

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 26-T2N-R65W

Hudson 13C-35HZ

Plan C Rev 1

Design: Actual Field Surveys

Sperry Drilling Services Standard Report

25 February, 2013

Well Coordinates: 1,286,228.42 N, 3,240,821.80 E (40° 06' 57.17" N, 104° 38' 20.10" W)

Ground Level: 4,909.00 ft

Local Coordinate Origin:

Centered on Well Hudson 13C-35HZ

Viewing Datum:

RKB=16 @ 4925.00ft (Xtreme 22)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

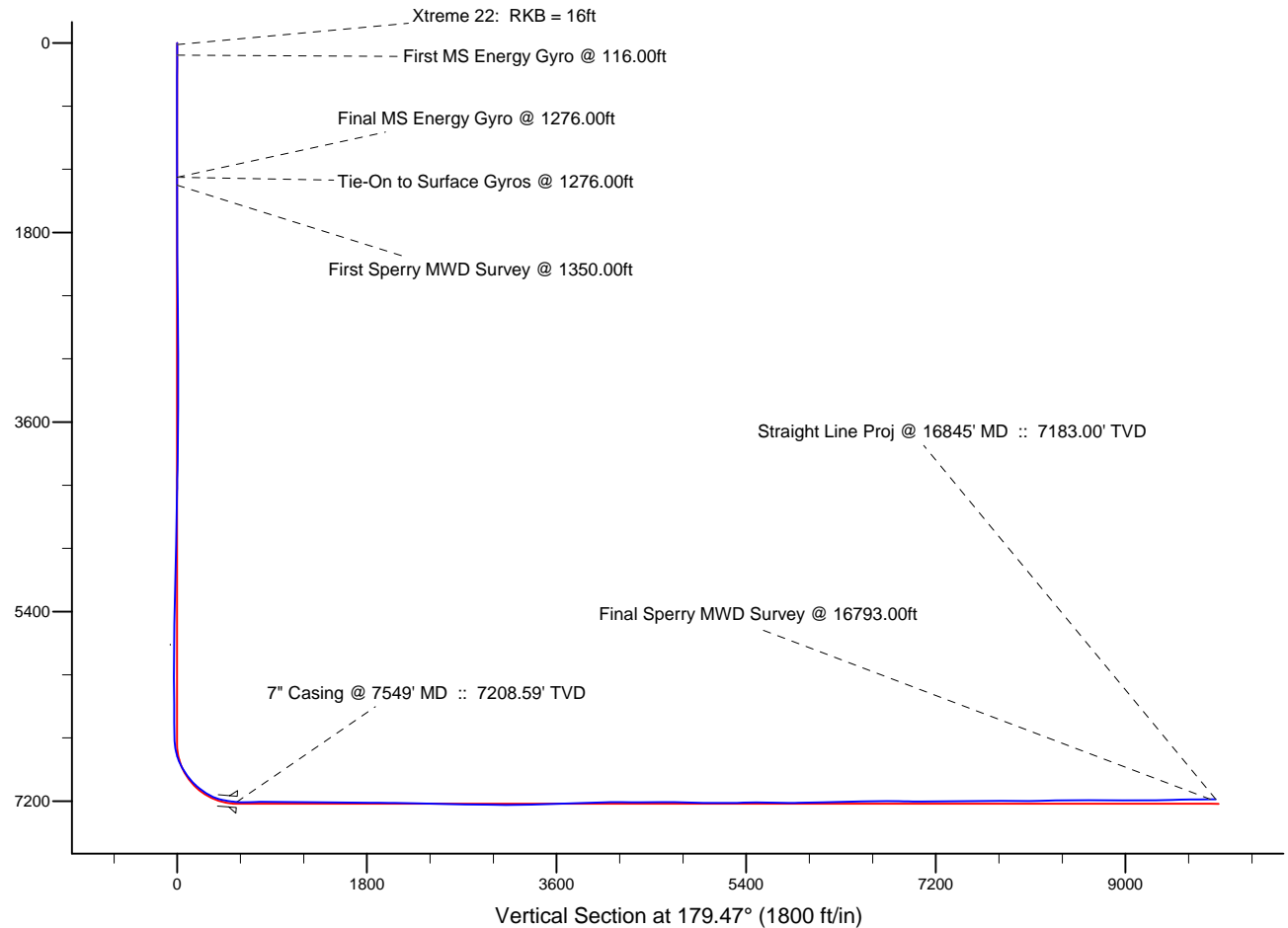
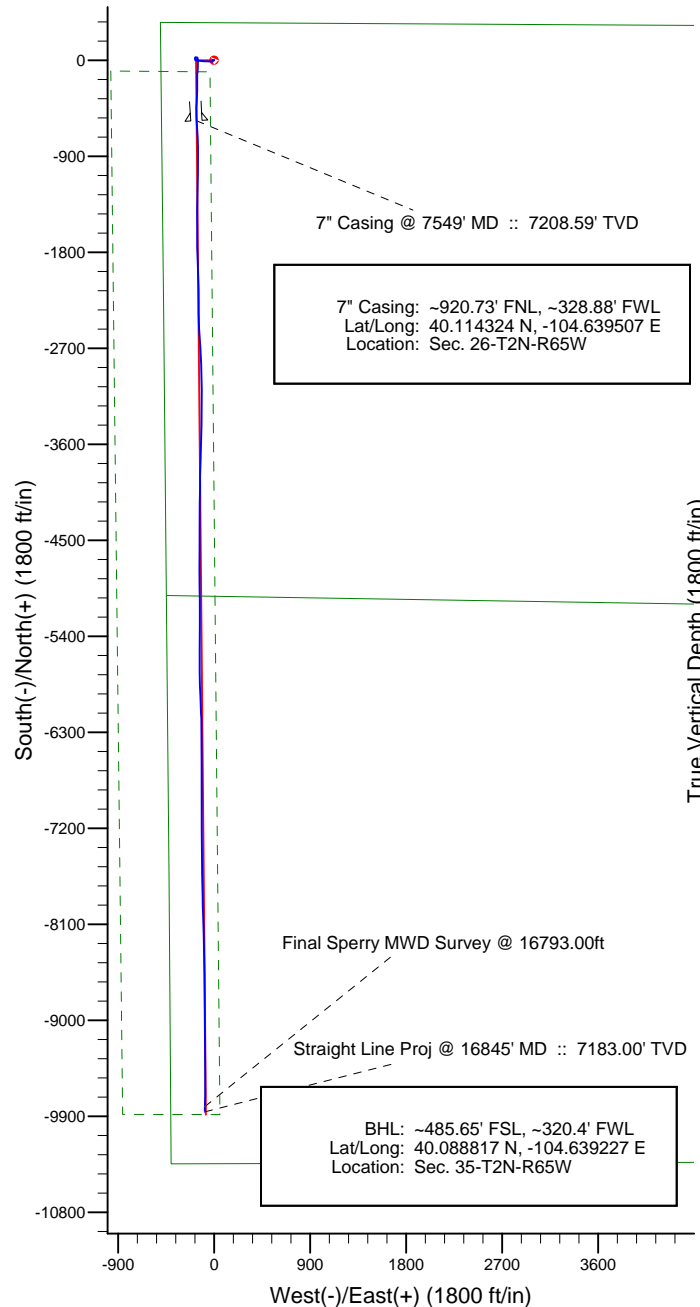
Version: 2003.16 Build: 43I

HALLIBURTON

Project: Weld County, CO (NAD 83)
 Site: Sec. 26-T2N-R65W
 Well: Hudson 13C-35HZ
 Wellbore: Plan C Rev 1
 Design: Actual Field Surveys



HALLIBURTON
 Sperry Drilling



LEGEND

✕ Hudson 13C-35HZ, Plan C Rev 1, Plan C Rev 1 Proposal V0

□ Actual Field Surveys

WELL DETAILS: Hudson 13C-35HZ	
Ground Level:	4909.00
RKB=16 @ 4925.00ft (Xtreme 22)	
Design: Actual Field Surveys (Hudson 13C-35HZ/Plan C Rev 1)	
Created By: Fred Hartmann	Date: 02/25/2013
Reviewed: _____	Date: _____

Design Report for Hudson 13C-35HZ - Actual Field Surveys

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
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00
Xtreme 22: RKB = 16ft							
116.00	0.42	319.37	116.00	0.28	-0.24	-0.28	0.42
First MS Energy Gyro @ 116.00ft							
216.00	0.86	304.61	215.99	0.98	-1.09	-0.99	0.47
316.00	0.75	292.07	315.98	1.65	-2.32	-1.68	0.21
416.00	0.65	296.38	415.98	2.15	-3.43	-2.18	0.11
516.00	0.32	283.04	515.97	2.47	-4.21	-2.51	0.35
616.00	0.66	288.56	615.97	2.71	-5.03	-2.76	0.34
716.00	0.36	264.05	715.96	2.86	-5.89	-2.92	0.36
816.00	0.46	253.72	815.96	2.72	-6.59	-2.78	0.12
916.00	0.31	233.83	915.96	2.45	-7.19	-2.51	0.20
1,016.00	0.35	251.38	1,015.96	2.19	-7.70	-2.26	0.11
1,116.00	0.38	245.17	1,115.96	1.95	-8.29	-2.03	0.05
1,216.00	0.37	179.68	1,215.95	1.49	-8.59	-1.57	0.41
1,276.00	0.26	268.18	1,275.95	1.29	-8.72	-1.37	0.74
Tie-On to Surface Gyros @ 1276.00ft - Final MS Energy Gyro @ 1276.00ft							
1,350.00	0.37	232.28	1,349.95	1.14	-9.08	-1.23	0.30
First Sperry MWD Survey @ 1350.00ft							
1,442.00	0.33	252.58	1,441.95	0.88	-9.57	-0.97	0.14
1,717.00	0.18	220.40	1,716.95	0.31	-10.60	-0.41	0.07
1,989.00	0.18	265.36	1,988.95	-0.05	-11.31	-0.06	0.05
2,263.00	0.77	197.82	2,262.94	-1.83	-12.30	1.72	0.26
2,526.00	0.74	205.26	2,525.91	-5.05	-13.57	4.93	0.04
2,783.00	0.66	187.93	2,782.90	-8.02	-14.48	7.88	0.09
2,954.00	1.14	258.96	2,953.88	-9.32	-16.28	9.17	0.65
3,040.00	3.12	265.93	3,039.81	-9.65	-19.46	9.47	2.32
3,297.00	6.80	270.91	3,295.81	-9.90	-41.65	9.52	1.44
3,382.00	8.73	272.32	3,380.03	-9.56	-53.13	9.07	2.28
3,468.00	9.56	272.72	3,464.93	-8.96	-66.79	8.34	0.97
3,554.00	8.83	271.68	3,549.83	-8.43	-80.52	7.68	0.87
3,640.00	9.18	274.32	3,634.77	-7.72	-93.96	6.85	0.63
3,726.00	7.80	275.05	3,719.82	-6.69	-106.61	5.70	1.61
3,811.00	7.57	273.03	3,804.06	-5.88	-117.95	4.79	0.42
3,897.00	6.75	274.52	3,889.39	-5.19	-128.64	4.00	0.98
3,982.00	6.84	275.94	3,973.79	-4.27	-138.66	2.99	0.22
4,068.00	6.68	277.24	4,059.19	-3.11	-148.71	1.73	0.26
4,153.00	6.47	274.99	4,143.63	-2.07	-158.39	0.60	0.39
4,239.00	5.65	282.64	4,229.15	-0.72	-167.35	-0.83	1.34
4,324.00	3.38	291.87	4,313.89	1.13	-173.76	-2.74	2.80
4,410.00	1.96	320.40	4,399.79	3.21	-177.05	-4.84	2.21
4,495.00	1.29	339.73	4,484.76	5.22	-178.30	-6.87	1.01
4,753.00	0.41	41.32	4,742.73	8.64	-178.70	-10.29	0.45
5,009.00	2.52	346.15	4,998.64	14.80	-179.44	-16.45	0.90
5,094.00	1.79	348.52	5,083.58	17.91	-180.16	-19.58	0.87
5,351.00	1.05	27.78	5,340.50	23.93	-179.86	-25.59	0.46
5,608.00	1.28	34.09	5,597.45	28.39	-177.15	-30.03	0.10
5,865.00	1.68	109.80	5,854.39	29.49	-172.00	-31.08	0.72
6,122.00	0.83	95.00	6,111.32	28.05	-166.60	-29.59	0.35

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6,294.00	0.95	103.04	6,283.30	27.62	-163.97	-29.14	0.10
6,380.00	1.24	107.11	6,369.29	27.19	-162.38	-28.69	0.35
6,465.00	1.40	103.10	6,454.26	26.68	-160.49	-28.16	0.22
6,551.00	1.22	89.43	6,540.24	26.45	-158.55	-27.92	0.42
6,642.00	2.36	160.03	6,631.20	24.70	-156.95	-26.15	2.49
6,685.00	8.44	173.29	6,673.99	20.73	-156.27	-22.17	14.34
6,728.00	12.24	177.84	6,716.29	13.04	-155.73	-14.48	9.03
6,777.00	14.59	174.37	6,763.95	1.70	-154.93	-3.14	5.07
6,813.00	19.19	172.29	6,798.39	-8.68	-153.69	7.26	12.89
6,856.00	25.29	178.51	6,838.18	-24.88	-152.50	23.47	15.19
6,899.00	28.52	181.36	6,876.52	-44.33	-152.51	42.92	8.09
6,942.00	31.96	184.51	6,913.66	-65.95	-153.65	64.52	8.81
6,985.00	35.36	184.66	6,949.45	-89.70	-155.55	88.26	7.91
7,028.00	38.71	183.75	6,983.77	-115.52	-157.44	114.06	7.89
7,071.00	42.77	181.69	7,016.34	-143.55	-158.76	142.07	9.94
7,114.00	47.61	179.19	7,046.64	-174.04	-158.96	172.56	11.99
7,156.00	50.73	178.98	7,074.10	-205.81	-158.45	204.34	7.44
7,199.00	53.92	179.87	7,100.38	-239.84	-158.12	238.37	7.60
7,242.00	57.67	181.38	7,124.55	-275.39	-158.52	273.91	9.19
7,285.00	61.95	182.90	7,146.17	-312.52	-159.91	311.03	10.41
7,328.00	67.26	182.80	7,164.60	-351.30	-161.84	349.79	12.35
7,371.00	72.93	182.45	7,179.23	-391.68	-163.69	390.15	13.21
7,414.00	78.25	182.36	7,189.93	-433.27	-165.44	431.72	12.37
7,457.00	81.31	181.63	7,197.56	-475.56	-166.91	474.00	7.31
7,499.00	82.33	178.66	7,203.54	-517.13	-167.01	515.56	7.41
7,526.00	84.47	177.44	7,206.64	-543.93	-166.10	542.37	9.11
7,549.00	85.78	176.82	7,208.59	-566.82	-164.95	565.27	6.29
7" Casing @ 7549' MD :: 7208.59' TVD							
7,622.00	89.94	174.87	7,211.32	-639.56	-159.67	638.05	6.29
7,707.00	93.15	177.81	7,209.03	-724.33	-154.24	722.87	5.12
7,793.00	91.24	179.07	7,205.73	-810.23	-151.91	808.79	2.66
7,879.00	89.07	180.36	7,205.50	-896.22	-151.48	894.78	2.94
7,964.00	88.76	180.50	7,207.11	-981.20	-152.12	979.75	0.40
8,050.00	89.57	181.19	7,208.36	-1,067.18	-153.38	1,065.72	1.24
8,136.00	88.70	181.36	7,209.66	-1,153.15	-155.30	1,151.67	1.03
8,222.00	88.58	180.72	7,211.70	-1,239.11	-156.86	1,237.61	0.76
8,308.00	88.89	180.65	7,213.60	-1,325.09	-157.89	1,323.57	0.37
8,393.00	90.56	179.91	7,214.01	-1,410.08	-158.30	1,408.56	2.15
8,479.00	91.36	180.22	7,212.57	-1,496.07	-158.40	1,494.54	1.00
8,565.00	89.81	180.41	7,211.69	-1,582.06	-158.87	1,580.52	1.82
8,651.00	88.83	179.51	7,212.71	-1,668.05	-158.81	1,666.51	1.55
8,735.00	89.44	179.18	7,213.98	-1,752.04	-157.85	1,750.50	0.83
8,821.00	89.44	178.24	7,214.82	-1,838.01	-155.92	1,836.49	1.09
8,907.00	89.44	177.75	7,215.66	-1,923.95	-152.91	1,922.45	0.57
8,992.00	89.51	178.04	7,216.44	-2,008.89	-149.79	2,007.42	0.35
9,078.00	87.90	180.08	7,218.38	-2,094.85	-148.37	2,093.39	3.02
9,164.00	88.70	178.74	7,220.94	-2,180.80	-147.49	2,179.35	1.81
9,250.00	89.63	179.77	7,222.19	-2,266.79	-146.37	2,265.34	1.61
9,335.00	89.81	179.47	7,222.60	-2,351.78	-145.81	2,350.33	0.41
9,421.00	88.02	178.24	7,224.23	-2,437.75	-144.09	2,436.31	2.53
9,507.00	87.71	176.73	7,227.44	-2,523.60	-140.32	2,522.19	1.79

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
9,593.00	88.27	175.74	7,230.45	-2,609.36	-134.67	2,608.00	1.32
9,678.00	89.88	177.05	7,231.82	-2,694.18	-129.33	2,692.87	2.44
9,764.00	90.31	177.08	7,231.68	-2,780.06	-124.93	2,778.79	0.50
9,850.00	89.32	177.25	7,231.96	-2,865.96	-120.67	2,864.72	1.17
9,936.00	88.76	178.98	7,233.40	-2,951.89	-117.85	2,950.68	2.11
10,021.00	88.83	180.34	7,235.19	-3,036.87	-117.34	3,035.66	1.60
10,107.00	89.44	180.94	7,236.49	-3,122.86	-118.30	3,121.63	0.99
10,193.00	90.31	179.62	7,236.67	-3,208.85	-118.72	3,207.62	1.84
10,285.00	92.10	180.03	7,234.74	-3,300.83	-118.44	3,299.59	2.00
10,376.00	91.61	179.45	7,231.79	-3,391.78	-118.03	3,390.54	0.83
10,468.00	91.98	181.49	7,228.91	-3,483.72	-118.78	3,482.48	2.25
10,561.00	91.92	182.57	7,225.75	-3,576.61	-122.08	3,575.33	1.16
10,653.00	90.74	181.77	7,223.61	-3,668.52	-125.56	3,667.20	1.55
10,745.00	92.17	181.68	7,221.28	-3,760.44	-128.33	3,759.10	1.56
10,836.00	91.61	181.02	7,218.27	-3,851.37	-130.47	3,850.00	0.95
10,929.00	91.36	179.95	7,215.86	-3,944.33	-131.26	3,942.95	1.18
11,021.00	92.97	181.59	7,212.39	-4,036.25	-132.49	4,034.85	2.50
11,204.00	88.64	180.59	7,209.82	-4,219.16	-135.97	4,217.72	2.43
11,296.00	89.63	180.13	7,211.21	-4,311.14	-136.55	4,309.69	1.19
11,388.00	89.88	179.94	7,211.60	-4,403.14	-136.60	4,401.69	0.34
11,570.00	90.80	180.52	7,210.52	-4,585.13	-137.33	4,583.67	0.60
11,753.00	88.70	179.93	7,211.32	-4,768.12	-138.05	4,766.64	1.19
11,935.00	89.01	179.30	7,214.96	-4,950.08	-136.83	4,948.60	0.39
12,117.00	89.51	179.41	7,217.31	-5,132.05	-134.78	5,130.58	0.28
12,299.00	91.24	180.18	7,216.12	-5,314.04	-134.13	5,312.57	1.04
12,482.00	90.56	180.73	7,213.24	-5,497.01	-135.58	5,495.52	0.48
12,666.00	88.33	179.65	7,215.02	-5,680.98	-136.19	5,679.48	1.35
12,757.00	89.26	179.16	7,216.94	-5,771.96	-135.25	5,770.46	1.16
12,880.00	92.04	178.00	7,215.54	-5,894.90	-132.20	5,893.42	2.45
12,941.00	90.74	177.87	7,214.06	-5,955.84	-130.00	5,954.38	2.14
13,027.00	90.31	177.22	7,213.27	-6,041.75	-126.32	6,040.33	0.91
13,113.00	91.42	177.89	7,211.98	-6,127.67	-122.65	6,126.27	1.51
13,198.00	91.11	179.08	7,210.10	-6,212.61	-120.41	6,211.23	1.45
13,284.00	92.29	179.27	7,207.55	-6,298.56	-119.17	6,297.19	1.39
13,370.00	91.73	180.24	7,204.53	-6,384.51	-118.80	6,383.14	1.30
13,455.00	90.56	180.03	7,202.83	-6,469.49	-119.00	6,468.11	1.40
13,540.00	90.56	179.65	7,202.00	-6,554.49	-118.76	6,553.11	0.45
13,626.00	90.74	179.35	7,201.03	-6,640.48	-118.01	6,639.10	0.41
13,711.00	90.25	179.58	7,200.29	-6,725.47	-117.22	6,724.10	0.64
13,797.00	89.44	180.67	7,200.52	-6,811.47	-117.41	6,810.09	1.58
13,883.00	88.39	179.58	7,202.15	-6,897.45	-117.59	6,896.07	1.76
13,969.00	89.57	179.61	7,203.68	-6,983.43	-116.99	6,982.05	1.37
14,054.00	89.63	179.94	7,204.28	-7,068.43	-116.65	7,067.05	0.39
14,140.00	89.75	179.77	7,204.74	-7,154.43	-116.44	7,153.04	0.24
14,226.00	90.99	179.60	7,204.19	-7,240.42	-115.96	7,239.04	1.46
14,312.00	90.56	179.38	7,203.02	-7,326.41	-115.20	7,325.03	0.56
14,397.00	91.92	179.38	7,201.19	-7,411.38	-114.28	7,410.01	1.60
14,483.00	91.42	180.30	7,198.68	-7,497.35	-114.04	7,495.97	1.22
14,654.00	89.57	178.74	7,197.20	-7,668.32	-112.60	7,666.95	1.42
14,740.00	89.44	178.42	7,197.94	-7,754.29	-110.47	7,752.94	0.40
14,826.00	89.01	178.43	7,199.11	-7,840.25	-108.11	7,838.92	0.50

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
14,928.00	89.81	178.89	7,200.16	-7,942.22	-105.73	7,940.90	0.90
14,997.00	90.06	177.37	7,200.24	-8,011.18	-103.47	8,009.88	2.23
15,083.00	91.61	178.65	7,198.98	-8,097.11	-100.49	8,095.84	2.34
15,169.00	91.98	178.28	7,196.29	-8,183.04	-98.19	8,181.78	0.61
15,255.00	92.16	179.34	7,193.18	-8,268.96	-96.40	8,267.72	1.25
15,340.00	90.25	179.21	7,191.40	-8,353.93	-95.32	8,352.69	2.25
15,426.00	89.88	178.78	7,191.30	-8,439.92	-93.82	8,438.69	0.66
15,512.00	89.57	179.00	7,191.71	-8,525.90	-92.15	8,524.69	0.44
15,598.00	89.69	179.10	7,192.27	-8,611.89	-90.72	8,610.68	0.18
15,683.00	89.38	178.87	7,192.96	-8,696.87	-89.22	8,695.68	0.45
15,769.00	90.19	179.29	7,193.28	-8,782.86	-87.84	8,781.67	1.06
15,833.00	89.75	179.70	7,193.31	-8,846.86	-87.27	8,845.67	0.94
15,919.00	89.88	179.02	7,193.59	-8,932.85	-86.31	8,931.67	0.81
16,005.00	90.49	180.08	7,193.31	-9,018.85	-85.64	9,017.67	1.42
16,090.00	90.50	180.49	7,192.58	-9,103.84	-86.06	9,102.66	0.48
16,176.00	90.93	179.84	7,191.50	-9,189.83	-86.31	9,188.64	0.91
16,262.00	90.68	179.57	7,190.30	-9,275.82	-85.87	9,274.63	0.43
16,348.00	90.80	179.58	7,189.19	-9,361.81	-85.23	9,360.63	0.14
16,434.00	91.24	179.82	7,187.65	-9,447.80	-84.78	9,446.61	0.58
16,519.00	90.80	179.89	7,186.14	-9,532.79	-84.56	9,531.60	0.52
16,605.00	90.62	179.79	7,185.08	-9,618.78	-84.32	9,617.59	0.24
16,691.00	90.37	180.63	7,184.33	-9,704.77	-84.64	9,703.58	1.02
16,793.00	90.56	180.83	7,183.50	-9,806.76	-85.94	9,805.55	0.27
Final Sperry MWD Survey @ 16793.00ft							
16,845.00	90.56	180.83	7,183.00	-9,858.75	-86.69	9,857.53	0.00
Straight Line Proj @ 16845' MD :: 7183.00' TVD							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
16.00	16.00	0.00	0.00	Xtreme 22: RKB = 16ft
116.00	116.00	0.28	-0.24	First MS Energy Gyro @ 116.00ft
1,276.00	1,275.95	1.29	-8.72	Tie-On to Surface Gyros @ 1276.00ft
1,276.00	1,275.95	1.29	-8.72	Final MS Energy Gyro @ 1276.00ft
1,350.00	1,349.95	1.14	-9.08	First Sperry MWD Survey @ 1350.00ft
16,793.00	7,183.50	-9,806.76	-85.94	Final Sperry MWD Survey @ 16793.00ft
16,845.00	7,183.00	-9,858.75	-86.69	Straight Line Proj @ 16845' MD :: 7183.00' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	179.47	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
16.00	1,276.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
1,350.00	7,526.00	Sperry MWD Surveys - Vert/Build	MWD+SC
7,622.00	16,793.00	Sperry MWD Surveys - Lateral	MWD+SC

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,549.00	7,208.59	7" Casing @ 7549' MD :: 7208.59' TVD	7	8-3/4

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
Hudson 13C-35HZ_;	0.00	0.00	0.00	0.00	0.00	1,286,228.42	3,240,821.80	40.115880	-104.638917
- actual wellpath hits target center									
- Point									
Hudson 13C-35HZ_;	0.00	0.00	0.00	0.00	0.00	1,286,228.42	3,240,821.80	40.115880	-104.638917
- actual wellpath hits target center									
- Polygon									
Point 1				-39.21	-106.56	1,286,121.49	3,240,783.63		
Point 2				-13.31	-2,311.37	1,283,917.12	3,240,830.94		
Point 3				37.60	-7,660.95	1,278,568.50	3,240,933.79		
Point 4				53.16	-9,883.89	1,276,345.91	3,240,970.93		
Point 5				4,419.45	-9,871.60	1,276,400.59	3,245,336.72		
Point 6				4,398.44	-7,699.52	1,278,572.28	3,245,294.62		
Point 7				4,372.85	-5,090.37	1,281,180.95	3,245,243.70		
Point 8				4,360.45	-2,364.78	1,283,906.18	3,245,204.83		
Point 9				4,343.10	-131.19	1,286,139.41	3,245,165.80		
Point 10				2,151.64	-118.99	1,286,130.33	3,242,974.41		
Point 11				-39.21	-106.56	1,286,121.49	3,240,783.63		
Hudson 13C-35HZ_;	0.00	0.00	0.00	0.00	0.00	1,286,228.42	3,240,821.80	40.115880	-104.638917
- actual wellpath hits target center									
- Polygon									
Point 1				17.89	-4,979.21	1,281,249.82	3,240,888.04		
Point 2				4,832.92	-5,102.12	1,281,173.67	3,245,703.84		
Hudson 13C-35HZ_I	0.00	0.00	0.00	0.00	0.00	1,286,228.42	3,240,821.80	40.115880	-104.638917
- actual wellpath hits target center									
- Polygon									
Point 1				-969.16	-99.42	1,286,119.59	3,239,853.69		
Point 2				-859.17	-9,880.74	1,276,340.20	3,240,058.65		
Point 3				53.16	-9,883.89	1,276,345.91	3,240,970.93		
Point 4				-39.21	-106.56	1,286,121.49	3,240,783.63		
Point 5				-969.16	-99.42	1,286,119.59	3,239,853.69		
Hudson 13C-35HZ_;	0.00	0.00	0.00	0.00	0.00	1,286,228.42	3,240,821.80	40.115880	-104.638917
- actual wellpath hits target center									
- Polygon									
Point 1				-504.70	356.11	1,286,579.59	3,240,313.69		
Point 2				-473.43	-2,305.76	1,283,918.26	3,240,370.80		
Point 3				-422.46	-7,656.88	1,278,568.10	3,240,473.73		
Point 4				-403.64	-10,345.20	1,275,880.20	3,240,518.65		
Point 5				4,883.93	-10,330.31	1,275,946.43	3,245,805.61		
Point 6				4,858.52	-7,703.59	1,278,572.68	3,245,754.70		
Point 7				4,832.92	-5,102.12	1,281,173.67	3,245,703.84		
Point 8				4,820.52	-2,370.39	1,283,905.04	3,245,664.92		
Point 9				4,799.59	326.30	1,286,601.29	3,245,617.81		
Point 10				2,147.55	341.06	1,286,590.30	3,242,965.85		
Point 11				-504.70	356.11	1,286,579.59	3,240,313.69		
Hudson 13C-35HZ_I	0.00	0.00	7,225.00	-9,884.35	-76.95	1,276,344.18	3,240,840.84	40.088747	-104.639192
- actual wellpath misses target center by 50.14ft at 16845.00ft MD (7183.00 TVD, -9858.75 N, -86.69 E)									
- Point									

North Reference Sheet for Sec. 26-T2N-R65W - Hudson 13C-35HZ - Plan C Rev 1

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

Vertical Depths are relative to RKB=16 @ 4925.00ft (Xtreme 22). Northing and Easting are relative to Hudson 13C-35HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995960

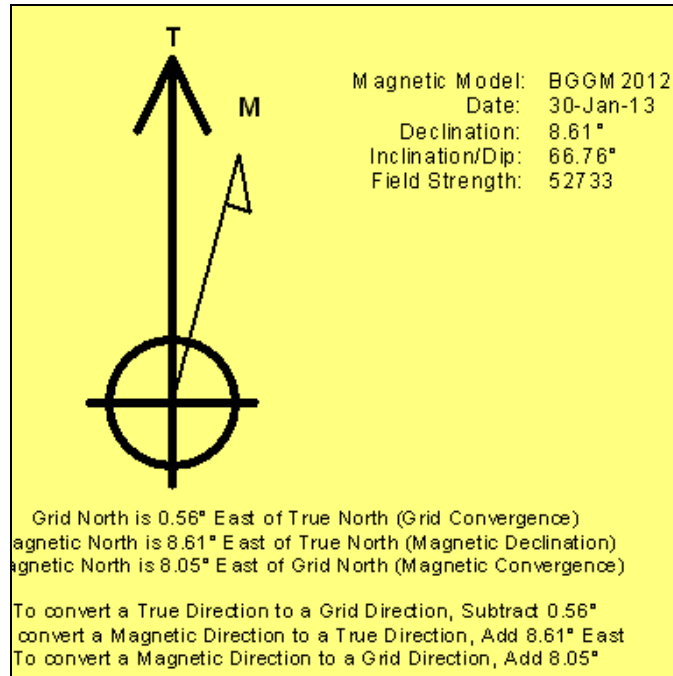
Grid Coordinates of Well: 1,286,228.42 ft N, 3,240,821.80 ft E

Geographical Coordinates of Well: 40° 06' 57.17" N, 104° 38' 20.10" W

Grid Convergence at Surface is: 0.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,845.00ft the Bottom Hole Displacement is 9,859.14ft in the Direction of 180.50° (True).

Magnetic Convergence at surface is: -8.05° (30 January 2013, , BGGM2012)



Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 26-T2N-R65W

Hudson 13C-35HZ

Plan C Rev 1

Design: Actual Field Surveys

Sperry Drilling Services Geodetic Report

25 February, 2013

Well Coordinates: 1,286,228.42 N, 3,240,821.80 E (40° 06' 57.17" N, 104° 38' 20.10" W)

Ground Level: 4,909.00 ft

Local Coordinate Origin:	Centered on Well Hudson 13C-35HZ
Viewing Datum:	RKB=16 @ 4925.00ft (Xtreme 22)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom
Geodetic Scale Factor Applied	
Version: 2003.16 Build: 431	

HALLIBURTON

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	0.00	0.00	40.115880	-104.638917	1,286,228.42	3,240,821.80
16.00	0.00	0.00	16.00	0.00	0.00	40.115880	-104.638917	1,286,228.42	3,240,821.80
116.00	0.42	319.37	116.00	0.28	-0.24	40.115881	-104.638918	1,286,228.69	3,240,821.56
216.00	0.86	304.61	215.99	0.98	-1.09	40.115883	-104.638921	1,286,229.39	3,240,820.70
316.00	0.75	292.07	315.98	1.65	-2.32	40.115885	-104.638925	1,286,230.05	3,240,819.47
416.00	0.65	296.38	415.98	2.15	-3.43	40.115886	-104.638929	1,286,230.54	3,240,818.35
516.00	0.32	283.04	515.97	2.47	-4.21	40.115887	-104.638932	1,286,230.84	3,240,817.57
616.00	0.66	288.56	615.97	2.71	-5.03	40.115887	-104.638935	1,286,231.08	3,240,816.75
716.00	0.36	264.05	715.96	2.86	-5.89	40.115888	-104.638938	1,286,231.22	3,240,815.89
816.00	0.46	253.72	815.96	2.72	-6.59	40.115887	-104.638941	1,286,231.07	3,240,815.19
916.00	0.31	233.83	915.96	2.45	-7.19	40.115887	-104.638943	1,286,230.79	3,240,814.59
1,016.00	0.35	251.38	1,015.96	2.19	-7.70	40.115886	-104.638945	1,286,230.53	3,240,814.08
1,116.00	0.38	245.17	1,115.96	1.95	-8.29	40.115885	-104.638947	1,286,230.29	3,240,813.50
1,216.00	0.37	179.68	1,215.95	1.49	-8.59	40.115884	-104.638948	1,286,229.82	3,240,813.20
1,276.00	0.26	268.18	1,275.95	1.29	-8.72	40.115884	-104.638948	1,286,229.63	3,240,813.07
1,350.00	0.37	232.28	1,349.95	1.14	-9.08	40.115883	-104.638949	1,286,229.47	3,240,812.71
1,442.00	0.33	252.58	1,441.95	0.88	-9.57	40.115882	-104.638951	1,286,229.20	3,240,812.23
1,717.00	0.18	220.40	1,716.95	0.31	-10.60	40.115881	-104.638955	1,286,228.63	3,240,811.20
1,989.00	0.18	265.36	1,988.95	-0.05	-11.31	40.115880	-104.638957	1,286,228.26	3,240,810.50
2,263.00	0.77	197.82	2,262.94	-1.83	-12.30	40.115875	-104.638961	1,286,226.46	3,240,809.52
2,526.00	0.74	205.26	2,525.91	-5.05	-13.57	40.115866	-104.638966	1,286,223.23	3,240,808.29
2,783.00	0.66	187.93	2,782.90	-8.02	-14.48	40.115858	-104.638969	1,286,220.26	3,240,807.41
2,954.00	1.14	258.96	2,953.88	-9.32	-16.28	40.115854	-104.638975	1,286,218.94	3,240,805.61
3,040.00	3.12	265.93	3,039.81	-9.65	-19.46	40.115853	-104.638987	1,286,218.58	3,240,802.44
3,297.00	6.80	270.91	3,295.81	-9.90	-41.65	40.115853	-104.639066	1,286,218.11	3,240,780.25
3,382.00	8.73	272.32	3,380.03	-9.56	-53.13	40.115854	-104.639107	1,286,218.34	3,240,768.77
3,468.00	9.56	272.72	3,464.93	-8.96	-66.79	40.115855	-104.639156	1,286,218.81	3,240,755.11
3,554.00	8.83	271.68	3,549.83	-8.43	-80.52	40.115857	-104.639205	1,286,219.21	3,240,741.37
3,640.00	9.18	274.32	3,634.77	-7.72	-93.96	40.115859	-104.639253	1,286,219.79	3,240,727.93
3,726.00	7.80	275.05	3,719.82	-6.69	-106.61	40.115862	-104.639298	1,286,220.70	3,240,715.27
3,811.00	7.57	273.03	3,804.06	-5.88	-117.95	40.115864	-104.639339	1,286,221.39	3,240,703.92
3,897.00	6.75	274.52	3,889.39	-5.19	-128.64	40.115866	-104.639377	1,286,221.98	3,240,693.22
3,982.00	6.84	275.94	3,973.79	-4.27	-138.66	40.115868	-104.639413	1,286,222.80	3,240,683.20
4,068.00	6.68	277.24	4,059.19	-3.11	-148.71	40.115871	-104.639449	1,286,223.87	3,240,673.13
4,153.00	6.47	274.99	4,143.63	-2.07	-158.39	40.115874	-104.639483	1,286,224.81	3,240,663.45
4,239.00	5.65	282.64	4,229.15	-0.72	-167.35	40.115878	-104.639515	1,286,226.07	3,240,654.48
4,324.00	3.38	291.87	4,313.89	1.13	-173.76	40.115883	-104.639538	1,286,227.86	3,240,648.05
4,410.00	1.96	320.40	4,399.79	3.21	-177.05	40.115889	-104.639550	1,286,229.90	3,240,644.74
4,495.00	1.29	339.73	4,484.76	5.22	-178.30	40.115894	-104.639555	1,286,231.91	3,240,643.46
4,753.00	0.41	41.32	4,742.73	8.64	-178.70	40.115904	-104.639556	1,286,235.32	3,240,643.04
5,009.00	2.52	346.15	4,998.64	14.80	-179.44	40.115921	-104.639559	1,286,241.47	3,240,642.23
5,094.00	1.79	348.52	5,083.58	17.91	-180.16	40.115929	-104.639561	1,286,244.58	3,240,641.49

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
5,351.00	1.05	27.78	5,340.50	23.93	-179.86	40.115946	-104.639560	1,286,250.60	3,240,641.73
5,608.00	1.28	34.09	5,597.45	28.39	-177.15	40.115958	-104.639550	1,286,255.08	3,240,644.39
5,865.00	1.68	109.80	5,854.39	29.49	-172.00	40.115961	-104.639532	1,286,256.23	3,240,649.54
6,122.00	0.83	95.00	6,111.32	28.05	-166.60	40.115957	-104.639513	1,286,254.85	3,240,654.95
6,294.00	0.95	103.04	6,283.30	27.62	-163.97	40.115956	-104.639503	1,286,254.44	3,240,657.58
6,380.00	1.24	107.11	6,369.29	27.19	-162.38	40.115955	-104.639498	1,286,254.02	3,240,659.17
6,465.00	1.40	103.10	6,454.26	26.68	-160.49	40.115953	-104.639491	1,286,253.54	3,240,661.07
6,551.00	1.22	89.43	6,540.24	26.45	-158.55	40.115953	-104.639484	1,286,253.33	3,240,663.01
6,642.00	2.36	160.03	6,631.20	24.70	-156.95	40.115948	-104.639478	1,286,251.59	3,240,664.63
6,685.00	8.44	173.29	6,673.99	20.73	-156.27	40.115937	-104.639476	1,286,247.63	3,240,665.34
6,728.00	12.24	177.84	6,716.29	13.04	-155.73	40.115916	-104.639474	1,286,239.94	3,240,665.96
6,777.00	14.59	174.37	6,763.95	1.70	-154.93	40.115885	-104.639471	1,286,228.62	3,240,666.87
6,813.00	19.19	172.29	6,798.39	-8.68	-153.69	40.115856	-104.639467	1,286,218.25	3,240,668.21
6,856.00	25.29	178.51	6,838.18	-24.88	-152.50	40.115812	-104.639462	1,286,202.06	3,240,669.56
6,899.00	28.52	181.36	6,876.52	-44.33	-152.51	40.115758	-104.639462	1,286,182.61	3,240,669.74
6,942.00	31.96	184.51	6,913.66	-65.95	-153.65	40.115699	-104.639466	1,286,160.98	3,240,668.81
6,985.00	35.36	184.66	6,949.45	-89.70	-155.55	40.115634	-104.639473	1,286,137.21	3,240,667.13
7,028.00	38.71	183.75	6,983.77	-115.52	-157.44	40.115563	-104.639480	1,286,111.37	3,240,665.50
7,071.00	42.77	181.69	7,016.34	-143.55	-158.76	40.115486	-104.639485	1,286,083.34	3,240,664.46
7,114.00	47.61	179.19	7,046.64	-174.04	-158.96	40.115402	-104.639485	1,286,052.85	3,240,664.55
7,156.00	50.73	178.98	7,074.10	-205.81	-158.45	40.115315	-104.639484	1,286,021.09	3,240,665.36
7,199.00	53.92	179.87	7,100.38	-239.84	-158.12	40.115222	-104.639482	1,285,987.06	3,240,666.03
7,242.00	57.67	181.38	7,124.55	-275.39	-158.52	40.115124	-104.639484	1,285,951.51	3,240,665.98
7,285.00	61.95	182.90	7,146.17	-312.52	-159.91	40.115022	-104.639489	1,285,914.37	3,240,664.94
7,328.00	67.26	182.80	7,164.60	-351.30	-161.84	40.114916	-104.639496	1,285,875.57	3,240,663.39
7,371.00	72.93	182.45	7,179.23	-391.68	-163.69	40.114805	-104.639502	1,285,835.18	3,240,661.93
7,414.00	78.25	182.36	7,189.93	-433.27	-165.44	40.114691	-104.639509	1,285,793.58	3,240,660.59
7,457.00	81.31	181.63	7,197.56	-475.56	-166.91	40.114575	-104.639514	1,285,751.28	3,240,659.53
7,499.00	82.33	178.66	7,203.54	-517.13	-167.01	40.114460	-104.639514	1,285,709.71	3,240,659.83
7,526.00	84.47	177.44	7,206.64	-543.93	-166.10	40.114387	-104.639511	1,285,682.92	3,240,661.00
7,549.00	85.78	176.82	7,208.59	-566.82	-164.95	40.114324	-104.639507	1,285,660.05	3,240,662.37
7,622.00	89.94	174.87	7,211.32	-639.56	-159.67	40.114124	-104.639488	1,285,587.37	3,240,668.36
7,707.00	93.15	177.81	7,209.03	-724.33	-154.24	40.113892	-104.639468	1,285,502.65	3,240,674.61
7,793.00	91.24	179.07	7,205.73	-810.23	-151.91	40.113656	-104.639460	1,285,416.78	3,240,677.78
7,879.00	89.07	180.36	7,205.50	-896.22	-151.48	40.113420	-104.639459	1,285,330.80	3,240,679.04
7,964.00	88.76	180.50	7,207.11	-981.20	-152.12	40.113187	-104.639461	1,285,245.82	3,240,679.23
8,050.00	89.57	181.19	7,208.36	-1,067.18	-153.38	40.112951	-104.639465	1,285,159.84	3,240,678.80
8,136.00	88.70	181.36	7,209.66	-1,153.15	-155.30	40.112715	-104.639472	1,285,073.86	3,240,677.72
8,222.00	88.58	180.72	7,211.70	-1,239.11	-156.86	40.112479	-104.639478	1,284,987.89	3,240,676.99
8,308.00	88.89	180.65	7,213.60	-1,325.09	-157.89	40.112243	-104.639481	1,284,901.91	3,240,676.80
8,393.00	90.56	179.91	7,214.01	-1,410.08	-158.30	40.112009	-104.639483	1,284,816.92	3,240,677.21
8,479.00	91.36	180.22	7,212.57	-1,496.07	-158.40	40.111773	-104.639483	1,284,730.94	3,240,677.95

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
8,565.00	89.81	180.41	7,211.69	-1,582.06	-158.87	40.111537	-104.639485	1,284,644.95	3,240,678.31
8,651.00	88.83	179.51	7,212.71	-1,668.05	-158.81	40.111301	-104.639485	1,284,558.97	3,240,679.20
8,735.00	89.44	179.18	7,213.98	-1,752.04	-157.85	40.111071	-104.639481	1,284,475.00	3,240,680.98
8,821.00	89.44	178.24	7,214.82	-1,838.01	-155.92	40.110835	-104.639474	1,284,389.06	3,240,683.75
8,907.00	89.44	177.75	7,215.66	-1,923.95	-152.91	40.110599	-104.639464	1,284,303.15	3,240,687.59
8,992.00	89.51	178.04	7,216.44	-2,008.89	-149.79	40.110365	-104.639452	1,284,218.25	3,240,691.54
9,078.00	87.90	180.08	7,218.38	-2,094.85	-148.37	40.110130	-104.639447	1,284,132.31	3,240,693.78
9,164.00	88.70	178.74	7,220.94	-2,180.80	-147.49	40.109894	-104.639444	1,284,046.37	3,240,695.50
9,250.00	89.63	179.77	7,222.19	-2,266.79	-146.37	40.109658	-104.639440	1,283,960.41	3,240,697.46
9,335.00	89.81	179.47	7,222.60	-2,351.78	-145.81	40.109424	-104.639438	1,283,875.42	3,240,698.85
9,421.00	88.02	178.24	7,224.23	-2,437.75	-144.09	40.109188	-104.639432	1,283,789.49	3,240,701.40
9,507.00	87.71	176.73	7,227.44	-2,523.60	-140.32	40.108953	-104.639419	1,283,703.67	3,240,706.00
9,593.00	88.27	175.74	7,230.45	-2,609.36	-134.67	40.108717	-104.639398	1,283,617.98	3,240,712.48
9,678.00	89.88	177.05	7,231.82	-2,694.18	-129.33	40.108484	-104.639379	1,283,533.22	3,240,718.64
9,764.00	90.31	177.08	7,231.68	-2,780.06	-124.93	40.108249	-104.639364	1,283,447.38	3,240,723.88
9,850.00	89.32	177.25	7,231.96	-2,865.96	-120.67	40.108013	-104.639348	1,283,361.54	3,240,728.97
9,936.00	88.76	178.98	7,233.40	-2,951.89	-117.85	40.107777	-104.639338	1,283,275.64	3,240,732.63
10,021.00	88.83	180.34	7,235.19	-3,036.87	-117.34	40.107544	-104.639336	1,283,190.67	3,240,733.96
10,107.00	89.44	180.94	7,236.49	-3,122.86	-118.30	40.107308	-104.639340	1,283,104.69	3,240,733.84
10,193.00	90.31	179.62	7,236.67	-3,208.85	-118.72	40.107072	-104.639341	1,283,018.69	3,240,734.25
10,285.00	92.10	180.03	7,234.74	-3,300.83	-118.44	40.106819	-104.639340	1,282,926.73	3,240,735.42
10,376.00	91.61	179.45	7,231.79	-3,391.78	-118.03	40.106569	-104.639339	1,282,835.79	3,240,736.72
10,468.00	91.98	181.49	7,228.91	-3,483.72	-118.78	40.106317	-104.639342	1,282,743.84	3,240,736.86
10,561.00	91.92	182.57	7,225.75	-3,576.61	-122.08	40.106062	-104.639353	1,282,650.93	3,240,734.47
10,653.00	90.74	181.77	7,223.61	-3,668.52	-125.56	40.105810	-104.639366	1,282,559.00	3,240,731.88
10,745.00	92.17	181.68	7,221.28	-3,760.44	-128.33	40.105557	-104.639376	1,282,467.06	3,240,730.00
10,836.00	91.61	181.02	7,218.27	-3,851.37	-130.47	40.105308	-104.639383	1,282,376.12	3,240,728.74
10,929.00	91.36	179.95	7,215.86	-3,944.33	-131.26	40.105053	-104.639386	1,282,283.15	3,240,728.86
11,021.00	92.97	181.59	7,212.39	-4,036.25	-132.49	40.104800	-104.639391	1,282,191.23	3,240,728.52
11,204.00	88.64	180.59	7,209.82	-4,219.16	-135.97	40.104298	-104.639403	1,282,008.31	3,240,726.82
11,296.00	89.63	180.13	7,211.21	-4,311.14	-136.55	40.104046	-104.639405	1,281,916.33	3,240,727.13
11,388.00	89.88	179.94	7,211.60	-4,403.14	-136.60	40.103793	-104.639405	1,281,824.33	3,240,727.97
11,570.00	90.80	180.52	7,210.52	-4,585.13	-137.33	40.103294	-104.639408	1,281,642.35	3,240,729.00
11,753.00	88.70	179.93	7,211.32	-4,768.12	-138.05	40.102791	-104.639410	1,281,459.37	3,240,730.06
11,935.00	89.01	179.30	7,214.96	-4,950.08	-136.83	40.102292	-104.639406	1,281,277.44	3,240,733.05
12,117.00	89.51	179.41	7,217.31	-5,132.05	-134.78	40.101792	-104.639399	1,281,095.51	3,240,736.87
12,299.00	91.24	180.18	7,216.12	-5,314.04	-134.13	40.101293	-104.639396	1,280,913.54	3,240,739.29
12,482.00	90.56	180.73	7,213.24	-5,497.01	-135.58	40.100790	-104.639402	1,280,730.57	3,240,739.61
12,666.00	88.33	179.65	7,215.02	-5,680.98	-136.19	40.100285	-104.639404	1,280,546.61	3,240,740.79
12,757.00	89.26	179.16	7,216.94	-5,771.96	-135.25	40.100036	-104.639400	1,280,455.65	3,240,742.61
12,880.00	92.04	178.00	7,215.54	-5,894.90	-132.20	40.099698	-104.639390	1,280,332.75	3,240,746.85
12,941.00	90.74	177.87	7,214.06	-5,955.84	-130.00	40.099531	-104.639382	1,280,271.84	3,240,749.64

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (ft)	+E/-W (ft)	Latitude (ft)	Longitude (ft)	Northing (ft)	Easting (ft)
13,027.00	90.31	177.22	7,213.27	-6,041.75	-126.32	40.099295	-104.639369	1,280,185.96	3,240,754.16
13,113.00	91.42	177.89	7,211.98	-6,127.67	-122.65	40.099059	-104.639355	1,280,100.10	3,240,758.66
13,198.00	91.11	179.08	7,210.10	-6,212.61	-120.41	40.098826	-104.639347	1,280,015.18	3,240,761.73
13,284.00	92.29	179.27	7,207.55	-6,298.56	-119.17	40.098590	-104.639343	1,279,929.25	3,240,763.81
13,370.00	91.73	180.24	7,204.53	-6,384.51	-118.80	40.098354	-104.639342	1,279,843.31	3,240,765.01
13,455.00	90.56	180.03	7,202.83	-6,469.49	-119.00	40.098121	-104.639342	1,279,758.34	3,240,765.63
13,540.00	90.56	179.65	7,202.00	-6,554.49	-118.76	40.097888	-104.639342	1,279,673.35	3,240,766.70
13,626.00	90.74	179.35	7,201.03	-6,640.48	-118.01	40.097652	-104.639339	1,279,587.37	3,240,768.28
13,711.00	90.25	179.58	7,200.29	-6,725.47	-117.22	40.097418	-104.639336	1,279,502.40	3,240,769.90
13,797.00	89.44	180.67	7,200.52	-6,811.47	-117.41	40.097182	-104.639337	1,279,416.41	3,240,770.55
13,883.00	88.39	179.58	7,202.15	-6,897.45	-117.59	40.096946	-104.639337	1,279,330.43	3,240,771.19
13,969.00	89.57	179.61	7,203.68	-6,983.43	-116.99	40.096710	-104.639335	1,279,244.46	3,240,772.64
14,054.00	89.63	179.94	7,204.28	-7,068.43	-116.65	40.096477	-104.639334	1,279,159.47	3,240,773.80
14,140.00	89.75	179.77	7,204.74	-7,154.43	-116.44	40.096241	-104.639333	1,279,073.48	3,240,774.85
14,226.00	90.99	179.60	7,204.19	-7,240.42	-115.96	40.096005	-104.639331	1,278,987.50	3,240,776.16
14,312.00	90.56	179.38	7,203.02	-7,326.41	-115.20	40.095769	-104.639329	1,278,901.53	3,240,777.76
14,397.00	91.92	179.38	7,201.19	-7,411.38	-114.28	40.095535	-104.639325	1,278,816.57	3,240,779.50
14,483.00	91.42	180.30	7,198.68	-7,497.35	-114.04	40.095299	-104.639325	1,278,730.62	3,240,780.58
14,654.00	89.57	178.74	7,197.20	-7,668.32	-112.60	40.094830	-104.639319	1,278,559.67	3,240,783.67
14,740.00	89.44	178.42	7,197.94	-7,754.29	-110.47	40.094594	-104.639312	1,278,473.73	3,240,786.63
14,826.00	89.01	178.43	7,199.11	-7,840.25	-108.11	40.094358	-104.639303	1,278,387.80	3,240,789.83
14,928.00	89.81	178.89	7,200.16	-7,942.22	-105.73	40.094078	-104.639295	1,278,285.87	3,240,793.21
14,997.00	90.06	177.37	7,200.24	-8,011.18	-103.47	40.093889	-104.639287	1,278,216.94	3,240,796.13
15,083.00	91.61	178.65	7,198.98	-8,097.11	-100.49	40.093653	-104.639276	1,278,131.04	3,240,799.95
15,169.00	91.98	178.28	7,196.29	-8,183.04	-98.19	40.093417	-104.639268	1,278,045.14	3,240,803.09
15,255.00	92.16	179.34	7,193.18	-8,268.96	-96.40	40.093181	-104.639262	1,277,959.24	3,240,805.70
15,340.00	90.25	179.21	7,191.40	-8,353.93	-95.32	40.092948	-104.639258	1,277,874.29	3,240,807.60
15,426.00	89.88	178.78	7,191.30	-8,439.92	-93.82	40.092712	-104.639252	1,277,788.32	3,240,809.95
15,512.00	89.57	179.00	7,191.71	-8,525.90	-92.15	40.092476	-104.639246	1,277,702.37	3,240,812.45
15,598.00	89.69	179.10	7,192.27	-8,611.89	-90.72	40.092240	-104.639241	1,277,616.40	3,240,814.71
15,683.00	89.38	178.87	7,192.96	-8,696.87	-89.22	40.092007	-104.639236	1,277,531.44	3,240,817.04
15,769.00	90.19	179.29	7,193.28	-8,782.86	-87.84	40.091771	-104.639231	1,277,445.47	3,240,819.26
15,833.00	89.75	179.70	7,193.31	-8,846.86	-87.27	40.091595	-104.639229	1,277,381.49	3,240,820.44
15,919.00	89.88	179.02	7,193.59	-8,932.85	-86.31	40.091359	-104.639225	1,277,295.51	3,240,822.24
16,005.00	90.49	180.08	7,193.31	-9,018.85	-85.64	40.091123	-104.639223	1,277,209.53	3,240,823.75
16,090.00	90.50	180.49	7,192.58	-9,103.84	-86.06	40.090890	-104.639225	1,277,124.54	3,240,824.15
16,176.00	90.93	179.84	7,191.50	-9,189.83	-86.31	40.090653	-104.639225	1,277,038.55	3,240,824.74
16,262.00	90.68	179.57	7,190.30	-9,275.82	-85.87	40.090417	-104.639224	1,276,952.57	3,240,826.01
16,348.00	90.80	179.58	7,189.19	-9,361.81	-85.23	40.090181	-104.639222	1,276,866.59	3,240,827.49
16,434.00	91.24	179.82	7,187.65	-9,447.80	-84.78	40.089945	-104.639220	1,276,780.62	3,240,828.77
16,519.00	90.80	179.89	7,186.14	-9,532.79	-84.56	40.089712	-104.639219	1,276,695.64	3,240,829.81
16,605.00	90.62	179.79	7,185.08	-9,618.78	-84.32	40.089476	-104.639218	1,276,609.66	3,240,830.89

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Geographic Coordinates Latitude (ft)	Longitude (ft)	UTM Coordinates Northing (ft)	Easting (ft)
16,691.00	90.37	180.63	7,184.33	-9,704.77	-84.64	40.089240	-104.639219	1,276,523.67	3,240,831.41
16,793.00	90.56	180.83	7,183.50	-9,806.76	-85.94	40.088960	-104.639224	1,276,421.68	3,240,831.10
16,845.00	90.56	180.83	7,183.00	-9,858.75	-86.69	40.088817	-104.639227	1,276,369.68	3,240,830.85

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
16.00	16.00	0.00	0.00	Xtreme 22: RKB = 16ft
116.00	116.00	0.28	-0.24	First MS Energy Gyro @ 116.00ft
1,276.00	1,275.95	1.29	-8.72	Tie-On to Surface Gyros @ 1276.00ft
1,276.00	1,275.95	1.29	-8.72	Final MS Energy Gyro @ 1276.00ft
1,350.00	1,349.95	1.14	-9.08	First Sperry MWD Survey @ 1350.00ft
16,793.00	7,183.50	-9,806.76	-85.94	Final Sperry MWD Survey @ 16793.00ft
16,845.00	7,183.00	-9,858.75	-86.69	Straight Line Proj @ 16845' MD :: 7183.00' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	+E/-W (ft)	Start TVD (ft)
User	No Target (Freehand)	179.47	Slot	0.00	0.00	0.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
16.00	1,276.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
1,350.00	7,526.00	Sperry MWD Surveys - Vert/Build	MWD+SC
7,622.00	16,793.00	Sperry MWD Surveys - Lateral	MWD+SC

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,549.00	7,208.59	7" Casing @ 7549' MD :: 7208.59' TVD	7	8-3/4

Design Report for Hudson 13C-35HZ - Actual Field Surveys

Targets for Plan C Rev 1

Shape	Target Name	TVD (ft)	Northing (ft)	Easting (ft)	+N/-S ft	+E/-W ft	Created	Updated
Point	Hudson 13C-35HZ_SHL	0.00	1,286,228.42	3,240,821.80	0.00	0.00	01-08-2013	01-08-2013
Polygon	Hudson 13C-35HZ_SB	0.00	1,286,228.42	3,240,821.80	0.00	0.00	01-08-2013	01-08-2013
Polygon	Hudson 13C-35HZ_26/35	0.00	1,286,228.42	3,240,821.80	0.00	0.00	01-08-2013	01-08-2013
Polygon	Hudson 13C-35HZ_LD	0.00	1,286,228.42	3,240,821.80	0.00	0.00	01-08-2013	01-08-2013
Polygon	Hudson 13C-35HZ_Sec	0.00	1,286,228.42	3,240,821.80	0.00	0.00	01-08-2013	01-08-2013
Point	Hudson 13C-35HZ_BHL	7,225.00	1,276,344.18	3,240,840.84	-9,884.35	-76.95	01-08-2013	01-29-2013

North Reference Sheet for Sec. 26-T2N-R65W - Hudson 13C-35HZ - Plan C Rev 1

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

Vertical Depths are relative to RKB=16 @ 4925.00ft (Xtreme 22). Northing and Easting are relative to Hudson 13C-35HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995960

Grid Coordinates of Well: 1,286,228.42 ft N, 3,240,821.80 ft E

Geographical Coordinates of Well: 40° 06' 57.17" N, 104° 38' 20.10" W

Grid Convergence at Surface is: 0.56°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,845.00ft

the Bottom Hole Displacement is 9,859.14ft in the Direction of 180.50° (True).

Magnetic Convergence at surface is: -8.05° (30 January 2013, , BGGM2012)

