

RECEIVED

DISTRICT I

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

DISTRICT II

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

DISTRICT III

1000 Rio Brazos Road, 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) 476-3462State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

DISTRICT IV-ARTESIA O.C.D.

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

AMENDED REPORT

"AS DRILLED"

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-005-64334	Pool Code	Pool Name TWIN LAKE; SAN ANDRES
Property Code	Property Name HELLCAT	Well Number 2H
OGRID No. 328666	Operator Name TAMAROA OPERATING, LLC	Elevation 3938'

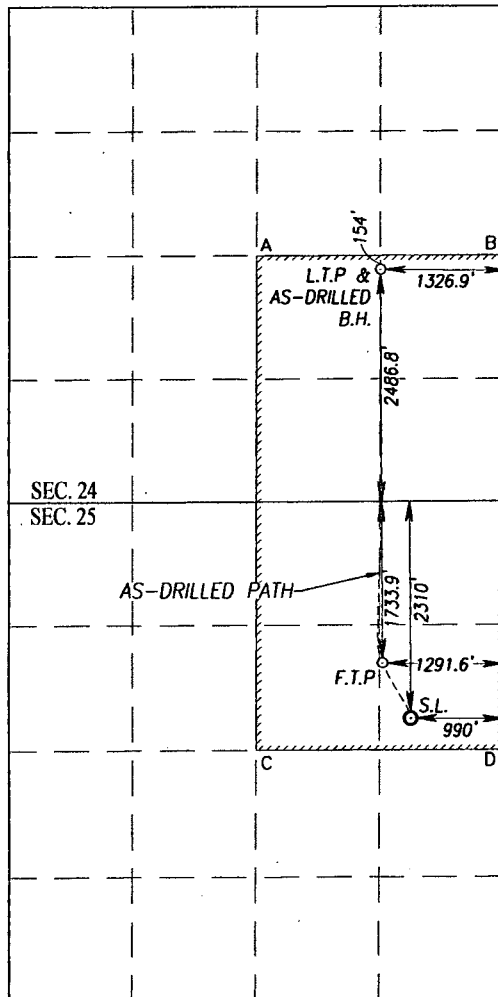
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	25	8-S	28-E		2310	NORTH	990	EAST	CHAVES

As-Drilled 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
I	24	8-S	28-E		2486.8	SOUTH	1326.9	EAST	CHAVES
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



SCALE: 1"=2000'

LAST TAKE POINT & AS-DRILLED BOTTOM HOLE LOCATION NAD 83 NME Y= 947824.1 N X= 631469.8 E LAT.=33.605092° N LONG.=104.037301° W	LAST TAKE POINT & AS-DRILLED BOTTOM HOLE LOCATION NAD 27 NME Y= 947759.5 N X= 590292.2 E LAT.=33.604996° N LONG.=104.036782° W
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CORNER COORDINATES TABLE

NAD 27 NME

A - Y= 947907.3 N, X= 588970.8 E
B - Y= 947919.6 N, X= 591619.4 E
C - Y= 942625.7 N, X= 588957.8 E
D - Y= 942636.8 N, X= 591597.5 E

CORNER COORDINATES TABLE

NAD 83 NME

A - Y= 947971.9 N, X= 630148.4 E
B - Y= 947984.2 N, X= 632797.0 E
C - Y= 942690.4 N, X= 630135.4 E
D - Y= 942701.5 N, X= 632775.1 E

FIRST TAKE POINT
NAD 83 NME
Y= 943604.6 N
X= 631488.1 E
LAT.=33.593495° N
LONG.=104.037280° W

FIRST TAKE POINT
NAD 27 NME
Y= 943539.9 N
X= 590310.5 E
LAT.=33.593399° N
LONG.=104.036762° W

GEODEIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y= 943030.4 N
X= 631786.9 E
LAT.=33.591915° N
LONG.=104.036304° W

GEODEIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y= 942965.8 N
X= 590609.3 E
LAT.=33.591819° N
LONG.=104.035786° W

NOTE: AS-DRILLED BOTTOM HOLE PLOTTED FROM DATA
FURNISHED BY STRYKER DIRECTIONAL ON JULY 16, 2019.

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.

Signature

Date

11/12/2019

Printed Name

Phelps White

E-mail Address

pwiv@zianet.com

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 knowledge.

Date of Survey

Signature & Seal of Professional Surveyor

Ronald J. Eidson 11/11/2019

Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

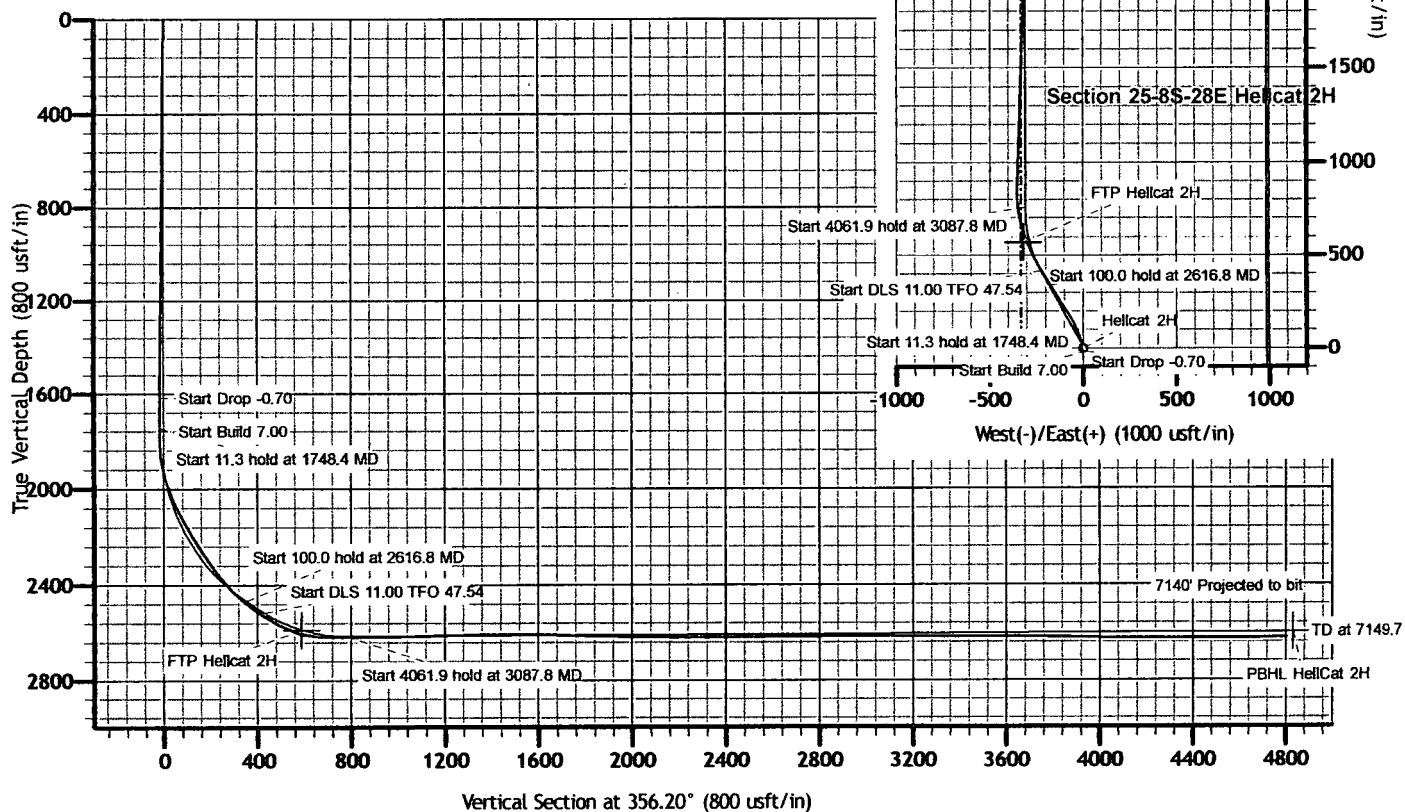
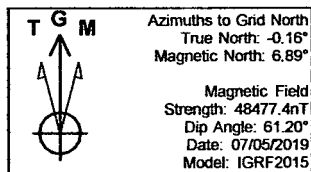
ACK REL. W.O.:19130621 JWSC W.O.: 19.13.1232

RIG: United Drilling Inc #41

GRID CORRECTION: To convert a Magnetic Direction to a Grid Direction, Add 6.89°

GEODETTIC ZONE: New Mexico East 3001										
3943+15 @ 3958.0usft (United Drilling Inc #41)										
GROUND ELEVATION: 3943.0										
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot			
	0.0	0.0	942965.80	590609.30	33° 35' 30.548 N	104° 2' 8.830 W				
PLAN SECTIONS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	1617.0	0.92	130.17	1616.8	-15.4	14.0	0.00	0.00	-16.3	
2	1748.4	0.00	130.17	1748.3	-16.1	14.8	0.70	180.00	-17.0	
3	1759.7	0.00	130.17	1759.5	-16.1	14.8	0.00	130.17	-17.0	
4	2616.8	60.00	331.00	2468.4	341.9	-183.6	7.00	331.00	353.3	
5	2716.8	60.00	331.00	2518.4	417.6	-225.6	0.00	0.00	431.7	
6	3087.8	90.21	359.82	2614.6	758.1	-307.5	11.00	47.54	776.8	
7	7149.7	90.21	359.82	2600.0	4820.0	-320.0	0.00	0.00	4830.6	PBHL HellCat 2H

SHL: 2310 FNL; 990' FWL
Section 25-8S-28E
PBHL: 2486.8' FSL; 1326' FEL
Section 24-8S-28E





TAMAROA
OPERATING LLC

P.O. BOX 866937 PLANO, TX 75086

RECEIVED

NOV 12 2019

DISTRICT 7 - ARTESIA O.C.D.

Tamaroa Operating, LLC.

Chaves County, N.M. (NAD 27)

Section 25-8S-28E Hellcat 2H

Hellcat 2H

Original Hole

Design: Original Hole

Standard Survey Report

16 July, 2019

STRYKER
DIRECTIONAL

Company:	Tamaroa Operating, LLC	Local Co-ordinate Reference:	Well Hellcat 2H
Project:	Chaves County, N.M. (NAD 27)	TVD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

Project	Chaves County, N.M. (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Section 25-8S-28E Hellcat 2H				
Site Position:		Northing:	942,965.80 usft	Latitude:	33° 35' 30.548 N
From:	Map	Easting:	590,609.30 usft	Longitude:	104° 2' 8.830 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.16 °

Well:	Hellcat-2H				
Well Position	+N/-S	0.0 usft	Northing:	942,965.80 usft	Latitude: 33° 35' 30.548 N
	+E/-W	0.0 usft	Easting:	590,609.30 usft	Longitude: 104° 2' 8.830 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	15.0 usft	Ground Level: 3,943.0 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	07/05/19	7.06	61.20	48,477.38400025

Design	Original Hole				
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	356.22	

Survey Program	Date 07/16/19			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
82.0	1,617.0	Gyro Surveys (Original Hole)	SRG-GYRO-MS	surface readout gyro multishot
1,874.0	7,140.0	Stryker Surveys (Original Hole)	MWD+IGRF	OWSG MWD + IGRF or WMM

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	
82.0	0.19	113.96	82.0	-0.1	0.1	-0.1	0.23	0.23	0.00	
173.7	0.21	126.96	173.7	-0.2	0.4	-0.2	0.05	0.02	14.17	
266.2	0.26	108.94	266.2	-0.4	0.7	-0.4	0.10	0.05	-19.49	
358.1	0.50	136.10	358.1	-0.7	1.2	-0.8	0.32	0.26	29.54	
450.4	0.77	149.26	450.4	-1.6	1.8	-1.7	0.33	0.29	14.26	
542.7	1.09	153.97	542.7	-2.9	2.5	-3.0	0.36	0.35	5.10	
635.0	0.87	150.41	634.9	-4.3	3.2	-4.5	0.25	-0.24	-3.86	
727.3	0.74	156.94	727.2	-5.4	3.8	-5.7	0.17	-0.14	7.07	
819.6	0.80	156.27	819.5	-6.6	4.3	-6.9	0.07	0.07	-0.73	

Company:	Tamaroa Operating, LLC	Local Co-ordinate Reference:	Well Hellcat 2H
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Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

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)
914.5	0.69	150.54	914.4	-7.7	4.9	-8.0	0.14	-0.12	-6.04
1,008.0	0.78	150.02	1,007.9	-8.7	5.5	-9.1	0.10	0.10	-0.56
1,102.0	0.94	132.96	1,101.9	-9.8	6.3	-10.2	0.32	0.17	-18.15
1,197.6	1.13	118.56	1,197.5	-10.8	7.7	-11.3	0.34	0.20	-15.06
1,292.0	1.05	124.36	1,291.9	-11.7	9.3	-12.3	0.14	-0.08	6.14
1,386.0	1.05	128.24	1,385.9	-12.7	10.7	-13.4	0.08	0.00	4.13
1,481.0	1.21	125.76	1,480.9	-13.9	12.2	-14.6	0.18	0.17	-2.61
1,575.0	0.89	131.85	1,574.8	-14.9	13.5	-15.8	0.36	-0.34	6.48
1,617.0	0.92	130.17	1,616.8	-15.4	14.0	-16.3	0.10	0.07	-4.00
1,687.0	1.10	223.60	1,686.8	-16.2	14.0	-17.1	2.11	0.26	133.47
1,782.0	2.20	285.40	1,781.8	-16.4	11.6	-17.1	2.04	1.16	65.05
1,873.0	6.70	334.10	1,872.5	-11.2	7.6	-11.6	6.05	4.95	53.52
1,965.0	17.30	340.90	1,962.4	6.6	0.7	6.6	11.60	11.52	7.39
2,058.0	25.40	342.70	2,048.9	38.8	-9.7	39.4	8.74	8.71	1.94
2,150.0	30.50	338.00	2,130.2	79.3	-24.4	80.8	6.03	5.54	-5.11
2,242.0	34.90	336.00	2,207.6	125.0	-43.8	127.7	4.92	4.78	-2.17
2,334.0	38.00	327.50	2,281.6	173.0	-69.8	177.2	6.43	3.37	-9.24
2,426.0	41.50	326.10	2,352.3	222.2	-102.0	228.5	3.93	3.80	-1.52
2,519.0	47.30	328.90	2,418.8	277.1	-136.9	285.5	6.58	6.24	3.01
2,611.0	56.90	329.50	2,475.2	339.4	-174.0	350.1	10.45	10.43	0.65
2,706.0	58.10	327.70	2,526.3	407.8	-215.7	421.1	2.04	1.26	-1.89
2,800.0	65.90	332.90	2,570.4	479.8	-256.7	495.7	9.62	8.30	5.53
2,895.0	73.60	338.00	2,603.3	560.9	-293.6	579.0	9.54	8.11	5.37
2,910.2	75.94	338.77	2,607.3	574.5	-299.0	593.0	16.16	15.39	5.09
FTP Hellcat 2H									
2,989.0	88.10	342.60	2,618.2	648.0	-324.7	668.0	16.16	15.43	4.85
3,084.0	90.70	352.30	2,619.2	740.6	-345.3	761.8	10.57	2.74	10.21
3,178.0	90.20	359.40	2,618.4	834.3	-352.1	855.7	7.57	-0.53	7.55
3,276.0	91.10	1.90	2,617.3	932.3	-351.0	953.4	2.71	0.92	2.55
3,368.0	91.50	1.60	2,615.2	1,024.2	-348.2	1,045.0	0.54	0.43	-0.33
3,462.0	91.60	1.20	2,612.7	1,118.2	-345.9	1,138.5	0.44	0.11	-0.43
3,557.0	90.80	2.60	2,610.7	1,213.1	-342.7	1,233.1	1.70	-0.84	1.47
3,651.0	90.70	2.30	2,609.5	1,307.0	-338.7	1,326.5	0.34	-0.11	-0.32
3,746.0	90.90	2.20	2,608.1	1,401.9	-335.0	1,421.0	0.24	0.21	-0.11
3,840.0	89.50	2.60	2,607.8	1,495.8	-331.1	1,514.4	1.55	-1.49	0.43
3,935.0	89.80	2.60	2,608.4	1,590.7	-326.7	1,608.8	0.32	0.32	0.00
4,029.0	88.30	2.80	2,610.0	1,684.6	-322.3	1,702.2	1.61	-1.60	0.21
4,124.0	88.00	2.40	2,613.0	1,779.4	-318.0	1,796.6	0.53	-0.32	-0.42
4,218.0	88.60	1.10	2,615.8	1,873.4	-315.1	1,890.1	1.52	0.64	-1.38
4,313.0	88.30	1.10	2,618.4	1,968.3	-313.3	1,984.7	0.32	-0.32	0.00
4,408.0	89.80	1.00	2,620.0	2,063.3	-311.6	2,079.3	1.58	1.58	-0.11
4,501.0	89.60	0.60	2,620.4	2,156.3	-310.3	2,172.0	0.48	-0.22	-0.43
4,598.0	89.70	0.70	2,621.0	2,253.3	-309.2	2,268.8	0.15	0.10	0.10

Company:	Tamaroa Operating, LLC.	Local Co-ordinate Reference:	Well Hellcat 2H
Project:	Chaves County N.M. (NAD 27)	TVD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

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)
4,692.0	89.50	0.40	2,621.7	2,347.3	-308.3	2,362.5	0.38	-0.21	-0.32
4,787.0	91.30	359.90	2,621.0	2,442.2	-308.0	2,457.2	1.97	1.89	-0.53
4,882.0	91.20	359.80	2,619.0	2,537.2	-308.3	2,552.0	0.15	-0.11	-0.11
4,976.0	90.60	359.20	2,617.5	2,631.2	-309.1	2,645.9	0.90	-0.64	-0.64
5,071.0	90.40	359.50	2,616.7	2,726.2	-310.2	2,740.7	0.38	-0.21	0.32
5,166.0	90.20	0.00	2,616.2	2,821.2	-310.6	2,835.5	0.57	-0.21	0.53
5,260.0	90.50	0.70	2,615.6	2,915.2	-310.0	2,929.3	0.81	0.32	0.74
5,355.0	89.70	359.60	2,615.4	3,010.2	-309.8	3,024.1	1.43	-0.84	-1.16
5,450.0	89.50	359.60	2,616.1	3,105.2	-310.4	3,118.9	0.21	-0.21	0.00
5,544.0	90.00	359.90	2,616.5	3,199.2	-310.8	3,212.7	0.62	0.53	0.32
5,639.0	89.10	358.80	2,617.2	3,294.2	-311.9	3,307.6	1.50	-0.95	-1.16
5,702.0	89.50	359.20	2,618.0	3,357.2	-313.0	3,370.5	0.90	0.63	0.63
5,765.0	89.80	359.50	2,618.4	3,420.1	-313.7	3,433.4	0.67	0.48	0.48
5,828.0	90.00	359.70	2,618.5	3,483.1	-314.2	3,496.3	0.45	0.32	0.32
5,891.0	90.30	0.00	2,618.3	3,546.1	-314.3	3,559.2	0.67	0.48	0.48
5,954.0	90.90	0.40	2,617.7	3,609.1	-314.1	3,622.0	1.14	0.95	0.63
6,017.0	89.50	0.00	2,617.5	3,672.1	-313.9	3,684.8	2.31	-2.22	-0.63
6,080.0	89.80	0.30	2,617.8	3,735.1	-313.7	3,747.7	0.67	0.48	0.48
6,143.0	88.30	359.60	2,618.9	3,798.1	-313.8	3,810.6	2.63	-2.38	-1.11
6,207.0	87.50	359.30	2,621.2	3,862.1	-314.4	3,874.4	1.33	-1.25	-0.47
6,269.0	88.60	359.70	2,623.3	3,924.0	-314.9	3,936.3	1.89	1.77	0.65
6,332.0	89.70	0.00	2,624.3	3,987.0	-315.1	3,999.1	1.81	1.75	0.48
6,395.0	89.30	0.20	2,624.8	4,050.0	-315.0	4,062.0	0.71	-0.63	0.32
6,459.0	89.50	0.00	2,625.5	4,114.0	-314.9	4,125.8	0.44	0.31	-0.31
6,521.0	89.80	0.00	2,625.9	4,176.0	-314.9	4,187.7	0.48	0.48	0.00
6,584.0	89.90	0.10	2,626.0	4,239.0	-314.8	4,250.6	0.22	0.16	0.16
6,647.0	89.60	359.80	2,626.3	4,302.0	-314.9	4,313.4	0.67	-0.48	-0.48
6,710.0	89.60	0.00	2,626.8	4,365.0	-315.0	4,376.3	0.32	0.00	0.32
6,773.0	89.90	359.80	2,627.0	4,428.0	-315.1	4,439.2	0.57	0.48	-0.32
6,837.0	90.60	0.40	2,626.7	4,492.0	-315.0	4,503.0	1.44	1.09	0.94
6,899.0	90.30	359.90	2,626.3	4,554.0	-314.8	4,564.9	0.94	-0.48	-0.81
6,963.0	90.50	359.90	2,625.8	4,618.0	-314.9	4,628.7	0.31	0.31	0.00
7,026.0	90.50	359.20	2,625.3	4,681.0	-315.4	4,691.6	1.11	0.00	-1.11
7,078.0	90.70	359.10	2,624.7	4,733.0	-316.2	4,743.6	0.43	0.38	-0.19
7,140.0	90.70	359.10	2,624.0	4,795.0	-317.2	4,805.5	0.00	0.00	0.00
PBHL HellCat 2H									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,140.0	2,624.0	4,795.0	-317.2	7140' Projected to bit



TAMAROA
OPERATING LLC

P.O. BOX 866937 PLANO, TX 75086

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Tamaroa Operating, LLC.

Chaves County, N.M. (NAD 27)

Section 25-8S-28E Hellcat 2H

Hellcat 2H

Original Hole

Design: Original Hole

Survey Report - Geographic

16 July, 2019



Company:	Tamaroa Operating, LLC.	Local Co-ordinate Reference:	Well Hellcat 2H
Project:	Chaves County,N.M. (NAD 27)	TVD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

Project	Chaves County,N.M. (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Section 25-8S-28E Hellcat 2H		
Site Position:		Northing:	942,965.80 usft
From:	Map	Easting:	590,609.30 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	33° 35' 30.548 N
		Longitude:	104° 2' 8.830 W
		Grid Convergence:	0.16 °

Well	Hellcat 2H		
Well Position	+N/-S	0.0 usft	Northing: 942,965.80 usft
	+E/-W	0.0 usft	Easting: 590,609.30 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	15.0 usft
		Latitude:	33° 35' 30.548 N
		Longitude:	104° 2' 8.830 W
		Ground Level:	3,943.0 usft

Wellbore	Original Hole		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	07/05/19	7.06	61.20	48,477.38400025

Design	Original Hole		
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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	356.22

Survey Program		Date	07/16/19	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
82.0	1,617.0	Gyro Surveys (Original Hole)	SRG-GYRO-MS	surface readout gyro multishot
1,674.0	7,140.0	Stryker Surveys (Original Hole)	MWD+IGRF	OWSG MWD + IGRF or WMM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	942,965.80	590,609.30	33° 35' 30.548 N	104° 2' 8.830 W
82.0	0.19	113.96	82.0	-0.1	0.1	942,965.75	590,609.43	33° 35' 30.548 N	104° 2' 8.829 W
173.7	0.21	126.96	173.7	-0.2	0.4	942,965.58	590,609.70	33° 35' 30.546 N	104° 2' 8.825 W
266.2	0.26	108.94	266.2	-0.4	0.7	942,965.41	590,610.03	33° 35' 30.544 N	104° 2' 8.821 W
358.1	0.50	136.10	358.1	-0.7	1.2	942,965.06	590,610.51	33° 35' 30.541 N	104° 2' 8.816 W
450.4	0.77	149.26	450.4	-1.6	1.8	942,964.23	590,611.11	33° 35' 30.533 N	104° 2' 8.809 W
542.7	1.09	153.97	542.7	-2.9	2.5	942,962.91	590,611.81	33° 35' 30.520 N	104° 2' 8.801 W
635.0	0.87	150.41	634.9	-4.3	3.2	942,961.51	590,612.54	33° 35' 30.506 N	104° 2' 8.792 W
727.3	0.74	156.94	727.2	-5.4	3.8	942,960.36	590,613.12	33° 35' 30.494 N	104° 2' 8.785 W
819.6	0.80	156.27	819.5	-6.6	4.3	942,959.22	590,613.61	33° 35' 30.483 N	104° 2' 8.779 W
914.5	0.69	150.54	914.4	-7.7	4.9	942,958.11	590,614.16	33° 35' 30.472 N	104° 2' 8.773 W

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Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,008.0	0.78	150.02	1,007.9	-8.7	5.5	942,957.07	590,614.75	33° 35' 30.462 N	104° 2' 8.766 W
1,102.0	0.94	132.96	1,101.9	-9.8	6.3	942,955.99	590,615.64	33° 35' 30.451 N	104° 2' 8.756 W
1,197.6	1.13	118.56	1,197.5	-10.8	7.7	942,955.01	590,617.04	33° 35' 30.441 N	104° 2' 8.739 W
1,292.0	1.05	124.36	1,291.9	-11.7	9.3	942,954.07	590,618.57	33° 35' 30.432 N	104° 2' 8.721 W
1,386.0	1.05	128.24	1,385.9	-12.7	10.7	942,953.05	590,619.96	33° 35' 30.422 N	104° 2' 8.705 W
1,481.0	1.21	125.76	1,480.9	-13.9	12.2	942,951.93	590,621.46	33° 35' 30.411 N	104° 2' 8.687 W
1,575.0	0.89	131.85	1,574.8	-14.9	13.5	942,950.86	590,622.81	33° 35' 30.400 N	104° 2' 8.671 W
1,617.0	0.92	130.17	1,616.8	-15.4	14.0	942,950.43	590,623.31	33° 35' 30.396 N	104° 2' 8.665 W
1,687.0	1.10	223.60	1,686.8	-16.2	14.0	942,949.58	590,623.27	33° 35' 30.387 N	104° 2' 8.665 W
1,782.0	2.20	285.40	1,781.8	-16.4	11.6	942,949.40	590,620.89	33° 35' 30.386 N	104° 2' 8.694 W
1,873.0	6.70	334.10	1,872.5	-11.2	7.6	942,954.65	590,616.88	33° 35' 30.438 N	104° 2' 8.741 W
1,965.0	17.30	340.90	1,962.4	6.6	0.7	942,972.45	590,610.04	33° 35' 30.614 N	104° 2' 8.821 W
2,058.0	25.40	342.70	2,048.9	38.8	-9.7	943,004.61	590,599.57	33° 35' 30.933 N	104° 2' 8.944 W
2,150.0	30.50	338.00	2,130.2	79.3	-24.4	943,045.13	590,584.94	33° 35' 31.334 N	104° 2' 9.115 W
2,242.0	34.90	336.00	2,207.6	125.0	-43.8	943,090.85	590,565.48	33° 35' 31.787 N	104° 2' 9.344 W
2,334.0	38.00	327.50	2,281.6	173.0	-69.8	943,138.82	590,539.54	33° 35' 32.262 N	104° 2' 9.649 W
2,426.0	41.50	326.10	2,352.3	222.2	-102.0	943,188.02	590,507.31	33° 35' 32.750 N	104° 2' 10.028 W
2,519.0	47.30	328.90	2,418.8	277.1	-136.9	943,242.91	590,472.44	33° 35' 33.294 N	104° 2' 10.439 W
2,611.0	56.90	329.50	2,475.2	339.4	-174.0	943,305.20	590,435.33	33° 35' 33.911 N	104° 2' 10.875 W
2,706.0	58.10	327.70	2,526.3	407.8	-215.7	943,373.58	590,393.58	33° 35' 34.589 N	104° 2' 11.366 W
2,800.0	65.90	332.90	2,570.4	479.8	-256.7	943,445.65	590,352.63	33° 35' 35.303 N	104° 2' 11.848 W
2,895.0	73.60	338.00	2,603.3	560.9	-293.6	943,526.67	590,315.73	33° 35' 36.106 N	104° 2' 12.282 W
2,910.2	75.94	338.77	2,607.3	574.5	-299.0	943,540.30	590,310.33	33° 35' 36.241 N	104° 2' 12.345 W
FTP Hellcat 2H									
2,989.0	88.10	342.60	2,618.2	648.0	-324.7	943,613.81	590,284.61	33° 35' 36.969 N	104° 2' 12.647 W
3,084.0	90.70	352.30	2,619.2	740.6	-345.3	943,706.41	590,264.00	33° 35' 37.886 N	104° 2' 12.887 W
3,178.0	90.20	359.40	2,618.4	834.3	-352.1	943,800.11	590,257.20	33° 35' 38.813 N	104° 2' 12.964 W
3,276.0	91.10	1.90	2,617.3	932.3	-351.0	943,898.08	590,258.31	33° 35' 39.782 N	104° 2' 12.948 W
3,368.0	91.50	1.60	2,615.2	1,024.2	-348.2	943,990.02	590,261.12	33° 35' 40.692 N	104° 2' 12.912 W
3,462.0	91.60	1.20	2,612.7	1,118.2	-345.9	944,083.95	590,263.42	33° 35' 41.621 N	104° 2' 12.881 W
3,557.0	90.80	2.60	2,610.7	1,213.1	-342.7	944,178.88	590,266.57	33° 35' 42.560 N	104° 2' 12.841 W
3,651.0	90.70	2.30	2,609.5	1,307.0	-338.7	944,272.78	590,270.59	33° 35' 43.489 N	104° 2' 12.790 W
3,746.0	90.90	2.20	2,608.1	1,401.9	-335.0	944,367.70	590,274.31	33° 35' 44.428 N	104° 2' 12.743 W
3,840.0	89.50	2.60	2,607.8	1,495.8	-331.1	944,461.62	590,278.25	33° 35' 45.357 N	104° 2' 12.693 W
3,935.0	89.80	2.60	2,608.4	1,590.7	-326.7	944,556.52	590,282.56	33° 35' 46.296 N	104° 2' 12.639 W
4,029.0	88.30	2.80	2,610.0	1,684.6	-322.3	944,650.40	590,286.99	33° 35' 47.225 N	104° 2' 12.583 W
4,124.0	88.00	2.40	2,613.0	1,779.4	-318.0	944,745.25	590,291.29	33° 35' 48.163 N	104° 2' 12.529 W
4,218.0	88.60	1.10	2,615.8	1,873.4	-315.1	944,839.16	590,294.16	33° 35' 49.092 N	104° 2' 12.492 W
4,313.0	88.30	1.10	2,618.4	1,968.3	-313.3	944,934.11	590,295.99	33° 35' 50.032 N	104° 2' 12.467 W
4,408.0	89.80	1.00	2,620.0	2,063.3	-311.6	945,029.08	590,297.73	33° 35' 50.971 N	104° 2' 12.444 W
4,501.0	89.60	0.60	2,620.4	2,156.3	-310.3	945,122.07	590,299.03	33° 35' 51.891 N	104° 2' 12.425 W
4,598.0	89.70	0.70	2,621.0	2,253.3	-309.2	945,219.06	590,300.13	33° 35' 52.851 N	104° 2' 12.409 W
4,692.0	89.50	0.40	2,621.7	2,347.3	-308.3	945,313.05	590,301.03	33° 35' 53.781 N	104° 2' 12.395 W
4,787.0	91.30	359.90	2,621.0	2,442.2	-308.0	945,408.04	590,301.28	33° 35' 54.721 N	104° 2' 12.389 W
4,882.0	91.20	359.80	2,619.0	2,537.2	-308.3	945,503.02	590,301.03	33° 35' 55.660 N	104° 2' 12.388 W
4,976.0	90.60	359.20	2,617.5	2,631.2	-309.1	945,597.01	590,300.21	33° 35' 56.590 N	104° 2' 12.395 W
5,071.0	90.40	359.50	2,616.7	2,726.2	-310.2	945,692.00	590,299.13	33° 35' 57.530 N	104° 2' 12.405 W
5,166.0	90.20	0.00	2,616.2	2,821.2	-310.6	945,786.99	590,298.72	33° 35' 58.470 N	104° 2' 12.406 W
5,260.0	90.50	0.70	2,615.6	2,915.2	-310.0	945,880.99	590,299.29	33° 35' 59.400 N	104° 2' 12.396 W
5,355.0	89.70	359.60	2,615.4	3,010.2	-309.8	945,975.99	590,299.54	33° 36' 0.340 N	104° 2' 12.390 W
5,450.0	89.50	359.60	2,616.1	3,105.2	-310.4	946,070.98	590,298.88	33° 36' 1.280 N	104° 2' 12.395 W
5,544.0	90.00	359.90	2,616.5	3,199.2	-310.8	946,164.98	590,298.47	33° 36' 2.210 N	104° 2' 12.396 W
5,639.0	89.10	358.80	2,617.2	3,294.2	-311.9	946,259.97	590,297.39	33° 36' 3.150 N	104° 2' 12.406 W
5,702.0	89.50	359.20	2,618.0	3,357.2	-313.0	946,322.95	590,296.29	33° 36' 3.773 N	104° 2' 12.417 W
5,765.0	89.80	359.50	2,618.4	3,420.1	-313.7	946,385.95	590,295.57	33° 36' 4.396 N	104° 2' 12.423 W

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Site:	Section 25-8S-28E Hellcat 2H	MD Reference:	3943+15 @ 3958.0usft (United Drilling Inc #41)
Well:	Hellcat 2H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	EDM 5000.15 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,828.0	90.00	359.70	2,618.5	3,483.1	-314.2	946,448.95	590,295.13	33° 36' 5.020 N	104° 2' 12.426 W
5,891.0	90.30	0.00	2,618.3	3,546.1	-314.3	946,511.95	590,294.97	33° 36' 5.643 N	104° 2' 12.426 W
5,954.0	90.90	0.40	2,617.7	3,609.1	-314.1	946,574.94	590,295.19	33° 36' 6.266 N	104° 2' 12.421 W
6,017.0	89.50	0.00	2,617.5	3,672.1	-313.9	946,637.94	590,295.41	33° 36' 6.889 N	104° 2' 12.417 W
6,080.0	89.80	0.30	2,617.8	3,735.1	-313.7	946,700.94	590,295.57	33° 36' 7.513 N	104° 2' 12.412 W
6,143.0	88.30	359.60	2,618.9	3,798.1	-313.8	946,763.93	590,295.52	33° 36' 8.136 N	104° 2' 12.411 W
6,207.0	87.50	359.30	2,621.2	3,862.1	-314.4	946,827.88	590,294.91	33° 36' 8.769 N	104° 2' 12.416 W
6,269.0	88.60	359.70	2,623.3	3,924.0	-314.9	946,889.84	590,294.36	33° 36' 9.382 N	104° 2' 12.420 W
6,332.0	89.70	0.00	2,624.3	3,987.0	-315.1	946,952.83	590,294.20	33° 36' 10.005 N	104° 2' 12.420 W
6,395.0	89.30	0.20	2,624.8	4,050.0	-315.0	947,015.83	590,294.31	33° 36' 10.628 N	104° 2' 12.417 W
6,459.0	89.50	0.00	2,625.5	4,114.0	-314.9	947,079.83	590,294.42	33° 36' 11.262 N	104° 2' 12.413 W
6,521.0	89.80	0.00	2,625.9	4,176.0	-314.9	947,141.82	590,294.42	33° 36' 11.875 N	104° 2' 12.411 W
6,584.0	89.90	0.10	2,626.0	4,239.0	-314.8	947,204.82	590,294.48	33° 36' 12.498 N	104° 2' 12.408 W
6,647.0	89.60	359.80	2,626.3	4,302.0	-314.9	947,267.82	590,294.42	33° 36' 13.122 N	104° 2' 12.407 W
6,710.0	89.60	0.00	2,626.8	4,365.0	-315.0	947,330.82	590,294.31	33° 36' 13.745 N	104° 2' 12.406 W
6,773.0	89.90	359.80	2,627.0	4,428.0	-315.1	947,393.82	590,294.20	33° 36' 14.368 N	104° 2' 12.405 W
6,837.0	90.60	0.40	2,626.7	4,492.0	-315.0	947,457.82	590,294.31	33° 36' 15.001 N	104° 2' 12.402 W
6,899.0	90.30	359.90	2,626.3	4,554.0	-314.8	947,519.82	590,294.48	33° 36' 15.615 N	104° 2' 12.398 W
6,963.0	90.50	359.90	2,625.8	4,618.0	-314.9	947,583.82	590,294.36	33° 36' 16.248 N	104° 2' 12.397 W
7,026.0	90.50	359.20	2,625.3	4,681.0	-315.4	947,646.81	590,293.87	33° 36' 16.871 N	104° 2' 12.401 W
7,078.0	90.70	359.10	2,624.7	4,733.0	-316.2	947,698.80	590,293.10	33° 36' 17.386 N	104° 2' 12.408 W
7,140.0 ✓	90.70	359.10	2,624.0	4,795.0	-317.2	947,760.79	590,292.12	33° 36' 17.999 N	104° 2' 12.417 W
PBHL HellCat 2H									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
+N/-S (usft)	+E/-W (usft)			
7,140.0	2,624.0	4,795.0	-317.2	7140' Projected to bit

Checked By: _____ Approved By: _____ Date: _____