STATISTICAL ANALYSIS SUMMARY
LANDFILL
J. Robert Welsh Plant
Pittsburg, Texas

Submitted to

1 Riverside Plaza
Columbus, Ohio 43215-2372

Submitted by

Geosyntec consultants

engineers | scientists | innovators

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LIST OF ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power
ASD	Alternative Source Demonstration
CCR	Coal Combustion Residuals
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
LCL	Lower Confidence Limit
LF	Landfill
LFB	Laboratory Fortified Blanks
LRB	Laboratory Reagent Blanks
MCL	Maximum Contaminant Level
NELAP	National Environmental Laboratory Accreditation Program
QA	Quality Assurance
QC	Quality Control
RSL	Regional Screening Level
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
TDS	Total Dissolved Solids
UPL	Upper Prediction Limit
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit

SECTION 1

EXECUTIVE SUMMARY

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), groundwater monitoring has been conducted at the Landfill (LF), an existing CCR unit at the Welsh Power Plant located in Pittsburg, Texas.

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, total dissolved solids (TDS), and sulfate at the LF. An alternate source was not identified at the time, so three assessment monitoring events were conducted at the LF in 2018, in accordance with 40 CFR 257.95.

Groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues were identified which would impact the usability of the data.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Groundwater protection standards (GWPSs) were established for the Appendix IV parameters. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether Appendix IV parameters were present at a statistically significant level (SSL) above the GWPS. No SSLs were identified, but Appendix III concentrations for boron, chloride, TDS, and sulfate remained above background. Thus, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

SECTION 2

LANDFILL EVALUATION

2.1 Data Validation & QA/QC

During the assessment monitoring program, samples were collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95(b) and 257.95(d)(1). Samples collected from background wells for the May and August 2018 sampling events were analyzed for both Appendix III and Appendix IV parameters, whereas samples collected from downgradient wells were analyzed for Appendix IV parameters only. Lead and molybdenum values for the August 2018 are not reported as they were not detected in any wells during the first event. Additional samples were collected from downgradient wells for Appendix III parameters in September 2018. A summary of data collected during assessment monitoring may be found in Table 1.

Chemical analysis was completed by an analytical laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP). Quality assurance and quality control (QA/QC) samples completed by the analytical laboratory included the use of laboratory reagent blanks (LRBs), continuing calibration verification (CCV) samples, and laboratory fortified blanks (LFBs).

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.9.5 statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.2 Statistical Analysis

Statistical analyses for the LF were conducted in accordance with the January 2017 *Statistical Analysis Plan* (AEP, 2017), except where noted below. Time series plots and results for all completed statistical tests are provided in Attachment B.

The data obtained to meet the requirements of 40 CFR 257.95(b) and 257.95(d)(1) were screened for potential outliers. The reported chromium value of 0.068 milligrams per liter (mg/L) for the January 20, 2017 sampling event at background well AD-17 was removed as an outlier. The reported lithium value of 0.024 mg/L for the July 29, 2016 sampling event at compliance well AD-14 was also removed as an outlier.

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV parameter in accordance with 40 CFR 257.95(h) and the *Statistical Analysis Plan* (AEP, 2017). The established GWPS was determined to be the greater value of the background concentration and the maximum contaminant level (MCL) or regional screening level (RSL) for each Appendix IV parameter. To determine background concentrations, an upper tolerance limit (UTL) was calculated using pooled data from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for barium, beryllium, and combined radium. Non-parametric tolerance limits were calculated for arsenic, chromium, cobalt, lithium, mercury, molybdenum, and selenium due to apparent non-normal distributions; for antimony, fluoride, lead, and thallium due to a high non-detect frequency; and for cadmium due to both an apparent non-normal distribution and a high non-detect frequency. Tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$); however, non-parametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the non-detect frequency was too high). An SSL was concluded if the lower confidence limit (LCL) exceeded the GWPS (i.e., if the entire confidence interval exceeded the GWPS). Calculated confidence limits are shown in Attachment B.

No SSLs were identified at the Welsh LF.

2.2.3 Evaluation of Potential Appendix III SSIs

The CCR rule allows CCR units to move from assessment monitoring to detection monitoring if all Appendix III and Appendix IV parameters were at or below background levels for two consecutive sampling events [40 CFR 257.95(e)]. Since no Appendix IV SSLs were identified, Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations.

Prediction limits were calculated for the Appendix III parameters to represent background values. As described in the January 2018 *Statistical Analysis Summary* report (Geosyntec, 2018), intrawell tests were used to evaluate potential SSIs for calcium, chloride, and pH, whereas interwell tests were used to evaluate potential SSIs for boron, fluoride, TDS, and sulfate.

Wells AD-1 and AD-17 were added to the monitoring well network following completion of the background statistics. Thus, the prediction limits were recalculated using both the background data from AD-1 and AD-17 and the data collected during the 2018 assessment monitoring events. Intrawell tests were selected for calcium, chloride, TDS, and sulfate, whereas interwell tests were selected for boron, fluoride and pH.

Data collected from each compliance well were compared to the prediction limits to evaluate SSIs. The results from this event and the prediction limits are summarized in Table 3. While the prediction limits were calculated assuming a 1-of-2 testing procedures, it was conservatively assumed that an SSI was identified if the initial sample exceeded either the lower prediction limit (LPL) or the upper prediction limit (UPL) based on results from previously unsuccessful alternative source demonstrations (ASDs). The following exceedances of the LPLs/UPLs were noted:

- Boron concentrations exceeded the interwell UPL of 0.77 mg/L at AD-11 (1.84 mg/L), AD-13 (1.49 mg/L), and AD-14 (1.51 mg/L).
- Chloride concentrations exceeded the intrawell UPLs of 12.6 mg/L at AD-11 (15.0 mg/L), and 6.45 mg/L at AD-14 (12.00 mg/L).
- The pH value was below the interwell LPL of 4.29 SU at AD-14 (4.27 SU).
- The sulfate concentration exceeded the intrawell UPL of 131 mg/L at AD-14 (204 mg/L).
- The TDS concentration exceeded the intrawell UPL of 325 mg/L at AD-14 (384 mg/L).

Based on these results, concentrations of Appendix III parameters exceeded background levels at compliance wells at the Welsh LF during assessment monitoring. As a result, the Welsh LF CCR unit will remain in assessment monitoring.

2.3 Conclusions

Three assessment monitoring events were conducted in 2018 in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified no potential outliers in the 2018 data. GWPSs were established for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPS. No SSLs were identified.

The Appendix III results were evaluated to assess whether concentrations of Appendix III parameters exceeded background levels. The prediction limits were recalculated using data from additional background wells and the 2018 sampling events. Intrawell tests were used to evaluate for calcium, chloride, TDS, and sulfate exeedances, whereas interwell tests were used to evaluate for boron, fluoride and pH exceedances. Boron, chloride, pH, sulfate, and TDS results exceeded background levels.

Based on this evaluation, the Welsh LF CCR unit will remain in assessment monitoring.

SECTION 3

REFERENCES

American Electric Power (AEP). 2017. Statistical Analysis Plan – Welsh Plant. January 2017.

Geosyntec Consultants (Geosyntec). 2018. Statistical Analysis Summary – Landfill, J. Robert Welsh Plant, Pittsburg, Texas. January 15, 2018.

TABLES

Table 1 – Groundwater Data Summary
Welsh – Landfill

Geosyntec Consultants, Inc.

Parameter	Unit	AD-1		AD-5		AD-11			AD-13			AD-14			AD-17	
		5/24/2018	8/14/2018	5/24/2018	8/15/2018	5/23/2018	8/15/2018	9/17/2018	5/23/2018	8/14/2018	9/17/2018	5/23/2018	8/14/2018	9/17/2018	5/24/2018	8/15/2018
Antimony	mg/L	0.00317 J	0.0000300 J	0.005 U	0.0000100 J	0.005 U	0.0000200 J	-	0.005 U	0.0000300 J	-	0.005 U	0.0000100 J	-	0.005 U	0.0000200 J
Arsenic	mg/L	0.005 U	0.000210	0.005 U	0.00169	0.00260 J	0.00105	-	0.005 U	0.00137	-	0.005 U	0.000390	-	0.005 U	0.00183
Barium	mg/L	0.0799	0.0630	0.0712	0.0637	0.0163	0.0119	-	0.0265	0.0169	-	0.0282	0.0240	-	0.00965	0.0128
Beryllium	mg/L	0.000390 J	0.000482	0.001 U	0.0000550	0.000890 J	0.00118	-	0.000870 J	0.000971	-	0.000780 J	0.000854	-	0.001 U	0.0000690
Boron	mg/L	0.345	0.443	0.0501	0.0500	-	-	1.84	-	-	1.49	-	-	1.51	0.239	0.118
Cadmium	mg/L	0.001 U	0.0000200	0.000230 J	0.00000800 J	0.000180 J	0.000370	-	0.001 U	0.000310	-	0.00161	0.00199	-	0.00646	0.000250
Calcium	mg/L	10.2	5.95	28.1	40.5	-	-	6.61	-	-	10.1	-	-	4.51	193	187
Chloride	mg/L	4.00	5.00	22.0	19.0	-	-	15.0	-	-	18.0	-	-	12.0	39.0	40.0
Chromium	mg/L	0.001 U	0.00016	0.000800 J	0.0000720	0.000800 J	0.000257	-	0.000730 J	0.000503	-	0.001 U	0.000276	-	0.001 U	0.000604
Cobalt	mg/L	0.000350 J	0.000797	0.0142	0.0114	0.00863	0.0153	-	0.00937	0.0131	-	0.0143	0.0176	-	0.0717	0.0435
Combined Radium	pCi/L	1.98	1.10	1.95	0.316	1.91	2.57	-	2.16	4.07*	-	1.60	1.50*	-	1.94	2.35
Fluoride	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	-	0.653 J	0.7442 J	-	1 U	1 U	-	1 U	1 U
Lead	mg/L	0.005 U	NR	0.005 U	NR	0.005 U	0.00142	-	0.005 U	0.00100	-	0.005 U	0.000174	-	0.005 U	0.00110
Lithium	mg/L	0.00814	0.00708	0.121	0.147	0.0188	0.0175	-	0.0291	0.0321	-	0.0152	0.0110	-	0.308	0.243
Mercury	mg/L	0.00000600 J	0.0000130 J	0.000025 U	0.000025 U	0.00000700 J	0.000025 U	-	0.00000800 J	0.000025 U	-	0.000145	0.000181	-	0.000025 U	0.0000110 J
Molybdenum	mg/L	0.005 U	NR	0.005 U	NR	0.005 U	0.0000500 J	-	0.005 U	0.0000600 J	-	0.005 U	0.0000300 J	-	0.005 U	0.000350
Selenium	mg/L	0.00138 J	0.00170	0.005 U	0.0000800 J	0.00134 J	0.00240	-	0.005 U	0.00170	-	0.00362 J	0.00370	-	0.005 U	0.000300
Total Dissolved Solids	mg/L	150	160	242	428	-	-	720	-	-	620	-	-	384	1840	1750
Sulfate	mg/L	43.0	44.0	60.0	240	-	-	410	-	-	316	-	-	204	1070	1170
Thallium	mg/L	0.002 U	0.0000300 J	0.002 U	0.01 U	0.0460	0.000200	-	0.002 U	0.000277	-	0.002 U	0.000242	-	0.002 U	0.000074
pH	SU	2.19	5.18	6.22	6.23	4.05	4.73	-	4.52	4.82	-	4.17	4.27	-	6.28	5.60

Notes:
mg/L: milligrams per liter
pCi/L: picocuries per liter
SU: standard unit
U: Parameter was not present in concentrations above the method detection limit and is reported as the reporting limit
J: Estimated value. Parameter was detected in concentrations below the reporting limit
-: Not sampled
NR: Values are not reported as this parameter was not detected during the May 2018 event at any wells
*Sample collected on 8/15/2018
The fluoride values collected in August 2018 were also used in Appendix III analyses.

Table 2: Groundwater Protection Standards
Welsh Plant - Landfill

Constituent Name	MCL	RSL	Background Limit
Antimony, Total (mg/L)	0.006		0.005
Arsenic, Total (mg/L)	0.01		0.005
Barium, Total (mg/L)	2		0.36
Beryllium, Total (mg/L)	0.004		0.00077
Cadmium, Total (mg/L)	0.005		0.0065
Chromium, Total (mg/L)	0.1		0.004
Cobalt, Total (mg/L)	n/a	0.006	0.075
Combined Radium, Total (pCi/L)	5		4.21
Fluoride, Total (mg/L)	4		1
Lead, Total (mg/L)	n/a	0.015	0.005
Lithium, Total (mg/L)	n/a	0.04	0.39
Mercury, Total (mg/L)	0.002		0.000033
Molybdenum, Total (mg/L)	n/a	0.1	0.005
Selenium, Total (mg/L)	0.05		0.005
Thallium, Total (mg/L)	0.002		0.002

Notes:
Grey cell indicates calculated UTL (Upper Tolerance Limit) is higher than MCL.
MCL = Maximum Contaminant Level
RSL = Regional Screening Level
Calculated UTL represents site-specific background values.
The higher of the calculated UTL or MCL/RSL is used as the GWPS.

Table 3: Appendix III Data Evaluation
Welsh Plant - Landfill

Geosyntec Consultants, Inc.

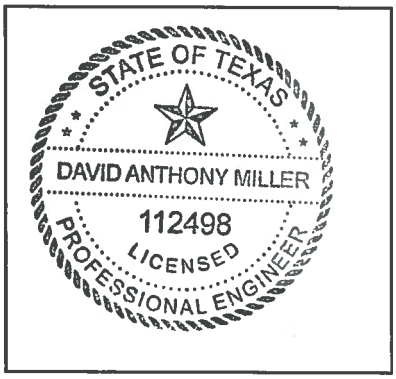
Parameter	Units	Description	AD-11	AD-13	AD-14
			9/17/2018	9/17/2018	9/17/2018
Boron	mg/L	Interwell Background Value (UPL)	0.77		
	mg/L	Assessment Monitoring Result	**1.84**	**1.49**	**1.51**
Calcium	mg/L	Intrawell Background Value (UPL)	11.4	38.5	13.9
	mg/L	Assessment Monitoring Result	6.61	10.1	4.51
Chloride	mg/L	Intrawell Background Value (UPL)	12.6	24.0	6.45
	mg/L	Assessment Monitoring Result	**15**	18	**12**
Fluoride	mg/L	Interwell Background Value (UPL)	1.0		
	mg/L	Assessment Monitoring Result	<0.083	0.744	<0.83
pH	SU	Interwell Background Value (UPL)	7.05		
	SU	Interwell Background Value (LPL)	4.29		
	SU	Assessment Monitoring Result	4.73	4.82	**4.27**
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	1224	974	325
	mg/L	Assessment Monitoring Result	720	620	**384**
Sulfate	mg/L	Intrawell Background Value (UPL)	833	342	131
	mg/L	Assessment Monitoring Result	410	316	**204**

Notes:
UPL: Upper prediction limit
LPL: Lower prediction limit
Bold values exceed the background value.
Background values are shaded gray.
Fluoride and pH analyzed on 8/14-8/15/2018

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Welsh Landfill CCR management area and that the requirements of 40 CFR 257.93(f) have been met.



DAVID ANTHONY MILLER
Printed Name of Licensed Professional Engineer

David Anthony Miller
Signature

112498	TEXAS	01.08.19
License Number	Licensing State	Date

ATTACHMENT B

Statistical Analysis Output

GROUNDWATER STATS CONSULTING

January 5, 2019

Geosyntec Consultants
Attn: Ms. Allison Kreinberg
941 Chatham Lane, #103
Columbus, OH 43221

Re: Welsh Landfill
Assessment Monitoring Event 2018

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis of the September 2018 data for American Electric Power Inc.'s Welsh Landfill. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015) as well as with the USEPA Unified Guidance (2009).

Sampling began at the site for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** AD-1, AD-5, and AD-17; and
- **Downgradient wells:** AD-11, AD-13 and AD-14

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to Groundwater Stats Consulting.

The CCR program consists of the following constituents:

- **Appendix III** (Detection Monitoring) **-** boron, calcium, chloride, fluoride, pH, sulfate, and TDS;

- **Appendix IV** (Assessment Monitoring) **–** antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium.

Time series and box plots for Appendix III and IV parameters are provided for all wells and constituents; and are used to evaluate concentrations over the entire record (Figures A and B). Data were screened for trends and outliers during December 2017 and the results of those findings were submitted with that report. A summary of flagged values follows this report (Figure C). Values previously flagged as outliers may also be seen in a lighter font and disconnected symbol on the time series graphs. Since the original background screening, upgradient wells AD-1 and AD-17 were approved during 2018 for use as background wells at the Welsh Landfill. These data were previously evaluated during the November 2017 background screening as part of the Welsh PBAP monitoring well network, and no additional adjustments were required to the data sets. Data were, however, re-evaluated to determine the most appropriate statistical method, as described below, with the addition of the data from these upgradient wells.

Determination of Statistical Method

Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach (Figure D). Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

The ANOVA identified variation for the following Appendix III parameters: boron, calcium, chloride, sulfate and TDS suggesting intrawell methods should be considered. No differences were noted for fluoride and pH; therefore, these parameters are eligible for interwell prediction limits. Boron, calcium, chloride, sulfate and TDS data were further evaluated as described below for the appropriateness of intrawell testing to accommodate the groundwater quality. A summary table of the ANOVA results is included with the reports.

Appendix III - Statistical Limits

Intrawell limits constructed from carefully screened background data from within each well serve to provide statistical limits that are conservative (i.e. lower) from a regulatory perspective, and will rapidly identify a change in more recent compliance data from within a given well. This statistical method removes the element of variation from across wells and eliminates the chance of mistaking natural spatial variation for a release from the facility. Prior to performing intrawell prediction limits, several steps are required to reasonably demonstrate downgradient water quality does not have existing impacts from the practices of the facility.

Exploratory data analysis was used as a general comparison of concentrations in downgradient wells for all Appendix III parameters recommended for intrawell analyses to concentrations reported in the upgradient well. Upper tolerance limits are used in conjunction with confidence intervals to determine whether the estimated averages in downgradient wells are higher than observed levels upgradient of the facility. The upper tolerance limits were constructed to represent the extreme upper range of possible background levels at the site.

In cases where downgradient average concentrations are higher than observed concentrations upgradient for a given constituent, an independent study and hydrogeological investigation would be required to identify local geochemical conditions and expected groundwater quality for the region to justify an intrawell approach. Such an assessment is beyond the scope of services provided by Groundwater Stats Consulting. When there is not an obvious explanation for observed concentration differences in downgradient wells relative to reported concentrations in the upgradient well, interwell prediction limits will initially be selected for the statistical method until further evidence shows that concentrations are due to natural variation rather than a result of the facility.

Parametric tolerance limits were constructed with a target of 99% confidence and 95% coverage using upgradient well data for each of the Appendix III parameters (Figure E). The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. As more data are collected, the background population is better represented and the confidence and coverage levels increase.

Confidence intervals were constructed on downgradient wells for each of the Appendix III parameters, using the tolerance limits discussed above, to determine intrawell eligibility (Figure F). When the entire confidence interval is above a background standard for a given parameter, interwell methods are initially recommended as the statistical method.

Therefore, only parameters with confidence intervals which did not exceed background standards are eligible for intrawell prediction limits.

Confidence intervals for the above parameters were found to be within their respective background limit for all parameters except boron. Therefore, intrawell methods are recommended for calcium, chloride, sulfate and TDS; and interwell methods are initially recommended for boron, fluoride and pH. As mentioned earlier, if a demonstration supports natural variation in groundwater, intrawell methods will be considered for all parameters.

All available data through June 2017 at each well were used to establish intrawell background limits for the parameters identified above based on a 1-of-2 resample plan that will be used for future comparisons (Figure G). Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed from upgradient wells AD-1, AD-5 and AD-17 (Figure H). Downgradient measurements will be compared to these background limits during each subsequent semi-annual sampling event.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits will be necessary to accommodate these types of changes In the interwell case, newer data will be included in background when a minimum of 2 new samples are available. In the intrawell case, data for all wells and constituents are re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater quality. In some cases, the earlier portion of data are deselected prior to construction of limits in order to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Evaluation of Appendix III Parameters

Interwell prediction limits combined with a 1-of-2 verification strategy were constructed for boron, fluoride, and pH. Intrawell limits combined with a 1-of-2 verification strategy were constructed for calcium, chloride, sulfate and TDS.

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). If the

resample falls within the statistical limit, the initial exceedance is considered a false positive result and, therefore, no further action is necessary.

When upgradient wells exceed their background limits, it may be an indication that groundwater is changing naturally upgradient of the facility. Concentrations will continue to be monitored over the next sampling events. The results of those findings may be found in the Prediction Limit Summary tables following this letter.

When a statistically significant increase is identified, the data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing or stable (Figure I). Upgradient wells are included in the trend analyses to identify whether similar patters exist upgradient of the site which is an indication of natural variability in groundwater unrelated to practices at the site.

No statistically significant increasing or decreasing trends were found for any of the well/parameter pairs. A Trend Test summary table follows this letter.

Evaluation of Appendix IV Parameters

Parametric tolerance limits were used to calculate background limits from pooled upgradient well data for Appendix IV parameters with a target of 95% confidence and 95% coverage to determine the Alternate Contaminant Level (ACL) (Figure J). The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. These limits were compared to the Maximum Contaminant Levels (MCLs) and Regional Screening Levels (RSLs) in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure K).

Confidence intervals were then constructed on downgradient wells for each of the Appendix IV parameters using the highest limit of either the MCL, RSL, or ACL as discussed above (Figure L). Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. No confidence intervals exceedances were found for any of the downgradient wells. A summary of the confidence interval results follows this letter.

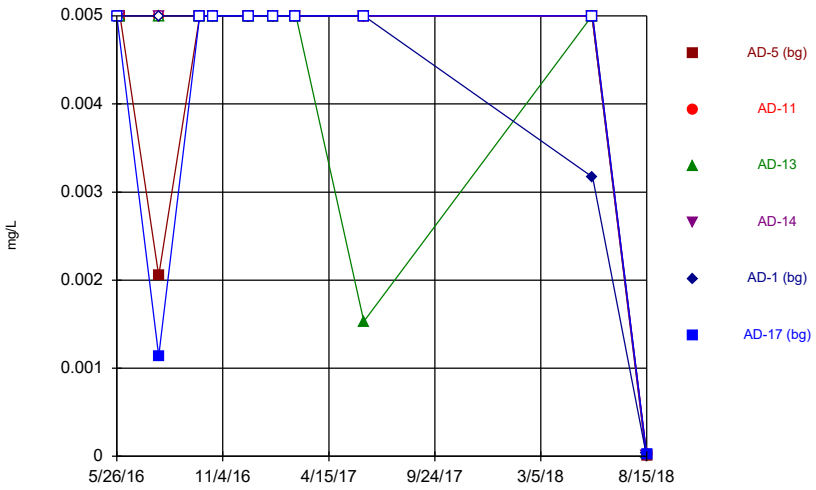
Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Welsh Landfill. If you have any questions or comments, please feel free to contact me.

For Groundwater Stats Consulting,

Kristina L. Rayner
Groundwater Statistician

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

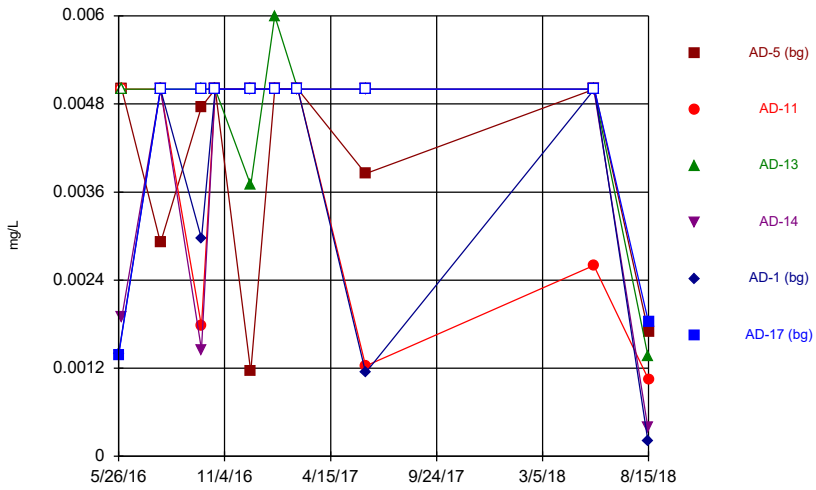
Time Series



Constituent: Antimony, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series



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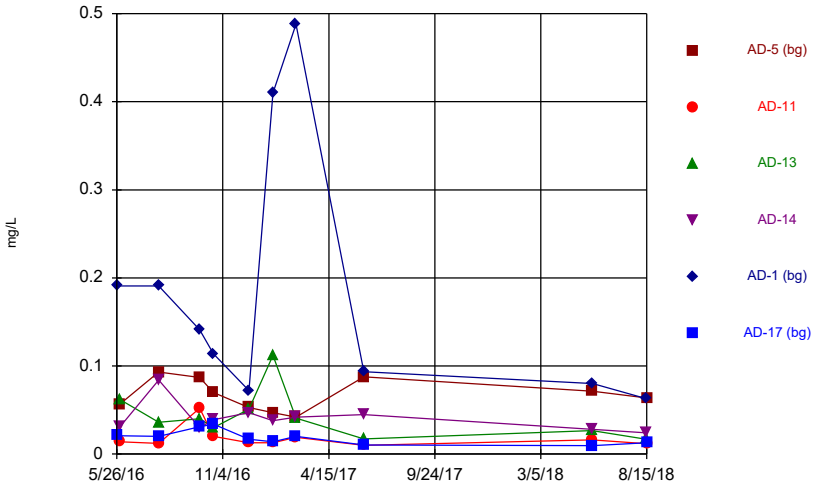
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

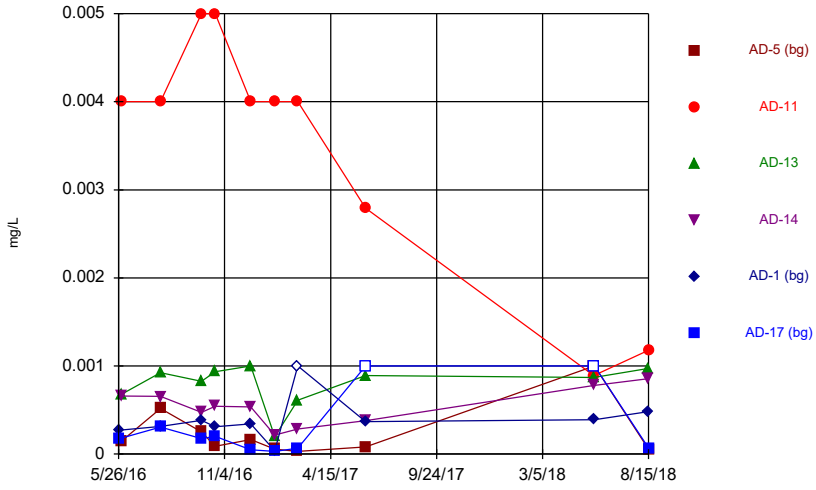
Time Series



Constituent: Barium, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

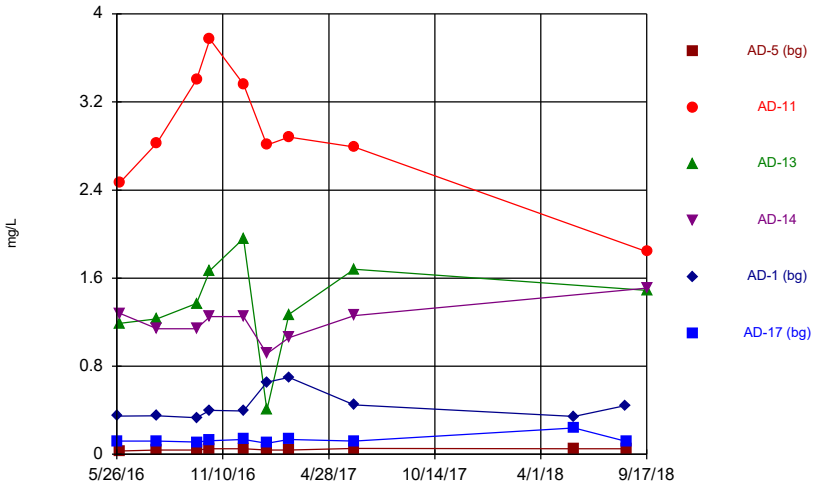
Time Series



Constituent: Beryllium, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

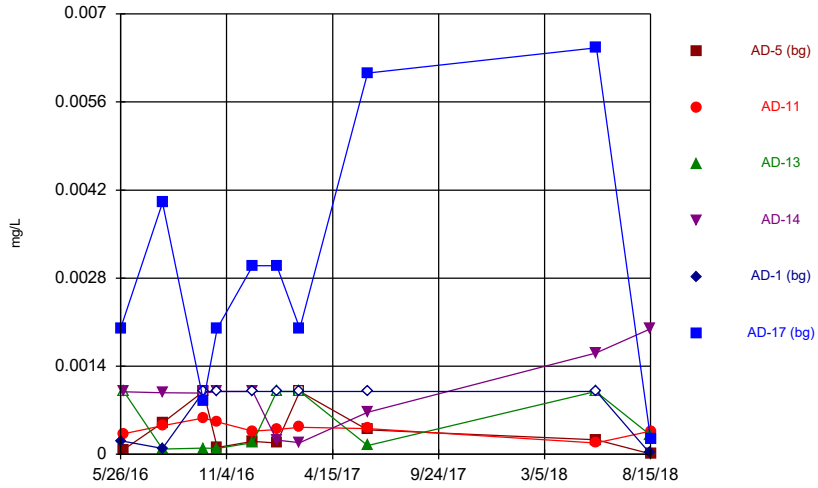
Time Series



Constituent: Boron, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

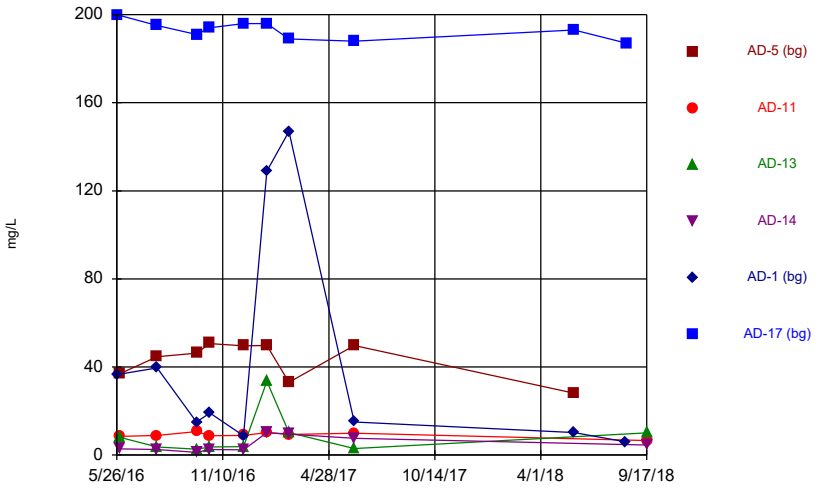
Time Series



Constituent: Cadmium, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

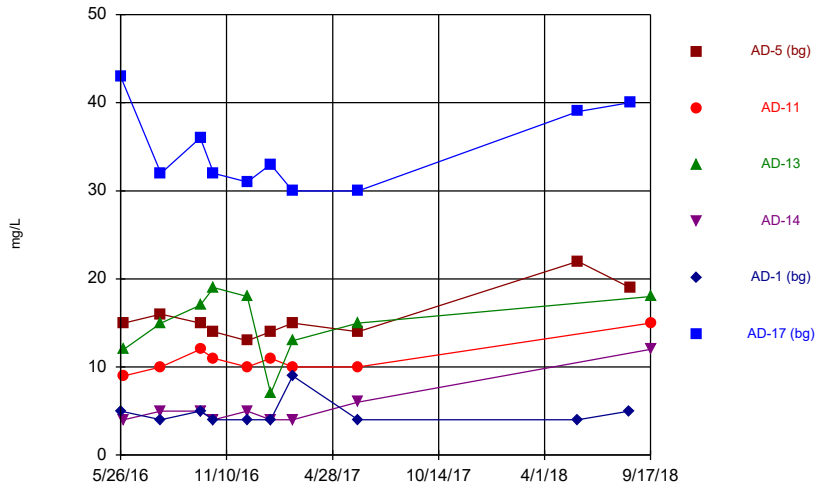
Time Series



Constituent: Calcium, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

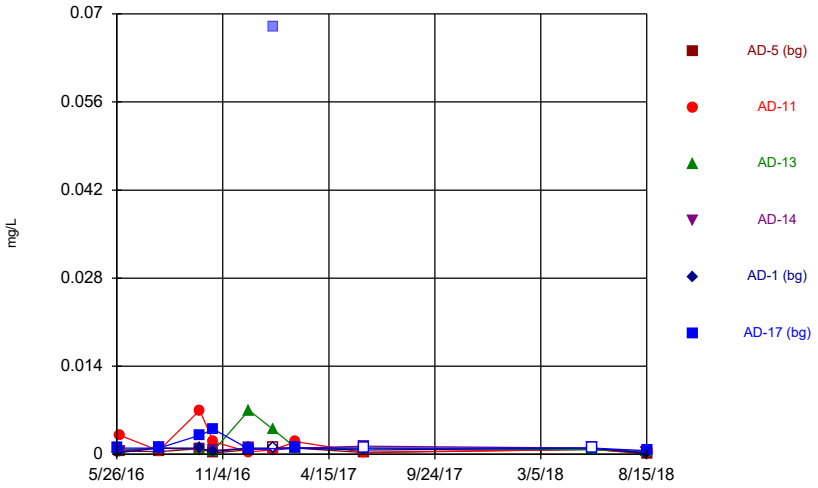
Time Series



Constituent: Chloride, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

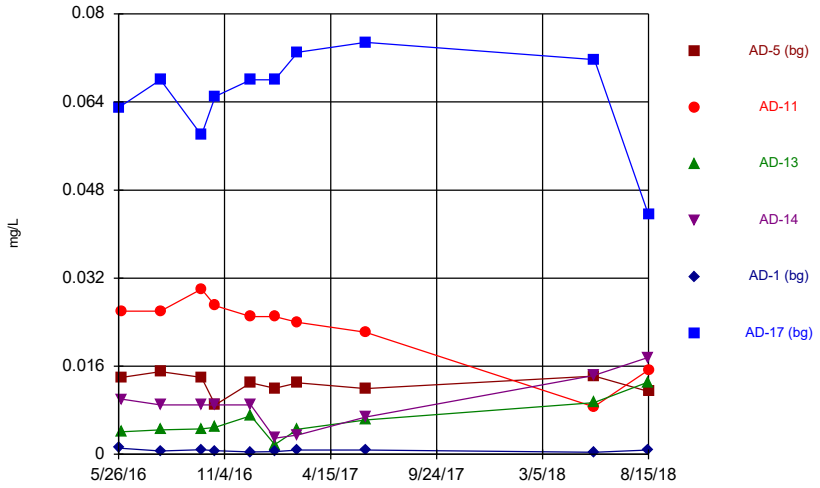
Time Series



Constituent: Chromium, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

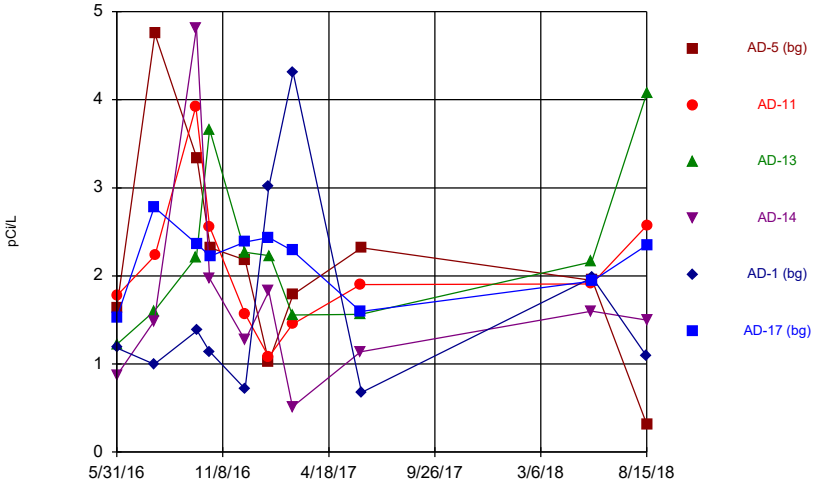
Time Series



Constituent: Cobalt, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

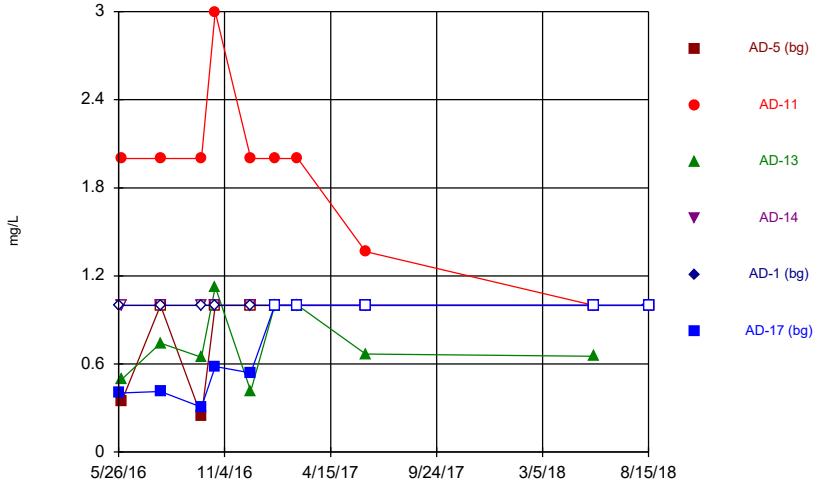
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

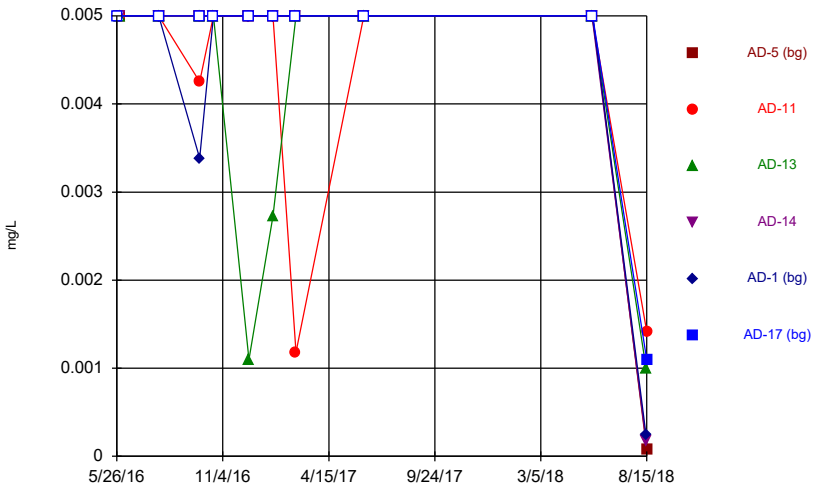
Time Series



Constituent: Fluoride, total Analysis Run 12/24/2018 8:54 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

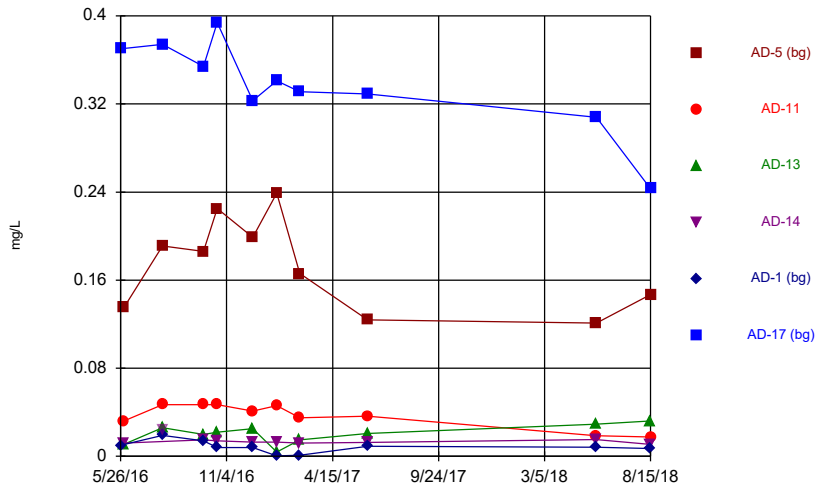
Time Series



Constituent: Lead, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

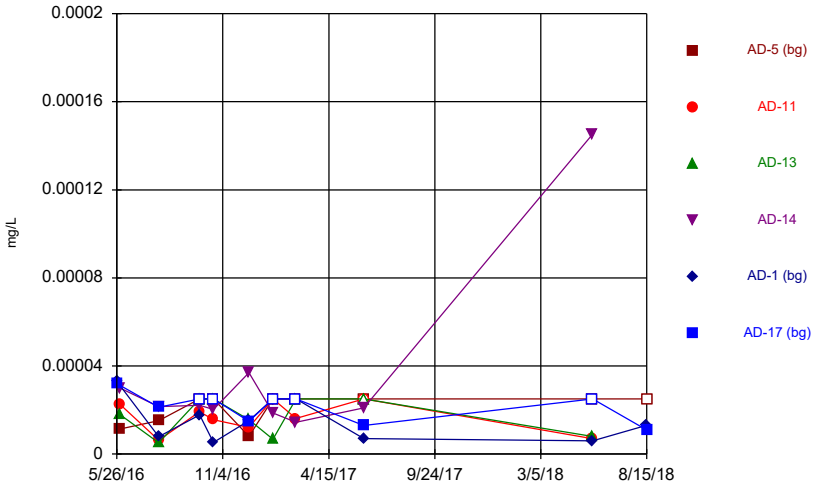
Time Series



Constituent: Lithium, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

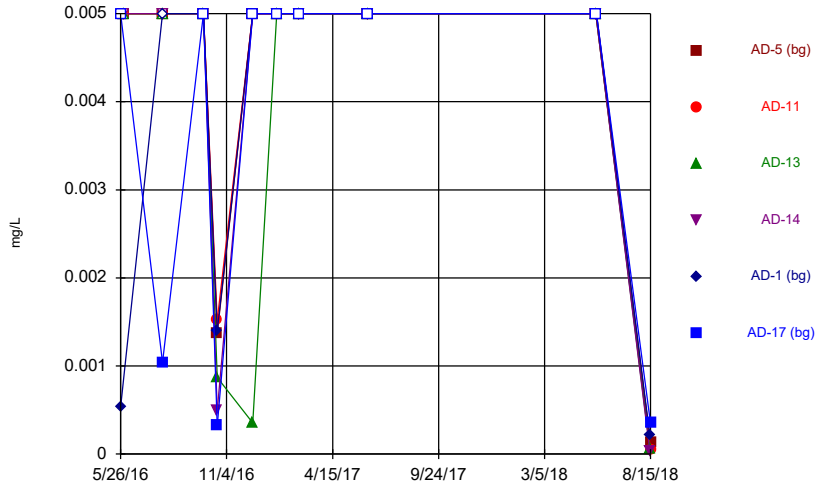
Time Series



Constituent: Mercury, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

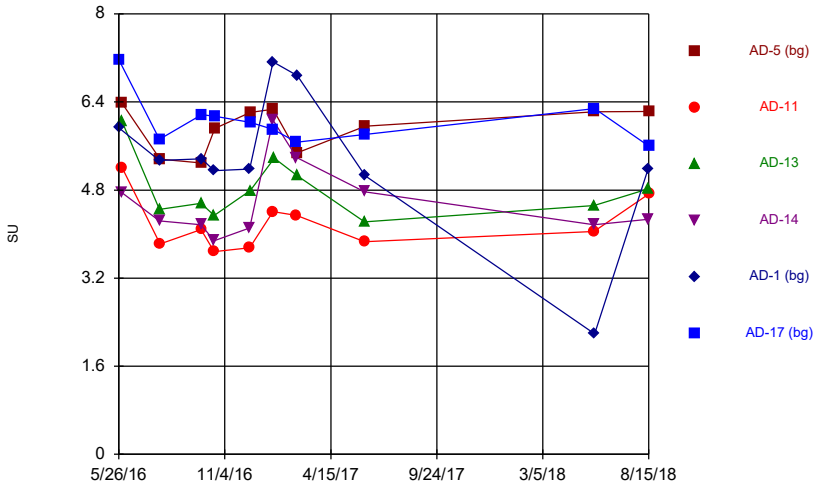
Time Series



Constituent: Molybdenum, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

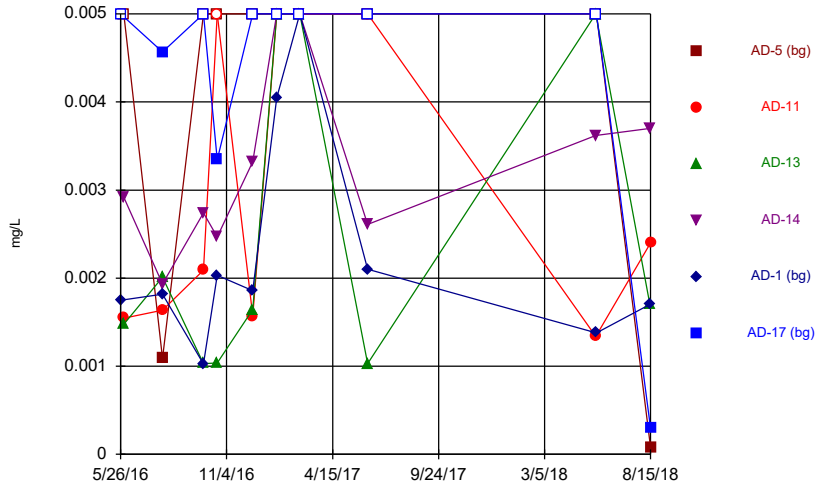
Time Series



Constituent: pH, field Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

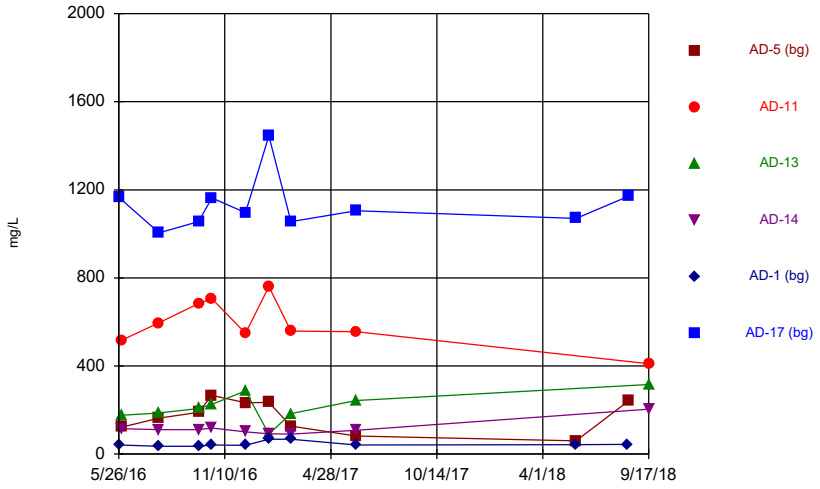
Time Series



Constituent: Selenium, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

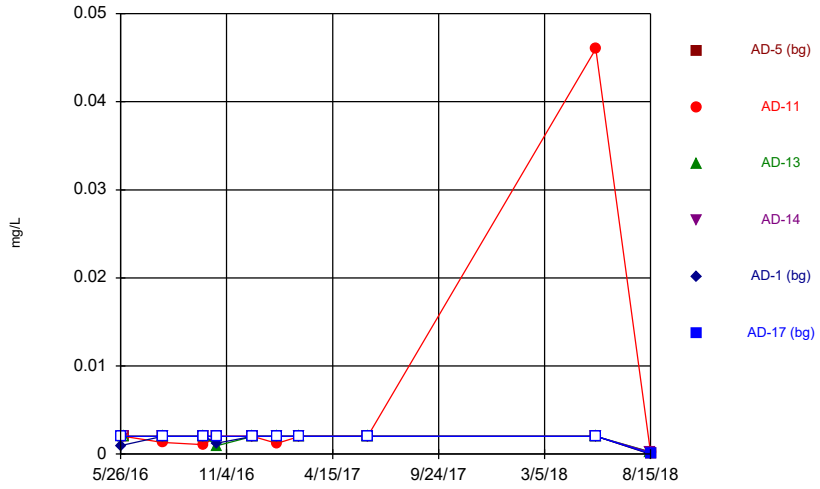
Time Series



Constituent: Sulfate, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

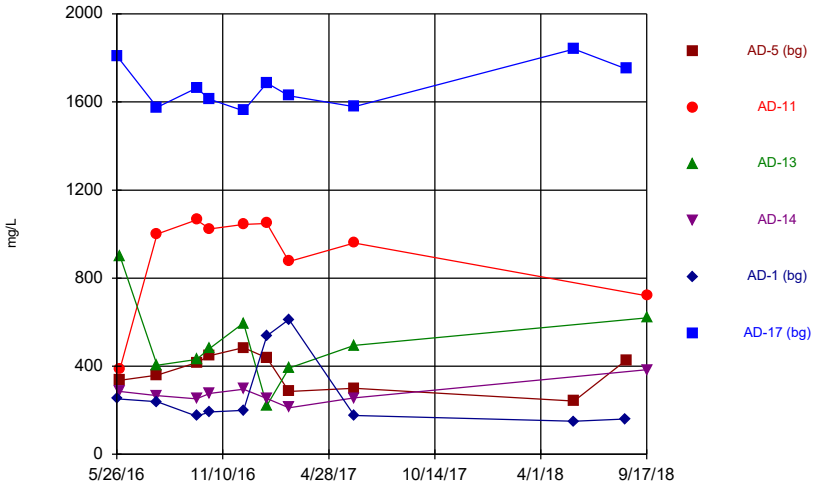
Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series



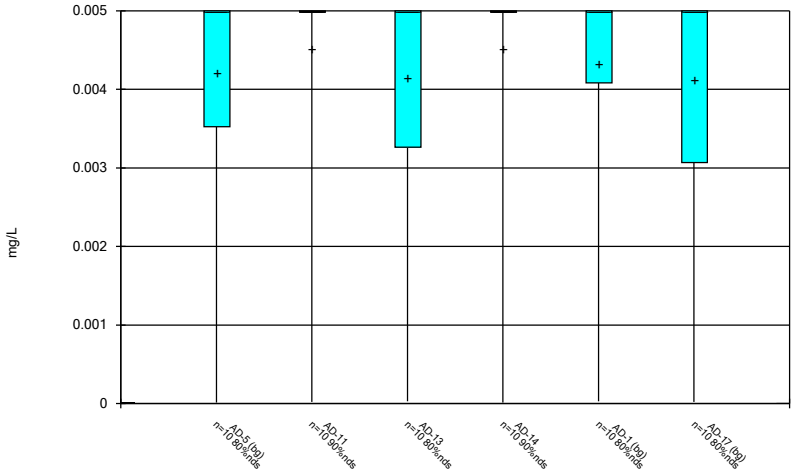
Constituent: Thallium, total Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Time Series



Constituent: Total Dissolved Solids Analysis Run 12/24/2018 8:55 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

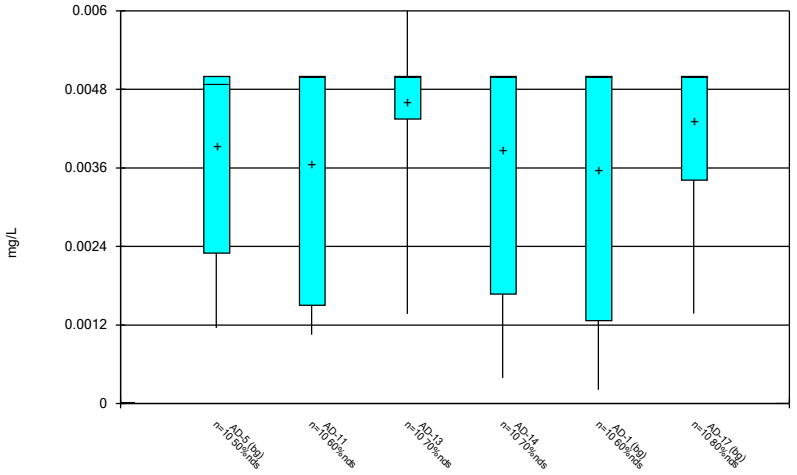
Box & Whiskers Plot



Constituent: Antimony, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

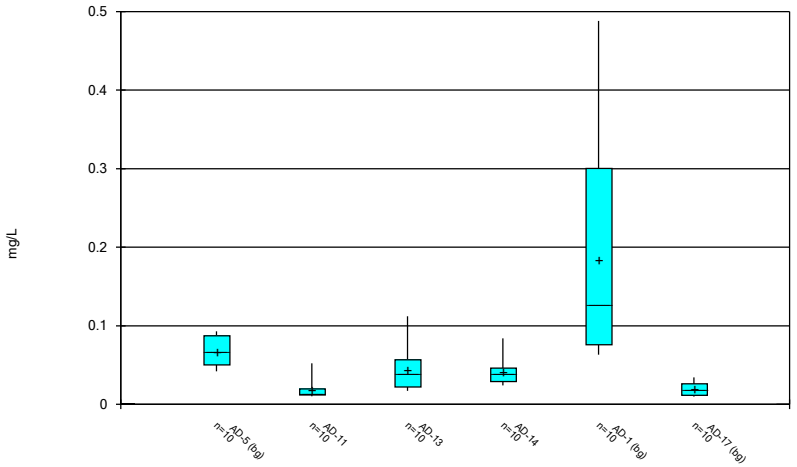
Box & Whiskers Plot



Constituent: Arsenic, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

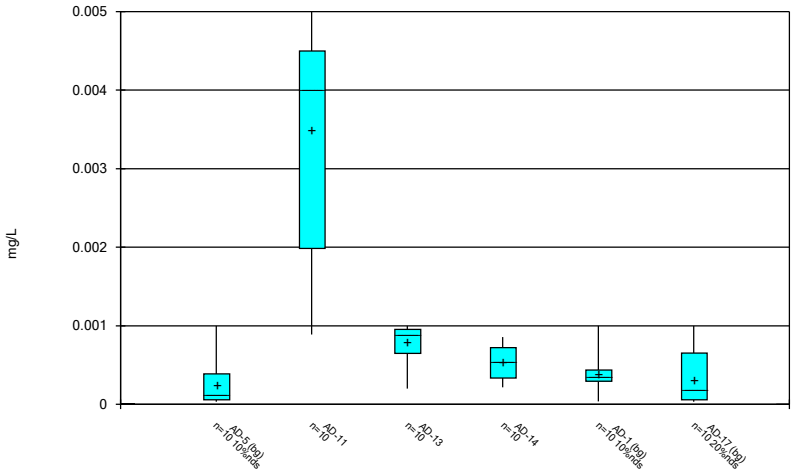
Box & Whiskers Plot



Constituent: Barium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

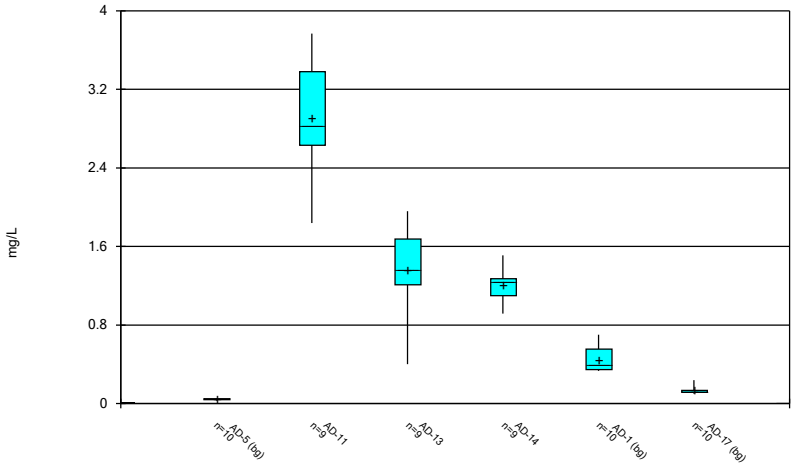
Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



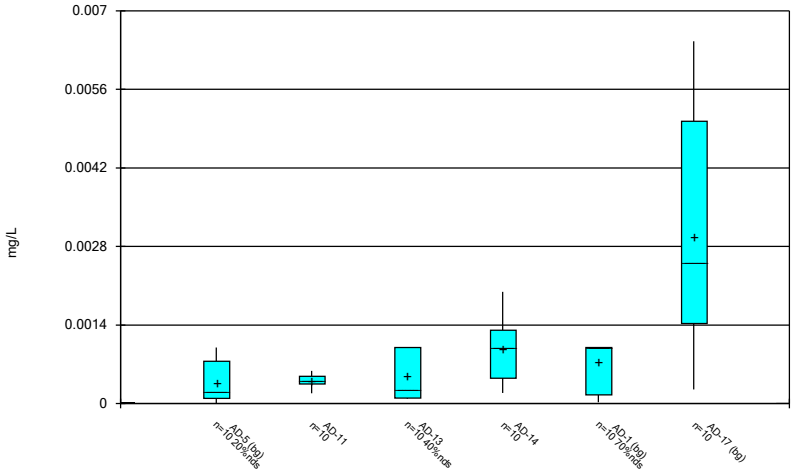
Constituent: Beryllium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Box & Whiskers Plot



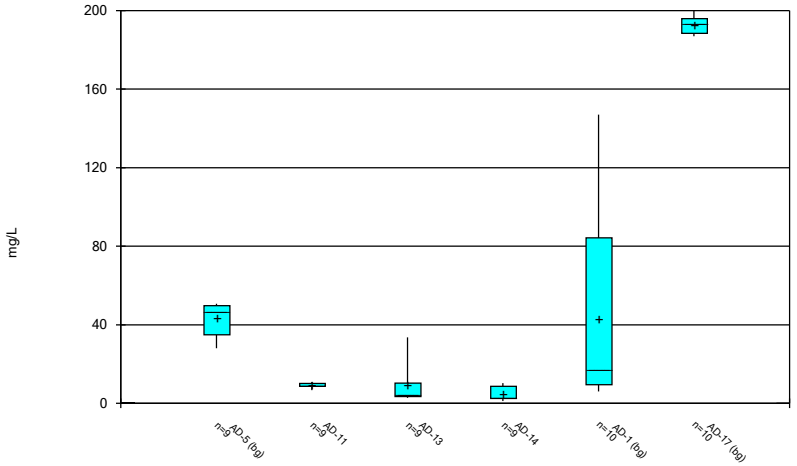
Constituent: Boron, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Box & Whiskers Plot



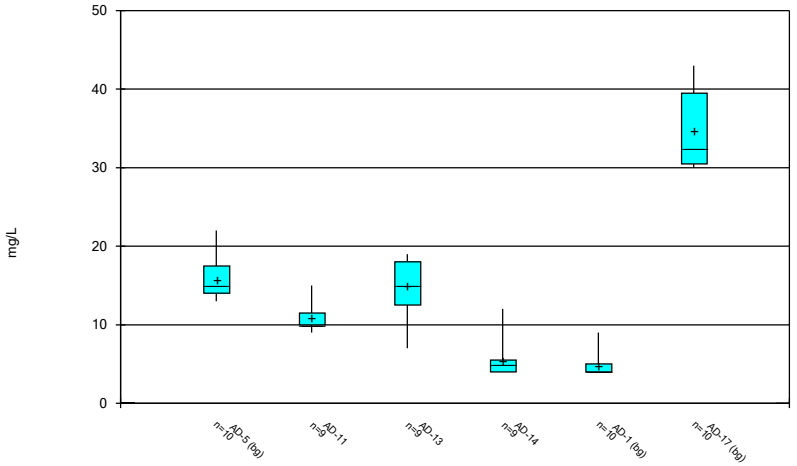
Constituent: Cadmium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Box & Whiskers Plot



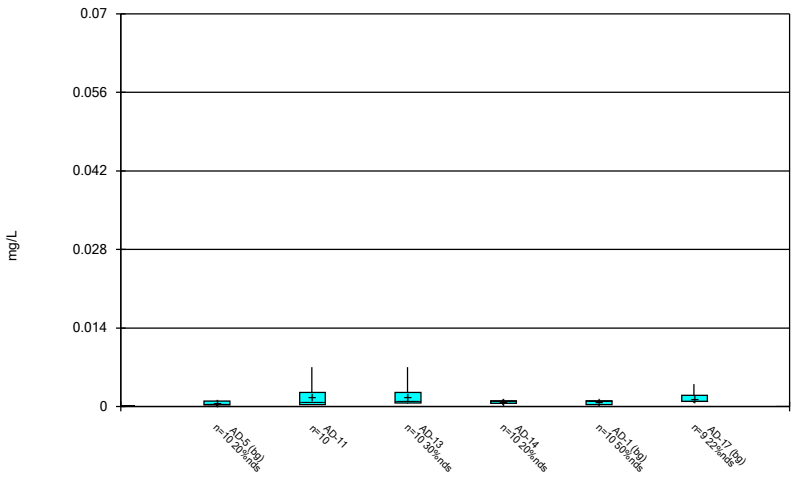
Constituent: Calcium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Box & Whiskers Plot



Constituent: Chloride, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

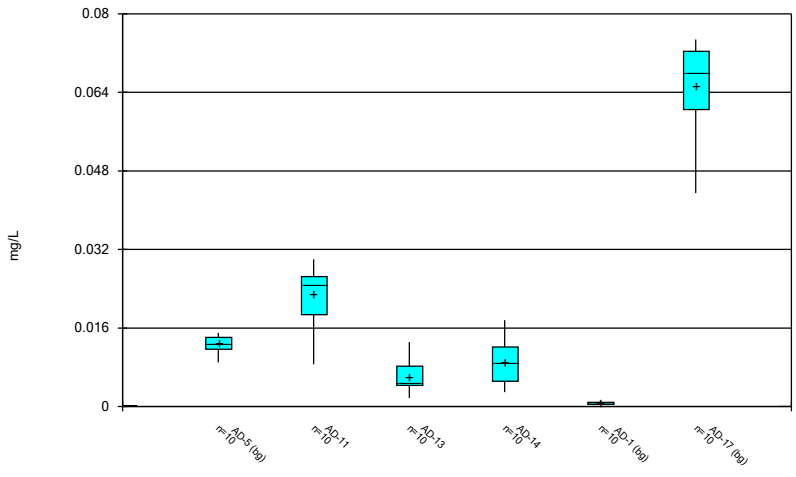
Box & Whiskers Plot



Constituent: Chromium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

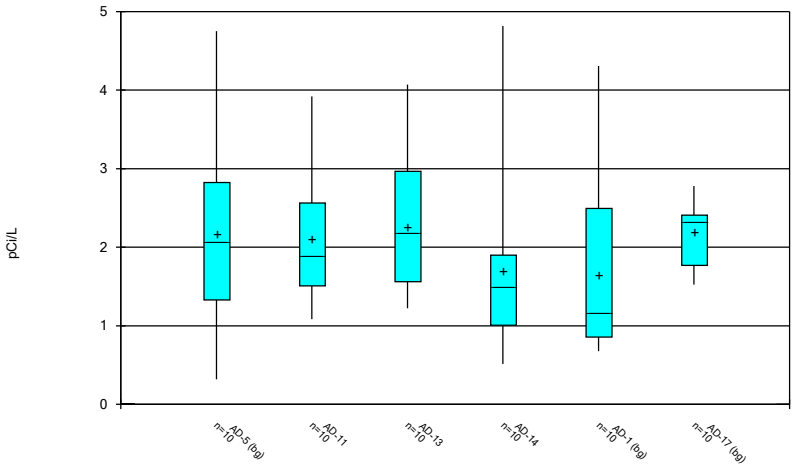
Box & Whiskers Plot



Constituent: Cobalt, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

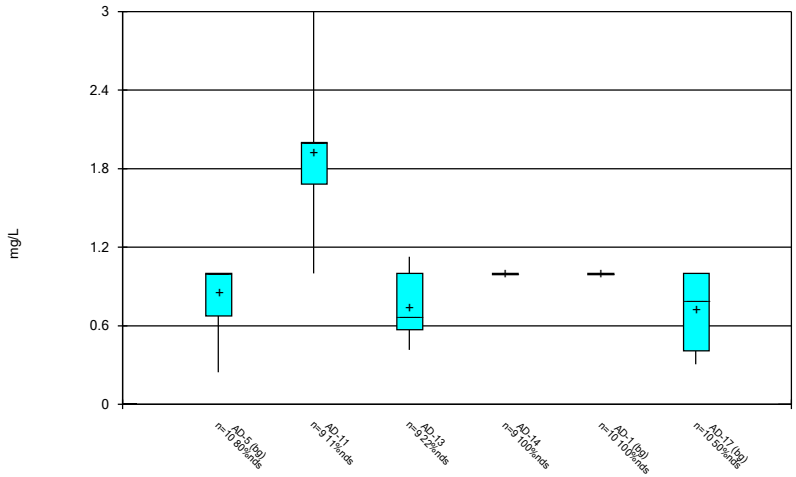
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

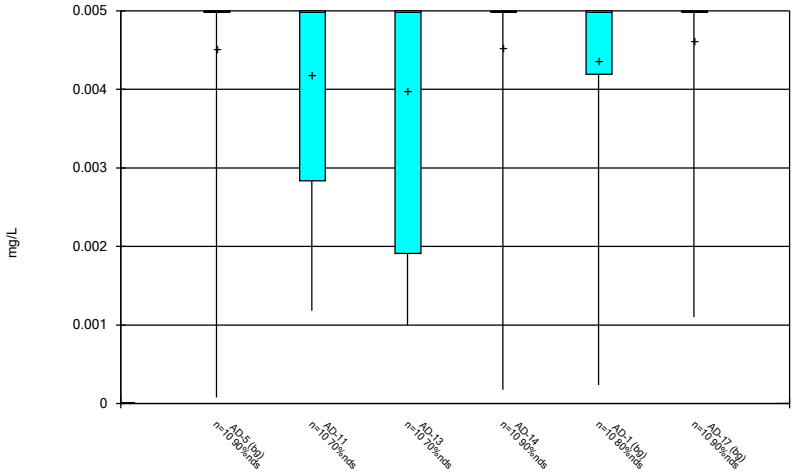
Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

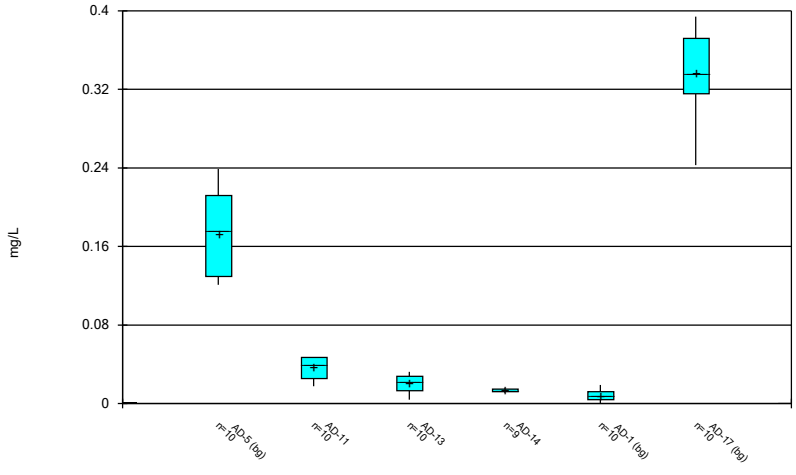
Box & Whiskers Plot



Constituent: Lead, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

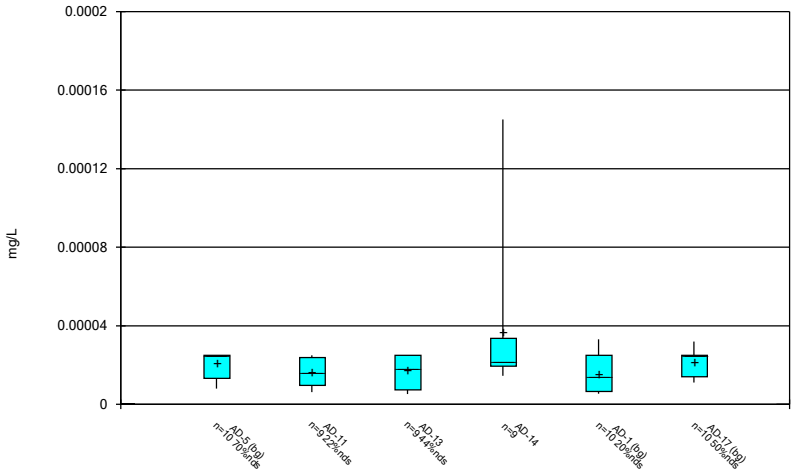
Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

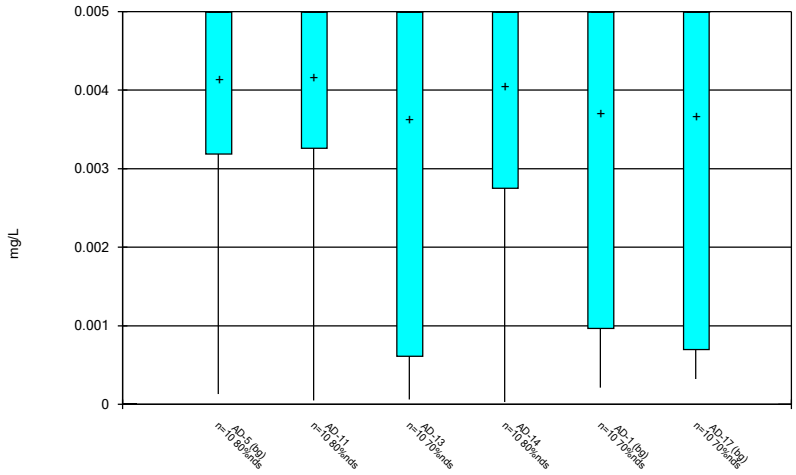
Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

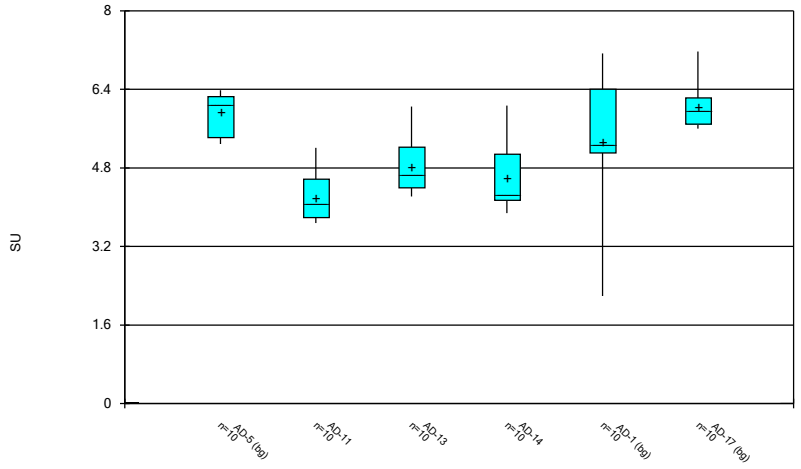
Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Molybdenum, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

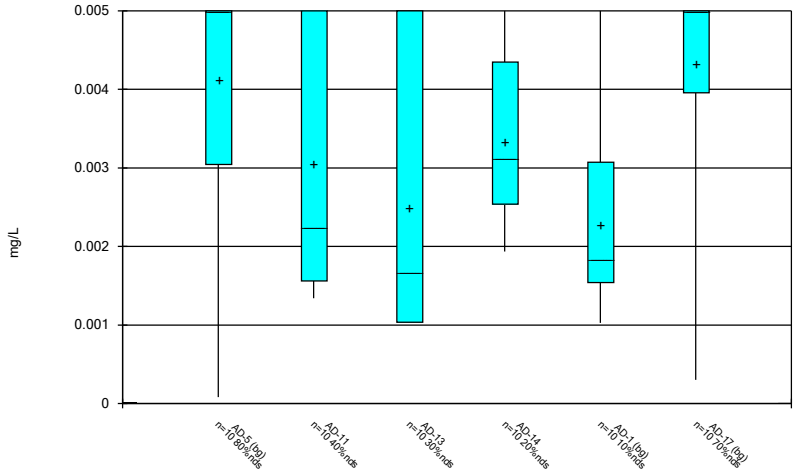
Box & Whiskers Plot



Constituent: pH, field Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

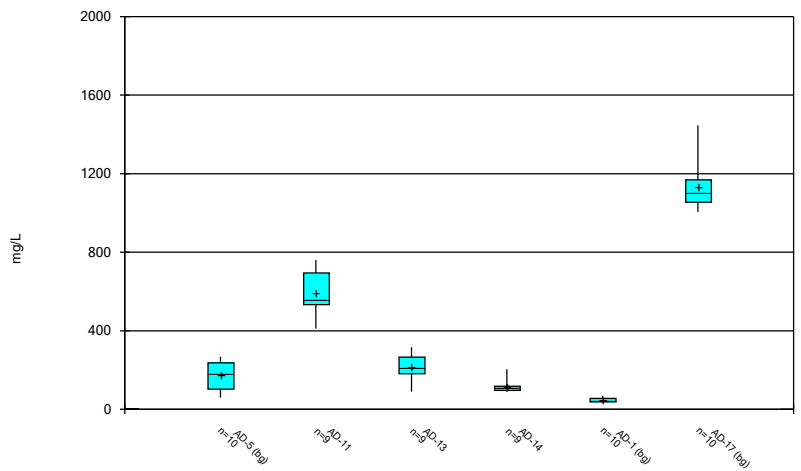
Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

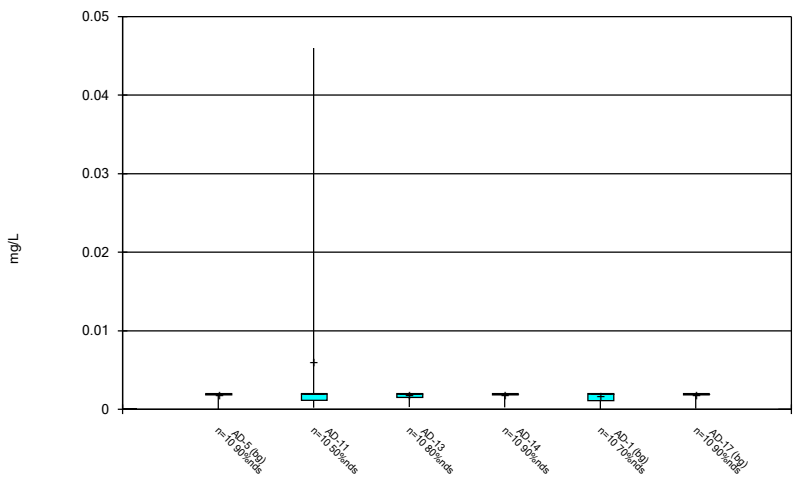
Box & Whiskers Plot



Constituent: Sulfate, total Analysis Run 12/24/2018 8:56 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

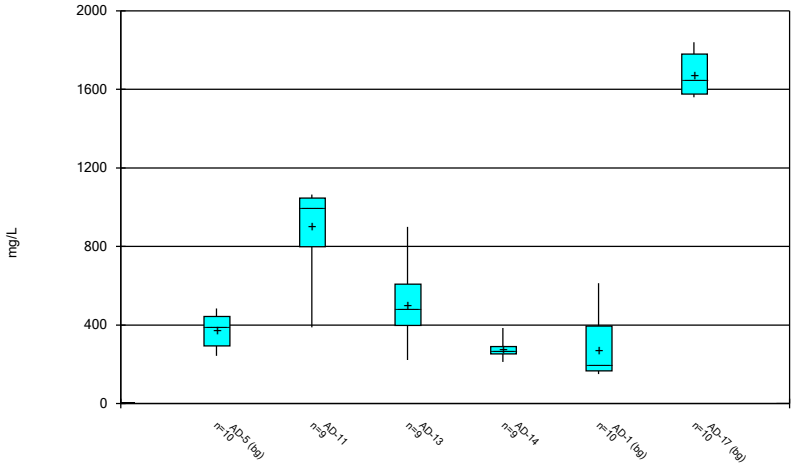
Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 12/24/2018 8:57 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 12/24/2018 8:57 AM View: Descriptive
Welsh LF Client: Geosyntec Data: Welsh LF

Outlier Summary

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/10/2018, 3:33 PM

	AD-17 Chromium, total (mg/L)	AD-14 Lithium, total (mg/L)
7/29/2016		0.024 (o)
1/20/2017	0.068 (O)	

Analysis of Variance

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/24/2018, 8:59 AM

Constituent	Well	Calc.	Crit.	Sig.	Alpha	Transform	ANOVA Sig.	Alpha	Method
Boron, total (mg/L)	n/a	n/a	n/a	n/a	n/a	ln(x)	Yes	0.05	Param.
Calcium, total (mg/L)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (normality)
Chloride, total (mg/L)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (normality)
Fluoride, total (mg/L)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (NDs)
pH, field (SU)	n/a	n/a	n/a	n/a	n/a	No	No	0.05	NP (normality)
Sulfate, total (mg/L)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (eq. var.)
Total Dissolved Solids (mg/L)	n/a	n/a	n/a	n/a	n/a	No	Yes	0.05	NP (eq. var.)

Parametric ANOVA

Constituent: Boron, total Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018 the parametric analysis of variance test (after natural log transformation) indicates VARIATION at the 5% significance level. Because the calculated F statistic is greater than the tabulated F statistic, the hypothesis of a single homogeneous population is rejected.

Calculated F statistic = 248.8

Tabulated F statistic = 3.35 with 2 and 27 degrees of freedom at the 5% significance level.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Between Groups	1.521	2	0.7604	8.064
Error Within Groups	2.546	27	0.09429	
Total	4.067	29		

The Shapiro Wilk normality test on the residuals passed after natural log transformation. Alpha = 0.01, calculated = 0.9013, critical = 0.9. Levene's Equality of Variance test passed. Calculated = 0.5384, tabulated = 3.35.

Non-Parametric ANOVA

Constituent: Calcium, total Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 20.41

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 20.41
Adjusted Kruskal-Wallis statistic (H') = 20.41

Non-Parametric ANOVA

Constituent: Chloride, total Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 26.09

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 6 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 25.81
Adjusted Kruskal-Wallis statistic (H') = 26.09

Non-Parametric ANOVA

Constituent: Fluoride, total Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 5.92

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 3.254
Adjusted Kruskal-Wallis statistic (H') = 5.92

Non-Parametric ANOVA

Constituent: pH, field Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates NO DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is less than or equal to the Chi-squared value, we conclude that no group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 4.842

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 1 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 4.841
Adjusted Kruskal-Wallis statistic (H') = 4.842

Non-Parametric ANOVA

Constituent: Sulfate, total Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 25.33

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 3 groups of ties in the data, consequently the Kruskal-Wallis statistic (H) was adjusted. The adjusted statistic (H') was utilized to determine if the medians were equal.
Kruskal-Wallis statistic (H) = 25.3
Adjusted Kruskal-Wallis statistic (H') = 25.33

Non-Parametric ANOVA

Constituent: Total Dissolved Solids Analysis Run 12/24/2018 8:59 AM View: ANOVA
Welsh LF Client: Geosyntec Data: Welsh LF

For observations made between 5/26/2016 and 8/15/2018, the non-parametric analysis of variance test indicates a DIFFERENCE between the medians of the groups tested at the 5% significance level. Because the calculated Kruskal-Wallis statistic is greater than the Chi-squared value, we conclude that at least one group has a significantly different median concentration of this constituent when compared to another group.

Calculated Kruskal-Wallis statistic = 21.53

Tabulated Chi-Squared value = 5.991 with 2 degrees of freedom at the 5% significance level.

There were 0 groups of ties in the data, so no adjustment to the Kruskal-Wallis statistic (H) was necessary.

Upper Tolerance Limits - Appendix III

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/10/2018, 4:12 PM

Constituent	Upper Lim.	Lower Lim.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Calcium, total (mg/L)	200	n/a	29	n/a	n/a	0	n/a	n/a	0.2259	NP Inter(normality)
Chloride, total (mg/L)	43	n/a	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter(normality)
Fluoride, total (mg/L)	1	n/a	30	n/a	n/a	76.67	n/a	n/a	0.2146	NP Inter(NDs)
pH, field (SU)	7.672	3.051	30	34.08	8.719	0	None	x^2	0.01	Inter
Sulfate, total (mg/L)	1445	n/a	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter(normality)
Total Dissolved Solids (mg/L)	1840	n/a	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter(normality)
Boron, total (mg/L)	0.7	n/a	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter

Confidence Intervals Appendix III - Significant Results

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/10/2018, 4:15 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Boron, total (mg/L)	**AD-11**	**3.451**	**2.36**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**
Boron, total (mg/L)	**AD-13**	**1.787**	**0.9379**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**
Boron, total (mg/L)	**AD-14**	**1.36**	**1.041**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**

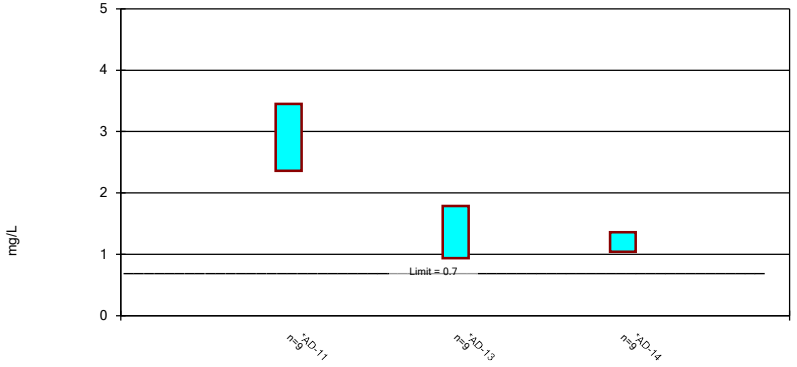
Confidence Intervals Appendix III - All Results

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/10/2018, 4:15 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Boron, total (mg/L)	**AD-11**	**3.451**	**2.36**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**
Boron, total (mg/L)	**AD-13**	**1.787**	**0.9379**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**
Boron, total (mg/L)	**AD-14**	**1.36**	**1.041**	**0.7**	**Yes**	**9**	**0**	**No**	**0.01**	**Param.**
Calcium, total (mg/L)	AD-11	10.26	7.949	200	No	9	0	No	0.01	Param.
Calcium, total (mg/L)	AD-13	33.5	2.7	200	No	9	0	No	0.002	NP (normality)
Calcium, total (mg/L)	AD-14	7.913	1.793	200	No	9	0	sqrt(x)	0.01	Param.
Chloride, total (mg/L)	AD-11	15	9	43	No	9	0	No	0.002	NP (normality)
Chloride, total (mg/L)	AD-13	18.55	11.23	43	No	9	0	No	0.01	Param.
Chloride, total (mg/L)	AD-14	12	4	43	No	9	0	No	0.002	NP (normality)
Fluoride, total (mg/L)	AD-11	3	0.5	4	No	9	11.11	No	0.002	NP (normality)
Fluoride, total (mg/L)	AD-13	1.126	0.4149	4	No	9	22.22	No	0.002	NP (Cohens/xfrm)
Fluoride, total (mg/L)	AD-14	0.5	0.5	4	No	9	100	No	0.002	NP (NDs)
pH, field (SU)	AD-11	4.693	3.693	7.67	No	10	0	No	0.005	Param.
pH, field (SU)	AD-13	5.389	4.249	7.67	No	10	0	No	0.005	Param.
pH, field (SU)	AD-14	5.262	3.909	7.67	No	10	0	sqrt(x)	0.005	Param.
Sulfate, total (mg/L)	AD-11	696.6	489	1445	No	9	0	No	0.01	Param.
Sulfate, total (mg/L)	AD-13	277.1	148.9	1445	No	9	0	No	0.01	Param.
Sulfate, total (mg/L)	AD-14	204	90	1445	No	9	0	No	0.002	NP (normality)
Total Dissolved Solids (mg/L)	AD-11	1061	796.3	1840	No	9	0	x^4	0.01	Param.
Total Dissolved Solids (mg/L)	AD-13	687.3	321.8	1840	No	9	0	No	0.01	Param.
Total Dissolved Solids (mg/L)	AD-14	319.6	232.1	1840	No	9	0	sqrt(x)	0.01	Param.

Parametric Confidence Interval

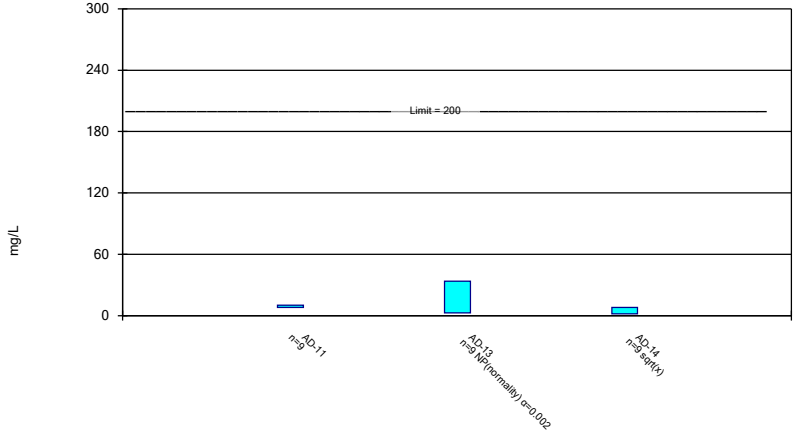
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Boron, total Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

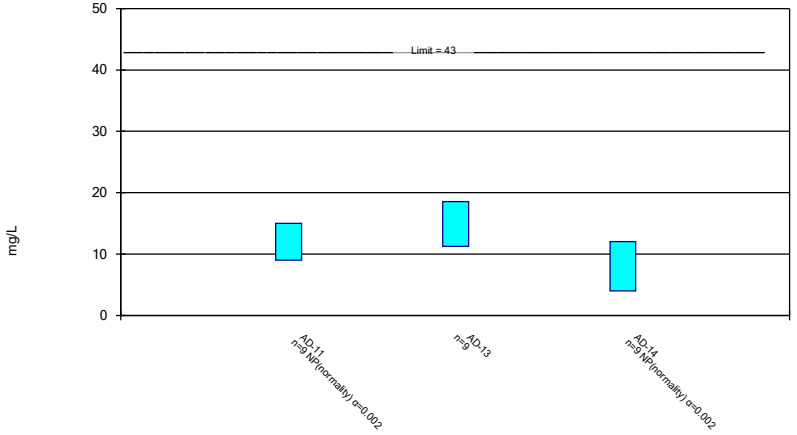
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Calcium, total Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

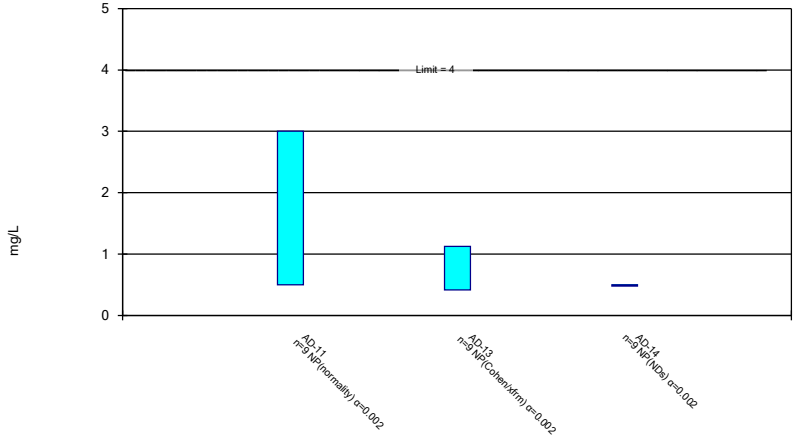
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chloride, total Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Non-Parametric Confidence Interval

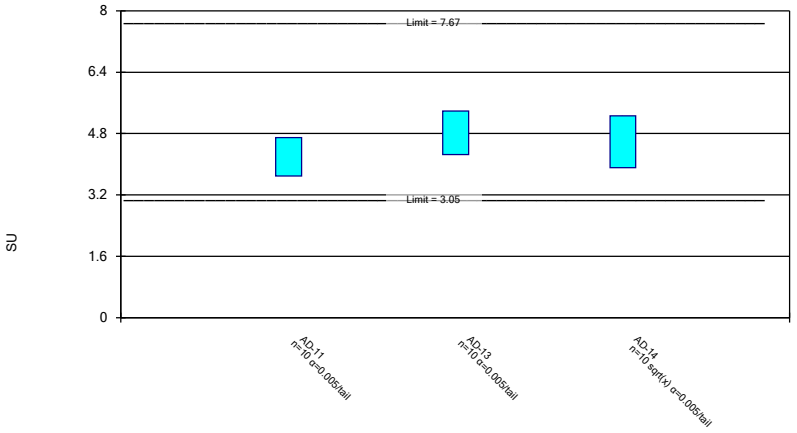
Compliance Limit is not exceeded.



Constituent: Fluoride, total Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: pH, field Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

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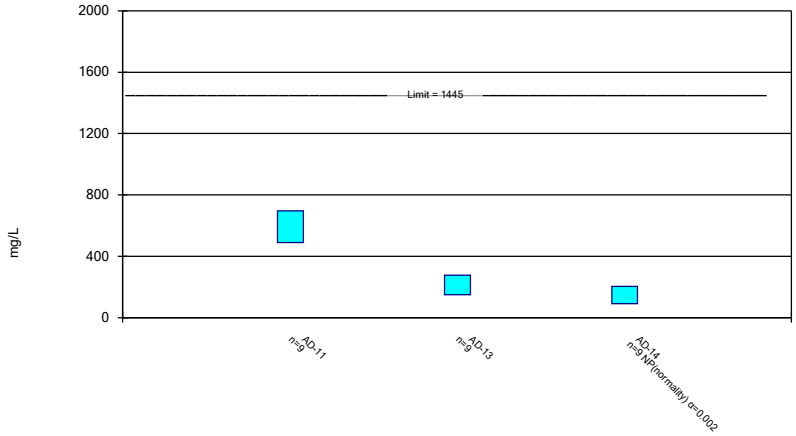
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

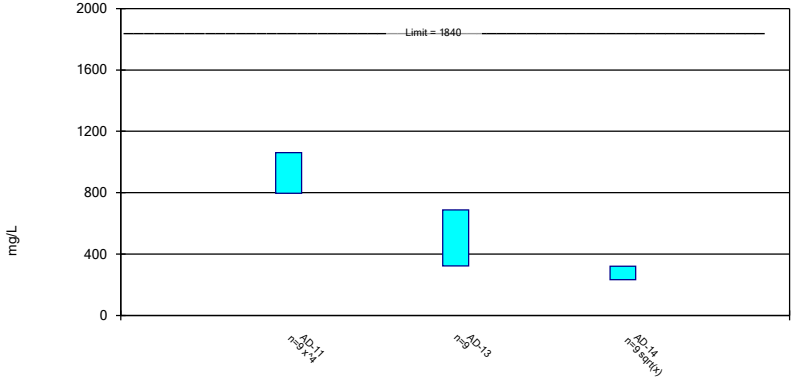


Constituent: Sulfate, total Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Total Dissolved Solids Analysis Run 12/10/2018 4:14 PM View: Confidence Intervals - App III
Welsh LF Client: Geosyntec Data: Welsh LF

Intrawell Prediction Limit Summary Table - Significant Results

Welsh LF Client: Geosyntec Data: Welsh LF Printed 1/5/2019, 11:10 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Chloride, total (mg/L)	**AD-5**	**16.78**	**n/a**	**8/15/2018**	**19**	**Yes**	**8**	**14.5**	**0.9258**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Chloride, total (mg/L)	**AD-11**	**12.63**	**n/a**	**9/17/2018**	**15**	**Yes**	**8**	**10.38**	**0.9161**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Chloride, total (mg/L)	**AD-14**	**6.454**	**n/a**	**9/17/2018**	**12**	**Yes**	**8**	**4.625**	**0.744**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Sulfate, total (mg/L)	**AD-14**	**131.3**	**n/a**	**9/17/2018**	**204**	**Yes**	**8**	**105.8**	**10.39**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Total Dissolved Solids (mg/L)	**AD-14**	**325.3**	**n/a**	**9/17/2018**	**384**	**Yes**	**8**	**262.3**	**25.65**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**

Intrawell Prediction Limit Summary Table - All Results

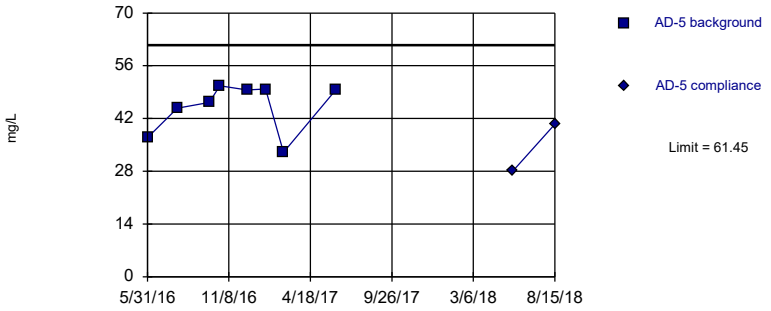
Welsh LF Client: Geosyntec Data: Welsh LF Printed 1/5/2019, 11:10 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Calcium, total (mg/L)	AD-5	61.45	n/a	8/15/2018	40.5	No	8	45.09	6.656	0	None	No	0.002505	Param Intra 1 of 2
Calcium, total (mg/L)	AD-11	11.39	n/a	9/17/2018	6.61	No	8	9.419	0.8002	0	None	No	0.002505	Param Intra 1 of 2
Calcium, total (mg/L)	AD-13	38.48	n/a	9/17/2018	10.1	No	8	1.861	0.6165	0	None	x^(1/3)	0.002505	Param Intra 1 of 2
Calcium, total (mg/L)	AD-14	13.85	n/a	9/17/2018	4.51	No	8	4.868	3.655	0	None	No	0.002505	Param Intra 1 of 2
Calcium, total (mg/L)	AD-1	224.6	n/a	8/14/2018	5.95	No	8	6.363	3.508	0	None	sqrt(x)	0.002505	Param Intra 1 of 2
Calcium, total (mg/L)	AD-17	203.5	n/a	8/15/2018	187	No	8	193.6	4.033	0	None	No	0.002505	Param Intra 1 of 2
Chloride, total (mg/L)	**AD-5**	**16.78**	**n/a**	**8/15/2018**	**19**	**Yes**	**8**	**14.5**	**0.9258**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Chloride, total (mg/L)	**AD-11**	**12.63**	**n/a**	**9/17/2018**	**15**	**Yes**	**8**	**10.38**	**0.9161**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Chloride, total (mg/L)	AD-13	23.97	n/a	9/17/2018	18	No	8	14.5	3.854	0	None	No	0.002505	Param Intra 1 of 2
Chloride, total (mg/L)	**AD-14**	**6.454**	**n/a**	**9/17/2018**	**12**	**Yes**	**8**	**4.625**	**0.744**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Chloride, total (mg/L)	AD-1	9	n/a	8/14/2018	5	No	8	n/a	n/a	0	n/a	n/a	0.02144	NP Intra (normality) ...
Chloride, total (mg/L)	AD-17	44.04	n/a	8/15/2018	40	No	8	33.38	4.34	0	None	No	0.002505	Param Intra 1 of 2
Sulfate, total (mg/L)	AD-5	336.4	n/a	8/15/2018	240	No	8	177.4	64.69	0	None	No	0.002505	Param Intra 1 of 2
Sulfate, total (mg/L)	AD-11	833.3	n/a	9/17/2018	410	No	8	615.6	88.57	0	None	No	0.002505	Param Intra 1 of 2
Sulfate, total (mg/L)	AD-13	342	n/a	9/17/2018	316	No	8	200.1	57.71	0	None	No	0.002505	Param Intra 1 of 2
Sulfate, total (mg/L)	**AD-14**	**131.3**	**n/a**	**9/17/2018**	**204**	**Yes**	**8**	**105.8**	**10.39**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Sulfate, total (mg/L)	AD-1	82.3	n/a	8/14/2018	44	No	8	6.772	0.9358	0	None	sqrt(x)	0.002505	Param Intra 1 of 2
Sulfate, total (mg/L)	AD-17	1471	n/a	8/15/2018	1170	No	8	1136	136.3	0	None	No	0.002505	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	AD-5	563.5	n/a	8/15/2018	428	No	8	383.6	73.17	0	None	No	0.002505	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	AD-11	1224	n/a	9/17/2018	720	No	8	9.0e8	3.8e8	0	None	x^3	0.002505	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	AD-13	974.4	n/a	9/17/2018	620	No	8	490.1	197	0	None	No	0.002505	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	**AD-14**	**325.3**	**n/a**	**9/17/2018**	**384**	**Yes**	**8**	**262.3**	**25.65**	**0**	**None**	**No**	**0.002505**	**Param Intra 1 of 2**
Total Dissolved Solids (mg/L)	AD-1	784.8	n/a	8/14/2018	160	No	8	16.71	4.598	0	None	sqrt(x)	0.002505	Param Intra 1 of 2
Total Dissolved Solids (mg/L)	AD-17	1840	n/a	8/15/2018	1750	No	8	1639	81.77	0	None	No	0.002505	Param Intra 1 of 2

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=45.09, Std. Dev.=6.656, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8101, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

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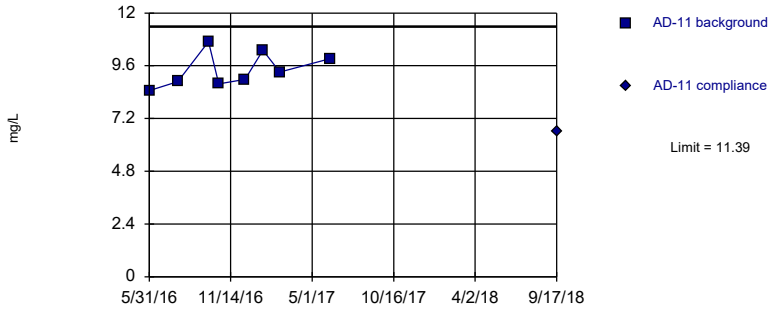
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=9.419, Std. Dev.=0.8002, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9212, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

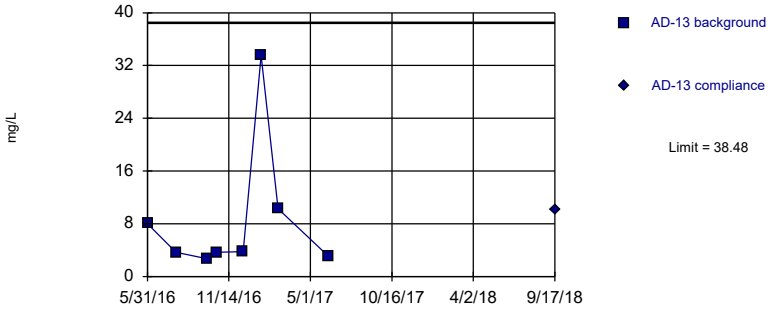
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube root transformation): Mean=1.861, Std. Dev.=0.6165, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7575, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

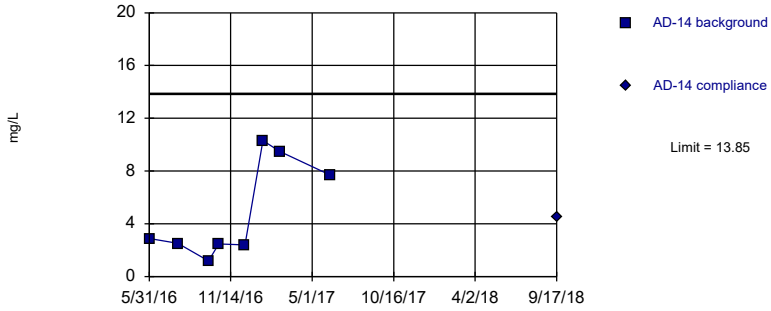
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=4.868, Std. Dev.=3.655, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8054, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

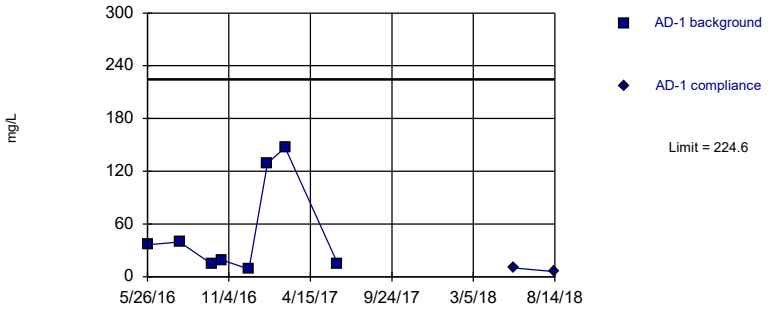
Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=6.363, Std. Dev.=3.508, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8248, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

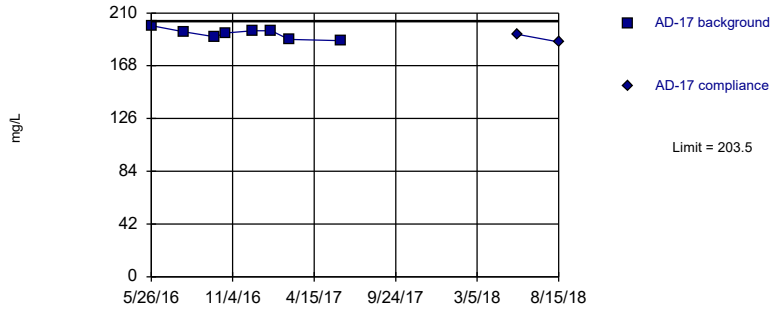
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=193.6, Std. Dev.=4.033, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9507, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Calcium, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

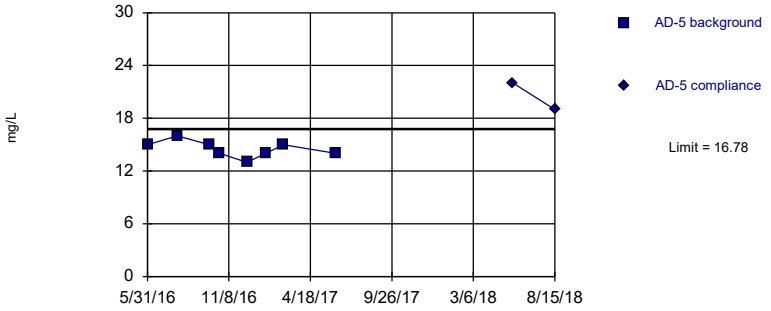
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=14.5, Std. Dev.=0.9258, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9302, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

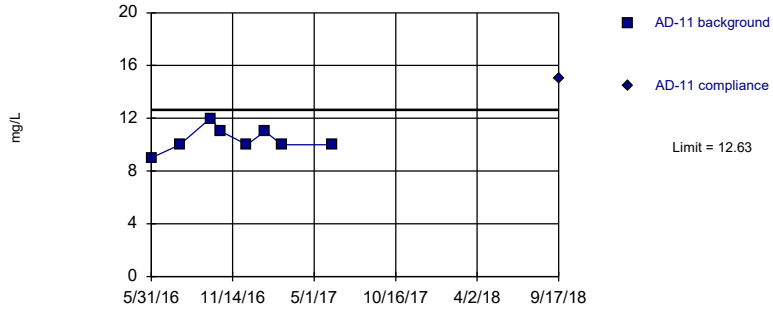
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=10.38, Std. Dev.=0.9161, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9054, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

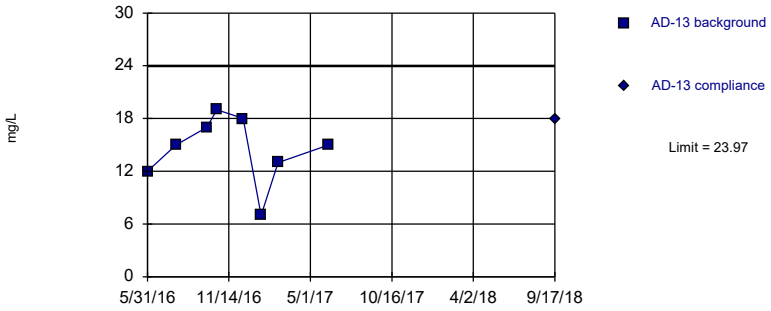
Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



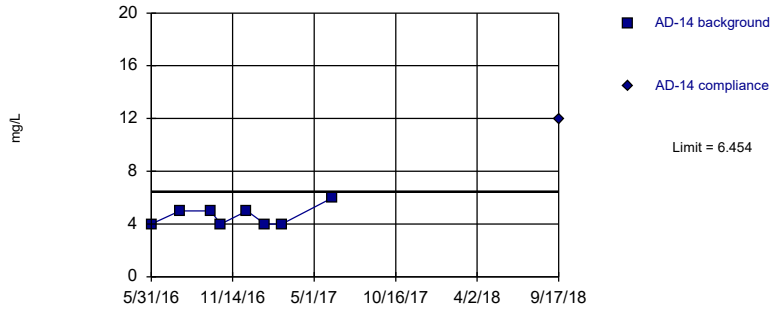
Background Data Summary: Mean=14.5, Std. Dev.=3.854, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9344, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Exceeds Limit

Prediction Limit

Intrawell Parametric



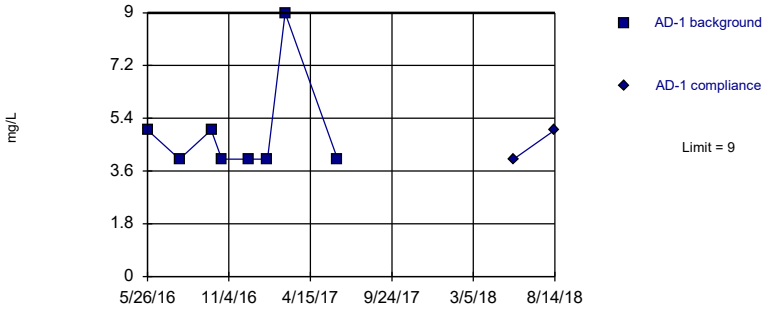
Background Data Summary: Mean=4.625, Std. Dev.=0.744, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7968, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Non-parametric



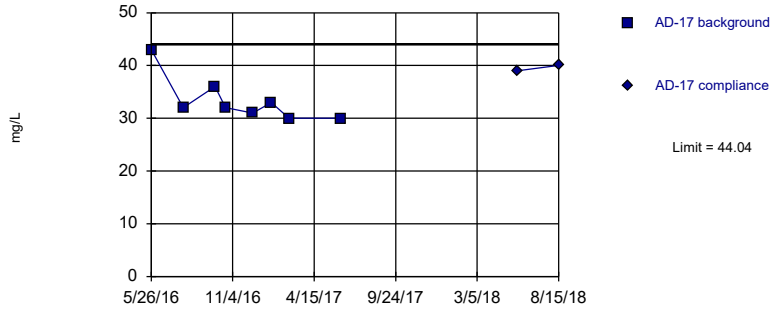
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



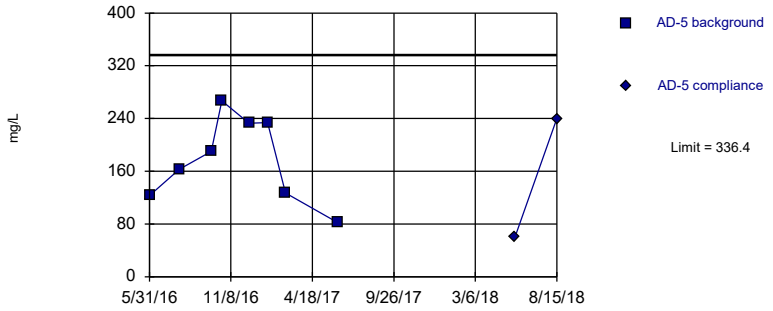
Background Data Summary: Mean=33.38, Std. Dev.=4.34, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7758, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Chloride, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=177.4, Std. Dev.=64.69, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.953, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

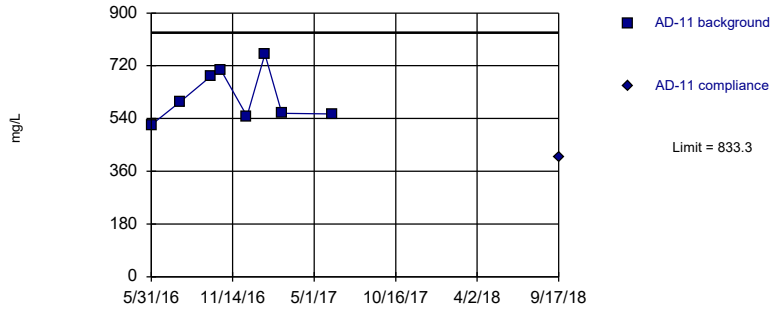
Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=615.6, Std. Dev.=88.57, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8871, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

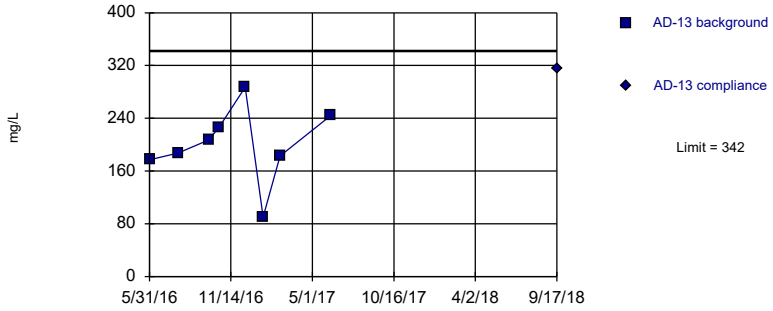
Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=200.1, Std. Dev.=57.71, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9527, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

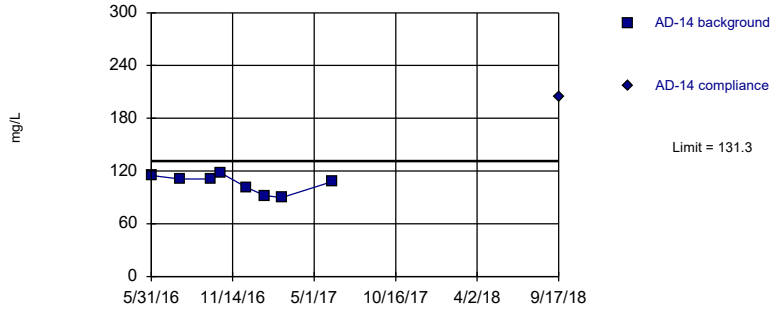
Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Exceeds Limit

Prediction Limit

Intrawell Parametric



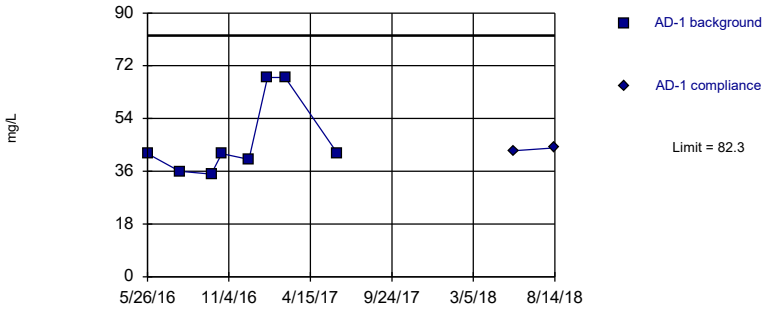
Background Data Summary: Mean=105.8, Std. Dev.=10.39, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.904, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell
Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=6.772, Std. Dev.=0.9358, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7528, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

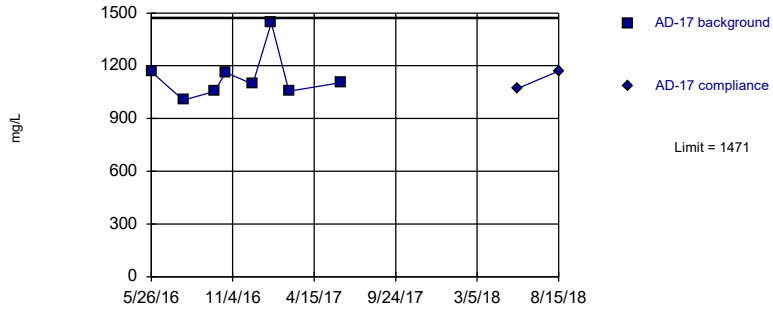
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1136, Std. Dev.=136.3, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7916, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Sulfate, total Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

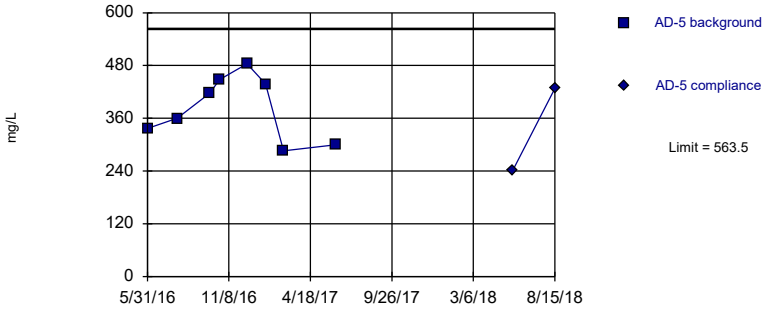
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=383.6, Std. Dev.=73.17, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.937, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

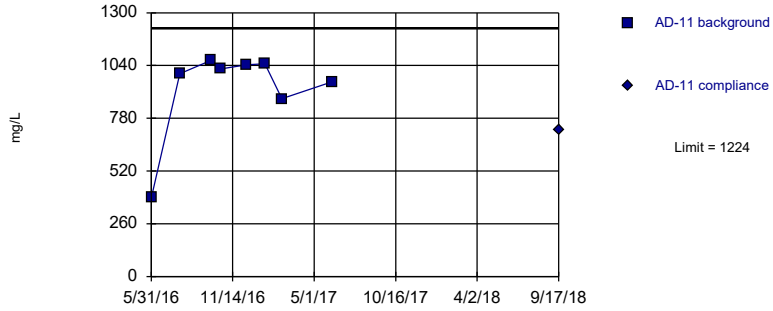
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on cube transformation): Mean=9.0e8, Std. Dev.=3.8e8, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.79, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

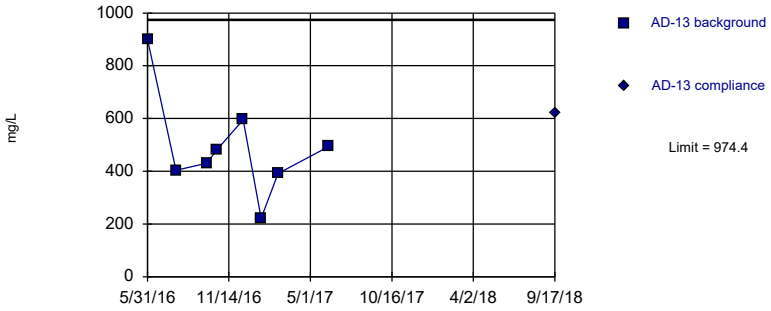
Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=490.1, Std. Dev.=197, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.896, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

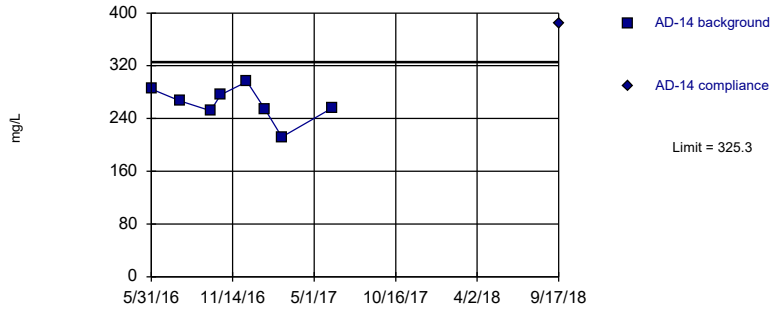
Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=262.3, Std. Dev.=25.65, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9381, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

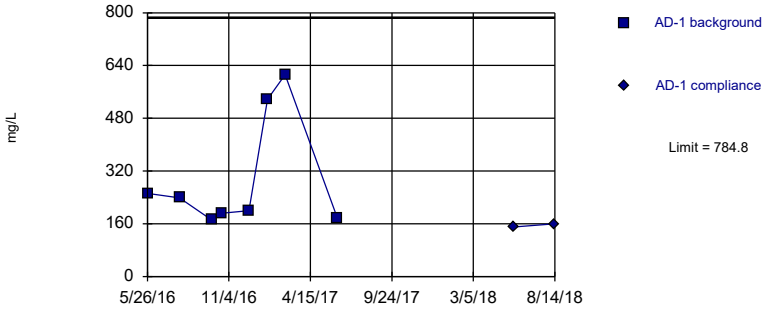
Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary (based on square root transformation): Mean=16.71, Std. Dev.=4.598, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.756, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

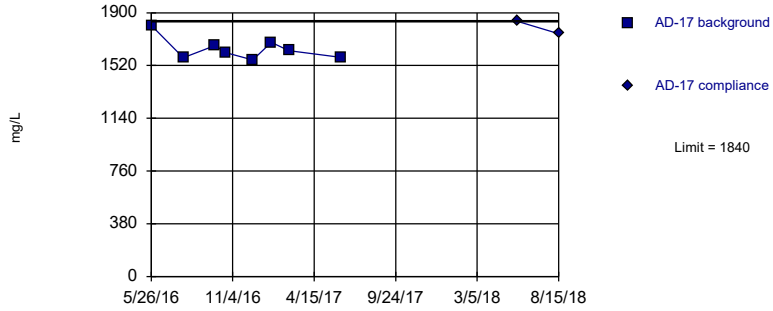
Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1639, Std. Dev.=81.77, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8702, critical = 0.749. Kappa = 2.458 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505.

Constituent: Total Dissolved Solids Analysis Run 1/5/2019 11:06 AM View: PL's - Intrawell

Welsh LF Client: Geosyntec Data: Welsh LF

Interwell Prediction Limit Summary Table - Significant Results

Welsh LF Client: Geosyntec Data: Welsh LF Printed 1/5/2019, 11:13 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Boron, total (mg/L)	**AD-11**	**0.765**	**n/a**	**9/17/2018**	**1.84**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
Boron, total (mg/L)	**AD-13**	**0.765**	**n/a**	**9/17/2018**	**1.49**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
Boron, total (mg/L)	**AD-14**	**0.765**	**n/a**	**9/17/2018**	**1.51**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
pH, field (SU)	**AD-14**	**7.051**	**4.294**	**8/14/2018**	**4.27**	**Yes**	**30**	**34.08**	**8.719**	**0**	**None**	**x^2**	**0.001253**	Param 1 of 2

Interwell Prediction Limit Summary Table - All Results

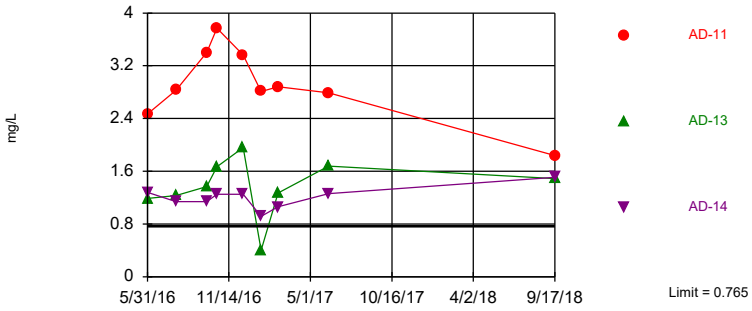
Welsh LF Client: Geosyntec Data: Welsh LF Printed 1/5/2019, 11:13 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj	Transform	Alpha	Method
Boron, total (mg/L)	**AD-11**	**0.765**	**n/a**	**9/17/2018**	**1.84**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
Boron, total (mg/L)	**AD-13**	**0.765**	**n/a**	**9/17/2018**	**1.49**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
Boron, total (mg/L)	**AD-14**	**0.765**	**n/a**	**9/17/2018**	**1.51**	**Yes**	**30**	**-2.011**	**0.9717**	**0**	**None**	**ln(x)**	**0.002505**	Param 1 of 2
Fluoride, total (mg/L)	AD-11	1	n/a	8/15/2018	1ND	No	30	n/a	n/a	76.67	n/a	n/a	0.00197	NP (NDs) 1 of 2
Fluoride, total (mg/L)	AD-13	1	n/a	8/14/2018	0.7442	No	30	n/a	n/a	76.67	n/a	n/a	0.00197	NP (NDs) 1 of 2
Fluoride, total (mg/L)	AD-14	1	n/a	8/14/2018	1ND	No	30	n/a	n/a	76.67	n/a	n/a	0.00197	NP (NDs) 1 of 2
pH, field (SU)	AD-11	7.051	4.294	8/15/2018	4.73	No	30	34.08	8.719	0	None	x^2	0.001253	Param 1 of 2
pH, field (SU)	AD-13	7.051	4.294	8/14/2018	4.82	No	30	34.08	8.719	0	None	x^2	0.001253	Param 1 of 2
pH, field (SU)	**AD-14**	**7.051**	**4.294**	**8/14/2018**	**4.27**	**Yes**	**30**	**34.08**	**8.719**	**0**	**None**	**x^2**	**0.001253**	Param 1 of 2

Exceeds Limit: AD-11, AD-13, AD-14

Prediction Limit

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=-2.011, Std. Dev.=0.9717, n=30. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9108, critical = 0.9. Kappa = 1.794 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

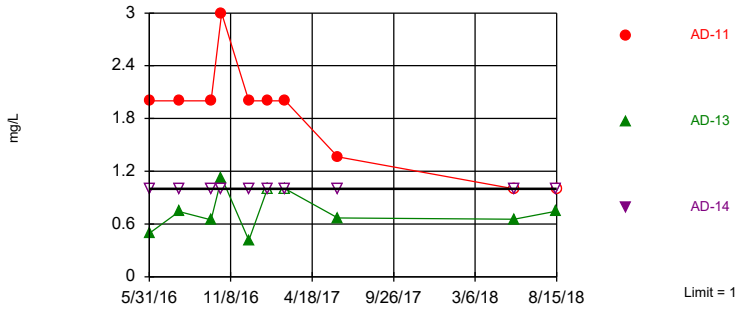
Constituent: Boron, total Analysis Run 1/5/2019 11:11 AM View: PL's - Interwell
Welsh LF Client: Geosyntec Data: Welsh LF

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



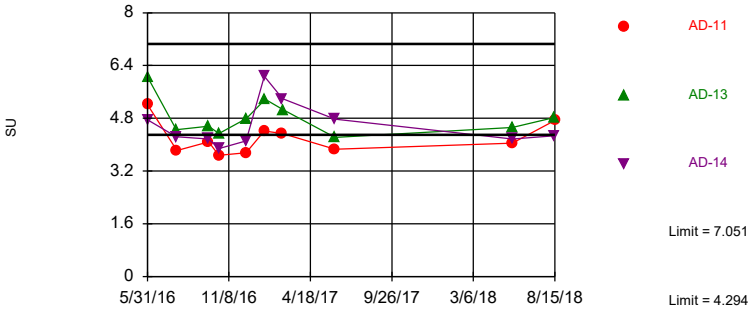
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 76.67% NDs. Annual per-constituent alpha = 0.01176. Individual comparison alpha = 0.00197 (1 of 2). Comparing 3 points to limit.

Constituent: Fluoride, total Analysis Run 1/5/2019 11:11 AM View: PL's - Interwell
Welsh LF Client: Geosyntec Data: Welsh LF

Exceeds Limits: AD-14

Prediction Limit

Interwell Parametric



Background Data Summary (based on square transformation): Mean=34.08, Std. Dev.=8.719, n=30. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9102, critical = 0.9. Kappa = 1.794 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001253. Comparing 3 points to limit.

Constituent: pH, field Analysis Run 1/5/2019 11:11 AM View: PL's - Interwell
Welsh LF Client: Geosyntec Data: Welsh LF

Prediction Limit

Constituent: Boron, total (mg/L) Analysis Run 1/5/2019 11:13 AM View: PL's - Interwell
Welsh LF Client: Geosyntec Data: Welsh LF

	AD-17 (bg)	AD-1 (bg)	AD-5 (bg)	AD-13	AD-11	AD-14
5/26/2016	0.121	0.346				
5/31/2016			0.03	1.19	2.47	1.28
7/29/2016	0.119	0.35	0.04	1.23	2.83	1.14
9/30/2016	0.111	0.332	0.04	1.37	3.4	1.14
10/21/2016	0.124	0.398	0.05	1.67	3.77	1.25
12/14/2016	0.135	0.394	0.05	1.96	3.36	1.25
1/20/2017	0.101	0.656	0.04	0.402	2.81	0.915
2/24/2017	0.135	0.7	0.04	1.27	2.88	1.06
6/8/2017	0.121	0.449	0.05281	1.68	2.79	1.26
5/24/2018	0.239	0.345	0.0501			
8/14/2018		0.443				
8/15/2018	0.118		0.05			
9/17/2018				1.49	1.84	1.51

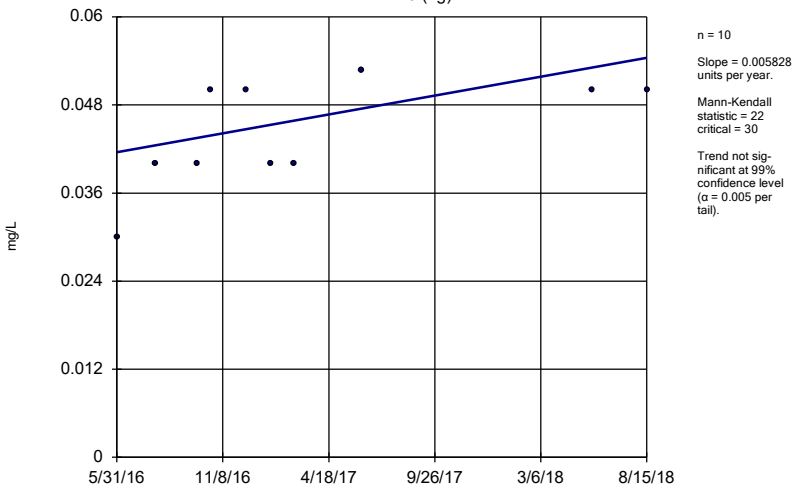
Trend Test Summary Table - All Results (No Significant Results)

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/11/2018, 5:00 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	AD-5 (bg)	0.005828	22	30	No	10	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-11	-0.295	-10	-25	No	9	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-13	0.1357	12	25	No	9	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-14	0.0183	4	25	No	9	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-1 (bg)	0.08093	15	30	No	10	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-17 (bg)	0.007399	7	30	No	10	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-5 (bg)	0	5	30	No	10	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-11	1.168	9	25	No	9	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-14	1.308	11	25	No	9	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-1 (bg)	0	-1	-30	No	10	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-17 (bg)	-2.005	-5	-30	No	10	0	n/a	n/a	0.01	NP
pH, field (SU)	AD-5 (bg)	0.1885	11	30	No	10	0	n/a	n/a	0.01	NP
pH, field (SU)	AD-14	0.01464	2	30	No	10	0	n/a	n/a	0.01	NP
pH, field (SU)	AD-1 (bg)	-0.4232	-14	-30	No	10	0	n/a	n/a	0.01	NP
pH, field (SU)	AD-17 (bg)	-0.4462	-19	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-5 (bg)	-14.86	-1	-30	No	10	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-14	-9.409	-7	-25	No	9	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-1 (bg)	2.401	19	30	No	10	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-17 (bg)	12.06	8	30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-5 (bg)	-33.56	-5	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-14	-3.767	0	25	No	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-1 (bg)	-26.43	-13	-30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-17 (bg)	40.84	7	30	No	10	0	n/a	n/a	0.01	NP

Sen's Slope Estimator

AD-5 (bg)



n = 10

Slope = 0.005828 units per year.

Mann-Kendall statistic = 22
critical = 30

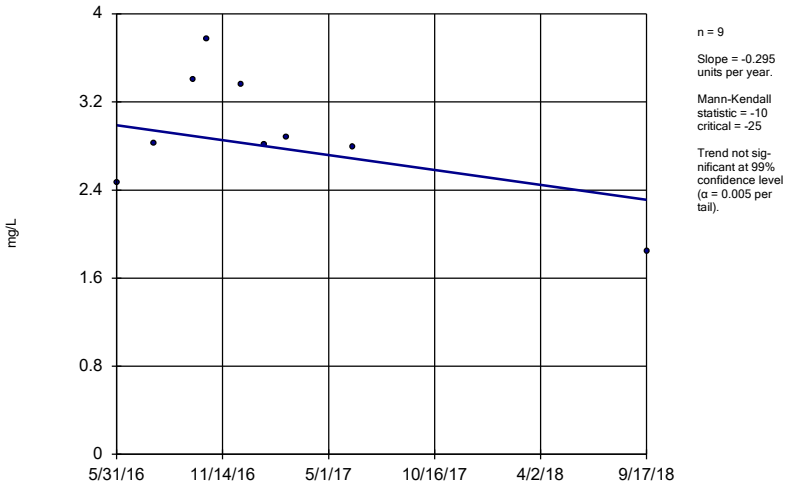
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-11



n = 9

Slope = -0.295 units per year.

Mann-Kendall statistic = -10
critical = -25

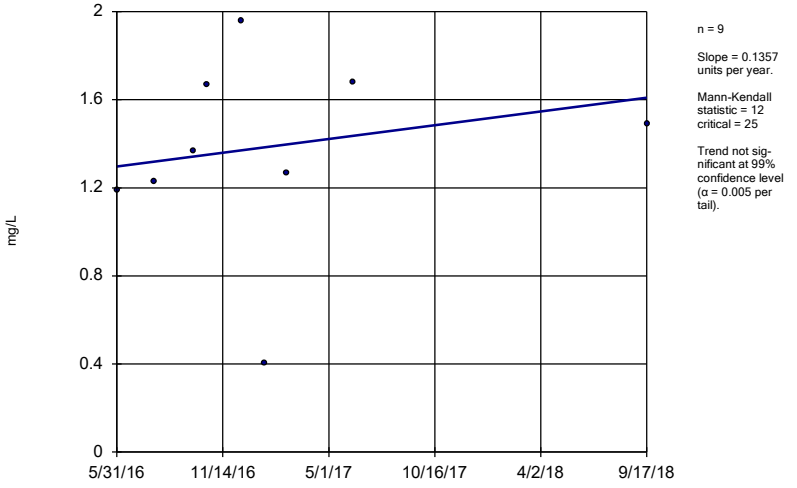
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-13



n = 9

Slope = 0.1357 units per year.

Mann-Kendall statistic = 12
critical = 25

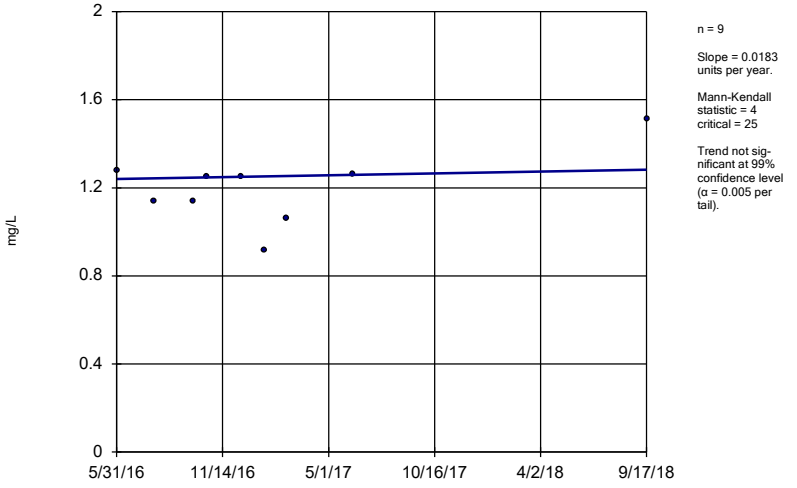
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-14



n = 9

Slope = 0.0183 units per year.

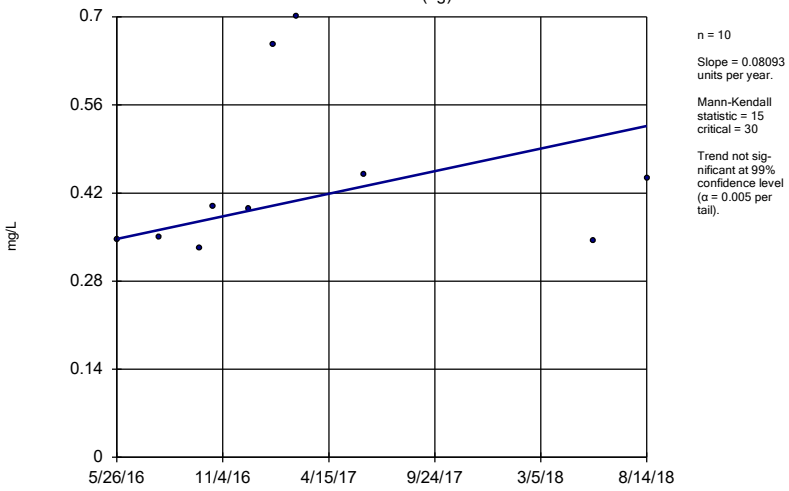
Mann-Kendall statistic = 4
critical = 25

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sen's Slope Estimator

AD-1 (bg)



n = 10

Slope = 0.08093 units per year.

Mann-Kendall statistic = 15 critical = 30

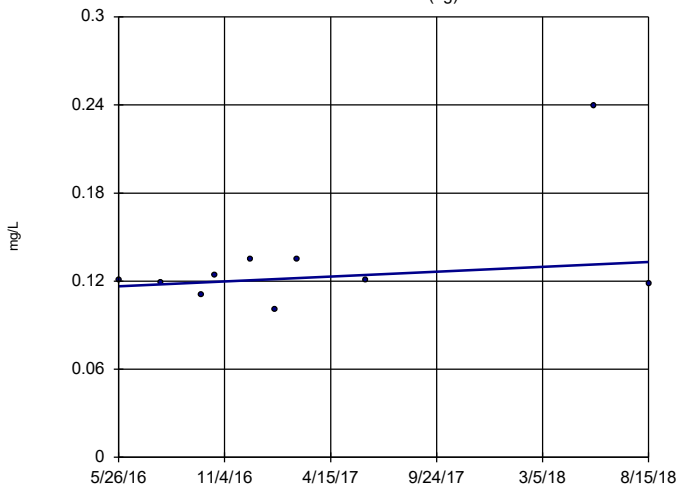
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-17 (bg)



n = 10

Slope = 0.007399 units per year.

Mann-Kendall statistic = 7 critical = 30

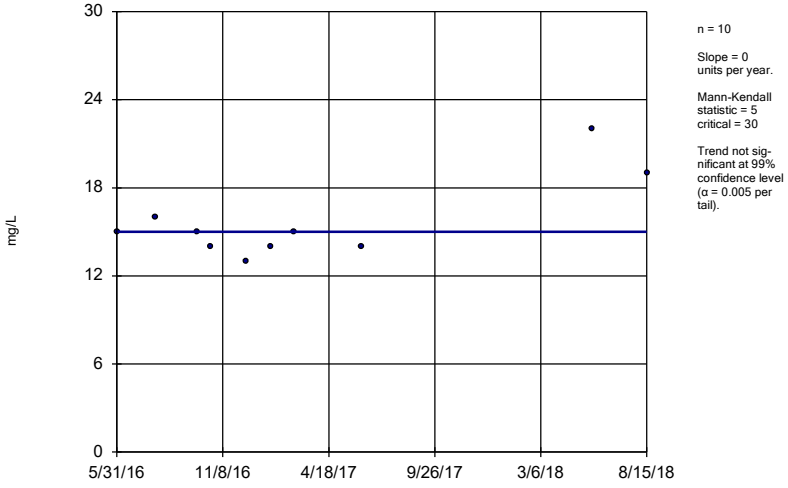
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-5 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = 5 critical = 30

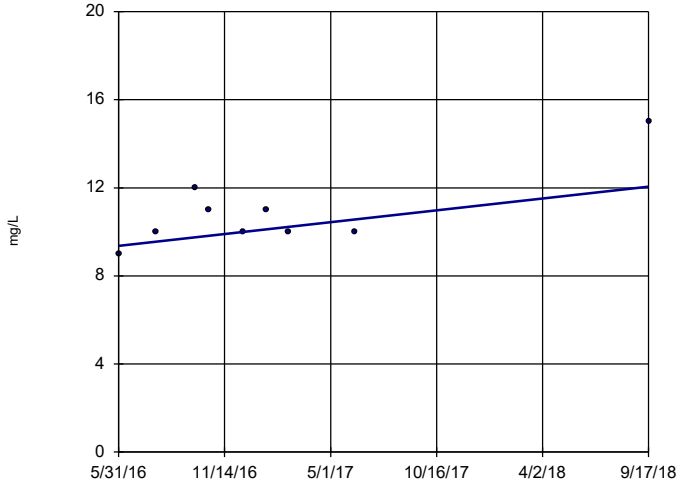
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-11



n = 9

Slope = 1.168 units per year.

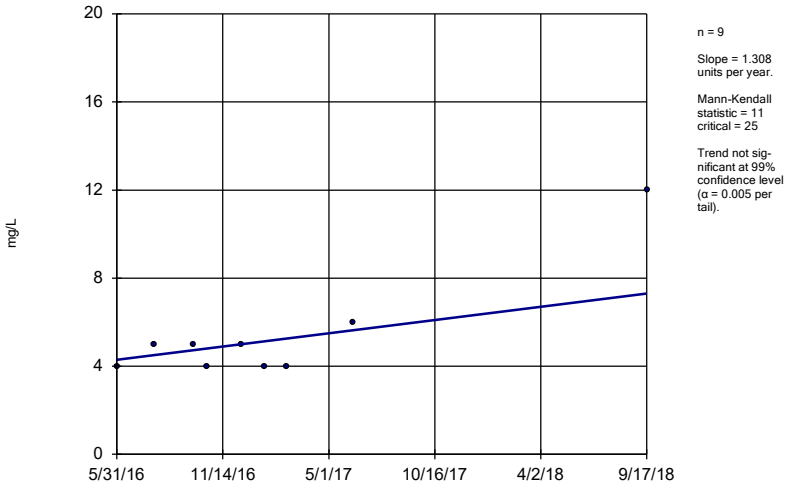
Mann-Kendall statistic = 9 critical = 25

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sen's Slope Estimator

AD-14



n = 9

Slope = 1.308 units per year.

Mann-Kendall statistic = 11 critical = 25

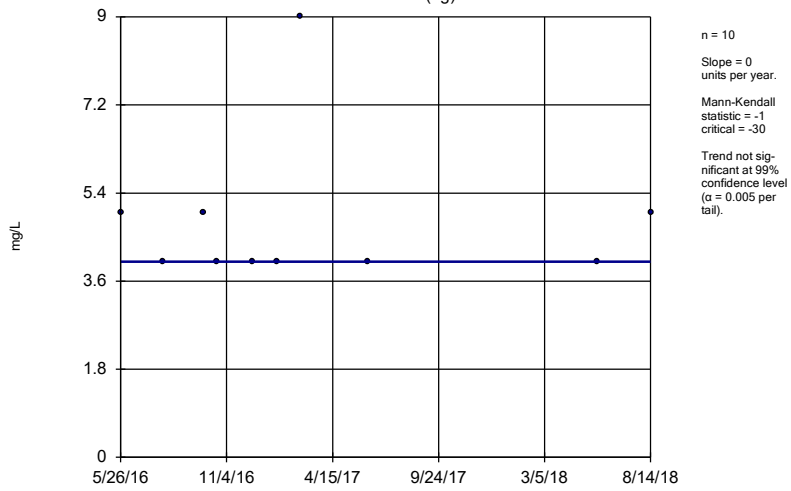
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-1 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = -1 critical = -30

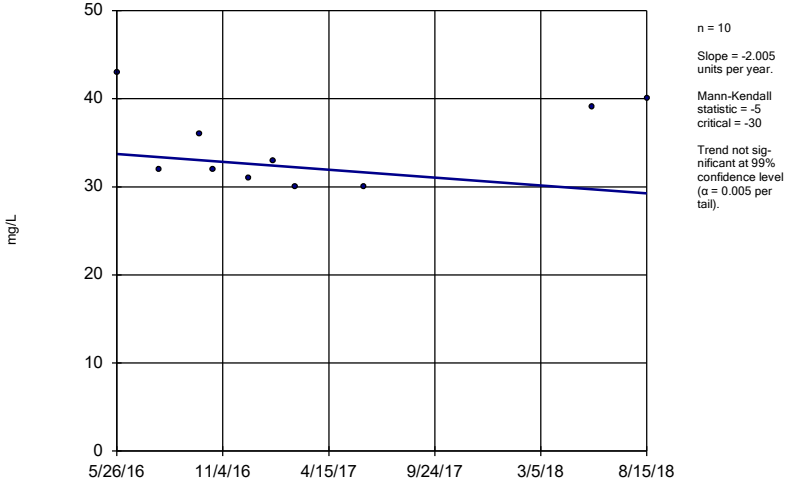
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-17 (bg)



n = 10

Slope = -2.005 units per year.

Mann-Kendall statistic = -5 critical = -30

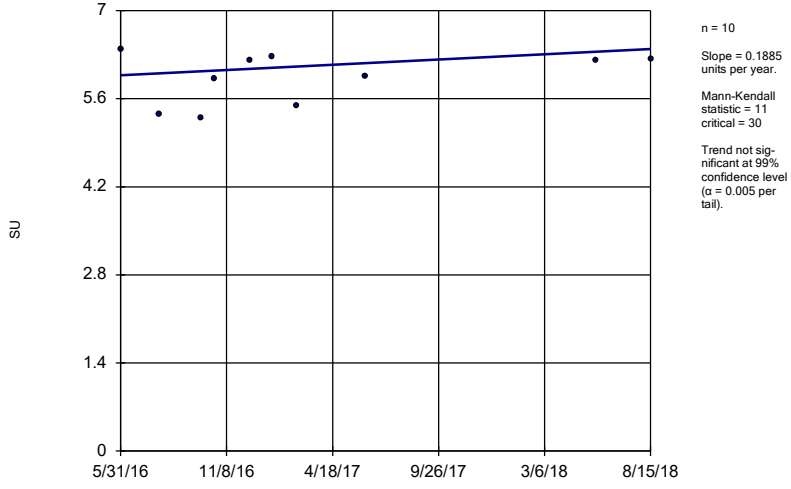
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-5 (bg)



n = 10

Slope = 0.1885 units per year.

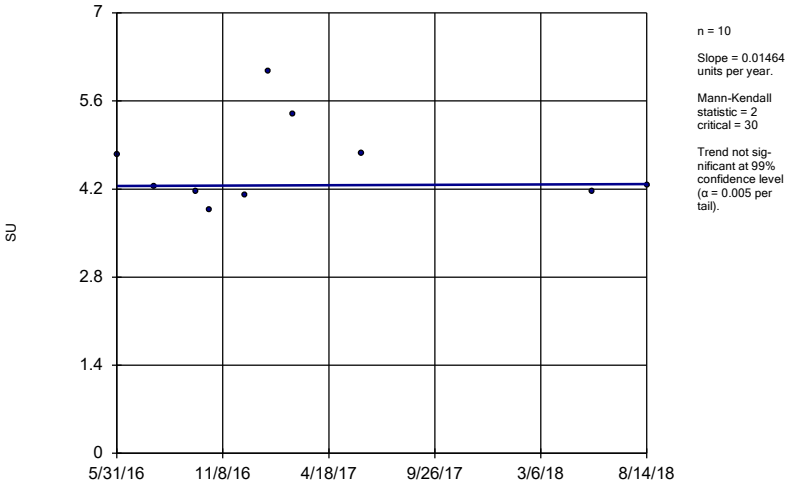
Mann-Kendall statistic = 11 critical = 30

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sen's Slope Estimator

AD-14



n = 10

Slope = 0.01464 units per year.

Mann-Kendall statistic = 2 critical = 30

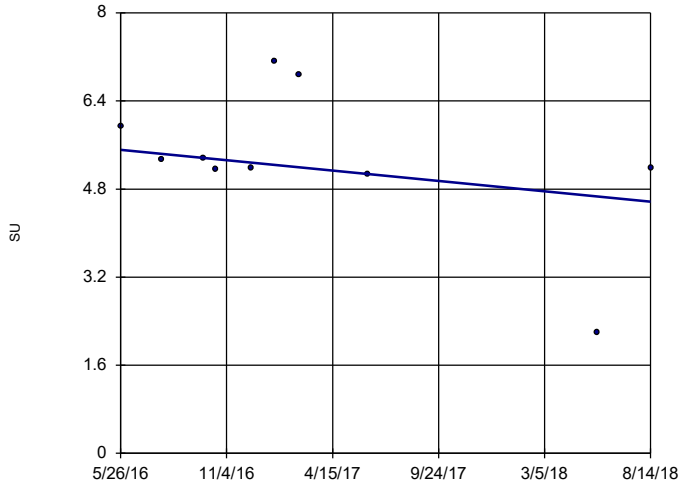
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-1 (bg)



n = 10

Slope = -0.4232 units per year.

Mann-Kendall statistic = -14 critical = -30

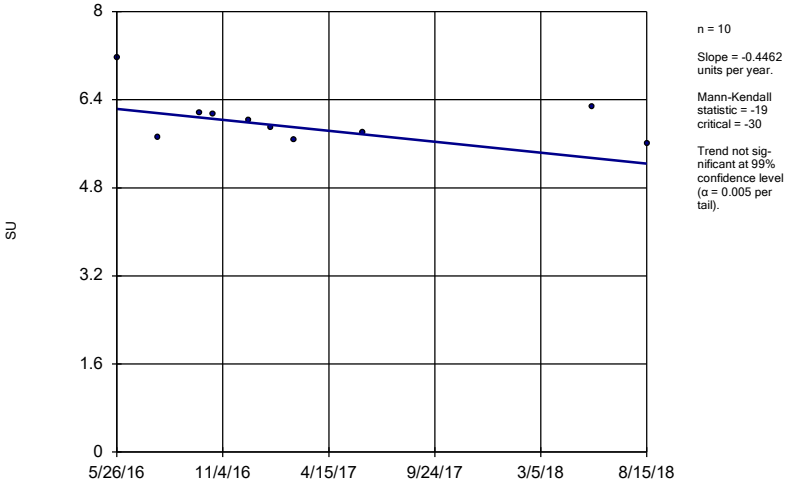
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-17 (bg)



n = 10

Slope = -0.4462 units per year.

Mann-Kendall statistic = -19 critical = -30

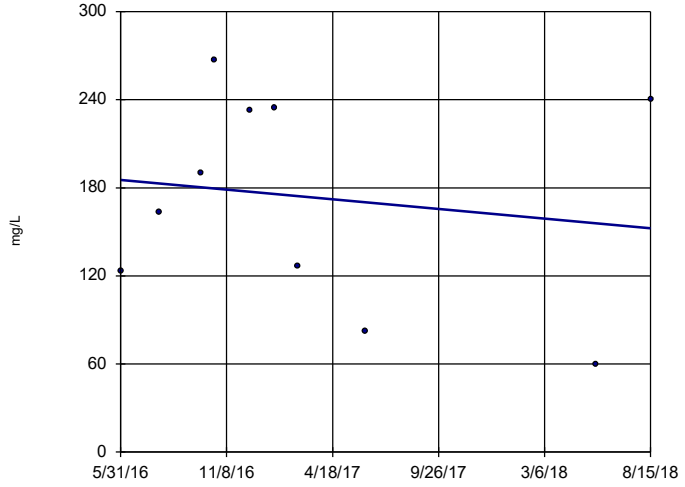
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-5 (bg)



n = 10

Slope = -14.86 units per year.

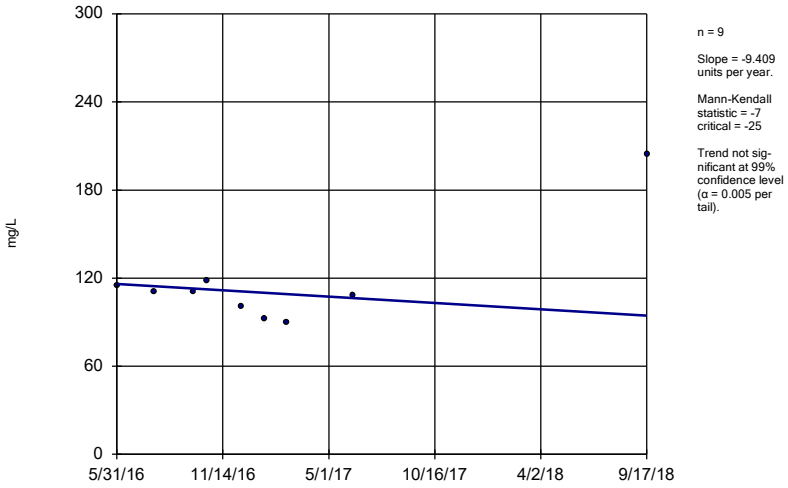
Mann-Kendall statistic = -1 critical = -30

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sen's Slope Estimator

AD-14



n = 9

Slope = -9.409 units per year.

Mann-Kendall statistic = -7 critical = -25

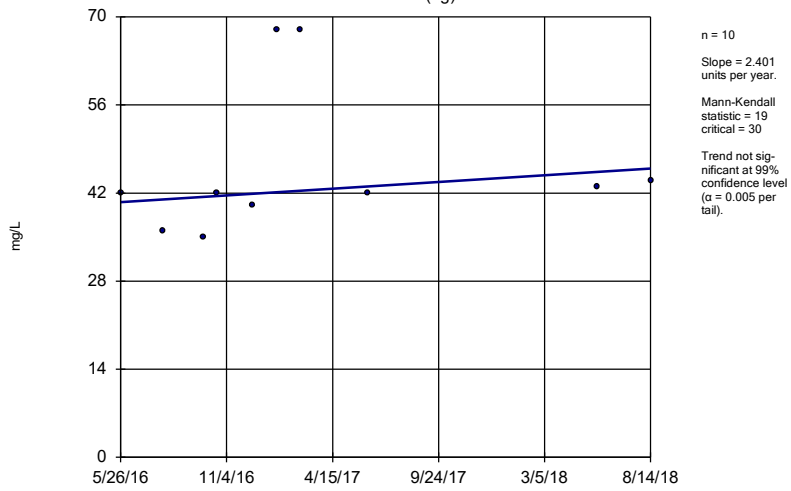
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-1 (bg)



n = 10

Slope = 2.401 units per year.

Mann-Kendall statistic = 19 critical = 30

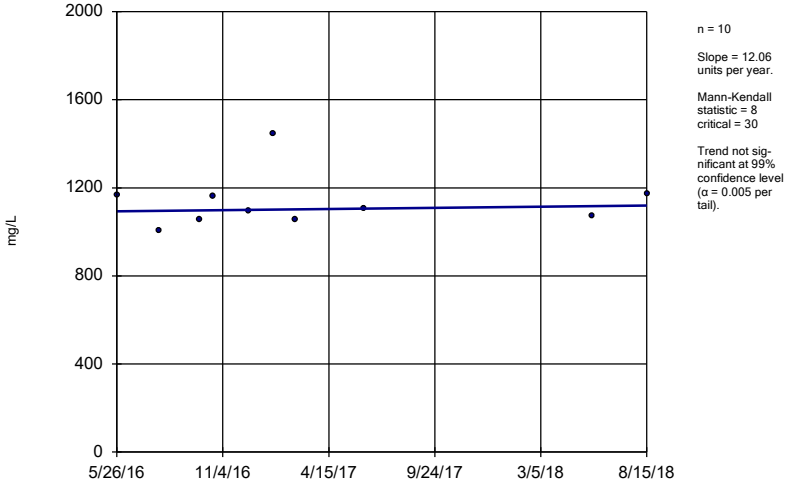
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-17 (bg)



n = 10

Slope = 12.06 units per year.

Mann-Kendall statistic = 8 critical = 30

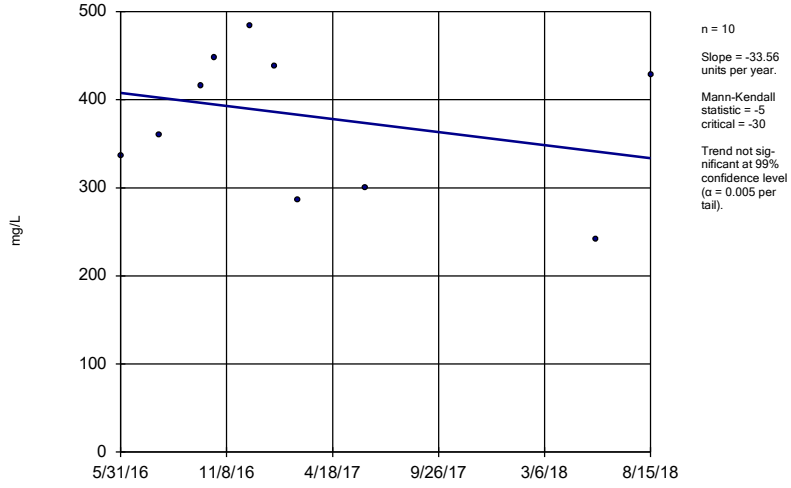
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate, total Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-5 (bg)



n = 10

Slope = -33.56 units per year.

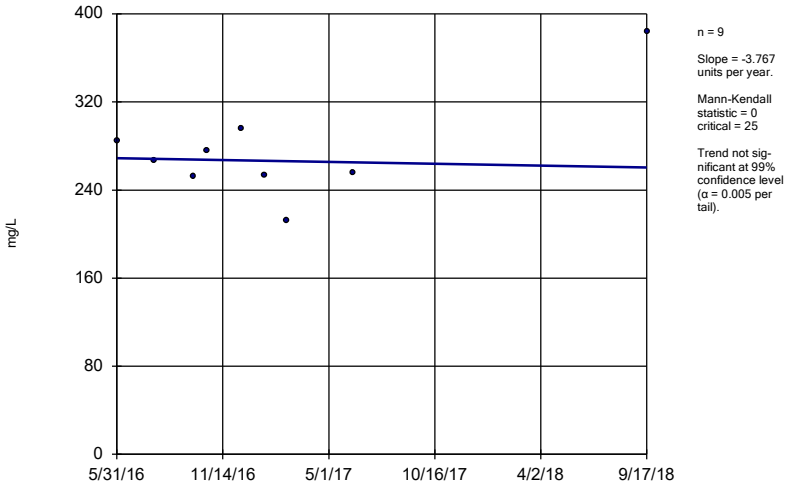
Mann-Kendall statistic = -5 critical = -30

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sen's Slope Estimator

AD-14



n = 9

Slope = -3.767 units per year.

Mann-Kendall statistic = 0
critical = 25

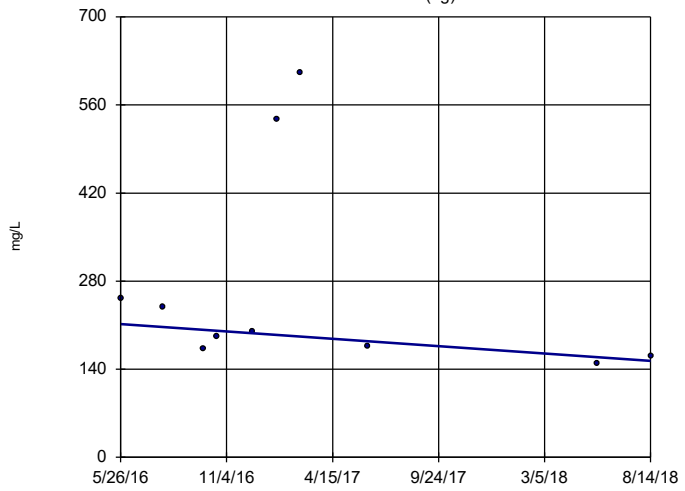
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-1 (bg)



n = 10

Slope = -26.43 units per year.

Mann-Kendall statistic = -13
critical = -30

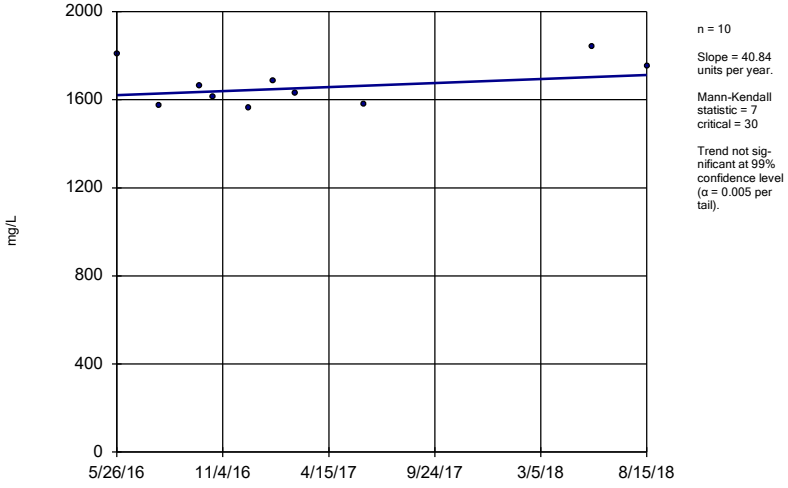
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

AD-17 (bg)



n = 10

Slope = 40.84 units per year.

Mann-Kendall statistic = 7
critical = 30

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/11/2018 4:59 AM View: Trend Testing
Welsh LF Client: Geosyntec Data: Welsh LF

Upper Tolerance Limits - Appendix IV

Welsh LF Client: Geosyntec Data: Welsh LF Printed 12/10/2018, 1:51 PM

Constituent	Upper Lim.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.005	30	n/a	n/a	80	n/a	n/a	0.2146	NP Inter(NDs)
Arsenic, total (mg/L)	0.005	30	n/a	n/a	63.33	n/a	n/a	0.2146	NP Inter(normality)
Barium, total (mg/L)	0.362	30	0.4014	0.1402	0	None	x^(1/3)	0.05	Inter
Beryllium, total (mg/L)	0.0007706	30	0.01454	0.005955	13.33	None	sqrt(x)	0.05	Inter
Cadmium, total (mg/L)	0.00646	30	n/a	n/a	30	n/a	n/a	0.2146	NP Inter(Cohens/xform)
Chromium, total (mg/L)	0.004	29	n/a	n/a	31.03	n/a	n/a	0.2259	NP Inter(normality)
Cobalt, total (mg/L)	0.0748	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	4.205	30	2	0.9933	0	None	No	0.05	Inter
Fluoride, total (mg/L)	1	30	n/a	n/a	76.67	n/a	n/a	0.2146	NP Inter(NDs)
Lead, total (mg/L)	0.005	30	n/a	n/a	86.67	n/a	n/a	0.2146	NP Inter(NDs)
Lithium, total (mg/L)	0.394	30	n/a	n/a	0	n/a	n/a	0.2146	NP Inter(normality)
Mercury, total (mg/L)	0.000033	30	n/a	n/a	46.67	n/a	n/a	0.2146	NP Inter(normality)
Molybdenum, total (mg/L)	0.005	30	n/a	n/a	73.33	n/a	n/a	0.2146	NP Inter(normality)
Selenium, total (mg/L)	0.005	30	n/a	n/a	53.33	n/a	n/a	0.2146	NP Inter(normality)
Thallium, total (mg/L)	0.002	30	n/a	n/a	83.33	n/a	n/a	0.2146	NP Inter(NDs)

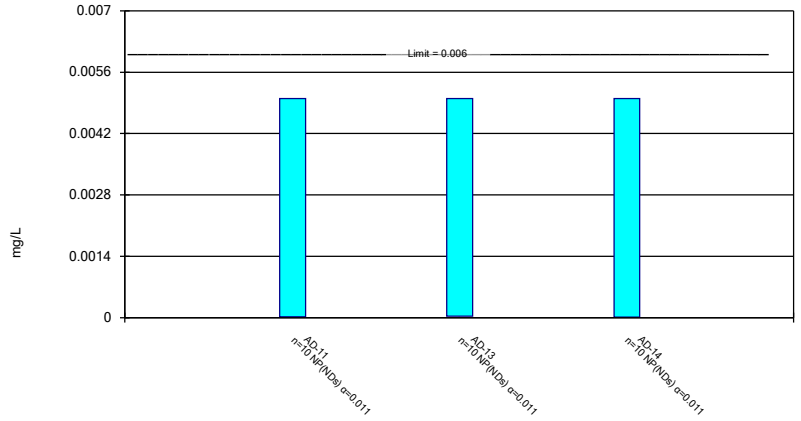
Confidence Interval Summary Table - All Appendix IV (No Significant Results)

Welsh LF Client: Geosyntec Data: Welsh LF Printed 1/5/2019, 11:18 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony, total (mg/L)	AD-11	0.005	0.00002	0.006	No	10	90	No	0.011	NP (NDs)
Antimony, total (mg/L)	AD-13	0.005	0.00003	0.006	No	10	80	No	0.011	NP (NDs)
Antimony, total (mg/L)	AD-14	0.005	0.00001	0.006	No	10	90	No	0.011	NP (NDs)
Arsenic, total (mg/L)	AD-11	0.005	0.00105	0.01	No	10	60	No	0.011	NP (normality)
Arsenic, total (mg/L)	AD-13	0.005	0.00137	0.01	No	10	70	No	0.011	NP (normality)
Arsenic, total (mg/L)	AD-14	0.005	0.00039	0.01	No	10	70	No	0.011	NP (normality)
Barium, total (mg/L)	AD-11	0.02	0.01012	2	No	10	0	No	0.011	NP (normality)
Barium, total (mg/L)	AD-13	0.0645	0.02124	2	No	10	0	sqrt(x)	0.01	Param.
Barium, total (mg/L)	AD-14	0.05407	0.02723	2	No	10	0	sqrt(x)	0.01	Param.
Beryllium, total (mg/L)	AD-11	0.004635	0.002551	0.004	No	10	0	x^2	0.01	Param.
Beryllium, total (mg/L)	AD-13	0.0009722	0.0006411	0.004	No	10	0	x^2	0.01	Param.
Beryllium, total (mg/L)	AD-14	0.0007222	0.0003541	0.004	No	10	0	No	0.01	Param.
Cadmium, total (mg/L)	AD-11	0.0004992	0.0003061	0.005	No	10	0	No	0.01	Param.
Cadmium, total (mg/L)	AD-13	0.001	0.000085	0.005	No	10	40	No	0.011	NP (normality)
Cadmium, total (mg/L)	AD-14	0.001452	0.0004738	0.005	No	10	0	No	0.01	Param.
Chromium, total (mg/L)	AD-11	0.003028	0.0002928	0.1	No	10	0	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	AD-13	0.004	0.000503	0.1	No	10	30	No	0.011	NP (normality)
Chromium, total (mg/L)	AD-14	0.001171	0.0005606	0.1	No	10	20	No	0.01	Param.
Cobalt, total (mg/L)	AD-11	0.02786	0.01857	0.075	No	10	0	x^2	0.01	Param.
Cobalt, total (mg/L)	AD-13	0.008863	0.003162	0.075	No	10	0	No	0.01	Param.
Cobalt, total (mg/L)	AD-14	0.01305	0.005173	0.075	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-11	2.806	1.388	5	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-13	3.082	1.427	5	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-14	2.552	0.8154	5	No	10	0	sqrt(x)	0.01	Param.
Fluoride, total (mg/L)	AD-11	2	0.083	4	No	10	20	No	0.011	NP (normality)
Fluoride, total (mg/L)	AD-13	0.8623	0.1958	4	No	10	20	No	0.01	Param.
Fluoride, total (mg/L)	AD-14	0.083	0.083	4	No	10	100	No	0.011	NP (NDs)
Lead, total (mg/L)	AD-11	0.005	0.001183	0.015	No	10	70	No	0.011	NP (normality)
Lead, total (mg/L)	AD-13	0.005	0.001	0.015	No	10	70	No	0.011	NP (normality)
Lead, total (mg/L)	AD-14	0.005	0.000174	0.015	No	10	90	No	0.011	NP (NDs)
Lithium, total (mg/L)	AD-11	0.04681	0.02675	0.39	No	10	0	No	0.01	Param.
Lithium, total (mg/L)	AD-13	0.02811	0.01289	0.39	No	10	0	No	0.01	Param.
Lithium, total (mg/L)	AD-14	0.01446	0.01174	0.39	No	9	0	No	0.01	Param.
Mercury, total (mg/L)	AD-11	0.00001756	0.000001904	0.002	No	10	30	No	0.01	Param.
Mercury, total (mg/L)	AD-13	0.00001565	0.000005	0.002	No	10	50	No	0.011	NP (normality)
Mercury, total (mg/L)	AD-14	0.000145	0.00001443	0.002	No	10	0	No	0.011	NP (normality)
Molybdenum, total (mg/L)	AD-11	0.005	0.00005	0.1	No	10	80	No	0.011	NP (NDs)
Molybdenum, total (mg/L)	AD-13	0.005	0.00006	0.1	No	10	70	No	0.011	NP (normality)
Molybdenum, total (mg/L)	AD-14	0.005	0.00003	0.1	No	10	80	No	0.011	NP (NDs)
Selenium, total (mg/L)	AD-11	0.005	0.00134	0.05	No	10	40	No	0.011	NP (normality)
Selenium, total (mg/L)	AD-13	0.005	0.00103	0.05	No	10	30	No	0.011	NP (normality)
Selenium, total (mg/L)	AD-14	0.00453	0.002362	0.05	No	10	20	No	0.01	Param.
Thallium, total (mg/L)	AD-11	0.002	0.0002	0.002	No	10	50	No	0.011	NP (normality)
Thallium, total (mg/L)	AD-13	0.002	0.000277	0.002	No	10	80	No	0.011	NP (NDs)
Thallium, total (mg/L)	AD-14	0.002	0.000242	0.002	No	10	90	No	0.011	NP (NDs)

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

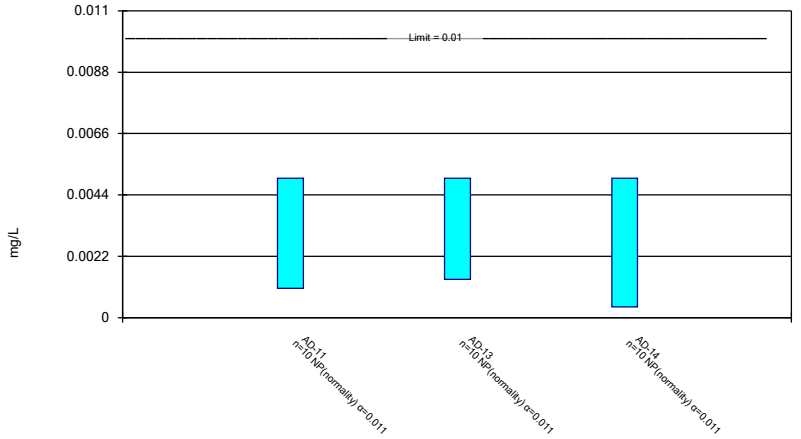


Constituent: Antimony, total Analysis Run 1/5/2019 11:15 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

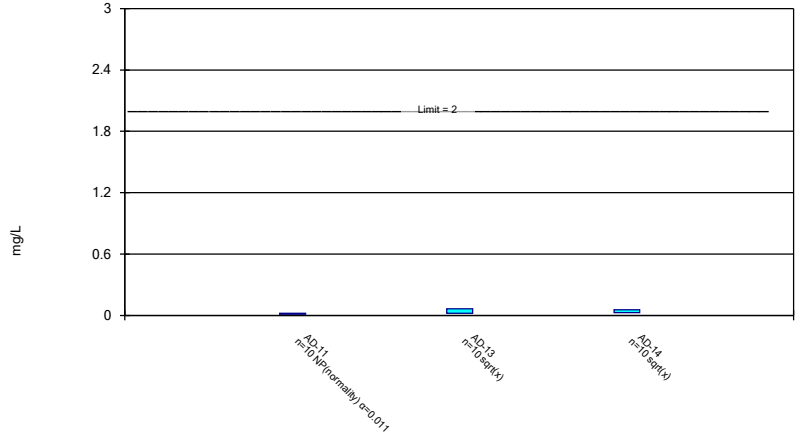


Constituent: Arsenic, total Analysis Run 1/5/2019 11:15 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

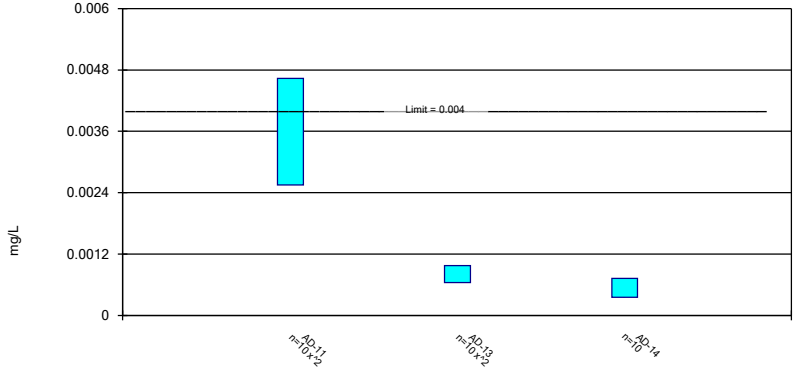


Constituent: Barium, total Analysis Run 1/5/2019 11:15 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Parametric Confidence Interval

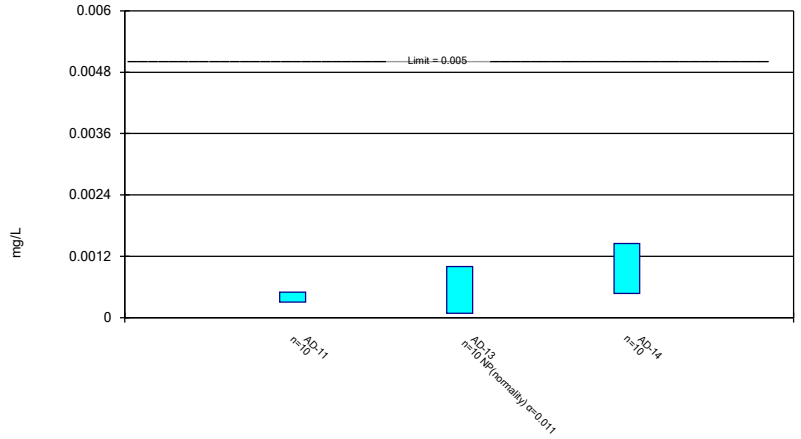
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 1/5/2019 11:15 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

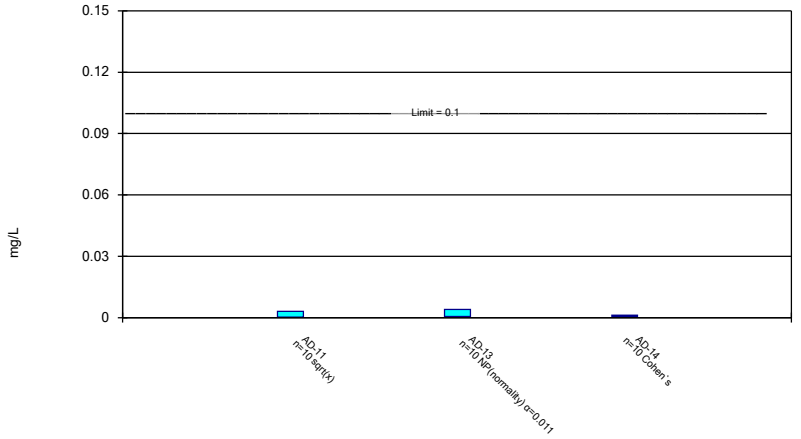
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

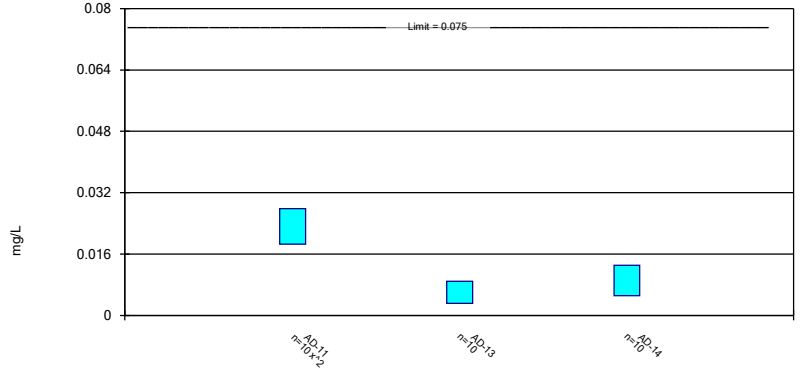
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric Confidence Interval

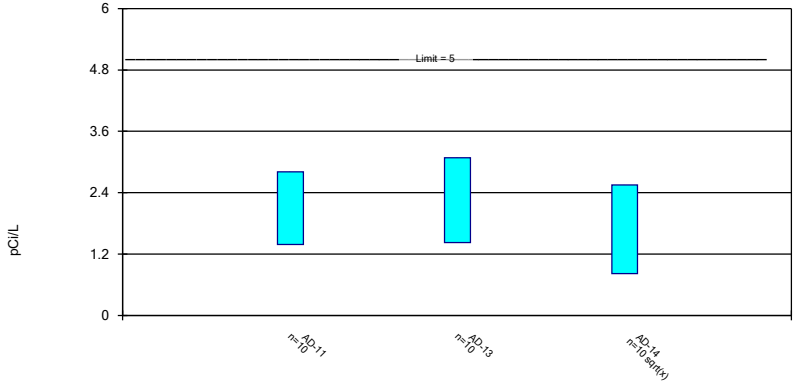
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric Confidence Interval

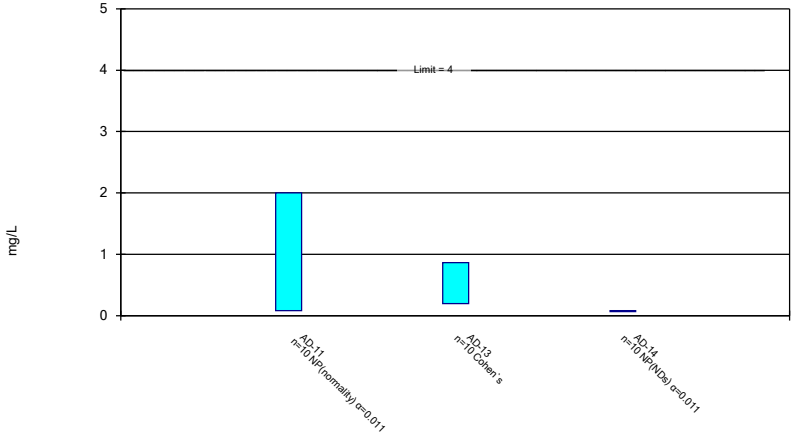
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - A
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

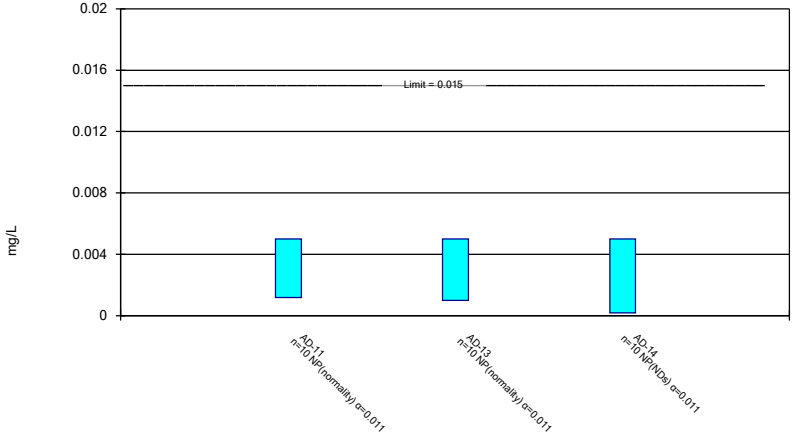
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Non-Parametric Confidence Interval

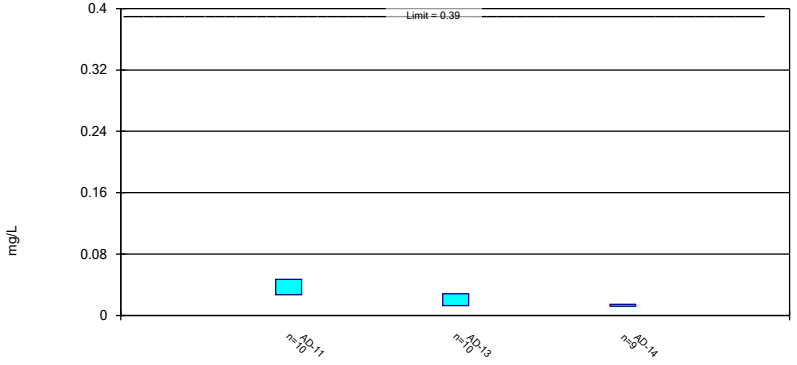
Compliance Limit is not exceeded.



Constituent: Lead, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric Confidence Interval

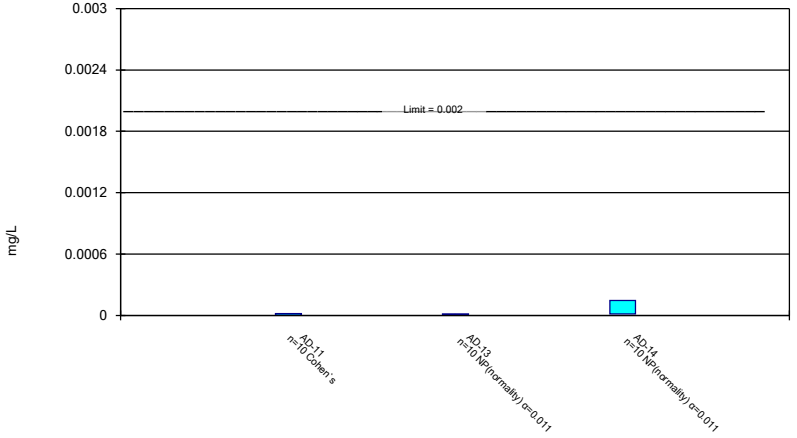
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Parametric and Non-Parametric (NP) Confidence Interval

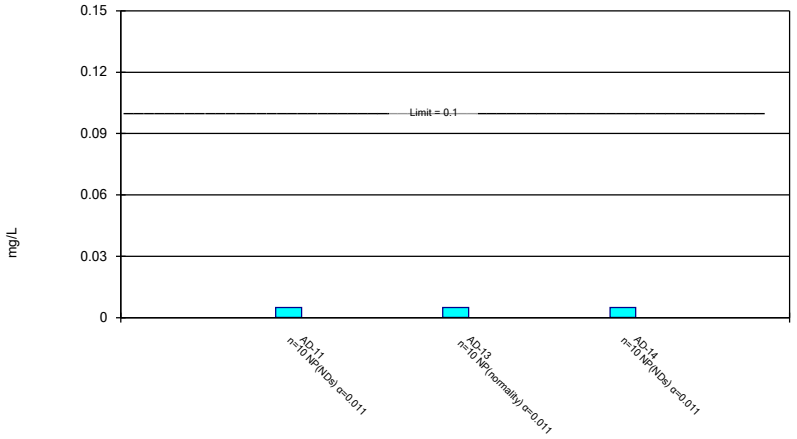
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Molybdenum, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

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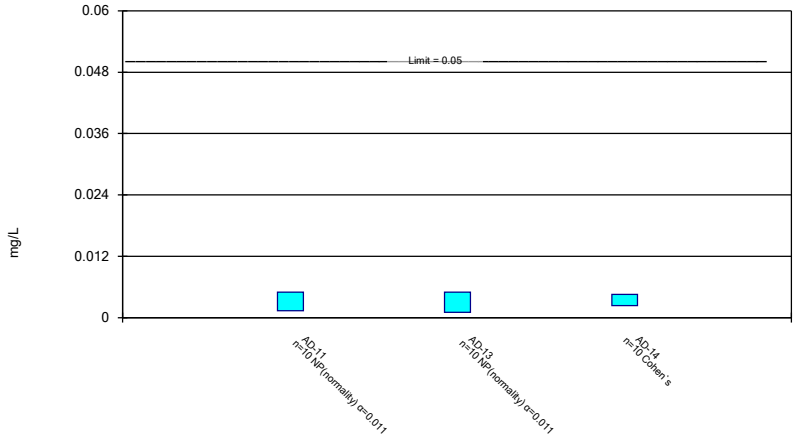
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

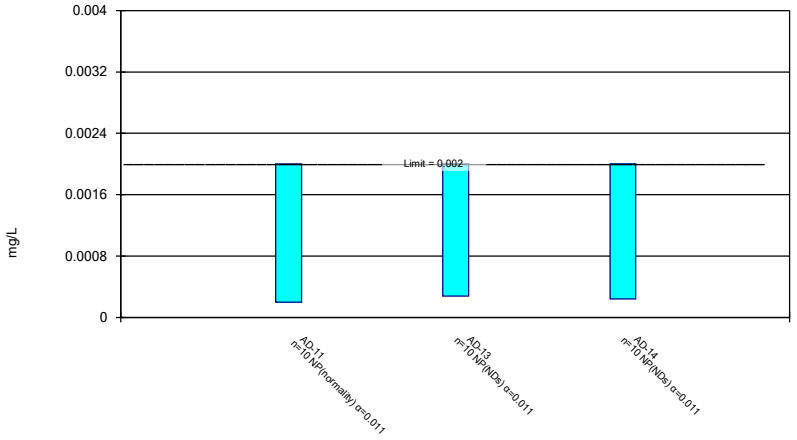


Constituent: Selenium, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF

Sanitas™ v.9.6.11 Sanitas software utilized by Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Thallium, total Analysis Run 1/5/2019 11:16 AM View: Confidence Interval - App IV
Welsh LF Client: Geosyntec Data: Welsh LF