

Endurance Resources LLC

Lea County, NM (NAD 83)
Jazzbass 34 Federal
Jazzbass 34 Federal 3H

ST 01

Design: Surveys

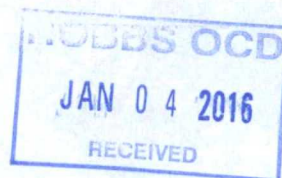
Sperry Drilling Services Combo Report

07 October, 2015

Well Coordinates: 394,725.43 N, 844,886.19 E (32° 04' 53.00" N, 103° 21' 11.74" W)
Ground Level: 3,171.00 usft

Local Coordinate Origin: Centered on Well Jazzbass 34 Federal 3H
Viewing Datum: GL 3171' + KB 25' @ 3196.00usft (H&P 490)
TVDs to System: N
North Reference: Grid
Unit System: API - US Survey Feet

Version: 5000.1 Build: 76



30-025-27116

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Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Local Coordinates Easting (usft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
0.00	0.00	0.00	-3,196.00	0.00	0.00 N	0.00 E	394,725.43	844,886.19	0.00	0.00	
100.00	0.45	314.31	-3,096.00	100.00	0.27 N	0.28 W	394,725.70	844,885.91	0.45	0.29	
200.00	0.57	318.15	-2,996.01	199.99	0.92 N	0.89 W	394,726.35	844,885.30	0.12	0.98	
300.00	0.60	325.73	-2,896.01	299.99	1.72 N	1.52 W	394,727.15	844,884.67	0.08	1.83	
400.00	0.73	335.57	-2,796.02	399.98	2.74 N	2.08 W	394,728.17	844,884.11	0.17	2.88	
500.00	1.16	339.32	-2,696.03	499.97	4.26 N	2.70 W	394,729.69	844,883.49	0.43	4.45	
600.00	1.44	348.41	-2,596.06	599.94	6.44 N	3.31 W	394,731.87	844,882.88	0.35	6.67	
700.00	1.22	350.57	-2,496.08	699.92	8.72 N	3.74 W	394,734.15	844,882.45	0.23	8.97	
800.00	1.03	352.35	-2,396.10	799.90	10.66 N	4.03 W	394,736.09	844,882.16	0.19	10.93	
900.00	0.83	357.30	-2,296.12	899.88	12.28 N	4.18 W	394,737.71	844,882.01	0.22	12.55	
1,000.00	0.65	352.30	-2,196.12	999.88	13.56 N	4.29 W	394,738.99	844,881.90	0.19	13.84	
1,100.00	0.51	359.62	-2,096.13	1,099.87	14.57 N	4.37 W	394,740.00	844,881.82	0.16	14.85	
1,200.00	0.68	348.79	-1,996.13	1,199.87	15.60 N	4.49 W	394,741.03	844,881.70	0.20	15.89	
1,300.00	0.07	232.71	-1,896.14	1,299.86	16.14 N	4.66 W	394,741.57	844,881.53	0.71	16.44	
1,400.00	0.62	354.66	-1,796.14	1,399.86	16.64 N	4.75 W	394,742.07	844,881.44	0.66	16.95	
1,500.00	0.56	358.73	-1,696.14	1,499.86	17.67 N	4.82 W	394,743.10	844,881.37	0.07	17.98	
1,600.00	0.49	335.39	-1,596.15	1,599.85	18.55 N	5.00 W	394,743.98	844,881.19	0.22	18.87	
1,700.00	0.36	327.47	-1,496.15	1,699.85	19.20 N	5.35 W	394,744.63	844,880.84	0.14	19.54	
1,800.00	0.34	23.32	-1,396.15	1,799.85	19.74 N	5.40 W	394,745.17	844,880.79	0.33	20.08	
1,900.00	0.28	35.76	-1,296.15	1,899.85	20.21 N	5.14 W	394,745.64	844,881.05	0.09	20.53	
2,000.00	0.31	57.07	-1,196.16	1,999.84	20.55 N	4.77 W	394,745.98	844,881.42	0.11	20.85	
2,100.00	0.36	77.75	-1,096.16	2,099.84	20.77 N	4.24 W	394,746.20	844,881.95	0.13	21.02	
2,200.00	0.25	99.76	-996.16	2,199.84	20.80 N	3.72 W	394,746.23	844,882.47	0.16	21.02	
2,300.00	0.08	163.88	-896.16	2,299.84	20.69 N	3.48 W	394,746.12	844,882.71	0.23	20.89	
2,400.00	0.27	156.00	-796.16	2,399.84	20.41 N	3.37 W	394,745.84	844,882.82	0.19	20.60	
2,500.00	0.24	147.31	-696.16	2,499.84	20.02 N	3.16 W	394,745.45	844,883.03	0.05	20.20	
2,600.00	0.20	9.07	-596.16	2,599.84	20.02 N	3.02 W	394,745.45	844,883.17	0.41	20.18	
2,700.00	0.03	110.41	-496.16	2,699.84	20.18 N	2.97 W	394,745.61	844,883.22	0.21	20.34	
2,800.00	0.34	33.82	-396.16	2,799.84	20.42 N	2.78 W	394,745.85	844,883.41	0.33	20.57	
2,900.00	0.16	118.04	-296.16	2,899.84	20.60 N	2.49 W	394,746.03	844,883.70	0.36	20.73	
3,000.00	0.37	42.10	-196.16	2,999.84	20.77 N	2.15 W	394,746.20	844,884.04	0.37	20.87	
3,100.00	0.36	129.45	-96.16	3,099.84	20.81 N	1.69 W	394,746.24	844,884.50	0.50	20.88	
3,200.00	0.14	119.65	3.83	3,199.83	20.55 N	1.34 W	394,745.98	844,884.85	0.22	20.59	
3,300.00	0.44	107.81	103.83	3,299.83	20.37 N	0.87 W	394,745.80	844,885.32	0.30	20.38	
3,400.00	0.28	344.39	203.83	3,399.83	20.49 N	0.57 W	394,745.92	844,885.62	0.64	20.48	
3,500.00	0.24	321.44	303.83	3,499.83	20.89 N	0.76 W	394,746.32	844,885.43	0.11	20.89	
3,600.00	0.24	334.55	403.83	3,599.83	21.24 N	0.99 W	394,746.67	844,885.20	0.05	21.26	
3,700.00	0.45	358.27	503.83	3,699.83	21.83 N	1.09 W	394,747.26	844,885.10	0.25	21.85	
3,800.00	0.58	32.44	603.82	3,799.82	22.64 N	0.83 W	394,748.07	844,885.36	0.33	22.64	
3,900.00	0.60	43.06	703.82	3,899.82	23.45 N	0.20 W	394,748.88	844,885.99	0.11	23.41	

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Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Local Coordinates Easting (usft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
4,000.00	0.40	61.04	803.82	3,999.82	24.01 N	0.46 E	394,749.44	844,886.65	0.25	23.91	
4,100.00	0.32	52.24	903.81	4,099.81	24.35 N	0.99 E	394,749.78	844,887.18	0.10	24.21	
4,200.00	0.39	22.45	1,003.81	4,199.81	24.83 N	1.34 E	394,750.26	844,887.53	0.19	24.66	
4,300.00	0.33	5.91	1,103.81	4,299.81	25.43 N	1.50 E	394,750.86	844,887.69	0.12	25.25	
4,400.00	0.35	11.38	1,203.81	4,399.81	26.02 N	1.59 E	394,751.45	844,887.78	0.04	25.83	
4,500.00	0.18	30.19	1,303.81	4,499.81	26.45 N	1.73 E	394,751.88	844,887.92	0.19	26.25	
4,600.00	0.39	78.15	1,403.81	4,599.81	26.66 N	2.14 E	394,752.09	844,888.33	0.30	26.43	
4,700.00	0.26	64.00	1,503.80	4,699.80	26.83 N	2.68 E	394,752.26	844,888.87	0.15	26.56	
4,800.00	0.37	67.98	1,603.80	4,799.80	27.05 N	3.18 E	394,752.48	844,889.37	0.11	26.74	
4,900.00	0.55	69.88	1,703.80	4,899.80	27.34 N	3.93 E	394,752.77	844,890.12	0.18	26.97	
5,000.00	0.26	63.39	1,803.80	4,999.80	27.60 N	4.59 E	394,753.03	844,890.78	0.29	27.19	
5,100.00	0.12	55.28	1,903.80	5,099.80	27.76 N	4.87 E	394,753.19	844,891.06	0.14	27.33	
5,200.00	0.19	48.27	2,003.80	5,199.80	27.93 N	5.08 E	394,753.36	844,891.27	0.07	27.48	
5,300.00	0.25	67.62	2,103.79	5,299.79	28.13 N	5.41 E	394,753.56	844,891.60	0.09	27.65	
5,400.00	0.35	77.23	2,203.79	5,399.79	28.28 N	5.91 E	394,753.71	844,892.10	0.11	27.76	
5,500.00	0.20	89.63	2,303.79	5,499.79	28.35 N	6.38 E	394,753.78	844,892.57	0.16	27.80	
5,600.00	0.43	91.61	2,403.79	5,599.79	28.34 N	6.93 E	394,753.77	844,893.12	0.23	27.75	
5,700.00	0.29	102.22	2,503.79	5,699.79	28.27 N	7.55 E	394,753.70	844,893.74	0.15	27.64	
5,800.00	0.30	170.76	2,603.79	5,799.79	27.96 N	7.84 E	394,753.39	844,894.03	0.33	27.31	
5,900.00	0.36	207.66	2,703.79	5,899.79	27.42 N	7.74 E	394,752.85	844,893.93	0.22	26.78	
6,000.00	0.28	203.73	2,803.78	5,999.78	26.92 N	7.50 E	394,752.35	844,893.69	0.08	26.30	
6,100.00	0.23	223.78	2,903.78	6,099.78	26.55 N	7.26 E	394,751.98	844,893.45	0.10	25.95	
6,200.00	0.22	242.01	3,003.78	6,199.78	26.32 N	6.95 E	394,751.75	844,893.14	0.07	25.73	
6,300.00	0.26	255.12	3,103.78	6,299.78	26.17 N	6.56 E	394,751.60	844,892.75	0.07	25.61	
6,400.00	0.53	239.93	3,203.78	6,399.78	25.88 N	5.94 E	394,751.31	844,892.13	0.29	25.37	
6,500.00	0.60	220.11	3,303.77	6,499.77	25.25 N	5.20 E	394,750.68	844,891.39	0.21	24.79	
6,600.00	0.74	202.31	3,403.77	6,599.77	24.25 N	4.62 E	394,749.68	844,890.81	0.25	23.84	
6,700.00	0.38	205.60	3,503.76	6,699.76	23.35 N	4.23 E	394,748.78	844,890.42	0.36	22.98	
6,800.00	0.46	212.26	3,603.76	6,799.76	22.71 N	3.88 E	394,748.14	844,890.07	0.09	22.37	
6,900.00	0.33	220.67	3,703.76	6,899.76	22.16 N	3.47 E	394,747.59	844,889.66	0.14	21.84	
7,000.00	0.49	214.29	3,803.76	6,999.76	21.59 N	3.04 E	394,747.02	844,889.23	0.17	21.30	
7,100.00	0.61	243.38	3,903.75	7,099.75	20.99 N	2.33 E	394,746.42	844,888.52	0.30	20.76	
7,200.00	0.60	207.16	4,003.75	7,199.75	20.29 N	1.61 E	394,745.72	844,887.80	0.38	20.11	
7,300.00	0.57	205.04	4,103.74	7,299.74	19.37 N	1.16 E	394,744.80	844,887.35	0.04	19.23	
7,400.00	0.65	201.72	4,203.73	7,399.73	18.39 N	0.74 E	394,743.82	844,886.93	0.09	18.29	
7,500.00	0.77	206.23	4,303.73	7,499.73	17.27 N	0.24 E	394,742.70	844,886.43	0.13	17.20	
7,600.00	0.85	209.08	4,403.72	7,599.72	16.01 N	0.42 W	394,741.44	844,885.77	0.09	16.00	
7,700.00	0.99	215.50	4,503.70	7,699.70	14.66 N	1.28 W	394,740.09	844,884.91	0.17	14.72	
7,800.00	0.69	218.83	4,603.69	7,799.69	13.49 N	2.16 W	394,738.92	844,884.03	0.30	13.61	

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Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Easting (usft)	Map Coordinates Northing (usft)	Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
7,900.00	0.26	210.58	4,703.69	7,899.69	12.83 N	2.66 W	394,738.26	844,883.53	0.43	12.99	
8,000.00	0.27	147.05	4,803.69	7,999.69	12.43 N	2.64 W	394,737.86	844,883.55	0.28	12.59	
8,100.00	0.52	121.33	4,903.69	8,099.69	12.00 N	2.13 W	394,737.43	844,884.06	0.30	12.12	
8,200.00	0.64	110.57	5,003.68	8,199.68	11.57 N	1.22 W	394,737.00	844,884.97	0.16	11.63	
8,300.00	0.73	107.20	5,103.67	8,299.67	11.18 N	0.09 W	394,736.61	844,886.10	0.10	11.16	
8,400.00	1.02	112.15	5,203.66	8,399.66	10.66 N	1.35 E	394,736.09	844,887.54	0.30	10.53	
8,500.00	1.06	113.50	5,303.65	8,499.65	9.95 N	3.02 E	394,735.38	844,889.21	0.05	9.70	
8,600.00	1.20	114.80	5,403.63	8,599.63	9.15 N	4.82 E	394,734.58	844,891.01	0.14	8.77	
8,700.00	1.41	111.64	5,503.60	8,699.60	8.25 N	6.91 E	394,733.68	844,893.10	0.22	7.72	
8,800.00	1.24	108.84	5,603.57	8,799.57	7.45 N	9.08 E	394,732.88	844,895.27	0.18	6.76	
8,900.00	1.04	95.69	5,703.55	8,899.55	7.01 N	11.01 E	394,732.44	844,897.20	0.33	6.18	
9,000.00	1.07	89.26	5,803.54	8,999.54	6.93 N	12.84 E	394,732.36	844,899.03	0.12	5.97	
9,100.00	1.30	71.61	5,903.52	9,099.52	7.30 N	14.86 E	394,732.73	844,901.05	0.43	6.19	
9,200.00	1.99	60.32	6,003.47	9,199.47	8.52 N	17.44 E	394,733.95	844,903.63	0.76	7.21	
9,300.00	2.45	54.35	6,103.40	9,299.40	10.63 N	20.69 E	394,736.06	844,906.88	0.51	9.07	
9,400.00	2.71	53.81	6,203.30	9,399.30	13.27 N	24.33 E	394,738.70	844,910.52	0.26	11.44	
9,500.00	2.35	51.62	6,303.20	9,499.20	15.94 N	27.85 E	394,741.37	844,914.04	0.37	13.84	
9,600.00	1.96	50.06	6,403.13	9,599.13	18.31 N	30.76 E	394,743.74	844,916.95	0.39	15.99	
9,700.00	1.92	52.64	6,503.07	9,699.07	20.42 N	33.41 E	394,745.85	844,919.60	0.10	17.90	
9,800.00	1.95	54.47	6,603.02	9,799.02	22.43 N	36.12 E	394,747.86	844,922.31	0.07	19.70	
9,900.00	2.08	54.16	6,702.95	9,898.95	24.48 N	38.98 E	394,749.91	844,925.17	0.13	21.53	
10,000.00	2.05	56.16	6,802.89	9,998.89	26.54 N	41.93 E	394,751.97	844,928.12	0.08	23.37	
10,100.00	1.92	58.55	6,902.83	10,098.83	28.41 N	44.85 E	394,753.84	844,931.04	0.15	25.02	
10,200.00	1.34	52.46	7,002.79	10,198.79	29.99 N	47.21 E	394,755.42	844,933.40	0.60	26.43	
10,300.00	0.68	12.03	7,102.77	10,298.77	31.29 N	48.26 E	394,756.72	844,934.45	0.93	27.64	
10,400.00	0.93	341.36	7,202.76	10,398.76	32.64 N	48.12 E	394,758.07	844,934.31	0.49	28.99	
10,500.00	0.72	338.81	7,302.75	10,498.75	33.99 N	47.63 E	394,759.42	844,933.82	0.21	30.38	
10,600.00	1.20	330.78	7,402.74	10,598.74	35.49 N	46.90 E	394,760.92	844,933.09	0.50	31.93	
10,700.00	1.02	332.55	7,502.72	10,698.72	37.19 N	45.97 E	394,762.62	844,932.16	0.18	33.70	
10,800.00	0.93	334.77	7,602.70	10,798.70	38.72 N	45.22 E	394,764.15	844,931.41	0.10	35.27	
10,900.00	1.02	306.83	7,702.69	10,898.69	39.99 N	44.16 E	394,765.42	844,930.35	0.48	36.62	
11,000.00	1.64	282.28	7,802.66	10,998.66	40.82 N	42.05 E	394,766.25	844,928.24	0.83	37.61	
11,100.00	3.51	279.48	7,902.56	11,098.56	41.63 N	37.63 E	394,767.06	844,923.82	1.87	38.74	
11,200.00	5.34	278.85	8,002.26	11,198.26	42.85 N	30.01 E	394,768.28	844,916.20	1.83	40.52	
11,300.00	6.37	277.44	8,101.73	11,297.73	44.29 N	19.91 E	394,769.72	844,906.10	1.04	42.70	
11,400.00	6.79	278.04	8,201.07	11,397.07	45.83 N	8.56 E	394,771.26	844,894.75	0.43	45.07	
11,500.00	6.00	276.48	8,300.45	11,496.45	47.25 N	2.49 W	394,772.68	844,883.70	0.81	47.30	
11,545.00	5.69	275.77	8,345.22	11,541.22	47.74 N	7.04 W	394,773.17	844,879.15	0.71	48.13	
11,575.00	7.34	291.62	8,375.03	11,571.03	48.59 N	10.30 W	394,774.02	844,875.89	8.09	49.22	

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Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Eastng (usft)	Map Coordinates Northing (usft)	Eastng (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
11,606.00	7.21	290.79	8,405.78	11,601.78	50.01 N	13.96 W	394,775.44	844,872.23	0.54	50.91	
11,638.00	8.46	303.46	8,437.48	11,633.48	52.02 N	17.81 W	394,777.45	844,868.38	6.64	53.20	
11,730.00	17.22	328.07	8,527.15	11,723.15	67.35 N	30.69 W	394,792.78	844,855.50	11.02	69.43	
11,762.00	19.84	331.19	8,557.49	11,753.49	76.13 N	35.81 W	394,801.56	844,850.38	8.75	78.57	
11,793.00	22.00	332.59	8,586.44	11,782.44	85.90 N	41.02 W	394,811.33	844,845.17	7.15	88.69	
11,824.00	24.85	333.77	8,614.89	11,810.89	96.90 N	46.57 W	394,822.33	844,839.62	9.32	100.07	
11,856.00	27.19	335.76	8,643.64	11,839.64	109.60 N	52.55 W	394,835.03	844,833.64	7.80	113.18	
11,887.00	29.53	339.90	8,670.92	11,866.92	123.23 N	58.08 W	394,848.66	844,828.11	9.86	127.18	
11,918.00	31.15	343.57	8,697.68	11,893.68	138.10 N	62.98 W	394,863.53	844,823.21	7.94	142.37	
11,950.00	33.31	345.41	8,724.75	11,920.75	154.55 N	67.53 W	394,879.98	844,818.66	7.41	159.11	
11,981.00	35.19	347.03	8,750.37	11,946.37	171.49 N	71.68 W	394,896.92	844,814.51	6.74	176.31	
12,013.00	36.66	349.16	8,776.28	11,972.28	189.86 N	75.55 W	394,915.29	844,810.64	6.03	194.92	
12,044.00	38.28	352.25	8,800.89	11,996.89	208.47 N	78.58 W	394,933.90	844,807.61	8.00	213.70	
12,076.00	39.88	354.09	8,825.73	12,021.73	228.49 N	80.98 W	394,953.92	844,805.21	6.18	233.85	
12,107.00	41.85	355.00	8,849.17	12,045.17	248.68 N	82.90 W	394,974.11	844,803.29	6.64	254.12	
12,139.00	43.94	355.25	8,872.61	12,068.61	270.38 N	84.75 W	394,995.81	844,801.44	6.55	275.90	
12,170.00	46.42	355.35	8,894.46	12,090.46	292.30 N	86.55 W	395,017.73	844,799.64	8.00	297.89	
12,201.00	48.62	355.57	8,915.40	12,111.40	315.09 N	88.36 W	395,040.52	844,797.83	7.12	320.75	
12,233.00	50.88	355.64	8,936.07	12,132.07	339.44 N	90.23 W	395,064.87	844,795.96	7.06	345.17	
12,264.00	52.78	356.07	8,955.23	12,151.23	363.74 N	91.99 W	395,089.17	844,794.20	6.23	369.54	
12,296.00	54.61	356.23	8,974.18	12,170.18	389.47 N	93.72 W	395,114.90	844,792.47	5.73	395.33	
12,327.00	57.15	355.44	8,991.56	12,187.56	415.07 N	95.59 W	395,140.50	844,790.60	8.46	420.99	
12,359.00	60.00	355.61	9,008.25	12,204.25	442.29 N	97.72 W	395,167.72	844,788.47	8.92	448.29	
12,390.00	62.48	355.63	9,023.16	12,219.16	469.38 N	99.79 W	395,194.81	844,786.40	8.00	475.47	
12,422.00	64.73	355.80	9,037.38	12,233.38	497.96 N	101.94 W	395,223.39	844,784.25	7.05	504.13	
12,454.00	67.22	356.28	9,050.41	12,246.41	527.12 N	103.95 W	395,252.55	844,782.24	7.90	533.35	
12,485.00	69.12	356.84	9,061.94	12,257.94	555.84 N	105.68 W	395,281.27	844,780.51	6.35	562.13	
12,516.00	71.13	357.26	9,072.48	12,268.48	584.96 N	107.18 W	395,310.39	844,779.01	6.61	591.27	
12,548.00	73.36	357.31	9,082.24	12,278.24	615.40 N	108.62 W	395,340.83	844,777.57	6.97	621.73	
12,579.00	76.32	357.48	9,090.34	12,286.34	645.28 N	109.98 W	395,370.71	844,776.21	9.56	651.64	
12,611.00	78.94	356.90	9,097.20	12,293.20	676.50 N	111.51 W	395,401.93	844,774.68	8.38	682.88	
12,642.00	81.48	356.28	9,102.47	12,298.47	706.99 N	113.33 W	395,432.42	844,772.86	8.43	713.43	
12,674.00	84.00	356.40	9,106.51	12,302.51	738.67 N	115.36 W	395,464.10	844,770.83	7.88	745.17	
12,705.00	86.45	356.52	9,109.09	12,305.09	769.50 N	117.26 W	395,494.93	844,768.93	7.91	776.05	
12,737.00	88.34	356.58	9,110.54	12,306.54	801.41 N	119.19 W	395,526.84	844,767.00	5.91	808.02	
12,768.00	89.38	356.93	9,111.16	12,307.16	832.35 N	120.94 W	395,557.78	844,765.25	3.54	839.01	
12,800.00	90.25	356.87	9,111.27	12,307.27	864.30 N	122.67 W	395,589.73	844,763.52	2.73	871.00	
12,829.00	91.30	356.91	9,110.87	12,306.87	893.26 N	124.25 W	395,618.69	844,761.94	3.62	899.99	
12,923.00	92.25	357.63	9,107.96	12,303.96	987.10 N	128.72 W	395,712.53	844,757.47	1.27	993.91	

Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Eastings (usft)	Map Coordinates Northing (usft)	Eastings (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
13,017.00	90.06	357.79	9,106.07	12,302.07	1,081.00 N	132.48 W	395,806.43	844,753.71	2.34	1,087.83	
13,111.00	90.59	357.74	9,105.53	12,301.53	1,174.93 N	136.14 W	395,900.36	844,750.05	0.57	1,181.77	
13,206.00	91.39	358.04	9,103.89	12,299.89	1,269.85 N	139.64 W	395,995.28	844,746.55	0.90	1,276.69	
13,300.00	91.73	357.85	9,101.33	12,297.33	1,363.76 N	143.01 W	396,089.19	844,743.18	0.41	1,370.59	
13,394.00	91.14	357.54	9,098.98	12,294.98	1,457.65 N	146.79 W	396,183.08	844,739.40	0.71	1,464.51	
13,489.00	91.85	357.49	9,096.50	12,292.50	1,552.53 N	150.91 W	396,277.96	844,735.28	0.75	1,559.43	
13,583.00	93.14	358.01	9,092.41	12,288.41	1,646.36 N	154.59 W	396,371.79	844,731.60	1.48	1,653.28	
13,677.00	92.00	356.42	9,088.19	12,284.19	1,740.15 N	159.16 W	396,465.58	844,727.03	2.08	1,747.15	
13,771.00	91.23	355.73	9,085.54	12,281.54	1,833.89 N	165.59 W	396,559.32	844,720.60	1.10	1,841.11	
13,866.00	92.00	355.77	9,082.87	12,278.87	1,928.59 N	172.62 W	396,654.02	844,713.57	0.81	1,936.08	
13,960.00	91.26	354.82	9,080.19	12,276.19	2,022.24 N	180.33 W	396,747.67	844,705.86	1.28	2,030.03	
14,055.00	91.94	354.92	9,077.54	12,273.54	2,116.82 N	188.82 W	396,842.25	844,697.37	0.72	2,124.98	
14,149.00	91.38	354.94	9,074.82	12,270.82	2,210.41 N	197.13 W	396,935.84	844,689.06	0.60	2,218.93	
14,243.00	90.22	354.92	9,073.50	12,269.50	2,304.03 N	205.43 W	397,029.46	844,680.76	1.23	2,312.91	
14,337.00	90.74	355.34	9,072.72	12,268.72	2,397.69 N	213.41 W	397,123.12	844,672.78	0.71	2,406.90	
14,432.00	91.70	355.46	9,070.69	12,266.69	2,492.36 N	221.03 W	397,217.79	844,665.16	1.02	2,501.88	
14,527.00	87.57	357.63	9,071.49	12,267.49	2,617.10 N	228.56 W	397,342.53	844,657.63	3.73	2,626.83	
14,588.00	85.74	358.47	9,073.30	12,269.30	2,648.03 N	229.61 W	397,373.46	844,656.58	6.49	2,657.75	
14,620.00	85.55	358.83	9,075.73	12,271.73	2,679.92 N	230.37 W	397,405.35	844,655.82	1.27	2,689.62	
14,651.00	85.89	358.42	9,078.04	12,274.04	2,710.83 N	231.11 W	397,436.26	844,655.08	1.72	2,720.49	
14,683.00	86.61	357.74	9,080.14	12,276.14	2,742.74 N	232.18 W	397,468.17	844,654.01	3.09	2,752.40	
14,714.00	87.13	356.73	9,081.83	12,277.83	2,773.66 N	233.67 W	397,499.09	844,652.52	3.66	2,783.34	
14,746.00	88.31	355.62	9,083.10	12,279.10	2,805.56 N	235.80 W	397,530.99	844,650.39	5.06	2,815.31	
14,777.00	89.54	355.00	9,083.68	12,279.68	2,836.45 N	238.34 W	397,561.88	844,647.85	4.44	2,846.31	
14,809.00	90.03	354.82	9,083.80	12,279.80	2,868.33 N	241.18 W	397,593.76	844,645.01	1.63	2,878.30	
14,903.00	91.66	354.83	9,082.42	12,278.42	2,961.93 N	249.65 W	397,687.36	844,636.54	1.73	2,972.28	
14,998.00	91.88	355.21	9,079.48	12,275.48	3,056.52 N	257.90 W	397,781.95	844,628.29	0.46	3,067.22	
15,092.00	92.00	355.77	9,076.30	12,272.30	3,150.18 N	265.28 W	397,875.61	844,620.91	0.61	3,161.17	
15,186.00	91.70	356.52	9,073.27	12,269.27	3,243.92 N	271.60 W	397,969.35	844,614.59	0.86	3,255.12	
15,280.00	90.74	356.93	9,071.26	12,267.26	3,337.74 N	276.97 W	398,063.17	844,609.22	1.11	3,349.08	
15,374.00	89.91	357.53	9,070.73	12,266.73	3,431.63 N	281.51 W	398,157.06	844,604.68	1.09	3,443.05	
15,468.00	90.28	357.68	9,070.58	12,266.58	3,525.55 N	285.44 W	398,250.98	844,600.75	0.42	3,537.00	
15,562.00	90.77	357.59	9,069.71	12,265.71	3,619.46 N	289.32 W	398,344.89	844,596.87	0.53	3,630.94	
15,656.00	90.52	357.80	9,068.66	12,264.66	3,713.38 N	293.10 W	398,438.81	844,593.09	0.35	3,724.88	
15,751.00	90.96	357.13	9,067.43	12,263.43	3,808.28 N	297.30 W	398,533.71	844,588.89	0.84	3,819.83	
15,845.00	91.94	357.65	9,065.05	12,261.05	3,902.15 N	301.58 W	398,627.58	844,584.61	1.18	3,913.76	
15,939.00	92.13	357.61	9,061.71	12,257.71	3,996.01 N	305.47 W	398,721.44	844,580.72	0.21	4,007.66	
16,033.00	91.97	357.62	9,058.35	12,254.35	4,089.87 N	309.37 W	398,815.30	844,576.82	0.17	4,101.55	
16,127.00	92.31	357.72	9,054.84	12,250.84	4,183.72 N	313.19 W	398,909.15	844,573.00	0.38	4,195.43	

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Design Report for Jazzbass 34 Federal 3H - Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Easting (usft)	Map Coordinates Northing (usft)	Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
16,169.00	91.51	357.26	9,053.44	12,249.44	4,225.66 N	315.03 W	398,951.09	844,571.16	2.20	4,237.39	Last MWD Survey @ 16169.00' MD Projected to TD @ 16226.00' MD 331.24' FNL & 2260.74 FEL
16,226.00	91.51	357.26	9,051.94	12,247.94	4,282.58 N	317.76 W	399,008.01	844,568.43	0.00	4,294.35	

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
16,169.00	12,249.44	4,225.66	-315.03	Last MWD Survey @ 16169.00' MD
16,226.00	12,247.94	4,282.58	-317.76	Projected to TD @ 16226.00' MD 331.24' FNL & 2260.74 FEL

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (usft)	+E/-W (usft)	Start TVD (usft)
Target	Jazzbass 34 Federal 3H	355.77	Slot	0.00	0.00	0.00
	BHL					
14,557.00	16,226.00					MWD+SC
	Sperry MWD					

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Jazzbass 34 Federa	0.00	0.00	12,311.00	726.64	-6.34	395,452.07	844,879.85	32° 5' 0.191 N 3° 21' 11.735 W	
- actual wellpath misses target center by 108.56usft at 12656.26usft MD (12300.44 TVD, 721.09 N, -114.24 E)									
- Point									
Jazzbass 34 Federa	0.00	0.00	12,231.00	4,283.83	-317.03	399,009.26	844,569.16	32° 5' 35.417 N 3° 21' 14.970 W	
- actual wellpath misses target center by 17.00usft at 16226.00usft MD (12247.94 TVD, 4282.58 N, -317.76 E)									
- Point									

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North Reference Sheet for Jazzbass 34 Federal - Jazzbass 34 Federal 3H - ST 01

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GL 3171' + KB 25' @ 3196.00usft (H&P 490). Northing and Easting are relative to Jazzbass 34 Federal 3H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is 104° 20' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 0° 0' 0.000 N°
False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 1.00001463

Grid Coordinates of Well: 394,725.43 usft N, 844,886.19 usft E
Geographical Coordinates of Well: 32° 04' 53.00" N, 103° 21' 11.74" W
Grid Convergence at Surface is: 0.52°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,226.00usft
the Bottom Hole Displacement is 4,294.35usft in the Direction of 355.76° (Grid).
Magnetic Convergence at surface is: -6.59° (21 September 2015, , BGGM2015)

T

G

M

Magnetic Model: BGGM2015

Date: 21-Sep-15

Declination: 7.11°

Inclination/Dip: 60.05°

Field Strength: 48135

Grid North is 0.52° East of True North (Grid Convergence)

Magnetic North is 7.11° East of True North (Magnetic Declination)

Magnetic North is 6.59° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.52°

To convert a Magnetic Direction to a True Direction, Add 7.11° East

To convert a Magnetic Direction to a Grid Direction, Add 6.59°