



PHOENIX
TECHNOLOGY SERVICES

Jay-Bee Oil & Gas Inc.

Tyler County, WV (NAD83 - UTM 17N)

Grumpy

5B

OH / 68144

Survey: Phoenix MWD Surveys

Standard Survey Report

17 November, 2021

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Office of Oil and Gas

JUL 07 2022

WV Department of
Environmental Protection



03/17/2023

SM



Company:	Jay-Bee Oil & Gas Inc.	Local Co-ordinate Reference:	Well 5B
Project:	Tyler County, WV (NAD83 - UTM 17N)	TVD Reference:	RKB @ 1312.50usft (Precision 823)
Site:	Grumpy	MD Reference:	RKB @ 1312.50usft (Precision 823)
Well:	5B	North Reference:	Grid
Wellbore:	OH / 68144	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Precision 823)	Database:	USA Compass

Project	Tyler County, WV (NAD83 - UTM 17N)		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Grumpy		
Site Position:		Northing:	14,332,970.69 usft
From:	Map	Easting:	1,706,976.69 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 28' 3.454613 N
		Longitude:	80° 45' 50.941248 W
		Grid Convergence:	0.15 °

Well	5B		
Well Position	+N/-S	0.00 usft	Northing: 14,333,042.27 usft
	+E/-W	0.00 usft	Easting: 1,706,941.76 usft
Position Uncertainty	1.00 usft	Wellhead Elevation:	usft
		Latitude:	39° 28' 4.163237 N
		Longitude:	80° 45' 51.384434 W
		Ground Level:	1,299.00 usft

Wellbore	OH / 68144				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	12/2/2021	-7.75	66.42	51,745.32904976

Design	Surveys (Precision 823)				
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	7.16	

Survey Program	Date	11/17/2021			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
49.70	322.70	Gyrodata Gyro Surveys (Adjusted) (OH / 6	GYD_CT_C011Ga	Gyrodata continuous	
405.00	14,124.00	Phoenix MWD Surveys (OH / 68144)	MWD+HRGM	OWSG MWD + HRGM	

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)	
322.70	0.09	80.90	322.70	-0.48	-0.26	-0.51	0.00	0.00	0.00	RECEIVED
Tie In										Office of Oil and Gas
405.00	0.53	158.44	405.00	-0.82	-0.06	-0.83	0.63	0.53	94.22	JUL 07 2022
First Phoenix MWD Survey										-10.43
494.00	0.80	149.16	493.99	-1.74	0.41	-1.68	0.33	0.30	12.75	WV Department of
583.00	0.80	137.81	582.98	-2.74	1.15	-2.57	0.18	0.00	61.96	Environmental Protection
672.00	0.55	82.67	671.98	-3.14	1.99	-2.87	0.74	-0.28		
761.00	1.04	70.28	760.97	-2.82	3.17	-2.40	0.58	0.55	-13.92	
850.00	1.48	65.54	849.94	-2.07	4.98	-1.43	0.51	0.49	-5.33	



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Survey

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939.00	1.13	22.87	938.92	-0.78	6.37	0.02	1.13	-0.39	-47.94
1,028.00	1.50	10.84	1,027.90	1.17	6.93	2.02	0.52	0.42	-13.52
1,117.00	2.47	354.31	1,116.85	4.22	6.96	5.06	1.25	1.09	-18.57
1,206.00	4.01	342.65	1,205.70	9.10	5.84	9.76	1.87	1.73	-13.10
1,295.00	5.24	328.90	1,294.41	15.55	2.81	15.78	1.85	1.38	-15.45
1,384.00	5.41	318.52	1,383.03	22.18	-2.07	21.75	1.10	0.19	-11.66
1,473.00	5.23	311.51	1,471.65	28.01	-7.88	26.81	0.76	-0.20	-7.88
1,564.00	4.92	308.89	1,562.29	33.21	-14.03	31.20	0.43	-0.34	-2.88
1,653.00	4.65	318.29	1,650.98	38.30	-19.40	35.58	0.93	-0.30	10.56
1,742.00	4.95	322.11	1,739.67	44.02	-24.16	40.67	0.49	0.34	4.29
1,832.00	4.65	325.79	1,829.36	50.10	-28.59	46.15	0.48	-0.33	4.09
1,921.00	4.77	324.93	1,918.06	56.11	-32.75	51.59	0.16	0.13	-0.97
2,010.00	4.43	323.04	2,006.77	61.89	-36.94	56.80	0.42	-0.38	-2.12
2,099.00	3.86	319.05	2,095.54	66.90	-40.97	61.27	0.72	-0.64	-4.48
2,187.00	3.09	323.89	2,183.37	71.05	-44.31	64.97	0.94	-0.88	5.50
2,232.00	2.77	336.42	2,228.31	73.03	-45.46	66.79	1.59	-0.71	27.84
2,276.00	2.67	355.66	2,272.27	75.02	-45.96	68.71	2.08	-0.23	43.73
2,321.00	2.77	12.95	2,317.22	77.13	-45.80	70.82	1.83	0.22	38.42
2,365.00	2.99	35.71	2,361.16	79.10	-44.89	72.88	2.63	0.50	51.73
2,410.00	3.68	54.32	2,406.09	80.89	-43.03	74.90	2.83	1.53	41.36
2,455.00	4.67	63.70	2,450.97	82.55	-40.21	76.89	2.67	2.20	20.84
2,554.00	6.48	67.06	2,549.50	86.51	-31.46	81.91	1.86	1.83	3.39
2,643.00	8.10	68.74	2,637.77	90.74	-20.99	87.42	1.84	1.82	1.89
2,688.00	10.12	75.18	2,682.20	92.90	-14.21	90.41	5.02	4.49	14.31
2,732.00	10.63	83.19	2,725.49	94.37	-6.44	92.83	3.47	1.16	18.20
2,777.00	11.55	101.77	2,769.66	93.94	2.09	93.47	8.16	2.04	41.29
2,821.00	12.36	113.83	2,812.71	91.14	10.71	91.77	5.96	1.84	27.41
2,910.00	11.73	104.02	2,899.76	85.10	28.21	87.95	2.40	-0.71	-11.02
2,999.00	10.82	100.78	2,987.04	81.35	45.19	86.35	1.25	-1.02	-3.64
3,088.00	10.42	95.21	3,074.52	79.05	61.41	86.09	1.24	-0.45	-6.26
3,177.00	10.75	98.03	3,162.01	77.16	77.65	86.24	0.69	0.37	3.17
3,266.00	11.22	101.63	3,249.38	74.26	94.35	85.44	0.93	0.53	4.04
3,355.00	12.37	102.93	3,336.50	70.38	112.12	83.81	1.33	1.29	1.46
3,444.00	13.93	100.90	3,423.16	66.22	131.93	82.15	1.83	1.75	-2.28
3,533.00	15.70	99.30	3,509.20	62.25	154.34	81.00	2.04	1.99	1.86
3,622.00	18.27	96.13	3,594.31	58.81	180.10	80.80	3.07	2.89	3.56
3,710.00	20.68	93.27	3,677.27	56.45	209.33	82.10	2.94	2.74	-3.25
3,799.00	26.10	96.89	3,758.93	53.21	244.48	83.26	6.30	6.09	1.00
3,889.00	30.73	98.37	3,838.07	47.48	286.91	82.87	5.20	5.14	1.64
3,978.00	34.50	99.85	3,913.02	39.86	334.26	81.21	4.33	4.24	1.66
4,067.00	35.03	99.71	3,986.14	31.23	384.27	78.89	0.60	0.60	-0.16
4,158.00	33.82	100.25	4,061.20	22.32	434.93	76.36	1.37	-1.33	0.59
4,247.00	34.02	103.54	4,135.06	12.09	483.52	72.26	2.07	0.22	3.70

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Survey

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4,336.00	34.66	104.74	4,208.55	-0.18	532.20	66.15	1.05	0.72	1.35
4,425.00	34.48	105.29	4,281.83	-13.26	580.97	59.25	0.40	-0.20	0.62
4,513.00	35.23	104.40	4,354.05	-26.15	629.59	52.53	1.03	0.85	-1.01
4,603.00	34.99	103.98	4,427.67	-38.84	679.77	46.19	0.38	-0.27	-0.47
4,692.00	34.48	104.27	4,500.81	-51.21	728.95	40.05	0.60	-0.57	0.33
4,781.00	36.49	105.50	4,573.28	-64.49	778.87	33.09	2.40	2.26	1.38
4,870.00	37.46	105.02	4,644.38	-78.58	830.51	25.55	1.14	1.09	-0.54
4,958.00	35.77	102.64	4,715.01	-91.14	881.46	19.43	2.51	-1.92	-2.70
5,047.00	35.12	100.92	4,787.52	-101.69	931.98	15.27	1.34	-0.73	-1.93
5,136.00	35.11	103.87	4,860.33	-112.67	981.97	10.60	1.91	-0.01	3.31
5,225.00	34.54	103.90	4,933.39	-124.87	1,031.31	4.65	0.64	-0.64	0.03
5,314.00	35.24	105.17	5,006.39	-137.65	1,080.58	-1.89	1.13	0.79	1.43
5,403.00	35.01	105.75	5,079.18	-151.30	1,129.94	-9.28	0.46	-0.26	0.65
5,492.00	34.45	106.52	5,152.33	-165.39	1,178.64	-17.19	0.80	-0.63	0.87
5,581.00	34.07	105.55	5,225.89	-179.23	1,226.80	-24.92	0.75	-0.43	-1.09
5,717.00	33.48	104.84	5,338.93	-199.05	1,299.76	-35.49	0.52	-0.43	-0.52
5,851.00	32.31	109.36	5,451.46	-220.39	1,369.28	-48.00	2.03	-0.87	3.37
5,984.00	31.64	105.87	5,564.29	-241.71	1,436.38	-60.80	1.48	-0.50	-2.62
6,118.00	32.38	103.59	5,677.92	-259.76	1,505.07	-70.14	1.06	0.55	-1.70
6,251.00	34.39	106.40	5,788.98	-278.73	1,575.73	-80.16	1.91	1.51	2.11
6,385.00	34.93	106.54	5,899.20	-300.34	1,648.81	-92.49	0.41	0.40	0.10
6,518.00	34.53	107.30	6,008.50	-322.39	1,721.30	-105.33	0.44	-0.30	0.57
6,696.00	32.60	103.82	6,156.83	-348.85	1,816.04	-119.78	1.53	-1.08	-1.96
6,874.00	32.92	106.64	6,306.53	-374.16	1,908.95	-133.31	0.88	0.18	1.58
7,053.00	30.53	95.39	6,458.91	-392.37	2,000.92	-139.92	3.56	-1.34	-6.28
7,098.00	30.63	85.58	6,497.67	-392.57	2,023.74	-137.26	11.08	0.22	-21.80
7,143.00	31.98	77.47	6,536.14	-389.09	2,046.81	-130.94	9.83	3.00	-18.02
7,187.00	33.29	69.31	6,573.21	-382.30	2,069.50	-121.37	10.43	2.98	-18.55
7,232.00	33.47	60.35	6,610.81	-371.79	2,091.85	-108.16	10.95	0.40	-19.91
7,277.00	34.56	52.96	6,648.12	-357.95	2,112.83	-91.82	9.50	2.42	-16.82
7,322.00	35.82	47.45	6,684.91	-341.36	2,132.72	-72.87	7.59	2.80	-12.24
7,366.00	37.29	41.42	6,720.26	-322.65	2,151.03	-52.03	8.82	3.34	-13.70
7,411.00	37.55	34.06	6,756.02	-301.05	2,167.74	-28.52	9.95	0.58	-16.36
7,456.00	38.12	26.98	6,791.58	-277.31	2,181.73	-3.21	9.73	1.27	-15.73
7,500.00	38.17	20.66	6,826.19	-252.47	2,192.69	22.80	8.87	0.11	-14.06
7,549.00	38.34	19.15	6,864.67	-223.95	2,203.02	52.39	1.94	0.35	-3.08
7,594.00	38.85	13.22	6,899.86	-197.01	2,210.83	80.08	8.30	1.13	-13.18
7,638.00	41.69	7.07	6,933.44	-169.04	2,215.79	108.46	11.10	6.45	-13.98
7,683.00	46.79	1.25	6,965.68	-137.76	2,217.99	139.77	14.48	11.33	-12.93
7,728.00	52.60	359.03	6,994.78	-103.46	2,218.04	173.80	13.45	12.91	-4.93
7,772.00	58.89	357.87	7,019.53	-67.13	2,217.05	209.73	14.46	14.30	-2.64
7,817.00	65.82	357.74	7,040.40	-27.32	2,215.52	249.04	15.40	15.40	-0.29
7,862.00	72.70	357.95	7,056.33	14.71	2,213.94	290.54	15.30	15.29	0.47
7,907.00	78.28	355.23	7,067.60	58.18	2,211.34	333.35	13.71	12.40	-6.04

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7,951.00	81.71	351.26	7,075.24	101.19	2,206.23	375.39	11.82	7.80	-9.02
7,996.00	82.73	346.16	7,081.34	144.90	2,197.51	417.67	11.46	2.27	-11.33
8,041.00	82.86	345.61	7,086.98	188.19	2,186.62	459.27	1.25	0.29	-1.22
8,085.00	83.05	345.73	7,092.38	230.50	2,175.81	499.90	0.51	0.43	0.27
8,130.00	83.90	345.19	7,097.49	273.78	2,164.59	541.44	2.23	1.89	-1.20
8,174.00	83.96	345.36	7,102.15	316.10	2,153.47	582.04	0.41	0.14	0.39
8,219.00	83.96	345.73	7,106.88	359.43	2,142.30	623.64	0.82	0.00	0.82
8,263.00	86.23	343.33	7,110.64	401.67	2,130.60	664.10	7.49	5.16	-5.45
8,308.00	87.42	342.72	7,113.14	444.65	2,117.48	705.10	2.97	2.64	-1.36
8,353.00	87.47	342.52	7,115.14	487.55	2,104.06	746.00	0.46	0.11	-0.44
8,442.00	90.79	341.08	7,116.49	572.07	2,076.27	826.40	4.07	3.73	-1.62
8,531.00	91.93	340.78	7,114.38	656.16	2,047.20	906.21	1.32	1.28	-0.34
8,620.00	91.78	340.33	7,111.50	740.04	2,017.58	985.74	0.53	-0.17	-0.51
8,709.00	91.63	340.85	7,108.85	823.95	1,988.02	1,065.31	0.61	-0.17	0.58
8,798.00	88.78	342.26	7,108.53	908.36	1,959.86	1,145.56	3.57	-3.20	1.58
8,887.00	89.30	342.24	7,110.03	993.11	1,932.74	1,226.27	0.58	0.58	-0.02
8,976.00	88.93	343.24	7,111.40	1,078.09	1,906.33	1,307.29	1.20	-0.42	1.12
9,065.00	89.27	342.28	7,112.80	1,163.08	1,879.96	1,388.33	1.14	0.38	-1.08
9,155.00	90.21	342.91	7,113.21	1,248.96	1,853.04	1,470.19	1.26	1.04	0.70
9,244.00	90.16	342.94	7,112.92	1,334.04	1,826.90	1,551.34	0.07	-0.06	0.03
9,333.00	90.16	343.11	7,112.67	1,419.16	1,800.92	1,632.56	0.19	0.00	0.19
9,422.00	89.88	343.16	7,112.64	1,504.33	1,775.10	1,713.85	0.32	-0.31	0.06
9,511.00	91.78	343.41	7,111.35	1,589.56	1,749.51	1,795.22	2.15	2.13	0.28
9,600.00	91.83	344.42	7,108.55	1,675.03	1,724.86	1,876.96	1.14	0.06	1.13
9,689.00	90.45	342.23	7,106.78	1,760.26	1,699.33	1,958.34	2.91	-1.55	-2.46
9,778.00	90.01	342.60	7,106.42	1,845.10	1,672.44	2,039.17	0.65	-0.49	0.42
9,867.00	90.42	341.46	7,106.08	1,929.76	1,644.98	2,119.74	1.36	0.46	-1.28
9,956.00	90.64	341.99	7,105.26	2,014.27	1,617.08	2,200.11	0.64	0.25	0.60
10,045.00	90.19	342.63	7,104.62	2,099.06	1,590.03	2,280.87	0.88	-0.51	0.72
10,134.00	91.52	342.65	7,103.29	2,183.99	1,563.48	2,361.83	1.49	1.49	0.02
10,223.00	91.56	342.96	7,100.90	2,268.98	1,537.18	2,442.88	0.35	0.04	0.35
10,312.00	89.44	342.39	7,100.12	2,353.94	1,510.68	2,523.87	2.47	-2.38	0.64
10,401.00	89.11	339.97	7,101.25	2,438.16	1,481.97	2,603.87	2.74	-0.37	-2.72
10,491.00	89.62	339.66	7,102.24	2,522.63	1,450.92	2,683.80	0.66	0.57	-0.34
10,579.00	88.88	340.94	7,103.40	2,605.47	1,421.26	2,762.30	1.68	-0.84	1.45
10,668.00	89.79	341.65	7,104.43	2,689.76	1,392.72	2,842.38	1.30	1.02	0.80
10,758.00	90.44	342.66	7,104.25	2,775.43	1,365.14	2,923.94	1.33	0.72	1.12
10,846.00	90.15	345.19	7,103.80	2,859.98	1,340.78	3,004.80	2.89	-0.33	2.88
10,936.00	89.52	345.60	7,104.05	2,947.07	1,318.08	3,088.38	0.84	-0.70	0.46
11,025.00	89.55	348.62	7,104.78	3,033.82	1,298.23	3,171.97	3.39	0.03	3.39
11,114.00	87.82	348.46	7,106.82	3,121.02	1,280.55	3,256.29	1.95	-1.94	-0.18
11,203.00	88.68	349.10	7,109.54	3,208.27	1,263.25	3,340.71	1.20	0.97	0.72
11,293.00	89.82	350.01	7,110.72	3,296.77	1,246.93	3,426.48	1.62	1.27	1.01

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Company:	Jay-Bee Oil & Gas Inc.	Local Co-ordinate Reference:	Well 5B
Project:	Tyler County, WV (NAD83 - UTM 17N)	TVD Reference:	RKB @ 1312.50usft (Precision 823)
Site:	Grumpy	MD Reference:	RKB @ 1312.50usft (Precision 823)
Well:	5B	North Reference:	Grid
Wellbore:	OH / 68144	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Precision 823)	Database:	USA Compass

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)
11,383.00	89.68	350.17	7,111.11	3,385.43	1,231.44	3,512.52	0.24	-0.16	0.18
11,472.00	91.44	351.09	7,110.24	3,473.23	1,216.95	3,597.83	2.23	1.98	1.03
11,562.00	91.22	351.57	7,108.15	3,562.18	1,203.39	3,684.39	0.59	-0.24	0.53
11,652.00	91.02	352.84	7,106.39	3,651.33	1,191.19	3,771.33	1.43	-0.22	1.41
11,742.00	91.12	350.34	7,104.71	3,740.34	1,178.03	3,858.00	2.78	0.11	-2.78
11,832.00	89.75	349.54	7,104.03	3,828.95	1,162.31	3,943.96	1.76	-1.52	-0.89
11,922.00	89.41	349.22	7,104.69	3,917.41	1,145.72	4,029.66	0.52	-0.38	-0.36
12,012.00	91.02	349.45	7,104.35	4,005.85	1,129.07	4,115.34	1.81	1.79	0.26
12,102.00	91.36	349.65	7,102.48	4,094.34	1,112.74	4,201.10	0.44	0.38	0.22
12,192.00	91.32	350.15	7,100.37	4,182.92	1,096.97	4,287.02	0.56	-0.04	0.56
12,282.00	91.39	351.23	7,098.25	4,271.71	1,082.41	4,373.31	1.20	0.08	1.20
12,372.00	90.25	350.13	7,096.96	4,360.51	1,067.84	4,459.60	1.76	-1.27	-1.22
12,462.00	90.22	351.08	7,096.59	4,449.30	1,053.15	4,545.86	1.06	-0.03	1.06
12,552.00	89.58	349.95	7,096.75	4,538.06	1,038.31	4,632.09	1.44	-0.71	-1.26
12,642.00	89.59	350.42	7,097.40	4,626.74	1,022.97	4,718.17	0.52	0.01	0.52
12,733.00	89.38	351.38	7,098.22	4,716.59	1,008.58	4,805.52	1.08	-0.23	1.05
12,823.00	89.22	351.85	7,099.32	4,805.62	995.46	4,892.22	0.55	-0.18	0.52
12,913.00	90.72	351.20	7,099.36	4,894.64	982.19	4,978.89	1.82	1.67	-0.72
13,003.00	90.42	350.12	7,098.47	4,983.44	967.59	5,065.18	1.25	-0.33	-1.20
13,093.00	91.13	350.55	7,097.25	5,072.15	952.48	5,151.32	0.92	0.79	0.48
13,184.00	90.07	349.55	7,096.30	5,161.78	936.76	5,238.28	1.60	-1.16	-1.10
13,274.00	90.16	349.94	7,096.12	5,250.34	920.74	5,324.16	0.44	0.10	0.43
13,364.00	90.45	350.00	7,095.64	5,338.96	905.06	5,410.14	0.33	0.32	0.07
13,454.00	90.62	350.35	7,094.80	5,427.64	889.70	5,496.21	0.43	0.19	0.39
13,544.00	90.35	349.60	7,094.03	5,516.26	874.04	5,582.19	0.89	-0.30	-0.83
13,634.00	90.39	349.10	7,093.45	5,604.71	857.41	5,667.87	0.56	0.04	-0.56
13,725.00	90.22	349.44	7,092.97	5,694.12	840.46	5,754.47	0.42	-0.19	0.37
13,815.00	90.44	350.78	7,092.45	5,782.77	825.01	5,840.51	1.51	0.24	1.49
13,905.00	90.67	351.13	7,091.58	5,871.65	810.86	5,926.93	0.47	0.26	0.39
13,995.00	91.30	352.86	7,090.03	5,960.76	798.33	6,013.78	2.05	0.70	1.92
14,056.00	91.89	353.83	7,088.33	6,021.32	791.26	6,072.99	1.86	0.97	1.59
Final Phoenix MWD Survey									
14,124.00	91.89	353.83	7,086.09	6,088.89	783.96	6,139.12	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	RECEIVED Office of Oil and Gas JUL 07 2022 WV Department of Environmental Protection
		+N/-S (usft)	+E/-W (usft)		
322.70	322.70	-0.48	-0.26	Tie In	
405.00	405.00	-0.82	-0.06	First Phoenix MWD Survey	
14,056.00	7,088.33	6,021.32	791.26	Final Phoenix MWD Survey	
14,124.00	7,086.09	6,088.89	783.96	Projection to TD	

