

Petro Operating Company

Location	Weld County, CO	Slot	FLASCHENRIEM 1
Field	Wattenberg	Well	W FLASCHENRIEM 1
Installation	Flaschenriem Pad	Wellbore	W FLASCHENRIEM 1 (PWB)

Scale 1 cm = 500 ft

East (Feet) ->

N
GRID

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

FLASCHENRIEM 1-LP

FLASCHENRIEM 1-BHL

W FLASCHENRIEM 1 (PWB)

Apr-20-2018
EMM-2015 (2000-0-2020-0) Dip: 88.69 deg Field: 52216.1 xT
Lat: 40.00 20 30.0000 Long: 104.00 00 00.0000 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 1 (PWB).
Ref wellpath is W FLASCHENRIEM 1 (PWP#1).
Coordinates are in Feet reference FLASCHENRIEM 1.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 5068.20 ft.
Plot North is aligned to GRID North.

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	351.43	1500.00	S 0.00	W 0.00	0.00	0.00
End of Build	3461.05	43.14	351.43	3280.92	N 696.22	W 104.96	2.20	255.55
End of Hold	7720.00	43.14	351.43	6388.45	N 3576.05	W 539.12	0.00	1312.57
Target FLASCH...M 1-LP	8676.86	90.00	89.76	6850.20	N 4006.65	E 29.20	10.00	2019.82
T.D. & Target FLA...BHL	15680.16	90.00	89.76	6850.20	N 4036.37	E 7032.44	0.00	8108.48

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 - 43.14 Inc, 3461.05 MD, 3280.92 TVD, 255.55 VS

End of Hold - 43.14 Inc, 7720.00 MD, 6388.45 TVD, 1312.57 VS

S/C Kick off Point - 90.00 Inc, 8676.86 MD, 6850.20 TVD, 2019.82 VS

T.D. & End of Hold - 6850.20 TVD, 4036.37 N 7032.44 E

FLASCHENRIEM 1-LP

FLASCHENRIEM 1-BHL

W FLASCHENRIEM 1 (PWB)

<- True Vertical Depth (Feet)

Scale 1 cm = 400 ft

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

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

Scale 1 cm = 400 ft

Vertical Section (Feet) ->

Azimuth 60.15 with reference 0.00 N, 0.00 E from FLASCHENRIEM 1



SYSDRILL
Well Design Combined Report
Wellbore: W FLASCHENRIEM 1 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
FLASCHENRIEM 1	40.34417570	-104.99154230	1368630.2207	3141726.5673	0.00N	0.00E	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	-5068.20	0.00N	0.00E		0.00
1500.00	0.00	351.430	1500.00	-3568.20	0.00N	0.00E	==>	0.00
3461.05	43.14	351.430	3280.92	-1787.28	696.22N	104.96W	2.20	255.55
7720.00	43.14	351.430	6388.45	1320.25	3576.05N	539.12W	==>	1312.57
8676.86	90.00	89.760	6850.20	1782.00	4006.65N	29.20E	10.00	2019.82
15680.16	90.00	89.760	6850.20	1782.00	4036.37N	7032.44E	==>	8108.48

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	40.34417570	-104.99154230
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1500.00	0.00	351.430	1500.00	0.00N	0.00E	==>	0.00	40.34417570	-104.99154230
1600.00	2.20	351.430	1599.98	1.90N	0.29W	2.20	0.70	40.34418091	-104.99154329
1700.00	4.40	351.430	1699.80	7.59N	1.14W	2.20	2.79	40.34419655	-104.99154625
1800.00	6.60	351.430	1799.34	17.07N	2.57W	2.20	6.26	40.34422559	-104.99155118
1900.00	8.80	351.430	1898.43	30.31N	4.57W	2.20	11.13	40.34425898	-104.99155807
2000.00	11.00	351.430	1996.93	47.31N	7.13W	2.20	17.37	40.34430569	-104.99156692
2100.00	13.20	351.430	2094.71	68.04N	10.26W	2.20	24.97	40.34436263	-104.99157770
2200.00	15.40	351.430	2191.60	92.46N	13.94W	2.20	33.94	40.34442972	-104.99159040
2300.00	17.60	351.430	2287.48	120.55N	18.17W	2.20	44.25	40.34450687	-104.99160501
2400.00	19.80	351.430	2382.19	152.25N	22.95W	2.20	55.88	40.34459396	-104.99162151
2500.00	22.00	351.430	2475.61	187.52N	28.27W	2.20	68.83	40.34469086	-104.99163986
2600.00	24.20	351.430	2567.58	226.31N	34.12W	2.20	83.07	40.34479744	-104.99166004
2700.00	26.40	351.430	2657.99	268.57N	40.49W	2.20	98.58	40.34491353	-104.99168202
2800.00	28.60	351.430	2746.68	314.22N	47.37W	2.20	115.33	40.34503895	-104.99170578
2900.00	30.80	351.430	2833.54	363.21N	54.76W	2.20	133.32	40.34517354	-104.99173127
3000.00	33.00	351.430	2918.43	415.46N	62.63W	2.20	152.49	40.34531708	-104.99175845
3100.00	35.20	351.430	3001.23	470.90N	70.99W	2.20	172.84	40.34546938	-104.99178729

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 5068.2ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 60.150 degrees
Bottom hole distance is 8108.48 Feet on azimuth 60.15 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 1 (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)
3200.00	37.40	351.430	3081.82	529.43N	79.82W	2.20	194.33	40.34563019	-104.99181774
3300.00	39.60	351.430	3160.08	590.99N	89.10W	2.20	216.92	40.34579929	-104.99184977
3400.00	41.80	351.430	3235.89	655.46N	98.82W	2.20	240.59	40.34597642	-104.99188331
3500.00	43.14	351.430	3309.34	722.56N	108.93W	==>	265.21	40.34616076	-104.99191822
3600.00	43.14	351.430	3382.30	790.18N	119.13W	==>	290.03	40.34634652	-104.99195341
3700.00	43.14	351.430	3455.27	857.80N	129.32W	==>	314.85	40.34653229	-104.99198859
3800.00	43.14	351.430	3528.23	925.42N	139.51W	==>	339.67	40.34671805	-104.99202377
3900.00	43.14	351.430	3601.20	993.03N	149.71W	==>	364.49	40.34690382	-104.99205895
4000.00	43.14	351.430	3674.16	1060.65N	159.90W	==>	389.31	40.34708958	-104.99209413
4100.00	43.14	351.430	3747.13	1128.27N	170.10W	==>	414.13	40.34727534	-104.99212931
4200.00	43.14	351.430	3820.09	1195.89N	180.29W	==>	438.95	40.34746111	-104.99216449
4300.00	43.14	351.430	3893.05	1263.51N	190.48W	==>	463.76	40.34764687	-104.99219967
4400.00	43.14	351.430	3966.02	1331.13N	200.68W	==>	488.58	40.34783264	-104.99223486
4500.00	43.14	351.430	4038.98	1398.74N	210.87W	==>	513.40	40.34801840	-104.99227004
4600.00	43.14	351.430	4111.95	1466.36N	221.06W	==>	538.22	40.34820416	-104.99230522
4700.00	43.14	351.430	4184.91	1533.98N	231.26W	==>	563.04	40.34838993	-104.99234040
4800.00	43.14	351.430	4257.88	1601.60N	241.45W	==>	587.86	40.34857569	-104.99237559
4900.00	43.14	351.430	4330.84	1669.22N	251.65W	==>	612.68	40.34876146	-104.99241077
5000.00	43.14	351.430	4403.81	1736.83N	261.84W	==>	637.50	40.34894722	-104.99244595
5100.00	43.14	351.430	4476.77	1804.45N	272.03W	==>	662.32	40.34913298	-104.99248114
5200.00	43.14	351.430	4549.74	1872.07N	282.23W	==>	687.14	40.34931875	-104.99251632
5300.00	43.14	351.430	4622.70	1939.69N	292.42W	==>	711.95	40.34950451	-104.99255150
5400.00	43.14	351.430	4695.67	2007.31N	302.62W	==>	736.77	40.34969027	-104.99258669
5500.00	43.14	351.430	4768.63	2074.93N	312.81W	==>	761.59	40.34987604	-104.99262187
5600.00	43.14	351.430	4841.60	2142.54N	323.00W	==>	786.41	40.35006180	-104.99265706
5700.00	43.14	351.430	4914.56	2210.16N	333.20W	==>	811.23	40.35024757	-104.99269224
5800.00	43.14	351.430	4987.53	2277.78N	343.39W	==>	836.05	40.35043333	-104.99272743
5900.00	43.14	351.430	5060.49	2345.40N	353.59W	==>	860.87	40.35061909	-104.99276261
6000.00	43.14	351.430	5133.46	2413.02N	363.78W	==>	885.69	40.35080486	-104.99279780
6100.00	43.14	351.430	5206.42	2480.63N	373.97W	==>	910.51	40.35099062	-104.99283298
6200.00	43.14	351.430	5279.39	2548.25N	384.17W	==>	935.32	40.35117638	-104.99286817
6300.00	43.14	351.430	5352.35	2615.87N	394.36W	==>	960.14	40.35136215	-104.99290335
6400.00	43.14	351.430	5425.32	2683.49N	404.56W	==>	984.96	40.35154791	-104.99293854
6500.00	43.14	351.430	5498.28	2751.11N	414.75W	==>	1009.78	40.35173368	-104.99297373
6600.00	43.14	351.430	5571.25	2818.73N	424.94W	==>	1034.60	40.35191944	-104.99300891
6700.00	43.14	351.430	5644.21	2886.34N	435.14W	==>	1059.42	40.35210520	-104.99304410
6800.00	43.14	351.430	5717.18	2953.96N	445.33W	==>	1084.24	40.35229097	-104.99307929
6900.00	43.14	351.430	5790.14	3021.58N	455.53W	==>	1109.06	40.35247673	-104.99311447
7000.00	43.14	351.430	5863.10	3089.20N	465.72W	==>	1133.88	40.35266249	-104.99314966
7100.00	43.14	351.430	5936.07	3156.82N	475.91W	==>	1158.70	40.35284826	-104.99318485
7200.00	43.14	351.430	6009.03	3224.43N	486.11W	==>	1183.51	40.35303402	-104.99322003
7300.00	43.14	351.430	6082.00	3292.05N	496.30W	==>	1208.33	40.35321978	-104.99325522
7400.00	43.14	351.430	6154.96	3359.67N	506.50W	==>	1233.15	40.35340555	-104.99329041
7500.00	43.14	351.430	6227.93	3427.29N	516.69W	==>	1257.97	40.35359131	-104.99332560
7600.00	43.14	351.430	6300.89	3494.91N	526.88W	==>	1282.79	40.35377707	-104.99336079
7700.00	43.14	351.430	6373.86	3562.53N	537.08W	==>	1307.61	40.35396284	-104.99339597
7800.00	42.89	3.160	6447.04	3630.37N	541.70W	10.00	1337.37	40.35414913	-104.99341116
7900.00	44.24	17.560	6519.68	3697.78N	529.27W	10.00	1381.71	40.35433396	-104.99336519
8000.00	47.29	30.870	6589.59	3762.73N	499.82W	10.00	1439.58	40.35451180	-104.99325820
8100.00	51.71	42.690	6654.66	3823.27N	454.25W	10.00	1509.24	40.35467724	-104.99309345
8200.00	57.17	53.000	6712.90	3877.53N	393.94W	10.00	1588.56	40.35482525	-104.99287595
8300.00	63.37	62.050	6762.55	3923.88N	320.72W	10.00	1675.14	40.35495133	-104.99261229
8400.00	70.08	70.120	6802.10	3960.91N	236.82W	10.00	1766.34	40.35505165	-104.99231050
8500.00	77.13	77.520	6830.34	3987.50N	144.78W	10.00	1859.39	40.35512317	-104.99197974
8600.00	84.37	84.510	6846.43	4002.82N	47.41W	10.00	1951.47	40.35516371	-104.99163006
8700.00	90.00	89.760	6850.20	4006.75N	52.34E	==>	2039.94	40.35517291	-104.99127207
8800.00	90.00	89.760	6850.20	4007.17N	152.34E	==>	2126.88	40.35517249	-104.99091327
8900.00	90.00	89.760	6850.20	4007.60N	252.34E	==>	2213.82	40.35517208	-104.99055447

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 5068.2ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 60.150 degrees
Bottom hole distance is 8108.48 Feet on azimuth 60.15 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 1 (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	6850.20	4008.02N	352.34E	==>	2300.76	40.35517167	-104.99019567
9100.00	90.00	89.760	6850.20	4008.44N	452.34E	==>	2387.70	40.35517126	-104.98983687
9200.00	90.00	89.760	6850.20	4008.87N	552.34E	==>	2474.64	40.35517084	-104.98947807
9300.00	90.00	89.760	6850.20	4009.29N	652.34E	==>	2561.58	40.35517043	-104.98911927
9400.00	90.00	89.760	6850.20	4009.72N	752.33E	==>	2648.52	40.35517001	-104.98876047
9500.00	90.00	89.760	6850.20	4010.14N	852.33E	==>	2735.46	40.35516959	-104.98840167
9600.00	90.00	89.760	6850.20	4010.57N	952.33E	==>	2822.40	40.35516917	-104.98804288
9700.00	90.00	89.760	6850.20	4010.99N	1052.33E	==>	2909.34	40.35516875	-104.98768408
9800.00	90.00	89.760	6850.20	4011.42N	1152.33E	==>	2996.28	40.35516833	-104.98732528
9900.00	90.00	89.760	6850.20	4011.84N	1252.33E	==>	3083.22	40.35516791	-104.98696648
10000.00	90.00	89.760	6850.20	4012.26N	1352.33E	==>	3170.16	40.35516748	-104.98660768
10100.00	90.00	89.760	6850.20	4012.69N	1452.33E	==>	3257.10	40.35516706	-104.98624888
10200.00	90.00	89.760	6850.20	4013.11N	1552.33E	==>	3344.04	40.35516663	-104.98589008
10300.00	90.00	89.760	6850.20	4013.54N	1652.33E	==>	3430.98	40.35516621	-104.98553128
10400.00	90.00	89.760	6850.20	4013.96N	1752.33E	==>	3517.92	40.35516578	-104.98517248
10500.00	90.00	89.760	6850.20	4014.39N	1852.32E	==>	3604.86	40.35516535	-104.98481368
10600.00	90.00	89.760	6850.20	4014.81N	1952.32E	==>	3691.80	40.35516492	-104.98445488
10700.00	90.00	89.760	6850.20	4015.24N	2052.32E	==>	3778.74	40.35516449	-104.98409608
10800.00	90.00	89.760	6850.20	4015.66N	2152.32E	==>	3865.68	40.35516406	-104.98373728
10900.00	90.00	89.760	6850.20	4016.08N	2252.32E	==>	3952.62	40.35516362	-104.98337848
11000.00	90.00	89.760	6850.20	4016.51N	2352.32E	==>	4039.56	40.35516319	-104.98301968
11100.00	90.00	89.760	6850.20	4016.93N	2452.32E	==>	4126.50	40.35516275	-104.98266088
11200.00	90.00	89.760	6850.20	4017.36N	2552.32E	==>	4213.44	40.35516232	-104.98230208
11300.00	90.00	89.760	6850.20	4017.78N	2652.32E	==>	4300.38	40.35516188	-104.98194328
11400.00	90.00	89.760	6850.20	4018.21N	2752.32E	==>	4387.32	40.35516144	-104.98158448
11500.00	90.00	89.760	6850.20	4018.63N	2852.32E	==>	4474.26	40.35516100	-104.98122568
11600.00	90.00	89.760	6850.20	4019.06N	2952.31E	==>	4561.20	40.35516056	-104.98086688
11700.00	90.00	89.760	6850.20	4019.48N	3052.31E	==>	4648.14	40.35516011	-104.98050808
11800.00	90.00	89.760	6850.20	4019.90N	3152.31E	==>	4735.08	40.35515967	-104.98014928
11900.00	90.00	89.760	6850.20	4020.33N	3252.31E	==>	4822.02	40.35515923	-104.97979048
12000.00	90.00	89.760	6850.20	4020.75N	3352.31E	==>	4908.96	40.35515878	-104.97943168
12100.00	90.00	89.760	6850.20	4021.18N	3452.31E	==>	4995.90	40.35515833	-104.97907288
12200.00	90.00	89.760	6850.20	4021.60N	3552.31E	==>	5082.84	40.35515788	-104.97871409
12300.00	90.00	89.760	6850.20	4022.03N	3652.31E	==>	5169.78	40.35515744	-104.97835529
12400.00	90.00	89.760	6850.20	4022.45N	3752.31E	==>	5256.72	40.35515699	-104.97799649
12500.00	90.00	89.760	6850.20	4022.88N	3852.31E	==>	5343.65	40.35515653	-104.97763769
12600.00	90.00	89.760	6850.20	4023.30N	3952.31E	==>	5430.59	40.35515608	-104.97727889
12700.00	90.00	89.760	6850.20	4023.72N	4052.30E	==>	5517.53	40.35515563	-104.97692009
12800.00	90.00	89.760	6850.20	4024.15N	4152.30E	==>	5604.47	40.35515517	-104.97656129
12900.00	90.00	89.760	6850.20	4024.57N	4252.30E	==>	5691.41	40.35515472	-104.97620249
13000.00	90.00	89.760	6850.20	4025.00N	4352.30E	==>	5778.35	40.35515426	-104.97584369
13100.00	90.00	89.760	6850.20	4025.42N	4452.30E	==>	5865.29	40.35515380	-104.97548489
13200.00	90.00	89.760	6850.20	4025.85N	4552.30E	==>	5952.23	40.35515334	-104.97512609
13300.00	90.00	89.760	6850.20	4026.27N	4652.30E	==>	6039.17	40.35515288	-104.97476729
13400.00	90.00	89.760	6850.20	4026.70N	4752.30E	==>	6126.11	40.35515242	-104.97440849
13500.00	90.00	89.760	6850.20	4027.12N	4852.30E	==>	6213.05	40.35515196	-104.97404969
13600.00	90.00	89.760	6850.20	4027.54N	4952.30E	==>	6299.99	40.35515150	-104.97369089
13700.00	90.00	89.760	6850.20	4027.97N	5052.30E	==>	6386.93	40.35515103	-104.97333209
13800.00	90.00	89.760	6850.20	4028.39N	5152.29E	==>	6473.87	40.35515056	-104.97297329
13900.00	90.00	89.760	6850.20	4028.82N	5252.29E	==>	6560.81	40.35515010	-104.97261449
14000.00	90.00	89.760	6850.20	4029.24N	5352.29E	==>	6647.75	40.35514963	-104.97225570
14100.00	90.00	89.760	6850.20	4029.67N	5452.29E	==>	6734.69	40.35514916	-104.97189690
14200.00	90.00	89.760	6850.20	4030.09N	5552.29E	==>	6821.63	40.35514869	-104.97153810
14300.00	90.00	89.760	6850.20	4030.51N	5652.29E	==>	6908.57	40.35514822	-104.97117930
14400.00	90.00	89.760	6850.20	4030.94N	5752.29E	==>	6995.51	40.35514775	-104.97082050
14500.00	90.00	89.760	6850.20	4031.36N	5852.29E	==>	7082.45	40.35514727	-104.97046170
14600.00	90.00	89.760	6850.20	4031.79N	5952.29E	==>	7169.39	40.35514680	-104.97010290
14700.00	90.00	89.760	6850.20	4032.21N	6052.29E	==>	7256.33	40.35514632	-104.96974410
14800.00	90.00	89.760	6850.20	4032.64N	6152.29E	==>	7343.27	40.35514585	-104.96938530

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 5068.2ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 60.150 degrees
Bottom hole distance is 8108.48 Feet on azimuth 60.15 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 1 (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	6850.20	4033.06N	6252.28E	==>	7430.21	40.35514537	-104.96902650
15000.00	90.00	89.760	6850.20	4033.49N	6352.28E	==>	7517.15	40.35514489	-104.96866770
15100.00	90.00	89.760	6850.20	4033.91N	6452.28E	==>	7604.09	40.35514441	-104.96830890
15200.00	90.00	89.760	6850.20	4034.33N	6552.28E	==>	7691.03	40.35514393	-104.96795010
15300.00	90.00	89.760	6850.20	4034.76N	6652.28E	==>	7777.97	40.35514344	-104.96759130
15400.00	90.00	89.760	6850.20	4035.18N	6752.28E	==>	7864.91	40.35514296	-104.96723250
15500.00	90.00	89.760	6850.20	4035.61N	6852.28E	==>	7951.85	40.35514248	-104.96687370
15600.00	90.00	89.760	6850.20	4036.03N	6952.28E	==>	8038.79	40.35514199	-104.96651490
15680.16	90.00	89.760	6850.20	4036.37N	7032.44E	==>	8108.48	40.35514160	-104.96622730

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 5068.2ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 60.150 degrees
Bottom hole distance is 8108.48 Feet on azimuth 60.15 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 1 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
FLASCHENRIEM 1-BHL	4036.37N	7032.44E	6850.20	40.35514160	-104.96622730	1372666.42	3148758.69
FLASCHENRIEM 1-LP	4006.65N	29.20E	6850.20	40.35517300	-104.99135510	1372636.69	3141755.77

Survey Tool Program					
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
636401	Planned	1500.00	1500.00	WdW Rate Gyro	Standard
636400	Planned	15680.16	6850.20	ISCWSA MWD	Rev 4 + SAG + FLT

Notes