

SPERRY-SUN DRILLING SERVICES


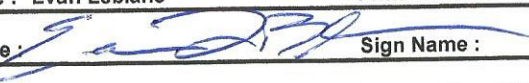
CERTIFIED SURVEY WORK SHEET

OPERATOR:	Anadarko Petroleum Corp
WELL:	Milk State 36N-28HZ
FIELD:	Wattenberg
RIG:	Ensign 145
LEGALS:	Sec 3N-65W-21
COUNTY:	Weid
STATE:	Colorado
CAL. METHOD:	Minimum Curvature
MAG. DECL. APPLIED:	8.39
VERTICAL SEC. DIR. :	180.000

SSDS Job Number :	902264519
Start Date of Job :	22-Apr-15
End Date of Job :	29-Apr-15
Lead Directional Driller:	Omar Dominguez
Other SSDS DD's :	Ryan White
SSDS MWD Engineers :	Evan Leblanc
	Matthew Busche

	Main Hole =====>	1st Side Track =====>	2nd Side Track =====>	3rd Side Track =====>	4th Side Track =====>
		Tie On	Tie On	Tie On	Tie On
Tie On Point	1187.00 MWD				
First Survey	1284.00 MWD				
KOP Depth	6395.00 KOP	KOP-ST1	KOP-ST2	KOP-ST3	KOP-ST4
Last Survey Depth	12458.00 MWD				
Bit Extrapolation to TD	12500.00 Projection	MWD	MWD	MWD	MWD
		T.D.	T.D.	T.D.	T.D.

The following personnel listed below, certify the above survey information to be accurate to the their knowledge. :

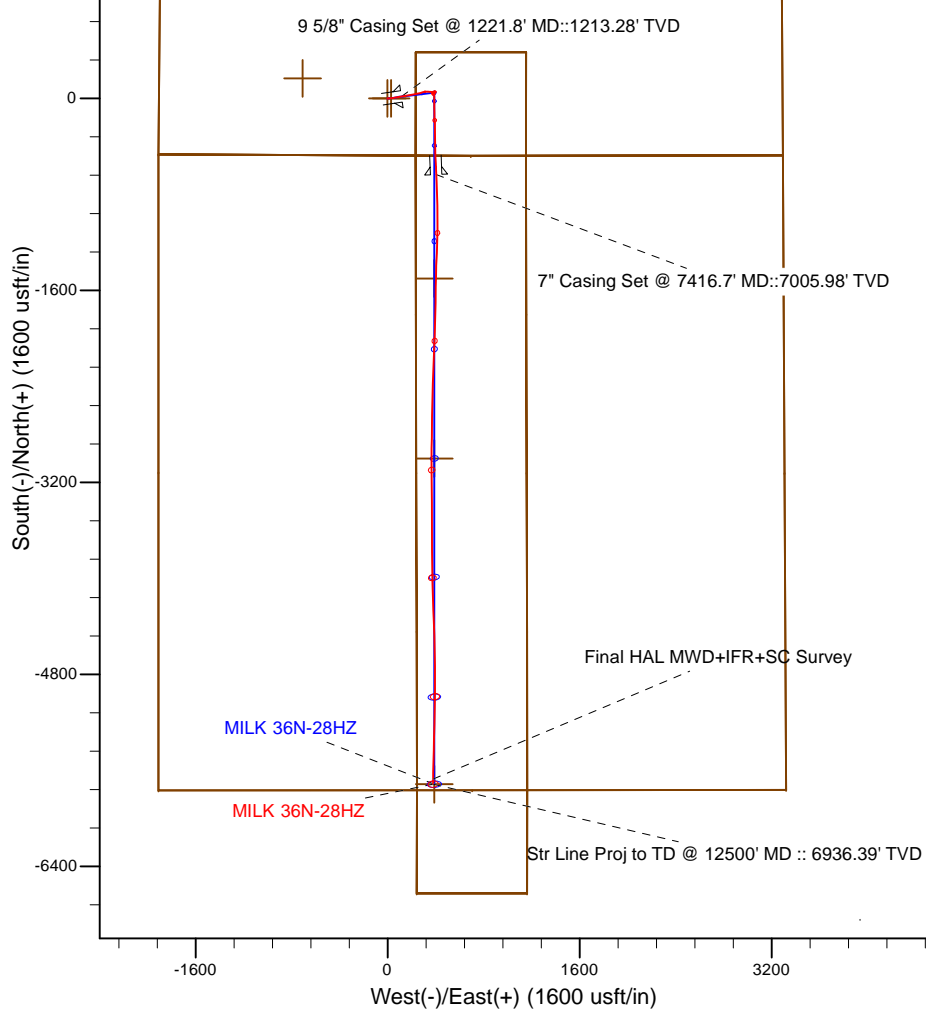
Print Name : Omar Dominguez	Print Name :	Print Name :
Sign Name : 	Sign Name :	Sign Name :
Print Name : Evan Leblanc	Print Name :	Print Name :
Sign Name : 	Sign Name :	Sign Name :

Examples of Survey Types:

TieOn
MWD
ESS
Gyro
SS

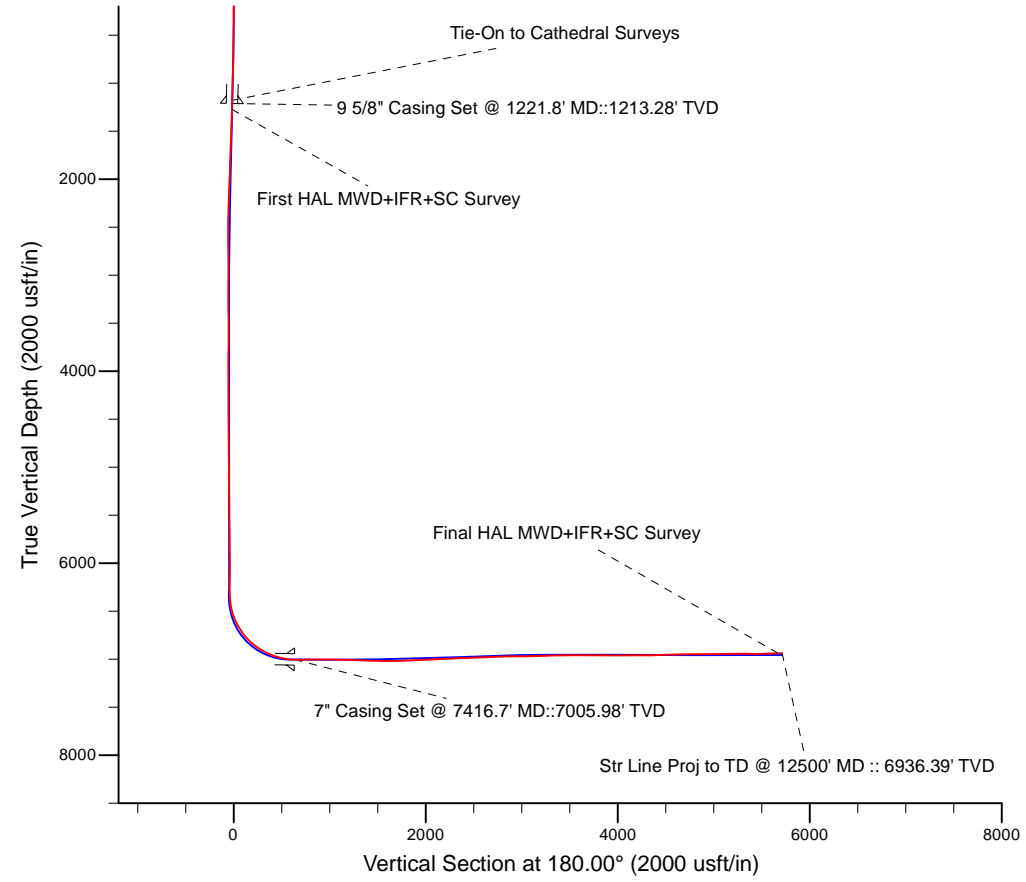
Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)
 Sperry Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's
 Sperry Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's
 Gyro Survey's ; Provided by third party vendor, or by Sperry Sun Drilling Services (SSDS)
 Single Shot (SS) Survey's ; Provided by Sperry Sun Drilling Services (SSDS) or third party vendor.

Project: WELD-NAD83-UTMFT13N
 Site: 3N-65W-21 Milk 4-21HZ Pad
 Well: MILK 36N-28HZ
 Wellbore: Plan D
 Design: Actual Surveys



LEGEND

- ▲ MILK 36N-28HZ, Plan D, Rev D0 V0
- Actual Surveys



7" Casing: ~157.53' FNL, ~2315.54' FWL
 Lat/Long: 40.203253 N, -104.669617 E
 UTM - NAD 83 - Zone 13N: 14,600,919.11' N, 1,732,665.99' E
 Location: Sec. 28-T3N-R65W

BHL: ~49.92' FSL, ~2289.80' FWL
 Lat/Long: 40.189303 N, -104.669714 E
 UTM - NAD 83 - Zone 13N: 14,595,839.10' N, 1,732,657.72' E
 Location: Sec. 28-T3N-R65W

WELL DETAILS: MILK 36N-28HZ	
Ground Level:	4837.00
RKB=13 @ 4850.00usft (Ensign 145)	
Design: Actual Surveys (MILK 36N-28HZ/Plan D)	
Created By: Clint Eshelman	Date: 5/20/2015
Reviewed: _____	Date: _____

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N
3N-65W-21 Milk 4-21HZ Pad
MILK 36N-28HZ
05-123-41003

Design: Actual Surveys

Sperry Drilling Services Standard Report

20 May, 2015

Surface UWI : 05-123-41003

Well Coordinates: 14,601,551.57 N, 1,732,257.30 E (40° 12' 17.98" N, 104° 40' 15.86" W)
Ground Level: 4,837.00 usft

Local Coordinate Origin:	Centered on Well MILK 36N-28HZ
Viewing Datum:	RKB=13 @ 4850.00usft (Ensign 145)
TVDs to System:	N
North Reference:	True
Unit System:	Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON



Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.00	0.60	230.10	90.00	-0.30	-0.36	0.30	0.67
First Cathedral MWD Survey							
153.00	0.50	144.40	153.00	-0.74	-0.45	0.74	1.19
212.00	1.20	79.80	211.99	-0.84	0.30	0.84	1.84
272.00	1.90	84.00	271.97	-0.62	1.91	0.62	1.18
331.00	2.10	83.90	330.93	-0.40	3.96	0.40	0.34
395.00	2.30	87.60	394.89	-0.23	6.41	0.23	0.38
458.00	2.30	81.50	457.83	0.01	8.92	-0.01	0.39
521.00	4.00	80.10	520.74	0.58	12.34	-0.58	2.70
585.00	6.00	84.70	584.49	1.27	17.87	-1.27	3.18
650.00	7.50	81.70	649.04	2.20	25.45	-2.20	2.37
712.00	8.60	82.60	710.43	3.38	34.05	-3.38	1.79
776.00	8.70	80.90	773.70	4.76	43.57	-4.76	0.43
838.00	8.70	82.10	834.99	6.15	52.85	-6.15	0.29
902.00	8.80	79.00	898.24	7.75	62.45	-7.75	0.75
964.00	9.70	80.50	959.43	9.51	72.25	-9.51	1.50
1,027.00	9.90	79.90	1,021.51	11.34	82.82	-11.34	0.36
1,091.00	10.10	81.90	1,084.54	13.09	93.79	-13.09	0.63
1,187.00	10.20	82.50	1,179.04	15.39	110.55	-15.39	0.15
Tie-On to Cathedral Surveys							
1,221.80	10.30	81.72	1,213.28	16.24	116.69	-16.24	0.49
9 5/8" Casing Set @ 1221.8' MD::1213.28' TVD							
1,284.00	10.49	80.37	1,274.46	17.99	127.78	-17.99	0.49
First HAL MWD+IFR+SC Survey							
1,377.00	11.09	79.34	1,365.82	21.06	144.91	-21.06	0.68
1,471.00	10.79	82.10	1,458.11	23.94	162.51	-23.94	0.64
1,658.00	10.22	78.94	1,641.98	29.53	196.13	-29.53	0.43
1,751.00	9.24	75.29	1,733.64	33.01	211.45	-33.01	1.24
1,845.00	10.74	82.71	1,826.22	36.04	227.44	-36.04	2.10
1,938.00	10.38	78.82	1,917.64	38.76	244.26	-38.76	0.86
2,032.00	9.36	75.90	2,010.25	42.26	259.98	-42.26	1.21
2,126.00	8.33	70.72	2,103.13	46.37	273.82	-46.37	1.38
2,219.00	8.08	71.05	2,195.18	50.72	286.36	-50.72	0.27
2,312.00	8.30	81.49	2,287.24	53.84	299.18	-53.84	1.61
2,406.00	7.10	79.65	2,380.39	55.88	311.61	-55.88	1.30
2,499.00	6.48	88.11	2,472.74	57.09	322.50	-57.09	1.26
2,593.00	5.27	95.37	2,566.24	56.86	332.10	-56.86	1.51
2,687.00	3.96	89.88	2,659.94	56.46	339.65	-56.46	1.47
2,780.00	6.12	95.79	2,752.57	55.97	347.79	-55.97	2.39
2,873.00	5.84	95.82	2,845.07	54.99	357.43	-54.99	0.30
2,964.00	5.80	94.71	2,935.60	54.14	366.62	-54.14	0.13
3,054.00	4.13	80.13	3,025.26	54.33	374.35	-54.33	2.31
3,144.00	3.10	74.31	3,115.08	55.54	379.88	-55.54	1.21
3,324.00	2.16	107.68	3,294.90	55.83	387.80	-55.83	0.98
3,414.00	1.89	116.13	3,384.84	54.66	390.75	-54.66	0.45
3,504.00	0.95	116.77	3,474.81	53.67	392.75	-53.67	1.04
3,594.00	0.63	110.14	3,564.80	53.16	393.88	-53.16	0.37
3,684.00	0.28	61.82	3,654.80	53.09	394.54	-53.09	0.55
3,774.00	0.70	54.46	3,744.80	53.52	395.18	-53.52	0.47

Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
3,864.00	0.67	46.82	3,834.79	54.20	396.01	-54.20	0.11
3,954.00	0.74	48.34	3,924.79	54.94	396.83	-54.94	0.08
4,044.00	0.25	111.55	4,014.78	55.26	397.44	-55.26	0.74
4,133.00	0.31	223.68	4,103.78	55.01	397.46	-55.01	0.52
4,223.00	0.83	248.24	4,193.78	54.59	396.68	-54.59	0.63
4,313.00	0.82	268.13	4,283.77	54.33	395.44	-54.33	0.32
4,403.00	0.78	262.34	4,373.76	54.23	394.18	-54.23	0.10
4,493.00	1.15	249.61	4,463.75	53.83	392.73	-53.83	0.47
4,582.00	1.25	267.93	4,552.73	53.49	390.92	-53.49	0.44
4,672.00	1.27	255.06	4,642.71	53.19	388.98	-53.19	0.31
4,762.00	1.02	248.74	4,732.69	52.65	387.27	-52.65	0.31
4,852.00	1.03	217.40	4,822.67	51.71	386.03	-51.71	0.62
4,941.00	0.93	230.64	4,911.66	50.62	384.99	-50.62	0.28
5,031.00	2.10	246.39	5,001.63	49.50	382.91	-49.50	1.37
5,121.00	2.23	243.71	5,091.56	48.06	379.83	-48.06	0.18
5,211.00	1.05	237.68	5,181.53	46.84	377.56	-46.84	1.32
5,301.00	0.79	246.93	5,271.51	46.16	376.30	-46.16	0.33
5,391.00	0.56	220.30	5,361.51	45.58	375.44	-45.58	0.43
5,481.00	0.37	147.50	5,451.51	45.00	375.31	-45.00	0.64
5,571.00	0.56	173.88	5,541.50	44.32	375.51	-44.32	0.31
5,660.00	0.79	151.14	5,630.50	43.35	375.86	-43.35	0.39
5,750.00	0.94	161.46	5,720.49	42.11	376.39	-42.11	0.24
5,840.00	1.01	137.33	5,810.47	40.82	377.16	-40.82	0.46
5,930.00	1.08	136.45	5,900.46	39.62	378.29	-39.62	0.08
6,020.00	1.14	80.91	5,990.44	39.15	379.75	-39.15	1.15
6,110.00	1.49	73.89	6,080.42	39.62	381.76	-39.62	0.43
6,200.00	1.46	85.50	6,170.39	40.03	384.03	-40.03	0.33
6,290.00	1.22	92.98	6,260.37	40.07	386.13	-40.07	0.33
6,380.00	1.07	115.82	6,350.35	39.66	387.84	-39.66	0.53
6,425.00	5.93	180.16	6,395.26	37.15	388.21	-37.15	12.34
6,470.00	8.56	180.66	6,439.90	31.47	388.17	-31.47	5.85
6,560.00	18.62	176.83	6,527.27	10.37	388.89	-10.37	11.22
6,650.00	25.74	179.55	6,610.55	-23.56	389.84	23.56	7.99
6,740.00	31.81	179.77	6,689.40	-66.86	390.09	66.86	6.75
6,830.00	39.80	179.41	6,762.34	-119.47	390.48	119.47	8.88
6,920.00	48.10	176.92	6,827.08	-181.83	392.58	181.83	9.42
7,010.00	55.87	178.67	6,882.47	-252.63	395.25	252.63	8.77
7,100.00	63.14	180.65	6,928.11	-330.12	395.66	330.12	8.30
7,190.00	70.20	178.58	6,963.74	-412.70	396.25	412.70	8.12
7,280.00	76.02	176.46	6,989.87	-498.70	400.00	498.70	6.85
7,381.00	87.16	177.76	7,004.62	-598.32	405.01	598.32	11.10
7,416.70	88.48	177.97	7,005.98	-633.97	406.34	633.97	3.76
7" Casing Set @ 7416.7' MD::7005.98' TVD							
7,450.00	89.72	178.17	7,006.50	-667.25	407.46	667.25	3.76
7,634.00	90.68	178.23	7,005.86	-851.16	413.24	851.16	0.52
7,724.00	90.46	178.45	7,004.96	-941.11	415.85	941.11	0.35
7,814.00	89.35	180.14	7,005.11	-1,031.10	416.96	1,031.10	2.25
7,904.00	88.18	181.44	7,007.05	-1,121.07	415.72	1,121.07	1.94
7,994.00	88.34	182.16	7,009.79	-1,210.98	412.89	1,210.98	0.82
8,084.00	87.96	182.34	7,012.69	-1,300.87	409.36	1,300.87	0.47
8,174.00	88.12	181.90	7,015.77	-1,390.75	406.03	1,390.75	0.52

Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,264.00	88.80	181.69	7,018.19	-1,480.67	403.21	1,480.67	0.79
8,354.00	90.28	181.51	7,018.91	-1,570.63	400.70	1,570.63	1.66
8,444.00	90.09	181.03	7,018.62	-1,660.61	398.71	1,660.61	0.57
8,534.00	91.48	180.74	7,017.39	-1,750.59	397.32	1,750.59	1.58
8,624.00	92.87	180.53	7,013.97	-1,840.52	396.32	1,840.52	1.56
8,714.00	93.15	181.29	7,009.25	-1,930.38	394.89	1,930.38	0.90
8,804.00	92.77	181.71	7,004.60	-2,020.23	392.54	2,020.23	0.63
8,894.00	92.10	182.91	7,000.77	-2,110.07	388.92	2,110.07	1.53
9,073.00	91.97	182.43	6,994.42	-2,288.76	380.58	2,288.76	0.28
9,163.00	92.16	182.03	6,991.18	-2,378.64	377.08	2,378.64	0.49
9,253.00	93.08	181.57	6,987.06	-2,468.50	374.26	2,468.50	1.14
9,342.00	93.24	181.35	6,982.16	-2,557.33	371.99	2,557.33	0.31
9,432.00	91.57	181.05	6,978.38	-2,647.23	370.11	2,647.23	1.89
9,612.00	91.60	180.19	6,973.40	-2,827.15	368.16	2,827.15	0.48
9,701.00	90.71	180.17	6,971.61	-2,916.13	367.89	2,916.13	1.00
9,791.00	90.83	179.91	6,970.40	-3,006.12	367.82	3,006.12	0.32
9,881.00	91.66	180.21	6,968.44	-3,096.10	367.73	3,096.10	0.98
9,971.00	90.74	179.82	6,966.56	-3,186.08	367.70	3,186.08	1.11
10,061.00	91.91	179.36	6,964.48	-3,276.05	368.35	3,276.05	1.40
10,151.00	91.42	180.01	6,961.86	-3,366.01	368.84	3,366.01	0.90
10,241.00	90.68	179.95	6,960.21	-3,456.00	368.87	3,456.00	0.82
10,331.00	90.40	179.64	6,959.36	-3,545.99	369.20	3,545.99	0.46
10,420.00	89.57	179.60	6,959.39	-3,634.99	369.79	3,634.99	0.93
10,510.00	89.32	179.91	6,960.26	-3,724.98	370.17	3,724.98	0.44
10,600.00	89.51	179.67	6,961.18	-3,814.98	370.50	3,814.98	0.34
10,690.00	89.72	179.04	6,961.78	-3,904.97	371.51	3,904.97	0.74
10,780.00	90.55	178.72	6,961.57	-3,994.95	373.27	3,994.95	0.99
10,960.00	89.85	178.28	6,960.94	-4,174.89	377.99	4,174.89	0.46
11,050.00	90.12	177.99	6,960.96	-4,264.84	380.91	4,264.84	0.44
11,140.00	90.22	177.29	6,960.70	-4,354.76	384.62	4,354.76	0.79
11,230.00	91.54	178.13	6,959.32	-4,444.68	388.22	4,444.68	1.74
11,320.00	92.90	178.18	6,955.83	-4,534.56	391.11	4,534.56	1.51
11,410.00	92.65	178.99	6,951.47	-4,624.43	393.33	4,624.43	0.94
11,500.00	91.29	179.01	6,948.38	-4,714.36	394.90	4,714.36	1.51
11,590.00	90.71	179.65	6,946.81	-4,804.34	395.95	4,804.34	0.96
11,680.00	89.91	180.43	6,946.32	-4,894.33	395.89	4,894.33	1.24
11,770.00	89.35	180.91	6,946.90	-4,984.32	394.84	4,984.32	0.82
11,860.00	90.37	180.76	6,947.12	-5,074.31	393.53	5,074.31	1.15
11,951.00	90.28	181.27	6,946.61	-5,165.30	391.91	5,165.30	0.57
12,041.00	90.52	182.17	6,945.98	-5,255.25	389.21	5,255.25	1.03
12,131.00	89.63	181.62	6,945.86	-5,345.20	386.24	5,345.20	1.16
12,221.00	90.12	181.17	6,946.06	-5,435.18	384.05	5,435.18	0.74
12,401.00	92.62	180.90	6,941.75	-5,615.08	380.80	5,615.08	1.40
12,458.00	93.30	180.90	6,938.81	-5,672.00	379.90	5,672.00	1.19
Final HAL MWD+IFR+SC Survey							
12,500.00	93.30	180.90	6,936.39	-5,713.92	379.24	5,713.92	0.00
Str Line Proj to TD @ 12500' MD :: 6936.39' TVD							

Design Report for MILK 36N-28HZ - Actual Surveys**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
90.00	90.00	-0.30	-0.36	First Cathedral MWD Survey
1,187.00	1,179.04	15.39	110.55	Tie-On to Cathedral Surveys
1,284.00	1,274.46	17.99	127.78	First HAL MWD+IFR+SC Survey
12,458.00	6,938.81	-5,672.00	379.90	Final HAL MWD+IFR+SC Survey
12,500.00	6,936.39	-5,713.92	379.24	Str Line Proj to TD @ 12500' MD :: 6936.39' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
90.00	1,187.00	CES Surface Surveys	APC_ISCWSA REV 2 MWD
1,284.00	7,381.00	HAL Vertical/Build Surveys	APC_ISCWSA REV 2 MWD+IFR1+SC
7,450.00	12,500.00	HAL Lateral Surveys	APC_ISCWSA REV 2 MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,221.80	1,213.28	9 5/8" Casing Set @ 1221.8' MD::1213.28' TVD	9-5/8	13-1/2
7,416.70	7,005.98	7" Casing Set @ 7416.7' MD::7005.98' TVD	7	8-3/4

Design Report for MILK 36N-28HZ - Actual Surveys

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MILK 36N-28HZ_Lat Ti - actual wellpath misses target center by 18.62usft at 8283.59usft MD (7018.54 TVD, -1500.25 N, 402.64 E) - Point	0.00	0.00	7,005.00	-1,500.00	389.87	14,600,053.03	1,732,652.73	40.200875	-104.669676
MILK 36N-28HZ_SHL - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	14,601,551.57	1,732,257.30	40.204994	-104.671072
MILK 36N-28HZ_Lat Ti - actual wellpath misses target center by 25.77usft at 9785.04usft MD (6970.48 TVD, -3000.17 N, 367.81 E) - Point	0.00	0.00	6,957.00	-3,000.00	389.77	14,598,553.04	1,732,658.19	40.196756	-104.669676
Sec. 28 and 21-T3N-R - actual wellpath misses target center by 727.87usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	-14.00	166.79	-708.36	14,601,715.74	1,731,548.32	40.205452	-104.673609
Point 1				-1,157.80	4,631.20	14,606,342.62	1,730,373.37		
Point 2				1,410.20	4,631.80	14,606,352.74	1,732,941.35		
Point 3				3,978.20	4,632.30	14,606,362.75	1,735,509.33		
Point 4				3,987.10	1,999.70	14,603,730.21	1,735,527.99		
Point 5				4,004.20	-640.90	14,601,089.69	1,735,554.87		
Point 6				1,401.70	-644.40	14,601,076.54	1,732,952.40		
Point 7				-1,200.80	-633.90	14,601,077.40	1,730,349.88		
Point 8				1,401.70	-644.40	14,601,076.54	1,732,952.40		
Point 9				4,004.20	-640.90	14,601,089.69	1,735,554.87		
Point 10				4,016.60	-3,289.10	14,598,441.55	1,735,577.09		
Point 11				4,028.80	-5,929.10	14,595,801.61	1,735,599.07		
Point 12				1,413.40	-5,930.40	14,595,790.62	1,732,983.69		
Point 13				-1,202.00	-5,931.80	14,595,779.53	1,730,368.32		
Point 14				-1,201.40	-3,282.80	14,598,428.51	1,730,359.10		
Point 15				-1,200.80	-633.90	14,601,077.40	1,730,349.88		
Point 16				-1,179.30	1,998.70	14,603,710.06	1,730,361.63		
MILK 36N-28HZ_BHL - actual wellpath misses target center by 23.05usft at 12499.07usft MD (6936.44 TVD, -5712.99 N, 379.26 E) - Point	0.00	0.00	6,957.00	-5,714.34	389.59	14,595,838.72	1,732,668.07	40.189302	-104.669677
MILK 36N-28HZ_Hardl - actual wellpath misses target center by 29.88usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Polygon	0.00	0.00	0.00	0.00	29.88	14,601,551.69	1,732,287.18	40.204994	-104.670965
Point 1				1,124.72	384.67	14,601,940.52	1,733,410.46		
Point 2				1,123.29	-477.02	14,601,078.83	1,733,412.23		
Point 3				1,126.18	-1,798.40	14,599,757.47	1,733,420.01		
Point 4				1,129.06	-3,119.79	14,598,436.10	1,733,427.79		
Point 5				1,131.94	-4,441.63	14,597,114.28	1,733,435.57		
Point 6				1,134.83	-5,763.47	14,595,792.46	1,733,443.36		
Point 7				1,132.59	-6,624.51	14,594,931.42	1,733,444.31		
Point 8				212.90	-6,624.92	14,594,927.60	1,732,524.63		
Point 9				215.14	-5,763.91	14,595,788.61	1,732,523.68		
Point 10				212.27	-4,441.28	14,597,111.22	1,732,515.90		
Point 11				209.38	-3,118.65	14,598,433.83	1,732,508.11		
Point 12				206.50	-1,797.20	14,599,755.26	1,732,500.33		
Point 13				203.61	-475.74	14,601,076.70	1,732,492.55		
Point 14				205.03	385.23	14,601,937.67	1,732,490.78		
Point 15				1,124.72	384.67	14,601,940.52	1,733,410.46		

North Reference Sheet for 3N-65W-21 Milk 4-21HZ Pad - MILK 36N-28HZ - Plan D

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

Vertical Depths are relative to RKB=13 @ 4850.00usft (Ensign 145). Northing and Easting are relative to MILK 36N-28HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.000000°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960965

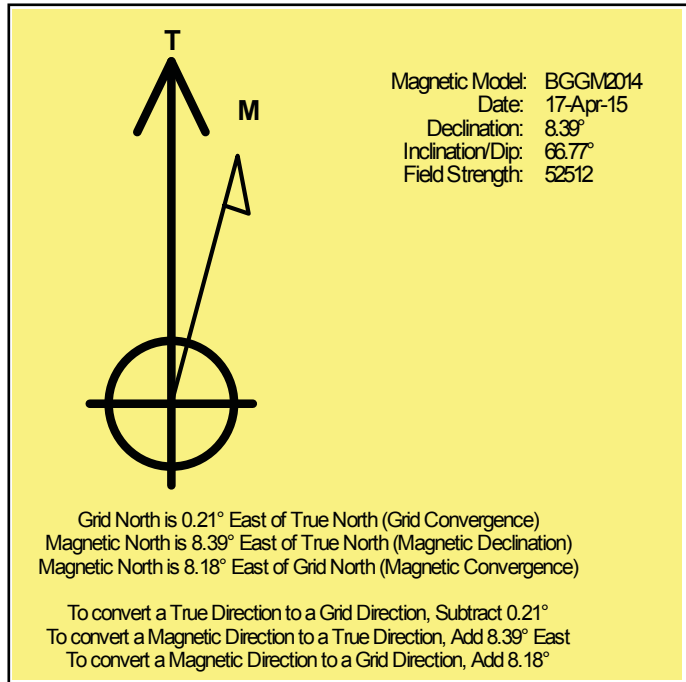
Grid Coordinates of Well: 14,601,551.57 usft N, 1,732,257.30 usft E

Geographical Coordinates of Well: 40° 12' 17.98" N, 104° 40' 15.86" W

Grid Convergence at Surface is: 0.21°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,500.00usft the Bottom Hole Displacement is 5,726.49usft in the Direction of 176.20° (True).

Magnetic Convergence at surface is: -8.18° (17 April 2015, , BGGM2014)



US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N
3N-65W-21 Milk 4-21HZ Pad
MILK 36N-28HZ
05-123-41003
Plan D

Design: Actual Surveys

Sperry Drilling Services Geodetic Report

20 May, 2015

Well Coordinates: 14,601,551.57 N, 1,732,257.30 E (40° 12' 17.98" N, 104° 40' 15.86" W)
Ground Level: 4,837.00 usft

Local Coordinate Origin:	Centered on Well MILK 36N-28HZ
Viewing Datum:	RKB=13 @ 4850.00usft (Ensign 145)
TVDs to System:	N
North Reference:	True
Unit System:	Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for MILK 36N-28HZ - Actual Surveys

Measured			Vertical	Local Coordinates		Geographic Coordinates		UTM Coordinates	
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40.204994	-104.671072	14,601,551.57	1,732,257.30
90.00	0.60	230.10	90.00	-0.30	-0.36	40.204993	-104.671074	14,601,551.27	1,732,256.94
153.00	0.50	144.40	153.00	-0.74	-0.45	40.204992	-104.671074	14,601,550.84	1,732,256.85
212.00	1.20	79.80	211.99	-0.84	0.30	40.204992	-104.671071	14,601,550.74	1,732,257.61
272.00	1.90	84.00	271.97	-0.62	1.91	40.204992	-104.671065	14,601,550.96	1,732,259.21
331.00	2.10	83.90	330.93	-0.40	3.96	40.204993	-104.671058	14,601,551.18	1,732,261.26
395.00	2.30	87.60	394.89	-0.23	6.41	40.204993	-104.671049	14,601,551.37	1,732,263.71
458.00	2.30	81.50	457.83	0.01	8.92	40.204994	-104.671040	14,601,551.62	1,732,266.22
521.00	4.00	80.10	520.74	0.58	12.34	40.204996	-104.671028	14,601,552.20	1,732,269.63
585.00	6.00	84.70	584.49	1.27	17.87	40.204998	-104.671008	14,601,552.91	1,732,275.16
650.00	7.50	81.70	649.04	2.20	25.45	40.205000	-104.670981	14,601,553.87	1,732,282.74
712.00	8.60	82.60	710.43	3.38	34.05	40.205003	-104.670950	14,601,555.08	1,732,291.34
776.00	8.70	80.90	773.70	4.76	43.57	40.205007	-104.670916	14,601,556.50	1,732,300.85
838.00	8.70	82.10	834.99	6.15	52.85	40.205011	-104.670883	14,601,557.92	1,732,310.12
902.00	8.80	79.00	898.24	7.75	62.45	40.205015	-104.670849	14,601,559.55	1,732,319.72
964.00	9.70	80.50	959.43	9.51	72.25	40.205020	-104.670813	14,601,561.35	1,732,329.52
1,027.00	9.90	79.90	1,021.51	11.34	82.82	40.205025	-104.670776	14,601,563.22	1,732,340.08
1,091.00	10.10	81.90	1,084.54	13.09	93.79	40.205030	-104.670736	14,601,565.02	1,732,351.04
1,187.00	10.20	82.50	1,179.04	15.39	110.55	40.205036	-104.670676	14,601,567.37	1,732,367.80
1,221.80	10.30	81.72	1,213.28	16.24	116.69	40.205039	-104.670654	14,601,568.25	1,732,373.93
1,284.00	10.49	80.37	1,274.46	17.99	127.78	40.205043	-104.670615	14,601,570.04	1,732,385.01
1,377.00	11.09	79.34	1,365.82	21.06	144.91	40.205052	-104.670553	14,601,573.17	1,732,402.13
1,471.00	10.79	82.10	1,458.11	23.94	162.51	40.205060	-104.670490	14,601,576.12	1,732,419.72
1,658.00	10.22	78.94	1,641.98	29.53	196.13	40.205075	-104.670370	14,601,581.83	1,732,453.32
1,751.00	9.24	75.29	1,733.64	33.01	211.45	40.205085	-104.670315	14,601,585.37	1,732,468.63
1,845.00	10.74	82.71	1,826.22	36.04	227.44	40.205093	-104.670258	14,601,588.45	1,732,484.61
1,938.00	10.38	78.82	1,917.64	38.76	244.26	40.205101	-104.670197	14,601,591.24	1,732,501.41
2,032.00	9.36	75.90	2,010.25	42.26	259.98	40.205110	-104.670141	14,601,594.80	1,732,517.12
2,126.00	8.33	70.72	2,103.13	46.37	273.82	40.205121	-104.670092	14,601,598.96	1,732,530.94
2,219.00	8.08	71.05	2,195.18	50.72	286.36	40.205133	-104.670047	14,601,603.36	1,732,543.47
2,312.00	8.30	81.49	2,287.24	53.84	299.18	40.205142	-104.670001	14,601,606.52	1,732,556.28
2,406.00	7.10	79.65	2,380.39	55.88	311.61	40.205148	-104.669956	14,601,608.61	1,732,568.70
2,499.00	6.48	88.11	2,472.74	57.09	322.50	40.205151	-104.669917	14,601,609.86	1,732,579.59
2,593.00	5.27	95.37	2,566.24	56.86	332.10	40.205150	-104.669883	14,601,609.67	1,732,589.19
2,687.00	3.96	89.88	2,659.94	56.46	339.65	40.205149	-104.669856	14,601,609.30	1,732,596.74
2,780.00	6.12	95.79	2,752.57	55.97	347.79	40.205148	-104.669827	14,601,608.83	1,732,604.88
2,873.00	5.84	95.82	2,845.07	54.99	357.43	40.205145	-104.669792	14,601,607.89	1,732,614.53
2,964.00	5.80	94.71	2,935.60	54.14	366.62	40.205143	-104.669759	14,601,607.08	1,732,623.72
3,054.00	4.13	80.13	3,025.26	54.33	374.35	40.205143	-104.669732	14,601,607.29	1,732,631.44
3,144.00	3.10	74.31	3,115.08	55.54	379.88	40.205147	-104.669712	14,601,608.52	1,732,636.97
3,324.00	2.16	107.68	3,294.90	55.83	387.80	40.205147	-104.669683	14,601,608.84	1,732,644.89
3,414.00	1.89	116.13	3,384.84	54.66	390.75	40.205144	-104.669673	14,601,607.68	1,732,647.84

Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
3,504.00	0.95	116.77	3,474.81	53.67	392.75	40.205141	-104.669666	14,601,606.70	1,732,649.85
3,594.00	0.63	110.14	3,564.80	53.16	393.88	40.205140	-104.669662	14,601,606.19	1,732,650.98
3,684.00	0.28	61.82	3,654.80	53.09	394.54	40.205140	-104.669659	14,601,606.13	1,732,651.64
3,774.00	0.70	54.46	3,744.80	53.52	395.18	40.205141	-104.669657	14,601,606.56	1,732,652.28
3,864.00	0.67	46.82	3,834.79	54.20	396.01	40.205143	-104.669654	14,601,607.24	1,732,653.11
3,954.00	0.74	48.34	3,924.79	54.94	396.83	40.205145	-104.669651	14,601,607.99	1,732,653.92
4,044.00	0.25	111.55	4,014.78	55.26	397.44	40.205146	-104.669649	14,601,608.31	1,732,654.54
4,133.00	0.31	223.68	4,103.78	55.01	397.46	40.205145	-104.669649	14,601,608.06	1,732,654.55
4,223.00	0.83	248.24	4,193.78	54.59	396.68	40.205144	-104.669652	14,601,607.64	1,732,653.78
4,313.00	0.82	268.13	4,283.77	54.33	395.44	40.205143	-104.669656	14,601,607.37	1,732,652.53
4,403.00	0.78	262.34	4,373.76	54.23	394.18	40.205143	-104.669660	14,601,607.26	1,732,651.28
4,493.00	1.15	249.61	4,463.75	53.83	392.73	40.205142	-104.669666	14,601,606.86	1,732,649.83
4,582.00	1.25	267.93	4,552.73	53.49	390.92	40.205141	-104.669672	14,601,606.51	1,732,648.02
4,672.00	1.27	255.06	4,642.71	53.19	388.98	40.205140	-104.669679	14,601,606.21	1,732,646.08
4,762.00	1.02	248.74	4,732.69	52.65	387.27	40.205139	-104.669685	14,601,605.66	1,732,644.37
4,852.00	1.03	217.40	4,822.67	51.71	386.03	40.205136	-104.669690	14,601,604.72	1,732,643.14
4,941.00	0.93	230.64	4,911.66	50.62	384.99	40.205133	-104.669693	14,601,603.62	1,732,642.10
5,031.00	2.10	246.39	5,001.63	49.50	382.91	40.205130	-104.669701	14,601,602.49	1,732,640.02
5,121.00	2.23	243.71	5,091.56	48.06	379.83	40.205126	-104.669712	14,601,601.04	1,732,636.95
5,211.00	1.05	237.68	5,181.53	46.84	377.56	40.205123	-104.669720	14,601,599.82	1,732,634.69
5,301.00	0.79	246.93	5,271.51	46.16	376.30	40.205121	-104.669725	14,601,599.13	1,732,633.42
5,391.00	0.56	220.30	5,361.51	45.58	375.44	40.205119	-104.669728	14,601,598.55	1,732,632.57
5,481.00	0.37	147.50	5,451.51	45.00	375.31	40.205118	-104.669728	14,601,597.97	1,732,632.44
5,571.00	0.56	173.88	5,541.50	44.32	375.51	40.205116	-104.669727	14,601,597.28	1,732,632.65
5,660.00	0.79	151.14	5,630.50	43.35	375.86	40.205113	-104.669726	14,601,596.32	1,732,632.99
5,750.00	0.94	161.46	5,720.49	42.11	376.39	40.205110	-104.669724	14,601,595.07	1,732,633.53
5,840.00	1.01	137.33	5,810.47	40.82	377.16	40.205106	-104.669721	14,601,593.79	1,732,634.31
5,930.00	1.08	136.45	5,900.46	39.62	378.29	40.205103	-104.669717	14,601,592.60	1,732,635.44
6,020.00	1.14	80.91	5,990.44	39.15	379.75	40.205102	-104.669712	14,601,592.13	1,732,636.91
6,110.00	1.49	73.89	6,080.42	39.62	381.76	40.205103	-104.669705	14,601,592.61	1,732,638.91
6,200.00	1.46	85.50	6,170.39	40.03	384.03	40.205104	-104.669697	14,601,593.03	1,732,641.18
6,290.00	1.22	92.98	6,260.37	40.07	386.13	40.205104	-104.669689	14,601,593.08	1,732,643.28
6,380.00	1.07	115.82	6,350.35	39.66	387.84	40.205103	-104.669683	14,601,592.67	1,732,644.99
6,425.00	5.93	180.16	6,395.26	37.15	388.21	40.205096	-104.669682	14,601,590.16	1,732,645.37
6,470.00	8.56	180.66	6,439.90	31.47	388.17	40.205081	-104.669682	14,601,584.49	1,732,645.35
6,560.00	18.62	176.83	6,527.27	10.37	388.89	40.205023	-104.669679	14,601,563.39	1,732,646.15
6,650.00	25.74	179.55	6,610.55	-23.56	389.84	40.204929	-104.669676	14,601,529.46	1,732,647.22
6,740.00	31.81	179.77	6,689.40	-66.86	390.09	40.204810	-104.669675	14,601,486.16	1,732,647.63
6,830.00	39.80	179.41	6,762.34	-119.47	390.48	40.204666	-104.669674	14,601,433.55	1,732,648.22
6,920.00	48.10	176.92	6,827.08	-181.83	392.58	40.204495	-104.669666	14,601,371.20	1,732,650.55
7,010.00	55.87	178.67	6,882.47	-252.63	395.25	40.204300	-104.669657	14,601,300.41	1,732,653.48
7,100.00	63.14	180.65	6,928.11	-330.12	395.66	40.204088	-104.669655	14,601,222.92	1,732,654.18



Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
7,190.00	70.20	178.58	6,963.74	-412.70	396.25	40.203861	-104.669653	14,601,140.34	1,732,655.08
7,280.00	76.02	176.46	6,989.87	-498.70	400.00	40.203625	-104.669640	14,601,054.36	1,732,659.15
7,381.00	87.16	177.76	7,004.62	-598.32	405.01	40.203351	-104.669622	14,600,954.76	1,732,664.53
7,416.70	88.48	177.97	7,005.98	-633.97	406.34	40.203253	-104.669617	14,600,919.11	1,732,665.99
7,450.00	89.72	178.17	7,006.50	-667.25	407.46	40.203162	-104.669613	14,600,885.84	1,732,667.23
7,634.00	90.68	178.23	7,005.86	-851.16	413.24	40.202657	-104.669592	14,600,701.96	1,732,673.69
7,724.00	90.46	178.45	7,004.96	-941.11	415.85	40.202410	-104.669583	14,600,612.01	1,732,676.64
7,814.00	89.35	180.14	7,005.11	-1,031.10	416.96	40.202163	-104.669579	14,600,522.03	1,732,678.08
7,904.00	88.18	181.44	7,007.05	-1,121.07	415.72	40.201916	-104.669583	14,600,432.05	1,732,677.17
7,994.00	88.34	182.16	7,009.79	-1,210.98	412.89	40.201669	-104.669594	14,600,342.13	1,732,674.68
8,084.00	87.96	182.34	7,012.69	-1,300.87	409.36	40.201422	-104.669606	14,600,252.24	1,732,671.48
8,174.00	88.12	181.90	7,015.77	-1,390.75	406.03	40.201175	-104.669618	14,600,162.34	1,732,668.48
8,264.00	88.80	181.69	7,018.19	-1,480.67	403.21	40.200928	-104.669628	14,600,072.41	1,732,666.00
8,354.00	90.28	181.51	7,018.91	-1,570.63	400.70	40.200681	-104.669637	14,599,982.44	1,732,663.82
8,444.00	90.09	181.03	7,018.62	-1,660.61	398.71	40.200434	-104.669644	14,599,892.45	1,732,662.16
8,534.00	91.48	180.74	7,017.39	-1,750.59	397.32	40.200187	-104.669649	14,599,802.47	1,732,661.10
8,624.00	92.87	180.53	7,013.97	-1,840.52	396.32	40.199940	-104.669653	14,599,712.54	1,732,660.44
8,714.00	93.15	181.29	7,009.25	-1,930.38	394.89	40.199693	-104.669658	14,599,622.67	1,732,659.34
8,804.00	92.77	181.71	7,004.60	-2,020.23	392.54	40.199446	-104.669667	14,599,532.81	1,732,657.32
8,894.00	92.10	182.91	7,000.77	-2,110.07	388.92	40.199200	-104.669679	14,599,442.96	1,732,654.03
9,073.00	91.97	182.43	6,994.42	-2,288.76	380.58	40.198709	-104.669709	14,599,264.24	1,732,646.36
9,163.00	92.16	182.03	6,991.18	-2,378.64	377.08	40.198462	-104.669722	14,599,174.35	1,732,643.20
9,253.00	93.08	181.57	6,987.06	-2,468.50	374.26	40.198215	-104.669732	14,599,084.48	1,732,640.70
9,342.00	93.24	181.35	6,982.16	-2,557.33	371.99	40.197971	-104.669740	14,598,995.64	1,732,638.77
9,432.00	91.57	181.05	6,978.38	-2,647.23	370.11	40.197725	-104.669747	14,598,905.73	1,732,637.22
9,612.00	91.60	180.19	6,973.40	-2,827.15	368.16	40.197231	-104.669754	14,598,725.81	1,732,635.94
9,701.00	90.71	180.17	6,971.61	-2,916.13	367.89	40.196986	-104.669755	14,598,636.83	1,732,635.99
9,791.00	90.83	179.91	6,970.40	-3,006.12	367.82	40.196739	-104.669755	14,598,546.84	1,732,636.26
9,881.00	91.66	180.21	6,968.44	-3,096.10	367.73	40.196492	-104.669755	14,598,456.86	1,732,636.50
9,971.00	90.74	179.82	6,966.56	-3,186.08	367.70	40.196245	-104.669756	14,598,366.88	1,732,636.81
10,061.00	91.91	179.36	6,964.48	-3,276.05	368.35	40.195998	-104.669753	14,598,276.91	1,732,637.79
10,151.00	91.42	180.01	6,961.86	-3,366.01	368.84	40.195751	-104.669751	14,598,186.95	1,732,638.62
10,241.00	90.68	179.95	6,960.21	-3,456.00	368.87	40.195504	-104.669751	14,598,096.97	1,732,638.98
10,331.00	90.40	179.64	6,959.36	-3,545.99	369.20	40.195257	-104.669750	14,598,006.98	1,732,639.64
10,420.00	89.57	179.60	6,959.39	-3,634.99	369.79	40.195012	-104.669748	14,597,917.98	1,732,640.56
10,510.00	89.32	179.91	6,960.26	-3,724.98	370.17	40.194765	-104.669747	14,597,827.99	1,732,641.27
10,600.00	89.51	179.67	6,961.18	-3,814.98	370.50	40.194518	-104.669746	14,597,738.00	1,732,641.94
10,690.00	89.72	179.04	6,961.78	-3,904.97	371.51	40.194271	-104.669742	14,597,648.01	1,732,643.28
10,780.00	90.55	178.72	6,961.57	-3,994.95	373.27	40.194024	-104.669736	14,597,558.03	1,732,645.38
10,960.00	89.85	178.28	6,960.94	-4,174.89	377.99	40.193530	-104.669719	14,597,378.12	1,732,650.76
11,050.00	90.12	177.99	6,960.96	-4,264.84	380.91	40.193283	-104.669708	14,597,288.18	1,732,654.02
11,140.00	90.22	177.29	6,960.70	-4,354.76	384.62	40.193036	-104.669695	14,597,198.27	1,732,658.06

Design Report for MILK 36N-28HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
11,230.00	91.54	178.13	6,959.32	-4,444.68	388.22	40.192789	-104.669682	14,597,108.37	1,732,661.99
11,320.00	92.90	178.18	6,955.83	-4,534.56	391.11	40.192542	-104.669672	14,597,018.50	1,732,665.21
11,410.00	92.65	178.99	6,951.47	-4,624.43	393.33	40.192295	-104.669664	14,596,928.64	1,732,667.77
11,500.00	91.29	179.01	6,948.38	-4,714.36	394.90	40.192048	-104.669658	14,596,838.71	1,732,669.67
11,590.00	90.71	179.65	6,946.81	-4,804.34	395.95	40.191801	-104.669654	14,596,748.74	1,732,671.06
11,680.00	89.91	180.43	6,946.32	-4,894.33	395.89	40.191554	-104.669655	14,596,658.74	1,732,671.33
11,770.00	89.35	180.91	6,946.90	-4,984.32	394.84	40.191307	-104.669658	14,596,568.75	1,732,670.61
11,860.00	90.37	180.76	6,947.12	-5,074.31	393.53	40.191060	-104.669663	14,596,478.75	1,732,669.63
11,951.00	90.28	181.27	6,946.61	-5,165.30	391.91	40.190810	-104.669669	14,596,387.76	1,732,668.35
12,041.00	90.52	182.17	6,945.98	-5,255.25	389.21	40.190563	-104.669679	14,596,297.80	1,732,665.99
12,131.00	89.63	181.62	6,945.86	-5,345.20	386.24	40.190316	-104.669689	14,596,207.84	1,732,663.34
12,221.00	90.12	181.17	6,946.06	-5,435.18	384.05	40.190069	-104.669697	14,596,117.86	1,732,661.49
12,401.00	92.62	180.90	6,941.75	-5,615.08	380.80	40.189575	-104.669709	14,595,937.94	1,732,658.90
12,458.00	93.30	180.90	6,938.81	-5,672.00	379.90	40.189418	-104.669712	14,595,881.02	1,732,658.22
12,500.00	93.30	180.90	6,936.39	-5,713.92	379.24	40.189303	-104.669714	14,595,839.10	1,732,657.72

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
90.00	90.00	-0.30	-0.36	First Cathedral MWD Survey
1,187.00	1,179.04	15.39	110.55	Tie-On to Cathedral Surveys
1,284.00	1,274.46	17.99	127.78	First HAL MWD+IFR+SC Survey
12,458.00	6,938.81	-5,672.00	379.90	Final HAL MWD+IFR+SC Survey
12,500.00	6,936.39	-5,713.92	379.24	Str Line Proj to TD @ 12500' MD :: 6936.39' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Design Report for MILK 36N-28HZ - Actual Surveys

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
90.00	1,187.00	CES Surface Surveys	APC_ISCWSA REV 2 MWD
1,284.00	7,381.00	HAL Vertical/Build Surveys	APC_ISCWSA REV 2 MWD+IFR1+SC
7,450.00	12,500.00	HAL Lateral Surveys	APC_ISCWSA REV 2 MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,221.80	1,213.28	9 5/8" Casing Set @ 1221.8' MD::1213.28' TVD	9-5/8	13-1/2
7,416.70	7,005.98	7" Casing Set @ 7416.7' MD::7005.98' TVD	7	8-3/4

Targets for Plan D

Shape	Target Name	TVD (usft)	Northing (usft)	Easting (usft)	+N/-S usft	+E/-W usft	Created	Updated
Point	MILK 36N-28HZ_Lat Target	7,005.00	14,600,053.03	1,732,652.73	-1,500.00	389.87	4/20/2015	4/20/2015
Point	MILK 36N-28HZ_SHL	0.00	14,601,551.57	1,732,257.30	0.00	0.00	10/11/2014	4/1/2015
Point	MILK 36N-28HZ_Lat Target 2	6,957.00	14,598,553.04	1,732,658.19	-3,000.00	389.77	4/21/2015	4/21/2015
Polygon	Sec. 28 and 21-T3N-R65W	-14.00	14,601,715.74	1,731,548.32	166.79	-708.36	10/10/2014	10/10/2014
Point	MILK 36N-28HZ BHL	6,957.00	14,595,838.72	1,732,668.07	-5,714.34	389.59	4/20/2015	4/20/2015
Polygon	MILK 36N-28HZ_Hardlines	0.00	14,601,551.69	1,732,287.18	0.00	29.88	3/25/2015	3/25/2015

North Reference Sheet for 3N-65W-21 Milk 4-21HZ Pad - MILK 36N-28HZ - Plan D

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

Vertical Depths are relative to RKB=13 @ 4850.00usft (Ensign 145). Northing and Easting are relative to MILK 36N-28HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.000000°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960965

Grid Coordinates of Well: 14,601,551.57 usft N, 1,732,257.30 usft E

Geographical Coordinates of Well: 40° 12' 17.98" N, 104° 40' 15.86" W

Grid Convergence at Surface is: 0.21°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,500.00usft

the Bottom Hole Displacement is 5,726.49usft in the Direction of 176.20° (True).

Magnetic Convergence at surface is: -8.18° (17 April 2015, , BGGM2014)

