.93	59.89	47,788.65628517

Design ACTUAL WELLPATH

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.67

Survey Program Date 3/19/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	9,670.0	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
9,700.0	19,876.0	MWD-CURVE/LATERAL (OWB)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.54	131.24	100.0	-0.3	0.4	0.3	0.54	0.54	0.00
125.0	0.61	130.13	125.0	-0.5	0.5	0.5	0.28	0.28	-4.44
150.0	0.64	128.70	150.0	-0.6	0.8	0.7	0.14	0.12	-5.72
175.0	0.78	120.68	175.0	-0.8	1.0	0.8	0.69	0.56	-32.08
200.0	0.66	118.13	200.0	-1.0	1.3	1.0	0.50	-0.48	-10.20
225.0	0.71	123.19	225.0	-1.1	1.5	1.1	0.31	0.20	20.24
250.0	0.72	122.50	250.0	-1.3	1.8	1.3	0.05	0.04	-2.76

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well TIGERCAT FED COM #2H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Site:	BULLDOG	MD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Well:	TIGERCAT FED COM #2H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buid Rate (°/100usft)	Turn Rate (°/100usft)
275.0	0.72	115.25	275.0	-1.4	2.1	1.5	0.36	0.00	-29.00
300.0	0.77	114.48	300.0	-1.6	2.4	1.6	0.20	0.20	-3.08
325.0	0.66	108.79	325.0	-1.7	2.7	1.7	0.52	-0.44	-22.76
350.0	0.58	97.27	350.0	-1.8	2.9	1.8	0.59	-0.32	-46.08
375.0	0.62	97.85	375.0	-1.8	3.2	1.8	0.16	0.16	2.32
400.0	0.59	90.74	400.0	-1.8	3.4	1.8	0.32	-0.12	-28.44
425.0	0.50	84.62	425.0	-1.8	3.7	1.8	0.43	-0.36	-24.48
450.0	0.50	93.87	450.0	-1.8	3.9	1.8	0.32	0.00	37.00
475.0	0.47	90.19	475.0	-1.8	4.1	1.8	0.17	-0.12	-14.72
500.0	0.50	80.99	500.0	-1.8	4.3	1.8	0.33	0.12	-36.80
525.0	0.36	81.06	525.0	-1.8	4.5	1.8	0.56	-0.56	0.28
550.0	0.36	73.88	550.0	-1.7	4.7	1.8	0.18	0.00	-28.72
575.0	0.32	62.34	575.0	-1.7	4.8	1.7	0.32	-0.16	-46.16
600.0	0.37	63.04	600.0	-1.6	4.9	1.6	0.20	0.20	2.80
625.0	0.27	40.39	625.0	-1.5	5.0	1.6	0.64	-0.40	-90.60
650.0	0.33	13.44	650.0	-1.4	5.1	1.4	0.61	0.24	-107.80
675.0	0.32	356.71	675.0	-1.3	5.1	1.3	0.38	-0.04	-66.92
700.0	0.37	0.98	700.0	-1.1	5.1	1.2	0.22	0.20	17.08
725.0	0.30	335.60	725.0	-1.0	5.1	1.0	0.65	-0.28	-101.52
750.0	0.25	334.95	750.0	-0.9	5.0	0.9	0.20	-0.20	-2.60
775.0	0.28	307.46	775.0	-0.8	5.0	0.8	0.52	0.12	-109.96
800.0	0.36	318.93	800.0	-0.7	4.9	0.7	0.41	0.32	45.88
825.0	0.41	311.63	825.0	-0.6	4.7	0.6	0.28	0.20	-29.20
850.0	0.51	314.15	850.0	-0.4	4.6	0.5	0.41	0.40	10.08
875.0	0.48	306.10	875.0	-0.3	4.4	0.3	0.30	-0.12	-32.20
900.0	0.52	300.30	900.0	-0.2	4.2	0.2	0.26	0.16	-23.20
925.0	0.58	309.01	925.0	0.0	4.1	0.1	0.41	0.24	34.84
950.0	0.49	297.60	950.0	0.1	3.9	-0.1	0.56	-0.36	-45.64
975.0	0.71	305.65	975.0	0.2	3.6	-0.2	0.94	0.88	32.20
1,000.0	0.61	298.60	1,000.0	0.4	3.4	-0.4	0.51	-0.40	-28.20
1,025.0	0.66	306.56	1,025.0	0.5	3.2	-0.5	0.41	0.20	31.84
1,050.0	0.62	299.78	1,050.0	0.7	2.9	-0.7	0.34	-0.16	-27.12
1,075.0	0.65	294.99	1,075.0	0.8	2.7	-0.8	0.24	0.12	-19.16
1,100.0	0.67	292.54	1,100.0	0.9	2.4	-0.9	0.14	0.08	-9.80
1,125.0	0.68	296.58	1,125.0	1.0	2.2	-1.0	0.19	0.04	16.16
1,150.0	0.63	292.10	1,150.0	1.2	1.9	-1.2	0.29	-0.20	-17.92
1,175.0	0.65	290.69	1,174.9	1.3	1.6	-1.3	0.10	0.08	-5.64
1,200.0	0.73	290.79	1,199.9	1.4	1.3	-1.4	0.32	0.32	0.40
1,225.0	0.65	294.75	1,224.9	1.5	1.1	-1.5	0.37	-0.32	15.84
1,250.0	0.61	281.03	1,249.9	1.6	0.8	-1.6	0.62	-0.16	-54.88
1,275.0	0.40	249.78	1,274.9	1.6	0.6	-1.6	1.36	-0.84	-125.00
1,300.0	0.54	211.95	1,299.9	1.4	0.5	-1.4	1.33	0.56	-151.32



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
1,325.0	0.87	194.25	1,324.9	1.2	0.3	-1.2	1.57	1.32	-70.80
1,350.0	1.04	192.84	1,349.9	0.8	0.2	-0.8	0.69	0.68	-5.64
1,375.0	1.02	190.78	1,374.9	0.3	0.2	-0.3	0.17	-0.08	-8.24
1,400.0	1.17	188.87	1,399.9	-0.2	0.1	0.2	0.62	0.60	-7.64
1,425.0	1.17	196.41	1,424.9	-0.7	0.0	0.7	0.62	0.00	30.16
1,450.0	1.16	192.77	1,449.9	-1.1	-0.2	1.1	0.30	-0.04	-14.56
1,475.0	1.21	193.49	1,474.9	-1.7	-0.3	1.6	0.21	0.20	2.88
1,500.0	1.20	194.93	1,499.9	-2.2	-0.4	2.2	0.13	-0.04	5.76
1,525.0	1.23	201.13	1,524.9	-2.7	-0.6	2.7	0.54	0.12	24.80
1,550.0	1.25	196.23	1,549.9	-3.2	-0.7	3.2	0.43	0.08	-19.60
1,575.0	1.23	197.90	1,574.9	-3.7	-0.9	3.7	0.17	-0.08	6.68
1,600.0	1.31	198.70	1,599.9	-4.2	-1.1	4.2	0.33	0.32	3.20
1,625.0	1.29	201.09	1,624.9	-4.8	-1.3	4.7	0.23	-0.08	9.56
1,650.0	1.27	201.64	1,649.9	-5.3	-1.5	5.3	0.09	-0.08	2.20
1,675.0	1.22	204.12	1,674.9	-5.8	-1.7	5.8	0.29	-0.20	9.92
1,700.0	1.12	209.73	1,699.9	-6.2	-1.9	6.2	0.61	-0.40	22.44
1,725.0	0.90	224.53	1,724.9	-6.6	-2.2	6.6	1.36	-0.88	59.20
1,750.0	0.73	236.52	1,749.9	-6.8	-2.4	6.8	0.96	-0.68	47.96
1,775.0	0.60	251.17	1,774.9	-6.9	-2.7	6.9	0.85	-0.52	58.60
1,800.0	0.69	265.21	1,799.9	-7.0	-3.0	7.0	0.72	0.36	56.16
1,825.0	0.66	270.70	1,824.8	-7.0	-3.3	7.0	0.29	-0.12	21.96
1,850.0	0.63	277.12	1,849.8	-7.0	-3.6	7.0	0.31	-0.12	25.68
1,875.0	0.65	274.03	1,874.8	-7.0	-3.8	6.9	0.16	0.08	-12.36
1,900.0	0.60	269.33	1,899.8	-6.9	-4.1	6.9	0.29	-0.20	-18.80
1,925.0	0.62	277.69	1,924.8	-6.9	-4.4	6.9	0.36	0.08	33.44
1,950.0	0.57	279.54	1,949.8	-6.9	-4.6	6.9	0.21	-0.20	7.40
1,975.0	0.62	279.69	1,974.8	-6.9	-4.9	6.8	0.20	0.20	0.60
2,000.0	0.56	284.79	1,999.8	-6.8	-5.1	6.8	0.32	-0.24	20.40
2,025.0	0.57	278.58	2,024.8	-6.7	-5.4	6.7	0.25	0.04	-24.84
2,050.0	0.55	287.10	2,049.8	-6.7	-5.6	6.7	0.34	-0.08	34.08
2,075.0	0.58	284.05	2,074.8	-6.6	-5.8	6.6	0.17	0.12	-12.20
2,100.0	0.51	285.38	2,099.8	-6.6	-6.1	6.5	0.28	-0.28	5.32
2,125.0	0.45	299.49	2,124.8	-6.5	-6.3	6.5	0.53	-0.24	56.44
2,150.0	0.45	294.01	2,149.8	-6.4	-6.4	6.4	0.17	0.00	-21.92
2,175.0	0.46	298.45	2,174.8	-6.3	-6.6	6.3	0.15	0.04	17.76
2,200.0	0.42	303.98	2,199.8	-6.2	-6.8	6.2	0.23	-0.16	22.12
2,225.0	0.40	308.15	2,224.8	-6.1	-6.9	6.1	0.14	-0.08	16.68
2,250.0	0.46	311.67	2,249.8	-6.0	-7.1	5.9	0.26	0.24	14.08
2,275.0	0.50	327.16	2,274.8	-5.8	-7.2	5.8	0.54	0.16	61.96
2,300.0	0.60	335.46	2,299.8	-5.6	-7.3	5.6	0.51	0.40	33.20
2,325.0	0.47	344.72	2,324.8	-5.4	-7.4	5.4	0.62	-0.52	37.04
2,350.0	0.61	349.42	2,349.8	-5.2	-7.5	5.1	0.59	0.56	18.80



Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well TIGERCAT FED COM #2H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Site:	BULLDOG	MD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Well:	TIGERCAT FED COM #2H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)	
2,375.0	0.64	344.07	2,374.8	-4.9	-7.5	4.9	0.26	0.12	-21.40	
2,400.0	0.61	352.16	2,399.8	-4.6	-7.6	4.6	0.37	-0.12	32.36	
2,425.0	0.66	358.17	2,424.8	-4.4	-7.6	4.3	0.33	0.20	24.04	
2,450.0	0.84	3.83	2,449.8	-4.0	-7.6	4.0	0.78	0.72	22.64	
2,475.0	0.89	6.09	2,474.8	-3.7	-7.6	3.6	0.24	0.20	9.04	
2,500.0	0.95	5.00	2,499.8	-3.3	-7.5	3.2	0.25	0.24	-4.36	
2,525.0	0.93	5.77	2,524.8	-2.9	-7.5	2.8	0.09	-0.08	3.08	
2,550.0	0.96	7.02	2,549.8	-2.4	-7.4	2.4	0.15	0.12	5.00	
2,575.0	1.19	9.20	2,574.8	-2.0	-7.4	1.9	0.93	0.92	8.72	
2,600.0	1.21	9.73	2,599.8	-1.5	-7.3	1.4	0.09	0.08	2.12	
2,625.0	1.25	9.93	2,624.8	-0.9	-7.2	0.9	0.16	0.16	0.80	
2,650.0	1.37	16.89	2,649.8	-0.4	-7.1	0.3	0.80	0.48	27.84	
2,675.0	1.40	22.64	2,674.8	0.2	-6.8	-0.2	0.57	0.12	23.00	
2,700.0	1.53	22.79	2,699.8	0.8	-6.6	-0.8	0.52	0.52	0.60	
2,725.0	1.72	25.07	2,724.8	1.4	-6.3	-1.5	0.80	0.76	9.12	
2,750.0	1.82	28.35	2,749.7	2.1	-6.0	-2.1	0.57	0.40	13.12	
2,775.0	1.91	31.38	2,774.7	2.8	-5.6	-2.9	0.53	0.36	12.12	
2,800.0	2.10	33.55	2,799.7	3.6	-5.1	-3.6	0.82	0.76	8.68	
2,825.0	2.21	39.05	2,824.7	4.3	-4.5	-4.3	0.94	0.44	22.00	
2,850.0	2.53	37.62	2,849.7	5.1	-3.9	-5.1	1.30	1.28	-5.72	
2,875.0	2.48	39.86	2,874.7	6.0	-3.2	-6.0	0.44	-0.20	8.96	
2,900.0	2.37	41.11	2,899.6	6.8	-2.5	-6.8	0.49	-0.44	5.00	
2,925.0	2.48	40.43	2,924.6	7.6	-1.8	-7.6	0.45	0.44	-2.72	
2,950.0	2.42	43.44	2,949.6	8.4	-1.1	-8.4	0.57	-0.24	12.04	
2,975.0	2.28	44.12	2,974.6	9.1	-0.4	-9.1	0.57	-0.56	2.72	
3,000.0	2.16	45.04	2,999.5	9.8	0.3	-9.8	0.50	-0.48	3.68	
3,025.0	2.08	51.83	3,024.5	10.4	1.0	-10.4	1.05	-0.32	27.16	
3,050.0	2.07	50.17	3,049.5	11.0	1.7	-11.0	0.24	-0.04	-6.64	
3,075.0	2.05	51.83	3,074.5	11.6	2.4	-11.5	0.25	-0.08	6.64	
3,100.0	1.99	52.14	3,099.5	12.1	3.1	-12.1	0.24	-0.24	1.24	
3,125.0	1.44	48.37	3,124.5	12.6	3.6	-12.6	2.24	-2.20	-15.08	
3,150.0	1.15	44.32	3,149.5	13.0	4.0	-12.9	1.22	-1.16	-16.20	
3,175.0	0.95	35.23	3,174.5	13.3	4.3	-13.3	1.04	-0.80	-36.36	
3,200.0	1.00	41.46	3,199.5	13.6	4.6	-13.6	0.47	0.20	24.92	
3,225.0	0.96	46.54	3,224.5	14.0	4.9	-13.9	0.38	-0.16	20.32	
3,250.0	0.96	42.28	3,249.4	14.2	5.2	-14.2	0.29	0.00	-17.04	
3,275.0	1.04	49.91	3,274.4	14.6	5.5	-14.5	0.62	0.32	30.52	
3,300.0	1.21	53.90	3,299.4	14.9	5.9	-14.8	0.75	0.68	15.96	
3,325.0	1.29	56.59	3,324.4	15.2	6.3	-15.1	0.40	0.32	10.76	
3,350.0	1.44	52.85	3,349.4	15.5	6.8	-15.5	0.70	0.60	-14.96	
3,375.0	1.49	58.37	3,374.4	15.9	7.4	-15.8	0.60	0.20	22.08	
3,400.0	1.23	72.81	3,399.4	16.1	7.9	-16.1	1.71	-1.04	57.76	

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well TIGERCAT FED COM #2H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Site:	BULLDOG	MD Reference:	RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
Well:	TIGERCAT FED COM #2H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)	
3,425.0	1.18	87.40	3,424.4	16.2	8.4	-16.2	1.24	-0.20	58.36	
3,450.0	1.23	104.91	3,449.4	16.2	8.9	-16.1	1.48	0.20	70.04	
3,475.0	1.21	108.10	3,474.4	16.0	9.4	-15.9	0.28	-0.08	12.76	
3,500.0	1.41	114.96	3,499.4	15.8	10.0	-15.7	1.02	0.80	27.44	
3,525.0	1.64	114.71	3,524.4	15.5	10.6	-15.4	0.92	0.92	-1.00	
3,550.0	1.74	114.36	3,549.4	15.2	11.2	-15.1	0.40	0.40	-1.40	
3,575.0	2.06	114.23	3,574.4	14.9	12.0	-14.8	1.28	1.28	-0.52	
3,600.0	2.28	114.98	3,599.3	14.5	12.8	-14.4	0.89	0.88	3.00	
3,625.0	2.28	111.60	3,624.3	14.1	13.8	-14.0	0.54	0.00	-13.52	
3,650.0	2.35	114.28	3,649.3	13.7	14.7	-13.6	0.52	0.28	10.72	
3,675.0	2.23	110.59	3,674.3	13.3	15.6	-13.2	0.76	-0.48	-14.76	
3,700.0	2.02	100.42	3,699.3	13.0	16.5	-13.0	1.72	-0.84	-40.68	
3,725.0	1.64	87.78	3,724.2	13.0	17.3	-12.9	2.21	-1.52	-50.56	
3,750.0	1.61	69.00	3,749.2	13.1	18.0	-13.0	2.12	-0.12	-75.12	
3,775.0	1.68	48.59	3,774.2	13.5	18.6	-13.4	2.35	0.28	-81.64	
3,800.0	1.90	36.24	3,799.2	14.1	19.1	-14.0	1.77	0.88	-49.40	
3,825.0	1.96	34.71	3,824.2	14.8	19.6	-14.6	0.32	0.24	-6.12	
3,850.0	2.04	38.13	3,849.2	15.5	20.1	-15.3	0.57	0.32	13.68	
3,875.0	2.01	37.77	3,874.2	16.1	20.6	-16.0	0.13	-0.12	-1.44	
3,900.0	2.13	43.46	3,899.2	16.8	21.2	-16.7	0.95	0.48	22.76	
3,925.0	1.98	40.55	3,924.1	17.5	21.8	-17.4	0.73	-0.60	-11.64	
3,950.0	1.68	44.26	3,949.1	18.1	22.4	-18.0	1.29	-1.20	14.84	
3,975.0	0.67	25.14	3,974.1	18.5	22.7	-18.4	4.28	-4.04	-76.48	
4,000.0	0.60	257.06	3,999.1	18.6	22.6	-18.5	4.57	-0.28	-512.32	
4,025.0	1.14	236.62	4,024.1	18.4	22.3	-18.3	2.46	2.16	-81.76	
4,050.0	1.40	236.28	4,049.1	18.1	21.8	-18.0	1.04	1.04	-1.36	
4,075.0	1.53	227.35	4,074.1	17.7	21.3	-17.6	1.05	0.52	-35.72	
4,100.0	1.92	219.47	4,099.1	17.2	20.8	-17.0	1.82	1.56	-31.52	
4,125.0	2.18	210.71	4,124.1	16.4	20.3	-16.3	1.63	1.04	-35.04	
4,150.0	2.32	206.26	4,149.1	15.6	19.8	-15.5	0.90	0.56	-17.80	
4,175.0	2.43	203.47	4,174.0	14.6	19.4	-14.5	0.64	0.44	-11.16	
4,200.0	2.55	198.16	4,199.0	13.6	19.0	-13.5	1.04	0.48	-21.24	
4,225.0	2.43	196.62	4,224.0	12.6	18.7	-12.5	0.55	-0.48	-6.16	
4,250.0	2.12	191.11	4,249.0	11.6	18.5	-11.5	1.52	-1.24	-22.04	
4,275.0	1.74	178.76	4,274.0	10.8	18.4	-10.7	2.25	-1.52	-49.40	
4,300.0	1.53	165.02	4,298.9	10.1	18.5	-10.0	1.77	-0.84	-54.96	
4,325.0	1.50	151.18	4,323.9	9.5	18.7	-9.4	1.46	-0.12	-55.36	
4,350.0	1.49	137.67	4,348.9	9.0	19.1	-8.8	1.41	-0.04	-54.04	
4,375.0	1.72	130.20	4,373.9	8.5	19.6	-8.4	1.24	0.92	-29.88	
4,400.0	2.10	126.45	4,398.9	8.0	20.3	-7.8	1.60	1.52	-15.00	
4,425.0	2.27	120.70	4,423.9	7.4	21.0	-7.3	1.11	0.68	-23.00	
4,450.0	2.58	117.45	4,448.9	6.9	22.0	-6.8	1.36	1.24	-13.00	



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
4,475.0	2.72	119.08	4,473.8	6.4	23.0	-6.2	0.64	0.56	6.52
4,500.0	2.81	119.62	4,498.8	5.8	24.0	-5.6	0.37	0.36	2.16
4,525.0	2.79	120.27	4,523.8	5.2	25.1	-5.0	0.15	-0.08	2.60
4,550.0	2.71	125.21	4,548.7	4.5	26.1	-4.4	1.00	-0.32	19.76
4,575.0	2.61	130.55	4,573.7	3.8	27.0	-3.7	1.07	-0.40	21.36
4,600.0	2.34	140.99	4,598.7	3.0	27.8	-2.9	2.10	-1.08	41.76
4,625.0	2.22	164.27	4,623.7	2.2	28.2	-2.0	3.71	-0.48	93.12
4,650.0	2.21	181.11	4,648.7	1.2	28.3	-1.1	2.59	-0.04	67.36
4,675.0	2.31	191.84	4,673.6	0.3	28.2	-0.1	1.74	0.40	42.92
4,700.0	2.48	195.62	4,698.6	-0.8	28.0	0.9	0.93	0.68	15.12
4,725.0	2.31	197.72	4,723.6	-1.8	27.7	1.9	0.77	-0.68	8.40
4,750.0	2.35	198.02	4,748.6	-2.7	27.4	2.9	0.17	0.16	1.20
4,775.0	2.38	195.71	4,773.6	-3.7	27.1	3.9	0.40	0.12	-9.24
4,800.0	2.22	198.19	4,798.5	-4.7	26.8	4.8	0.75	-0.64	9.92
4,825.0	2.34	196.79	4,823.5	-5.6	26.5	5.8	0.53	0.48	-5.60
4,850.0	2.26	197.09	4,848.5	-6.6	26.2	6.7	0.32	-0.32	1.20
4,875.0	2.20	198.28	4,873.5	-7.5	25.9	7.7	0.30	-0.24	4.76
4,900.0	2.09	200.25	4,898.5	-8.4	25.6	8.5	0.53	-0.44	7.88
4,925.0	2.16	198.23	4,923.4	-9.3	25.3	9.4	0.41	0.28	-8.08
4,950.0	2.15	195.31	4,948.4	-10.2	25.0	10.3	0.44	-0.04	-11.68
4,975.0	2.34	198.93	4,973.4	-11.1	24.7	11.2	0.95	0.76	14.48
5,000.0	2.16	199.09	4,998.4	-12.0	24.4	12.2	0.72	-0.72	0.64
5,025.0	2.20	197.77	5,023.4	-12.9	24.1	13.1	0.26	0.16	-5.28
5,050.0	2.30	200.68	5,048.3	-13.9	23.8	14.0	0.61	0.40	11.64
5,075.0	2.15	200.99	5,073.3	-14.8	23.4	14.9	0.60	-0.60	1.24
5,100.0	2.19	200.55	5,098.3	-15.6	23.1	15.8	0.17	0.16	-1.76
5,125.0	2.04	205.10	5,123.3	-16.5	22.7	16.6	0.90	-0.60	18.20
5,150.0	1.70	208.29	5,148.3	-17.2	22.4	17.4	1.42	-1.36	12.76
5,175.0	1.34	217.41	5,173.3	-17.8	22.0	17.9	1.73	-1.44	36.48
5,200.0	0.92	250.28	5,198.3	-18.1	21.7	18.2	3.02	-1.68	131.48
5,225.0	1.17	301.30	5,223.3	-18.0	21.3	18.1	3.71	1.00	204.08
5,250.0	1.13	308.68	5,248.3	-17.7	20.8	17.9	0.61	-0.16	29.52
5,275.0	1.06	308.34	5,273.3	-17.4	20.5	17.6	0.28	-0.28	-1.36
5,300.0	1.17	311.03	5,298.2	-17.1	20.1	17.2	0.49	0.44	10.76
5,325.0	1.04	319.20	5,323.2	-16.8	19.8	16.9	0.82	-0.52	32.68
5,350.0	1.02	322.31	5,348.2	-16.4	19.5	16.6	0.24	-0.08	12.44
5,375.0	1.12	320.35	5,373.2	-16.1	19.2	16.2	0.43	0.40	-7.84
5,400.0	1.15	317.58	5,398.2	-15.7	18.9	15.8	0.25	0.12	-11.08
5,425.0	1.15	318.43	5,423.2	-15.3	18.5	15.4	0.07	0.00	3.40
5,450.0	1.12	325.19	5,448.2	-14.9	18.2	15.0	0.55	-0.12	27.04
5,475.0	1.02	321.51	5,473.2	-14.6	17.9	14.7	0.49	-0.40	-14.72
5,500.0	1.13	319.61	5,498.2	-14.2	17.6	14.3	0.46	0.44	-7.60



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,525.0	0.99	326.40	5,523.2	-13.8	17.4	13.9	0.75	-0.56	27.16
5,550.0	1.08	317.53	5,548.2	-13.5	17.1	13.6	0.73	0.36	-35.48
5,575.0	1.02	319.88	5,573.2	-13.1	16.8	13.2	0.30	-0.24	9.40
5,600.0	0.98	316.00	5,598.2	-12.8	16.5	12.9	0.31	-0.16	-15.52
5,625.0	0.89	320.07	5,623.2	-12.5	16.2	12.6	0.45	-0.36	16.28
5,650.0	0.88	326.45	5,648.2	-12.2	16.0	12.3	0.40	-0.04	25.52
5,675.0	0.89	318.43	5,673.2	-11.9	15.7	12.0	0.50	0.04	-32.08
5,700.0	0.90	322.88	5,698.2	-11.6	15.5	11.7	0.28	0.04	17.80
5,725.0	0.90	323.86	5,723.2	-11.3	15.3	11.4	0.06	0.00	3.92
5,750.0	0.87	321.13	5,748.2	-11.0	15.0	11.1	0.21	-0.12	-10.92
5,775.0	0.90	325.87	5,773.2	-10.7	14.8	10.7	0.32	0.12	18.96
5,800.0	0.94	319.41	5,798.2	-10.3	14.6	10.4	0.44	0.16	-25.84
5,825.0	0.91	317.15	5,823.2	-10.0	14.3	10.1	0.19	-0.12	-9.04
5,850.0	0.79	323.75	5,848.2	-9.8	14.0	9.8	0.62	-0.48	26.40
5,875.0	0.94	327.23	5,873.2	-9.4	13.8	9.5	0.64	0.60	13.92
5,900.0	0.95	333.50	5,898.2	-9.1	13.6	9.2	0.42	0.04	25.08
5,925.0	0.94	333.52	5,923.2	-8.7	13.4	8.8	0.04	-0.04	0.08
5,950.0	1.07	337.33	5,948.2	-8.3	13.3	8.4	0.58	0.52	15.24
5,975.0	1.08	328.07	5,973.1	-7.9	13.1	8.0	0.70	0.04	-37.04
6,000.0	1.07	325.06	5,998.1	-7.5	12.8	7.6	0.23	-0.04	-12.04
6,025.0	1.10	321.70	6,023.1	-7.1	12.5	7.2	0.28	0.12	-13.44
6,050.0	0.93	325.24	6,048.1	-6.8	12.2	6.9	0.72	-0.68	14.16
6,075.0	1.08	322.37	6,073.1	-6.4	12.0	6.5	0.63	0.60	-11.48
6,100.0	1.04	326.80	6,098.1	-6.1	11.7	6.1	0.36	-0.16	17.72
6,125.0	1.10	324.30	6,123.1	-5.7	11.5	5.7	0.30	0.24	-10.00
6,150.0	1.09	322.71	6,148.1	-5.3	11.2	5.3	0.13	-0.04	-6.36
6,175.0	1.09	323.04	6,173.1	-4.9	10.9	5.0	0.03	0.00	1.32
6,200.0	1.07	327.10	6,198.1	-4.5	10.6	4.6	0.32	-0.08	16.24
6,225.0	1.07	322.35	6,223.1	-4.1	10.3	4.2	0.35	0.00	-19.00
6,250.0	0.96	315.53	6,248.1	-3.8	10.1	3.9	0.65	-0.44	-27.28
6,275.0	0.99	322.07	6,273.1	-3.5	9.8	3.5	0.46	0.12	26.16
6,300.0	0.85	323.06	6,298.1	-3.2	9.5	3.2	0.56	-0.56	3.96
6,325.0	0.90	326.93	6,323.1	-2.9	9.3	2.9	0.31	0.20	15.48
6,350.0	0.93	328.83	6,348.1	-2.5	9.1	2.6	0.17	0.12	7.60
6,375.0	1.01	323.27	6,373.1	-2.2	8.9	2.2	0.49	0.32	-22.24
6,400.0	0.88	327.75	6,398.1	-1.8	8.6	1.9	0.60	-0.52	17.92
6,425.0	1.00	324.97	6,423.1	-1.5	8.4	1.5	0.51	0.48	-11.12
6,450.0	0.87	322.27	6,448.1	-1.2	8.2	1.2	0.55	-0.52	-10.80
6,475.0	0.96	325.59	6,473.1	-0.8	7.9	0.9	0.42	0.36	13.28
6,500.0	0.83	321.82	6,498.1	-0.5	7.7	0.6	0.57	-0.52	-15.08
6,525.0	0.90	331.09	6,523.1	-0.2	7.5	0.2	0.62	0.28	37.08
6,550.0	0.93	323.45	6,548.1	0.1	7.3	-0.1	0.50	0.12	-30.56

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM

Site: BULLDOG

Well: TIGERCAT FED COM #2H

Wellbore: OWB

Design: ACTUAL WELLPATH

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well TIGERCAT FED COM #2H

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

EDM_Users

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)
6,575.0	0.88	329.31	6,573.1	0.5	7.1	-0.4	0.42	-0.20	23.44
6,600.0	0.88	335.25	6,598.1	0.8	6.9	-0.8	0.36	0.00	23.76
6,625.0	0.85	331.42	6,623.1	1.1	6.7	-1.1	0.26	-0.12	-15.32
6,650.0	0.78	340.50	6,648.0	1.5	6.6	-1.4	0.59	-0.28	36.32
6,675.0	0.95	321.02	6,673.0	1.8	6.4	-1.7	1.35	0.68	-77.92
6,700.0	0.96	312.32	6,698.0	2.1	6.1	-2.0	0.58	0.04	-34.80
6,725.0	0.78	328.60	6,723.0	2.4	5.8	-2.3	1.22	-0.72	65.12
6,750.0	0.76	319.33	6,748.0	2.6	5.7	-2.6	0.50	-0.08	-37.08
6,775.0	0.68	334.47	6,773.0	2.9	5.5	-2.9	0.82	-0.32	60.56
6,800.0	0.77	331.12	6,798.0	3.2	5.3	-3.2	0.40	0.36	-13.40
6,825.0	0.69	320.03	6,823.0	3.4	5.2	-3.4	0.65	-0.32	-44.36
6,850.0	0.70	327.09	6,848.0	3.7	5.0	-3.7	0.34	0.04	28.24
6,875.0	0.72	322.94	6,873.0	3.9	4.8	-3.9	0.22	0.08	-16.60
6,900.0	0.69	326.52	6,898.0	4.2	4.6	-4.2	0.21	-0.12	14.32
6,925.0	0.63	330.15	6,923.0	4.4	4.5	-4.4	0.29	-0.24	14.52
6,950.0	0.54	321.36	6,948.0	4.6	4.3	-4.6	0.51	-0.36	-35.16
6,975.0	0.57	319.02	6,973.0	4.8	4.2	-4.8	0.15	0.12	-9.36
7,000.0	0.59	313.36	6,998.0	5.0	4.0	-5.0	0.24	0.08	-22.64
7,025.0	0.69	324.13	7,023.0	5.2	3.8	-5.2	0.62	0.40	43.08
7,050.0	0.53	332.00	7,048.0	5.5	3.7	-5.4	0.72	-0.64	31.48
7,075.0	0.66	338.62	7,073.0	5.7	3.6	-5.7	0.59	0.52	26.48
7,100.0	0.85	349.83	7,098.0	6.0	3.5	-6.0	0.96	0.76	44.84
7,125.0	0.66	357.58	7,123.0	6.3	3.4	-6.3	0.86	-0.76	31.00
7,150.0	0.68	2.51	7,148.0	6.6	3.4	-6.6	0.24	0.08	19.72
7,175.0	0.64	358.61	7,173.0	6.9	3.4	-6.9	0.24	-0.16	-15.60
7,200.0	0.68	354.43	7,198.0	7.2	3.4	-7.2	0.25	0.16	-16.72
7,225.0	0.70	7.84	7,223.0	7.5	3.4	-7.5	0.65	0.08	53.64
7,250.0	0.74	359.18	7,248.0	7.8	3.5	-7.8	0.46	0.16	-34.64
7,275.0	0.67	1.59	7,273.0	8.1	3.5	-8.1	0.30	-0.28	9.64
7,300.0	0.73	0.94	7,298.0	8.4	3.5	-8.4	0.24	0.24	-2.60
7,325.0	0.70	358.40	7,323.0	8.7	3.5	-8.7	0.17	-0.12	-10.16
7,350.0	0.69	0.94	7,348.0	9.0	3.5	-9.0	0.13	-0.04	10.16
7,375.0	0.60	353.37	7,373.0	9.3	3.4	-9.3	0.50	-0.36	-30.28
7,400.0	0.51	353.71	7,398.0	9.6	3.4	-9.5	0.36	-0.36	1.36
7,425.0	0.61	7.65	7,423.0	9.8	3.4	-9.8	0.67	0.40	55.76
7,450.0	0.64	347.62	7,448.0	10.1	3.4	-10.0	0.88	0.12	-80.12
7,475.0	0.54	351.13	7,473.0	10.3	3.4	-10.3	0.43	-0.40	14.04
7,500.0	0.52	337.02	7,498.0	10.5	3.3	-10.5	0.53	-0.08	-56.44
7,525.0	0.40	339.56	7,523.0	10.7	3.2	-10.7	0.49	-0.48	10.16
7,550.0	0.36	342.37	7,548.0	10.9	3.2	-10.9	0.18	-0.16	11.24
7,575.0	0.30	331.71	7,573.0	11.0	3.1	-11.0	0.34	-0.24	-42.64
7,600.0	0.25	317.28	7,598.0	11.1	3.0	-11.1	0.34	-0.20	-57.72



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM

Site: BULLDOG

Well: TIGERCAT FED COM #2H

Wellbore: OWB

Design: ACTUAL WELLPATH

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well TIGERCAT FED COM #2H

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

EDM_Users

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)
7,625.0	0.28	340.34	7,623.0	11.2	3.0	-11.2	0.44	0.12	92.24
7,650.0	0.14	279.07	7,648.0	11.3	2.9	-11.3	0.98	-0.56	-245.08
7,675.0	0.18	304.21	7,673.0	11.3	2.9	-11.3	0.32	0.16	100.56
7,700.0	0.31	302.89	7,698.0	11.4	2.8	-11.3	0.52	0.52	-5.28
7,725.0	0.39	276.12	7,723.0	11.4	2.6	-11.4	0.72	0.32	-107.08
7,750.0	0.35	266.10	7,748.0	11.4	2.5	-11.4	0.30	-0.16	-40.08
7,775.0	0.26	286.26	7,773.0	11.4	2.4	-11.4	0.55	-0.36	80.64
7,800.0	0.34	274.19	7,798.0	11.4	2.2	-11.4	0.41	0.32	-48.28
7,825.0	0.35	274.34	7,823.0	11.5	2.1	-11.4	0.04	0.04	0.60
7,850.0	0.22	271.79	7,848.0	11.5	2.0	-11.5	0.52	-0.52	-10.20
7,875.0	0.35	267.28	7,873.0	11.5	1.8	-11.4	0.53	0.52	-18.04
7,900.0	0.43	286.08	7,898.0	11.5	1.7	-11.5	0.60	0.32	75.20
7,925.0	0.50	252.81	7,923.0	11.5	1.5	-11.5	1.10	0.28	-133.08
7,950.0	0.26	275.26	7,948.0	11.4	1.3	-11.4	1.11	-0.96	89.80
7,975.0	0.37	285.99	7,973.0	11.5	1.2	-11.5	0.50	0.44	42.92
8,000.0	0.40	277.90	7,998.0	11.5	1.0	-11.5	0.25	0.12	-32.36
8,025.0	0.19	277.75	8,023.0	11.5	0.9	-11.5	0.84	-0.84	-0.60
8,050.0	0.29	282.19	8,048.0	11.5	0.8	-11.5	0.41	0.40	17.76
8,075.0	0.25	261.99	8,073.0	11.6	0.7	-11.5	0.41	-0.16	-80.80
8,100.0	0.24	256.37	8,098.0	11.5	0.6	-11.5	0.10	-0.04	-22.48
8,125.0	0.24	261.08	8,123.0	11.5	0.5	-11.5	0.08	0.00	18.84
8,150.0	0.25	241.48	8,148.0	11.5	0.4	-11.5	0.34	0.04	-78.40
8,175.0	0.22	255.68	8,173.0	11.4	0.3	-11.4	0.26	-0.12	56.80
8,200.0	0.29	256.98	8,198.0	11.4	0.2	-11.4	0.28	0.28	5.20
8,225.0	0.28	256.50	8,223.0	11.4	0.0	-11.4	0.04	-0.04	-1.92
8,250.0	0.33	240.87	8,248.0	11.3	-0.1	-11.3	0.39	0.20	-62.52
8,275.0	0.23	238.62	8,273.0	11.3	-0.2	-11.3	0.40	-0.40	-9.00
8,300.0	0.29	248.24	8,298.0	11.2	-0.3	-11.2	0.30	0.24	38.48
8,325.0	0.22	222.29	8,323.0	11.2	-0.4	-11.2	0.53	-0.28	-103.80
8,350.0	0.29	242.34	8,348.0	11.1	-0.5	-11.1	0.45	0.28	80.20
8,375.0	0.38	218.53	8,373.0	11.0	-0.6	-11.0	0.66	0.36	-95.24
8,400.0	0.38	223.26	8,398.0	10.9	-0.7	-10.9	0.13	0.00	18.92
8,425.0	0.21	203.69	8,423.0	10.8	-0.8	-10.8	0.78	-0.68	-78.28
8,450.0	0.31	208.43	8,448.0	10.7	-0.8	-10.7	0.41	0.40	18.96
8,475.0	0.23	214.44	8,473.0	10.6	-0.9	-10.6	0.34	-0.32	24.04
8,500.0	0.39	195.65	8,498.0	10.5	-0.9	-10.5	0.75	0.64	-75.16
8,525.0	0.34	207.19	8,523.0	10.3	-1.0	-10.3	0.35	-0.20	46.16
8,550.0	0.34	189.48	8,548.0	10.2	-1.0	-10.2	0.42	0.00	-70.84
8,575.0	0.37	212.79	8,573.0	10.0	-1.1	-10.0	0.59	0.12	93.24
8,600.0	0.36	185.60	8,598.0	9.9	-1.1	-9.9	0.69	-0.04	-108.76
8,625.0	0.45	192.95	8,623.0	9.7	-1.2	-9.7	0.41	0.36	29.40
8,650.0	0.32	204.90	8,648.0	9.5	-1.2	-9.6	0.61	-0.52	47.80



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
8,675.0	0.37	190.46	8,673.0	9.4	-1.3	-9.4	0.40	0.20	-57.76
8,700.0	0.43	199.22	8,698.0	9.2	-1.3	-9.2	0.34	0.24	35.04
8,725.0	0.37	206.06	8,723.0	9.1	-1.4	-9.1	0.31	-0.24	27.36
8,750.0	0.39	179.88	8,748.0	8.9	-1.4	-8.9	0.69	0.08	-104.72
8,775.0	0.44	191.64	8,773.0	8.7	-1.4	-8.7	0.39	0.20	47.04
8,800.0	0.40	197.92	8,798.0	8.6	-1.5	-8.6	0.24	-0.16	25.12
8,825.0	0.37	196.30	8,823.0	8.4	-1.5	-8.4	0.13	-0.12	-6.48
8,850.0	0.41	182.81	8,848.0	8.2	-1.6	-8.2	0.40	0.16	-53.96
8,875.0	0.44	196.26	8,873.0	8.1	-1.6	-8.1	0.42	0.12	53.80
8,900.0	0.37	199.76	8,898.0	7.9	-1.6	-7.9	0.30	-0.28	14.00
8,925.0	0.35	192.40	8,923.0	7.7	-1.7	-7.7	0.20	-0.08	-29.44
8,950.0	0.40	189.29	8,948.0	7.6	-1.7	-7.6	0.22	0.20	-12.44
8,975.0	0.41	195.68	8,973.0	7.4	-1.8	-7.4	0.18	0.04	25.56
9,000.0	0.48	201.20	8,998.0	7.2	-1.8	-7.2	0.33	0.28	22.08
9,025.0	0.34	187.76	9,023.0	7.0	-1.9	-7.1	0.68	-0.56	-53.76
9,050.0	0.26	206.74	9,048.0	6.9	-1.9	-6.9	0.51	-0.32	75.92
9,075.0	0.37	222.32	9,073.0	6.8	-2.0	-6.8	0.55	0.44	62.32
9,100.0	0.28	222.88	9,098.0	6.7	-2.1	-6.7	0.36	-0.36	2.24
9,125.0	0.23	226.23	9,123.0	6.6	-2.2	-6.6	0.21	-0.20	13.40
9,150.0	0.34	248.94	9,148.0	6.6	-2.3	-6.6	0.62	0.44	90.84
9,175.0	0.29	260.33	9,173.0	6.5	-2.4	-6.5	0.32	-0.20	45.56
9,200.0	0.28	289.14	9,198.0	6.5	-2.5	-6.6	0.57	-0.04	115.24
9,225.0	0.35	299.50	9,223.0	6.6	-2.6	-6.6	0.36	0.28	41.44
9,250.0	0.28	282.99	9,248.0	6.6	-2.8	-6.7	0.46	-0.28	-66.04
9,275.0	0.37	270.49	9,273.0	6.7	-2.9	-6.7	0.46	0.36	-50.00
9,300.0	0.33	289.77	9,298.0	6.7	-3.0	-6.7	0.49	-0.16	77.12
9,325.0	0.46	283.87	9,323.0	6.7	-3.2	-6.8	0.54	0.52	-23.60
9,350.0	0.45	288.89	9,348.0	6.8	-3.4	-6.8	0.16	-0.04	20.08
9,375.0	0.49	287.93	9,373.0	6.9	-3.6	-6.9	0.16	0.16	-3.84
9,400.0	0.57	293.36	9,398.0	6.9	-3.8	-7.0	0.38	0.32	21.72
9,425.0	0.57	284.60	9,423.0	7.0	-4.0	-7.0	0.35	0.00	-35.04
9,450.0	0.52	281.68	9,448.0	7.1	-4.3	-7.1	0.23	-0.20	-11.68
9,475.0	0.27	280.61	9,473.0	7.1	-4.4	-7.1	1.00	-1.00	-4.28
9,500.0	0.08	274.82	9,498.0	7.1	-4.5	-7.1	0.76	-0.76	-23.16
9,525.0	0.13	124.34	9,523.0	7.1	-4.5	-7.1	0.81	0.20	-601.92
9,550.0	0.24	103.77	9,548.0	7.1	-4.4	-7.1	0.51	0.44	-82.28
9,575.0	0.35	127.07	9,573.0	7.0	-4.3	-7.0	0.64	0.44	93.20
9,600.0	0.44	129.99	9,598.0	6.9	-4.2	-6.9	0.37	0.36	11.68
9,625.0	0.54	123.62	9,622.9	6.8	-4.0	-6.8	0.45	0.40	-25.48
9,650.0	0.63	150.23	9,647.9	6.6	-3.9	-6.6	1.13	0.36	106.44
9,670.0	0.54	146.52	9,667.9	6.4	-3.8	-6.4	0.49	-0.45	-18.55
9,700.0	0.74	157.26	9,697.9	6.1	-3.6	-6.1	0.77	0.67	35.80



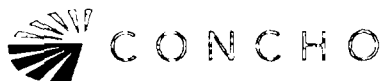
Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
9,731.0	0.81	170.75	9,728.9	5.7	-3.5	-5.7	0.63	0.23	43.52
9,794.0	1.34	176.92	9,791.9	4.6	-3.4	-4.6	0.86	0.84	9.79
9,825.0	5.29	180.56	9,822.9	2.8	-3.4	-2.8	12.75	12.74	11.74
9,856.0	9.66	189.17	9,853.6	-1.2	-3.8	1.2	14.51	14.10	27.77
9,918.0	15.52	179.70	9,914.1	-14.7	-4.6	14.7	9.99	9.45	-15.27
9,965.0	19.63	174.22	9,958.9	-28.8	-3.8	28.8	9.42	8.74	-11.66
10,012.0	26.42	178.23	10,002.1	-47.2	-2.6	47.1	14.82	14.45	8.53
10,059.0	31.89	181.43	10,043.2	-70.0	-2.6	70.0	12.10	11.64	6.81
10,105.0	35.21	183.63	10,081.5	-95.4	-3.8	95.4	7.69	7.22	4.78
10,168.0	40.21	181.34	10,131.3	-133.9	-5.4	133.9	8.24	7.94	-3.63
10,199.0	43.03	178.35	10,154.5	-154.5	-5.3	154.5	11.12	9.10	-9.65
10,246.0	48.32	179.74	10,187.3	-188.1	-4.8	188.1	11.45	11.26	2.96
10,293.0	53.17	183.26	10,217.1	-224.5	-5.8	224.4	11.83	10.32	7.49
10,324.0	56.96	183.75	10,234.8	-249.8	-7.3	249.8	12.29	12.23	1.58
10,386.0	66.23	183.22	10,264.3	-304.2	-10.6	304.1	14.97	14.95	-0.85
10,433.0	73.48	181.93	10,280.4	-348.2	-12.6	348.2	15.64	15.43	-2.74
10,480.0	81.19	179.48	10,290.7	-394.1	-13.1	394.0	17.17	16.40	-5.21
10,508.0	85.90	178.30	10,293.9	-421.9	-12.6	421.8	17.33	16.82	-4.21
10,602.0	89.40	177.77	10,297.7	-515.7	-9.4	515.7	3.77	3.72	-0.56
10,696.0	88.87	177.06	10,299.2	-609.6	-5.1	609.6	0.94	-0.56	-0.76
10,790.0	90.07	177.89	10,300.0	-703.5	-1.0	703.5	1.55	1.28	0.88
10,884.0	89.45	177.48	10,300.4	-797.4	2.8	797.4	0.79	-0.66	-0.44
10,978.0	89.65	177.62	10,301.2	-891.3	6.8	891.4	0.26	0.21	0.15
11,071.0	88.31	177.26	10,302.8	-984.2	11.0	984.3	1.49	-1.44	-0.39
11,165.0	88.67	177.77	10,305.3	-1,078.1	15.0	1,078.2	0.66	0.38	0.54
11,258.0	88.47	178.25	10,307.6	-1,171.0	18.3	1,171.1	0.56	-0.22	0.52
11,352.0	88.75	178.55	10,309.9	-1,265.0	20.9	1,265.1	0.44	0.30	0.32
11,446.0	89.90	177.85	10,311.0	-1,358.9	23.8	1,359.0	1.43	1.22	-0.74
11,540.0	90.35	179.80	10,310.8	-1,452.9	25.8	1,453.0	2.13	0.48	2.07
11,633.0	90.99	180.13	10,309.7	-1,545.9	25.8	1,546.0	0.77	0.69	0.35
11,727.0	88.28	179.07	10,310.3	-1,639.9	26.5	1,640.0	3.10	-2.88	-1.13
11,821.0	90.63	179.38	10,311.2	-1,733.8	27.8	1,734.0	2.52	2.50	0.33
11,914.0	91.61	180.22	10,309.4	-1,826.8	28.1	1,827.0	1.39	1.05	0.90
12,008.0	91.75	180.38	10,306.6	-1,920.8	27.6	1,920.9	0.23	0.15	0.17
12,102.0	90.63	180.72	10,304.7	-2,014.8	26.7	2,014.9	1.25	-1.19	0.36
12,196.0	90.74	180.18	10,303.6	-2,108.7	25.9	2,108.9	0.59	0.12	-0.57
12,291.0	89.85	179.50	10,303.1	-2,203.7	26.2	2,203.9	1.18	-0.94	-0.72
12,385.0	88.53	178.78	10,304.4	-2,297.7	27.6	2,297.8	1.60	-1.40	-0.77
12,478.0	88.92	180.02	10,306.5	-2,390.7	28.6	2,390.8	1.40	0.42	1.33
12,572.0	90.85	181.29	10,306.7	-2,484.7	27.5	2,484.8	2.46	2.05	1.35
12,665.0	90.49	181.42	10,305.6	-2,577.6	25.3	2,577.8	0.41	-0.39	0.14
12,759.0	88.67	181.21	10,306.3	-2,671.6	23.2	2,671.7	1.95	-1.94	-0.22



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM

Site: BULLDOG

Well: TIGERCAT FED COM #2H

Wellbore: OWB

Design: ACTUAL WELLPATH

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well TIGERCAT FED COM #2H

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

EDM_Users

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)
12,852.0	89.85	181.76	10,307.5	-2,764.6	20.8	2,764.6	1.40	1.27	0.59
12,945.0	89.87	181.61	10,307.7	-2,857.5	18.0	2,857.6	0.16	0.02	-0.16
13,039.0	90.43	181.51	10,307.4	-2,951.5	15.5	2,951.5	0.61	0.60	-0.11
13,132.0	90.69	182.76	10,306.5	-3,044.4	12.0	3,044.4	1.37	0.28	1.34
13,226.0	88.44	181.81	10,307.2	-3,138.3	8.2	3,138.3	2.60	-2.39	-1.01
13,319.0	89.79	182.92	10,308.7	-3,231.3	4.4	3,231.2	1.88	1.45	1.19
13,413.0	89.03	180.67	10,309.6	-3,325.2	1.5	3,325.1	2.53	-0.81	-2.39
13,508.0	91.30	183.11	10,309.4	-3,420.1	-1.7	3,420.1	3.51	2.39	2.57
13,602.0	89.68	181.20	10,308.6	-3,514.0	-5.2	3,514.0	2.66	-1.72	-2.03
13,695.0	87.52	180.40	10,310.8	-3,607.0	-6.5	3,606.9	2.48	-2.32	-0.86
13,789.0	87.32	179.97	10,315.1	-3,700.9	-6.8	3,700.8	0.50	-0.21	-0.46
13,882.0	87.24	180.31	10,319.5	-3,793.8	-7.0	3,793.7	0.38	-0.09	0.37
13,975.0	86.17	180.19	10,324.8	-3,886.6	-7.4	3,886.5	1.16	-1.15	-0.13
14,069.0	87.91	178.91	10,329.7	-3,980.5	-6.7	3,980.4	2.30	1.85	-1.36
14,162.0	88.67	178.83	10,332.5	-4,073.5	-4.9	4,073.4	0.82	0.82	-0.09
14,256.0	91.13	180.23	10,332.6	-4,167.4	-4.1	4,167.3	3.01	2.62	1.49
14,349.0	88.61	180.14	10,332.8	-4,260.4	-4.4	4,260.3	2.71	-2.71	-0.10
14,443.0	88.95	179.69	10,334.8	-4,354.4	-4.3	4,354.3	0.60	0.36	-0.48
14,537.0	90.29	178.14	10,335.5	-4,448.4	-2.5	4,448.3	2.18	1.43	-1.65
14,631.0	88.89	177.59	10,336.1	-4,542.3	1.0	4,542.2	1.60	-1.49	-0.59
14,726.0	89.15	177.06	10,337.8	-4,637.2	5.5	4,637.2	0.62	0.27	-0.56
14,819.0	91.00	176.76	10,337.6	-4,730.1	10.5	4,730.0	2.02	1.99	-0.32
14,913.0	91.47	176.89	10,335.6	-4,823.9	15.7	4,823.9	0.52	0.50	0.14
15,007.0	91.33	176.99	10,333.3	-4,917.7	20.7	4,917.8	0.18	-0.15	0.11
15,100.0	91.30	177.36	10,331.2	-5,010.6	25.3	5,010.7	0.40	-0.03	0.40
15,194.0	89.48	178.22	10,330.5	-5,104.5	28.9	5,104.6	2.14	-1.94	0.91
15,287.0	89.87	178.81	10,331.1	-5,197.5	31.3	5,197.6	0.76	0.42	0.63
15,380.0	89.45	178.86	10,331.6	-5,290.5	33.2	5,290.6	0.45	-0.45	0.05
15,474.0	88.33	178.25	10,333.4	-5,384.4	35.6	5,384.5	1.36	-1.19	-0.65
15,567.0	88.56	178.43	10,336.0	-5,477.3	38.3	5,477.5	0.31	0.25	0.19
15,661.0	87.44	178.75	10,339.2	-5,571.3	40.6	5,571.4	1.24	-1.19	0.34
15,753.0	88.17	178.07	10,342.8	-5,663.1	43.1	5,663.3	1.08	0.79	-0.74
15,847.0	88.92	177.76	10,345.2	-5,757.1	46.5	5,757.2	0.86	0.80	-0.33
15,940.0	90.10	177.23	10,346.0	-5,850.0	50.6	5,850.2	1.39	1.27	-0.57
16,033.0	91.25	176.64	10,344.9	-5,942.8	55.6	5,943.0	1.39	1.24	-0.63
16,126.0	89.59	177.95	10,344.2	-6,035.7	60.0	6,036.0	2.27	-1.78	1.41
16,220.0	88.33	179.95	10,345.9	-6,129.7	61.7	6,129.9	2.51	-1.34	2.13
16,313.0	88.98	179.42	10,348.1	-6,222.6	62.2	6,222.9	0.90	0.70	-0.57
16,407.0	89.29	179.93	10,349.5	-6,316.6	62.7	6,316.9	0.63	0.33	0.54
16,501.0	89.87	180.16	10,350.2	-6,410.6	62.7	6,410.9	0.66	0.62	0.24
16,594.0	87.60	179.88	10,352.2	-6,503.6	62.6	6,503.9	2.46	-2.44	-0.30
16,688.0	89.57	180.20	10,354.5	-6,597.6	62.6	6,597.8	2.12	2.10	0.34



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TIGERCAT FED COM #2H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well TIGERCAT FED COM #2H
TVD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
MD Reference: RKB=27+3322.23 @ 3349.3usft (SCANDRILL FREEDOM)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
16,782.0	92.03	179.89	10,353.2	-6,691.5	62.5	6,691.8	2.64	2.62	-0.33
16,875.0	90.46	182.21	10,351.2	-6,784.5	60.8	6,784.7	3.01	-1.69	2.49
16,969.0	87.44	182.41	10,352.9	-6,878.4	57.0	6,878.6	3.22	-3.21	0.21
17,063.0	87.16	183.03	10,357.4	-6,972.2	52.5	6,972.4	0.72	-0.30	0.66
17,156.0	88.98	182.86	10,360.5	-7,065.0	47.8	7,065.2	1.97	1.96	-0.18
17,249.0	85.53	180.70	10,364.9	-7,157.8	44.9	7,158.0	4.38	-3.71	-2.32
17,343.0	84.85	181.08	10,372.8	-7,251.5	43.4	7,251.6	0.83	-0.72	0.40
17,435.0	86.17	180.40	10,380.0	-7,343.2	42.2	7,343.3	1.61	1.43	-0.74
17,529.0	86.85	180.03	10,385.8	-7,437.0	41.9	7,437.1	0.82	0.72	-0.39
17,622.0	87.83	178.70	10,390.1	-7,529.9	42.9	7,530.0	1.78	1.05	-1.43
17,715.0	88.08	179.05	10,393.4	-7,622.8	44.7	7,623.0	0.46	0.27	0.38
17,809.0	89.12	179.50	10,395.7	-7,716.8	45.9	7,716.9	1.21	1.11	0.48
17,903.0	88.33	179.25	10,397.8	-7,810.8	47.0	7,810.9	0.88	-0.84	-0.27
17,996.0	87.69	179.16	10,401.0	-7,903.7	48.3	7,903.9	0.69	-0.69	-0.10
18,090.0	89.96	179.79	10,402.9	-7,997.7	49.1	7,997.8	2.51	2.41	0.67
18,184.0	90.57	179.63	10,402.5	-8,091.7	49.6	8,091.8	0.67	0.65	-0.17
18,277.0	88.73	180.32	10,403.1	-8,184.7	49.6	8,184.8	2.11	-1.98	0.74
18,370.0	88.28	179.58	10,405.5	-8,277.6	49.7	8,277.8	0.93	-0.48	-0.80
18,463.0	88.08	179.28	10,408.4	-8,370.6	50.6	8,370.7	0.39	-0.22	-0.32
18,556.0	88.95	180.82	10,410.9	-8,463.5	50.6	8,463.7	1.90	0.94	1.66
18,649.0	88.73	180.92	10,412.7	-8,556.5	49.1	8,556.7	0.26	-0.24	0.11
18,743.0	87.80	180.64	10,415.6	-8,650.5	47.9	8,650.6	1.03	-0.99	-0.30
18,835.0	89.87	181.14	10,417.5	-8,742.4	46.4	8,742.6	2.31	2.25	0.54
18,930.0	89.59	181.03	10,417.9	-8,837.4	44.6	8,837.5	0.32	-0.29	-0.12
19,023.0	90.83	181.39	10,417.6	-8,930.4	42.7	8,930.5	1.39	1.33	0.39
19,117.0	90.85	180.12	10,416.2	-9,024.4	41.4	9,024.5	1.35	0.02	-1.35
19,210.0	91.58	179.89	10,414.2	-9,117.3	41.4	9,117.4	0.82	0.78	-0.25
19,303.0	90.83	179.38	10,412.3	-9,210.3	42.0	9,210.4	0.98	-0.81	-0.55
19,396.0	90.85	177.80	10,410.9	-9,303.3	44.3	9,303.4	1.70	0.02	-1.70
19,489.0	90.88	177.56	10,409.5	-9,396.2	48.1	9,396.3	0.26	0.03	-0.26
19,583.0	91.47	177.86	10,407.6	-9,490.1	51.8	9,490.2	0.70	0.63	0.32
19,676.0	89.65	179.36	10,406.7	-9,583.1	54.1	9,583.2	2.54	-1.96	1.61
19,876.0	89.65	179.36	10,407.9	-9,783.0	56.3	9,783.2	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	19,775	22	5	19,550	68	5	19,416	19	5	19,226	32	5	19,055	26	5
	19,753	23	5	19,538	20	5	19,393	26	5	19,213	23	5	19,033	23	5
	19,730	22	4	19,518	14	4	19,367	19	4	19,190	22	4	19,010	22	4
	19,708	23	4	19,504	12	4	19,348	24	4	19,168	23	4	18,988	23	4
	19,685	22	3	19,492	17	3	19,324		3	19,145	22	3	18,965	22	3
	19,663	23	3	19,475	15	3	19,303	23	3	19,123	23	3	18,943	22	3
	19,640	22	3	19,460	25	3	19,280	22	3	19,100	19	3	18,921	23	3
	19,618		3	19,435		3	19,258		3	19,081		3	18,898		3
	Plug to Plug	92	30	Plug to Plug	57	30	Plug to Plug	78	30	Plug to Plug	68	30	Plug to Plug	78	30
	Frac Plug	19,800	Total Shots	Frac Plug	19,561	Total Shots	Frac Plug	19,426	Total Shots	Frac Plug	19,236	Total Shots	Frac Plug	19,066	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	18,869	29	5	18,692	26	5	18,515	22	5	18,328	30	5	18,145	33	5
	18,853	25	5	18,675	25	5	18,493	23	5	18,313	24	5	18,133	23	5
	18,828	20	4	18,650	20	4	18,470	22	4	18,289	21	4	18,110	22	4
	18,808	23	4	18,630	25	4	18,448	23	4	18,268	23	4	18,088	19	4
	18,785	22	3	18,605	26	3	18,425	22	3	18,245	22	3	18,069	25	3
	18,763	23	3	18,579	19	3	18,403	21	3	18,223	23	3	18,044	24	3
	18,740	22	3	18,560	23	3	18,382	24	3	18,200	22	3	18,020	17	3
	18,718		3	18,537		3	18,358		3	18,178		3	18,003		3
	Plug to Plug	78	30	Plug to Plug	72	30	Plug to Plug	78	30	Plug to Plug	72	30	Plug to Plug	69	30
	Frac Plug	18,886	Total Shots	Frac Plug	18,702	Total Shots	Frac Plug	18,526	Total Shots	Frac Plug	18,340	Total Shots	Frac Plug	18,157	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	17,975	28	5	17,795	23	5	17,601	37	5	17,430	28	5	17,255	29	5
	17,952	22	5	17,773	20	5	17,587	17	5	17,413	23	5	17,233	23	5
	17,930	22	4	17,753	25	4	17,570	22	4	17,390	27	4	17,210	22	4
	17,908	23	4	17,728	28	4	17,548	23	4	17,363	18	4	17,188	23	4
	17,885	20	3	17,700	17	3	17,525	22	3	17,345	26	3	17,165	22	3
	17,865	25	3	17,683	25	3	17,503	23	3	17,319	19	3	17,143	23	3
	17,840	22	3	17,658	20	3	17,480	22	3	17,300	16	3	17,120	22	3
	17,818		3	17,638		3	17,458		3	17,284		3	17,098		3
	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	63	30	Plug to Plug	79	30	Plug to Plug	78	30
	Frac Plug	17,986	Total Shots	Frac Plug	17,806	Total Shots	Frac Plug	17,611	Total Shots	Frac Plug	17,442	Total Shots	Frac Plug	17,266	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	17,065	33	5	16,891	27	5	16,704	34	5	16,529	29	5	16,355	28	5
	17,050	20	5	16,873	26	5	16,680	20	5	16,513	23	5	16,331	21	5
	17,030	22	4	16,847	19	4	16,670	22	4	16,490	20	4	16,310	22	4
	17,008	21	4	16,828	23	4	16,648	23	4	16,470	25	4	16,288	23	4
	16,987	24	3	16,805	22	3	16,625	22	3	16,445	18	3	16,265	22	3
	16,963	18	3	16,783	23	3	16,603	23	3	16,427	27	3	16,243	23	3
	16,945	27	3	16,760	22	3	16,580	22	3	16,400	17	3	16,220	22	3
	16,918		3	16,738		3	16,558		3	16,383		3	16,198		3
	Plug to Plug	72	30	Plug to Plug	78	30	Plug to Plug	66	30	Plug to Plug	69	30	Plug to Plug	78	30
	Frac Plug	17,080	Total Shots	Frac Plug	16,906	Total Shots	Frac Plug	16,714	Total Shots	Frac Plug	16,539	Total Shots	Frac Plug	16,366	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	16,175	23	5	15,980	38	5	15,807	31	5	15,625	37	5	15,456	22	5
	16,153	23	5	15,963	23	5	15,790	20	5	15,606	16	5	15,433	19	5
	16,130	22	4	15,940	20	4	15,770	22	4	15,590	22	4	15,414	26	4
	16,108	27	4	15,920	20	4	15,748	23	4	15,568	23	4	15,388	25	4
	16,081	18	3	15,900	20	3	15,725	20	3	15,545	22	3	15,363	20	3
	16,063	26	3	15,880	20	3	15,705	25	3	15,523	23	3	15,343	23	3
	16,037	19	3	15,860	22	3	15,680	18	3	15,500	22	3	15,320	22	3
	16,018		3	15,838		3	15,662		3	15,478		3	15,298		3
	Plug to Plug	78	30	Plug to Plug	70	30	Plug to Plug	70	30	Plug to Plug	68	30	Plug to Plug	78	30
	Frac Plug	16,188	Total Shots	Frac Plug	15,990	Total Shots	Frac Plug	15,818	Total Shots	Frac Plug	15,636	Total Shots	Frac Plug	15,466	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	15,275	23	5	15,095	24	5	14,915	23	5	14,737	21	5	14,544	34	5
	15,253	23	5	15,068	18	5	14,893	23	5	14,713	20	5	14,533	23	5
	15,230	22	4	15,050	24	4	14,870	22	4	14,693	25	4	14,510	22	4
	15,208	23	4	15,026	21	4	14,848	23	4	14,668	25	4	14,488	23	4
	15,185	22	3	15,005	22	3	14,825	22	3	14,643	20	3	14,465	22	3
	15,163	23	3	14,983	23	3	14,803	23	3	14,623	23	3	14,443	23	3
	15,140	21	3	14,960	22	3	14,780	22	3	14,600	22	3	14,420	19	3
	15,119		3	14,938		3	14,758		3	14,578		3	14,401		3
	Plug to Plug	80	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	66	30
	Frac Plug	15,288	Total Shots	Frac Plug	15,104	Total Shots	Frac Plug	14,926	Total Shots	Frac Plug	14,748	Total Shots	Frac Plug	14,554	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	14,375	26	5	14,195	23	5	14,010	28	5	13,827	31	5	13,655	24	5
	14,359	29	5	14,173	23	5	13,993	25	5	13,713	-77	5	13,628	18	5
	14,330	24	4	14,150	22	4	13,968	20	4	13,790	22	4	13,610	23	4
	14,306	21	4	14,128	23	4	13,948	23	4	13,768	23	4	13,587	22	4
	14,285	22	3	14,105	22	3	13,925	22	3	13,745	22	3	13,565	22	3
	14,263	23	3	14,083	20	3	13,903	23	3	13,723	23	3	13,543	23	3
	14,240	22	3	14,063	25	3	13,880	22	3	13,700	21	3	13,520	22	3
	14,218		3	14,038		3	13,858		3	13,679		3	13,498		3
	Plug to Plug	80	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	68	30	Plug to Plug	77	30
	Frac Plug	14,386	Total Shots	Frac Plug	14,206	Total Shots	Frac Plug	14,026	Total Shots	Frac Plug	13,836	Total Shots	Frac Plug	13,664	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	13,475	23	5	13,295	23	5	13,115	23	5	12,935	25	5	12,755	23	5
	13,453	23	5	13,273	27	5	13,093	23	5	12,910	20	5	12,733	23	5
	13,430	22	4	13,246	18	4	13,070	22	4	12,890	25	4	12,710	22	4
	13,408	23	4	13,228	27	4	13,048	23	4	12,865	20	4	12,688	23	4
	13,385	22	3	13,201	18	3	13,025	22	3	12,845	22	3	12,665	22	3
	13,363	22	3	13,183	23	3	13,003	23	3	12,823	23	3	12,643	23	3
	13,341	23	3	13,160	22	3	12,980	20	3	12,800	22	3	12,620	22	3
	13,318		3	13,138		3	12,960		3	12,778		3	12,598		3
	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	81	30	Plug to Plug	78	30
	Frac Plug	13,486	Total Shots	Frac Plug	13,306	Total Shots	Frac Plug	13,126	Total Shots	Frac Plug	12,946	Total Shots	Frac Plug	12,766	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	12,578	20	5	12,395	23	5	12,215	23	5	12,035	23	5	11,852	26	5
	12,553	27	5	12,373	23	5	12,189	19	5	12,013	23	5	11,831	21	5
	12,526	18	4	12,350	22	4	12,170	22	4	11,990	22	4	11,810	22	4
	12,508	28	4	12,328	23	4	12,148	23	4	11,968	21	4	11,788	23	4
	12,480	17	3	12,305	20	3	12,125	22	3	11,947	24	3	11,765	22	3
	12,463	23	3	12,285	25	3	12,103	23	3	11,923	19	3	11,743	23	3
	12,440	22	3	12,260	22	3	12,080	22	3	11,904	26	3	11,720	22	3
	12,418		3	12,238		3	12,058		3	11,878		3	11,698		3
	Plug to Plug	78	30	Plug to Plug	84	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	79	30
	Frac Plug	12,586	Total Shots	Frac Plug	12,412	Total Shots	Frac Plug	12,226	Total Shots	Frac Plug	12,046	Total Shots	Frac Plug	11,867	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	11,667	31	5	11,495	27	5	11,316	22	5	11,135	23	5	10,955	27	5
	11,653	23	5	11,469	19	5	11,293	19	5	11,113	23	5	10,930	20	5
	11,630	22	4	11,450	22	4	11,274	26	4	11,090	22	4	10,910	22	4
	11,608	23	4	11,428	23	4	11,248	27	4	11,068	23	4	10,888	23	4
	11,585	22	3	11,405	22	3	11,221	18	3	11,045	22	3	10,865	23	3
	11,563	23	3	11,383	23	3	11,203	24	3	11,023	23	3	10,842	22	3
	11,540	18	3	11,360	22	3	11,179	21	3	11,000	18	3	10,820	22	3
	11,522		3	11,338		3	11,158		3	10,982		3	10,798		3
	Plug to Plug	68	30	Plug to Plug	78	30	Plug to Plug	78	30	Plug to Plug	82	30	Plug to Plug	78	30
	Frac Plug	11,676	Total Shots	Frac Plug	11,506	Total Shots	Frac Plug	11,326	Total Shots	Frac Plug	11,150	Total Shots	Frac Plug	10,966	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots	Stage 53	Distance Between Perfs	Shots	Stage 54	Distance Between Perfs	Shots	Stage 55	Distance Between Perfs	Shots
	10,775	23	5	10,598	20	5		10438			0			0	
	10,753	23	5	10,573	19	5									
	10,730	22	4	10,554	26	4									
	10,708	23	4	10,528	27	4									
	10,685	22	3	10,501	18	3									
	10,663	22	3	10,483	24	3									
	10,641	23	3	10,459	21	3									
	10,618		3	10,438		3									
	Plug to Plug	78	30	Plug to Plug	81	30	Plug to Plug	0	0	Plug to Plug	0	0	Plug to Plug	0	0
	Frac Plug	10,786	Total Shots	Frac Plug	10,609	Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots	Frac Plug		Total Shots

Tigercat Federal Com #2H

<u>Perfs</u>	<u>7 1/2% Acid (Gal)</u>	<u>Sand (#)</u>	<u>Fluid (Gal)</u>
1	7523	362560	321893
2	4524	360530	351444
3	3024	365340	334068
4	3012	358850	324732
5	3012	363000	324438
6	3024	302600	362964
7	3012	361400	328008
8	3024	361340	347088
9	3024	361140	316932
10	3012	361820	314274
11	3012	358500	319272
12	3024	363500	313236
13	3000	366780	316530
14	2928	361900	313728
15	3024	361600	316680
16	3012	363380	315576
17	3012	363610	315576
18	3096	358530	338172
19	3024	361220	326004
20	3054	367460	312846
21	3012	367000	311250
22	3000	362210	307626
23	3012	364770	306006
24	3012	358400	307512
25	3054	359600	387186
26	3024	363220	321552
27	3066	358220	313908
28	3054	362540	312222
29	3012	365870	306924
30	3024	360390	308868
31	3054	362600	342036
32	3012	361070	306294
33	3138	360720	312384
34	3054	361260	306630
35	3012	360720	304404
36	3012	365110	306168
37	3012	361520	302262
38	3012	361820	301254
39	3012	355040	299616
40	3024	361220	322140
41	3000	360340	295320
42	3000	365720	300914
43	3024	362640	287700
44	3000	360700	276462
45	3000	360860	297504
46	3012	365640	303690
47	3000	360980	306408
48	3012	363900	298398
49	3012	361560	297222
50	3024	362140	297234
51	3012	358500	294786
52	3000	366060	302124
Totals	163,076	18,767,400	16,357,456