



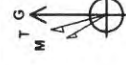
Stalnaker Unit 3H
Ritchie County WV
Northing: 14236739.00
Easting: 1663177.49
ST 1 As Drilled



Frontier 23-GL 1025 + KB 23 @ 1048.0 left
 Gr. 1025.0

WELL DETAILS Stalnaker Unit 3H
 Ground Level: 1025.0
 +N/-S +E/-W Northing Easting Latitude Longitude
 0.0 0.0 14236739.00 1663177.49 39° 12' 19.492 N 80° 55' 10.746 W

Genie Lightfoot
 9.42, February 10 2015
 Scientific Drilling
 11220 N.W. 10th Street
 Yukon, OK 73099



Azimuths to Grid North
 True North: -0.05°
 Magnetic North: -8.43°
 Magnetic Field
 Strength: 52156.5nT
 Dip Angle: 66.77°
 Date: 1/23/2015
 Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.43°
 To convert True North to Grid, Subtract 0.05°

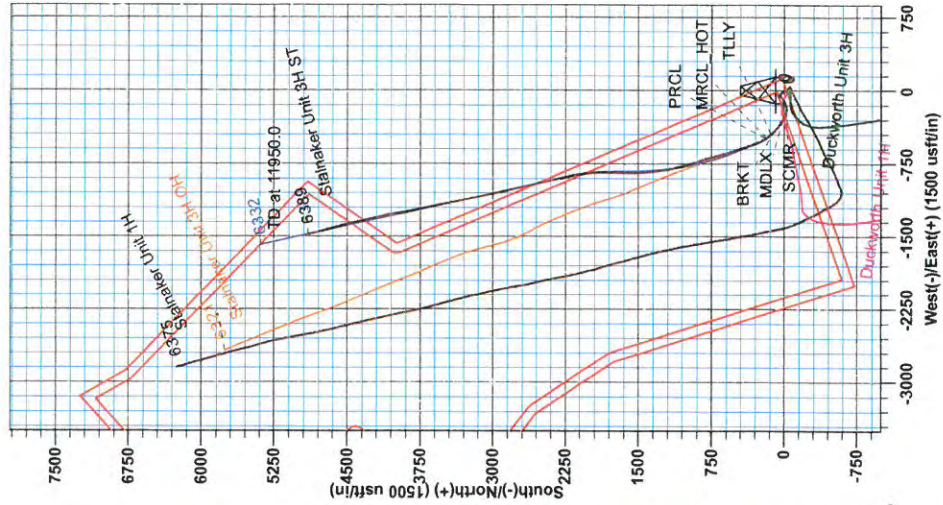
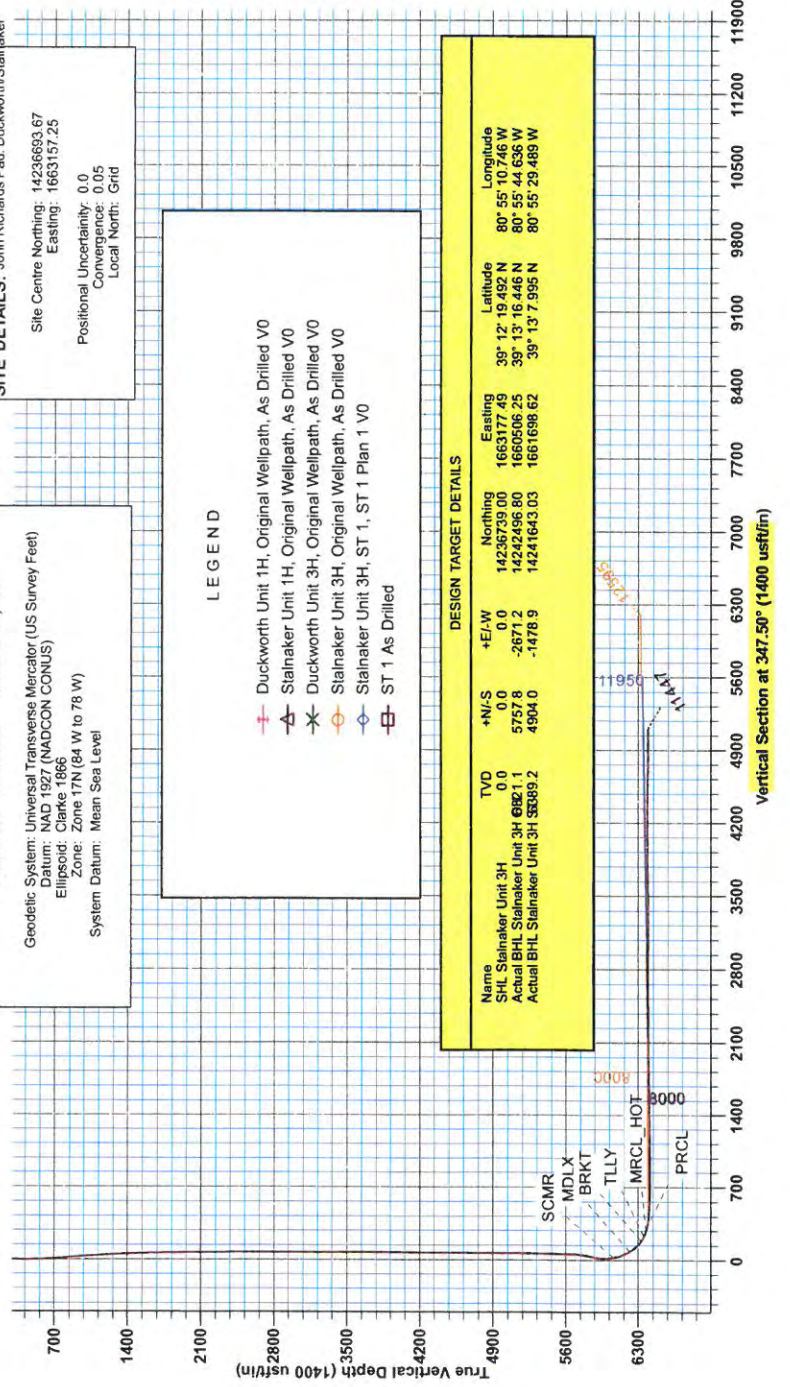
PROJECT DETAILS: Ritchie County WV
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level

SITE DETAILS: John Richards Part, Duckworth/Stalnaker
 Site Centre Northing: 14236693.67
 Easting: 1663157.25
 Positional Uncertainty: 0.0
 Convergence: 0.05
 Local North: Grid

LEGEND

- Duckworth Unit 1H, Original Wellpath, As Drilled V0
- Stalnaker Unit 1H, Original Wellpath, As Drilled V0
- Duckworth Unit 3H, Original Wellpath, As Drilled V0
- Stalnaker Unit 3H, Original Wellpath, As Drilled V0
- Stalnaker Unit 3H, ST 1, ST 1 Plan 1 V0
- ST 1 As Drilled

DESIGN TARGET DETAILS					
Name	+N/-S	+E/-W	Northing	Easting	Longitude
SHL Stalnaker Unit 3H	0.0	0.0	14236739.00	1663177.49	80° 55' 10.746 W
Actual BHL Stalnaker Unit 3H 6821.1	5757.8	-2671.2	14232456.80	1660506.25	80° 55' 44.536 W
Actual BHL Stalnaker Unit 3H 5839.2	4904.0	-1478.9	14241643.03	1661698.62	80° 55' 29.489 W





Antero

**Ritchie County WV
John Richards Pad: Duckworth/Stalnaker
Stalnaker Unit 3H
ST 1**

Design: ST 1 As Drilled

EOW Completion Report

19 June, 2015





Company: Antero
Project: Ritchie County WV
Site: John Richards Pad: Duckworth/Stalnaker
Well: Stalnaker Unit 3H
Wellbore: ST 1
Design: ST 1 As Drilled

Local Co-ordinate Reference: Well Stalnaker Unit 3H
TVD Reference: Frontier 23: GL 1025' + KB 23' @ 1048.0usft
MD Reference: Frontier 23: GL 1025' + KB 23' @ 1048.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Project	Ritchie County WV, Ritchie County WV, WV North		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site John Richards Pad: Duckworth/Stalnaker

Site Position:
From: Map
Position Uncertainty: 0.0 usft

Northing: 14,236,693.67 usft
Easting: 1,663,157.25 usft
Slot Radius: 13-3/16"

Latitude: 39° 12' 19.044 N
Longitude: 80° 55' 11.004 W
Grid Convergence: 0.05 °

Well Stalnaker Unit 3H, Marcellus

Well Position **+N/-S** 0.0 usft **Northing:** 14,236,739.00 usft **Latitude:** 39° 12' 19.492 N
+E/-W 0.0 usft **Easting:** 1,663,177.49 usft **Longitude:** 80° 55' 10.746 W
Position Uncertainty 2.0 usft **Wellhead Elevation:** 1,048.0 usft **Ground Level:** 1,025.0 usft

Wellbore ST 1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	1/23/2015	-8.38	66.77	52,157

Design ST 1 As Drilled

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 6,704.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	347.50

Survey Program		Date			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	5,617.6	Survey #4 Final Gyro Survey (Original We	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,655.0	6,704.0	Survey #5 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	
6,799.0	11,929.0	Survey #6 SDI MWD (ST 1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
25.0	0.64	137.76	25.0	-0.1	0.1	-0.1	2.56
50.0	0.57	144.71	50.0	-0.3	0.3	-0.4	0.41
75.0	0.54	140.05	75.0	-0.5	0.4	-0.6	0.22
100.0	0.61	127.48	100.0	-0.7	0.6	-0.8	0.58
125.0	0.73	138.51	125.0	-0.9	0.8	-1.0	0.70
150.0	0.61	154.42	150.0	-1.1	1.0	-1.3	0.88
175.0	1.06	147.80	175.0	-1.4	1.1	-1.6	1.84
200.0	0.40	160.39	200.0	-1.7	1.3	-1.9	2.70
225.0	0.36	143.73	225.0	-1.9	1.4	-2.1	0.47



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Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
250.0	0.40	141.61	250.0	-2.0	1.5	-2.3	0.17
275.0	0.49	143.23	275.0	-2.1	1.6	-2.4	0.36
300.0	0.44	145.89	300.0	-2.3	1.7	-2.6	0.22
325.0	0.37	136.68	325.0	-2.4	1.8	-2.8	0.38
350.0	0.48	135.76	350.0	-2.6	1.9	-2.9	0.44
375.0	0.50	163.48	375.0	-2.8	2.0	-3.1	0.94
400.0	0.40	163.93	400.0	-2.9	2.1	-3.3	0.40
425.0	0.21	81.72	425.0	-3.0	2.2	-3.4	1.70
450.0	0.06	356.28	450.0	-3.0	2.2	-3.4	0.86
475.0	0.43	314.86	475.0	-2.9	2.2	-3.3	1.55
500.0	0.82	328.05	500.0	-2.7	2.0	-3.1	1.65
525.0	1.27	316.87	525.0	-2.3	1.7	-2.7	1.97
550.0	1.72	319.25	550.0	-1.9	1.3	-2.1	1.82
575.0	2.04	316.85	575.0	-1.3	0.7	-1.4	1.32
600.0	2.53	315.34	599.9	-0.5	0.0	-0.5	1.97
625.0	3.13	317.19	624.9	0.4	-0.8	0.5	2.43
650.0	3.78	318.10	649.9	1.5	-1.8	1.8	2.61
675.0	4.15	316.09	674.8	2.7	-3.0	3.3	1.58
700.0	4.64	318.90	699.7	4.2	-4.3	5.0	2.14
725.0	5.17	318.90	724.6	5.8	-5.7	6.9	2.12
750.0	5.48	320.95	749.5	7.5	-7.2	8.9	1.45
775.0	5.47	321.89	774.4	9.4	-8.7	11.1	0.36
800.0	5.61	322.05	799.3	11.3	-10.2	13.2	0.56
825.0	5.74	322.20	824.2	13.3	-11.7	15.5	0.52
850.0	5.88	322.34	849.0	15.3	-13.2	17.8	0.56
875.0	5.89	320.35	873.9	17.3	-14.8	20.1	0.82
900.0	6.13	320.36	898.8	19.3	-16.5	22.4	0.96
925.0	5.72	320.38	923.6	21.3	-18.2	24.7	1.64
950.0	4.86	322.90	948.5	23.1	-19.6	26.8	3.56
975.0	4.71	324.22	973.4	24.7	-20.8	28.7	0.74
1,000.0	4.47	324.18	998.4	26.4	-22.0	30.5	0.96
1,025.0	4.39	324.05	1,023.3	27.9	-23.1	32.3	0.32
1,050.0	4.27	323.36	1,048.2	29.5	-24.3	34.0	0.52
1,075.0	4.16	322.07	1,073.2	30.9	-25.4	35.7	0.58
1,100.0	3.91	323.12	1,098.1	32.3	-26.4	37.3	1.04
1,125.0	3.65	322.20	1,123.0	33.6	-27.4	38.8	1.07
1,150.0	3.62	322.63	1,148.0	34.9	-28.4	40.2	0.16
1,175.0	3.55	322.92	1,172.9	36.1	-29.3	41.6	0.29
1,200.0	3.23	321.51	1,197.9	37.3	-30.3	43.0	1.32
1,225.0	3.12	318.79	1,222.9	38.4	-31.1	44.2	0.75
1,250.0	3.02	319.46	1,247.8	39.4	-32.0	45.4	0.42
1,275.0	2.90	320.09	1,272.8	40.4	-32.8	46.5	0.50
1,300.0	2.82	320.47	1,297.8	41.3	-33.6	47.6	0.33
1,325.0	2.71	319.92	1,322.7	42.2	-34.4	48.7	0.45
1,350.0	2.59	320.78	1,347.7	43.1	-35.2	49.7	0.51



Company: Antero
Project: Ritchie County WV
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Well: Stalnaker Unit 3H
Wellbore: ST 1
Design: ST 1 As Drilled

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Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,375.0	2.60	320.19	1,372.7	44.0	-35.9	50.7	0.11
1,400.0	2.34	317.46	1,397.6	44.8	-36.6	51.7	1.14
1,425.0	2.57	314.34	1,422.6	45.6	-37.3	52.6	1.06
1,450.0	2.49	320.25	1,447.6	46.4	-38.1	53.5	1.09
1,475.0	2.40	317.95	1,472.6	47.2	-38.8	54.5	0.53
1,500.0	2.30	319.64	1,497.6	48.0	-39.4	55.4	0.49
1,525.0	2.13	319.88	1,522.5	48.7	-40.1	56.2	0.68
1,550.0	1.96	319.56	1,547.5	49.4	-40.7	57.0	0.68
1,575.0	1.87	320.51	1,572.5	50.0	-41.2	57.8	0.38
1,600.0	2.00	318.77	1,597.5	50.7	-41.7	58.5	0.57
1,625.0	1.91	312.47	1,622.5	51.3	-42.3	59.2	0.93
1,650.0	1.77	310.18	1,647.5	51.8	-42.9	59.9	0.63
1,675.0	1.72	309.28	1,672.5	52.3	-43.5	60.5	0.23
1,700.0	1.56	311.77	1,697.4	52.8	-44.1	61.0	0.70
1,725.0	1.61	305.05	1,722.4	53.2	-44.6	61.6	0.77
1,750.0	1.46	305.17	1,747.4	53.6	-45.2	62.1	0.60
1,775.0	1.29	308.16	1,772.4	53.9	-45.6	62.5	0.74
1,800.0	1.27	299.68	1,797.4	54.2	-46.1	62.9	0.76
1,825.0	1.06	294.40	1,822.4	54.5	-46.5	63.3	0.94
1,850.0	0.97	301.15	1,847.4	54.7	-46.9	63.5	0.60
1,875.0	0.94	295.77	1,872.4	54.9	-47.3	63.8	0.38
1,900.0	0.81	300.77	1,897.4	55.1	-47.6	64.1	0.60
1,925.0	1.02	297.06	1,922.4	55.2	-48.0	64.3	0.87
1,950.0	0.83	308.73	1,947.4	55.5	-48.3	64.6	1.07
1,975.0	0.87	290.56	1,972.4	55.6	-48.6	64.9	1.09
2,000.0	1.00	289.78	1,997.4	55.8	-49.0	65.1	0.52
2,025.0	0.87	298.69	2,022.4	55.9	-49.4	65.3	0.78
2,050.0	0.84	295.14	2,047.4	56.1	-49.7	65.6	0.24
2,075.0	0.86	289.64	2,072.4	56.3	-50.1	65.8	0.34
2,100.0	0.76	300.81	2,097.4	56.4	-50.4	66.0	0.75
2,125.0	0.72	296.24	2,122.4	56.6	-50.7	66.2	0.29
2,150.0	0.74	296.96	2,147.4	56.7	-51.0	66.4	0.09
2,175.0	0.83	292.86	2,172.4	56.8	-51.3	66.6	0.42
2,200.0	0.81	289.44	2,197.4	57.0	-51.6	66.8	0.21
2,225.0	0.75	286.32	2,222.4	57.1	-51.9	67.0	0.29
2,250.0	0.78	285.36	2,247.4	57.2	-52.3	67.1	0.13
2,275.0	0.70	301.34	2,272.4	57.3	-52.5	67.3	0.88
2,300.0	0.70	291.87	2,297.4	57.4	-52.8	67.5	0.46
2,325.0	0.70	295.02	2,322.4	57.6	-53.1	67.7	0.15
2,350.0	0.61	283.88	2,347.4	57.6	-53.4	67.8	0.62
2,375.0	0.69	289.01	2,372.4	57.7	-53.6	68.0	0.40
2,400.0	0.62	273.96	2,397.4	57.8	-53.9	68.1	0.74
2,425.0	0.58	279.02	2,422.3	57.8	-54.2	68.2	0.27
2,450.0	0.69	280.16	2,447.3	57.9	-54.4	68.3	0.44



Company: Antero
Project: Ritchie County WV
Site: John Richards Pad: Duckworth/Stalnaker
Well: Stalnaker Unit 3H
Wellbore: ST 1
Design: ST 1 As Drilled

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TVD Reference: Frontier 23: GL 1025' + KB 23' @ 1048.0usft
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,475.0	0.62	292.90	2,472.3	57.9	-54.7	68.4	0.64
2,500.0	0.58	284.03	2,497.3	58.0	-55.0	68.5	0.40
2,525.0	0.56	273.79	2,522.3	58.1	-55.2	68.6	0.41
2,550.0	0.88	254.56	2,547.3	58.0	-55.5	68.7	1.59
2,575.0	0.23	332.32	2,572.3	58.0	-55.7	68.7	3.44
2,600.0	0.61	262.42	2,597.3	58.0	-55.9	68.8	2.29
2,625.0	0.45	272.82	2,622.3	58.0	-56.1	68.8	0.74
2,650.0	0.30	287.87	2,647.3	58.1	-56.3	68.9	0.71
2,675.0	0.82	263.11	2,672.3	58.1	-56.5	68.9	2.25
2,700.0	0.69	261.27	2,697.3	58.0	-56.8	68.9	0.53
2,725.0	0.52	279.07	2,722.3	58.0	-57.1	69.0	1.01
2,750.0	0.84	263.71	2,747.3	58.0	-57.4	69.1	1.46
2,775.0	0.56	275.92	2,772.3	58.0	-57.7	69.1	1.26
2,800.0	0.58	271.64	2,797.3	58.0	-57.9	69.2	0.19
2,825.0	0.64	267.89	2,822.3	58.0	-58.2	69.2	0.29
2,850.0	0.62	273.80	2,847.3	58.0	-58.5	69.3	0.27
2,875.0	0.69	267.03	2,872.3	58.0	-58.8	69.4	0.42
2,900.0	0.69	268.24	2,897.3	58.0	-59.1	69.4	0.06
2,925.0	0.67	266.94	2,922.3	58.0	-59.4	69.5	0.10
2,950.0	0.64	260.98	2,947.3	58.0	-59.7	69.5	0.30
2,975.0	0.59	260.78	2,972.3	57.9	-59.9	69.5	0.20
3,000.0	0.66	256.95	2,997.3	57.9	-60.2	69.5	0.33
3,025.0	0.64	260.53	3,022.3	57.8	-60.5	69.5	0.18
3,050.0	0.62	256.21	3,047.3	57.8	-60.7	69.5	0.21
3,075.0	0.66	252.52	3,072.3	57.7	-61.0	69.5	0.23
3,100.0	0.58	259.38	3,097.3	57.6	-61.3	69.5	0.44
3,125.0	0.62	256.61	3,122.3	57.6	-61.5	69.5	0.20
3,150.0	0.66	248.16	3,147.3	57.5	-61.8	69.5	0.41
3,175.0	0.62	254.42	3,172.3	57.4	-62.0	69.5	0.32
3,200.0	0.54	254.48	3,197.3	57.3	-62.3	69.4	0.32
3,225.0	0.65	253.76	3,222.3	57.2	-62.5	69.4	0.44
3,250.0	0.71	253.90	3,247.3	57.2	-62.8	69.4	0.24
3,275.0	0.67	253.59	3,272.3	57.1	-63.1	69.4	0.16
3,300.0	0.69	252.27	3,297.3	57.0	-63.4	69.4	0.10
3,325.0	0.66	248.00	3,322.3	56.9	-63.7	69.3	0.23
3,350.0	0.71	254.34	3,347.3	56.8	-64.0	69.3	0.36
3,375.0	0.61	252.97	3,372.3	56.7	-64.2	69.3	0.40
3,400.0	0.64	253.31	3,397.3	56.6	-64.5	69.3	0.12
3,425.0	0.64	253.47	3,422.3	56.6	-64.8	69.2	0.01
3,450.0	0.66	252.44	3,447.3	56.5	-65.0	69.2	0.09
3,475.0	0.65	249.28	3,472.3	56.4	-65.3	69.2	0.15
3,500.0	0.68	251.46	3,497.3	56.3	-65.6	69.1	0.16
3,525.0	0.69	252.42	3,522.3	56.2	-65.9	69.1	0.06
3,550.0	0.68	256.03	3,547.3	56.1	-66.2	69.1	0.18



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3,575.0	0.67	252.92	3,572.3	56.0	-66.4	69.1	0.15
3,600.0	0.62	252.28	3,597.3	55.9	-66.7	69.1	0.20
3,625.0	0.65	253.62	3,622.3	55.9	-67.0	69.0	0.13
3,650.0	0.58	249.03	3,647.3	55.8	-67.2	69.0	0.34
3,675.0	0.56	252.03	3,672.3	55.7	-67.5	69.0	0.14
3,700.0	0.60	244.31	3,697.3	55.6	-67.7	68.9	0.35
3,725.0	0.46	255.43	3,722.3	55.5	-67.9	68.9	0.69
3,750.0	0.45	247.60	3,747.3	55.5	-68.1	68.9	0.25
3,775.0	0.48	243.93	3,772.3	55.4	-68.3	68.8	0.17
3,800.0	0.40	246.29	3,797.3	55.3	-68.5	68.8	0.33
3,825.0	0.47	249.37	3,822.3	55.2	-68.6	68.8	0.30
3,850.0	0.42	244.88	3,847.3	55.1	-68.8	68.7	0.24
3,875.0	0.49	240.68	3,872.3	55.1	-69.0	68.7	0.31
3,900.0	0.46	228.23	3,897.3	54.9	-69.2	68.6	0.43
3,925.0	0.32	215.01	3,922.3	54.8	-69.3	68.5	0.66
3,950.0	0.39	219.91	3,947.3	54.7	-69.4	68.4	0.30
3,975.0	0.33	218.09	3,972.3	54.6	-69.5	68.3	0.24
4,000.0	0.35	208.67	3,997.3	54.4	-69.5	68.2	0.24
4,025.0	0.30	206.31	4,022.3	54.3	-69.6	68.1	0.21
4,050.0	0.15	143.29	4,047.3	54.2	-69.6	68.0	1.07
4,075.0	0.18	106.63	4,072.3	54.2	-69.6	68.0	0.43
4,100.0	0.26	121.01	4,097.3	54.2	-69.5	67.9	0.39
4,125.0	0.30	105.82	4,122.3	54.1	-69.4	67.8	0.34
4,150.0	0.26	120.49	4,147.3	54.1	-69.2	67.8	0.33
4,175.0	0.26	125.93	4,172.3	54.0	-69.2	67.7	0.10
4,200.0	0.35	90.67	4,197.3	54.0	-69.0	67.6	0.81
4,225.0	0.43	88.67	4,222.3	54.0	-68.9	67.6	0.32
4,250.0	0.58	67.54	4,247.3	54.0	-68.7	67.6	0.95
4,275.0	0.60	63.85	4,272.3	54.1	-68.4	67.6	0.17
4,300.0	0.70	67.57	4,297.3	54.2	-68.2	67.7	0.43
4,325.0	0.71	71.33	4,322.3	54.3	-67.9	67.7	0.19
4,350.0	0.88	71.89	4,347.3	54.5	-67.5	67.8	0.68
4,375.0	0.89	72.79	4,372.2	54.6	-67.2	67.8	0.07
4,400.0	0.99	77.80	4,397.2	54.7	-66.8	67.8	0.52
4,425.0	0.97	72.66	4,422.2	54.8	-66.4	67.8	0.36
4,450.0	0.93	71.73	4,447.2	54.9	-66.0	67.9	0.17
4,475.0	0.80	76.17	4,472.2	55.0	-65.6	67.9	0.58
4,500.0	0.93	79.70	4,497.2	55.1	-65.2	67.9	0.56
4,525.0	0.93	83.51	4,522.2	55.2	-64.8	67.9	0.25
4,550.0	0.86	83.99	4,547.2	55.2	-64.4	67.8	0.28
4,575.0	0.94	84.11	4,572.2	55.2	-64.1	67.8	0.32
4,600.0	0.92	88.78	4,597.2	55.3	-63.7	67.7	0.31
4,625.0	0.97	88.41	4,622.2	55.3	-63.2	67.6	0.20
4,650.0	0.92	90.23	4,647.2	55.3	-62.8	67.6	0.23



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Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,675.0	0.89	100.92	4,672.2	55.2	-62.4	67.4	0.68
4,700.0	1.03	95.23	4,697.2	55.2	-62.0	67.3	0.68
4,725.0	1.12	98.21	4,722.2	55.1	-61.6	67.1	0.42
4,750.0	1.06	95.88	4,747.2	55.1	-61.1	67.0	0.30
4,775.0	1.07	96.15	4,772.2	55.0	-60.6	66.8	0.04
4,800.0	0.94	99.32	4,797.2	55.0	-60.2	66.7	0.57
4,825.0	0.89	105.09	4,822.2	54.9	-59.8	66.5	0.42
4,850.0	0.87	108.20	4,847.2	54.8	-59.4	66.3	0.21
4,875.0	0.91	112.34	4,872.2	54.6	-59.1	66.1	0.30
4,900.0	0.92	107.25	4,897.2	54.5	-58.7	65.9	0.33
4,925.0	0.86	104.15	4,922.2	54.4	-58.3	65.7	0.31
4,950.0	0.73	103.16	4,947.2	54.3	-58.0	65.6	0.52
4,975.0	0.86	104.76	4,972.2	54.2	-57.6	65.4	0.53
5,000.0	0.96	106.33	4,997.2	54.1	-57.3	65.2	0.41
5,025.0	1.03	104.53	5,022.2	54.0	-56.8	65.0	0.31
5,050.0	0.91	95.06	5,047.2	53.9	-56.4	64.9	0.80
5,075.0	1.14	105.12	5,072.2	53.8	-56.0	64.7	1.16
5,100.0	1.11	112.65	5,097.2	53.7	-55.5	64.4	0.60
5,125.0	1.33	104.32	5,122.1	53.5	-55.0	64.2	1.13
5,150.0	1.39	101.93	5,147.1	53.4	-54.4	63.9	0.33
5,175.0	1.24	106.34	5,172.1	53.3	-53.9	63.7	0.72
5,200.0	1.33	112.29	5,197.1	53.1	-53.4	63.4	0.64
5,225.0	1.43	105.10	5,222.1	52.9	-52.8	63.0	0.80
5,250.0	1.52	108.38	5,247.1	52.7	-52.2	62.7	0.49
5,275.0	1.41	110.98	5,272.1	52.5	-51.6	62.4	0.51
5,300.0	1.47	113.94	5,297.1	52.2	-51.0	62.0	0.38
5,325.0	1.65	114.19	5,322.1	52.0	-50.4	61.6	0.72
5,350.0	1.51	111.51	5,347.1	51.7	-49.7	61.2	0.63
5,375.0	1.37	120.41	5,372.1	51.4	-49.2	60.8	1.05
5,400.0	1.40	116.69	5,397.1	51.1	-48.6	60.4	0.38
5,425.0	1.50	114.21	5,422.1	50.9	-48.1	60.1	0.47
5,450.0	1.32	118.71	5,447.0	50.6	-47.5	59.7	0.84
5,475.0	1.35	121.70	5,472.0	50.3	-47.0	59.3	0.30
5,500.0	1.46	119.77	5,497.0	50.0	-46.5	58.9	0.48
5,525.0	1.32	119.83	5,522.0	49.7	-46.0	58.4	0.56
5,550.0	1.24	123.09	5,547.0	49.4	-45.5	58.1	0.43
5,575.0	1.54	107.30	5,572.0	49.1	-44.9	57.7	1.94
5,600.0	1.21	117.66	5,597.0	48.9	-44.4	57.4	1.65
5,617.6	1.08	123.02	5,614.6	48.7	-44.1	57.1	0.96
5,655.0	3.56	232.41	5,652.0	47.8	-44.7	56.4	10.82
5,687.0	8.42	237.07	5,683.8	46.0	-47.5	55.1	15.25
5,719.0	12.97	237.02	5,715.2	42.7	-52.4	53.1	14.22
5,751.0	16.63	235.90	5,746.2	38.2	-59.3	50.1	11.47
5,784.0	19.71	233.81	5,777.5	32.3	-67.7	46.1	9.54



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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,816.0	22.47	232.99	5,807.4	25.4	-76.9	41.4	8.67
5,847.0	25.79	231.70	5,835.7	17.7	-86.9	36.0	10.84
5,880.0	28.82	230.42	5,865.0	8.1	-98.7	29.3	9.35
5,912.0	30.25	236.04	5,892.8	-1.3	-111.3	22.8	9.74
5,944.0	30.82	244.16	5,920.4	-9.4	-125.4	18.0	13.01
5,976.0	31.01	254.03	5,947.9	-15.2	-140.7	15.6	15.84
6,008.0	30.47	258.75	5,975.4	-19.1	-156.6	15.3	7.72
6,040.0	29.04	262.97	6,003.2	-21.6	-172.3	16.2	7.92
6,072.0	27.83	269.56	6,031.3	-22.6	-187.4	18.5	10.50
6,104.0	27.59	276.33	6,059.6	-21.8	-202.3	22.5	9.86
6,136.0	28.17	282.64	6,087.9	-19.4	-217.0	28.1	9.39
6,168.0	30.78	288.20	6,115.8	-15.2	-232.2	35.4	11.81
6,200.0	33.68	292.02	6,142.9	-9.3	-248.2	44.7	11.07
6,232.0	35.36	295.49	6,169.2	-2.0	-264.8	55.4	8.08
6,264.0	37.48	300.90	6,195.0	7.0	-281.5	67.8	12.02
6,296.0	40.43	303.40	6,219.9	17.7	-298.5	81.9	10.44
6,328.0	43.73	304.83	6,243.6	29.8	-316.3	97.5	10.74
6,360.0	47.58	306.30	6,266.0	43.1	-334.9	114.5	12.47
6,392.0	51.69	306.91	6,286.7	57.6	-354.4	133.0	12.93
6,424.0	55.57	307.44	6,305.7	73.2	-374.9	152.6	12.20
6,456.0	59.97	309.00	6,322.7	89.9	-396.2	173.6	14.35
6,488.0	63.67	311.23	6,337.8	108.1	-417.8	196.0	13.09
6,519.0	67.03	313.92	6,350.8	127.2	-438.5	219.1	13.40
6,551.0	69.74	317.54	6,362.6	148.5	-459.3	244.4	13.50
6,583.0	73.34	322.42	6,372.7	171.7	-478.8	271.3	18.32
6,615.0	76.44	326.28	6,381.0	196.8	-496.7	299.7	15.15
6,647.0	79.42	330.79	6,387.7	223.5	-513.1	329.3	16.63
6,679.0	81.16	334.21	6,393.1	251.5	-527.6	359.7	11.85
6,704.0	82.93	337.46	6,396.6	274.1	-537.8	384.0	14.69
6,799.0	86.48	343.99	6,405.4	363.3	-568.9	477.8	7.80
6,894.0	88.62	341.69	6,409.4	454.0	-596.9	572.4	3.31
6,990.0	90.07	342.31	6,410.5	545.3	-626.6	668.0	1.64
7,086.0	90.17	343.41	6,410.3	637.0	-654.9	763.7	1.15
7,183.0	90.03	344.96	6,410.2	730.3	-681.3	860.5	1.60
7,279.0	89.73	343.55	6,410.4	822.7	-707.4	956.3	1.50
7,376.0	91.61	342.10	6,409.2	915.4	-736.0	1,053.0	2.45
7,472.0	91.28	343.62	6,406.8	1,007.1	-764.3	1,148.6	1.62
7,568.0	90.61	346.02	6,405.2	1,099.7	-789.4	1,244.5	2.60
7,664.0	92.42	348.45	6,402.7	1,193.3	-810.6	1,340.5	3.16
7,760.0	91.71	352.58	6,399.2	1,287.9	-826.4	1,436.3	4.36
7,857.0	89.33	355.27	6,398.3	1,384.3	-836.7	1,532.6	3.70
7,953.0	90.40	357.48	6,398.6	1,480.1	-842.8	1,627.5	2.56
8,050.0	91.44	0.15	6,397.0	1,577.1	-844.8	1,722.6	2.95
8,146.0	90.71	1.44	6,395.2	1,673.1	-843.5	1,816.0	1.54



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8,241.0	91.28	0.86	6,393.6	1,768.0	-841.5	1,908.3	0.86
8,337.0	89.60	0.30	6,392.8	1,864.0	-840.6	2,001.8	1.84
8,434.0	89.23	355.90	6,393.8	1,960.9	-843.8	2,097.1	4.55
8,530.0	89.23	352.28	6,395.1	2,056.4	-853.7	2,192.4	3.77
8,626.0	91.17	352.16	6,394.8	2,151.5	-866.7	2,288.1	2.02
8,722.0	90.20	347.14	6,393.6	2,245.9	-883.9	2,384.0	5.33
8,818.0	90.60	346.54	6,393.0	2,339.4	-905.8	2,480.0	0.75
8,914.0	90.94	346.93	6,391.7	2,432.8	-927.8	2,576.0	0.54
9,005.0	91.21	347.03	6,390.0	2,521.5	-948.3	2,667.0	0.32
9,097.0	88.99	346.30	6,389.8	2,611.0	-969.5	2,758.9	2.54
9,188.0	90.20	346.90	6,390.4	2,699.5	-990.6	2,849.9	1.48
9,278.0	89.13	347.04	6,391.0	2,787.2	-1,010.9	2,939.9	1.20
9,369.0	89.36	346.95	6,392.2	2,875.8	-1,031.4	3,030.9	0.27
9,460.0	89.97	346.82	6,392.7	2,964.5	-1,052.0	3,121.9	0.69
9,551.0	90.17	348.74	6,392.6	3,053.4	-1,071.3	3,212.9	2.12
9,641.0	90.57	349.41	6,392.0	3,141.8	-1,088.3	3,302.9	0.87
9,732.0	90.07	347.93	6,391.5	3,231.0	-1,106.2	3,393.8	1.72
9,823.0	90.67	348.24	6,390.9	3,320.0	-1,125.0	3,484.8	0.74
9,914.0	91.21	347.97	6,389.4	3,409.1	-1,143.7	3,575.8	0.66
10,005.0	89.46	347.77	6,388.9	3,498.0	-1,162.9	3,666.8	1.94
10,101.0	89.33	348.08	6,389.9	3,591.9	-1,182.9	3,762.8	0.35
10,197.0	90.87	349.81	6,389.7	3,686.1	-1,201.4	3,858.8	2.41
10,293.0	91.64	349.53	6,387.6	3,780.5	-1,218.6	3,954.7	0.85
10,389.0	90.20	348.76	6,386.1	3,874.8	-1,236.6	4,050.6	1.70
10,485.0	90.17	351.33	6,385.8	3,969.3	-1,253.2	4,146.5	2.68
10,580.0	89.87	348.17	6,385.7	4,062.8	-1,270.1	4,241.4	3.34
10,676.0	90.91	346.02	6,385.1	4,156.4	-1,291.6	4,337.4	2.49
10,772.0	90.10	346.17	6,384.2	4,249.6	-1,314.6	4,433.4	0.86
10,868.0	88.15	347.36	6,385.7	4,343.0	-1,336.6	4,529.3	2.38
10,964.0	88.72	348.20	6,388.3	4,436.8	-1,356.9	4,625.3	1.06
11,060.0	89.09	345.45	6,390.2	4,530.2	-1,378.8	4,721.3	2.89
11,157.0	89.76	345.32	6,391.1	4,624.1	-1,403.3	4,818.2	0.70
11,255.0	90.23	344.46	6,391.1	4,718.7	-1,428.8	4,916.1	1.00
11,351.0	90.40	344.29	6,390.6	4,811.1	-1,454.7	5,012.0	0.25
11,447.0	91.28	346.39	6,389.2	4,904.0	-1,479.0	5,107.9	2.37
11,543.0	90.10	348.72	6,388.1	4,997.7	-1,499.7	5,203.9	2.72
11,639.0	90.87	348.08	6,387.2	5,091.8	-1,519.0	5,299.8	1.04
11,736.0	90.27	348.18	6,386.3	5,186.7	-1,538.9	5,396.8	0.63
11,831.0	90.40	348.25	6,385.6	5,299.3	-1,562.4	5,511.8	0.13
11,873.0	90.17	347.04	6,385.5	5,320.8	-1,567.1	5,533.8	5.60
11,929.0	90.17	347.04	6,385.3	5,375.3	-1,579.7	5,589.8	0.00

PTB



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Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,929.0	6,385.3	5,375.3	-1,579.7	PTB

Checked By: _____ Approved By: _____ Date: _____