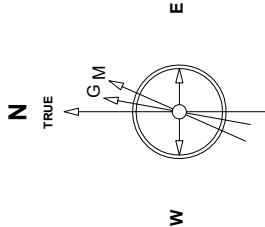


Great Western Operating Company, LLC

Location	Colorado	Slot	Stillroven Farm 3
Field	Wattenburg	Well	Stillroven Farm 3
Installation	Stillroven Farm	Wellbore	Stillroven Farm 3 (AWB)

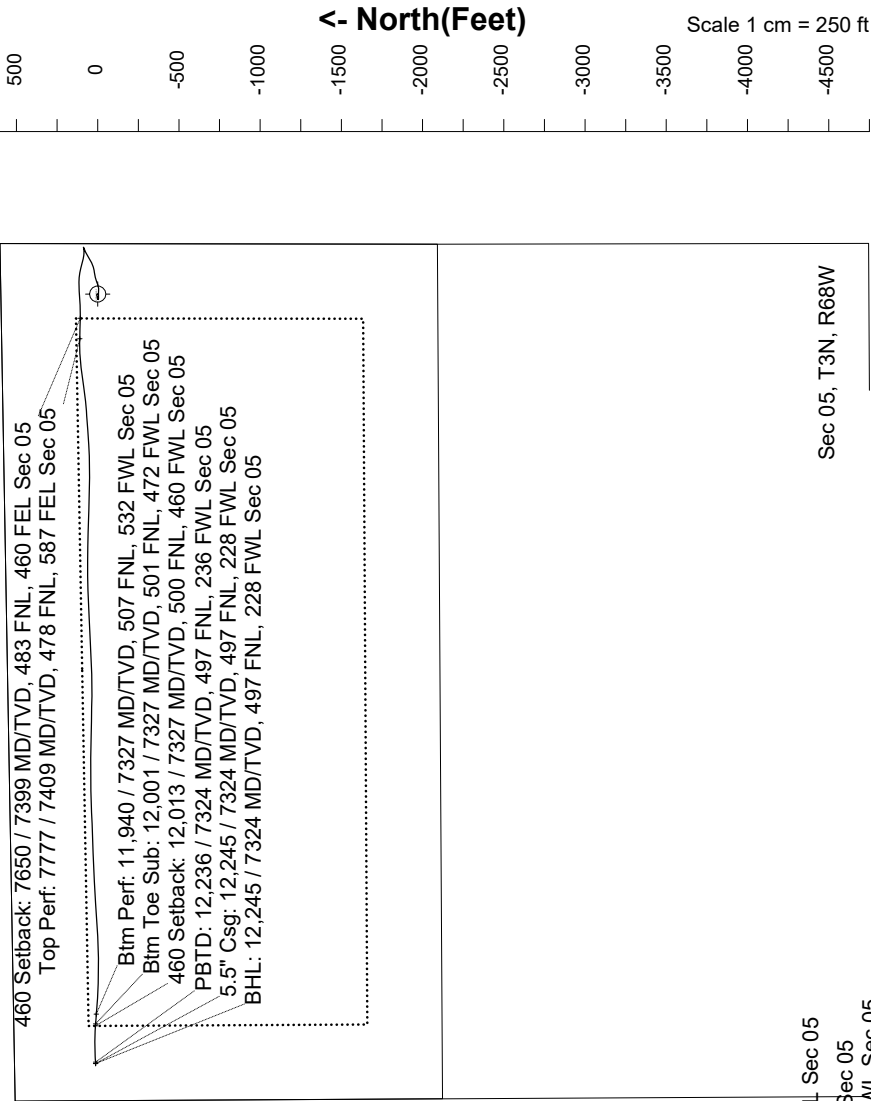
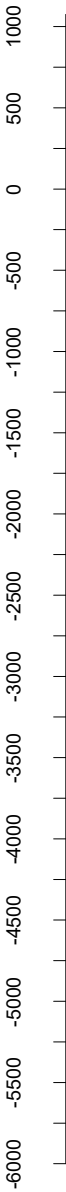
Created by	admin
Date plotted	17-Apr-2019
Plot reference is Stillroven Farm 3 (AWB).	
Ref wellpath is Stillroven Farm 3 (AWP#1).	
Coordinates are in Feet reference Stillroven Farm 3.	
True Vertical Depths are reference Rig Datum.	
Measured Depths are reference Rig Datum.	
Rig Datum: Actual Datum #1	
Rig Datum to Mean Sea Level: 5095.00 ft.	
Plot North is aligned to TRUE North.	



Aug-10-2018  
ENM-2015 (2000.0-2020.0) Dip: 66.62 deg Field: 52108.7 nT  
Lat: N40 15.38' 7000 Long: W105 7 7.760 Elev: 5075.00 ft  
Magnetic North is 8.48 deg East of TRUE North  
To correct azimuth from Magnetic to TRUE add 8.48 deg

East (Feet) ->

Scale 1 cm = 250 ft



Scale 1 cm = 400 ft

<- True Vertical Depth (Feet)

460 Setback: 7650 / 7399 MD/TVD, 483 FNL, 460 FEL Sec 05  
Top Perf: 7777 / 7409 MD/TVD, 478 FNL, 587 FEL Sec 05  
Btm Perf: 11,940 / 7327 MD/TVD, 507 FNL, 532 FWL Sec 05

460 Setback: 12,013 / 7327 MD/TVD, 500 FNL, 460 FWL Sec 05  
Btm Toe Sub: 12,001 / 7327 MD/TVD, 501 FNL, 472 FWL Sec 05  
PBD: 12,236 / 7324 MD/TVD, 497 FNL, 236 FWL Sec 05  
5.5" Csg: 12,245 / 7324 MD/TVD, 497 FNL, 228 FWL Sec 05  
BHL: 12,245 / 7324 MD/TVD, 497 FNL, 228 FWL Sec 05

Vertical Section (Feet) ->

Scale 1 cm = 400 ft

Azimuth 270.15 with reference 0.00 N, 0.00 E from Stillroven Farm 3

Great Western Operating Co, LLC Directional Survey Report Wellpath: Stillroven Farm 3 MDs and TVDs are from Rig Floor 5095.0ft above Mean Sea Level
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Wellbore Information

Date Created	Date Revised	API #	RKB above GL	Well Name
Oct-8-2018	Dec-5-2018	05-125-45410	20.00	Stillroven Farm 3

Slot Coordinates

Latitude	Longitude
40.26066300	-105.01880600

Pad Information

Pad Name	Ground Elev.
Stillroven Farm	5075.00

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
0.00	0.00	0.000	0.00	0.00	0.00		0.00	40.26066300	-105.01880600
20.00	0.00	88.890	20.00	0.00	0.00	==>	0.00	40.26066300	-105.01880600
151.00	0.48	88.890	151.00	0.01	0.55	0.37	-0.55	40.26066303	-105.01880403
238.00	0.40	24.290	238.00	0.29	1.04	0.55	-1.04	40.26066381	-105.01880228
296.00	0.75	347.380	295.99	0.85	1.04	0.85	-1.04	40.26066533	-105.01880228
387.00	1.23	352.300	386.98	2.40	0.78	0.54	-0.77	40.26066958	-105.01880322
477.00	2.02	313.810	476.95	4.45	-0.50	1.45	0.51	40.26067523	-105.01880778
567.00	1.67	278.210	566.90	5.74	-2.94	1.31	2.95	40.26067875	-105.01881653
657.00	2.33	266.430	656.85	5.81	-6.06	0.86	6.08	40.26067896	-105.01882773
747.00	2.90	256.760	746.75	5.18	-10.11	0.80	10.12	40.26067721	-105.01884221
837.00	2.59	240.680	836.65	3.66	-14.09	0.92	14.10	40.26067305	-105.01885650
927.00	1.67	222.140	926.59	1.69	-16.75	1.26	16.75	40.26066764	-105.01886601
1017.00	0.92	228.820	1016.57	0.24	-18.17	0.85	18.17	40.26066367	-105.01887111
1107.00	0.97	305.810	1106.56	0.21	-19.33	1.31	19.33	40.26066359	-105.01887527
1197.00	1.41	288.930	1196.54	1.02	-21.00	0.62	21.00	40.26066580	-105.01888124
1287.00	1.27	270.120	1286.51	1.38	-23.04	0.51	23.05	40.26066679	-105.01888856
1377.00	1.36	278.210	1376.49	1.53	-25.10	0.23	25.10	40.26066721	-105.01889593
1467.00	1.54	243.760	1466.46	1.15	-27.24	0.97	27.24	40.26066616	-105.01890360
1524.00	0.95	246.290	1523.45	0.62	-28.36	1.04	28.36	40.26066471	-105.01890761
1614.00	0.11	323.590	1613.44	0.39	-29.10	1.04	29.10	40.26066408	-105.01891025
1704.00	0.07	186.470	1703.44	0.41	-29.15	0.19	29.15	40.26066412	-105.01891045
1794.00	0.07	300.000	1793.44	0.38	-29.21	0.13	29.21	40.26066404	-105.01891065
1883.00	0.09	167.530	1882.44	0.34	-29.24	0.16	29.24	40.26066393	-105.01891076
1973.00	0.03	228.940	1972.44	0.25	-29.24	0.09	29.24	40.26066370	-105.01891077
2063.00	0.32	198.280	2062.44	0.00	-29.34	0.33	29.34	40.26066300	-105.01891112
2152.00	0.60	193.290	2151.44	-0.69	-29.52	0.32	29.52	40.26066111	-105.01891178
2242.00	0.65	260.190	2241.44	-1.23	-30.13	0.77	30.13	40.26065961	-105.01891397
2332.00	0.62	346.820	2331.43	-0.85	-30.75	0.97	30.75	40.26066067	-105.01891617
2421.00	0.21	85.780	2420.43	-0.37	-30.70	0.77	30.69	40.26066199	-105.01891598
2511.00	0.19	127.480	2510.43	-0.45	-30.41	0.16	30.41	40.26066178	-105.01891497
2601.00	0.06	241.320	2600.43	-0.56	-30.34	0.25	30.33	40.26066147	-105.01891469
2690.00	0.25	228.200	2689.43	-0.71	-30.52	0.22	30.52	40.26066105	-105.01891536
2780.00	0.50	251.110	2779.43	-0.97	-31.04	0.32	31.04	40.26066034	-105.01891721
2870.00	0.28	236.540	2869.42	-1.22	-31.59	0.27	31.59	40.26065966	-105.01891920
2960.00	0.11	252.580	2959.42	-1.36	-31.86	0.20	31.86	40.26065926	-105.01892015
3049.00	0.04	247.470	3048.42	-1.40	-31.97	0.08	31.97	40.26065915	-105.01892055
3139.00	0.18	219.800	3138.42	-1.52	-32.09	0.16	32.09	40.26065882	-105.01892098
3229.00	0.09	238.950	3228.42	-1.67	-32.24	0.11	32.24	40.26065842	-105.01892152
3319.00	0.07	240.860	3318.42	-1.73	-32.35	0.02	32.34	40.26065825	-105.01892191
3408.00	0.09	254.600	3407.42	-1.78	-32.46	0.03	32.46	40.26065813	-105.01892232
3498.00	0.03	128.660	3497.42	-1.81	-32.51	0.12	32.51	40.26065803	-105.01892250
3588.00	0.03	238.390	3587.42	-1.84	-32.52	0.05	32.51	40.26065796	-105.01892250
3677.00	0.04	261.300	3676.42	-1.85	-32.57	0.02	32.56	40.26065791	-105.01892268
3767.00	0.19	143.030	3766.42	-1.98	-32.51	0.24	32.50	40.26065757	-105.01892247
3857.00	0.06	256.500	3856.42	-2.11	-32.46	0.25	32.46	40.26065722	-105.01892232
3946.00	0.13	200.550	3945.42	-2.21	-32.54	0.12	32.54	40.26065693	-105.01892261
4036.00	0.31	278.340	4035.42	-2.27	-32.82	0.34	32.81	40.26065676	-105.01892360
4126.00	0.09	277.020	4125.42	-2.23	-33.13	0.24	33.13	40.26065688	-105.01892471
4215.00	0.10	273.510	4214.42	-2.22	-33.28	==>	33.27	40.26065692	-105.01892524
4305.00	0.14	121.760	4304.42	-2.27	-33.26	0.26	33.26	40.26065677	-105.01892518
4395.00	0.28	175.220	4394.42	-2.55	-33.15	0.25	33.15	40.26065601	-105.01892478
4485.00	0.44	178.810	4484.42	-3.11	-33.13	0.18	33.12	40.26065446	-105.01892469
4575.00	0.21	197.290	4574.42	-3.61	-33.17	0.28	33.16	40.26065308	-105.01892484
4664.00	0.03	44.820	4663.42	-3.75	-33.20	0.27	33.19	40.26065270	-105.01892496
4754.00	0.10	276.990	4753.42	-3.73	-33.26	0.13	33.25	40.26065277	-105.01892518
4844.00	0.09	264.200	4843.42	-3.72	-33.41	0.03	33.40	40.26065278	-105.01892571
4933.00	0.09	210.230	4932.42	-3.79	-33.51	0.09	33.50	40.26065259	-105.01892608
5023.00	0.07	215.580	5022.42	-3.90	-33.58	0.02	33.57	40.26065230	-105.01892633
5113.00	0.13	241.250	5112.42	-3.99	-33.70	0.08	33.69	40.26065205	-105.01892676
5203.00	0.04	216.530	5202.42	-4.07	-33.81	0.11	33.80	40.26065184	-105.01892715
5292.00	0.04	206.250	5291.42	-4.12	-33.84	==>	33.83	40.26065170	-105.01892726
5382.00	0.04	306.100	5381.42	-4.13	-33.88	0.07	33.87	40.26065167	-105.01892740
5472.00	0.53	103.250	5471.42	-4.20	-33.50	0.63	33.49	40.26065146	-105.01892604
5562.00	3.69	103.720	5561.34	-4.99	-30.28	3.51	30.27	40.26064931	-105.01891451
5651.00	5.13	84.580	5650.08	-5.29	-23.54	2.29	23.53	40.26064848	-105.01889034
5741.00	7.59	86.790	5739.52	-4.58	-13.60	2.75	13.59	40.26065043	-105.01885472
5831.00	11.68	94.340	5828.24	-4.93	1.43	4.75	-1.44	40.26064946	-105.01880089
5921.00	14.70	93.650	5915.85	-6.35	21.91	3.36	-21.93	40.26064557	-105.01872749
6010.00	18.77	73.340	6001.14	-2.96	46.93	7.94	-46.94	40.26065487	-105.01863785
6100.00	18.06	70.430	6086.53	5.86	73.95	1.29	-73.93	40.26067910	-105.01854104
6190.00	20.48	76.730	6171.49	14.15	102.42	3.54	-102.39	40.26070185	-105.01843901
6279.00	21.64	80.160	6254.55	20.53	133.75	1.90	-133.70	40.26071936	-105.01832678
6369.00	21.62	75.330	6338.22	27.57	166.14	1.98	-166.07	40.26073867	-105.01821071
6459.00	21.00	61.320	6422.12	39.51	196.35	5.69	-196.25	40.26077146	-105.01810248
6549.00	21.62	58.740	6505.97	55.86	224.67	1.25	-224.53	40.26081632	-105.01800100
6638.00	21.53	63.340	6588.74	71.69	253.28	1.90	-253.10	40.26085980	-105.01789848
6728.00	13.27	67.700	6674.55	83.04	277.64	9.29	-277.43	40.26089095	-105.01781120
6818.00	1.74	59.100	6763.63	87.68	288.41	12.84	-288.18	40.26090368	-105.01777263
6907.00	8.52	255.370	6852.35	86.71	283.18	11.46	-282.95	40.26090100	-105.01779138
6997.00	14.21	266.580	6940.56	84.36	265.68	6.75	-265.46	40.26089457	-105.01785406
7087.00	21.04	277.530	7026.31	85.82	238.60	8.40	-238.38	40.26089858	-105.01795110
7177.00	27.06	283.960	7108.47	92.89	202.68	7.29	-202.43	40.26091797	-105.01807981
7266.00	35.64	284.680	7184.41	104.36	157.86	9.65	-157.59	40.26094947	-105.01824037

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
7356.00	43.94	275.260	7253.56	113.90	101.25	11.38	-100.96	40.26097564	-105.01844321
7446.00	53.29	266.680	7313.06	114.67	33.92	12.60	-33.63	40.26097777	-105.01868445
7535.00	62.83	266.570	7360.09	110.23	-41.38	10.72	41.67	40.26096557	-105.01895428
7625.00	73.85	269.750	7393.27	107.63	-124.85	12.68	125.12	40.26095845	-105.01925332
7649.60	77.60	270.350	7399.33	107.66	-148.68	15.42	148.96	40.26095851	-105.01933873
7715.00	87.57	271.890	7407.76	108.93	-213.44	15.42	213.72	40.26096202	-105.01957075
7777.00	90.59	271.100	7408.75	110.55	-275.40	5.04	275.69	40.26096645	-105.01979277
7804.00	91.91	270.750	7408.16	110.98	-302.39	5.04	302.68	40.26096764	-105.01988947
7896.00	91.75	266.350	7405.23	108.66	-394.29	4.78	394.57	40.26096125	-105.02021876
7984.00	92.93	260.550	7401.63	98.63	-481.61	6.72	481.86	40.26093373	-105.02053160
8074.00	91.60	263.290	7398.07	86.00	-570.63	3.38	570.85	40.26089904	-105.02085059
8163.00	91.69	263.850	7395.52	76.03	-659.04	0.64	659.23	40.26087169	-105.02116734
8253.00	91.63	265.230	7392.91	67.47	-748.59	1.53	748.76	40.26084818	-105.02148820
8343.00	91.66	266.080	7390.33	60.66	-838.29	0.94	838.45	40.26082947	-105.02180961
8433.00	91.23	267.280	7388.06	55.45	-928.11	1.42	928.25	40.26081515	-105.02213143
8522.00	90.92	268.350	7386.39	52.06	-1017.03	1.25	1017.16	40.26080583	-105.02245002
8612.00	90.99	268.820	7384.89	49.83	-1106.99	0.53	1107.11	40.26079972	-105.02277235
8702.00	91.11	271.500	7383.24	50.08	-1196.96	2.98	1197.09	40.26080040	-105.02309474
8791.00	90.98	272.250	7381.61	53.00	-1285.90	0.86	1286.03	40.26080838	-105.02341340
8881.00	91.08	272.290	7380.00	56.56	-1375.82	0.12	1375.96	40.26081815	-105.02373557
8971.00	90.95	271.350	7378.40	59.42	-1465.76	1.05	1465.90	40.26082598	-105.02405782
9061.00	91.02	270.900	7376.85	61.18	-1555.72	0.51	1555.88	40.26083082	-105.02438018
9150.00	90.95	270.120	7375.32	61.98	-1644.71	0.88	1644.86	40.26083297	-105.02469901
9240.00	91.57	269.300	7373.35	61.52	-1734.68	1.14	1734.84	40.26083171	-105.02502139
9330.00	90.95	268.110	7371.37	59.49	-1824.64	1.49	1824.78	40.26082611	-105.02534370
9420.00	91.14	267.290	7369.72	55.88	-1914.55	0.94	1914.69	40.26081618	-105.02566585
9509.00	91.02	267.450	7368.05	51.79	-2003.44	0.22	2003.57	40.26080495	-105.02598434
9599.00	90.92	267.230	7366.52	47.62	-2093.33	0.27	2093.44	40.26079346	-105.02630642
9689.00	90.99	267.030	7365.02	43.11	-2183.20	0.24	2183.31	40.26078108	-105.02662844
9779.00	90.99	267.680	7363.47	38.96	-2273.09	0.72	2273.19	40.26076965	-105.02695052
9868.00	90.92	268.760	7361.99	36.19	-2362.04	1.22	2362.12	40.26076204	-105.02726920
9958.00	90.99	270.670	7360.49	35.75	-2452.02	2.12	2452.10	40.26076079	-105.02759161
10048.00	91.26	271.080	7358.72	37.12	-2541.99	0.55	2542.08	40.26076454	-105.02791398
10137.00	90.98	270.760	7356.98	38.55	-2630.96	0.48	2631.05	40.26076843	-105.02823276
10227.00	90.98	270.920	7355.44	39.87	-2720.94	0.18	2721.03	40.26077203	-105.02855515
10317.00	89.94	271.280	7354.72	41.60	-2810.92	1.22	2811.02	40.26077674	-105.02887755
10407.00	91.45	270.940	7353.62	43.34	-2900.89	1.72	2900.99	40.26078150	-105.02919993
10496.00	90.40	269.370	7352.19	43.58	-2989.88	2.12	2989.98	40.26078213	-105.02951876
10586.00	90.52	267.890	7351.47	41.43	-3079.84	1.65	3079.94	40.26077620	-105.02984112
10676.00	90.65	267.510	7350.55	37.82	-3169.77	0.45	3169.85	40.26076625	-105.03016331
10766.00	91.32	268.560	7349.00	34.73	-3259.70	1.38	3259.78	40.26075775	-105.03048553
10855.00	91.05	267.700	7347.16	31.83	-3348.63	1.01	3348.70	40.26074975	-105.03080418
10945.00	90.49	267.680	7345.95	28.20	-3438.55	0.62	3438.61	40.26073976	-105.03112636
11035.00	91.35	267.490	7344.50	24.41	-3528.46	0.98	3528.51	40.26072931	-105.03144849
11124.00	91.51	267.310	7342.28	20.37	-3617.34	0.27	3617.38	40.26071820	-105.03176695
11214.00	91.38	266.310	7340.01	15.37	-3707.17	1.12	3707.20	40.26070442	-105.03208881
11304.00	91.39	266.290	7337.84	9.56	-3796.96	0.02	3796.97	40.26068844	-105.03241051
11394.00	91.35	266.220	7335.69	3.68	-3886.74	0.09	3886.73	40.26067227	-105.03273220
11483.00	91.32	267.530	7333.61	-1.17	-3975.58	1.47	3975.56	40.26065892	-105.03305052
11573.00	91.29	269.140	7331.56	-3.78	-4065.52	1.79	4065.49	40.26065171	-105.03337276
11663.00	91.32	270.570	7329.51	-4.01	-4155.49	1.59	4155.46	40.26065104	-105.03369513
11752.00	89.88	270.990	7328.58	-2.80	-4244.47	1.69	4244.45	40.26065432	-105.03401397
11842.00	91.29	273.930	7327.66	1.06	-4334.37	3.62	4334.36	40.26066488	-105.03433608
11932.00	89.54	274.730	7327.01	7.86	-4424.11	2.14	4424.12	40.26068349	-105.03465761
11940.00	89.65	274.660	7327.07	8.51	-4432.08	1.61	4432.09	40.26068528	-105.03468618
12000.55	90.45	274.110	7327.01	13.14	-4492.46	1.61	4492.47	40.26069795	-105.03490250
12012.59	90.61	274.000	7326.90	13.99	-4504.46	1.61	4504.49	40.26070028	-105.03494553
12022.00	90.74	273.910	7326.79	14.64	-4513.85	1.61	4513.87	40.26070205	-105.03497916
12111.00	90.77	270.410	7325.62	17.99	-4602.77	3.93	4602.80	40.26071121	-105.03529775
12201.00	90.71	266.490	7324.45	15.56	-4692.71	4.36	4692.73	40.26070449	-105.03562001
12221.00	90.74	265.550	7324.20	14.17	-4712.66	4.70	4712.68	40.26070067	-105.03569149
12245.00	90.74	265.550	7323.89	12.31	-4736.58	==>	4736.60	40.26069554	-105.03577721

Comments						
MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1524.00	1523.45	0.62	-28.36	40.26066471	-105.01890761	9.625" Csg: 1524 / 1523 MD/TVD
7649.60	7399.33	107.66	-148.68	40.26095851	-105.01933873	460 Setback: 7650 / 7399 MD/TVD, 483 FNL, 460 FEL Sec 05
7777.00	7408.75	110.55	-275.40	40.26096645	-105.01979277	Top Perf: 7777 / 7409 MD/TVD, 478 FNL, 587 FEL Sec 05
11940.00	7327.07	8.51	-4432.08	40.26068528	-105.03468618	Btm Perf: 11,940 / 7327 MD/TVD, 507 FNL, 532 FWL Sec 05
12000.55	7327.01	13.14	-4492.46	40.26069795	-105.03490250	Btm Toe Sub: 12,001 / 7327 MD/TVD, 501 FNL, 472 FWL Sec 05
12012.59	7326.90	13.99	-4504.46	40.26070028	-105.03494553	460 Setback: 12,013 / 7327 MD/TVD, 500 FNL, 460 FWL Sec 05
12236.49	7324.00	12.97	-4728.10	40.26069736	-105.03574682	PBTD: 12,236 / 7324 MD/TVD, 497 FNL, 236 FWL Sec 05
12245.00	7323.89	12.31	-4736.58	40.26069554	-105.03577721	5.5" Csg: 12,245 / 7324 MD/TVD, 497 FNL, 228 FWL Sec 05
12245.00	7323.89	12.31	-4736.58	40.26069554	-105.03577721	BHL: 12,245 / 7324 MD/TVD, 497 FNL, 228 FWL Sec 05

Hole Sections								
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
13.500	0.00	0.00	0.00	0.00	1524.00	1523.45	0.62	-28.36
8.500	1524.00	1523.45	0.62	-28.36	12245.00	7323.89	12.31	-4736.58

Casings								
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Casing	0.00	0.00	0.00	0.00	1524.00	1523.45	0.62	-28.36
5 1/2in Casing	0.00	0.00	0.00	0.00	12245.00	7323.89	12.31	-4736.58

Survey Tool Program				
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
464634	As Drilled - 20181008	12245.00	7323.89	MWD

Coordinates are from Slot MD's and TVD's are from Rig Floor 5095.0ft above Mean Sea Level Vertical Section is from 0.00 0.00 on azimuth 270.150 degrees Bottom hole distance is 4736.60 Feet on azimuth 270.15 degrees from Wellhead Calculation method uses Minimum Curvature method Prepared by Great Western Operating Co. Date Printed:
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