

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-30555	² Pool Code	³ Pool Name Pictured Cliffs
⁴ Property Code	⁵ Property Name CARSON	⁶ Well Number #4084
⁷ OGRID No. 162928	⁸ Operator Name ENERGEN RESOURCES CORPORATION	⁹ Elevation 7156'

¹⁰ Surface Location

UL or lot no. E	Section 35	Township 30N	Range 4W	Lot Idn	Feet from the 1680	North/South line NORTH	Feet from the 895	East/West line WEST	County RIO ARriba
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. L	Section 34	Township 30N	Range 4W	Lot Idn	Feet from the 1789	North/South line SOUTH	Feet from the 785	East/West line WEST	County RIO ARriba
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¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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RCVD AUG 11 '10
OIL CONS. DIV.
DIST. 3

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

						¹⁷ OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> Signature 08/29/2010 Date
						¹⁸ SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i> MARCH 2, 2009 Date of Survey Original Survey Conducted and Recorded By: David Russell 10201 Certificate Number

Am

RCVD AUG 11 '10
OIL CONS. DIV.

DIST. 3

Energen Resources

Rio Arriba County, NM

Sec. 35-T30N-R4W

Carson #408H

Plan #1

Design: Pathfinder MWD and Sperry MWD Survey

Sperry Drilling Services Standard Report

01 June, 2010

Well Coordinates: 2,101,317.53 N, 1,353,351.76 E (36° 46' 14.81" N, 107° 13' 48.50" W)
Ground Level: 7,156.00 ft

Local Coordinate Origin:

Centered on Well Carson #408H

Viewing Datum:

KB @ 7168.00ft (H & P 291)

TVDs to System.

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom2

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

HALLIBURTON

Design Report for Carson #408H - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,830.00	0.00	76.04	1,830.00	0.00	0.00	0.00	0.00
1,875.00	0.35	329.73	1,875.00	0.12	-0.07	0.03	0.78
1,920.00	1.06	245.94	1,920.00	0.07	-0.52	0.47	2.40
1,965.00	2.11	192.67	1,964.98	-0.91	-1.08	1.31	3.78
2,010.00	3.61	164.51	2,009.93	-3.08	-0.88	1.82	4.47
2,055.00	4.84	159.51	2,054.80	-6.23	0.16	1.84	2.85
2,100.00	5.19	160.63	2,099.63	-9.93	1.50	1.76	0.81
2,145.00	5.01	160.41	2,144.45	-13.70	2.83	1.70	0.40
2,190.00	5.10	161.43	2,189.28	-17.44	4.13	1.67	0.28
2,235.00	5.10	165.58	2,234.10	-21.28	5.26	1.82	0.82
2,281.00	4.92	180.73	2,279.93	-25.23	5.75	2.63	2.89
2,326.00	4.84	204.25	2,324.77	-28.89	4.94	4.56	4.42
2,371.00	5.54	217.06	2,369.58	-32.36	2.85	7.65	3.00
2,416.00	8.71	217.96	2,414.23	-36.78	-0.55	12.29	7.05
2,461.00	11.26	218.98	2,458.55	-42.88	-5.41	18.85	5.68
2,506.00	12.93	213.72	2,502.55	-50.48	-10.97	26.55	4.44
2,551.00	14.51	208.77	2,546.26	-59.61	-16.48	34.69	4.37
2,596.00	14.86	205.75	2,589.79	-69.75	-21.70	42.88	1.87
2,641.00	15.04	204.51	2,633.27	-80.26	-26.63	50.92	0.82
2,686.00	16.09	202.49	2,676.62	-91.34	-31.44	59.02	2.63
2,731.00	18.47	199.71	2,719.59	-103.81	-36.23	67.55	5.60
2,776.00	21.02	196.98	2,761.94	-118.24	-40.99	76.68	6.02
2,821.00	23.83	195.70	2,803.53	-134.72	-45.81	86.51	6.34
2,866.00	24.71	194.14	2,844.55	-152.59	-50.56	96.74	2.42
2,911.00	25.15	193.85	2,885.36	-170.99	-55.15	106.98	1.01
2,956.00	25.94	193.40	2,925.96	-189.85	-59.72	117.34	1.81
3,001.00	27.00	193.95	2,966.24	-209.34	-64.46	128.08	2.42
3,046.00	27.96	195.06	3,006.17	-229.44	-69.67	139.44	2.42
3,091.00	29.37	197.62	3,045.65	-250.15	-75.75	151.83	4.15
3,136.00	31.13	199.78	3,084.52	-271.61	-83.03	165.59	4.60
3,181.00	32.27	201.72	3,122.81	-293.72	-91.41	180.61	3.40
3,226.00	34.73	203.29	3,160.33	-316.66	-100.93	196.97	5.80
3,272.00	37.20	203.59	3,197.56	-341.44	-111.67	215.08	5.38
3,317.00	39.13	204.16	3,232.94	-366.87	-122.93	233.88	4.36
3,362.00	41.50	204.08	3,267.25	-393.44	-134.83	253.66	5.27
3,407.00	44.41	203.34	3,300.18	-421.51	-147.15	274.32	6.56
3,452.00	47.92	201.26	3,331.35	-451.54	-159.45	295.58	8.48
3,497.00	50.03	199.59	3,360.88	-483.36	-171.29	316.98	5.46
3,542.00	53.02	198.57	3,388.88	-516.65	-182.79	338.54	6.88
3,587.00	55.66	198.58	3,415.11	-551.30	-194.44	360.67	5.87
3,632.00	58.74	197.97	3,439.48	-587.22	-206.30	383.39	6.94
3,677.00	60.50	197.73	3,462.24	-624.17	-218.20	406.49	3.94
3,722.00	63.14	197.23	3,483.49	-662.00	-230.11	429.89	5.95
3,767.00	65.51	197.04	3,502.98	-700.75	-242.05	453.61	5.28
3,812.00	67.88	197.02	3,520.79	-740.27	-254.16	477.72	5.27
3,857.00	68.94	197.16	3,537.34	-780.26	-266.45	502.17	2.37
3,902.00	69.20	197.36	3,553.42	-820.40	-278.93	526.83	0.71
3,947.00	69.38	197.70	3,569.33	-860.54	-291.60	551.69	0.81
3,992.00	69.20	198.10	3,585.25	-900.59	-304.54	576.77	0.92

Design Report for Carson #408H - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,037.00	68.94	198.36	3,601.32	-940.51	-317.69	602.00	0.79
4,082.00	69.03	198.72	3,617.46	-980.34	-331.05	627.41	0.77
4,127.00	68.76	199.73	3,633.66	-1,019.98	-344.87	653.19	2.18
4,172.00	67.97	201.66	3,650.26	-1,059.11	-359.65	679.71	4.36
4,217.00	66.30	204.04	3,667.74	-1,097.31	-375.74	707.19	6.13
4,262.00	65.60	206.85	3,686.09	-1,134.42	-393.39	735.79	5.91
4,307.00	64.90	208.87	3,704.93	-1,170.55	-412.49	765.44	4.36
4,353.00	63.93	210.28	3,724.79	-1,206.63	-432.96	796.39	3.48
4,398.00	64.10	212.12	3,744.51	-1,241.23	-453.92	827.31	3.69
4,443.00	64.19	213.36	3,764.13	-1,275.29	-475.82	858.96	2.49
4,488.00	65.42	214.67	3,783.29	-1,309.04	-498.60	891.35	3.80
4,533.00	66.39	216.87	3,801.66	-1,342.36	-522.61	924.76	4.96
4,578.00	67.18	218.28	3,819.40	-1,375.14	-547.83	959.15	3.37
4,623.00	68.32	220.21	3,836.44	-1,407.39	-574.18	994.43	4.71
4,668.00	69.38	221.79	3,852.68	-1,439.06	-601.71	1,030.65	4.03
4,713.00	70.87	223.02	3,867.98	-1,470.31	-630.25	1,067.69	4.19
4,758.00	71.84	224.25	3,882.37	-1,501.16	-659.67	1,105.44	3.37
4,803.00	73.69	225.66	3,895.70	-1,531.57	-690.04	1,143.95	5.08
4,849.00	73.78	226.80	3,908.58	-1,562.12	-721.93	1,183.93	2.39
4,894.00	73.95	227.51	3,921.09	-1,591.52	-753.62	1,223.37	1.56
4,939.00	74.30	228.74	3,933.40	-1,620.41	-785.85	1,263.15	2.74
4,983.00	74.39	230.58	3,945.27	-1,647.83	-818.14	1,302.52	4.03
5,028.00	74.92	231.99	3,957.18	-1,674.97	-852.00	1,343.28	3.24
5,074.00	75.45	234.54	3,968.95	-1,701.57	-887.64	1,385.56	5.48
5,118.00	75.97	237.44	3,979.81	-1,725.41	-922.98	1,426.67	6.50
5,163.00	75.45	240.25	3,990.92	-1,747.97	-960.29	1,469.24	6.16
5,209.00	75.71	242.45	4,002.37	-1,769.33	-999.39	1,513.12	4.67
5,254.00	76.59	244.91	4,013.15	-1,788.70	-1,038.55	1,556.42	5.66
5,291.00	77.03	247.46	4,021.59	-1,803.24	-1,071.50	1,592.29	6.81
5,337.00	77.91	250.45	4,031.57	-1,819.36	-1,113.40	1,637.15	6.63
5,382.00	79.32	252.90	4,040.46	-1,833.23	-1,155.28	1,681.26	6.19
5,427.00	80.99	255.10	4,048.15	-1,845.45	-1,197.89	1,725.54	6.08
5,472.00	82.57	257.21	4,054.59	-1,856.10	-1,241.13	1,769.92	5.82
5,517.00	83.71	260.02	4,059.96	-1,864.92	-1,284.93	1,814.23	6.70
5,563.00	83.54	261.08	4,065.07	-1,872.42	-1,330.02	1,859.36	2.32
5,607.00	84.15	262.40	4,069.79	-1,878.71	-1,373.31	1,902.38	3.29
5,653.00	85.12	264.60	4,074.09	-1,883.89	-1,418.81	1,947.15	5.21
5,697.00	86.79	266.88	4,077.19	-1,887.15	-1,462.58	1,989.65	6.41
5,742.00	88.02	268.02	4,079.23	-1,889.15	-1,507.49	2,032.84	3.72
5,787.00	89.43	268.90	4,080.23	-1,890.36	-1,552.46	2,075.83	3.69
5,832.00	90.13	269.43	4,080.41	-1,891.02	-1,597.45	2,118.67	1.95
5,903.00	90.13	269.43	4,080.24	-1,891.72	-1,668.45	2,186.16	0.00
5,947.00	89.01	269.53	4,080.57	-1,892.12	-1,712.44	2,227.97	2.56
6,001.00	86.97	269.46	4,082.47	-1,892.60	-1,766.41	2,279.24	3.78
6,032.00	85.80	269.61	4,084.42	-1,892.85	-1,797.34	2,308.63	3.80
6,062.00	84.13	269.57	4,087.06	-1,893.06	-1,827.23	2,337.01	5.57
6,092.00	84.24	270.21	4,090.10	-1,893.12	-1,857.07	2,365.30	2.15
6,123.00	85.36	270.91	4,092.91	-1,892.82	-1,887.94	2,394.45	4.26
6,153.00	86.73	271.15	4,094.97	-1,892.28	-1,917.86	2,422.63	4.64
6,184.00	88.09	271.72	4,096.38	-1,891.50	-1,948.82	2,451.71	4.76

HALLIBURTON

Design Report for Carson #408H - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,214.00	88.58	272.26	4,097.25	-1,890.46	-1,978.79	2,479.77	2.43
6,244.00	89.01	273.17	4,097.88	-1,889.04	-2,008.75	2,507.70	3.35
6,274.00	90.12	273.98	4,098.11	-1,887.17	-2,038.69	2,535.47	4.58
6,305.00	91.30	275.62	4,097.72	-1,884.58	-2,069.58	2,563.90	6.52
6,335.00	91.79	276.44	4,096.91	-1,881.43	-2,099.40	2,591.14	3.18
6,365.00	91.48	276.31	4,096.06	-1,878.10	-2,129.20	2,618.31	1.12
6,396.00	92.16	277.85	4,095.07	-1,874.28	-2,159.95	2,646.22	5.43
6,427.00	92.47	278.32	4,093.82	-1,869.92	-2,190.62	2,673.88	1.82
6,456.00	92.53	278.91	4,092.55	-1,865.58	-2,219.26	2,699.63	2.04
6,487.00	93.21	280.38	4,091.00	-1,860.40	-2,249.78	2,726.89	5.22
6,518.00	93.40	280.67	4,089.22	-1,854.74	-2,280.21	2,753.90	1.12
6,549.00	93.27	280.74	4,087.41	-1,848.99	-2,310.62	2,780.87	0.48
6,580.00	93.15	280.75	4,085.68	-1,843.22	-2,341.03	2,807.83	0.39
6,612.00	94.27	280.40	4,083.61	-1,837.36	-2,372.42	2,835.70	3.67
6,644.00	95.45	279.14	4,080.89	-1,831.95	-2,403.84	2,863.73	5.38
6,676.00	95.88	277.48	4,077.74	-1,827.35	-2,435.35	2,892.11	5.33
6,708.00	94.95	275.67	4,074.72	-1,823.70	-2,467.00	2,920.93	6.34
6,739.00	94.58	273.79	4,072.14	-1,821.16	-2,497.78	2,949.28	6.16
6,771.00	93.64	272.35	4,069.85	-1,819.45	-2,529.65	2,978.92	5.36
6,802.00	93.40	271.15	4,067.94	-1,818.50	-2,560.58	3,007.92	3.94
6,834.00	93.21	269.67	4,066.10	-1,818.27	-2,592.52	3,038.11	4.66
6,866.00	92.22	267.72	4,064.58	-1,819.00	-2,624.48	3,068.62	6.83
6,898.00	91.30	266.72	4,063.60	-1,820.55	-2,656.42	3,099.38	4.25
6,930.00	90.06	266.55	4,063.22	-1,822.43	-2,688.37	3,130.24	3.91
6,961.00	89.38	266.36	4,063.37	-1,824.35	-2,719.31	3,160.17	2.28
6,993.00	90.19	267.23	4,063.49	-1,826.14	-2,751.26	3,191.01	3.71
7,025.00	90.80	267.39	4,063.21	-1,827.64	-2,783.22	3,221.77	1.97
7,057.00	90.80	267.79	4,062.77	-1,828.98	-2,815.19	3,252.49	1.25
7,120.00	92.41	271.48	4,061.00	-1,829.39	-2,878.15	3,312.27	6.39
7,152.00	91.85	273.04	4,059.81	-1,828.12	-2,910.10	3,342.14	5.18
7,184.00	89.75	272.38	4,059.37	-1,826.61	-2,942.06	3,371.93	6.88
7,215.00	90.12	270.99	4,059.40	-1,825.70	-2,973.05	3,400.99	4.64
7,247.00	89.32	270.36	4,059.56	-1,825.32	-3,005.04	3,431.19	3.18
7,279.00	88.89	270.39	4,060.06	-1,825.11	-3,037.04	3,461.43	1.35
7,310.00	88.09	270.68	4,060.87	-1,824.83	-3,068.03	3,490.70	2.74
7,342.00	88.45	271.04	4,061.84	-1,824.34	-3,100.01	3,520.84	1.59
7,374.00	88.39	271.05	4,062.72	-1,823.76	-3,131.99	3,550.96	0.19
7,405.00	88.70	270.79	4,063.51	-1,823.26	-3,162.98	3,580.15	1.30
7,437.00	89.26	271.35	4,064.08	-1,822.67	-3,194.96	3,610.27	2.47
7,469.00	89.57	271.84	4,064.41	-1,821.78	-3,226.95	3,640.29	1.81
7,501.00	89.20	272.03	4,064.75	-1,820.70	-3,258.93	3,670.24	1.30
7,533.00	88.89	271.69	4,065.28	-1,819.66	-3,290.91	3,700.20	1.44
7,565.00	88.52	270.73	4,066.01	-1,818.98	-3,322.89	3,730.29	3.21
7,596.00	89.07	269.91	4,066.66	-1,818.81	-3,353.89	3,759.59	3.18
7,628.00	89.07	268.72	4,067.18	-1,819.19	-3,385.88	3,790.03	3.72
7,660.00	88.09	267.93	4,067.97	-1,820.13	-3,417.85	3,820.62	3.93
7,692.00	87.34	268.06	4,069.25	-1,821.24	-3,449.81	3,851.25	2.38
7,723.00	86.97	268.53	4,070.79	-1,822.17	-3,480.76	3,880.87	1.93
7,755.00	88.09	270.09	4,072.16	-1,822.55	-3,512.72	3,911.27	6.00
7,787.00	89.57	271.46	4,072.82	-1,822.12	-3,544.71	3,941.44	6.30
7,818.00	90.12	271.87	4,072.90	-1,821.22	-3,575.70	3,970.51	2.21

HALLIBURTON

Design Report for Carson #408H - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,847.00	90.31	272.20	4,072.79	-1,820.19	-3,604.68	3,997.64	1.31
7,878.00	91.24	271.70	4,072.37	-1,819.13	-3,635.66	4,026.65	3.41
7,909.00	90.62	270.50	4,071.87	-1,818.54	-3,666.65	4,055.82	4.36
7,940.00	90.56	270.08	4,071.55	-1,818.38	-3,697.65	4,085.13	1.37
7,970.00	90.62	269.29	4,071.24	-1,818.55	-3,727.64	4,113.61	2.64
8,000.00	90.49	268.20	4,070.95	-1,819.20	-3,757.63	4,142.23	3.66
8,030.00	90.25	266.74	4,070.76	-1,820.53	-3,787.60	4,171.05	4.93
8,061.00	90.19	266.08	4,070.64	-1,822.47	-3,818.54	4,200.98	2.14
8,089.00	89.20	265.58	4,070.79	-1,824.50	-3,846.47	4,228.09	3.96
8,151.00	89.44	266.47	4,071.52	-1,828.80	-3,908.31	4,288.06	1.49
8,181.00	88.70	266.85	4,072.01	-1,830.55	-3,938.26	4,316.98	2.77
8,212.00	88.77	267.47	4,072.70	-1,832.08	-3,969.21	4,346.80	2.01
8,243.00	88.70	267.85	4,073.38	-1,833.35	-4,000.18	4,376.54	1.25
8,274.00	88.77	268.40	4,074.06	-1,834.36	-4,031.15	4,406.21	1.79
8,305.00	89.14	269.15	4,074.63	-1,835.03	-4,062.14	4,435.78	2.70
8,335.00	89.26	269.79	4,075.05	-1,835.30	-4,092.14	4,464.29	2.17
8,365.00	89.20	270.32	4,075.45	-1,835.28	-4,122.14	4,492.70	1.78
8,396.00	89.44	270.99	4,075.82	-1,834.92	-4,153.13	4,521.95	2.30
8,427.00	89.69	271.61	4,076.05	-1,834.22	-4,184.12	4,551.09	2.16
8,456.00	89.57	272.08	4,076.24	-1,833.28	-4,213.11	4,578.25	1.67
8,485.00	89.44	272.63	4,076.49	-1,832.09	-4,242.08	4,605.32	1.95
8,516.00	89.81	272.69	4,076.70	-1,830.65	-4,273.05	4,634.19	1.21
8,547.00	90.49	272.91	4,076.61	-1,829.14	-4,304.01	4,663.04	2.31
8,578.00	90.87	272.79	4,076.25	-1,827.60	-4,334.97	4,691.88	1.29
8,608.00	91.11	272.53	4,075.73	-1,826.21	-4,364.93	4,719.82	1.18
8,638.00	90.43	271.92	4,075.32	-1,825.04	-4,394.91	4,747.85	3.04
8,669.00	90.43	271.74	4,075.09	-1,824.05	-4,425.89	4,776.88	0.58
8,700.00	90.80	271.55	4,074.76	-1,823.16	-4,456.87	4,805.95	1.34
8,731.00	91.05	271.12	4,074.26	-1,822.44	-4,487.86	4,835.08	1.60
8,763.00	90.56	270.11	4,073.81	-1,822.10	-4,519.86	4,865.28	3.51
8,795.00	90.00	269.65	4,073.65	-1,822.16	-4,551.86	4,895.62	2.26
8,827.00	89.69	269.24	4,073.74	-1,822.47	-4,583.85	4,926.03	1.61
8,858.00	89.75	269.08	4,073.89	-1,822.93	-4,614.85	4,955.54	0.55
8,890.00	89.20	269.07	4,074.18	-1,823.44	-4,646.84	4,986.02	1.72
8,922.00	89.26	269.54	4,074.61	-1,823.83	-4,678.84	5,016.46	1.48
8,954.00	89.57	270.27	4,074.94	-1,823.89	-4,710.84	5,046.79	2.48
8,985.00	89.63	270.91	4,075.16	-1,823.57	-4,741.83	5,076.05	2.07
9,017.00	89.51	271.39	4,075.40	-1,822.92	-4,773.83	5,106.16	1.55
9,080.00	90.06	272.12	4,075.63	-1,820.99	-4,836.80	5,165.20	1.45
9,112.00	90.37	272.12	4,075.51	-1,819.81	-4,868.77	5,195.11	0.97
9,144.00	90.25	272.13	4,075.34	-1,818.62	-4,900.75	5,225.03	0.38
9,176.00	89.88	272.32	4,075.30	-1,817.38	-4,932.73	5,254.93	1.30
9,208.00	90.43	272.92	4,075.22	-1,815.92	-4,964.69	5,284.74	2.54
9,239.00	90.37	272.33	4,075.00	-1,814.50	-4,995.66	5,313.62	1.91
9,271.00	90.49	271.53	4,074.76	-1,813.42	-5,027.64	5,343.58	2.53
9,303.00	90.25	270.89	4,074.55	-1,812.75	-5,059.63	5,373.67	2.14
9,334.00	89.81	270.88	4,074.54	-1,812.27	-5,090.63	5,402.88	1.42
9,367.00	90.31	271.00	4,074.50	-1,811.73	-5,123.63	5,433.97	1.56
9,398.00	90.80	271.02	4,074.20	-1,811.18	-5,154.62	5,463.16	1.58
9,429.00	90.12	270.43	4,073.95	-1,810.79	-5,185.61	5,492.40	2.90
9,461.00	89.69	270.17	4,074.01	-1,810.62	-5,217.61	5,522.66	1.57

HALLIBURTON

Design Report for Carson #408H - Pathfinder MWD and Sperry MWD Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
9,493.00	90.06	270.31	4,074.08	-1,810.49	-5,249.61	5,552.93	1.24
9,524.00	89.81	270.19	4,074.11	-1,810.35	-5,280.61	5,582.26	0.89
9,567.00	89.20	269.78	4,074.48	-1,810.36	-5,323.61	5,623.00	1.71
9,633.00	89.20	269.78	4,075.41	-1,810.61	-5,389.60	5,685.60	0.00

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
User	Carson #408_BHL Tgt	251.33	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
1,830.00	5,903.00	Pathfinder MWD Surveys	MWD
5,903.00	9,633.00	Sperry EM-MWD Lateral	MWD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Carson #408-Rev1_BH	0.00	0.00	4,080.00	-1,829.42	-5,415.07	2,099,543.68	1,347,918.27	36° 45' 56.714 N	107° 14' 55.054 W
- actual wellpath misses target center by 31.99ft at 9633.00ft MD (4075.41 TVD, -1810.61 N, -5389.60 E)									
- Point									
Carson #408_BHL Tgt	0.00	0.00	4,083.00	-1,829.42	-5,415.07	2,099,543.68	1,347,918.27	36° 45' 56.714 N	107° 14' 55.054 W
- actual wellpath misses target center by 32.55ft at 9633.00ft MD (4075.41 TVD, -1810.61 N, -5389.60 E)									
- Point									

North Reference Sheet for Sec. 35-T30N-R4W - Carson #408H - Plan #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to KB @ 7168.00ft (H & P 291). Northing and Easting are relative to Carson #408H

Coordinate System is US State Plane 1983, New Mexico Central Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is 106° 15' 0.000 W°, Longitude Origin.0° 0' 0.000 E°, Latitude Origin.0° 0' 0.000 N°

False Easting: 1,640,416.67ft, False Northing: 0.00ft, Scale Reduction 0.99999427

Grid Coordinates of Well: 2,101,317.53 ft N, 1,353,351.76 ft E

Geographical Coordinates of Well: 36° 46' 14.81" N, 107° 13' 48.50" W

Grid Convergence at Surface is: -0.59°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,633.00ft
the Bottom Hole Displacement is 5,685.61ft in the Direction of 251.43° (True).

Magnetic Convergence at surface is: -10.38° (27 May 2010, , BGGM2009)

