



HALEY & ALDRICH, INC.  
6500 Rockside Road  
Suite 200  
Cleveland, OH 44131  
216.739.0555

## MEMORANDUM

14 January 2019  
File No. 130116

TO: AES Ohio Generation, LLC  
745 US Route 52  
Manchester, Ohio 45144  
Attn: Troy Williams

FROM: Haley & Aldrich, Inc.  
[Steven F. Putrich, P.E., Project Principal  
Mark Miesfeldt, P.G., Lead Hydrogeologist]

SUBJECT: Notification of Statistically Significant Levels of Appendix IV Constituents  
Pursuant to 40 CFR § 257.95(g) and 40 CFR § 257.105(h)(8)  
Killen Electric Generating Station - Ash Pond, Manchester, Ohio

AES Ohio Generation, LLC (AES) is implementing the 17 April 2015 U.S. Environmental Protection Agency (U.S. EPA) Federal Coal Combustion Residuals (CCR) Rule (40 CFR § 257 and 261) for the Killen Electric Generating Station, in Adams County near Manchester, Ohio. AES provided Haley & Aldrich, Inc. with assessment monitoring data collected from a groundwater monitoring system constructed at the Ash Pond that meets the requirements of 40 CFR § 257.91 and 40 CFR § 257.93. This memorandum documents the results of statistical tests conducted to determine if Appendix IV groundwater monitoring constituents detected in samples collected from wells located downgradient of the Ash Pond are present at a statistically significant levels (SSL) above groundwater protection standards (GWPS) consistent with the requirements in 40 CFR § 257.95.

As required by 40 CFR § 257.95(b) and 40 CFR § 257.95(d)(1), two rounds of groundwater sampling and analysis were completed by October 15, 2018. GWPSs, pursuant to 40 CFR § 257.95(d)(2) and in accordance with Phase I, Part 1 CCR Rule Revisions dated 17 July 2018, effective 16 August 2018, were generated for each Appendix IV constituent detected during assessment monitoring. The GWPSs were set at the maximum contaminant level (MCL) or regional screening level (RSL) for those constituents that did not have a promulgated MCL since the background values for the detected Appendix IV constituents did not exceed those values.

For the Ash Pond, which was in assessment monitoring in 2018, analytical results from downgradient wells were compared to each respective GWPS. If the detected constituent was greater than the GWPS for that Unit, pursuant to 40 CFR § 257.93 (f)(5), the confidence interval method was used to evaluate if that Appendix IV constituent was present at a statistically significant level (SSL). The statistical

procedures chosen to evaluate the assessment monitoring results differ from the procedures certified to evaluate the detection monitoring results. As a result, and as required by 40 CFR § 257.93 (f)(5), the certification of the statistical method for the Ash Pond has been updated and is provided with this notification as Attachment A.

Based on the comparisons outlined above, the results of the statistical analyses conducted for those detected Appendix IV constituents indicate that molybdenum and lithium are present at statistically significant levels above GWPSs in one or more wells downgradient of the Ash Pond. A summary of the assessment monitoring sampling results and the statistical analysis is provided with this notification as Attachment B.

Enclosures:

Attachment A – Selection of Statistical Procedures Certification for the Ash Pond

Attachment B – Summary of Assessment Monitoring Sampling Results and Statistical Analysis

**ATTACHMENT A**

**Selection of Statistical Procedures Certification for the Ash Pond**



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**SUBJECT:** Selection of Statistical Procedures Certification for the Ash Pond  
AES Ohio Generation, LLC (AES)  
Killen Electric Generation Station, Manchester, Ohio

Pursuant to CFR Title 40 Chapter I Subchapter I Part 257 Subpart D §257.93 (f)(6)<sup>1</sup>, I certify that the selected statistical method described herein will be appropriate for evaluating the groundwater monitoring data collected for detection and assessment monitoring for the CCR management area for the Killen Ash Pond. This certification and the underlying evaluation to select a statistical procedure were conducted under my direction or supervision according to a system designed to assure that qualified personnel selected the statistical procedure pursuant to 40 CFR §257.93. The certification submitted is, to the best of my knowledge, accurate and complete.

It is anticipated that a tolerance interval is a concentration range, with a specified confidence level, designed to contain a pre-specified proportion (e.g., 95 percent) of the underlying population from which the statistical sample is drawn (background). The upper endpoint of a tolerance interval is called the upper tolerance limit or UTL. Depending on the data distribution, parametric or non-parametric tolerance limits procedures are used to evaluate groundwater monitoring data using this method. Parametric tolerance limits utilize normally distributed data or normalized data via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the tolerance limit. If all the background data are non-detect, a reporting limit (RL) may serve as an approximate upper tolerance limit.


Groundwater protection standards (GWPS), generated pursuant to 40 CFR § 257.95(d)(2) and in accordance with Phase I, Part 1 CCR Rule Revisions dated 17 July 2018, effective 16 August 2018, were generated for each Appendix IV constituent detected during assessment monitoring at the Killen Ash Pond. Analytical results from downgradient wells will be compared to each respective GWPS. If a constituent is greater than the GWPS for that Unit, pursuant to 40 CFR § 257.93 (f)(5), the confidence interval method will be used to evaluate if that Appendix IV constituent is present at a statistically significant level (SSL).

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<sup>1</sup> "The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating the selected statistical method is appropriate for evaluating the groundwater for the CCR management area. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data."

Specifically, the lower confidence limit (LCL) from each downgradient well will be compared to the GWPS. A confidence interval is an estimated concentration range intended to contain true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence or conversely, with a low probability of error. The LCL is the lower end of the confidence interval range. A LCL greater than the GWPS would indicate a SSL for that constituent. By requiring that a LCL be used as the basis of comparison, the statistical test will account for data variability and ensure that the potential statistical exceedance is unlikely to have occurred by chance. A parametric confidence interval on the mean is used if the data is normal with or without transformation. If no transformation is appropriate, the non-parametric confidence interval on the median is used. Pursuant to 40 CFR § 257.93 (g)(2), if an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparison procedure is used, the Type I experiment error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons will be maintained.

Any change in the statistical methods will be documented in a subsequent certification, if necessary and appropriate.

Signed:   
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Certifying Engineer

Print Name: Steven F. Putrich, P.E.  
Ohio License No.: 67329  
Title: Vice President  
Company: Haley & Aldrich, Inc.

Professional Engineer's Seal



**ATTACHMENT B**  
**Summary of Assessment Monitoring Sampling Results**  
**And Statistical Analysis**

**TABLE 1  
SUMMARY OF ASSESSMENT MONITORING SAMPLING RESULTS  
ASH POND - KILLEN ELECTRIC GENERATING STATION  
AES OHIO GENERATION, LLC - MANCHESTER, OHIO**

Chemical Group			Assessment Monitoring - EPA Appendix IV Constituents													Radiological		
			Antimony, Total	Arsenic, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Fluoride	Lead, Total	Lithium, Total	Mercury, Total	Molybdenum, Total	Selenium, Total	Thallium, Total	Radium-226 & 228	
<b>Groundwater Protection Standard</b>			<b>0.006</b>	<b>0.01</b>	<b>2</b>	<b>0.004</b>	<b>0.005</b>	<b>0.1</b>	<b>0.006</b>	<b>4</b>	<b>0.015</b>	<b>0.04</b>	<b>0.002</b>	<b>0.1</b>	<b>0.05</b>	<b>0.002</b>	<b>5</b>	
US EPA MCL			0.006	0.01	2	0.004	0.005	0.1		4			0.002		0.05	0.002	5	
US EPA RSL									0.006		0.015	0.04		0.1				
Units			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pCi/L	
Well Location	Sample Date	Sample Name																
Upgradient	MW-1	05/29/2018	MW1-052918-1725	< 0.002	< 0.005	<b>0.099</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.27</b>	< 0.001	<b>0.041</b>	< 0.0002	< 0.005	< 0.005	< 0.001	<b>0.543 J ± 0.27</b>
	MW-1	09/05/2018	MW-1-090518-1420	-	-	<b>0.096</b>	-	-	-	< 0.001	<b>0.28</b>	< 0.001	<b>0.043</b>	-	< 0.005	-	-	0.941 R ± 0.276
	MW-2	05/29/2018	MW2-052918-1535	< 0.002	< 0.005	<b>0.11</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.45</b>	< 0.001	<b>0.04</b>	< 0.0002	< 0.005	< 0.005	< 0.001	<b>0.528 J ± 0.273</b>
	MW-2	09/04/2018	MW-2-090418-1635	-	-	<b>0.096</b>	-	-	-	< 0.001	<b>0.42</b>	< 0.001	<b>0.041</b>	-	< 0.005	-	-	<b>1.15 J+ ± 0.286</b>
Downgradient	MW-5	05/25/2018	MW5-052518-1545	< 0.002	< 0.005	<b>0.065</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.058</b>	< 0.001	< 0.008	< 0.0002	< 0.005	< 0.005	< 0.001	0.249 U ± 0.287
	MW-5	09/05/2018	MW-5-090518-1005	-	-	<b>0.055</b>	-	-	-	< 0.001	<b>0.061</b>	<b>0.0012</b>	< 0.008	-	< 0.005	-	-	0.353 UJ ± 0.243
	MW-6	05/25/2018	MW6-052518-1725	< 0.002	< 0.005	<b>0.059</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.24</b>	< 0.001	<b>0.13</b>	< 0.0002	< 0.005	< 0.005	< 0.001	0.306 U ± 0.225
	MW-6	09/05/2018	MW-6-090518-1240	-	-	<b>0.058</b>	-	-	-	<b>0.0037</b>	<b>0.22</b>	<b>0.0021</b>	<b>0.11</b>	-	< 0.005	-	-	<b>1.21 J+ ± 0.352</b>
	MW-10	05/29/2018	MW10-052918-1235	< 0.002	< 0.005	<b>0.1</b>	< 0.001	< 0.001	< 0.002	<b>0.0025</b>	<b>0.27</b>	<b>0.0013</b>	<b>0.011</b>	< 0.0002	< 0.005	< 0.005	< 0.001	<b>0.7 J ± 0.273</b>
	MW-10	09/04/2018	MW-10-090418-1140	-	-	<b>0.11</b>	-	-	-	<b>0.006</b>	<b>0.26</b>	<b>0.0064</b>	<b>0.015</b>	-	<b>0.0066</b>	-	-	<b>1.04 J+ ± 0.336</b>
	MW-11	05/29/2018	MW11-052918-1400	< 0.002	< 0.005	<b>0.064</b>	< 0.001	< 0.001	< 0.002	<b>0.0012</b>	<b>0.34</b>	< 0.001	<b>0.2</b>	< 0.0002	<b>0.1</b>	< 0.005	< 0.001	0.218 UJ ± 0.262
	MW-11	09/05/2018	MW-11-090518-1040	-	-	<b>0.067</b>	-	-	-	<b>0.0012</b>	<b>0.36</b>	< 0.001	<b>0.22</b>	-	<b>0.1</b>	-	-	<b>0.588 J ± 0.245</b>
	MW-12	05/29/2018	MW12-052918-1740	< 0.002	< 0.005	<b>0.1</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.36</b>	< 0.001	<b>0.81</b>	< 0.0002	<b>1.7</b>	< 0.005	< 0.001	<b>0.717 J ± 0.32</b>
	MW-12	09/04/2018	MW-12-090418-1445	-	-	<b>0.1</b>	-	-	-	<b>0.0024</b>	<b>0.36</b>	<b>0.0024</b>	<b>0.82</b>	-	<b>1.5</b>	-	-	<b>0.889 J ± 0.318</b>
MW-13	05/29/2018	MW13-052918-1937	< 0.002	< 0.005	<b>0.1</b>	< 0.001	< 0.001	< 0.002	< 0.001	<b>0.11</b>	< 0.001	<b>0.13</b>	< 0.0002	<b>0.0077</b>	< 0.005	< 0.001	0.262 UJ ± 0.255	
MW-13	09/05/2018	MW-13-090518-1310	-	-	<b>0.096</b>	-	-	-	< 0.001	<b>0.12</b>	< 0.001	<b>0.13</b>	-	<b>0.009</b>	-	-	<b>0.493 J+ ± 0.197</b>	

**NOTES:**

**Bold** indicates concentration detected above laboratory reporting limit  
 mg/L: milligram per liter  
 MCL: Maximum Contaminant Level  
 pCi/L: picoCurie per liter  
 RSL: Regional Screening Level  
 US EPA: United States Environmental Protection Agency

**TABLE 2**  
**SUMMARY OF ASSESSMENT MONITORING STATISTICAL ANALYSIS**  
**ASH POND - KILLEN ELECTRIC GENERATING STATION**  
**AES OHIO GENERATION, LLC - MANCHESTER, OHIO**

													Compliance Samples				Inter-well Analysis						
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well*	Lower Confidence Limit	Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)	Exceedance above Background at Individual Well	SSL
<b>CCR Appendix-IV: Antimony, Total (µg/L)</b>																							
MW-01	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA		2.0	6.0		
MW-02	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA					
MW-05	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-06	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-10	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-11	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-12	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-13	0/10	100%	2-2	2	2	2		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
<b>CCR Appendix-IV: Arsenic, Total (µg/L)</b>																							
MW-01	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA		5.0	10.0		
MW-02	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA					
MW-05	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
MW-06	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
MW-10	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
MW-11	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
MW-12	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
MW-13	0/10	100%	5-5	5	5	5		0	0	0	10	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE
<b>CCR Appendix-IV: Barium, Total (µg/L)</b>																							
MW-01	11/11	0%	-	104	99	130	150	258.7	16.08	0.1541	2000	µg/L	N	0	Yes	No	Stable			150.0	2000.0		
MW-02	11/11	0%	-	96	94	110	110	68.6	8.283	0.08628	2000	µg/L	N	0	No	No	Stable	Non-parametric					
MW-05	11/11	0%	-	64.6	65	78.5	82	121.5	11.02	0.1705	2000	µg/L	N	0	No	No	Stable	Normal	58.000			N	FALSE
MW-06	11/11	0%	-	66.9	68	91.5	95	293.9	17.14	0.2562	2000	µg/L	N	0	No	No	Stable	Normal	55.474			N	FALSE
MW-10	11/11	0%	-	116	110	145	150	245.5	15.67	0.1346	2000	µg/L	N	0	No	No	Stable	Normal	109.091			N	FALSE
MW-11	11/11	0%	-	65.4	64	72.5	74	19.45	4.411	0.06748	2000	µg/L	N	0	No	No	Stable	Normal	63.182			N	FALSE
MW-12	11/11	0%	-	115	120	135	140	213.4	14.61	0.1272	2000	µg/L	N	0	No	No	Stable	Normal	107.032			N	FALSE
MW-13	11/11	0%	-	92.9	92	105	110	74.69	8.642	0.09302	2000	µg/L	N	0	No	No	Stable	Normal	88.727			N	FALSE
<b>CCR Appendix-IV: Beryllium, Total (µg/L)</b>																							
MW-01	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	Non-parametric		3.3	4.0		
MW-02	1/10	90%	1-1	1.23	1	2.265	3.3	0.529	0.7273	0.5913	4	µg/L	N	0	No	No	NA						
MW-05	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-06	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-10	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-11	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-12	1/10	90%	1-1	1.2	1	2.1	3	0.4	0.6325	0.527	4	µg/L	N	0	No	No	NA	NA	1.000			N	FALSE
MW-13	0/10	100%	1-1	1	1	1		0	0	0	4	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
<b>CCR Appendix-IV: Cadmium, Total (µg/L)</b>																							
MW-01	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA		1.0	5.0		
MW-02	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA					
MW-05	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-06	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-10	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-11	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-12	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-13	0/10	100%	1-1	1	1	1		0	0	0	5	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
<b>CCR Appendix-IV: Chromium, Total (µg/L)</b>																							
MW-01	1/10	90%	2-2	2	2	2	2	0	0	0	100	µg/L	N	0	No	No	NA	Non-parametric		2.0	100.0		
MW-02	0/10	100%	2-2	2	2	2		0	0	0	100	µg/L	N	0	NA	NA	NA	NA					
MW-05	1/10	90%	2-2	2.12	2	2.66	3.2	0.144	0.3795	0.179	100	µg/L	N	0	No	No	Stable	Non-parametric	2.000			N	FALSE
MW-06	7/10	30%	2-2	3.26	2.7	5.81	6.8	2.48	1.575	0.4831	100	µg/L	N	0	No	No	Stable	Normal	2.819			N	FALSE
MW-10	2/10	80%	2-2	2.62	2	5.11	5.2	1.711	1.308	0.4992	100	µg/L	N	0	No	No	Stable	Non-parametric	2.000			N	FALSE
MW-11	0/10	100%	2-2	2	2	2		0	0	0	100	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-12	0/10	100%	2-2	2	2	2		0	0	0	100	µg/L	N	0	NA	NA	NA	NA	2.000			N	FALSE
MW-13	1/10	90%	2-2	2.07	2	2.385	2.7	0.049	0.2214	0.1069	100	µg/L	N	0	No	No	Stable	Non-parametric	2.000			N	FALSE
<b>CCR Appendix-IV: Cobalt, Total (µg/L)</b>																							
MW-01	0/11	100%	1-1	1	1	1		0	0	0	6	µg/L	N	0	NA	NA	NA	NA		1.0	6.0		
MW-02	0/11	100%	1-1	1	1	1		0	0	0	6	µg/L	N	0	NA	NA	NA	NA					
MW-05	0/11	100%	1-1	1	1	1		0	0	0	6	µg/L	N	0	NA	NA	NA	NA	1.000			N	FALSE
MW-06	8/11	27%	1-1	2.8	2.4	6.65	7.8	4.688	2.165	0.7733	6	µg/L	Y	1	No	No	Stable	Non-parametric	2.168			N	FALSE
MW-10	9/11	18%	1-1	2.43	1.7	5.15	6	2.816	1.678	0.6914	6	µg/L	N	0	No	No	Stable	Non-parametric	1.750			N	FALSE
MW-11	7/11	36%	1-1	1.27	1.1	1.9	2.1	0.1462	0.3823	0.3004	6	µg/L	N	0	No	No	Stable	Non-parametric	1.194			N	FALSE
MW-12	2/11	82%	1-1	1.15	1	1.8	2.4	0.1767	0.4204	0.367	6	µg/L	N	0	No	No	Stable	Non-parametric	1.018			N	FALSE
MW-13	1/11	91%	1-1	1.06	1	1.35	1.7	0.04455	0.2111	0.1984	6	µg/L	N	0	No	No	Stable	Non-parametric	1.000			N	FALSE



**TABLE 2**  
**SUMMARY OF ASSESSMENT MONITORING STATISTICAL ANALYSIS**  
**ASH POND - KILLEN ELECTRIC GENERATING STATION**  
**AES OHIO GENERATION, LLC - MANCHESTER, OHIO**

													Compliance Samples					Inter-well Analysis						
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well*	Lower Confidence Limit	Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)	Exceedance above Background at Individual Well	SSL	
<b>CCR Appendix-IV: Fluoride (µg/L)</b>																								
MW-01	9/11	18%	1000-1000	401	270	1000	350	88870	298.1	0.7436	4000	µg/L	N	0	No	No	Stable	Non-parametric		1000.0	4000.0			
MW-02	9/11	18%	1000-1000	497	420	1000	450	65540	256	0.5148	4000	µg/L	N	0	No	No	Stable							
MW-05	6/11	45%	50-1000	251	61	1000	110	140500	251	1.493	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	51.333			N	FALSE	
MW-06	8/11	27%	250-1000	369	240	1000	360	100500	317	0.8588	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	170.649			N	FALSE	
MW-10	8/11	27%	250-1000	391	250	1000	380	92950	304.9	0.7799	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	210.390			N	FALSE	
MW-11	9/11	18%	1000-1000	465	360	1000	370	70810	266.1	0.5728	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	310.000			N	FALSE	
MW-12	9/11	18%	1000-1000	466	360	1000	380	70010	264.6	0.5673	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	326.883			N	FALSE	
MW-13	8/11	27%	250-1000	281	110	1000	120	128300	358.2	1.274	4000	µg/L	N	0	Yes	No	Stable	Non-parametric	88.444			N	FALSE	
<b>CCR Appendix-IV: Lead, Total (µg/L)</b>																								
MW-01	0/11	100%	1-1	1	1	1		0	0	0	15	µg/L	N	0	NA	NA	NA	NA			15.0			
MW-02	0/11	100%	1-1	1	1	1		0	0	0	15	µg/L	N	0	NA	NA	NA	NA						
MW-05	3/11	73%	1-1	1.08	1	1.35	1.4	0.02164	0.1471	0.136	15	µg/L	N	0	No	No	Stable	Non-parametric	1.018			N	FALSE	
MW-06	8/11	27%	1-1	2.15	1.8	4.85	5.2	2.011	1.418	0.6581	15	µg/L	N	0	Yes	No	Stable	Non-parametric	1.730			N	FALSE	
MW-10	5/11	55%	1-1	2.25	1	5.75	6.4	4.323	2.079	0.9222	15	µg/L	N	0	No	No	Stable	Non-parametric	1.400			N	FALSE	
MW-11	3/11	73%	1-1	1.04	1	1.2	1.2	0.006545	0.0809	0.07807	15	µg/L	N	0	Yes	No	Stable	Non-parametric	1.000			N	FALSE	
MW-12	4/11	64%	1-1	1.18	1	1.8	2.4	0.1716	0.4143	0.3506	15	µg/L	N	0	Yes	No	Stable	Non-parametric	1.036			N	FALSE	
MW-13	3/11	73%	1-1	1.14	1	1.7	2.2	0.1285	0.3585	0.3155	15	µg/L	N	0	Yes	No	Stable	Non-parametric	1.018			N	FALSE	
<b>CCR Appendix-IV: Lithium, Total (µg/L)</b>																								
MW-01	11/11	0%	-	42.7	42	51	58	31.22	5.587	0.1308	40	µg/L	Y	2	Yes	No	Stable	Non-parametric			58.0	58.0		
MW-02	11/11	0%	-	38	39	41	41	8.4	2.898	0.07627	40	µg/L	Y	1	No	No	Stable							
MW-05	0/11	100%	8-8	8	8	8		0	0	0	40	µg/L	N	0	NA	NA	NA	NA	8.000			N	FALSE	
MW-06	11/11	0%	-	110	110	130	130	828.8	28.79	0.2624	40	µg/L	Y	2	Yes	No	Stable	Non-parametric	85.273			Y	TRUE	
MW-10	11/11	0%	-	11.2	11	14.5	15	3.826	1.956	0.1742	40	µg/L	N	0	No	No	Stable	Normal	10.227			N	FALSE	
MW-11	11/11	0%	-	194	200	220	220	465.5	21.57	0.1114	40	µg/L	Y	2	No	No	Stable	Normal	178.182			Y	TRUE	
MW-12	11/11	0%	-	814	810	990	990	13990	118.3	0.1453	40	µg/L	Y	2	No	No	Stable	Normal	748.182			Y	TRUE	
MW-13	11/11	0%	-	121	120	135	140	137.8	11.74	0.09724	40	µg/L	Y	2	No	No	Stable	Normal	113.843			Y	TRUE	
<b>CCR Appendix-IV: Mercury, Total (µg/L)</b>																								
MW-01	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA			0.2	2.0		
MW-02	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA						
MW-05	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
MW-06	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
MW-10	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
MW-11	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
MW-12	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
MW-13	0/10	100%	0.2-0.2	0.2	0.2	0.2		2.467E-17	4.967E-09	2.484E-08	2	µg/L	N	0	NA	NA	NA	NA	0.200			N	FALSE	
<b>CCR Appendix-IV: Molybdenum, Total (µg/L)</b>																								
MW-01	1/11	91%	5-10	9.73	10	13.5	17	9.818	3.133	0.3221	100	µg/L	N	0	No	No	No	Non-parametric			17.0	100.0		
MW-02	2/11	82%	5-10	9.55	10	12.5	14	6.473	2.544	0.2665	100	µg/L	N	0	No	No	No							
MW-05	0/11	100%	5-10	9.09	10	10		4.091	2.023	0.2225	100	µg/L	N	0	NA	NA	NA	NA	7.273			N	FALSE	
MW-06	1/11	91%	5-10	10.1	10	15.5	21	17.09	4.134	0.4097	100	µg/L	N	0	Yes	No	Stable	Non-parametric	8.182			N	FALSE	
MW-10	2/11	82%	5-10	9.33	10	10.5	11	3.258	1.805	0.1935	100	µg/L	N	0	Yes	No	Stable	Non-parametric	7.739			N	FALSE	
MW-11	11/11	0%	-	110	110	120	120	60	7.746	0.07042	100	µg/L	N	0	No	No	Stable	Normal	105.455			Y	FALSE	
MW-12	11/11	0%	-	1350	1300	1600	1700	26730	163.5	0.1215	100	µg/L	Y	2	No	No	Increasing	Normal	1263.636			Y	TRUE	
MW-13	2/11	82%	10-10	9.7	10	10	9	0.53	0.728	0.07505	100	µg/L	N	0	Yes	No	Stable	Non-parametric	8.955			N	FALSE	
<b>CCR Appendix-IV: Radium-226 &amp; 228 (pCi/L)</b>																								
MW-01	4/7	43%	5-5	2.52	0.894	5	0.894	5.379	2.319	0.9191	5	pCi/L	N	0	No	No	Stable	Non-parametric			5.0	5.0		
MW-02	6/10	40%	5-5	2.44	1.003	5	1.15	4.879	2.209	0.9044	5	pCi/L	N	0	No	No	Stable							
MW-05	0/8	100%	5-5	5	5	5		0	0	0	5	pCi/L	N	0	NA	NA	NA	NA	2.963			N	FALSE	
MW-06	3/8	62%	5-5	3.54	5	5	1.71	4.174	2.043	0.5769	5	pCi/L	N	0	No	No	Stable	Non-parametric	2.166			N	FALSE	
MW-10	8/9	11%	5-5	1.23	0.749	3.572	1.43	2.099	1.449	1.177	5	pCi/L	N	0	Yes	No	Stable	Non-parametric	0.656			N	FALSE	
MW-11	6/9	33%	5-5	2.07	0.592	5	0.916	4.862	2.205	1.068	5	pCi/L	N	0	No	No	Stable	Non-parametric	0.504			N	FALSE	
MW-12	8/8	0%	-	1.05	0.8205	2.114	2.6	0.426	0.6527	0.621	5	pCi/L	N	0	Yes	No	Stable	Non-parametric	0.874			N	FALSE	
MW-13	3/9	67%	5-5	3.57	5	5	0.841	4.601	2.145	0.6006	5	pCi/L	N	0	No	No	Stable	Non-parametric	1.887			N	FALSE	
<b>CCR Appendix-IV: Selenium, Total (µg/L)</b>																								
MW-01	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA			5.0	50.0		
MW-02	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA						
MW-05	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
MW-06	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
MW-10	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
MW-11	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
MW-12	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
MW-13	0/10	100%	5-5	5	5	5		0	0	0	50	µg/L	N	0	NA	NA	NA	NA	5.000			N	FALSE	
<b>CCR Appendix-IV: Thallium, Total (µg/L)</b>																								
MW-01	0/10	100%	1-1	1	1	1		0	0	0	2	µg/L	N	0	NA	NA	NA	NA			2.0			
MW-02	0/10	100%	1-1	1	1																			