ANNULUS PRESSURE TEST PROCEDURES
FOR
EGT WELL #1-12 AND EGT WELL #2-12

- Record last date of injection
- Install digital test gauge at test port that has been certified within the last 12 months (certificates to be at hand)
- Pressure up annulus to approximately 900 psi for one (1) hour prior to test to allow for annulus to equilibrate
- Record current annulus pressure
- Record current injection pressure
- Record current annulus fluid in storage tank
- Pressure up annulus to 900 +25/-0 psi and allow annulus to equilibrate
- Record fluid needed to establish pressure
- Record data at 10-minute intervals for a one (1) hour period. (Pressure change limited to 3% of applied pressure for a one (1) hour period)
- Provide system back-up to confirm gauge reading
- Return annulus to normal stand-by pressure
- Record fluid level in tank
- Put WAMS system back on line
- Return well to operator control

PROCEDURES FOR RUNNING STATIC TEMPERATURE LOG ON EGT WELL #1-12

- Rig-up wireline unit on hole
- Verify temperature sonde has been calibrated and has certification
- Conduct "Bucket Test" on hot and cold samples
- Verify sonde temperature in ice water
- Verify sonde temperature in warm water
- Run tool well and record temperature from surface to K.D. (4649')or top of fill
- Tool to be run at a consistent speed and not to exceed 30 feet per minute
- Once tool reaches bottom, stabilized temperature readings (3 minutes) should be made at 500' intervals while coming out of well
- After completion of temperature survey, wireline rig should be made ready to perform radioactive tracer survey (RTS)

PROCEDURES FOR RUNNING RADIOACTIVE TRACER SURVEY ON EGT WELL #1-12

- Radioactive tracer material to be iodine 131
- Rig-up surface read out wireline unit on hole
- Run into hole with casing collar locator and radioactive tracer tool
- Run bottom up base run survey from 4400' (or deepest attainable) to approximately 3080' (sensitivity at 40 counts per second per inch (CPSPI)
- Run first 5-minute stat with bottom detector at 3955'
- Run second 5-minute stat with bottom detector at 3802'
- Start injection at a stable rate of 30-35 gpm
- Release first slug at 3750'
- Run 30-minute time drive with bottom detector at 4080' (Time starts when slug passes bottom detector)
- Release second slug at 3100'
- Chase slug with a minimum of two (2) chases in tubing (as many as practical)
- Run final base bottom-up from 4400' (or deepest attainable) to approximately 3080'
- Rig down wireline
- Turn over to operator

PROCEDURES FOR RUNNING

AMBIENT PRESSURE MONITORING

ON

EGT WELL #1-12

Run in well with dual quartz memory gauges on slick line, pressure and temperature readings to be recording at 5 second intervals

- Inject into well at a steady rate of 30 to 35 GPM for at least 12 hours prior to start of falloff portion of test

- Well No. 2-12 will be shut down at least 4 hours prior to and during the fall off portion of test. Shut in of Well No. 2-12 is optimal during entire test of Well No. 1-12

- Bottom gauges to be in well to a depth of ±3950' KB (top of injection interval) and record pressures and temperatures for a minimum of 2 hours prior to shutting down injection

- Shut down injection as rapidly as possible at determined time starting fall off portion

- Record pressures and temperatures for a minimum of 8 hours.

- Pull bottom hole pressure gauge out of well

- Rig down wireline

- Turn over to operate

GENERAL DESCRIPTION OF EGT WELL #1-12

Location: Wayne County / Romulus, Michigan
Section: 12 / Township: 35 / Range: 9B

Ground Level Elevation: 626'
K.B.: 13' / Drilling measured from K.B Elev. 639'

Conductor: 20"- 94# Surface to 119'
Protection Casing: 13-3/8" - 48# Surface to 396'
Intermediate Casing: 9-5/8" - 36# Surface to 825'
Long String Casing: 7" - 26# Surface to 4079'
Injection String: 4-1/2" Fiberglass Surface to 4060'

Packer:	4067'
Bottom of Tailpipe:	4080'
T.D.:	4649'

APPENDIX B

CHRONOLOGY OF FIELD ATIVITIES

ENVIRONMENTAL-GEO TECHNOLOGIES, LLC

MONDAY JULY 25, 2016

- Rig-up and perform annulus pressure test on Well #1-12 Witnessed by Jack Lanigan of MDEQ
- Set-up and run hot and cold bucket test for Well #1-12
- Rig-up and perform annulus pressure test on Well #2-12 Witnessed by Jack Lanigan of MDEQ
- Rig-up Michigan Wireline on Well #1-12 to perform temperature survey
- Set up and run hot and cold bucket test for Well #2-12
- Rig-up Michigan Wireline on Well #2-12 to perform temperature survey

MONDAY AUGUST 8, 2016

- Rig-up Michigan Wireline on Well #1-12 to perform radioactive tracer survey
- Rig-up Michigan Wireline on Well #2-12 to perform radioactive tracer survey

TUESDAY AUGUST 9, 2016

- Rig-up J.O. Well Service on Well #1-12 to start ambient pressure test

APPENDIX B (CONTINUED)

WEDNESDAY AUGUST 10, 2016

- Rig-down J.O. Well Service from Well #1-12 to end ambient pressure test

- Rig-up J.O. Well Service from Well #2-12 to start ambient pressure test

THURSDAY AUGUST 11, 2016

- Rig-down J.O. Well Service from Well #2-12 to end ambient pressure test

Pressure Test Report

COMPANY INFORMATION

Company Name	Environmental Geo-Technologies
Representative	Rich Schildhouse with Subsurface
Phone	(219) 287-2282
Fax	(219) 233-0026
Address	Subsurface Group 31728 SR 933 South Bend, IN 46637
E-Mail Address	
Service Company	J.O. Well Service & Testing, Inc.

WELL INFORMATION

Well Name	EGT Well #1-12
Well Location	Romulus, Michigan
Field and Pool	
Status (Oil, Gas, Water, Injection)	
Perforated Intervals	
Mid-point of Perforated Intervals (MPP)	
Drilling Rig Number	
Elevations	
Kelly Bushing (KB)	13 feet above ground level
Casing Flange (CF)	
KB-CF	
Ground Level	
Plug Back Total Depth	4649 feet
Total Depth	
Production Casing	
Production Tubing	E.O.T. at 4055 feet

TEST INFORMATION

Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016
Dead-weight Gauge Tubing Pressure	
Dead-weight Gauge Casing Pressure	
Shut-in Date (Duration)	August 09, 2016 at 20:32:35
Date / Time on Bottom	August 09, 2016 at 07:19:13
Date / Time off Bottom	August 10, 2016 at 06:17:40
Probe Serial Number	9847
Probe Offset from End of Tool String	
Run Depth at Probe Pressure Port	

PRESSURE TEST RESULTS

Maximum Recorded Probe Pressure	2034.2 psig
Maximum Recorded Probe Temperature	81.7 deg F
Final Buildup Pressure	
Gradient Survey Information	
Extrapolated Pressure to MPP	
Final Gradient at Depth	
Job Number	

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

PROBE INFORMATION

Probe Serial Number	9847
Model	PR625
Pressure	
Calibrated Pressure Range	0.0 - 6,000.0 psig
Accuracy	1.4400 psig (0.024% FS)
Resolution	0.0900 psig (0.0015% FS)
Temperature	
Calibrated Temperature Range	0.00 - 125.00 deg C
Accuracy	0.288 deg C (0.23% FS)
Resolution	0.003 deg C (0.002% FS)
Calibration File Used for Reports	June 25, 2016

PROGRAMMING DETAILS

Step	Sample Mode	Period	Duration	Comment

Program Start Time
Program End Time
Total Samples Taken
Usage for this Test
Generic Data File Name

COMMENTS

Reported By Tim Auker

Zeroed bottom gauge in reference to Kelly Bushing Measurements.

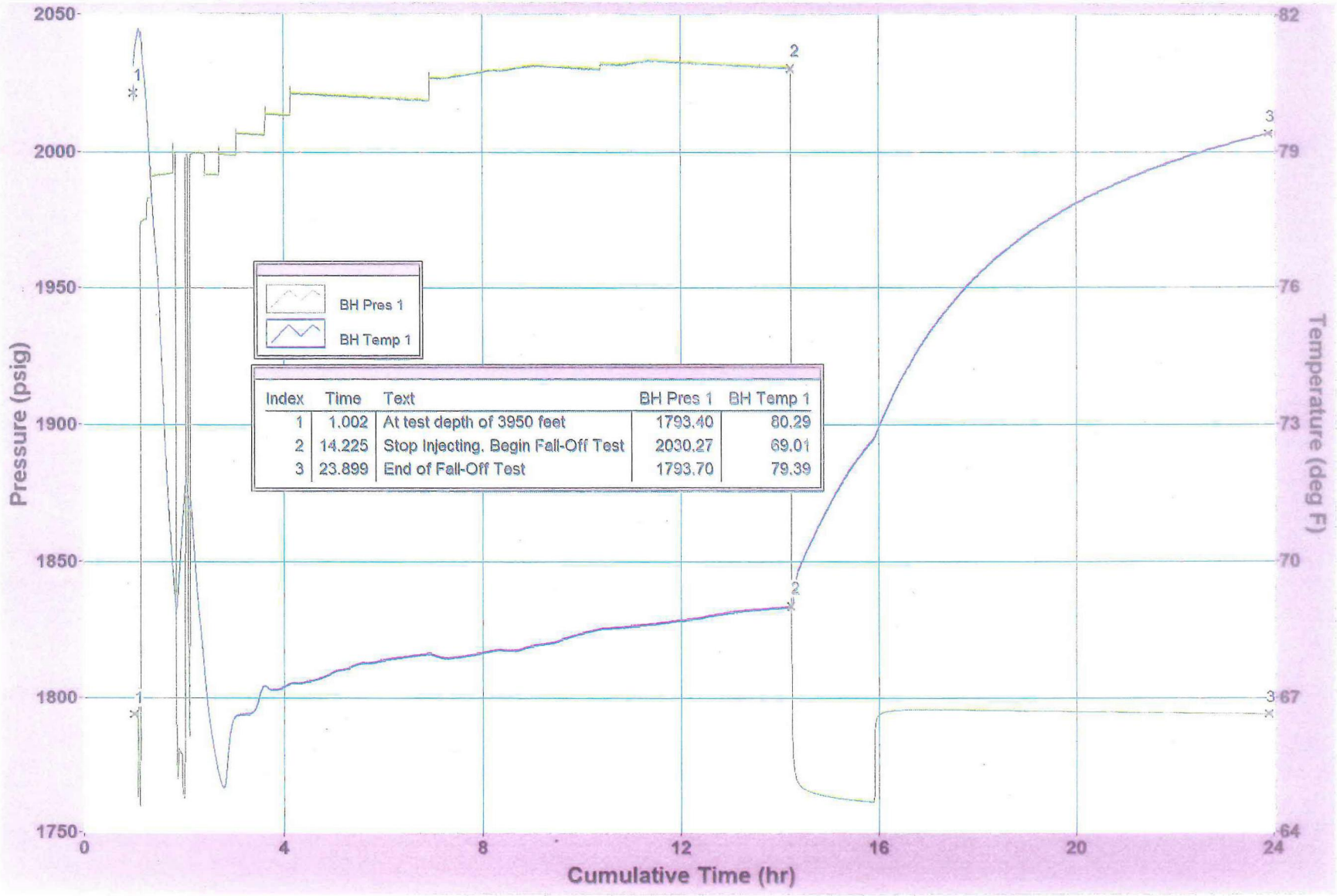
Top Gauge: 40010 two feet above bottom gauge
Bottom Gauge: 9847

The bottom gauge (9847) was used for this report.

R.I.H. with gauges. Hang bottom gauge at 3950 feet for Build-Up/Fall-Off Test. P.O.O.H. with gauges.

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

Injection/Fall-Off Test



Index	Time	Text	BH Pres 1	BH Temp 1
1	1.002	At test depth of 3950 feet	1793.40	80.29
2	14.225	Stop Injecting. Begin Fall-Off Test	2030.27	69.01
3	23.899	End of Fall-Off Test	1793.70	79.39

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
Gauges on surface				
2016/08/09	06:19:04	0.0000	0.239	72.338
2016/08/09	06:24:03	0.0831	0.319	72.914
2016/08/09	06:29:03	0.1664	0.181	72.446
2016/08/09	06:34:03	0.2497	0.109	71.996
2016/08/09	06:39:03	0.3331	0.104	71.690
2016/08/09	06:44:03	0.4164	0.044	71.258
2016/08/09	06:49:03	0.4997	0.028	70.340
2016/08/09	06:54:03	0.5831	0.093	69.584
2016/08/09	06:59:03	0.6664	0.236	68.756
2016/08/09	07:04:03	0.7497	0.338	67.532
Begin equalizing lubricator				
2016/08/09	07:04:13	0.7525	0.335	67.496
R.I.H. with gauges				
2016/08/09	07:06:23	0.7886	118.428	67.748
2016/08/09	07:09:03	0.8331	404.990	55.472
2016/08/09	07:14:03	0.9164	1067.977	60.530
2016/08/09	07:19:03	0.9997	1789.202	79.952
At test depth of 3950 feet				
2016/08/09	07:19:13	1.0025	1793.405	80.294
2016/08/09	07:24:03	1.0831	1781.026	81.608
2016/08/09	07:29:03	1.1664	1974.892	81.410
2016/08/09	07:34:03	1.2497	1975.761	80.276
2016/08/09	07:39:03	1.3331	1983.392	78.638
2016/08/09	07:44:03	1.4164	1991.352	77.216
2016/08/09	07:49:03	1.4997	1991.513	75.866
2016/08/09	07:54:03	1.5831	1991.854	73.526
2016/08/09	07:59:03	1.6664	1991.963	71.600
2016/08/09	08:04:03	1.7497	1992.546	70.160
2016/08/09	08:09:03	1.8331	1859.822	69.026
2016/08/09	08:14:03	1.9164	1779.567	70.016
2016/08/09	08:19:03	1.9997	1773.642	71.384
2016/08/09	08:24:03	2.0831	1815.419	71.204
2016/08/09	08:29:03	2.1664	1999.348	70.808
2016/08/09	08:34:03	2.2497	1999.763	69.530
2016/08/09	08:39:03	2.3331	1999.918	68.504
2016/08/09	08:44:03	2.4164	1999.454	67.478
2016/08/09	08:49:03	2.4997	1991.809	66.542
2016/08/09	08:54:03	2.5831	1991.606	65.912
2016/08/09	08:59:03	2.6664	1991.551	65.408
2016/08/09	09:04:03	2.7497	1999.323	65.066
2016/08/09	09:09:03	2.8331	1999.316	65.192
2016/08/09	09:14:03	2.9164	1998.922	66.128
2016/08/09	09:19:03	2.9997	1999.145	66.506
2016/08/09	09:24:03	3.0831	2006.738	66.596
2016/08/09	09:29:03	3.1664	2006.736	66.596
2016/08/09	09:34:03	3.2497	2006.655	66.614
2016/08/09	09:39:03	3.3331	2006.777	66.614
2016/08/09	09:44:03	3.4164	2006.513	66.722
2016/08/09	09:49:03	3.4997	2006.053	66.992

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/09	09:54:03	3.5831	2006.581	67.244
2016/08/09	09:59:03	3.6664	2013.972	67.226
2016/08/09	10:04:03	3.7497	2013.869	67.172
2016/08/09	10:09:03	3.8331	2013.987	67.190
2016/08/09	10:14:03	3.9164	2013.866	67.190
2016/08/09	10:19:03	3.9997	2013.475	67.244
2016/08/09	10:24:03	4.0831	2013.755	67.280
2016/08/09	10:29:03	4.1664	2021.577	67.316
2016/08/09	10:34:03	4.2497	2021.809	67.316
2016/08/09	10:39:03	4.3331	2021.714	67.316
2016/08/09	10:44:03	4.4164	2021.294	67.334
2016/08/09	10:49:03	4.4997	2021.274	67.352
2016/08/09	10:54:03	4.5831	2021.594	67.388
2016/08/09	10:59:03	4.6664	2021.078	67.406
2016/08/09	11:04:03	4.7497	2021.030	67.442
2016/08/09	11:09:03	4.8331	2021.414	67.478
2016/08/09	11:14:03	4.9164	2020.682	67.532
2016/08/09	11:19:03	4.9997	2020.956	67.568
2016/08/09	11:24:03	5.0831	2020.638	67.604
2016/08/09	11:29:03	5.1664	2020.529	67.622
2016/08/09	11:34:03	5.2497	2020.740	67.640
2016/08/09	11:39:03	5.3331	2020.292	67.676
2016/08/09	11:44:03	5.4164	2020.339	67.730
2016/08/09	11:49:03	5.4997	2020.525	67.748
2016/08/09	11:54:03	5.5831	2020.497	67.766
2016/08/09	11:59:03	5.6664	2020.669	67.766
2016/08/09	12:04:03	5.7497	2020.193	67.766
2016/08/09	12:09:03	5.8331	2020.451	67.784
2016/08/09	12:14:03	5.9164	2020.013	67.802
2016/08/09	12:19:03	5.9997	2020.310	67.820
2016/08/09	12:24:03	6.0831	2019.829	67.838
2016/08/09	12:29:03	6.1664	2020.193	67.856
2016/08/09	12:34:03	6.2497	2020.084	67.874
2016/08/09	12:39:03	6.3331	2019.917	67.874
2016/08/09	12:44:03	6.4164	2019.803	67.910
2016/08/09	12:49:03	6.4997	2019.266	67.910
2016/08/09	12:54:03	6.5831	2019.601	67.928
2016/08/09	12:59:03	6.6664	2019.563	67.946
2016/08/09	13:04:03	6.7497	2019.598	67.946
2016/08/09	13:09:03	6.8331	2019.025	67.964
2016/08/09	13:14:03	6.9164	2019.002	67.964
2016/08/09	13:19:03	6.9997	2027.146	67.946
2016/08/09	13:24:03	7.0831	2027.178	67.928
2016/08/09	13:29:03	7.1664	2027.166	67.892
2016/08/09	13:34:03	7.2497	2027.239	67.856
2016/08/09	13:39:03	7.3331	2027.316	67.874
2016/08/09	13:44:03	7.4164	2027.615	67.892
2016/08/09	13:49:03	7.4997	2027.803	67.892
2016/08/09	13:54:03	7.5831	2027.903	67.910
2016/08/09	13:59:03	7.6664	2028.366	67.928

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/09	14:04:03	7.7497	2028.607	67.946
2016/08/09	14:09:03	7.8331	2028.995	67.964
2016/08/09	14:14:03	7.9164	2029.491	67.982
2016/08/09	14:19:03	7.9997	2029.359	67.982
2016/08/09	14:24:05	8.0836	2030.026	68.000
2016/08/09	14:29:05	8.1669	2029.764	68.036
2016/08/09	14:34:05	8.2503	2030.018	68.036
2016/08/09	14:39:05	8.3336	2030.063	68.054
2016/08/09	14:44:05	8.4169	2030.169	68.036
2016/08/09	14:49:05	8.5003	2030.015	68.036
2016/08/09	14:54:05	8.5836	2030.334	68.054
2016/08/09	14:59:05	8.6669	2030.855	68.036
2016/08/09	15:04:05	8.7503	2031.152	68.072
2016/08/09	15:09:05	8.8336	2031.036	68.108
2016/08/09	15:14:05	8.9169	2031.317	68.126
2016/08/09	15:19:05	9.0003	2031.451	68.144
2016/08/09	15:24:05	9.0836	2031.638	68.162
2016/08/09	15:29:05	9.1669	2031.667	68.180
2016/08/09	15:34:05	9.2503	2031.370	68.180
2016/08/09	15:39:05	9.3336	2031.484	68.198
2016/08/09	15:44:05	9.4169	2031.066	68.216
2016/08/09	15:49:05	9.5003	2031.238	68.234
2016/08/09	15:54:05	9.5836	2031.264	68.270
2016/08/09	15:59:05	9.6669	2031.093	68.306
2016/08/09	16:04:05	9.7503	2030.720	68.342
2016/08/09	16:09:05	9.8336	2030.871	68.360
2016/08/09	16:14:05	9.9169	2030.733	68.396
2016/08/09	16:19:05	10.0003	2030.521	68.414
2016/08/09	16:24:05	10.0836	2030.424	68.432
2016/08/09	16:29:05	10.1669	2030.491	68.468
2016/08/09	16:34:05	10.2503	2030.260	68.486
2016/08/09	16:39:05	10.3336	2030.514	68.504
2016/08/09	16:44:05	10.4169	2031.963	68.522
2016/08/09	16:49:05	10.5003	2032.340	68.540
2016/08/09	16:54:05	10.5836	2032.395	68.540
2016/08/09	16:59:05	10.6669	2032.202	68.540
2016/08/09	17:04:05	10.7503	2031.977	68.558
2016/08/09	17:09:05	10.8336	2031.809	68.558
2016/08/09	17:14:05	10.9169	2032.137	68.576
2016/08/09	17:19:05	11.0003	2032.849	68.576
2016/08/09	17:24:05	11.0836	2032.485	68.576
2016/08/09	17:29:05	11.1669	2032.843	68.594
2016/08/09	17:34:05	11.2503	2033.165	68.594
2016/08/09	17:39:05	11.3336	2033.586	68.612
2016/08/09	17:44:05	11.4169	2033.483	68.630
2016/08/09	17:49:05	11.5003	2033.667	68.630
2016/08/09	17:54:05	11.5836	2033.245	68.648
2016/08/09	17:59:05	11.6669	2033.526	68.666
2016/08/09	18:04:05	11.7503	2032.975	68.666
2016/08/09	18:09:05	11.8336	2033.149	68.684

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/09	18:14:05	11.9169	2032.691	68.702
2016/08/09	18:19:05	12.0003	2032.995	68.720
2016/08/09	18:24:05	12.0836	2032.913	68.720
2016/08/09	18:29:05	12.1669	2032.497	68.720
2016/08/09	18:34:05	12.2503	2032.466	68.738
2016/08/09	18:39:05	12.3336	2032.460	68.756
2016/08/09	18:44:05	12.4169	2032.682	68.756
2016/08/09	18:49:05	12.5003	2032.441	68.792
2016/08/09	18:54:05	12.5836	2032.414	68.810
2016/08/09	18:59:05	12.6669	2032.360	68.828
2016/08/09	19:04:05	12.7503	2032.395	68.846
2016/08/09	19:09:05	12.8336	2032.035	68.864
2016/08/09	19:14:05	12.9169	2032.262	68.864
2016/08/09	19:19:05	13.0003	2032.262	68.900
2016/08/09	19:24:05	13.0836	2031.664	68.900
2016/08/09	19:29:05	13.1669	2031.813	68.900
2016/08/09	19:34:05	13.2503	2031.795	68.918
2016/08/09	19:39:05	13.3336	2032.124	68.936
2016/08/09	19:44:05	13.4169	2031.491	68.936
2016/08/09	19:49:05	13.5003	2031.499	68.954
2016/08/09	19:54:05	13.5836	2031.443	68.954
2016/08/09	19:59:05	13.6669	2031.040	68.954
2016/08/09	20:04:05	13.7503	2031.538	68.972
2016/08/09	20:09:05	13.8336	2031.291	68.972
2016/08/09	20:14:05	13.9169	2031.446	68.972
2016/08/09	20:19:05	14.0003	2031.198	68.990
2016/08/09	20:24:05	14.0836	2030.916	68.990
2016/08/09	20:29:05	14.1669	2030.891	68.990
Stop Injecting. Begin Fall-Off Test				
2016/08/09	20:32:35	14.2253	2030.266	69.008
2016/08/09	20:34:05	14.2503	1782.192	69.026
2016/08/09	20:39:05	14.3336	1769.395	69.638
2016/08/09	20:44:05	14.4169	1767.095	69.908
2016/08/09	20:49:05	14.5003	1766.026	70.124
2016/08/09	20:54:05	14.5836	1765.291	70.322
2016/08/09	20:59:05	14.6669	1764.697	70.502
2016/08/09	21:04:05	14.7503	1764.309	70.700
2016/08/09	21:09:05	14.8336	1763.910	70.880
2016/08/09	21:14:05	14.9169	1763.566	71.060
2016/08/09	21:19:05	15.0003	1763.295	71.240
2016/08/09	21:24:05	15.0836	1763.021	71.402
2016/08/09	21:29:05	15.1669	1762.781	71.564
2016/08/09	21:34:05	15.2503	1762.522	71.708
2016/08/09	21:39:05	15.3336	1762.328	71.852
2016/08/09	21:44:05	15.4169	1762.113	71.996
2016/08/09	21:49:05	15.5003	1761.955	72.122
2016/08/09	21:54:05	15.5836	1761.769	72.248
2016/08/09	21:59:05	15.6669	1761.634	72.374
2016/08/09	22:04:05	15.7503	1761.472	72.482
2016/08/09	22:09:05	15.8336	1761.360	72.590

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/09	22:14:05	15.9169	1787.931	72.698
2016/08/09	22:19:05	16.0003	1793.390	72.914
2016/08/09	22:24:07	16.0842	1794.278	73.130
2016/08/09	22:29:07	16.1675	1794.655	73.328
2016/08/09	22:34:07	16.2508	1794.849	73.526
2016/08/09	22:39:07	16.3342	1795.021	73.724
2016/08/09	22:44:07	16.4175	1795.120	73.904
2016/08/09	22:49:07	16.5008	1795.219	74.084
2016/08/09	22:54:07	16.5842	1795.266	74.228
2016/08/09	22:59:07	16.6675	1795.289	74.372
2016/08/09	23:04:07	16.7508	1795.284	74.534
2016/08/09	23:09:07	16.8342	1795.334	74.678
2016/08/09	23:14:07	16.9175	1795.348	74.822
2016/08/09	23:19:07	17.0008	1795.331	74.948
2016/08/09	23:24:07	17.0842	1795.322	75.074
2016/08/09	23:29:07	17.1675	1795.306	75.200
2016/08/09	23:34:07	17.2508	1795.273	75.308
2016/08/09	23:39:07	17.3342	1795.313	75.434
2016/08/09	23:44:07	17.4175	1795.279	75.542
2016/08/09	23:49:07	17.5008	1795.280	75.668
2016/08/09	23:54:07	17.5842	1795.252	75.758
2016/08/09	23:59:07	17.6675	1795.218	75.884
2016/08/10	00:04:07	17.7508	1795.215	75.974
2016/08/10	00:09:07	17.8342	1795.180	76.082
2016/08/10	00:14:07	17.9175	1795.189	76.172
2016/08/10	00:19:07	18.0008	1795.145	76.262
2016/08/10	00:24:07	18.0842	1795.119	76.352
2016/08/10	00:29:07	18.1675	1795.109	76.442
2016/08/10	00:34:07	18.2508	1795.094	76.532
2016/08/10	00:39:07	18.3342	1795.076	76.622
2016/08/10	00:44:07	18.4175	1795.033	76.694
2016/08/10	00:49:07	18.5008	1795.000	76.766
2016/08/10	00:54:07	18.5842	1794.951	76.838
2016/08/10	00:59:07	18.6675	1794.951	76.910
2016/08/10	01:04:07	18.7508	1794.925	76.982
2016/08/10	01:09:07	18.8342	1794.887	77.054
2016/08/10	01:14:07	18.9175	1794.903	77.126
2016/08/10	01:19:07	19.0008	1794.885	77.198
2016/08/10	01:24:07	19.0842	1794.852	77.252
2016/08/10	01:29:07	19.1675	1794.813	77.306
2016/08/10	01:34:07	19.2508	1794.809	77.378
2016/08/10	01:39:07	19.3342	1794.756	77.432
2016/08/10	01:44:07	19.4175	1794.746	77.504
2016/08/10	01:49:07	19.5008	1794.722	77.540
2016/08/10	01:54:07	19.5842	1794.707	77.612
2016/08/10	01:59:07	19.6675	1794.669	77.648
2016/08/10	02:04:07	19.7508	1794.661	77.720
2016/08/10	02:09:07	19.8342	1794.613	77.756
2016/08/10	02:14:07	19.9175	1794.632	77.810
2016/08/10	02:19:07	20.0008	1794.608	77.864

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/10	02:24:07	20.0842	1794.582	77.918
2016/08/10	02:29:07	20.1675	1794.562	77.972
2016/08/10	02:34:07	20.2508	1794.546	78.008
2016/08/10	02:39:07	20.3342	1794.495	78.044
2016/08/10	02:44:07	20.4175	1794.484	78.098
2016/08/10	02:49:07	20.5008	1794.466	78.134
2016/08/10	02:54:07	20.5842	1794.439	78.170
2016/08/10	02:59:07	20.6675	1794.426	78.206
2016/08/10	03:04:07	20.7508	1794.416	78.260
2016/08/10	03:09:07	20.8342	1794.392	78.296
2016/08/10	03:14:07	20.9175	1794.366	78.332
2016/08/10	03:19:07	21.0008	1794.333	78.386
2016/08/10	03:24:07	21.0842	1794.332	78.422
2016/08/10	03:29:07	21.1675	1794.314	78.458
2016/08/10	03:34:07	21.2508	1794.301	78.494
2016/08/10	03:39:07	21.3342	1794.252	78.530
2016/08/10	03:44:07	21.4175	1794.265	78.566
2016/08/10	03:49:07	21.5008	1794.242	78.602
2016/08/10	03:54:07	21.5842	1794.233	78.638
2016/08/10	03:59:07	21.6675	1794.191	78.674
2016/08/10	04:04:07	21.7508	1794.197	78.710
2016/08/10	04:09:07	21.8342	1794.172	78.746
2016/08/10	04:14:07	21.9175	1794.160	78.764
2016/08/10	04:19:07	22.0008	1794.111	78.800
2016/08/10	04:24:07	22.0842	1794.130	78.836
2016/08/10	04:29:07	22.1675	1794.091	78.854
2016/08/10	04:34:07	22.2508	1794.085	78.890
2016/08/10	04:39:07	22.3342	1794.070	78.926
2016/08/10	04:44:07	22.4175	1794.008	78.944
2016/08/10	04:49:07	22.5008	1794.018	78.980
2016/08/10	04:54:07	22.5842	1794.018	79.016
2016/08/10	04:59:07	22.6675	1793.995	79.034
2016/08/10	05:04:07	22.7508	1793.982	79.052
2016/08/10	05:09:07	22.8342	1793.983	79.088
2016/08/10	05:14:07	22.9175	1793.922	79.106
2016/08/10	05:19:07	23.0008	1793.938	79.142
2016/08/10	05:24:07	23.0842	1793.912	79.160
2016/08/10	05:29:07	23.1675	1793.909	79.196
2016/08/10	05:34:07	23.2508	1793.877	79.214
2016/08/10	05:39:07	23.3342	1793.914	79.250
2016/08/10	05:44:07	23.4175	1793.866	79.268
2016/08/10	05:49:07	23.5008	1793.835	79.286
2016/08/10	05:54:07	23.5842	1793.844	79.304
2016/08/10	05:59:07	23.6675	1793.795	79.322
2016/08/10	06:04:07	23.7508	1793.795	79.340
2016/08/10	06:09:07	23.8342	1793.763	79.376
End of Fall-Off Test				
2016/08/10	06:13:02	23.8994	1793.702	79.394
2016/08/10	06:14:07	23.9175	1793.493	79.394
P.O.O.H. with gauges				

Company Name	Environmental Geo-Technologies
Well Name	EGT Well #1-12
Type of Test	Injection/Fall-Off
Date(s) of Test	August 09, 2016 thru August 10, 2016

Date	Time	Cum.Time BH1	BH Pres 1	BH Temp 1
		hr	psig	deg F
2016/08/10	06:17:42	23.9772	1793.833	79.394
2016/08/10	06:19:07	24.0008	1658.992	78.728
2016/08/10	06:24:09	24.0847	1059.193	65.300
2016/08/10	06:29:09	24.1681	344.137	58.028
Bleed-Off Lubricator				
2016/08/10	06:33:19	24.2375	129.121	66.992
2016/08/10	06:34:09	24.2514	-1.360	68.396
2016/08/10	06:39:09	24.3347	-0.067	70.358
2016/08/10	06:44:09	24.4181	-0.444	70.970

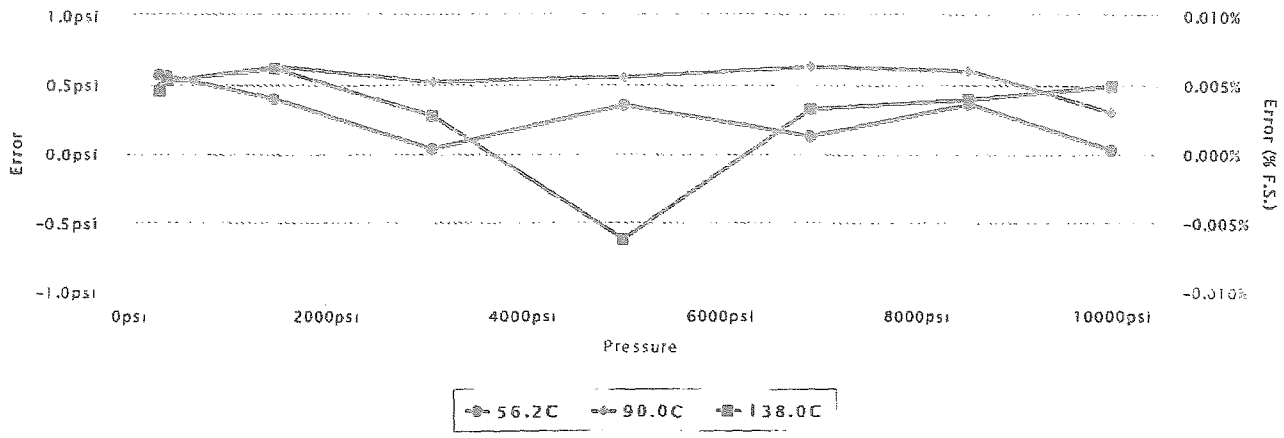
Kuster
a Probe company

2900 E. 29th St.
Long Beach, CA 90803 USA
Tel: +1 (562) 595-0661
Fax: (562) 426-7897
www.kusterco.com

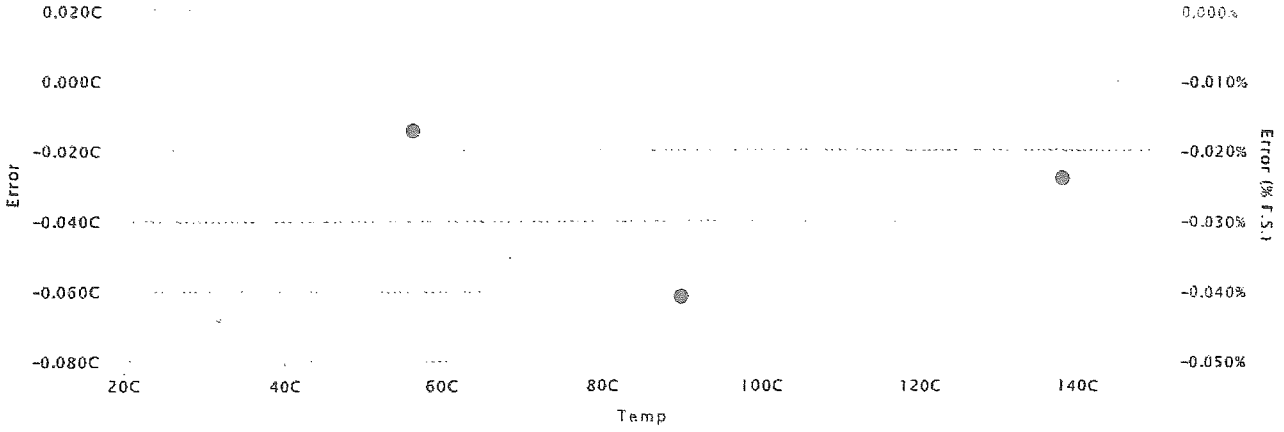
Calibration Certificate of Conformance

Serial	Model	Calibration Date
40010	AKS PR825	Jun-09-2016

Pressure Range (psi)	Temp. Range (°C) - Min	Temp. Range (°C) - Max	Pressure Spec.	Temp. Spec.
10000	20	150	±2.4 psi (0.024% F.S.)	±0.225°C (0.15% F.S.)



Max Error: 0.629psi (0.006% F.S.)



Max Error: -0.062°C (-0.041% F.S.)

CALIBRATION STANDARDS

Pressure: Fluke Piston Gauge (Uncertainty: [± 40Pa + (25 ppm + 0.04 ppm/MPa)])

Temperature: Fluke PRT Temperature Reference (Accuracy: ±0.018 °C)
Fluke Metrology Well (Accuracy: ±0.016 °C)

TRACEABILITY

All working standards are traceable to the National Institute of Standards and Technology (NIST), United States

Calibrated By: _____ Date: Jun-09-2016

Approved By: _____ Date: Jun-09-2016

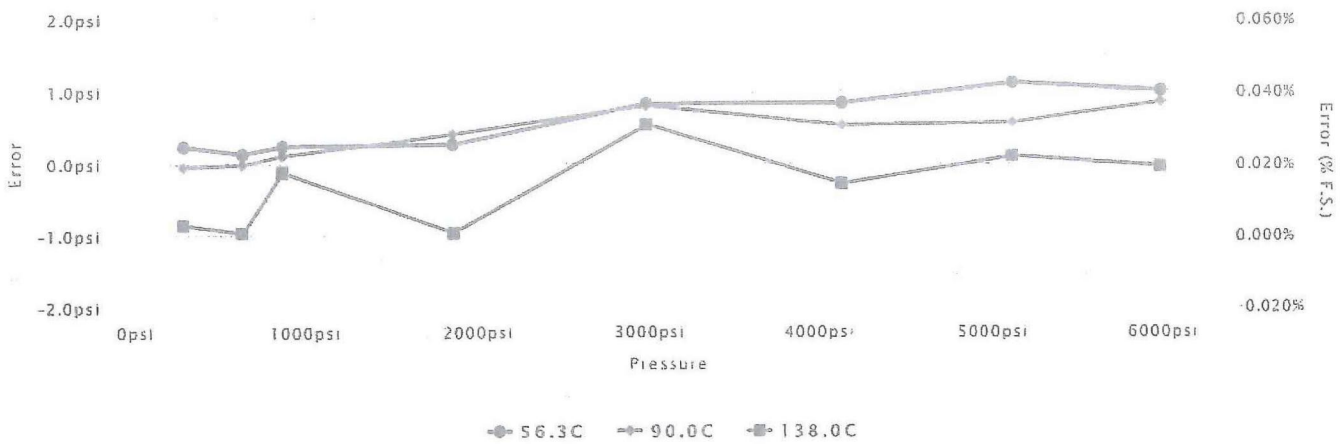
Kuster
a Probe company

2900 E. 29th St.
Long Beach, CA 90806 USA
Tel: +1 (562) 595-0661
Fax: (562) 426-7897
www.kusterco.com

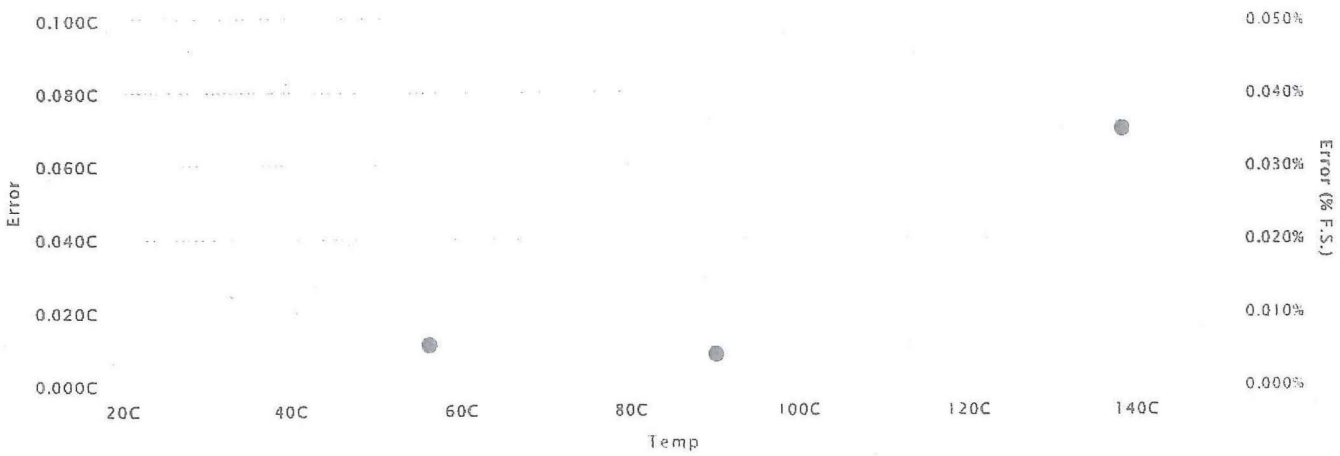
Calibration Certificate of Conformance

Serial	Model	Calibration Date
9847	AKS PR625	Jun-25-2016

Pressure Range (psi)	Temp. Range (°C) - Min	Temp. Range (°C) - Max	Pressure Spec.	Temp. Spec.
6000	20	150	±1.44 psi (0.024% F.S.)	±0.225°C (0.15% F.S.)



Max Error: 1.107psi (0.018% F.S.)



Max Error: 0.07°C (0.046% F.S.)

CALIBRATION STANDARDS

Pressure: Fluke Piston Gauge (Uncertainty: [± 40Pa + (25 ppm + 0.04 ppm/MPa)])

Temperature: Fluke PRT Temperature Reference (Accuracy: ±0.018 °C)
Fluke Metrology Well (Accuracy: ±0.016 °C)

TRACEABILITY

All working standards are traceable to the National Institute of Standards and Technology (NIST), United States

Calibrated By: _____ Date: Jun-25-2016

Approved By: _____ Date: Jun-25-2016

ATTACHMENT D

ANNULUS PRESSURE TEST DATA

AND

CALIBRATOIN CERTIFICATE

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – OFFICE OF OIL, GAS, AND MINERALS

ANNULAR PRESSURE TEST

By authority of Part 615 or Part 625 of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

Permit Number: M452-MI-163-1W-C0007

Well name & No.: EDS 1-12

Surface location: SW 1/4 of NW 1/4 of SE 1/4, Section 12 T 3S R 9E

Name and address of permittee:
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, Michigan 48174

Township: Romulus
County: Wayne

Well type:
Part 615 ☐ Secondary recovery ☐ Brine disposal
Part 625 ☒ Waste disposal ☐ Solution mining

Date of test: 25 July 2016

Casing: 7 inch at 4080 ft
Tubing: 4 1/2 inch fiberglas

Type of gauge: PG-3000 #Z3339
inch face 2 psi range 2000

Packer type/model: GPS Model 12
Packer depth: 4066 ft

New gauge ☐ Yes ☒ No
if no, enter date of test calibration

Type of non-corrosive liquid in the annulus: Diesel fuel and brine

Average rate during injection: NA

Maximum allowed injection pressure: 765 psi

TEST DATA

Pressure readings (psig)

Time	Annulus	tubing	Time	Annulus	tubing
8:45	973				
8:55	973				
9:05	973				
9:15	974				
9:25	974				
9:35	973				
9:45	974				

Comments

Well demonstrated mechanical integrity.
Fluid level in reserve tank at 24.93 inches during test, rose to 26.83 inches when pressure released; pressure returned to 847 psi after test.

Certification if witnessed by DEQ representative:
Jack Lanigan
Signature of DEQ employee

Date 7/25/16

Certification if not witnessed by DEQ representative: "I state that I am authorized by said owner. This report was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

Signature

Date 7/25/16

MAIL TO: OFFICE OF OIL, GAS, AND MINERALS
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
PO BOX 30256
LANSING MI 48909-7756

EQP 7606 (rev. 8/2004)

APG
Automation Products Group, Inc.
1025 West 1700 North
Logan, UT 84321

Tel: 435-753-7300
Fax: 435-753-7490
www.apgsensors.com

NIST CALIBRATION DATA

Certificate Number: 423006	RANGE 2000 PSI G	RATED ACCURACY +/- 0.25 % FS BFSL	OUTPUT N / A
MODEL NUMBER: PG-3000-2000-PSIG-EX-L7-P1-N1-M1		ACTUAL LINEARITY 0.02 % FS	ACTUAL HYST. 0.05 % FS
PART NUMBER 548010-0722	SERIAL NUMBER Z3339		

WORK PERFORMED:

- ☐ NEW ITEM, CALIBRATE TO MFG. SPEC IN ACCORDANCE WITH 9003101
- ☑ REPAIR, CALIBRATE TO MFG. SPEC IN ACCORDANCE WITH 9001749
- ☑ CALIBRATE IN COMPLIANCE WITH ANSI / NCSL Z540.1

REMARKS:

	CALIBRATION RESULTS READING	PRESSURE	OUTPUT
Increasing	0	0	N / A
	400	400	N / A
	800	800	N / A
	1200	1200	N / A
	1600	1600	N / A
	1999	2000	N / A
Decreasing	1601	1600	N / A
	1200	1200	N / A
	800	800	N / A
	399	400	N / A
	0	0	N / A

P.O. NUMBER	SALES ORDER NUMBER	CUSTOMER I.D.	DATE OF TEST	DUE DATE
	213760		3/3/2016	

The calibration 'Due Date' has purposely been left blank, as APG will not dictate to our customers when they should re-calibrate their instruments.

STANDARD USED

MFG.	MODEL	INSTRUMENT	SERIAL #	ACCURACY	CAL.DATE	RECAL DATE	CERT NUMBER	SOURCE
AMETEK	T-150-1/C	Dead Weight	98097	+/-0.025%	2/22/2016	2/22/2017	1000709587	Quality Calibr
CONTROL CO	Traceable	HUMIDITY/TEMP	140202027	+/- 1%	8/25/2015	8/25/2016	4088-7008525	Control Co.

ENVIRONMENT TEMP. 72 DEG.F HUMIDITY 20 %

PERFORMED BY: Karl Gibbons (PSI 33)

Technician Name and Stamp

CALIBRATION REPORT - STATEMENT OF TRACEABILITY

This instrument has been checked for accuracy, recalibrated to manufacturer's specifications using Best Fit Straight Line (BFSL), and found to be within the specified tolerance (unless otherwise noted).
The instruments used in this calibration are traceable to the National Institute of Standards and Technology (NIST) through certification documents on file at APG.
APG is in compliance with ANSI/NCSL Z540.1

This report shall not be reproduced except in full, without the written approval of APG.

Company	Environmental Geo-Technologies
Location	Romulus, MI
Well	No. 1-12
Test Date	August 9 to August 10, 2016
Test Type	Buildup/Falloff
Gauge Type/Serial Number	PR625/#9847
Gauge Depth	3950 feet RKB
Analyst	LKM
Subsurface Project No.	50909A

Reservoir Description

Fluid type : Water
Well orientation : Vertical
Number of wells : 1
Number of layers : 1

Layer Parameters Data

	Layer 1
Formation thickness	133.0000 ft
Average formation porosity	0.1100
Water saturation	1.0000
Gas saturation	0.0000
Formation compressibility	0.000000 psi-1
Total system compressibility	6.2000e-6 psi-1
Layer pressure	1789.580000 psia
Temperature	80.890000 deg F

Well Parameters Data

	Well #1-12
Well radius	0.3646 ft
Distance from observation to active well	0.000000 ft
Wellbore storage coefficient	1.0226e-3 bbl/psi
Storage Amplitude	0.000000 psi
Storage Time Constant	0.000000 hr
Second Wellbore Storage	0.000000 bbl/psi
Time Change for Second Storage	0.000000 hr
Well offset - x direction	0.0000 ft
Well offset - y direction	0.0000 ft

Fluid Parameters Data

	Layer 1
Oil gravity	0.000000 API
Gas gravity	0.000000 sp grav
Gas-oil ratio (produced)	0.000000 scf/STB
Water cut	0.000000
Water salinity	0.000000 ppm
Check Pressure	1789.580000 psia
Check Temperature	80.890000 deg F
Gas-oil ratio (solution)	0.000000 scf/STB
Bubble-point pressure	0.000000 psia
Oil density	0.000 lb/ft3

Fluid Parameters Data (cont)

	Layer 1
Oil viscosity	0.000 cp
Oil formation volume factor	0.000 RB/STB
Gas density	0.000 lb/ft3
Gas viscosity	0.0 cp
Gas formation volume factor	0.000 ft3/scf
Water density	0.000 lb/ft3
Water viscosity	0.798 cp
Water formation volume factor	1.000 RB/STB
Oil compressibility	0.000000 psi-1
Initial Gas compressibility	0.000000 psi-1
Water compressibility	0.000000 psi-1

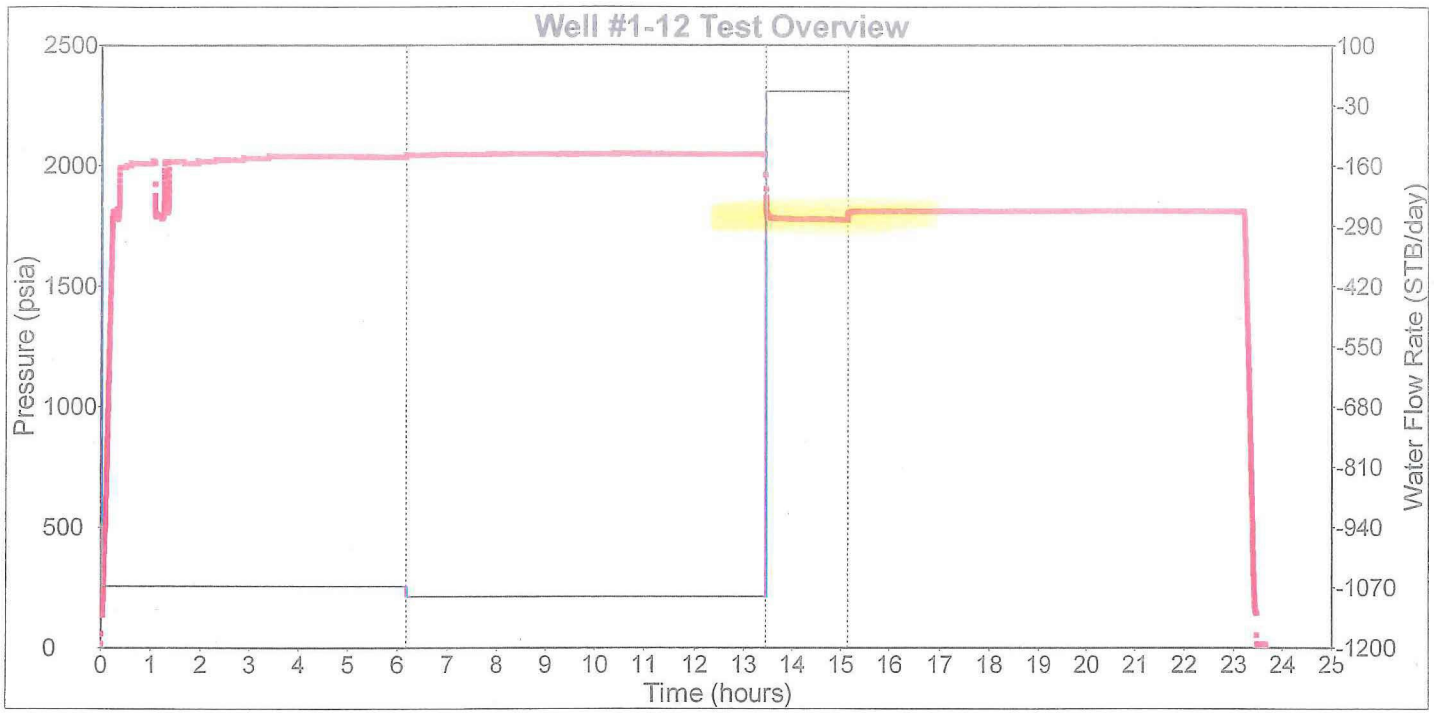
Layer 1 Correlations
Not Used

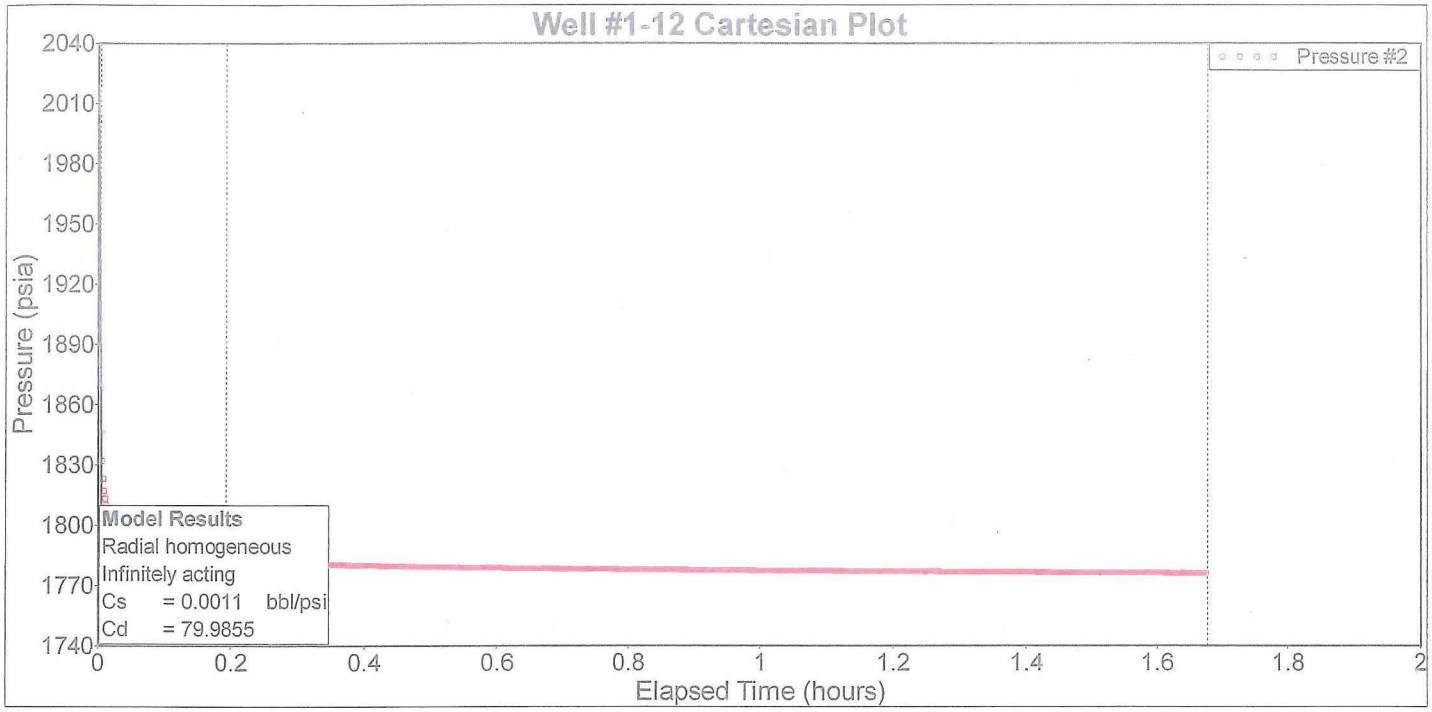
Layer 1 Model Data
Layer 1 Model Type : Radial homogeneous

	Layer 1
Permeability	165.446597 md
Skin factor (Well 1)	40.965432

Rate Change Data

Time Hours	Pressure psia	Rate STB/day
0.000000	15.060000	0.000000
6.169440	2033.870000	-1067.960000
13.472166	2045.214000	-1090.230000
15.149170	1775.960000	0.000000


Well #1-12 Test Overview
Pressure (psia)
2500
2000
1500
1000
500
0
Water Flow Rate (STB/day)
100
-30
-160
-290
-420
-550
-680
-810
-940
-1070
-1200
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Time (hours)



Well #1-12 Cartesian Plot Model Results

Radial homogeneous - Infinitely acting

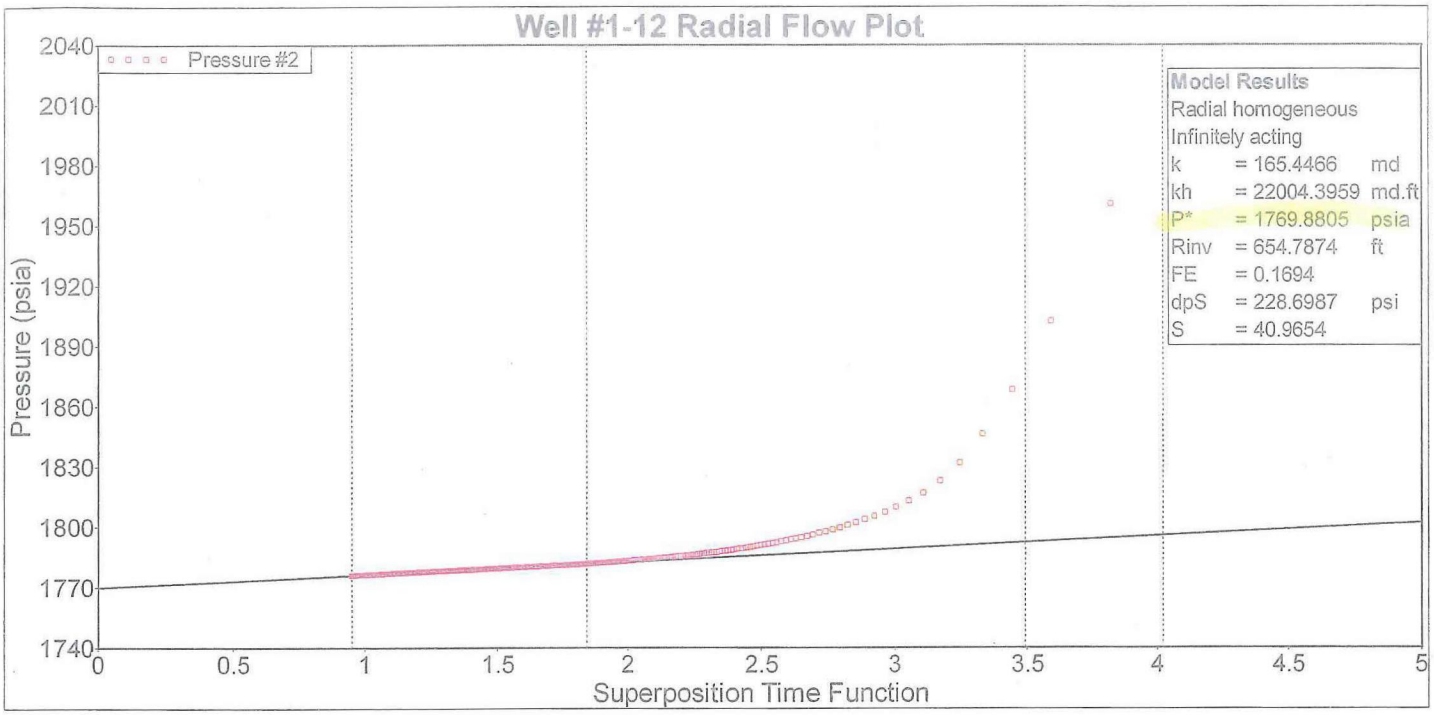
Classic Wellbore Storage

	Value
Wellbore storage coefficient	1.0788e-3 bbl/psi
Dimensionless wellbore storage	79.985514

Well #1-12 Cartesian Plot Line Details

Line type : Wellbore storage
Slope : -42107.9
Intercept : 2045.22
Coefficient of Determination : 1

Number of Intersections = 0



Well #1-12 Radial Flow Plot Model Results
Radial homogeneous - Infinitely acting

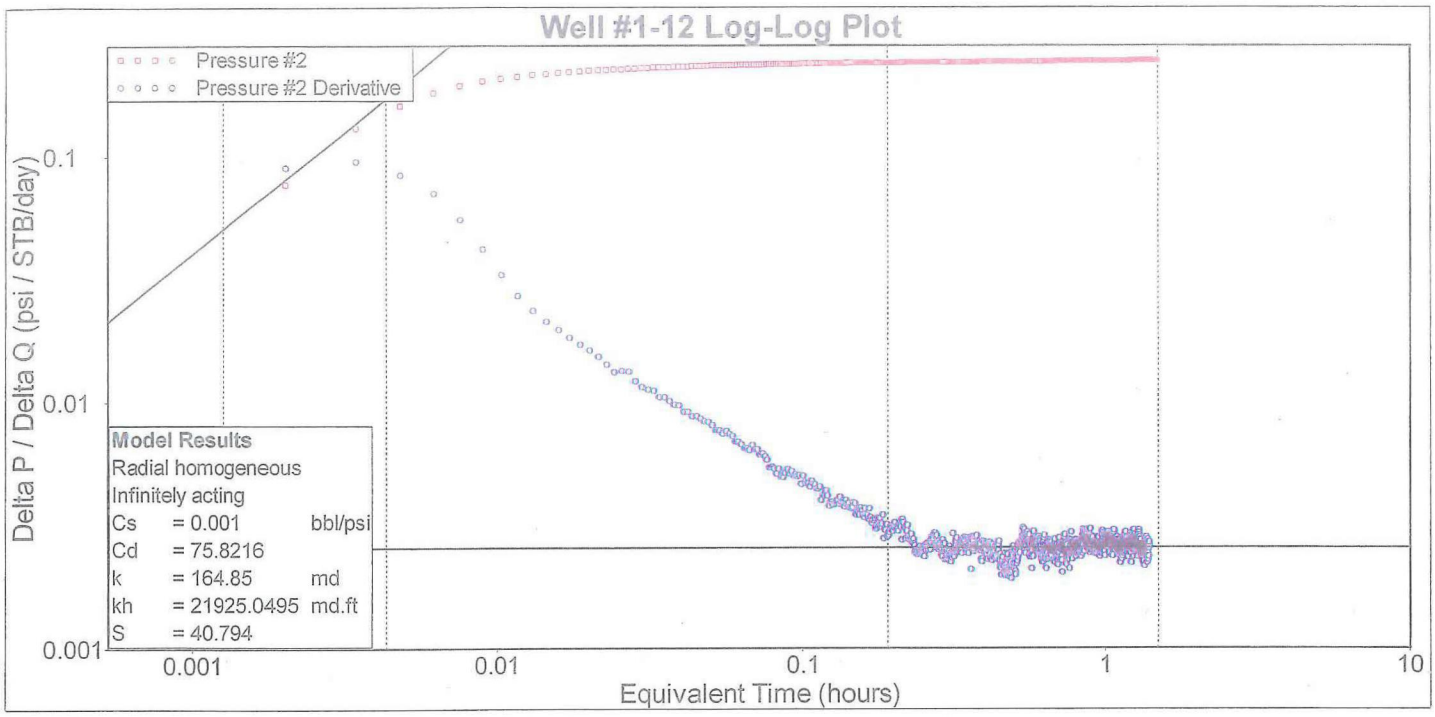
Classic Wellbore Storage

	Value
Permeability	165.446586 md
Permeability-thickness	2.2004e4 md.ft
Extrapolated pressure	1769.880454 psia
Radius of investigation	654.787408 ft
Flow efficiency	0.169376
dP skin (constant rate)	228.698739 psi
Skin factor	40.965429

Well #1-12 Radial Flow Plot Line Details
Line type : Radial flow
Slope : 6.42735
Intercept : 1769.88
Coefficient of Determination : 0.999677

	Radial flow
Extrapolated pressure	1769.880454 psia
Pressure at dt = 1 hour	1777.307119 psia

Number of Intersections = 0



Well #1-12 Log-Log Plot Model Results
Radial homogeneous - Infinitely acting

Classic Wellbore Storage

	Value
Wellbore storage coefficient	1.0226e-3 bbl/psi
Dimensionless wellbore storage	75.821597
Permeability	164.849996 md
Permeability-thickness	2.1925e4 md.ft
Skin factor	40.79401

Well #1-12 Log-Log Plot Line Details
Line type : Wellbore storage
Slope : 1
Intercept : 40.744
Coefficient of Determination : Not Used

Line type : Radial flow
Slope : 0
Intercept : 0.00256961
Coefficient of Determination : Not Used

Number of Intersections = 0