



**PHOENIX
TECHNOLOGY SERVICES**

November 18, 2014

Merit Energy Company
Attention: Regulatory Department
13727 Noel Rd., Suite 1200
Dallas, TX 75240

Re: Merit Energy
Tait A-4
Finney County, KS
API #15-055-22349-01-00
Job No. 1411490

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the survey certification, surveys, and lease plat for the above referenced well with the State of Kansas Oil Conservation Division – District 1 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Eric Neel	A-4	1,757	5,409	10/24/14	10/27/14	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Dana Robinson

Dana Robinson
Operations Administrator

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER **1411490**

OPERATOR **Merit Energy**

WELL NAME **Tait A-4**

COUNTY & STATE **Finney, KS**

API WELL NUMBER **15-055-22349-01-00**

PROPOSED DIRECTION **105.2**

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
1625.99	1,625.96 ft	.7 ft	23.47	4.19	-0.24	Scientific Gyro

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
24-Oct-14	1,757 ft	0.8	24.9

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
27-Oct-14	5,409 ft	6.9	100.1

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
27-Oct-14	5,489 ft	6.9	100.1

Eric Neel

PRINT YOUR NAME ABOVE

Eric Neel

SIGN YOUR NAME ABOVE

10/27/2014

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	6.1
DECLINATION OR GRID	DECLINATION

MWD SUPERVISOR 1

Eric Neel

DIRECTIONAL DRILLER 1

Brandon Coatney

MWD SUPERVISOR 2

Charles Murphey

DIRECTIONAL DRILLER 2

0



MERIT ENERGY COMPANY

Merit Energy

Finney County, Kansas (NAD 27)

Tait

A-4

Wellbore #1 Job #1411490

Survey: Phoenix MWD Surveys

Standard Survey Report

28 October, 2014



PHOENIX
TECHNOLOGY SERVICES



Phoenix Technology Services

Survey Report



Company: Merit Energy	Local Co-ordinate Reference: Well A-4	
Project: Finney County, Kansas (NAD 27)	TVD Reference: WELL @ 2912.00usft (Saxon 146)	
Site: Tait	MD Reference: WELL @ 2912.00usft (Saxon 146)	
Well: A-4	North Reference: Grid	
Wellbore: Wellbore #1 Job #1411490	Survey Calculation Method: Minimum Curvature	
Design: Surveys (Saxon 146)	Database: Compass 5000 GCR epdm	

Project Finney County, Kansas (NAD 27)	System Datum: Mean Sea Level	
Map System: US State Plane 1927 (Exact solution)		
Geo Datum: NAD 1927 (NADCON CONUS)		
Map Zone: Kansas South 1502		

Site Tait					
Site Position:		Northing: 458,867.49 usft	Latitude: 37° 54' 6.04977 N		
From: Map		Easting: 1,297,206.70 usft	Longitude: 100° 56' 9.57390 W		
Position Uncertainty: 0.00 usft		Slot Radius: 13-3/16 "	Grid Convergence: -1.50 °		

Well A-4					
Well Position	+N/-S 0.00 usft	Northing: 458,867.49 usft	Latitude: 37° 54' 6.04977 N		
	+E/-W 0.00 usft	Easting: 1,297,206.70 usft	Longitude: 100° 56' 9.57390 W		
Position Uncertainty 0.00 usft		Wellhead Elevation: 0.00 usft	Ground Level: 2,897.00 usft		

Wellbore Wellbore #1 Job #1411490					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	10/16/14	6.10	65.46	51,816

Design Surveys (Saxon 146)					
Audit Notes:					
Version: 1.0	Phase: ACTUAL		Tie On Depth: 0.00		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	105.20	

Survey Program Date 10/28/14					
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.00	1,625.99	Scientific Gyros (Wellbore #1 Job #141149)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,757.00	5,489.00	Phoenix MWD Surveys (Wellbore #1 Job #	PHX+MWD+IGRF	PHX+MWD+IGRF v3:standard declination	

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)
1,625.99	0.70	23.47	1,625.96	4.19	-0.24	-1.33	0.00	0.00	0.00
Tie-in to Scientific Gyros									
1,757.00	0.80	24.90	1,756.96	5.75	0.46	-1.06	0.08	0.08	1.09
First Phoenix Survey									
1,800.00	0.70	64.70	1,799.96	6.13	0.82	-0.81	1.21	-0.23	92.56
1,843.00	1.70	119.00	1,842.95	5.94	1.62	0.01	3.28	2.33	126.28
1,887.00	2.80	117.40	1,886.91	5.13	3.14	1.69	2.50	2.50	-3.64
1,930.00	4.00	115.70	1,929.84	3.99	5.43	4.19	2.80	2.79	-3.95
1,973.00	5.50	113.20	1,972.69	2.53	8.67	7.71	3.52	3.49	-5.81



Phoenix Technology Services

Survey Report



Company: Merit Energy	Local Co-ordinate Reference: Well A-4
Project: Finney County, Kansas (NAD 27)	TVD Reference: WELL @ 2912.00usft (Saxon 146)
Site: Tait	MD Reference: WELL @ 2912.00usft (Saxon 146)
Well: A-4	North Reference: Grid
Wellbore: Wellbore #1 Job #1411490	Survey Calculation Method: Minimum Curvature
Design: Surveys (Saxon 146)	Database: Compass 5000 GCR epdm

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)
2,016.00	7.70	114.80	2,015.40	0.51	13.18	12.59	5.13	5.12	3.72
2,059.00	9.00	112.20	2,057.95	-1.97	18.91	18.77	3.15	3.02	-6.05
2,102.00	9.20	113.90	2,100.40	-4.63	25.17	25.50	0.78	0.47	3.95
2,145.00	9.20	111.70	2,142.85	-7.30	31.51	32.32	0.82	0.00	-5.12
2,189.00	9.50	107.90	2,186.27	-9.71	38.23	39.44	1.56	0.68	-8.64
2,232.00	9.40	108.00	2,228.68	-11.89	44.95	46.49	0.24	-0.23	0.23
2,275.00	9.20	119.00	2,271.12	-14.64	51.29	53.34	4.15	-0.47	25.58
2,318.00	9.00	117.90	2,313.58	-17.88	57.27	59.96	0.62	-0.47	-2.56
2,362.00	8.60	118.20	2,357.06	-21.05	63.21	66.52	0.92	-0.91	0.68
2,405.00	8.20	116.00	2,399.60	-23.91	68.80	72.66	1.19	-0.93	-5.12
2,448.00	7.80	116.10	2,442.18	-26.54	74.18	78.54	0.93	-0.93	0.23
2,491.00	7.70	115.70	2,484.79	-29.07	79.39	84.24	0.26	-0.23	-0.93
2,534.00	8.40	120.20	2,527.37	-31.90	84.71	90.11	2.19	1.63	10.47
2,577.00	8.70	121.20	2,569.89	-35.16	90.20	96.27	0.78	0.70	2.33
2,621.00	10.50	117.20	2,613.27	-38.72	96.61	103.39	4.36	4.09	-9.09
2,664.00	10.80	115.50	2,655.53	-42.25	103.74	111.18	1.01	0.70	-3.95
2,707.00	10.50	116.00	2,697.79	-45.70	110.89	119.00	0.73	-0.70	1.16
2,750.00	10.60	114.20	2,740.06	-49.04	118.02	126.75	0.80	0.23	-4.19
2,793.00	10.50	114.00	2,782.34	-52.25	125.21	134.53	0.25	-0.23	-0.47
2,836.00	10.20	115.10	2,824.64	-55.46	132.24	142.15	0.84	-0.70	2.56
2,880.00	9.90	114.60	2,867.96	-58.69	139.20	149.72	0.71	-0.68	-1.14
2,923.00	9.60	113.60	2,910.34	-61.66	145.85	156.91	0.80	-0.70	-2.33
2,966.00	9.60	114.10	2,952.74	-64.56	152.41	164.00	0.19	0.00	1.16
3,009.00	9.60	113.10	2,995.14	-67.43	158.98	171.10	0.39	0.00	-2.33
3,052.00	10.60	113.50	3,037.47	-70.42	165.90	178.56	2.33	2.33	0.93
3,096.00	10.20	112.40	3,080.75	-73.51	173.22	186.43	1.01	-0.91	-2.50
3,139.00	9.40	111.90	3,123.12	-76.28	180.00	193.70	1.87	-1.86	-1.16
3,182.00	9.50	112.60	3,165.53	-78.95	186.53	200.70	0.35	0.23	1.63
3,225.00	10.50	111.00	3,207.88	-81.72	193.46	208.12	2.41	2.33	-3.72
3,268.00	9.90	110.40	3,250.20	-84.41	200.59	215.70	1.42	-1.40	-1.40
3,312.00	9.60	109.50	3,293.57	-86.95	207.59	223.13	0.76	-0.68	-2.05
3,355.00	9.30	110.00	3,335.98	-89.34	214.24	230.16	0.72	-0.70	1.16
3,398.00	9.10	108.90	3,378.43	-91.63	220.72	237.02	0.62	-0.47	-2.56
3,441.00	10.00	103.50	3,420.83	-93.60	227.57	244.14	2.95	2.09	-12.56
3,484.00	10.50	95.70	3,463.15	-94.86	235.09	251.74	3.43	1.16	-18.14
3,528.00	9.90	95.70	3,506.45	-95.63	242.85	259.43	1.36	-1.36	0.00
3,571.00	9.40	97.80	3,548.84	-96.48	250.00	266.55	1.42	-1.16	4.88
3,614.00	9.10	96.70	3,591.29	-97.35	256.86	273.40	0.81	-0.70	-2.56
3,657.00	10.10	97.30	3,633.68	-98.23	263.98	280.50	2.34	2.33	1.40
3,700.00	10.50	95.60	3,675.99	-99.09	271.62	288.10	1.17	0.93	-3.95
3,744.00	11.50	99.20	3,719.18	-100.18	279.94	296.41	2.76	2.27	8.18
3,787.00	11.40	100.20	3,761.33	-101.62	288.35	304.91	0.52	-0.23	2.33
3,830.00	11.20	99.00	3,803.49	-103.03	296.66	313.29	0.72	-0.47	-2.79



Phoenix Technology Services

Survey Report



Company: Merit Energy
Project: Finney County, Kansas (NAD 27)
Site: Tait
Well: A-4
Wellbore: Wellbore #1 Job #1411490
Design: Surveys (Saxon 146)

Local Co-ordinate Reference: Well A-4
TVD Reference: WELL @ 2912.00usft (Saxon 146)
MD Reference: WELL @ 2912.00usft (Saxon 146)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass 5000 GCR epdm

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)
3,873.00	11.40	99.60	3,845.66	-104.39	304.97	321.67	0.54	0.47	1.40
3,916.00	11.40	97.40	3,887.81	-105.64	313.38	330.11	1.01	0.00	-5.12
3,960.00	10.90	102.40	3,930.98	-107.10	321.75	338.58	2.47	-1.14	11.36
4,003.00	11.10	107.60	3,973.19	-109.22	329.67	346.77	2.35	0.47	12.09
4,046.00	11.00	112.20	4,015.40	-112.02	337.41	354.98	2.06	-0.23	10.70
4,089.00	10.60	112.70	4,057.63	-115.10	344.86	362.97	0.96	-0.93	1.16
4,133.00	10.10	112.60	4,100.92	-118.14	352.16	370.81	1.14	-1.14	-0.23
4,176.00	9.80	112.70	4,143.27	-121.00	359.01	378.18	0.70	-0.70	0.23
4,219.00	9.90	110.90	4,185.64	-123.74	365.84	385.49	0.75	0.23	-4.19
4,262.00	10.60	104.70	4,227.95	-126.06	373.12	393.12	3.04	1.63	-14.42
4,305.00	10.60	102.80	4,270.22	-127.94	380.80	401.03	0.81	0.00	-4.42
4,349.00	10.80	103.60	4,313.45	-129.80	388.76	409.19	0.57	0.45	1.82
4,392.00	10.70	102.10	4,355.70	-131.59	396.58	417.20	0.69	-0.23	-3.49
4,435.00	10.40	101.60	4,397.97	-133.21	404.28	425.06	0.73	-0.70	-1.16
4,478.00	10.20	103.50	4,440.28	-134.87	411.78	432.74	0.92	-0.47	4.42
4,521.00	9.70	102.90	4,482.63	-136.57	419.02	440.17	1.19	-1.16	-1.40
4,565.00	9.40	103.00	4,526.02	-138.21	426.13	447.46	0.68	-0.68	0.23
4,608.00	9.80	99.40	4,568.42	-139.60	433.16	454.61	1.68	0.93	-8.37
4,651.00	9.30	99.10	4,610.82	-140.74	440.20	461.71	1.17	-1.16	-0.70
4,694.00	8.60	97.10	4,653.30	-141.69	446.83	468.34	1.78	-1.63	-4.65
4,738.00	9.40	96.50	4,696.76	-142.50	453.66	475.15	1.83	1.82	-1.36
4,781.00	9.10	94.90	4,739.20	-143.19	460.54	481.97	0.92	-0.70	-3.72
4,824.00	10.30	100.20	4,781.58	-144.16	467.71	489.15	3.48	2.79	12.33
4,867.00	9.70	101.40	4,823.93	-145.56	475.04	496.59	1.48	-1.40	2.79
4,910.00	8.50	100.10	4,866.39	-146.83	481.72	503.37	2.83	-2.79	-3.02
4,954.00	7.70	97.40	4,909.95	-147.78	487.85	509.53	2.01	-1.82	-6.14
4,997.00	8.10	98.30	4,952.54	-148.59	493.70	515.39	0.97	0.93	2.09
5,040.00	7.80	97.70	4,995.13	-149.42	499.59	521.29	0.72	-0.70	-1.40
5,083.00	8.20	102.10	5,037.71	-150.45	505.48	527.25	1.70	0.93	10.23
5,126.00	8.10	102.10	5,080.28	-151.73	511.44	533.33	0.23	-0.23	0.00
5,170.00	7.70	102.10	5,123.86	-153.00	517.36	539.37	0.91	-0.91	0.00
5,213.00	7.50	99.40	5,166.48	-154.06	522.94	545.04	0.95	-0.47	-6.28
5,256.00	7.30	99.80	5,209.12	-154.98	528.40	550.55	0.48	-0.47	0.93
5,299.00	7.30	99.10	5,251.77	-155.88	533.79	555.99	0.21	0.00	-1.63
5,342.00	7.20	99.30	5,294.43	-156.75	539.15	561.39	0.24	-0.23	0.47
5,385.00	7.10	99.70	5,337.10	-157.63	544.43	566.71	0.26	-0.23	0.93
5,409.00	6.90	100.10	5,360.92	-158.13	547.31	569.62	0.86	-0.83	1.67
Final Phoenix Survey									
5,489.00	6.90	100.10	5,440.34	-159.82	556.77	579.20	0.00	0.00	0.00
Projection to TD									



MERIT ENERGY COMPANY

Phoenix Technology Services Survey Report



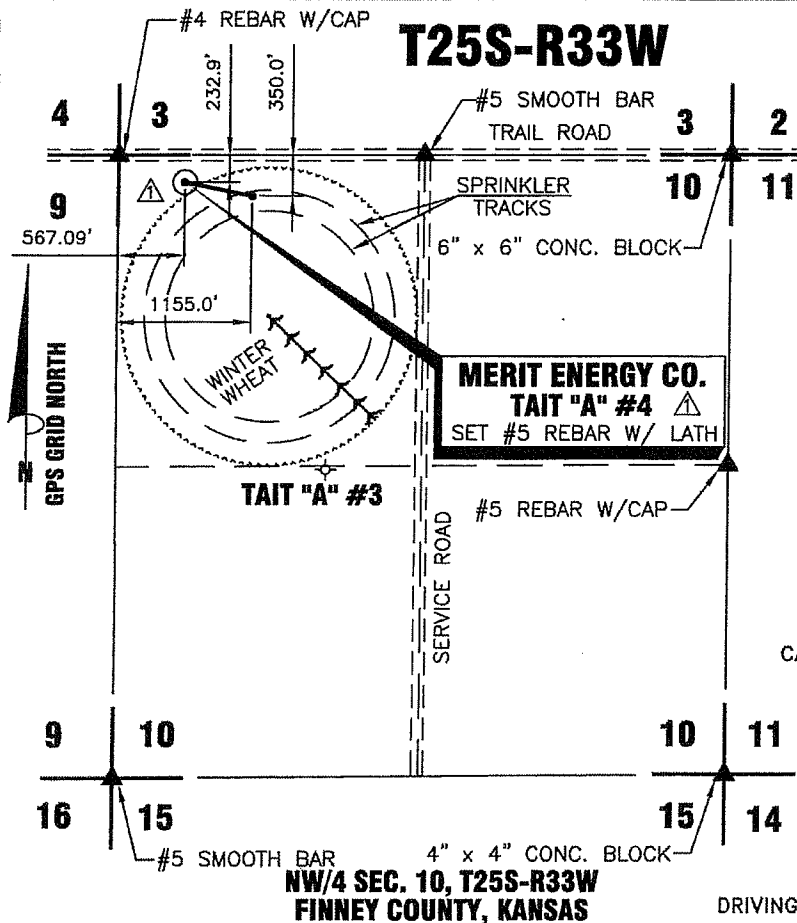
Company:	Merit Energy	Local Co-ordinate Reference:	Well A-4
Project:	Finney County, Kansas (NAD 27)	TVD Reference:	WELL @ 2912.00usft (Saxon 146)
Site:	Tait	MD Reference:	WELL @ 2912.00usft (Saxon 146)
Well:	A-4	North Reference:	Grid
Wellbore:	Wellbore #1 Job #1411490	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Saxon 146)	Database:	Compass 5000 GCR epdm

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
1,625.99	1,625.96	5.75	0.46	Tie-in to Scientific Gyros
1,757.00	1,756.96	-158.13	547.31	First Phoenix Survey
5,409.00	5,360.92	-159.82	556.77	Final Phoenix Survey
5,489.00	5,440.34			Projection to TD

Checked By: _____ Approved By: _____ Date: _____

T25S-R33W



DATE 3/3/2014

OPERATOR △ MERIT ENERGY CO.

WELL NAME TAIT "A" #4

LOCATION NW/4 SEC.10, T25S-R33W

SURFACE HOLE LOCATION

FOOTAGES & △ 232.9' F N L

RELATIONS △ 567.09' F W L

ELEVATION △ 2897.15'

BOTTOM HOLE LOCATION

FOOTAGES & △ 1155.0' F W L

RELATIONS △ 350.0' F N L

CALC. ELEVATION △ N/A

DISTANCE TO EXISTING WELL △ 2749.40' TAIT "A" #3

AUTHORIZED BY IDANIA MEDINA

CROP WINTER WHEAT

SURFACE HOLE LOCATION

LATITUDE 37°54'06.04997" N = 37.901681° N △

LONGITUDE 100°56'09.57391" W = 100.935993° W △

STATE PLANE COORD. X = 1297206.70 △

KANSAS SOUTH ZONE Y = 458867.49 △
NAD 27

BOTTOM HOLE LOCATION

LATITUDE 37°54'04.90350" N = 37.901362° N

LONGITUDE 100°56'02.23694" W = 100.933955° W

STATE PLANE COORD. X = 1297791.52

KANSAS SOUTH ZONE Y = 458736.22
NAD 27

NOTE: CONTRACTOR TO CONTACT ONE CALL @ 1-800-DIG SAFE PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

DRIVING DIRECTIONS USED TO STAKE WELL FROM KNOWN LANDMARK OR CITY FROM:

FROM GIGOT FARMS GATE AT THE CENTER OF SECTION 22 T24S-R33W; THENCE SOUTH 3.6 MILES; THENCE WEST 2061.42 FT. INTO.



Theodore V. Harder
Theodore V. Harder, L.S. No. 1097

<p>13727 NOEL ROAD, SUITE 1200 DALLAS, TEXAS 75240</p> <p>MAIN PHONE: 972-701-8377 FACSIMILE: 972-701-8381</p>	NO. DWG.	REVISIONS	DATE
	△ DRF	WELL SURFACE RELOC.	6/25/2014
<p>PROPOSED WELL LOCATION OF THE TAIT "A" #4 LOCATED IN THE NW/4 SEC. 10, T25S - R33W FINNEY COUNTY, KANSAS</p>			
SCALE: 1"=1500'	DATE: 3/3/2014		
WORK ORDER NO.:			
DRAWN BY: DRF	CHECKED BY: TVH	APPROVED BY:	AUTHORIZED BY: I. MEDINA

HARDER
AND ASSOCIATES "locating our world"
LAND SURVEYING - GPS SPECIALISTS
P.O. BOX 518 514 MORTON
Elkhart, Kansas 67950
Phone: (620) 697-2696
Fax: (620) 697-4176
E-MAIL: tharder@elkhart.com