SOURCE ASSESSMENT REPORT FOR TDS IN MW-29 WHITE MESA URANIUM MILL

Blanding, Utah

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May 7, 2013

EXECUTIVE SUMMARY

This report is an assessment of the sources, extent, and potential dispersion of the specific constituents at Energy Fuels Resources (USA) Inc.'s White Mesa Mill Site which have exhibited two consecutive exceedances of their respective Groundwater Compliance Limits ("GWCLs"). This report also provides an evaluation of potential remedial action to restore and maintain groundwater quality to ensure that Groundwater Discharge Permit ("GWDP") limits will not be exceeded at the compliance monitoring point and that, to the extent applicable, discharge minimization technology and best available technology will be reestablished.

Given the recent analyses performed by INTERA Incorporated and other analyses and investigations at the site, and as the results of the geochemical analysis will demonstrate, the exceedances of total dissolved solids in MW-29 can be attributed to (1) natural background conditions, and (2) the small sample size of the data set used to calculate the original GWCL in *Revised Addendum: Background Groundwater Quality Report: New Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah* (INTERA, 2008). Therefore, a revised GWCL has been proposed, which is based on all available data to date and has been calculated in accordance with the *Groundwater Data Preparation and Statistical Process Flow for Calculating Groundwater Protection Standards, White Mesa Mill Site, San Juan County, Utah* ("Flowsheet"), which is included as an appendix to this Source Assessment Report.

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **i**
LIST OF TABLES ..... **ii**
LIST OF FIGURES ..... **ii**
LIST OF APPENDICES ..... **ii**
ABBREVIATIONS AND ACRONYMS ..... **iii**
1.0 INTRODUCTION **1**
1.1 Constituents and Wells Subject to this Report 3
1.2 Source Assessment Report Layout 3
2.0 CATEGORIES AND APPROACH FOR ANALYSIS **4**
2.1 Approach for Analysis 4
2.1.1 Other Constituents and Wells 5
2.2 Approach for Setting Revised GWCLs 6
3.0 RESULTS OF ANALYSIS **7**
3.1 Other Constituents and Wells 7
3.1.1 Total Dissolved Solids 7
4.0 CONCLUSIONS AND RECOMMENDATIONS **9**
5.0 REFERENCES **10**

LIST OF TABLES

Table 1 Summary of Findings 9

LIST OF FIGURES

Figure 1 Location of White Mesa Mill Site
Figure 2 Location of Groundwater Monitoring Wells

LIST OF APPENDICES

Appendix A GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Appendix B Geochemical Analysis for TDS in MW-29
B-1 Summary of Geochemical Analysis for TDS in MW-29
B-2 Comparison of Calculated and Measured TDS in MW-29
B-3 Charge Balance Calculations for Major Cations and Anions in MW-29
B-4 Descriptive Statistics for TDS in MW-29
B-5 Box Plot for TDS in MW-29
B-6 Histogram for TDS in MW-29
B-7 Linear Regressions of TDS in MW-29
Appendix C Geochemical Analysis for Indicator Parameters in MW-29
C-1 Summary of Geochemical Analysis for Indicator Parameters in MW-29
C-2 Descriptive Statistics for Indicator Parameters in MW-29
C-3 Data Omitted from Statistical Analysis
C-4 Box Plots for Indicator Parameters in MW-29
C-5 Histograms for Indicator Parameters in MW-29
C-6 Linear Regressions for Normally or Lognormally Distributed Indicator Parameters in MW-29
C-7 Mann-Kendall Analysis for Indicator Parameters Not Distributed Normally or Lognormally
Appendix D Time Concentration Plot Comparison
D-1 Time Concentration Plot Comparison for TDS in MW-29
D-2 Time Concentration Plots Comparison for Indicator Parameters in MW-29
Appendix E Flowsheet (Groundwater Data Preparation and Statistical Process Flow for Calculating Groundwater Protection Standards, White Mesa Mill Site (INTERA, 2007a))
Appendix F Input and Output Files (Electronic Only)

ABBREVIATIONS AND ACRONYMS

Director	Director of the Division of Radiation Control
DRC	State of Utah Division of Radiation Control
EFRI	Energy Fuels Resources (USA) Inc.
GWCL	Groundwater Compliance Limit
GWDP	State of Utah Ground Water Discharge Permit UGW370004
GWQS	Groundwater Quality Standard
INTERA	INTERA Incorporated
mean + 2σ	mean plus two sigma
mg/L	milligrams per liter
Mill	White Mesa Uranium Mill
SAR	Source Assessment Report
TDS	Total Dissolved Solids
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Energy Fuels Resources (USA) Inc. ("EFRI") (formerly named Denison Mines (USA) Corp.) operates the White Mesa Uranium Mill (the "Mill"), located near Blanding, Utah (Figure 1), under State of Utah Groundwater Discharge Permit UGW370004 (the "GWDP"). This is the Source Assessment Report ("SAR") required under Part I.G.4 of the GWDP relating to violations of Part I.G.2 of the GWDP with respect to total dissolved solids ("TDS") in groundwater compliance monitoring well MW-29 (Figure 2).

Part I.G.2 of the GWDP provides that out-of-compliance status exists when the concentration of a constituent in two consecutive samples from a compliance monitoring point exceeds a groundwater compliance limit ("GWCL") in Table 2 of the GWDP. The GWDP was originally issued in March 2005, at which time GWCLs were set on an interim basis, based on fractions of State of Utah Ground Water Quality Standards ("GWQSs") or the equivalent, without reference to natural background at the Mill site. The GWDP also required that EFRI prepare a background groundwater quality report to evaluate all historical data for the purposes of establishing background groundwater quality at the site and developing GWCLs under the GWDP. As required by then Part I.H.3 of the GWDP, EFRI submitted the following to the Director (the "Director") of the Utah Division of Radiation Control ("DRC") (the Director was formerly the Executive Secretary of the Utah Radiation Control Board and the Co-Executive Secretary of the Utah Water Quality Board):

- *A Revised Background Groundwater Quality Report: Existing Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah, October 2007,* prepared by INTERA Incorporated (INTERA) (the "Existing Wells Background Report").
- *A Revised Addendum: Evaluation of Available Pre-Operational and Regional Background Data, Background Groundwater Quality Report: Existing Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah, November 16, 2007,* prepared by INTERA (the "Regional Background Report").
- *A Revised Addendum: Background Groundwater Quality Report: New Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah, April 30, 2008,* prepared by INTERA (the "New Wells Background Report," and together with the "Existing Wells Background Report" and the "Regional Background Report," the "Background Reports").

Based on a review of the Background Reports and other information and analyses, the Director re-opened the GWDP and modified the GWCLs to be equal to the mean concentration plus two

standard deviations or the equivalent. The modified GWCLs became effective on January 20, 2010.

The Director issued a Notice of Violation and Compliance Order, Docket No. UGWll-02 (the "Notice of Violation"), dated May 9, 2011, based on DRC's findings from the review of the Mill's first, second, and third quarter 2010 Groundwater Monitoring Reports. The Notice cited five violations of the GWDP, including a violation under the Utah Water Quality Act (UC 19-5-107) and Part I.C.1 of the GWDP, in that six contaminants exceeded their respective GWCLs, as defined in Table 2 of the GWDP, for two consecutive sampling events. Section E.4 of the Notice ordered EFRI to prepare and submit, within 30 calendar days of receipt of the Notice, a written plan and time schedule for Director approval to fully comply with the requirements of Part I.G.4(c) of the GWDP. In response to the Notice, EFRI submitted the Initial Plan and Time Schedule ("Initial Plan and Time Schedule") to address constituents that exceeded their respective GWCLs for two consecutive sampling events in the first, second, third, and fourth quarters of 2010 and the first quarter of 2011. The Initial Plan and Time Schedule was submitted June 13, 2011. Subsequent to the Initial Plan and Time Schedule, EFRI submitted a Plan and Time Schedule for the second quarter of 2011 ("Q2 2011 Plan and Schedule") to address constituents that exceeded their respective GWCLs for two consecutive sampling events in the second quarter of 2011. The Q2 2011 Plan and Schedule was submitted on September 7, 2011.

In the first quarter of 2012, TDS in MW-31 was identified as exceeding its respective GWCL for two consecutive sampling events. EFRI requested that no additional plan and time schedule be prepared and that this exceedance be addressed in conjunction with the sulfate exceedances as described in the June 13, 2011, Initial Plan and Time Schedule. DRC agreed with this request in correspondence dated August 1, 2012.

Pursuant to the Initial Plan and Schedule and the Q2 2011 Plan and Schedule, EFRI submitted a SAR to DRC on October 10, 2012. The SAR covered the constituents in violation of Part I.G.2 of the GWDP that were identified in the Initial Plan and Time Schedule and in the Q2 2011 Plan and Schedule.

On November 15, 2012, EFRI submitted a notice (the "3rd Quarter 2012 Exceedance Notice") to the Executive Secretary under Part I.G.1(a) of the Permit providing notice that the concentrations of specific constituents in the monitoring wells at the Mill exceeded their respective GWCLs for the third quarter of 2012 and indicating which of those constituents had two consecutive exceedances as of that quarter. A Plan and Time Schedule for the third quarter of 2012 ("Q3 2012 Plan and Time Schedule") covers the constituent that was identified as being in violation of Part I.G.2 of the Permit. The Q3 2012 Plan and Time Schedule was submitted on

December 13, 2012. The Q3 2012 Plan and Time Schedule was approved by DRC in correspondence dated February 4, 2013.

This SAR addresses the constituent that was identified as being in violation of Part I.G.2 of the GWDP in the 3rd Quarter 2012 Exceedance Notice and as described in the DRC-approved Q3 2012 Plan and Time Schedule.

1.1 Constituents and Wells Subject to this Report

This SAR covers TDS in MW-29. TDS is the constituent identified as being in violation of Part I.G.2 of the GWDP during the third quarter of 2012 pursuant to the foregoing Exceedance Notice and the Q3 2012 Plan and Time Schedule.

1.2 Source Assessment Report Layout

An overview of Sections 2.0 through 5.0 and the appendices included with this SAR is provided below.

A description of the approach used for analysis is provided in Section 2.0, and the results of the analysis are presented in Section 3.0. Conclusions and recommendations are reviewed in Section 4.0, and references are included in Section 5.0.

The appendices are comprised of the analyses performed for this SAR and are organized in the following manner: Appendix A contains a table showing the exceedances (TDS in MW-29). Appendix B contains the geochemical analysis performed on TDS in MW-29. Appendix C contains the indicator parameter analysis performed on MW-29. Appendix D contains data plots for TDS in MW-29 using all available data to date compared to the data plots from the Background Reports, as well as current data plots of all indicator parameters and plots of indicator parameters from the Background Reports. Appendix E contains the Flowsheet developed based on the United States Environmental Protection Agency's ("USEPA") *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (USEPA, 2009), and approved by DRC prior to completion of the Background Reports. Appendix F is included on the compact disc that accompanies this SAR and contains the electronic input and output files used for statistical analysis.

2.0 CATEGORIES AND APPROACH FOR ANALYSIS

Generally, out-of-compliance constituents and wells can be grouped into five categories:

1. Constituents in wells with previously identified rising trends.
2. Constituents in pumping wells.
3. Constituents potentially impacted by decreasing trends in pH across the site.
4. Newly installed wells with interim GWCLs.
5. Other constituents and wells.

This SAR addresses one constituent in one well (TDS in MW-29), neither of which falls into any of the first four categories listed above. Therefore, the "other constituents and wells" category will apply.

2.1 Approach for Analysis

The first step in the analysis is to perform an assessment of the potential sources for the exceedance to determine whether the exceedance is due to background influences or Mill activities. If the exceedance is determined to be caused by background influences, then it is not necessary to perform any further evaluations on the extent and potential dispersion of the contamination or to perform an evaluation of potential remedial actions. Monitoring will continue, and where appropriate, a revised GWCL will be proposed to reflect changes in background conditions at the site.

The assessment for potential sources for the exceedance was accomplished by performing a geochemical analysis to evaluate the behavior of the constituents in the well in question to determine if there have been any changes in the behavior of indicator parameters, such as chloride, sulfate, fluoride, and uranium, since the date of the Background Reports that may suggest a change in the behavior of that well.

As discussed in detail in Section 9.0 of the Existing Wells Background Report, chloride is the best indicator of potential tailings cell leakage, followed by fluoride, and then sulfate (due to mobility and abundance in tailings). Uranium is probably the most mobile of trace (metal) elements and is the best indicator parameter for metals and radionuclides. Any potential seepage from tailings impoundments would be expected to exhibit rising concentrations of chloride and possibly fluoride, sulfate, and uranium. However, while uranium may be the most mobile of trace (metal) elements, it is typically retarded behind chloride and would likely not be expressed in groundwater until sometime after chloride concentrations had begun to rise. This is because uranium is a metal cation and behaves as other metals with respect to pH. It is important to note,

however, that while the lack of a rising trend in chloride would indicate that there has been no impact from tailings, a rising trend in chloride could also be due to some natural influences (see Section 12.0 of the Existing Wells Background Report). Therefore, in situations where there is a significant rising trend in chloride, other evaluations would need to be performed, such as a determination as to whether any other indicator parameters have demonstrated a significant rising trend and whether or not the concentrations and mass balance indicate a potential tailings cell leak.

The geochemical analysis was supported by a statistical analysis that followed the process outlined in the *Groundwater Data Preparation and Statistical Process Flow for Calculating Groundwater Protection Standards, White Mesa Mill Site, San Juan County, Utah* ("Flowsheet") (INTERA, 2007a), a copy of which is provided in Appendix E. The Flowsheet was designed based on USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (USEPA, 2009), and was approved by DRC prior to completion of the Background Reports.

If it was determined through the geochemical analysis of the indicator parameters that the behavior of MW-29 has changed since the Background Report, a mass balance analysis was performed to evaluate the observed concentrations of the constituent in light of the concentrations in Mill tailings and the presence or absence of any mounding at the location of the well in question. Since MW-29 is not distant from the Mill's tailings cells, a hydrogeologic analysis was not performed to determine the plausibility of impact from Mill tailings.

If significant changes were identified that could not be attributed to background influences, then further analysis was proposed to identify the source, extent, and potential dispersion of the contamination, as well as to identify potential remedial actions. Additional analysis specific to the "other constituents and wells" category is described below.

2.1.1 Other Constituents and Wells

TDS does not fall into one of the previous categories and has been included in the "other constituents and wells" category.

Although TDS in MW-29 does not fall into any of the first four categories listed in Section 2.0, the primary focus for the source assessment for MW-29 is the same as in those categories: to determine whether or not there is any new information that would suggest that the previous analysis conducted in the Background Reports has changed since the dates of those reports.

The first step for this category was to perform a geochemical analysis evaluating the behavior of the constituents in MW-29 to determine if there have been any changes in the behavior of indicator parameters, such as chloride, sulfate, fluoride, and uranium, since the dates of the

Background Reports that may suggest a change in the behavior of that well since the dates of those reports.

If it was determined through the geochemical analysis of the indicator parameters that the behavior of MW-29 has changed since the Background Report, a mass balance analysis was performed to evaluate the observed concentrations of the constituent in light of the concentrations in Mill tailings and the presence or absence of any mounding at MW-29.

2.2 Approach for Setting Revised GWCLs

If the foregoing approaches resulted in the conclusion that the previous analysis in the Background Reports has not changed and that the out-of-compliance status of MW-29 is due to natural influences, then a new GWCL was proposed for the constituent. In proposing the revised GWCL, we have adopted the approach in the Flowsheet.

Appendix B-1 summarizes the geochemical analysis and presents the revised GWCL for TDS in MW-29 based on an application of the Flowsheet. It is assumed that once a revised GWCL is accepted for TDS in MW-29, accelerated monitoring for that constituent will cease.

3.0 RESULTS OF ANALYSIS

This section describes the results of the analysis, a summary of which is provided in Appendix B-1, Appendix C-1, and Appendix D.

3.1 Other Constituents and Wells

TDS in MW-29 was subjected to a geochemical analysis that compared current data and analysis to the results of analysis at the time of the New Wells Background Report to determine if the behavior of the well had changed since the dates of those reports. The primary focus of this analysis was to determine whether or not there was any new information that would suggest that conditions supporting the previous analysis conducted in the Background Reports have changed since the dates of those reports.

3.1.1 Total Dissolved Solids

The concentration of TDS has been out of compliance in MW-29 for three consecutive quarters in 2012. The results of the geochemical analysis of TDS in MW-29 show that concentrations are not behaving differently than they were at the time of the Background Report. TDS in MW-29 was decreasing (not significantly) at the time of the Background Report. Appendix B indicates that at the time of this SAR, the trend line for TDS is still slightly sloping downward (r= -0.02), however, no real trend is observed. Chloride analysis at the time of the Background Report displayed a decreasing trend that was not significant. At the time of this SAR, chloride is showing a significantly decreasing trend. Sulfate concentrations are also showing a decreasing trend, however the trend is not significant. Uranium concentrations are increasing in MW-29. However, that trend is not identified as being significant in the Mann-Kendal trend analysis. Further, without the increase of other indicator parameters, increasing uranium concentrations can be attributed to natural influences at the site rather than any potential tailings cell seepage.

The foregoing geochemical analysis indicates that because there is not a rising trend in TDS and the key indicator parameter chloride is decreasing, the groundwater in MW-29 is not behaving differently than at the time of the Background Report. It is therefore appropriate to revise the GWCL for TDS in MW-29 to better reflect natural background conditions. The major difference between what the data show for TDS in MW-29 at the time of the Background Report and the time of this SAR is that there are more data. At the time of the Background Report, although there were ten data results, two were identified and removed as extreme outliers, resulting in the GWCL for TDS being calculated using the minimum required eight results. At the time of this SAR, 25 results are available.

At the time of the New Wells Background Report (using eight data points for analysis) TDS in MW-29 was not normally or lognormally distributed. Non parametric statistics were used, and according to the Flowsheet, the GWCL was set at the highest historical value of 4,400 milligrams per liter ("mg/L"). With 25 data points available at the time of this SAR, TDS concentrations in MW-29 are normally or lognormally distributed, which allows the GWCL to be calculated by adding the mean plus two standard deviations, for a proposed revised GWCL of 4,570 mg/L.

As a result, the out-of-compliance status of TDS in MW-29 is likely due to natural variations in the well that were not recognized at the time of the background report due to a small sample size (data set of eight results). For this reason, EFRI proposes that the GWCL in MW-29 be adjusted to take into account additional data. The current GWCL for TDS in MW-29 is 4,400 mg/L. The newly calculated proposed GWCL for TDS in MW-29 is 4,570 mg/L, which was calculated in accordance with the Flowsheet as the mean + 2σ, based on all data available to date.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Background at the Mill site was recently thoroughly studied in the Background Reports and in the University of Utah Study (Hurst and Solomon, 2008). Both the Background Reports and the University of Utah Study (Hurst and Solomon, 2008) concluded that groundwater at the site has not been impacted by Mill operations. Both of those studies also acknowledged that there are natural influences at play at the site that have given rise to increasing water trends and general variability of background groundwater at the site. The focus of this SAR was therefore to identify any changes in the circumstances identified in those studies. A geochemical analysis for the indicator parameters in MW-29 was performed.

The results of the analyses show that there has not been a significant change in the behavior of TDS in MW-29. TDS has not increased over time in MW-29, and the geochemical analysis of indicator parameters indicates that there has been no impact in MW-29 from mill operations. This means that the exceedances of TDS observed in MW-29 are the result of setting GWCLs at the time of the Background Report using too few data.

Table 1
Summary of Findings

Well	Out-of-Compliance Constituent	Summary	Path Forward
MW-29	TDS	No significantly increasing trend in any of the indicator parameters. Consistent with background conditions.	Revise GWCL

Based on these findings and the application of the Flowsheet, EFRI proposes a revised GWCL for TDS in MW-29 of 4,570 mg/L.

5.0 REFERENCES

Hurst, T.G., and Solomon, D.K., 2008. *Summary of Work Completed, Data Results, Interpretations and Recommendations for the July 2007 Sampling Event at the Denison Mines, USA, White Mesa Uranium Mill Near Blanding Utah.* Prepared by Department of Geology and Geophysics, University of Utah.

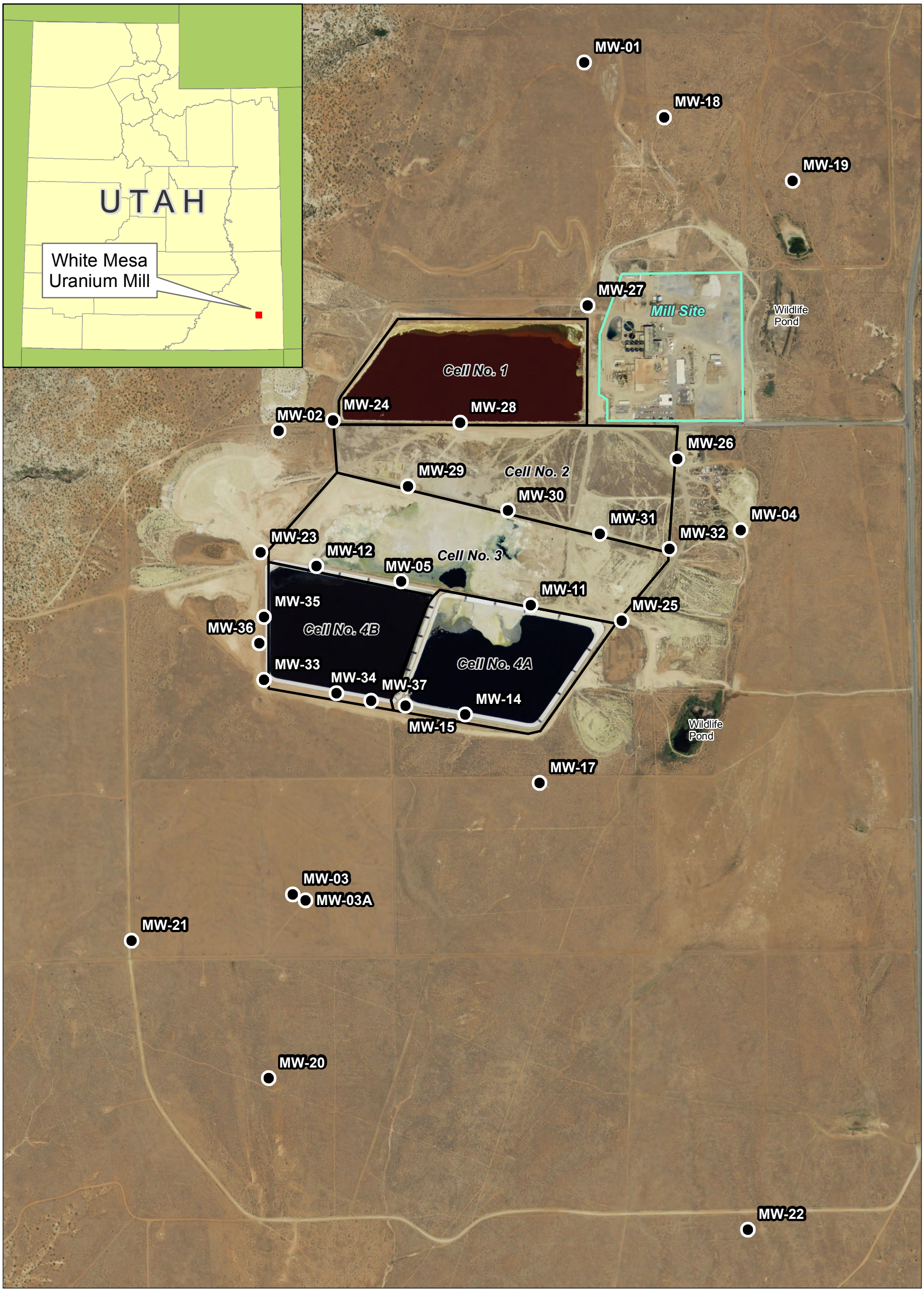
INTERA Incorporated, 2007a. *Revised Background Groundwater Quality Report: Existing Wells for Dension Mines (USA) Corp.'s White Mesa Uranium Mill Site, San Juan County, Utah.* October.

———, 2007b. *Revised Addendum: Evaluation of Available Pre-Operational and Regional Background Data, Background Groundwater Quality Report: Existing Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah*. November 16.

———, 2008. *Revised Addendum: Background Groundwater Quality Report: New Wells for Denison Mines (USA) Corp.'s White Mesa Mill Site, San Juan County, Utah.* April 30.

USEPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities EPA 530/R-09-007.*

FIGURES



Source(s): Aerial – NAIP Utah 2011;
Wells – HGC, Inc., May 2008 report.

Figure 1
Location of White Mesa Mill Site
White Mesa Uranium Mill

S:\Projects\IUC-001-01-001 Denison Mines\GIS\mapdocs\Task_4_NOV\Fig01_LocationMap.mxd Date: 9/14/2012

Source(s): Aerial – NAIP Utah 2011;
Wells – HGC, Inc., May 2008 report;

Figure 2
Wells with GWCL exceedences
during 3Q 2012
White Mesa Uranium Mill

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APPENDIX A

GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

Q1 2010 Results					Q2 2010 Results						Q3 2010 Results						Q4 2010 Results					
Monitoring Well (Water Class)	Constituent Exceeding GWCL	GWCL in August 24, 2012 GWDP	Q1 2010 Sample Date	Q1 2010 Result	Q2 2010 Sample Date	Q2 2010 Result	May 2010 Monthly Sample Date	May 2010 Monthly Result	June 2010 Monthly Sample Date	June 2010 Monthly Result	July 2010 Monthly Sample Date	July 2010 Monthly Result	August 2010 Monthly Sample Date	August 2010 Monthly Result	Q3 2010 Sample Date	Q3 2010 Result	October 2010 Monthly Sample Date	October 2010 Monthly Result	Q4 2010 Sample Date	Q4 2010 Result	December 2010 Monthly Sample Date	December 2010 Monthly Result
Required Quarterly Sampling Wells																						
MW-11 (Class II)	Manganese (ug/L)	131.29	2/10/10	***134***	4/28/10	***137***	5/24/10	122	6/16/10	99	7/20/10	123	8/25/10	138	9/8/10	128	10/20/10	***141***	11/11/10	***133***	12/15/10	***158***
MW-14 (Class III)	Manganese (ug/L)	2230.30	2/2/10	2060	4/21/10	2070	5/21/10	NA	6/16/10	NA	7/20/10	NA	8/25/10	NA	9/8/10	1920	10/20/10	NA	11/10/10	1980	12/15/10	NA
	Field pH (S.U.)	6.5 - 8.5		***6.45***		***6.29***		***6.36***		***6.45***		7.19		***6.48***		6.51		6.60		***6.37***		***6.47***
MW-25 (Class III)	Field pH (S.U.)	6.5 - 8.5	2/26/2010	6.53	4/28/2010	7.2	NS	NA	NS	NA	NS	NA	NS	NA	9/8/2010	6.58	NS	NA	11/10/10	***6.36***	NS	NA
	Cadmium (ug/L)	1.5		1.26		1.44		NA		NA		NA		NA		1.4		NA		1.26		NA
	Chloride (mg/L)	35		31		31		NA		NA		NA		NA		31		NA		31		NA
	Uranium	6.5		5.93		6.43		NA		NA		NA		NA		***6.57***		NA		5.89		NA
MW-26 (Class III)	Nitrate + Nitrite (as N) (mg/L)	0.62	2/2/10	***1.3***	4/22/10	***2***	5/21/10	0.3	6/16/10	0.4	7/21/10	0.6	8/16/10	0.6	9/26/10	***0.7***	10/20/10	0.4	11/15/10	0.2	12/15/10	0.4
	Uranium (ug/L)	41.8		***58.7***		***66.7***		37.4		36.6		34.4		***71.8***		***72.7***		37.5		30.4		29.6
	Chloroform (ug/L)	70		***700***		***1700***		***800***		***940***		***900***		***2800***		***2100***		***1000***		***1900***		***1400***
	Chloride (mg/L)	58.31		***72***		57		***80***		47		52		49		***64***		52		48		52
	Field pH (S.U.)	6.74 - 8.5		***6.59***		7.18		***6.36***		6.98		***6.45***		***6.39***		***6.60***		***6.61***		***6.49***		***6.45***
	Dichloromethane (Methylene Chloride) (ug/L)	5		1		***9.9***		NR		2.2		***12***		***24***		***45***		***5.5***		***16***		1.2
MW-30 (Class II)	Nitrate + Nitrite (as N) (mg/L)	2.5	2/9/10	***16.1***	4/27/10	***15.8***	5/21/10	***17***	6/15/10	***15.3***	7/21/10	***16***	8/24/10	***16***	9/14/10	***15***	10/19/10	***15***	11/9/10	***15***	12/14/10	***16***
	Chloride (mg/L)	128		127		97		NS		NS	NS	NS	NS	NS		111		NS		126		NS
	Uranium (ug/L)	8.32		6.82		6.82		NS		NS	NS	NS	NS	NS		7.10		NS		6.64		NS
	Selenium (ug/L)	34		32		***35.3***		NS		NS	7/27/10	33.5	8/24/10	***35.6***		32.6		32.4		32.2		30.5
MW-31 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5	2/9/10	***21.7***	4/20/10	***22.5***	5/21/10	***23***	6/15/10	***21.1***	7/21/10	***20***	8/24/10	***22***	9/13/10	***21***	10/19/10	***20***	11/9/10	***20***	12/14/10	***20***
	TDS (mg/L)	1320		1150		1220	NS	NA	NS	NA	NS	NA	NS	NA		***1330***	NS	NA		1320		NS
	Chloride (mg/L)	143		128		128	NS	NA	NS	NA	NS	NA	NS	NA		139	NS	NA		138		NS
	Selenium (ug/L)	71		60.8		59.6	NS	NA	NS	NA	NS	NA	NS	NA		64.4	NS	NA		60		NS
	Sulfate (mg/L)	532		507		522	NS	NA	NS	NA	NS	NA	NS	NA		527	NS	NA		***539***		NS
MW-35 (Class II)	Manganese (ug/L)	200	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/30/10	***698***	NS	NA
	Thallium (ug/l)	0.5		NA		NA		NA		NA		NA		NA		NA		NA		***1.14***		NA
	Molybdenum (ug/L)	10		NA		NA		NA		NA		NA		NA		NA		NA		<10		NA
	Gross Alpha minus Rn & U (pCi/L)	3.75		NA		NA		NA		NA		NA		NA		NA		NA		2.6		NA
	Selenium (ug/L)	12.5		NA		NA		NA		NA		NA		NA		NA		NA		ND		NA
	Uranium (ug/L)	7.5		NA		NA		NA		NA		NA		NA		NA		NA		***27.2***		NA
Required Semi-Annual Sampling Wells																						
MW-01 (Class II)	Manganese (ug/L)	289	NS	NA	5/5/2010	212	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/18/2010	275	NS	NA
	Tetrahydrofuran (ug/L)	11.5		NA		7.8		NA		NA		NA		NA		NA		NA		10.7		NA
	Sulfate (mg/L)	838		NA		805		NA		NA		NA		NA		NA		NA		792		NA
MW-2 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.2	NS	NA	4/27/10	1.2	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/17/10	***3.5***	NS	NA
MW-3 (Class III)	Selenium (ug/L)	37	NS	NA	5/3/10	***37.2***	NS	NA	NS	NA	NS	NA	NS	NA	9/20/10	35.5	NS	NA	11/19/10	***38.8***	NS	NA
	Field pH (S.U.)	6.5 - 8.5		NA		***6.14 (6.25)***		NA		NA		NA		NA		***6.39***		NA		***6.35***		NA
	Fluoride (mg/L)	0.68		NA		***0.71***		NA		NA		NA		NA		0.63		NA		***0.77***		NA
MW-3A (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	5/4/10	***6.23 (6.24)***	NS	NA	NS	NA	NS	NA	NS	NA	9/21/10	***6.42***	NS	NA	11/22/10	***6.21***	NS	NA
	Sulfate (mg/L)	3640		NA		***3680***		NA		NA		NA		NA		3630		NA		***3850***		NA
	Nitrate + Nitrite (as N) (mg/L)	1.3		NA		1.0		NA		NA		NA		NA		NA		NA		1.2		NA
	TDS (mg/L)	5805		NA		***5860***		NA		NA		NA		NA		5470		NA		5330		NA
	Selenium (ug/L)	89		NA		81.4		NA		NA		NA		NA		NS		NA		***94.8***		NA
MW-5 (Class II)	Uranium (ug/L)	7.5	NS	NA	4/26/10	0.39	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/11/10	***11.6***	NS	NA
MW-12 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	4/27/10	7.16	NS	NA	NS	NA	NS	NA	NS	NA	9/20/10	6.62	NS	NA	11/19/10	***6.47***	NS	NA
	Selenium (ug/L)	25		NA		***25.7***		NA		NA		NA		NA		***31.9***		NA		***27.6***		NA
MW-15 (Class III)	Selenium (ug/L)	128.7		NA	4/21/10	100	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/11/10	99.5	NS	NA
	Iron (ug/L)	81.7		NA		ND		NA		NA		NA		NA		NA		NA		ND		NA

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

Q1 2010 Results					Q2 2010 Results						Q3 2010 Results						Q4 2010 Results					
Monitoring Well (Water Class)	Constituent Exceeding GWCL	GWCL in August 24, 2012 GWDP	Q1 2010 Sample Date	Q1 2010 Result	Q2 2010 Sample Date	Q2 2010 Result	May 2010 Monthly Sample Date	May 2010 Monthly Result	June 2010 Monthly Sample Date	June 2010 Monthly Result	July 2010 Monthly Sample Date	July 2010 Monthly Result	August 2010 Monthly Sample Date	August 2010 Monthly Result	Q3 2010 Sample Date	Q3 2010 Result	October 2010 Monthly Sample Date	October 2010 Monthly Result	Q4 2010 Sample Date	Q4 2010 Result	December 2010 Monthly Sample Date	December 2010 Monthly Result
Required Quarterly Sampling Wells																						
MW-18 (Class III)	Thallium (ug/l)	1.95	NS	NA	5/4/10	***3.73***	NS	NA	NS	NA	NS	NA	NS	NA	9/15/10	***3.64***	NS	NA	11/18/10	***3.57***	NS	NA
	Sulfate (mg/L)	1938.9		NA		***1950***		NA		NA		NA		NA		1930		NA		1910		NA
	Field pH (S.U.)	6.25-8.5		NA		***6.2***		NA		NA		NA		NA		7.23		NA		6.37		NA
	TDS (mg/L)	3198.77		NA		***3280***		NA		NA		NA		NA		3190		NA		3030		NA
MW-19 (Class III)	Field pH (S.U.)	6.78-8.5	NS	NA	5/4/10	***6.61 (6.66)***	NS	NA	NS	NA	NS	NA	NS	NA	9/15/10	6.93	NS	NA	11/18/10	6.8	NS	NA
	Gross Alpha minus Rn & U (pCi/L)	2.36		NA		0.9		NA		NA		NA		NA		NA		NA		1.2		NA
	Nitrate + Nitrite (as N) (mg/L)	2.83		NA		2.6		NA		NA		NA		NA		NA		NA		2.4		NA
MW-23 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	4/22/10	***6.18***	NS	NA	NS	NA	NS	NA	NS	NA	9/14/10	7.05	NS	NA	11/22/10	***6.44***	NS	NA
	Manganese (ug/L)	550		NA		184		NA		NA		NA		NA		NS		NA		65		NA
MW-24 (Class III)	Cadmium (ug/L)	2.5	NS	NA	5/6/10	***4.28***	NS	NA	NS	NA	NS	NA	NS	NA	9/21/10	***5.06***	NS	NA	11/17/10	***3.22***	NS	NA
	Fluoride (mg/L)	0.36		NA		0.14		NA		NA		NA		NA		NA		NA		0.18		NA
	Thallium (ug/L)	1		NA		***1.3***		NA		NA		NA		NA		***1.57***		NA		***1.09***		NA
	Field pH (S.U.)	6.5 - 8.5		NA		***5.91 (5.78)***		NA		NA		NA		NA		6.64		NA		***6.1***		NA
MW-27 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5.6	NS	NA	5/3/10	***5.8***	NS	NA	NS	NA	NS	NA	NS	NA	9/14/10	***5.9***	NS	NA	11/12/10	***5.7***	NS	NA
	Chloride (mg/L)	38		NA		***42***		NA		NA		NA		NA		***42***		NA		***45***		NA
	Sulfate (mg/L)	462		NA		***469***		NA		NA		NA		NA		461		NA		452		NA
	Field pH (S.U.)	6.5-8.5		NA		6.78		NA		NA		NA		NA		7.68		NA		6.89		NA
	TDS (mg/L)	1075		NA		***1160***		NA		NA		NA		NA		1060		NA		***1110***		NA
	Gross Alpha minus Rn & U (pCi/L)	2		NA		1.6		NA		NA		NA		NA		NA		NA		***2.4***		NA
MW-28 (Class III)	Chloride (mg/L)	105	NS	NA	4/19/10	***108***	NS	NA	NS	NA	NS	NA	NS	NA	9/14/10	***106***	NS	NA	11/12/10	***107***	NS	NA
	Manganese (ug/L)	1837		NA		1550		NA		NA		NA		NA		NA		NA		1510		NA
	Field pH (S.U.)	6.1 - 8.5		NA		***5.67***		NA		NA		NA		NA		***5.91***		NA		***5.72***		NA
MW-29 (Class III)	Iron (ug/L)	1869	NS	NA	4/27/10	1630	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/9/10	1490	NS	NA
	Manganese (ug/L)	5624		NA		4820		NA		NA		NA		NA				NA		4890		NA
	TDS (mg/L)	4400		NA		4400		NA		NA		NA		NA				NA		4390		NA
	Field pH (S.U.)	6.46 - 8.5		NA		6.82		NA		NA		NA		NA				NA		***6.17***		NA
MW-32 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.33	NS	NA	4/20/10	***4.5***	NS	NA	NS	NA	NS	NA	NS	NA	9/13/10	2.9	NS	NA	11/10/10	***8.8***	NS	NA
	Field pH (S.U.)	6.4 - 8.5		NA		***6.03***		NA		NA		NA		NA		***6.33***		NA		***6.05***		NA

Notes:
GWCL values are taken from the August 24, 2012 version of the GWDP.
Exceedances are shown in yellow.
Values in () parentheses are the field pH measurements for the resampled
ug/L = micrograms per liter
mg/L = milligrams per liter
NS = Not Required and Not Sampled
NR = Required and Not Reported
NA = Not Applicable
pCi/L = picocuries per liter
SU = Standard Units

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2011 Results						Q2 2011 Results						Q3 2011 Results						Q4 2011 Results					
Monitoring Well (Water Class)	Constituent Exceeding GWCL	GWCL in August 24, 2012 GWDP	January 2011 Monthly Sample Date	January 2011 Monthly Sample Result	Q1 2011 Sample Date	Q1 2011 Result	March 2011 Monthly Sample Date	March 2011 Monthly Result	Q2 2011 Sample Date	Q2 2011 Result	May 2011 Monthly Sample Date	May 2011 Monthly Result	June 2011 Monthly Sample Date	June 2011 Monthly Result	July 2011 Monthly Sample Date	July 2011 Monthly Result	Q3 2011 Sample Date	Q3 2011 Result	September 2011 Monthly Sample Date	September 2011 Monthly Result	Q4 2011 Sample Date	Q4 2011 Result	November 2011 Monthly Sample Date	November 2011 Monthly Result	December 2011 Monthly Sample Date	December 2011 Monthly Result
Required Quarterly Sampling Wells																										
MW-11	Manganese (ug/L)	131.29	1/11/11	121	2/2/11	***145***	3/15/11	68	4/4/2011	***148***	5/10/2011	***170***	6/15/2011	121	7/6/2011	***151***	8/3/2011	118	9/7/2011	106	10/4/2011	112	11/9/2011	105	12/14/2011	100
MW-14 (Class III)	Manganese (ug/L)	2230.30	1/11/11	NA	2/7/11	2020	3/14/11	NA	4/4/2011	2140	5/10/2011	NA	6/15/2011	NA	7/5/2011	NA	8/3/2011	1990	9/8/2011	NA	10/4/2011	1960	11/9/2011	NA	12/12/2011	NA
	Field pH (S.U.)	6.5 - 8.5		***6.37***		***6.22***		6.76		6.63		***6.37***		***5.83***		***6.4***		***6.23***		6.50		6.71 (6.82)		6.63		6.84
MW-25 (Class III)	Field pH (S.U.)	6.5 - 8.5	1/11/11	***6.44***	2/2/11	6.66	3/15/11	6.79	4/4/2011	6.7	5/11/2011	***6.1***	6/20/2011	***5.77***	7/6/2011	***6.29***	8/3/2011 8/30/11	***6.42 (6.54)***	9/7/2011	6.54	10/4/2011	6.6	11/9/2011	6.51	1212/2011	6.87
	Cadmium (ug/L)	1.5		NA		1.34		NA		1.27		NA		NA		NA	8/30/2012	1.19		NA		1.27		NA		NA
	Chloride (mg/L)	35		NA		30		NA		31		NA		NA		NA	8/3/2011	32		NA		32		NA		NA
	Uranium	6.5		***7.02***		4.77		***6.8***		5.56		***6.72***		***7.06***		***6.74***		6.37		5.96		5.27		***6.56***		6.1
MW-26 (Class III)	Nitrate + Nitrite (as N) (mg/L)	0.62	1/12/11	0.2	2/16/11	0.25	3/15/11	0.6	4/1/2011	***0.8***	5/10/2011	0.4	6/20/2011	0.3	7/6/2011	***0.9***	8/3/2011 8/30/11	0.6	9/7/2011	***2.4***	10/12/2011	***0.9***	11/9/2011	***1.3***	12/14/2011	***2.3***
	Uranium (ug/L)	41.8		32		***69.3***		31.8		***60.2***		***57.4***		18.5		***57.1***		19.0		***56.1***		***58.9***		***55.6***		***57***
	Chloroform (ug/L)	70		***800***		***730***		***1200***		***390***		***1900***		***730***		***300***		***1000***		***1300***		***440***		***1200***		***1400***
	Chloride (mg/L)	58.31		52		***59***		***64***		***64***		54		39		***64***		***60***		***66***		***61***		55		***62***
	Field pH (S.U.)	6.74 - 8.5		6.83		***6.06***		6.89		***6.22***		***6.43***		***6.52***		***6.35***		***6.07 (6.58)***		***6.71***		6.82		6.75		7.1
	Dichloromethane (Methylene Chloride) (ug/L)	5		<1.0		***10***		***14***		3.1		***20***		***7***		2.4		***10***		***7.9***		2.6		***8.9***		***11***
MW-30 (Class II)	Nitrate + Nitrite (as N) (mg/L)	2.5	1/10/11	***15***	2/1/11	***16***	3/14/11	***17***	4/11/2011	***16***	5/10/2011	***16***	6/20/2011	***17***	7/5/2011	***17***	8/3/2011	***14***	9/7/2011	***16***	10/4/2011	***16***	11/8/2011	***16***	12/12/2011	***16***
	Chloride (mg/L)	128		NS		***134***		NS		***134***		128		127		127		126		***145***		***129***		122		124
	Uranium (ug/L)	8.32		NS		5.97		NS		6.49		NS		NS		NS		8		NS		***9.83***		NS		NS
	Selenium (ug/L)	34		***36.2***		***34.7***		***34***		***44.4***		***38.3***		***38.7***		32.4		***39.7***		32.4		***36.6***		***36.8***		***38***
MW-31 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5	1/10/11	***19***	2/1/11	***21***	3/14/11	***22***	4/1/2011	***21***	5/10/2011	***20***	6/20/2011	***22***	7/5/2011	***22***	8/2/2011	***20***	9/6/2011	***21***	10/3/2011	***21***	11/8/2011	***21***	12/12/2011	***21***
	TDS (mg/L)	1320		1240		1220		1250		***1370***		1290		***1330***		1280		1300		1300		1320		1290		***1330***
	Chloride (mg/L)	143		NS		***145***		NS		143		143		***145***		***148***		***148***		***148***		***145***		***145***		***148***
	Selenium (ug/L)	71		NS		64.6		NS		65.2		NS		NS		NS		66.2		NS		68.8		NS		NS
	Sulfate (mg/L)	532		NS		***538***		531		503		512		***540***		532		***537***		***541***		***539***		***552***		530
MW-35 (Class II)	Manganese (ug/L)	200	NS	NA	2/15/11	***248***	NS	NA	6/7/2011	***369***	NS	NA	NS	NA	7/20/11	***348***	8/30/2011	***267***	9/7/11	***270***	10/3/11	***271***	11/8/2011	***283***	12/14/11	***247***
	Thallium (ug/l)	0.5		NA		< 0.50		NA		< 0.50		NA		NA		NA		***0.52***		NA		***0.57***		< 0.50		***0.63***
	Molybdenum (ug/L)	10		NA		<10		NA		<10		NA		NA		NA		<10		NA		<10		NA		NA
	Gross Alpha minus Rn & U (pCi/L)	3.75		NA		2.6		NA		3.7		NA		NA		NA		***4.5***		NA		***4.4***		***4.7***		***4.2***
	Selenium (ug/L)	12.5		NA		ND		NA		ND		NA		NA		NA		9.3		NA		10.5		NA		NA
	Uranium (ug/L)	7.5		NA		***12.7***		NA		***21.7***		NA		NA		***24.2***		***18.3***		***22.3***		***20.1***		***24***		***23.6***
Required Semi-Annual Sampling Wells																										
MW-01 (Class II)	Manganese (ug/L)	289	NS	NA	NS	NA	NS	NA	4/11/2011	218	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	10/11/2011	206	NS	NA	NS	NA
	Tetrahydrofuran (ug/L)	11.5		NA		NA		NA	4/19/2011	10.7		NA		NA		NA		NA		NA		7.82		NA		NA
	Sulfate (mg/L)	838		NA		NA		NA	4/11/2011	704		NA		NA		NA		NA		NA		713		NA		NA
MW-2 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.2	NS	NA	2/14/11	1.1	NS	NA	4/12/2011	1.2	NS	NA	NS	NA	NS	NA	8/8/2011	0.5	NS	NA	10/5/2011	1.3	NS	NA	NS	NA
MW-3 (Class III)	Selenium (ug/L)	37	NS	NA	2/15/11	***40.5***	NS	NA	4/13/2011	***45.4***	NS	NA	NS	NA	NS	NA	8/10/2011	***46***	NS	NA	10/10/2011	***46.7***	NS	NA	NS	NA
	Field pH (S.U.)	6.5 - 8.5		NA		***6.09***		NA		***6.46***		NA		NA		NA		***6.32***		NA		6.53 (6.83)		NA		NA
	Fluoride (mg/L)	0.68		NA		***0.69***		NA		0.68		NA		NA		NA		***0.96***		NA		***0.91***		NA		NA
MW-3A (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	2/16/11	***6.05***	NS	NA	4/13/2011	6.58	NS	NA	NS	NA	NS	NA	8/11/2011	***6.19***	NS	NA	10/11/2011	6.5 (6.92)	NS	NA	NS	NA
	Sulfate (mg/L)	3640		NA		***3730***		NA		3350		NA		NA		NA		3560		NA		***3750***		NA		NA
	Nitrate + Nitrite (as N) (mg/L)	1.3		NA		NA		NA		1.2		NA		NA		NA		NA		NA		1.1		NA		NA
	TDS (mg/L)	5805		NA		5770		NA		5720		NA		NA		NA		***5810***		NA		5630		NA		NA
	Selenium (ug/L)	89		NA		***99***		NA		85.8		NA		NA		NA		88.5		NA		***95***		NA		NA
MW-5 (Class II)	Uranium (ug/L)	7.5	NS	NA	2/14/11	***29.5***	NS	NA	4/12/2011	7.16	NS	NA	NS	NA	NS	NA	8/9/2011	0.5	NS	NA	10/10/2011	4.52	NS	NA	NS	NA
MW-12 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	2/15/11	***6.43***	NS	NA	4/5/2011	6.67	NS	NA	NS	NA	NS	NA	8/9/2011	***6.13***	NS	NA	10/6/2011	6.7 (6.97)	NS	NA	NS	NA
	Selenium (ug/L)	25		NA		***39***		NA		21.7		NA		NA		NA		***25.4***		NA		***35.4***		NA		NA
MW-15 (Class III)	Selenium (ug/L)	128.7	NS	NA	NS	NA	NS	NA	4/12/2011	116	NS	NA	NS	NA	NS	NA	NS	***NA***	NS	NA	10/10/2011	112	NS	NA	NS	NA
	Iron (ug/L)	81.7		NA		NA		NA		<0.50		NA		NA		NA	NS	NA		NA		***137***		NA		NA

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Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2011 Results						Q2 2011 Results						Q3 2011 Results						Q4 2011 Results					
Monitoring Well (Water Class)	**Constituent Exceeding GWCL**	**GWCL in August 24, 2012 GWDP**	**January 2011 Monthly Sample Date**	**January 2011 Monthly Sample Result**	**Q1 2011 Sample Date**	**Q1 2011 Result**	**March 2011 Monthly Sample Date**	**March 2011 Monthly Result**	**Q2 2011 Sample Date**	**Q2 2011 Result**	**May 2011 Monthly Sample Date**	**May 2011 Monthly Result**	**June 2011 Monthly Sample Date**	**June 2011 Monthly Result**	**July 2011 Monthly Sample Date**	**July 2011 Monthly Result**	**Q3 2011 Sample Date**	**Q3 2011 Result**	**September 2011 Monthly Sample Date**	**September 2011 Monthly Result**	**Q4 2011 Sample Date**	**Q4 2011 Result**	**November 2011 Monthly Sample Date**	**November 2011 Monthly Result**	**December 2011 Monthly Sample Date**	**December 2011 Monthly Result**
Required Quarterly Sampling Wells																										
MW-18 (Class III)	Thallium (ug/l)	1.95	NS	NA	2/15/11	***3.49***	NS	NA	4/6/2011	***3.74***	NS	NA	NS	NA	NS	NA	8/10/2011 9/21/11	***4.0 3.39***	NS	NA	10/11/2011	***3.83***	NS	NA	NS	NA
	Sulfate (mg/L)	1938.9		NA		1770		NA		1780		NA		NA		NA		1910		NA		***2020***		NA		NA
	Field pH (S.U.)	6.25-8.5		NA		6.27		NA		6.71		NA		NA		NA		***5.95***		NA		6.55 (6.63)		NA		NA
	TDS (mg/L)	3198.77		NA		***3250***		NA		***3250***		NA		NA		NA		3190		NA		***3220***		NA		NA
MW-19 (Class III)	Field pH (S.U.)	6.78-8.5	NS	NA	2/21/2011	6.78	NS	NA	4/5/2011	7.03	NS	NA	NS	NA	NS	NA	7/20/3011	***6.65***	NS	NA	10/12/2011	6.88 (7.02)	NS	NA	NS	NA
	Gross Alpha minus Rn & U (pCi/L)	2.36		NA		NA		NA		0.5		NA		NA		NA		NA		NA		0.6		NA		NA
	Nitrate + Nitrite (as N) (mg/L)	2.83		NA		NS		NA		2.6		NA		NA		NA		NS		NA		***4.0***		NA		NA
MW-23 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	2/9/2011	***6.13***	NS	NA	4/5/2011	7.14	NS	NA	NS	NA	NS	NA	8/4/2011	***6.38***	NS	NA	10/6/2011	6.56 (6.77)	NS	NA	NS	NA
	Manganese (ug/L)	550		NA		NS		NA		32		NA		NA		NA		NS		NA		***551***		NA		NA
MW-24 (Class III)	Cadmium (ug/L)	2.5	NS	NA	2/10/2011	***2.78***	NS	NA	4/5/2011	***2.61***	NS	NA	NS	NA	NS	NA	8/4/2011	1.46	NS	NA	10/11/2011	1.78	NS	NA	NS	NA
	Fluoride (mg/L)	0.36		NA		NA		NA		0.19		NA		NA		NA		NA		NA		0.36		NA		NA
	Thallium (ug/L)	1		NA		***1.42***		NA		***1.07***		NA		NA		NA		<0.50		NA		0.62		NA		NA
	Field pH (S.U.)	6.5 - 8.5		NA		***5.73***		NA		***6.12***		NA		NA		NA		***6.45***		NA		***6.44***		NA		NA
MW-27 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5.6	NS	NA	2/9/2011	***6***	NS	NA	4/5/2011	***6.4***	NS	NA	NS	NA	NS	NA	8/8/2011	***6***	NS	NA	10/5/2011	***6.3***	NS	NA	NS	NA
	Chloride (mg/L)	38		NA		***46***		NA		***43***		NA		NA		NA		***43***		NA		***44***		NA		NA
	Sulfate (mg/L)	462		NA		455		NA		442		NA		NA		NA		424		NA		456		NA		NA
	Field pH (S.U.)	6.5-8.5		NA		6.71		NA		6.79		NA		NA		NA		***6.39***		NA		7.17 (7.24)		NA		NA
	TDS (mg/L)	1075		NA		***1090***		NA		***1190***		NA		NA		NA		***1090***		NA		***1110***		NA		NA
	Gross Alpha minus Rn & U (pCi/L)	2		NA		0.7		NA		1.1		NA		NA		NA		0.8		NA		1.5		NA		NA
MW-28 (Class III)	Chloride (mg/L)	105	NS	NA	2/14/2011	***114***	NS	NA	4/11/2011	***109***	NS	NA	NS	NA	NS	NA	8/8/2011	105	NS	NA	10/5/2011	***143***	NS	NA	NS	NA
	Manganese (ug/L)	1837		NA		NA		NA		1690		NA		NA		NA		NA		NA		1540		NA		NA
	Field pH (S.U.)	6.1 - 8.5		NA		***5.69***		NA		***6.01***		NA		NA		NA		***5.78***		NA		***6.07*** (6.11)		NA		NA
MW-29 (Class III)	Iron (ug/L)	1869	NS	NA	NS	NA	NS	NA	4/18/2011	***3010***	NS	NA	NS	NA	NS	NA	8/9/2011	1080	NS	NA	10/5/2011	1220	NS	NA	NS	NA
	Manganese (ug/L)	5624		NA	NS	NA		NA		4900		NA		NA		NA		NA		NA		4800		NA		NA
	TDS (mg/L)	4400		NA	NS	NA		NA		4080		NA		NA		NA		NA		NA		4280		NA		NA
	Field pH (S.U.)	6.46 - 8.5		NA	NS	NA		NA		***6.45***		NA		NA		NA		***6.20***		NA		6.52		NA		NA
MW-32 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.33	NS	NA	2/9/2011	1.5	NS	NA	4/1/2011	***4.6***	NS	NA	NS	NA	NS	NA	8/2/2011 8/30/11	1.9	NS	NA	10/3/2011	***3.7***	NS	NA	NS	NA
	Field pH (S.U.)	6.4 - 8.5		NA		***5.99***		NA		***6.14***		NA		NA		NA		***6.10 (6.20)***		NA		***6.35***		NA		NA

Notes:
GWCL values are taken from the August 24, 2012 version of the GWDP.
Exceedances are shown in yellow.
Values in () parentheses are the field pH measurements for the
ug/L = micrograms per liter
mg/L = milligrams per liter
NS = Not Required and Not Sampled
NR = Required and Not Reported
NA = Not Applicable
pCi/L = picocuries per liter
SU = Standard Units

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2012 Results						Q2 2012 Results						Q3 2012 Results						Q4 2012 Results						
Monitoring Well (Water Class)	Constituent Exceeding GWCL	GWCL in August 24, 2012 GWDP	January 2012 Monthly Sample Date	January 2012 Monthly Result	Q1 2012 Sample Date	Q1 2012 Result	March 2012 Monthly Sample Date	March 2012 Monthly Result	April 2012 Monthly Sample Date	April 2012 Monthly Result	Q2 2012 Sample Date	Q2 2012 Result	June 2012 Monthly Sample Date	June 2012 Monthly Result	Q3 2012 Sample Date	Q3 2012 Result	August 2012 Monthly Sample Date	August 2012 Monthly Result	September 2012 Monthly Sample Date	September 2012 Monthly Result	October 2012 Monthly Sample Date	October 2012 Monthly Result	Q4 2012 Sample Date	Q4 2012 Result	December 2012 Monthly Sample Date	December 2012 Monthly Result	Sample Frequency
Required Quarterly Sampling Wells																											
MW-11 (Class II)	Manganese (ug/L)	131.29	1/26/2012	102	2/13/2012	***154***	3/13/2012	121	4/10/2012	***132***	5/8/2012	127	6/19/2012	122	7/11/2012	***135***	8/7/2012	***166***	9/19/2012	130	10/23/2012	***161***	11/12/2012	***138***	12/24/2012	***137***	Quarterly
MW-14 (Class III)	Manganese (ug/L)	2230.30	1/24/2012	NA	2/21/2012	1790	3/14/2012	NA	4/12/2012	NA	5/9/2012	***2360***	6/19/2012	NA	7/11/2012	2100	8/7/2012	***2300***	9/18/2012	2140	10/23/2012	2110	11/27/2012	2100	12/18/2012	1950	Quarterly
	Field pH (S.U.)	6.5 - 8.5		***6.36***		6.57		6.51		6.97		6.73		6.90		6.89		6.58		7.08		6.83		6.52		6.60	Quarterly
MW-25 (Class III)	Field pH (S.U.)	6.5 - 8.5	1/25/2012	6.63	2/14/2012	6.83	3/14/2012	6.55	4/9/2012	6.58	5/2/2012	6.73	6/18/2012	6.99	7/10/2012	6.88	8/6/2012	6.55	9/18/2012	6.54	10/22/2012	6.54	11/12/2012	***6.47***	12/24/2012	6.62	Quarterly
	Cadmium (ug/L)	1.5		NA		1.31		NA		NA		1.33		NA		1.24		NA		NA		NA		***1.56***		NA	Quarterly
	Chloride (mg/L)	35		NA		30		NA		NA		30		NA		33		NA		NA		NA		28.8		NA	Quarterly
	Uranium	6.5		***6.6***		6.5		***6.93***		***6.52***		5.90		***7.6***		6.45		***6.72***		6.01		6.37		***6.61***		4.83	Quarterly
MW-26 (Class III)	Nitrate + Nitrite (as N) (mg/L)	0.62	1/25/2012	***1.9***	2/15/2012	***1.2***	3/14/2012	***3***	4/11/2012	***3.4***	5/7/2012 6/26/2012	***2.9***	6/19/2012	***2.3***	7/11/2012	***1.9***	8/8/2012	***1.6***	9/19/2012	***1.8***	10/24/2012	***3.5***	11/15/2012	0.55	12/24/2012	***1.46***	Quarterly
	Uranium (ug/L)	41.8		***64.6***	2/21/2012	***59.4***		31.2		***42.2***		18.2		***66.0***		28.4		***67.4***		***64.9***		26.9		***56.8***		***51.3***	Quarterly
	Chloroform (ug/L)	70		***1900***	2/15/2012	***3300***		***2900***		***2900***		***1700***		***2400***	8/16/2012	***970***		***2200***		***2300***		***4720***		***4020***		***1250***	Quarterly
	Chloride (mg/L)	58.31		***68***		40		***74***		***82***		***74***		***85***	7/11/2012	***78***		***78***		***67***		2.62		52.9		***65.9***	Quarterly
	Field pH (S.U.)	6.74 - 8.5		***6.59***	2/15/2012 2/21/2012	***6.72*** (6.91) ***(6.71)***		***6.39***		6.88		7.00 (7.01)		7.00	7/11/2012 8/16/2012	7.10 (6.80)		***6.60***		7.40		***6.63***		***6.60***		6.78	Quarterly
	Dichloromethane (Methylene Chloride) (ug/L)	5		***13***	2/15/2012	***24***		***27***		***20***		***10***		***16***	8/16/2012	4.9		***17***		***9.8***		***15.0***		***34.6***		***5.5***	Quarterly
MW-30 (Class II)	Nitrate + Nitrite (as N) (mg/L)	2.5	1/24/2012	***17***	2/14/2012	***17***	3/14/2012	***18***	4/10/2012	***17***	5/2/2012	***16***	6/18/2012	***15***	7/10/2012	***17***	8/7/2012	***18***	9/19/2012	***16***	10/23/2012	***16.2***	11/13/2012	***18.5***	12/26/2012	***17.2***	Quarterly
	Chloride (mg/L)	128		124		126		128		128		124		***131***		128		***139***		***130***		***135***		114		122	Quarterly
	Uranium (ug/L)	8.32	NS	NA		7.42		***8.38***		7.84		6.81		7.8		7.64		8.04		7.67		7.86		7.03		5.80	Quarterly
	Selenium (ug/L)	34	1/24/2012	33.3		***35***		***39.5***		***39.1***		32.3		***37***		***38.5***		***38.4***		***41.9***		***45.2***		***36***		31.6	Quarterly
MW-31 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5	1/24/2012	***21***	2/13/2012	***21***	3/13/2012	***22***	***4/9/2012***	***21***	5/2/2012	***20***	6/18/2012 6/29/2012	***21.6***	7/9/2012	***21***	8/6/2012	***21***	9/18/2012	***21***	10/22/2012	***18***	11/6/2012	***23.6***	12/18/2012	***22.2***	Quarterly
	TDS (mg/L)	1320		***1360***		1240		***1400***		***1380***		***1410***		***1460***		***1400***		***1400***		***1460***		1320		1230		1270	Quarterly
	Chloride (mg/L)	143		***155***		***150***		***152***		***160***		***151***		138		***161***		***175***		***172***		***157***		***189***		***170***	Quarterly
	Selenium (ug/L)	71		***NS***		67.8		NS		NS		70.2		NA		***74***		NA		NA		NA		***76.9***		NA	Quarterly
	Sulfate (mg/L)	532		***539***		***538***		517		***547***		532		497		529		***571***		***561***		***545***		***557***		***664***	Quarterly
MW-35 (Class II)	Manganese (ug/L)	200	1/24/2012	***264***	2/14/12	***253***	3/13/12	***269***	4/10/2012	***277***	5/2/2012	***258***	6/19/2012	***304***	7/10/2012	***272***	8/8/2012	***273***	9/19/2012	***283***	10/23/2012	***253***	11/13/2012	***241***	12/18/2012	***240***	Quarterly
	Thallium (ug/l)	0.5		< 0.50		***0.65***		***0.71***		***0.59***		***0.66***		< 0.50		***0.57***		***0.61***		***0.54***		***0.517***		***0.554***		0.5	Quarterly
	Molybdenum (ug/L)	10		<10		<10		NA		NA		<10		NA		<10		NA		NA		NA		***30.4***		NA	Quarterly
	Gross Alpha minus Rn & U (pCi/L)	3.75		***6.5***		***4.1***		***6.2***		***4.1***		***4.5***		***4.9***		3.5		***4.2***		***5.4***		***4.31***		***4.23***		***6.5***	Quarterly
	Selenium (ug/L)	12.5		NA		***19.7***		NA		NA		11.4		7.0		***15.9***		***18.8***		8.2		***19.0***		***15.4***		12.1	Quarterly
	Uranium (ug/L)	7.5		***16.1***		***24.7***		***24.9***		***22.4***		***22.2***		***22.5***		***24.5***		***26.2***		***22.9***		***22.4***		***21.8***		***21***	Quarterly
Required Semi-Annual Sampling Wells																											
MW-01 (Class II)	Manganese (ug/L)	289	NS	NA	NS	NA	NS	NA	NS	NA	5/1/2012	176	NS	NA	NS	NA	NS	NA	NS	NA	NS	NA	11/27/2012	***315***	NS	NA	Semi-Annually
	Tetrahydrofuran (ug/L	11.5		NA		NA		NA		NA		10.3		NA		NA		NA		NA		NA		***21.8***		NA	Semi-Annually
	Sulfate (mg/L)	838		NA		NA		NA		NA		659		NA		NA		NA		NA		NA		***846***		NA	Semi-Annually
MW-2 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.2	NS	NA	2/22/2012	0.6	NS	NA	NS	NA	5/9/2012	0.6	NS	NA	7/16/2012	0.9	NS	NA	NS	NA	NS	NA	11/27/2012	1.46	NS	NA	Semi-Annually
MW-3 (Class III)	Selenium (ug/L)	37	NS	NA	2/29/2012	***43.1***	NS	NA	NS	NA	5/14/2012	***52.8***	NS	NA	7/18/2012	***51.1***	NS	NA	NS	NA	NS	NA	11/28/2012	***58.9***	NS	NA	Semi-Annually
	Field pH (S.U.)	6.5 - 8.5		NA		6.63		NA		NA		6.67		NA		6.99		NA		NA		NA		6.55		NA	Semi-Annually
	Fluoride (mg/L)	0.68		NA		***0.86***		NA		NA		***1.04***		NA		***0.96***		NA		NA		NA		***1.26***		NA	Semi-Annually
MW-3A (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	3/1/2012	***6.46***	NS	NA	NS	NA	5/15/2012	6.68	NS	NA	7/19/2012	7.01	NS	NA	NS	NA	NS	NA	11/29/2012	***6.35***	NS	NA	Semi-Annually
	Sulfate (mg/L)	3640		NA		3020		NA		NA		3220		NA		***3700***		NA		NA		NA		2780		NA	Semi-Annually
	Nitrate + Nitrite (as N) (mg/L)	1.3		NA		NA		NA		NA		1.1		NA		NA		NA		NA		NA		***1.31***		NA	Semi-Annually
	TDS (mg/L)	5805		NA		5690		NA		NA		5730		NA		5720		NA		NA		NA		5610		NA	Semi-Annually
	Selenium (ug/L)	89		NA		65.8		NA		NA		85.1		NA		***99.3***		NA		NA		NA		***111***		NA	Semi-Annually
MW-5 (Class II)	Uranium (ug/L)	7.5	NS	NA	2/28/2012	***18.6***	NS	NA	NS	NA	5/9/2012	1.23	NS	NA	7/16/2012	0.75	NS	NA	NS	NA	NS	NA	11/27/2012	0.402	NS	NA	Semi-Annually
MW-12 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	2/29/2012	6.81	NS	NA	NS	NA	5/10/2012	6.91	NS	NA	7/17/2012	6.98	NS	NA	NS	NA	NS	NA	11/27/2012	6.54	NS	NA	Semi-Annually
	Selenium (ug/L)	25		NA		***27.2***		NA		NA		19.6		NA		20.7		NA		NA		NA		23		NA	Semi-Annually
MW-15 (Class III)	Selenium (ug/L)	128.7	NS	NA	2/22/2012	NA	NS	NA	NS	NA	5/9/2012	***152***	NS	NA	7/17/2012	120	NS	NA	NS	NA	NS	NA	11/14/2012	117		NA	Semi-Annually
	Iron (ug/L)	81.7		NA		< 30		NA		NA		< 30		NA		< 30		NA		NA		NA		<30		NA	Semi-Annually

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2012 Results						Q2 2012 Results						Q3 2012 Results						Q4 2012 Results						
Monitoring Well (Water Class)	**Constituent Exceeding GWCL**	**GWCL in August 24, 2012 GWDP**	**January 2012 Monthly Sample Date**	**January 2012 Monthly Result**	**Q1 2012 Sample Date**	**Q1 2012 Result**	**March 2012 Monthly Sample Date**	**March 2012 Monthly Result**	**April 2012 Monthly Sample Date**	**April 2012 Monthly Result**	**Q2 2012 Sample Date**	**Q2 2012 Result**	**June 2012 Monthly Sample Date**	**June 2012 Monthly Result**	**Q3 2012 Sample Date**	**Q3 2012 Result**	**August 2012 Monthly Sample Date**	**August 2012 Monthly Result**	**September 2012 Monthly Sample Date**	**September 2012 Monthly Result**	**October 2012 Monthly Sample Date**	**October 2012 Monthly Result**	**Q4 2012 Sample Date**	**Q4 2012 Result**	**December 2012 Monthly Sample Date**	**December 2012 Monthly Result**	**Sample Frequency**
Required Quarterly Sampling Wells																											
MW-18 (Class III)	Thallium (ug/l)	1.95	NS	NA	2/27/2012	***3.63***	NS	NA	NS	NA	4/30/2012	***3.51***	NS	NA	7/18/2012	***3.73***	NS	NA	NS	NA	NS	NA	11/26/2012	***3.2***	NS	NA	Semi-Annually
	Sulfate (mg/L)	1938.9		NA		1920		NA		NA		1790		NA		1900		NA		NA		NA		1210		NA	Semi-Annually
	Field pH (S.U.)	6.25-8.5		NA		6.6		NA		NA		6.59		NA		6.64		NA		NA		NA		6.51		NA	Semi-Annually
	TDS (mg/L)	3198.77		NA		***3230***		NA		NA		***3280***		NA		***3220***		NA		NA		NA		3160		NA	Semi-Annually
MW-19 (Class III)	Field pH (S.U.)	6.78-8.5	NS	NA	2/28/2012	6.83	NS	NA	NS	NA	5/16/2012	6.86	NS	NA	7/19/2012	7.21	NS	NA	NS	NA	NS	NA	12/13/2012	***6.71***	NS	NA	Semi-Annually
	Gross Alpha minus Rn & U (pCi/L)	2.36		NA		NA		NA		NA		0.9		NA		NA		NA		NA		NA		***4.86***		NA	Semi-Annually
	Nitrate + Nitrite (as N) (mg/L)	2.83		NA		***3.9***		NA		NA		***3.7***		NA		***4***		NA		NA		NA		***3.96***		NA	Semi-Annually
MW-23 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	2/20/2012	6.61	NS	NA	NS	NA	5/16/2012	6.74	NS	NA	7/17/2012	7.10	NS	NA	NS	NA	NS	NA	12/5/2012	6.61	NS	NA	Semi-Annually
	Manganese (ug/L)	550		NA		51		NA		NA		49		NA		117		NA		NA		NA		54.3		NA	Semi-Annually
MW-24 (Class III)	Cadmium (ug/L)	2.5	NS	NA	2/23/2012	2.25	NS	NA	NS	NA	5/10/2012	2.01	NS	NA	7/18/2012	***4.7***	NS	NA	NS	NA	NS	NA	11/29/2012	1.35	NS	NA	Semi-Annually
	Fluoride (mg/L)	0.36		NA		NA		NA		NA		0.14		NA		NA		NA		NA		NA		***0.558***			
	Thallium (ug/L)	1		NA		0.96		NA		NA		0.74		NA		***1.36***		NA		NA		NA		0.666		NA	Semi-Annually
	Field pH (S.U.)	6.5 - 8.5		NA		***6.03***		NA		NA		***6.21***		NA		***6.45***		NA		NA		NA		***6.01***		NA	Semi-Annually
MW-27 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5.6	NS	NA	2/28/2012	***6.4***	NS	NA	NS	NA	5/1/2012	***6.2***	NS	NA	7/16/2012	***6.7***	NS	NA	NS	NA	NS	NA	11/13/2012	***6.9***	NS	NA	Semi-Annually
	Chloride (mg/L)	38		NA		***45***		NA		NA		***46***		NA		***47***		NA		NA		NA		***44.2***		NA	Semi-Annually
	Sulfate (mg/L)	462		NA		451		NA		NA		446		NA		453		NA		NA		NA		451		NA	Semi-Annually
	Field pH (S.U.)	6.5-8.5		NA		7.24		NA		NA		7.03		NA		7.40		NA		NA		NA		6.69		NA	Semi-Annually
	TDS (mg/L)	1075		NA		***1140***		NA		NA		***1170***		NA		***1150***		NA		NA		NA		1070		NA	Semi-Annually
	Gross Alpha minus Rn & U (pCi/L)	2		NA		***2.3***		NA		NA		0.8		NA		1.2		NA		NA		NA		1.33		NA	Semi-Annually
MW-28 (Class III)	Chloride (mg/L)	105	NS	NA	2/28/2012	***109***	NS	NA	NS	NA	5/8/2012	***114***	NS	NA	7/16/2012	105	NS	NA	NS	NA	NS	NA	11/14/2012	***115***	NS	NA	Semi-Annually
	Manganese (ug/L)	1837		NA		NA		NA		NA		***1850***		NA	8/1/2012	1660		NA		NA		NA		1680		NA	Semi-Annually
	Field pH (S.U.)	6.1 - 8.5		NA		6.22		NA		NA		6.15		NA	7/16/2012 8/1/2012	***6.38 (5.81)***		NA		NA		NA		***5.98***		NA	Semi-Annually
MW-29 (Class III)	Iron (ug/L)	1869	NS	NA	2/22/2012	1310	NS	NA	NS	NA	5/8/2012	1400	NS	NA	7/16/2012	1270	NS	NA	NS	NA	NS	NA	11/14/2012	1350	NS	NA	Semi-Annually
	Manganese (ug/L)	5624		NA		NA		NA		NA		***6140***		NA	8/1/2012	5190		NA		NA		NA		5040		NA	Semi-Annually
	TDS (mg/L)	4400		NA		NA		NA		NA		***4600***		NA	8/1/2012	***4420***		NA		NA		NA		***4430***		NA	Semi-Annually
	Field pH (S.U.)	6.46 - 8.5		NA		7.12		NA		NA		6.47		NA	7/16/2012 8/1/2012	***6.68 (6.45)***		NA		NA		NA		6.48		NA	Semi-Annually
MW-32 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.33	NS	NA	2/21/2012	1.8	NS	NA	NS	NA	4/30/2012	2.4	NS	NA	7/9/2012	1.4	NS	NA	NS	NA	NS	NA	11/6/2012	2.97	NS	NA	Semi-Annually
	Field pH (S.U.)	6.4 - 8.5		NA		6.57		NA		NA		6.40		NA		6.72		NA		NA		NA		***6.23***		NA	Semi-Annually

Notes:
GWCL values are taken from the August 24, 2012 version of the GWDP.
Exceedances are shown in yellow.
Values in () parentheses are the field pH measurements for the
ug/L = micrograms per liter
mg/L = milligrams per liter
NS = Not Required and Not Sampled
NR = Required and Not Reported
NA = Not Applicable
pCi/L = picocuries per liter
SU = Standard Units

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2013 Results						
Monitoring Well (Water Class)	**Constituent Exceeding GWCL**	**GWCL in August 24, 2012 GWDP**	**January 2013 Monthly Sample Date**	**January 2013 Monthly Result**	**Q1 2013 Sample Date**	**Q1 2013 Result**	**March 2013 Monthly Sample Date**	**March 2013 Monthly Result**	**Sample Frequency**
Required Quarterly Sampling Wells									
MW-11 (Class II)	Manganese (ug/L)	131.29	1/23/2013	115	2/20/2013	***139***	3/20/2013	***164***	Quarterly
MW-14 (Class III)	Manganese (ug/L)	2230.30	1/23/2013	1930	2/26/2013	***2250***	3/20/2013	2110	Quarterly
	Field pH (S.U.)	6.5 - 8.5		***6.48***		6.52		***6.48***	Quarterly
MW-25 (Class III)	Field pH (S.U.)	6.5 - 8.5	1/22/2013	6.65	2/20/2013	6.62	3/19/2013	***6.41***	Quarterly
	Cadmium (ug/L)	1.5		NS		1.35		1.40	Quarterly
	Chloride (mg/L)	35		NS		***36.1***		NS	Quarterly
	Uranium	6.5		5.97		5.39		5.68	Quarterly
MW-26 (Class III)	Nitrate + Nitrite (as N) (mg/L)	0.62	1/24/2013	***1.66***	2/20/2013	***1.38***	3/20/2013	***1.61***	Quarterly
	Uranium (ug/L)	41.8		***65.7***		***57.8***		***69***	Quarterly
	Chloroform (ug/L)	70		***1270***		***1500***		***1340***	Quarterly
	Chloride (mg/L)	58.31		***63.5***		***77***		***73.6***	Quarterly
	Field pH (S.U.)	6.74 - 8.5		***6.51***		***6.71***		***6.70***	Quarterly
	Dichloromethane (Methylene Chloride) (ug/L)	5		***6.49***		***5.53***		***8.31***	Quarterly
MW-30 (Class II)	Nitrate + Nitrite (as N) (mg/L)	2.5	1/23/2013	***19.2***	2/26/2013	***21.4***	3/20/2013	***14.3***	Quarterly
	Chloride (mg/L)	128		128		***129***		126	Quarterly
	Uranium (ug/L)	8.32		***8.36***		7.4		6.85	Quarterly
	Selenium (ug/L)	34		***37.2***		***42.3***		***39***	Quarterly
MW-31 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5	1/22/2013	***22.8***	2/19/2013	***19.3***	3/19/2013	***19.1***	Quarterly
	TDS (mg/L)	1320		1270		***1390***		***1420***	Quarterly
	Chloride (mg/L)	143		***176***		***174***		***168***	Quarterly
	Selenium (ug/L)	71		NS		***74.1***		***81.8***	Quarterly
	Sulfate (mg/L)	532		***611***		***644***		***611***	Quarterly
MW-35 (Class II)	Manganese (ug/L)	200	1/23/2013	***247***	2/26/2013	***272***	3/19/13	***246***	Quarterly
	Thallium (ug/l)	0.5		<0.5		<0.5		***0.505***	Quarterly
	Molybdenum (ug/L)	10		NS		<10		<10	Quarterly
	Gross Alpha minus Rn & U (pCi/L)	3.75		***6.62***		***5.09***		***9.51***	Quarterly
	Selenium (ug/L)	12.5		11.0		10.8		***22.6***	Quarterly
	Uranium (ug/L)	7.5		***23.6***		***21.3***		***22.1***	Quarterly
Required Semi-Annual Sampling Wells									
MW-01 (Class II)	Manganese (ug/L)	289	NS	NA	3/12/2013	173	NS	NA	Semi-Annually
	Tetrahydrofuran (ug/L)	11.5		NA		***12.6***		NA	Semi-Annually
	Sulfate (mg/L)	838		NA		761		NA	Semi-Annually
MW-2 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.2	NS	NA	3/5/2013	1.06	NS	NA	Semi-Annually
MW-3 (Class III)	Selenium (ug/L)	37	NS	NA	3/12/2013	***51.8***	NS	NA	Semi-Annually
	Field pH (S.U.)	6.5 - 8.5		NA		***6.20***		NA	Semi-Annually
	Fluoride (mg/L)	0.68		NA		***0.902***		NA	Semi-Annually
MW-3A (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	3/13/2013	6.84	NS	NA	Semi-Annually
	Sulfate (mg/L)	3640		NA		3480		NA	Semi-Annually
	Nitrate + Nitrite (as N) (mg/L)	1.3		NA		1.22		NA	Semi-Annually
	TDS (mg/L)	5805		NA		5750		NA	Semi-Annually
	Selenium (ug/L)	89		NA		88.7		NA	Semi-Annually
MW-5 (Class II)	Uranium (ug/L)	7.5	NS	NA	3/11/2013	***36***	NS	NA	Semi-Annually
MW-12 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	3/6/2013	6.56	NS	NA	Semi-Annually
	Selenium (ug/L)	25		NA		19.6		NA	Semi-Annually
MW-15 (Class III)	Selenium (ug/L)	128.7	NS	NA	3/5/2013	***137***	NS	NA	Semi-Annually
	Iron (ug/L)	81.7		NA		<30		NA	Semi-Annually

APPENDIX A
GWCL Exceedances for First Quarter 2013 under the August 24, 2012 GWDP
Source Assessment Report for TDS In MW-29
White Mesa Uranium Mill, Blanding, Utah
May 7, 2013

			Q1 2013 Results						
Monitoring Well (Water Class)	**Constituent Exceeding GWCL**	**GWCL in August 24, 2012 GWDP**	**January 2013 Monthly Sample Date**	**January 2013 Monthly Result**	**Q1 2013 Sample Date**	**Q1 2013 Result**	**March 2013 Monthly Sample Date**	**March 2013 Monthly Result**	**Sample Frequency**
Required Quarterly Sampling Wells									
MW-18 (Class III)	Thallium (ug/l)	1.95	NS	NA	2/25/2013	***3.26***	NS	NA	Semi-Annually
	Sulfate (mg/L)	1938.9		NA		1270		NA	Semi-Annually
	Field pH (S.U.)	6.25-8.5		NA		6.35		NA	Semi-Annually
	TDS (mg/L)	3198.77		NA		***3350***		NA	Semi-Annually
MW-19 (Class III)	Field pH (S.U.)	6.78-8.5	NS	NA	3/13/2013	***6.50***	NS	NA	Semi-Annually
	Gross Alpha minus Rn & U (pCi/L)	2.36		NA		1.11		NA	Semi-Annually
	Nitrate + Nitrite (as N) (mg/L)	2.83		NA		***3.61***		NA	Semi-Annually
MW-23 (Class III)	Field pH (S.U.)	6.5 - 8.5	NS	NA	3/11/2013	***6.37***	NS	NA	Semi-Annually
	Manganese (ug/L)	550		NA		137		NA	Semi-Annually
MW-24 (Class III)	Cadmium (ug/L)	2.5	NS	NA	3/13/2013	2.0	NS	NA	Semi-Annually
	Fluoride (mg/L)	0.36		NA		0.355		NA	
	Thallium (ug/L)	1		NA		0.88		NA	Semi-Annually
	Field pH (S.U.)	6.5 - 8.5		NA		***6.29***		NA	Semi-Annually
MW-27 (Class III)	Nitrate + Nitrite (as N) (mg/L)	5.6	NS	NA	2/25/2013	***7.94***	NS	NA	Semi-Annually
	Chloride (mg/L)	38		NA		***50.3***		NA	Semi-Annually
	Sulfate (mg/L)	462		NA		431		NA	Semi-Annually
	Field pH (S.U.)	6.5-8.5		NA		7.03		NA	Semi-Annually
	TDS (mg/L)	1075		NA		***1140***		NA	Semi-Annually
	Gross Alpha minus Rn & U (pCi/L)	2		NA		<1.0		NA	Semi-Annually
MW-28 (Class III)	Chloride (mg/L)	105	NS	NA	3/5/2013	***110***	NS	NA	Semi-Annually
	Manganese (ug/L)	1837		NA		1680		NA	Semi-Annually
	Field pH (S.U.)	6.1 - 8.5		NA		***6.00***		NA	Semi-Annually
MW-29 (Class III)	Iron (ug/L)	1869	NS	NA	3/6/2013	1350	NS	NA	Semi-Annually
	Manganese (ug/L)	5624		NA		5340		NA	Semi-Annually
	TDS (mg/L)	4400		NA		***4500***		NA	Semi-Annually
	Field pH (S.U.)	6.46 - 8.5		NA		***6.36***		NA	Semi-Annually
MW-32 (Class III)	Gross Alpha minus Rn & U (pCi/L)	3.33	NS	NA	2/19/2013	***5.02***	NS	NA	Semi-Annually
	Field pH (S.U.)	6.4 - 8.5		NA		6.52		NA	Semi-Annually

Notes:
GWCL values are taken from the August 24, 2012 version of the GWDP.
Exceedances are shown in yellow.
Values in () parentheses are the field pH measurements for the resampled analyses.
ug/L = micrograms per liter
mg/L = milligrams per liter
NS = Not Required and Not Sampled
NR = Required and Not Reported
NA = Not Applicable
pCi/L = picocuries per liter
SU = Standard Units

APPENDIX B

Geochemical Analysis for TDS in MW-29

Appendix B-1: Summary of Geochemical Analysis for TDS in MW-29

Well	Constituent	N	% Non-Detected Values	Mean	Standard Deviation	Shapiro-Wilks Test for Normality			Least Squares Regression Trend Analysis		Significant Trend	Previously Identified Increasing Trend?	Highest Historical Value (HHV)	Mean + 2σ	BKG Rpt Proposed GWCL	Current GWCL	Flowsheet GWCL	Flowsheet GWCL Rationale
						W	p	Normally or Lognormally distributed?	r^2	p								
MW-29	TDS	25	0	4347	112	0.9485	0.2314	Yes	0.0006	0.908	No	No	4600	4570	4400	4400	4570	Mean +2SD

Notes:

σ = sigma
%ND = percent of non-detected values
µg/L = micrograms per liter
mg/L = milligrams per liter

N = number of valid data points
p = probability
W = Shapiro Wilk test value
r2 = The measure of how well the trendline fits the data where r2=1 represents a perfect fit.

Distribution = Distribution as determined by the Shapiro-Wilk distribution test for constituents with % Detect > 50% and N>8

Mean = The arithmatic, Cohen, or Aitchison mean as determined for normally or log-normally distributed constituents with % Detect > 50%

Standard Deviation = The standard deviation as determined for normally or log-normally distributed constituents with % Detect > 85%

Highest Historical Value = The highest observed value for constituents with % Detect < 50%

Appendix B-2 Comparison of Calculated and Measured TDS in MW-29

Well	Date	CO_3+HCO_3 as Alkalinity (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Potassium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Sulfate (mg/L)	Measured TDS (mg/L)	Calculated TDS (mg/L)	Ratio
MW-29	3/19/2008	345	461	39	17.2	206	466	2840	4430	4374.2	98.74%
MW-29	6/3/2008	321	470	38	16.8	218	486	2840	4190	4389.8	104.77%
MW-29	8/5/2008	330	524	35	17.5	238	494	2810	4340	4448.5	102.50%
MW-29	11/5/2008	328	518	32	18.1	231	508	2920	4380	4555.1	104.00%
MW-29	2/3/2009	331	508	31	13.7	228	377	2710	4180	4198.7	100.45%
MW-29	5/13/2009	339	437	30	15.2	201	439	2790	4260	4251.2	99.79%
MW-29	8/24/2009	349	496	34	17.5	220	501	2720	4230	4337.5	102.54%
MW-29	10/26/2009	352	488	35	17	216	455	2960	4260	4523	106.17%
MW-29	4/27/2010	358	506	35	17.4	225	516	2770	4400	4427	100.62%
MW-29	11/9/2010	355	470	39	17.4	211	454	2690	4390	4236	96.50%
MW-29	4/5/2011	351	482	38	17.3	213	496	2600	4080	4197	102.88%
MW-29	10/5/2011	327	476	37	16.7	213	435	2850	4280	4355	101.75%
MW-29	5/8/2012	347	496	40	19.9	227	487	2750	4600	4367	94.93%
MW-29	11/14/2012	283	483	36.9	17.2	219	487	**1340**	4430	2866	64.70%

Appendix B-3 Charge Balance Calcultions for Major Cations and Anions in MW-29

Well	Date	Calcium (meq/L)	Sodium (meq/L)	Magnesium (meq/L)	Potassium (meq/L)	Total Cation Charge (meq/L)	HCO_3 (meq/L)	Chloride (meq/L)	SO_4 (meq/L)	Total Anion Charge (meq/L)	Percent Difference
MW-29	3/19/2008	23.00	20.27	16.95	0.44	**60.66**	-5.65	-1.10	-59.13	**-65.88**	-8.61%
MW-29	6/3/2008	23.45	21.14	17.94	0.43	**62.96**	-5.26	-1.07	-59.13	**-65.46**	-3.98%
MW-29	8/5/2008	26.15	21.49	19.58	0.45	**67.66**	-5.41	-0.99	-58.51	**-64.90**	4.08%
MW-29	11/5/2008	25.85	22.10	19.00	0.46	**67.41**	-5.38	-0.90	-60.80	**-67.07**	0.50%
MW-29	2/3/2009	25.35	16.40	18.76	0.35	**60.86**	-5.42	-0.87	-56.42	**-62.72**	-3.07%
MW-29	5/13/2009	21.81	19.10	16.54	0.39	**57.83**	-5.56	-0.85	-58.09	**-64.49**	-11.52%
MW-29	8/24/2009	24.75	21.79	18.10	0.45	**65.09**	-5.72	-0.96	-56.63	**-63.31**	2.73%
MW-29	10/26/2009	24.35	19.79	17.77	0.43	**62.35**	-5.77	-0.99	-61.63	**-68.38**	-9.68%
MW-29	4/27/2010	25.25	22.44	18.51	0.45	**66.65**	-5.87	-0.99	-57.67	**-64.53**	3.19%
MW-29	11/9/2010	23.45	19.75	17.36	0.45	**61.00**	-5.82	-1.10	-56.01	**-62.92**	-3.15%
MW-29	4/5/2011	24.05	21.57	17.52	0.44	**63.59**	-5.75	-1.07	-54.13	**-60.96**	4.14%
MW-29	10/5/2011	23.75	18.92	17.52	0.43	**60.62**	-5.36	-1.04	-59.34	**-65.74**	-8.44%
MW-29	5/8/2012	24.75	21.18	18.68	0.51	**65.12**	-5.69	-1.13	-57.26	**-64.07**	1.61%
MW-29	11/14/2012	24.10	21.18	18.02	0.44	**63.74**	-4.64	-1.04	-27.90	**-33.58**	47.32%

Notes:

meq/L= milliequivalent per liter

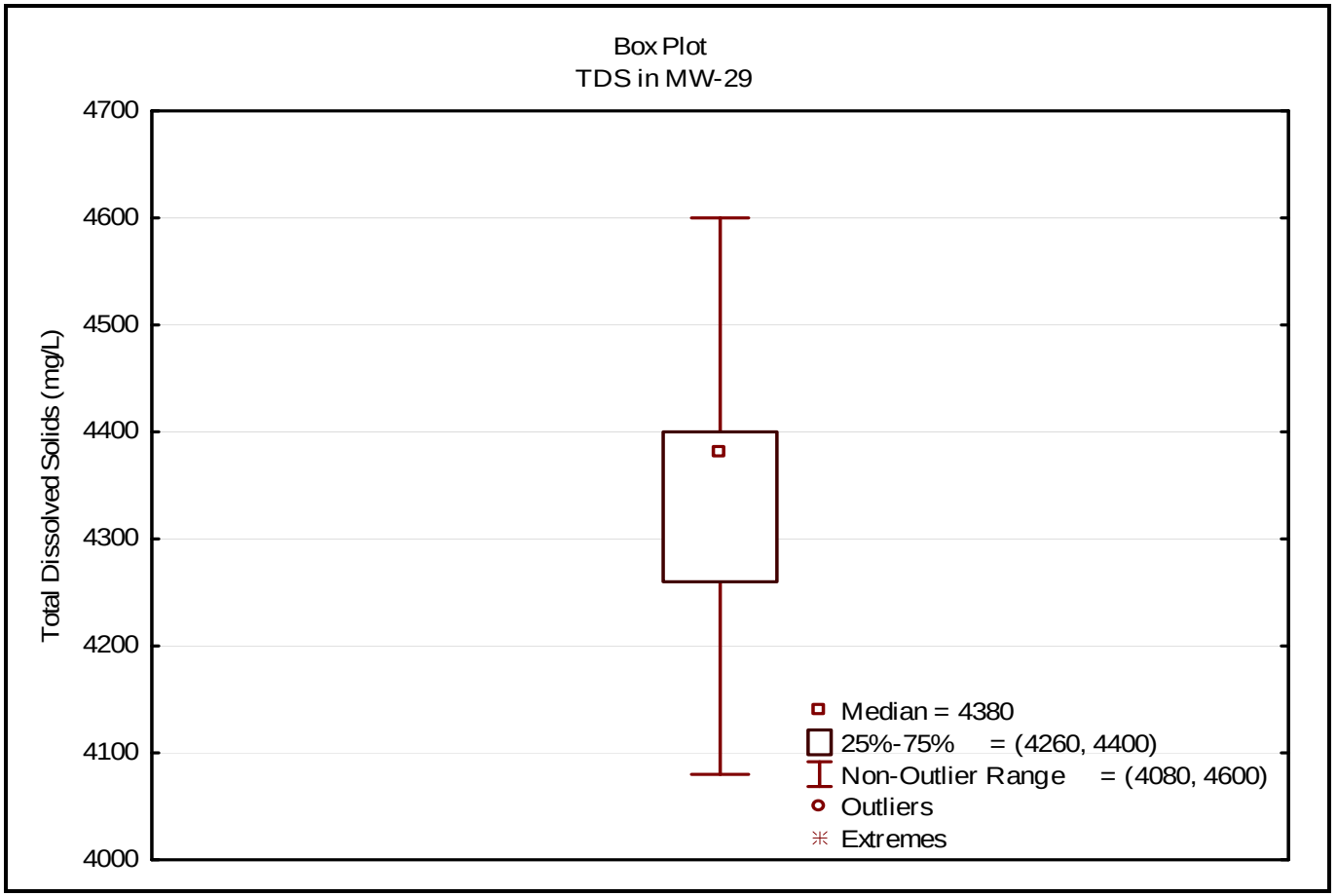
HCO_3 = Bicarbonate

SO_4 = Sulfate

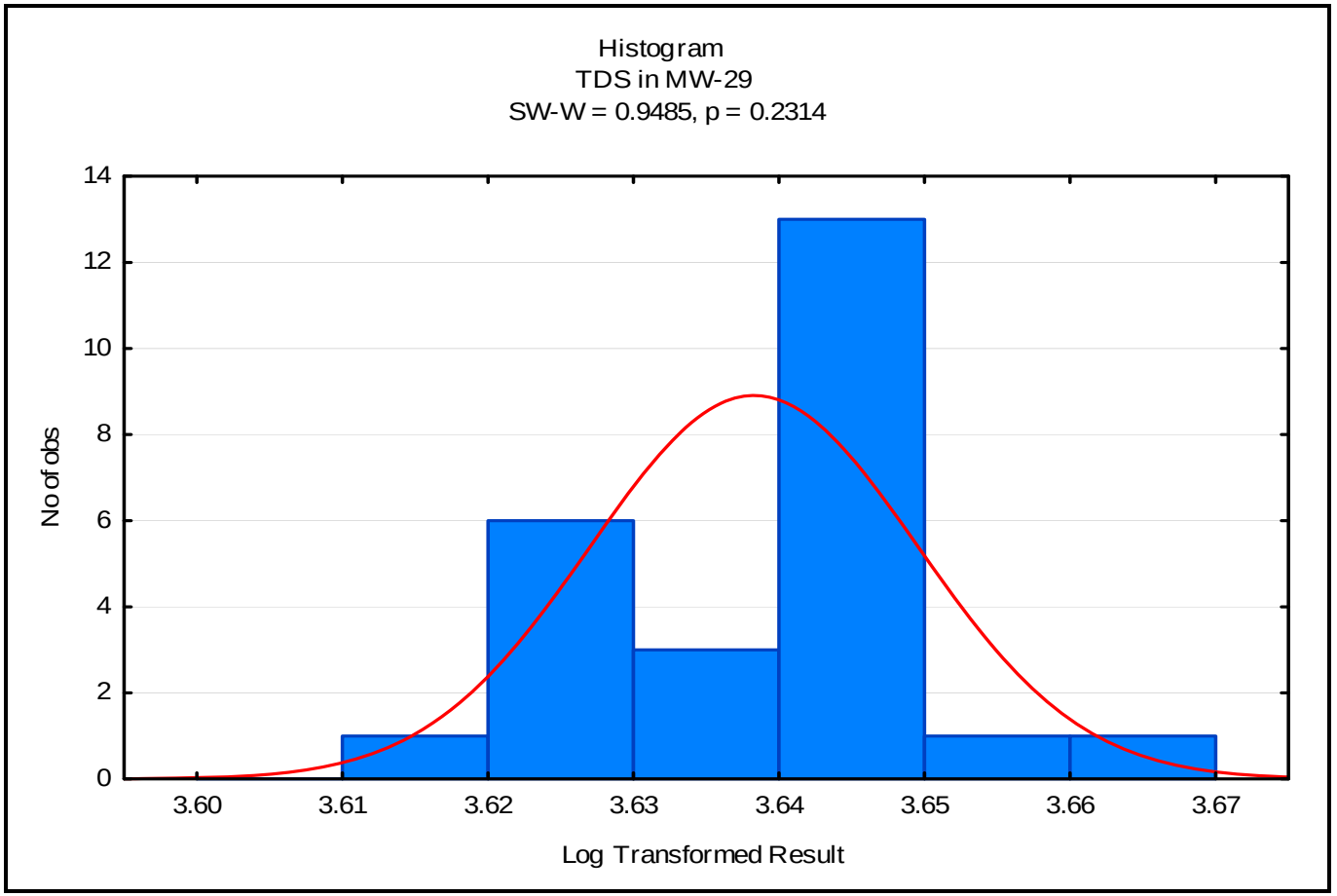
Appendix B-4 Descriptive Statistics for TDS in MW-29

Data Set		N	Mean	Geometric Mean	Standard Deviation	Q25	Median	Q75	Minimum	Maximum	Range	Skewness
2013	All	25	4347	4346	112	4260	4380	4400	4080	4600	520	-0.26
Bkgr rpt	Without extremes	8	4380	4380	27	4375	4385	4400	4320	4400	80	-1.9
Bkgr rpt	All	10	4381	4381	68	4370	4385	4400	4250	4520	270	0.1

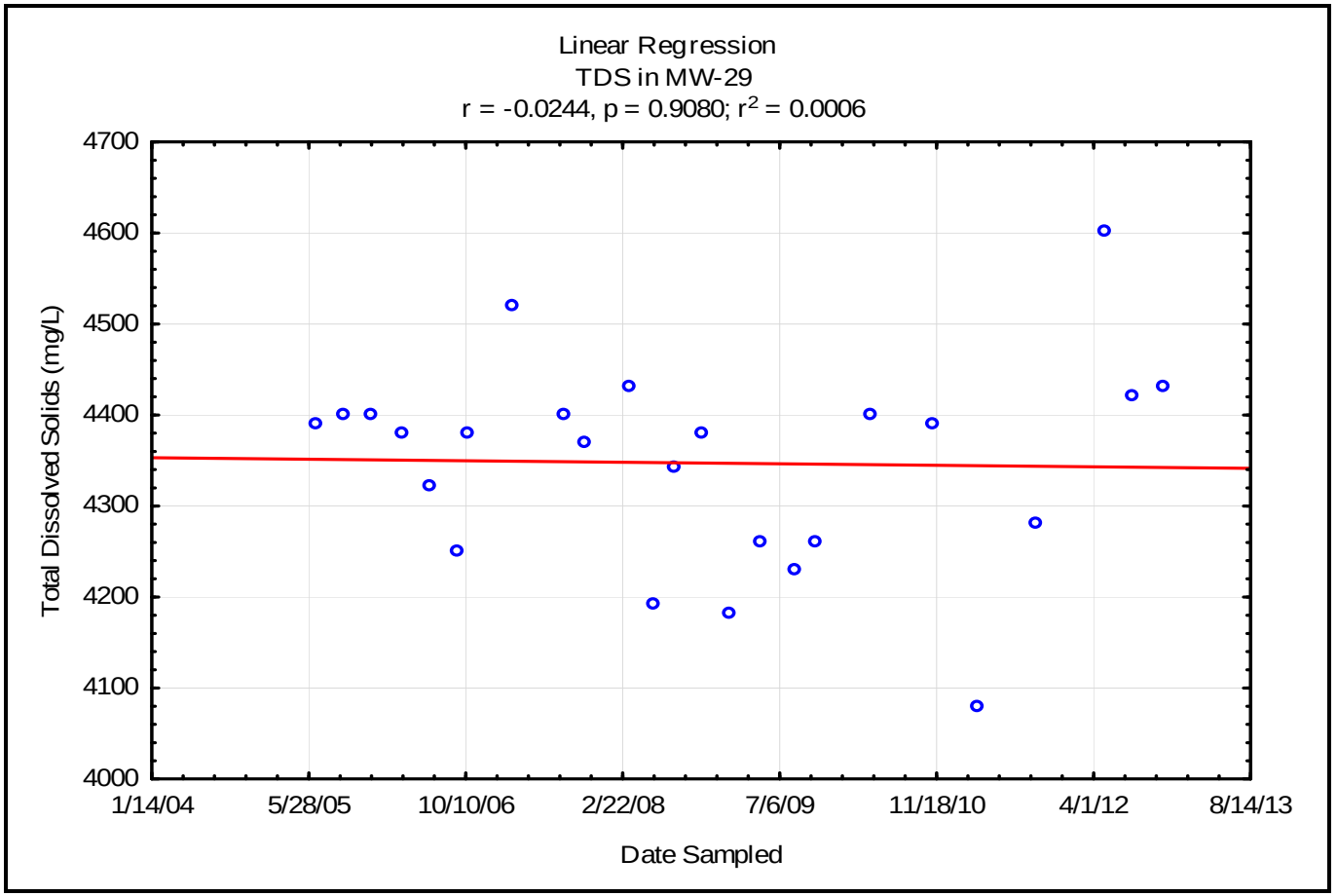
Appendix B-5 Box Plot for TDS in MW-29



Appendix B-6 Histogram for TDS in MW-29



Appendix B-7 Linear Regression of TDS in MW-29



APPENDIX C

Geochemical Analysis for Indicator Parameters in MW-29

Appendix C-1: Summary of Geochemical Analysis for Indicator Parameters in MW-29

Well	Constituent	N	% Non-Detected Values	Mean	Standard Deviation	Shapiro-Wilks Test for Normality			Least Squares Regression Trend Analysis[a]		Mann-Kendall Trend Analysis[b]		Previously Identified Increasing Trend?	Significant Trend
						W	p	Normally or Lognormally distributed?	r^2	p	S	p		
MW-29	Chloride (mg/L)	24	0	37	3	0.8996	0.0211	No			-67	0.049	No	Decreasing
MW-29	Fluoride (mg/L)	23	0	0.792	0.063	0.9669	0.6146	Yes	0.239	0.0179			No	Decreasing
MW-29	Sulfate (mg/L)	23	0	2787	89	0.9627	0.519	Yes	0.011	0.6363			No	No
MW-29	Uranium (µg/L)	23	0	11	0.96	0.8644	0.005	No			55	0.0758	No	No

Notes:

σ = sigma
%ND = percent of non-detected values
µg/L = micrograms per liter
mg/L = milligrams per liter
N = number of valid data points
p = probability
W = Shapiro Wilk test value
r2 = The measure of how well the trendline fits the data where r2=1 represents a perfect fit.
S = MannKendall statistic

a = A regression test was performed on data that was determined to have normal or log-normal distribution

b = The Mann-Kendall test was performed on data that are not normally or lognormally distributed

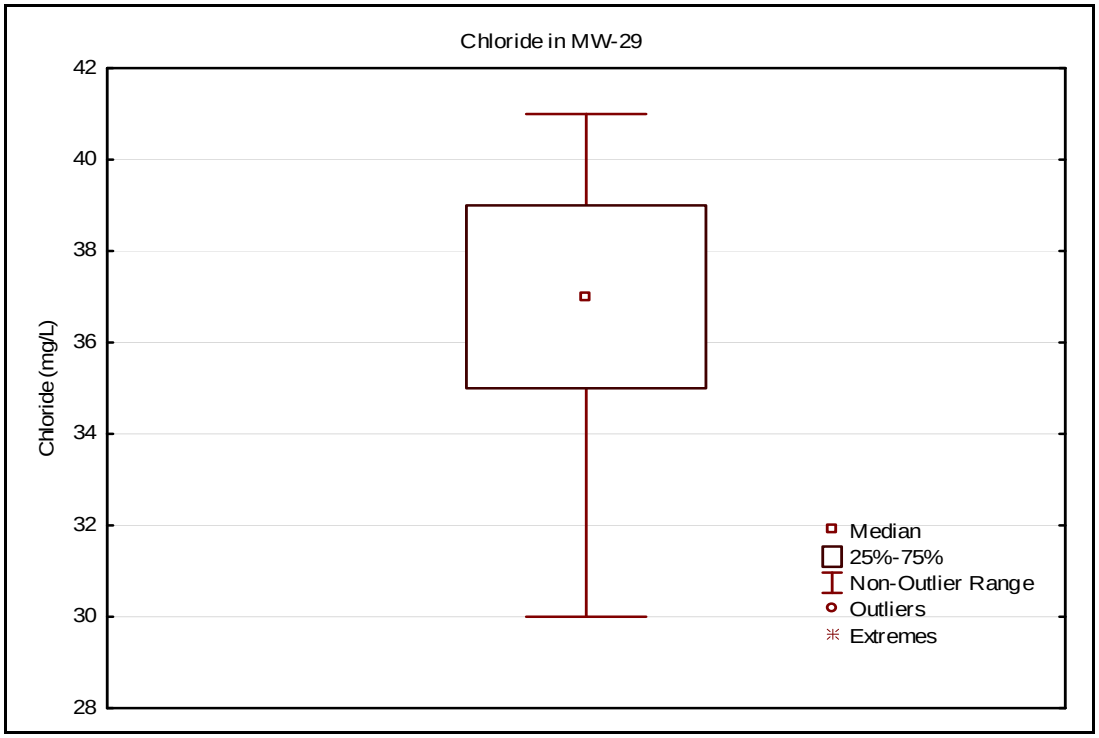
Appendix C-2 Descriptive Statistics for Indicator Parameters in MW-29

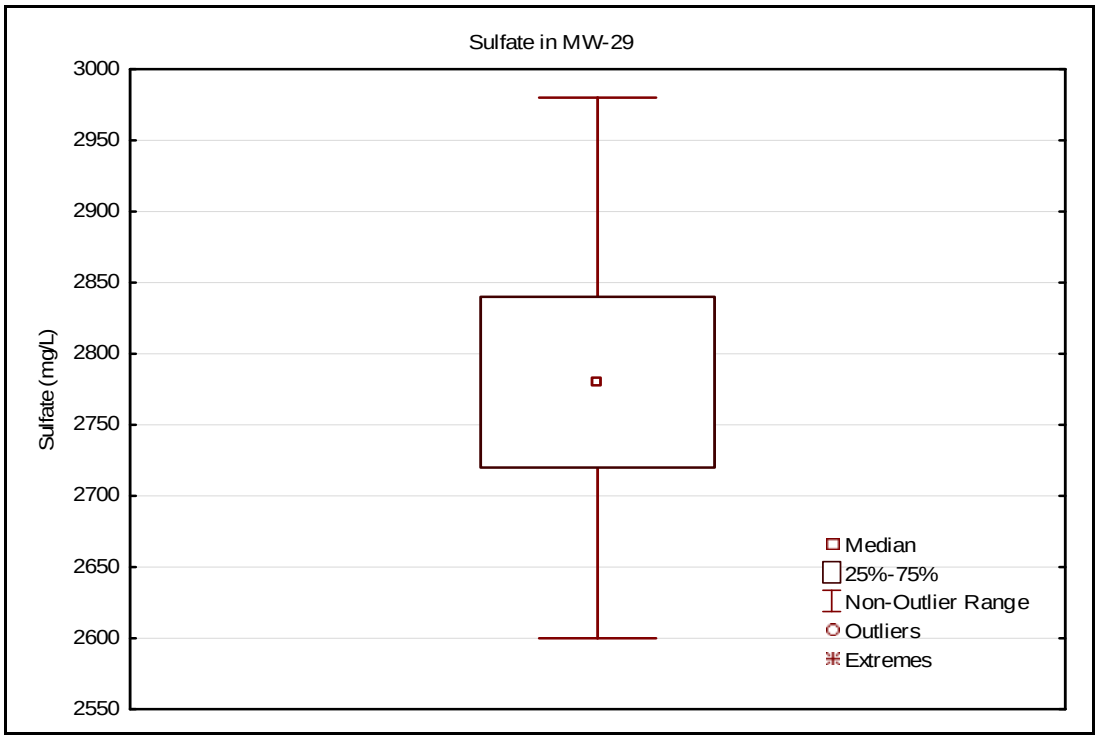
Data Set	Parameter	Mean	N	Minimum	Maximum	Std.Dev.	Range	Geometric Mean	Skewness	Q25	Median	Q75
All	Chloride (mg/L)	37	24	30	41	3	11	37	-0.92	35	37	39
Extremes Removed	Fluoride (mg/L)	0.79	23	0.68	0.95	0.06	0.27	0.79	0.83	0.76	0.78	0.83
All	Fluoride (mg/L)	0.81	24	0.68	1.10	0.09	0.42	0.80	1.86	0.76	0.79	0.84
Extremes Removed	Sulfate (mg/L)	2787	23	2600	2980	89	380	2786	0.41	2720	2780	2840
All	Sulfate (mg/L)	2727	24	1340	2980	308	1640	2702	-4.27	2715	2775	2840
Extremes Removed	Uranium (ug/L)	11	23	8	13	0.96	5	11	-1.31	11	11	12
All	Uranium (ug/L)	13	24	8	49	7.80	41	12	4.78	11	11	12

Appenidx C-3 Data Omitted from Analysis

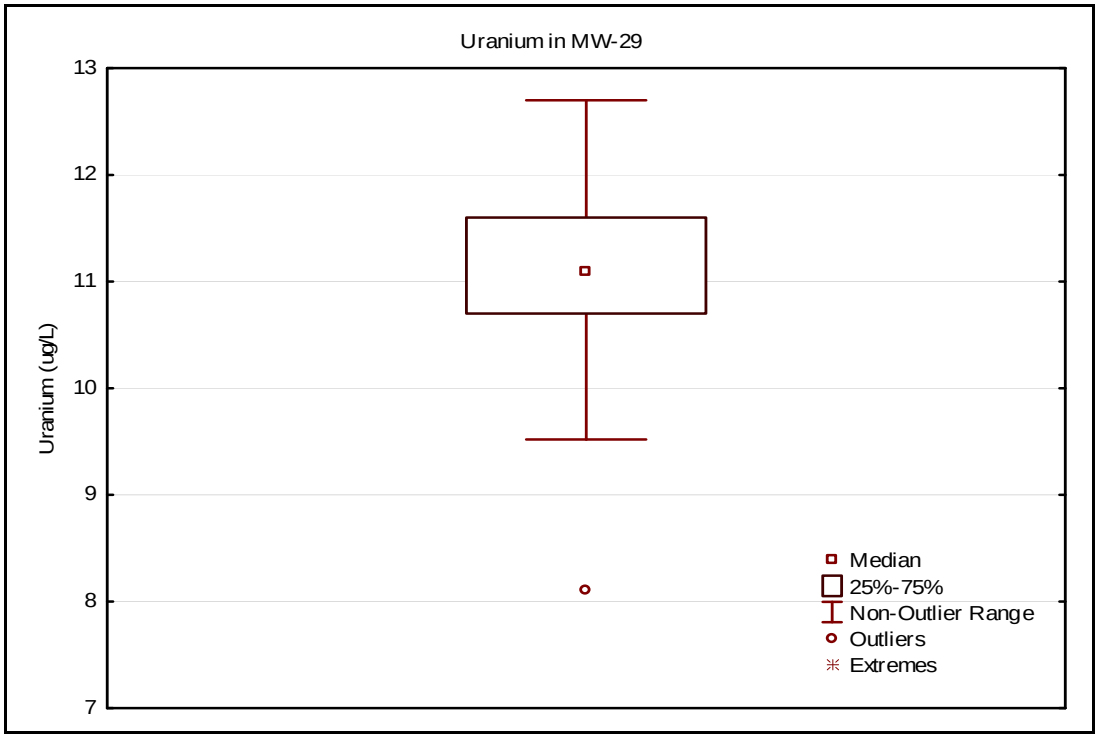
Reason	Well	Sample Date	Chemical	Result	Qualifier	Detection Limit	Units
Extreme outlier	MW-29	11/14/2012	Sulfate	1340		1000	mg/L
Extreme outlier	MW-29	12/14/2005	Uranium	49		0.3	ug/L
Extreme outlier	MW-29	6/24/2005	Fluoride	1.1			mg/L

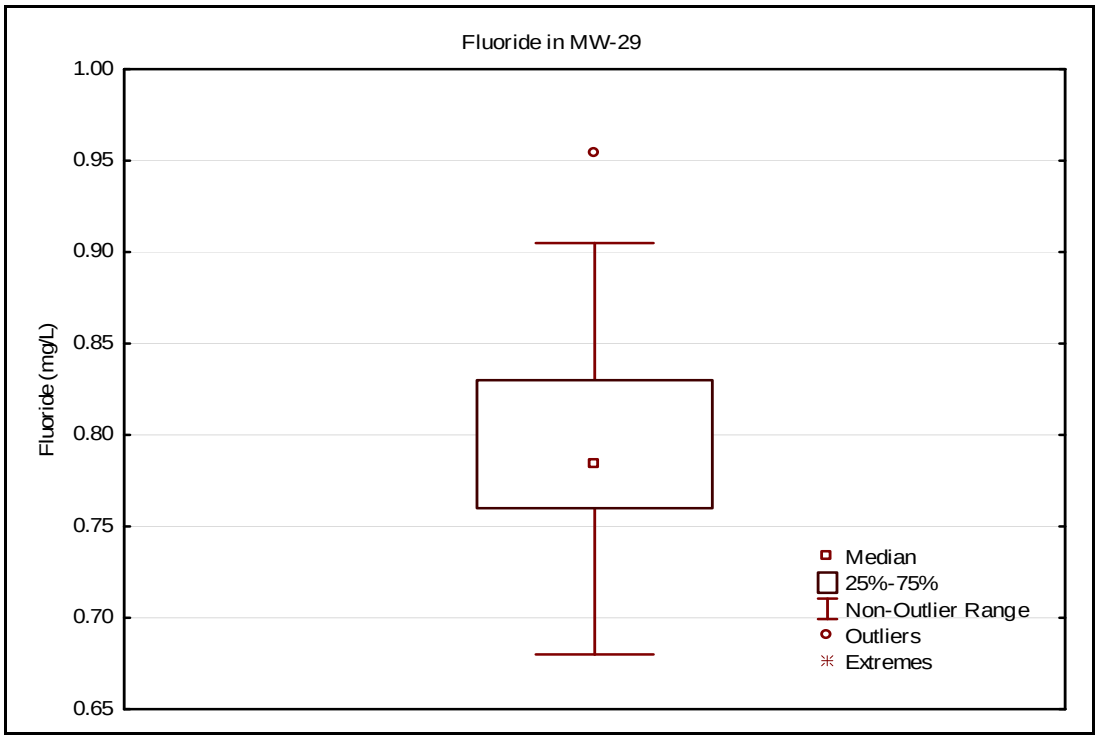
Appendix C-4 Box Plots for Indicator Parameters in MW-29



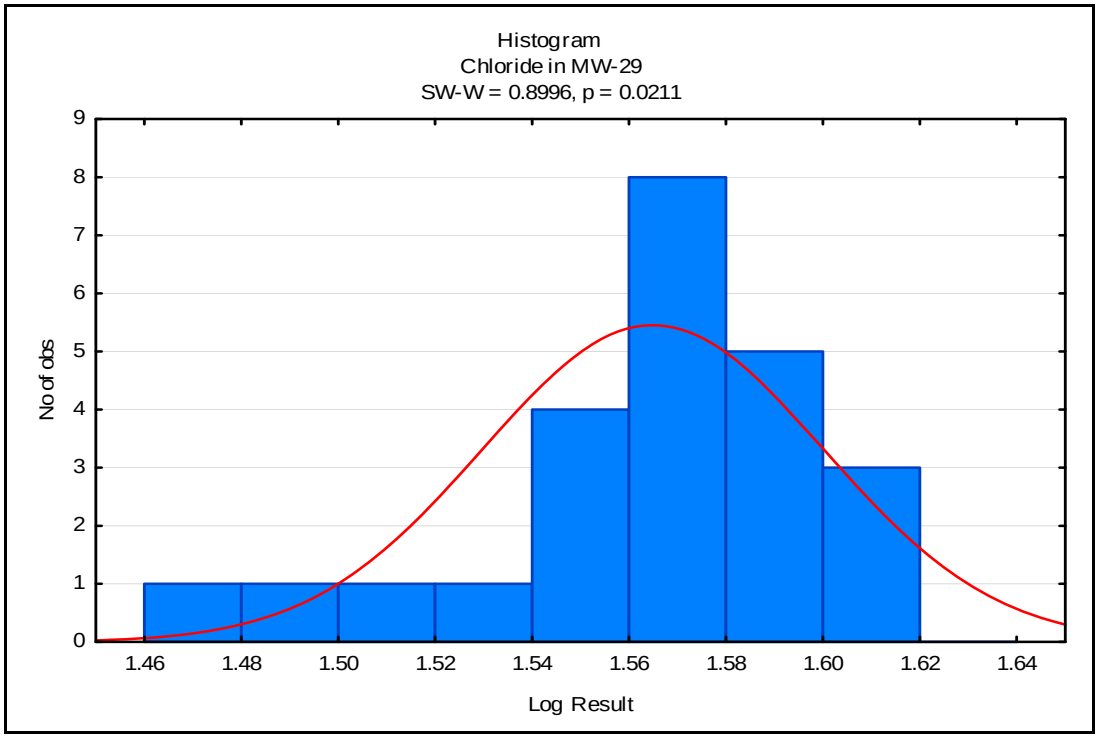


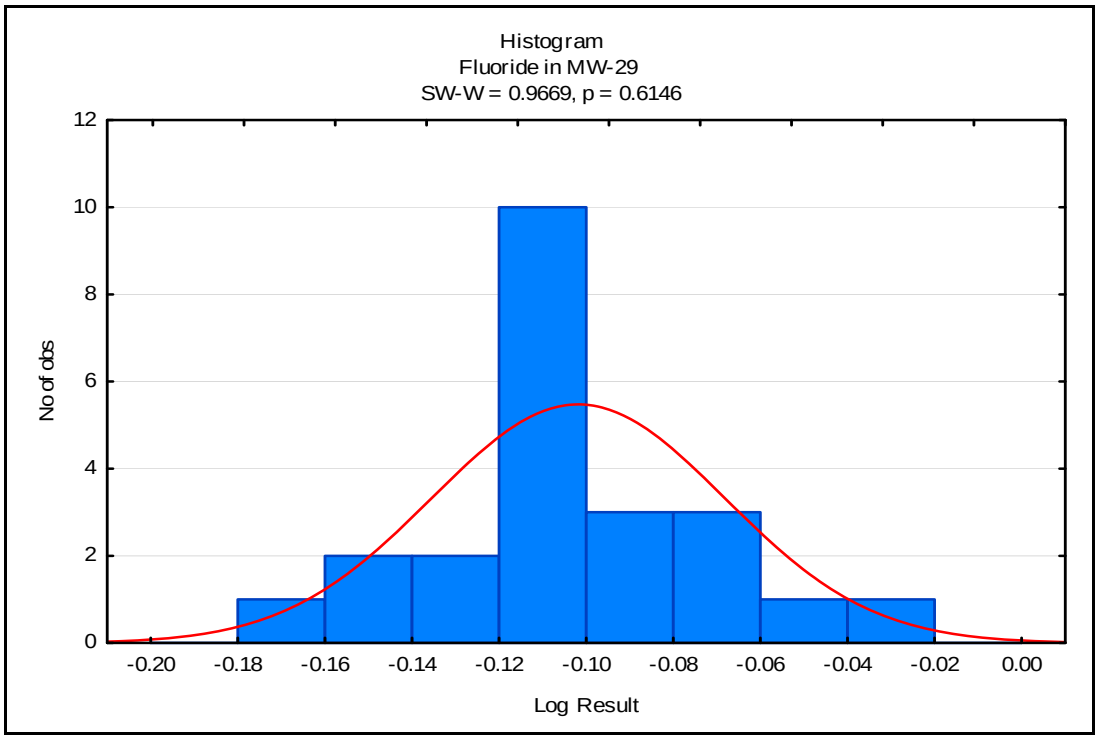
Appendix C-4 Box Plots for Indicator Parameters in MW-29



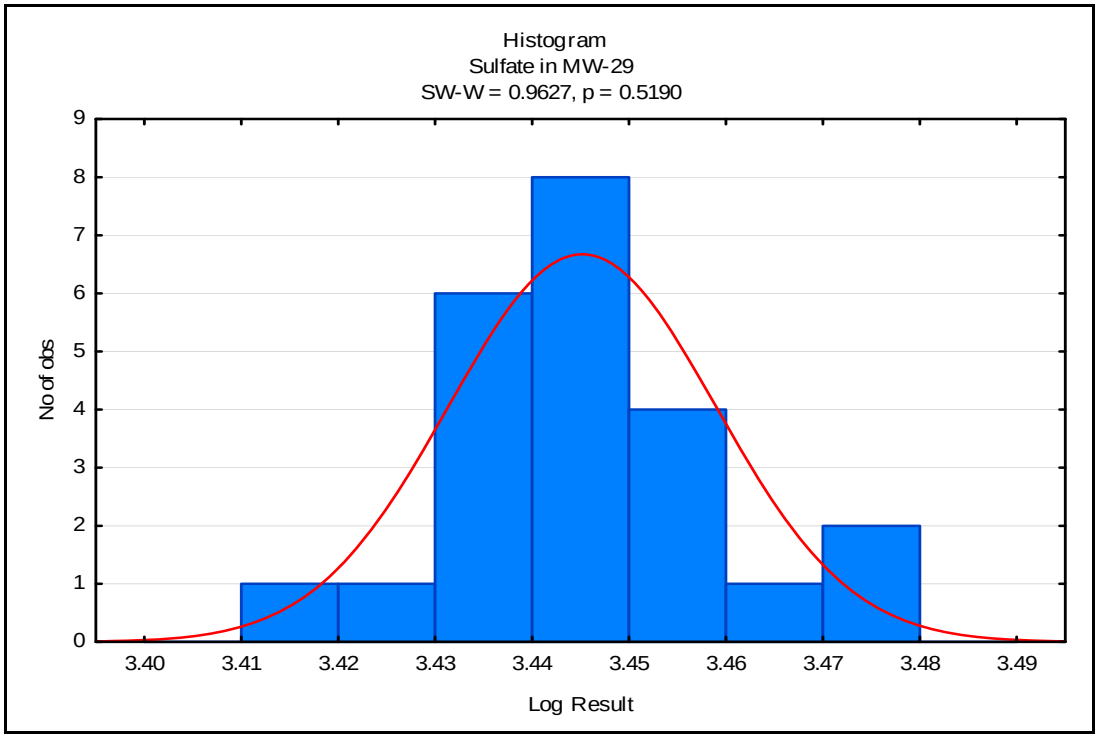


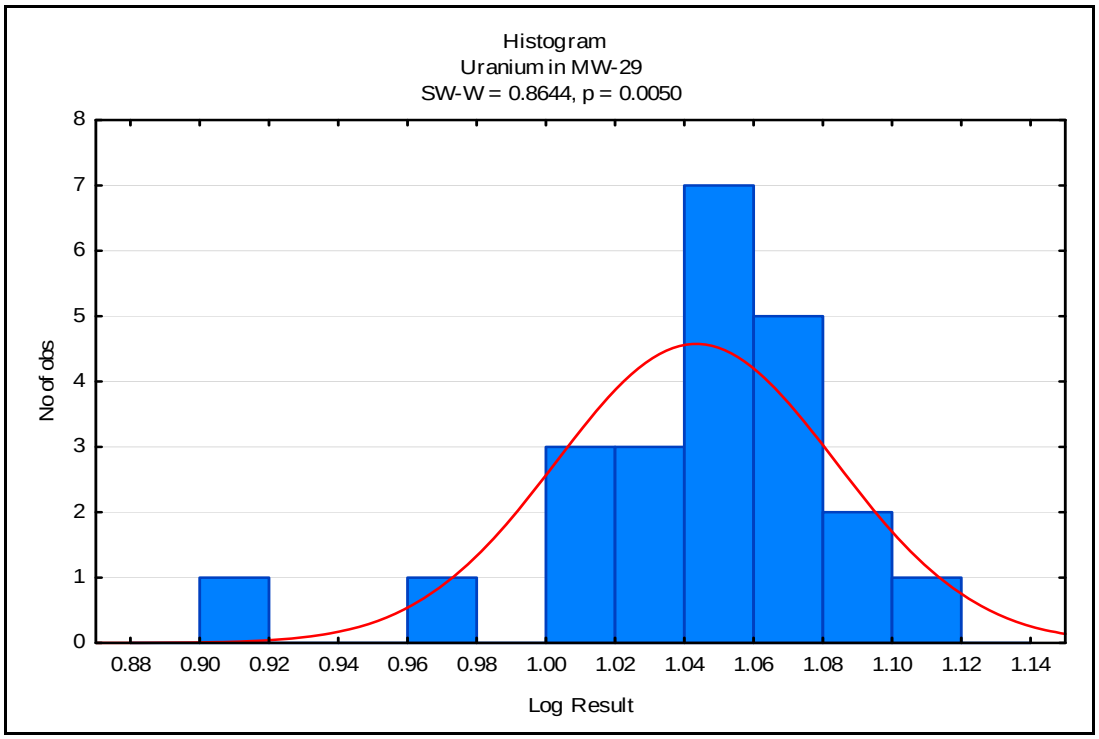
Appendix C-5 Histograms for Indicator Parameters in MW-29



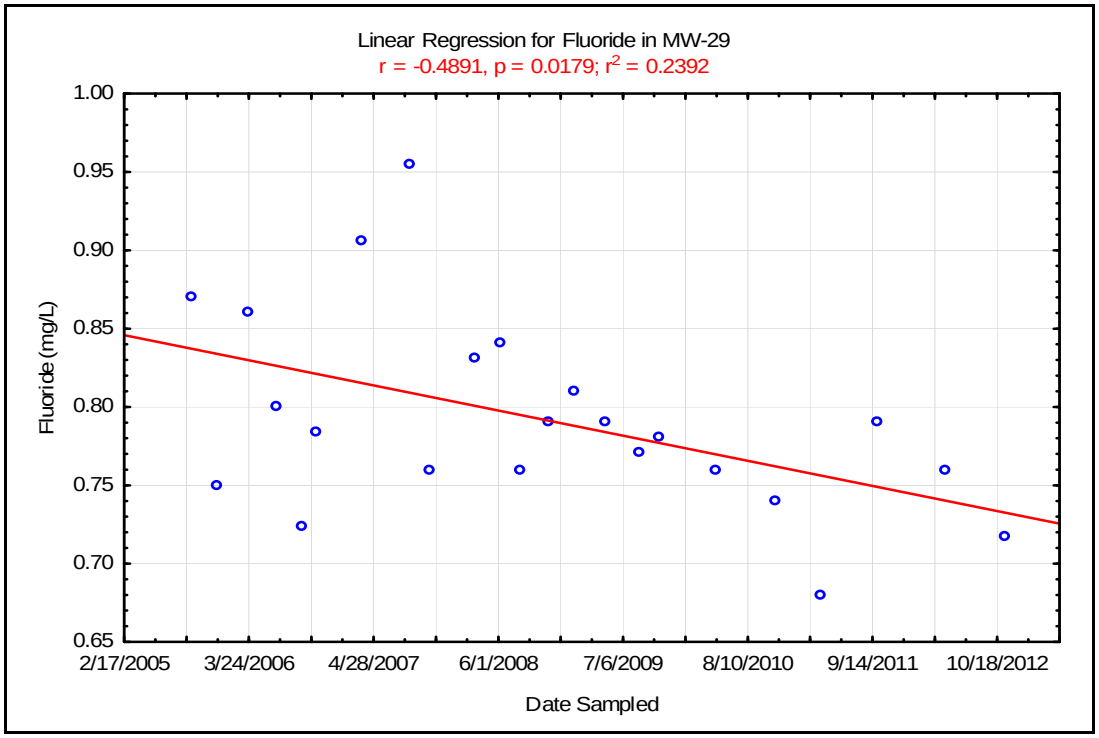


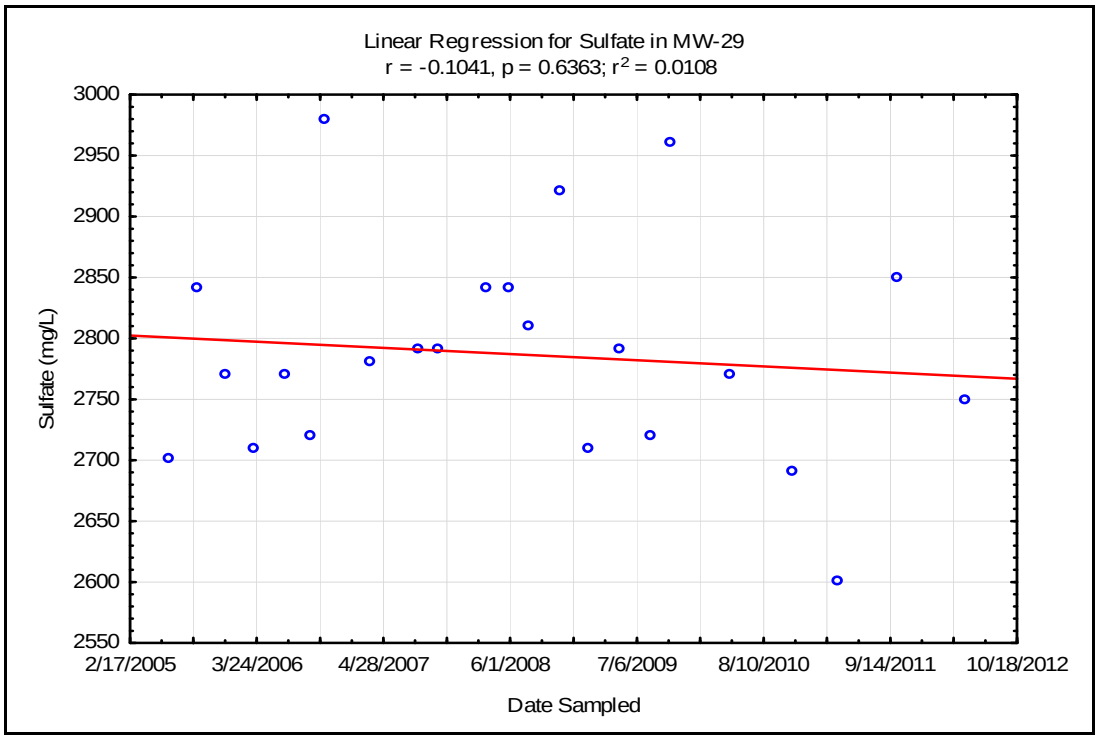
Appendix C-5 Histograms for Indicator Parameters in MW-29





Appendix C-6 Linear Regressions for Normally or Lognormally Distributed Indicator Parameters in MW-29





Chloride

User Selected Options		
Date/Time of Computation		3/7/2013 23:29
From File	Cl.wst	
Full Precision	OFF	
Confidence Coefficient		0.95
Level of Significance		0.05

Chloride

General Statistics	
Number of Values	24
Minimum	30
Maximum	41
Mean	36.79
Geometric Mean	36.68
Median	37
Standard Deviation	2.858
SEM	0.583
Mann-Kendall Test	
Test Value (S)	-67
Critical Value (0.05)	-1.645
Standard Deviation of S	39.9
Standardized Value of S	-1.654
Approximate p-value	0.049
Statistically significant evidence of a decreasing trend at the specified level of significance.	

Uranium

User Selected Options		
Date/Time of Computation		3/7/2013 23:27
From File	U.wst	
Full Precision	OFF	
Confidence Coefficient		0.95
Level of Significance		0.05

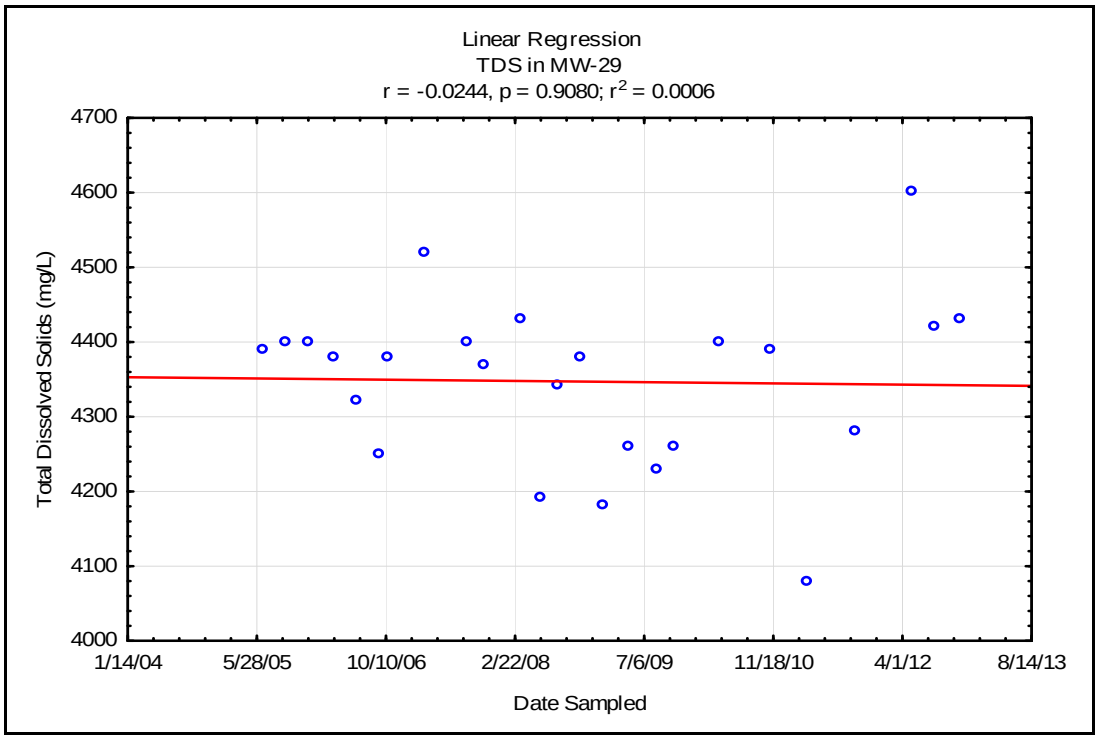
Uranium

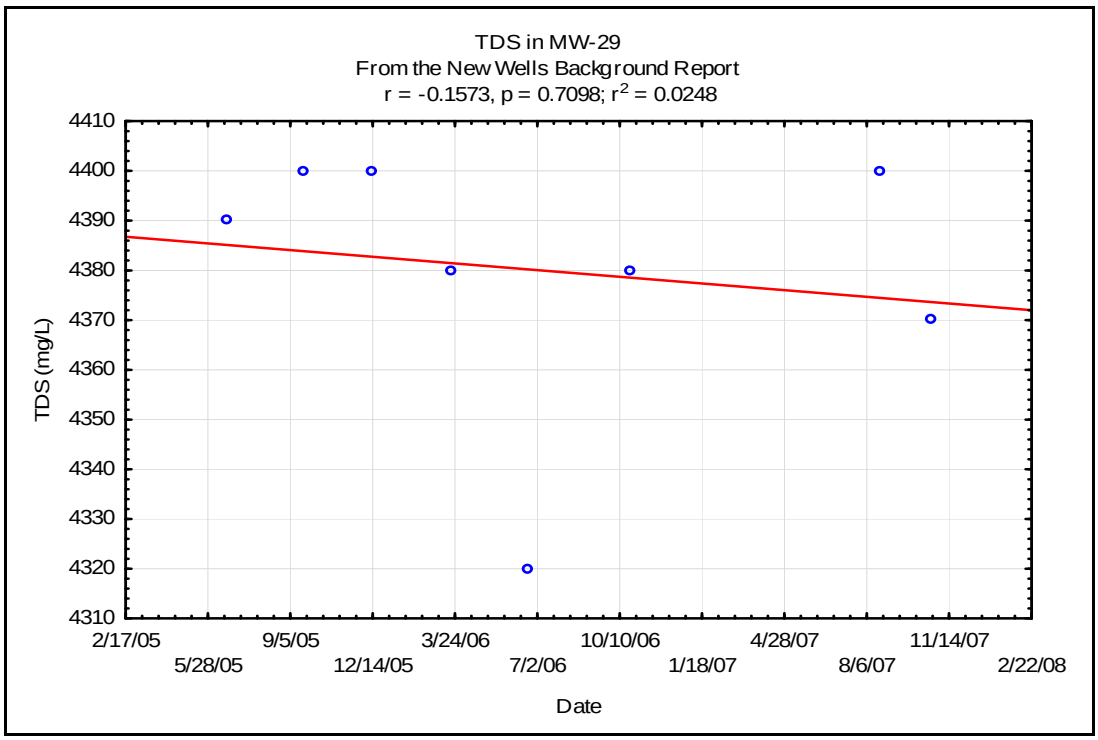
General Statistics	
Number of Values	23
Minimum	8.1
Maximum	12.7
Mean	11.07
Geometric Mean	11.03
Median	11.1
Standard Deviation	0.955
SEM	0.199
Mann-Kendall Test	
Test Value (S)	55
Critical Value (0.05)	1.645
Standard Deviation of S	37.66
Standardized Value of S	1.434
Approximate p-value	0.0758
Insufficient evidence to identify a significant trend at the specified level of significance.	

APPENDIX D

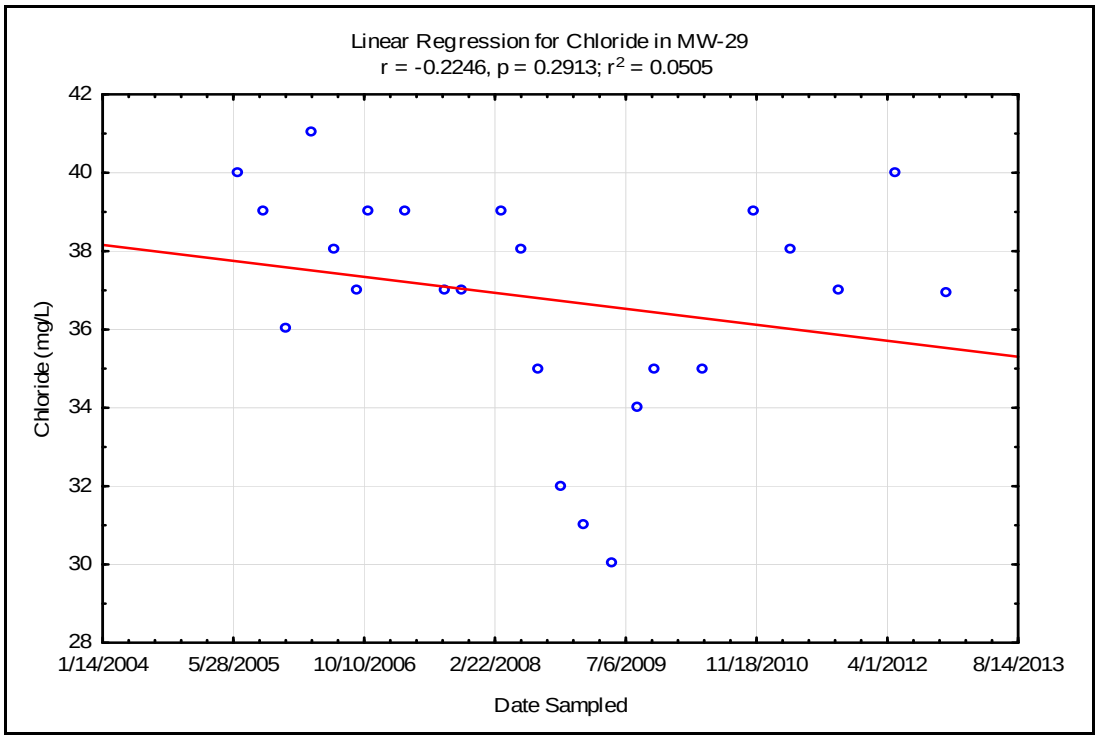
Time Concentration Plot Comparison

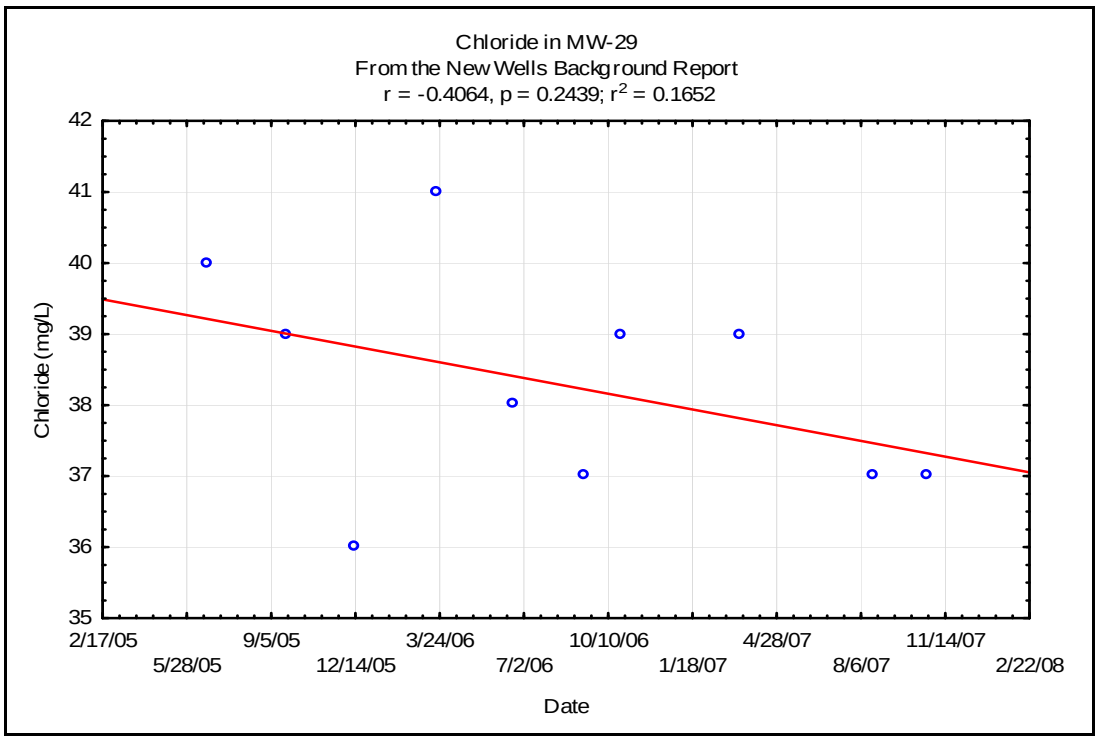
Appendix D-1
Time Concentration Plot Comparison for TDS in MW-29



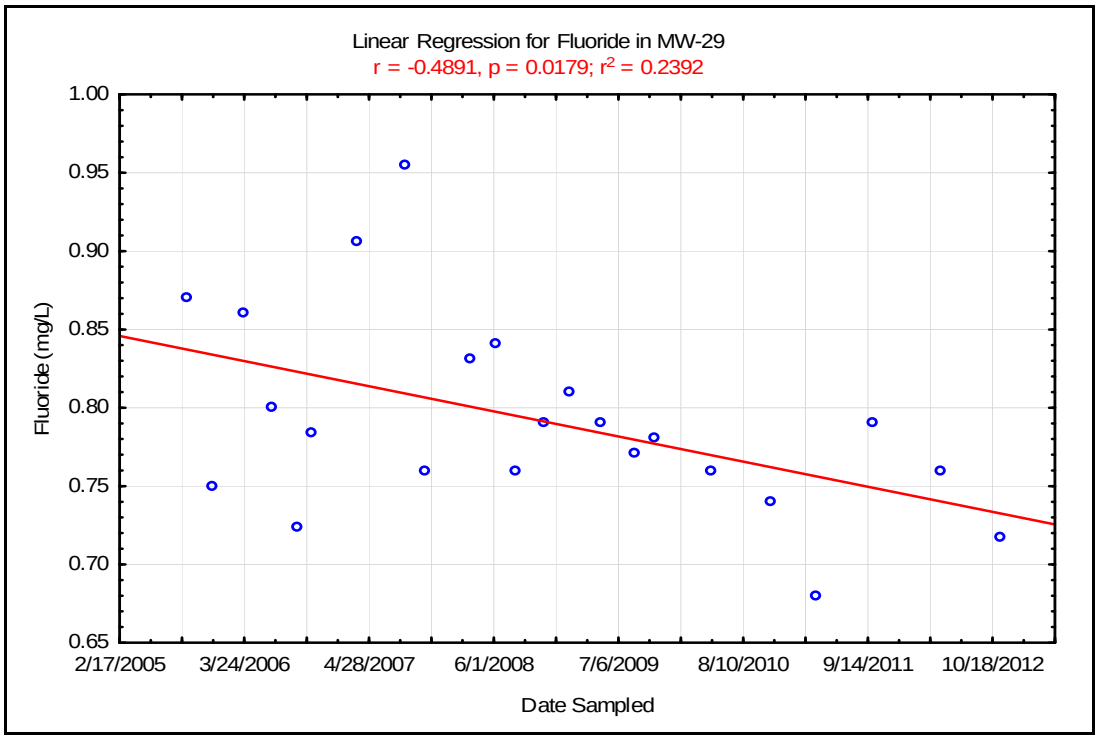


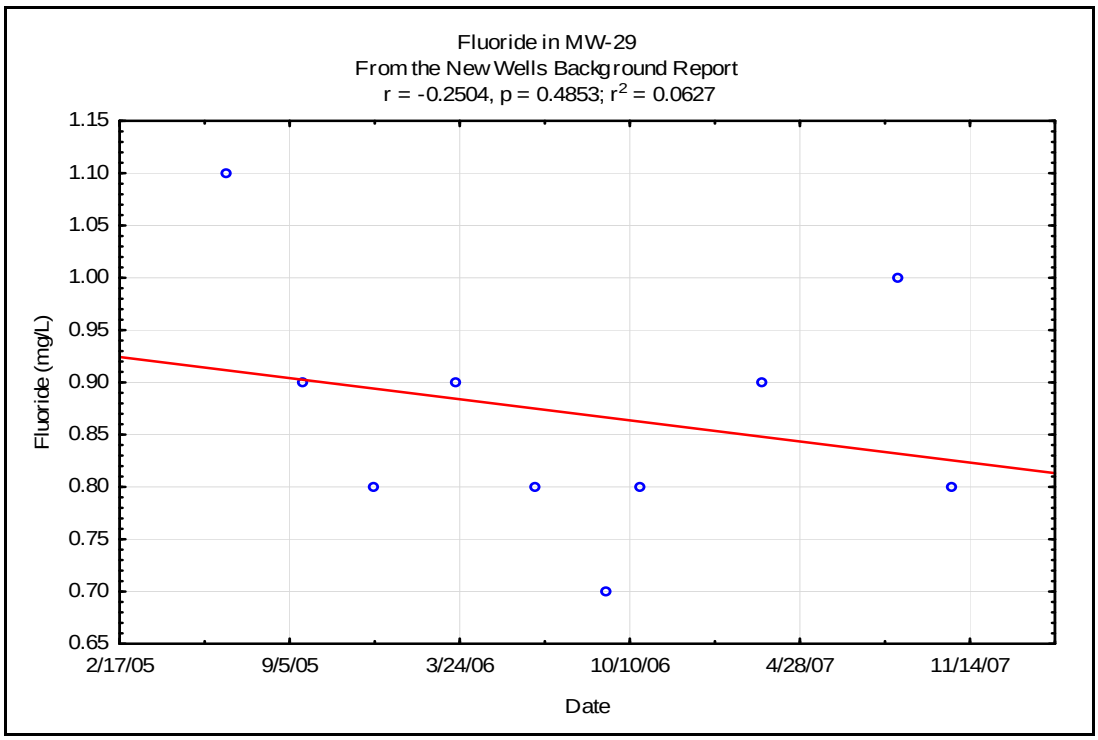
Appendix D-2
Time Concentration Plots Comparison for Indicator Parameters in MW-29



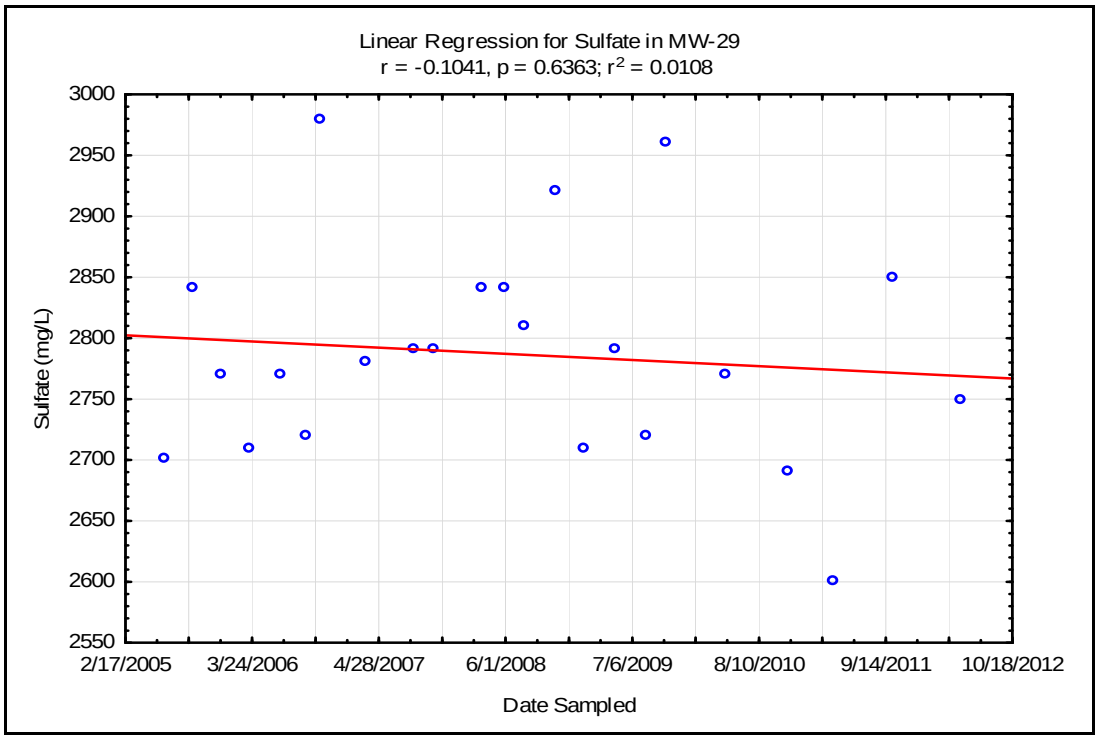


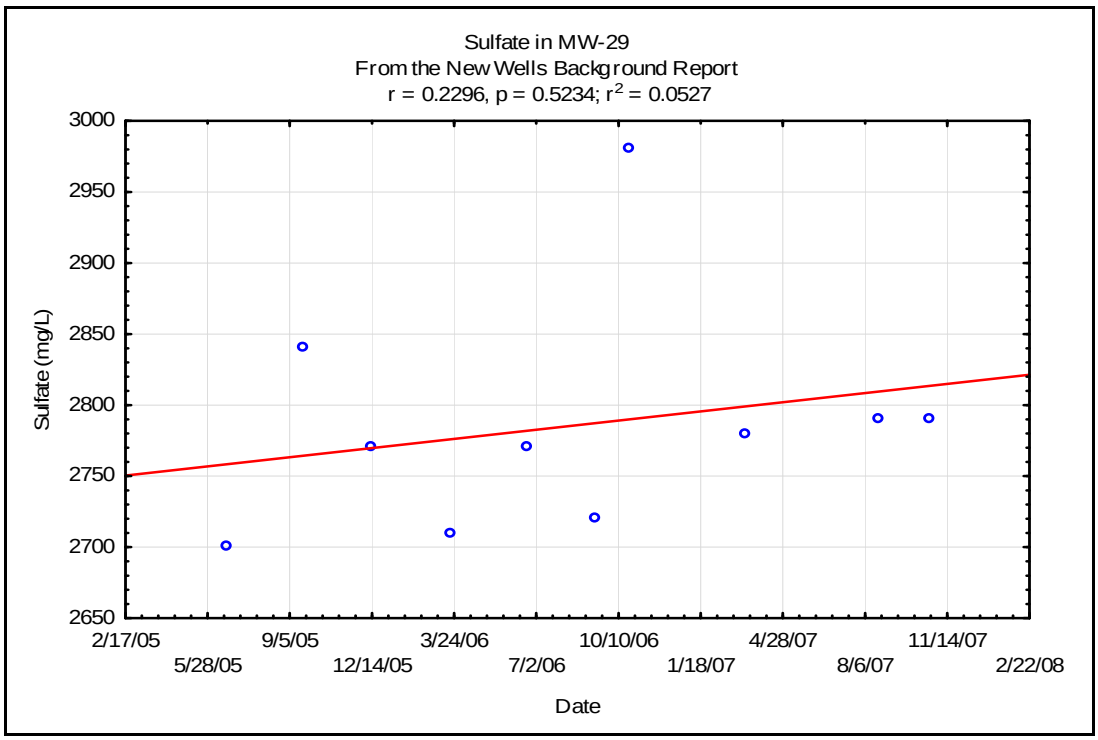
Appendix D-2
Time Concentration Plots Comparison for Indicator Parameters in MW-29



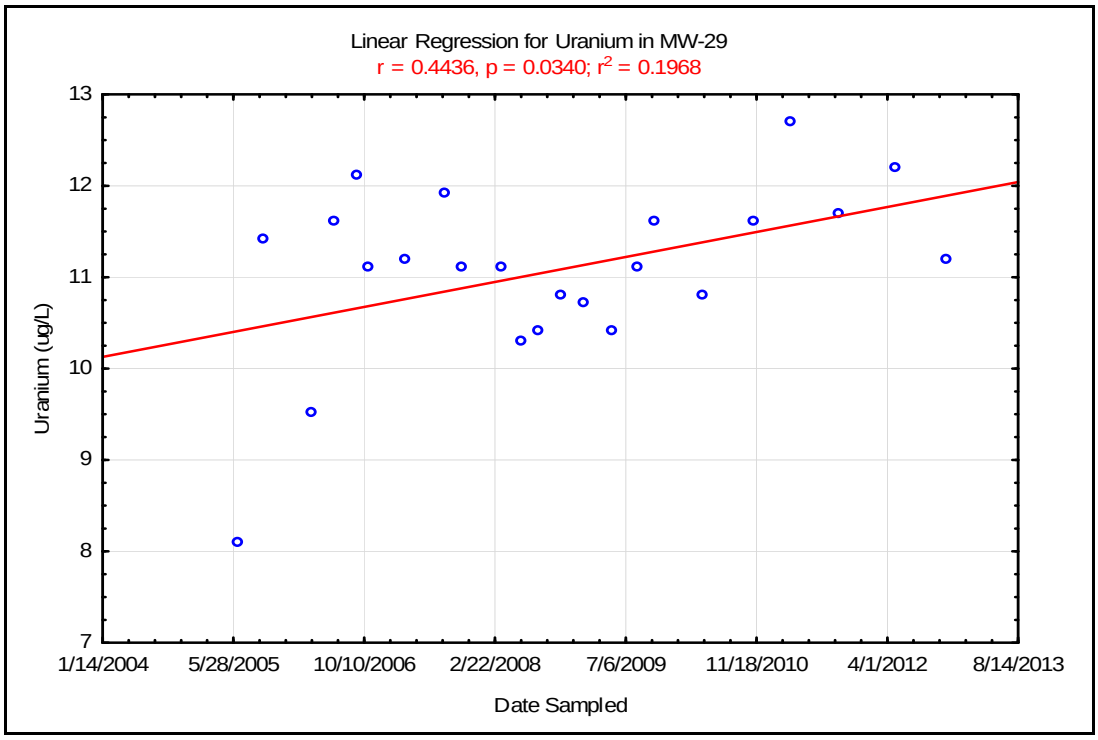


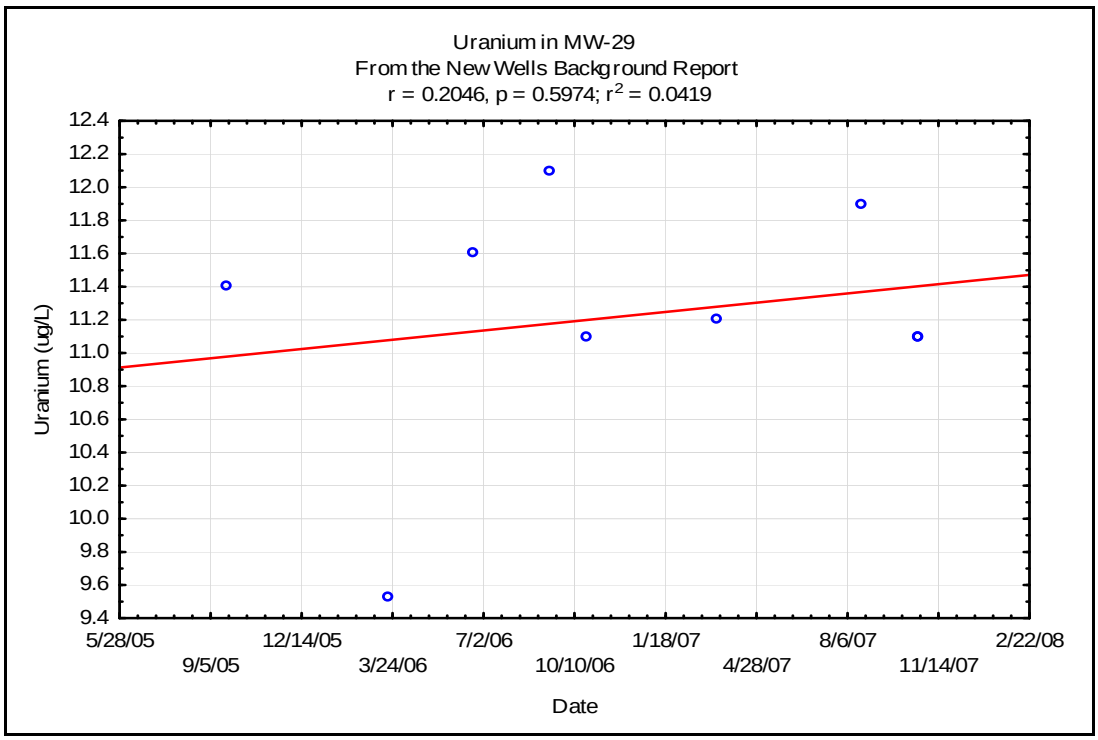
Appendix D-2
Time Concentration Plots Comparison for Indicator Parameters in MW-29





Appendix D-2
Time Concentration Plots Comparison for Indicator Parameters in MW-29

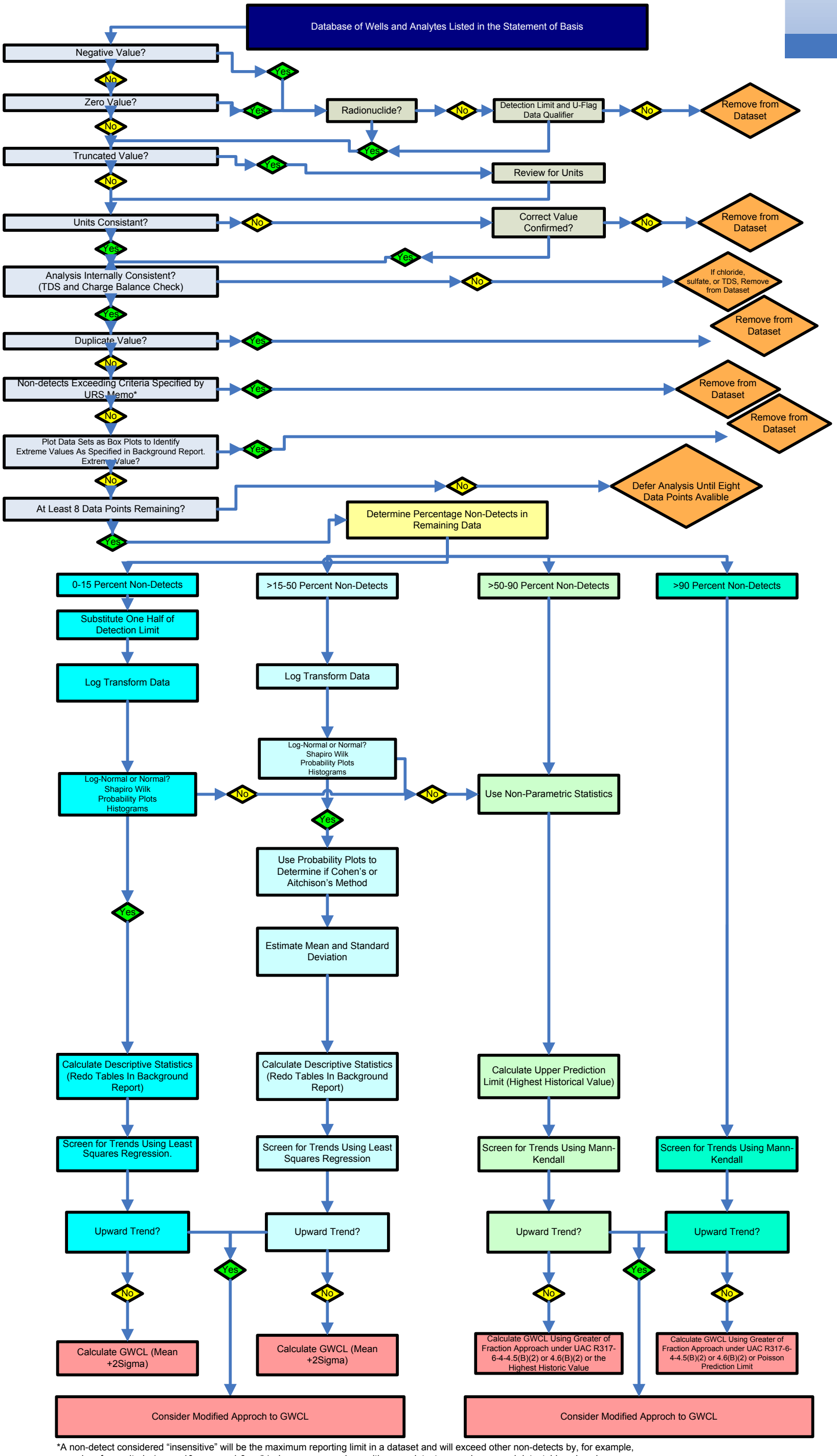




APPENDIX E

Flowsheet
(Groundwater Data Preparation and Statistical Process Flow for Calculating Groundwater Protection Standards, White Mesa Mill Site (INTERA, 2007a))

Groundwater Data Preparation and Statistical Process Flow for Calculating Groundwater Protection Standards, White Mesa Mill Site, San Juan County, Utah



*A non-detect considered "insensitive" will be the maximum reporting limit in a dataset and will exceed other non-detects by, for example, an order of magnitude (e.g., <10 versus <1.0 µg/L). In some cases, insensitive non-detects may also exceed detectable values in a dataset (e.g., <10 versus 3.5 µg/L).

APPENDIX F

Input and Output Files (Electronic Only)