ENERGY FUELS

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Div of Waste Management
and Radiation Control

MAY 24 2017

DRC-2017-003806

May 22, 2017

Sent VIA OVERNIGHT DELIVERY

Mr. Scott Anderson
Director
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
195 North 1950 West
P.O. Box 144880
Salt Lake City, UT 84114-4820

Re: Transmittal of 1st Quarter 2017 Nitrate Monitoring Report
Stipulation and Consent Order Docket Number UGW12-04 White Mesa Uranium Mill

Dear Mr. Anderson:

Enclosed are two copies of the White Mesa Uranium Mill Nitrate Monitoring Report for the 1st Quarter of 2017 as required by the Stipulation and Consent Order Docket Number UGW12-04, as well as two CDs each containing a word searchable electronic copy of the report.

If you should have any questions regarding this report please contact me.

Yours very truly,

Kathy Weinel

ENERGY FUELS RESOURCES (USA) INC.
Kathy Weinel
Quality Assurance Manager

cc: David C. Frydenlund
Logan Shumway
Mark S. Chalmers
David E. Turk
Scott Bakken

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White Mesa Uranium Mill

Nitrate Monitoring Report

State of Utah
Stipulated Consent Agreement, December 2014
Docket No. UGW12-04

1st Quarter
(January through March)
2017

Prepared by:

Energy Fuels Resources (USA) Inc.
225 Union Boulevard, Suite 600
Lakewood, CO 80228

May 22, 2017

TABLE OF CONTENTS

LIST OF TABLES

INDEX OF TABS

ACRONYM LIST

AWAL	American West Analytical Laboratory
CA	Consent Agreement
CAP	Corrective Action Plan
CIR	Contamination Investigation Report
DIFB	Deionized Field Blanks
DWMRC	Utah Division of Waste Management and Radiation Control
DRC	Utah Division of Radiation Control
EFRI	Energy Fuels Resources (USA) Inc.
ft amsl	feet above mean sea level
GWDP	Groundwater Discharge Permit
LCS	Laboratory Control Spike
MS	Matrix Spike
MSD	Matrix Spike Duplicate
QA	Quality Assurance
QAP	Groundwater Monitoring Quality Assurance Plan
QC	Quality Control
RPD	Relative Percent Difference
SCO	Stipulated Consent Order
SOPs	Standard Operating Procedures
UDEQ	Utah Department of Environmental Quality
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Utah Department of Environmental Quality ("UDEQ") Division of Waste Management and Radiation Control ("DWMRC") noted in a Request dated September 30, 2008 (the "Request"), for a Voluntary Plan and Schedule to Investigate and Remediate Nitrate Contamination at the White Mesa Uranium Mill (the "Mill") (the "Plan"), that nitrate levels have exceeded the State water quality standard of 10 mg/L in certain monitoring wells. As a result of the Request, Energy Fuels Resources (USA) Inc. ("EFRI") entered into a Stipulated Consent Agreement with the Utah Water Quality Board in January 2009 which directed the preparation of a Nitrate Contamination Investigation Report ("CIR"). A subsequent letter dated December 1, 2009, among other things, recommended that EFRI also address elevated chloride concentrations in the CIR. The Stipulated Consent Agreement was amended in August 2011. Under the amended Consent Agreement ("CA"), EFRI submitted a Corrective Action Plan ("CAP"), pursuant to the requirements of the Utah Groundwater Quality Protection Rules [UAC R317-6-6.15(C – E)] on November 29, 2011 and revised versions of the CAP on February 27, 2012 and May 7, 2012. On December 12, 2012, DWMRC signed the Stipulation and Consent Order ("SCO"), Docket Number UGW12-04, which approved the EFRI CAP, dated May 7, 2012. The SCO ordered EFRI to fully implement all elements of the May 7, 2012 CAP.

Based on the schedule included in the CAP and as delineated and approved by the SCO, the activities associated with the implementation of the CAP began in January 2013. The reporting requirements specified in the CAP and SCO are included in this quarterly nitrate report.

This is the Quarterly Nitrate Monitoring Report, as required under the SCO, State of Utah Docket No. UGW12-04 for the first quarter of 2017. This report meets the requirements of the SCO, State of UDEQ Docket No. UGW12-04 and is the document which covers nitrate corrective action and monitoring activities during the first quarter of 2017.

2.0 GROUNDWATER NITRATE MONITORING

2.1 Samples and Measurements Taken During the Quarter

A map showing the location of all groundwater monitoring wells, piezometers, existing wells, temporary chloroform contaminant investigation wells and temporary nitrate investigation wells is attached under Tab A. Nitrate samples and measurements taken during this reporting period are discussed in the remainder of this section.

2.1.1 Nitrate Monitoring

Quarterly sampling for nitrate monitoring parameters was performed in the following wells:

TWN-1
TWN-2
TWN-3
TWN-4
TWN-7
TWN-18
TW4-22*
TW4-24*
TW4-25*
Piezometer 1
Piezometer 2
Piezometer 3A**

As discussed in Section 2.1.2 the analytical constituents required by the CAP are inorganic chloride and nitrate+nitrite as N (referred to as nitrate in this document)

* Wells TW4-22, TW4-24, TW4-25 are chloroform investigation wells (wells installed and sampled primarily for the chloroform investigation) and are sampled as part of the chloroform program. The analytical suite for these three wells includes nitrate, chloride and a select list of Volatile Organic Compounds ("VOCs") as specified in the chloroform program. These three wells are included here because they are being pumped as part of the remediation of the nitrate contamination as required by the SCO and the CAP. The nitrate and chloride data are included in this report as well as in the chloroform program quarterly report. The VOC data for these three wells will be reported in the chloroform quarterly monitoring report only.

** Piezometer 3 was abandoned and replaced with Piezometer 3A in March 2016.

The December 12, 2012 SCO approved the CAP, which specified the cessation of sampling in TWN-5, TWN-6, TWN-8, TWN-9, TWN-10, TWN-11, TWN-12, TWN-13, TWN-14, TWN-15, TWN-16, TWN-17, and TWN-19. The CAP and SCO also approved the abandonment of TWN-5, TWN-8, TWN-9, TWN-10, TWN-11, TWN-12, TWN-13, TWN-15, and TWN-17 within 1 year of the SCO approval. These wells were abandoned in accordance with the DWMRC-approved Well Abandonment Procedure on July 31, 2013. Wells TWN-6, TWN-14, TWN-16, and TWN-19 have been maintained for depth to groundwater monitoring only, as noted in the CAP.

Table 1 provides an overview of all locations sampled during the current period, along with the date samples were collected from each location, and the date(s) upon which analytical data were received from the contract laboratory. Table 1 also identifies rinsate samples collected, as well as sample numbers associated with any required duplicates.

As indicated in Table 1, nitrate monitoring was performed in the nitrate monitoring wells, chloroform wells TW4-22, TW4-24, TW4-25 and Piezometers 1, 2, and 3A. Analytical data for all of the above-listed wells, and the piezometers, are included in Tab G.

Nitrate and chloride are also monitored in all of the Mill's groundwater monitoring wells and chloroform investigation wells. Data from those wells for this quarter are incorporated in certain maps and figures in this report but are discussed in their respective programmatic reports.

2.1.2 Parameters Analyzed

Locations sampled during this reporting period were analyzed for the following constituents:

- Inorganic Chloride
- Nitrate plus Nitrite as Nitrogen (referred to herein as nitrate)

Use of analytical methods consistent with the requirements found in the White Mesa Mill Groundwater Quality Assurance Plan, ("QAP") Revision 7.2, dated June 7, 2012 was confirmed for all analytes, as discussed later in this report.

2.1.3 Groundwater Head and Level Monitoring

Depth to groundwater was measured in the following wells and/or piezometers, pursuant to Part I.E.3 of the Groundwater Discharge Permit ("GWDP") (dated August 24, 2012):

- The quarterly groundwater compliance monitoring wells
- Existing well MW-4 and all of the temporary chloroform investigation wells
- Piezometers – P-1, P-2, P-3, P-4 and P-5
- MW-20, MW-22, and MW-34
- The DR piezometers that were installed during the Southwest Hydrogeologic Investigation
- Nitrate wells TWN-1, TWN-2, TWN-3, TWN-4, TWN-6, TWN-7, TWN-14, TWN-16, TWN-18 and TWN-19

In addition to the above, depth to water measurements are routinely observed in conjunction with sampling events for all wells sampled during quarterly and accelerated efforts, regardless of the sampling purpose.

All well levels used for groundwater contour mapping were measured and recorded within 5 calendar days of each other as indicated by the measurement dates in the summary sheet under Tab C. Field data sheets for groundwater measurements are also provided in Tab C.

Weekly and monthly depth to groundwater measurements were taken in the chloroform pumping wells MW-4, MW-26, TW4-1, TW4-2, TW4-11, TW4-19, TW4-20, TW4-4, TW4-21, TW4-37, TW4-39 (starting in December 2016), and the nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2.

In addition, monthly water level measurements were taken in non-pumping wells MW-27, MW-30, MW-31, TWN-1, TWN-3, TWN-4, TWN-7, and TWN-18 as required by the CAP.

2.2 Sampling Methodology and Equipment and Decontamination Procedures

The QAP provides a detailed presentation of procedures utilized for groundwater sampling activities under the GWDP (August 24, 2012).

The sampling methodology, equipment and decontamination procedures that were performed for the nitrate contaminant investigation, as summarized below, are consistent with the QAP.

2.2.1 Well Purging, Sampling and Depth to Groundwater

A list of the wells in order of increasing nitrate contamination is generated quarterly. The order for purging is thus established. The list is included with the Field Data Worksheets under Tab B. Mill personnel start purging with all of the nondetect wells and then move to the wells with detectable nitrate concentrations, progressing from the wells having the lowest nitrate contamination to wells with the highest nitrate contamination.

Before leaving the Mill office, the pump and hose are decontaminated using the cleaning agents described in Attachment 2-2 of the QAP. Rinsate blanks are collected at a frequency of one rinsate per 20 field samples.

Purging is completed to remove stagnant water from the casing and to assure that representative samples of formation water are collected for analysis. There are three purging strategies specified in the QAP that are used to remove stagnant water from the casing during groundwater sampling at the Mill. The three strategies are as follows:

1. Purging three well casing volumes with a single measurement of field parameters
2. Purging two casing volumes with stable field parameters (within 10% Relative Percent Difference ["RPD"])
3. Purging a well to dryness and stability (within 10% RPD) of a limited list of field parameters after recovery.

Mill personnel proceed to the first well, which is the well with the lowest concentration (i.e. non-detect) of nitrate based on the previous quarter's sampling results. Well depth measurements are taken and the one casing volume is calculated. The purging strategy that will be used for the well is determined at this time based on the depth to water measurement and the previous production of the well. The Grundfos pump (a 6 to 10 gallon per minute [gpm] pump) is then lowered to the appropriate depth in the well and purging is started. At the first well, the purge rate is measured for the purging event by using a calibrated 5 gallon bucket. After the evacuation of the well has been completed, the well is sampled when possible, and the pump is removed from the well and the process is repeated at each well location moving from the least contaminated to most contaminated well. If sample collection is not possible due to the well being purged dry, a sample is collected after recovery using a disposable bailer and as described in Attachment 2-3 of the QAP. Sample collection follows the procedures described in Attachment 2-4 of the QAP.

After the samples have been collected for a particular well, the samples are placed into a cooler that contains ice. The well is then recapped and Mill personnel proceed to the next well. If a bailer has been used it is disposed of.

Decontamination of non-dedicated equipment, using the reagents in Attachment 2-2 of the QAP, is performed between each sample location, and at the beginning of each sampling day, in addition to the pre-event decontamination described above.

2.2.2 Piezometer Sampling

Samples are collected from Piezometers 1, 2 and 3A, if possible. Samples are collected from piezometers using a disposable bailer after one set of field measurements have been collected. Due to the difficulty in obtaining samples from the piezometers, the purging protocols set out in the QAP are not followed.

After samples are collected, the bailer is disposed of and samples are placed into a cooler containing ice for sample preservation and transit to the Mill's contract analytical laboratory, American West Analytical Laboratories ("AWAL").

2.3 Field Data

Attached under Tab B are copies of all Field Data Worksheets that were completed during the quarter for the nitrate investigation monitoring wells and piezometers identified in Section 2.1.1 and Table 1.

2.4 Depth to Groundwater Data and Water Table Contour Map

Depth-to-groundwater measurements that were utilized for groundwater contours are included on the Quarterly Depth to Water Sheet at Tab C of this Report along with the kriged groundwater contour map for the current quarter generated from this data. All well levels used for groundwater contour mapping were measured and recorded within 5 calendar days of each other as indicated by the measurement dates in the summary sheet under Tab C. A copy of the kriged groundwater contour map generated from the previous quarter's data is provided under Tab D.

2.5 Laboratory Results

2.5.1 Copy of Laboratory Results

The analytical results were provided by AWAL. Table 1 lists the dates when analytical results were reported to the Quality Assurance ("QA") Manager for each well or other sample.

Analytical results for the samples collected for this quarter's nitrate investigation and a limited list of chloroform investigation nitrate and chloride results are provided under Tab G of this Report. Also included under Tab G are the results of analyses for duplicate samples and rinsate samples for this sampling effort, as identified in Table 1. See the Groundwater Monitoring Report and Chloroform Monitoring Report for this quarter for nitrate and chloroform analytical results for the groundwater monitoring wells and chloroform investigation wells not listed in Table 1.

2.5.2 Regulatory Framework

As discussed in Section 1.0 above, the Request, Plan, and CA each triggered a series of actions on EFRI's part. Potential surficial sources of nitrate and chloride have been described in the December 30, 2009 CIR and additional investigations into potential sources were completed and discussed with DWMRC in 2011. Pursuant to the CA, the CAP was submitted to the Director of the Division Waste Management and Radiation Control (the "Director") on May 7, 2012. The CAP describes activities associated with the nitrate in groundwater. The CAP was approved by the Director on December 12, 2012. This quarterly report documents the monitoring consistent with the program described in the CAP.

3.0 QUALITY ASSURANCE AND DATA VALIDATION

EFRI's QA Manager performed a QA/Quality Control ("QC") review to confirm compliance of the monitoring program with the requirements of the QAP. As required in the QAP, data QA includes preparation and analysis of QC samples in the field, review of field procedures, an analyte completeness review, and QC review of laboratory data methods and data. Identification of field QC samples collected and analyzed is provided in Section 3.1. Discussion of adherence to Mill sampling Standard Operating Procedures ("SOPs") is provided in Section 3.2. Analytical completeness review results are provided in Section 3.3. The steps and tests applied to check field data QA/QC, holding times, receipt temperature and laboratory data QA/QC are discussed in Sections 3.4.1 through 3.4.7 below.

The analytical laboratory has provided summary reports of the analytical QA/QC measurements necessary to maintain conformance with National Environmental Laboratory Accreditation Conference certification and reporting protocol. The Analytical Laboratory QA/QC Summary Reports, including copies of the Mill's Chain of Custody and Analytical Request Record forms for each set of Analytical Results, follow the analytical results under Tab G. Results of the review of the laboratory QA/QC information are provided under Tab H and discussed in Section 3.4, below.

3.1 Field QC Samples

The following QC samples were generated by Mill personnel and submitted to the analytical laboratory in order to assess the quality of data resulting from the field sampling program.

Field QC samples for the nitrate investigation program consist of one field duplicate sample for each 20 samples, DI Field Blanks ("DIFB"), and equipment rinsate samples.

During the quarter, one duplicate sample was collected as indicated in Table 1. The duplicate was sent blind to the analytical laboratory and analyzed for the same parameters as the nitrate wells.

One rinsate blank sample was collected as indicated on Table 1. Rinsate samples are labeled with the name of the subsequently purged well with a terminal letter "R" added (e.g. TWN-7R).

The field QC sample results are included with the routine analyses under Tab G.

3.2 Adherence to Mill Sampling SOPs

The QA Manager review of Mill Personnel's adherence to the existing SOPs, confirmed that the QA/QC requirements established in the QAP and Chloroform QAP were met.

3.3 Analyte Completeness Review

All analyses required by the GWDP for nitrate monitoring for the period were performed.

3.4 Data Validation

The QAP and GWDP (August 24, 2012) identify the data validation steps and data QC checks required for the nitrate monitoring program. Consistent with these requirements, the QA Manager performed the following evaluations: a field data QA/QC evaluation, a holding time evaluation, an analytical method check, a reporting limit evaluation, a QC evaluation of sample duplicates, a QC evaluation of control limits for analysis and blanks, a receipt temperature evaluation, and a rinsate evaluation. Because no VOCs are analyzed for the nitrate contamination investigation, no trip blanks are required in the sampling program. Each evaluation is discussed in the following sections. Data check tables indicating the results of each test are provided under Tab H.

3.4.1 Field Data QA/QC Evaluation

The QA Manager performs a review of all field recorded parameters to assess their adherence with QAP requirements. The assessment involved review of two sources of information: the Field Data Sheets and the Quarterly Depth to Water summary sheet. Review of the Field Data Sheets addresses well purging volumes and stability of five parameters: conductance, pH, temperature, redox potential, and turbidity. Review of the Depth to Water data confirms that all depth measurements used for development of groundwater contour maps were conducted within a five-day period of each other. The results of this quarter's review are provided under Tab H.

Based upon the review of the field data sheets, field work was completed in compliance with the QAP purging and field measurement requirements. A summary of the purging techniques employed and field measurements taken is described below:

Purging Two Casing Volumes with Stable Field Parameters (within 10% RPD)
Wells TWN-01, TWN-04, and TWN-18 were sampled after two casing volumes were removed. Field parameters pH, specific conductivity, turbidity, water temperature, and redox potential were measured during purging. All field parameters for this requirement were stable within 10% RPD.

Purging a Well to Dryness and Stability of a Limited List of Field Parameters
Wells TWN-03 and TWN-07 were purged to dryness before two casing volumes were evacuated. After well recovery, one set of measurements for the field parameters of pH, specific conductivity, and water temperature only were taken; the samples were collected, and another set of measurements for pH, specific conductivity, and water temperature were taken. Stabilization of pH, conductivity and temperature are required within 10% RPD under the QAP. All field parameters for this requirement were stable within 10% RPD.

Continuously Pumped Wells
Wells TWN-02, TW4-22, TW4-24, and TW4-25 are continuously pumped wells. These wells are pumped on a set schedule per the remediation plan and are considered sufficiently evacuated to immediately collect a sample. As previously noted, TW4-22, TW4-24, and TW4-25 are chloroform investigation wells and are sampled under the chloroform program. Data for nitrate and chloride are provided here for completeness purposes.

During review of the field data sheets, it was observed that sampling personnel consistently recorded depth to water to the nearest 0.01 foot.

All field parameters for all wells were within the QAP required limits, as indicated below.

The field data collected during the quarter were in compliance with QAP requirements.

3.4.2 Holding Time Evaluation

QAP Table 1 identifies the method holding times for each suite of parameters. Sample holding time checks are provided in Tab H. All samples were received and analyzed within the required holding time.

3.4.3 Analytical Method Checklist

All analytical methods reported by the laboratory were checked against the required methods enumerated in the QAP. Analytical method checks are provided in Tab H. All methods were consistent with the requirements of the QAP.

3.4.4 Reporting Limit Evaluation

All analytical method reporting limits ("RLs") reported by the laboratory were checked against the reporting limits enumerated in the QAP. Reporting Limit Checks are provided in Tab H. All analytes were measured and reported to the required reporting limits, with the exception of several samples that had increased reporting limits due to matrix interference or required dilution due to the sample concentration. However, in all of those cases the analytical results were greater than the reporting limit used.

3.4.5 QA/QC Evaluation for Sample Duplicates

Section 9.1.4 a) of the QAP states that RPDs will be calculated for the comparison of duplicate and original field samples. The QAP acceptance limits for RPDs between the duplicate and original field sample is less than or equal to 20% unless the measured results are less than 5 times the required detection limit. This standard is based on the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February 1994, 9240.1-05-01 as cited in the QAP. The RPDs are calculated for duplicate pairs for all analytes regardless of whether or not the reported concentrations are greater than 5 times the required detection limits. However, data will be considered noncompliant only when the results are greater than 5 times the required detection limit and the RPD is greater than 20%.

All duplicate results were within 20% RPD for the quarterly samples. The duplicate results are provided under Tab H.

3.4.6 Other Laboratory QA/QC

Section 9.2 of the QAP requires that the laboratory's QA/QC Manager check the following items in developing data reports: (1) sample preparation information is correct and complete, (2) analysis information is correct and complete, (3) appropriate Analytical Laboratory procedures are followed, (4) analytical results are correct and complete, (5) QC samples are within established control limits, (6) blanks are within QC limits, (7) special sample preparation and analytical requirements have been met, and (8) documentation is complete. In addition to other laboratory checks described above, EFRI's QA Manager rechecks QC samples and blanks (items (5) and (6)) to confirm that the percent recovery for spikes and the relative percent difference for spike duplicates are within the method-specific required limits, or that the case narrative sufficiently explains any deviation from these limits. Results of this quantitative check are provided in Tab H.

The lab QA/QC results met these specified acceptance limits.

The QAP Section 8.1.2 requires that a Matrix Spike/Matrix Spike Duplicate ("MS/MSD") pair be analyzed with each analytical batch. The QAP does not specify acceptance limits for the MS/MSD pair, and the QAP does not specify that the MS/MSD pair be prepared on EFRI samples only. Acceptance limits for MS/MSDs are set by the laboratories. The review of the information provided by the laboratories in the data packages verified that the QAP requirement to analyze an MS/MSD pair with each analytical batch was met. While the QAP does not require it, the recoveries were reviewed for compliance with the laboratory established acceptance limits. The QAP does not require this level of review, and the results of this review are provided for information only.

The information from the Laboratory QA/QC Summary Reports indicates that the MS/MSDs recoveries and the associated RPDs for the samples were within acceptable laboratory limits for the regulated compounds except as indicated in Tab H. The MS/MSD recoveries that are outside the laboratory established acceptance limits do not affect the quality or usability of the data because recoveries above or below the acceptance limits are indicative of matrix interference. Matrix interferences are applicable to the individual sample results only. The requirement in the QAP to analyze a MS/MSD pair with each analytical batch was met and as such the data are compliant with the QAP.

The information from the Laboratory QA/QC Summary Reports indicates that the Laboratory Control Sample recoveries were acceptable, which indicate that the analytical system was operating properly.

The QAP Section 8.1.2 requires that each analytical batch shall be accompanied by a reagent blank. All analytical batches routinely contain a blank, which is a laboratory-grade water blank sample made and carried through all analytical steps. For the Mill samples, a method blank is prepared for all analytical methods. The information from the Laboratory QA/QC Summary Reports indicates that the method blanks did not contain detections of any target analytes above the Reporting Limit.

3.4.7 Receipt Temperature Evaluation

Chain of Custody sheets were reviewed to confirm compliance with the QAP requirement in QAP Table 1 that samples be received at 6°C or lower. Sample temperatures checks are provided in Tab H. All samples were received within the required temperature limit.

3.4.8 Rinsate Check

Rinsate checks are provided in Tab H. A comparison of the rinsate blank sample concentration levels to the QAP requirements – that rinsate sample concentrations be one order of magnitude lower than that of the actual well – indicated that all of the rinsate blank analytes met this criterion. All rinsate and DIFB blank samples were non-detect for the quarter.

4.0 INTERPRETATION OF DATA

4.1 Interpretation of Groundwater Levels, Gradients and Flow Directions.

4.1.1 Current Site Groundwater Contour Map

As stated above, a listing of groundwater level readings for the current quarter (shown as depth to groundwater in feet) is included under Tab C. The data from this tab has been interpreted (interpolated by kriging) and plotted in a water table contour map, provided under the same tab. The contour map is based on the current quarter's data for all wells.

The water level contour maps indicate that perched water flow ranges from generally southwesterly beneath the Mill site and tailings cells to generally southerly along the eastern and western margins of White Mesa south of the tailings cells. Perched water mounding associated with the wildlife ponds is still evident and locally changes the generally southerly perched water flow patterns. For example, northeast of the Mill site, mounding associated with formerly used wildlife ponds disrupts the generally southwesterly flow pattern, to the extent that locally northerly flow occurs near MW-19 and PIEZ-1. The impact of the mounding associated with the northern ponds, to which water has not been delivered since March 2012, is diminishing and is expected to continue to diminish as the mound decays due to reduced recharge.

Not only has recharge from the wildlife ponds impacted perched water elevations and flow directions at the site, but the cessation of water delivery to the northern ponds, which are generally upgradient of the nitrate and chloroform plumes at the site, resulted in changing conditions that were expected to impact constituent concentrations and migration rates within the plumes. Specifically, past recharge from the ponds helped limit many constituent concentrations within the plumes by dilution while the associated groundwater mounding increased hydraulic gradients and contributed to plume migration. Since use of the northern ponds was discontinued in March, 2012, increases in constituent concentrations in many wells, and decreases in hydraulic gradients within the plumes, are attributable to reduced recharge and the decay of the associated groundwater mound. EFRI and its consultants anticipated these changes and discussed these and other potential effects during discussions with DWMRC in March 2012 and May 2013.

The impacts associated with cessation of water delivery to the northern ponds were expected to propagate downgradient (south and southwest) over time. Wells close to the ponds were generally expected to be impacted sooner than wells farther downgradient of the ponds. Therefore, constituent concentrations were generally expected to increase in downgradient wells close to the ponds before increases were detected in wells farther downgradient of the ponds. Although such increases were anticipated to result from reduced dilution, the magnitude and timing of the increases were anticipated to be and have been difficult to predict due to the complex permeability distribution at the site and factors such as pumping and the rate of decay of the groundwater mound. Because of these complicating factors, some wells completed in higher permeability materials were expected to be impacted sooner than other wells completed in lower permeability materials even though the wells completed in lower permeability materials were closer to the ponds.

In general, nitrate concentrations within and adjacent to the nitrate plume appear to have been impacted to a lesser extent than chloroform and nitrate concentrations within and in the vicinity of the chloroform plume. This behavior is reasonable considering that the chloroform plume is generally more directly downgradient of and more hydraulically connected (via higher permeability materials) to the wildlife ponds.

Localized increases in concentrations of constituents such as nitrate and chloride within and near the nitrate plume may occur even when the nitrate plume is under control based on the Nitrate CAP requirements. Ongoing mechanisms that can be expected to increase the concentrations of nitrate and chloride locally as a result of reduced wildlife pond recharge include but are not limited to:

1) Reduced dilution - the mixing of low constituent concentration pond recharge into existing perched groundwater will be reduced over time.
2) Reduced saturated thicknesses – dewatering of higher permeability zones receiving primarily low constituent concentration pond water will result in wells intercepting the zones receiving a smaller proportion of the low constituent concentration water.

The combined impact of the above two mechanisms was anticipated to be more evident at chloroform pumping wells MW-4, MW-26, TW4-4, TW4-19, and TW4-20; nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2; and non-pumped wells adjacent to the pumped wells. Impacts were also expected to occur over time at wells added to the chloroform pumping network during the first quarter of 2015 (TW4-1, TW4-2, TW4-11); at those added during the second quarter of 2015 (TW4-21 and TW4-37); and at TW4-39, added during the previous quarter (fourth quarter, 2016). The overall impact was expected to be generally higher constituent concentrations in these wells over time until mass reduction resulting from pumping and natural attenuation eventually reduces concentrations. Short-term changes in concentrations at pumping wells and wells adjacent to pumping wells are also expected to result from changes in pumping conditions.

In addition to changes in the flow regime caused by wildlife pond recharge, perched flow directions are locally influenced by operation of the chloroform and nitrate pumping wells. Well-defined cones of depression are typically evident in the vicinity of all chloroform pumping wells except TW4-4 and TW4-37, which began pumping in the first quarter of 2010 and the second quarter of 2015, respectively. A well defined capture zone was also not evident at TW4-39 until the current quarter due to its recent start-up (fourth quarter of 2016). However, a large decrease in water level at TW4-37 this quarter created an apparently large increase in capture at this well that obscured the apparent capture at some nearby wells (including chloroform pumping wells TW4-19 and TW4-20).

The lack of well-defined capture associated with chloroform pumping well TW4-4 has been consistent, even though pumping since the first quarter of 2010 has depressed the water table in the vicinity of this well. The lack of a well-defined cone of depression near TW4-4 likely results from 1) variable permeability conditions in the vicinity of TW4-4, and 2) persistent relatively low water levels at adjacent well TW4-14.

Pumping of nitrate wells TW4-22, TW4-24, TW4-25, and TWN-2 began during the first quarter of 2013. Water level patterns near these wells are expected to be influenced by the presence of and the decay of the groundwater mound associated with the northern wildlife ponds, and by the persistently low water level elevation at TWN-7, which is located upgradient of the nitrate pumping wells.

Capture associated with nitrate pumping is expected to continue to increase over time as water levels decline due to pumping and to cessation of water delivery to the northern wildlife ponds. Interaction between nitrate and chloroform pumping is expected to enhance the capture of the nitrate pumping system. The long-term interaction between the nitrate and chloroform pumping systems is evolving, and changes will be reflected in data collected during routine monitoring.

As discussed above, variable permeability conditions are one likely reason for the lack of a well-defined cone of depression near chloroform pumping well TW4-4. Changes in water levels at wells immediately south and southeast (downgradient) of TW4-4 resulting from TW4-4 pumping are expected to be muted because TW4-4 is located at a transition from relatively high to relatively low permeability conditions south and southeast of TW4-4. As will be discussed below, the permeability of the perched zone at TW4-6, TW4-26, TW4-29, TW4-30, TW4-31, TW4-33, TW4-34, and TW4-35 is one to two orders of magnitude lower than at TW4-4, and the permeability at TW4-27 is approximately three orders of magnitude lower than at TW4-4.

Detecting water level drawdowns in wells immediately south and southeast of TW4-4 resulting from TW4-4 pumping has also been complicated by a general, long-term increase in water levels that occurred in this area that is attributable to past wildlife pond recharge. Between the fourth quarter of 2007 and the fourth quarter of 2009 (just prior to the start of TW4-4 pumping), water levels at TW4-4 and TW4-6 increased by nearly 2.7 and 2.9 feet at rates of approximately 1.2 feet/year and 1.3 feet/year, respectively. However, between the start of pumping at TW4-4 (first quarter of 2010) and the fourth quarter of 2013, the rate of increase in water level at TW4-6 was reduced to less than 0.5 feet/year suggesting that TW4-6 is within the hydraulic influence of TW4-4.

Since the fourth quarter of 2013, water levels in all wells currently within the chloroform plume south of TW4-4 (TW4-6, TW4-29, and TW4-33) have been trending generally downward. This downward trend is attributable to both the cessation of water delivery to the northern wildlife ponds and pumping. Generally increasing water levels, except for an apparent stabilization during 2016, are now confined to some of the wells marginal to the chloroform plume such as TW4-14, TW4-27, TW4-30, and TW4-31.

These spatially variable water level trends likely result from pumping conditions, the permeability distribution, and distance from the wildlife ponds. Wells that are relatively hydraulically isolated (due to completion in lower permeability materials or due to intervening lower permeability materials) and that are more distant from pumping wells and the wildlife ponds, are expected to respond more slowly to pumping and reduced recharge than wells that are less hydraulically isolated and are closer to pumping wells and the wildlife ponds. Wells that are more hydraulically isolated will also respond more slowly to changes in pumping.

The continuing lack of a well-defined cone of depression at TW4-4 is also influenced by the persistent, relatively low water level at non-pumping well TW4-14, located east of TW4-4 and TW4-6. For the current quarter, the water level at TW4-14 (approximately 5534.0 feet above mean sea level ["ft amsl"]), is approximately 1.5 feet lower than the water level at TW4-6 (approximately 5535.5 ft amsl) and approximately 5.5 feet lower than the water level at TW4-4 (approximately 5539.5 ft amsl), even though TW4-4 is pumping. However, water level differences among these wells are diminishing.

The static water levels at wells TW4-14 and downgradient well TW4-27 (installed south of TW4-14 in the fourth quarter of 2011) were similar (within 1 to 2 feet) until the third quarter of 2014; both appeared anomalously low. The current quarterly water level at TW4-27 (approximately 5528.9 ft. amsl) is approximately 5 feet lower than the water level at TW4-14 (5534.0 ft. amsl). Recent increases in water level differences between TW4-14 and TW4-27 are due to more rapid increases in water levels at TW4-14 resulting from past delivery of water to the northern wildlife ponds. The rate of water level increase at TW4-27 is smaller than at TW4-14 because TW4-27 is farther downgradient of the ponds.

Prior to the installation of TW4-27, the persistently low water level at TW4-14 was considered anomalous because it appeared to be downgradient of all three wells TW4-4, TW4-6, and TW4-26, yet chloroform had not been detected at TW4-14. Chloroform had apparently migrated from TW4-4 to TW4-6 and from TW4-6 to TW4-26. This suggested that TW4-26 was actually downgradient of TW4-6, and TW4-6 was actually downgradient of TW4-4, regardless of the flow direction implied by the low water level at TW4-14. The water level at TW4-26 (5534.0 feet amsl) is, however, lower than water levels at adjacent wells TW4-6 (5535.5 feet amsl), and TW4-23 (5536.9 feet amsl), as shown in the detail water level map under Tab C.

Hydraulic tests indicate that the permeability at TW4-27 is an order of magnitude lower than at TW4-6 and three orders of magnitude lower than at TW4-4 (see Hydro Geo Chem, Inc. [HGC], September 20, 2010: Hydraulic Testing of TW4-4, TW4-6, and TW4-26, White Mesa Uranium Mill, July 2010; and HGC, November 28, 2011: Installation, Hydraulic Testing, and Perched Zone Hydrogeology of Perched Monitoring Well TW4-27, White Mesa Uranium Mill Near Blanding, Utah). Past similarity of water levels at TW4-14 and TW4-27, and the low permeability estimate at TW4-27, suggested that both wells were completed in materials having lower permeability than nearby wells. The low permeability condition likely reduced the rate of long-term water level increase at TW4-14 and TW4-27 compared to nearby wells, yielding water levels that appeared anomalously low. This behavior is consistent with hydraulic test data collected from more recently installed wells TW4-29, TW4-30, TW4-31, TW4-33, TW4-34 and TW4-35, which indicate that the permeability of these wells is one to two orders of magnitude higher than the permeability of TW4-27 (see: HGC, January 23, 2014, Contamination Investigation Report, TW4-12 and TW4-27 Areas, White Mesa Uranium Mill Near Blanding, Utah; and HGC, July 1, 2014, Installation and Hydraulic Testing of TW4-35 and TW4-36, White Mesa Uranium Mill Near Blanding, Utah [As-Built Report]). Hydraulic tests also indicate that the permeability at TW4-36 is slightly higher than but comparable to the low permeability at TW4-27, suggesting that TW4-36, TW4-14 and TW4-27 are completed in a continuous low permeability zone.

4.1.2 Comparison of Current Groundwater Contour Map to Groundwater Contour Map for Previous Quarter

The groundwater contour maps for the Mill site for the previous quarter, as submitted with the Nitrate Monitoring Report for the previous quarter, are attached under Tab D. A comparison of the water table contour maps for the current quarter (first quarter of 2017) to the water table contour maps for the previous quarter (fourth quarter of 2016) indicates the following: water level changes at the majority of site wells were small (< 1foot); water level contours have not changed significantly except for a few locations (most notably chloroform pumping well TW4-37); and, except for the large increases in drawdown and apparent capture at TW4-37, overall drawdown patterns associated with pumping wells are similar.

Drawdowns at chloroform pumping wells TW4-1, TW4-2 and TW4-37, and nitrate pumping well TWN-2, increased by more than 2 feet this quarter, with the drawdown at TW4-37 increasing by more than 44 feet. Drawdowns at chloroform pumping wells TW4-11 and TW4-21, and nitrate pumping wells TW4-22 and TW4-25, decreased by more than 2 feet this quarter. Water level changes at other nitrate and chloroform pumping wells were less than 2 feet, although both increases (decreases in drawdown) and decreases (increases in drawdown) occurred. Water level fluctuations at pumping wells typically occur in part because of fluctuations in pumping conditions just prior to and at the time the measurements are taken. The reported water level for chloroform pumping well TW4-11 is above the depth of the Brushy Basin contact this quarter. Although both increases and decreases in drawdown occurred in pumping wells, the overall apparent capture of the combined pumping system is larger than last quarter due to the relatively large increase in drawdown at TW4-37. Except for the apparent increase in capture downgradient (south-southwest) of TW4-37, overall pumping capture is similar to last quarter.

As discussed in Section 4.1.1, pumping at chloroform well TW4-4, which began in the first quarter of 2010, has depressed the water table near TW4-4, but a well-defined cone of depression is not clearly evident, likely due to variable permeability conditions near TW4-4 and the persistently low water level at adjacent well TW4-14.

Reported water level decreases of up to 0.8 feet at Piezometers 1, 3A, 4, and 5 may result from cessation of water delivery to the northern wildlife ponds as discussed in Section 4.1.1 and the consequent continuing decay of the associated perched water mound. Reported water level decreases of up to 0.26 feet at piezometers 4 and 5 may also result from reduced recharge at the southern wildlife pond. Reported water level increases of approximately 0.45 feet at Piezometer 2, and of approximately 0.2 and 0.9 feet at TWN-1 and TWN-4, respectively, may indicate a slowing in the decay of the groundwater mound.

The reported water level at MW-20 increased by approximately 3.8 feet, compensating for a drop of similar magnitude last quarter. Water level variability at MW-20 likely results from low permeability and variable intervals between purging/sampling and water level measurement.

Measurable water was not reported at DR-22. Although DR-22 is typically dry, measurable water was reported in the bottom of its casing between the second quarter of 2015 and the third quarter of 2016.

4.1.3 Hydrographs

Attached under Tab E are hydrographs showing groundwater elevation in each nitrate contaminant investigation monitor well over time. Per the CAP, nitrate wells TWN-6, TWN-14, TWN-16, and TWN-19 have been maintained for depth to groundwater monitoring only. These hydrographs are also included in Tab E.

4.1.4 Depth to Groundwater Measured and Groundwater Elevation

Attached in Tab F are tables showing depth to groundwater measured and groundwater elevation over time for each of the wells listed in Section 2.1.1 above.

4.2 Effectiveness of Hydraulic Containment and Capture

4.2.1 Hydraulic Containment and Control

The CAP states that hydraulic containment and control will be evaluated in part based on water level data and in part on concentrations in wells downgradient of pumping wells TW4-22 and TW4-24.

As per the CAP, the fourth quarter of 2013 was the first quarter that hydraulic capture associated with nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2 was evaluated. Hydraulic containment and control based on water level data is considered successful per the CAP if the entire nitrate plume upgradient of TW4-22 and TW4-24 falls within the combined capture of the nitrate pumping wells. Capture zones based on water level contours calculated by kriging the current quarter's water level data are provided on water level contour maps included under Tab C. The nitrate capture zones are defined by the bounding stream tubes associated with nitrate pumping wells. Each bounding stream tube represents a flow line parallel to the hydraulic gradient and therefore perpendicular to the intersected water level contours. Assuming that the stream tubes do not change over time, all flow between the bounding stream tubes associated with a particular pumping well is presumed to eventually reach and be removed by that well. Capture associated with chloroform pumping wells is also included on these maps because the influence of the chloroform and nitrate pumping systems overlap.

The specific methodology for calculating the nitrate capture zones is substantially the same as that used since the fourth quarter of 2005 to calculate the capture zones for the chloroform program, as agreed to by the DWMRC and EFRI. The procedure for calculating nitrate capture zones is as follows:

1) Calculate water level contours by gridding the water level data on approximately 50-foot centers using the ordinary linear kriging method in Surfer^{TM}. Default kriging parameters are used that include a linear variogram, an isotropic data search, and all the available water level data for the quarter, including relevant seep and spring elevations.
2) Calculate the capture zones by hand from the kriged water level contours following the rules for flow nets:
   - From each pumping well, reverse track the stream tubes that bound the capture zone of each well,

- maintain perpendicularity between each stream tube and the kriged water level contours.

Compared to last quarter, both increases and decreases in water levels occurred at nitrate and chloroform pumping wells. The water levels in chloroform pumping wells MW-4, TW4-4, TW4-11, TW4-21 and TW4-39 increased by approximately 1.4, 0.3, 7.9, 4.1, and 1.2 feet, respectively, while the water levels in chloroform pumping wells MW-26, TW4-1, TW4-2, TW4-19, TW4-20 and TW4-37 decreased by approximately 1.4, 5.2, 3.8, 0.54, 0.66, and 44 feet, respectively. The water levels in nitrate pumping wells TW4-22, TW4-24 and TW4-25 increased by approximately 2.9, 1.9, and 6.7 feet, respectively, while the water level in nitrate pumping well TWN-2 decreased by approximately 3.9 feet. Overall, the apparent capture of the combined pumping systems has increased compared to last quarter, primarily due to the relatively large increase in drawdown at TW4-37.

The capture associated with nitrate pumping wells and chloroform pumping wells added in 2015 and 2016 is expected to increase over time as water levels continue to decline due to pumping and to cessation of water delivery to the northern wildlife ponds. Slow development of hydraulic capture is consistent with and expected based on the relatively low permeability of the perched zone at the site. Furthermore, the presence of the perched groundwater mound, and the apparently anomalously low water level at TWN-7, will influence the definition of capture associated with the nitrate pumping system.

That pumping is likely sufficient to eventually capture the entire plume upgradient of TW4-22 and TW4-24 can be demonstrated by comparing the combined average pumping rates of all nitrate pumping wells for the current quarter to estimates of pre-pumping flow through the nitrate plume near the locations of TW4-22 and TW4-24. The pre-pumping flow calculation presented from the fourth quarter of 2013 through the second quarter of 2015 was assumed to represent a steady state ‘background’ condition that included constant recharge, hydraulic gradients, and saturated thicknesses; the calculation did not account for reduced recharge and saturated thickness caused by cessation of water delivery to the northern wildlife ponds since March, 2012. Because significant water level declines have occurred in upgradient portions of the nitrate plume due to reduced recharge, hydraulic gradients within the plume have been reduced independent of pumping. Changes related to reduced wildlife pond recharge have also resulted in reduced well productivity. Generally reduced productivities of nitrate pumping well TW4-24 and chloroform pumping well TW4-19 since the third quarter of 2014 are at least partly the result of reduced recharge.

The pre-pumping flow through the nitrate plume near TW4-22 and TW4-24 that was presented from the fourth quarter of 2013 through the second quarter of 2015 was estimated using Darcy’s Law to lie within a range of approximately 1.31 gpm to 2.79 gpm. Calculations were based on an average hydraulic conductivity range of 0.15 feet per day (ft. /day) to 0.32 ft./day (depending on the calculation method), a pre-pumping hydraulic gradient of 0.025 feet per foot (ft./ft.), a plume width of 1,200 feet, and a saturated thickness (at TW4-22 and TW4-24) of 56 feet. The hydraulic conductivity range was estimated by averaging the results obtained from slug test data that were collected automatically by data loggers from wells within the plume and analyzed using the KGS unconfined slug test solution available in Aqtesolve^{TM} (see Hydro Geo Chem, Inc. [HGC], August 3, 2005: Perched Monitoring Well Installation and Testing at the White Mesa Uranium Mill, April Through June 2005; HGC, March 10, 2009: Perched Nitrate Monitoring Well

Installation and Hydraulic Testing, White Mesa Uranium Mill; and HGC, March 17 2009: Letter Report to David Frydenlund, Esq, regarding installation and testing of TW4-23, TW4-24, and TW4-25). These results are summarized in Table 6. Data from fourth quarter 2012 were used to estimate the pre-pumping hydraulic gradient and saturated thickness. These data are summarized in Tables 7 and 8.

The average hydraulic conductivity was estimated to lie within a range of 0.15 ft. /day to 0.32 ft. /day. Averages were calculated four ways. As shown in Table 6 arithmetic and geometric averages for wells MW-30, MW-31, TW4-22, TW4-24, TW4-25, TWN-2, and TWN-3 were calculated as 0.22 and 0.15 ft. /day, respectively. Arithmetic and geometric averages for a subset of these wells (MW-30, MW-31, TW4-22, and TW4-24) were calculated as 0.32 and 0.31 ft. /day, respectively. The lowest value, 0.15 ft. /day, represented the geometric average of the hydraulic conductivity estimates for all the plume wells. The highest value, 0.32 ft. /day, represented the arithmetic average for the four plume wells having the highest hydraulic conductivity estimates (MW-30, MW-31, TW4-22, and TW4-24).

Pre-pumping hydraulic gradients were estimated at two locations; between TW4-25 and MW-31 (estimated as 0.023 ft. /ft.), and between TWN-2 and MW-30 (estimated as 0.027 ft. /ft.). These results were averaged to yield the value used in the calculation (0.025 ft. /ft.). The pre-pumping saturated thickness of 56 feet was an average of pre-pumping saturated thicknesses at TW4-22 and TW4-24.

As discussed above the hydraulic gradient and saturated thickness used in the pre-pumping calculations were assumed to represent a steady state 'background' condition that was inconsistent with the cessation of water delivery to the northern wildlife ponds, located upgradient of the nitrate plume. Hydraulic gradients and saturated thicknesses within the plume have declined since nitrate pumping began as a result of two factors: reduced recharge from the ponds, and the effects of nitrate pumping. A more representative 'background' flow condition that accounts for reduced wildlife pond recharge was presented in Attachment N (Tab N) of the third quarter 2015 Nitrate Monitoring report. The original pre-pumping 'background' flow range of 1.31 gpm to 2.79 gpm has been recalculated to range from 0.79 gpm to 1.67 gpm, as presented in Table 9. This calculation is still considered conservative because the high end of the range assumed an arithmetic average hydraulic conductivity of a subset of plume wells having the highest conductivities.

The cumulative volume of water removed by nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2 during the current quarter was approximately 168,628 gallons. This equates to an average total extraction rate of approximately 1.3 gpm over the 90 day quarter. This average accounts for time periods when pumps were off due to insufficient water columns in the wells. The current quarter's pumping of 1.3 gpm, although lower than last quarter's average of approximately 2 gpm, is within the recalculated 'background' flow range of 0.79 gpm to 1.67 gpm. The primary reason for the reduction in pumping this quarter is downtime at TW4-25. As will be discussed in Section 5, normal pumping operation has resumed at TW4-25 and pumped volume during the next quarter (second quarter of 2017) is expected to be more typical.

Although TW4-22, TW4-24, TW4-25, and TWN-2 are designated nitrate pumping wells, some chloroform pumping wells are also located within the nitrate plume because the northwest portion of the chloroform plume commingles with the central portion of the nitrate plume. While chloroform pumping wells TW4-19 and TW4-20 are only periodically within the nitrate plume, chloroform pumping wells TW4-21 and TW4-37 have been within the nitrate plume consistently since they started pumping in 2015. The volume of water removed by TW4-21, TW4-22, TW4-24, TW4-25, TW4-37, and TWN-2 this quarter is approximately 320,033 gallons or approximately 2.47 gpm over the 90 day quarter, which exceeds the high end of the recalculated 'background' flow range by approximately 0.8 gpm, or a factor of approximately 1.5.

Because the arithmetic average hydraulic conductivity of a subset of plume wells having the highest conductivities was used to calculate the high end of the 'background' flow range, the high end is considered less representative of actual conditions than using the geometric average conductivity of all of the plume wells. Therefore, nitrate pumping likely exceeds the actual flow through the plume by more than a factor of 1.5 as calculated above. Nitrate pumping is therefore considered adequate at the present time even with reduced productivity at TW4-24.

The CAP states that MW-5, MW-11, MW-30, and MW-31 are located downgradient of TW4-22 and TW4-24. MW-30 and MW-31 are within the plume near its downgradient edge and MW-5 and MW-11 are outside and downgradient of the plume. Per the CAP, hydraulic control based on concentration data will be considered successful if the nitrate concentrations in MW-30 and MW-31 remain stable or decline, and the nitrate concentrations in downgradient wells MW-5 and MW-11 do not exceed the 10 mg/L standard.

Table 5 presents the nitrate concentration data for MW-30, MW-31, MW-5 and MW-11, which are down-gradient of pumping wells TW4-22 and TW4-24. Based on these concentration data, the nitrate plume is under control.

The nitrate plume has not migrated downgradient to MW-5 or MW-11; nitrate was not detected at MW-11 and at MW-5 (not sampled this quarter) was detected last quarter at a concentration of approximately 0.24 mg/L. Between the previous and current quarters, nitrate concentrations increased slightly in both MW-30 and MW-31. Nitrate in MW-30 increased from 17.2 mg/L to 17.4 mg/L and nitrate in MW-31 increased from 18.8 mg/L to 21.1 mg/L. Although short-term fluctuations have occurred, nitrate concentrations in MW-30 and MW-31 have been relatively stable, demonstrating that plume migration is minimal or absent.

MW-30 and MW-31 are located at the toe of the nitrate plume which has associated elevated chloride. Chloride has been generally increasing at MW-31; chloride also appears to be increasing at MW-30, but at a lower rate (see Tab J and Tab K, discussed in Section 4.2.4). These increases are consistent with continuing downgradient migration of the elevated chloride associated with the nitrate plume. The apparent increases in chloride and relatively stable nitrate at both wells suggests a natural attenuation process that is affecting nitrate but not chloride. A likely process that would degrade nitrate but leave chloride unaffected is reduction of nitrate by pyrite. The likelihood of this process in the perched zone is discussed in HGC, December 7 2012; Investigation of Pyrite in the Perched Zone, White Mesa Uranium Mill Site, Blanding, Utah.

4.2.2 Current Nitrate and Chloride Isoconcentration Maps

Included under Tab I of this Report are current nitrate and chloride iso-concentration maps for the Mill site. Nitrate iso-contours start at 5 mg/L and chloride iso-contours start at 100 mg/L because those values appear to separate the plumes from background. All nitrate and chloride data used to develop these iso-concentration maps are from the current quarter's sampling events, except for those wells not sampled this quarter. To ensure that the same number of data points were used in the gridding and contouring process, the previous quarter's data were used for wells not sampled this quarter.

4.2.3 Comparison of Areal Extent

The area of the nitrate plume is larger than last quarter due to the following: a general increase in nitrate concentrations at wells within the plume; an increase in concentration at TW4-25 from approximately 1 mg/L to 17 mg/L, which brought TW4-25 back into the plume for the first time since the first quarter of 2015; and a slight increase in concentration at MW-27, which contributed to an expansion of the plume boundary to the west. The increase at TW4-25 is attributable to the small pumped volume from TW4-25 this quarter. The reduction in pumping reduced the amount of relatively low-nitrate water that this well typically receives from upgradient areas to the north. As discussed in Section 4.2.1, pumping from this well is expected to be more typical next quarter.TW4-18 remained outside the plume with a concentration of approximately 4.5 mg/L. TW4-18 was encompassed by an eastward-extending 'spur' in the plume during the third quarter of 2015, similar to an occurrence during the third quarter of 2013. Changes in nitrate concentrations near TW4-18 are expected to result from changes in pumping and from the cessation of water delivery to the northern wildlife ponds. The reduction in low-nitrate recharge from the ponds appeared to be having the anticipated effect of generally increased nitrate concentrations in some wells downgradient of the ponds.

However, decreasing to relatively stable nitrate concentrations at most wells in the vicinity of TW4-18 between the first quarter of 2014 and the second quarter of 2015 after previous increases suggested that conditions in this area had stabilized. Since the second quarter of 2015, concentrations at TW4-18 have been above and below 10 mg/L, but have remained below 10 mg/L since the third quarter of 2015. Over this same time period, concentrations at nearby wells TW4-3 and TW4-9 remained below 10 mg/L, concentrations at TW4-5 exceeded 10 mg/L only once (first quarter of 2016), and concentrations at TW4-10 remained above 10 mg/L.

Although increases in concentration in the area downgradient of the wildlife ponds have been anticipated as the result of reduced dilution, the magnitude and timing of the increases are difficult to predict due to the measured variations in hydraulic conductivity at the site and other factors. Nitrate in the area directly downgradient (south to south-southwest) of the northern wildlife ponds is associated with the chloroform plume, is cross-gradient of the nitrate plume as defined in the CAP, and is within the capture zone of the chloroform pumping system. Perched water flow in the area is to the southwest in the same approximate direction as the main body of the nitrate plume.

Nitrate concentrations at the downgradient edge of the plume (MW-30 and MW-31) have been relatively stable, demonstrating that nitrate plume migration is minimal or absent. As discussed in Section 4.2.1, stable nitrate at MW-30 and MW-31 is consistent with a natural attenuation process affecting nitrate but not chloride, as elevated chloride associated with the nitrate plume continues to migrate downgradient.

With regard to chloroform, changes in the boundary of the chloroform plume are attributable in part to the initiation of nitrate pumping. Once nitrate pumping started, the boundary of the chloroform plume migrated to the west toward nitrate pumping well TW4-24, and then to the southwest to reincorporate chloroform monitoring wells TW4-6 and TW4-16. Concentration increases leading to the reincorporation of these wells occurred first at TW4-24, then at TW4-16 and TW4-6. Subsequent contraction of the plume eastward away from TW4-24 and TW4-16 through the first quarter of 2016 is attributable in part to the start-up of additional chloroform pumping wells during the first half of 2015, and reduced productivity at TW4-24. Both TW4-16 and TW4-24 are outside the chloroform plume this quarter. More details regarding the chloroform data and interpretation are included in the Quarterly Chloroform Monitoring Report submitted under separate cover.

4.2.4 Nitrate and Chloride Concentration Trend Data and Graphs

Attached under Tab J is a table summarizing values for nitrate and chloride for each well over time.

Attached under Tab K are graphs showing nitrate and chloride concentration plots in each monitor well over time.

4.2.5 Interpretation of Analytical Data

Comparing the nitrate analytical results to those of the previous quarter, as summarized in the tables included under Tab J, the following observations can be made for wells within and immediately surrounding the nitrate plume:

a) Nitrate concentrations have increased by more than 20% in the following wells compared to last quarter: TW4-21, TW4-24, TW4-25, TW4-37, and TWN-7;

b) Nitrate concentrations have decreased by more than 20% in the following wells compared to last quarter: MW-26 and TW4-39;

c) Nitrate concentrations have remained within 20% in the following wells compared to last quarter: MW-27, MW-30, MW-31, TW4-5, TW4-16, TW4-18, TW4-19, TW4-20, TW4-22, TWN-1, TWN-2, TWN-3, TWN-4 and TWN-18; and

d) MW-11, MW-25 and MW-32 remained non-detect.

As indicated, nitrate concentrations for many of the wells with detected nitrate were within 20% of the values reported during the previous quarter, suggesting that variations are within the range typical for sampling and analytical error. The remaining wells had changes in concentration greater than 20%. The latter includes chloroform pumping wells MW-26, TW4-21, TW4-37 and TW4-39; nitrate pumping wells TW4-24 and TW4-25; and non-pumping well TWN--7.

Fluctuations in concentrations at pumping wells and wells adjacent to pumping wells likely result in part from the effects of pumping as discussed in Section 4.1.1. Concentrations at TWN-7 are less than 2 mg/L.

The decrease in nitrate concentration in chloroform pumping well TW4-39 from approximately 21 mg/L to 6 mg/L eliminated the southeast trending 'spur' in the plume that extended from the vicinity of TW4-19 to the vicinity of TW4-10 last quarter. MW-27, located west of TWN-2, and TWN-18, located north of TWN-3, bound the nitrate plume to the west and north (See Figure I-1 under Tab I). In addition, the southernmost (downgradient) boundary of the plume remains between MW-30/MW-31 and MW-5/MW-11. Nitrate concentrations at MW-5 (adjacent to MW-11) and MW-11 have historically been low (< 1 mg/L) or non-detect for nitrate (See Table 5). Non-detectable nitrate at MW-11 is consistent with the relative stability of the downgradient margin of the plume. MW-25, MW-26, MW-32, TW4-16, TW4-18, TW4-39, TWN-1, and TWN-4 bound the nitrate plume to the east.

Nitrate concentrations outside the nitrate plume are greater than 10 mg/L at a few locations: TW4-10 (13 mg/L), TW4-12 (25.9 mg/L), TW4-26 (15.8 mg/L), TW4-27 (22.2 mg/L), TW4-28 (24.4 mg/L), and recently installed well TW4-38 (10.6 mg/L). Concentrations at TW4-18 are also occasionally above 10 mg/L. Each of these wells is located southeast of the nitrate plume as defined in the CAP and is separated from the plume by a well or wells where nitrate concentrations are either non-detect, or, if detected, are less than 10 mg/L. Concentrations at TW4-10, TW4-12, TW4-26, TW4-27, TW4-28 and TW4-38 are within 20% of last quarter's concentrations.

Since 2010, nitrate concentrations at TW4-10 and TW4-18 have been above and below 10 mg/L Concentrations were below 10 mg/L between the first quarter of 2011 and second quarter of 2013, and mostly close to or above 10 mg/L between the second quarter of 2013 and third quarter of 2015. However, concentrations at TW4-18 have been below 10 mg/L since the third quarter of 2015. Concentrations at nearby well TW4-5 have exceeded 10 mg/L only twice since 2010, and concentrations at nearby wells TW4-3 and TW4-9 have remained below 10 mg/L. Nitrate at TW4-5, TW4-10, and TW4-18 is associated with the chloroform plume, and is within the capture zone of the chloroform pumping system. Elevated nitrate at TW4-12, TW4-26, TW4-27, TW4-28, and recently installed well TW4-38 is likely related to former cattle ranching operations at the site.

Chloride concentrations are measured because elevated chloride (greater than 100 mg/L) is associated with the nitrate plume. Chloride concentrations at all sampled locations this quarter are within 20% of their respective concentrations during the previous quarter except at non-pumping well TWN-7, chloroform pumping wells TW4-19 and TW4-39, and nitrate pumping well TW4-25. The increase in chloride from approximately 60 mg/L to 285 mg/L at TW4-25, which accompanied an increase in nitrate from approximately 1 mg/L to 17 mg/L, is attributable to the small pumped volume from TW4-25 this quarter. The reduction in pumping reduced the amount of relatively low-chloride and low-nitrate water that this well typically receives from upgradient areas to the north. As discussed in Section 4.2.1, pumping from this well is expected to be more typical next quarter. Concentration fluctuations at pumping wells TW4-19 and TW4-39 likely also result in part from the effects of pumping as discussed in Section 4.1.1. Although chloride increased at TWN-7, the concentration is a relatively low 14 mg/L.

Piezometer Piez-3A was installed in the second quarter of 2016 as a replacement to piezometer PIEZ-3. The chloride concentration at piezometer PIEZ-3A (111 mg/L) was more than three times higher this quarter than the pre-abandonment first quarter 2016 concentration at PIEZ-3 (approximately 33 mg/L). The nitrate concentration at PIEZ-3A (approximately 10 mg/L) was also higher this quarter than the pre-abandonment first quarter 2016 PIEZ-3 concentration (approximately 2.2 mg/L).

4.3 Estimation of Pumped Nitrate Mass and Residual Nitrate Mass within the Plume

Nitrate mass removed by pumping as summarized in Table 2 includes mass removed by both chloroform and nitrate pumping wells. Table 3 shows the volume of water pumped at each well and Table 4 provides the details of the nitrate removal for each well. Mass removal calculations begin with the third quarter of 2010 because the second quarter, 2010 data were specified to be used to establish a baseline mass for the nitrate plume. As stated in the CAP, the baseline mass is to be calculated using the second quarter, 2010 concentration and saturated thickness data "within the area of the kriged 10 mg/L plume boundary." The second quarter, 2010 data set was considered appropriate because "the second quarter, 2010 concentration peak at TWN-2 likely identifies a high concentration zone that still exists but has migrated away from the immediate vicinity of TWN-2."

As shown in Table 2, since the third quarter of 2010, a total of approximately 2,124 lb. of nitrate has been removed directly from the perched zone by pumping. Prior to the first quarter of 2013, all direct nitrate mass removal resulted from operation of chloroform pumping wells MW-4, MW-26, TW4-4, TW4-19, and TW4-20. During the current quarter:

- A total of approximately 116 lb. of nitrate was removed by the chloroform pumping wells and by nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2.
- Of the 116 lb. removed during the current quarter, approximately 59 lb., (or 50 %), was removed by the nitrate pumping wells.

The calculated nitrate mass removed directly by pumping was slightly higher than last quarter's approximately 106 lbs.

As discussed in Section 4.3.1, achievable pumping rates are expected to diminish over time as saturated thicknesses are reduced by pumping and by cessation of water delivery to the northern wildlife ponds. Attachment N (Tab N) of the third quarter 2015 Nitrate Monitoring report provides an evaluation of reduced productivity at chloroform pumping well TW4-19 and nitrate pumping well TW4-24.

Baseline mass and current quarter mass estimates (nitrate + nitrite as N) for the nitrate plume are approximately 43,700 lb. and 43,790 lbs., respectively. Mass estimates were calculated within the plume boundaries as defined by the kriged 10 mg/L isocon by 1) gridding (kriging) the nitrate concentration data on 50-foot centers; 2) calculating the volume of water in each grid cell based on the saturated thickness and assuming a porosity of 0.18; 3) calculating the mass of nitrate+nitrite as N in each cell based on the concentration and volume of water for each cell; and 4) totaling the mass of all grid cells within the 10 mg/L plume boundary. Data used in these calculations included data from wells listed in Table 3 of the CAP.

The nitrate mass estimate for the current quarter (43,790 lb) is higher than the mass estimate for the previous quarter (31,800 lb) by 11,990 lb, and also slightly higher than the baseline mass estimate by approximately 90 lb., which appears inconsistent with the amount of nitrate mass that has been removed directly by pumping. Since pumping began, calculated nitrate mass within the plume has generally decreased at a rate that is on average higher than would be expected based on direct mass removal by pumping. Changes in the quarterly mass estimates are expected to result from several factors, primarily 1) nitrate mass removed directly by pumping, 2) natural attenuation of nitrate, and 3) re-distribution of nitrate within the plume and changes in saturated thicknesses.

Nitrate mass removed by pumping and natural attenuation (expected to result primarily from pyrite oxidation/nitrate reduction) act to lower both nitrate mass and concentrations within the plume. Both mechanisms are expected to continuously reduce both nitrate mass and concentrations within the plume. Reductions in saturated thickness that are not accompanied by increases in concentration will also reduce nitrate mass within the plume.

However, redistribution of nitrate within the plume is expected to result in both increases and decreases in concentrations at wells within the plume and therefore increases and decreases in mass estimates based on those concentrations, thus generating 'noise' in the mass estimates. In addition, because the sum of sampling and analytical error is typically about 20%, changes in the mass estimates from quarter to quarter of up to 20% could result from typical sampling and analytical error alone.

Furthermore, redistribution of nitrate within the plume and changes in saturated thicknesses will be impacted by changes in pumping and in background conditions such as the decay of the perched water mound associated with the northern wildlife ponds. Cessation of water delivery to the northern wildlife ponds is expected to result in reduced saturated thicknesses and reduced dilution, which in turn is expected to result in increased nitrate concentrations in many wells.

Because of quarter to quarter variations in factors that impact the mass estimates, only longer-term analyses of the mass estimates that minimize the impacts of 'noise' can provide useful information on plume mass trends. Over the long term, nitrate mass estimates are expected to trend downward as a result of direct removal by pumping and through natural attenuation.

The increase in the mass estimate this quarter is attributable to the following: a general increase in nitrate concentrations at wells within the plume; an increase in concentration at TW4-25 from approximately 1 mg/L to 17 mg/L, which brought TW4-25 back into the plume for the first time since the first quarter of 2015; and a slight increase in concentration at MW-27, which contributed to an expansion of the plume boundary to the west. The increase at TW4-25 is attributable to the small pumped volume from TW4-25 this quarter. The reduction in pumping reduced the amount of relatively low-nitrate water that this pumping well typically receives from upgradient areas to the north. As discussed in Section 4.2.1, pumping from this well is expected to be more typical next quarter.

As specified in the CAP, once eight quarters of data were collected (starting with the first quarter of 2013), a regression trend line was to be applied to the quarterly mass estimates and evaluated. The trend line was to be updated quarterly and reevaluated as additional quarters of data were collected. The evaluation was to determine whether the mass estimates were increasing, decreasing, or stable.

As the fourth quarter of 2014 constituted the eighth quarter as specified in the CAP, the mass estimates were plotted, and a regression line was fitted to the data and evaluated. The regression line has been updated each quarter since the fourth quarter of 2014 as shown in Figure M.1 of Tab M. Although the mass estimate increased this quarter, the fitted line shows a decreasing trend in the mass estimates.

5.0 LONG TERM PUMP TEST AT TWN-02, TW4-22, TW4-24, and TW4-25 OPERATIONS REPORT

5.1 Introduction

Beginning in January 2013, EFRI began long term pumping of TW4-22, TW4-24, TW4-25, and TWN-02 as required by the Nitrate CAP, dated May 7, 2012 and the SCO dated December 12, 2012.

In addition, as a part of the investigation of chloroform contamination at the Mill site, EFRI has been conducting a Long Term Pump Test on MW-4, TW4-19, MW-26, and TW4-20, and, since January 31, 2010, TW4-4. In anticipation of the final approval of the GCAP, beginning on January 14, 2015, EFRI began long term pumping of TW4-1, TW4-2, and TW4-11 and began long term pumping of TW4-21 and TW4-37 on June 9, 2015. The purpose of the test is to serve as an interim action that will remove a significant amount of chloroform-contaminated water while gathering additional data on hydraulic properties in the area of investigation.

Because wells MW-4, TW4-19, MW-26, TW4-4, TW4-20, TW4-01, TW4-02, TW4-11, TW4-21, TW4-37, and TW4-39 are pumping wells that may impact the removal of nitrate, they are included in this report and any nitrate removal realized as part of this pumping is calculated and included in the quarterly reports.

The following information documents the operational activities during the quarter.

5.2 Pumping Well Data Collection

Data collected during the quarter included the following:

- Measurement of water levels at MW-4, TW4-19, MW-26, and TW4-20 and, commencing regularly on March 1, 2010, TW4-4, on a weekly basis,
- Measurement of water levels weekly at TW4-22, TW4-24, TW4-25, and TWN-02 commencing January 28, 2013,
- Measurement of water levels weekly at TW4-01, TW4-02, and TW4-11 commencing on January 14, 2015,
- Measurement of water levels weekly at TW4-21 and TW4-37 commencing on June 9, 2015, and on a monthly basis selected temporary wells and permanent monitoring well,

- Measurement of water levels weekly at TW4-39 commencing on December 7, 2016.
- Measurement of pumping history, including:
  - pumping rates
  - total pumped volume
  - operational and non-operational periods.
- Periodic sampling of pumped water for chloroform and nitrate/nitrite analysis and other constituents

5.3 Water Level Measurements

Beginning August 16, 2003, water level measurements from chloroform pumping wells MW-4, MW-26, and TW4-19 were conducted weekly. From commencement of pumping TW4-20, and regularly after March 1, 2010 for TW4-4, water levels in these two chloroform pumping wells have been measured weekly. From commencement of pumping in January 2013, water levels in wells TW4-22, TW4-24, TW4-25, and TWN-02 have been measured weekly. From the commencement of pumping in December 2016, water levels in TW4-39 have been measured. Copies of the weekly Depth to Water monitoring sheets for MW-4, MW-26, TW4-19, TW4-20, TW4-4, TW4-22, TW4-24, TW4-25, TWN-02, TW4-01, TW4-02, TW4-11, TW4-21, TW4-37, and TW4-39 are included under Tab C.

Monthly depth to water monitoring is required for all of the chloroform contaminant investigation wells and non-pumping wells MW-27, MW-30, MW-31, TWN-1, TWN-3, TWN-4, TWN-7, and TWN-18. Copies of the monthly depth to Water monitoring sheets are included under Tab C.

5.4 Pumping Rates and Volumes

The pumping wells do not pump continuously, but are on a delay device. The wells purge for a set amount of time and then shut off to allow the well to recharge. Water from the pumping wells is either transferred to the Cell 1 evaporation pond or is used in the Mill process.

The pumped wells are fitted with a flow meter which records the volume of water pumped from the well in gallons. The flow meter readings shown in Tab C are used to calculate the gallons of water pumped from the wells each quarter as required by Section 7.2.2 of the CAP. The average pumping rates and quarterly volumes for each of the pumping wells are shown in Table 3. The cumulative volume of water pumped from each of the wells is shown in Table 4.

Specific operational problems observed with the well or pumping equipment which occurred during the quarter are noted for each well below.

Unless specifically noted below, no operational problems were observed with the well or pumping equipment during the quarter.

5.4.1 TW4-11

On January 4, 2017 Mill Field Personnel noted during the routine weekly inspection that the heat lamp on TW4-11 had burned out. The lamp was replaced.

5.4.2 TW4-20

On March 13, 2017, Mill Field Personnel noted during the routine weekly inspection that the TW4-20 had no power and was not operating. Mill Maintenance Personnel were notified and stated that the circuit breaker had tripped. The breaker was turned on and the well pumped with no additional issues noted. No official notifications to DWMRC were required as the issue was rectified within 24-hours.

5.4.3 TW4-21

On January 4, 2017 Mill Field Personnel noted during the routine weekly inspection that the heat lamp on TW4-21 had burned out. The lamp was replaced.

5.4.4 TW4-25

During the review of the quarterly pump data, it was noted that TW4-25 only pumped 161 gallons. Mill Field Personnel immediately checked the well and noticed that the control module lost memory and the timer settings were erased. Since the well pumps on a timer, minimal water was pumped during the quarter. The loss of the settings was not noticed during the weekly inspections as the well readouts were appropriate and the well was able to be activated manually with no issues. No official notifications to DWMRC were required as the issue was rectified within 24-hours of discovery.

A corrective action is discussed in Section 6.0 of the Q1 2017 Quarterly Chloroform Report.

5.4.5 TW4-37

On March 13, 2017, Mill Field Personnel noted during the routine weekly inspection that the TW4-37 had no power and was not operating. Mill Maintenance Personnel were notified and stated that the circuit breaker had tripped. The breaker was turned on and the well pumped with no additional issues noted. No official notifications to DWMRC were required as the issue was rectified within 24-hours.

5.4.6 TW4-39

On January 4, 2017 Mill Field Personnel noted during the routine weekly inspection that the heat lamp on TW4-39 had burned out. The lamp was replaced.

5.4.7 MW-4

On February 21, 2017 Mill Field Personnel noted during the routine weekly inspection that the timer on MW-4 lost memory due to battery failure and the timer settings were erased. The well continued to pump and no loss of data were noted. The batteries were changed and pump settings were restored. No official notifications to DWMRC were required as the issue was rectified within 24-hours.

6.0 CORRECTIVE ACTION REPORT

Corrective action associated with the pumping issue noted for TW4-25 is included in the Q1 2017 Quarterly Chloroform Report.

6.1 Assessment of Previous Quarter's Corrective Actions

There were no corrective actions required during the previous quarters' monitoring period.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As per the CAP, the current quarter is the fourteenth quarter that hydraulic capture associated with nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2 was evaluated. The apparent combined capture of the nitrate and chloroform pumping systems is larger than last quarter primarily due to the relatively large increase in drawdown at chloroform pumping well TW4-37.

Capture associated with nitrate pumping wells is expected to increase over time as water levels decline due to pumping and to cessation of water delivery to the northern wildlife ponds. Furthermore, the evaluation of the long term interaction between nitrate and chloroform pumping systems requires more data to be collected as part of routine monitoring. Slow development of hydraulic capture by the nitrate pumping system is consistent with and expected based on the relatively low permeability of the perched zone at the site. Definition of capture associated with the nitrate pumping system is also influenced by the perched groundwater mound and the apparently anomalously low water level at TWN-7.

Nitrate pumping is likely sufficient to eventually capture the entire nitrate plume upgradient of TW4-22 and TW4-24 even with productivity at TW4-24 that has been reduced since the third quarter of 2014. Hydraulic gradients and saturated thicknesses within the plume have declined since nitrate pumping began as a result of two factors: reduced recharge from the ponds, and nitrate pumping. A more representative 'background' flow condition that accounts for reduced wildlife pond recharge was presented in Attachment N (Tab N) of the third quarter, 2015 Nitrate Monitoring report. The original pre-pumping 'background' flow range of 1.31 gpm to 2.79 gpm was recalculated to range from 0.79 gpm to 1.67 gpm. This calculation is still considered conservative because the high end of the calculated range assumed an arithmetic average hydraulic conductivity of a subset of plume wells having the highest conductivities.

The current nitrate pumping of approximately 1.3 gpm, based on water removed by TW4-22, TW4-24, TW4-25, and TWN-2, is within the recalculated 'background' flow range of 0.79 gpm to 1.67 gpm. The primary reason that pumping is lower than last quarter's 2.06 gpm is downtime at TW4-25. As discussed in Section 5, normal pumping operation has resumed at TW4-25 and pumped volume during the next quarter (second quarter of 2017) is expected to be more typical.

If water removed from the nitrate plume by chloroform pumping wells TW4-21 and TW4-37 is included, the current nitrate pumping of approximately 2.47 gpm exceeds the high end of the recalculated 'background' range by 0.8 gpm, or a factor of approximately 1.5. Including TW4-21 and TW4-37 is appropriate because these wells have been within the nitrate plume consistently since they started pumping in 2015.

In addition, because the arithmetic average hydraulic conductivity of a subset of plume wells having the highest conductivities was used in recalculating the high end of the 'background' flow range, the high end is considered less representative of actual conditions than using the geometric average conductivity of all of the plume wells. Therefore, nitrate pumping likely exceeds flow through the plume by a factor greater than 1.5 times the high end of the recalculated range. Nitrate pumping is considered adequate at the present time even with reduced productivity at TW4-24. Furthermore, as the groundwater mound associated with former water delivery to the northern wildlife ponds continues to decay, hydraulic gradients and saturated thicknesses will continue to decrease, and 'background' flow will be proportionally reduced, thereby reducing the amount of pumping needed.

Fourth quarter, 2016 nitrate concentrations at many of the wells within and adjacent to the nitrate plume were within 20% of the values reported during the previous quarter, suggesting that variations are within the range typical for sampling and analytical error. Changes in concentration greater than 20% occurred in chloroform pumping wells MW-26, TW4-21, TW4-37 and TW4-39; nitrate pumping wells TW4-24 and TW4-25; and non-pumping well TWN-7. Concentrations at TWN-7 are less than 2 mg/L.. Fluctuations in concentrations at pumping wells and wells adjacent to pumping wells likely result in part from the effects of pumping as discussed in Section 4.1.1. Concentrations at TWN-7 are less than 2 mg/L. The nitrate concentrations in wells MW-25 and MW-32 remained non-detect.

As discussed in Section 4.2.3, the area of the nitrate plume is larger than last quarter due to the following: a general increase in nitrate concentrations at wells within the plume; an increase in concentration at TW4-25 from approximately 1 mg/L to 17 mg/L, which brought TW4-25 back into the plume for the first time since the first quarter of 2015; and a slight increase in concentration at MW-27, which contributed to an expansion of the plume boundary to the west. The increase at TW4-25 is attributable to the small pumped volume from TW4-25 this quarter. The reduction in pumping reduced the amount of relatively low-nitrate water that this well typically receives from upgradient areas to the north. As discussed in Section 4.2.1, pumping from this well is expected to be more typical next quarter.

MW-27, located west of TWN-2, and TWN-18, located north of TWN-3, bound the nitrate plume to the west and north (See Figure I-1 under Tab I). In addition, the southernmost (downgradient) boundary of the plume remains between MW-30/MW-31 and MW-5/MW-11. Nitrate concentrations at MW-5 (adjacent to MW-11) and MW-11 have historically been low (< 1 mg/L) or non-detect for nitrate (See Table 5). Non-detectable nitrate at MW-11 is consistent with the relative stability of the downgradient margin of the plume. MW-25, MW-26, MW-32, TW4-16, TW4-18, TW4-39, TWN-1, and TWN-4 bound the nitrate plume to the east.

Although short-term fluctuations have occurred, nitrate concentrations in MW-30 and MW-31 have been relatively stable, demonstrating that plume migration is minimal or absent. Nitrate in MW-30 increased slightly from 17.2 mg/L to 17.4 mg/L and nitrate in MW-31 increased from 18.8 mg/L to 21.1 mg/L. Based on the concentration data at MW-5, MW-11, MW-30, and MW-31, the nitrate plume is under control.

Chloride has been generally increasing at MW-31; chloride also appears to be increasing at MW-30, but at a lower rate. These increases are consistent with continuing downgradient migration of the elevated chloride associated with the nitrate plume. The apparently increasing chloride and relatively stable nitrate at both wells suggests a natural attenuation process that is affecting nitrate but not chloride. A likely process that would degrade nitrate but leave chloride unaffected is reduction of nitrate by pyrite. The likelihood of this process in the perched zone is discussed in HGC, December 7 2012; Investigation of Pyrite in the Perched Zone, White Mesa Uranium Mill Site, Blanding, Utah.

Nitrate mass within the plume boundary has been calculated on a quarterly basis beginning with the first quarter of 2013. Mass within the plume is expected to be impacted by factors that include pumping, natural attenuation, redistribution of nitrate within the plume, and changes in saturated thickness.

Nitrate mass removal by pumping and natural attenuation (expected to result primarily from pyrite oxidation/nitrate reduction) act to lower nitrate mass within the plume. Reductions in saturated thickness that are not accompanied by increases in concentration will also reduce nitrate mass within the plume.

Changes resulting from redistribution of nitrate within the plume are expected to result in both increases and decreases in concentrations at wells within the plume and therefore increases and decreases in mass estimates based on those concentrations, thus generating 'noise' in the mass estimates. Furthermore, because the sum of sampling and analytical error is typically about 20%, changes in the mass estimates from quarter to quarter of up to 20% could result from typical sampling and analytical error alone. Longer-term analyses of the mass estimates that minimize the impact of these quarter to quarter variations are expected to provide useful information on plume mass trends. Over the long term, nitrate mass estimates are expected to trend downward as a result of direct removal by pumping and through natural attenuation.

As specified in the CAP, once eight quarters of data were collected (starting with the first quarter of 2013), a regression trend line was to be applied to the quarterly mass estimates and evaluated. The trend line was to be updated quarterly and reevaluated as additional quarters of data were collected. As the fourth quarter of 2014 constituted the eighth quarter as specified in the CAP, the mass estimates were plotted, and a regression line was fitted to the data and evaluated. The regression line was updated this quarter as shown in Figure M.1 of Tab M. Although an increase in the mass estimate occurred this quarter, the fitted line shows a decreasing trend in the mass estimates.

During the current quarter, a total of approximately 116 lb. of nitrate was removed by the chloroform pumping wells and by nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2. Of the 116 lb. removed during the current quarter, approximately 59 lb. (or 50 %) was removed by the nitrate pumping wells.

The baseline nitrate (nitrate+nitrite as N) plume mass calculated as specified in the CAP (based on second quarter, 2010 data) was approximately 43,700 lb. The mass estimate during the current quarter (43,790 lb.) was larger than the mass estimate during the previous quarter (31,800 lb.) by 11,990 lb. or approximately 38%. The current quarter's estimate is also larger than the baseline estimate by approximately 90 lb.

These differences are attributable to the following: a general increase in nitrate concentrations at wells within the plume this quarter; an increase in concentration at TW4-25 from approximately 1 mg/L to 17 mg/L, which brought TW4-25 back into the plume for the first time since the first quarter of 2015; and a slight increase in concentration at MW-27, which contributed to an expansion of the plume boundary to the west. The increase at TW4-25 is attributable to the small pumped volume from TW4-25 this quarter. The reduction in pumping reduced the amount of relatively low-nitrate water that this pumping well typically receives from upgradient areas to the north. As discussed in Section 4.2.1, pumping from this well is expected to be more typical next quarter.

Nitrate concentrations outside the nitrate plume are greater than 10 mg/L at a few locations: TW4-10 (13 mg/L), TW4-12 (25.9 mg/L), TW4-26 (15.8 mg/L), TW4-27 (22.2 mg/L), TW4-28 (24.4 mg/L), and TW4-38 (10.6 mg/L). Concentrations at TW4-18 are also occasionally above 10 mg/L. Each of these wells is located southeast of the nitrate plume as defined in the CAP and is separated from the plume by a well or wells having nitrate concentrations that are either non-detect, or, if detected, are less than 10 mg/L. Concentrations at TW4-10, TW4-12, TW4-26, TW4-27, TW4-28 and TW4-38 are within 20% of last quarter's concentrations.

Since 2010, nitrate concentrations at TW4-10 and TW4-18 have been above and below 10 mg/L Concentrations were below 10 mg/L between the first quarter of 2011 and second quarter of 2013, and mostly close to or above 10 mg/L between the second quarter of 2013 and third quarter of 2015. However, concentrations at TW4-18 have been below 10 mg/L since the third quarter of 2015. Concentrations at nearby well TW4-5 have exceeded 10 mg/L only twice since 2010, and concentrations at nearby wells TW4-3 and TW4-9 have remained below 10 mg/L. Nitrate at TW4-5, TW4-10, and TW4-18 is associated with the chloroform plume, and is within the capture zone of the chloroform pumping system. Elevated nitrate at TW4-12, TW4-26, TW4-27, TW4-28, and recently installed well TW4-38 is likely related to former cattle ranching operations at the site.

Increases in both nitrate and chloride concentrations at wells near the northern wildlife ponds (for example TW4-18) were anticipated as a result of reduced dilution caused by cessation of water delivery to the northern wildlife ponds. However, decreasing nitrate concentrations at TW4-10 and TW4-18 from the first through third quarters of 2014 after previously increasing trends (interrupted in the first quarter of 2014) suggested that conditions in this area had stabilized. The temporary increase in nitrate concentration at TW4-18 in the third quarter of 2015 and the generally increased nitrate at TW4-5 and TW4-10 since the second quarter of 2015 suggest that reduced wildlife pond recharge is still impacting concentrations in downgradient wells.

EFRI and its consultants have raised the issues and potential effects associated with cessation of water delivery to the northern wildlife ponds in March, 2012 during discussions with DWMRC in March 2012 and May 2013. While past recharge from the ponds has helped limit many constituent concentrations within the chloroform and nitrate plumes by dilution, the associated groundwater mounding has increased hydraulic gradients and contributed to plume migration. Since use of the northern wildlife ponds ceased in March 2012, the reduction in recharge and decay of the associated groundwater mound was expected to increase many constituent concentrations within the plumes while reducing hydraulic gradients and rates of plume migration.

The net impact of reduced wildlife pond recharge is expected to be beneficial even though it was also expected to result in temporarily higher concentrations until continued mass reduction via pumping and natural attenuation ultimately reduce concentrations. Temporary increases in nitrate concentrations are judged less important than reduced nitrate migration rates. The actual impacts of reduced recharge on concentrations and migration rates will be defined by continued monitoring.

Nitrate mass removal from the perched zone was increased substantially by the start-up of nitrate pumping wells TW4-22, TW4-24, TW4-25, and TWN-2 during the first quarter of 2013. Continued operation of these wells is therefore recommended. Pumping these wells, regardless of any short term fluctuations in concentrations detected at the wells, helps to reduce downgradient nitrate migration by removing nitrate mass and reducing average hydraulic gradients, thereby allowing natural attenuation to be more effective. Continued operation of the nitrate pumping system is expected to eventually reduce nitrate concentrations within the plume and to further reduce or halt downgradient nitrate migration.

8.0 ELECTRONIC DATA FILES AND FORMAT

EFRI has provided to the Director an electronic copy of all laboratory results for groundwater quality monitoring conducted under the nitrate contaminant investigation during the quarter, in Comma Separated Values ("CSV") format. A copy of the transmittal e-mail is included under Tab L.

9.0 SIGNATURE AND CERTIFICATION

This document was prepared by Energy Fuels Resources (USA) Inc. on May 22, 2017.

Energy Fuels Resources (USA) Inc.

By:

Scott Bakken
Senior Director Regulatory Affairs

Certification:

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Scott Bakken
Senior Director Regulatory Affairs
Energy Fuels Resources (USA) Inc.

Tables

Table 1
Summary of Well Sampling and Constituents for the Period

Well	Sample Collection Date	Date of Lab Report
Piezometer 01	2/15/2017	2/28/2017
Piezometer 02	2/15/2017	2/28/2017
Piezometer 03A	2/15/2017	2/28/2017
TWN-01	2/15/2017	2/28/2017
TWN-02	2/15/2017	2/28/2017
TWN-03	2/16/2017	2/28/2017
TWN-04	2/15/2017	2/28/2017
TWN-07	2/16/2017	2/28/2017
TWN-18	2/15/2017	2/28/2017
TWN-18R	2/15/2017	2/28/2017
TW4-22	3/8/2017	3/24/2017
TW4-24	3/8/2017	3/24/2017
TW4-25	3/8/2017	3/24/2017
TWN-60	2/16/2017	2/28/2017
TW4-60	3/8/2017	3/24/2017
TWN-65	2/15/2017	2/28/2017

Note: All wells were sampled for Nitrate and Chloride.

TWN-60 is a DI Field Blank.

TWN-65 is a duplicate of TWN-01

TW4-60 is the chloroform program DI Field Blank.

Continuously pumped well.

Table 2
Nitrate Mass Removal Per Well Per Quarter

Quarter	MW-4 (lbs.)	MW-26 (lbs.)	TW4-19 (lbs.)	TW4-20 (lbs.)	TW4-4 (lbs.)	TW4-22 (lbs.)	TW4-24 (lbs.)	TW4-25 (lbs.)	TWN-02 (lbs.)	TW4-01 (lbs.)	TW4-02 (lbs.)	TW4-11 (lbs.)	TW4-21 (lbs.)	TW4-37 (lbs.)	TW4-39 (lbs.)	Quarter Totals (lbs.)
Q3 2010	3.2	0.3	5.8	1.7	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.69
Q4 2010	3.8	0.4	17.3	1.4	5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.97
Q1 2011	2.9	0.2	64.5	1.4	4.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73.30
Q2 2011	3.5	0.1	15.9	2.7	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.01
Q3 2011	3.5	0.5	3.5	3.9	5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.82
Q4 2011	3.8	0.8	6.2	2.5	6.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.71
Q1 2012	3.6	0.4	0.7	5.0	6.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.86
Q2 2012	3.7	0.6	3.4	2.1	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.03
Q3 2012	3.8	0.5	3.6	2.0	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.67
Q4 2012	3.2	0.4	5.4	1.8	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.92
Q1 2013	2.5	0.4	14.1	1.4	3.6	8.1	43.4	7.5	14.8	NA	NA	NA	NA	NA	NA	95.73
Q2 2013	2.5	0.4	5.6	1.6	3.4	10.7	37.1	6.4	23.9	NA	NA	NA	NA	NA	NA	91.71
Q3 2013	3.0	0.4	48.4	1.4	3.8	6.3	72.8	6.9	33.4	NA	NA	NA	NA	NA	NA	176.53
Q4 2013	3.1	0.3	15.8	1.6	3.9	9.4	75.2	6.4	46.3	NA	NA	NA	NA	NA	NA	162.07
Q1 2014	2.7	0.4	4.1	1.2	3.6	11.2	60.4	2.3	17.2	NA	NA	NA	NA	NA	NA	103.14
Q2 2014	2.4	0.3	3.3	0.9	3.0	9.5	63.4	1.3	17.8	NA	NA	NA	NA	NA	NA	101.87
Q3 2014	2.3	0.1	4.1	0.6	3.1	8.5	56.2	1.6	16.4	NA	NA	NA	NA	NA	NA	92.99
Q4 2014	2.7	0.2	7.8	1.0	3.8	11.0	53.2	0.9	28.0	NA	NA	NA	NA	NA	NA	108.57
Q1 2015	3.7	0.5	4.3	1.3	2.4	12.7	26.7	8.6	19.2	1.45	1.07	0.72	NA	NA	NA	82.61
Q2 2015	1.3	0.2	0.6	0.9	3.6	9.1	16.6	0.9	21.4	1.22	0.79	0.37	3.4	8.6	NA	68.86
Q3 2015	3.6	0.3	11.3	1.4	3.5	13.3	14.0	1.7	20.2	1.24	0.68	0.29	15.4	31.9	NA	118.63
Q4 2015	3.7	0.2	10.0	0.8	3.1	11.1	26.6	1.7	17.5	0.3	0.9	0.3	16.1	32.3	NA	124.50
Q1 2016	3.9	0.23	15.28	1.23	3.21	6.36	24.30	0.81	34.33	0.02	0.93	0.22	15.29	26.45	NA	132.55
Q2 2016	3.7	0.21	1.31	1.48	3.36	12.92	13.17	1.01	19.24	0.02	1.15	0.25	14.46	27.76	NA	99.98
Q3 2016	3.3	0.22	9.08	1.15	3.02	11.33	14.86	1.56	12.47	0.72	0.59	0.22	15.20	27.42	NA	101.12
Q4 2016	3.5	0.18	8.76	1.23	1.79	12.14	26.49	1.02	12.14	0.10	1.00	0.23	14.68	22.20	0.62	106.06
Q1 2017	3.2	0.17	10.23	1.36	1.35	14.02	34.16	0.02	10.35	0.63	0.79	0.20	8.02	26.16	5.54	116.19
Well Totals (pounds)	**86.00**	**9.11**	**300.37**	**45.21**	**104.16**	**177.69**	**658.55**	**50.69**	**364.56**	**5.66**	**7.94**	**2.75**	**102.46**	**202.75**	**6.16**	**2124.07**

Table 3 Well Pumping Rates and Volumes

Pumping Well Name	Volume of Water Pumped During the Quarter (gals)	Average Pump Rate (gpm)
MW-4	76642.3	4.5
MW-26	26107.0	10.7
TW4-19	110416.7	18.0
TW4-20	13552.8	6.6
TW4-4	23526.8	17.0
TWN-2	45283.2	18.5
TW4-22	24066.2	16.9
TW4-24	99117.4	14.2
TW4-25	161.2	14.4
TW4-01	16931.8	15.7
TW4-02	19869.7	16.3
TW4-11	2984.2	16.0
TW4-21	54333.5	15.7
TW4-37	97071.7	16.9
TW4-39	103117.8	17.3

Table 4
Table 4 Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	MW-4							MW-26						
Quarter	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**
Calculations and Data Origination	**Total Gallons pumped for the quarter from the Flow Meter data**	**Concentration from the analytical data**	**Concentration in mg/LX1000 to convert to ug/L**	**Total pumped gallons/3.785 to conver to liters**	**Concentration in ug/L X total liters**	**Total ug/1000000 to convert to grams**	**Total grams/453.592 to convert to pounds**							
Q3 2010	79859.1	4.80	4800	302266.7	1450880129	1450.9	3.20	63850.0	0.60	600	241672.3	145003350	145	0.32
Q4 2010	90042.2	5.00	5000	340809.7	1704048635	1704.0	3.76	60180.0	0.70	700	227781.3	159446910	159	0.35
Q1 2011	76247.6	4.60	4600	288597.2	1327546964	1327.5	2.93	55130.0	0.50	500	208667.1	104333525	104	0.23
Q2 2011	85849.3	4.90	4900	324939.6	1592204042	1592.2	3.51	55800.6	0.30	300	211205.3	63361581	63	0.14
Q3 2011	85327.7	4.90	4900	322965.3	1582530188	1582.5	3.49	65618.0	0.90	900	248364.1	223527717	224	0.49
Q4 2011	89735.0	5.10	5100	339647.0	1732199573	1732.2	3.82	50191.3	2.00	2000	189974.1	379948141	380	0.84
Q1 2012	90376.4	4.80	4800	342074.7	1641958435	1642.0	3.62	31440.1	1.70	1700	119000.8	202301323	202	0.45
Q2 2012	90916.5	4.90	4900	344118.8	1686181940	1686.2	3.72	26701.2	2.50	2500	101064.1	252660294	253	0.56
Q3 2012	91607.0	5.00	5000	346732.5	1733662475	1733.7	3.82	25246.0	2.60	2600	95556.1	248445886	248	0.55
Q4 2012	78840.0	4.80	4800	298409.4	1432365120	1432.4	3.16	30797.0	1.46	1460	116566.6	170187302	170	0.38
Q1 2013	62943.7	4.78	4780	238241.9	1138796304	1138.8	2.51	22650.7	2.27	2270	85732.9	194613682	195	0.43
Q2 2013	71187.3	4.22	4220	269443.9	1137053387	1137.1	2.51	25343.4	2.11	2110	95924.8	202401263	202	0.45
Q3 2013	72898.8	4.89	4890	275922.0	1349258375	1349.3	2.97	25763.0	1.98	1980	97513.0	193075651	193	0.43
Q4 2013	70340.4	5.25	5250	266238.4	1397751674	1397.8	3.08	24207.6	1.38	1380	91625.8	126443557	126	0.28
Q1 2014	69833.8	4.70	4700	264320.9	1242308385	1242.3	2.74	23263.1	2.12	2120	88050.8	186667767	187	0.41
Q2 2014	71934.9	4.08	4080	272273.6	1110876274	1110.9	2.45	23757.5	1.42	1420	89922.1	127689435	128	0.28
Q3 2014	74788.2	3.70	3700	283073.3	1047371347	1047.4	2.31	24062.4	0.70	700	91076.2	63753329	64	0.14
Q4 2014	63093.0	5.07	5070	238807.0	1210751515	1210.8	2.67	21875.8	0.93	934	82799.9	77335109	77	0.17
Q1 2015	76454.3	5.75	5750	289379.5	1663932272	1663.9	3.67	24004.9	2.68	2680	90858.5	243500905	244	0.54
Q2 2015	60714.7	2.53	2530	229805.1	581407002.9	581.4	1.28	27804.6	0.85	845	105240.4	88928147	89	0.20
Q3 2015	89520.8	4.79	4790	338836.2	1623025532	1623.0	3.58	21042.0	1.75	1750	79644.0	139376948	139	0.31
Q4 2015	99633.4	4.43	4430	377112.4	1670608016	1670.6	3.68	19355.6	1.11	1110	73260.9	81319650	81	0.18
Q1 2016	90882.1	5.15	5150	343988.7	1771542055	1771.5	3.91	19150.8	1.45	1450	72485.8	105104378	105	0.23
Q2 2016	96540.5	4.54	4540	365405.8	1658942298	1658.9	3.66	22105.7	1.12	1120	83670.1	93710483	94	0.21
Q3 2016	79786.4	4.95	4950	301991.5	1494858044	1494.9	3.30	17149.5	1.57	1570	64910.9	101910046	102	0.22
Q4 2016	85414.0	4.88	4880	323292.0	1577664911	1577.7	3.48	18541.6	1.18	1180	70180.0	82812348	83	0.18
Q1 2017	76642.3	4.99	4990	290091.1	1447554616	1447.6	3.19	26107.0	0.768	768	98815.0	75889916	76	0.17
Totals Since Q3 2010	2171409.35						86.00	851139.4						9.11

Table 4

Table 4 Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-19							TW4-20						
Quarter	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)
Calculations and Data Origination														
Q3 2010	116899.2	5.90	5900	442463.5	2.611E+09	2611	5.76	39098.3	5.30	5300	147987.1	784331447	784	1.73
Q4 2010	767970.5	2.70	2700	2906768.3	7.848E+09	7848	17.30	36752.5	4.60	4600	139108.2	639897778	640	1.41
Q1 2011	454607.9	17.00	17000	1720690.9	2.925E+10	29252	64.49	37187.5	4.40	4400	140754.7	619320625	619	1.37
Q2 2011	159238.9	12.00	12000	602719.2	7.233E+09	7233	15.95	67907.7	4.80	4800	257030.6	1.234E+09	1234	2.72
Q3 2011	141542.6	3.00	3000	535738.7	1.607E+09	1607	3.54	72311.2	6.50	6500	273697.9	1.779E+09	1779	3.92
Q4 2011	147647.2	5.00	5000	558844.7	2.794E+09	2794	6.16	72089.3	4.20	4200	272858.0	1.146E+09	1146	2.53
Q1 2012	148747.0	0.60	600	563007.4	337804437	338	0.74	76306.0	7.90	7900	288818.2	2.282E+09	2282	5.03
Q2 2012	172082.0	2.40	2400	651330.5	1.563E+09	1563	3.45	22956.4	11.00	11000	86890.1	955790963	956	2.11
Q3 2012	171345.0	2.50	2500	648540.8	1.621E+09	1621	3.57	22025.0	10.80	10800	83364.6	900337950	900	1.98
Q4 2012	156653.0	4.10	4100	592931.6	2.431E+09	2431	5.36	20114.0	11.00	11000	76131.5	837446390	837	1.85
Q1 2013	210908.0	7.99	7990	798286.8	6.378E+09	6378	14.06	18177.0	9.07	9070	68799.9	624015501	624	1.38
Q2 2013	226224.0	2.95	2950	856257.8	2.526E+09	2526	5.57	20252.4	9.76	9760	76655.3	748156060	748	1.65
Q3 2013	329460.1	17.60	17600	1247006.5	2.195E+10	21947	48.39	19731.0	8.65	8650	74681.8	645997873	646	1.42
Q4 2013	403974.0	4.70	4700	1529041.6	7.186E+09	7186	15.84	19280.2	9.64	9640	72975.6	703484369	703	1.55
Q1 2014	304851.0	1.62	1620	1153861.0	1.869E+09	1869	4.12	18781.6	7.56	7560	71088.4	537427971	537	1.18
Q2 2014	297660.0	1.34	1340	1126643.1	1.51E+09	1510	3.33	18462.4	5.95	5950	69880.2	415787095	416	0.92
Q3 2014	309742.0	1.60	1600	1172373.5	1.876E+09	1876	4.14	17237.9	4.30	4300	65245.5	280555441	281	0.62
Q4 2014	198331.0	4.72	4720	750682.8	3.543E+09	3543	7.81	16341.8	7.67	7670	61853.7	474417979	474	1.05
Q1 2015	60553.0	8.56	8560	229193.1	1.962E+09	1962	4.33	15744.7	9.80	9800	59593.7	584018157	584	1.29
Q2 2015	75102.8	0.92	916	284264.1	260385914	260	0.57	18754.1	5.76	5760	70984.3	408869387	409	0.90
Q3 2015	116503.9	11.60	11600	440967.3	5.115E+09	5115	11.28	17657.3	9.27	9270	66832.9	619540802	620	1.37
Q4 2015	112767.7	10.6	10600	426825.7	4.524E+09	4524	9.97	15547.4	6.23	6230	58846.9	366616243	367	0.81
Q1 2016	116597.0	15.7	15700	441319.6	6.929E+09	6929	15.28	14353.5	10.3	10300	54328.0	559578374	560	1.23
Q2 2016	123768.0	1.27	1270	468461.9	594946588	595	1.31	15818.3	11.2	11200	59872.3	670569374	671	1.48
Q3 2016	103609.0	10.5	10500	392160.1	4.118E+09	4118	9.08	12186.6	11.3	11300	46126.3	521226975	521	1.15
Q4 2016	104919.4	10.0	10000	397119.9	3.971E+09	3971	8.76	12879.6	11.4	11400	48749.3	555741860	556	1.23
Q1 2017	110416.7	11.1	11100	417927.2	4.639E+09	4639	10.23	13552.8	12	12000	51297.3	615568176	616	1.36
Totals Since Q3 2010	5642120.9						300.37	751506.5						45.21

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-4							TW4-22						
Quarter	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)
Calculations and Data Origination														
Q3 2010	76916.8	7.30	7300.00	291130.1	2.1E+09	2125.25	4.69	NA	NA	NA	NA	NA	NA	NA
Q4 2010	86872.1	7.10	7100.00	328810.9	2.3E+09	2334.56	5.15	NA	NA	NA	NA	NA	NA	NA
Q1 2011	73360.0	7.00	7000.00	277667.6	1.9E+09	1943.67	4.29	NA	NA	NA	NA	NA	NA	NA
Q2 2011	80334.6	7.00	7000.00	304066.5	2.1E+09	2128.47	4.69	NA	NA	NA	NA	NA	NA	NA
Q3 2011	97535.0	6.60	6600.00	369170.0	2.4E+09	2436.52	5.37	NA	NA	NA	NA	NA	NA	NA
Q4 2011	109043.5	7.00	7000.00	412729.6	2.9E+09	2889.11	6.37	NA	NA	NA	NA	NA	NA	NA
Q1 2012	101616.8	7.10	7100.00	384619.6	2.7E+09	2730.80	6.02	NA	NA	NA	NA	NA	NA	NA
Q2 2012	87759.1	7.10	7100.00	332168.2	2.4E+09	2358.39	5.20	NA	NA	NA	NA	NA	NA	NA
Q3 2012	80006.0	7.10	7100.00	302822.7	2.2E+09	2150.04	4.74	NA	NA	NA	NA	NA	NA	NA
Q4 2012	71596.0	7.00	7000.00	270990.9	1.9E+09	1896.94	4.18	NA	NA	NA	NA	NA	NA	NA
Q1 2013	58716.8	7.36	7360.00	222243.1	1.6E+09	1635.71	3.61	16677.4	58.00	58000.0	63124.0	3.7E+09	3661.2	8.07
Q2 2013	65603.4	6.30	6300.00	248308.9	1.6E+09	1564.35	3.45	25523.2	50.20	50200.0	96605.3	4.8E+09	4849.6	10.69
Q3 2013	63515.4	7.22	7220.00	240405.8	1.7E+09	1735.73	3.83	25592.9	29.70	29700.0	96869.1	2.9E+09	2877.0	6.34
Q4 2013	60233.6	7.84	7840.00	227984.2	1.8E+09	1787.40	3.94	24952.2	45.20	45200.0	94444.1	4.3E+09	4268.9	9.41
Q1 2014	58992.9	7.28	7280.00	223288.1	1.6E+09	1625.54	3.58	24532.0	54.60	54600.0	92853.6	5.1E+09	5069.8	11.18
Q2 2014	60235.3	5.91	5910.00	227990.6	1.3E+09	1347.42	2.97	24193.9	47.20	47200.0	91573.9	4.3E+09	4322.3	9.53
Q3 2014	69229.4	5.30	5300.00	262033.3	1.4E+09	1388.78	3.06	24610.9	41.50	41500.0	93152.3	3.9E+09	3865.8	8.52
Q4 2014	64422.6	7.02	7020.00	243839.5	1.7E+09	1711.75	3.77	23956.9	54.90	54900.0	90676.9	5.0E+09	4978.2	10.97
Q1 2015	36941.3	7.70	7700.00	139822.8	1.1E+09	1076.64	2.37	22046.9	69.20	69200.0	83447.5	5.8E+09	5774.6	12.73
Q2 2015	68162.8	6.33	6330.00	257996.2	1.6E+09	1633.12	3.60	23191.6	47.10	47100.0	87780.2	4.1E+09	4134.4	9.11
Q3 2015	64333.0	6.45	6450.00	243500.4	1.6E+09	1570.58	3.46	24619.9	64.70	64700.0	93186.3	6.0E+09	6029.2	13.29
Q4 2015	59235.1	6.27	6270.00	224204.9	1.4E+09	1405.76	3.10	23657.6	56.10	56100.0	89544.0	5.0E+09	5023.4	11.07
Q1 2016	57274.0	6.71	6710.00	216782.1	1.5E+09	1454.61	3.21	24517.8	31.10	31100.0	92799.9	2.9E+09	2886.1	6.36
Q2 2016	61378.0	6.56	6560.00	232315.7	1.5E+09	1523.99	3.36	26506.3	58.40	58400.0	100326.3	5.9E+09	5859.1	12.92
Q3 2016	50104.2	7.22	7220.00	189644.4	1.4E+09	1369.23	3.02	22144.1	61.30	61300.0	83815.4	5.1E+09	5137.9	11.33
Q4 2016	31656.0	6.77	6770.00	119818.0	8.1E+08	811.17	1.79	23646.8	61.50	61500.0	89503.1	5.5E+09	5504.4	12.14
Q1 2017	23526.8	6.87	6870.00	89048.9	6.1E+08	611.77	1.35	24066.2	69.80	69800.0	91090.6	6.4E+09	6358.1	14.02
Totals Since Q3 2010	1818600.5						104.16	404436.6						177.69

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-24							TW4-25						
Quarter	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**
Calculations and Data Origination														
Q3 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2013	144842.6	35.90	35900.0	548229.2	2.0E+10	19681.4	43.39	99369.9	9.00	9000.0	376115.1	3.4E+09	3385.0	7.46
Q2 2013	187509.3	23.70	23700.0	709722.7	1.7E+10	16820.4	37.08	147310.4	5.24	5240.0	557569.9	2.9E+09	2921.7	6.44
Q3 2013	267703.5	32.60	32600.0	1013257.7	3.3E+10	33032.2	72.82	145840.9	5.69	5690.0	552007.8	3.1E+09	3140.9	6.92
Q4 2013	260555.3	34.60	34600.0	986201.8	3.4E+10	34122.6	75.23	126576.5	6.10	6100.0	479092.1	2.9E+09	2922.5	6.44
Q1 2014	229063.9	31.60	31600.0	867006.9	2.7E+10	27397.4	60.40	129979.2	2.16	2160.0	491971.3	1.1E+09	1062.7	2.34
Q2 2014	216984.1	35.00	35000.0	821284.8	2.9E+10	28745.0	63.37	124829.8	1.21	1210.0	472480.8	5.7E+08	571.7	1.26
Q3 2014	213652.5	31.50	31500.0	808674.7	2.5E+10	25473.3	56.16	119663.9	1.60	1600.0	452927.9	7.2E+08	724.7	1.60
Q4 2014	178468.7	35.70	35700.0	675504.0	2.4E+10	24115.5	53.17	107416.1	1.03	1030.0	406569.9	4.2E+08	418.8	0.92
Q1 2015	92449.3	34.60	34600.0	349920.6	1.2E+10	12107.3	26.69	71452.4	14.40	14400.0	270447.3	3.9E+09	3894.4	8.59
Q2 2015	62664.2	31.80	31800.0	237184.0	7.5E+09	7542.5	16.63	91985.3	1.14	1140.0	348164.4	4.0E+08	396.9	0.88
Q3 2015	66313.2	25.30	25300.0	250995.5	6.4E+09	6350.2	14.00	124137.1	1.63	1630.0	469858.9	7.7E+08	765.9	1.69
Q4 2015	107799.1	29.60	29600.0	408019.6	1.2E+10	12077.4	26.63	116420.1	1.78	1780.0	440650.1	7.8E+08	784.4	1.73
Q1 2016	100063.2	29.10	29100.0	378739.2	1.1E+10	11021.3	24.30	115483.2	0.84	837.0	437103.9	3.7E+08	365.9	0.81
Q2 2016	65233.6	24.20	24200.0	246909.2	6.0E+09	5975.2	13.17	125606.0	0.96	959.0	475418.7	4.6E+08	455.9	1.01
Q3 2016	51765.8	34.40	34400.0	195933.6	6.7E+09	6740.1	14.86	104983.6	1.78	1780.0	397362.9	7.1E+08	707.3	1.56
Q4 2016	99522.5	31.90	31900.0	376692.7	1.2E+10	12016.5	26.49	98681.2	1.24	1240.0	373508.3	4.6E+08	463.2	1.02
Q1 2017	99117.4	41.30	41300.0	375159.4	1.5E+10	15494.1	34.16	161.2	17.0	17000.0	610.1	1.0E+07	10.4	0.02
Totals Since Q3 2010	2443708.2						658.55	1849896.8						50.69

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TWN-02							TW4-01						
Quarter	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)
Calculations and Data Origination														
Q3 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2013	31009.4	57.30	57300.0	117370.6	6.7E+09	6725.3	14.83	NA	NA	NA	NA	NA	NA	NA
Q2 2013	49579.3	57.70	57700.0	187657.7	1.1E+10	10827.8	23.87	NA	NA	NA	NA	NA	NA	NA
Q3 2013	50036.5	80.00	80000.0	189388.2	1.5E+10	15151.1	33.40	NA	NA	NA	NA	NA	NA	NA
Q4 2013	49979.9	111.00	111000.0	189173.9	2.1E+10	20998.3	46.29	NA	NA	NA	NA	NA	NA	NA
Q1 2014	48320.4	42.60	42600.0	182892.7	7.8E+09	7791.2	17.18	NA	NA	NA	NA	NA	NA	NA
Q2 2014	47611.9	44.70	44700.0	180211.0	8.1E+09	8055.4	17.76	NA	NA	NA	NA	NA	NA	NA
Q3 2014	46927.2	42.00	42000.0	177619.5	7.5E+09	7460.0	16.45	NA	NA	NA	NA	NA	NA	NA
Q4 2014	47585.6	70.60	70600.0	180111.5	1.3E+10	12715.9	28.03	NA	NA	NA	NA	NA	NA	NA
Q1 2015	47262.2	48.60	48600.0	178887.4	8.7E+09	8693.9	19.17	24569.2	7.06	7060.0	92994.4	6.6E+08	656.5	1.45
Q2 2015	48497.3	52.80	52800.0	183562.3	9.7E+09	9692.1	21.37	23989.9	6.07	6070.0	90801.8	5.5E+08	551.2	1.22
Q3 2015	48617.4	49.70	49700.0	184016.9	9.1E+09	9145.6	20.16	23652.0	6.3	6280.0	89522.8	562203309.6	562.2	1.2
Q4 2015	46754.1	44.90	44900.0	176964.3	7.9E+09	7945.7	17.52	20764.3	1.55	1550.0	78592.9	1.2E+08	121.8	0.27
Q1 2016	47670.2	86.30	86300.0	180431.7	1.6E+10	15571.3	34.33	19255.6	0.15	148.0	72882.4	1.1E+07	10.8	0.02
Q2 2016	50783.0	45.40	45400.0	192213.7	8.7E+09	8726.5	19.24	19588.2	0.14	138.0	74141.3	1.0E+07	10.2	0.02
Q3 2016	42329.6	35.30	35300.0	160217.5	5.7E+09	5655.7	12.47	15613.5	5.49	5490.0	59097.1	3.2E+08	324.4	0.72
Q4 2016	44640.6	32.60	32600.0	168964.7	5.5E+09	5508.2	12.14	16756.8	0.75	746.0	63424.5	4.7E+07	47.3	0.10
Q1 2017	45283.2	27.40	27400.0	171396.9	4.7E+09	4696.3	10.35	16931.8	4.44	4440.0	64086.9	2.8E+08	284.5	0.63
Totals Since Q3 2010	792887.8						364.56	181121.3						5.66

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-02							TW4-11						
Quarter	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**	**Total Pumped (gal)**	**Conc (mg/L)**	**Conc (ug/L)**	**Total Pumped (liters)**	**Total (ug)**	**Total (grams)**	**Total (pounds)**
Calculations and Data Origination														
Q3 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2015	24156.7	5.32	5320.0	91433.1	4.9E+08	486.4	1.07	9898.7	8.72	8720.0	37466.6	3.3E+08	326.7	0.72
Q2 2015	22029.9	4.30	4300.0	83383.2	3.6E+08	358.5	0.79	5243.3	8.48	8480.0	19845.9	1.7E+08	168.3	0.37
Q3 2015	21586.9	3.8	3760.0	81706.4	307216126.0	307.2	0.7	3584.4	9.6	9610.0	13567.0	130378427.9	130.4	0.3
Q4 2015	21769.8	5.18	5180.0	82398.7	4.3E+08	426.8	0.94	4110.3	7.50	7500.0	15557.5	1.2E+08	116.7	0.26
Q1 2016	20944.6	5.30	5300.0	79275.3	4.2E+08	420.2	0.93	3676.2	7.13	7130.0	13914.4	9.9E+07	99.2	0.22
Q2 2016	20624.0	6.67	6670.0	78061.8	5.2E+08	520.7	1.15	3760.4	7.81	7810.0	14233.1	1.1E+08	111.2	0.25
Q3 2016	17487.4	4.07	4070.0	66189.8	2.7E+08	269.4	0.59	2953.8	8.83	8830.0	11180.1	9.9E+07	98.7	0.22
Q4 2016	19740.6	6.07	6070.0	74718.2	4.5E+08	453.5	1.00	3050.2	8.92	8920.0	11545.0	1.0E+08	103.0	0.23
Q1 2017	19869.7	4.74	4740.0	75206.8	3.6E+08	356.5	0.79	2984.2	8.12	8120.0	11295.2	9.2E+07	91.7	0.20
Totals Since Q3 2010	188209.6						7.94	39261.5						2.75

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-21							TW4-37						
Quarter	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)
Calculations and Data Origination														
Q3 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q3 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q4 2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q1 2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Q2 2015	30743.7	13.1	13100.0	116364.9	1.5E+09	1524.4	3.4	29206.0	35.2	35200.0	110544.7	3.9E+09	3891.2	8.6
Q3 2015	125285.4	14.7	14700.0	474205.2	6970817013.3	6970.8	15.4	118063.9	32.4	32400.0	446871.9	14478648312.6	14478.6	31.9
Q4 2015	134774.9	14.30	14300.0	510123.0	7.3E+09	7294.8	16.08	111737.5	34.60	34600.0	422926.4	1.5E+10	14633.3	32.26
Q1 2016	125513.3	14.60	14600.0	475067.8	6.9E+09	6936.0	15.29	111591.0	28.40	28400.0	422371.9	1.2E+10	11995.4	26.45
Q2 2016	132248.7	13.10	13100.0	500561.3	6.6E+09	6557.4	14.46	119241.2	27.90	27900.0	451327.9	1.3E+10	12592.0	27.76
Q3 2016	110381.9	16.50	16500.0	417795.5	6.9E+09	6893.6	15.20	98377.6	33.40	33400.0	372359.2	1.2E+10	12436.8	27.42
Q4 2016	130311.3	13.50	13500.0	493228.3	6.7E+09	6658.6	14.68	101949.1	26.10	26100.0	385877.3	1.0E+10	10071.4	22.20
Q1 2017	54333.5	17.70	17700.0	205652.3	3.6E+09	3640.0	8.02	97071.7	32.30	32300.0	367416.4	1.2E+10	11867.5	26.16
Totals Since Q3 2010	843592.7						102.46	787238.0						202.75

Table 4
Quarterly Calculation of Nitrate Removed and Total Volume of Water Pumped

	TW4-39							
Quarter	Total Pumped (gal)	Conc (mg/L)	Conc (ug/L)	Total Pumped (liters)	Total (ug)	Total (grams)	Total (pounds)	Removed by All Wells (pounds)
Calculations and Data Origination								
Q3 2010	NA	NA	NA	NA	NA	NA	NA	15.69
Q4 2010	NA	NA	NA	NA	NA	NA	NA	27.97
Q1 2011	NA	NA	NA	NA	NA	NA	NA	73.30
Q2 2011	NA	NA	NA	NA	NA	NA	NA	27.01
Q3 2011	NA	NA	NA	NA	NA	NA	NA	16.82
Q4 2011	NA	NA	NA	NA	NA	NA	NA	19.71
Q1 2012	NA	NA	NA	NA	NA	NA	NA	15.86
Q2 2012	NA	NA	NA	NA	NA	NA	NA	15.03
Q3 2012	NA	NA	NA	NA	NA	NA	NA	14.67
Q4 2012	NA	NA	NA	NA	NA	NA	NA	14.92
Q1 2013	NA	NA	NA	NA	NA	NA	NA	95.73
Q2 2013	NA	NA	NA	NA	NA	NA	NA	91.71
Q3 2013	NA	NA	NA	NA	NA	NA	NA	176.53
Q4 2013	NA	NA	NA	NA	NA	NA	NA	162.07
Q1 2014	NA	NA	NA	NA	NA	NA	NA	103.14
Q2 2014	NA	NA	NA	NA	NA	NA	NA	101.87
Q3 2014	NA	NA	NA	NA	NA	NA	NA	92.99
Q4 2014	NA	NA	NA	NA	NA	NA	NA	108.57
Q1 2015	NA	NA	NA	NA	NA	NA	NA	82.61
Q2 2015	NA	NA	NA	NA	NA	NA	NA	68.86
Q3 2015	NA	NA	NA	NA	NA	NA	NA	118.63
Q4 2015	NA	NA	NA	NA	NA	NA	NA	124.50
Q1 2016	NA	NA	NA	NA	NA	NA	NA	132.55
Q2 2016	NA	NA	NA	NA	NA	NA	NA	99.98
Q3 2016	NA	NA	NA	NA	NA	NA	NA	101.12
Q4 2016	3589.3	20.70	20700.0	13585.5	2.8E+08	281.2	0.62	106.06
Q1 2017	103117.8	6.44	6440.0	390300.9	2.5E+09	2513.5	5.54	116.19
Totals Since Q3 2010	106707.10						6.16	2124.07

Location	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q 20	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017
MW-30	15.8	15	16	16	17	1	17.9	16.3	20.0	17.3	18.0	17.2	17.4
MW-31	22.5	21	20	21	22	2	19.9	18.4	18.8	18.6	19.7	18.8	21.1
MW-5	ND	NS	0.2	NS	0.2	N	NS	0.118	NS	0.156	NS	0.241	NS
MW-11	ND	ND	ND	ND	ND	N	ND	ND	ND	0.117	ND	ND	ND

ND = Not detected
NS = Not Sampled

TABLE 6
Slug Test Results
(Using KGS Solution and Automatically Logged Data)

Well	K (cm/s)	K (ft/day)
MW-30	1.0E-04	0.28
MW-31	7.1E-05	0.20
TW4-22	1.3E-04	0.36
TW4-24	1.6E-04	0.45
TW4-25	5.8E-05	0.16
TWN-2	1.5E-05	0.042
TWN-3	8.6E-06	0.024
	Average 1	0.22
	Average 2	0.15
	Average 3	0.32
	Average 4	0.31

Notes:

Average 1 = arithemetic average of all wells

Average 2 = geometric average of all wells

Average 3 = arithemetic average of MW-30, MW-31, TW4-22, and TW4-24

Average 4 = geometric average of MW-30, MW-31, TW4-22, and TW4-24

cm/s = centimeters per second

ft/day = feet per day

K = hydraulic conductivity

KGS = KGS Unconfined Slug Test Solution in Aqtesolve^{TM}.

TABLE 7
Pre-Pumping Saturated Thicknesses

Well	Depth to Brushy Basin (ft)	Depth to Water Fourth Quarter, 2012 (ft)	Saturated Thickness Above Brushy Basin (ft)
TW4-22	112	53	58
TW4-24	110	55	55

Notes:

ft = feet

TABLE 8

Pre-Pumping Hydraulic Gradients and Flow Calculations

Pathline Boundaries	**Path Length (ft)**	**Head Change (ft)**	**Hydraulic Gradient (ft/ft)**
TW4-25 to MW-31	2060	48	0.023
TWN-2 to MW-30	2450	67	0.027
		average	0.025
		[1] ***min flow (gpm)***	***1.31***
		[2] ***max flow (gpm)***	***2.79***

Notes:

ft = feet

ft/ft = feet per foot

gpm = gallons per minute

[1] assumes width = 1,200 ft; saturated thickness = 56 ft; K = 0.15 ft/day; and gradient = 0.025 ft/ft

[2] assumes width = 1,200 ft; saturated thickness = 56 ft; K = 0.32 ft/day; and gradient = 0.025 ft/ft

Table 9
*Recalculated Background Flow

	Background Flow (gpm)	*Recalculated Background Flow (gpm)
minimum	1.31	0.79
maximum	2.79	1.67

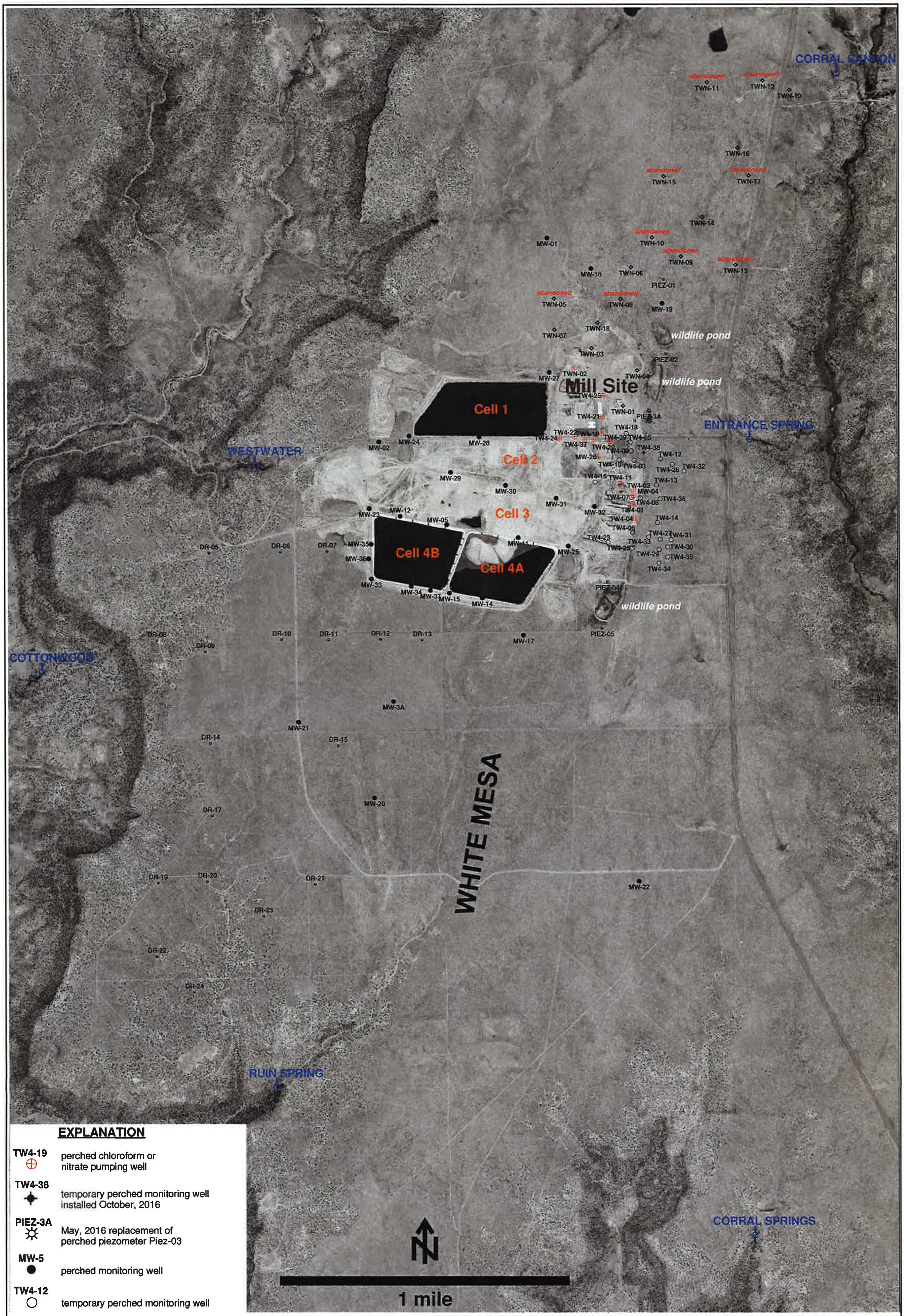
** recalculated based on reduced widlife pond recharge as presented in the third quarter, 2015 Nitrate Monitoring Report*

gpm = gallons per minute

INDEX OF TABS

Tab A

Site Plan and Perched Well Locations White Mesa Site



EXPLANATION

TW4-19 ⊕	perched chloroform or nitrate pumping well
TW4-38 ✦	temporary perched monitoring well installed October, 2016
PIEZ-3A ☼	May, 2016 replacement of perched piezometer Piez-03
MW-5 ●	perched monitoring well
TW4-12 ○	temporary perched monitoring well
TWN-7 ◇	temporary perched nitrate monitoring well
PIEZ-1 ◒	perched piezometer
RUIN SPRING ♁	seep or spring

HYDRO
GEO
CHEM, INC.

WHITE MESA SITE PLAN SHOWING LOCATIONS OF PERCHED WELLS AND PIEZOMETERS

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/feb17/Uwelloc1216.srf	A-1

Tab B

Order of Sampling and Field Data Worksheets

Nitrate Order
1st Quarter 2017

Nitrate Samples

Name	Nitrate Mg/L Previous Qrt.	Date/Purge	sample	Depth	Total Depth
TWN-18	0.501	2/15/17	1208		145
TWN-7	0.698	2/16/17	1025		105
TWN-1	1.98	2/15/17	1311		112.5
TWN-4	3.09	2/15/17	1356		125.7
TWN-3	15.8	2/16/17	1034		96
TWN-2	32.6	2/15/17	1000		96
Duplicate of		TWN-1			
Rinsate					
DI Sample		2/16/17	1045		

Piez 1	6.42	2/15/17	0855		
Piez 2	0.732	2/15/17	0825		
Piez 3A	8.44	2/15/17	0910		

Rinsate Samples

Name	Date	Sample
TWN-18R	2/15/17	1048
TWN-7R		
TWN-1R		
TWN-4R		
TWN-3R		
TWN-2R		

Samplers: ______________________

____

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Nitrate 2017

Location (well name): Piez-01

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: Piez-01_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☐ pump or ☒ bailer

Well Pump (if other than Bennet): N/A

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: Piez-02

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 μMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging: 65.75

Casing Volume (V) 4" Well: 0 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 3°

Time: 0854
Gal. Purged: 0
Conductance: 2102
pH: 6.92
Temp. °C: 13.70
Redox Potential Eh (mV): 442
Turbidity (NTU): 0

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 67.49

Sample Time 0855

See instruction

Comment

Arrived on site at 0850, Tanner and Garrin present to collect samples.
Samples bailed and collected at 0855. Water was a little murky with wood like
Particles floating.
Left site at 0900

Piez-01 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate

Location (well name): Piez-02

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: Piez-02_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☐ pump or ☑ bailer

Well Pump (if other than Bennet): N/A

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: N/A

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging: 40.36

Casing Volume (V) 4" Well: 0 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 2°

Time: 0824 Gal. Purged: 0

Conductance: 903 pH: 6.99

Temp. °C: 14.80

Redox Potential Eh (mV): 432

Turbidity (NTU): 0

Time: Gal. Purged:

Conductance: pH:

Temp. °C:

Redox Potential Eh (mV):

Turbidity (NTU):

Time: Gal. Purged:

Conductance: pH:

Temp. °C:

Redox Potential Eh (mV):

Turbidity (NTU):

Time: Gal. Purged:

Conductance: pH:

Temp. °C:

Redox Potential Eh (mV):

Turbidity (NTU):

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☑		☐	☒
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 41.86

Sample Time 0825

See instruction

Comment

Arrived on site at 0820. Tanner and Garrin present to collect samples. Samples bailed and collected at 0825. Water was clear. Left site at 0833

Piez-02 02-15-2017 Do not touch this cell (SheetName)

ENERGY FUELS

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): Piez-03A

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID Piez-03A_02152017

Date and Time for Purging 2/15/2017 and Sampling (if different) N/A

Well Purging Equip Used: ☐ pump or ☑ bailer

Well Pump (if other than Bennet) N/A

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event Quarterly Nitrate

Prev. Well Sampled in Sampling Event Piez-01

pH Buffer 7.0 7.0

pH Buffer 4.0 4.0

Specific Conductance 1000 µMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging 51.45

Casing Volume (V) 4" Well: 0 (.653h)
3" Well: 0 (.367h)

Weather Cond. Sunny

Ext'l Amb. Temp. °C (prior sampling event) 3°

Time 0909 Gal. Purged 0
Conductance 1137 pH 6.84
Temp. °C 13.53
Redox Potential Eh (mV) 436
Turbidity (NTU) 30

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 52.33

Sample Time 0910

See instruction

Comment

Arrived on site at 0905. Tanner and Garrin present to collect samples, Samples bailed and collected at 0910 water was murky.
Left site at 0918.

Piez-03A 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): TWN-01

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-01_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-07

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 112.50

Depth to Water Before Purging: 63.60

Casing Volume (V) 4" Well: 31.93 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 11°

Time	1308	Gal. Purged	50
Conductance	866	pH	6.87
Temp. °C	15.12		
Redox Potential Eh (mV)	392		
Turbidity (NTU)	0		

Time	1309	Gal. Purged	60
Conductance	868	pH	6.89
Temp. °C	15.13		
Redox Potential Eh (mV)	391		
Turbidity (NTU)	0		

Time	1310	Gal. Purged	70
Conductance	870	pH	6.90
Temp. °C	15.11		
Redox Potential Eh (mV)	391		
Turbidity (NTU)	0		

Time	1311	Gal. Purged	80
Conductance	871	pH	6.89
Temp. °C	15.12		
Redox Potential Eh (mV)	391		
Turbidity (NTU)	0		

Volume of Water Purged 80 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 6.38

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 90.26

Sample Time 1311

See instruction

Comment

Arrived on site at 1301 Tanner and Garrin present for purge and sampling event. Purge began at 1303 Purged well for a total of 8 minutes. Purge ended and samples were collected at 1311. water was clear.
Left site at 1314

TWN-01 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Nitrate 2017

Location (well name): TWN-02

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-02_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Continuous

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: Piez-03A

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 96.00

Depth to Water Before Purging: 36.04

Casing Volume (V) 4" Well: 39.15 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 5°

Time: 0959
Gal. Purged: 0
Conductance: 2510
pH: 6.59
Temp. °C: 13.67
Redox Potential Eh (mV): 445
Turbidity (NTU): 0

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 18.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 4.35

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☒
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 54.13

Sample Time 1000

See instruction

Comment

Arrived on site at 0955. Tanner and Garrin present to collect samples. Samples collected at 1000. Water was clear. Left site at 1003

TWN-02 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): TWN-03

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-03_02162017

Date and Time for Purging: 2/15/2017

and Sampling (if different): 2/16/2017

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☒ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-04

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 96.00

Depth to Water Before Purging: 40.36

Casing Volume (V) 4" Well: 36.33 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 12°

Time: 1427 Gal. Purged: 62.5
Conductance: 2206 pH: 6.71
Temp. °C: 14.80
Redox Potential Eh (mV): 412
Turbidity (NTU): 5.0

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: 1034 Gal. Purged: 0
Conductance: 2144 pH: 6.63
Temp. °C: 14.66
Redox Potential Eh (mV):
Turbidity (NTU):

Before

Time: 1035 Gal. Purged: 0
Conductance: 2148 pH: 6.65
Temp. °C: 14.62
Redox Potential Eh (mV):
Turbidity (NTU):

After

Volume of Water Purged 62.50 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 7.26

Number of casing volumes evacuated (if other than two) 1.72

If well evacuated to dryness, number of gallons evacuated 62.50

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 93.89

Sample Time 1034

See instruction

Comment

Arrived on site 1418. Tanner and Garrin present for purge. Purge began at 1420 Purged well for a total of 6 minutes 45 seconds. Purged well dry! Purge ended at 1427. Water was mostly clear. Left site at 1430
Arrived on site at 1031 Tanner and Garrin present to collect samples. Depth to water was 40.47 samples bailed at 1034 Left site at 1036

TWN-03 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): TWN-04

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-04_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☒ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-01

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 125.70

Depth to Water Before Purging: 56.05

Casing Volume (V) 4" Well: 45.48 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 11°

Time	1353	Gal. Purged	80
Conductance	1079	pH	6.73
Temp. °C	14.71		
Redox Potential Eh (mV)	405		
Turbidity (NTU)	0		

Time	1354	Gal. Purged	90
Conductance	1078	pH	6.73
Temp. °C	14.73		
Redox Potential Eh (mV)	405		
Turbidity (NTU)	0		

Time	1355	Gal. Purged	110
Conductance	1078	pH	6.74
Temp. °C	14.71		
Redox Potential Eh (mV)	405		
Turbidity (NTU)	0		

Time	1356	Gal. Purged	120
Conductance	1077	pH	6.73
Temp. °C	14.71		
Redox Potential Eh (mV)	405		
Turbidity (NTU)	0		

Volume of Water Purged 120 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 9.09

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 57.10

Sample Time 1356

See instruction

Comment

Arrived on site at 1342 Tanner and Garrin present for purge and sampling event.
Purge began at 1344 Purged well for a total of 12 minutes.
Purge ended and samples were collected at 1356. Water was clear
Left site at 1359

TWN-04 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter ~~Chlo~~ Nitrate 2017

Location (well name): TWN-07

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-07_02162017

Date and Time for Purging: 2/15/2017 and Sampling (if different): 2/16/2017

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-18

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 105.00

Depth to Water Before Purging: 84.55

Casing Volume (V) 4" Well: 13.35 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 10°

Time: 1235 Gal. Purged: 23.33
Conductance: 1369 pH: 6.88
Temp. °C: 14.59
Redox Potential Eh (mV): 393
Turbidity (NTU): 0

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: 1025 Gal. Purged: 0
Conductance: 1351 pH: 6.35
Temp. °C: 14.70
Redox Potential Eh (mV):
Turbidity (NTU):

Before

Time: 1026 Gal. Purged: 0
Conductance: 1356 pH: 6.40
Temp. °C: 14.65
Redox Potential Eh (mV):
Turbidity (NTU):

After

Volume of Water Purged 23.33 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = ~~11.6~~ 10.0 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 2.67

Number of casing volumes evacuated (if other than two) 1.74

If well evacuated to dryness, number of gallons evacuated 23.33

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☑
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 103.12 Sample Time 1025

See instruction

Comment

Arrived on site at 1232. Tanner and Garrin present for purge. Purge began at 1233. Purged well for a total of 2 minutes and 20 seconds. Purged well dry! Purge ended at 1235. Water was clear. Left site at 1237
Arrived on site at 1023 Tanner and Garrin present to collect samples. Depth to water was 95.26 samples bailed at 1025 Left site at 1027

TWN-07 02-15-2017 Do not touch this cell (SheetName)

ENERGY FUELS

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Nitrate 2017

Location (well name): TWN-18

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-18_02152017

Date and Time for Purging: 2/15/2017 and Sampling (if different): N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-18R

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 145.00

Depth to Water Before Purging: 60.85

Casing Volume (V) 4" Well: 54.94 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 7°

Time: 1205 Gal. Purged: 90
Conductance: 2362 pH: 6.51
Temp. °C: 14.44
Redox Potential Eh (mV): 404
Turbidity (NTU): 0

Time: 1206 Gal. Purged: 110
Conductance: 2358 pH: 6.52
Temp. °C: 14.45
Redox Potential Eh (mV): 403
Turbidity (NTU): 0

Time: 1207 Gal. Purged: 120
Conductance: 2356 pH: 6.52
Temp. °C: 14.45
Redox Potential Eh (mV): 402
Turbidity (NTU): 0

Time: 1208 Gal. Purged: 130
Conductance: 2358 pH: 6.51
Temp. °C: 14.45
Redox Potential Eh (mV): 401
Turbidity (NTU): 0

Volume of Water Purged 130 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 10.98

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 62.35

Sample Time 1208

See instruction

Comment

Arrived on site at 1151 Tanner and Garrin present for purge and sampling event.
Purge began at 1155 Purged well for a total of 13 minutes.
Purge ended and samples were collected at 1208 Water was clear.
Left site at 1211

TWN-18 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): TWN-18R

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-18R_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-02

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging: 0

Casing Volume (V)
4" Well: 0 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 6°

Time: 1047
Gal. Purged: 120
Conductance: 7.6
pH: 7.57
Temp. °C: 9.14
Redox Potential Eh (mV): 393
Turbidity (NTU): 0.2

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged 150 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 0

Sample Time 1048

See instruction

Comment

Arrived on site at 1030. Tanner and Garrin present for rinsate. Rinsate began at 1035. Pumped 50 Gallons of Soap water and 100 Gallons of DI water Samples were collected at 1048. Left site at 1051

TWN-18R 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Chloroform 2017

Location (well name): TW4-22

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TW4-22_03082017

Date and Time for Purging: 3/8/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): Continuous

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event: Quarterly Chloroform

Prev. Well Sampled in Sampling Event: TW4-24

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 113.50

Depth to Water Before Purging: 60.35

Casing Volume (V) 4" Well: 34.70 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 12°

Time: 1221
Gal. Purged: 0
Conductance: 5416
pH: 6.44
Temp. °C: 15.81
Redox Potential Eh (mV): 406
Turbidity (NTU): 0

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged: 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 17.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 4.08

Number of casing volumes evacuated (if other than two): 0

If well evacuated to dryness, number of gallons evacuated: 0

Name of Certified Analytical Laboratory if Other Than Energy Labs: AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☑	☐	3x40 ml	☐	☑	HCL	☑	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth: 82.66

Sample Time: 1222

See instruction

Comment

Arrived on site at 1218 Tanner and Garrin present to collect samples

Samples collected at 1222 Water was clear

Left site at 1225

TW4-22 03-08-2017 Do not touch this cell (SheetName)

ENERGY FUELS

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Chloroform 2017

Location (well name): TW4-24

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TW4-24_03082017

Date and Time for Purging: 3/8/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Continuous

Purging Method Used: ☒ 2 casings ☐ 3 casings

Sampling Event: Quarterly Chloroform

Prev. Well Sampled in Sampling Event: TW4-25

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 112.50

Depth to Water Before Purging: 63.30

Casing Volume (V) 4" Well: 32.12 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 12°

Time	1211	Gal. Purged	0
Conductance	9695	pH	6.16
Temp. °C	15.38		
Redox Potential Eh (mV)	429		
Turbidity (NTU)	0		

Time		Gal. Purged	
Conductance		pH	
Temp. °C			
Redox Potential Eh (mV)			
Turbidity (NTU)			

Time		Gal. Purged	
Conductance		pH	
Temp. °C			
Redox Potential Eh (mV)			
Turbidity (NTU)			

Time		Gal. Purged	
Conductance		pH	
Temp. °C			
Redox Potential Eh (mV)			
Turbidity (NTU)			

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 14.20

Time to evacuate two casing volumes (2V)
T = 2V/Q = 4.52

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☒	☐	3x40 ml	☐	☒	HCL	☒	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 69.48

Sample Time 1212

See instruction

Comment

Arrived on site at 1209 Tanner and Garrin present to collect samples.

Samples collected at 1212. Water was clear

Left site at 1217

TW4-24 03-08-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Chloroform 2017

Location (well name): TW4-25

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TW4-25_03082017

Date and Time for Purging: 3/8/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☒ pump or ☐ bailer

Well Pump (if other than Bennet): Continuous

Purging Method Used: ☒ 2 casings ☐ 3 casings

Sampling Event: Quarterly Chloroform

Prev. Well Sampled in Sampling Event: TW4-21

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 134.80

Depth to Water Before Purging: 60.50

Casing Volume (V) 4" Well: 84.07 (.653h)

3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 12°

Time: 1201
Gal. Purged: 0
Conductance: 2885
pH: 6.44
Temp. °C: 16.03
Redox Potential Eh (mV): 426
Turbidity (NTU): 0

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time:
Gal. Purged:
Conductance:
pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 14.50

Time to evacuate two casing volumes (2V)
T = 2V/Q = 11.59

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☒	☐	3x40 ml	☐	☒	HCL	☒	☐
Nutrients	☒	☐	100 ml	☐	☒	H2SO4	☒	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☒	☐	Sample volume	☐	☒		☐	☒

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 70.26

Sample Time 1202

See instruction

Comment

Arrived on site at 1158 Tanner and Garrin present to collect samples.
Samples collected at 1202 water was clear
Left site at 1204

TW4-25 03-08-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1st Quarter Nitrate 2017

Location (well name): TWN-60

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-60_02162017

Date and Time for Purging: 2/16/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): N/A

Purging Method Used: ☐ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-03

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging: 0

Casing Volume (V) 4" Well: 0 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 6°

Time: 1044 Gal. Purged: 0
Conductance: 0.6 pH: 7.77
Temp. °C: 13.60
Redox Potential Eh (mV): 428
Turbidity (NTU): 0

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged: 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two): 0

If well evacuated to dryness, number of gallons evacuated: 0

Name of Certified Analytical Laboratory if Other Than Energy Labs: AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑
Nitrate								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth: 0

Sample Time: 1045

See instruction

Comment

DI sample collected in Lab at 1045

TWN-60 02-16-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Nitrate 2017

Location (well name): TWN-65

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID: TWN-65_02152017

Date and Time for Purging: 2/15/2017

and Sampling (if different): N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet): Grundfos

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event: Quarterly Nitrate

Prev. Well Sampled in Sampling Event: TWN-07

pH Buffer 7.0: 7.0

pH Buffer 4.0: 4.0

Specific Conductance: 1000 µMHOS/ cm

Well Depth(0.01ft): 112.50 112.50

Depth to Water Before Purging: 63.60

Casing Volume (V) 4" Well: 31.93 (.653h)
3" Well: 0 (.367h)

Weather Cond.: Sunny

Ext'l Amb. Temp. °C (prior sampling event): 11°

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Time: Gal. Purged:
Conductance: pH:
Temp. °C:
Redox Potential Eh (mV):
Turbidity (NTU):

Volume of Water Purged 80 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 10.0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 6.38

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☐	☐	3x40 ml	☐	☐	HCL	☐	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑
Chloride								

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 90.26

Sample Time 1311

See instruction

Comment

Duplicate of TWN-01

TWN-65 02-15-2017 Do not touch this cell (SheetName)

ATTACHMENT 1-2
WHITE MESA URANIUM MILL
FIELD DATA WORKSHEET FOR GROUNDWATER

See instruction

Description of Sampling Event: 1ST Quarter Chloroform 2017

Location (well name): TW4-60

Sampler Name and initials: Tanner Holliday/TH

Field Sample ID TW4-60_03082017

Date and Time for Purging 3/8/2017

and Sampling (if different) N/A

Well Purging Equip Used: ☑ pump or ☐ bailer

Well Pump (if other than Bennet) N/A

Purging Method Used: ☑ 2 casings ☐ 3 casings

Sampling Event Quarterly Chloroform

Prev. Well Sampled in Sampling Event N/A

pH Buffer 7.0 7.0

pH Buffer 4.0 4.0

Specific Conductance 1000 µMHOS/ cm

Well Depth(0.01ft): 0

Depth to Water Before Purging 0

Casing Volume (V) 4" Well: 0 (.653h)
3" Well: 0 (.367h)

Weather Cond. Sunny

Ext'l Amb. Temp. °C (prior sampling event) 20°

Time 0929 Gal. Purged 0
Conductance 1.1 pH 7.58
Temp. °C 15.54
Redox Potential Eh (mV) 379
Turbidity (NTU) 4.1

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Time Gal. Purged
Conductance pH
Temp. °C
Redox Potential Eh (mV)
Turbidity (NTU)

Volume of Water Purged 0 gallon(s)

Pumping Rate Calculation

Flow Rate (Q), in gpm.
S/60 = 0

Time to evacuate two casing volumes (2V)
T = 2V/Q = 0

Number of casing volumes evacuated (if other than two) 0

If well evacuated to dryness, number of gallons evacuated 0

Name of Certified Analytical Laboratory if Other Than Energy Labs AWAL

Type of Sample	Sample Taken		Sample Vol (indicate if other than as specified below)	Filtered		Preservative Type	Preservative Added	
	Y	N		Y	N		Y	N
VOCs	☑	☐	3x40 ml	☐	☑	HCL	☑	☐
Nutrients	☑	☐	100 ml	☐	☑	H2SO4	☑	☐
Heavy Metals	☐	☐	250 ml	☐	☐	HNO3	☐	☐
All Other Non Radiologics	☐	☐	250 ml	☐	☐	No Preserv.	☐	☐
Gross Alpha	☐	☐	1,000 ml	☐	☐	HNO3	☐	☐
Other (specify)	☑	☐	Sample volume	☐	☑		☐	☑

Chloride

If preservative is used, specify
Type and Quantity of Preservative:

Final Depth 0

Sample Time 0930

See instruction

Comment

DI Blank collected in the lab at 0930

TW4-60 03-08-2017 Do not touch this cell (SheetName)

Tab C

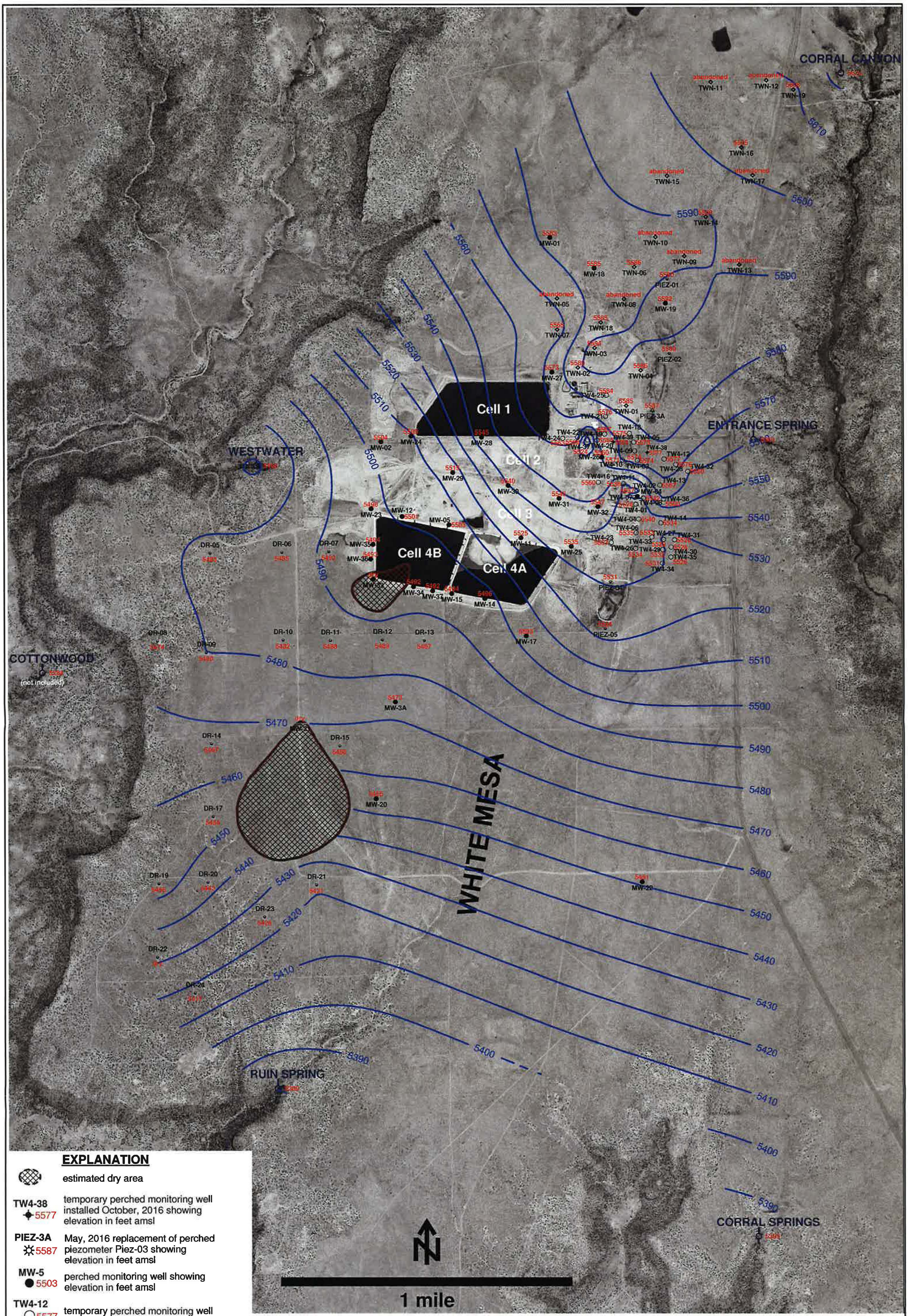
Kriged Current Quarter Groundwater Contour Map, Capture Zone Map, Capture Zone Details Map, and Weekly, Monthly and Quarterly Depth to Water Data

NAME: Garrin Palmer, Tanner Holliday

3/30/2017

Time	Well	Depth to Water (ft.)	Time	Well	Depth to Water (ft.)	Time	Well	Depth to Water (ft.)	Time	Well	Depth to Water (ft.)
1345	MW-1	64.22	1343	MW-4	80.28	1328	PIEZ-1	65.28	NA	DR-1	Abandoned
1400	MW-2	109.50	1344	TW4-1	90.66	1322	PIEZ-2	40.00	NA	DR-2	Abandoned
NA	MW-3	Abandoned	1347	TW4-2	88.11	1317	PIEZ-3A	51.11	1216	DR-5	82.85
1026	MW-3A	84.30	1351	TW4-3	58.00	1051	PIEZ-4	60.60	1219	DR-6	94.13
1410	MW-5	105.80	1345	TW4-4	73.96	1049	PIEZ-5	60.21	1424	DR-7	91.80
1408	MW-11	86.01	1354	TW4-5	65.67	1304	TWN-1	63.35	1227	DR-8	51.22
1413	MW-12	107.81	1346	TW4-6	73.30	1310	TWN-2	37.64	1224	DR-9	86.20
1410	MW-14	102.43	1344	TW4-7	75.00	1312	TWN-3	40.30	1222	DR-10	78.30
1413	MW-15	105.60	1348	TW4-8	79.70	1315	TWN-4	55.52	1036	DR-11	98.01
1044	MW-17	71.64	1356	TW4-9	63.60	NA	TWN-5	Abandoned	1033	DR-12	91.34
1342	MW-18	72.07	1358	TW4-10	63.15	1339	TWN-6	78.54	1040	DR-13	69.75
1324	MW-19	62.51	1406	TW4-11	85.14	1348	TWN-7	84.30	1048	DR-14	76.02
1056	MW-20	85.38	1319	TW4-12	47.23	NA	TWN-8	Abandoned	1052	DR-15	92.63
1019	MW-22	66.42	1325	TW4-13	52.70	NA	TWN-9	Abandoned	NA	DR-16	Abandoned
1415	MW-23	113.93	1330	TW4-14	78.80	NA	TWN-10	Abandoned	1044	DR-17	64.62
1412	MW-24	112.80	1309	TW4-15	65.60	NA	TWN-11	Abandoned	NA	DR-18	Abandoned
1055	MW-25	77.63	1341	TW4-16	64.49	NA	TWN-12	Abandoned	1033	DR-19	62.90
1309	MW-26	65.60	1339	TW4-17	77.90	NA	TWN-13	Abandoned	1031	DR-20	55.37
1307	MW-27	54.20	1302	TW4-18	66.55	1332	TWN-14	60.57	1025	DR-21	100.75
1356	MW-28	74.61	1452	TW4-19	64.52	NA	TWN-15	Abandoned	1037	DR-22	DRY
1404	MW-29	99.95	1440	TW4-20	65.26	1334	TWN-16	47.27	1027	DR-23	70.27
1406	MW-30	74.69	1304	TW4-21	64.82	NA	TWN-17	Abandoned	1039	DR-24	44.02
1402	MW-31	68.10	1403	TW4-22	61.01	1310	TWN-18	60.46	NA	DR-25	Abandoned
1339	MW-32	77.90	1336	TW4-23	70.46	1237	TWN-19	52.92			
1440	MW-33	DRY	1402	TW4-24	62.56						
1420	MW-34	107.46	1409	TW4-25	60.47						
1417	MW-35	111.96	1334	TW4-26	67.71						
1419	MW-36	110.14	1306	TW4-27	79.09						
1340	MW-37	107.02	1321	TW4-28	41.08						
			1317	TW4-29	74.44						
			1310	TW4-30	75.16						
			1308	TW4-31	78.10						
			1323	TW4-32	51.70						
			1303	TW4-33	73.45						
			1315	TW4-34	72.55						
			1312	TW4-35	74.00						
			1328	TW4-36	56.16						
			1416	TW4-37	107.80						
			1352	TW4-38	53.37						
			1359	TW4-39	61.99						

Comments:



EXPLANATION

▨	estimated dry area
TW4-38 ✦ 5577	temporary perched monitoring well installed October, 2016 showing elevation in feet amsl
PIEZ-3A ☼ 5587	May, 2016 replacement of perched piezometer Piez-03 showing elevation in feet amsl
MW-5 ● 5503	perched monitoring well showing elevation in feet amsl
TW4-12 ○ 5577	temporary perched monitoring well showing elevation in feet amsl
TWN-7 ◆ 5565	temporary perched nitrate monitoring well showing elevation in feet amsl
PIEZ-1 ◓ 5590	perched piezometer showing elevation in feet amsl
RUIN SPRING ♁ 5380	seep or spring showing elevation in feet amsl

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37 and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25 and TWN-2 are nitrate pumping wells

HYDRO
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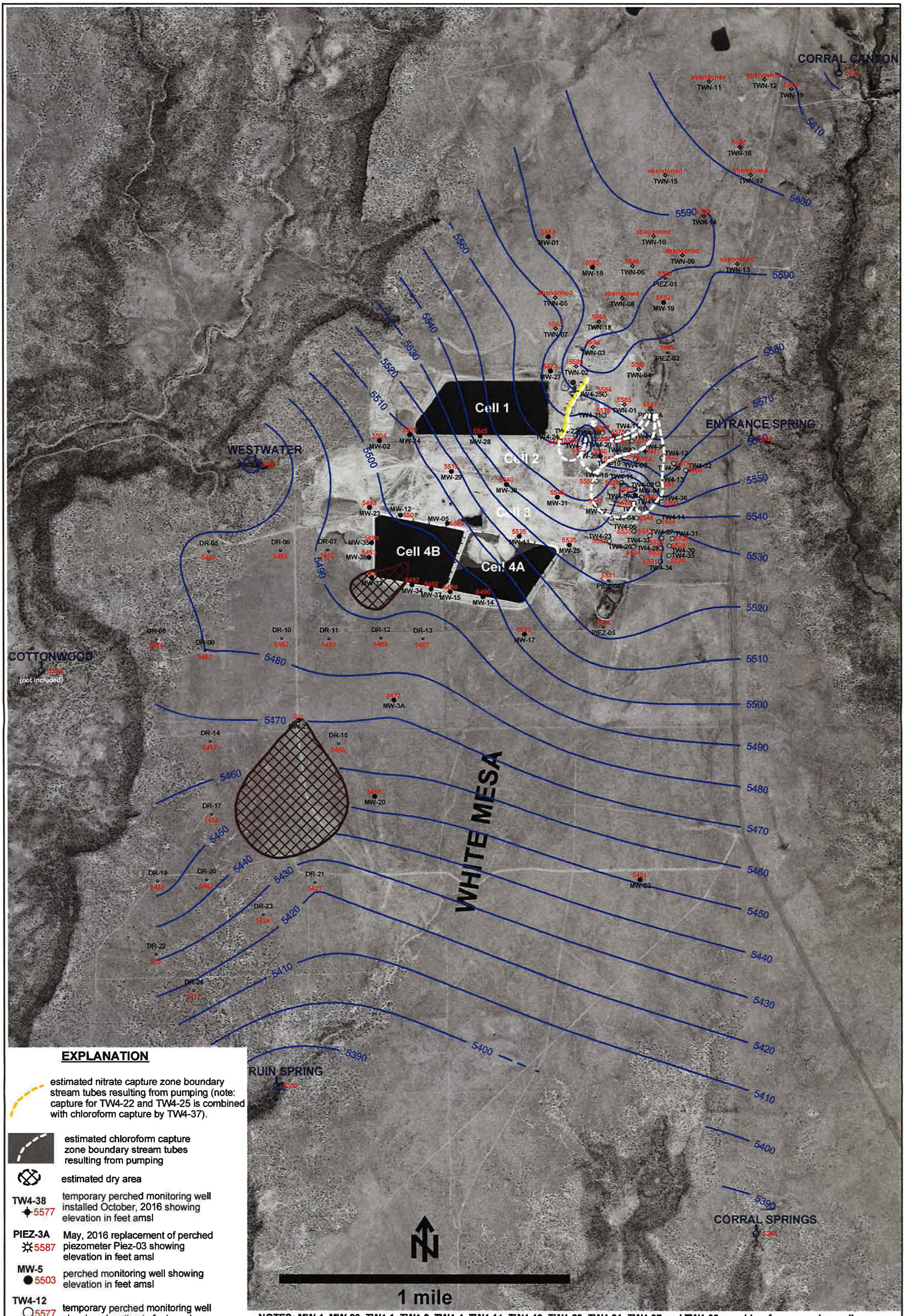
KRIGED 1st QUARTER, 2017 WATER LEVELS
WHITE MESA SITE

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/may17/WL/Uwl0317.srf	C-1



EXPLANATION

	estimated nitrate capture zone boundary stream tubes resulting from pumping (note: capture for TW4-22 and TW4-25 is combined with chloroform capture by TW4-37).
	estimated chloroform capture zone boundary stream tubes resulting from pumping
	estimated dry area
TW4-38 ✦5577	temporary perched monitoring well installed October, 2016 showing elevation in feet amsl
PIEZ-3A ☼5587	May, 2016 replacement of perched piezometer Piez-03 showing elevation in feet amsl
MW-5 ● 5503	perched monitoring well showing elevation in feet amsl
TW4-12 ○5577	temporary perched monitoring well showing elevation in feet amsl
TWN-7 ◆5565	temporary perched nitrate monitoring well showing elevation in feet amsl
PIEZ-1 ◒ 5590	perched piezometer showing elevation in feet amsl
RUIN SPRING ♁ 5380	seep or spring showing elevation in feet amsl

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37 and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25 and TWN-2 are nitrate pumping wells

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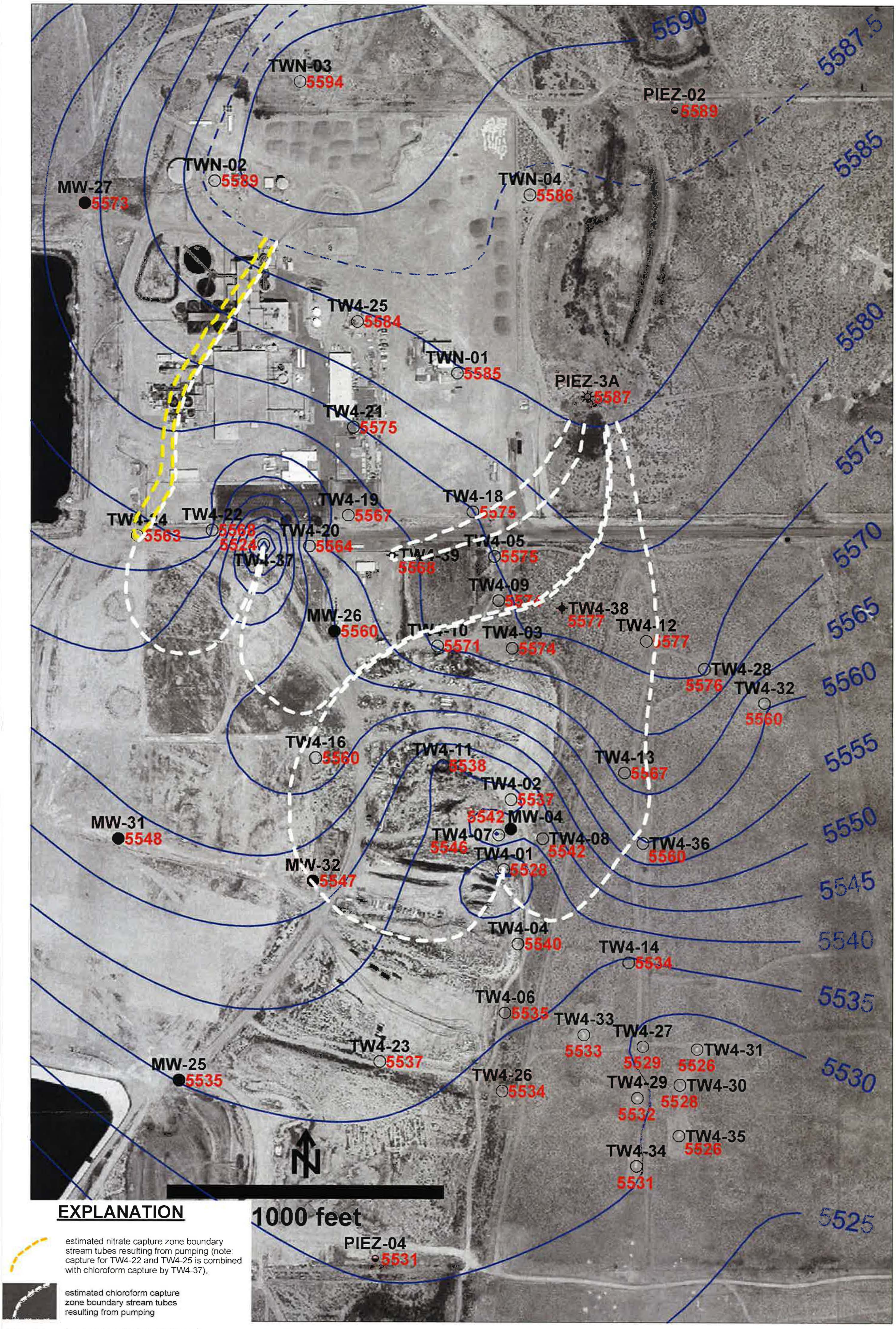
KRIGED 1st QUARTER, 2017 WATER LEVELS AND ESTIMATED CAPTURE ZONES WHITE MESA SITE

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/may17/WL/Uwl0317NTcz2.srf	C-2



EXPLANATION

estimated nitrate capture zone boundary stream tubes resulting from pumping (note: capture for TW4-22 and TW4-25 is combined with chloroform capture by TW4-37)

estimated chloroform capture zone boundary stream tubes resulting from pumping

TW4-38 5577 temporary perched monitoring well installed October, 2016 showing elevation in feet amsl

PIEZ-3A 5587 May, 2016 replacement of perched piezometer Piez-03 showing elevation in feet amsl

MW-25 5535 perched monitoring well showing elevation in feet amsl

TW4-7 5546 temporary perched monitoring well showing elevation in feet amsl

PIEZ-2 5589 perched piezometer showing elevation in feet amsl

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37 and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25 and TWN-2 are nitrate pumping wells

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KRIGED 1st QUARTER, 2017 WATER LEVELS AND ESTIMATED CAPTURE ZONES WHITE MESA SITE (detail map)

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/may17/WL/Uwl0317NTcz.srf	C-3

Weekly Inspection Form

Date 1/4/18 **Name** Garrin Palmer

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1245	MW-4	80.41	Flow 4.5	[✓ Yes] No
			Meter 1239368.84	[✓ Yes] No
1237	MW-26	65.62	Flow 11.0	[✓ Yes] No
			Meter 134373.30	[✓ Yes] No
1430	TW4-19	64.18	Flow 18.0	[✓ Yes] No
			Meter 719987.70	[✓ Yes] No
1227	TW4-20	64.67	Flow 7.5	[✓ Yes] No
			Meter 169598.07	[✓ Yes] No
1253	TW4-4	73.98	Flow 17.0	[✓ Yes] No
			Meter 455759.90	[✓ Yes] No
1213	TWN-2	32.61	Flow 18.6	[✓ Yes] No
			Meter 751670.40	[✓ Yes] No
1221	TW4-22	64.03	Flow 16.0	[✓ Yes] No
			Meter 382579.40	[✓ Yes] No
1216	TW4-24	65.43	Flow 14.8	[✓ Yes] No
			Meter 319478.20	[✓ Yes] No
1209	TW4-25	67.20	Flow 14.5	[✓ Yes] No
			Meter 1849836.90	[✓ Yes] No
1249	TW4-1	85.63	Flow 15.0	[✓ Yes] No
			Meter 165611.20	[✓ Yes] No
1240	TW4-2	84.88	Flow 16.0	[✓ Yes] No
			Meter 170269.90	[✓ Yes] No
1236	TW4-11	93.67	Flow 16.0	[✓ Yes] No
		93.67	Meter 36546.30	[✓ Yes] No
1205	TW4-21	70.48	Flow 14.5	[✓ Yes] No
			Meter 801124.69	[✓ Yes] No
1222	TW4-37	65.39	Flow 16.5	[✓ Yes] No
			Meter 699078.10	[✓ Yes] No
1232	TW4-39	64.33	Flow 16.0	[✓ Yes] No
			Meter 4349.68	[✓ Yes] No

Operational Problems (Please list well number): Replaced heat ~~lamps~~ bulbs in wells TW4-11, TW4-39, TW4-21.

Corrective Action(s) Taken (Please list well number):

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 1/9/2017 **Name** Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1321	MW-4	82.11	Flow 43	[✓ Yes] No
			Meter 1244072.17	[✓ Yes] No
1311	MW-26	64.38	Flow 10.6	[✓ Yes] No
			Meter 135764.0	[✓ Yes] No
1349	TW4-19	64.51	Flow 18.0	[✓ Yes] No
			Meter 726030.7	[✓ Yes] No
1308	TW4-20	64.68	Flow 7.5	[✓ Yes] No
			Meter 170202.47	[✓ Yes] No
1328	TW4-4	74.12	Flow 17.0	[✓ Yes] No
			Meter 456910.9	[✓ Yes] No
1255	TWN-2	33.02	Flow 18.0	[✓ Yes] No
			Meter 754067.2	[✓ Yes] No
1301	TW4-22	64.20	Flow 16.0	[✓ Yes] No
			Meter 383888.7	[✓ Yes] No
1258	TW4-24	64.98	Flow 14.8	[✓ Yes] No
			Meter 326794.54	[✓ Yes] No
1251	TW4-25	67.14	Flow 14.5	[✓ Yes] No
			Meter 1849738.1	[✓ Yes] No
1325	TW4-1	84.99	Flow 15.0	[✓ Yes] No
			Meter 166567.5	[✓ Yes] No
1318	TW4-2	84.67	Flow 16.0	[✓ Yes] No
			Meter 171267.0	[✓ Yes] No
1315	TW4-11	92.94	Flow 16.0	[✓ Yes] No
			Meter 36700.0	[✓ Yes] No
1248	TW4-21	69.84	Flow 14.5	[✓ Yes] No
			Meter 808138.74	[✓ Yes] No
1305	TW4-37	64.53	Flow 16.5	[✓ Yes] No
			Meter 704484.8	[✓ Yes] No
1308	TW4-39	64.26	Flow 16.0	[✓ Yes] No
			Meter 4851.94	[✓ Yes] No

Operational Problems (Please list well number):

Corrective Action(s) Taken (Please list well number):

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 1/16/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1313	MW-4	81.25	Flow 4.5	[✓ Yes] No
			Meter 1250808.24	[✓ Yes] No
1304	MW-26	68.00	Flow 11.0	[✓ Yes] No
			Meter 137778.40	[✓ Yes] No
1400	TW4-19	68.01	Flow 18.0	[✓ Yes] No
			Meter 734755.80	[✓ Yes] No
1258	TW4-20	64.95	Flow 6.2	[✓ Yes] No
			Meter 171294.36	[✓ Yes] No
1320	TW4-4	73.12	Flow 17.0	[✓ Yes] No
			Meter 458714.90	[✓ Yes] No
1245	TWN-2	40.15	Flow 18.5	[✓ Yes] No
			Meter 757536.60	[✓ Yes] No
1251	TW4-22	59.47	Flow 17.3	[✓ Yes] No
			Meter 385737.20	[✓ Yes] No
1248	TW4-24	65.16	Flow 14.2	[✓ Yes] No
			Meter 336729.01	[✓ Yes] No
1238	TW4-25	60.84	Flow 14.6	[✓ Yes] No
			Meter 184983 9.60	[✓ Yes] No
1317	TW4-1	103.28	Flow 16.0	[✓ Yes] No
			Meter 167919.80	[✓ Yes] No
1310	TW4-2	101.00	Flow 16.0	[✓ Yes] No
			Meter 172849.90	[✓ Yes] No
1307	TW4-11	92.63	Flow 16.0	[✓ Yes] No
			Meter 36948.90	[✓ Yes] No
1242	TW4-21	69.30	Flow 16.0	[✓ Yes] No
			Meter 817744.81	[✓ Yes] No
1254	TW4-37	63.06	Flow 17.0	[✓ Yes] No
			Meter 712123.10	[✓ Yes] No
1301	TW4-39	62.48	Flow 17.6	[✓ Yes] No
			Meter 55270.50	[✓ Yes] No

Operational Problems (Please list well number): ____________________

Corrective Action(s) Taken (Please list well number): ____________________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 1/23/17 **Name** Garrin Palmer, Tanner Holliday

Time	**Well**	**Depth***	**Comments**	**System Operational (If no note any problems/corrective actions)**
1253	MW-4	82.66	Flow 4.5	[✓ Yes] No
			Meter 1257589.60	[✓ Yes] No
1243	MW-26	70.19	Flow 10.6	[✓ Yes] No
			Meter 139133.90	[✓ Yes] No
1344	TW4-19	64.28	Flow 18.0	[✓ Yes] No
			Meter 743561.70	[✓ Yes] No
1235	TW4-20	65.00	Flow 6.4	[✓ Yes] No
			Meter 172280.66	[✓ Yes] No
1259	TW4-4	73.29	Flow 17.0	[✓ Yes] No
			Meter 460520.20	[✓ Yes] No
1221	TWN-2	60.44	Flow 18.5	[✓ Yes] No
			Meter 761617.20	[✓ Yes] No
1228	TW4-22	59.40	Flow 17.3	[✓ Yes] No
			Meter 387593.40	[✓ Yes] No
1225	TW4-24	71.43	Flow 14.2	[✓ Yes] No
			Meter 346223.76	[✓ Yes] No
1218	TW4-25	60.49	Flow 14.5	[✓ Yes] No
			Meter 18498.49	[✓ Yes] No
1256	TW4-1	84.29	Flow 15.0	[✓ Yes] No
			Meter 169262.19	[✓ Yes] No
1250	TW4-2	115.70	Flow 16.0	[✓ Yes] No
			Meter 174411.80	[✓ Yes] No
1247	TW4-11	92.34	Flow 16.0	[✓ Yes] No
			Meter 37190.60	[✓ Yes] No
1214	TW4-21	82.61	Flow 16.0	[✓ Yes] No
			Meter 827389.60	[✓ Yes] No
1231	TW4-37	63.02	Flow 17.4	[✓ Yes] No
			Meter 719837.10	[✓ Yes] No
1229	TW4-39	62.15	Flow 17.4	[✓ Yes] No
			Meter 62721.20	[✓ Yes] No

Operational Problems (Please list well number): ____________________

Corrective Action(s) Taken (Please list well number): ____________________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 1/30/17 **Name** Garrin, Tanner

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1320	MW-4	83.11	Flow 4.5	[✓ Yes] No
			Meter 1264370.73	[✓ Yes] No
1310	MW-26	68.06	Flow 10.4	[✓ Yes] No
			Meter 141132.50	[✓ Yes] No
1402	TW4-19	64.69	Flow 18.0	[✓ Yes] No
			Meter 752852.40	[✓ Yes] No
1303	TW4-20	65.26	Flow 6.4	[✓ Yes] No
			Meter 173279.53	[✓ Yes] No
1326	TW4-4	73.68	Flow 17.0	[✓ Yes] No
			Meter 462445.70	[✓ Yes] No
1247	TWN-2	38.22	Flow 18.5	[✓ Yes] No
			Meter 764598.40	[✓ Yes] No
1255	TW4-22	59.83	Flow 17.2	[✓ Yes] No
			Meter 389440.90	[✓ Yes] No
1251	TW4-24	64.30	Flow 14.0	[✓ Yes] No
			Meter 355221.24	[✓ Yes] No
1244	TW4-25	61.10	Flow 14.5	[✓ Yes] No
			Meter 1849750.90	[✓ Yes] No
1323	TW4-1	100.70	Flow 16.0	[✓ Yes] No
			Meter 170610.60	[✓ Yes] No
1317	TW4-2	97.25	Flow 16.5	[✓ Yes] No
			Meter 175926.40	[✓ Yes] No
1313	TW4-11	92.85	Flow 16.0	[✓ Yes] No
			Meter 37410.70	[✓ Yes] No
1240	TW4-21	69.51	Flow 16.0	[✓ Yes] No
			Meter 835912.10	[✓ Yes] No
1259	TW4-37	63.44	Flow 16.8	[✓ Yes] No
			Meter 727529.40	[✓ Yes] No
1306	TW4-39	100.66	Flow 17.5	[✓ Yes] No
			Meter 6885.25	[✓ Yes] No

Operational Problems (Please list well number): __________

Corrective Action(s) Taken (Please list well number): __________

* Depth is measured to the nearest 0.01 feet.

Monthly Depth Check Form

Date 1/13/17 **Name** Garrin Palmer

Time	**Well**	**Depth***	**Time**	**Well**	**Depth***
1105	MW-4	81.96	1321	TWN-1	63.49
1107	TW4-1	86.28	1327	TWN-2	32.41
1103	TW4-2	83.88	1317	TWN-3	40.21
1020	TW4-3	58.08	1303	TWN-4	56.12
1109	TW4-4	74.10	1311	TWN-7	84.52
1026	TW4-5	66.05	1301	TWN-18	60.78
1014	TW4-6	73.37	1258	MW-27	54.73
1016	TW4-7	77.04	1040	MW-30	75.21
1018	TW4-8	81.70	1037	MW-31	68.41
1024	TW4-9	63.87			
1028	TW4-10	63.40			
1100	TW4-11	91.78			
0957	TW4-12	47.01			
1002	TW4-13	52.95	0958	TW4-28	40.95
0952	TW4-14	79.18	0950	TW4-29	74.55
1058	TW4-15	65.30	0943	TW4-30	75.51
1031	TW4-16	64.35	0941	TW4-31	78.60
1033	TW4-17	78.00	1000	TW4-32	52.05
1323	TW4-18	66.95	0937	TW4-33	73.41
1120	TW4-19	64.27	0947	TW4-34	72.59
1056	TW4-20	65.64	0945	TW4-35	74.19
1054	TW4-21	70.03	0955	TW4-36	56.41
1049	TW4-22	64.18	1341	TW4-37	64.42
1008	TW4-23	70.50	1021	TW4-38	53.45
1050	TW4-24	64.83	1058	TW4-39	64.52
1052	TW4-25	67.11			
1006	TW4-26	67.75			
0939	TW4-27	79.37			

Comments: (Please note the well number for any comments)

* Depth is measured to the nearest 0.01 feet

Weekly Inspection Form

Date 2/9/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1403	MW-4	81.94	Flow 4.5	[✓ Yes] No
			Meter 1274084.31	[✓ Yes] No
1348	MW-26	67.02	Flow 11.0	[✓ Yes] No
			Meter 144739.00	[✓ Yes] No
1300	TW4-19	65.32	Flow 18.0	[✓ Yes] No
			Meter 765148.70	[✓ Yes] No
1342	TW4-20	66.46	Flow 6.2	[✓ Yes] No
			Meter 174621.49	[✓ Yes] No
1407	TW4-4	73.10	Flow 17.0	[✓ Yes] No
			Meter 464932.90	[✓ Yes] No
1328	TWN-2	36.50	Flow 18.5	[✓ Yes] No
			Meter 769551.1	[✓ Yes] No
1336	TW4-22	59.74	Flow 17.2	[✓ Yes] No
			Meter 392099.70	[✓ Yes] No
1333	TW4-24	76.85	Flow 13.6	[✓ Yes] No
			Meter 367165.80	[✓ Yes] No
1323	TW4-25	60.85	Flow 14.5	[✓ Yes] No
			Meter 1849849.40	[✓ Yes] No
1359	TW4-1	95.89	Flow 16.0	[✓ Yes] No
			Meter 172507.70	[✓ Yes] No
1356	TW4-2	87.51	Flow 18.0	[✓ Yes] No
			Meter 178127.90	[✓ Yes] No
1351	TW4-11	92.25	Flow 16.0	[✓ Yes] No
			Meter 37740.90	[✓ Yes] No
1318	TW4-21	66.52	Flow 16.0	[✓ Yes] No
			Meter 843415.09	[✓ Yes] No
1339	TW4-37	63.28	Flow 17.0	[✓ Yes] No
			Meter 738228.70	[✓ Yes] No
1345	TW4-39	63.80	Flow 17.4	[✓ Yes] No
			Meter 7608.37	[✓ Yes] No

Operational Problems (Please list well number): ______________________

Corrective Action(s) Taken (Please list well number): ______________________

* Depth is measured to the nearest 0.01 feet.

Monthly Depth Check Form

Date 2/10/2017 **Name** Tanner Holliday, Garrin Palmer

Time	**Well**	**Depth***	**Time**	**Well**	**Depth***
0713	MW-4	80.76	1019	TWN-1	63.53
0714	TW4-1	94.26	0659	TWN-2	35.81
0712	TW4-2	88.60	1033	TWN-3	40.30
0831	TW4-3	58.16	1028	TWN-4	56.01
0716	TW4-4	73.14	1037	TWN-7	84.54
0834	TW4-5	66.10	1025	TWN-18	60.76
0824	TW4-6	73.40	1040	MW-27	54.67
0826	TW4-7	77.15	1014	MW-30	75.13
0828	TW4-8	81.66	0844	MW-31	68.36
0835	TW4-9	63.95			
0837	TW4-10	63.50			
0711	TW4-11	92.30			
0812	TW4-12	47.11			
0811	TW4-13	52.92	0814	TW4-28	41.02
0808	TW4-14	79.06	0806	TW4-29	74.54
0710	TW4-15	66.33	0802	TW4-30	75.45
0840	TW4-16	64.55	0800	TW4-31	78.49
0841	TW4-17	78.05	0815	TW4-32	52.02
1022	TW4-18	67.02	0758	TW4-33	74.31
1050	TW4-19	64.18	0805	TW4-34	72.60
0707	TW4-20	66.23	0803	TW4-35	74.15
1023	TW4-21	65.90	0810	TW4-36	56.40
0704	TW4-22	60.40	0705	TW4-37	64.02
0822	TW4-23	70.56	0833	TW4-38	53.54
0702	TW4-24	74.18	1046	TW4-39	63.97
0701	TW4-25	61.04			
0820	TW4-26	67.75			
0759	TW4-27	79.30			

Comments: (Please note the well number for any comments)

* Depth is measured to the nearest 0.01 feet

Weekly Inspection Form

Date 2/13/17 **Name** Garrin / Tanner

Time	Well	Depth*	Comments		System Operational (If no note any problems/corrective actions)
1337	MW-4	82.10	Flow	4.5	[✓ Yes] No
			Meter	1277752.17	[✓ Yes] No
1227	MW-26	66.80	Flow	11.0	[✓ Yes] No
			Meter	145870.60	[✓ Yes] No
1401	TW4-19	63.20	Flow	18.0	[✓ Yes] No
			Meter	770158.10	[✓ Yes] No
1350	TW4-20	69.20	Flow	6.4	[✓ Yes] No
			Meter	175281.70	[✓ Yes] No
1341	TW4-4	73.10	Flow	17.0	[✓ Yes] No
			Meter	466075.00	[✓ Yes] No
1311	TWN-2	36-40	Flow	18.5	[✓ Yes] No
			Meter	771438.10	[✓ Yes] No
1317	TW4-22	59.39	Flow	16.0	[✓ Yes] No
			Meter	393028.20	[✓ Yes] No
1314	TW4-24	63.70	Flow	14.0	[✓ Yes] No
			Meter	371509.66	[✓ Yes] No
1308	TW4-25	60.61	Flow	14.4	[✓ Yes] No
			Meter	1849850.60	[✓ Yes] No
1340	TW4-1	98.10	Flow	16.0	[✓ Yes] No
			Meter	173361.10	[✓ Yes] No
1334	TW4-2	91.53	Flow	16.0	[✓ Yes] No
			Meter	179074.30	[✓ Yes] No
1331	TW4-11	92.32	Flow	16.0	[✓ Yes] No
			Meter	37869.00	[✓ Yes] No
1305	TW4-21	65.52	Flow	16.0	[✓ Yes] No
			Meter	843426.64	[✓ Yes] No
1320	TW4-37	63.24	Flow	15.8	[✓ Yes] No
			Meter	742517.60	[✓ Yes] No
1324	TW4-39	66.20	Flow	17.4	[✓ Yes] No
			Meter	79172.00	[✓ Yes] No

Operational Problems (Please list well number): ______________________

Corrective Action(s) Taken (Please list well number): ______________________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 2/21/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments		System Operational (If no note any problems/corrective actions)
1007	MW-4	72.10	Flow	4.5	~~Yes~~ [✓ No]
			Meter	1277757.18	[✓ Yes] No
0955	MW-26	67.54	Flow	10.0	[✓ Yes] No
			Meter	148086.20	[✓ Yes] No
1057	TW4-19	64.69	Flow	18.0	[✓ Yes] No
			Meter	779702.80	[✓ Yes] No
0949	TW4-20	65.10	Flow	6.2	[✓ Yes] No
			Meter	176316.60	[✓ Yes] No
1001	TW4-4	73.46	Flow	17.0	[✓ Yes] No
			Meter	468010.50	[✓ Yes] No
0936	TWN-2	39.32	Flow	18.6	[✓ Yes] No
			Meter	775407.40	[✓ Yes] No
0943	TW4-22	60.07	Flow	17.0	[✓ Yes] No
			Meter	395104.60	[✓ Yes] No
0940	TW4-24	64.05	Flow	14.2	[✓ Yes] No
			Meter	379997.54	[✓ Yes] No
0933	TW4-25	60.70	Flow	14.5	[✓ Yes] No
			Meter	1849850.20	[✓ Yes] No
1004	TW4-1	100.28	Flow	16.0	[✓ Yes] No
			Meter	174997.00	[✓ Yes] No
1010	TW4-2	88.88	Flow	16.0	[✓ Yes] No
			Meter	180711.60	[✓ Yes] No
1014	TW4-11	92.97	Flow	16.0	[✓ Yes] No
			Meter	38135.10	[✓ Yes] No
0930	TW4-21	64.94	Flow	16.0	[✓ Yes] No
			Meter	843436.15	[✓ Yes] No
0946	TW4-37	63.70	Flow	17.0	[✓ Yes] No
			Meter	750936.10	[✓ Yes] No
0952	TW4-39	62.30	Flow	~~62.30~~ 17.0	[✓ Yes] No
			Meter	850505.07	[✓ Yes] No

Operational Problems (Please list well number): Timer on MW-4 settings were erased

Corrective Action(s) Taken (Please list well number): Restored pump settings on MW-04.

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 3/2/17 **Name** Garrin Palmer

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1240	MW-4	80.14	Flow 4.4	[✓ Yes] No
			Meter 1285815.36	[✓ Yes] No
1220	MW-26	67.01	Flow 10.0	[✓ Yes] No
			Meter 177692.10	[✓ Yes] No
1321	TW4-19	64.66	Flow 18.0	[✓ Yes] No
			Meter 742056.60	[✓ Yes] No
1228	TW4-20	65.12	Flow 6.3	[✓ Yes] No
			Meter 150736.05	[✓ Yes] No
1243	TW4-4	74.87	Flow 16.8	[✓ Yes] No
			Meter 470497.70	[✓ Yes] No
1207	TWN-2	34.19	Flow 18.6	[✓ Yes] No
			Meter 779927.2	[✓ Yes] No
1213	TW4-22	61.47	Flow 17.0	[✓ Yes] No
			Meter 397642.46	[✓ Yes] No
1210	TW4-24	65.92	Flow 14.4	[✓ Yes] No
			Meter 388644.12	[✓ Yes] No
1204	TW4-25	61.83	Flow 14.5	[✓ Yes] No
			Meter 1849851.96	[✓ Yes] No
1237	TW4-1	98.78	Flow 16.0	[✓ Yes] No
			Meter 176756.90	[✓ Yes] No
1234	TW4-2	89.03	Flow 16.0	[✓ Yes] No
			Meter 182878.80	[✓ Yes] No
1231	TW4-11	92.48	Flow 16.0	[✓ Yes] No
			Meter 38433.40	[✓ Yes] No
1201	TW4-21	65.40	Flow 16.0	[✓ Yes] No
			Meter 843445.93	[✓ Yes] No
1217	TW4-37	63.81	Flow 17.0	[✓ Yes] No
			Meter 760780.90	[✓ Yes] No
1224	TW4-39	62.87	Flow 17.0	[✓ Yes] No
			Meter 92550.20	[✓ Yes] No

Operational Problems (Please list well number): __________

Corrective Action(s) Taken (Please list well number): __________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 3/8/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1319	MW-4	79.15	Flow 4.4	[✓ Yes] No
			Meter 1291267.61	[✓ Yes] No
1254	MW-26	68.74	Flow 11.0	[✓ Yes] No
			Meter 152407.90	[✓ Yes] No
1408	TW4-19	64.50	Flow 18.0	[✓ Yes] No
			Meter 798504.20	[✓ Yes] No
1234	TW4-20	65.25	Flow 6.6	[✓ Yes] No
			Meter 178421.73	[✓ Yes] No
1337	TW4-4	73.20	Flow 17.0.	[✓ Yes] No
			Meter 472071.70	[✓ Yes] No
1205	TWN-2	60.43	Flow 18.5	[✓ Yes] No
			Meter 782902.70	[✓ Yes] No
1215	TW4-22	60.35	Flow 17.0	[✓ Yes] No
			Meter 394278.20	[✓ Yes] No
1208	TW4-24	63.30	Flow 14.2	[✓ Yes] No
			Meter 393822.08	[✓ Yes] No
1200	TW4-25	60.50	Flow 14.5	[✓ Yes] No
			Meter 1849854.70	[✓ Yes] No
1324	TW4-1	99.00	Flow 16.0	[✓ Yes] No
			Meter 177944.90	[✓ Yes] No
1310	TW4-2	94.10	Flow 16.0	[✓ Yes] No
			Meter 184176.90	[✓ Yes] No
1301	TW4-11	92.34	Flow 16.0	[✓ Yes] No
			Meter 38624.60	[✓ Yes] No
1150	TW4-21	64.30	Flow 16.0	[✓ Yes] No
			Meter 843546.09	[✓ Yes] No
1226	TW4-37	63.90	Flow 17.0	[✓ Yes] No
			Meter 767138.40	[✓ Yes] No
1240	TW4-39	62.02	Flow 18.0	[✓ Yes] No
			Meter 95520.00	[✓ Yes] No

Operational Problems (Please list well number): ______________________

Corrective Action(s) Taken (Please list well number): ______________________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 3/13/17 **Name** Garrin Palmer / Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1027	MW-4	81.45	Flow 4.5	[✓ Yes] No
			Meter 1295464.60	[✓ Yes] No
1017	MW-26	70.00	Flow 12.5	[✓ Yes] No
			Meter 153822.70	[✓ Yes] No
1042	TW4-19	64.89	Flow 18.0	[✓ Yes] No
			Meter 804647.70	[✓ Yes] No
1010	TW4-20	64.90	Flow 6.6	Yes [✓ No]
			Meter 179022.40	Yes [✓ No]
1035	TW4-4	74.86	Flow 17.0	[✓ Yes] No
			Meter 473366.60	[✓ Yes] No
1001	TWN-2	36.88	Flow 18.5	[✓ Yes] No
			Meter 785327.90	[✓ Yes] No
1007	TW4-22	59.83	Flow 17.6	[✓ Yes] No
			Meter 400536.60	[✓ Yes] No
1004	TW4-24	63.20	Flow 14.0	[✓ Yes] No
			Meter 397572.27	[✓ Yes] No
0957	TW4-25	60.30	Flow 14.0	[✓ Yes] No
			Meter 1849887.70	[✓ Yes] No
1031	TW4-1	98.51	Flow 16.0	[✓ Yes] No
			Meter 178994.46	[✓ Yes] No
1024	TW4-2	89.25	Flow 16.5	[✓ Yes] No
			Meter 185106.70	[✓ Yes] No
1021	TW4-11	92.40	Flow 16.0	[✓ Yes] No
			Meter 38778.70	[✓ Yes] No
0953	TW4-21	63.94	Flow 15.0	[✓ Yes] No
			Meter 843586.80	[✓ Yes] No
1014	TW4-37	62.61	Flow 17.0	Yes [✓ No]
			Meter 771294.70	Yes [✓ No]
	TW4-39	72.50	Flow 17.2	[✓ Yes] No
			Meter 98684.70	[✓ Yes] No

Operational Problems (Please list well number): No power to TW420, TW4-37.

Corrective Action(s) Taken (Please list well number): Power was restored at 1120 on 3/13/17.

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 3/23/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1255	MW-4	77.65	Flow 4.4	[✓ Yes] No
			Meter 1303822.65	[✓ Yes] No
1248	MW-26	82.34	Flow 10.2	[✓ Yes] No
			Meter 156706.40	[✓ Yes] No
1405	TW4-19	65.21	Flow 18.0	[✓ Yes] No
			Meter 817052.20	[✓ Yes] No
1242	TW4-20	64.23	Flow 6.4	[✓ Yes] No
			Meter 180419.66	[✓ Yes] No
1301	TW4-4	72.78	Flow 17.0	[✓ Yes] No
			Meter 475845.10	[✓ Yes] No
1230	TWN-2	43.51	Flow 18.5	[✓ Yes] No
			Meter 790326.60	[✓ Yes] No
1236	TW4-22	59.46	Flow 17.4	[✓ Yes] No
			Meter 403104.70	[✓ Yes] No
1233	TW4-24	82.60	Flow 14.0	[✓ Yes] No
			Meter 403250.74	[✓ Yes] No
1227	TW4-25	59.82	Flow 14.4	[✓ Yes] No
			Meter 1849896.80	[✓ Yes] No
1251	TW4-1	101.60	Flow 16.0	[✓ Yes] No
			Meter 180831.70	[✓ Yes] No
1258	TW4-2	103.49	Flow 16.0	[✓ Yes] No
			Meter 187216.60	[✓ Yes] No
1304	TW4-11	93.20	Flow 16.0	[✓ Yes] No
			Meter 39195.60	[✓ Yes] No
1223	TW4-21	63.38	Flow 16.0	[✓ Yes] No
			Meter 843594.14	[✓ Yes] No
1239	TW4-37	63.20	Flow 17.5	[✓ Yes] No
		~~63.20~~	Meter 781902.20	[✓ Yes] No
1245	TW4-39	61.09	Flow 18.0	[✓ Yes] No
			Meter 10332.44	[✓ Yes] No

Operational Problems (Please list well number): __________

Corrective Action(s) Taken (Please list well number): __________

* Depth is measured to the nearest 0.01 feet.

Weekly Inspection Form

Date 3/28/17 **Name** Garrin Palmer, Tanner Holliday

Time	Well	Depth*	Comments	System Operational (If no note any problems/corrective actions)
1516	MW-4	77.92	Flow 4.5	[✓ Yes] No
			Meter 1308171.17	[✓ Yes] No
1506	MW-26	65.70	Flow 10.0	[✓ Yes] No
			Meter 158188.90	[✓ Yes] No
1550	TW4-19	66.70	Flow 18.0	[✓ Yes] No
			Meter 822929.50	[✓ Yes] No
1500	TW4-20	65.13	Flow 6.5	[✓ Yes] No
			Meter 181896.18	[✓ Yes] No
1523	TW4-4	73.25	Flow 17.0	[✓ Yes] No
			Meter 477135.80	[✓ Yes] No
1447	TWN-2	38.90	Flow 18.5	[✓ Yes] No
			Meter 792887.80	[✓ Yes] No
1453	TW4-22	60.00	Flow 16.6	[✓ Yes] No
			Meter 404426.60	[✓ Yes] No
1450	TW4-24	62.31	Flow 14.2	[✓ Yes] No
			Meter 406155.20	[✓ Yes] No
1444	TW4-25	59.90	Flow 14.4	[✓ Yes] No
			Meter 1849896.80	[✓ Yes] No
1520	TW4-1	89.22	Flow 15.0	[✓ Yes] No
			Meter 181121.29	[✓ Yes] No
1512	TW4-2	78.25	Flow 17.0	[✓ Yes] No
			Meter 188209.60	[✓ Yes] No
1509	TW4-11	92.34	Flow 16.0	[✓ Yes] No
			Meter 39261.50	[✓ Yes] No
1140	TW4-21	105.40	Flow 16.0	[✓ Yes] No
			Meter 843594.70	[✓ Yes] No
1457	TW4-37	63.60	Flow 17.0	[✓ Yes] No
			Meter 787238.00	[✓ Yes] No
1503	TW4-39	61.25	Flow 18.0	[✓ Yes] No
			Meter 106707.10	[✓ Yes] No

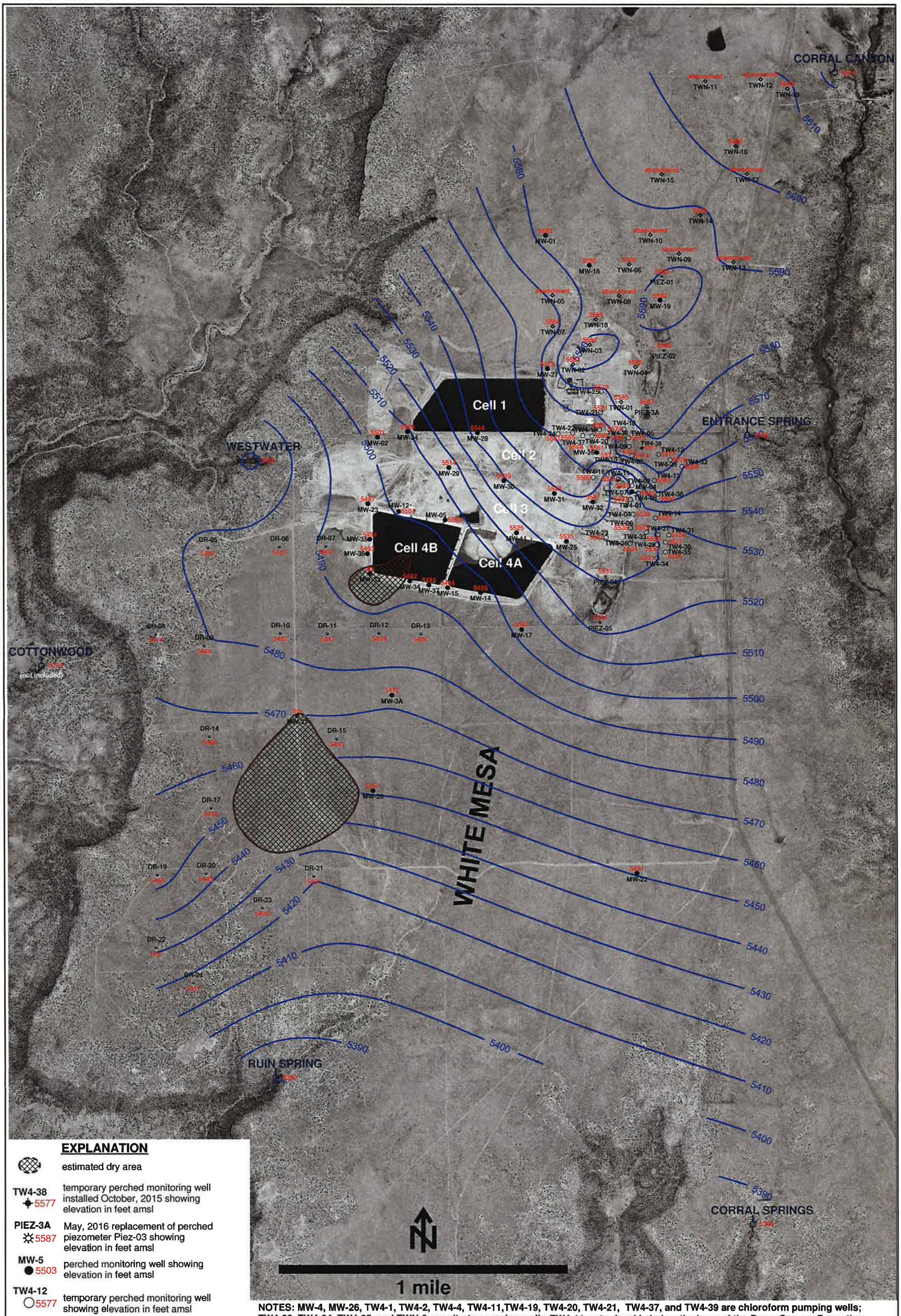
Operational Problems (Please list well number): ____________________

Corrective Action(s) Taken (Please list well number): ____________________

* Depth is measured to the nearest 0.01 feet.

Tab D

Kriged Previous Quarter Groundwater Contour Map



EXPLANATION

▨ estimated dry area

TW4-38 ✦5577 temporary perched monitoring well installed October, 2015 showing elevation in feet amsl

PIEZ-3A ☼5587 May, 2016 replacement of perched piezometer Piez-03 showing elevation in feet amsl

MW-5 ●5503 perched monitoring well showing elevation in feet amsl

TW4-12 ○5577 temporary perched monitoring well showing elevation in feet amsl

TWN-7 ◆5564 temporary perched nitrate monitoring well showing elevation in feet amsl

PIEZ-1 ◒5590 perched piezometer showing elevation in feet amsl

RUIN SPRING ♁5380 seep or spring showing elevation in feet amsl

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37, and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25, and TWN-2 are nitrate pumping wells; TW4-11 water level is below the base of the Burro Canyon Formation

HYDRO
GEO
CHEM, INC.

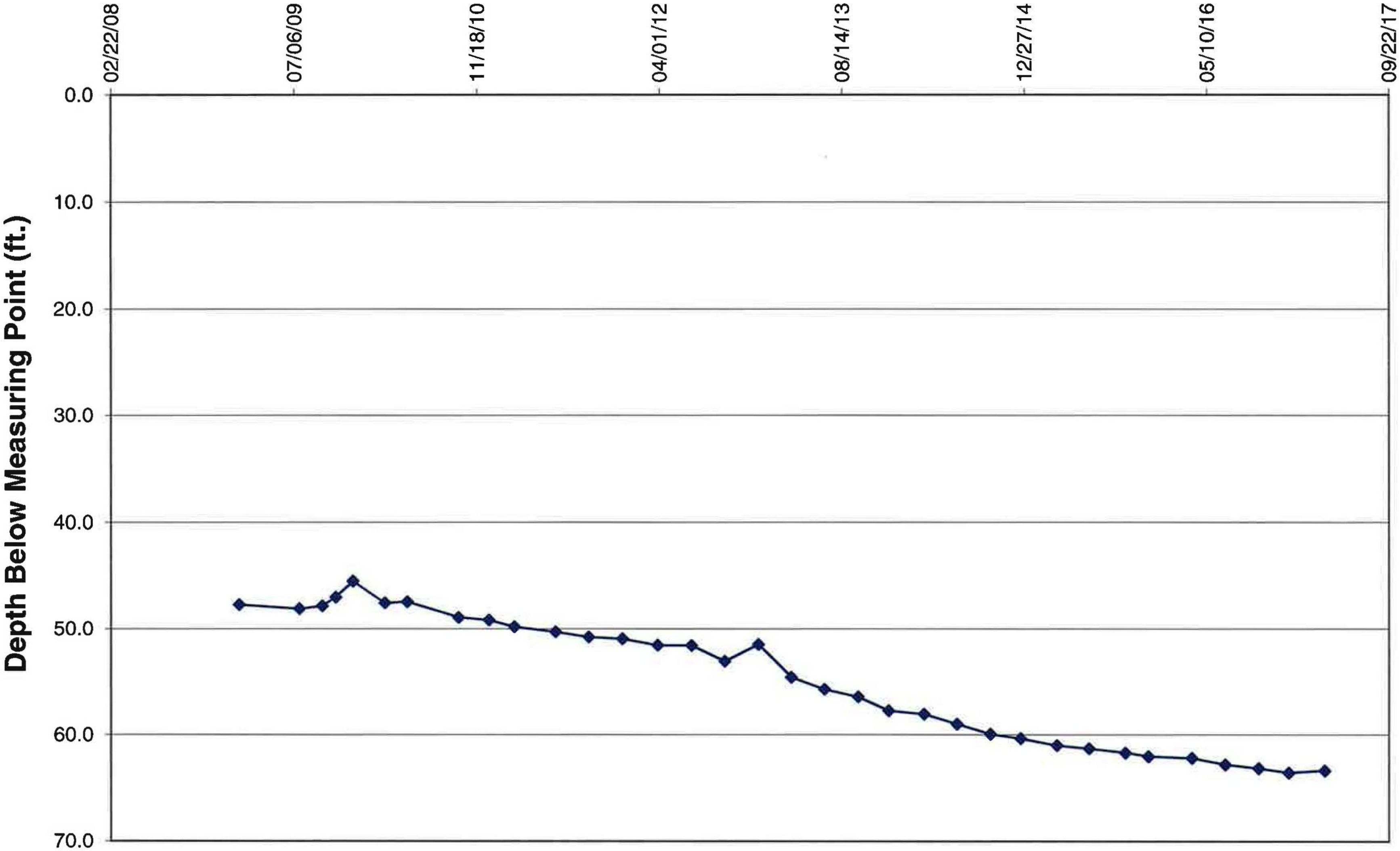
KRIGED 4th QUARTER, 2016 WATER LEVELS
WHITE MESA SITE

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/feb17/WL/Uwl1116.srf	D-1

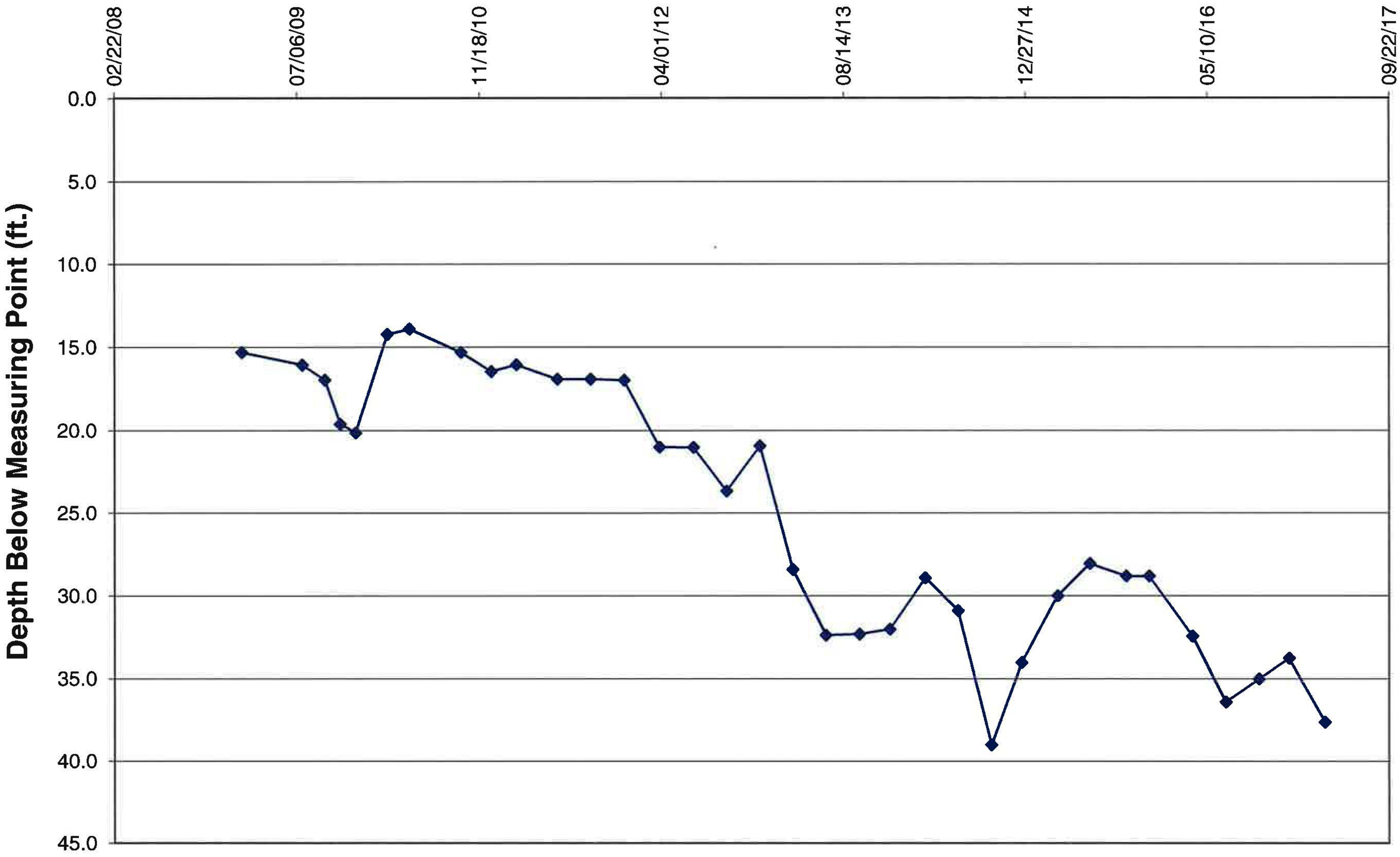
Tab E

Hydrographs of Groundwater Elevations over Time for Nitrate Monitoring Wells

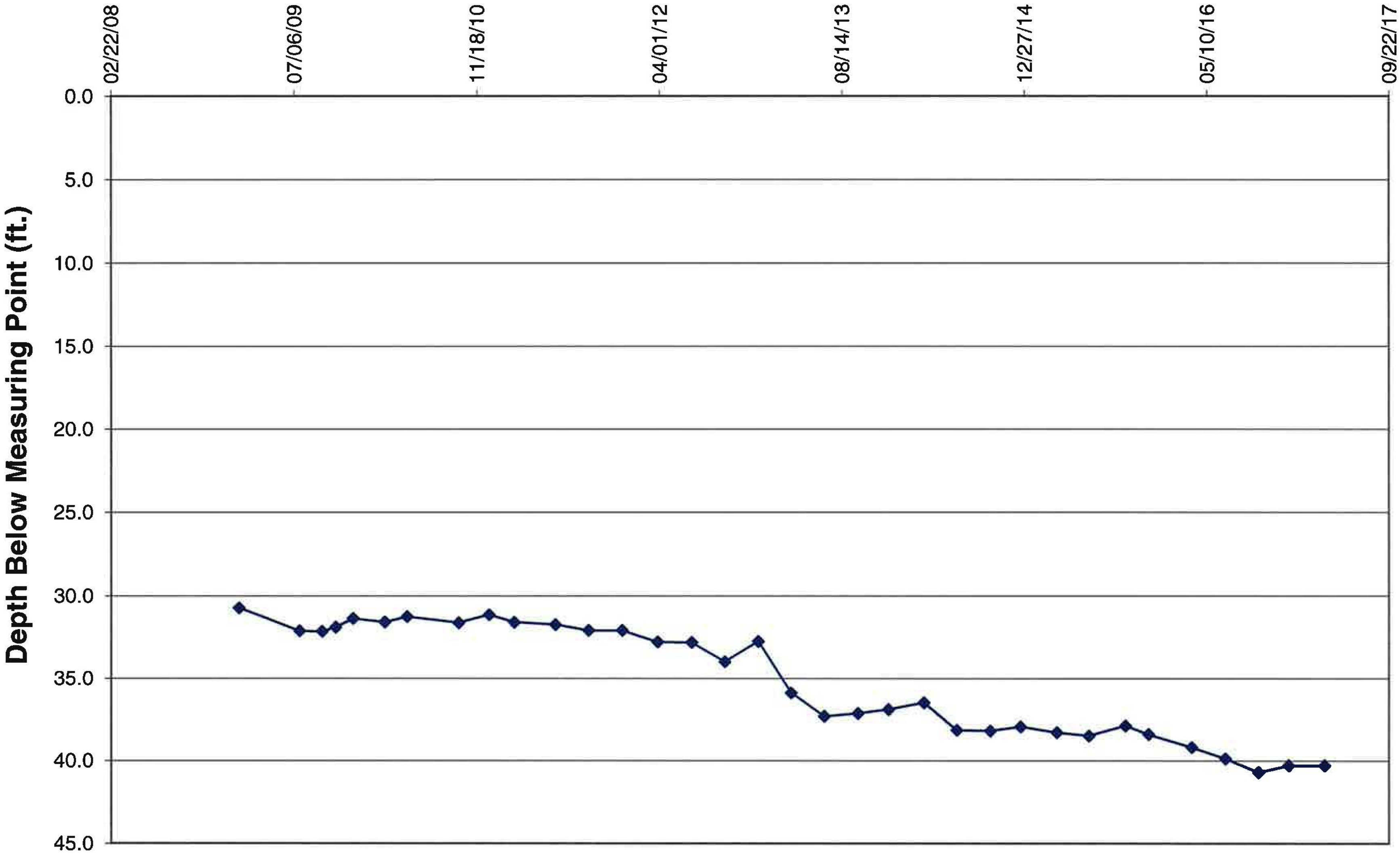
TWN-1 Water Level Over Time (ft. blmp)



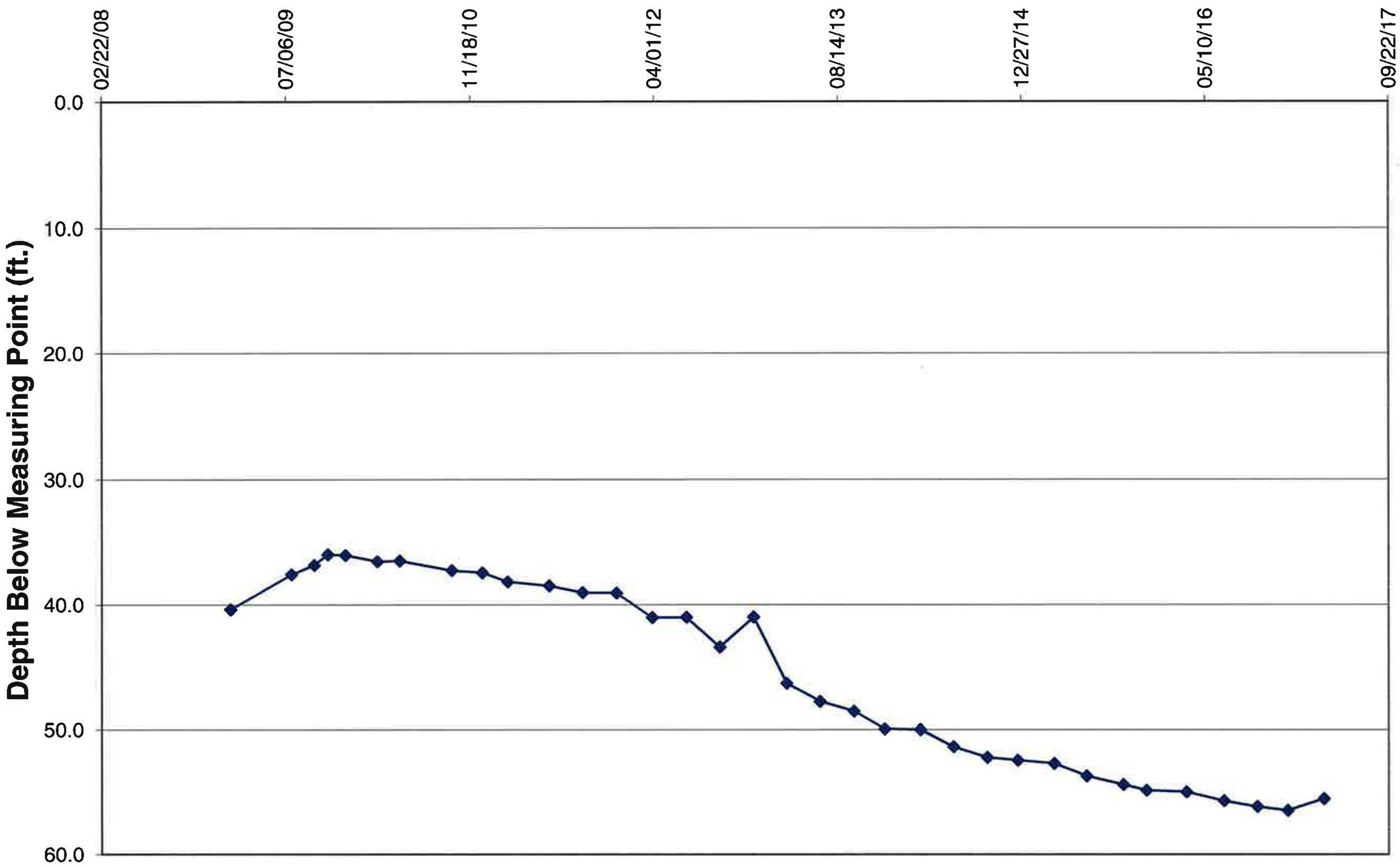
TWN-2 Water Level Over Time (ft. blmp)



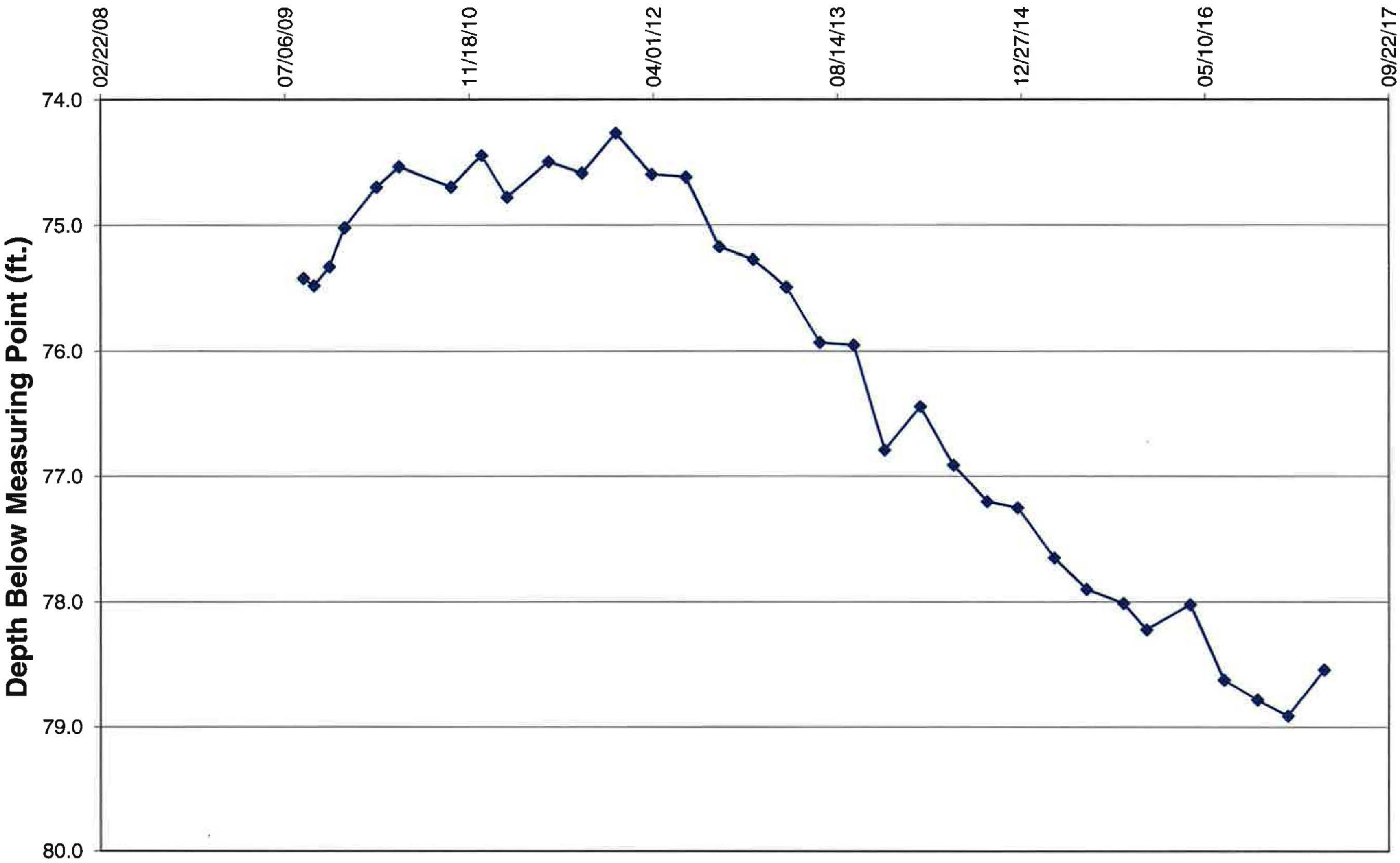
TWN-3 Water Level Over Time (ft. blmp)



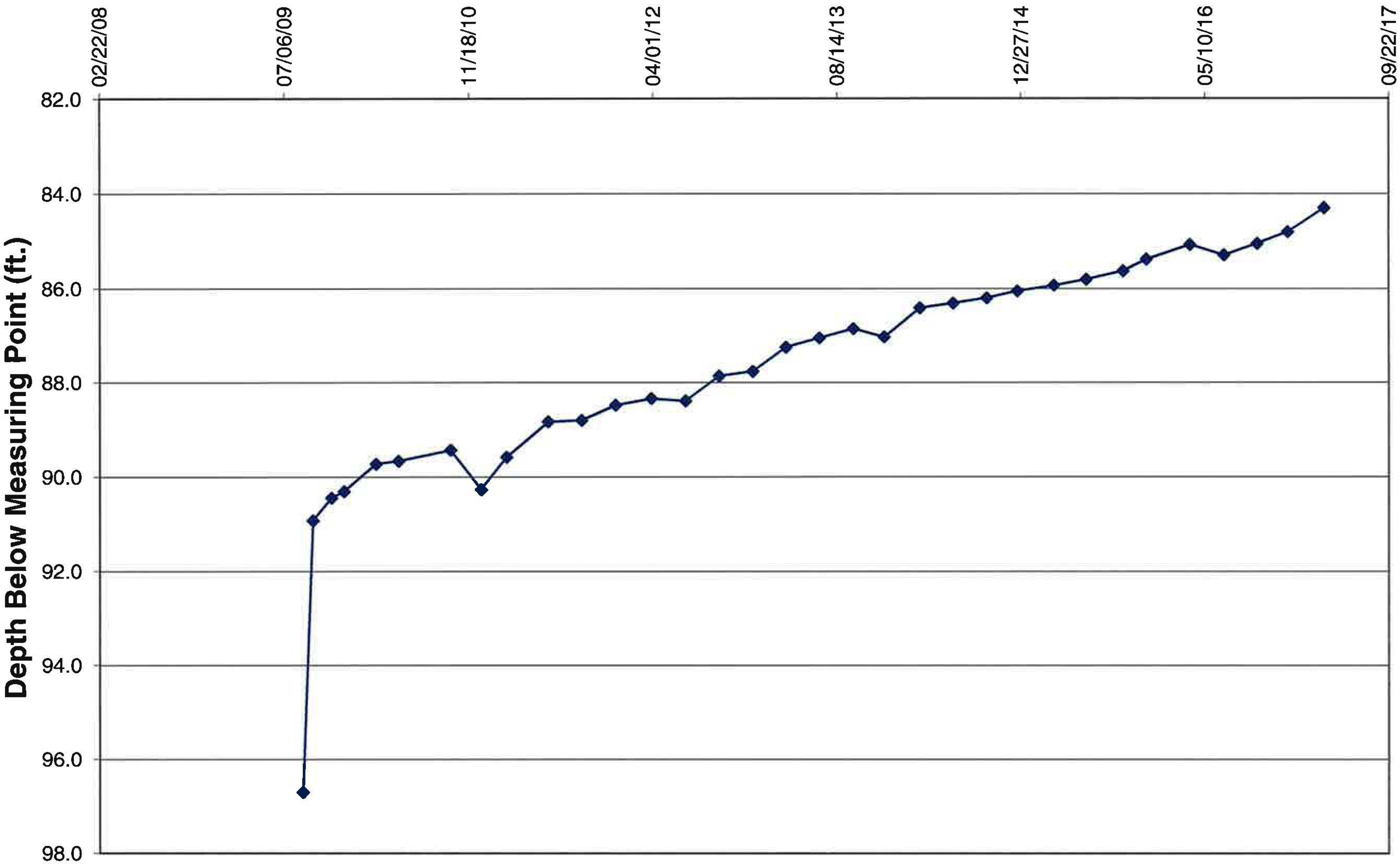
TWN-4 Water Level Over Time (ft. blmp)



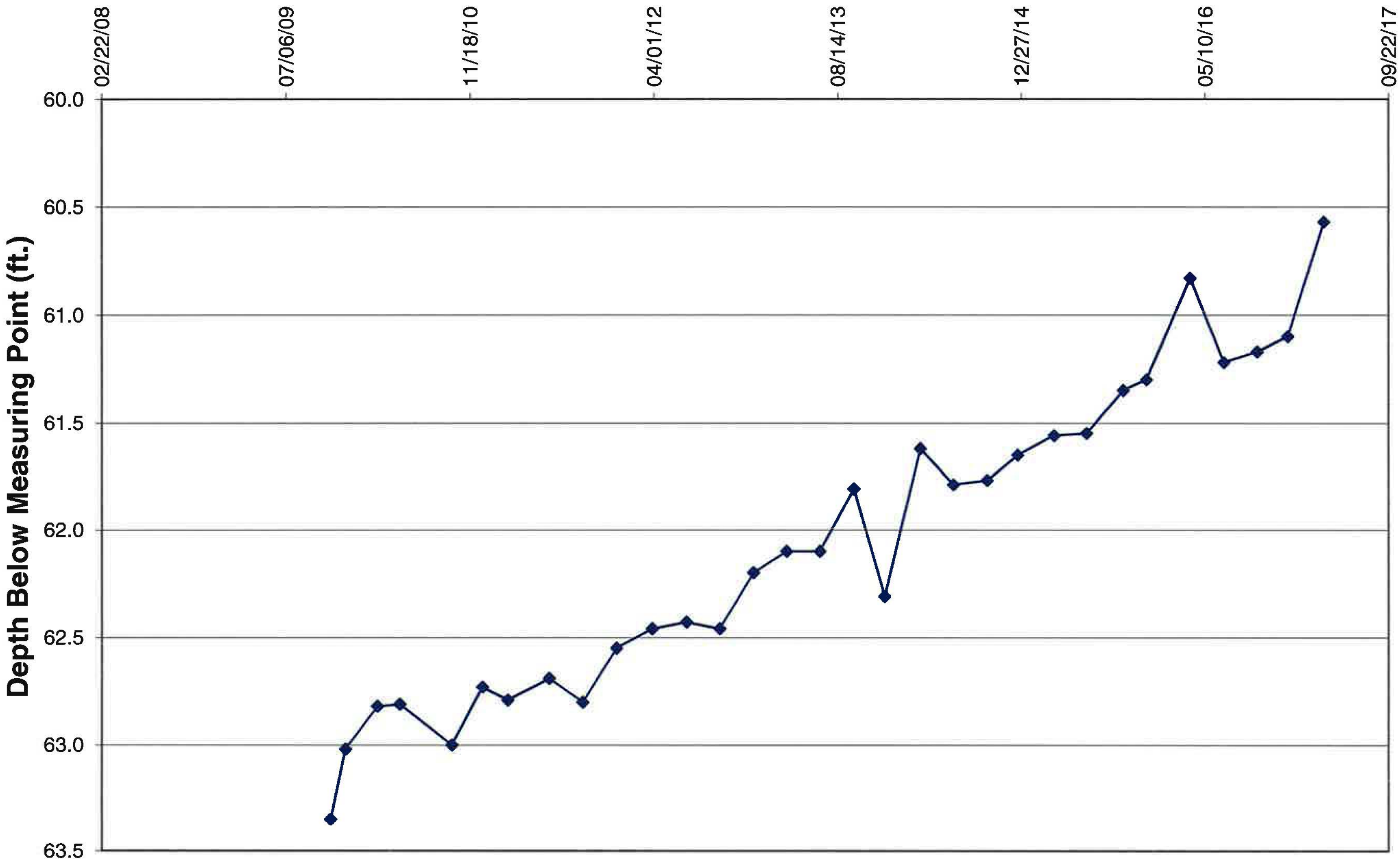
TWN-6 Water Level Over Time (ft. blmp)



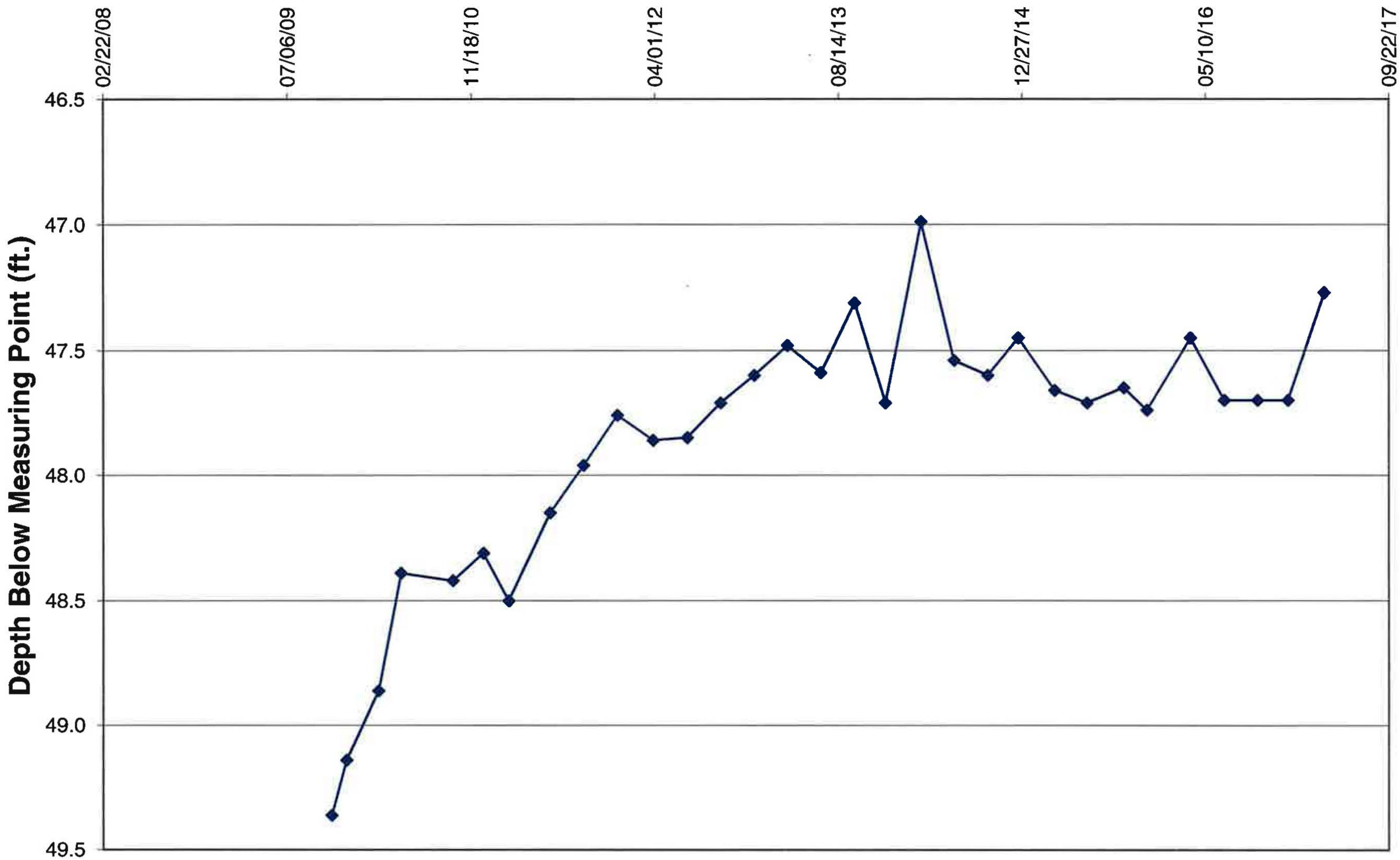
TWN-7 Water Level Over Time (ft. blmp)



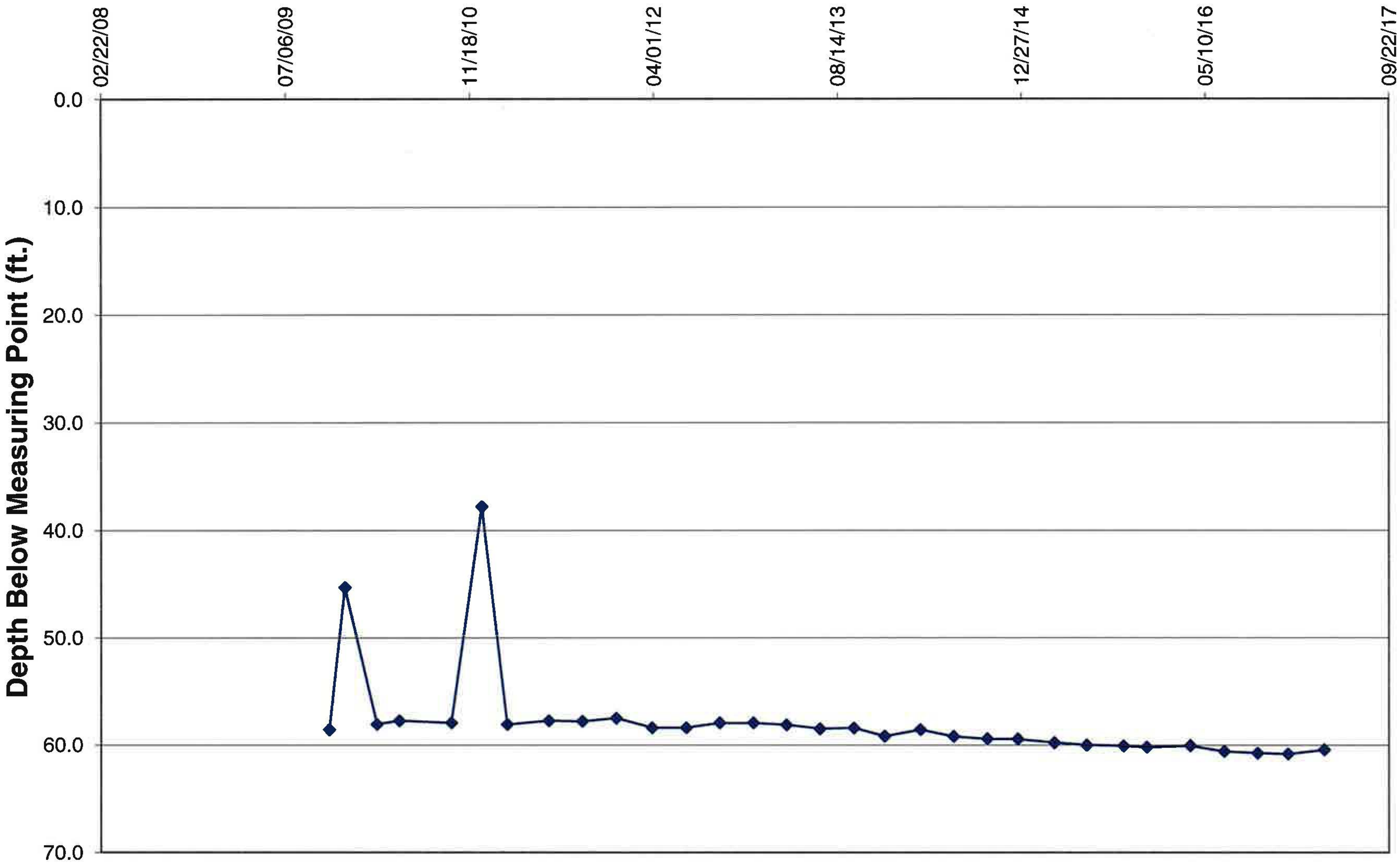
TWN-14 Water Level Over Time (ft. blmp)



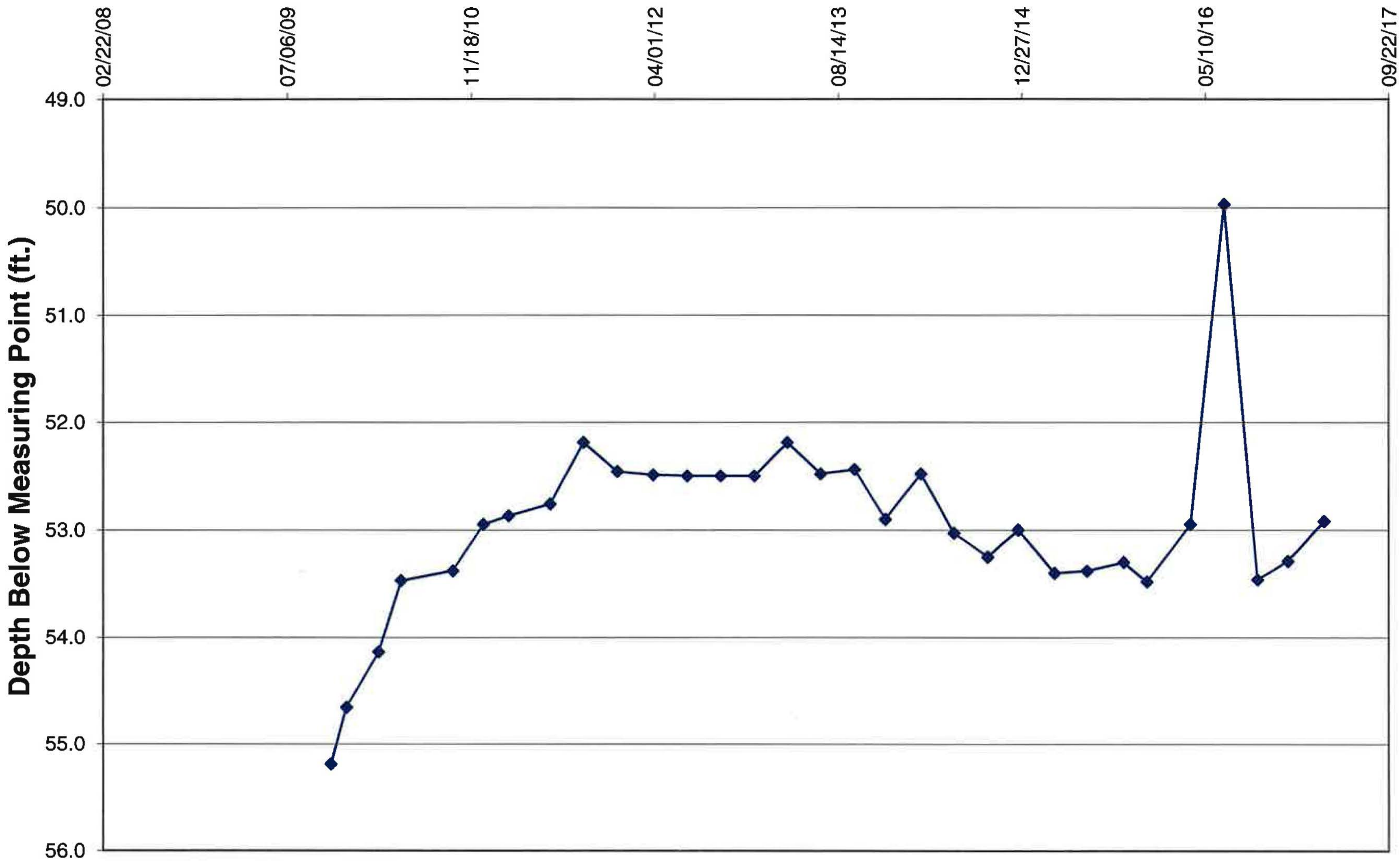
TWN-16 Water Level Over Time (ft. blmp)

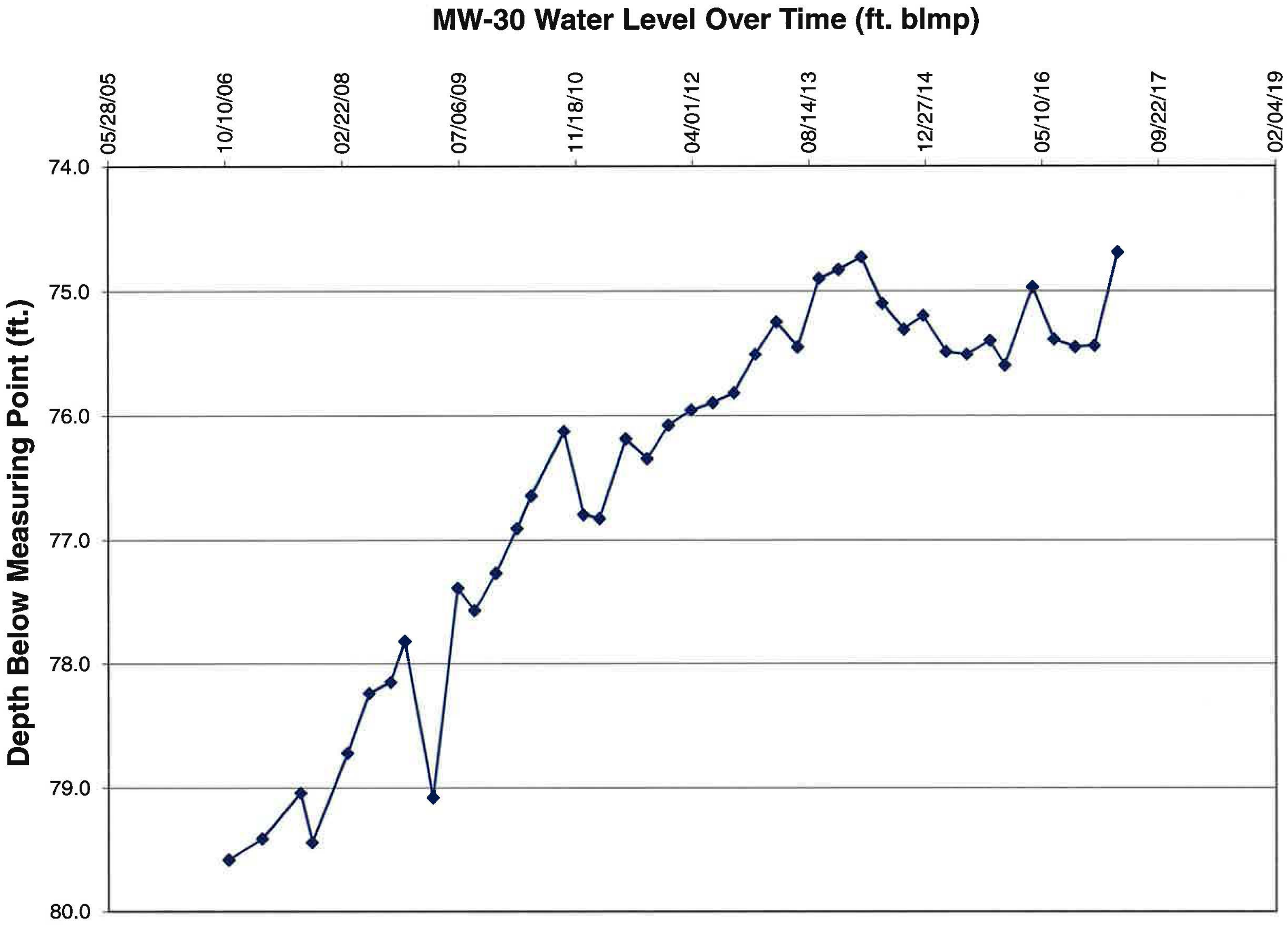


TWN-18 Water Level Over Time (ft. blmp)



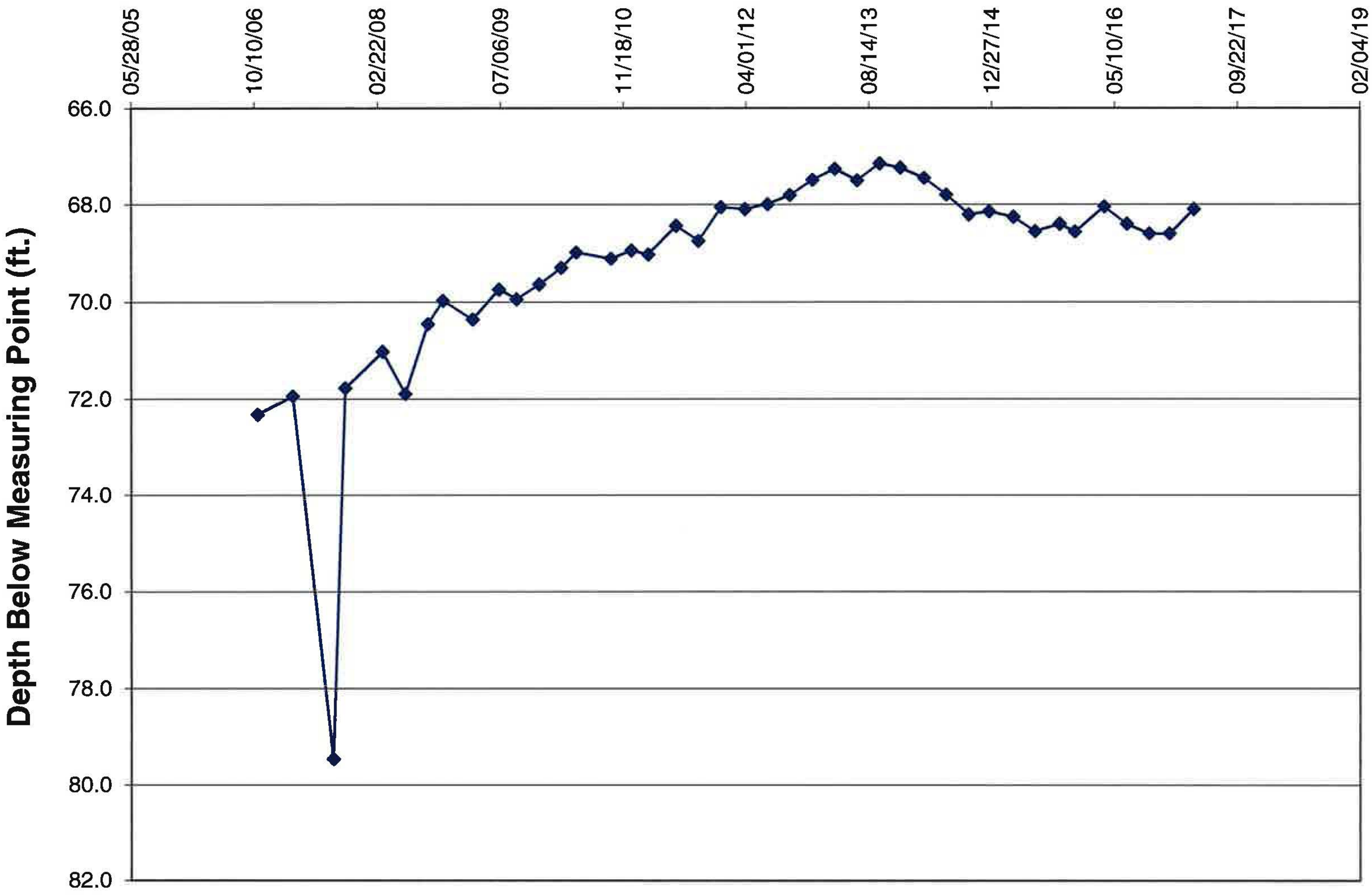
TWN-19 Water Level Over Time (ft. blmp)





MW-30 Water Level Over Time (ft. blmp)

MW-31 Water Level Over Time (ft. blmp)



Tab F

Depths to Groundwater and Elevations over Time for Nitrate Monitoring Wells

Water Levels and Data over Time
White Mesa Mill - Well TWN-1

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,646.96	5,648.09	1.13				112.5
5,600.38				02/06/09	47.71	46.58	
5,599.99				07/21/09	48.10	46.97	
5,600.26				09/21/09	47.83	46.70	
5,601.10				10/28/09	46.99	45.86	
5,602.59				12/14/09	45.50	44.37	
5,600.55				03/11/10	47.54	46.41	
5,600.66				05/11/10	47.43	46.30	
5,599.18				09/29/10	48.91	47.78	
5,598.92				12/21/10	49.17	48.04	
5,598.29				02/28/11	49.80	48.67	
5,597.80				06/21/11	50.29	49.16	
5,597.32				09/20/11	50.77	49.64	
5,597.15				12/21/11	50.94	49.81	
5,596.54				03/27/12	51.55	50.42	
5,596.52				06/28/12	51.57	50.44	
5,595.03				09/27/12	53.06	51.93	
5,596.62				12/28/12	51.47	50.34	
5,593.54				03/28/13	54.55	53.42	
5,592.38				06/27/13	55.71	54.58	
5,591.65				09/27/13	56.44	55.31	
5,590.34				12/20/13	57.75	56.62	
5,590.03				03/27/14	58.06	56.93	
5,589.09				06/25/14	59.00	57.87	
5,588.15				09/25/14	59.94	58.81	
5,587.74				12/17/14	60.35	59.22	
5,587.09				03/26/15	61.00	59.87	
5,586.79				06/22/15	61.30	60.17	
5,586.39				09/30/15	61.70	60.57	
5,586.05				12/02/15	62.04	60.91	
5,585.89				03/30/16	62.20	61.07	
5,585.30				06/30/16	62.79	61.66	
5,584.95				09/29/16	63.14	62.01	
5,584.55				12/21/16	63.54	62.41	
5,584.74				03/30/17	63.35	62.22	

Water Levels and Data over Time
White Mesa Mill - Well TWN-2

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,625.75	5,626.69	0.94				95
5,611.37				02/06/09	15.32	14.38	
5,610.63				07/21/09	16.06	15.12	
5,609.73				09/21/09	16.96	16.02	
5,607.08				11/02/09	19.61	18.67	
5,606.57				12/14/09	20.12	19.18	
5,612.45				03/11/10	14.24	13.30	
5,612.78				05/11/10	13.91	12.97	
5,611.37				09/29/10	15.32	14.38	
5,610.24				12/21/10	16.45	15.51	
5,610.64				02/28/11	16.05	15.11	
5,609.78				06/21/11	16.91	15.97	
5609.79				09/20/11	16.90	15.96	
5609.72				12/21/11	16.97	16.03	
5,605.69				03/27/12	21.00	20.06	
5,605.67				06/28/12	21.02	20.08	
5,603.03				09/27/12	23.66	22.72	
5,605.76				12/28/12	20.93	19.99	
5,598.28				03/28/13	28.41	27.47	
5,594.32				06/27/13	32.37	31.43	
5,594.38				09/27/13	32.31	31.37	
5,594.68				12/20/13	32.01	31.07	
5,597.79				03/27/14	28.90	27.96	
5,595.80				06/25/14	30.89	29.95	
5,587.67				09/25/14	39.02	38.08	
5,592.66				12/17/14	34.03	33.09	
5,596.71				03/26/15	29.98	29.04	
5,598.64				06/22/15	28.05	27.11	
5,597.89				09/30/15	28.80	27.86	
5,597.89				12/02/15	28.80	27.86	
5,594.25				03/30/16	32.44	31.50	
5,590.26				06/30/16	36.43	35.49	
5,591.67				09/29/16	35.02	34.08	
5592.92				12/21/2016	33.77	32.83	
5589.05				3/30/2017	37.64	36.7	

Water Levels and Data over Time
White Mesa Mill - Well TWN-3

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,633.64	5,634.50	0.86				110
5,603.77				02/06/09	30.73	29.87	
5,602.37				07/21/09	32.13	31.27	
5,602.34				09/21/09	32.16	31.30	
5,602.60				10/28/09	31.90	31.04	
5,603.12				12/14/09	31.38	30.52	
5,602.90				03/11/10	31.60	30.74	
5,603.23				05/11/10	31.27	30.41	
5,602.86				09/29/10	31.64	30.78	
5,603.35				12/21/10	31.15	30.29	
5,602.89				02/28/11	31.61	30.75	
5,602.75				06/21/11	31.75	30.89	
5,602.40				09/20/11	32.10	31.24	
5,602.40				12/21/11	32.10	31.24	
5,601.70				03/27/12	32.80	31.94	
5,601.67				06/28/12	32.83	31.97	
5,600.50				09/27/12	34.00	33.14	
5,601.74				12/28/12	32.76	31.90	
5,598.60				03/28/13	35.90	35.04	
5,597.18				06/27/13	37.32	36.46	
5,597.36				09/27/13	37.14	36.28	
5,597.60				12/20/13	36.90	36.04	
5,598.00				03/27/14	36.50	35.64	
5,596.34				06/25/14	38.16	37.30	
5,596.30				09/25/14	38.20	37.34	
5,596.55				12/17/14	37.95	37.09	
5,596.20				03/26/15	38.30	37.44	
5,596.00				06/22/15	38.50	37.64	
5,596.61				09/30/15	37.89	37.03	
5,596.09				12/02/15	38.41	37.55	
5,595.29				03/30/16	39.21	38.35	
5,594.61				06/30/16	39.89	39.03	
5,593.79				09/29/16	40.71	39.85	
5,594.20				12/21/2016	40.30	39.44	
5,594.20				3/30/2017	40.30	39.44	

Water Levels and Data over Time
White Mesa Mill - Well TWN-4

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,641.04	5,641.87	0.83				136
5,601.47				02/06/09	40.40	39.57	
5,604.26				07/21/09	37.61	36.78	
5,605.02				09/21/09	36.85	36.02	
5,605.87				10/28/09	36.00	35.17	
5,605.81				12/14/09	36.06	35.23	
5,605.31				03/11/10	36.56	35.73	
5,605.36				05/11/10	36.51	35.68	
5,604.59				09/29/10	37.28	36.45	
5,604.42				12/21/10	37.45	36.62	
5,603.69				02/28/11	38.18	37.35	
5,603.36				06/21/11	38.51	37.68	
5,602.82				09/20/11	39.05	38.22	
5,602.79				12/21/11	39.08	38.25	
5,600.82				03/27/12	41.05	40.22	
5,600.84				06/28/12	41.03	40.20	
5,598.47				09/27/12	43.40	42.57	
5,600.86				12/28/12	41.01	40.18	
5,595.57				03/28/13	46.30	45.47	
5,594.12				06/27/13	47.75	46.92	
5,593.33				09/27/13	48.54	47.71	
5,591.92				12/20/13	49.95	49.12	
5,591.85				03/27/14	50.02	49.19	
5,590.49				06/25/14	51.38	50.55	
5,589.64				09/25/14	52.23	51.40	
5,589.42				12/17/14	52.45	51.62	
5,589.17				03/26/15	52.70	51.87	
5,588.17				06/22/15	53.70	52.87	
5,587.48				09/30/15	54.39	53.56	
5,587.02				12/02/15	54.85	54.02	
5,586.90				03/20/16	54.97	54.14	
5,586.18				06/30/16	55.69	54.86	
5,585.72				09/29/16	56.15	55.32	
5585.42				12/21/2016	56.45	55.62	
5586.35				3/30/2017	55.52	54.69	

Water Levels and Data over Time
White Mesa Mill - Well TWN-6

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,663.03	5,664.94	1.91				135
5,589.52				08/25/09	75.42	73.51	
5,589.46				09/22/09	75.48	73.57	
5,589.61				11/03/09	75.33	73.42	
5,589.92				12/14/09	75.02	73.11	
5,590.24				03/11/10	74.70	72.79	
5,590.40				05/11/10	74.54	72.63	
5,590.24				09/29/10	74.70	72.79	
5,590.49				12/21/10	74.45	72.54	
5,590.16				02/28/11	74.78	72.87	
5,590.44				06/21/11	74.50	72.59	
5,590.35				09/20/11	74.59	72.68	
5,590.67				12/21/11	74.27	72.36	
5,590.34				03/27/12	74.60	72.69	
5,590.32				06/28/12	74.62	72.71	
5,589.77				09/27/12	75.17	73.26	
5,589.67				12/28/12	75.27	73.36	
5,589.45				03/28/13	75.49	73.58	
5,589.01				06/27/13	75.93	74.02	
5,588.99				09/27/13	75.95	74.04	
5,588.15				12/20/13	76.79	74.88	
5,588.50				03/27/14	76.44	74.53	
5,588.03				06/25/14	76.91	75.00	
5,587.74				09/25/14	77.20	75.29	
5,587.69				12/17/14	77.25	75.34	
5,587.29				03/26/15	77.65	75.74	
5,587.04				06/22/15	77.90	75.99	
5,586.93				09/30/15	78.01	76.10	
5,586.72				12/02/15	78.22	76.31	
5,586.92				03/30/16	78.02	76.11	
5,586.32				06/30/16	78.62	76.71	
5,586.16				09/29/16	78.78	76.87	
5586.03				12/21/2016	78.91	77.00	
5586.4				3/30/2017	78.54	76.63	

Water Levels and Data over Time
White Mesa Mill - Well TWN-7

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,647.39	5,649.26	1.87				120
5,552.56				08/25/09	96.70	94.83	
5,558.34				09/21/09	90.92	89.05	
5,558.82				11/10/09	90.44	88.57	
5,558.96				12/14/09	90.30	88.43	
5,559.54				03/11/10	89.72	87.85	
5,559.60				05/11/10	89.66	87.79	
5,559.83				09/29/10	89.43	87.56	
5,559.00				12/21/10	90.26	88.39	
5,559.68				02/28/11	89.58	87.71	
5,560.43				06/21/11	88.83	86.96	
5,560.46				09/20/11	88.80	86.93	
5,560.78				12/21/11	88.48	86.61	
5,560.92				03/27/12	88.34	86.47	
5,560.87				06/28/12	88.39	86.52	
5,561.40				09/27/12	87.86	85.99	
5,561.50				12/28/12	87.76	85.89	
5,562.01				03/28/13	87.25	85.38	
5,562.21				06/27/13	87.05	85.18	
5,562.41				09/27/13	86.85	84.98	
5,562.23				12/20/13	87.03	85.16	
5,562.85				03/27/14	86.41	84.54	
5,562.95				06/25/14	86.31	84.44	
5,563.06				09/25/14	86.20	84.33	
5,563.21				12/17/14	86.05	84.18	
5,563.33				03/26/15	85.93	84.06	
5,563.46				06/22/15	85.80	83.93	
5,563.64				09/30/15	85.62	83.75	
5,563.88				12/02/15	85.38	83.51	
5,564.19				03/30/16	85.07	83.20	
5,563.97				06/30/16	85.29	83.42	
5,564.21				09/29/16	85.05	83.18	
5,564.46				12/21/16	84.80	82.93	
5,564.96				3/30/2017	84.30	82.43	

Water Levels and Data over Time
White Mesa Mill - Well TWN-14

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,647.80	5,649.53	1.73				135
5,586.18				11/04/09	63.35	61.62	
5,586.51				12/14/09	63.02	61.29	
5,586.71				03/11/10	62.82	61.09	
5,586.72				05/11/10	62.81	61.08	
5,586.53				09/29/10	63.00	61.27	
5,586.80				12/21/10	62.73	61.00	
5,586.74				02/28/11	62.79	61.06	
5,586.84				06/21/11	62.69	60.96	
5,586.73				09/20/11	62.80	61.07	
5,586.98				12/21/11	62.55	60.82	
5,587.07				03/27/12	62.46	60.73	
5,587.10				06/28/12	62.43	60.70	
5,587.07				09/27/12	62.46	60.73	
5,587.33				12/28/12	62.20	60.47	
5,587.43				03/28/13	62.10	60.37	
5,587.43				06/27/13	62.10	60.37	
5,587.72				09/27/13	61.81	60.08	
5,587.22				12/20/13	62.31	60.58	
5,587.91				03/27/14	61.62	59.89	
5,587.74				06/25/14	61.79	60.06	
5,587.76				09/25/14	61.77	60.04	
5,587.88				12/17/14	61.65	59.92	
5,587.97				03/26/15	61.56	59.83	
5,587.98				06/22/15	61.55	59.82	
5,588.18				09/30/15	61.35	59.62	
5,588.23				12/02/15	61.30	59.57	
5,588.70				03/30/16	60.83	59.10	
5,588.31				06/30/16	61.22	59.49	
5,588.36				09/29/16	61.17	59.44	
5588.43				12/21/2016	61.10	59.37	
5588.96				3/30/2017	60.57	58.84	

Water Levels and Data over Time
White Mesa Mill - Well TWN-16

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,651.07	5,652.70	1.63				100
5,603.34				11/04/09	49.36	47.73	
5,603.56				12/14/09	49.14	47.51	
5,603.84				03/11/10	48.86	47.23	
5,604.31				05/11/10	48.39	46.76	
5,604.28				09/29/10	48.42	46.79	
5,604.39				12/21/10	48.31	46.68	
5,604.20				02/28/11	48.50	46.87	
5,604.55				06/21/11	48.15	46.52	
5,604.74				09/20/11	47.96	46.33	
5,604.94				12/21/11	47.76	46.13	
5,604.84				03/27/12	47.86	46.23	
5,604.85				06/28/12	47.85	46.22	
5,604.99				09/27/12	47.71	46.08	
5,605.10				12/28/12	47.60	45.97	
5,605.22				03/28/13	47.48	45.85	
5,605.11				06/27/13	47.59	45.96	
5,605.39				09/27/13	47.31	45.68	
5,604.99				12/20/13	47.71	46.08	
5,605.71				03/27/14	46.99	45.36	
5,605.16				06/25/14	47.54	45.91	
5,605.10				09/25/14	47.60	45.97	
5,605.25				12/17/14	47.45	45.82	
5,605.04				03/26/15	47.66	46.03	
5,604.99				06/22/15	47.71	46.08	
5,605.05				09/30/15	47.65	46.02	
5,604.96				12/02/15	47.74	46.11	
5,605.25				03/30/16	47.45	45.82	
5,605.00				06/30/16	47.70	46.07	
5,605.00				09/29/16	47.70	46.07	
5605.00				12/21/2016	47.70	46.07	
5605.43				3/30/2017	47.27	45.64	

Water Levels and Data over Time
White Mesa Mill - Well TWN -18

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,643.95	5,645.45	1.50				100
5,586.85				11/02/09	58.60	57.10	
5,600.14				12/14/09	45.31	43.81	
5,587.36				03/11/10	58.09	56.59	
5,587.71				05/11/10	57.74	56.24	
5,587.50				09/29/10	57.95	56.45	
5,607.66				12/21/10	37.79	36.29	
5,587.35				02/28/11	58.10	56.60	
5,587.71				06/21/11	57.74	56.24	
5,587.65				09/20/11	57.80	56.30	
5,587.95				12/21/11	57.50	56.00	
5,587.05				03/27/12	58.40	56.90	
5,587.05				06/28/12	58.40	56.90	
5,587.50				09/27/12	57.95	56.45	
5,587.50				12/28/12	57.95	56.45	
5,587.32				03/28/13	58.13	56.63	
5,586.95				06/27/13	58.50	57.00	
5,587.02				09/27/13	58.43	56.93	
5,586.26				12/20/13	59.19	57.69	
5,586.87				03/27/14	58.58	57.08	
5,586.23				06/25/14	59.22	57.72	
5,586.02				09/25/14	59.43	57.93	
5,585.99				12/17/14	59.46	57.96	
5,585.66				03/26/15	59.79	58.29	
5,585.45				06/22/15	60.00	58.50	
5,585.37				09/30/15	60.08	58.58	
5,585.24				12/02/15	60.21	58.71	
5,585.38				03/30/16	60.07	58.57	
5,584.85				6/30/2016	60.60	59.10	
5,584.69				9/29/2016	60.76	59.26	
5584.60				12/21/2016	60.85	59.35	
5584.99				3/30/2017	60.46	58.96	

Water Levels and Data over Time
White Mesa Mill - Well TWN-19

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,659.59	5,661.36	1.77				110
5,606.17				11/02/09	55.19	53.42	
5,606.70				12/14/09	54.66	52.89	
5,607.22				03/11/10	54.14	52.37	
5,607.89				05/11/10	53.47	51.70	
5,607.98				09/29/10	53.38	51.61	
5,608.41				12/21/10	52.95	51.18	
5,608.49				02/28/11	52.87	51.10	
5,608.60				06/21/11	52.76	50.99	
5,609.17				09/20/11	52.19	50.42	
5,608.90				12/21/11	52.46	50.69	
5,608.87				03/27/12	52.49	50.72	
5,608.86				06/28/12	52.50	50.73	
5,608.86				09/27/12	52.50	50.73	
5,608.86				12/28/12	52.50	50.73	
5,609.17				03/28/13	52.19	50.42	
5,608.88				06/27/13	52.48	50.71	
5,608.92				09/27/13	52.44	50.67	
5,608.46				12/20/13	52.90	51.13	
5,608.88				03/27/14	52.48	50.71	
5,608.33				06/25/14	53.03	51.26	
5,608.11				09/25/14	53.25	51.48	
5,608.36				12/17/14	53.00	51.23	
5,607.96				03/26/15	53.40	51.63	
5,607.98				06/22/15	53.38	51.61	
5,608.06				09/30/15	53.30	51.53	
5,607.88				12/02/15	53.48	51.71	
5,608.41				03/30/16	52.95	51.18	
5,611.39				06/30/16	49.97	48.20	
5,607.90				09/29/16	53.46	51.69	
5,608.07				12/21/2016	53.29	51.52	
5608.44				3/30/2017	52.92	51.15	

Water Levels and Data over Time
White Mesa Mill - Well MW-30

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,613.34	5,614.50	1.16				110
5,534.92				10/24/2006	79.58	78.42	
5,535.09				3/16/2007	79.41	78.25	
5,535.46				8/27/2007	79.04	77.88	
5,535.06				10/15/2007	79.44	78.28	
5,535.78				3/15/2008	78.72	77.56	
5,536.26				6/15/2008	78.24	77.08	
5,536.35				9/15/2008	78.15	76.99	
5,536.68				11/15/2008	77.82	76.66	
5,535.42				3/15/2009	79.08	77.92	
5,537.11				6/30/2009	77.39	76.23	
5,536.93				9/10/2009	77.57	76.41	
5,537.23				12/11/2009	77.27	76.11	
5,537.59				3/11/2010	76.91	75.75	
5,537.85				5/11/2010	76.65	75.49	
5,538.37				9/29/2010	76.13	74.97	
5537.70				12/21/2010	76.8	75.64	
5537.67				2/28/2011	76.83	75.67	
5538.31				6/21/2011	76.19	75.03	
5538.15				9/20/2011	76.35	75.19	
5538.42				12/21/2011	76.08	74.92	
5538.54				3/27/2012	75.96	74.8	
5538.60				6/28/2012	75.9	74.74	
5538.68				9/27/2012	75.82	74.66	
5538.99				12/28/2012	75.51	74.35	
5539.25				3/28/2013	75.25	74.09	
5539.05				6/27/2013	75.45	74.29	
5539.60				9/27/2013	74.90	73.74	
5539.67				12/20/2013	74.83	73.67	
5539.77				3/27/2014	74.73	73.57	
5539.40				6/25/2014	75.10	73.94	
5539.19				9/25/2014	75.31	74.15	
5539.30				12/17/2014	75.20	74.04	
5539.01				3/26/2015	75.49	74.33	
5538.99				6/22/2015	75.51	74.35	
5539.10				9/30/2015	75.40	74.24	
5538.90				12/2/2015	75.60	74.44	
5539.53				3/30/2016	74.97	73.81	
5539.11				6/30/2016	75.39	74.23	
5539.05				9/29/2016	75.45	74.29	
5539.06				12/21/2016	75.44	74.28	
5539.81				3/30/2017	74.69	73.53	

Water Levels and Data over Time
White Mesa Mill - Well MW-31

Water Elevation (WL)	Land Surface (LSD)	Measuring Point Elevation (MP)	Length Of Riser (L)	Date Of Monitoring	Total or Measured Depth to Water (blw.MP)	Total Depth to Water (blw.LSD)	Total Depth Of Well
	5,615.26	5,616.40	1.14				130
5,544.07				10/24/2006	72.33	71.19	
5,544.45				3/16/2007	71.95	70.81	
5,536.94				8/27/2007	79.46	78.32	
5,544.62				10/15/2007	71.78	70.64	
5,545.37				3/15/2008	71.03	69.89	
5,544.50				6/15/2008	71.90	70.76	
5,545.94				9/15/2008	70.46	69.32	
5,546.42				11/15/2008	69.98	68.84	
5,546.03				3/15/2009	70.37	69.23	
5,546.65				6/30/2009	69.75	68.61	
5,546.45				9/10/2009	69.95	68.81	
5,546.75				12/11/2009	69.65	68.51	
5,547.09				3/11/2010	69.31	68.17	
5,547.41				5/11/2010	68.99	67.85	
5,547.28				9/29/2010	69.12	67.98	
5547.45				12/21/2010	68.95	67.81	
5547.37				2/28/2011	69.03	67.89	
5547.96				6/21/2011	68.44	67.3	
5547.65				9/20/2011	68.75	67.61	
5548.34				12/21/2011	68.06	66.92	
5548.30				3/27/2012	68.10	66.96	
5548.40				6/28/2012	68.00	66.86	
5548.59				9/27/2012	67.81	66.67	
5548.91				12/28/2012	67.49	66.35	
5549.14				3/28/2013	67.26	66.12	
5548.90				6/27/2013	67.50	66.36	
5549.25				9/27/2013	67.15	66.01	
5549.16				12/20/2013	67.24	66.10	
5548.95				3/27/2014	67.45	66.31	
5548.60				6/25/2014	67.80	66.66	
5548.19				9/25/2014	68.21	67.07	
5548.25				12/17/2014	68.15	67.01	
5548.14				3/26/2015	68.26	67.12	
5547.85				6/22/2015	68.55	67.41	
5548.00				9/30/2015	68.40	67.26	
5547.84				12/2/2015	68.56	67.42	
5548.35				3/30/2016	68.05	66.91	
5548.00				6/30/2016	68.40	67.26	
5547.80				9/29/2016	68.60	67.46	
5547.80				12/21/2016	68.60	67.46	
5548.30				3/30/2017	68.10	66.96	

Tab G

Laboratory Analytical Reports

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-010
Client Sample ID: PIEZ-01_02152017
Collection Date: 2/15/2017 855h
Received Date: 2/17/2017 1045h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1613h	E300.0	10.0	**54.5**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1758h	E353.2	0.100	**6.75**	

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Jose Rocha
QA Officer

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INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-011
Client Sample ID: PIEZ-02_02152017
Collection Date: 2/15/2017 825h
Received Date: 2/17/2017 1045h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1630h	E300.0	5.00	**12.4**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1759h	E353.2	0.100	**0.696**	

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INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer

Project: 1st Quarter Nitrate 2017

Lab Sample ID: 1702367-012

Client Sample ID: PIEZ-03A_02152017

Collection Date: 2/15/2017 910h

Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1647h	E300.0	10.0	**111**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1800h	E353.2	0.100	**10.0**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-004
Client Sample ID: TWN-01_02152017
Collection Date: 2/15/2017 1311h
Received Date: 2/17/2017 1045h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 2026h	E300.0	10.0	**31.2**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1750h	E353.2	0.100	**2.06**	

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INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-007
Client Sample ID: TWN-02_02152017
Collection Date: 2/15/2017 1000h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 2009h	E300.0	10.0	**65.8**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1803h	E353.2	0.200	**27.4**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-006
Client Sample ID: TWN-03_02162017
Collection Date: 2/16/2017 1034h
Received Date: 2/17/2017 1045h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1952h	E300.0	10.0	**113**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1754h	E353.2	0.100	**17.4**	

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INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-005
Client Sample ID: TWN-04_02152017
Collection Date: 2/15/2017 1356h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1935h	E300.0	10.0	**31.2**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1751h	E353.2	0.100	**2.63**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-003
Client Sample ID: TWN-07_02162017
Collection Date: 2/16/2017 1025h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1918h	E300.0	1.00	**14.0**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1749h	E353.2	0.100	**1.63**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-002
Client Sample ID: TWN-18_02152017
Collection Date: 2/15/2017 1208h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/23/2017 1048h	E300.0	10.0	**62.1**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1749h	E353.2	0.100	**0.470**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-001
Client Sample ID: TWN-18R_02152017
Collection Date: 2/15/2017 1048h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/23/2017 1030h	E300.0	1.00	< 1.00	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1746h	E353.2	0.100	< 0.100	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Chloroform 2017
Lab Sample ID: 1703181-010
Client Sample ID: TW4-22_03082017
Collection Date: 3/8/2017 1222h
Received Date: 3/10/2017 853h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		3/14/2017 1248h	E300.0	100	**566**	
Nitrate/Nitrite (as N)	mg/L		3/10/2017 1139h	E353.2	1.00	**69.8**	

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INORGANIC ANALYTICAL REPORT

Client:	Energy Fuels Resources, Inc.	**Contact:**	Garrin Palmer
Project:	1st Quarter Chloroform 2017		
Lab Sample ID:	1703181-002		
Client Sample ID:	TW4-24_03082017		
Collection Date:	3/8/2017 1212h		
Received Date:	3/10/2017 853h		

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		3/14/2017 1157h	E300.0	100	**1,090**	
Nitrate/Nitrite (as N)	mg/L		3/10/2017 1148h	E353.2	0.500	**41.3**	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Chloroform 2017
Lab Sample ID: 1703181-001
Client Sample ID: TW4-25_03082017
Collection Date: 3/8/2017 1202h
Received Date: 3/10/2017 853h

Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		3/15/2017 753h	E300.0	100	**285**	
Nitrate/Nitrite (as N)	mg/L		3/10/2017 1115h	E353.2	0.100	**17.0**	

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INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Chloroform 2017
Lab Sample ID: 1703181-015
Client Sample ID: TW4-60_03082017
Collection Date: 3/8/2017 930h
Received Date: 3/10/2017 853h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		3/14/2017 1450h	E300.0	1.00	< 1.00	
Nitrate/Nitrite (as N)	mg/L		3/10/2017 1132h	E353.2	0.100	< 0.100	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-009
Client Sample ID: TWN-60_02162017
Collection Date: 2/16/2017 1045h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1721h	E300.0	1.00	< 1.00	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1757h	E353.2	0.100	< 0.100	

INORGANIC ANALYTICAL REPORT

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Sample ID: 1702367-008
Client Sample ID: TWN-65_02152017
Collection Date: 2/15/2017 1311h
Received Date: 2/17/2017 1045h

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Analytical Results

Compound	Units	Date Prepared	Date Analyzed	Method Used	Reporting Limit	Analytical Result	Qual
Chloride	mg/L		2/22/2017 1704h	E300.0	10.0	**31.5**	
Nitrate/Nitrite (as N)	mg/L		2/17/2017 1756h	E353.2	0.100	**1.98**	

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Garrin Palmer
Energy Fuels Resources, Inc.
6425 S. Hwy 191
Blanding, UT 84511
TEL: (303) 389-4134

RE: 1st Quarter Nitrate 2017

Dear Garrin Palmer: Lab Set ID: 1702367

American West Analytical Laboratories received sample(s) on 2/17/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross Digitally signed by Kyle F. Gross Date: 2017.02.28 13:57:31 -07'00'

Laboratory Director or designee

Inorganic Case Narrative

Client:	Energy Fuels Resources, Inc.
Contact:	Garrin Palmer
Project:	1st Quarter Nitrate 2017
Lab Set ID:	1702367

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QA Officer

Sample Receipt Information:

Date of Receipt:	2/17/2017
Dates of Collection:	2/15-2/16/2017
Sample Condition:	Intact
C-O-C Discrepancies:	None

Holding Time and Preservation Requirements: The analysis and preparation for the samples were performed within the method holding times. The samples were properly preserved.

Preparation and Analysis Requirements: The samples were analyzed following the methods stated on the analytical reports.

Analytical QC Requirements: All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

Batch QC Requirements: MB, LCS, MS, MSD, RPD, DUP:

Method Blanks (MB): No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

Laboratory Control Samples (LCS): All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

Matrix Spike / Matrix Spike Duplicates (MS/MSD): All percent recoveries and RPDs (Relative Percent Differences) were inside established limits.

Duplicate (DUP): The parameters that required a duplicate analysis had RPDs within the control limits.

Corrective Action: None required.

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QA Officer

SAMPLE SUMMARY

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Nitrate 2017
Lab Set ID: 1702367
Date Received: 2/17/2017 1045h

Lab Sample ID	Client Sample ID	Date Collected		Matrix	Analysis
1702367-001A	TWN-18R_02152017	2/15/2017	1048h	Aqueous	Anions, E300.0
1702367-001B	TWN-18R_02152017	2/15/2017	1048h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-002A	TWN-18_02152017	2/15/2017	1208h	Aqueous	Anions, E300.0
1702367-002B	TWN-18_02152017	2/15/2017	1208h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-003A	TWN-07_02162017	2/16/2017	1025h	Aqueous	Anions, E300.0
1702367-003B	TWN-07_02162017	2/16/2017	1025h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-004A	TWN-01_02152017	2/15/2017	1311h	Aqueous	Anions, E300.0
1702367-004B	TWN-01_02152017	2/15/2017	1311h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-005A	TWN-04_02152017	2/15/2017	1356h	Aqueous	Anions, E300.0
1702367-005B	TWN-04_02152017	2/15/2017	1356h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-006A	TWN-03_02162017	2/16/2017	1034h	Aqueous	Anions, E300.0
1702367-006B	TWN-03_02162017	2/16/2017	1034h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-007A	TWN-02_02152017	2/15/2017	1000h	Aqueous	Anions, E300.0
1702367-007B	TWN-02_02152017	2/15/2017	1000h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-008A	TWN-65_02152017	2/15/2017	1311h	Aqueous	Anions, E300.0
1702367-008B	TWN-65_02152017	2/15/2017	1311h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-009A	TWN-60_02162017	2/16/2017	1045h	Aqueous	Anions, E300.0
1702367-009B	TWN-60_02162017	2/16/2017	1045h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-010A	PIEZ-01_02152017	2/15/2017	855h	Aqueous	Anions, E300.0
1702367-010B	PIEZ-01_02152017	2/15/2017	855h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-011A	PIEZ-02_02152017	2/15/2017	825h	Aqueous	Anions, E300.0
1702367-011B	PIEZ-02_02152017	2/15/2017	825h	Aqueous	Nitrite/Nitrate (as N), E353.2
1702367-012A	PIEZ-03A_02152017	2/15/2017	910h	Aqueous	Anions, E300.0
1702367-012B	PIEZ-03A_02152017	2/15/2017	910h	Aqueous	Nitrite/Nitrate (as N), E353.2

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1702367
Project: 1st Quarter Nitrate 2017

Contact: Garrin Palmer
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R98837	Date Analyzed: 02/22/2017 1328h												
Test Code: 300.0-W													
Chloride	5.08	mg/L	E300.0	0.0127	0.100	5.000	0	102	90 - 110				
Lab Sample ID: LCS-R98703	Date Analyzed: 02/17/2017 1744h												
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.00	mg/L	E353.2	0.00833	0.0100	1.000	0	100	90 - 110				

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1702367
Project: 1st Quarter Nitrate 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: MB-R98837	Date Analyzed: 02/22/2017 1311h												
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Lab Sample ID: MB-R98703	Date Analyzed: 02/17/2017 1743h												
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1702367
Project: 1st Quarter Nitrate 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1702367-001AMS	Date Analyzed:	02/22/2017 1754h											
Test Code: 300.0-W													
Chloride	98.9	mg/L	E300.0	0.254	2.00	100.0	0	98.9	90 - 110				
Lab Sample ID: 1702367-004AMS	Date Analyzed:	02/22/2017 2043h											
Test Code: 300.0-W													
Chloride	135	mg/L	E300.0	0.254	2.00	100.0	31.2	104	90 - 110				
Lab Sample ID: 1702367-001BMS	Date Analyzed:	02/17/2017 1747h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	10.5	mg/L	E353.2	0.0833	0.100	10.00	0	105	90 - 110				
Lab Sample ID: 1702367-012BMS	Date Analyzed:	02/17/2017 1810h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	30.7	mg/L	E353.2	0.167	0.200	20.00	10	103	90 - 110				

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1702367
Project: 1st Quarter Nitrate 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1702367-001AMSD	Date Analyzed:	02/22/2017 1811h											
Test Code: 300.0-W													
Chloride	100	mg/L	E300.0	0.254	2.00	100.0	0	100	90 - 110	98.9	1.19	20	
Lab Sample ID: 1702367-004AMSD	Date Analyzed:	02/22/2017 2100h											
Test Code: 300.0-W													
Chloride	136	mg/L	E300.0	0.254	2.00	100.0	31.2	105	90 - 110	135	0.682	20	
Lab Sample ID: 1702367-001BMSD	Date Analyzed:	02/17/2017 1748h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	10.5	mg/L	E353.2	0.0833	0.100	10.00	0	105	90 - 110	10.5	0.190	10	
Lab Sample ID: 1702367-012BMSD	Date Analyzed:	02/17/2017 1811h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	31.1	mg/L	E353.2	0.167	0.200	20.00	10	105	90 - 110	30.7	1.20	10	

American West Analytical Laboratories

Rpt Emailed:

UL
Denison

WORK ORDER Summary

Work Order: **1702367** Page 1 of 2

Due Date: 2/28/2017

Client: Energy Fuels Resources, Inc.

Client ID: DEN100

Contact: Garrin Palmer

Project: **1st Quarter Nitrate 2017**

QC Level: III

WO Type: Project

Comments: PA Rush. QC 3 (Summary/No chromatograms). MUST report project specific DL's: Cl @ 1 mg/L, NO2/NO3 @ 0.1 mg/L. Run NO2/NO3 at 10X dilution. EDD-Denison & LOCUS. Email Group;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1702367-001A	**TWN-18R_02152017**	2/15/2017 1048h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-001B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-002A	**TWN-18_02152017**	2/15/2017 1208h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-002B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-003A	**TWN-07_02162017**	2/16/2017 1025h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-003B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-004A	**TWN-01_02152017**	2/15/2017 1311h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-004B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-005A	**TWN-04_02152017**	2/15/2017 1356h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-005B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-006A	**TWN-03_02162017**	2/16/2017 1034h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-006B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-007A	**TWN-02_02152017**	2/15/2017 1000h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-007B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	

Printed: 2/20/2017

FOR LABORATORY USE ONLY [fill out on page 1]: %M ☐ RT ☐ CN ☐ TAT ☐ QC ☐ HOK______ HOK______ HOK______ COC Emailed________

WORK ORDER Summary

Work Order: **1702367**

Client: Energy Fuels Resources, Inc.

Due Date: 2/28/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1702367-008A	**TWN-65_02152017**	2/15/2017 1311h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-008B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-009A	**TWN-60_02162017**	2/16/2017 1045h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-009B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-010A	**PIEZ-01_02152017**	2/15/2017 0855h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-010B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-011A	**PIEZ-02_02152017**	2/15/2017 0825h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-011B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1702367-012A	**PIEZ-03A_02152017**	2/15/2017 0910h	2/17/2017 1045h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - cl	1
1702367-012B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	

Printed: 2/20/2017 FOR LABORATORY USE ONLY [fill out on page 1]: %M ☐ RT ☐ CN ☐ TAT ☐ QC ☐ HOK_____ HOK_____ HOK_____ COC Emailed________

American West Analytical Laboratories

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www.awal-labs.com

CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1702367
AWAL Lab Sample Set #
Page 1 of 1

QC Level: 3

Turn Around Time: Standard

Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.

Due Date: 3|3|17

Client: **Energy Fuels Resources, Inc.**
Address: **6425 S. Hwy. 191**
Blanding, UT 84511
Contact: **Garrin Palmer**
Phone #: **(435) 678-2221** Cell #:
Email: **gpalmer@energyfuels.com; KWeinel@energyfuels.com; dturk@energyfuels.com**
Project Name: **1ST QUARTER NITRATE 2017**
Project #:
PO #:
Sampler Name: **TANNER HOLLIDAY**

X Include EDD:
LOCUS UPLOAD
EXCEL
Field Filtered For:

For Compliance With:
- ☐ NELAP
- ☐ RCRA
- ☐ CWA
- ☐ SDWA
- ☐ ELAP / A2LA
- ☐ NLLAP
- ☐ Non-Compliance
- ☐ Other:

	Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	NO2/NO3 (353.2)	Cl (4500 or 300.0)											Known Hazards & Sample Comments
1	**TWN-18R_02152017**	2/15/2017	1048	2	W	X	X											
2	**TWN-18_02152017**	2/15/2017	1208	2	W	X	X											
3	**TWN-07_02162017**	2/16/2017	1025	2	W	X	X											
4	**TWN-01_02152017**	2/15/2017	1311	2	W	X	X											
5	**TWN-04_02152017**	2/15/2017	1356	2	W	X	X											
6	**TWN-03_02162017**	2/16/2017	1034	2	W	X	X											
7	**TWN-02_02152017**	2/15/2017	1000	2	W	X	X											
8	**TWN-65_02152017**	2/15/2017	1311	2	W	X	X											
9	**TWN-60_02162017**	2/16/2017	1045	2	W	X	X											
0	**PIEZ-01_02152017**	2/15/2017	855	2	W	X	X											
	PIEZ-02_02152017	2/15/2017	825	2	W	X	X											
1	**PIEZ-03A_02152017**	2/15/2017	910	2	W	X	X											
2	Temp Blank	2/16/2017		1	W													

Laboratory Use Only

Samples Were: UPS

1 Shipped or ~~hand delivered~~ DB 2/17/17 — [✓ Shipped]

2 Ambient or Chilled — [✓ Chilled]

3 Temperature 0.8 °C

4 Received Broken/Leaking (Improperly Sealed) Y [✓ N]

5 Properly Preserved [✓ Y] N
Checked at bench Y N

6 Received Within Holding Times [✓ Y] ~~N~~ DB 2/17/17

COC Tape Was:

1 Present on Outer Package [✓ Y] N NA

2 Unbroken on Outer Package [✓ Y] N NA

3 Present on Sample Y N [✓ NA]

4 Unbroken on Sample Y N [✓ NA]

Discrepancies Between Sample Labels and COC Record? Y [✓ N]

Relinquished by: Signature Tanner Holliday	Date: 2/16/2017	Received by: Signature	Date:
Print Name: TANNER HOLLIDAY	Time: 1230	Print Name:	Time:
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name:	Time:	Print Name:	Time:
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name:	Time:	Print Name:	Time:
Relinquished by: Signature	Date:	Received by: Signature Denise Brunn	Date: 2/17/17
Print Name:	Time:	Print Name: Denise Brunn	Time: 10:45

Special Instructions:

Lab Set ID: 1702367

pH Lot #: 5000

Preservation Check Sheet

Sample Set Extension and pH

Analysis	**Preservative**	-001	-002	-003	-004	-005	-006	-007	-008	-009	-010	-011	-012						
Ammonia	pH <2 H_2SO_4																		
COD	pH <2 H_2SO_4																		
Cyanide	pH >12 NaOH																		
Metals	pH <2 HNO_3																		
NO_2 & NO_3	pH <2 H_2SO_4	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes						
O & G	pH <2 HCL																		
Phenols	pH <2 H_2SO_4																		
Sulfide	pH >9 NaOH, Zn Acetate																		
TKN	pH <2 H_2SO_4																		
T PO_4	pH <2 H_2SO_4																		

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

*	The sample required additional preservative upon receipt.
+	The sample was received unpreserved.
▲	The sample was received unpreserved and therefore preserved upon receipt.
#	The sample pH was unadjustable to a pH < 2 due to the sample matrix.
•	The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

American West
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Garrin Palmer
Energy Fuels Resources, Inc.
6425 S. Hwy 191
Blanding, UT 84511
TEL: (303) 389-4134

RE: 1st Quarter Chloroform 2017

Dear Garrin Palmer: Lab Set ID: 1703181

American West Analytical Laboratories received sample(s) on 3/10/2017 for the analyses presented in the following report.

American West Analytical Laboratories (AWAL) is accredited by The National Environmental Laboratory Accreditation Program (NELAP) in Utah and Texas; and is state accredited in Colorado, Idaho, New Mexico, Wyoming, and Missouri.

All analyses were performed in accordance to the NELAP protocols unless noted otherwise. Accreditation scope documents are available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross Digitally signed by Kyle F. Gross Date: 2017.03.24 13:42:17 -06'00'

Laboratory Director or designee

Inorganic Case Narrative

Client: Energy Fuels Resources, Inc.
Contact: Garrin Palmer
Project: March Ground Water 2017
Lab Set ID: 1703180

Sample Receipt Information:

Date of Receipt: 3/10/2017
Dates of Collection: 3/8/2017
Sample Condition: Intact
C-O-C Discrepancies: None

Holding Time and Preservation Requirements: The analysis and preparation for the samples were performed within the method holding times. The samples were properly preserved.

Preparation and Analysis Requirements: The samples were analyzed following the methods stated on the analytical reports.

Analytical QC Requirements: All instrument calibration and calibration check requirements were met. All internal standard recoveries met method criterion.

Batch QC Requirements: MB, LCS, MS, MSD, RPD, DUP:

Method Blanks (MB): No target analytes were detected above reporting limits, indicating that the procedure was free from contamination.

Laboratory Control Samples (LCS): All LCS recoveries were within control limits, indicating that the preparation and analysis were in control.

Matrix Spike / Matrix Spike Duplicates (MS/MSD): All percent recoveries and RPDs (Relative Percent Differences) were inside established limits, with the following exceptions:

Sample ID	Analyte	QC	Explanation
1703180-003B	Nitrate/Nitrite	MS/MSD	Sample matrix interference

Duplicate (DUP): The parameters that required a duplicate analysis had RPDs within the control limits.

Corrective Action: None required.

American West
ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

SAMPLE SUMMARY

American West
ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Chloroform 2017
Lab Set ID: 1703181
Date Received: 3/10/2017 853h

Lab Sample ID	Client Sample ID	Date Collected	Matrix	Analysis
1703181-001A	TW4-25_03082017	3/8/2017 1202h	Aqueous	Anions, E300.0
1703181-001B	TW4-25_03082017	3/8/2017 1202h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-001C	TW4-25_03082017	3/8/2017 1202h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-002A	TW4-24_03082017	3/8/2017 1212h	Aqueous	Anions, E300.0
1703181-002B	TW4-24_03082017	3/8/2017 1212h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-002C	TW4-24_03082017	3/8/2017 1212h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-003A	TW4-21_03082017	3/8/2017 1152h	Aqueous	Anions, E300.0
1703181-003B	TW4-21_03082017	3/8/2017 1152h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-003C	TW4-21_03082017	3/8/2017 1152h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-004A	TW4-01_03082017	3/8/2017 1328h	Aqueous	Anions, E300.0
1703181-004B	TW4-01_03082017	3/8/2017 1328h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-004C	TW4-01_03082017	3/8/2017 1328h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-005A	TW4-04_03082017	3/8/2017 1338h	Aqueous	Anions, E300.0
1703181-005B	TW4-04_03082017	3/8/2017 1338h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-005C	TW4-04_03082017	3/8/2017 1338h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-006A	TW4-02_03082017	3/8/2017 1315h	Aqueous	Anions, E300.0
1703181-006B	TW4-02_03082017	3/8/2017 1315h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-006C	TW4-02_03082017	3/8/2017 1315h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-007A	MW-26_03082017	3/8/2017 1257h	Aqueous	Anions, E300.0
1703181-007B	MW-26_03082017	3/8/2017 1257h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-007C	MW-26_03082017	3/8/2017 1257h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-008A	TW4-39_03082017	3/8/2017 1249h	Aqueous	Anions, E300.0
1703181-008B	TW4-39_03082017	3/8/2017 1249h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-008C	TW4-39_03082017	3/8/2017 1249h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-009A	TW4-11_03082017	3/8/2017 1305h	Aqueous	Anions, E300.0
1703181-009B	TW4-11_03082017	3/8/2017 1305h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-009C	TW4-11_03082017	3/8/2017 1305h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-010A	TW4-22_03082017	3/8/2017 1222h	Aqueous	Anions, E300.0
1703181-010B	TW4-22_03082017	3/8/2017 1222h	Aqueous	Nitrite/Nitrate (as N), E353.2

Client: Energy Fuels Resources, Inc. **Contact:** Garrin Palmer
Project: 1st Quarter Chloroform 2017
Lab Set ID: 1703181
Date Received: 3/10/2017 853h

3440 South 700 West
alt Lake City, UT 84119

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Toll Free: (888) 263-8686
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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID	Client Sample ID	Date Collected		Matrix	Analysis
1703181-010C	TW4-22_03082017	3/8/2017	1222h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-011A	TW4-19_03082017	3/8/2017	1410h	Aqueous	Anions, E300.0
1703181-011B	TW4-19_03082017	3/8/2017	1410h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-011C	TW4-19_03082017	3/8/2017	1410h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-012A	TW4-37_03082017	3/8/2017	1230h	Aqueous	Anions, E300.0
1703181-012B	TW4-37_03082017	3/8/2017	1230h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-012C	TW4-37_03082017	3/8/2017	1230h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-013A	TW4-20_03082017	3/8/2017	1238h	Aqueous	Anions, E300.0
1703181-013B	TW4-20_03082017	3/8/2017	1238h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-013C	TW4-20_03082017	3/8/2017	1238h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-014A	MW-04_03082017	3/8/2017	1321h	Aqueous	Anions, E300.0
1703181-014B	MW-04_03082017	3/8/2017	1321h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-014C	MW-04_03082017	3/8/2017	1321h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-015A	TW4-60_03082017	3/8/2017	930h	Aqueous	Anions, E300.0
1703181-015B	TW4-60_03082017	3/8/2017	930h	Aqueous	Nitrite/Nitrate (as N), E353.2
1703181-015C	TW4-60_03082017	3/8/2017	930h	Aqueous	VOA by GC/MS Method 8260C/5030C
1703181-016A	Trip Blank	3/8/2017		Aqueous	VOA by GC/MS Method 8260C/5030C

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1703181
Project: 1st Quarter Chloroform 2017

Contact: Garrin Palmer
Dept: WC
QC Type: LCS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: LCS-R99469	Date Analyzed:	03/14/2017 1140h											
Test Code: 300.0-W													
Chloride	5.02	mg/L	E300.0	0.0127	0.100	5.000	0	100	90 - 110				
Lab Sample ID: LCS-R99261	Date Analyzed:	03/10/2017 1027h											
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	1.05	mg/L	E353.2	0.00833	0.0100	1.000	0	105	90 - 110				

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1703181
Project: 1st Quarter Chloroform 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MBLK

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: **MB-R99469**	Date Analyzed: 03/14/2017 1124h												
Test Code: 300.0-W													
Chloride	< 0.100	mg/L	E300.0	0.0127	0.100								
Lab Sample ID: **MB-R99261**	Date Analyzed: 03/10/2017 1026h												
Test Code: NO2/NO3-W-353.2													
Nitrate/Nitrite (as N)	< 0.0100	mg/L	E353.2	0.00833	0.0100								

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1703181
Project: 1st Quarter Chloroform 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MS

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1703181-002AMS Test Code: 300.0-W	Date Analyzed: 03/14/2017 1214h												
Chloride	2,050	mg/L	E300.0	2.54	20.0	1,000	1090	96.6	90 - 110				
Lab Sample ID: 1703181-010AMS Test Code: 300.0-W	Date Analyzed: 03/14/2017 1305h												
Chloride	1,530	mg/L	E300.0	2.54	20.0	1,000	566	96.1	90 - 110				
Lab Sample ID: 1703180-003BMS Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1029h												
Nitrate/Nitrite (as N)	13.2	mg/L	E353.2	0.0833	0.100	10.00	1.72	115	90 - 110				[1]
Lab Sample ID: 1703182-002CMS Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1035h												
Nitrate/Nitrite (as N)	11.0	mg/L	E353.2	0.0833	0.100	10.00	0.18	109	90 - 110				
Lab Sample ID: 1703181-001BMS Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1133h												
Nitrate/Nitrite (as N)	125	mg/L	E353.2	0.833	1.00	100.0	17	108	90 - 110				

[1] *- Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

QC SUMMARY REPORT

Client: Energy Fuels Resources, Inc.
Lab Set ID: 1703181
Project: 1st Quarter Chloroform 2017

Contact: Garrin Palmer
Dept: WC
QC Type: MSD

Analyte	Result	Units	Method	MDL	Reporting Limit	Amount Spiked	Spike Ref. Amount	%REC	Limits	RPD Ref. Amt	% RPD	RPD Limit	Qual
Lab Sample ID: 1703181-002AMSD Test Code: 300.0-W	Date Analyzed: 03/14/2017 1231h												
Chloride	2,120	mg/L	E300.0	2.54	20.0	1,000	1090	104	90 - 110	2050	3.37	20	
Lab Sample ID: 1703181-010AMSD Test Code: 300.0-W	Date Analyzed: 03/14/2017 1322h												
Chloride	1,620	mg/L	E300.0	2.54	20.0	1,000	566	105	90 - 110	1530	5.80	20	
Lab Sample ID: 1703180-003BMSD Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1030h												
Nitrate/Nitrite (as N)	12.9	mg/L	E353.2	0.0833	0.100	10.00	1.72	112	90 - 110	13.2	2.30	10	1
Lab Sample ID: 1703182-002CMSD Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1038h												
Nitrate/Nitrite (as N)	11.2	mg/L	E353.2	0.0833	0.100	10.00	0.18	110	90 - 110	11	1.08	10	
Lab Sample ID: 1703181-001BMSD Test Code: NO2/NO3-W-353.2	Date Analyzed: 03/10/2017 1134h												
Nitrate/Nitrite (as N)	125	mg/L	E353.2	0.833	1.00	100.0	17	108	90 - 110	125	0.160	10	

[1] *- Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

American West Analytical Laboratories Rpt Emailed: UL
Denison

WORK ORDER Summary

Work Order: **1703181** Page 1 of 3

Client: Energy Fuels Resources, Inc.
Due Date: 3/21/2017
Client ID: DEN100
Contact: Garrin Palmer
Project: **1st Quarter Chloroform 2017**
QC Level: III
WO Type: Project
Comments: PA Rush. QC 3 (Summary/No chromatograms). RL of 1 ppm for Chloride and VOC and 0.1 ppm for NO2/NO3 - Run NO2/NO3 at a 10X dilution. Expected levels provided by client - see Jenn. J-flag what we can't meet. EIM Locus and EDD-Denison. Email Group.;

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1703181-001A	**TW4-25_03082017**	3/8/2017 1202h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-001B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-001C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-002A	**TW4-24_03082017**	3/8/2017 1212h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-002B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-002C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-003A	**TW4-21_03082017**	3/8/2017 1152h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-003B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-003C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-004A	**TW4-01_03082017**	3/8/2017 1328h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-004B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-004C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-005A	**TW4-04_03082017**	3/8/2017 1338h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-005B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-005C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3

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WORK ORDER Summary

Work Order: **1703181**

Client: Energy Fuels Resources, Inc.

Due Date: 3/21/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1703181-006A	**TW4-02_03082017**	3/8/2017 1315h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-006B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-006C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-007A	**MW-26_03082017**	3/8/2017 1257h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-007B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-007C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-008A	**TW4-39_03082017**	3/8/2017 1249h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-008B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-008C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-009A	**TW4-11_03082017**	3/8/2017 1305h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-009B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-009C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-010A	**TW4-22_03082017**	3/8/2017 1222h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-010B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-010C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-011A	**TW4-19_03082017**	3/8/2017 1410h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-011B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	

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WORK ORDER Summary

Work Order: 1703181

Client: Energy Fuels Resources, Inc.

Due Date: 3/21/2017

Sample ID	Client Sample ID	Collected Date	Received Date	Test Code	Matrix	Sel	Storage	
1703181-011C	**TW4-19_03082017**	3/8/2017 1410h	3/10/2017 0853h	**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*	Aqueous		VOCFridge	3
1703181-012A	**TW4-37_03082017**	3/8/2017 1230h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-012B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-012C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-013A	**TW4-20_03082017**	3/8/2017 1238h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-013B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-013C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-014A	**MW-04_03082017**	3/8/2017 1321h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-014B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-014C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-015A	**TW4-60_03082017**	3/8/2017 0930h	3/10/2017 0853h	**300.0-W** *1 SEL Analytes: CL*	Aqueous		df - wc	1
1703181-015B				**NO2/NO3-W-353.2** *1 SEL Analytes: NO3NO2N*			df - no2/no3	
1703181-015C				**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*			VOCFridge	3
1703181-016A	**Trip Blank**	3/8/2017	3/10/2017 0853h	**8260-W-DEN100** *Test Group: 8260-W-DEN100; # of Analytes: 4 / # of Surr: 4*	Aqueous		VOCFridge	3

American West Analytical Laboratories

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www.awal-labs.com

CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

1703181
~~1703182~~ el
AWAL Lab Sample Set #
Page 1 of 1

QC Level:	Turn Around Time:	Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.	Due Date:
3	Standard		

Client: Energy Fuels Resources, Inc.
Address: 6425 S. Hwy. 191
Blanding, UT 84511
Contact: Garrin Palmer
Phone #: (435) 678-2221 Cell #: 435-459-9463
Email: gpalmer@energyfuels.com; KWeinel@energyfuels.com; dturk@energyfuels.com
Project Name: 1st Quarter Chloroform 2017
Project #:
PO #:
Sampler Name: Tanner Holliday

X Include EDD:
LOCUS UPLOAD
EXCEL
Field Filtered For:

For Compliance With:
☐ NELAP
☐ RCRA
☐ CWA
☐ SDWA
☐ ELAP / A2LA
☐ NLLAP
☐ Non-Compliance
☐ Other:

	Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	NO2/NO3 (353.2)	Cl (4500 or 300.0)	VOCs (8260C)	Known Hazards & Sample Comments
1	TW4-25_03082017	3/8/2017	1202	5	W	X	X	X	
2	TW4-24_03082017	3/8/2017	1212	5	W	X	X	X	
3	TW4-21_03082017	3/8/2017	1152	5	W	X	X	X	
4	TW4-01_03082017	3/8/2017	1328	5	W	X	X	X	
5	TW4-04_03082017	3/8/2017	1338	5	W	X	X	X	
6	TW4-02_03082017	3/8/2017	1315	5	W	X	X	X	
7	MW-26_03082017	3/8/2017	1257	5	W	X	X	X	
8	TW4-39_03082017	3/8/2017	1249	5	W	X	X	X	
9	TW4-11_03082017	3/8/2017	1305	5	W	X	X	X	
10	TW4-22_03082017	3/8/2017	1222	5	W	X	X	X	
	TW4-19_03082017	3/8/2017	1410	5	W	X	X	X	
11	TW4-37_03082017	3/8/2017	1230	5	W	X	X	X	
12	TW4-20_03082017	3/8/2017	1238	5	W	X	X	X	

Laboratory Use Only

Samples Were:
1 Shipped or [✓ hand delivered]
2 Ambient or [✓ Chilled]
3 Temperature 2.4 °C
4 Received Broken/Leaking (Improperly Sealed) Y [✓ N]
5 Properly Preserved [✓ Y] N
Checked at bench Y N
6 Received Within Holding Times [✓ Y] N

COC Tape Was:
1 Present on Outer Package [✓ Y] N NA el
2 Unbroken on Outer Package [✓ Y] N NA
3 Present on Sample Y N [✓ NA]
4 Unbroken on Sample Y N [✓ NA]

Discrepancies Between Sample Labels and COC Record? Y [✓ N]

Relinquished by: Signature	Date: 3/10/17	Received by: Signature	Date: 3/10/17
Print Name: Garrin Palmer	Time: 0853	Print Name: Elona [illegible]	Time: 0853
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name:	Time:	Print Name:	Time:
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name:	Time:	Print Name:	Time:
Relinquished by: Signature	Date:	Received by: Signature	Date:
Print Name:	Time:	Print Name:	Time:

Special Instructions:

See the Analytical Scope of Work for Reporting Limits and VOC analyte list.

1703181

~~1703182~~ el

AWAL Lab Sample Set #

Page 1 of 2

American West Analytical Laboratories

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CHAIN OF CUSTODY

All analysis will be conducted using NELAP accredited methods and all data will be reported using AWAL's standard analyte lists and reporting limits (PQL) unless specifically requested otherwise on this Chain of Custody and/or attached documentation.

QC Level: 3

Turn Around Time: Standard

Unless other arrangements have been made, signed reports will be emailed by 5:00 pm on the day they are due.

Due Date:

Client: **Energy Fuels Resources, Inc.**
Address: **6425 S. Hwy. 191**
Blanding, UT 84511
Contact: **Garrin Palmer**
Phone #: **(435) 678-2221** Cell #: 435-459-9463
Email: **gpalmer@energyfuels.com; KWeinel@energyfuels.com; dturk@energyfuels.com**
Project Name: **1st Quarter GW 2017**
Project #:
PO #:
Sampler Name: **Tanner Holliday**

X Include EDD:
LOCUS UPLOAD
EXCEL
Field Filtered For:

For Compliance With:
- ☐ NELAP
- ☐ RCRA
- ☐ CWA
- ☐ SDWA
- ☐ ELAP / A2LA
- ☐ NLLAP
- ☐ Non-Compliance
- ☐ Other:

	Sample ID:	Date Sampled	Time Sampled	# of Containers	Sample Matrix	NO2/NO3 (353.2)	Cl (4500 or 300.0)	VOCs (8260C)										Known Hazards & Sample Comments
1	**MW-04_03082017**	**3/8/2017**	**1321**	5	W	X	X	X										
2	**TW4-60_03082017**	**3/8/2017**	**930**	5	W	X	X	X										
3	**Trip Blank**	**3/8/2017**		3	W			X										
4	**Temp Blank**			1	W													
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Laboratory Use Only

Samples Were:
1 Shipped or [✓ hand delivered]
2 Ambient or [✓ Chilled]
3 Temperature 2.4 °C
4 Received Broken/Leaking (Improperly Sealed) Y [✓ N]
5 Properly Preserved [✓ Y] N
Checked at bench Y N
6 Received Within Holding Times [✓ Y] N

COC Tape Was:
1 Present on Outer Package [✓ Y] N NA
2 Unbroken on Outer Package [✓ Y] N NA
3 Present on Sample Y N [✓ NA]
4 Unbroken on Sample Y N [✓ NA]

Discrepancies Between Sample Labels and COC Record? Y [✓ N]

Relinquished by: Signature Garrin Palmer Date: 3/10/17
Print Name: Garrin Palmer Time: 0853
Received by: Signature Elona Hayes Date: 3/10/17
Print Name: Elona Hayes Time: 0853

Relinquished by: Signature Date:
Print Name: Time:
Received by: Signature Date:
Print Name: Time:

Relinquished by: Signature Date:
Print Name: Time:
Received by: Signature Date:
Print Name: Time:

Relinquished by: Signature Date:
Print Name: Time:
Received by: Signature Date:
Print Name: Time:

Special Instructions:

See the Analytical Scope of Work for Reporting Limits and VOC analyte list.

Lab Set ID: 1703181

pH Lot #: 5000

Preservation Check Sheet

Sample Set Extension and pH

Analysis	Preservative	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Ammonia	pH <2 H_2SO_4																		
COD	pH <2 H_2SO_4																		
Cyanide	pH >12 NaOH																		
Metals	pH <2 HNO_3																		
NO_2 & NO_3	pH <2 H_2SO_4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
O & G	pH <2 HCL																		
Phenols	pH <2 H_2SO_4																		
Sulfide	pH >9 NaOH, Zn Acetate																		
TKN	pH <2 H_2SO_4																		
T PO_4	pH <2 H_2SO_4																		

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved, properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

*	The sample required additional preservative upon receipt.
+	The sample was received unpreserved.
▲	The sample was received unpreserved and therefore preserved upon receipt.
#	The sample pH was unadjustable to a pH < 2 due to the sample matrix.
•	The sample pH was unadjustable to a pH > ____ due to the sample matrix interference.

Tab H

Quality Assurance and Data Validation Tables

H-1 Field Data QA/QC Evaluation

Location	Casing Volume	2x Casing Volume	Volume Pumped	Volume Check	Conductivity		RPD	pH		RPD	Temp		RPD	Redox Potential		RPD	Turbidity		RPD
Piezometer 1	NA	--			2102		NC	6.92		NC	13.70		NC	442		NC	0.0		NC
Piezometer 2	NA	--			903		NC	6.99		NC	14.80		NC	432		NC	0.0		NC
Piezometer 3A	NA	--			1137		NC	6.84		NC	13.53		NC	436		NC	30.0		NC
TWN-1	31.93	63.86	80.00	OK	870	871	0.11	6.90	6.89	0.15	15.11	15.12	0.07	391	391	NC	0.0	0.0	NC
TWN-2	39.15	Continuously Pumped Well			2510		NC	6.59		NC	13.67		NC	445		NC	0.0		NC
TWN-3	36.33	72.66	62.50	Pumped Dry	2144	2148	0.19	6.63	6.65	0.30	14.66	14.62	0.27	NM		NC	NM		NC
TWN-4	45.48	90.96	120.00	OK	1078	1077	0.09	6.74	6.73	0.15	14.71	14.71	0.00	405	405	0.00	0.0	0.0	0.00
TWN-7	13.35	26.70	23.33	Pumped Dry	1351	1356	0.37	6.35	6.40	0.78	14.70	14.65	0.34	NM		NC	NM		NC
TWN-18	54.94	109.88	130.00	OK	2356	2358	0.08	6.52	6.51	0.15	14.45	14.45	0.00	402	401	0.25	0.0	0.0	0.00
TW4-22	34.70	Continuously pumped well			5416		NC	6.44		NC	15.81		NC	406		NC	0.0		NC
TW4-24	32.12	Continuously pumped well			9695		NC	6.16		NC	15.38		NC	429		NC	0.0		NC
TW4-25	84.07	Continuously pumped well			2885		NC	6.44		NC	16.03		NC	426		NC	0.0		NC

NC = Not Calculated

TWN-2, TW4-22, TW4-24, and TW4-25 are continuously pumping wells.

Piezometers 1, 2, and 3A were not pumped, only one set of parameters were taken.

TWN-3 and TWN-7 were pumped dry and sampled after recovery.

The QAP states that turbidity should be less than 5 Nephelometric Turbidity Units ("NTU") prior to sampling unless the well is characterized by water that has a higher turbidity. The QAP does not require that turbidity measurements be less than 5 NTU prior to sampling. As such, the noted observations regarding turbidity measurements less than 5 NTU below are included for information purposes only.

NM = Not Measured. The QAP does not require the measurement of redox potential or turbidity in wells that were purged to dryness.

H-2: Holding Time Evaluation

Location ID	Parameter Name	Sample Date	Analysis Date	Hold Time (Days)	Allowed Hold Time (Days)	Hold Time Check
PIEZ-01	Chloride	2/15/2017	2/22/2017	7	28	OK
PIEZ-01	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
PIEZ-02	Chloride	2/15/2017	2/22/2017	7	28	OK
PIEZ-02	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
PIEZ-03A	Chloride	2/15/2017	2/22/2017	7	28	OK
PIEZ-03A	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-01	Chloride	2/15/2017	2/22/2017	7	28	OK
TWN-01	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-02	Chloride	2/15/2017	2/22/2017	7	28	OK
TWN-02	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-03	Chloride	2/16/2017	2/22/2017	6	28	OK
TWN-03	Nitrate/Nitrite (as N)	2/16/2017	2/17/2017	1	28	OK
TWN-04	Chloride	2/15/2017	2/22/2017	7	28	OK
TWN-04	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-07	Chloride	2/16/2017	2/22/2017	6	28	OK
TWN-07	Nitrate/Nitrite (as N)	2/16/2017	2/17/2017	1	28	OK
TWN-18	Chloride	2/15/2017	2/23/2017	8	28	OK
TWN-18	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-18R	Chloride	2/15/2017	2/23/2017	8	28	OK
TWN-18R	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK
TWN-60	Chloride	2/16/2017	2/22/2017	6	28	OK
TWN-60	Nitrate/Nitrite (as N)	2/16/2017	2/17/2017	1	28	OK
TWN-65	Chloride	2/15/2017	2/22/2017	7	28	OK
TWN-65	Nitrate/Nitrite (as N)	2/15/2017	2/17/2017	2	28	OK

H-3: Analytical Method Check

Parameter	Method	Method Used by Lab
Nitrate	E353.1 or E353.2	E353.2
Chloride	A4500-Cl B or A4500-Cl E or E300.0	E300.0

Both Nitrate and Chloride were analyzed with the correct analytical method.

H-4 Reporting Limit Check

Location	Analyte	Lab Reporting Limit	Units	Qualifier	Dilution Factor	Required Reporting Limit	RL Check
PIEZ-01	Chloride	10	mg/L		10	1	OK
PIEZ-01	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
PIEZ-02	Chloride	5	mg/L		5	1	OK
PIEZ-02	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
PIEZ-03A	Chloride	10	mg/L		10	1	OK
PIEZ-03A	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-01	Chloride	10	mg/L		10	1	OK
TWN-01	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-02	Chloride	10	mg/L		10	1	OK
TWN-02	Nitrate/Nitrite (as N)	0.2	mg/L		20	0.1	OK
TWN-03	Chloride	10	mg/L		10	1	OK
TWN-03	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-04	Chloride	10	mg/L		10	1	OK
TWN-04	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-07	Chloride	1	mg/L		1	1	OK
TWN-07	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-18	Chloride	10	mg/L		10	1	OK
TWN-18	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK
TWN-18R	Chloride	1	mg/L	U	1	1	OK
TWN-18R	Nitrate/Nitrite (as N)	0.1	mg/L	U	10	0.1	OK
TWN-60	Chloride	1	mg/L	U	1	1	OK
TWN-60	Nitrate/Nitrite (as N)	0.1	mg/L	U	10	0.1	OK
TWN-65	Chloride	10	mg/L		10	1	OK
TWN-65	Nitrate/Nitrite (as N)	0.1	mg/L		10	0.1	OK

H-5 QA/QC Evaluation for Sample Duplicates

Constituent	TWN-1	TWN-65	%RPD
Chloride	31.2	31.5	0.96
Nitrogen	2.06	1.98	3.96

ND - non-detect
NC - not calculated. The RPD was not calucated, because the duplicate sample was reported as non-detect.

H-6 QC Control Limits for Analysis and Blanks

Method Blank Detections

All Method Blanks for the quarter were non-detect.

Matrix Spike % Recovery Comparison

Lab Report	Lab Sample ID	Well	Analyte	MS %REC	MSD %REC	REC Range	RPD
1703181	1703180-003BMS	N/A	Nitrate	115	112	90-110	2.30

* - Recovery was not calculated because the analyte of the sample was greater than 4 times the spike amount

N/A - QC was not performed on an EFRI sample.

NC - Not calculated

Laboratory Control Sample

All Laboratory Control Samples were within acceptance limits for the quarter.

H-7 Receipt Temperature Evaluation

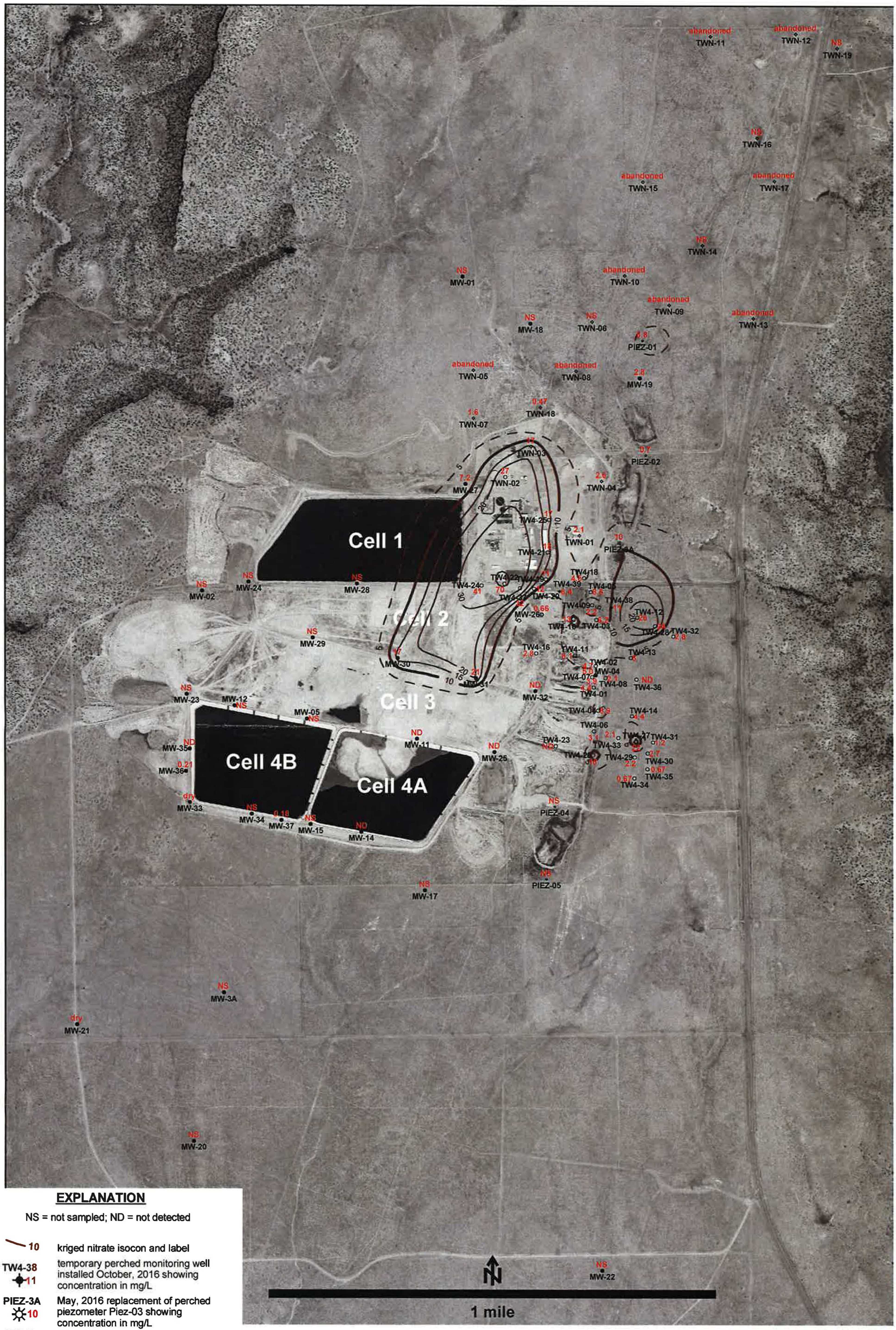
Sample Batch	Wells in Batch	Temperature
1702367	Piez-01, Piez-02, Piez-03A, TWN-1, TWN-2, TWN-3, TWN-4, TWN-7, TWN-18R, TWN-18, TWN-60, TWN-65	0.8 °C
1703181	TW4-22, TW4-24, TW4-25, TW4-60	2.4 °C

H-8 Rinsate Evaluation

All rinsate and DI blank samples were non-detect for the quarter.

Tab I

Kriged Current Quarter Isoconcentration Maps



EXPLANATION

NS = not sampled; ND = not detected

10	kriged nitrate isocon and label
TW4-38 ✦ 11	temporary perched monitoring well installed October, 2016 showing concentration in mg/L
PIEZ-3A ☼ 10	May, 2016 replacement of perched piezometer Piez-03 showing concentration in mg/L
MW-32 ● ND	perched monitoring well showing concentration in mg/L
TW4-7 ○ 3.9	temporary perched monitoring well showing concentration in mg/L
TWN-1 ◇ 2.1	temporary perched nitrate monitoring well showing concentration in mg/L
PIEZ-1 ◒ 6.8	perched piezometer showing concentration in mg/L

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37 and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25 and TWN-2 are nitrate pumping wells

HYDRO
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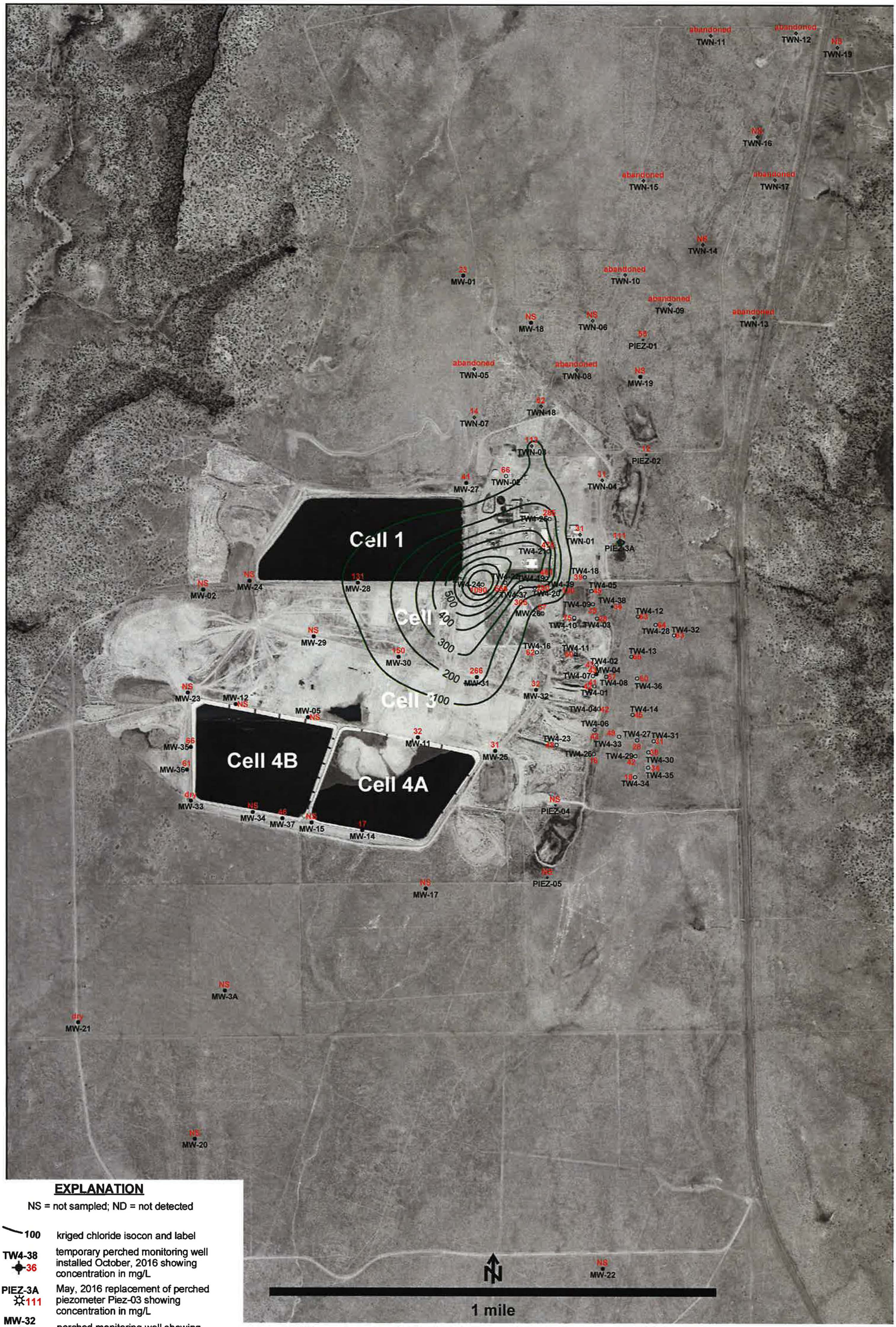
CHEM, INC.

KRIGED 1st QUARTER, 2017 NITRATE (mg/L) (NITRATE + NITRITE AS N) WHITE MESA SITE

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/may17/nitrate/Unt0317.srf	I-1



EXPLANATION

NS = not sampled; ND = not detected

100	kriged chloride isocon and label
TW4-38 ✦36	temporary perched monitoring well installed October, 2016 showing concentration in mg/L
PIEZ-3A ☼111	May, 2016 replacement of perched piezometer Piez-03 showing concentration in mg/L
MW-32 ●32	perched monitoring well showing concentration in mg/L
TW4-7 ○41	temporary perched monitoring well showing concentration in mg/L
TWN-1 ◇31	temporary perched nitrate monitoring well showing concentration in mg/L
PIEZ-1 ◒55	perched piezometer showing concentration in mg/L

NOTES: MW-4, MW-26, TW4-1, TW4-2, TW4-4, TW4-11, TW4-19, TW4-20, TW4-21, TW4-37 and TW4-39 are chloroform pumping wells; TW4-22, TW4-24, TW4-25 and TWN-2 are nitrate pumping wells

HYDRO
GEO
CHEM, INC.

KRIGED 1st QUARTER, 2017 CHLORIDE (mg/L)
WHITE MESA SITE

APPROVED	DATE	REFERENCE	FIGURE
		H:/718000/may17/chloride/Ucl10317.srf	I-2

Tab J

Analyte Concentrations over Time

Piezometer 1

Date	Nitrate (mg/l)	Chloride (mg/l)
2/19/2009	6.8	NA
7/14/2009	6.8	60
9/22/2009	7.3	78
10/27/2009	7.4	61
6/2/2010	7.2	52
7/19/2010	6.8	52
12/10/2010	6.5	60
1/31/2011	7	60
4/25/2011	6.8	58
7/25/2011	7	53
10/19/2011	6.6	55
1/11/2012	7.1	78
4/20/2012	6.6	58
7/27/2012	7.2	56
10/17/2012	7.66	55
2/18/2013	8.11	56.7
4/24/2013	8.88	53.3
8/28/2013	7.83	55.1
10/16/2013	6.68	54.1
1/13/2014	6.79	56.2
5/7/2014	7.57	52.1
8/6/2014	5.1	55
10/8/2014	5.75	57.6
2/18/2015	6.41	55.9
5/12/2015	5.95	57.5
8/26/2015	4.96	64.2
10/14/2015	6.17	54.4
2/23/2016	8.31	56.5
5/17/2016	6.33	59.1
7/19/2016	6.78	53.9
10/11/2016	6.42	58.1
2/15/2017	6.75	54.5

Piezometer 2

Date	Nitrate (mg/l)	Chloride (mg/l)
2/19/2009	0.500	NA
7/14/2009	0.500	7.0
9/22/2009	0.500	17.0
10/27/2009	0.600	7.0
6/2/2010	0.600	8.0
7/19/2010	0.600	8.0
12/10/2010	0.200	6.0
1/31/2011	0.300	9.0
4/25/2011	0.300	8.0
7/25/2011	0.100	9.0
10/19/2011	0.100	8.0
1/11/2012	0.100	9.0
4/20/2012	0.200	8.0
7/27/2012	0.200	9.0
10/17/2012	0.192	9.5
2/19/2013	0.218	9.7
4/24/2013	0.172	10.3
8/28/2013	0.198	9.7
10/16/2013	0.364	9.2
1/13/2014	0.169	11.4
5/7/2014	0.736	11.4
8/6/2014	0.800	12.0
10/8/2014	0.755	12.2
2/18/2015	0.749	12.6
5/12/2015	0.646	13.1
8/26/2015	0.662	15.5
10/14/2015	0.692	13.3
2/23/2016	0.615	13.4
5/17/2016	0.665	14.0
7/19/2016	0.669	12.4
10/11/2016	0.732	13.4
2/15/2017	0.696	12.4

Piezometer 3A

Date	Nitrate (mg/l)	Chloride (mg/l)
5/17/2016	8.23	109
7/19/2016	8.83	93.8
10/11/2016	8.44	100
2/15/2017	10.0	111

TWN-1

Date	Nitrate (mg/l)	Chloride (mg/l)
2/6/2009	0.7	19
7/21/2009	0.4	17
9/21/2009	0.4	19
10/28/2009	0.5	18
3/17/2010	0.5	17
5/26/2010	0.6	20
9/27/2010	0.6	19
12/7/2010	0.6	14
1/26/2011	0.5	17
4/20/2011	0.5	19
7/26/2011	0.5	14
10/17/2011	0.5	10
1/9/2012	0.6	15
4/18/2012	0.6	17
7/24/2012	0.6	17
10/15/2012	0.432	17.5
2/18/2013	0.681	17.6
4/23/2013	0.84	17.4
8/27/2013	1.24	24.1
10/16/2013	1.61	26.8
1/14/2014	1.47	29.2
5/6/2014	1.63	31.1
8/5/2014	1.7	28
10/8/2014	1.46	27.6
2/18/2015	1.37	27.8
5/13/2015	0.65	29.2
8/25/2015	0.324	33.2
10/13/2015	1.35	27.7
2/23/2016	1.51	30.3
5/17/2016	1.73	32.1
7/20/2016	1.76	29.6
10/6/2016	1.98	33.0
2/15/2017	2.06	31.2

TWN-2

Date	Nitrate (mg/l)	Chloride (mg/l)
2/6/2009	25.4	29
7/21/2009	25	25
9/21/2009	22.6	17
11/2/2009	20.8	55
3/24/2010	62.1	85
6/2/2010	69	97
9/29/2010	69	104
12/9/2010	48	93
2/1/2011	43	93
4/28/2011	40	85
7/28/2011	33	74
10/20/2011	33	76
1/12/2012	31	86
4/20/2012	48	103
7/31/2012	54	93
10/17/2012	22.1	79
2/19/2013	57.3	80.5
4/24/2013	57.7	82.1
8/27/2013	80	75.9
10/16/2013	111	70.4
1/13/2014	42.6	72.4
5/7/2014	44.7	84.9
8/6/2014	42	80
10/8/2014	70.6	81
2/18/2015	48.6	84.8
5/12/2015	52.8	82.6
8/25/2015	49.7	87.8
10/14/2015	44.9	74.9
2/23/2016	86.3	73.9
5/17/2016	45.4	74.5
7/19/2016	35.3	68.8
10/11/2016	32.6	69.8
2/15/2017	27.4	65.8

TWN-3

Date	Nitrate (mg/l)	Chloride (mg/l)
2/6/2009	23.6	96
7/21/2009	25.3	96
9/21/2009	27.1	99
11/2/2009	29	106
3/25/2010	25.3	111
6/3/2010	26	118
7/15/2010	27	106
12/10/2010	24	117
2/1/2011	24	138
4/28/2011	26	128
7/29/2011	25	134
10/20/2011	25	129
1/12/2012	25	143
4/20/2012	24	152
7/31/2012	27	158
10/17/2012	12.1	149
2/19/2013	22.2	157
4/24/2013	27.2	158
8/28/2013	20.9	171
10/17/2013	23.5	163
1/15/2014	19.6	160
5/7/2014	23.6	168
8/6/2014	19.5	174
10/9/2014	19.1	153
2/19/2015	19.4	164
5/14/2015	17.2	141
8/26/2015	16.2	156
10/14/2015	16.3	129
2/24/2016	16.8	128
5/18/2016	13.5	116
7/19/2016	16.8	110
10/7/2016	15.8	113
2/16/2017	17.4	113

TWN-4

Date	Nitrate (mg/l)	Chloride (mg/l)
2/6/2009	1.00	13.0
7/21/2009	0.05	12.0
9/21/2009	0.40	13.0
10/28/2009	0.40	11.0
3/16/2010	0.90	22.0
5/27/2010	1.00	22.0
9/27/2010	0.90	19.0
12/8/2010	1.00	21.0
1/25/2011	0.90	21.0
4/20/2011	0.90	21.0
7/26/2011	1.10	35.0
10/18/2011	0.90	20.0
1/9/2012	0.90	20.0
4/18/2012	1.10	24.0
7/25/2012	1.40	25.0
10/15/2012	1.45	26.4
2/18/2013	1.51	25.3
4/23/2013	1.63	24.4
8/27/2013	1.58	27.2
10/16/2013	1.69	29.4
1/14/2014	1.41	28.4
5/6/2014	1.55	29.6
8/5/2014	2.00	28.0
10/8/2014	1.44	30.7
2/18/2015	1.48	31.5
5/13/2015	0.73	31.9
8/25/2015	0.97	35.2
10/13/2015	1.58	28.4
2/23/2016	2.02	30.7
5/17/2016	2.97	31.7
7/20/2016	3.14	28.0
10/6/2016	3.09	31.3
2/15/2017	2.63	31.2

TWN-7

Date	Nitrate (mg/l)	Chloride (mg/l)
8/25/2009	ND	11.00
9/21/2009	ND	7.00
11/10/2009	0.100	7.00
3/17/2010	0.800	6.00
5/28/2010	1.200	6.00
7/14/2010	1.600	7.00
12/10/2010	1.000	4.00
1/27/2011	1.300	6.00
4/21/2011	1.700	6.00
7/29/2011	0.700	5.00
10/19/2011	2.200	6.00
1/11/2012	2.300	5.00
4/20/2012	1.200	6.00
7/26/2012	0.900	6.00
10/16/2012	0.641	5.67
2/19/2013	0.591	5.68
4/24/2013	1.160	5.88
8/28/2013	0.835	6.96
10/16/2013	0.986	5.70
1/15/2014	0.882	5.75
5/7/2014	0.564	5.26
8/6/2014	0.900	6.00
10/9/2014	0.968	5.93
2/19/2015	1.040	5.58
5/14/2015	0.779	6.18
8/26/2015	0.348	6.12
10/14/2015	0.672	5.84
2/24/2016	0.240	6.06
5/18/2016	0.732	6.26
7/21/2016	0.810	5.97
10/7/2016	0.698	6.17
2/16/2017	1.630	14.0

TWN-18

Date	Nitrate (mg/l)	Chloride (mg/l)
11/2/2009	1.300	57.0
3/17/2010	1.600	42.0
6/1/2010	1.800	63.0
9/27/2010	1.800	64.0
12/9/2010	1.600	59.0
1/27/2011	1.400	61.0
4/26/2011	1.800	67.0
7/28/2011	1.800	65.0
10/18/2011	1.900	60.0
1/10/2012	1.900	64.0
4/19/2012	2.100	64.0
7/26/2012	2.300	67.0
10/16/2012	1.950	67.5
2/18/2013	2.270	68.7
4/23/2013	2.320	64.3
8/27/2013	2.040	70.4
10/16/2013	2.150	67.3
1/14/2014	2.330	68.4
5/6/2014	2.180	76.5
8/5/2014	1.800	70.0
10/8/2014	1.470	74.8
2/18/2015	1.000	73.3
5/13/2015	1.350	76.6
8/25/2015	0.350	81.3
10/13/2015	0.668	69.0
2/23/2016	0.648	67.6
5/17/2016	0.497	69.9
7/20/2016	0.100	52.7
10/6/2016	0.501	67.4
2/15/2017	0.470	62.1

TW4-19

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
7/22/2002	42.80	12/7/2005	81
9/12/2002	47.60	3/9/2006	86
3/28/2003	61.40	7/20/2006	123
6/23/2003	11.40	11/9/2006	134
7/15/2003	6.80	2/28/2007	133
8/15/2003	4.00	8/15/2007	129
9/12/2003	5.70	10/10/2007	132
9/25/2003	9.20	3/26/2008	131
10/29/2003	7.70	6/25/2008	128
11/9/2003	4.80	9/10/2008	113
8/16/2004	9.91	10/15/2008	124
9/17/2004	4.50	3/4/2009	127
3/16/2005	5.30	6/23/2009	132
6/7/2005	5.70	9/14/2009	43
8/31/2005	4.60	12/14/2009	124
12/1/2005	0.10	2/17/2010	144
3/9/2006	4.00	6/9/2010	132
6/14/2006	5.20	8/16/2010	142
7/20/2006	4.30	10/11/2010	146
11/9/2006	4.60	2/17/2011	135
2/28/2007	4.00	6/7/2011	148
8/15/2007	4.10	8/17/2011	148
10/10/2007	4.00	11/17/2011	148
3/26/2008	2.20	1/23/2012	138
6/25/2008	2.81	6/6/2012	149
9/10/2008	36.20	9/5/2012	149
10/15/2008	47.80	10/3/2012	150
3/4/2009	3.20	2/11/2013	164
6/23/2009	2.40	6/5/2013	148
9/14/2009	0.10	9/3/2013	179
12/14/2009	26.70	10/29/2013	206
2/17/2010	2.00	1/27/2014	134
6/9/2010	4.40	5/19/2014	152
8/16/2010	5.90	8/11/2014	140
10/11/2010	2.70	10/21/2014	130
2/17/2011	17.00	3/9/2015	238
6/7/2011	12.00	6/8/2015	180
8/17/2011	3.00	8/31/2015	326
11/17/2011	5.00	10/19/2015	252
1/23/2012	0.60	3/9/2016	276
6/6/2012	2.40	5/23/2016	201
9/5/2012	2.50	7/25/2016	214
10/3/2012	4.10	10/13/2016	200
2/11/2013	7.99	3/8/2017	461
6/5/2013	2.95		

TW4-19

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
9/3/2013	17.60		
10/29/2013	4.70		
1/27/2014	1.62		
5/19/2014	1.34		
8/11/2014	1.60		
10/21/2014	4.72		
3/9/2015	8.56		
6/8/2015	0.92		
8/31/2015	11.60		
10/19/2015	10.60		
3/9/2016	15.7		
5/23/2016	1.27		
7/25/2016	10.50		
10/13/2016	10.00		
3/8/2017	11.10		

The sampling program for TW4-19 was updated in the fourth quarter of 2005 to include analysis for chloride as well as nitrate. This change accounts for the different number of data points represented above.

TW4-21

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
5/25/2005	14.6	12/7/2005	353
8/31/2005	10.1	3/9/2006	347
11/30/2005	9.6	7/20/2006	357
3/9/2006	8.5	11/8/2006	296
6/14/2006	10.2	2/28/2007	306
7/20/2006	8.9	6/27/2007	327
11/8/2006	8.7	8/15/2007	300
2/28/2007	8.7	10/10/2007	288
6/27/2007	8.6	3/26/2008	331
8/15/2007	8.6	6/25/2008	271
10/10/2007	8.3	9/10/2008	244
3/26/2008	14.3	10/15/2008	284
6/25/2008	8.8	3/11/2009	279
9/10/2008	7.6	6/24/2009	291
10/15/2008	8.0	9/15/2009	281
3/11/2009	8.3	12/22/2009	256
6/24/2009	8.1	2/25/2010	228
9/15/2009	9.2	6/10/2010	266
12/22/2009	8.4	8/12/2010	278
2/25/2010	8.4	10/13/2010	210
6/10/2010	12.0	2/22/2011	303
8/12/2010	14.0	6/1/2011	297
10/13/2010	7.0	8/17/2011	287
2/22/2011	9.0	11/16/2011	276
6/1/2011	13.0	1/19/2012	228
8/17/2011	14.0	6/13/2012	285
11/16/2011	13.0	9/13/2012	142
1/19/2012	15.0	10/4/2012	270
6/13/2012	11.0	2/13/2013	221
9/13/2012	13.0	6/18/2013	243
10/4/2012	14.0	9/12/2013	207
2/13/2013	11.8	11/13/2013	206
6/18/2013	13.8	2/5/2014	200
9/12/2013	10.3	5/22/2014	243
11/13/2013	9.0	8/27/2014	230
2/5/2014	11.4	10/29/2014	252
5/22/2014	11.5	3/12/2015	255
8/27/2014	7.1	6/8/2015	494
10/29/2014	10.0	8/31/2015	499

TW4-21

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
3/12/2015	10.9	10/19/2015	413
6/8/2015	13.1	3/9/2016	452
8/31/2015	14.7	5/23/2016	425
10/19/2015	14.3	7/25/2016	457
3/9/2016	14.6	10/12/2016	439
5/23/2016	13.1	3/8/2017	478
7/25/2016	16.5		
10/12/2016	13.5		
3/8/2017	17.7		

The sampling program for TW4-21 was updated in the fourth quarter of 2005 to include analysis for chloride as well as nitrate. This change accounts for the different number of data points represented above.

TW4-24

Date	Nitrate (mg/l)	Chloride (mg/l)
6/27/2007	26.1	770
8/15/2007	29	791
10/10/2007	24.7	692
3/26/2008	24.4	740
6/25/2008	45.3	834
9/10/2008	38.4	1180
10/15/2008	44.6	1130
3/4/2009	30.5	1010
6/24/2009	30.4	759
9/15/2009	30.7	618
12/17/2009	28.3	1080
2/25/2010	33.1	896
6/9/2010	30	639
8/11/2010	32	556
8/24/2010	31	587
10/6/2010	31	522
2/17/2011	31	1100
5/26/2011	35	1110
8/17/2011	34	967
11/16/2011	35	608
1/18/2012	37	373
6/6/2012	37	355
8/30/2012	37	489
10/3/2012	38	405
2/11/2013	35.9	1260
6/5/2013	23.7	916
9/3/2013	32.6	998
10/29/2013	34.6	1030
1/27/2014	31.6	809
5/19/2014	35	1020
8/11/2014	31.5	1150
10/21/2014	35.7	1050
3/9/2015	34.6	944
6/8/2015	31.8	1290
8/31/2015	25.3	788
10/19/2015	29.6	909
3/9/2016	29.1	989
5/23/2016	24.2	771
7/25/2016	34.4	1,180
10/12/2016	31.9	1,010
3/8/2017	41.3	1,090

TW4-22

Date	Nitrate (mg/l)	Chloride (mg/l)
2/28/2007	20.9	347
6/27/2007	19.3	273
8/15/2007	19.3	259
10/10/2007	18.8	238
3/26/2008	39.1	519
6/25/2008	41.9	271
9/10/2008	38.7	524
10/15/2008	36.3	539
3/11/2009	20.7	177
6/24/2009	20.6	177
9/15/2009	40.3	391
12/29/2009	17.8	175
3/3/2010	36.6	427
6/15/2010	19	134
8/12/2010	18	127
8/24/2010	15	130
10/13/2010	16	134
2/23/2011	18	114
6/1/2011	17	138
8/17/2011	15	120
11/16/2011	19	174
1/19/2012	14	36
6/13/2012	12.8	35
9/12/2012	7	121
10/4/2012	14	130
2/11/2013	58	635
6/5/2013	50.2	586
9/3/2013	29.7	487
10/29/2013	45.2	501
1/27/2014	54.6	598
5/19/2014	47.2	614
8/11/2014	41.5	540
10/21/2014	54.9	596
3/9/2015	69.2	675
6/8/2015	47.1	390
8/31/2015	64.7	557
10/19/2015	56.1	567
3/9/2016	31.1	583
5/23/2016	58.4	598
7/25/2016	61.3	619
10/12/2016	61.5	588
3/8/2017	69.8	566

TW4-24

Date	Nitrate (mg/l)	Chloride (mg/l)
6/27/2007	26.1	770
8/15/2007	29	791
10/10/2007	24.7	692
3/26/2008	24.4	740
6/25/2008	45.3	834
9/10/2008	38.4	1180
10/15/2008	44.6	1130
3/4/2009	30.5	1010
6/24/2009	30.4	759
9/15/2009	30.7	618
12/17/2009	28.3	1080
2/25/2010	33.1	896
6/9/2010	30	639
8/11/2010	32	556
8/24/2010	31	587
10/6/2010	31	522
2/17/2011	31	1100
5/26/2011	35	1110
8/17/2011	34	967
11/16/2011	35	608
1/18/2012	37	373
6/6/2012	37	355
8/30/2012	37	489
10/3/2012	38	405
2/11/2013	35.9	1260
6/5/2013	23.7	916
9/3/2013	32.6	998
10/29/2013	34.6	1030
1/27/2014	31.6	809
5/19/2014	35	1020
8/11/2014	31.5	1150
10/21/2014	35.7	1050
3/9/2015	34.6	944
6/8/2015	31.8	1290
8/31/2015	25.3	788
10/19/2015	29.6	909
3/9/2016	29.1	989
5/23/2016	24.2	771
7/25/2016	34.4	1,180
10/12/2016	31.9	1,010
3/8/2017	41.3	1,090

TW4-25

Date	Nitrate (mg/l)	Chloride (mg/l)
6/27/2007	17.1	395
8/15/2007	16.7	382
10/10/2007	17	356
3/26/2008	18.7	374
6/25/2008	22.1	344
9/10/2008	18.8	333
10/15/2008	21.3	366
3/4/2009	15.3	332
6/24/2009	15.3	328
9/15/2009	3.3	328
12/16/2009	14.2	371
2/23/2010	14.4	296
6/8/2010	16	306
8/10/2010	14	250
10/5/2010	15	312
2/16/2011	15	315
5/25/2011	16	321
8/16/2011	16	276
11/15/2011	16	294
1/18/2012	16	304
5/31/2012	16	287
9/11/2012	17	334
10/3/2012	17	338
2/11/2013	9.04	190
6/5/2013	5.24	136
9/3/2013	5.69	119
10/29/2013	6.10	88.6
1/27/2014	2.16	85.7
5/19/2014	1.21	51.1
8/11/2014	1.6	67
10/21/2014	1.03	58.1
3/9/2015	14.4	310
6/8/2015	1.14	58.3
8/31/2015	1.63	69.2
10/21/2015	1.78	93.7
3/9/2016	0.837	62.7
5/23/2016	0.959	75.5
7/25/2016	1.78	74.1
10/12/2016	1.24	59.8
3/8/2017	17.0	285

MW-30

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
6/22/2005	12.4	6/22/2005	125
9/22/2005	12.8	9/22/2005	125
12/14/2005	13.6	12/14/2005	128
3/22/2006	13.8	3/22/2006	125
6/21/2006	14.5	6/21/2006	124
9/13/2006	14.1	9/13/2006	118
10/25/2006	14.6	10/25/2006	124
3/15/2007	14.4	3/15/2007	125
8/22/2007	14.6	8/22/2007	126
10/24/2007	14.9	10/24/2007	122
3/19/2008	14.8	3/19/2008	118
6/3/2008	18.7	6/3/2008	125
8/4/2008	17.3	8/4/2008	121
11/5/2008	15.6	11/5/2008	162
2/3/2009	15.3	2/3/2009	113
5/13/2009	15.1	5/13/2009	122
8/24/2009	20.9	8/24/2009	118
10/14/2009	15.0	10/14/2009	129
1/20/2010	15.4	1/20/2010	106
2/9/2010	16.1	2/9/2010	127
4/27/2010	15.8	4/27/2010	97
5/24/2010	17.0	9/14/2010	111
6/15/2010	15.3	11/9/2010	126
8/24/2010	16.0	2/1/2011	134
9/14/2010	15.0	4/11/2011	134
10/19/2010	15.0	5/10/2011	128
11/9/2010	15.0	6/20/2011	127
12/14/2010	16.0	7/5/2011	127
1/10/2011	15.0	8/3/2011	126
2/1/2011	16.0	9/7/2011	145
3/14/2011	17.0	10/4/2011	129
4/11/2011	16.0	11/8/2011	122
5/10/2011	16.0	12/12/2011	124
6/20/2011	17.0	1/24/2012	124
7/5/2011	17.0	2/14/2012	126
8/3/2011	14.0	3/14/2012	128
9/7/2011	16.0	4/10/2012	128
10/4/2011	16.0	5/2/2012	124
11/8/2011	16.0	6/18/2012	131
12/12/2011	16.0	7/10/2012	128
1/24/2012	17.0	8/7/2012	139
2/14/2012	17.0	9/19/2012	130
3/14/2012	18.0	10/23/2012	135

MW-30

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
4/10/2012	17.0	11/13/2012	114
5/2/2012	16.0	12/26/2012	122
6/18/2012	15.0	1/23/2013	128
7/10/2012	17.0	2/26/2013	129
8/7/2012	18.0	3/20/2013	126
9/19/2012	16.0	4/17/2013	117
10/23/2012	16.2	5/15/2013	119
11/13/2012	18.5	6/25/2013	127
12/26/2012	17.2	7/10/2013	130
1/23/2013	19.2	8/20/2013	126
2/26/2013	21.4	9/18/2013	131
3/20/2013	14.3	10/22/2013	128
4/17/2013	16.8	11/20/2013	124
5/15/2013	18.8	12/18/2013	134
6/25/2013	16.1	1/8/2014	131
7/10/2013	17.6	2/25/2014	135
8/20/2013	16.4	3/11/2014	144
9/18/2013	16.9	4/23/2014	154
10/22/2013	19.7	5/14/2014	128
11/20/2013	19.5	6/3/2014	128
12/18/2013	20.7	7/29/2014	140
1/8/2014	20.3	8/20/2014	139
2/25/2014	18.4	9/9/2014	136
3/11/2014	21.3	10/7/2014	136
4/23/2014	18.3	11/10/2014	154
5/14/2014	17.9	12/10/2014	138
6/3/2014	19.4	1/21/2015	144
7/29/2014	15.6	2/4/2015	136
8/20/2014	13.8	3/3/2015	132
9/9/2014	16.8	4/8/2015	142
10/7/2014	11.0	5/12/2015	145
11/10/2014	16.2	6/24/2015	142
12/10/2014	17.1	7/7/2015	145
1/21/2015	19.5	8/11/2015	165
2/4/2015	14.9	9/15/2015	165
3/3/2015	17.3	10/7/2015	137

MW-30

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
4/8/2015	17.0	11/11/2015	140
5/12/2015	16.1	12/9/2015	144
6/24/2015	15.8	1/20/2016	143
7/7/2015	15.3	2/10/2016	145
8/11/2015	17.9	3/2/2016	142
9/15/2015	17.3	4/13/2016	144
10/7/2015	19.1	5/4/2016	139
11/11/2015	16.3	6/14/2016	142
12/9/2015	18.2	7/13/2016	137
1/20/2016	14.6	8/18/2016	150
2/10/2016	20.0	9/14/2016	146
3/2/2016	17.8	10/5/2016	148
4/13/2016	18.0	11/3/2016	143
5/4/2016	17.3	12/6/2016	158
6/14/2016	18.5	1/18/2017	150
7/13/2016	16.1	2/2/2017	150
8/18/2016	18.0	3/6/2017	250
9/14/2016	17.0		
10/5/2016	17.2		
11/3/2016	18.0		
12/6/2016	18.2		
1/18/2017	19.0		
2/2/2017	17.4		
3/6/2017	20.4		

Under the groundwater sampling program, accelerated monitoring for nitrate began in MW-30 prior to when the accelerated monitoring for chloride began. This difference accounts for the different number of data points represented above.

MW-31

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
6/22/2005	24.2	6/22/2005	139
9/22/2005	22.4	9/22/2005	136
12/14/2005	23.8	12/14/2005	135
3/22/2006	24.1	3/22/2006	133
6/21/2006	25.3	6/21/2006	138
9/13/2006	24.6	9/13/2006	131
10/25/2006	25.1	10/25/2006	127
3/15/2007	23.2	3/15/2007	132
3/15/2007	22.0	3/15/2007	132
8/27/2007	23.3	8/27/2007	136
10/24/2007	24.6	10/24/2007	122
3/19/2008	25.0	3/19/2008	124
6/3/2008	29.3	6/3/2008	128
8/4/2008	28.7	8/4/2008	124
11/11/2008	29.9	11/11/2008	119
2/3/2009	23.4	2/3/2009	115
5/13/2009	22.4	5/13/2009	124
8/24/2009	15.4	8/24/2009	122
10/14/2009	22.6	10/14/2009	138
2/9/2010	21.7	2/9/2010	128
4/20/2010	22.5	4/20/2010	128
5/21/2010	23.0	9/13/2010	139
6/15/2010	21.1	11/9/2010	138
8/24/2010	22.0	2/1/2011	145
9/13/2010	21.0	4/1/2011	143
10/19/2010	20.0	5/10/2011	143
11/9/2010	20.0	6/20/2011	145
12/14/2010	20.0	7/5/2011	148
1/10/2011	19.0	8/2/2011	148
2/1/2011	21.0	9/6/2011	148
3/14/2011	22.0	10/3/2011	145
4/1/2011	21.0	11/8/2011	145
5/10/2011	20.0	12/12/2011	148
6/20/2011	22.0	1/24/2012	155
7/5/2011	22.0	2/13/2012	150
8/2/2011	20.0	3/13/2012	152
9/6/2011	21.0	4/9/2012	160
10/3/2011	21.0	5/2/2012	151
11/8/2011	21.0	6/18/2012	138
12/12/2011	21.0	7/9/2012	161
1/24/2012	21.0	8/6/2012	175
2/13/2012	21.0	9/18/2012	172
3/13/2012	22.0	10/22/2012	157
4/9/2012	21.0	11/6/2012	189
5/2/2012	20.0	12/18/2012	170

MW-31

Date	Nitrate (mg/l)	Date	Chloride (mg/l)
6/18/2012	21.6	1/22/2013	176
7/9/2012	21.0	2/19/2013	174
8/6/2012	21.0	3/19/2013	168
9/18/2012	21.0	4/16/2013	171
10/22/2012	18.0	5/13/2013	169
11/6/2012	23.6	6/24/2013	179
12/18/2012	22.2	7/9/2013	182
1/22/2013	22.8	8/19/2013	183
2/19/2013	19.3	9/17/2013	193
3/19/2013	19.1	10/23/2013	188
4/16/2013	18.8	11/18/2013	174
5/13/2013	23.8	12/17/2013	203
6/24/2013	20.0	1/7/2014	194
7/9/2013	21.7	2/17/2014	197
8/19/2013	16.0	3/10/2014	230
9/17/2013	21.2	4/28/2014	230
10/23/2013	21.2	5/13/2014	200
11/18/2013	23.9	6/2/2014	173
12/17/2013	24.2	7/28/2014	200
1/7/2014	24.0	8/18/2014	210
2/17/2014	20.6	9/3/2014	210
3/10/2014	26.2	10/6/2014	205
4/28/2014	19.1	11/4/2014	204
5/13/2014	23.3	12/9/2014	215
6/2/2014	23.1	1/20/2015	226
7/28/2014	19.0	2/2/2015	211
8/18/2014	15.2	3/3/2015	209
9/3/2014	18.9	4/7/2015	211
10/6/2014	15.9	5/11/2015	225
11/4/2014	20.9	6/23/2015	228
12/9/2014	17.0	7/6/2015	222
1/20/2015	20.9	8/10/2015	264
2/2/2015	18.7	9/15/2015	231
3/3/2015	19.8	10/6/2015	222

MW-31

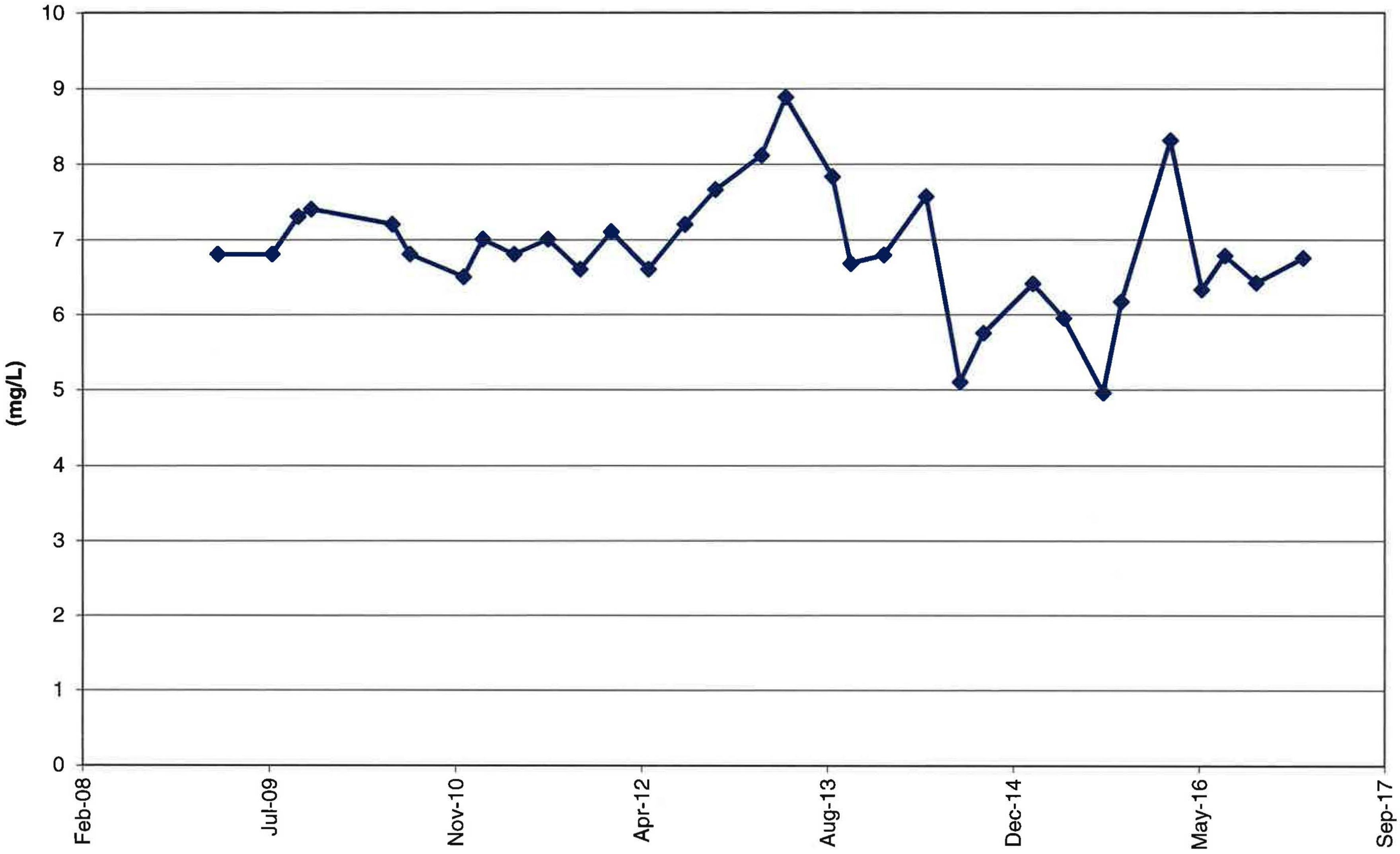
Date	Nitrate (mg/l)	Date	Chloride (mg/l)
4/7/2015	19.0	11/9/2015	215
5/11/2015	18.4	12/8/2015	231
6/23/2015	18.0	1/19/2016	228
7/6/2015	18.8	2/15/2016	246
8/10/2015	19.9	3/2/2016	228
9/15/2015	18.9	4/12/2016	254
10/6/2015	22.0	5/3/2016	243
11/9/2015	18.4	6/15/2016	252
12/8/2015	19.5	7/12/2016	241
1/19/2016	18.9	8/16/2016	272
2/15/2016	18.8	9/13/2016	254
3/2/2016	18.0	10/4/2016	260
4/12/2016	22.8	11/1/2016	267
5/3/2016	18.6	12/5/2016	274
6/15/2016	19.2	1/17/2017	287
7/12/2016	17.4	2/7/2017	266
8/16/2016	19.7	3/6/2017	250
9/13/2016	18.6		
10/4/2016	18.8		
11/1/2016	19.8		
12/5/2016	18.5		
1/17/2017	20.9		
2/7/2017	21.1		
3/6/2017	20.4		

Under the groundwater sampling progran, accelerated monitoring for nitrate began in MW-31 prior to when the accelerated monitoring for chloride began. This difference accounts for the different number of data points represented above.

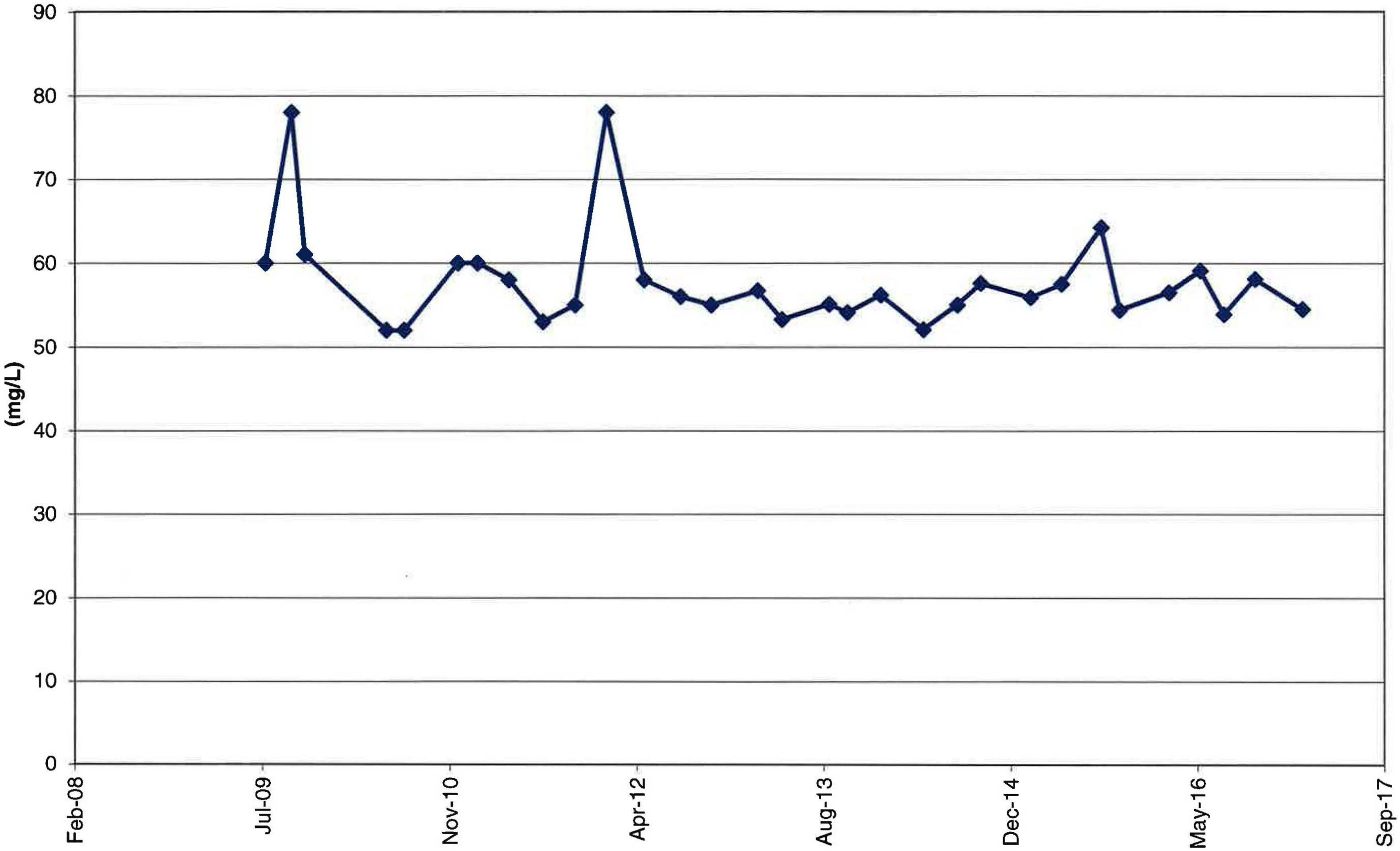
Tab K

Concentration Trend Graphs

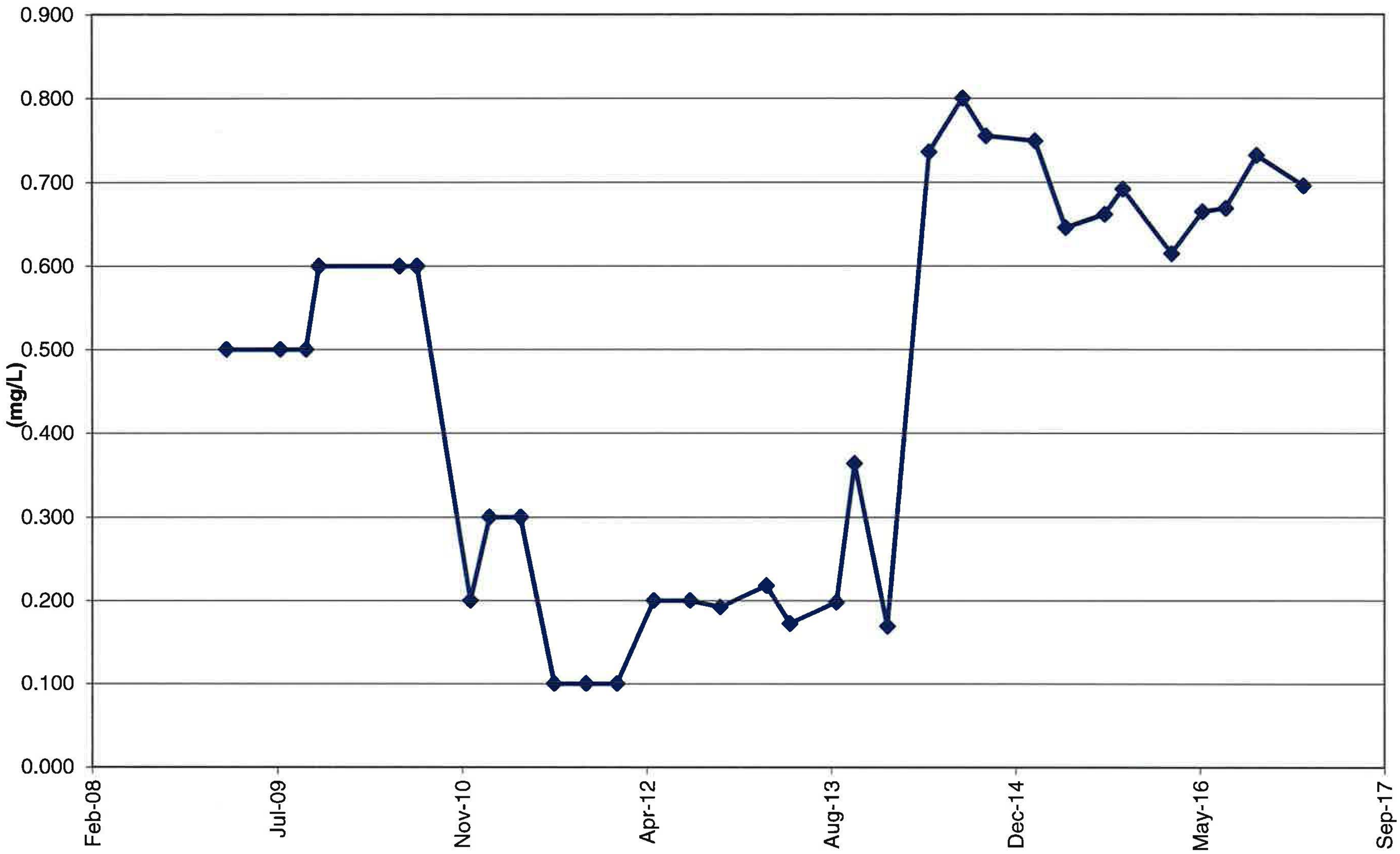
Piezometer 1 Nitrate Concentrations



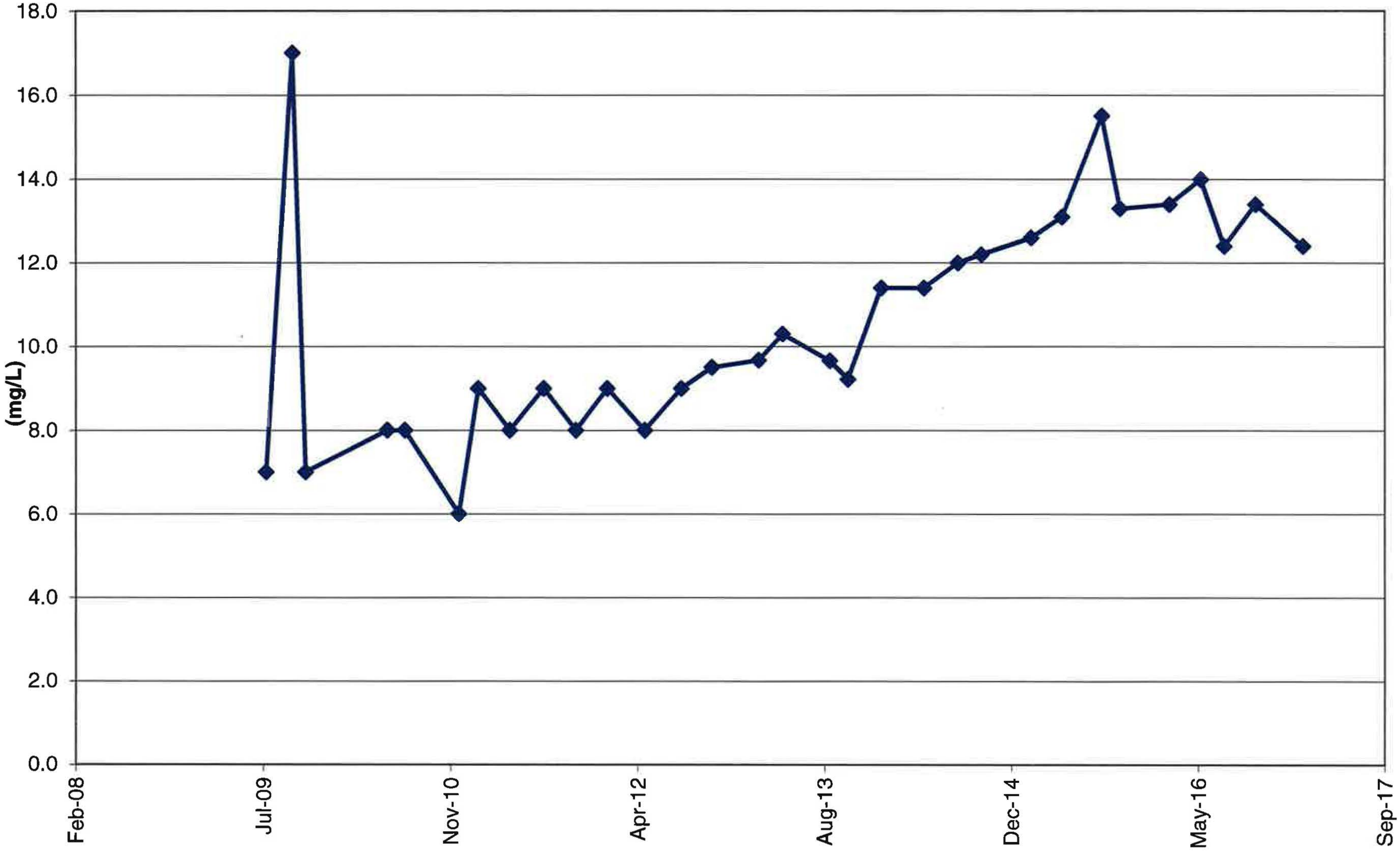
Piezometer 1 Chloride Concentrations



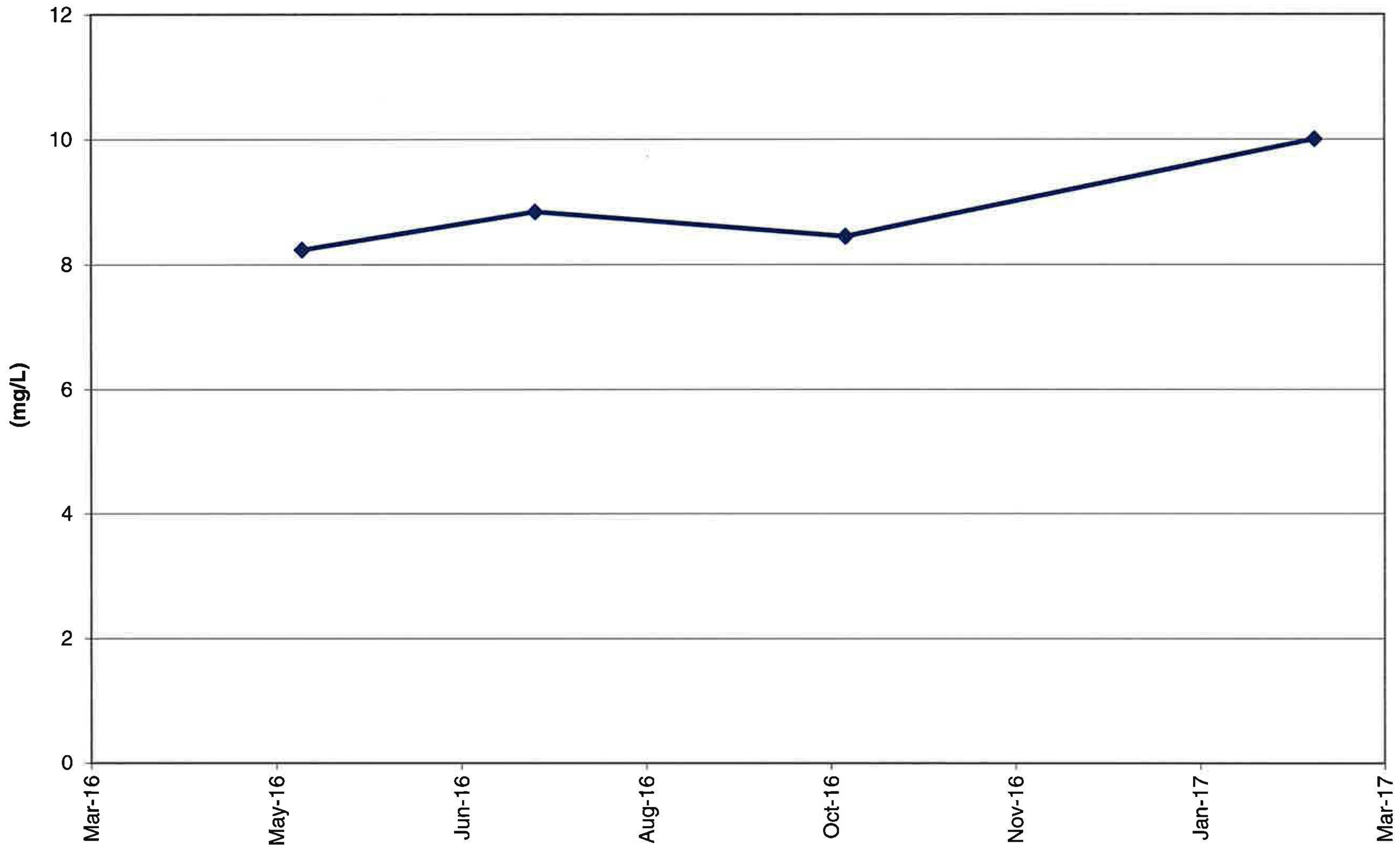
Piezometer 2 Nitrate Concentrations



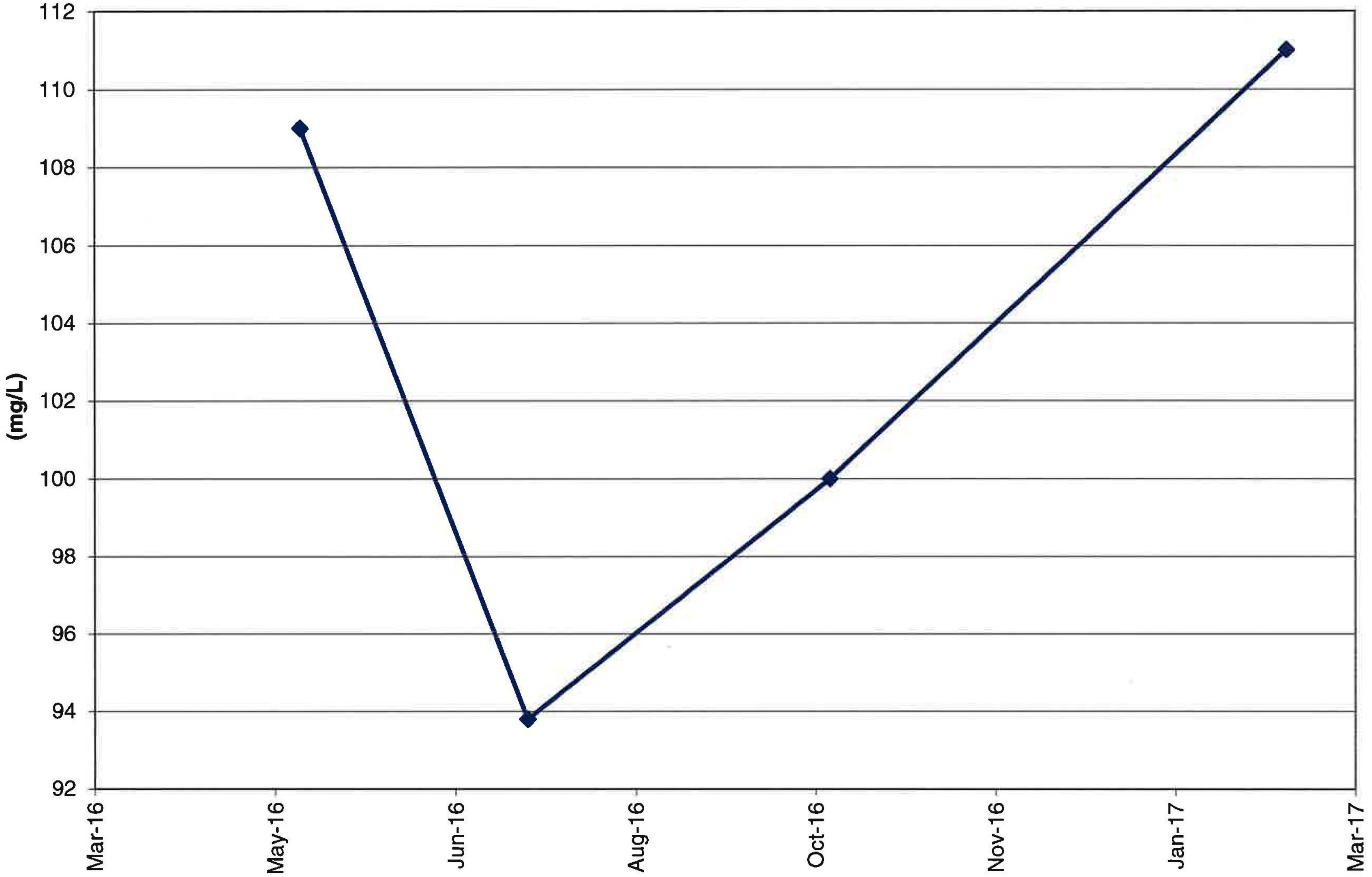
Piezometer 2 Chloride Concentrations



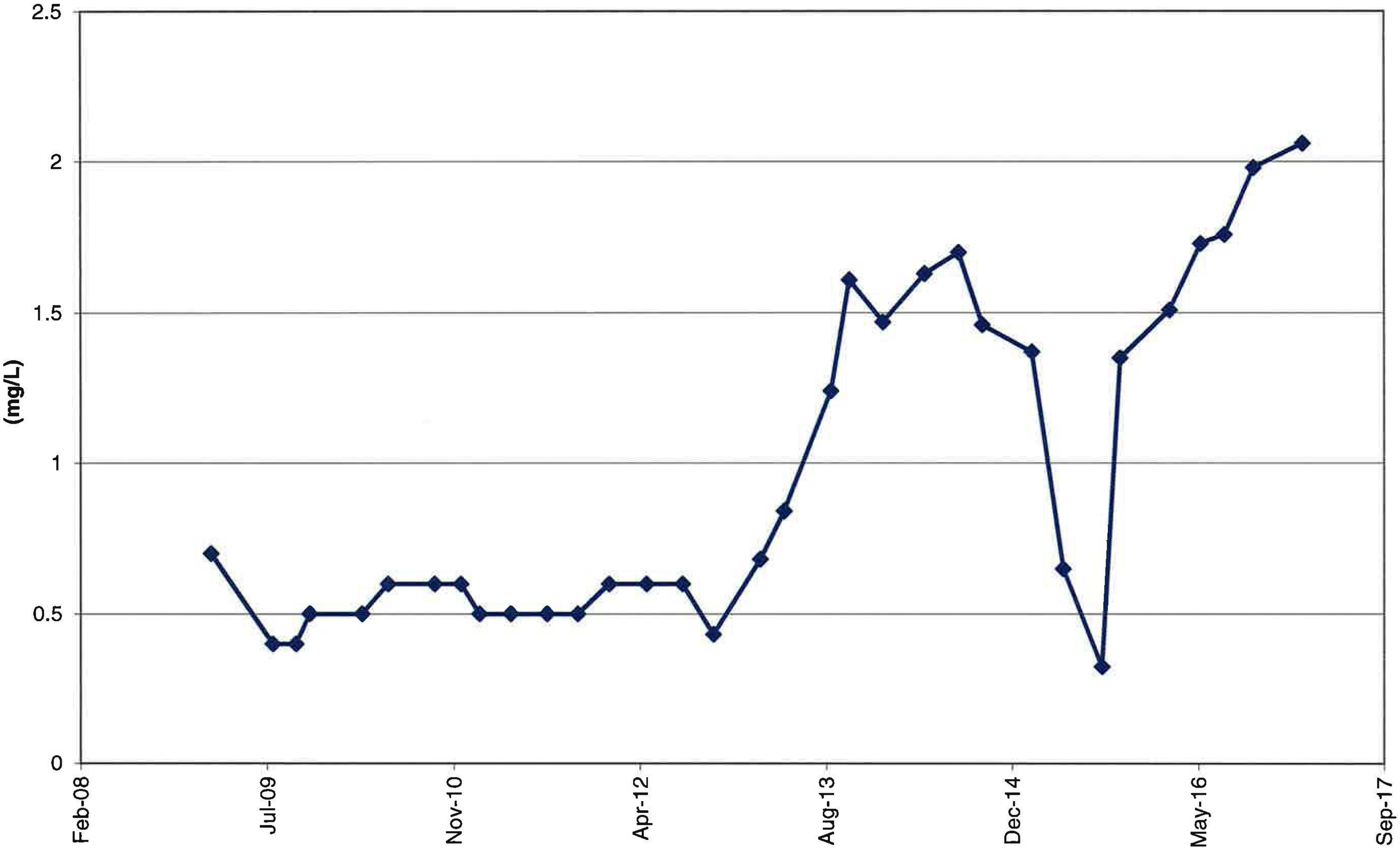
Piezometer 3A Nitrate Concentrations



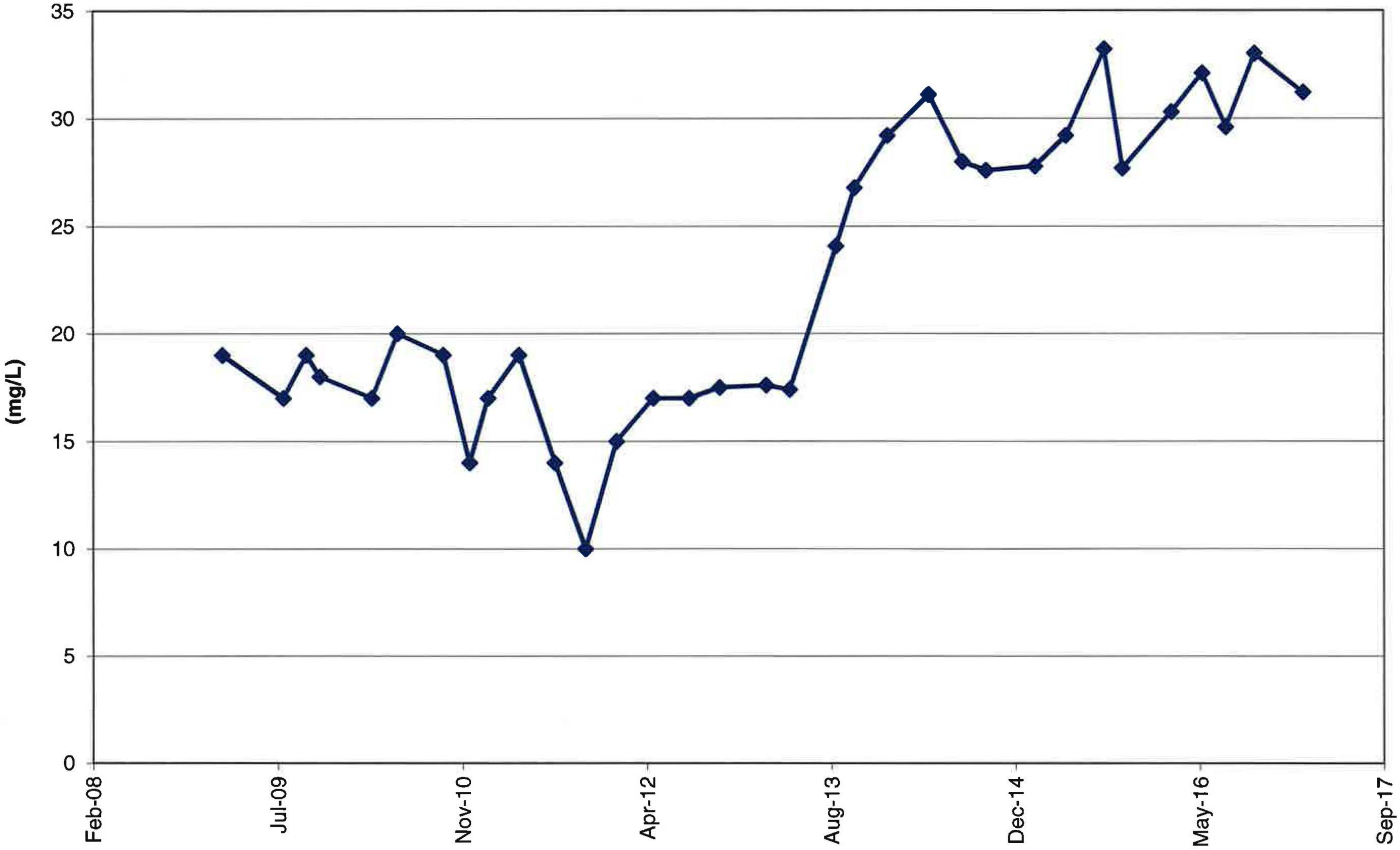
Piezometer 3A Chloride Concentrations



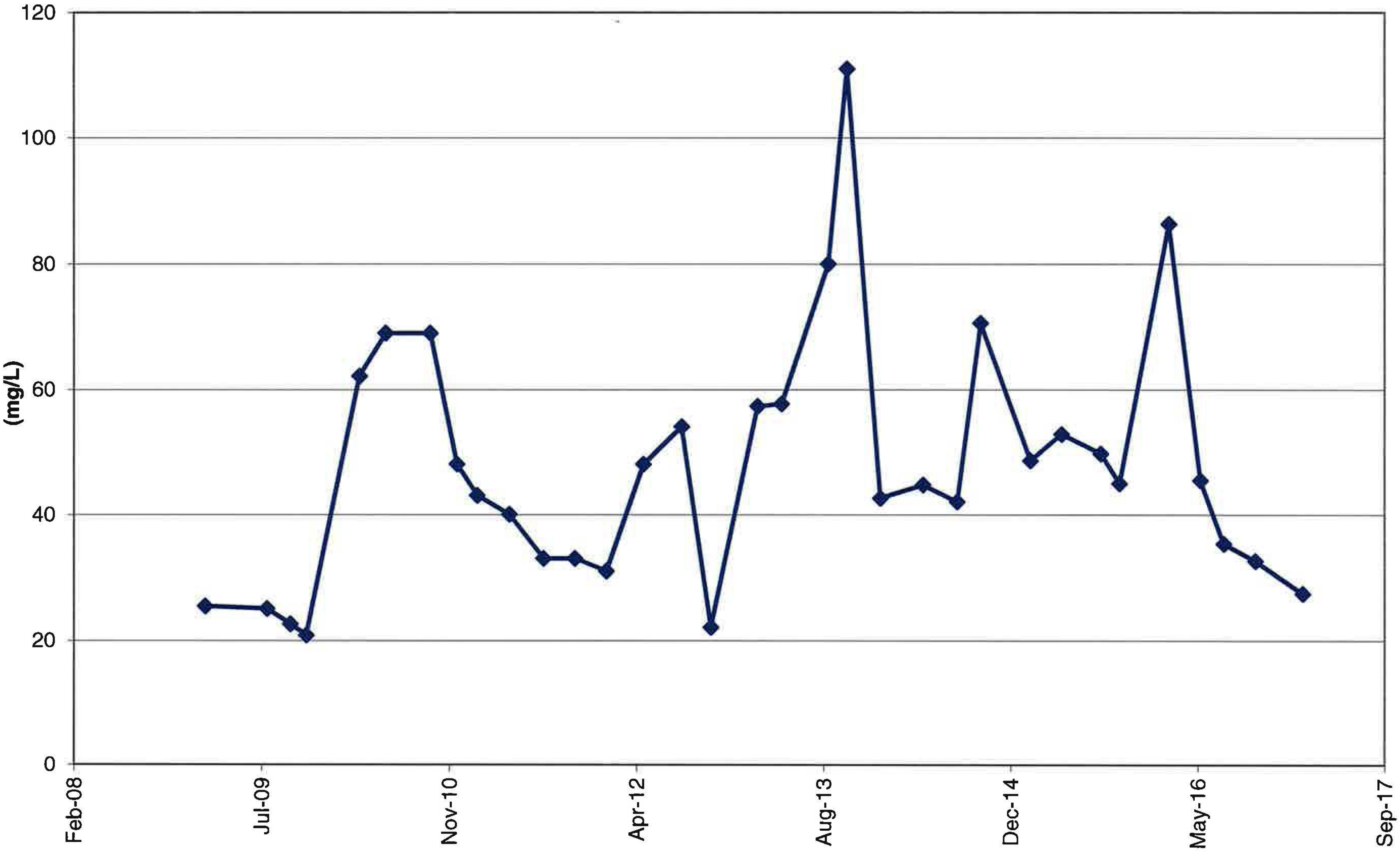
TWN-1 Nitrate Concentrations



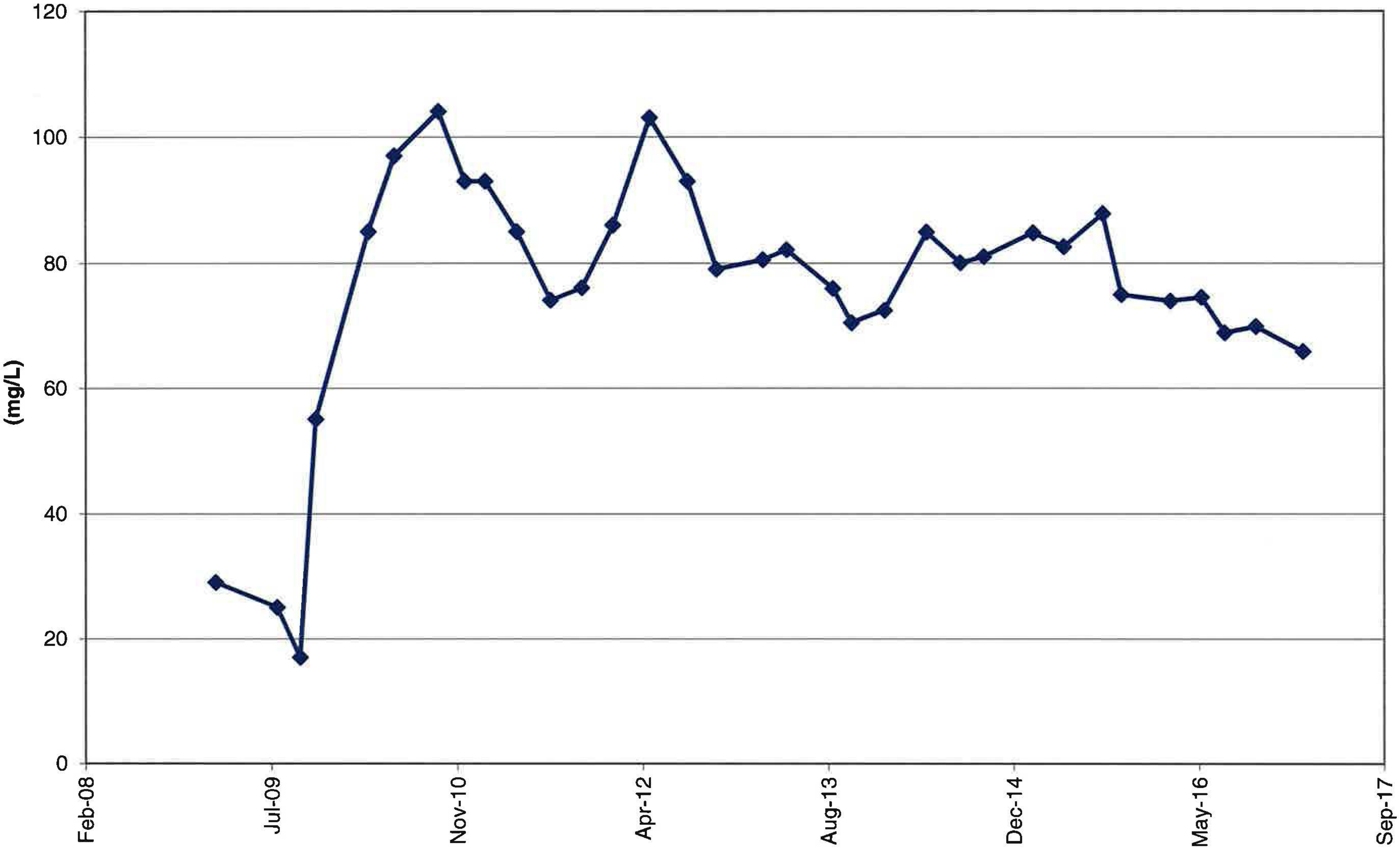
TWN-1 Chloride Concentrations



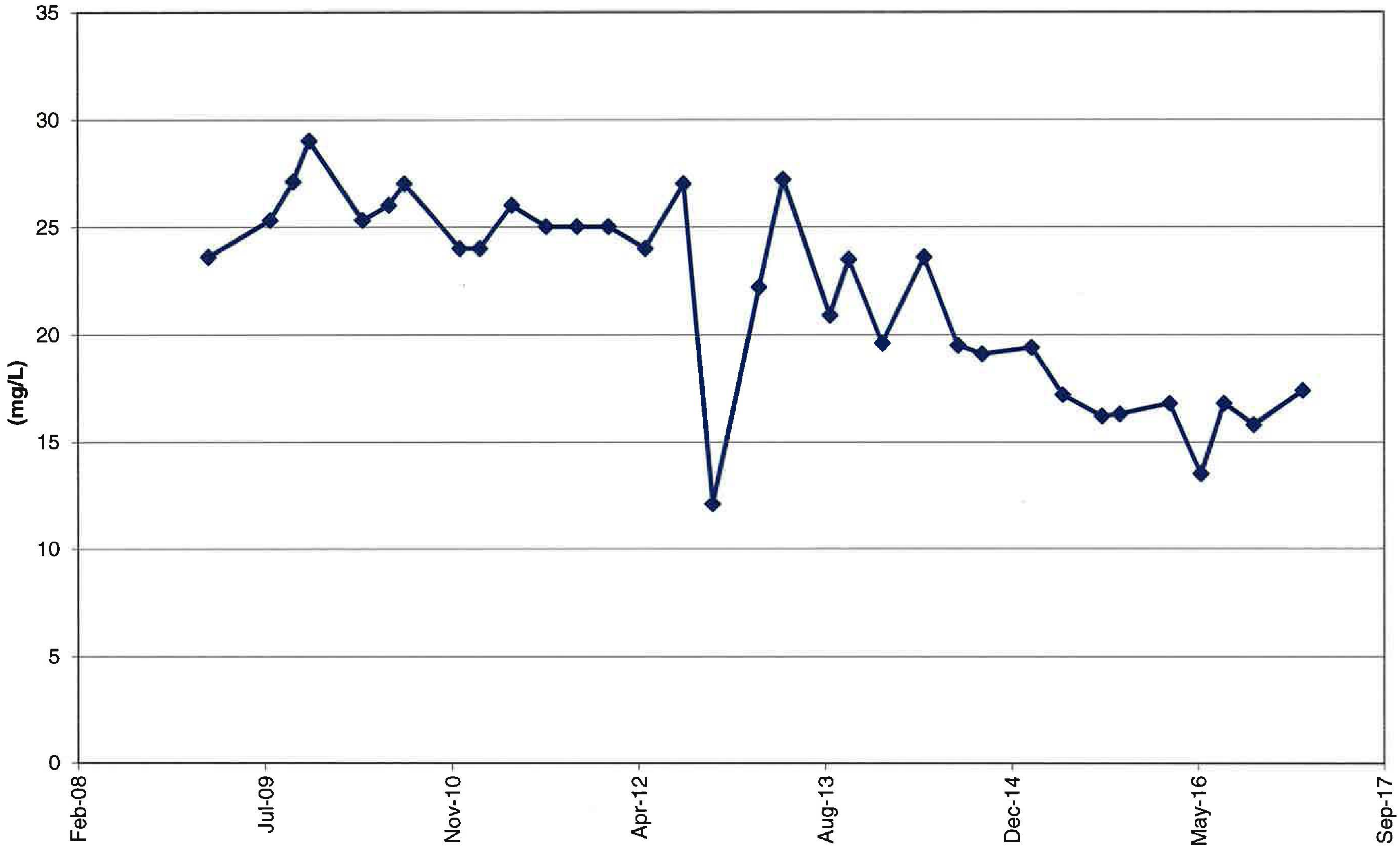
TWN-2 Nitrate Concentrations



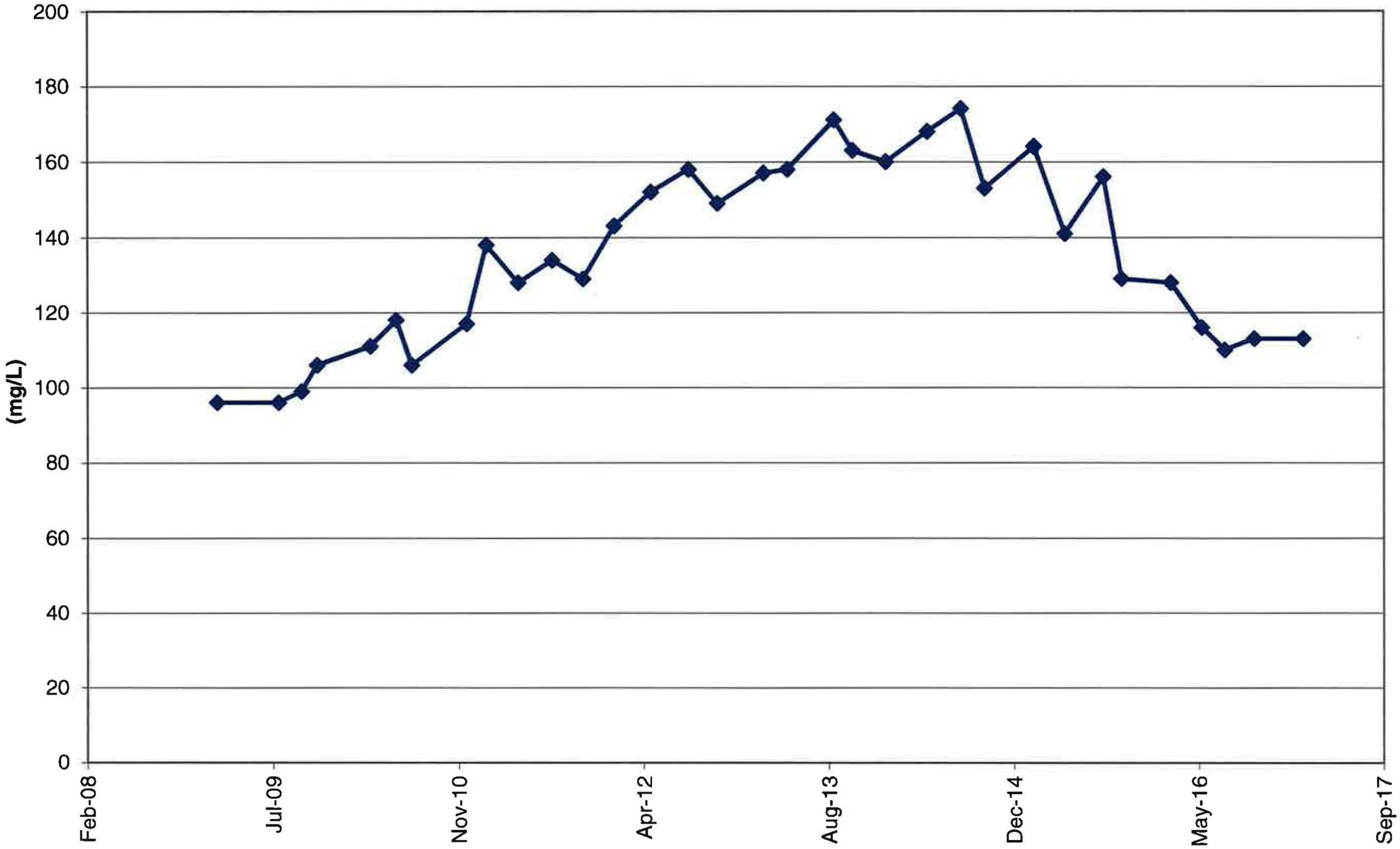
TWN-2 Chloride Concentrations



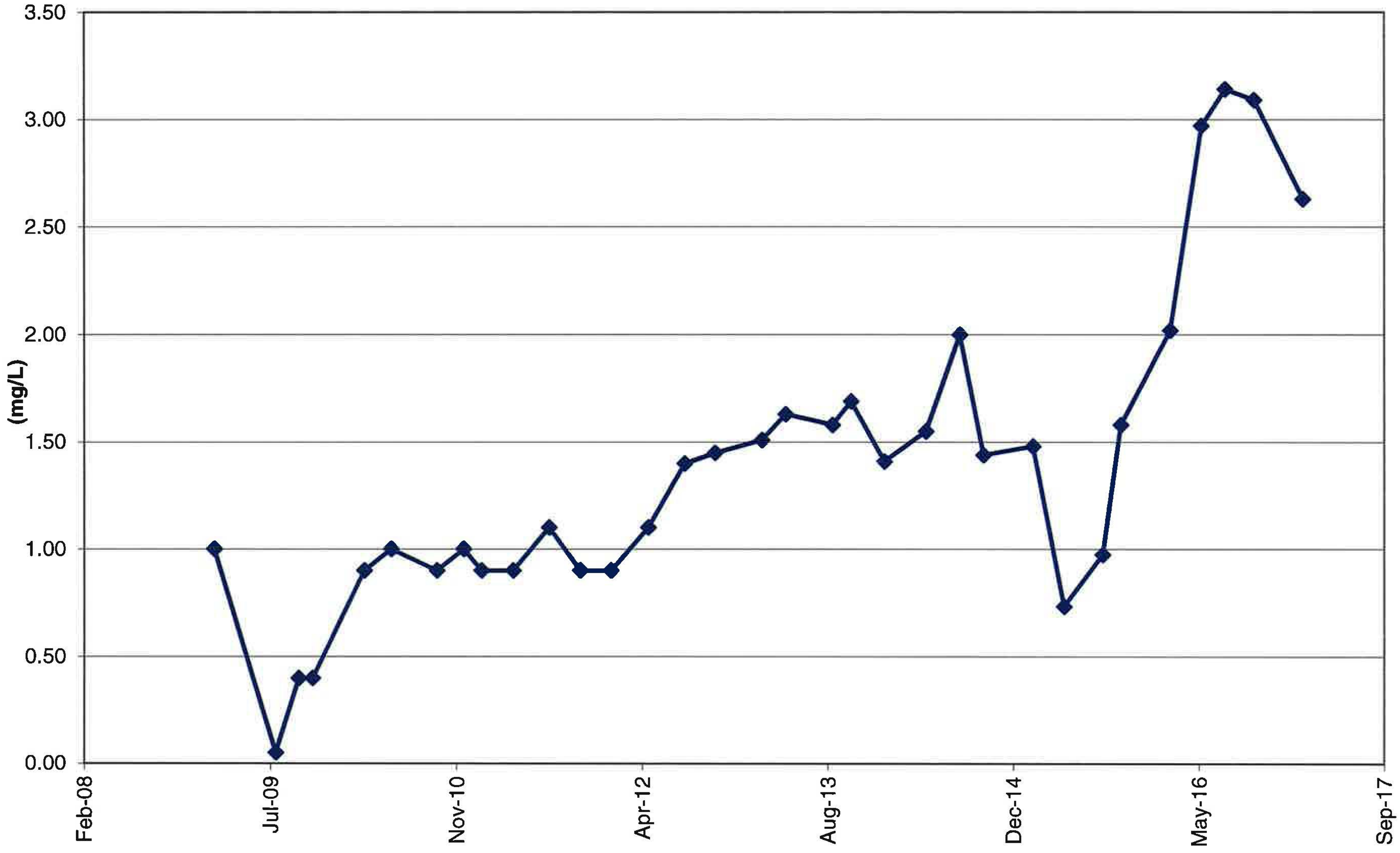
TWN-3 Nitrate Concentrations



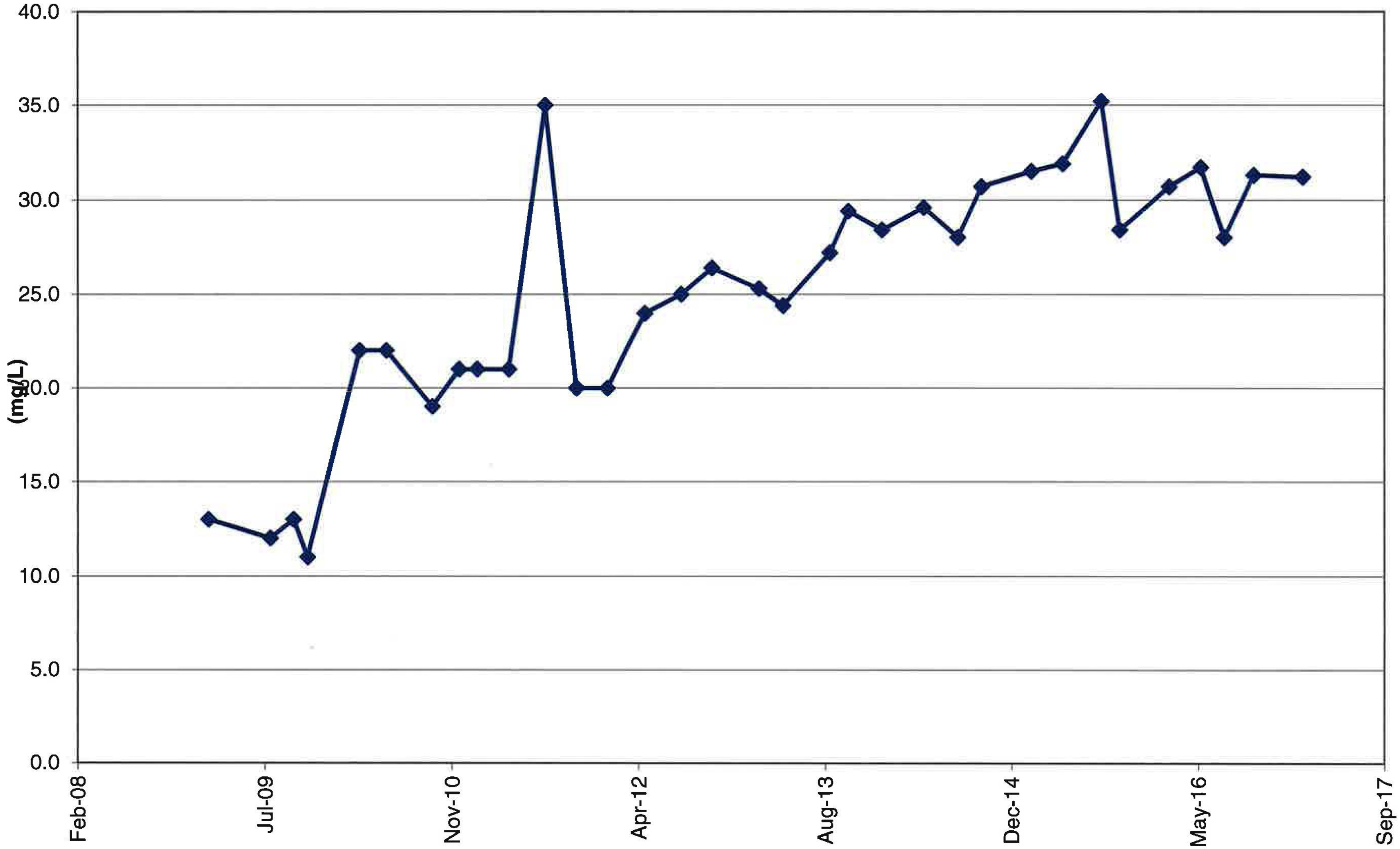
TWN-3 Chloride Concentrations



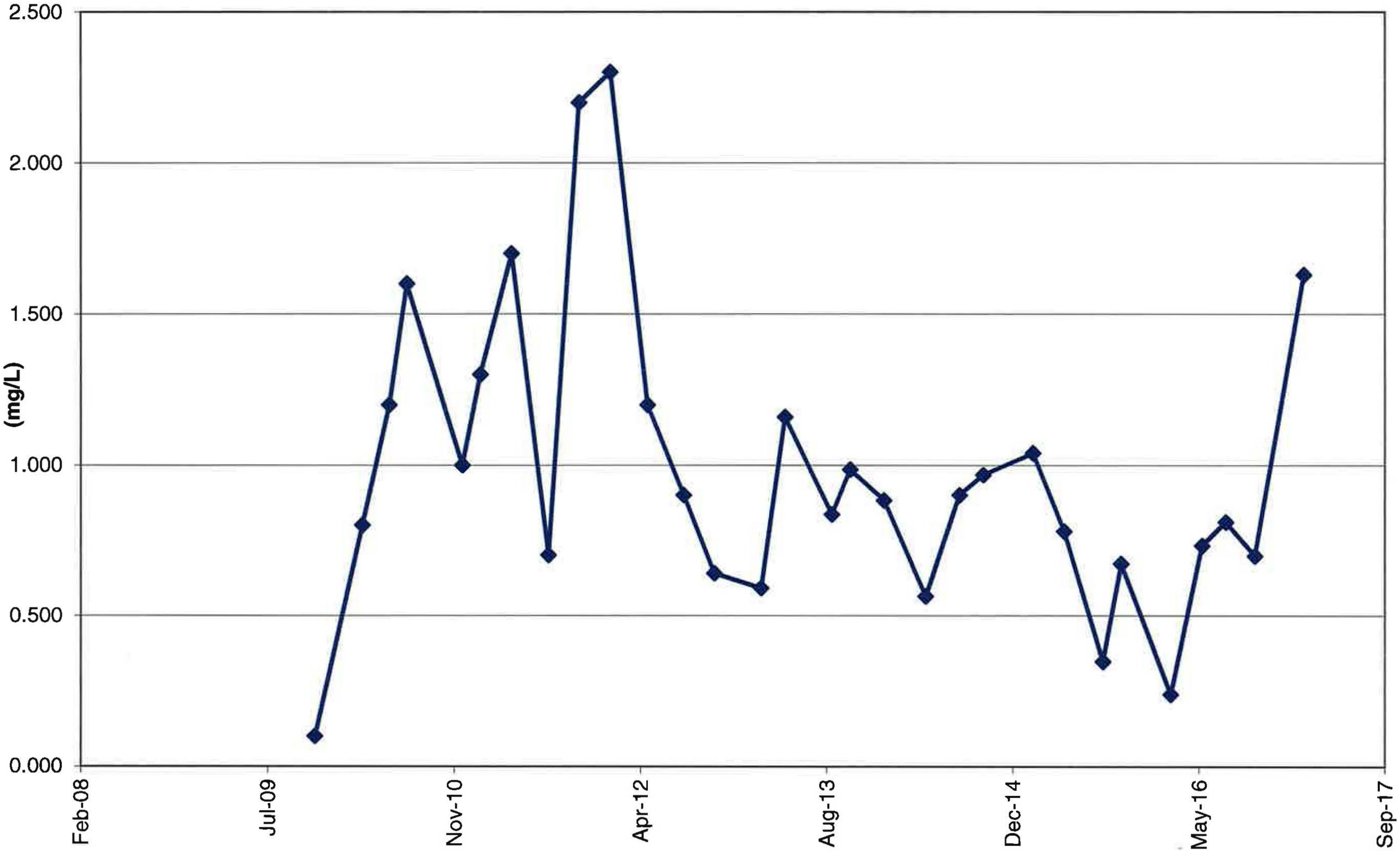
TWN-4 Nitrate Concentrations



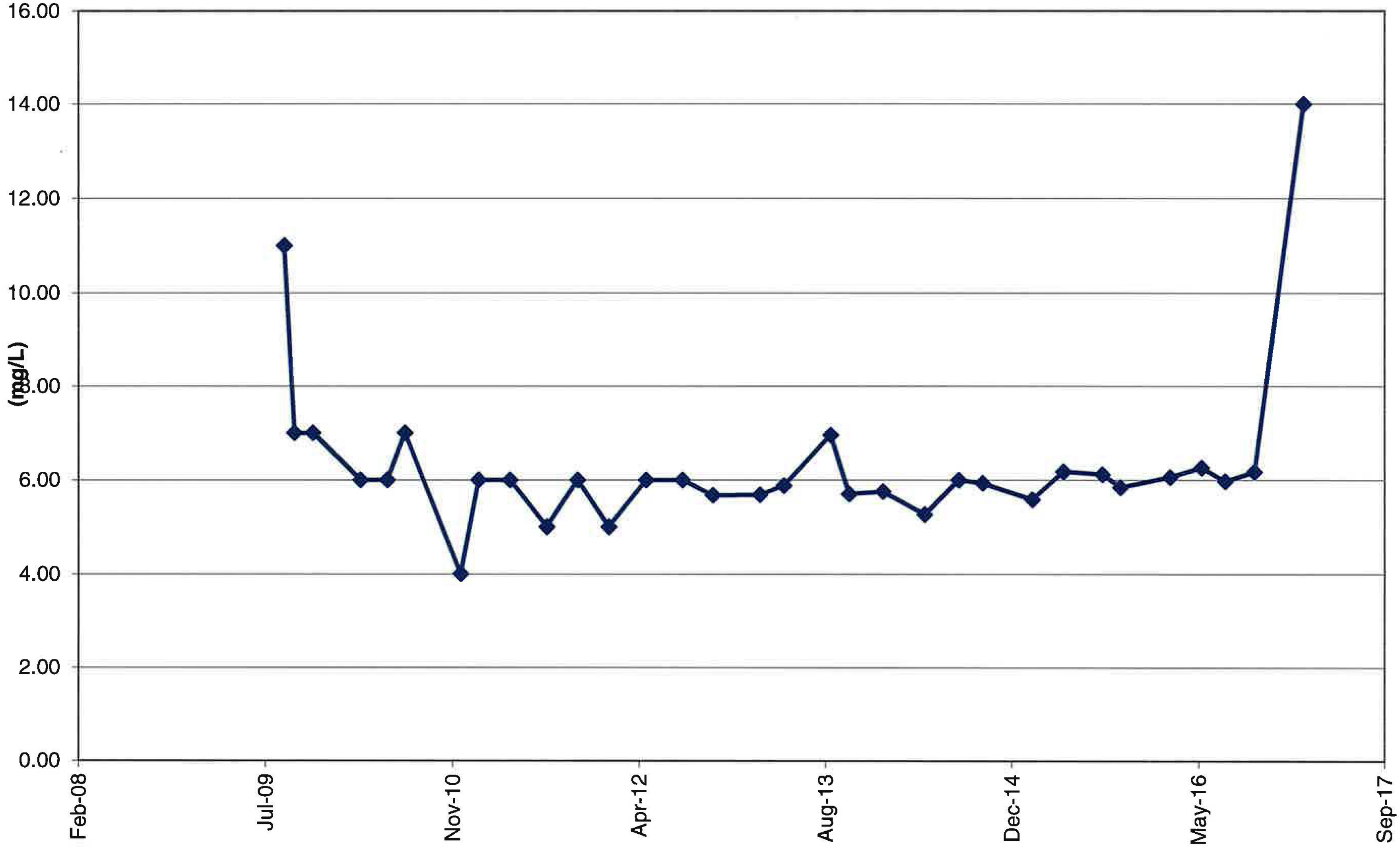
TWN-4 Chloride Concentrations



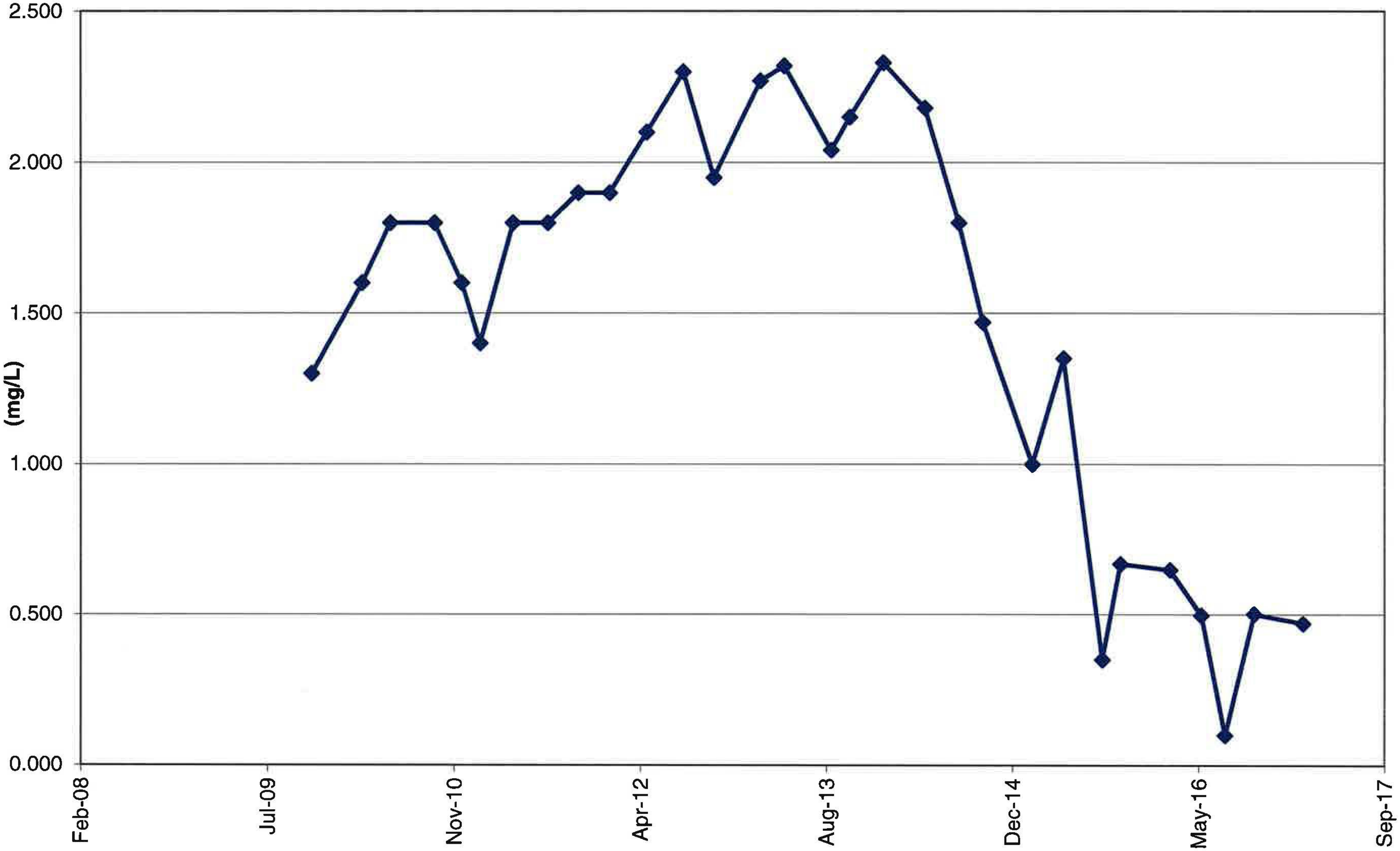
TWN-7 Nitrate Concentrations



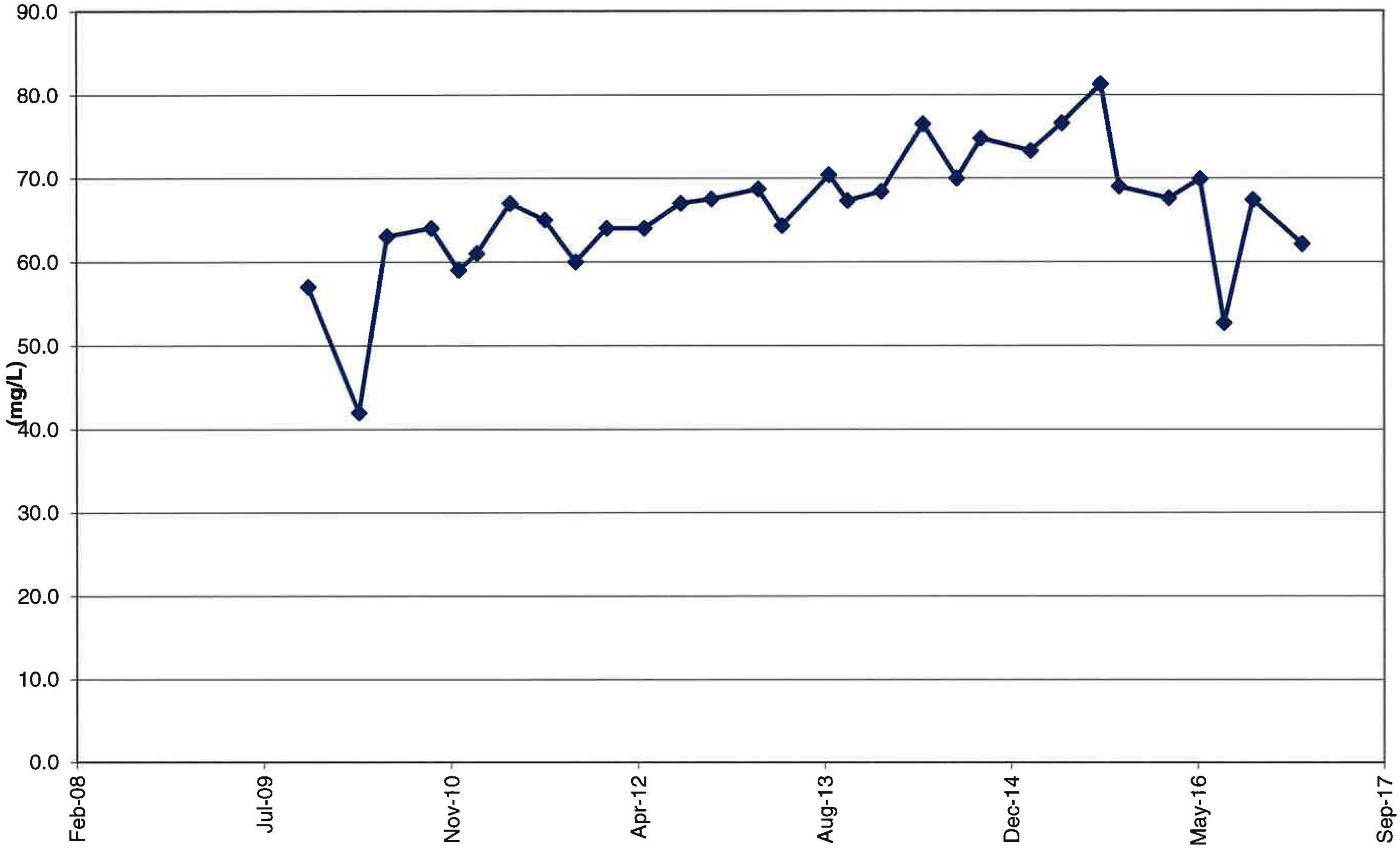
TWN-7 Chloride Concentrations

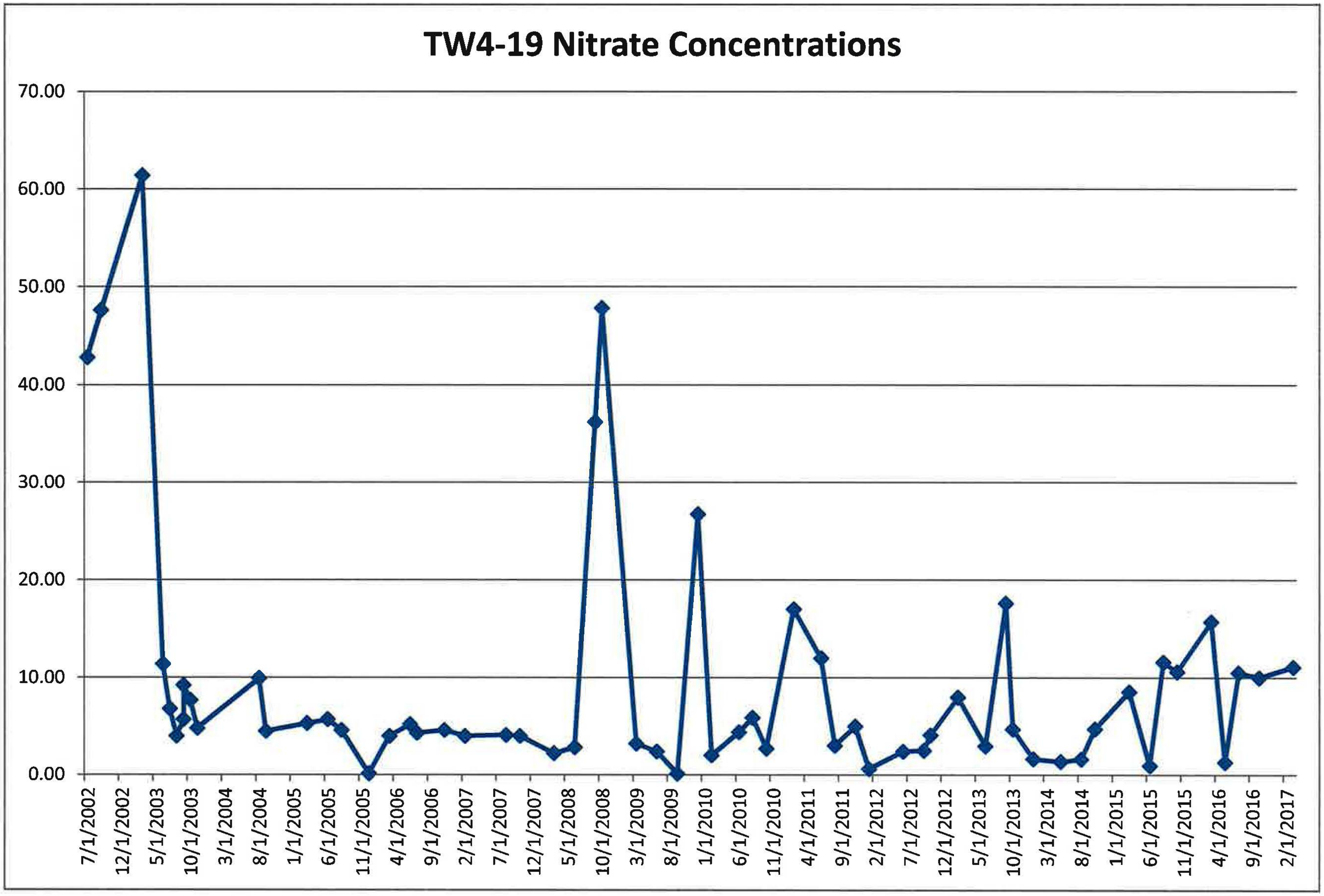


TWN-18 Nitrate Concentrations

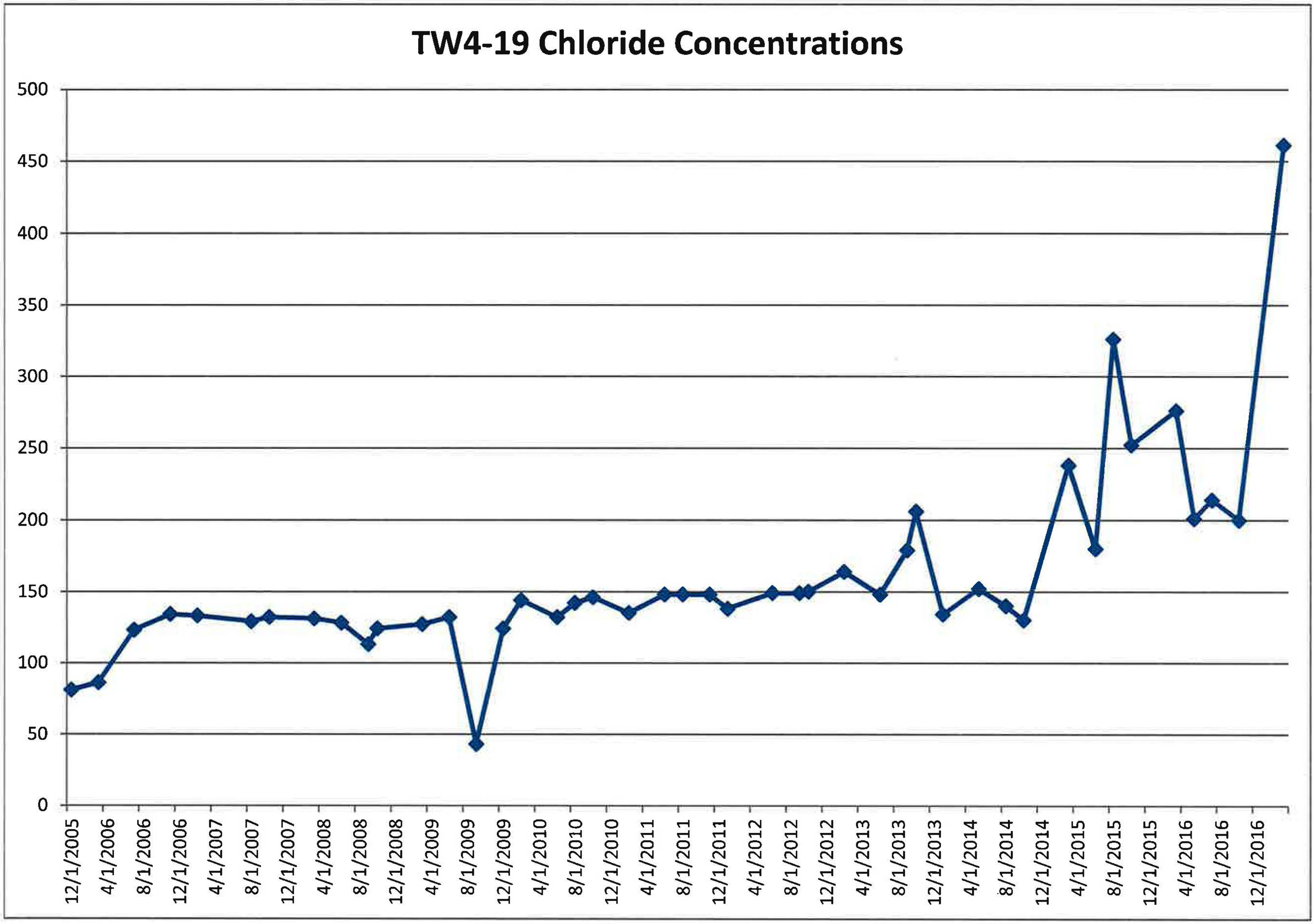


TWN-18 Chloride Concentrations

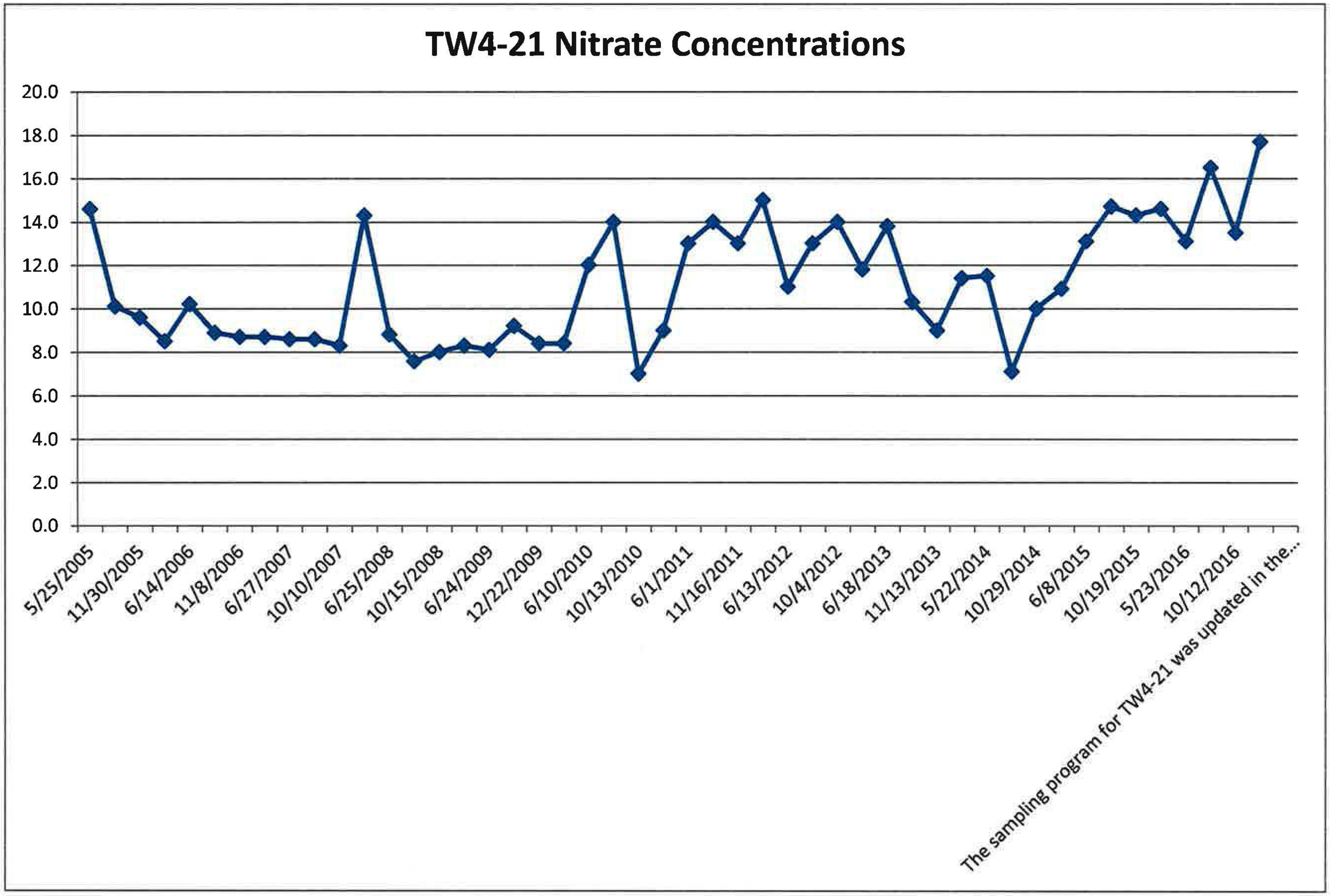


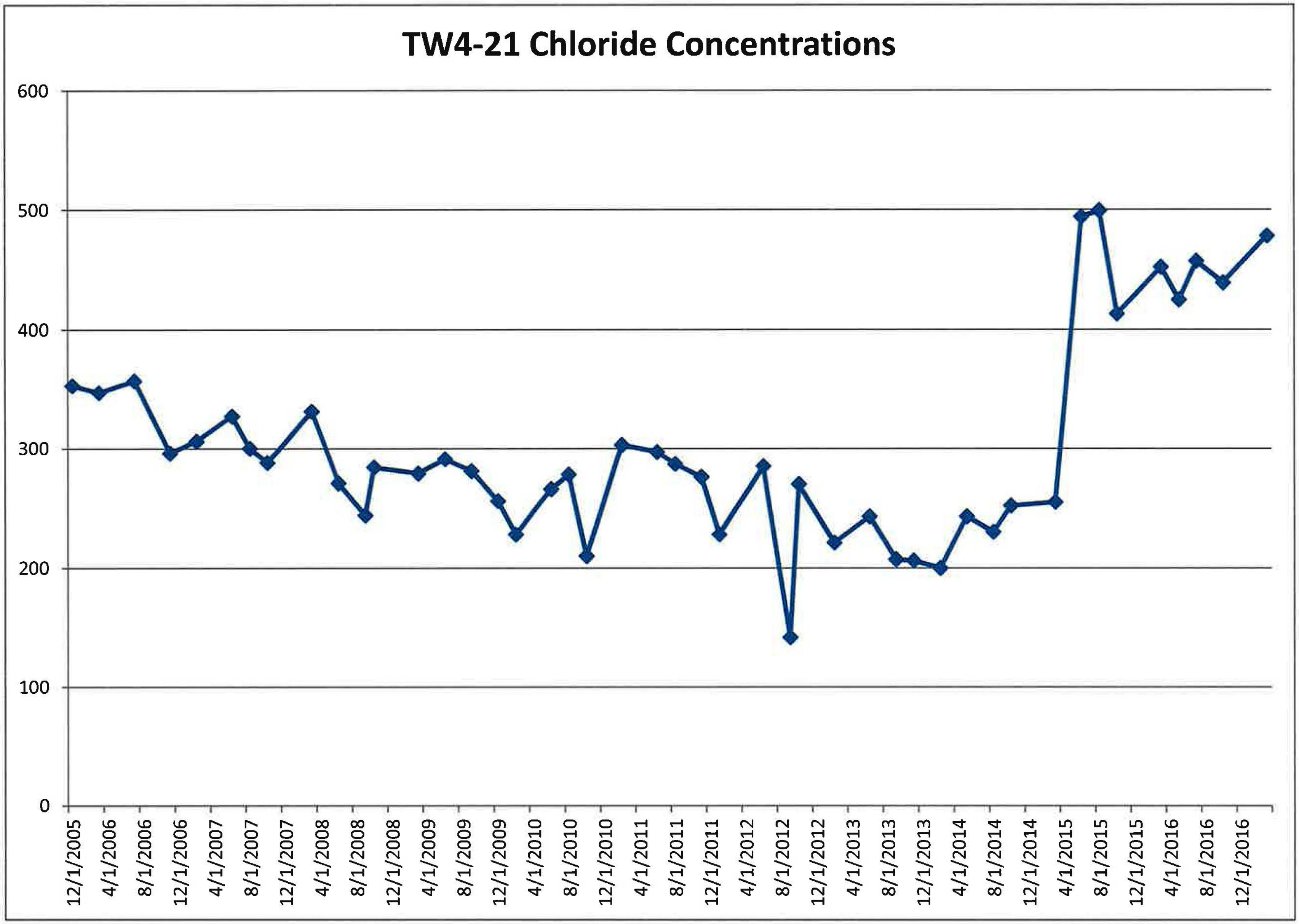


TW4-19 Nitrate Concentrations

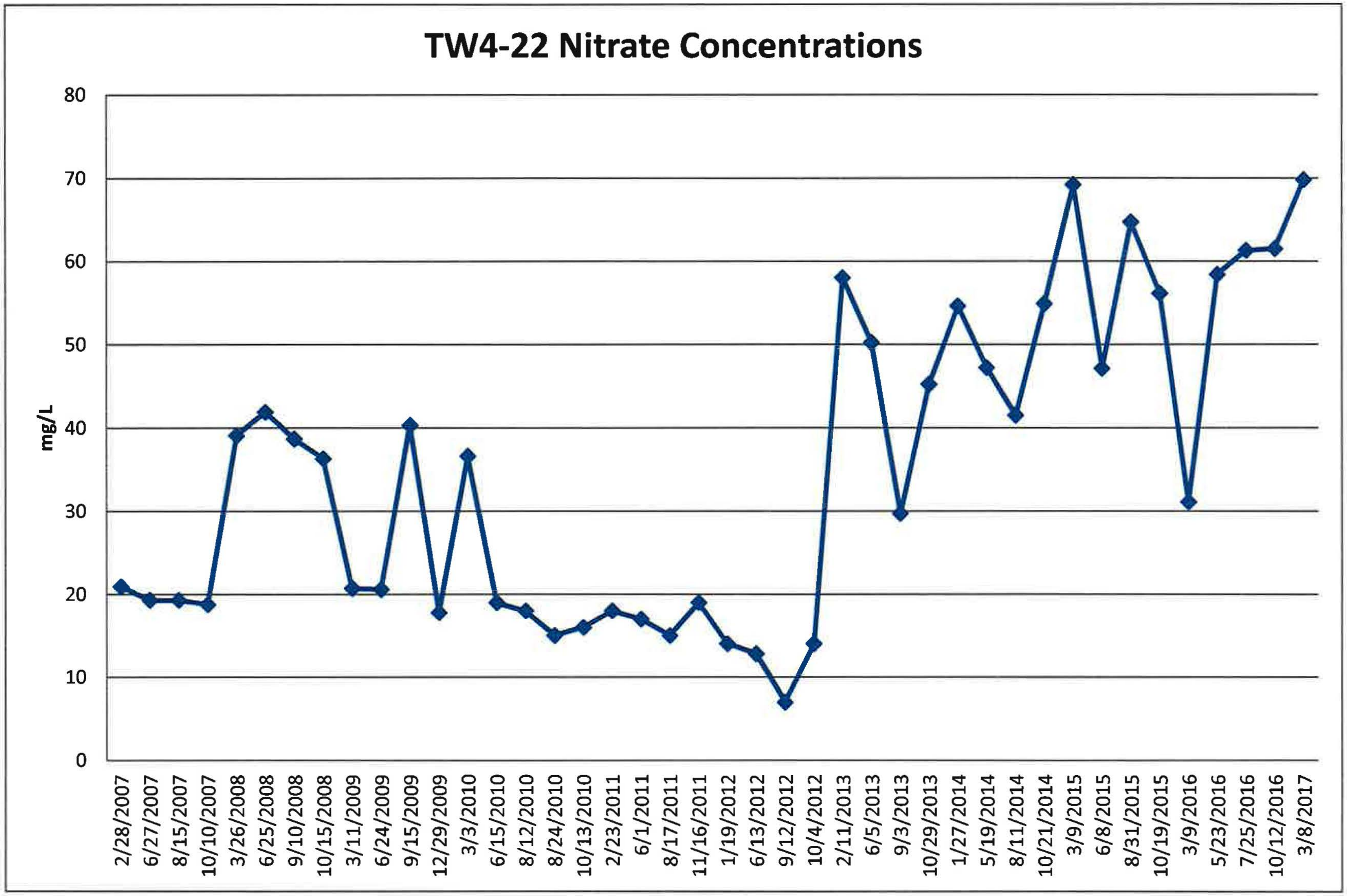


TW4-19 Chloride Concentrations


TW4-21 Nitrate Concentrations
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
5/25/2005
11/30/2005
6/14/2006
11/8/2006
6/27/2007
10/10/2007
6/25/2008
10/15/2008
6/24/2009
12/22/2009
6/10/2010
10/13/2010
6/1/2011
11/16/2011
6/13/2012
10/4/2012
6/18/2013
11/13/2013
5/22/2014
10/29/2014
6/8/2015
10/19/2015
5/23/2016
10/12/2016
The sampling program for TW4-21 was updated in the...

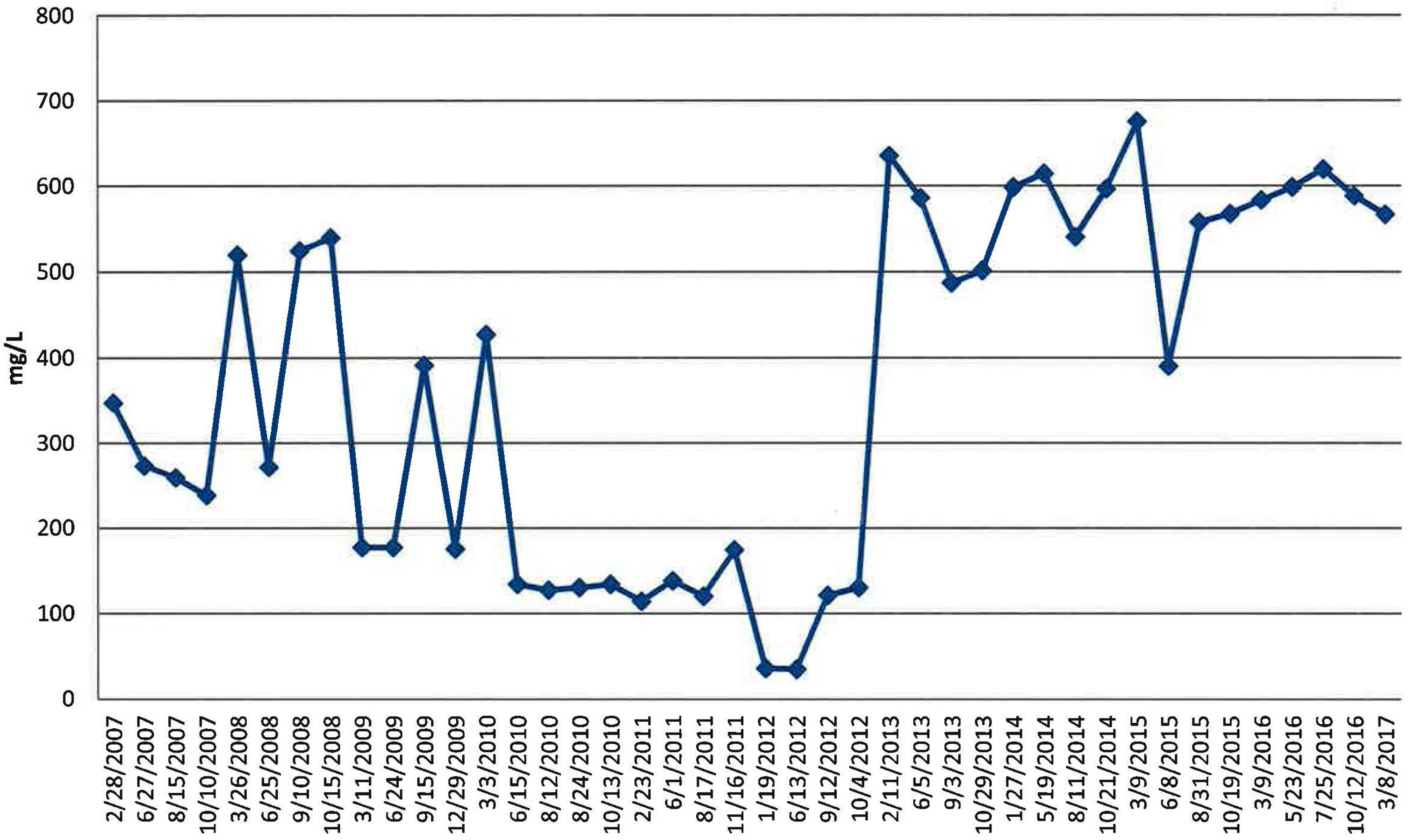


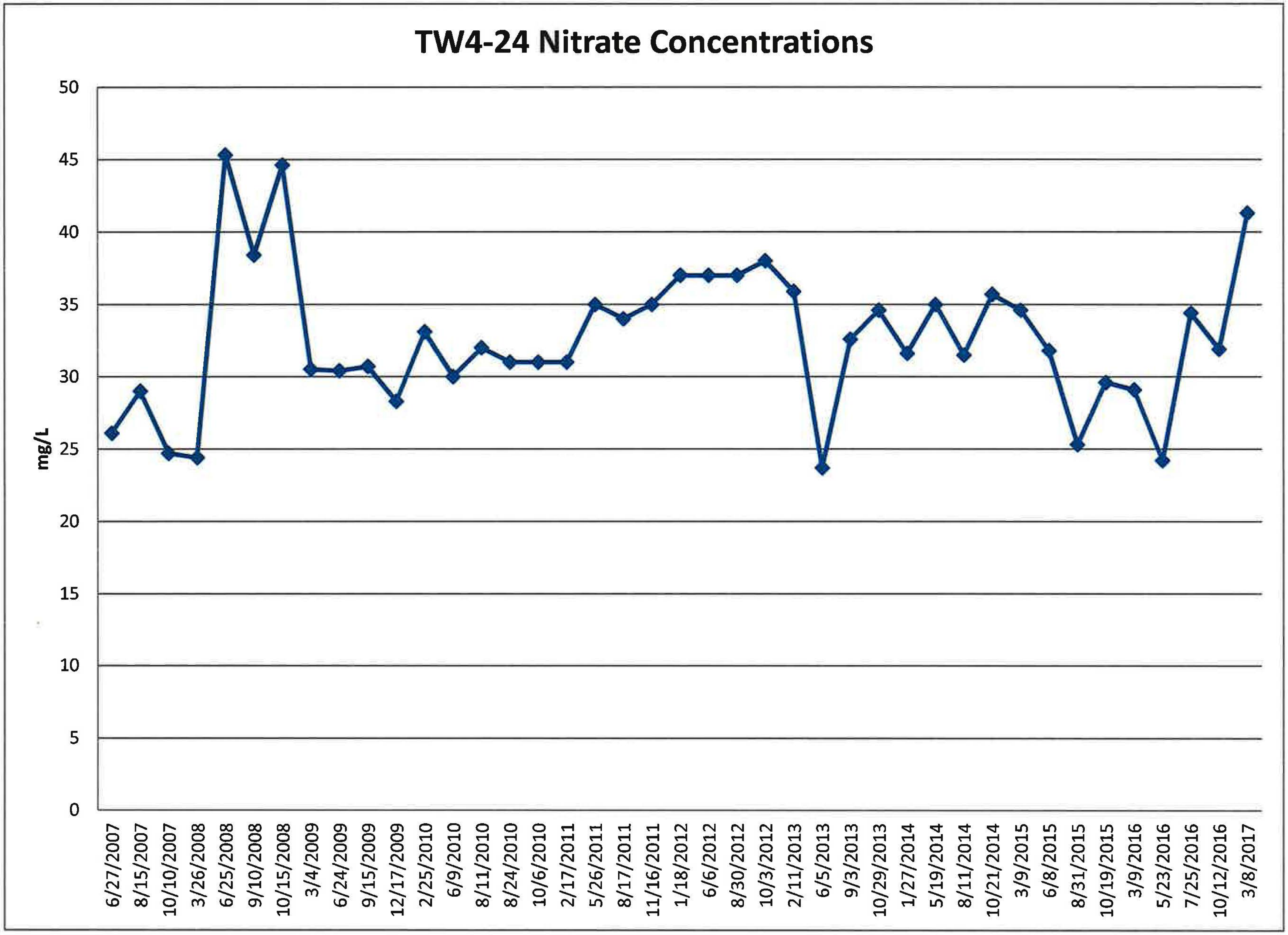
TW4-21 Chloride Concentrations



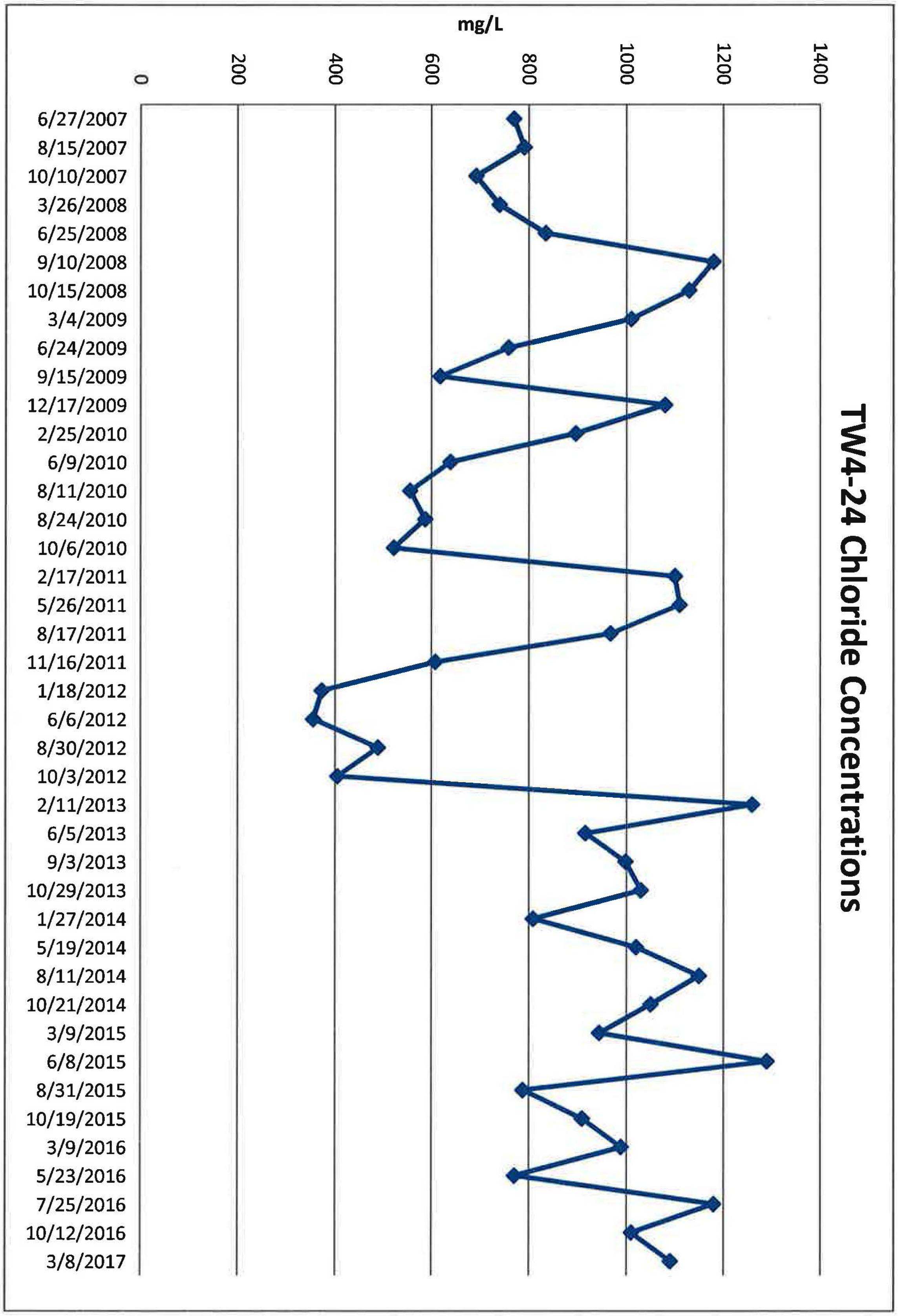
TW4-22 Nitrate Concentrations

TW4-22 Chloride Concentrations





TW4-24 Nitrate Concentrations


TW4-24 Chloride Concentrations
mg/L
0
200
400
600
800
1000
1200
1400
6/27/2007
8/15/2007
10/10/2007
3/26/2008
6/25/2008
9/10/2008
10/15/2008
3/4/2009
6/24/2009
9/15/2009
12/17/2009
2/25/2010
6/9/2010
8/11/2010
8/24/2010
10/6/2010
2/17/2011
5/26/2011
8/17/2011
11/16/2011
1/18/2012
6/6/2012
8/30/2012
10/3/2012
2/11/2013
6/5/2013
9/3/2013
10/29/2013
1/27/2014
5/19/2014
8/11/2014
10/21/2014
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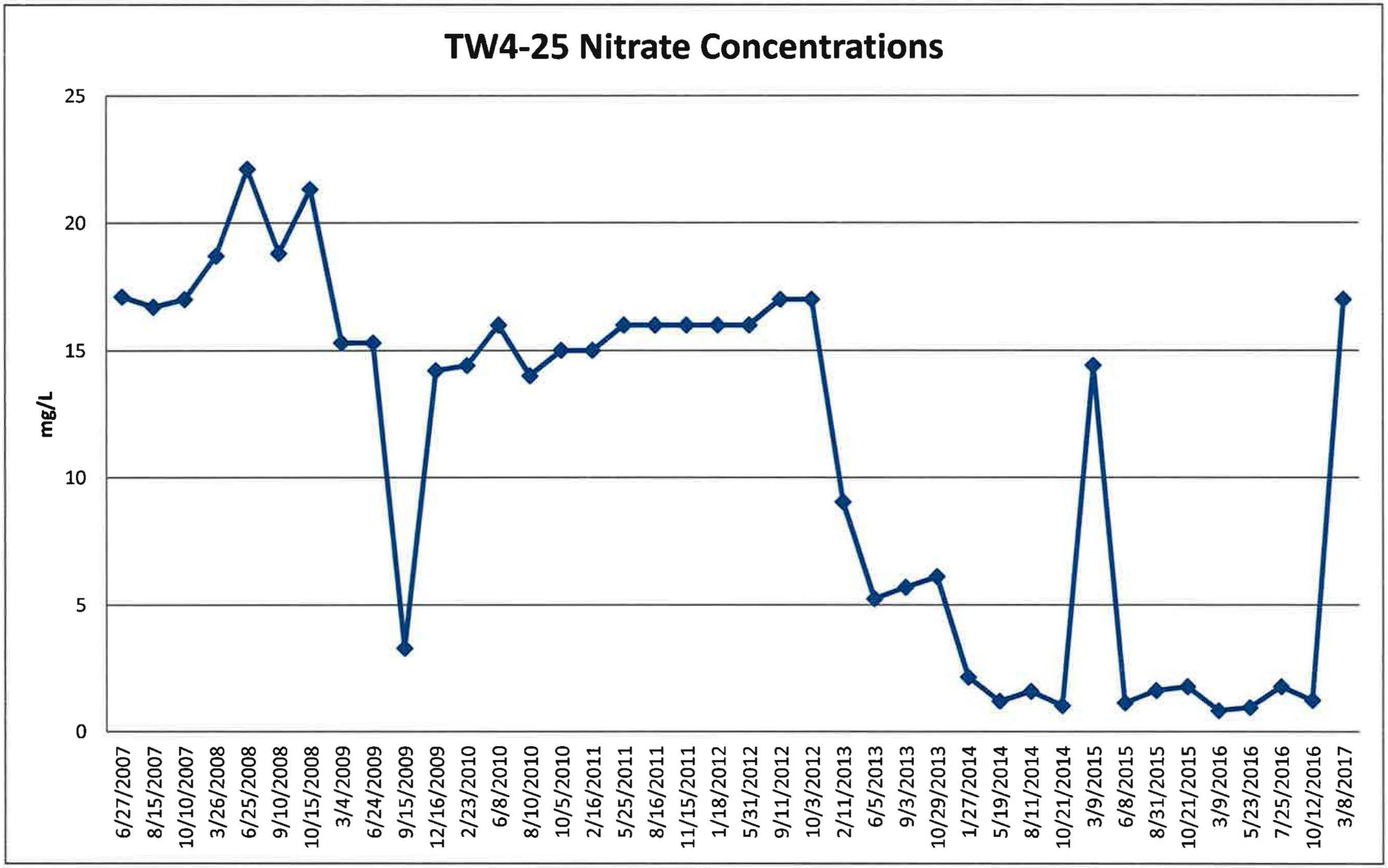
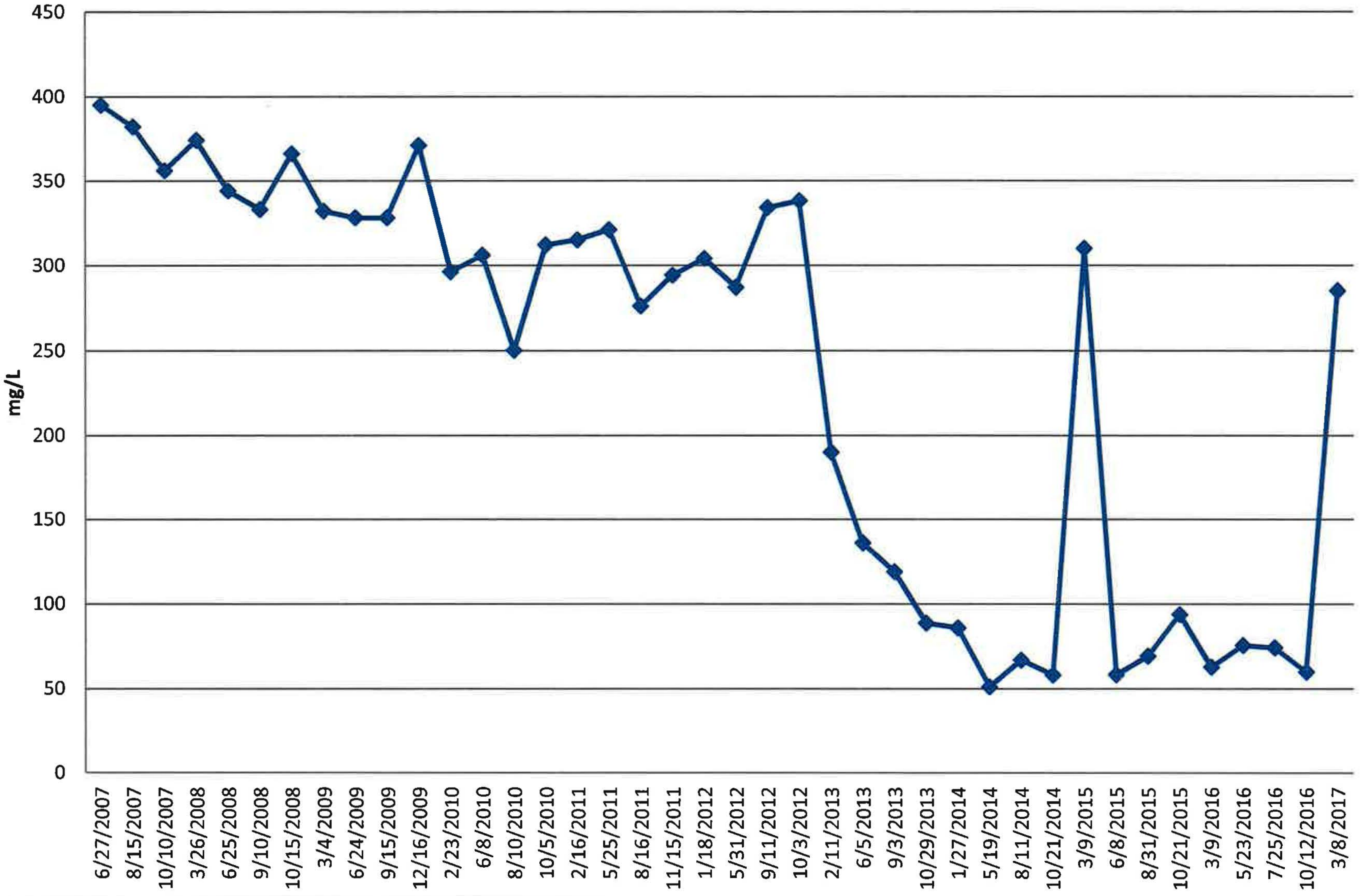
10/12/2016
3/8/2017

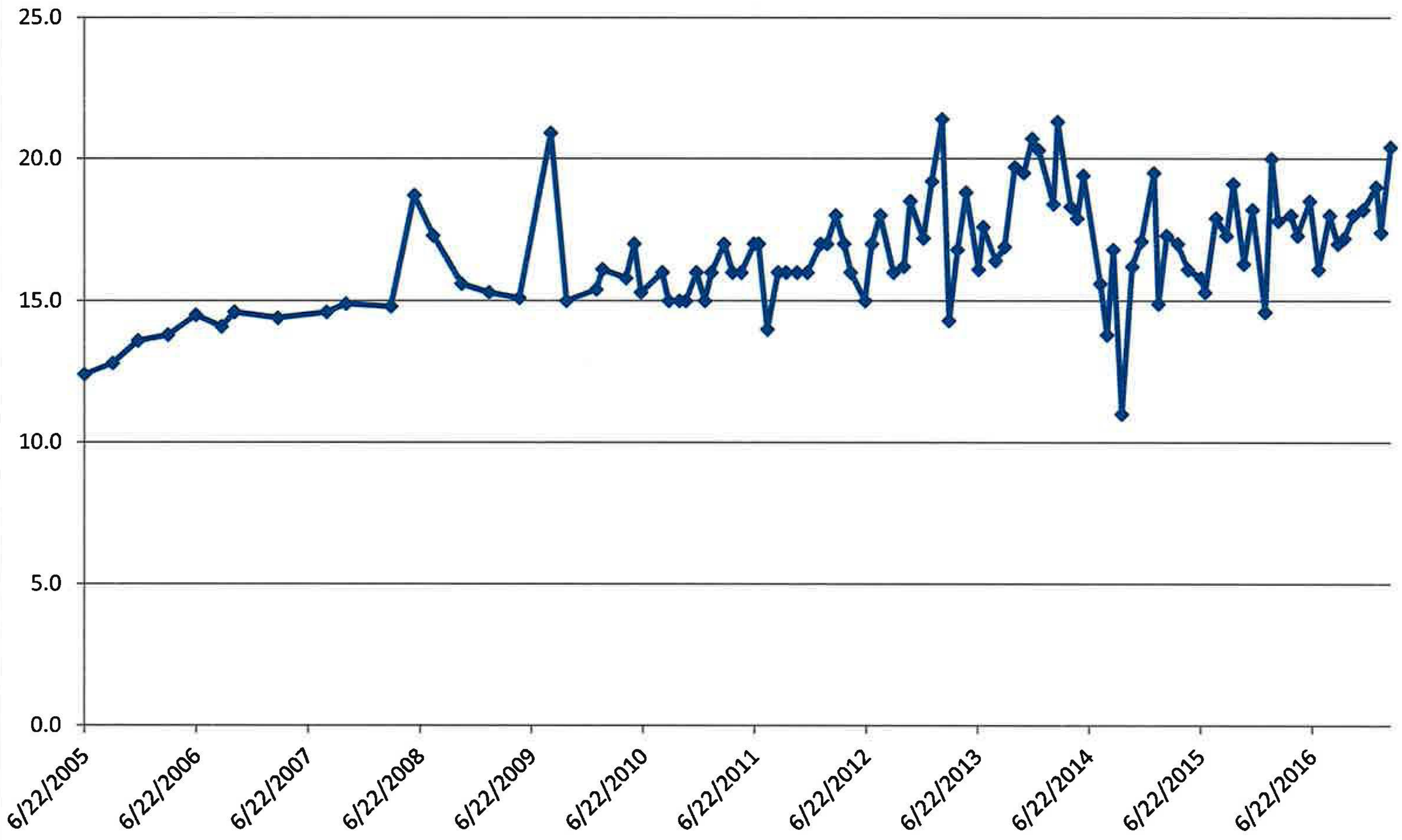


TW4-25 Nitrate Concentrations

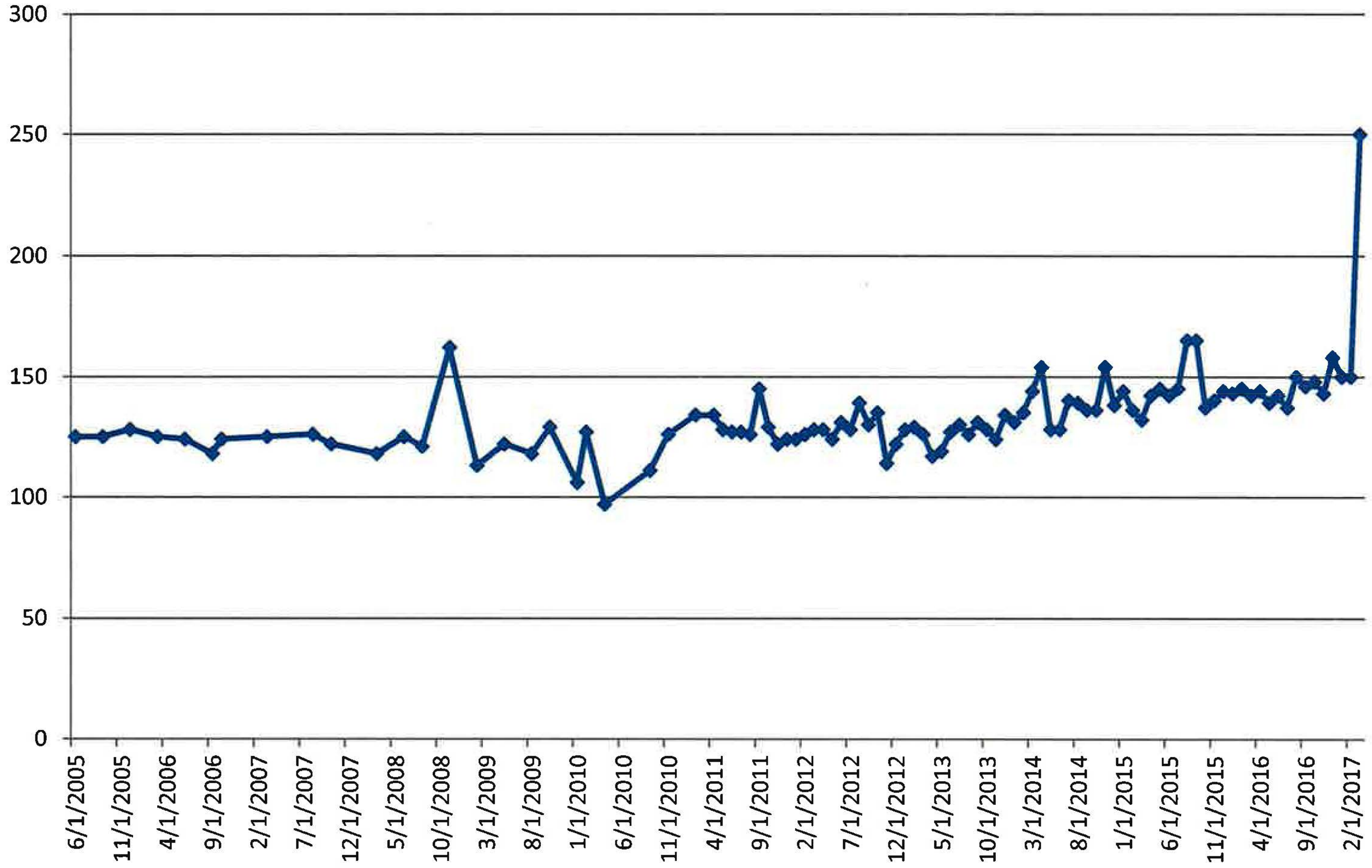
TW4-25 Chloride Concentrations

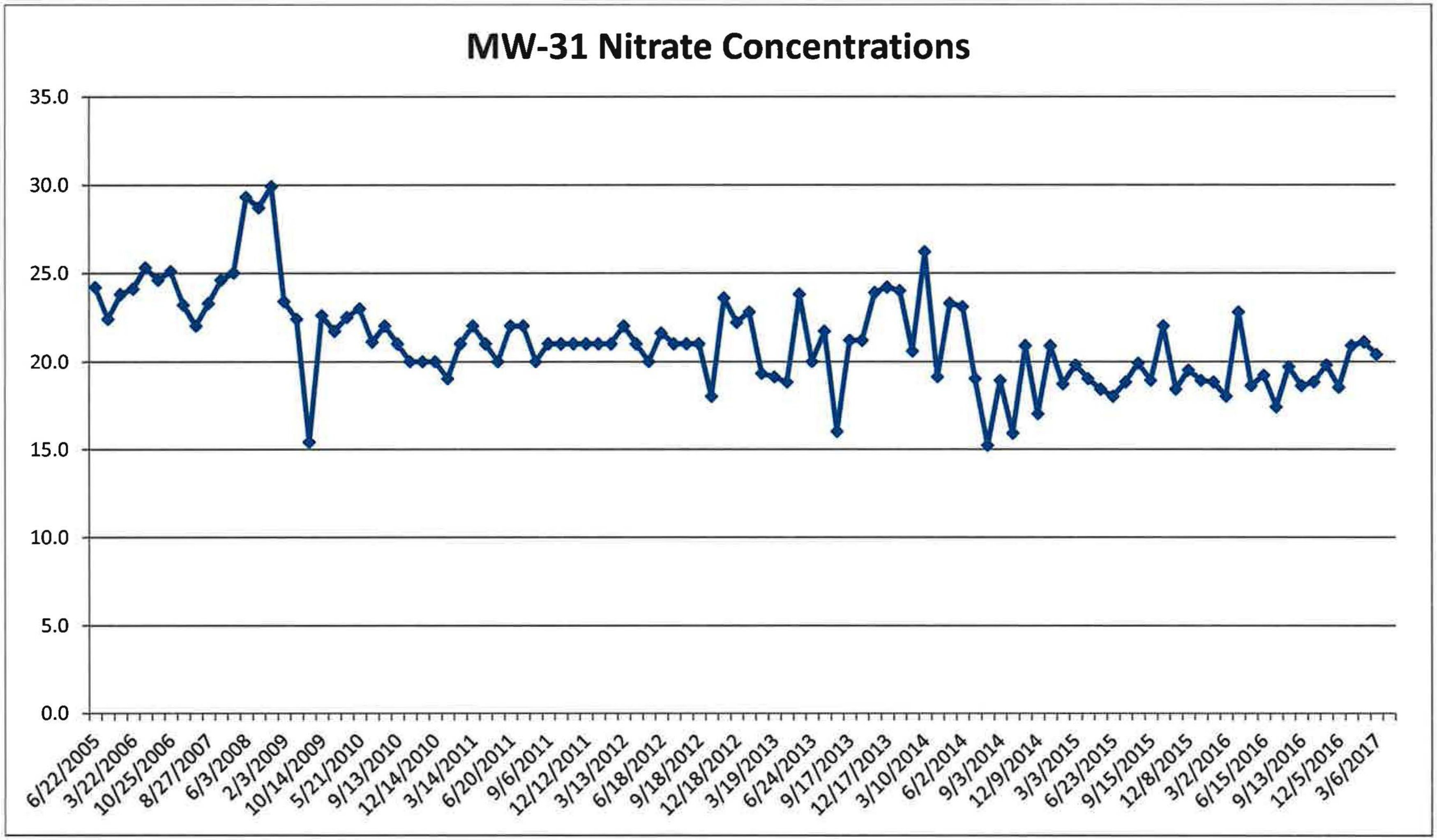


MW-30 Nitrate Concentrations

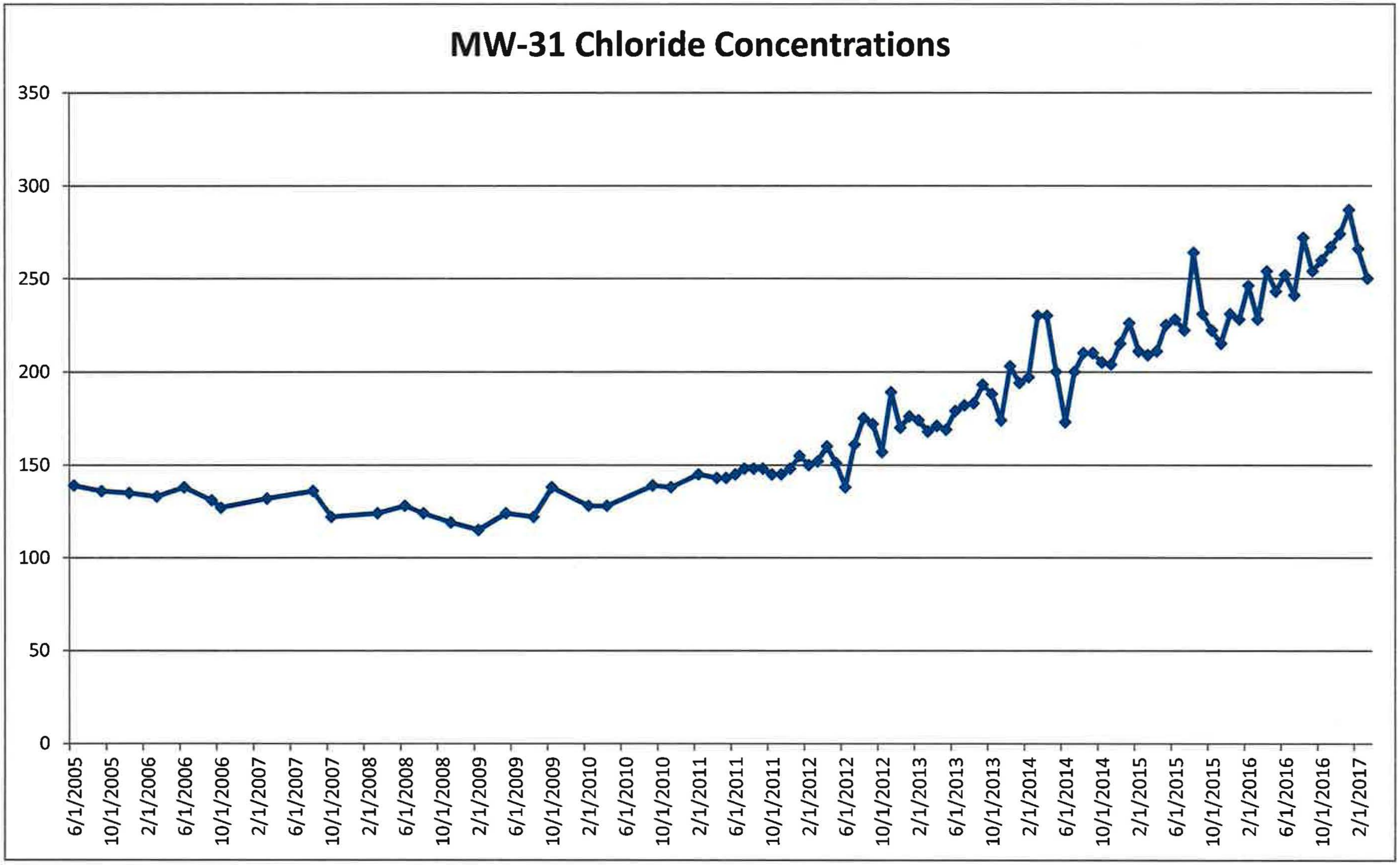


MW-30 Chloride Concentrations





MW-31 Nitrate Concentrations



MW-31 Chloride Concentrations

Tab L

CSV Transmittal Letter

Kathy Weinel

From: Kathy Weinel
Sent: Monday, May 22, 2017 1:33 PM
To: 'Phillip Goble'
Cc: 'Dean Henderson'; Mark Chalmers; David Turk; Scott Bakken; Logan Shumway; David Frydenlund
Subject: Transmittal of CSV Files White Mesa Mill 2017 Q1 Nitrate Monitoring
Attachments: 1702367-report-EDD.csv; Q1 2017 Nitrate DTWs.csv; Q1 2017 Nitrate Field.csv

Mr. Goble,

Attached to this e-mail is an electronic copy of laboratory results for nitrate monitoring conducted at the White Mesa Mill during the first quarter of 2017, in Comma Separated Value (CSV) format.

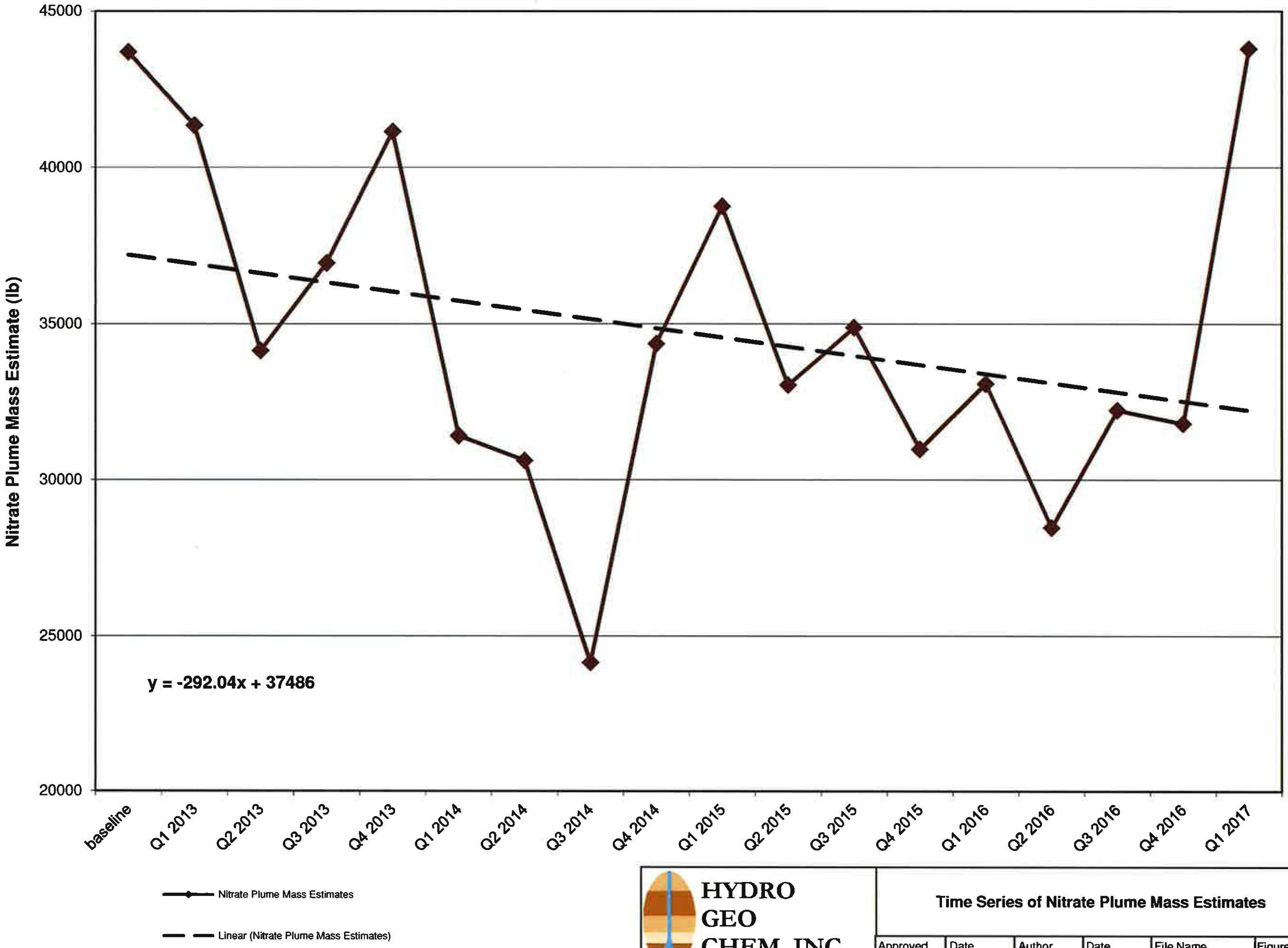
Please contact me at 303-389-4134 if you have any questions on this transmittal.

Yours Truly

Kathy Weinel

Tab M

Residual Mass Estimate Analysis Figure



HYDRO
GEO
CHEM, INC.

Time Series of Nitrate Plume Mass Estimates

Approved SJS	Date	Author	Date	File Name Nmtrend1Q17.xls	Figure M.1

H:\718000\may17\nitrate\mass_estimate\Nmtrend1Q17: Fig M.1

Table M.1
Residual Nitrate Plume Mass

quarter	residual plume mass (lb)
baseline	43700
Q1 2013	41350
Q2 2013	34140
Q3 2013	36930
Q4 2013	41150
Q1 2014	31410
Q2 2014	30620
Q3 2014	24140
Q4 2014	34370
Q1 2015	38740
Q2 2015	33042
Q3 2015	34880
Q4 2015	30980
Q1 2016	33083
Q2 2016	28465
Q3 2016	32230
Q4 2016	31798
Q1 2017	43787

Notes:
lbs = pounds