

Great Western Operating Company, LLC

Location	Colorado	Slot	Slot 01 - O-I 25-21
Field	Wattenburg	Well	O-I 25-21
Installation	O-I	Wellbore	O-I 25-21 (AWB)

Created by admin
Date plotted 5-Apr-2018

Plot reference is O-I 25-21 (AWB).
Ref wellpath is O-I 25-21 (AWP#1).
Coordinates are in Feet reference Slot 01 - O-I 25-21.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Actual Datum #1
Rig Datum to Mean Sea Level: 4788.20 ft.
Plot North is aligned to TRUE North.

Scale 1 cm = 100 ft

East (Feet) ->

-1200 -1000 -800 -600 -400 -200 0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600

Apr-27-2015
IGRF Model [1900.0-2020.0] Dip: 66.95 deg Field: 52663.3 nT
Lat: N40 27 56.9520 Long: W104 51 7.4880 Elev: 4772.00 ft
Magnetic North is 8.49 deg East of TRUE North
To correct azimuth from Magnetic to TRUE add 8.49 deg

Scale 1 cm = 400 ft

<- True Vertical Depth (Feet)

8.625" Csg Shoe: 728 / 723 MD/TVD

SE/4 Sec 23, T6N, R67W

Sec 26, T6N, R67W

Sec 25, T6N, R67W

Top Perf: 7344 / 6813 MD/TVD, 717 FNL, 1938 FWL Sec 25

Btm Perf: 7664 / 7133 MD/TVD, 718 FNL, 1938 FWL Sec 25

PBTD: 7795 / 7264 MD/TVD, 718 FNL, 1938 FWL Sec 25

4.5" Csg Shoe: 7808 / 7277 MD/TVD, 718 FNL, 1938 FWL Sec 25

BHL: 7824 / 7293 MD/TVD, 719 FNL, 1938 FWL Sec 25

Top Perf: 7344 / 6813 MD/TVD, 717 FNL, 1938 FWL Sec 25

Btm Perf: 7664 / 7133 MD/TVD, 718 FNL, 1938 FWL Sec 25

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4.5" Csg Shoe: 7808 / 7277 MD/TVD, 718 FNL, 1938 FWL Sec 25

BHL: 7824 / 7293 MD/TVD, 719 FNL, 1938 FWL Sec 25

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

Scale 1 cm = 400 ft

Vertical Section (Feet) ->

Azimuth 113.43 with reference 0.00 N, 0.00 E from Slot 01 - O-I 25-21

<- North(Feet)

Scale 1 cm = 100 ft

Great Western Operating Co, LLC
Wellbore Survey Report
Wellpath: O-I 25-21 (AWP#1)
MDs and TVDs are from Rig (Actual Datum #1 4788.2ft above Mean Sea Level)

Wellbore Information

Date Created	Date Revised	Name
Apr-27-2015	Apr-5-2018	O-I 25-21 (AWB)

Slot Coordinates

Latitude	Longitude
40.46582000	-104.85208000

Pad Information

Name	Ground Elev
O-I	4772.00

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
0.00	0.00	0.000	0.00	0.00	0.00		0.00
16.20	0.00	0.000	16.20	0.00	0.00	==>	0.00
100.00	1.00	333.250	100.00	0.65	-0.33	1.19	-0.56
200.00	0.76	22.820	199.99	2.04	-0.46	0.77	-1.24
300.00	2.97	84.330	299.93	2.91	2.37	2.69	1.02
400.00	5.73	97.110	399.64	2.55	9.90	2.91	8.07
500.00	7.72	104.170	498.95	0.29	21.37	2.15	19.50
600.00	10.05	113.120	597.74	-4.78	35.91	2.70	34.85
700.00	11.70	115.420	695.94	-12.56	53.09	1.71	53.71
728.00	12.09	115.990	723.34	-15.07	58.29	1.45	59.48
800.00	13.09	117.300	793.61	-22.11	72.32	1.45	75.15
900.00	15.89	115.870	890.42	-33.28	94.70	2.82	100.13
1000.00	17.97	116.270	986.08	-46.08	120.85	2.08	129.21
1100.00	20.34	114.380	1080.54	-60.09	150.52	2.45	162.00
1200.00	22.81	108.980	1173.54	-73.57	184.69	3.17	198.71
1300.00	24.31	110.220	1265.20	-86.99	222.34	1.58	238.59
1400.00	25.48	109.950	1355.90	-101.44	261.87	1.18	280.62
1500.00	26.24	110.140	1445.89	-116.39	302.85	0.76	324.16
1600.00	25.02	110.330	1536.05	-131.35	343.43	1.22	367.35
1700.00	23.17	108.380	1627.33	-144.90	381.94	2.01	408.06
1800.00	22.64	109.870	1719.45	-157.65	418.71	0.79	446.87
1900.00	21.94	108.730	1811.98	-170.19	454.50	0.82	484.70
2000.00	20.79	109.280	1905.10	-182.05	488.95	1.17	521.02
2100.00	20.23	112.500	1998.77	-194.52	521.67	1.26	556.01
2200.00	20.65	114.260	2092.47	-208.39	553.72	0.74	590.93
2300.00	21.80	119.130	2185.69	-224.67	586.02	2.10	627.04
2400.00	23.43	117.010	2278.00	-242.74	619.96	1.82	665.36
2500.00	23.81	116.860	2369.62	-260.89	655.68	0.38	705.35
2600.00	25.84	120.890	2460.39	-281.20	692.39	2.64	747.12
2700.00	29.41	122.150	2548.97	-305.46	731.90	3.62	793.01
2800.00	28.54	121.880	2636.45	-331.15	772.97	0.88	840.91
2900.00	26.71	122.410	2725.05	-355.81	812.23	1.85	886.74
3000.00	27.31	123.110	2814.14	-380.39	850.42	0.68	931.55
3100.00	28.62	122.210	2902.47	-405.69	889.90	1.38	977.84
3200.00	27.50	120.020	2990.71	-430.00	930.16	1.52	1024.44
3300.00	25.91	118.350	3080.04	-451.93	969.38	1.76	1069.15
3400.00	24.88	118.900	3170.38	-472.47	1007.02	1.06	1111.86
3500.00	24.82	117.320	3261.12	-492.27	1044.09	0.67	1153.74
3600.00	24.08	111.950	3352.17	-509.53	1081.66	2.34	1195.08
3700.00	22.90	112.030	3443.88	-524.46	1118.62	1.18	1234.93
3800.00	22.99	113.910	3535.97	-539.67	1154.51	0.74	1273.90
3900.00	29.14	114.290	3625.75	-557.62	1194.59	6.15	1317.82
4000.00	30.33	114.080	3712.58	-577.93	1239.84	1.19	1367.41
4100.00	33.50	108.950	3797.47	-597.21	1289.01	4.17	1420.20
4200.00	34.99	106.230	3880.14	-614.18	1342.65	2.14	1476.16
4300.00	32.75	107.160	3963.16	-630.18	1396.03	2.30	1531.50
4400.00	33.10	109.480	4047.11	-647.27	1447.62	1.31	1585.63
4500.00	34.12	109.930	4130.39	-665.93	1499.73	1.05	1640.87
4600.00	33.55	114.460	4213.46	-686.94	1551.26	2.59	1696.50
4700.00	35.16	115.600	4296.02	-710.82	1602.38	1.73	1752.90
4800.00	34.77	114.600	4377.97	-735.14	1654.28	0.69	1810.19
4900.00	29.03	110.480	4462.84	-755.51	1702.98	6.14	1862.97
5000.00	28.45	108.500	4550.52	-771.56	1748.30	1.11	1910.94
5100.00	28.45	106.990	4638.45	-786.08	1793.67	0.72	1958.34

5200.00	27.79	104.630	4726.65	-798.93	1839.00	1.29	2005.05
5300.00	28.48	102.310	4814.83	-809.90	1884.86	1.29	2051.48
5400.00	27.88	109.270	4903.00	-822.70	1930.24	3.34	2098.21
5500.00	24.95	120.060	4992.61	-841.00	1970.59	5.61	2142.52
5600.00	21.18	120.660	5084.60	-860.78	2004.40	3.78	2181.40
5700.00	16.86	121.200	5179.11	-877.52	2032.36	4.32	2213.71
5800.00	14.41	119.390	5275.41	-891.14	2055.61	2.50	2240.46
5900.00	11.91	121.320	5372.77	-902.61	2075.27	2.54	2263.06
6000.00	9.72	110.380	5471.00	-910.91	2092.00	2.99	2281.71
6100.00	7.34	107.310	5569.89	-915.76	2106.01	2.42	2296.49
6200.00	5.35	105.230	5669.27	-918.88	2116.61	2.00	2307.46
6300.00	3.43	95.420	5768.97	-920.39	2124.09	2.05	2314.92
6400.00	2.13	92.020	5868.85	-920.74	2128.92	1.31	2319.50
6500.00	1.27	88.000	5968.81	-920.76	2131.89	0.87	2322.23
6600.00	0.75	84.500	6068.79	-920.66	2133.65	0.52	2323.80
6700.00	0.21	353.840	6168.79	-920.42	2134.28	0.78	2324.28
6800.00	0.36	277.320	6268.79	-920.20	2133.95	0.37	2323.89
6900.00	0.97	259.110	6368.78	-920.31	2132.80	0.64	2322.89
7000.00	1.38	274.210	6468.76	-920.39	2130.77	0.51	2321.05
7100.00	1.23	292.200	6568.74	-919.89	2128.58	0.43	2318.84
7200.00	1.00	287.420	6668.72	-919.23	2126.75	0.25	2316.90
7300.00	0.57	284.000	6768.71	-918.84	2125.44	0.43	2315.54
7344.00	0.50	282.490	6812.71	-918.75	2125.03	0.15	2315.14
7400.00	0.42	279.870	6868.70	-918.66	2124.59	0.15	2314.70
7500.00	0.23	180.170	6968.70	-918.80	2124.23	0.51	2314.42
7600.00	0.31	179.310	7068.70	-919.27	2124.23	0.08	2314.61
7611.66	0.31	179.350	7080.36	-919.33	2124.23	==>	2314.64
7664.00	0.31	179.350	7132.70	-919.62	2124.24	==>	2314.75
7795.00	0.31	179.350	7263.70	-920.33	2124.25	==>	2315.04
7808.00	0.31	179.350	7276.70	-920.40	2124.25	==>	2315.07
7824.00	0.31	179.350	7292.70	-920.48	2124.25	==>	2315.11

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Comment
728.00	723.34	-15.07	58.29	8.625" Csg Shoe: 728 / 723 MD/TVD
7344.00	6812.71	-918.75	2125.03	Top Perf: 7344 / 6813 MD/TVD, 717 FNL, 1938 FWL Sec 25
7664.00	7132.70	-919.62	2124.24	Btm Perf: 7664 / 7133 MD/TVD, 718 FNL, 1938 FWL Sec 25
7795.00	7263.70	-920.33	2124.25	PBTD: 7795 / 7264 MD/TVD, 718 FNL, 1938 FWL Sec 25
7808.00	7276.70	-920.40	2124.25	4.5" Csg Shoe: 7808 / 7277 MD/TVD, 718 FNL, 1938 FWL Sec 25
7824.00	7292.70	-920.48	2124.25	BHL: 7824 / 7293 MD/TVD, 719 FNL, 1938 FWL Sec 25

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]
10.750	16.20	16.20	0.00	0.00	728.00	723.34	-15.07	58.29
7.875	728.00	723.34	-15.07	58.29	7824.00	7292.70	-920.48	2124.25

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]
8 5/8in Casing	16.20	16.20	0.00	0.00	728.00	723.34	-15.07	58.29
4 1/2in Casing	16.20	16.20	0.00	0.00	7794.00	7262.70	-920.32	2124.25

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
61440	Gyro - 20151105	7824.00	7292.70	WdW Rate Gyro	Standard

Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Actual Datum #1 4788.2ft above Mean Sea Level)
 Vertical Section is from 0.00 0.00 on azimuth 113.430 degrees
 Bottom hole distance is 2315.11 Feet on azimuth 113.43 degrees from Wellhead
 Calculation method uses Minimum Curvature method
 Prepared by Great Western Operating Co.
 Date Printed: