

Petro Operating Company

Location	Weld County, CO	Slot	FLASCHENRIEM 2
Field	Wattenberg	Well	W FLASCHENRIEM 2
Installation	Flaschenriem Pad	Wellbore	W FLASCHENRIEM 2 (PWB)

N
GRID

Scale 1 cm = 500 ft

East (Feet) ->

-2000 -1000 0 1000 2000 3000 4000 5000 6000 7000 8000

Apr-20-2018
EMMA-2015 [2000.0-2020.0] Dip: 66.69 deg Field: 52216.1 nT
Lat: N40 20 39.0325 Long: W104 59 29.5523 Elev: 5068.00 ft
Magnetic North is 8.49 deg East of True North
GRID North is 0.33 deg East of True North
To correct azimuth from True to GRID subtract 0.33 deg
To correct azimuth from Magnetic to GRID add 8.16 deg

Created by admin
Date plotted 27-Apr-2018
Plot reference is W FLASCHENRIEM 2 (PWB).
Ref wellpath is W FLASCHENRIEM 2 (PWP#1).
Coordinates are in Feet reference FLASCHENRIEM 2.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 5068.30 ft.
Plot North is aligned to GRID North.

FLASCHENRIEM 2-LP

FLASCHENRIEM 2-BHL

W FLASCHENRIEM 2 (PWB)

Surface 0.00 N 0.00 E

<- North (Feet)

Scale 1 cm = 500 ft

5000

4000

3000

2000

1000

0

-1000

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	0.00	0.00	S 0.00	W 0.00		0.00
KOP	1500.00	0.00	351.14	1500.00	S 0.00	W 0.00	0.00	0.00
End of Build	3228.85	38.03	351.14	3104.64	N 546.46	W 85.22	2.20	188.17
End of Hold	7990.65	38.03	351.14	6855.22	N 3445.34	W 537.33	0.00	1186.41
Target FLASCH...M 2-LP	8943.64	90.00	89.76	7350.30	N 3830.66	E 31.55	10.00	1870.50
T.D. & Target FLA...BHL	15947.02	90.00	89.76	7350.30	N 3860.39	E 7034.86	0.00	8024.46

Tie on - 0.00 Inc, 0.00 MD, 0.00 TVD, 0.00 VS

3DS Kick off Point - 0.00 Inc, 1500.00 MD, 1500.00 TVD, 0.00 VS

End of Build - 38.03 Inc, 3228.85 MD, 3104.64 TVD, 188.17 VS

End of Hold - 38.03 Inc, 7990.65 MD, 6855.22 TVD, 1186.41 VS

S/C Kick off Point - 90.00 Inc, 8943.64 MD, 7350.30 TVD, 1870.50 VS

T.D. & End of Hold - 7350.30 TVD, 3860.39 N 7034.86 E

FLASCHENRIEM 2-LP

FLASCHENRIEM 2-BHL

W FLASCHENRIEM 2 (PWB)

<- True Vertical Depth (Feet)

Scale 1 cm = 400 ft

-800

0

800

1600

2400

3200

4000

4800

5600

6400

7200

8000

Scale 1 cm = 400 ft

Vertical Section (Feet) ->

Azimuth 61.24 with reference 0.00 N, 0.00 E from FLASCHENRIEM 2

-800 -0 800 1600 2400 3200 4000 4800 5600 6400 7200 8000 8800



SYSDRILL
Well Design Combined Report
Wellbore: W FLASCHENRIEM 2 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
FLASCHENRIEM 2	40.34413450	-104.99154160	1368615.2132	3141726.8484	15.01S	0.28E	0.00

Declination		
Date	Source	Time
Apr-20-2018	EMM-2015 [2000.0-2020.0]	11:01

Installation Details						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Flaschenriem Pad	40.34417570	-104.99154230	1368630.2207	3141726.5673	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	Vertical Depth SS	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
0.00	0.00	0.000	0.00	-5068.30	0.00N	0.00E		0.00
1500.00	0.00	351.140	1500.00	-3568.30	0.00N	0.00E	==>	0.00
3228.85	38.03	351.140	3104.64	-1963.66	546.46N	85.22W	2.20	188.17
7990.65	38.03	351.140	6855.22	1786.92	3445.34N	537.33W	==>	1186.41
8943.64	90.00	89.760	7350.30	2282.00	3830.66N	31.55E	10.00	1870.50
15947.02	90.00	89.760	7350.30	2282.00	3860.39N	7034.86E	==>	8024.46

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	40.34413450	-104.99154160
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1500.00	0.00	351.140	1500.00	0.00N	0.00E	==>	0.00	40.34413450	-104.99154160
1600.00	2.20	351.140	1599.98	1.90N	0.30W	2.20	0.65	40.34413971	-104.99154262
1700.00	4.40	351.140	1699.80	7.58N	1.18W	2.20	2.61	40.34415534	-104.99154569
1800.00	6.60	351.140	1799.34	17.05N	2.66W	2.20	5.87	40.34418135	-104.99155079
1900.00	8.80	351.140	1898.43	30.29N	4.72W	2.20	10.43	40.34421772	-104.99155792
2000.00	11.00	351.140	1996.93	47.28N	7.37W	2.20	16.28	40.34426439	-104.99156708
2100.00	13.20	351.140	2094.71	67.99N	10.60W	2.20	23.41	40.34432129	-104.99157824
2200.00	15.40	351.140	2191.60	92.39N	14.41W	2.20	31.82	40.34438833	-104.99159139
2300.00	17.60	351.140	2287.48	120.45N	18.79W	2.20	41.48	40.34446542	-104.99160651
2400.00	19.80	351.140	2382.19	152.13N	23.73W	2.20	52.39	40.34455245	-104.99162358
2500.00	22.00	351.140	2475.61	187.37N	29.22W	2.20	64.52	40.34464928	-104.99164258
2600.00	24.20	351.140	2567.58	226.14N	35.27W	2.20	77.87	40.34475577	-104.99166347
2700.00	26.40	351.140	2657.99	268.36N	41.85W	2.20	92.41	40.34487177	-104.99168622
2800.00	28.60	351.140	2746.68	313.98N	48.97W	2.20	108.12	40.34499711	-104.99171081
2900.00	30.80	351.140	2833.54	362.93N	56.60W	2.20	124.98	40.34513159	-104.99173719
3000.00	33.00	351.140	2918.43	415.14N	64.74W	2.20	142.95	40.34527503	-104.99176533
3100.00	35.20	351.140	3001.23	470.53N	73.38W	2.20	162.03	40.34542721	-104.99179518

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5068.3ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 61.240 degrees
Bottom hole distance is 8024.46 Feet on azimuth 61.24 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by IPT
Date Printed: 27-Apr-2018

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
3200.00	37.40	351.140	3081.82	529.02N	82.51W	2.20	182.17	40.34558790	-104.99182670
3300.00	38.03	351.140	3160.68	589.78N	91.98W	==>	203.09	40.34575481	-104.99185944
3400.00	38.03	351.140	3239.45	650.65N	101.48W	==>	224.05	40.34592206	-104.99189225
3500.00	38.03	351.140	3318.21	711.53N	110.97W	==>	245.02	40.34608931	-104.99192506
3600.00	38.03	351.140	3396.97	772.41N	120.46W	==>	265.98	40.34625656	-104.99195787
3700.00	38.03	351.140	3475.74	833.29N	129.96W	==>	286.94	40.34642382	-104.99199068
3800.00	38.03	351.140	3554.50	894.16N	139.45W	==>	307.91	40.34659107	-104.99202349
3900.00	38.03	351.140	3633.27	955.04N	148.95W	==>	328.87	40.34675832	-104.99205630
4000.00	38.03	351.140	3712.03	1015.92N	158.44W	==>	349.83	40.34692557	-104.99208911
4100.00	38.03	351.140	3790.79	1076.80N	167.94W	==>	370.80	40.34709282	-104.99212192
4200.00	38.03	351.140	3869.56	1137.68N	177.43W	==>	391.76	40.34726007	-104.99215473
4300.00	38.03	351.140	3948.32	1198.55N	186.92W	==>	412.72	40.34742732	-104.99218754
4400.00	38.03	351.140	4027.09	1259.43N	196.42W	==>	433.69	40.34759458	-104.99222035
4500.00	38.03	351.140	4105.85	1320.31N	205.91W	==>	454.65	40.34776183	-104.99225317
4600.00	38.03	351.140	4184.61	1381.19N	215.41W	==>	475.61	40.34792908	-104.99228598
4700.00	38.03	351.140	4263.38	1442.06N	224.90W	==>	496.58	40.34809633	-104.99231879
4800.00	38.03	351.140	4342.14	1502.94N	234.40W	==>	517.54	40.34826358	-104.99235160
4900.00	38.03	351.140	4420.91	1563.82N	243.89W	==>	538.50	40.34843083	-104.99238441
5000.00	38.03	351.140	4499.67	1624.70N	253.39W	==>	559.47	40.34859808	-104.99241722
5100.00	38.03	351.140	4578.43	1685.58N	262.88W	==>	580.43	40.34876534	-104.99245004
5200.00	38.03	351.140	4657.20	1746.45N	272.37W	==>	601.39	40.34893259	-104.99248285
5300.00	38.03	351.140	4735.96	1807.33N	281.87W	==>	622.36	40.34909984	-104.99251566
5400.00	38.03	351.140	4814.72	1868.21N	291.36W	==>	643.32	40.34926709	-104.99254847
5500.00	38.03	351.140	4893.49	1929.09N	300.86W	==>	664.28	40.34943434	-104.99258129
5600.00	38.03	351.140	4972.25	1989.96N	310.35W	==>	685.25	40.34960159	-104.99261410
5700.00	38.03	351.140	5051.02	2050.84N	319.85W	==>	706.21	40.34976884	-104.99264691
5800.00	38.03	351.140	5129.78	2111.72N	329.34W	==>	727.18	40.34993609	-104.99267972
5900.00	38.03	351.140	5208.54	2172.60N	338.84W	==>	748.14	40.35010335	-104.99271254
6000.00	38.03	351.140	5287.31	2233.48N	348.33W	==>	769.10	40.35027060	-104.99274535
6100.00	38.03	351.140	5366.07	2294.35N	357.82W	==>	790.07	40.35043785	-104.99277816
6200.00	38.03	351.140	5444.84	2355.23N	367.32W	==>	811.03	40.35060510	-104.99281098
6300.00	38.03	351.140	5523.60	2416.11N	376.81W	==>	831.99	40.35077235	-104.99284379
6400.00	38.03	351.140	5602.36	2476.99N	386.31W	==>	852.96	40.35093960	-104.99287661
6500.00	38.03	351.140	5681.13	2537.86N	395.80W	==>	873.92	40.35110685	-104.99290942
6600.00	38.03	351.140	5759.89	2598.74N	405.30W	==>	894.88	40.35127410	-104.99294224
6700.00	38.03	351.140	5838.66	2659.62N	414.79W	==>	915.85	40.35144135	-104.99297505
6800.00	38.03	351.140	5917.42	2720.50N	424.29W	==>	936.81	40.35160861	-104.99300786
6900.00	38.03	351.140	5996.18	2781.38N	433.78W	==>	957.77	40.35177586	-104.99304068
7000.00	38.03	351.140	6074.95	2842.25N	443.27W	==>	978.74	40.35194311	-104.99307349
7100.00	38.03	351.140	6153.71	2903.13N	452.77W	==>	999.70	40.35211036	-104.99310631
7200.00	38.03	351.140	6232.47	2964.01N	462.26W	==>	1020.66	40.35227761	-104.99313913
7300.00	38.03	351.140	6311.24	3024.89N	471.76W	==>	1041.63	40.35244486	-104.99317194
7400.00	38.03	351.140	6390.00	3085.76N	481.25W	==>	1062.59	40.35261211	-104.99320476
7500.00	38.03	351.140	6468.77	3146.64N	490.75W	==>	1083.55	40.35277936	-104.99323757
7600.00	38.03	351.140	6547.53	3207.52N	500.24W	==>	1104.52	40.35294661	-104.99327039
7700.00	38.03	351.140	6626.29	3268.40N	509.74W	==>	1125.48	40.35311386	-104.99330321
7800.00	38.03	351.140	6705.06	3329.28N	519.23W	==>	1146.44	40.35328112	-104.99333602
7900.00	38.03	351.140	6783.82	3390.15N	528.72W	==>	1167.41	40.35344837	-104.99336884
8000.00	37.93	352.650	6862.59	3451.04N	538.14W	10.00	1188.44	40.35361563	-104.99340138
8100.00	38.08	8.920	6941.59	3512.14N	537.29W	10.00	1218.58	40.35378333	-104.99339708
8200.00	40.38	24.340	7019.23	3572.27N	519.12W	10.00	1263.44	40.35394809	-104.99333063
8300.00	44.51	37.870	7093.17	3629.60N	484.16W	10.00	1321.67	40.35410491	-104.99320404
8400.00	49.99	49.280	7161.14	3682.39N	433.49W	10.00	1391.48	40.35424901	-104.99302116
8500.00	56.42	58.860	7221.09	3729.03N	368.65W	10.00	1470.77	40.35437603	-104.99278755
8600.00	63.48	67.060	7271.20	3768.11N	291.60W	10.00	1557.12	40.35448209	-104.99251030
8700.00	70.95	74.270	7309.94	3798.44N	204.68W	10.00	1647.90	40.35456398	-104.99219784
8800.00	78.68	80.850	7336.13	3819.10N	110.55W	10.00	1740.37	40.35461920	-104.99185966
8900.00	86.55	87.080	7348.99	3829.46N	12.05W	10.00	1831.71	40.35464609	-104.99150604

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Vertical Section is from 0.00N 0.00E on azimuth 61.240 degrees
Bottom hole distance is 8024.46 Feet on azimuth 61.24 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by IPT
Date Printed: 27-Apr-2018



SYSDRILL
Well Design Combined Report
Wellbore: W FLASCHENRIEM 2 (PWB)



Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
9000.00	90.00	89.760	7350.30	3830.90N	87.91E	==>	1920.03	40.35464847	-104.99114739
9100.00	90.00	89.760	7350.30	3831.32N	187.90E	==>	2007.90	40.35464806	-104.99078859
9200.00	90.00	89.760	7350.30	3831.75N	287.90E	==>	2095.77	40.35464765	-104.99042979
9300.00	90.00	89.760	7350.30	3832.17N	387.90E	==>	2183.64	40.35464723	-104.99007100
9400.00	90.00	89.760	7350.30	3832.60N	487.90E	==>	2271.51	40.35464682	-104.98971220
9500.00	90.00	89.760	7350.30	3833.02N	587.90E	==>	2359.38	40.35464640	-104.98935340
9600.00	90.00	89.760	7350.30	3833.45N	687.90E	==>	2447.25	40.35464599	-104.98899461
9700.00	90.00	89.760	7350.30	3833.87N	787.90E	==>	2535.12	40.35464557	-104.98863581
9800.00	90.00	89.760	7350.30	3834.30N	887.90E	==>	2623.00	40.35464515	-104.98827701
9900.00	90.00	89.760	7350.30	3834.72N	987.90E	==>	2710.87	40.35464473	-104.98791822
10000.00	90.00	89.760	7350.30	3835.14N	1087.90E	==>	2798.74	40.35464431	-104.98755942
10100.00	90.00	89.760	7350.30	3835.57N	1187.90E	==>	2886.61	40.35464389	-104.98720062
10200.00	90.00	89.760	7350.30	3835.99N	1287.90E	==>	2974.48	40.35464347	-104.98684182
10300.00	90.00	89.760	7350.30	3836.42N	1387.89E	==>	3062.35	40.35464304	-104.98648303
10400.00	90.00	89.760	7350.30	3836.84N	1487.89E	==>	3150.22	40.35464262	-104.98612423
10500.00	90.00	89.760	7350.30	3837.27N	1587.89E	==>	3238.09	40.35464219	-104.98576543
10600.00	90.00	89.760	7350.30	3837.69N	1687.89E	==>	3325.96	40.35464177	-104.98540664
10700.00	90.00	89.760	7350.30	3838.12N	1787.89E	==>	3413.84	40.35464134	-104.98504784
10800.00	90.00	89.760	7350.30	3838.54N	1887.89E	==>	3501.71	40.35464091	-104.98468904
10900.00	90.00	89.760	7350.30	3838.96N	1987.89E	==>	3589.58	40.35464048	-104.98433025
11000.00	90.00	89.760	7350.30	3839.39N	2087.89E	==>	3677.45	40.35464005	-104.98397145
11100.00	90.00	89.760	7350.30	3839.81N	2187.89E	==>	3765.32	40.35463961	-104.98361265
11200.00	90.00	89.760	7350.30	3840.24N	2287.89E	==>	3853.19	40.35463918	-104.98325386
11300.00	90.00	89.760	7350.30	3840.66N	2387.89E	==>	3941.06	40.35463874	-104.98289506
11400.00	90.00	89.760	7350.30	3841.09N	2487.88E	==>	4028.93	40.35463831	-104.98253626
11500.00	90.00	89.760	7350.30	3841.51N	2587.88E	==>	4116.81	40.35463787	-104.98217747
11600.00	90.00	89.760	7350.30	3841.94N	2687.88E	==>	4204.68	40.35463743	-104.98181867
11700.00	90.00	89.760	7350.30	3842.36N	2787.88E	==>	4292.55	40.35463699	-104.98145987
11800.00	90.00	89.760	7350.30	3842.78N	2887.88E	==>	4380.42	40.35463655	-104.98110108
11900.00	90.00	89.760	7350.30	3843.21N	2987.88E	==>	4468.29	40.35463611	-104.98074228
12000.00	90.00	89.760	7350.30	3843.63N	3087.88E	==>	4556.16	40.35463567	-104.98038348
12100.00	90.00	89.760	7350.30	3844.06N	3187.88E	==>	4644.03	40.35463522	-104.98002469
12200.00	90.00	89.760	7350.30	3844.48N	3287.88E	==>	4731.90	40.35463478	-104.97966589
12300.00	90.00	89.760	7350.30	3844.91N	3387.88E	==>	4819.78	40.35463433	-104.97930709
12400.00	90.00	89.760	7350.30	3845.33N	3487.88E	==>	4907.65	40.35463388	-104.97894829
12500.00	90.00	89.760	7350.30	3845.76N	3587.87E	==>	4995.52	40.35463344	-104.97858950
12600.00	90.00	89.760	7350.30	3846.18N	3687.87E	==>	5083.39	40.35463299	-104.97823070
12700.00	90.00	89.760	7350.30	3846.60N	3787.87E	==>	5171.26	40.35463254	-104.97787190
12800.00	90.00	89.760	7350.30	3847.03N	3887.87E	==>	5259.13	40.35463208	-104.97751311
12900.00	90.00	89.760	7350.30	3847.45N	3987.87E	==>	5347.00	40.35463163	-104.97715431
13000.00	90.00	89.760	7350.30	3847.88N	4087.87E	==>	5434.87	40.35463118	-104.97679551
13100.00	90.00	89.760	7350.30	3848.30N	4187.87E	==>	5522.74	40.35463072	-104.97643672
13200.00	90.00	89.760	7350.30	3848.73N	4287.87E	==>	5610.62	40.35463027	-104.97607792
13300.00	90.00	89.760	7350.30	3849.15N	4387.87E	==>	5698.49	40.35462981	-104.97571912
13400.00	90.00	89.760	7350.30	3849.58N	4487.87E	==>	5786.36	40.35462935	-104.97536033
13500.00	90.00	89.760	7350.30	3850.00N	4587.87E	==>	5874.23	40.35462889	-104.97500153
13600.00	90.00	89.760	7350.30	3850.42N	4687.86E	==>	5962.10	40.35462843	-104.97464273
13700.00	90.00	89.760	7350.30	3850.85N	4787.86E	==>	6049.97	40.35462797	-104.97428394
13800.00	90.00	89.760	7350.30	3851.27N	4887.86E	==>	6137.84	40.35462751	-104.97392514
13900.00	90.00	89.760	7350.30	3851.70N	4987.86E	==>	6225.71	40.35462704	-104.97356634
14000.00	90.00	89.760	7350.30	3852.12N	5087.86E	==>	6313.59	40.35462658	-104.97320755
14100.00	90.00	89.760	7350.30	3852.55N	5187.86E	==>	6401.46	40.35462611	-104.97284875
14200.00	90.00	89.760	7350.30	3852.97N	5287.86E	==>	6489.33	40.35462564	-104.97248995
14300.00	90.00	89.760	7350.30	3853.40N	5387.86E	==>	6577.20	40.35462517	-104.97213116
14400.00	90.00	89.760	7350.30	3853.82N	5487.86E	==>	6665.07	40.35462470	-104.97177236
14500.00	90.00	89.760	7350.30	3854.24N	5587.86E	==>	6752.94	40.35462423	-104.97141356
14600.00	90.00	89.760	7350.30	3854.67N	5687.86E	==>	6840.81	40.35462376	-104.97105477
14700.00	90.00	89.760	7350.30	3855.09N	5787.85E	==>	6928.68	40.35462329	-104.97069597
14800.00	90.00	89.760	7350.30	3855.52N	5887.85E	==>	7016.56	40.35462282	-104.97033717

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5068.3ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 61.240 degrees
Bottom hole distance is 8024.46 Feet on azimuth 61.24 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by IPT
Date Printed: 27-Apr-2018



SYSDRILL
Well Design Combined Report
Wellbore: W FLASCHENRIEM 2 (PWB)



Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
14900.00	90.00	89.760	7350.30	3855.94N	5987.85E	==>	7104.43	40.35462234	-104.96997838
15000.00	90.00	89.760	7350.30	3856.37N	6087.85E	==>	7192.30	40.35462186	-104.96961958
15100.00	90.00	89.760	7350.30	3856.79N	6187.85E	==>	7280.17	40.35462139	-104.96926078
15200.00	90.00	89.760	7350.30	3857.22N	6287.85E	==>	7368.04	40.35462091	-104.96890199
15300.00	90.00	89.760	7350.30	3857.64N	6387.85E	==>	7455.91	40.35462043	-104.96854319
15400.00	90.00	89.760	7350.30	3858.06N	6487.85E	==>	7543.78	40.35461995	-104.96818439
15500.00	90.00	89.760	7350.30	3858.49N	6587.85E	==>	7631.65	40.35461947	-104.96782560
15600.00	90.00	89.760	7350.30	3858.91N	6687.85E	==>	7719.52	40.35461898	-104.96746680
15700.00	90.00	89.760	7350.30	3859.34N	6787.85E	==>	7807.40	40.35461850	-104.96710800
15800.00	90.00	89.760	7350.30	3859.76N	6887.84E	==>	7895.27	40.35461802	-104.96674921
15900.00	90.00	89.760	7350.30	3860.19N	6987.84E	==>	7983.14	40.35461753	-104.96639041
15947.02	90.00	89.760	7350.30	3860.39N	7034.86E	==>	8024.46	40.35461730	-104.96622170

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SYSDRILL
Well Design Combined Report
Wellbore: W FLASCHENRIEM 2 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
FLASCHENRIEM 2-BHL	3860.39N	7034.86E	7350.30	40.35461730	-104.96622170	1372475.43	3148761.40
FLASCHENRIEM 2-LP	3830.66N	31.55E	7350.30	40.35464870	-104.99134960	1372445.71	3141758.39

Survey Tool Program					
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
636419	Planned	1500.00	1500.00	WdW Rate Gyro	Standard
636418	Planned	15947.02	7350.30	ISCWSA MWD	Rev 4 + SAG + FLT

Notes