



Legacy Reserves

Lea County, NM (NAD-27 2015)

Lea Unit #40H

Lea Unit #40H

30-025-43093

Lateral #1

30-025-43093

Design: Lateral #1

HOBBS OCD

OCT 31 2017

Standard Survey Report

RECEIVED

21 December, 2016





TDS
Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD-27 2015)
Site: Lea Unit #40H
Well: Lea Unit #40H
Wellbore: Lateral #1
Design: Lateral #1

Local Co-ordinate Reference: Well Lea Unit #40H
TVD Reference: KB @ 3693.00usft (McVay 4)
MD Reference: KB @ 3693.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County, NM (NAD-27 2015)		
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	Lea Unit #40H		
Site Position:		Northing:	567,512.40 usft
From:	Map	Easting:	754,704.80 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 33' 26.931 N
		Longitude:	103° 30' 23.984 W
		Grid Convergence:	0.44 °

Well	Lea Unit #40H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,677.00 usft
		Latitude:	32° 33' 26.931 N
		Longitude:	103° 30' 23.984 W
		Ground Level:	3,675.00 usft

Wellbore	Lateral #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	9/2/2015	7.14
			Dip Angle
			(°)
			60.40
			Field Strength
			(nT)
			48,327

Design	Lateral #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			358.27

Survey Program	Date 12/19/2016		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
198.00	4,206.00	TDS MWD #1 (Lateral #1)	MWD
4,300.00	5,520.00	VES Gyro #2 (Lateral #1)	VES-ISCWSA-GYRO-3
5,615.00	18,146.00	TDS MWD #3 (Lateral #1)	MWD
			Description
			MWD - Standard
			Biaxial Semi-Cont. Gyro
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198.00	0.70	140.00	198.00	-0.93	0.78	-0.95	0.35	0.35	0.00
First TDS MWD Survey									
288.00	0.40	169.20	287.99	-1.66	1.19	-1.69	0.45	-0.33	32.44
380.00	0.20	138.00	379.99	-2.09	1.36	-2.13	0.27	-0.22	-33.91
471.00	0.40	141.10	470.99	-2.46	1.66	-2.51	0.22	0.22	3.41
653.00	0.30	138.30	652.99	-3.31	2.38	-3.38	0.06	-0.05	-1.54
743.00	0.10	127.00	742.98	-3.53	2.60	-3.61	0.23	-0.22	-12.56
835.00	0.40	94.80	834.98	-3.60	2.98	-3.69	0.35	0.33	-35.00



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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)
927.00	0.40	105.30	926.98	-3.72	3.61	-3.82	0.08	0.00	11.41
1,017.00	0.20	117.10	1,016.98	-3.87	4.06	-3.99	0.23	-0.22	13.11
1,200.00	0.40	134.30	1,199.98	-4.46	4.80	-4.61	0.12	0.11	9.40
1,291.00	0.40	132.60	1,290.98	-4.90	5.26	-5.06	0.01	0.00	-1.87
1,383.00	0.40	119.30	1,382.97	-5.27	5.77	-5.45	0.10	0.00	-14.46
1,474.00	0.10	158.50	1,473.97	-5.50	6.08	-5.68	0.36	-0.33	43.08
1,569.00	0.20	45.10	1,568.97	-5.46	6.23	-5.65	0.27	0.11	-119.37
1,663.00	0.70	315.90	1,662.97	-4.94	5.94	-5.11	0.77	0.53	-94.89
1,851.00	0.90	282.80	1,850.95	-3.78	3.71	-3.89	0.26	0.11	-17.61
1,945.00	0.80	289.00	1,944.94	-3.41	2.37	-3.48	0.14	-0.11	6.60
2,039.00	0.70	296.30	2,038.93	-2.94	1.23	-2.97	0.15	-0.11	7.77
2,133.00	0.50	221.00	2,132.93	-2.99	0.45	-3.01	0.80	-0.21	-80.11
2,228.00	0.40	296.50	2,227.93	-3.16	-0.12	-3.15	0.59	-0.11	79.47
2,416.00	0.30	307.60	2,415.92	-2.57	-1.10	-2.53	0.06	-0.05	5.90
2,510.00	0.30	317.90	2,509.92	-2.23	-1.46	-2.19	0.06	0.00	10.96
2,605.00	0.20	314.70	2,604.92	-1.93	-1.74	-1.88	0.11	-0.11	-3.37
2,699.00	0.30	324.20	2,698.92	-1.62	-2.00	-1.55	0.11	0.11	10.11
2,793.00	0.40	312.80	2,792.92	-1.19	-2.39	-1.12	0.13	0.11	-12.13
2,887.00	0.40	23.90	2,886.92	-0.67	-2.50	-0.59	0.49	0.00	75.64
2,982.00	0.60	55.70	2,981.91	-0.09	-1.95	-0.03	0.35	0.21	33.47
3,076.00	0.80	69.00	3,075.91	0.43	-0.93	0.45	0.27	0.21	14.15
3,170.00	0.80	58.60	3,169.90	1.00	0.24	0.99	0.15	0.00	-11.06
3,264.00	0.80	57.90	3,263.89	1.69	1.36	1.65	0.01	0.00	-0.74
3,359.00	0.90	63.20	3,358.88	2.38	2.58	2.30	0.13	0.11	5.58
3,453.00	1.00	55.00	3,452.87	3.19	3.91	3.07	0.18	0.11	-8.72
3,547.00	0.90	50.00	3,546.85	4.13	5.15	3.97	0.14	-0.11	-5.32
3,641.00	0.80	45.50	3,640.84	5.06	6.19	4.88	0.13	-0.11	-4.79
3,735.00	0.80	44.80	3,734.83	5.99	7.12	5.77	0.01	0.00	-0.74
3,830.00	0.80	34.70	3,829.82	7.01	7.96	6.76	0.15	0.00	-10.63
3,924.00	0.90	27.10	3,923.81	8.20	8.67	7.94	0.16	0.11	-8.09
4,018.00	0.90	22.90	4,017.80	9.54	9.29	9.26	0.07	0.00	-4.47
4,112.00	1.00	19.60	4,111.79	10.99	9.86	10.69	0.12	0.11	-3.51
4,206.00	1.10	16.10	4,205.77	12.63	10.38	12.31	0.13	0.11	-3.72
End TDS MWD Survey									
4,300.00	0.99	9.31	4,299.76	14.30	10.76	13.97	0.18	-0.12	-7.22
First VES Gyro Survey									
4,400.00	1.31	10.22	4,399.74	16.28	11.11	15.94	0.32	0.32	0.91
4,500.00	1.52	16.62	4,499.71	18.67	11.69	18.31	0.26	0.21	6.40
4,600.00	1.78	28.03	4,599.67	21.32	12.80	20.92	0.42	0.26	11.41
4,700.00	2.10	23.70	4,699.61	24.36	14.26	23.92	0.35	0.32	-4.33
4,800.00	2.51	26.55	4,799.53	28.00	15.98	27.51	0.43	0.41	2.85
4,900.00	3.03	29.97	4,899.41	32.25	18.28	31.68	0.55	0.52	3.42
5,000.00	3.26	32.81	4,999.26	36.93	21.14	36.27	0.28	0.23	2.84
5,100.00	3.61	36.63	5,099.08	41.84	24.56	41.08	0.42	0.35	3.82



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5,200.00	3.82	42.17	5,198.87	46.84	28.67	45.95	0.42	0.21	5.54
5,300.00	4.30	44.40	5,298.62	51.99	33.53	50.95	0.51	0.48	2.23
5,400.00	4.75	46.76	5,398.31	57.50	39.17	56.29	0.49	0.45	2.36
5,520.00	5.19	50.20	5,517.86	64.38	46.96	62.93	0.44	0.37	2.87
Last VES Gyro Survey									
5,615.00	5.40	53.60	5,612.45	69.78	53.86	68.13	0.40	0.22	3.58
Resume TDS MWD Survey									
5,740.00	4.30	37.40	5,737.01	77.00	61.44	75.11	1.40	-0.88	-12.96
5,835.00	2.90	37.70	5,831.82	81.73	65.07	79.73	1.47	-1.47	0.32
5,929.00	2.10	39.00	5,925.73	84.95	67.61	82.87	0.85	-0.85	1.38
6,023.00	1.90	37.60	6,019.67	87.52	69.65	85.38	0.22	-0.21	-1.49
6,117.00	1.80	36.80	6,113.62	89.94	71.48	87.74	0.11	-0.11	-0.85
6,212.00	1.80	34.90	6,208.57	92.36	73.23	90.10	0.06	0.00	-2.00
6,306.00	1.10	49.00	6,302.54	94.16	74.76	91.86	0.83	-0.74	15.00
6,400.00	0.30	58.70	6,396.54	94.88	75.65	92.55	0.86	-0.85	10.32
6,494.00	0.90	64.40	6,490.53	95.33	76.52	92.97	0.64	0.64	6.06
6,588.00	0.70	75.20	6,584.52	95.79	77.74	93.40	0.27	-0.21	11.49
6,683.00	0.40	69.50	6,679.52	96.06	78.61	93.64	0.32	-0.32	-6.00
6,777.00	0.10	137.50	6,773.51	96.11	78.98	93.68	0.40	-0.32	72.34
6,871.00	0.10	235.30	6,867.51	96.00	78.97	93.58	0.16	0.00	104.04
6,965.00	0.20	231.70	6,961.51	95.85	78.77	93.43	0.11	0.11	-3.83
7,060.00	0.50	213.70	7,056.51	95.41	78.41	93.00	0.33	0.32	-18.95
7,154.00	0.60	212.20	7,150.51	94.65	77.92	92.25	0.11	0.11	-1.60
7,248.00	0.70	210.30	7,244.50	93.74	77.37	91.36	0.11	0.11	-2.02
7,342.00	0.80	213.90	7,338.49	92.70	76.71	90.34	0.12	0.11	3.83
7,436.00	0.90	217.40	7,432.48	91.57	75.90	89.23	0.12	0.11	3.72
7,530.00	1.00	215.20	7,526.47	90.31	74.98	88.00	0.11	0.11	-2.34
7,625.00	1.10	219.70	7,621.45	88.93	73.92	86.66	0.14	0.11	4.74
7,719.00	1.30	219.50	7,715.43	87.41	72.66	85.18	0.21	0.21	-0.21
7,813.00	1.50	215.60	7,809.41	85.59	71.27	83.40	0.24	0.21	-4.15
7,907.00	1.50	220.90	7,903.37	83.66	69.75	81.52	0.15	0.00	5.64
8,001.00	1.50	223.00	7,997.34	81.83	68.10	79.74	0.06	0.00	2.23
8,096.00	1.50	221.20	8,092.31	79.98	66.43	77.94	0.05	0.00	-1.89
8,190.00	1.40	218.50	8,186.28	78.16	64.91	76.17	0.13	-0.11	-2.87
8,284.00	1.50	222.60	8,280.25	76.36	63.36	74.41	0.15	0.11	4.36
8,378.00	1.50	227.90	8,374.22	74.63	61.62	72.73	0.15	0.00	5.64
8,472.00	1.30	239.40	8,468.19	73.26	59.78	71.42	0.37	-0.21	12.23
8,566.00	1.20	254.00	8,562.17	72.44	57.92	70.66	0.35	-0.11	15.53
8,660.00	1.40	266.10	8,656.14	72.09	55.83	70.38	0.36	0.21	12.87
8,755.00	1.70	265.70	8,751.11	71.91	53.27	70.27	0.32	0.32	-0.42
8,849.00	2.00	268.40	8,845.06	71.76	50.24	70.21	0.33	0.32	2.87
8,943.00	2.30	267.10	8,938.99	71.62	46.71	70.18	0.32	0.32	-1.38
9,038.00	1.30	269.50	9,033.94	71.51	43.73	70.16	1.06	-1.05	2.53



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9,132.00	1.30	279.00	9,127.92	71.67	41.61	70.38	0.23	0.00	10.11
9,226.00	1.70	284.80	9,221.89	72.19	39.21	70.98	0.45	0.43	6.17
9,320.00	2.20	289.00	9,315.83	73.14	36.16	72.01	0.55	0.53	4.47
9,414.00	2.80	292.90	9,409.74	74.62	32.33	73.61	0.66	0.64	4.15
9,508.00	2.20	257.30	9,503.66	75.11	28.46	74.22	1.74	-0.64	-37.87
9,603.00	2.00	262.40	9,598.60	74.49	25.04	73.70	0.29	-0.21	5.37
9,697.00	2.20	264.00	9,692.53	74.09	21.62	73.40	0.22	0.21	1.70
9,791.00	2.30	264.40	9,786.46	73.72	17.95	73.14	0.11	0.11	0.43
9,886.00	2.70	268.70	9,881.37	73.48	13.81	73.03	0.46	0.42	4.53
9,933.00	1.90	317.20	9,928.34	74.03	12.18	73.62	4.31	-1.70	103.19
9,981.00	5.90	354.20	9,976.22	77.07	11.39	76.69	9.43	8.33	77.08
10,028.00	11.60	5.60	10,022.66	84.18	11.60	83.79	12.62	12.13	24.26
10,075.00	16.10	11.20	10,068.28	95.28	13.33	94.83	9.98	9.57	11.91
10,122.00	20.40	12.90	10,112.91	109.66	16.43	109.12	9.22	9.15	3.62
10,169.00	24.70	6.50	10,156.31	127.42	19.37	126.77	10.52	9.15	-13.62
10,216.00	29.00	358.50	10,198.25	148.58	20.18	147.90	11.93	9.15	-17.02
10,263.00	33.30	355.90	10,238.46	172.85	18.96	172.20	9.58	9.15	-5.53
10,310.00	37.00	355.50	10,276.88	199.83	16.93	199.23	7.89	7.87	-0.85
10,357.00	41.50	356.80	10,313.27	229.49	14.89	228.93	9.69	9.57	2.34
10,404.00	46.50	357.70	10,347.07	262.08	13.29	261.56	10.76	10.64	2.34
10,451.00	51.30	359.80	10,377.96	297.48	12.54	296.97	10.75	10.21	4.47
10,498.00	55.60	0.70	10,405.94	335.23	12.71	334.69	9.28	9.15	1.91
10,545.00	59.50	359.80	10,431.16	374.88	12.88	374.32	8.45	8.30	-1.91
10,592.00	63.10	358.00	10,453.73	416.09	12.07	415.53	8.36	7.66	-3.83
10,640.00	68.00	356.00	10,473.59	459.71	9.77	459.20	10.89	10.21	-4.17
10,687.00	72.20	355.50	10,489.58	503.77	6.50	503.34	8.99	8.94	-1.06
10,734.00	75.70	355.00	10,502.58	548.77	2.75	548.44	7.52	7.45	-1.06
10,781.00	80.70	354.70	10,512.18	594.58	-1.37	594.35	10.66	10.64	-0.64
10,828.00	86.20	355.60	10,517.54	641.09	-5.32	640.96	11.86	11.70	1.91
10,859.00	89.10	355.50	10,518.81	671.97	-7.72	671.89	9.36	9.35	-0.32
10,881.00	89.73	355.69	10,519.04	693.90	-8.41	693.87	3.00	2.87	0.85
As-Drilled FTP									
10,953.00	91.80	356.30	10,518.08	765.71	-14.44	765.80	3.00	2.87	0.85
11,048.00	90.80	356.60	10,515.92	860.50	-20.32	860.73	1.10	-1.05	0.32
11,142.00	90.50	357.40	10,514.85	954.37	-25.24	954.70	0.91	-0.32	0.85
11,236.00	91.80	357.60	10,512.97	1,048.26	-29.34	1,048.67	1.40	1.38	0.21
11,330.00	90.80	359.30	10,510.84	1,142.20	-31.88	1,142.64	2.10	-1.06	1.81
11,424.00	90.60	359.80	10,509.69	1,236.18	-32.62	1,236.61	0.57	-0.21	0.53
11,518.00	90.80	359.30	10,508.54	1,330.17	-33.36	1,330.58	0.57	0.21	-0.53
11,613.00	89.80	359.10	10,508.04	1,425.16	-34.69	1,425.56	1.07	-1.05	-0.21
11,707.00	92.00	359.70	10,506.56	1,519.14	-35.67	1,519.52	2.43	2.34	0.64
11,801.00	90.20	359.10	10,504.76	1,613.11	-36.65	1,613.48	2.02	-1.91	-0.64
11,895.00	89.00	358.70	10,505.42	1,707.09	-38.46	1,707.47	1.35	-1.28	-0.43
11,989.00	88.40	358.50	10,507.55	1,801.04	-40.75	1,801.45	0.67	-0.64	-0.21



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Design: Lateral #1

Local Co-ordinate Reference: Well Lea Unit #40H
TVD Reference: KB @ 3693.00usft (McVay 4)
MD Reference: KB @ 3693.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 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)
12,083.00	88.70	358.90	10,509.93	1,894.98	-42.89	1,895.42	0.53	0.32	0.43
12,177.00	88.80	359.20	10,511.98	1,988.95	-44.44	1,989.38	0.34	0.11	0.32
12,272.00	88.40	359.30	10,514.30	2,083.91	-45.69	2,084.34	0.43	-0.42	0.11
12,366.00	88.60	357.70	10,516.76	2,177.84	-48.15	2,178.31	1.71	0.21	-1.70
12,460.00	88.70	356.90	10,518.97	2,271.71	-52.57	2,272.27	0.86	0.11	-0.85
12,554.00	90.90	356.40	10,519.30	2,365.55	-58.07	2,366.22	2.40	2.34	-0.53
12,648.00	91.90	356.10	10,517.01	2,459.32	-64.21	2,460.13	1.11	1.06	-0.32
12,742.00	91.30	356.10	10,514.38	2,553.06	-70.60	2,554.03	0.64	-0.64	0.00
12,836.00	92.00	355.90	10,511.68	2,646.79	-77.16	2,647.92	0.77	0.74	-0.21
12,930.00	93.20	355.20	10,507.41	2,740.41	-84.44	2,741.71	1.48	1.28	-0.74
13,024.00	91.10	354.80	10,503.88	2,833.98	-92.63	2,835.49	2.27	-2.23	-0.43
13,119.00	90.40	356.20	10,502.64	2,928.68	-100.08	2,930.36	1.65	-0.74	1.47
13,213.00	90.70	355.80	10,501.74	3,022.44	-106.64	3,024.29	0.53	0.32	-0.43
13,307.00	88.80	356.70	10,502.15	3,116.24	-112.79	3,118.22	2.24	-2.02	0.96
13,401.00	89.20	356.60	10,503.79	3,210.06	-118.28	3,212.17	0.44	0.43	-0.11
13,495.00	89.10	356.40	10,505.18	3,303.88	-124.02	3,306.11	0.24	-0.11	-0.21
13,589.00	88.80	356.90	10,506.91	3,397.70	-129.51	3,400.06	0.62	-0.32	0.53
13,683.00	89.80	357.00	10,508.05	3,491.56	-134.51	3,494.03	1.07	1.06	0.11
13,778.00	89.80	356.30	10,508.39	3,586.39	-140.06	3,588.99	0.74	0.00	-0.74
13,872.00	89.50	356.90	10,508.96	3,680.23	-145.64	3,682.95	0.71	-0.32	0.64
13,966.00	89.50	358.00	10,509.78	3,774.13	-149.82	3,776.93	1.17	0.00	1.17
14,061.00	90.50	358.50	10,509.78	3,869.08	-152.72	3,871.93	1.18	1.05	0.53
14,142.00	91.40	358.20	10,508.44	3,950.04	-155.05	3,952.92	1.17	1.11	-0.37
14,236.00	93.00	357.30	10,504.83	4,043.89	-158.74	4,046.84	1.95	1.70	-0.96
14,330.00	92.40	358.10	10,500.40	4,137.71	-162.51	4,140.73	1.06	-0.64	0.85
14,424.00	92.80	358.20	10,496.14	4,231.56	-165.54	4,234.63	0.44	0.43	0.11
14,519.00	92.30	358.30	10,491.91	4,326.43	-168.44	4,329.54	0.54	-0.53	0.11
14,613.00	90.50	358.50	10,489.61	4,420.36	-171.06	4,423.51	1.93	-1.91	0.21
14,707.00	90.20	359.00	10,489.04	4,514.33	-173.11	4,517.50	0.62	-0.32	0.53
14,801.00	90.90	0.00	10,488.14	4,608.32	-173.93	4,611.47	1.30	0.74	1.06
14,895.00	90.50	359.80	10,486.99	4,702.31	-174.09	4,705.43	0.48	-0.43	-0.21
14,989.00	90.00	359.90	10,486.58	4,796.31	-174.34	4,799.39	0.54	-0.53	0.11
15,084.00	88.60	0.40	10,487.74	4,891.30	-174.09	4,894.33	1.56	-1.47	0.53
15,178.00	89.50	359.80	10,489.30	4,985.29	-173.93	4,988.27	1.15	0.96	-0.64
15,272.00	91.00	1.00	10,488.89	5,079.28	-173.27	5,082.20	2.04	1.60	1.28
15,366.00	90.60	1.40	10,487.58	5,173.25	-171.30	5,176.06	0.60	-0.43	0.43
15,461.00	89.80	0.90	10,487.24	5,268.23	-169.40	5,270.94	0.99	-0.84	-0.53
15,555.00	91.30	359.70	10,486.34	5,362.22	-168.90	5,364.88	2.04	1.60	-1.28
15,649.00	90.40	359.10	10,484.95	5,456.20	-169.89	5,458.85	1.15	-0.96	-0.64
15,743.00	89.20	358.30	10,485.28	5,550.18	-172.02	5,552.84	1.53	-1.28	-0.85
15,838.00	90.70	357.40	10,485.36	5,645.11	-175.59	5,647.83	1.84	1.58	-0.95
15,932.00	91.20	357.80	10,483.80	5,739.01	-179.52	5,741.81	0.68	0.53	0.43
16,026.00	91.20	359.00	10,481.83	5,832.95	-182.15	5,835.79	1.28	0.00	1.28



TDS
Survey Report



Company: Legacy Reserves
Project: Lea County, NM (NAD-27 2015)
Site: Lea Unit #40H
Well: Lea Unit #40H
Wellbore: Lateral #1
Design: Lateral #1

Local Co-ordinate Reference: Well Lea Unit #40H
TVD Reference: KB @ 3693.00usft (McVay 4)
MD Reference: KB @ 3693.00usft (McVay 4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 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)
16,120.00	91.10	359.40	10,479.94	5,926.92	-183.46	5,929.76	0.44	-0.11	0.43
16,214.00	91.10	358.90	10,478.14	6,020.89	-184.85	6,023.73	0.53	0.00	-0.53
16,309.00	89.80	359.30	10,477.39	6,115.88	-186.34	6,118.72	1.43	-1.37	0.42
16,403.00	88.70	359.00	10,478.62	6,209.86	-187.74	6,212.69	1.21	-1.17	-0.32
16,497.00	90.00	357.60	10,479.89	6,303.81	-190.53	6,306.68	2.03	1.38	-1.49
16,591.00	91.40	356.50	10,478.54	6,397.67	-195.36	6,400.65	1.89	1.49	-1.17
16,685.00	91.10	357.30	10,476.49	6,491.51	-200.45	6,494.60	0.91	-0.32	0.85
16,780.00	91.60	356.90	10,474.25	6,586.36	-205.25	6,589.56	0.67	0.53	-0.42
16,874.00	92.60	356.30	10,470.81	6,680.13	-210.82	6,683.45	1.24	1.06	-0.64
16,968.00	92.40	356.50	10,466.71	6,773.86	-216.72	6,777.31	0.30	-0.21	0.21
17,062.00	91.40	356.10	10,463.59	6,867.61	-222.78	6,871.20	1.15	-1.06	-0.43
17,157.00	92.40	355.40	10,460.44	6,962.29	-229.82	6,966.06	1.28	1.05	-0.74
17,251.00	91.30	355.40	10,457.41	7,055.94	-237.35	7,059.89	1.17	-1.17	0.00
17,345.00	91.90	355.00	10,454.78	7,149.57	-245.21	7,153.72	0.77	0.64	-0.43
17,440.00	91.60	355.50	10,451.88	7,244.20	-253.08	7,248.54	0.61	-0.32	0.53
17,534.00	91.30	355.20	10,449.50	7,337.86	-260.69	7,342.39	0.45	-0.32	-0.32
17,628.00	90.40	355.50	10,448.11	7,431.54	-268.31	7,436.25	1.01	-0.96	0.32
17,723.00	91.30	355.10	10,446.70	7,526.21	-276.10	7,531.12	1.04	0.95	-0.42
17,817.00	91.00	355.50	10,444.81	7,619.88	-283.80	7,624.97	0.53	-0.32	0.43
17,911.00	91.50	355.10	10,442.76	7,713.54	-291.50	7,718.82	0.68	0.53	-0.43
18,006.00	92.80	354.70	10,439.20	7,808.09	-299.94	7,813.59	1.43	1.37	-0.42
18,095.00	94.00	354.70	10,433.92	7,896.55	-308.14	7,902.26	1.35	1.35	0.00
Last TDS MWD Survey									
18,146.00	94.00	354.70	10,430.36	7,947.21	-312.84	7,953.03	0.00	0.00	0.00
LTP/Projection to Bit/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
198.00	198.00	-0.93	0.78	First TDS MWD Survey
4,206.00	4,205.77	12.63	10.38	End TDS MWD Survey
4,300.00	4,299.76	14.30	10.76	First VES Gyro Survey
5,520.00	5,517.86	64.38	46.96	Last VES Gyro Survey
5,615.00	5,612.45	69.78	53.86	Resume TDS MWD Survey
10,881.00	10,519.04	693.90	-9.41	As-Drilled FTP
18,095.00	10,433.92	7,896.55	-308.14	Last TDS MWD Survey
18,146.00	10,430.36	7,947.21	-312.84	LTP/Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____