

FINAL
2014 CONTAINMENT EVALUATION
OPERABLE UNIT NO. 2 (GROUNDWATER)
FORMER NEBRASKA ORDNANCE PLANT, MEAD, NEBRASKA

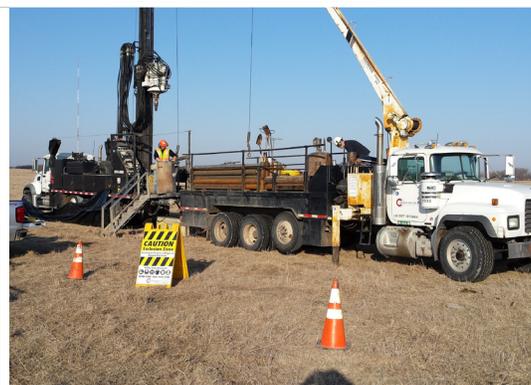
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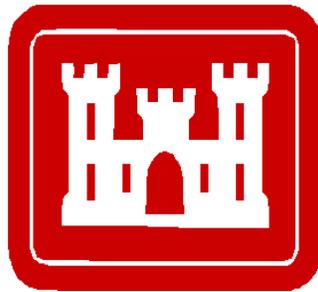
Prepared for:



US Army Corps
of Engineers®
Kansas City District



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MEAD, NEBRASKA



U.S. Army Corps of Engineers
Kansas City District
601 East 12th Street
Kansas City, MO 64106

Contract W912DQ-13-D-3000
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ACRONYMS, ABBREVIATIONS AND SYMBOLS

AMA	Atlas Missile Area
AOP	Advanced Oxidation Process
ARDC	Agricultural Research and Development Center
AWS	Alternate Water Supply (Program)
CE	containment evaluation
CENWK	Corps of Engineers, Northwestern Division, Kansas City District
CEWP	Containment Evaluation Work Plan
COC	contaminant of concern
2,4-DNT	2,4-dinitrotoluene
EW	extraction well
FEW	focused extraction well
ft	feet/foot
gpm	gallons per minute
GTP	groundwater treatment plant
GWM12	2012 Groundwater Model
LL	load line
LPNNRD	Lower Platte North Natural Resources District
LWS	Lincoln Water System
MGD	millions of gallons per day
M.U.D.	Metropolitan Utilities District
$\mu\text{g/L}$	micrograms per liter
MW	monitoring well
NDNR	Nebraska Department of Natural Resources
NOP	Nebraska Ordnance Plant
OU	operable unit
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
ROD	Record of Decision
SP	stress period
TCE	trichloroethene
TNB	1,3,5-trinitrobenzene
TNT	2,4,6-trinitrotoluene

ACRONYMS, ABBREVIATIONS AND SYMBOLS (continued)

USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
UV	ultraviolet
VOC	volatile organic compound
WSW	water supply well

**2014 CONTAINMENT EVALUATION
OPERABLE UNIT No. 2 (GROUNDWATER)
FORMER NEBRASKA ORDNANCE PLANT, MEAD, NEBRASKA**

1.0 INTRODUCTION

This document provides the 2014 evaluation of the hydraulic containment component of the Remedial Action for Operable Unit (OU) No. 2 at the former Nebraska Ordnance Plant (NOP) (herein referred to as Site) near Mead, Nebraska as shown on Figure 1.1. The analysis presented herein is based on the *Containment Evaluation Work Plan* (CEWP) (USACE, 2009a). The primary tool used to evaluate hydraulic containment at the Site is the compliance groundwater monitoring well (MW) network, augmented by the predictive capacity of groundwater model contaminant transport simulations. This document is divided into the following sections:

- Section 1.0 presents a brief description of Site background, a history of the remedy, a summary of the Site groundwater fate and transport model development, a discussion of the extent of groundwater contamination; and the objectives and scope of the evaluation.
- Section 2.0 presents a discussion of the extent of contamination, a summary of the 2014 groundwater data from the compliance and the perimeter groundwater monitoring wells, and water supply wells.
- Section 3.0 presents the Site data review; a discussion of the extent of contamination, groundwater elevation data, aquifer parameters, an evaluation of contaminant capture using transport simulations, a discussion of the uncertainty of model transport simulations, contaminant concentration trends, and recommended modifications to extraction well and focused extraction well pumping rates.
- Section 4.0 presents the conclusions of the containment evaluation (CE).
- Section 5.0 presents the references cited in this document.

1.1 BACKGROUND

The following sections describe the Site history, description of remedial actions, contaminants of concern (COC), the extent of groundwater contamination, and the current remedy.

1.1.1 Site History

The Site is located south and east of Mead, Nebraska, and west of Omaha, Nebraska, in Saunders County and is approximately 17,250 acres in size. Figure 1.1 depicts the location of the Site. The Nebraska Defense Corporation operated the Site for the Army from 1942 until 1945. During World War II, bombs, shells, and rockets were assembled at the Site in four locations known as Load Line (LL) 1, LL2, LL3 and LL4. Ordnance production was terminated in 1945 and the facility was placed on inactive status. Between 1945 and 1949, the

buildings on the Site were decontaminated and used primarily for storage and disposal of bulk explosives and munitions.

In addition to ordnance production, ammonium nitrate was produced for use as fertilizer. In 1950, the plant was temporarily reactivated and produced an assortment of weapons for use in the Korean Conflict. The Site was placed on standby status in 1956. In 1959, the Site was determined to be surplus and was transferred to the General Services Administration for disposition.

From 1959 to 1960, the Atlas Missile Area (AMA) was built north of LL4. Trichloroethene (TCE) was used during construction to degrease and clean the pipelines that carried liquid oxygen fuel for missiles.

The northern end of LL1 was formerly used as the Air Force Ballistic Missile Division Tech Area. TCE was allegedly disposed in ditches, possibly between 1959 and 1964.

Since the 1960s, private individuals, government agencies, and corporations (including the University of Nebraska, the Nebraska Army National Guard, the U.S. Air Force, the U.S. Army Reserve and the U.S. Department of Commerce) have conducted operations at the Site. Contaminants were released into the environment as a part of past operations at the Site.

1.1.2 Physical Setting

The hydrogeology of the Site consists of three alluvial aquifers in the areas of groundwater contamination (Todd Valley aquifer, Platte Valley aquifer, and Wahoo Valley aquifer) and one minor aquifer outside of the area of groundwater contamination (till Uplands aquifer). In the areas of groundwater contamination, the three alluvial aquifers are underlain by the Omadi Formation.

The shallow zone is the top half of the saturated thickness of the alluvial aquifer, and the intermediate zone is the bottom half of the saturated thickness of the alluvial aquifer. Deep wells are screened in the Omadi Sandstone which underlies the alluvium.

The groundwater flow direction in the Todd Valley is generally to the south and southeast, with an average hydraulic gradient of approximately 13 feet (ft) per mile. The groundwater flow direction in the Platte River alluvial aquifer is approximately south, with an average hydraulic gradient between approximately 2 ft per mile to 5 ft per mile.

More detailed information on the physical setting at the Site is available in the *Remedial Investigation Report Operable Unit 2 (Groundwater)* (USACE, 1993) and the *2012 Groundwater Model Update, Operable Unit 2 (Groundwater)* (USACE, 2013a).

1.1.3 Description of Remedial Action

The remedial action objectives outlined in the OU2 *Record of Decision (ROD)*, *Operable Unit No. 2 (Groundwater)* (USACE, 1996a) address the contaminated groundwater and

explosives-contaminated soil that could act as a source of explosives contamination to groundwater. The remedial action objectives also consider the long-term goals of protecting human health and the environment and meeting federal and state Applicable or Relevant and Appropriate Requirements.

The remedial action objectives as defined in the ROD are:

- Minimize the potential for ingestion of contaminated groundwater, or reduce concentrations to acceptable health-based levels;
- Minimize the potential for dermal exposure to contaminated groundwater, or reduce concentrations to acceptable health-based levels; and
- Minimize the potential for inhalation of chemicals released during the use of contaminated groundwater, or reduce concentrations to acceptable health-based levels.

The U.S. Army Corps of Engineers (USACE), Northwestern Division, Kansas City District (CENWK) has implemented and maintained the selected remedy. The major components of the remedy include:

- Hydraulically contain contaminated groundwater exceeding the Final Target Groundwater Cleanup Goals.
- Focused extraction of groundwater in areas with relatively high concentrations of TCE and explosives.
- Treat all extracted groundwater using granular activated carbon adsorption, an advanced oxidation process (AOP), and air stripping. Granular activated carbon adsorption and AOP may be applied individually or in combination, while air stripping must be applied in combination with one of the other technologies to effectively treat explosives.
- Dispose of the treated groundwater through beneficial reuse or through surface water discharge.
- Provide a potable water supply to local groundwater users whose water supply contains hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) exceeding the health advisory of 2 micrograms per liter ($\mu\text{g}/\text{L}$) and/or TCE exceeding the Maximum Contaminant Level of 5 $\mu\text{g}/\text{L}$.
- Monitor groundwater elevations and water quality.
- Excavate and treat explosives-contaminated soils that could act as a source of explosives contamination of groundwater and that do not meet the OU1 excavation criteria.

The remediation of explosives-contaminated soils that could act as a source of explosives contamination to groundwater, as defined by the ROD, was completed during the OU1 remedial action in the fall of 1997.

1.1.4 Contaminants of Concern

The COCs and associated Final Target Groundwater Cleanup Goals defined in the ROD are summarized in Table 1.1.

1.1.5 Extent of Groundwater Contamination

The ROD identified the following four groundwater contaminant plumes:

- TCE plume with the suspected source at the AMA;
- TCE plume with the suspected source at the Air Force Ballistic Missile Division Tech Area;
- Explosives plume with the suspected source at LL1; and
- Explosives plumes with suspected sources at LL2, LL3, LL4, and the North Burning Grounds area.

After the ROD was approved, TCE plumes also were identified with the suspected sources at LL2, LL3, and former landfill area (approximately one mile east of LL4).

TCE and methylene chloride were the only volatile organic compounds (VOCs) detected at the Site in 2014 at levels above the Final Target Groundwater Cleanup Goals. TCE concentrations exceeded the Final Target Groundwater Cleanup Goal of 5 $\mu\text{g/L}$ in the AMA, LL1, LL2, LL3, and former landfill area contaminant plumes. TCE is the most commonly detected VOC at the Site, and is used as an indicator for other VOCs at the Site. At locations where the other volatile COCs (e.g., methylene chloride and 1,2-dichloropropane) are detected, TCE is also detected above the Final Target Groundwater Cleanup Goal. Conversely, where TCE is not detected, the other volatile COCs are typically absent.

Methylene chloride was detected at four plume interior locations at concentrations above the Final Target Groundwater Cleanup Goal of 5 $\mu\text{g/L}$: MW-160 in LL1; and MW-137, MW-138 and MW-139 in LL4. The highest concentration was reported in MW-137E at 107J $\mu\text{g/L}$ (the “J” qualifier indicates that the analytical result is an estimated value). Methylene chloride was also detected at three perimeter locations (MW-38, MW-46, and MW-116) below the Final Target Cleanup Groundwater Goal of 5 $\mu\text{g/L}$.

RDX is the most commonly detected explosive compound in groundwater at the Site, and is detected at concentrations exceeding the Final Target Groundwater Cleanup Goal of 2 $\mu\text{g/L}$. RDX is used as an indicator for explosive compounds in groundwater at the Site. Where other explosive compounds are detected, RDX also is typically detected above the cleanup goal, and, conversely, when RDX is not detected, other explosive compounds are typically absent.

RDX, 1,3,5-trinitrobenzene (TNB), 2,4-dinitrotoluene (2,4-DNT), and 2,4,6-trinitrotoluene (TNT) were the only COCs detected above the Final Target Groundwater Cleanup Goals in monitoring wells at the Site in 2014. TNB, 2,4-DNT, and/or TNT were detected above the Final Target Groundwater Cleanup Goals at one or more of nine locations: interior wells

MW-02, MW-21, MW-125, MW-126, MW-127, MW-141, and MW-161 at LL1 and MW-171 at LL2. Except at MW-127, the RDX concentration in these wells also exceeded the Final Target Groundwater Cleanup Goals.

The goal of the hydraulic containment system is to prevent further migration of groundwater contamination that exceeds the Site Final Target Groundwater Cleanup Goals. The current extent of contamination, developed from an analysis of samples collected at direct-push locations, monitoring wells, extraction wells, and focused extraction wells performed through 2014, is depicted on Figure 1.2. The plume interpretations on Figure 1.2 are the same as those presented in the *2014 Annual Summary Report* (USACE, 2015).

Plume interpretations were based on multiple USACE investigations. The largest and most recent are listed below.

- *Pre-Pilot Study Investigation Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns and McDonnell Company, Inc. January (USACE, 2011a).
- *Aquifer Characterization Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns and McDonnell Company, Inc. March (USACE, 2011b).
- *Groundwater Monitoring Program Optimization Investigation Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC. June (USACE, 2012).
- *Monitoring Well Optimization Data Summary Report, Phase II*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC. May (USACE, 2013b).
- *Monitoring Well MW-180 and Surrounding Area Groundwater Sampling Results Technical Memorandum*, Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC. December (USACE, 2013c).
- *2012 Annual Summary Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC. May (USACE, 2013d).
- Value Enhancement Idea ORP-2 Field Implementation Technical Memorandum, Enhance Mass Removal Rates of Contaminants at Focused Extraction Wells using Packers to Focus the Zone of Extraction, Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC. January (USACE, 2014a).
- *Quarterly Summary Report First Quarter 2014 Sampling Events*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. May (USACE, 2014c).
- *Quarterly Summary Report Second Quarter 2014 Sampling Events*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. September (USACE, 2014d).
- *Quarterly Summary Report Third Quarter 2014 Sampling Events*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. December (USACE, 2014e).

- 2014 Annual Summary Report, Former Nebraska Ordnance Plant Mead, Nebraska. March (USACE, 2015).

1.1.6 Remedy Description

This document evaluates the performance of the hydraulic containment system element of the selected remedy. The remedy was designed and constructed to prevent further migration of Site groundwater with contaminant concentrations above the Final Target Groundwater Cleanup Goals. Containment is accomplished through the operation of groundwater extraction wells. Groundwater extracted in 2014 was processed at four groundwater treatment plants (GTP) designated as the Main GTP, the LL1 GTP, the LL4 GTP, and the AOP GTP. The GTP locations are shown on Figure 1.2.

For the 2014 CE period (January 2014 through December 2014), the remedy included the following components:

- Six extraction wells were in operation for all or part of 2014 to contain contaminated groundwater as presented on Figure 1.2. These wells were extraction wells (EW)-1R, EW-4, EW-7, EW-9, EW-12, and EW-17.
 - EW-1R contains the contaminated groundwater associated with the AMA/LL4 plume. EW-1R replaced EW-1 (which was subsequently abandoned) in February 2012. EW-4 contains the contaminated groundwater associated with the LL3 RDX plume and will also contain the LL3 TCE plume when the leading edge of that plume reaches EW-4.
 - EW-7 and EW-9 contain the contaminated groundwater associated with the LL2 RDX plume, and had the same treatment sequence as EW-4. EW-7 and EW-9 will also contain the LL2 TCE plume upon arrival at the extraction wells.
 - EW-12 and EW-17 contain the contaminated groundwater associated with the LL1 TCE plume. Extracted groundwater from these wells was treated at the LL1 GTP. EW-12 and EW-17 will also contain the LL1 RDX plume upon arrival at the extraction well.
- From January 1 to April 30, 2014, groundwater from EW-4, EW-7, and EW-9 was pretreated using ultraviolet (UV) photolysis before being treated at the Main GTP. Groundwater from EW-1R was also treated at the Main GTP until the Main GTP was shut down on April 30, 2014. From May 1 to December 31, 2014, groundwater from EW-4, EW-7, and EW-9 was treated through UV photolysis. Treated water from EW-4 was discharged to Clear Creek, and treated water from EW-7 and EW-9 was discharged to Wahoo Creek. The groundwater from EW-1R was treated by the air stripper at the LL4 GTP. Throughout 2014, the air stripper at the LL1 GTP treated TCE-contaminated groundwater from EW-12 and EW-17.
- Three focused extraction wells, (FEW)-11, FEW-14, and FEW-15, were in operation during 2014 as presented on Figure 1.2.
 - FEW-11, located in the LL1 TCE and RDX plumes, began operating in March 2008 to remediate groundwater containing high concentrations of TCE and RDX. Contaminated groundwater from FEW-11 was pre-treated using UV photolysis

before being treated at the AOP GTP. The effluent from the AOP GTP was then treated at the Main GTP for RDX prior to discharge.

- FEW-14 began operating in June 2009 to remediate groundwater containing high concentrations of RDX in the LL3 RDX plume. Contaminated groundwater from FEW-14 was pre-treated using UV photolysis before final treatment at the Main GTP.
- FEW-15 began operating in April 2010 to remediate groundwater containing high concentrations of TCE in the AMA/LL4 plume. Contaminated groundwater from FEW-15 was treated at the LL4 GTP.

Inactive components of the remedy are as follows:

- EW-2 and EW-5, located at the LL3 RDX plume, were turned off in March 2009 based upon recommendations in the *Restoration Time-Frame Modeling Technical Memorandum, Operable Unit No. 2 (Groundwater)* (USACE, 2009b).
- EW-10, located at the LL2 RDX plume, was shut down on February 23, 2010, in accordance with the January 20, 2010, letter to the U.S. Environmental Protection Agency because it no longer benefited the containment of that plume (CENWK, 2010).
- EW-13 was installed in 2005, but could not sustain sufficient yield during testing. It was replaced by EW-17 in May 2013.
- EW-8, located at the west edge of the LL1 TCE plume, was turned off in September 2007 because it was no longer contributing to plume containment.
- Three extraction wells were turned off with EPA approval on January 1, 2013, to optimize the ongoing remediation effort while maintaining groundwater containment in accordance with the OU2 ROD (USACE, 1996a). These wells were EW-3, EW-6, and EW-16 (CENWK, 2012).
- The Main GTP was shut down April 30, 2014, and replaced with five well-head UV treatment systems based on the recommendations of the *Full Scale Implementation of AOP UV Treatment Systems and the Shutdown of the Main GTP Operations Technical Memorandum* (USACE, 2014b).

1.2 DEVELOPMENT OF SITE GROUNDWATER MODEL

The design of the containment system was accomplished through the development of a series of Site-specific groundwater models. The current model is the culmination of groundwater modeling efforts that started with the report entitled *Removal Action Groundwater Modeling, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 1994), subsequently followed by:

- *Conceptual Groundwater Model Technical Memorandum, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska*. Prepared by Woodward-Clyde (USACE, 1996b);
- *Remedial Design Groundwater Model Technical Memorandum, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska*. Prepared by Woodward-Clyde (USACE, 1998);

- *Remedial Design Groundwater Model*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Design Analysis Attachment 1 Remedial Design Groundwater Model II. Prepared by Woodward-Clyde (USACE, 1999);
- *Remedial Design Groundwater Model III Technical Memorandum*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by URS (USACE, 2002);
- *Remedial Design Groundwater Model IV Technical Memorandum*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by URS (USACE, 2004);
- Updates to Remedial Design Groundwater Model IV described in the *LLI Containment System Remedial Design*. Prepared by URS (USACE, 2005);
- *2006 Groundwater Modeling Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by URS (USACE, 2007);
- *2008 Groundwater Modeling Update*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by URS (USACE, 2009c);
- *2010 Groundwater Model Update*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns and McDonnell Company, Inc. (USACE, 2011c); and
- *2012 Groundwater Model Update*, Operable Unit 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns and McDonnell Company, Inc. (USACE, 2013a).

For ease of reference, the most recent version of the model is identified as the 2012 Groundwater Model (GWM12).

1.3 PROJECT OBJECTIVES

The goal of the CE is to determine whether the hydraulic containment system is preventing the further migration of groundwater contaminated with COCs at concentrations above the Final Target Groundwater Cleanup Goals. The primary CE tool is the compliance groundwater monitoring well network. The secondary CE tool is the system effectiveness review, which includes evaluation of regional groundwater levels and evaluation of hydraulic capture using the current groundwater transport model.

1.4 PROJECT SCOPE

Containment was evaluated based on chemical data collected in 2014 from the downgradient compliance groundwater monitoring wells. The general performance, or effectiveness, of the hydraulic containment system was evaluated using current year data. The predicted performance was evaluated by performing contaminant transport modeling using the current version of the groundwater model (GWM12).

2.0 COMPLIANCE MONITORING REVIEW

The foundation of the COC monitoring portion of the 2014 CE is the data collected from the comprehensive annual Site-Wide Groundwater Monitoring Program. This section discusses the evaluation of groundwater chemical data used as the primary line of evidence to determine if the hydraulic containment system functioned as designed. The Site-Wide Groundwater Monitoring Program includes monitoring wells designated as perimeter or compliance wells and as interior plume wells. The latter well category includes monitoring wells within the zones where COC concentrations are greater than the Final Target Groundwater Cleanup Goals as well as sidegradient to those zones or downgradient from those zones. Figure 2.1 shows the location of the compliance and perimeter groundwater monitoring wells evaluated for the 2014 CE. Table 2.1 lists the location of the compliance and perimeter groundwater monitoring wells and rationale for sampling. Compliance monitoring wells are located downgradient of the defined groundwater contamination (plumes). These monitoring wells help verify hydraulic containment of the plumes, as required by the ROD. Perimeter monitoring wells monitor contaminant concentrations adjacent to the known extent of the plume boundaries.

Hydraulic containment for a given year is assessed using the chemical data from that calendar year (in this case the calendar year is 2014). ROD compliance is demonstrated when COCs are not detected above the Final Target Groundwater Cleanup Goals (shown in Table 1.1) in the compliance groundwater monitoring wells. If detections of COCs above the Final Target Groundwater Cleanup Goals occur in one or more perimeter groundwater monitoring well, or a water supply well, the response actions outlined in Section 3.1.1 of the CEWP (USACE, 2009a) would be performed. If detections of COCs above the Final Target Groundwater Cleanup Goals were to occur in one or more of the compliance groundwater monitoring wells, the response actions outlined in Section 3.1.2 of the CEWP would have been performed.

Possible response actions for detections at compliance and perimeter groundwater monitoring wells and water supply wells are presented in a tiered approach in Section 3.1 of the CEWP. If detections of COCs above Final Target Groundwater Cleanup Goals in perimeter or compliance groundwater monitoring wells occur and are verified by resampling, then response actions are performed. Possible response actions include, but are not necessarily limited to, direct-push investigations and/or monitoring well installation, testing, and abatement actions to mitigate plume movement (such as modifying pumping rates). No response actions related to compliance or monitoring wells were necessary in 2014.

Regardless of any findings related to the tiered response action approaches presented in the CEWP, an alternate water supply would have been provided to any residence whose water supply well contained TCE and/or RDX above Final Target Groundwater Cleanup Goals. During 2014, TCE and/or RDX were detected at concentrations above Final Target Groundwater Cleanup Goals only at water supply wells that were already using an alternate water supply based on sampling in previous years.

2.1 COMPLIANCE GROUNDWATER MONITORING WELLS

Figure 2.1 and Table 2.1 identify the compliance groundwater monitoring well clusters evaluated for the 2014 CE. The TCE and RDX data from the groundwater samples collected and analyzed from these wells are summarized in Table 2.2. A detailed presentation of the data is provided in the *2014 Annual Summary Report* (USACE, 2015). TCE and RDX concentration trend charts of compliance groundwater monitoring well clusters are presented in Appendix A of this CE report.

2.1.1 COCs Detected Above Final Target Groundwater Cleanup Goals

As shown in Table 2.2, TCE and RDX were not detected above the Final Target Groundwater Cleanup Goals in the compliance groundwater monitoring wells during 2014. The *2014 Annual Summary Report* presents the 2014 analytical results for all of the COCs listed in Table 1.1.

2.1.2 Response Actions

No COCs were detected above the Final Target Groundwater Cleanup Goals in the compliance groundwater monitoring wells sampled and analyzed in 2014; therefore, no response actions were warranted.

2.2 PERIMETER GROUNDWATER MONITORING WELLS

Figure 2.1 and Table 2.1 identify the perimeter groundwater monitoring well clusters evaluated for the 2014 CE. The TCE and RDX data from the groundwater samples collected and analyzed from these wells are summarized in Table 2.3. A detailed presentation of the data is provided in the *2014 Annual Summary Report*. TCE and RDX concentration trend charts of perimeter groundwater monitoring well clusters are presented in Appendix B of this CE report.

2.2.1 COCs Detected Above Final Target Groundwater Cleanup Goals

As shown in Table 2.3, TCE and RDX were not detected above the Final Target Groundwater Cleanup Goals in the perimeter groundwater monitoring wells during 2014. The *2014 Annual Summary Report* presents the 2014 analytical results for all of the COCs listed in Table 1.1.

2.2.2 Response Actions

No COCs were detected above the Final Target Groundwater Cleanup Goals in the perimeter groundwater monitoring wells sampled and analyzed in 2014; therefore, no response actions were warranted.

2.3 WATER SUPPLY WELLS

The water supply wells sampled in 2014 are listed in Table 2.4 and shown on Figure 1.2. A more detailed presentation of the Water Supply Well and Alternate Water Supply (AWS) programs is provided in the *2014 Annual Summary Report*. The AWS program addresses the

water supply well for local groundwater users whose water supply at any point contained RDX and/or TCE above the Final Target Groundwater Cleanup Goals.

Domestic WSWs WSW-52A, WSW-52C, WSW-53, and WSW-54 are equipped with GAC units and are sampled semiannually. Samples are collected from sampling ports located after the primary carbon treatment vessel prior to the secondary GAC vessel to monitor the effectiveness of the GAC treatment units. Samples are also collected from sampling ports before the primary GAC treatment vessel to monitor groundwater contaminant levels before treatment. Samples collected before the primary GAC treatment vessel have a “-B” in the sample name. For example, sample “WSW-52A” is collected after GAC treatment, and sample “WSW-52A-B” is collected before the GAC treatment vessel. Pre-treatment and post-treatment water results are shown in Table 2.4.

2.3.1 COCs Detected Above Final Target Groundwater Cleanup Goals

TCE or RDX was detected at a concentration greater than the Final Target Groundwater Cleanup Goal in three water supply wells during 2014. These occurrences are presented in Table 2.5. TCE and RDX concentration trend charts for these water supply wells and for those that had detections in previous years are presented in Appendix C of this report. The water supply wells presented in Table 2.5 are included in the AWS Program. The remaining residential water supply wells sampled in 2014 had no detections of COCs above the Final Target Groundwater Cleanup Goals.

The pretreatment RDX concentration at water supply well (WSW) 53-B ($6.8 \mu\text{g/L}$) exceeded the Final Target Groundwater Cleanup Goal for RDX ($2.0 \mu\text{g/L}$) in the first quarter of 2014, but declined to $5.4 \mu\text{g/L}$ in the third quarter of 2014.

The pretreatment RDX concentration in the first quarter of 2013 at WSW-54-B of $2.3 \mu\text{g/L}$ exceeded the Final Target Groundwater Cleanup Goal for RDX of $2.0 \mu\text{g/L}$, but declined to $2.0 \mu\text{g/L}$ in the third quarter of 2013, $1.8 \mu\text{g/L}$ in the first quarter of 2014, and $1.5 \mu\text{g/L}$ in the third quarter of 2014. Therefore, analytical results collected at WSW-54-B, which was included in the 2013 CE, do not appear in Table 2.5.

The pretreatment TCE concentration in WSW-52C-B was $194 \mu\text{g/L}$ in the second quarter of 2014, and $223 \mu\text{g/L}$ in the third quarter of 2014.

TCE was detected at concentrations up to $4.7 \mu\text{g/L}$ in WSW-51A during the two quarterly sampling events in 2013. According to the *Water Supply Well Operations and Maintenance Manual, Operable Unit No. 2 (Groundwater)* (USACE, 2011d), WSW-51A was added to the AWS Program and bottled water is being provided to the residents at their request. TCE was detected in both 2014 samples collected from this well at $6.4 \mu\text{g/L}$ (first quarter) and $5.9 \mu\text{g/L}$ (third quarter).

2.3.2 Response Actions

The AWS program addresses the water supply wells for local groundwater users whose water supply contains RDX and/or TCE exceeding the Final Target Groundwater Cleanup Goals. Water supply wells WSW-50B, WSW-51A, WSW-52A, WSW-52C, WSW-53, and WSW-54 were already included in the AWS Program based on detections in previous years and remained in the AWS Program in 2014. The residents at WSW-51A declined the offer of a granular activated carbon treatment unit, and bottled water is being provided to the residents at WSW-50B and WSW-51A at their request. The other four residences have granular activated carbon treatment units.

3.0 CONTAINMENT SYSTEM EFFECTIVENESS REVIEW

This section describes the secondary line of evidence used to evaluate the effectiveness of the hydraulic containment system. Six steps are used in the secondary line of evidence, as presented in the following sections:

- Step 1: Review Site Data. Site data are evaluated to determine whether any modifications to the Site conceptual model are required.
- Step 2: Review the Extent of Contamination above the Final Target Groundwater Cleanup Goals. The horizontal and vertical extent of contamination that is greater than the Final Target Groundwater Cleanup Goals are evaluated using the most recent characterization data.
- Step 3: Interpret Water Levels. The regional water level measurements are used to evaluate the groundwater flow direction to determine if the containment system is effective. The water level data are also used to assess the presence and magnitude of vertical and horizontal flow gradients that would affect the ability of the extraction well system to capture contaminated groundwater in both vertical and horizontal directions.
- Step 4: Evaluate Capture Using Contaminant Transport Simulations. Predictive modeling using the most recent Site data is performed to estimate plume capture. This evaluation compares RDX and TCE concentrations based on contaminant transport simulations to Final Groundwater Target Cleanup Goals.
- Step 5: Evaluate Concentration Trends. Concentration trends in compliance groundwater monitoring wells, perimeter groundwater monitoring wells, and water supply wells are examined.
- Step 6: Interpret Actual Capture and Compare to Groundwater above the Final Target Groundwater Cleanup Goals. Predictive modeling is performed to estimate plume capture using contaminant transport simulations compared to Final Groundwater Target Cleanup Goals and evaluate the need for modifications to the extraction system pumping rates.

3.1 STEP 1: REVIEW SITE DATA

The latest groundwater model update (GWM12) was performed in 2012, during which the Site conceptual model was reviewed and new information on hydraulic conductivity, precipitation, pumping data, site lithology, and plume extents based on then current chemical data were incorporated into the model. The additional data and refinements are discussed in detail in the *2012 Groundwater Model Update* (USACE, 2013a).

For the 2014 CE, groundwater levels and analytical data collected during 2014 from existing and new groundwater sampling locations were examined and the 2014 pumping rates obtained from the following sources were input into the groundwater model:

- Site extraction wells;
- Metropolitan Utilities District (M.U.D.) well field (M.U.D., 2015);

- Lincoln Water System (LWS) field in near the city of Ashland, Nebraska (LWS, 2015);
- Village of Mead water supply wells (Village of Mead, 2015);
- University of Nebraska-Lincoln Agricultural Research and Development Center (ARDC) irrigation and water supply wells (ARDC, 2015); and
- City of Ashland municipal water supply wells (City of Ashland, 2015).

Municipal pumping rates for the villages of Ithaca and Memphis were estimated using population statistics and average per capita usage of 100 gallons per day (NNRC, 1998).

Irrigation well status information, including new wells that were registered in 2014, was obtained from the Nebraska Department of Natural Resources (NDNR) (NDNR, 2015).

The new data and Site information obtained during 2014 is consistent with the existing Site conceptual model.

3.2 STEP 2: REVIEW OF THE EXTENT OF CONTAMINATION ABOVE THE FINAL TARGET GROUNDWATER CLEANUP GOALS

The current extent of contamination above Final Target Groundwater Cleanup Goals is depicted on Figure 1.2 and was developed from an interpretation of direct-push, monitoring well, and extraction well data collected through 2014. Detailed discussion of the current extent of contamination is presented in the *2014 Annual Summary Report* (USACE, 2015). The extent of contamination is presented on Figure 1.2. None of the seven COCs showed a concentration above the Final Target Groundwater Cleanup Goal in any sample collected from a compliance or perimeter monitoring well in 2014 (see Tables 2.2 and 2.3).

3.2.1 Perimeter Wells

With the exception of RDX, detections of COCs at any concentration from a perimeter well were infrequent as discussed below:

- TCE, 1,2-dichloropropane, 2,4-DNT, TNB, and TNT were not detected.
- Methylene chloride was detected in the first quarter of 2014 at MW-38A (2.0J $\mu\text{g/L}$), MW-38D (1.9J $\mu\text{g/L}$), MW-46A (1.9J $\mu\text{g/L}$), MW-46D (1.8J $\mu\text{g/L}$), and MW-116D (1.9J $\mu\text{g/L}$). It was not detected in the third quarter sample at any of these wells. These concentration are well below the 5.0 $\mu\text{g/L}$ Final Target Groundwater Cleanup Goal for this COC.

RDX was detected in several perimeter wells in the first and third quarter sampling in 2014 (Table 2.3):

- MW-35A (0.83 $\mu\text{g/L}$ and 1.2 $\mu\text{g/L}$) near LL3;
- MW-35B (not detected in the first quarter and 0.13J $\mu\text{g/L}$ in the third quarter);

- MW-83A (0.25J $\mu\text{g/L}$ and 0.20J $\mu\text{g/L}$) near LL2;
- MW-83B (0.12J $\mu\text{g/L}$ in the second quarter and not detected in the third quarter);
- MW-84A (0.27J $\mu\text{g/L}$ and 0.41 $\mu\text{g/L}$) near LL2;
- MW-85A (0.69 $\mu\text{g/L}$ and 0.73 $\mu\text{g/L}$) near LL3;
- MW-85B (1.2 $\mu\text{g/L}$ and 1.1 $\mu\text{g/L}$);
- MW-95A (not detected in the first quarter and 0.25J $\mu\text{g/L}$ in the third quarter);
- MW-114B (0.15J $\mu\text{g/L}$ in the first quarter and not detected in the third quarter) near LL4;
- MW-115A (0.39J $\mu\text{g/L}$ in the first quarter and not detected in the third quarter) near LL4;
- MW-118A (0.27J $\mu\text{g/L}$ and 0.40 $\mu\text{g/L}$) near LL3; and
- MW-118B (0.59 $\mu\text{g/L}$ and 0.70 $\mu\text{g/L}$).

3.2.2 Compliance Wells

RDX was the only COC detected in any compliance monitoring well. It was detected in wells MW-86D and MW-100B in the second quarter of 2014 with a maximum concentration of 0.94 $\mu\text{g/L}$ (see Table 2.2). These wells were not sampled during the first or third quarter.

Based on this review, the containment system is effective in preventing groundwater with COC concentrations above the Final Target Groundwater Cleanup Goals from reaching the perimeter and compliance monitoring well networks. This finding is consistent with the evaluation of concentration trends described in Section 3.5.

3.2.3 Monitoring Wells Located in the Vicinity of Extraction Wells

TCE and RDX concentrations from 2010 through 2014 were reviewed for monitoring wells in the vicinity of the extraction wells and upgradient from the perimeter monitoring wells. The monitoring wells reviewed are part of the Site-wide groundwater monitoring program but are closer to the leading edge of the contaminant plumes and provide a more detailed definition of each plume extent and capture zone than the more distant perimeter wells. The analytical results for these monitoring wells are presented in Table 3.1 and locations are shown on Figure 1.2. The results of this review are summarized below.

For LL1, the analytical results from the following wells were reviewed:

- Sidegradient wells at MW-91, MW-93, MW-177, and MW-179; and
- Upgradient wells MW-89 and MW-90.

The analytical data illustrate that although higher TCE concentrations are approaching EW-12 and EW-17 from the plume interior as demonstrated by the increased concentrations in upgradient wells MW-89B and MW-89E, the extent of contamination above the Final Target Groundwater Cleanup Goals in the vicinity of the leading edge of the LL1 plume did not change significantly in 2014.

Based on MW-180 concentration data, direct-push sampling results, and groundwater modeling performed as part of GWM12, additional investigation was recommended to support placement of a future LL2 extraction well (USACE, 2013c). The contaminant transport simulation modeling conducted as part of this CE report also supports this recommendation. The MW-180 concentration data indicate that the extent of contamination above the Final Target Groundwater Cleanup Goals at LL2 in 2014 is similar to the 2013 extent. The leading edge of the LL2 RDX plume is approximately 300 ft upgradient from perimeter well MW-83, as shown on Figure 1.2.

For LL3, the analytical results from the following wells were reviewed:

- leading plume edge well MW-131;
- sidegradient wells at MW-99;
- downgradient wells at MW-129 and MW-130; and
- upgradient wells MW-172 and MW-173.

The RDX concentration in deep well MW-131D was nondetect from 2009 through June 2012 but has been increasing since then. The fourth quarter 2014 RDX concentration was 0.66 $\mu\text{g/L}$; however, this value is much less than the Final Target Groundwater Cleanup Goal of 2 $\mu\text{g/L}$ for RDX. The concentration in intermediate monitoring well MW-131A, which was 3.0 $\mu\text{g/L}$ in 2013, decreased to 2.6 $\mu\text{g/L}$ in the fourth quarter of 2014. Concentrations in the fourth quarter of 2014 in MW-99D (3.1 $\mu\text{g/L}$), MW-172B (1.1 $\mu\text{g/L}$) and MW-173A (6.0 $\mu\text{g/L}$) were lower than the 2013 concentrations. The analytical data illustrate that the extent of RDX contamination above the Final Target Groundwater Cleanup Goals at the leading edge of the LL3 plume in 2014 was similar to the extent in 2013.

The 2014 RDX and TCE concentrations at MW-105 located near the leading edge of the LL4 TCE plume were similar to the 2013 concentrations. Based on this review, the extent of contamination above the Final Target Groundwater Cleanup Goals in LL4 in 2014 was similar to the extent in 2013.

3.3 STEP 3: INTERPRET WATER LEVELS

Regional water levels were measured in March 2013 and August 2013. These semiannual water level data are used to assess the flow direction and the presence and magnitude of vertical and horizontal flow gradients that would affect the ability of the extraction well system to capture contaminated groundwater in both the vertical and horizontal directions.

Table 3.2 summarizes the regional water level measurements. The water levels used in creating the potentiometric surfaces are from the deepest well in the unconsolidated aquifer in each cluster, which is typically the “A” well. The interpretations of the potentiometric surfaces were developed using the Kriging algorithm within the Surfer® program developed by Golden Software and adjusted based on engineering judgment. The results are shown on Figures 3.1 and 3.2 (for water level measurements collected on March 31, 2014, and August 26, 2014, respectively) and were based on water levels from the following sources:

- CENWK monitoring wells, observation wells, and piezometers;
- Lower Platte North Natural Resources District (LPNNRD) piezometers and irrigation wells (LPNNRD, 2014);
- M.U.D. piezometers (LPNNRD, 2014); and
- LWS piezometers (LPNNRD, 2014).

Site-wide monitoring well groundwater elevations measured during 2014 showed a decrease in the potentiometric surface when compared to the corresponding measurements in 2013. Average groundwater elevations were approximately 0.8 ft lower in March 2014 than in March 2013 and 0.4 ft lower in August 2014 than in August 2013. The groundwater elevation showed a decline in March 2014 at most wells. In general the groundwater elevation increased in the Platte Valley near Johnson Creek and Clear Creek. Groundwater elevations generally decreased more than a foot in the Todd Valley, except in the vicinity of EW-4, where water levels decreased less than 1 ft. The same spatial distribution was observed in August 2014 but the area of increased groundwater elevations expanded to include wells along the upper portion of Johnson Creek in the Todd Valley.

Overall, the orientation of the potentiometric surfaces shown on Figures 3.1 and 3.2 is very similar to that observed in 2013. The data indicates that no fundamental change occurred in the groundwater flow direction in the area of the Site plumes from the prior year, therefore suggesting groundwater levels did not affect capture of contaminated groundwater.

Water level data from well clusters is also used to evaluate the presence and magnitude of vertical gradients. Measured groundwater elevations at well clusters were used to calculate vertical gradients between the shallow zone and the intermediate zone and/or between the deep zone and the intermediate zone. Calculated vertical gradients greater than 0.02 in either a downward or upward direction are presented in Table 3.3. Downward gradients typically result from recharge or from groundwater pumping. Upward gradients may result from groundwater discharge to streams, seeps, or springs or from groundwater pumping.

During March 2014, the range of downward gradients between the shallow and intermediate groundwater zones was from approximately 0.02 at MW-154 to 0.05 at MW-156. Most of the clusters with downward gradients are along upper Johnson Creek between the LPNNRD reservoir and the Platte Valley. In August 2014, the range of downward gradients was similar.

Upward gradients from the intermediate to the shallow groundwater zones ranged in March 2014 and August 2014 from approximately -0.02 at MW-168 to -0.08 at MW-176. Most of the clusters with upward gradients are upgradient of the EWs (for example, MW-168, MW-174, and MW-175), and near the area where the Todd Valley aquifer discharges to the Platte Valley aquifer (near MW-44 and MW-176). These upward gradients create wetlands where the potentiometric surface intersects the ground surface.

As shown in Table 3.3, there were fewer groundwater elevations showing vertical gradients of more than 0.02 in either direction between the intermediate and deep groundwater zones. Perimeter well MW-95 southwest of the LL2 plume showed a downward gradient from the

intermediate to deep zone of 0.04 in March 2014 and August 2014. A downward gradient of 0.02 between these zones was also measured at MW-124 in the upper part of the LL1 plume near FEW-11 in March and August 2014.

Upward gradients between the deep and intermediate zone area were observed at the MW-135 well cluster, located near FEW-15. The gradient was approximately -0.04 in March 2014 and -0.06 in August 2014. MW-135D is screened at a depth below the screen interval of FEW-15 and the vertical gradients are consistent with flow into the well from below and potential plume capture.

3.4 STEP 4: EVALUATE CAPTURE USING CONTAMINANT TRANSPORT SIMULATIONS

Measured, estimated, and predicted pumping rates from the containment system, public water supplies, and irrigation wells, were incorporated in the GWM12 model and used to predict capture of the plumes using the MODFLOW groundwater model (Harbaugh, 2005) and contaminant transport modeling software MT3DMS® (Zheng and Wang, 1998). The model flow and transport assumptions and the measured, estimated, and predicted pumping rates are presented in Appendix D of this report.

3.4.1 Groundwater Flow Model for Containment Evaluation

The groundwater flow and transport model used for predicting future TCE and RDX distributions is the GWM12 model. The boundary conditions for the predictive model are the same as presented in the *GWM12 Update*. The predictive model hydrologic and groundwater extraction conditions beginning in September 2014 are specified in Appendix D, Table D.1. Additional details are provided below:

- Four stress periods (SP) are used to represent monthly conditions from September 2014 through December 2014. The non-irrigation period from January 2015 through May 2015 is represented by a single SP (SP 5). SP 6 represents the first irrigation season in the model, from June 2015 through August 2015. SP 6 concludes the first year of the predictive simulation. The remainder of the simulation, 64 SPs total, used two SPs for each of the 29 subsequent years: a non-irrigation season of 273 (or 274 days during leap years), and an irrigation season of 92 days.
- Monthly average evapotranspiration rates (Appendix D, Table D.2) and groundwater recharge (Appendix D, Table D.3) are used for SPs 1 through 4; for subsequent SPs, evapotranspiration and recharge rates are assumed to be the estimated long-term average for irrigation and non-irrigation seasons, respectively (USACE, 2103a).
- Site pumping rates for SPs 1 - 4 (September 2014 through December 2014) are based on the average measured pumping rates for those months, as presented in Table 3.4. Site pumping rates used in the 30 year transport simulation are presented in Appendix D, Table D.4. Pumping rates beginning with SP 5 (January 2015 through May 2015) and extending throughout the simulation are assumed to be an extension of the proposed optimized pumping rates (USACE, 2013e) with the modifications based on operating history:

- The design pumping rate for EW-12 is 275 gallons per minute (gpm). The average pumping rate of EW-12 declined to 239 gpm in 2014, but it is assumed that rehabilitation in 2015 will return EW-12 to the design pumping rate of 275 gpm;
- The feasible and sustainable pumping rate for EW-9 is 170 gpm in 2014, as opposed to 175 gpm used in the 2012 CE (USACE, 2013e); and
- A new extraction well, EW-18, is proposed to be installed in the LL2 plume between EW-7 and EW-9. For the purposes of this CE, ERW-18 is assumed to begin operation in September 2015 starting with SP 7 (September 2015 through May 2016) at a pumping rate of 150 gpm, and the pumping rates of EW-7 and EW-9 are assumed to change to 150 gpm and 105 gpm, respectively. These pumping rates are preliminary estimates that will be reevaluated after EW-18 is installed and tested.
- M.U.D. pumping rates for SPs 1 - 4 (September 2014 – December 2014) are based on the average measured pumping rates for those months (M.U.D, 2015). Pumping from individual wells shows seasonal variations; however, the total system pumping rates beginning with SP 5 (January 2015 through May 2015) are assumed to be the maximum permitted annual average rate of 52 million gallons per day (MGD) based on 69 MGD in summer and 46 MGD the rest of the year (Appendix D, Table D.5).
- LWS pumping rates for SPs 1 - 4 (September 2014 through December 2014) are based on the average measured pumping rates for those months (LWS, 2015). Pumping rates beginning with SP 5 (January 2015 through May 2015) are provided in Appendix D, Table D.6 and are estimated to increase approximately 1 percent per year following growth in demand projected by LWS (Black & Veatch, 2003, 2009).
- Municipal pumping rates for the villages of Ithaca and Memphis are estimated with per capita usage and population statistics.
- The Mead and Ashland municipal pumping rates for SPs 1 - 4 (September 2014 through December 2014) are based on the average measured pumping rates for those months (City of Ashland, 2015, and Village of Mead, 2015). Pumping rates for the non-irrigation SPs beginning with SP 5 (January through May 2015) are the average of September through May rates measured from 2005 through 2012 (Appendix D, Table D.7). Pumping rates for the summer (irrigation) SPs beginning with SP 6 (June, July, and August 2015) are the average of summer rates measured from 2005 through 2012.
- The irrigation pumping rates are assumed to be the long-term average for all irrigation SPs (Appendix D, Table D.8). Eight new and two replacement irrigation wells in the model area were installed and activated in 2014 (Appendix D, Table D.8) based on data from the NDNR (NDNR, 2015). Six other replacement wells were installed but not activated; therefore, it was assumed that the replacement wells are not pumping and the wells they replace are still operating. One well, G-017200, was made redundant by a new well installed in the same area under a different registration number (G-173267); therefore, the older well was assigned a pumping rate of zero despite not being registered as inactive or decommissioned. Pumping rates of zero were assigned to 41 irrigation wells in the model area, indicating that the wells were inactive or redundant even though they were still registered as active in the NDNR database (NDNR, 2015). The method for estimating long-term irrigation pumping rate averages

is based on the average application rate for the ARDC wells, 7.98 inches per irrigation season from 2000 through 2014 (Appendix D, Table D.9).

- River stages in SPs 1 – 4 for the Platte and Elkhorn Rivers, the Wahoo, Silver, Clear and Johnson creeks were derived from 2014 stream gauge data collected the U.S. Geological Survey (USGS) (USGS, 2015) and by CENWK. River stages for all subsequent SPs were based on long term averages as described in the *GWM12 Update*.
- Storage coefficients used in the predictive model are the same as those described in the *GWM12 Update* and are presented in Appendix D, Table D.10.
- Fate and transport parameters used in the predictive modeling are presented in Appendix D, Table D.11.
- The simulated heads from the end of August 2014 from the GWM12 model were used as the initial heads.

3.4.2 Fate and Transport Model for Containment Evaluation

The observed TCE and RDX plumes as defined by the analytical results from the August 2014 groundwater sampling event were used in conjunction with historic data to define the initial plume conditions for the transport simulation. The fate and transport parameters are the same as those described in the *GWM12 Update*.

3.4.2.1 Initial Plume Conditions

The initial RDX and TCE concentrations were based on investigations through 2014 for the shallow groundwater (upper portion of the Todd Valley Aquifer) and intermediate groundwater (lower portion of the Todd Valley Aquifer) zones. In GWM12, the saturated thickness of the alluvial aquifer is divided approximately equally into the shallow zone (model Layer 2) and the intermediate zone (model Layer 3). Water level and RDX and TCE analytical results for monitoring wells at the Site are used to characterize either the shallow zone or intermediate zone, depending on which zone corresponds to the screen interval of the well.

The initial RDX and TCE concentrations are based on the 2013 initial plume contours (USACE, 2014f) modified using the maximum values at each sampling location collected during the 2010 to 2014 period.

The sources for the 2014 RDX and TCE analytical data used in the plume interpretations are presented in Tables 3.1 through 3.8 of the *2014 Annual Summary Report* (USACE, 2015).

3.4.2.2 Fate and Transport Parameters

The fate and transport parameters and assumptions are consistent with GWM12.

As discussed in detail in the *GWM12 Update*, local variations in the soil-water distribution coefficient in the model were used to simulate sorption, possible residuals from historical high concentration areas, and heterogeneous geologic conditions. In addition, GWM12

conservatively assumed that some high concentration areas still existed on the southwest side of LL1 in 2012 and this assumption was maintained in the 2014 transport simulation. Specified concentration cells in the area of highest concentration at LL1 were used to represent contaminant mass loading decreasing over the next 20 years.

3.4.3 Simulated Extraction Well Pumping Rates

Simulated extraction well pumping rates are presented in Appendix D, Table D.4.

3.4.4 Predicted Fate and Transport of Plume Migration

The predicted fate and transport of the plumes based on the model simulation are presented in five-year increments for TCE (Appendix E) and RDX (Appendix F) in the shallow groundwater zone (GWM12 Layer 2) and intermediate groundwater zone (GWM12 Layer 3). The figures provided in Appendices E and F show the horizontal extent over time of groundwater with TCE and/or RDX concentration greater than the Final Target Groundwater Cleanup Goals. The groundwater transport simulations indicate the plumes will remain hydraulically contained for the next 10 years using the pumping rates presented in Appendix D, Table D.4.

A direct push investigation (USACE, 2013c) indicated that even with EW-9 operating at its maximum sustainable rate (170 gpm), the LL2 RDX plume has migrated southeast of EW-7 and EW-9 to approximately 300 ft upgradient of the MW-83 cluster. This portion of the LL2 plume with RDX concentrations greater than the Final Target Groundwater Cleanup Goals is projected to travel to MW-83 at some future time. To mitigate the predicted plume migration between EW-7 and EW-9, an additional extraction well, EW-18, will be installed. EW-18 is included in the predictive simulations at an assumed pumping rate of 150 gpm, and the pumping rates of EW-7 and EW-9 are assumed to be 150 gpm and 105 gpm in the simulations, respectively. The pumping rates for EW-7, EW-9, and EW 18 will be adjusted after EW-18 is installed and tested.

A portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals is projected to travel toward EW-16 and EW-1R at some point in the future. MW-129, MW-130, and MW-35 will be monitored to evaluate future RDX concentration in this region. Depending on the RDX concentration observed at these wells, resuming pumping at EW-16 could be considered to improve plume capture. In the absence of future pumping from EW-16, the transport simulations indicate that this portion of the LL3 RDX plume would eventually be captured by EW-1R.

3.4.5 Uncertainty of Transport Modeling Simulations

As part of the CE process, the available data are assembled and analyzed to evaluate the performance of the hydraulic containment system. The containment analysis is partially based on a well-calibrated groundwater model (GWM12), which represents the complex interaction between natural factors (such as aquifer characteristics, rainfall, evapotranspiration, recharge, groundwater migration, and surface water-groundwater connections) and anthropogenic

activities (pumping, irrigation). The model provides a quantitative evaluation of containment system performance that incorporates the impacts of these factors on plume migration and capture. A degree of uncertainty related to temporal and spatial variations of the natural and anthropogenic factors is inherent in groundwater modeling. Additional uncertainty arises from the requirement to represent complex Site conditions, such as matrix heterogeneity, using typical parameter values over discrete zones.

Evaluating the hydraulic capture of a one-well pumping system is relatively straightforward. However, evaluating the combined capture zone created by a multi-well pumping system is complicated and requires numerical modeling tools to accurately and efficiently assess system performance. Groundwater modeling is a predictive method used to evaluate the theoretical aquifer response to a series of prescribed future pumping rates under specified hydrologic conditions. The uncertainties inherent in groundwater modeling can be partially mitigated by using the model to assess system performance under a range of Site conditions.

3.5 STEP 5: EVALUATE CONCENTRATION TRENDS

Concentration trends were evaluated for compliance groundwater monitoring wells, perimeter groundwater monitoring wells, and water supply wells.

3.5.1 Compliance Groundwater Monitoring Wells Concentration Trends

The TCE and RDX chemical groundwater data trends observed in the compliance groundwater monitoring wells evaluated during the 2014 CE are presented in Appendix A. The samples from all compliance groundwater monitoring wells were below Final Target Groundwater Cleanup Goals for both TCE and RDX. The trends observed in the compliance groundwater monitoring well indicate that the containment system is operating effectively.

3.5.2 Perimeter Groundwater Monitoring Wells Concentration Trends

The TCE and RDX chemical groundwater data trends observed in the perimeter groundwater monitoring wells evaluated during the 2014 CE are presented in Appendix B. The samples from all perimeter groundwater monitoring wells were below Final Target Groundwater Cleanup Goals for both TCE and RDX. The trends observed in the perimeter groundwater monitoring wells indicate the containment system is operating effectively.

3.5.3 Water Supply Well Concentration Trends

The TCE and RDX chemical groundwater data trends observed in water supply wells with historical detections are presented in Appendix C. Table 2.5 listed the sample locations where the RDX concentration (WSW-53-B) and where the TCE concentration (WSW-51A and WSW-52C-B) exceeded the Final Target Groundwater Cleanup Goals during 2014.

As shown in Appendix C, the concentration of RDX in WSW-53 during the first quarter of 2014 (6.8 $\mu\text{g/L}$) was higher than the concentration in the third quarter of 2013 (6.0 $\mu\text{g/L}$), but was lower in the third quarter of 2014 (5.4 $\mu\text{g/L}$). Overall, the general trend in this well has been decreasing for the last four years. The concentration of RDX in WSW-51A has been

increasing for the last five years and reached the Final Target Groundwater Cleanup Goal in the 2012. The increase at WSW-51A is due to the southward shift of the axis of the AMA/LL4 plume that is predicted by the TCE transport simulations in Appendix E. At well WSW-52C-B, measured TCE concentrations have been over 120 $\mu\text{g/L}$ since 2008 and the 2014 sample results (194 $\mu\text{g/L}$ and 223 $\mu\text{g/L}$) are similar.

None of the other water supply wells indicated a discernible trend. Those water supply wells with concentrations exceeding the Final Target Groundwater Cleanup Goals in 2014 are located within the defined LL4 contaminant plume and provide additional information on contaminant distribution over time. The RDX and TCE concentration trends at water supply wells outside of the defined contaminant plumes indicate the containment system is operating effectively.

3.6 STEP 6: INTERPRET ACTUAL CAPTURE AND COMPARE TO GROUNDWATER ABOVE THE FINAL TARGET GROUNDWATER CLEANUP GOALS

The TCE and RDX transport simulation results presented in Appendices E and F illustrate the extent of the model capture zone over time as compared to the horizontal extent of contaminated groundwater with TCE and/or RDX concentrations above Final Target Groundwater Cleanup Goals. The model simulation results show that the known extent of groundwater contamination with concentration greater than the Final Target Groundwater Cleanup Goals is predicted to be contained for the next 10 years using current extraction well pumping rates.

The simulation results from the 2013 CE (USACE, 2014f) indicated that a part of the LL2 plume with RDX concentration greater than the Final Target Groundwater Cleanup Goal would migrate southeasterly beyond the combined capture zone of EW-7 and EW-9. The planned installation of EW-18 between EW-7 and EW-9 in 2015 will contain the LL2 plume, as shown in the simulation results in Appendix F.

Finally, the simulation results showed the possibility that a portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals is projected to travel toward EW-16 and EW-1R at some point in the future. Depending on the RDX concentration observed at monitoring wells in the vicinity of EW-16, resuming pumping at that well could be considered to improve plume capture. In the absence of future pumping from EW-16, the transport simulations indicate that this portion of the LL3 RDX plume would eventually be captured by EW-1R.

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4.0 CONCLUSIONS

The Site CE is an annual process updated with new chemical and hydraulic data collected as part of yearly Site activities. In accordance with the CEWP (USACE, 2009a), the compliance groundwater monitoring well network data were used as the primary containment evaluation tool and the predictive capacity of groundwater model transport simulations were used as the secondary containment evaluation tool. The 2014 CE incorporates data collected during calendar year 2014. The tools used to complete the CE for 2014 indicate that the containment system is containing TCE and RDX contamination above the Final Target Groundwater Cleanup Goals of 5 $\mu\text{g/L}$ and 2 $\mu\text{g/L}$, respectively.

4.1 COMPLIANCE REVIEW

The primary CE tool at the Site is the compliance groundwater monitoring well network chemical data. Groundwater chemical data collected in 2014 from compliance groundwater monitoring wells indicates that the remedy is operating properly and successfully. As discussed in Section 2.1, no COC was detected during 2014 in the compliance groundwater monitoring wells at a concentration greater than the Final Target Groundwater Cleanup Goals. Groundwater chemical data from the perimeter groundwater monitoring wells provided further primary evidence that the hydraulic containment system is functioning as designed. No COC was detected during 2014 in any perimeter groundwater monitoring well at a concentration greater than the Final Target Groundwater Cleanup Goals. Together, the groundwater chemical data collected in 2014 from compliance and perimeter groundwater monitoring wells indicate that the remedy is operating properly and successfully.

During 2014, three water supply wells showed COCs that were detected and confirmed above the Final Target Groundwater Cleanup Goals. These wells are part of the AWS program. In addition, the RDX concentration at WSW-54B exceeded the Final Target Groundwater Cleanup Goals during 2013, but decreased during 2014 and did not exceed that target.

4.2 SYSTEM EFFECTIVENESS REVIEW

The second line of evidence for the CE is the system effectiveness review. The contaminant transport simulation indicates that the known extent of contamination in both the horizontal and vertical directions is predicted to be contained for the next 10 years. The system effectiveness review consisted of six steps:

- Step 1: Review the Site data to determine if any modifications to the Site conceptual model are necessary. As discussed in Section 3.1, the Site conceptual model was refined in GWM12 based on additional data collected since the previous groundwater model update (USACE, 2011c). The new data and Site information obtained during 2014 is consistent with the Site conceptual model refined during the preparation of the *GWM12 Update*.

- Step 2: Review the extent of contamination above the Final Target Groundwater Cleanup Goals. The current extent of contamination above the Final Target Groundwater Cleanup Goals was updated using recent direct-push and monitoring well chemical data, primarily within the LL2 plume area. The current extent of contamination indicated that plume containment has been maintained except for a slight increase at LL2 in the vicinity of new well MW-180.
- Step 3: Interpret water level data. The horizontal gradients and vertical gradients at the Site in 2014 are similar to the 2013 values and did not adversely impact containment.
- Step 4: Evaluate capture using contaminant transport simulations. The transport simulation results showed two potential future instances of plume migration beyond the capture zone of an operating extraction well:
 - The planned installation of EW-18 between EW-7 and EW-9 is expected to mitigate the LL2 plume with RDX concentrations greater than the Final Target Groundwater Cleanup Goals from migrating southeasterly beyond the combined capture zone of EW-7 and EW-9.
 - A portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals is projected to travel toward inactive EW-16 at some point in the future. In the absence of future pumping from EW-16, the transport simulations indicate that this portion of the LL3 RDX plume would eventually be captured by EW-1R.
- Step 5: Evaluate concentration trends in compliance groundwater monitoring wells, perimeter groundwater monitoring wells, and water supply wells. These results are presented in Appendices A, B, and C. No trends were observed that contradict the Site conceptual model or the contaminant transport model. The trends observed in the compliance and perimeter groundwater monitoring wells indicate the containment system is operating effectively. The trends of water supply wells with concentrations exceeding the Final Target Groundwater Cleanup Goals were similar to 2013 and provide information on contaminant distribution over time within the LL4 plume. The trends of water supply wells outside of the defined contaminant plumes indicate that the containment system is operating effectively.
- Step 6: Interpret actual capture and compare the interpretation of theoretical capture based on predictive transport modeling to measured groundwater concentrations above the Final Target Groundwater Cleanup Goals. Based on simulation results, the known extent of contamination above the Final Target Groundwater Cleanup Goals is predicted to be contained for the next 10 years with the installation of EW-18. Based on data evaluated for the 2014 CE period, current extraction well pumping rates are satisfactory for containment over the next 10 years; however, the pumping rates of EW-7, EW-9, and EW-18 will be adjusted following installation and testing of EW-18.

5.0 REFERENCES

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TABLES

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Table 1.1
Final Target Groundwater Cleanup Goals
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Contaminants of Concern	Final Target Groundwater Cleanup Goal ($\mu\text{g/L}$)
Volatile Organic Compounds	
Methylene chloride	5
1,2-DCP	5
<i>TCE</i>	5
Explosive Compounds	
TNB	0.778
2,4-DNT	1.24
<i>RDX</i>	2
TNT	2

Notes:

Italics = Indicator compounds used to define groundwater contamination at the former Nebraska Ordnance Plant.

1,2-DCP = 1,2-dichloropropane

2,4-DNT = 2,4-dinitrotoluene

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TCE = trichloroethene

TNB = 1,3,5-trinitrobenzene

TNT = 2,4,6-trinitrotoluene

$\mu\text{g/L}$ = micrograms per liter

Table 2.1
Monitoring Well Clusters Evaluated
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Cluster	Location of Well(s)	Rationale for Sampling/Location
Compliance Monitoring Wells		
MW-20	Outside LL2 RDX Plume, Sidegradient of EW-10 (inactive)	Provide Sidegradient Data: Long-term Containment Confirmation
MW-61	Outside LL1 TCE Plume, Sidegradient of EW-12	Provide Sidegradient Data: Long-term Containment Confirmation
MW-82	Outside LL2 RDX Plume, Sidegradient of EW-9 and EW-10 (inactive)	Provide Sidegradient Data: Long-term Containment Confirmation
MW-86	Outside LL3 RDX Plume, Downgradient of EW-4, and Outside LL1 TCE Plume, Sidegradient of EW-1R.	Provide Downgradient Data for LL3 and Sidegradient data for LL4: Long-term Containment Confirmation
MW-88	Outside LL4/AMA TCE Plume, Downgradient of EW-1R	Provide Downgradient Data: Long-term Containment Confirmation
MW-96	Outside LL2 RDX Plume, Downgradient of EW-9 and EW-10 (inactive)	Provide Downgradient Data: Long-term Containment Confirmation
MW-97	Outside LL2 RDX Plume, Downgradient of EW-7 and EW-9	Provide Downgradient Data: Long-term Containment Confirmation
MW-98	Outside LL2 and LL3 RDX Plumes, Downgradient of EW-7 and EW-9; Sidegradient from EW-4	Provide Downgradient Data: Long-term Containment Confirmation
MW-100	Outside LL3 RDX Plume, Downgradient of EW-3 (inactive), EW-4, and EW-16 (inactive)	Provide Downgradient Data: Long-term Containment Confirmation
MW-101	Outside LL1 TCE Plume, Downgradient of EW-12 and EW-17	Provide Downgradient Data: Long-term Containment Confirmation
MW-158	Outside LL4/AMA TCE Plume, Downgradient of EW-1R (replaced MW-62)	Monitor Immediately Downgradient of EW-1R: Long-term Containment Confirmation
Perimeter Monitoring Wells		
MW-35	Outside LL3 RDX Plume, Downgradient of EW-3	Provide Downgradient Data: Long-term Containment Confirmation
MW-38	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Confirmation
MW-46	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Confirmation
MW-80	Outside LL1 TCE Plume, Downgradient of EW-12 and EW-17	Provide Downgradient Data: Long-term Containment Confirmation
MW-83	Outside LL2 RDX Plume, Downgradient of EW-7 and EW-9	Provide Downgradient Data: Long-term Containment Confirmation
MW-84	Outside LL2 RDX Plume, Downgradient of EW-6 (inactive) and EW-7	Provide Downgradient Data: Long-term Containment Confirmation

Table 2.1 (continued)
Monitoring Well Clusters Evaluated
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Cluster	Location of Well(s)	Rationale for Sampling/Location
Perimeter Monitoring Wells (Continued)		
MW-85	Outside LL3 RDX Plume, Downgradient of EW-4 and EW-5 (inactive)	Provide Downgradient Data: Long-term Containment Confirmation
MW-95	Outside LL2 RDX Plume, Sidegradient of EW-9 and EW-10 (inactive)	Provide Sidegradient Data: Long-term Containment Evaluation
MW-102	Outside AMA TCE Plume, Eastern Boundary Monitoring	Monitor Eastern Boundary: Long-term Containment Evaluation
MW-103	Outside AMA TCE Plume, Eastern Boundary Monitoring	Monitor Eastern Boundary: Long-term Containment Evaluation
MW-106	Outside LL4/AMA TCE Plume, Eastern Boundary Monitoring	Provide Sidegradient Data: Long-term Containment Evaluation
MW-107	Outside LL4/AMA TCE Plume, Eastern Boundary Monitoring	Provide Sidegradient Data: Long-term Containment Evaluation
MW-110	Outside LL4/AMA TCE Plume, Eastern Boundary Monitoring	Provide Sidegradient Data: Long-term Containment Evaluation
MW-112	Outside LL4/AMA TCE Plume, Eastern Boundary Monitoring	Provide Sidegradient Data: Long-term Containment Evaluation
MW-113	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Evaluation
MW-114	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Evaluation
MW-115	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Evaluation
MW-116	Outside LL4/AMA TCE Plume, Sidegradient of EW-1R	Provide Sidegradient Data: Long-term Containment Evaluation
MW-118	Outside LL3 RDX Plume, Sidegradient of EW-4, and Downgradient of EW-5 (inactive)	Provide Sidegradient Data: Long-term Containment Evaluation
MW-147	Outside LL2 RDX Plume, Downgradient of EW-9	Provide Downgradient Data: Long-term Containment Confirmation
MW-159	Outside AMA TCE Plume, Eastern Boundary Monitoring	Monitor Eastern Boundary: Long-term Containment Evaluation

Notes:

AMA = Atlas Missile Area

EW = extraction well

LL = Load Line

MW = monitoring well

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TCE = trichloroethene

Table 2.2
TCE and/or RDX in Compliance Monitoring Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-20A	Deep	ND	ND	Second Quarter 2014
MW-20B	Intermediate	ND	ND	Second Quarter 2014
MW-20C	Shallow	ND	ND	Second Quarter 2014
MW-61A	Intermediate	ND	ND	Second Quarter 2014
MW-61B	Shallow	ND	ND	Second Quarter 2014
MW-61D	Deep	ND	ND	Second Quarter 2014
MW-82A	Intermediate	ND	ND	Second Quarter 2014
MW-82B	Shallow	ND	ND	Second Quarter 2014
MW-82D	Deep	ND	ND	Second Quarter 2014
MW-86A	Intermediate	ND	ND	Second Quarter 2014
MW-86B	Shallow	ND	ND	Second Quarter 2014
MW-86D	Deep	ND	0.94	Second Quarter 2014
MW-88A	Intermediate	ND	ND	First Quarter 2014 Third Quarter 2014
MW-88B	Shallow	ND	ND	First Quarter 2014 Third Quarter 2014
MW-88D	Deep	ND	ND	First Quarter 2014 Third Quarter 2014
MW-96A	Intermediate	ND	ND	Second Quarter 2014
MW-96B	Shallow	ND	ND	Second Quarter 2014
MW-96D	Deep	ND	ND	Second Quarter 2014
MW-97A	Intermediate	ND	ND	Second Quarter 2014
MW-97B	Shallow	ND	ND	Second Quarter 2014
MW-97D	Deep	ND	ND	Second Quarter 2014
MW-98A	Intermediate	ND	ND	Second Quarter 2014
MW-98B	Shallow	ND	ND	Second Quarter 2014
MW-98D	Deep	ND	ND	Second Quarter 2014
MW-100A	Intermediate	ND	ND	Second Quarter 2014
MW-100B	Shallow	ND	0.35	Second Quarter 2014
MW-100D	Deep	ND	ND	Second Quarter 2014
MW-101A	Intermediate	ND	ND	Second Quarter 2014
MW-101B	Shallow	ND	ND	Second Quarter 2014
MW-101D	Deep	ND	ND	Second Quarter 2014
MW-158A	Intermediate	ND	ND	First Quarter 2014 Third Quarter 2014
MW-158B	Shallow	ND	ND	First Quarter 2014 Third Quarter 2014
MW-158D	Deep	ND	ND	First Quarter 2014 Third Quarter 2014

Notes:

All results in $\mu\text{g/L}$ (micrograms per liter)

Results for remaining COCs are provided in Table 3.3 of the 2014 Annual Summary Report (USACE, 2015)

COC = contaminant of concern

J = estimated

ND = Sample result below detection limit

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TCE = trichloroethene

VOC = volatile organic compound

Table 2.3
TCE and/or RDX in Perimeter Monitoring Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-35A	Intermediate	--	0.83	First Quarter 2014
		ND	1.2	Third Quarter 2014
MW-35B	Shallow	--	ND	First Quarter 2014
		ND	0.13 J	Third Quarter 2014
MW-35D	Deep	--	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-38A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-38D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-46A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-46B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-46D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-80A	Intermediate	ND	--	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-80B	Shallow	ND	--	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-80D	Deep	ND	--	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-83A	Intermediate	ND	0.25 J	First Quarter 2014
		--	0.20 J	Third Quarter 2014
MW-83B	Shallow	ND	0.12 J	Second Quarter 2014
		--	ND	Third Quarter 2014
MW-83D	Deep	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-84A	Intermediate	ND	0.27 J	First Quarter 2014
		--	0.41	Third Quarter 2014
MW-84B	Shallow	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-84D	Deep	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-85A	Intermediate	ND	0.69	First Quarter 2014
		--	0.73	Third Quarter 2014
MW-85B	Shallow	ND	1.2	First Quarter 2014
		--	1.1	Third Quarter 2014
MW-85D	Deep	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-95A	Intermediate	ND	ND	First Quarter 2014
		--	0.25 J	Third Quarter 2014

Table 2.3 (continued)
TCE and/or RDX in Perimeter Monitoring Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-95B	Shallow	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-95D	Deep	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-102A	Intermediate	ND	--	Second Quarter 2014
MW-102B	Shallow	ND	--	Second Quarter 2014
MW-103A	Intermediate	ND	--	Second Quarter 2014
MW-103B	Shallow	ND	--	Second Quarter 2014
MW-103D	Deep	ND	--	Second Quarter 2014
MW-106A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-106B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-107A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-107B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-107D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-110A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-110B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-110D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-112A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-112B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-113A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-113B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-113D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-114A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-114B	Shallow	ND	0.15 J	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-114D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014

Table 2.3 (continued)
TCE and/or RDX in Perimeter Monitoring Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-115A	Intermediate	ND	0.39 J	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-115B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-115D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-116A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-116B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-116D	Deep	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-118A	Intermediate	ND	0.27 J	First Quarter 2014
		--	0.40	Third Quarter 2014
MW-118B	Shallow	ND	0.59	First Quarter 2014
		--	0.70	Third Quarter 2014
MW-147A	Intermediate	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-147B	Shallow	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-147D	Deep	ND	ND	First Quarter 2014
		--	ND	Third Quarter 2014
MW-159A	Intermediate	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014
MW-159B	Shallow	ND	ND	First Quarter 2014
		ND	ND	Third Quarter 2014

Notes:

All results in $\mu\text{g/L}$ (micrograms per liter).

TCE and RDX were not detected above Final Target Groundwater Cleanup Goals in 2014.

Results for remaining COCs are provided in Table 3.2 of the 2014 Annual Report (USACE, 2015).

-- Sample not taken

COC = contaminant of concern

J = estimated

MW = monitoring well

ND = sample result below detection limit.

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TCE = trichloroethene

VOC = volatile organic compound

Table 2.4
Water Supply Wells Sampled in 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Identification	Required Analyses	GPS Location¹ Northing (NAD 83 SP feet)	GPS Location¹ Easting (NAD 83 SP feet)
WSW-27	E, V	491,314	2,633,452
WSW-29	E, V	493,553	2,632,818
WSW-29A	E, V	494,120	2,632,506
WSW-32	E, V	493,237	2,629,736
WSW-34	E, V	493,445	2,627,371
WSW-36	E, V	492,605	2,622,751
WSW-50A	E, V	495,657	2,632,261
WSW-50B	E, V	496,332	2,632,399
WSW-51	E, V	497,399	2,632,494
WSW-51A	E, V	498,189	2,632,594
WSW-52A-B	TSS, E, V	497,518	2,629,718
WSW-52A	E, V	497,518	2,629,718
WSW-52B	E, V	496,817	2,632,452
WSW-52C-B	TSS, E, V	500,793	2,632,544
WSW-52C	E, V	500,793	2,632,544
WSW-53-B	TSS, E, V	501,678	2,632,682
WSW-53	E, V	501,678	2,632,682
WSW-54-B	TSS, E, V	502,782	2,632,795
WSW-54	E, V	502,782	2,632,795
WSW-55	E, V	502,159	2,636,409
WSW-56	E, V	504,584	2,633,233
WSW-57	E, V	506,221	2,631,593
WSW-58	E, V	508,317	2,629,362
WSW-59	E, V	505,914	2,632,317
WSW-60	E, V	506,720	2,632,396
WSW-61	E, V	505,448	2,633,182
WSW-62	E, V	506,004	2,633,401
WSW-63	E, V	508,978	2,633,939
WSW-64	E, V	508,313	2,634,110
WSW-65	E, V	491,734	2,614,640
WSW-66	E, V	492,959	2,616,348
WSW-67	E, V	492,635	2,617,043
WSW-68	E, V	493,041	2,618,954
WSW-73	E, V	495,422	2,640,114
WSW-74	E, V	495,424	2,640,477
WSW-75	E, V	494,855	2,638,732
WSW-76	E, V	494,924	2,639,193

Table 2.4 (continued)
Water Supply Wells Sampled in 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Identification	Required Analyses	GPS Location¹ Northing (NAD 83 SP feet)	GPS Location¹ Easting (NAD 83 SP feet)
WSW-77	E, V	494,926	2,639,589
WSW-79	E, V	494,931	2,640,348
WSW-80	E, V	517,293	2,623,788
WSW-81	E, V	515,756	2,628,719
WSW-82	E, V	516,109	2,624,422
WSW-86	E, V	495,576	2,638,562
WSW-87	E, V	497,785	2,639,967
WSW-89	E, V	509,317	2,629,604
WSW-90	E, V	508,507	2,634,670
WSW-91	E, V	505,420	2,634,717
WSW-92	E, V	504,970	2,634,886
WSW-93	E, V	504,166	2,638,589
WSW-94	E, V	504,539	2,638,753
WSW-95	E, V	497,660	2,640,417
WSW-96	E, V	495,637	2,640,886
WSW-97	E, V	496,114	2,637,891
WSW-99	E, V	494,364	2,638,966
WSW-100	E, V	495,185	2,615,279
WSW-101	E, V	488,282	2,613,804
WSW-102	E, V	506,314	2,634,797
WSW-103	E, V	498,075	2,639,207
WSW-104	E, V	498,343	2,639,997
WSW-105	E, V	494,537	2,640,496
WSW-106	E, V	496,389	2,638,316
WSW-107	E, V	499,376	2,640,196
WSW-108	E, V	512,118	2,630,546
WSW-109	E, V	493,992	2,640,254
WSW-110	E, V	494,087	2,639,143
WSW-111	E, V	506,408	2,634,660
WSW-112	E, V	506,936	2,630,157
WSW-113	E, V	498,325	2,638,308
WSW-114	E, V	507,998	2,630,015
WSW-115	E, V	511,088	2,628,624
WSW-116	E, V	494,214	2,639,795
WSW-117	E, V	505,450	2,634,665
WSW-123	E, V	505,687	2,634,758
WSW-124	E, V	506,000	2,634,698

Table 2.4 (continued)
Water Supply Wells Sampled in 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Identification	Required Analyses	GPS Location ¹ Northing (NAD 83 SP feet)	GPS Location ¹ Easting (NAD 83 SP feet)
UNFL-9A	E, V	510,413	2,613,507
UNFL-10A	E, V	503,105	2,605,889
UNFL-12	E, V	506,566	2,603,182
UNFL-23	E, V	496,990	2,608,701
UNFL-27	E, V	510,015	2,618,683

Notes:

“-B” notation after Well Identification indicates that the sample was collected before the granular activated carbon unit.

¹GPS locations are general and not for other use

GPS = global positioning system

NAD 83 = North American Datum 1983

SP = State Plane Coordinate System

UNFL = University of Nebraska Field Laboratory

WSW = water supply well

Analyses Required:

E = explosive compounds (contaminants of concern: 2,4,6-trinitrotoluene (TNT), 1,3,5-trinitrobenzene (TNB), 2,4-dinitrotoluene (2,4-DNT), and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX); analysis by EPA SW-846 Method 8330.

V = volatile organic compound (contaminants of concern: trichloroethene (TCE), 1,2-dichloropropane (DCP), and methylene chloride); analysis by EPA SW-846 Method 524.2.

TSS = total suspended solids

Table 2.5
Water Supply Wells with Detections over Final Target Groundwater Cleanup Goals
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Sample Location	Quarter (2014)	TCE Result ($\mu\text{g/L}$)	RDX Result ($\mu\text{g/L}$)
WSW-51A	1st	6.4	1.4
WSW-51A	3rd	5.9	1.5 J**
WSW-52C-B	2nd	194	ND*
WSW-52C-B	3rd	223	ND*
WSW-53-B	1st	1.8	6.8
WSW-53-B	3rd	1.1	5.4

Notes:

Bold font indicates the result exceeds the Final Target Groundwater Cleanup Goals

“-B” notation after Well Identification indicates that the sample was collected before the granular activated carbon unit.

*ND = Sample result below detection limit.

** J = Estimated quantity.

$\mu\text{g/L}$ = micrograms per liter

TCE = trichloroethene

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

WSW = water supply well

Table 3.1
TCE and/or RDX in Monitoring Wells in Vicinity of Extraction Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
LL1				
MW-91A	Intermediate	ND	-	Second Quarter 2014
		ND	-	Fourth Quarter 2014
MW-91B	Shallow	ND	-	Second Quarter 2014
		ND	-	Fourth Quarter 2014
MW-91D	Deep	ND	-	Second Quarter 2014
		ND	-	Fourth Quarter 2014
MW-93A	Intermediate	ND	-	Second Quarter 2014
MW-93B	Shallow	ND	-	Second Quarter 2014
MW-177A	Intermediate	ND	-	First Quarter 2014
		ND	-	Third Quarter 2014
MW-177B	Shallow	ND	-	First Quarter 2014
		ND	-	Third Quarter 2014
MW-179A	Intermediate	ND	-	First Quarter 2014
		ND	-	Third Quarter 2014
MW-179B	Shallow	ND	-	First Quarter 2014
		ND	-	Third Quarter 2014
MW-101A	Intermediate	ND	ND	Second Quarter 2014
MW-101B	Shallow	ND	ND	Second Quarter 2014
MW-101D	Deep	ND	ND	Second Quarter 2014
MW-89A	Intermediate	2.9	-	Second Quarter 2014
MW-89B	Shallow	47	-	Second Quarter 2014
MW-89D	Deep	1.6	-	Second Quarter 2014
MW-89E	Intermediate	1140	0.63	Second Quarter 2014
MW-90A	Intermediate	520	0.49	Second Quarter 2014
		562	0.51	Fourth Quarter 2014
MW-90B	Shallow	111	0.12 J	Second Quarter 2014
		74	ND	Fourth Quarter 2014
MW-90D	Deep	305	0.39	Second Quarter 2014
		279	0.33 J	Fourth Quarter 2014
LL2				
MW-180A	Intermediate	-	47	First Quarter 2014
		-	49	Second Quarter 2014
		-	34	Third Quarter 2014
MW-180E	Intermediate	-	30	First Quarter 2014
		-	28	Second Quarter 2014
		-	35	Third Quarter 2014
LL3				
MW-131A	Intermediate	-	2.1	Second Quarter 2014
		-	2.6	Fourth Quarter 2014
MW-131B	Shallow	-	0.58	Second Quarter 2014
		-	0.87	Fourth Quarter 2014

Table 3.1 (continued)
TCE and/or RDX in Monitoring Wells in Vicinity of Extraction Wells
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
LL3 continued				
MW-131D	Deep	-	0.42	Second Quarter 2014
		-	0.66	Fourth Quarter 2014
MW-129A	Intermediate	-	0.22 J	Second Quarter 2014
MW-129B	Shallow	-	ND	Second Quarter 2014
MW-129D	Deep	-	ND	Second Quarter 2014
MW-130A	Intermediate	-	1.3	Second Quarter 2014
MW-130B	Shallow	-	0.66	Second Quarter 2014
MW-130D	Deep	-	0.12 J	Second Quarter 2014
MW-99A	Intermediate	-	0.31 J	Second Quarter 2014
MW-99B	Shallow	ND	1.4	Second Quarter 2014
MW-99D	Deep	-	3.1	Second Quarter 2014
MW-172A	Intermediate	-	2.3	First Quarter 2014
		-	3.7	Third Quarter 2014
MW-172B	Shallow	-	1.5	First Quarter 2014
		-	1.1	Third Quarter 2014
MW-173A	Intermediate	-	5.3	First Quarter 2014
		-	6.0	Third Quarter 2014
LL4				
MW-105A	Intermediate	24.2	ND	Second Quarter 2014
		24.9	ND	Fourth Quarter 2014
MW-105B	Shallow	23.5	ND	Second Quarter 2014
		22.2	ND	Fourth Quarter 2014
MW-105O	Overburden	ND	ND	Second Quarter 2014
		ND	ND	Fourth Quarter 2014

Notes:

All results in $\mu\text{g/L}$ (micrograms per liter).

-- Sample not taken

COC = contaminant of concern

J = estimated

MW = monitoring well

ND = sample result below detection limit

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

TCE = trichloroethene

VOC = volatile organic compound

Table 3.2
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
EW-1R		1079.32	3/31/2014	199	1063.90	8/26/2014	200	1061.40
EW-3		1150.01	3/31/2014	NO	NM	8/26/2014	NO	NM
EW-4		1148.68	3/31/2014	99	1066.28	8/26/2014	97	1065.58
EW-6		1147.98	3/31/2014	NO	NM	8/26/2014	NO	NM
EW-7		1148.38	3/31/2014	288	1075.78	8/26/2014	287	1075.58
EW-9		1154.67	3/31/2014	171	1074.37	8/26/2014	169	1074.17
EW-10		1150.64	3/31/2014	NO	NM	8/26/2014	NO	NM
FEW-11		1162.77	3/31/2014	537	1096.57	8/26/2014	535	1095.77
EW-12		1113.72	3/31/2014	235	1046.80	8/26/2014	240	1040.48
FEW-14		1155.99	3/31/2014	245	1080.90	8/26/2014	240	1080.70
FEW-15		1169.64	3/31/2014	445	1127.30	8/26/2014	464	1125.80
EW-16		1146.97	3/31/2014	NO	NM	8/26/2014	NO	NM
EW-17		1113.62	3/31/2014	325	1064.07	8/26/2014	325	1070.29
MW-02A	Intermediate	1174.77	3/31/2014	41.02	1133.75	8/26/2014	41.98	1132.79
MW-03A	Intermediate	1177.06	3/31/2014	44.31	1132.75	8/26/2014	45.36	1131.70
MW-04A	Intermediate	1168.73	3/31/2014	38.22	1130.51	8/26/2014	39.09	1129.64
MW-05A	Intermediate	1168.12	3/31/2014	36.53	1131.59	8/26/2014	37.31	1130.81
MW-07A	Intermediate	1164.85	NM	NM	NM	8/26/2014	41.46	1123.39
MW-08A	Intermediate	1165.92	3/31/2014	50.71	1115.21	8/26/2014	51.84	1114.08
MW-09A	Intermediate	1171.46	3/31/2014	56.02	1115.44	8/26/2014	57.09	1114.37
MW-10A	Intermediate	1150.35	3/31/2014	41.76	1108.59	8/26/2014	42.04	1108.31
MW-11	Intermediate	1153.22	3/31/2014	34.86	1118.36	8/26/2014	35.81	1117.41
MW-16B	Intermediate	1188.68	3/31/2014	34.87	1153.81	8/26/2014	35.86	1152.82
MW-17B	Intermediate	1128.50	3/31/2014	9.28	1119.22	8/26/2014	9.31	1119.19
MW-18A	Deep	1145.43	3/31/2014	45.69	1099.74	8/26/2014	46.80	1098.63

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-18B	Intermediate	1145.57	3/31/2014	46.20	1099.37	8/26/2014	47.35	1098.22
MW-18C	Shallow	1146.05	3/31/2014	44.11	1101.94	8/26/2014	43.95	1102.10
MW-19B	Intermediate	1158.59	3/31/2014	13.18	1145.41	8/26/2014	13.91	1144.68
MW-20B	Intermediate	1160.29	3/31/2014	61.02	1099.27	8/26/2014	61.50	1098.79
MW-21A	Intermediate	1165.63	3/31/2014	37.59	1128.04	8/26/2014	38.15	1127.48
MW-24A	Intermediate	1163.41	3/31/2014	42.26	1121.15	8/26/2014	42.82	1120.59
MW-25A	Intermediate	1175.25	3/31/2014	45.87	1129.38	8/26/2014	47.10	1128.15
MW-27B	Shallow	1176.06	3/31/2014	39.78	1136.28	8/26/2014	40.35	1135.71
MW-28A	Intermediate	1172.22	3/31/2014	52.42	1119.80	8/26/2014	53.17	1119.05
MW-29A	Intermediate	1160.06	3/31/2014	51.15	1108.91	8/26/2014	51.62	1108.44
MW-29B	Shallow	1161.03	3/31/2014	52.06	1108.97	8/26/2014	52.52	1108.51
MW-31A	Intermediate	1167.38	3/31/2014	50.34	1117.04	8/26/2014	50.94	1116.44
MW-32A	Intermediate	1154.17	3/31/2014	49.93	1104.24	8/26/2014	50.38	1103.79
MW-33A	Intermediate	1160.32	3/31/2014	53.99	1106.33	8/26/2014	54.55	1105.77
MW-34A	Intermediate	1156.79	3/31/2014	61.52	1095.27	8/26/2014	61.86	1094.93
MW-35A	Intermediate	1139.81	3/31/2014	54.11	1085.70	8/26/2014	54.55	1085.26
MW-38A	Intermediate	1082.32	3/31/2014	7.61	1074.71	8/26/2014	8.43	1073.89
MW-40A	Intermediate	1172.09	3/31/2014	44.79	1127.30	8/26/2014	45.15	1126.94
MW-42A	Intermediate	1146.53	3/31/2014	54.73	1091.80	8/26/2014	55.49	1091.04
MW-43A	Intermediate	1142.90	3/31/2014	47.81	1095.09	8/26/2014	48.30	1094.60
MW-44A	Intermediate	1093.66	3/31/2014	10.45	1083.21	8/26/2014	10.94	1082.72
MW-44B	Shallow	1094.14	3/31/2014	11.48	1082.66	8/26/2014	12.10	1082.04
MW-44D	Deep	1092.43	3/31/2014	9.22	1083.21	8/26/2014	9.74	1082.69
MW-46A	Intermediate	1082.70	3/31/2014	5.16	1077.54	8/26/2014	6.09	1076.61
MW-46B	Shallow	1082.81	3/31/2014	5.25	1077.56	8/26/2014	6.19	1076.62
MW-46D	Deep	1082.65	3/31/2014	5.10	1077.55	8/26/2014	6.01	1076.64

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-53A	Intermediate	1136.36	3/31/2014	30.64	1105.72	8/26/2014	31.34	1105.02
MW-53B	Shallow	1136.91	3/31/2014	29.71	1107.20	8/26/2014	29.57	1107.34
MW-56A	Intermediate	1125.96	3/31/2014	20.78	1105.18	8/26/2014	21.49	1104.47
MW-56B	Shallow	1126.24	3/31/2014	19.53	1106.71	8/26/2014	19.32	1106.92
MW-57B	Shallow	1196.27	3/31/2014	38.95	1157.32	8/26/2014	39.94	1156.33
MW-60A	Intermediate	1145.83	3/31/2014	56.71	1089.12	8/26/2014	57.47	1088.36
MW-61A	Intermediate	1108.96	3/31/2014	8.15	1100.81	8/26/2014	7.87	1101.09
MW-65A	Intermediate	1165.02	3/31/2014	35.77	1129.25	8/26/2014	36.45	1128.57
MW-66B	Shallow	1163.08	3/31/2014	35.02	1128.06	8/26/2014	35.71	1127.37
MW-72A	Intermediate	1170.37	3/31/2014	43.33	1127.04	8/26/2014	43.75	1126.62
MW-73A	Intermediate	1166.95	3/31/2014	40.56	1126.39	8/26/2014	40.93	1126.02
MW-73B	Shallow	1166.90	3/31/2014	40.51	1126.39	8/26/2014	40.96	1125.94
MW-78A	Intermediate	1165.27	3/31/2014	38.68	1126.59	8/26/2014	39.05	1126.22
MW-80A	Intermediate	1107.43	3/31/2014	9.29	1098.14	8/26/2014	9.20	1098.23
MW-80B	Shallow	1107.65	3/31/2014	9.58	1098.07	8/26/2014	9.35	1098.30
MW-80D	Deep	1107.40	3/31/2014	9.23	1098.17	8/26/2014	9.05	1098.35
MW-82A	Intermediate	1149.14	3/31/2014	51.50	1097.64	8/26/2014	52.10	1097.04
MW-83A	Intermediate	1152.41	3/31/2014	57.57	1094.84	8/26/2014	57.89	1094.52
MW-83B	Shallow	1152.28	3/31/2014	57.40	1094.88	8/26/2014	57.68	1094.60
MW-83D	Deep	1152.32	3/31/2014	57.53	1094.79	8/26/2014	57.88	1094.44
MW-84A	Intermediate	1145.34	3/31/2014	52.26	1093.08	8/26/2014	52.41	1092.93
MW-84B	Shallow	1145.62	3/31/2014	52.26	1093.36	8/26/2014	52.41	1093.21
MW-84D	Deep	1145.37	3/31/2014	52.46	1092.91	8/26/2014	52.41	1092.96
MW-85A	Intermediate	1132.58	3/31/2014	45.89	1086.69	8/26/2014	46.30	1086.28
MW-86A	Intermediate	1114.15	3/31/2014	33.45	1080.70	8/26/2014	34.25	1079.90
MW-88A	Intermediate	1081.22	3/31/2014	7.62	1073.60	8/26/2014	8.44	1072.78

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-89A	Intermediate	1160.99	3/31/2014	58.81	1102.18	8/26/2014	59.00	1101.99
MW-90A	Intermediate	1151.11	3/31/2014	48.21	1102.90	8/26/2014	48.75	1102.36
MW-91A	Intermediate	1152.04	3/31/2014	49.39	1102.65	8/26/2014	49.66	1102.38
MW-93A	Intermediate	1124.26	3/31/2014	23.71	1100.55	8/26/2014	23.85	1100.41
MW-94A	Intermediate	1153.06	3/31/2014	49.88	1103.18	8/26/2014	50.40	1102.66
MW-95A	Intermediate	1156.81	3/31/2014	55.87	1100.94	8/26/2014	56.35	1100.46
MW-95B	Shallow	1156.46	3/31/2014	55.51	1100.95	8/26/2014	56.00	1100.46
MW-95D	Deep	1156.82	3/31/2014	57.10	1099.72	8/26/2014	57.59	1099.23
MW-96A	Intermediate	1148.56	3/31/2014	53.64	1094.92	8/26/2014	54.30	1094.26
MW-97A	Intermediate	1143.08	3/31/2014	50.96	1092.12	8/26/2014	51.51	1091.57
MW-97B	Shallow	1143.18	3/31/2014	51.02	1092.16	8/26/2014	51.55	1091.63
MW-97D	Deep	1143.18	3/31/2014	51.07	1092.11	8/26/2014	52.20	1090.98
MW-98A	Intermediate	1141.52	3/31/2014	52.17	1089.35	8/26/2014	53.22	1088.30
MW-99A	Intermediate	1163.04	3/31/2014	71.81	1091.23	8/26/2014	72.07	1090.97
MW-99B	Shallow	1163.19	3/31/2014	71.96	1091.23	8/26/2014	72.22	1090.97
MW-99D	Deep	1162.76	3/31/2014	71.61	1091.15	8/26/2014	71.84	1090.92
MW-100A	Intermediate	1141.18	3/31/2014	56.70	1084.48	8/26/2014	57.10	1084.08
MW-101A	Intermediate	1107.43	3/31/2014	9.53	1097.90	8/26/2014	9.04	1098.39
MW-102A	Intermediate	1170.90	3/31/2014	37.83	1133.07	8/26/2014	38.57	1132.33
MW-103A	Intermediate	1173.58	3/31/2014	44.92	1128.66	8/26/2014	45.30	1128.28
MW-104A	Intermediate	1081.26	3/31/2014	3.31	1077.95	8/26/2014	3.86	1077.40
MW-104O	Overburden	1081.69	3/31/2014	4.22	1077.47	8/26/2014	3.76	1077.93
MW-105A	Intermediate	1079.60	3/31/2014	4.55	1075.05	8/26/2014	4.87	1074.73
MW-105O	Overburden	1080.04	3/31/2014	7.98	1072.06	8/26/2014	7.47	1072.57
MW-106A	Intermediate	1118.06	3/31/2014	20.90	1097.16	8/26/2014	22.42	1095.64
MW-106B	Shallow	1117.98	3/31/2014	20.91	1097.07	8/26/2014	22.00	1095.98

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-107A	Intermediate	1135.79	3/31/2014	42.10	1093.69	8/26/2014	43.84	1091.95
MW-107B	Shallow	1136.72	3/31/2014	43.71	1093.01	8/26/2014	43.87	1092.85
MW-107D	Deep	1136.35	3/31/2014	42.67	1093.68	8/26/2014	44.40	1091.95
MW-109A	Intermediate	1086.25	3/31/2014	3.78	1082.47	8/26/2014	4.71	1081.54
MW-109O	Overburden	1085.88	3/31/2014	7.25	1078.63	8/26/2014	7.97	1077.91
MW-110A	Intermediate	1094.10	3/31/2014	7.71	1086.39	8/26/2014	9.05	1085.05
MW-111A	Intermediate	1082.82	3/31/2014	5.13	1077.69	8/26/2014	6.04	1076.78
MW-111B	Shallow	1082.61	3/31/2014	4.86	1077.75	8/26/2014	5.73	1076.88
MW-111O	Overburden	1082.48	3/31/2014	6.59	1075.89	8/26/2014	8.11	1074.37
MW-112A	Intermediate	1082.03	3/31/2014	1.76	1080.27	8/26/2014	2.77	1079.26
MW-112B	Shallow	1082.02	3/31/2014	1.69	1080.33	8/26/2014	2.68	1079.34
MW-113A	Intermediate	1080.47	3/31/2014	1.56	1078.91	8/26/2014	2.55	1077.92
MW-113B	Shallow	1080.42	3/31/2014	1.53	1078.89	8/26/2014	2.50	1077.92
MW-113D	Deep	1080.49	3/31/2014	1.61	1078.88	8/26/2014	2.50	1077.99
MW-114A	Intermediate	1080.32	3/31/2014	4.77	1075.55	8/26/2014	5.65	1074.67
MW-115A	Intermediate	1081.67	3/31/2014	7.37	1074.30	8/26/2014	8.23	1073.44
MW-116A	Intermediate	1080.53	3/31/2014	6.40	1074.13	8/26/2014	7.37	1073.16
MW-116B	Shallow	1080.49	3/31/2014	6.35	1074.14	8/26/2014	7.33	1073.16
MW-116D	Deep	1080.46	3/31/2014	6.36	1074.10	8/26/2014	7.34	1073.12
MW-118A	Intermediate	1143.87	3/31/2014	52.65	1091.22	8/26/2014	52.86	1091.01
MW-119A	Intermediate	1159.14	3/31/2014	45.13	1114.01	8/26/2014	45.45	1113.69
MW-120A	Intermediate	1166.32	3/31/2014	53.95	1112.37	8/26/2014	54.38	1111.94
MW-120E	Intermediate	1166.43	3/31/2014	54.07	1112.36	8/26/2014	54.51	1111.92
MW-121A	Intermediate	1170.04	3/31/2014	56.43	1113.61	8/26/2014	56.98	1113.06
MW-122A	Intermediate	1165.76	3/31/2014	55.45	1110.31	8/26/2014	55.77	1109.99
MW-123A	Intermediate	1168.99	3/31/2014	56.07	1112.92	8/26/2014	56.31	1112.68

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-124A	Intermediate	1161.89	3/31/2014	43.63	1118.26	8/26/2014	44.18	1117.71
MW-124B	Shallow	1161.59	3/31/2014	43.31	1118.28	8/26/2014	43.87	1117.72
MW-124D	Deep	1161.82	3/31/2014	43.96	1117.86	8/26/2014	44.52	1117.30
MW-125A	Intermediate	1162.05	3/31/2014	46.95	1115.10	8/26/2014	47.48	1114.57
MW-126A	Intermediate	1170.87	3/31/2014	41.50	1129.37	8/26/2014	42.30	1128.57
MW-126D	Deep	1170.26	3/31/2014	40.75	1129.51	8/26/2014	41.58	1128.68
MW-127A	Intermediate	1168.95	3/31/2014	33.71	1135.24	8/26/2014	34.72	1134.23
MW-128A	Intermediate	1156.97	3/31/2014	62.88	1094.09	8/26/2014	63.14	1093.83
MW-129A	Intermediate	1149.77	3/31/2014	61.53	1088.24	8/26/2014	61.83	1087.94
MW-130A	Intermediate	1145.47	3/31/2014	58.90	1086.57	8/26/2014	59.31	1086.16
MW-131A	Intermediate	1148.09	3/31/2014	57.49	1090.60	8/26/2014	57.71	1090.38
MW-131B	Shallow	1147.94	3/31/2014	57.41	1090.53	8/26/2014	57.52	1090.42
MW-131D	Deep	1148.10	3/31/2014	57.35	1090.75	8/26/2014	57.68	1090.42
MW-133A	Intermediate	1167.41	3/31/2014	47.86	1119.55	8/26/2014	48.41	1119.00
MW-133B	Shallow	1167.55	3/31/2014	47.85	1119.70	8/26/2014	48.39	1119.16
MW-133D	Deep	1167.19	3/31/2014	47.88	1119.31	8/26/2014	48.46	1118.73
MW-134A	Intermediate	1168.44	3/31/2014	50.22	1118.22	8/26/2014	50.64	1117.80
MW-134B	Shallow	1168.55	3/31/2014	50.26	1118.29	8/26/2014	51.02	1117.53
MW-134D	Deep	1168.68	3/31/2014	50.18	1118.50	8/26/2014	50.98	1117.70
MW-135A	Intermediate	1165.77	3/31/2014	47.17	1118.60	8/26/2014	47.76	1118.01
MW-135B	Shallow	1165.71	3/31/2014	47.13	1118.58	8/26/2014	47.99	1117.72
MW-135D	Deep	1165.51	3/31/2014	46.31	1119.20	8/26/2014	46.67	1118.84
MW-136A	Intermediate	1167.96	3/31/2014	46.80	1121.16	8/26/2014	47.29	1120.67
MW-137A	Intermediate	1166.31	3/31/2014	39.35	1126.96	8/26/2014	39.78	1126.53
MW-138A	Intermediate	1175.83	3/31/2014	45.45	1130.38	8/26/2014	45.94	1129.89
MW-139A	Intermediate	1180.32	3/31/2014	46.49	1133.83	8/26/2014	47.15	1133.17

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-140A	Intermediate	1092.50	3/31/2014	7.73	1084.77	NM	NM	NM
MW-140O	Overburden	1092.60	3/31/2014	10.04	1082.56	NM	NM	NM
MW-141A	Intermediate	1162.07	3/31/2014	38.65	1123.42	8/26/2014	39.30	1122.77
MW-142A	Intermediate	1154.43	3/31/2014	49.14	1105.29	8/26/2014	49.71	1104.72
MW-143B	Shallow	1155.87	3/31/2014	47.53	1108.34	8/26/2014	48.03	1107.84
MW-144A	Intermediate	1164.17	3/31/2014	42.09	1122.08	8/26/2014	42.56	1121.61
MW-145A	Intermediate	1160.75	3/31/2014	49.44	1111.31	8/26/2014	49.97	1110.78
MW-146A	Intermediate	1148.18	3/31/2014	49.50	1098.68	8/26/2014	49.97	1098.21
MW-147A	Intermediate	1148.92	3/31/2014	52.13	1096.79	8/26/2014	52.63	1096.29
MW-148B	Shallow	1160.53	3/31/2014	45.26	1115.27	8/26/2014	46.02	1114.51
MW-149A	Intermediate	1152.23	3/31/2014	47.38	1104.85	8/26/2014	47.78	1104.45
MW-150A	Intermediate	1147.59	3/31/2014	50.16	1097.43	8/26/2014	50.40	1097.19
MW-151A	Intermediate	1158.65	3/31/2014	46.90	1111.75	8/26/2014	48.03	1110.62
MW-152B	Shallow	1148.37	3/31/2014	44.78	1103.59	8/26/2014	45.70	1102.67
MW-153A	Intermediate	1146.17	3/31/2014	47.95	1098.22	8/26/2014	48.43	1097.74
MW-154A	Intermediate	1141.11	3/31/2014	49.73	1091.38	8/26/2014	51.04	1090.07
MW-154B	Shallow	1141.16	3/31/2014	49.35	1091.81	8/26/2014	50.56	1090.60
MW-155A	Intermediate	1141.95	3/31/2014	49.58	1092.37	8/26/2014	50.71	1091.24
MW-156A	Intermediate	1093.89	3/31/2014	7.60	1086.29	8/26/2014	8.53	1085.36
MW-156B	Shallow	1093.96	3/31/2014	6.86	1087.10	8/26/2014	7.33	1086.63
MW-157A	Intermediate	1102.64	3/31/2014	22.22	1080.42	8/26/2014	20.95	1081.69
MW-158A	Intermediate	1076.69	3/31/2014	3.17	1073.52	8/26/2014	4.15	1072.54
MW-158B	Shallow	1076.36	3/31/2014	2.88	1073.48	8/26/2014	3.87	1072.49
MW-158D	Deep	1076.63	3/31/2014	3.17	1073.46	8/26/2014	4.10	1072.53
MW-159A	Intermediate	1163.51	3/31/2014	52.64	1110.87	8/26/2014	53.03	1110.48
MW-160A	Intermediate	1154.35	3/31/2014	50.18	1104.17	8/26/2014	50.48	1103.87

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-160B	Shallow	1154.18	3/31/2014	50.10	1104.08	8/26/2014	50.40	1103.78
MW-161A	Intermediate	1166.48	3/31/2014	44.67	1121.81	8/26/2014	45.38	1121.10
MW-161B	Shallow	1167.00	3/31/2014	44.83	1122.17	8/26/2014	45.55	1121.45
MW-162A	Intermediate	1148.90	3/31/2014	46.72	1102.18	8/26/2014	47.16	1101.74
MW-163A	Intermediate	1159.74	3/31/2014	57.63	1102.11	8/26/2014	58.11	1101.63
MW-164A	Intermediate	1150.11	3/31/2014	47.90	1102.21	8/26/2014	48.26	1101.85
MW-165B	Shallow	1148.89	3/31/2014	46.70	1102.19	8/26/2014	47.08	1101.81
MW-166A	Intermediate	1150.73	3/31/2014	51.82	1098.91	8/26/2014	52.28	1098.45
MW-166B	Shallow	1150.81	3/31/2014	51.72	1099.09	8/26/2014	52.19	1098.62
MW-167A	Intermediate	1147.66	3/31/2014	48.45	1099.21	8/26/2014	48.90	1098.76
MW-167B	Shallow	1147.62	3/31/2014	48.62	1099.00	8/26/2014	49.10	1098.52
MW-168A	Intermediate	1152.75	3/31/2014	54.41	1098.34	8/26/2014	54.83	1097.92
MW-168B	Shallow	1152.17	3/31/2014	54.25	1097.92	8/26/2014	54.67	1097.50
MW-169A	Intermediate	1145.61	3/31/2014	51.11	1094.50	8/26/2014	51.51	1094.10
MW-169B	Shallow	1145.52	3/31/2014	51.09	1094.43	8/26/2014	51.49	1094.03
MW-170A	Intermediate	1145.46	3/31/2014	52.09	1093.37	8/26/2014	52.41	1093.05
MW-171A	Intermediate	1160.22	3/31/2014	46.21	1114.01	8/26/2014	46.71	1113.51
MW-171B	Shallow	1159.79	3/31/2014	46.08	1113.71	8/26/2014	46.55	1113.24
MW-172A	Intermediate	1146.97	3/31/2014	58.75	1088.22	8/26/2014	58.98	1087.99
MW-172B	Shallow	1146.88	3/31/2014	58.34	1088.54	8/26/2014	58.53	1088.35
MW-173A	Intermediate	1148.57	3/31/2014	61.30	1087.27	8/26/2014	61.56	1087.01
MW-174A	Intermediate	1142.13	3/31/2014	49.63	1092.50	8/26/2014	49.80	1092.33
MW-174B	Shallow	1141.72	3/31/2014	49.76	1091.96	8/26/2014	49.98	1091.74
MW-175A	Intermediate	1151.79	3/31/2014	52.22	1099.57	8/26/2014	52.50	1099.29
MW-175B	Shallow	1151.03	3/31/2014	52.43	1098.60	8/26/2014	52.00	1099.03
MW-176A	Intermediate	1090.01	3/31/2014	10.00	1080.01	8/26/2014	10.63	1079.38

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
MW-176B	Shallow	1089.11	3/31/2014	10.52	1078.59	8/26/2014	11.15	1077.96
MW-177A	Intermediate	1104.43	3/31/2014	8.94	1095.49	8/26/2014	8.80	1095.63
MW-177B	Shallow	1105.90	3/31/2014	8.59	1097.31	8/26/2014	8.50	1097.40
MW-178B	Shallow	1140.34	3/31/2014	44.93	1095.41	8/26/2014	46.00	1094.34
MW-179A	Intermediate	1107.45	3/31/2014	13.38	1094.07	8/26/2014	13.60	1093.85
MW-179B	Shallow	1107.64	3/31/2014	14.14	1093.50	8/26/2014	14.19	1093.45
MW-180A	Intermediate	1155.12	3/31/2014	63.05	1092.07	8/26/2014	63.40	1091.72
MW-180E	Intermediate	1155.22	3/31/2014	63.19	1092.03	8/26/2014	63.56	1091.66
OW-05	Intermediate	1080.35	3/31/2014	10.24	1070.11	8/26/2014	11.83	1068.52
OW-06	Intermediate	1079.22	3/31/2014	7.71	1071.51	8/26/2014	9.21	1070.01
OW-07	Intermediate	1079.06	3/31/2014	6.91	1072.15	8/26/2014	8.12	1070.94
OW-08	Intermediate	1078.43	3/31/2014	5.41	1073.02	8/26/2014	7.20	1071.23
OW-09	Intermediate	1080.96	3/31/2014	9.11	1071.85	8/26/2014	10.54	1070.42
OW-10	Intermediate	1079.79	3/31/2014	9.89	1069.90	NM	NM	NM
OW-11	Intermediate	1078.66	3/31/2014	8.10	1070.56	NM	NM	NM
OW-12	Intermediate	1080.19	3/31/2014	6.11	1074.08	8/26/2014	7.10	1073.09
OW-13	Intermediate	1081.25	3/31/2014	9.30	1071.95	8/26/2014	10.68	1070.57
OW-14	Intermediate	1080.52	3/31/2014	7.61	1072.91	8/26/2014	8.84	1071.68
OW-15	Intermediate	1080.66	3/31/2014	7.42	1073.24	8/26/2014	8.59	1072.07
OW-16	Intermediate	1078.22	3/31/2014	2.20	1076.02	NM	NM	NM
OW-18	Intermediate	1162.21	3/31/2014	47.87	1114.34	8/26/2014	48.19	1114.02
OW-22	Intermediate	1161.24	3/31/2014	47.42	1113.82	8/26/2014	47.73	1113.51
OW-23	Intermediate	1162.08	3/31/2014	46.98	1115.10	8/26/2014	47.35	1114.73
OW-25	Intermediate	1155.71	3/31/2014	69.24	1086.47	8/26/2014	69.51	1086.20
OW-26	Intermediate	1148.64	3/31/2014	61.71	1086.93	8/26/2014	62.18	1086.46
OW-27	Intermediate	1153.30	3/31/2014	67.03	1086.27	8/26/2014	67.51	1085.79
OW-28	Intermediate	1153.81	3/31/2014	67.69	1086.12	8/26/2014	68.15	1085.66
OW-31	Intermediate	1155.78	3/31/2014	60.36	1095.42	8/26/2014	60.64	1095.14

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
OW-32	Intermediate	1153.87	3/31/2014	58.44	1095.43	8/26/2014	58.71	1095.16
OW-33	Intermediate	1154.67	3/31/2014	59.11	1095.56	8/26/2014	59.31	1095.36
OW-34	Intermediate	1154.70	3/31/2014	59.80	1094.90	8/26/2014	60.06	1094.64
OW-35	Intermediate	1154.10	3/31/2014	59.12	1094.98	8/26/2014	59.39	1094.71
OW-36	Intermediate	1157.23	3/31/2014	62.65	1094.58	8/26/2014	62.90	1094.33
OW-37	Intermediate	1157.36	NM	NM	NM	NM	NM	NM
OW-38	Intermediate	1151.19	3/31/2014	59.58	1091.61	8/26/2014	59.85	1091.34
OW-39	Intermediate	1151.39	3/31/2014	57.50	1093.89	8/26/2014	57.82	1093.57
OW-40	Intermediate	1157.66	3/31/2014	62.28	1095.38	8/26/2014	62.60	1095.06
OW-41	Intermediate	1150.22	3/31/2014	59.54	1090.68	8/26/2014	59.84	1090.38
OW-42	Intermediate	1151.21	3/31/2014	58.33	1092.88	8/26/2014	58.60	1092.61
OW-43	Intermediate	1156.74	3/31/2014	62.18	1094.56	8/26/2014	62.44	1094.30
OW-44	Intermediate	1147.84	3/31/2014	52.30	1095.54	8/26/2014	52.49	1095.35
OW-45	Intermediate	1152.47	3/31/2014	53.88	1098.59	8/26/2014	54.42	1098.05
OW-46	Intermediate	1151.55	NM	NM	NM	8/26/2014	53.32	1098.23
OW-47	Intermediate	1153.44	3/31/2014	54.02	1099.42	8/26/2014	54.53	1098.91
OW-48	Intermediate	1153.38	3/31/2014	54.85	1098.53	8/26/2014	55.39	1097.99
OW-49	Intermediate	1154.09	3/31/2014	55.80	1098.29	NM	NM	NM
OW-50	Intermediate	1151.16	3/31/2014	53.11	1098.05	8/26/2014	53.59	1097.57
OW-51	Intermediate	1149.86	3/31/2014	52.25	1097.61	8/26/2014	52.71	1097.15
OW-52	Intermediate	1107.14	3/31/2014	13.78	1093.36	8/26/2014	13.90	1093.24
OW-53	Intermediate	1107.13	3/31/2014	12.61	1094.52	8/26/2014	12.16	1094.97
OW-54	Intermediate	1115.39	3/31/2014	21.30	1094.09	8/26/2014	21.50	1093.89
OW-55	Intermediate	1107.05	3/31/2014	15.27	1091.78	8/26/2014	15.59	1091.46
OW-56	Intermediate	1112.15	3/31/2014	15.48	1096.67	8/26/2014	15.50	1096.65
OW-57	Intermediate	1114.84	3/31/2014	17.19	1097.65	8/26/2014	17.25	1097.59

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
OW-58	Intermediate	1109.00	3/31/2014	11.79	1097.21	8/26/2014	11.10	1097.90
OW-59	Intermediate	1110.50	3/31/2014	13.07	1097.43	8/26/2014	13.00	1097.50
OW-60	Intermediate	1149.15	3/31/2014	60.68	1088.47	8/26/2014	60.89	1088.26
OW-61	Intermediate	1148.81	3/31/2014	59.61	1089.20	8/26/2014	59.85	1088.96
OW-62	Intermediate	1151.40	3/31/2014	61.40	1090.00	8/26/2014	61.69	1089.71
OW-63	Intermediate	1152.90	3/31/2014	63.26	1089.64	8/26/2014	63.55	1089.35
OW-64	Intermediate	1148.12	3/31/2014	59.35	1088.77	8/26/2014	59.57	1088.55
OW-65	Intermediate	1147.36	3/31/2014	58.79	1088.57	8/26/2014	59.06	1088.30
OW-66	Intermediate	1147.09	3/31/2014	51.37	1095.72	8/26/2014	51.59	1095.50
OW-67	Intermediate	1149.64	3/31/2014	53.95	1095.69	8/26/2014	54.18	1095.46
OW-68	Intermediate	1146.89	3/31/2014	51.90	1094.99	8/26/2014	52.11	1094.78
OW-69	Intermediate	1147.02	3/31/2014	51.62	1095.40	8/26/2014	51.80	1095.22
OW-70	Intermediate	1146.14	3/31/2014	51.17	1094.97	8/26/2014	51.30	1094.84
OW-71	Intermediate	1158.23	3/31/2014	63.20	1095.03	8/26/2014	63.41	1094.82
OW-72	Intermediate	1156.05	3/31/2014	61.20	1094.85	8/26/2014	61.61	1094.44
OW-73	Intermediate	1157.61	3/31/2014	61.86	1095.75	8/26/2014	62.29	1095.32
OW-74	Intermediate	1148.38	3/31/2014	51.32	1097.06	8/26/2014	51.76	1096.62
OW-75	Intermediate	1154.51	3/31/2014	58.91	1095.60	8/26/2014	59.33	1095.18
OW-76	Intermediate	1148.68	3/31/2014	52.72	1095.96	8/26/2014	53.15	1095.53
OW-77	Intermediate	1157.82	3/31/2014	62.92	1094.90	8/26/2014	63.21	1094.61
OW-78	Intermediate	1163.94	3/31/2014	54.92	1109.02	8/26/2014	55.14	1108.80
OW-79	Intermediate	1167.29	3/31/2014	56.04	1111.25	8/26/2014	56.27	1111.02
OW-80	Intermediate	1169.30	3/31/2014	56.42	1112.88	8/26/2014	56.70	1112.60
OW-81	Intermediate	1164.13	3/31/2014	52.06	1112.07	8/26/2014	52.34	1111.79
OW-82	Intermediate	1169.05	3/31/2014	56.55	1112.50	8/26/2014	57.02	1112.03
OW-83	Intermediate	1173.20	3/31/2014	59.36	1113.84	8/26/2014	59.89	1113.31
OW-89	Intermediate	1092.56	3/31/2014	13.27	1079.29	8/26/2014	13.96	1078.60
OW-90	Intermediate	1153.30	3/31/2014	62.05	1091.25	8/26/2014	62.28	1091.02
OW-92	Intermediate	1154.30	3/31/2014	61.23	1093.07	8/26/2014	61.43	1092.87
OW-93	Intermediate	1156.87	3/31/2014	67.15	1089.72	8/26/2014	67.44	1089.43

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
OW-94	Intermediate	1153.21	3/31/2014	60.37	1092.84	8/26/2014	60.59	1092.62
OW-95	Intermediate	1150.04	3/31/2014	57.30	1092.74	8/26/2014	57.46	1092.58
OW-96	Intermediate	1146.64	3/31/2014	58.31	1088.33	8/26/2014	58.68	1087.96
OW-97	Intermediate	1146.21	3/31/2014	58.51	1087.70	8/26/2014	58.88	1087.33
OW-98	Intermediate	1150.67	3/31/2014	62.92	1087.75	8/26/2014	63.31	1087.36
OW-99	Intermediate	1146.97	3/31/2014	59.57	1087.40	8/26/2014	59.92	1087.05
OW-100	Intermediate	1147.39	3/31/2014	60.60	1086.79	8/26/2014	61.00	1086.39
OW-101	Intermediate	1168.26	3/31/2014	50.80	1117.46	8/26/2014	51.25	1117.01
OW-102	Intermediate	1166.49	3/31/2014	47.51	1118.98	8/26/2014	47.66	1118.83
OW-103	Intermediate	1169.13	3/31/2014	47.95	1121.18	8/26/2014	48.46	1120.67
OW-104	Intermediate	1167.73	3/31/2014	49.48	1118.25	8/26/2014	50.01	1117.72
OW-105	Intermediate	1165.40	3/31/2014	46.81	1118.59	8/26/2014	47.45	1117.95
OW-106	Intermediate	1116.11	3/31/2014	22.64	1093.47	8/26/2014	22.92	1093.19
OW-107	Intermediate	1116.01	3/31/2014	18.38	1097.63	8/26/2014	18.51	1097.50
OW-108	Intermediate	1115.83	3/31/2014	24.65	1091.18	8/26/2014	24.81	1091.02
OW-109	Deep	1077.58	3/31/2014	9.08	1068.50	8/26/2014	9.31	1068.27
OW-110	Intermediate	1077.52	3/31/2014	8.58	1068.94	8/26/2014	9.88	1067.64
PZ-01	Intermediate	1116.38	3/31/2014	33.66	1082.72	8/26/2014	34.43	1081.95
PZ-02	Intermediate	1130.80	3/31/2014	44.80	1086.00	8/26/2014	42.24	1088.56
PZ-11	Deep	1094.18	3/31/2014	7.79	1086.39	8/26/2014	8.68	1085.50
PZ-12	Deep	1101.36	3/31/2014	19.11	1082.25	8/26/2014	19.73	1081.63
PZ-13	Intermediate	1081.23	3/31/2014	2.10	1079.13	8/26/2014	2.53	1078.70
PZ-14	Intermediate	1080.52	3/31/2014	1.40	1079.12	8/26/2014	1.90	1078.62

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
TH-EW-12	Intermediate	1107.37	3/31/2014	26.58	1080.79	8/26/2014	26.50	1080.87
TH-EW-13	Intermediate	1111.04	3/31/2014	14.02	1097.02	8/26/2014	13.69	1097.35
TH-EW-14R1	Intermediate	1156.72	3/31/2014	66.56	1090.16	8/26/2014	66.83	1089.89
TH-EW-14R2	Intermediate	1151.08	3/31/2014	58.26	1092.82	8/26/2014	58.48	1092.60
TH-EW-15	Intermediate	1172.51	3/31/2014	53.56	1118.95	8/26/2014	54.03	1118.48
TH-EW-16	Intermediate	1147.71	3/31/2014	60.08	1087.63	8/26/2014	60.43	1087.28
TH-EW-17	Intermediate	1116.44	3/31/2014	28.88	1087.56	8/26/2014	29.19	1087.25
Brabec		1150.00	3/31/2014	51.52	1098.48	8/26/2014	52.18	1097.82
D.Starns		1064.50	3/31/2014	12.22	1052.28	8/26/2014	16.21	1048.29
Frahm		1146.00	3/31/2014	56.88	1089.12	8/26/2014	57.98	1088.02
Hanson		1144.40	3/31/2014	51.30	1093.10	8/26/2014	51.99	1092.41
LPN 06-01		1066.68	3/31/2014	3.20	1063.48	8/26/2014	4.69	1061.99
LPN 06-18		1088.45	3/31/2014	3.56	1084.89	8/26/2014	4.81	1083.64
LPN 06-19		1140.81	3/31/2014	38.86	1101.95	8/26/2014	43.51	1097.30
LPN 06-20		1208.77	3/31/2014	64.45	1144.32	8/26/2014	65.27	1143.50
LPN 06-21		1204.53	3/31/2014	57.16	1147.37	8/26/2014	60.57	1143.96
M90-01		1074.38	3/31/2014	4.23	1070.15	8/26/2014	6.32	1068.06
M90-02		1075.70	3/31/2014	5.47	1070.23	8/26/2014	8.10	1067.60
M90-04		1071.08	3/31/2014	4.62	1066.46	8/26/2014	6.55	1064.53
M90-05R		1076.50	3/31/2014	12.50	1064.00	8/26/2014	14.17	1062.33
M90-09		1067.97	3/31/2014	4.97	1063.00	8/26/2014	5.92	1062.05
M90-12R		1070.00	3/31/2014	7.97	1062.03	8/26/2014	8.65	1061.35
M90-15		1065.39	3/31/2014	6.02	1059.37	8/26/2014	6.09	1059.30
M90-16R		1063.57	3/31/2014	3.90	1059.67	8/26/2014	3.73	1059.84
M90-17R		1067.54	3/31/2014	9.56	1057.98	8/26/2014	9.87	1057.67
M90-20R		1066.45	3/31/2014	9.22	1057.23	8/26/2014	8.45	1058.00
M90-21		1064.09	3/31/2014	8.87	1055.22	8/26/2014	5.16	1058.93
M90-22R		1063.17	3/31/2014	8.65	1054.52	8/26/2014	10.31	1052.86

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
M90-23R		1056.70	3/31/2014	11.45	1045.25	8/26/2014	12.96	1043.74
M90-24R		1059.05	3/31/2014	13.12	1045.93	8/26/2014	14.13	1044.92
M90-26R		1057.07	3/31/2014	7.85	1049.22	8/26/2014	7.51	1049.56
M90-36R		1059.30	3/31/2014	8.27	1051.03	8/26/2014	7.11	1052.19
M90-37		1054.19	3/31/2014	3.40	1050.79	8/26/2014	3.76	1050.43
MUD 06-28		1087.13	3/31/2014	2.14	1084.99	8/26/2014	3.31	1083.82
MUD 90-10		1099.56	3/31/2014	9.54	1090.02	8/26/2014	10.27	1089.29
MUD 94-3		1085.52	3/31/2014	7.89	1077.63	8/26/2014	7.54	1077.98
MUD 94-4		1094.81	3/31/2014	12.39	1082.42	8/26/2014	12.39	1082.42
MUD 94-5		1097.79	3/31/2014	5.60	1092.19	8/26/2014	6.71	1091.08
MUD 94-6		1085.55	3/31/2014	4.31	1081.24	8/26/2014	4.82	1080.73
MUD 94-7		1083.07	3/31/2014	8.69	1074.38	8/26/2014	9.27	1073.80
N.Keiser		1104.20	3/31/2014	23.87	1080.33	8/26/2014	24.50	1079.70
N.Wann		1107.30	3/31/2014	3.30	1104.00	8/26/2014	3.47	1103.83
PV-37		1100.90	3/31/2014	11.63	1089.27	8/26/2014	12.40	1088.50
PV-38		1100.00	3/31/2014	5.83	1094.17	8/26/2014	6.54	1093.46
PV-39		1084.00	3/31/2014	2.52	1081.48	8/26/2014	3.49	1080.51
PV-40		1088.90	3/31/2014	9.91	1078.99	8/26/2014	9.33	1079.57
PV-41		1096.20	3/31/2014	6.18	1090.02	8/26/2014	6.74	1089.46
S.Keiser		1114.20	3/31/2014	34.90	1079.30	8/26/2014	35.79	1078.41
TV-16		1140.30	3/31/2014	48.74	1091.56	8/26/2014	50.26	1090.04
TV-17A		1137.75	3/31/2014	54.28	1083.47	8/26/2014	56.14	1081.61

Table 3.2 (continued)
Groundwater Elevations - March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location Identification	Zone Designation	TOC Elevation (ft amsl)	Date	Depth to Water from TOC (ft) or flow (gpm) March 2014	Groundwater Elevation (ft amsl) March 2014	Date	Depth to Water from TOC (ft) or flow (gpm) August 2014	Groundwater Elevation (ft amsl) August 2014
13N 10E32ADDD1 M90-30R		1055.83(1)	3/31/2014	4.09	1051.74	8/25/2014	4.38	1051.45
13N 10E32DBBA1 M28R ISLAND NORTH WELL		1057.81(1)	3/31/2014	3.93	1053.88	8/25/2014	3.78	1054.03
13N 10E32DCAA1 M91-58R		1056.35(3)	NM	NM	NM	NM	NM	NM
13N 10E32DCAC1 M90-29R		1054.43(3)	NM	NM	NM	NM	NM	NM
13N 10E32DCAD1 M91-50R		1055.84(1)	3/31/2014	5.38	1050.46	8/25/2014	4.64	1051.20
13N 10E32DDBC1 M91-54R		1055.34(1)	3/13/2014	3.23	1052.11	NM	NM	NM
14N 8E14CC1		1175.85(5)	4/10/2014	34.72	1141.13	NM	NM	NM
14N 8E24ACD2 MEAD		1175.09(5)	4/10/2014	43.38	1131.71	NM	NM	NM
14N 8E27BAAB1		1167.67(5)	NM	NM	NM	NM	NM	NM
14N 8E2ADDA1		1205(2)	NM	NM	NM	NM	NM	NM
14N 8E36DD1		1151.80(5)	4/10/2014	51.99	1099.81	NM	NM	NM
14N 8E3AACC1		1194.51(5)	NM	NM	NM	NM	NM	NM
14N 9E20DD1		1160.64(5)	4/10/2014	54.34	1106.30	NM	NM	NM
14N 9E26CBAB1		1082(2)	NM	NM	NM	NM	NM	NM
14N 9E32DD1		1137.03(5)	4/10/2014	45.50	1091.53	NM	NM	NM

Notes:

- (1) Ground surface elevation from Lincoln Water Service
- (2) Ground surface elevation from U.S.Geological Survey reference elevation.
- (3) Ground surface elevation from Digital Elevation Model
- (4) Location from Nebraska Department of Natural Resources registration database
- (5) Location and ground surface elevation from USACE survey

amsl = above mean sea level

ft = feet

gpm = gallons per minute

NM = Not measured

NO = Not operational

TOC = top of casing

USGS Source: <http://nwis.waterdata.usgs.gov/ne/nwis/gwlevels>

Table 3.3
2014 Vertical Gradient Directions and Values, March 2014 and August 2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Monitoring Event	Vertical Flow Direction	Flow Between Shallow Zone and Intermediate Zone	
		Well Cluster	Gradient*
Mar-14	Downward Flow	MW-156	0.05
		MW-177	0.05
		MW-56	0.03
		MW-53	0.02
		MW-154	0.02
	Upward Flow	MW-107	-0.02
		MW-168	-0.02
		MW-174	-0.03
		MW-44	-0.05
		MW-175	-0.07
Aug-14	Downward Flow	MW-56	0.05
		MW-156	0.05
		MW-177	0.04
		MW-53	0.04
		MW-107	0.03
		MW-154	0.03
	Upward Flow	MW-168	-0.02
		MW-174	-0.03
		MW-44	-0.05
		MW-176	-0.08

Monitoring Event	Vertical Flow Direction	Flow Between Intermediate Zone and Deep Zone	
		Well Cluster	Gradient*
Mar-14	Downward Flow	MW-95	0.04
		MW-124	0.02
Aug-14	Downward Flow	MW-135	-0.04
		MW-95	0.04
		MW-97	0.04
	Upward Flow	MW-124	0.02
		MW-133	0.02
		MW-135	-0.06

Notes:

*Positive gradient indicates downward flow between the two zones.

Negative gradient indicates upward flow between the two zones.

Only gradients less than or equal to -0.02 foot or greater than or equal to 0.02 foot are shown.

MW = monitoring well

Table 3.4
Extraction Well Pumping Rates (gpm)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	EW-08	EW-09	EW-10	FEW-11	EW-12	FEW-14	FEW-15	EW-16	EW-17	Total
Feb-02	185	175	236	132	252	306	331	316	268	428	0	0	0	0	0	0	2,629
Mar-02	181	175	227	132	251	305	329	322	263	420	0	0	0	0	0	0	2,605
Apr-02	180	175	228	124	250	307	328	324	261	419	0	0	0	0	0	0	2,596
May-02	179	175	220	119	251	310	328	319	250	418	0	0	0	0	0	0	2,569
Jun-02	177	174	220	120	249	309	328	320	250	414	0	0	0	0	0	0	2,561
Jul-02	175	176	220	123	250	311	330	321	231	410	0	0	0	0	0	0	2,547
Aug-02	174	175	221	120	250	309	330	322	231	409	0	0	0	0	0	0	2,541
Nov-02	171	175	220	115	250	314	320	323	226	376	0	0	0	0	0	0	2,490
Feb-03	168	175	220	110	249	294	315	319	221	379	0	0	0	0	0	0	2,450
May-03	164	174	219	109	250	290	314	312	216	380	0	0	0	0	0	0	2,428
Aug-03	160	173	218	105	251	292	299	310	215	392	0	0	0	0	0	0	2,415
Nov-03	154	169	221	107	249	280	300	312	215	396	0	0	0	0	0	0	2,403
Mar-04	148	168	220	117	245	264	299	310	210	375	0	0	0	0	0	0	2,356
Apr-04	148	168	219	116	244	253	280	310	185	374	0	0	0	0	0	0	2,297
Aug-04	198	150	220	122	250	276	298	335	194	401	0	0	0	0	0	0	2,444
Oct-04	200	150	220	119	248	260	302	336	185	400	0	0	0	0	0	0	2,420
Jan-05	197	151	220	115	249	240	274	338	180	406	0	0	0	0	0	0	2,370
May-05	200	151	219	110	252	233	264	333	180	409	0	0	0	0	0	0	2,351
Aug-05	197	150	219	105	251	276	305	305	178	401	0	0	0	0	0	0	2,387
Oct-05	187	150	220	104	249	276	304	304	171	396	0	0	0	0	0	0	2,361
Jan-06	177	149	219	105	229	252	308	305	158	345	0	0	0	0	0	0	2,247
Feb-06	163	143	209	95	210	231	294	291	143	228	0	0	0	0	0	0	2,006
Mar-06	171	153	223	89	225	255	316	314	152	270	0	350	0	0	0	0	2,517
Apr-06	156	142	207	98	221	243	294	292	141	276	0	275	0	0	0	0	2,343
May-06	157	148	216	103	229	250	312	306	145	308	0	303	0	0	0	0	2,477
Jun-06	85	111	208	90	210	215	284	277	138	289	0	268	0	0	0	0	2,174
Jul-06	134	99	215	83	211	275	302	295	144	351	0	323	0	0	0	0	2,434
Aug-06	74	54	215	102	201	245	308	296	125	289	0	321	0	0	0	0	2,230
Sep-06	220	119	205	109	191	252	300	281	129	284	0	306	0	0	0	0	2,395
Oct-06	234	149	217	115	201	268	303	299	137	303	0	318	0	0	0	0	2,543
Nov-06	204	148	122	96	128	168	194	298	86	181	0	316	0	0	0	0	1,943
Dec-06	183	138	130	81	76	268	281	269	148	260	0	263	0	0	0	0	2,096

Table 3.4 (continued)
Extraction Well Pumping Rates (gpm)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	EW-08	EW-09	EW-10	FEW-11	EW-12	FEW-14	FEW-15	EW-16	EW-17	Total
Jan-07	211	151	168	84	155	260	294	297	137	273	0	307	0	0	0	0	2,336
Feb-07	198	147	243	81	194	250	290	290	129	255	0	300	0	0	0	0	2,377
Mar-07	187	140	186	79	149	253	288	279	121	248	0	280	0	0	0	0	2,210
Apr-07	188	148	253	81	181	261	308	287	96	195	0	313	0	0	0	0	2,310
May-07	140	139	139	72	181	253	269	281	109	274	0	249	0	0	0	0	2,106
Jun-07	202	153	261	80	218	270	321	278	157	398	0	182	0	0	0	0	2,519
Jul-07	202	149	247	65	214	264	310	290	154	402	0	329	0	0	0	0	2,624
Aug-07	184	137	231	73	191	231	274	255	127	214	0	238	0	0	0	0	2,156
Sep-07	190	145	247	79	199	251	292	0	146	381	0	315	0	0	0	0	2,245
Oct-07	190	152	255	81	131	232	296	0	148	405	0	320	0	0	0	0	2,211
Nov-07	116	154	261	77	207	259	301	0	151	402	0	325	0	0	0	0	2,252
Dec-07	193	154	262	70	204	255	299	0	150	401	0	324	0	0	0	0	2,312
Jan-08	168	138	238	59	185	231	286	36	138	387	0	313	0	0	0	0	2,178
Feb-08	177	148	258	64	193	244	293	63	147	395	0	324	0	0	0	0	2,306
Mar-08	181	152	263	65	183	145	177	0	87	391	236	305	0	0	0	0	2,185
Apr-08	181	156	266	68	169	256	314	0	156	418	441	325	0	0	0	0	2,752
May-08	167	147	249	64	148	239	292	0	143	380	459	323	0	0	0	0	2,612
Jun-08	160	148	246	69	186	238	277	0	144	351	328	320	0	0	0	0	2,465
Jul-08	166	159	279	78	210	270	304	0	160	414	277	321	0	0	0	0	2,639
Aug-08	160	156	266	77	210	267	309	0	161	418	542	324	0	0	0	0	2,889
Sep-08	156	154	270	73	206	263	245	0	160	414	545	323	0	0	0	0	2,808
Oct-08	96	154	272	66	202	258	261	0	159	388	495	320	0	0	0	0	2,672
Nov-08	48	160	282	44	205	264	319	0	164	417	562	324	0	0	0	0	2,789
Dec-08	81	156	280	61	203	254	313	0	158	267	548	314	0	0	0	0	2,635
Jan-09	185	151	279	93	200	265	322	0	166	419	542	308	0	0	0	0	2,932
Feb-09	185	85	260	86	118	245	314	0	159	442	585	313	0	0	0	0	2,794
Mar-09	169	0	201	93	0	184	231	0	112	268	467	321	0	0	0	0	2,044
Apr-09	189	0	233	92	0	212	237	0	134	304	476	307	0	0	0	0	2,183
May-09	178	0	217	93	0	203	227	0	125	305	379	301	0	0	0	0	2,028
Jun-09	186	0	276	91	0	259	298	0	165	399	480	317	165	0	140	0	2,776

Table 3.4 (continued)
Extraction Well Pumping Rates (gpm)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	EW-08	EW-09	EW-10	FEW-11	EW-12	FEW-14	FEW-15	EW-16	EW-17	Total
Jul-09	172	0	290	88	0	65	302	0	139	406	520	212	184	0	94	0	2,470
Aug-09	168	0	274	73	0	63	216	0	137	569	441	175	186	0	90	0	2,391
Sep-09	169	0	263	77	0	74	278	0	131	203	491	196	176	0	88	0	2,145
Oct-09	177	0	275	78	0	68	293	0	142	385	530	269	188	0	90	0	2,495
Nov-09	173	0	257	81	0	70	288	0	126	386	526	321	188	0	90	0	2,505
Dec-09	147	0	263	68	0	63	254	0	122	345	426	260	164	0	81	0	2,192
Jan-10	160	0	286	76	0	76	277	0	133	377	477	273	179	9	88	0	2,411
Feb-10	155	0	294	79	0	78	287	0	135	315	533	303	187	0	87	0	2,454
Mar-10	151	0	290	77	0	62	282	0	140	0	506	320	185	0	84	0	2,098
Apr-10	148	0	299	78	0	56	288	0	144	0	523	322	191	110	85	0	2,244
May-10	143	0	302	77	0	57	292	0	147	0	533	320	194	329	87	0	2,482
Jun-10	140	0	302	76	0	48	261	0	131	0	173	306	195	340	92	0	2,066
Jul-10	131	0	297	75	0	53	294	0	140	0	347	294	194	345	105	0	2,275
Aug-10	109	0	303	76	0	53	300	0	146	0	391	277	204	372	105	0	2,335
Sep-10	138	0	294	75	0	54	292	0	144	0	285	291	202	246	117	0	2,137
Oct-10	166	0	273	71	0	59	274	0	126	0	536	237	205	221	111	0	2,279
Nov-10	121	0	177	39	0	45	292	0	146	0	547	120	205	495	105	0	2,292
Dec-10	168	0	229	78	0	50	288	0	142	0	534	255	171	480	90	0	2,485
Jan-11	162	0	293	94	0	58	287	0	141	0	534	306	188	489	103	0	2,656
Feb-11	176	0	297	95	0	58	292	0	143	0	535	323	192	487	101	0	2,699
Mar-11	176	0	299	95	0	59	292	0	144	0	489	323	194	496	98	0	2,664
Apr-11	171	0	290	93	0	55	284	0	140	0	512	310	189	474	95	0	2,613
May-11	179	0	303	98	0	57	277	0	145	0	518	315	195	344	96	0	2,526
Jun-11	141	0	293	93	0	62	270	0	135	0	432	306	186	304	95	0	2,317
Jul-11	190	0	296	97	0	61	289	0	130	0	501	306	190	297	99	0	2,454
Aug-11	214	0	297	97	0	52	172	0	84	0	245	291	189	319	98	0	2,059
Sep-11	196	0	298	93	0	50	285	0	140	0	514	279	192	458	97	0	2,601
Oct-11	196	0	297	93	0	50	288	0	140	0	543	292	192	497	105	0	2,692
Nov-11	140	0	297	88	0	50	281	0	140	0	494	120	191	317	101	0	2,219
Dec-11	199	0	290	96	0	50	286	0	135	0	540	261	182	493	99	0	2,631

Table 3.4 (continued)
Extraction Well Pumping Rates (gpm)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	EW-08	EW-09	EW-10	FEW-11	EW-12	FEW-14	FEW-15	EW-16	EW-17	Total
Jan-12	200	0	300	89	0	50	287	0	139	0	546	313	183	528	99	0	2,734
Feb-12	97	0	290	95	0	48	279	0	135	0	515	306	183	487	96	0	2,531
Mar-12	250	0	290	93	0	48	276	0	135	0	513	319	184	485	96	0	2,688
Apr-12	198	0	289	93	0	51	280	0	133	0	518	296	179	466	105	0	2,608
May-12	196	0	292	92	0	50	280	0	130	0	522	309	186	476	99	0	2,631
Jun-12	199	0	298	94	0	51	284	0	142	0	517	316	188	467	98	0	2,653
Jul-12	199	0	298	94	0	50	284	0	129	0	N/A	307	190	487	93	0	2,130
Aug-12	197	0	295	75	0	50	282	0	134	0	312	120	184	483	94	0	2,228
Sep-12	165	0	247	77	0	41	240	0	118	0	391	175	156	451	82	0	2,143
Oct-12	194	0	299	90	0	50	281	0	144	0	508	237	176	447	90	0	2,514
Nov-12	199	0	298	77	0	49	285	0	145	0	278	210	180	448	99	0	2,268
Dec-12	186	0	260	63	0	45	265	0	128	0	457	209	173	410	91	0	2,287
Jan-13	200	0	13	96	0	2	290	0	140	0	543	298	249	483	4	0	2,319
Feb-13	200	0	0	99	0	0	289	0	140	0	550	309	251	472	0	0	2,310
Mar-13	200	0	0	100	0	0	288	0	139	0	548	289	249	488	0	0	2,300
Apr-13	199	0	0	99	0	0	287	0	140	0	521	287	244	472	0	0	2,249
May-13	126	0	0	98	0	0	278	0	135	0	386	141	233	468	0	136	2,002
Jun-13	245	0	0	101	0	0	290	0	139	0	492	204	249	476	0	249	2,445
Jul-13	250	0	0	97	0	0	287	0	136	0	428	264	247	411	0	312	2,432
Aug-13	242	0	0	99	0	0	285	0	202	0	167	274	247	372	0	324	2,211
Sep-13	208	0	0	98	0	0	285	0	172	0	157	274	246	100	0	322	1,861
Oct-13	177	0	0	87	0	0	251	0	150	0	460	273	211	194	0	315	2,117
Nov-13	125	0	0	67	0	0	175	0	109	0	110	275	157	79	0	325	1,421
Dec-13	182	0	0	95	0	0	250	0	158	0	203	274	236	265	0	323	1,986
Jan-14	200	0	0	97	0	0	265	0	167	0	525	267	240	484	0	315	2,561
Feb-14	189	0	0	97	0	0	282	0	169	0	479	272	248	488	0	323	2,546
Mar-14	197	0	0	97	0	0	283	0	167	0	498	258	243	483	0	310	2,535
Apr-14	197	0	0	98	0	0	283	0	168	0	516	233	241	477	0	309	2,523
May-14	163	0	0	96	0	0	123	0	164	0	490	236	236	390	0	321	2,219
Jun-14	192	0	0	90	0	0	263	0	165	0	494	232	229	449	0	316	2,429

Table 3.4 (continued)
Extraction Well Pumping Rates (gpm)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

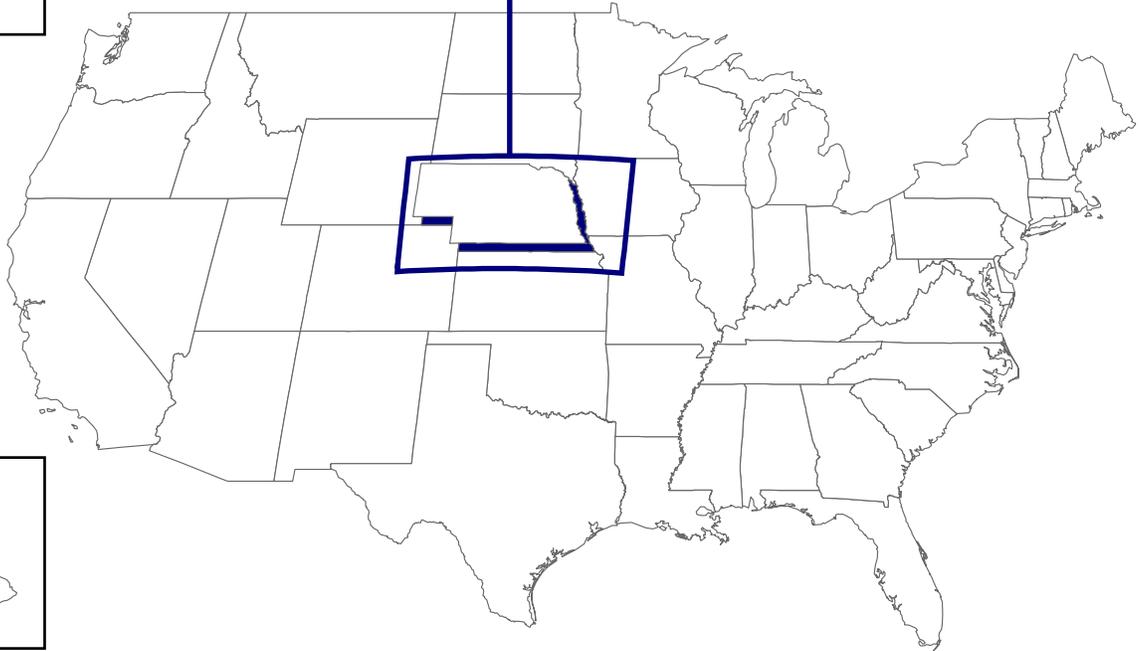
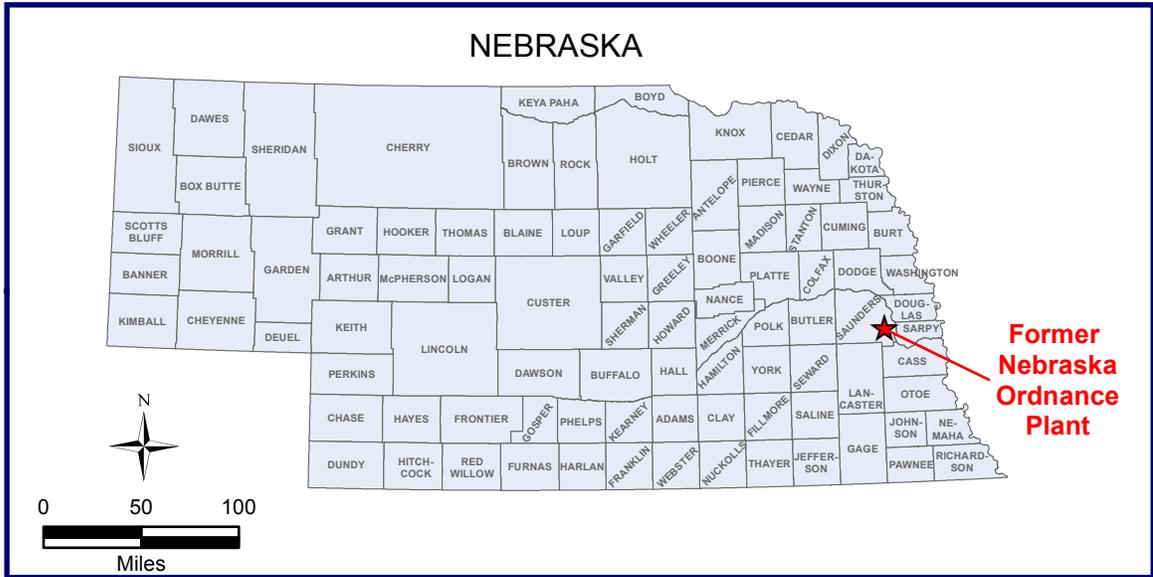
Month	EW-01/ EW-01R	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	EW-08	EW-09	EW-10	FEW-11	EW-12	FEW-14	FEW-15	EW-16	EW-17	Total
Jul-14	195	0	0	89	0	0	256	0	166	0	474	233	241	443	0	315	2,413
Aug-14	197	0	0	95	0	0	277	0	164	0	334	235	233	446	0	311	2,293
Sep-14	198	0	0	94	0	0	285	0	167	0	485	237	238	456	0	322	2,483
Oct-14	198	0	0	93	0	0	287	0	162	0	520	228	228	453	0	320	2,487
Nov-14	201	0	0	95	0	0	291	0	168	0	528	218	236	457	0	293	2,487
Dec-14	193	0	0	72	0	0	285	0	165	0	519	224	233	437	0	303	2,430

Notes:

- 1) Values reported from 2006 through 2014 are the cumulative monthly average, calculated by the total gallons pumped in a time period divided by the total number of minutes in that time period.
- 2) EW-13 did not provide sufficient yield during testing, and was replaced by EW-17.
- 3) EW = extraction well
FEW = focused extraction well
gpm = gallons per minute
N/A = not available

FIGURES

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**US Army Corps
of Engineers**
Kansas City District

*Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation*

Legend

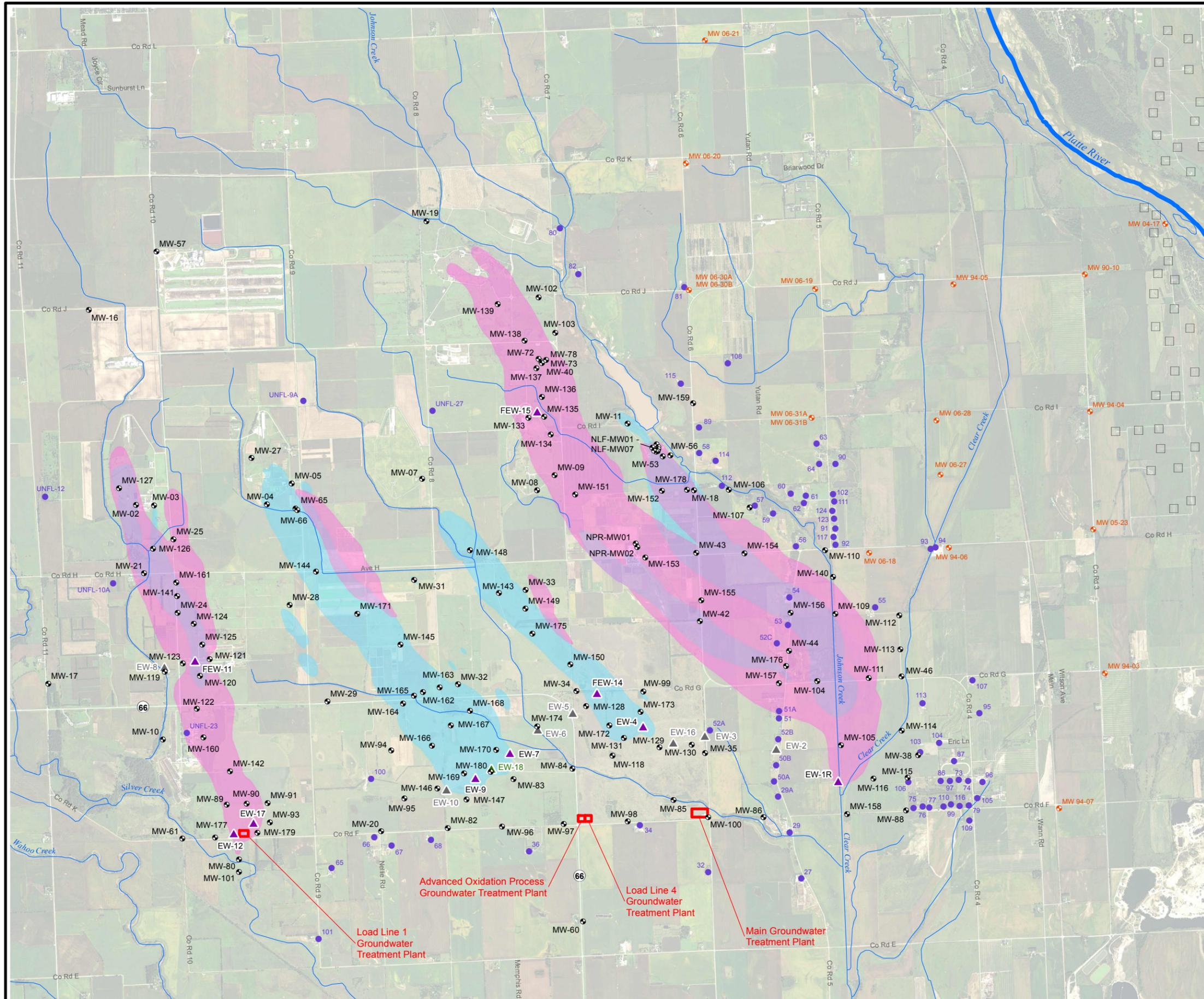
★ Former Nebraska Ordnance Plant

County

State

**Figure 1.1
Site Location**

Drawn by: RR	Reviewed by: TL	Source: HGL
Date: 03/13/2015	Date: 03/17/2015	Projection: NAD 1983 Nebraska State Plane (Nebraska inset map)
Version: 2	Revision Date / Initials: 03/18/2015 RR	Units: Feet



Legend

- Groundwater Monitoring Well/Well Cluster
- Water Supply Well
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Metropolitan Utility District Extraction Well
- Metropolitan Utility District Monitoring Well

□ Groundwater Treatment Plant

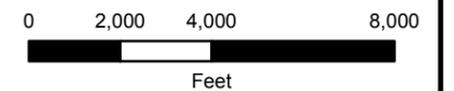
Contaminant Plume

- Approximate Area of TCE at a Concentration of 5 µg/L or Greater (2014)
- Approximate Area of RDX at a Concentration of 2 µg/L or Greater (2014)
- Approximate Area of Both TCE at a Concentration of 5 µg/L or Greater and RDX at a Concentration of 2 µg/L or Greater (2014)

NOTES:

TCE and RDX plume delineations are based on Groundwater Monitoring Program data, direct-push data, and other data. The plume delineations represent a combination of the shallow zone data and the intermediate zone data.

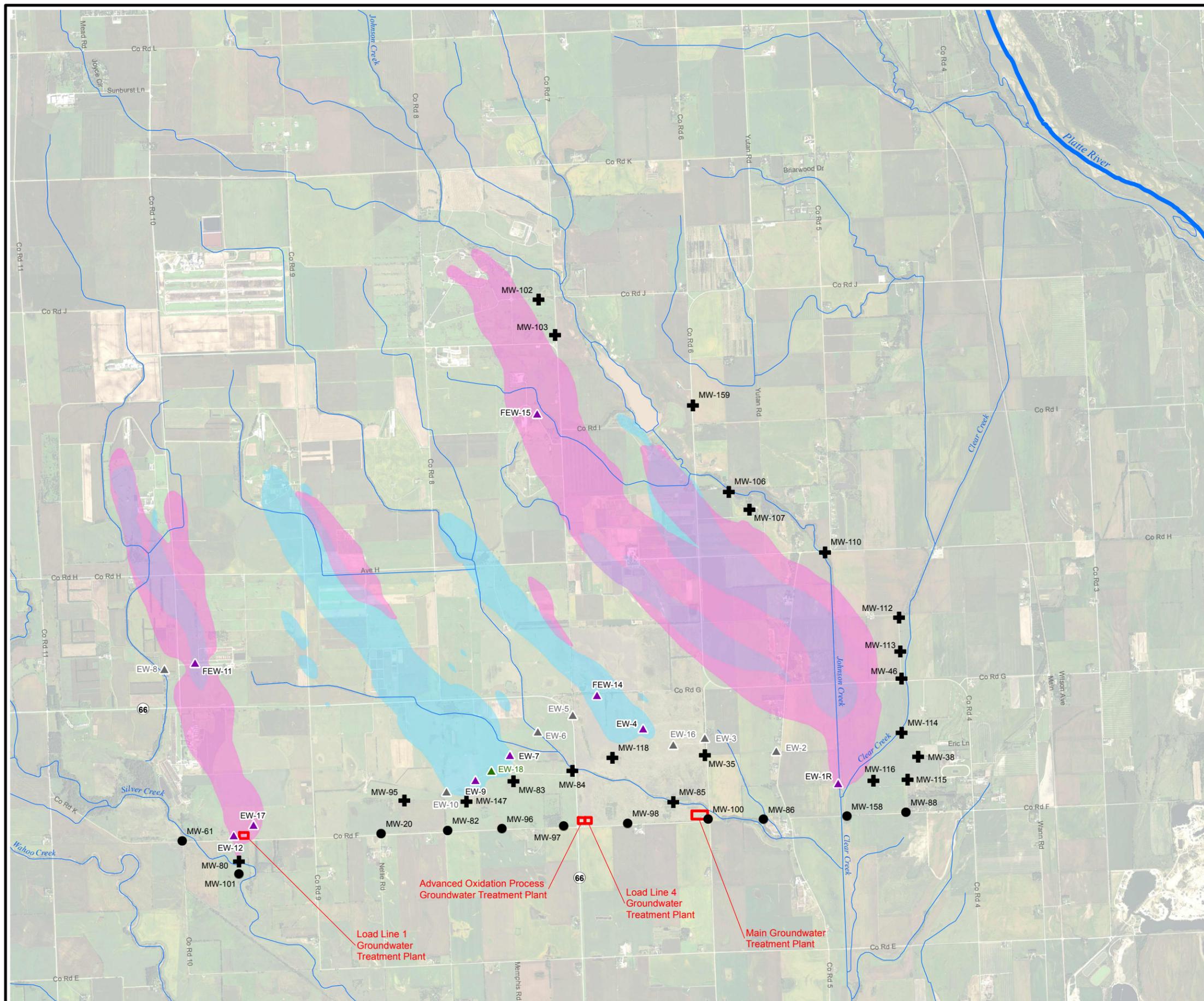
TCE = trichloroethene
 RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter
 UNFL-10A = University of Nebraska Field Laboratory (UNFL-10A)
 50A = water supply well (WSW-50A)



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure 1.2
TCE and RDX in Groundwater

Drawn by: RR	Reviewed by: TL, TH	Source: HGL, ECC, NAIP (2014)
Date: 03/13/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Compliance Monitoring Well Cluster
- ⊕ Perimeter Monitoring Well Cluster
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- ▭ Groundwater Treatment Plant

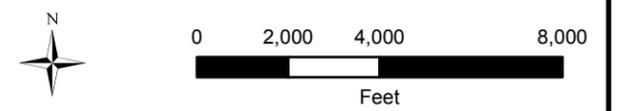
Contaminant Plume

- ▭ Approximate Area of TCE at a Concentration of 5 µg/L or Greater (2014)
- ▭ Approximate Area of RDX at a Concentration of 2 µg/L or Greater (2014)
- ▭ Approximate Area of Both TCE at a Concentration of 5 µg/L or Greater and RDX at a Concentration of 2 µg/L or Greater (2014)

NOTES:

TCE and RDX plume delineations are based on Groundwater Monitoring Program data, direct-push data, and other data. The plume delineations represent a combination of the shallow zone data and the intermediate zone data.

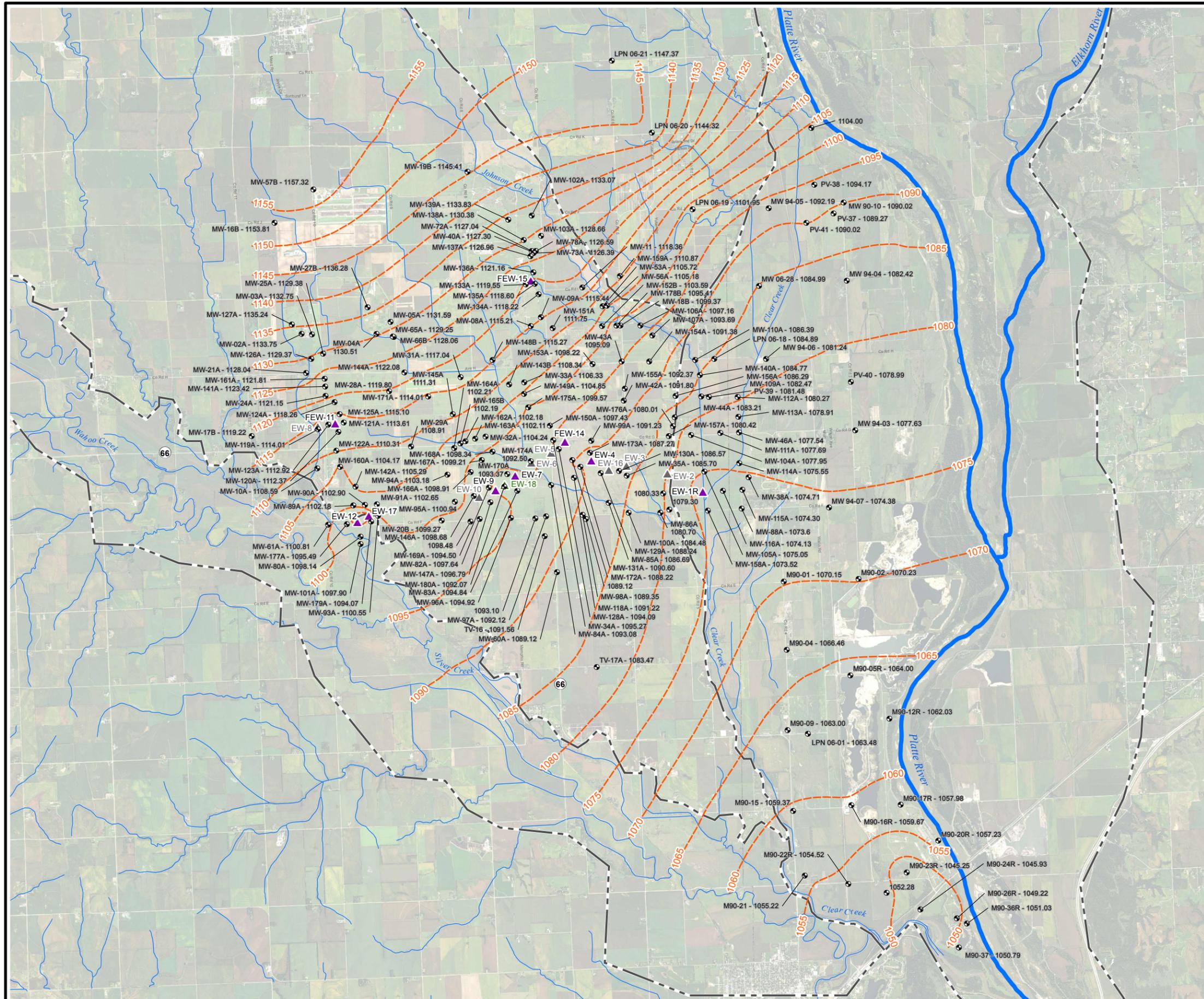
TCE = trichloroethene
 RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure 2.1
Groundwater Monitoring Well Clusters Evaluated

Drawn by: RR	Reviewed by: TL	Source: HGL, ECC, NAIP (2014)
Date: 03/13/2015	Date: 03/17/2015	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/18/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Groundwater Monitoring Well
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- March 2014 Potentiometric Contour
- Basin Boundary

MW-107A - 1093.69
 Well ID - Water Level Elevation
 1052.28
 Water Level Elevation (private well)

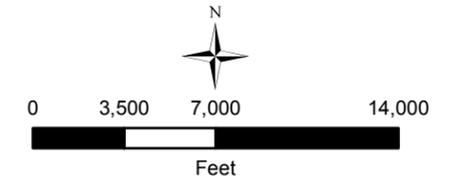
NOTES:

Water level elevations in feet above mean sea level.

Not all observation wells are plotted on this map; however, observation well water levels were used in the production of the potentiometric surfaces.

The 5-foot contour interval does not illustrate drawdown at all extraction wells.

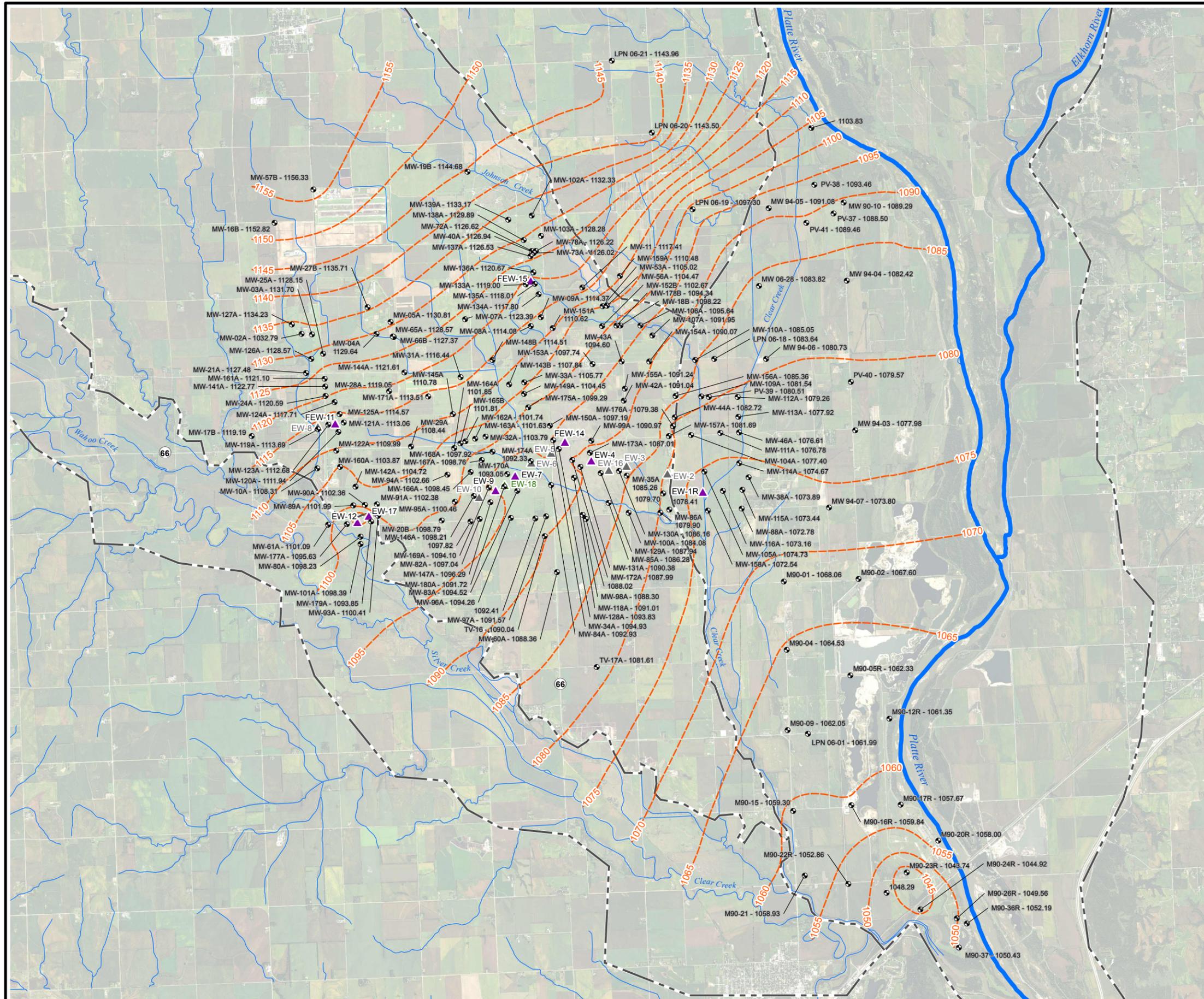
March 2014 data collected on March 31, 2014.




 Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation
 Kansas City District

Figure 3.1
Interpreted Potentiometric Surface
Intermediate Zone - March 2014

Drawn by: RR	Reviewed by: TL	Source: HGL, ECC, NAIP (2014)
Date: 03/14/2015	Date: 03/17/2015	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/18/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Groundwater Monitoring Well
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- - - 1100 - - - August 2014 Potentiometric Contour
- Basin Boundary
- Well ID - Water Level Elevation
- Water Level Elevation (private well - ID omitted)

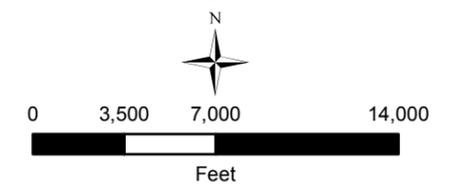
NOTES:

Water level elevations in feet above mean sea level.

Not all observation wells are plotted on this map; however, observation well water levels were used in the production of the potentiometric surfaces.

The 5-foot contour interval does not illustrate drawdown at all extraction wells.

August 2014 data collected on August 26, 2014.



Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation

Figure 3.2
Interpreted Potentiometric Surface
Intermediate Zone - August 2014

Drawn by: RR	Reviewed by: TL, TH	Source: HGL, ECC, NAIP (2014)
Date: 03/14/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet

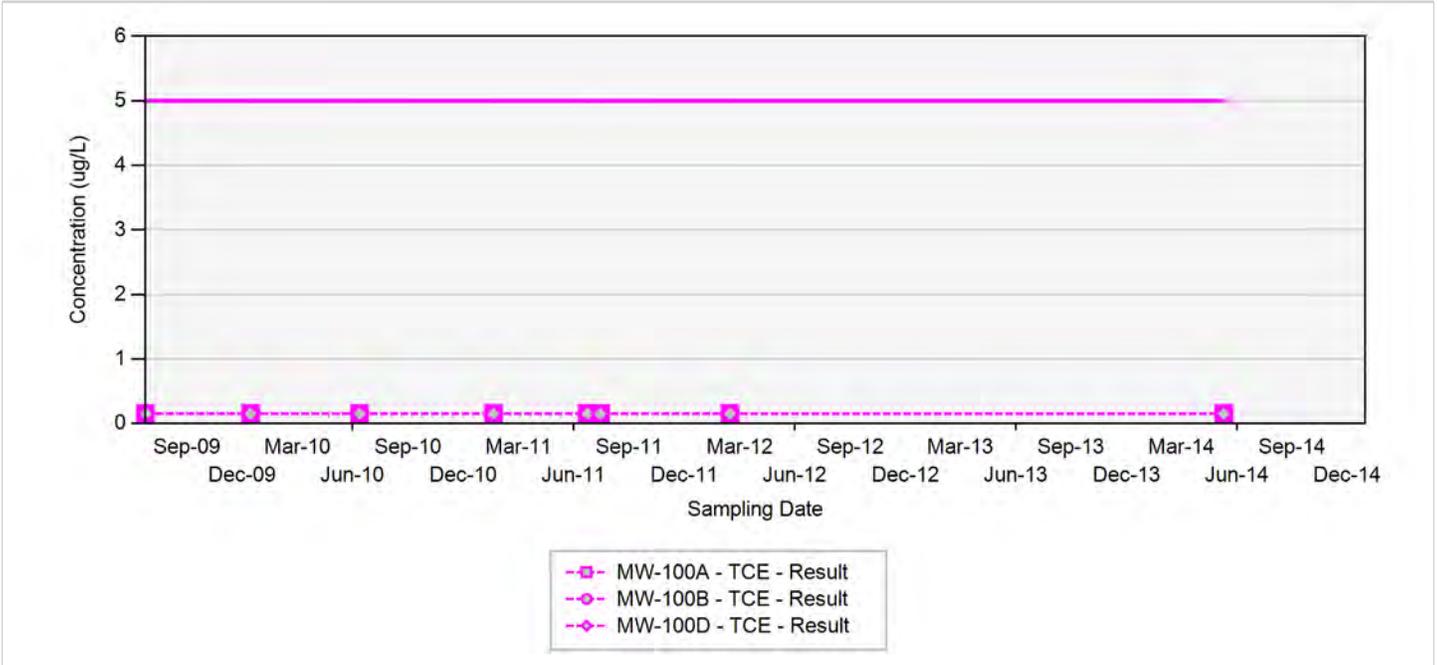
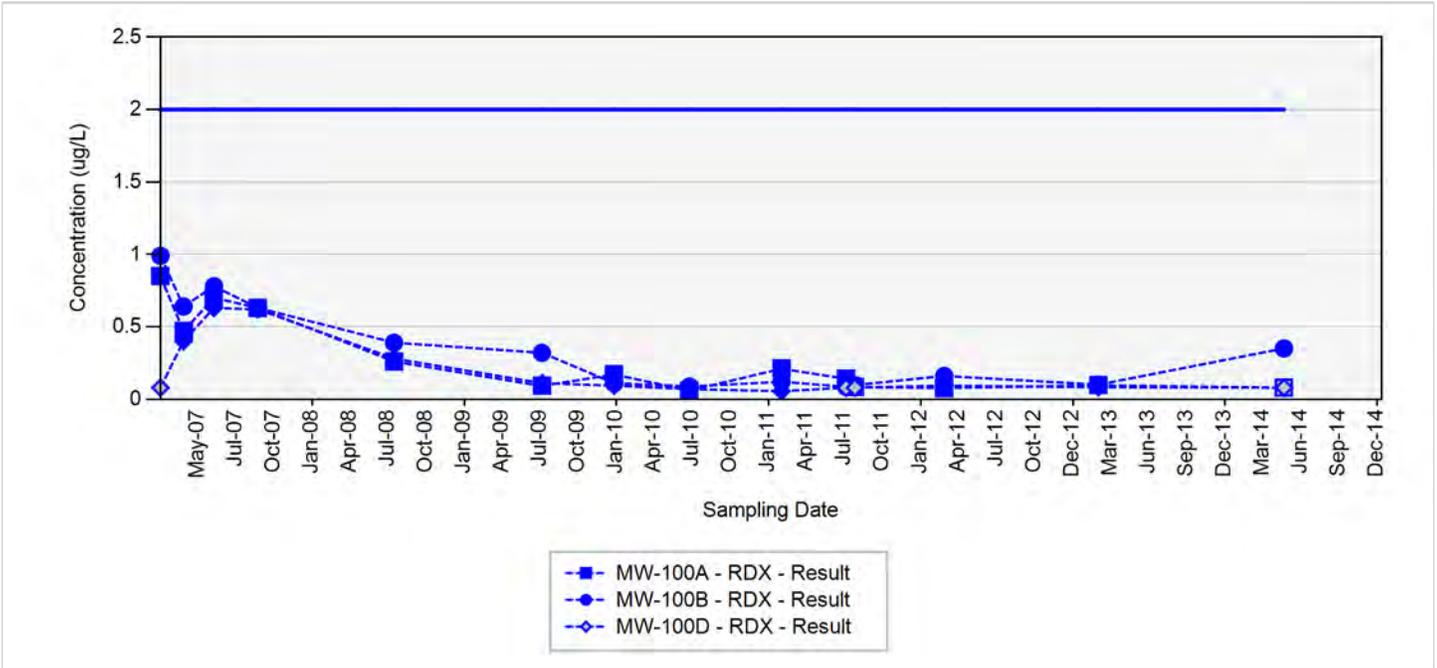
APPENDIX A

**CONCENTRATION TREND CHARTS FOR COMPLIANCE
MONITORING WELLS**

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Appendix A Concentration Trend Charts for Compliance Monitoring Wells

MW-100



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

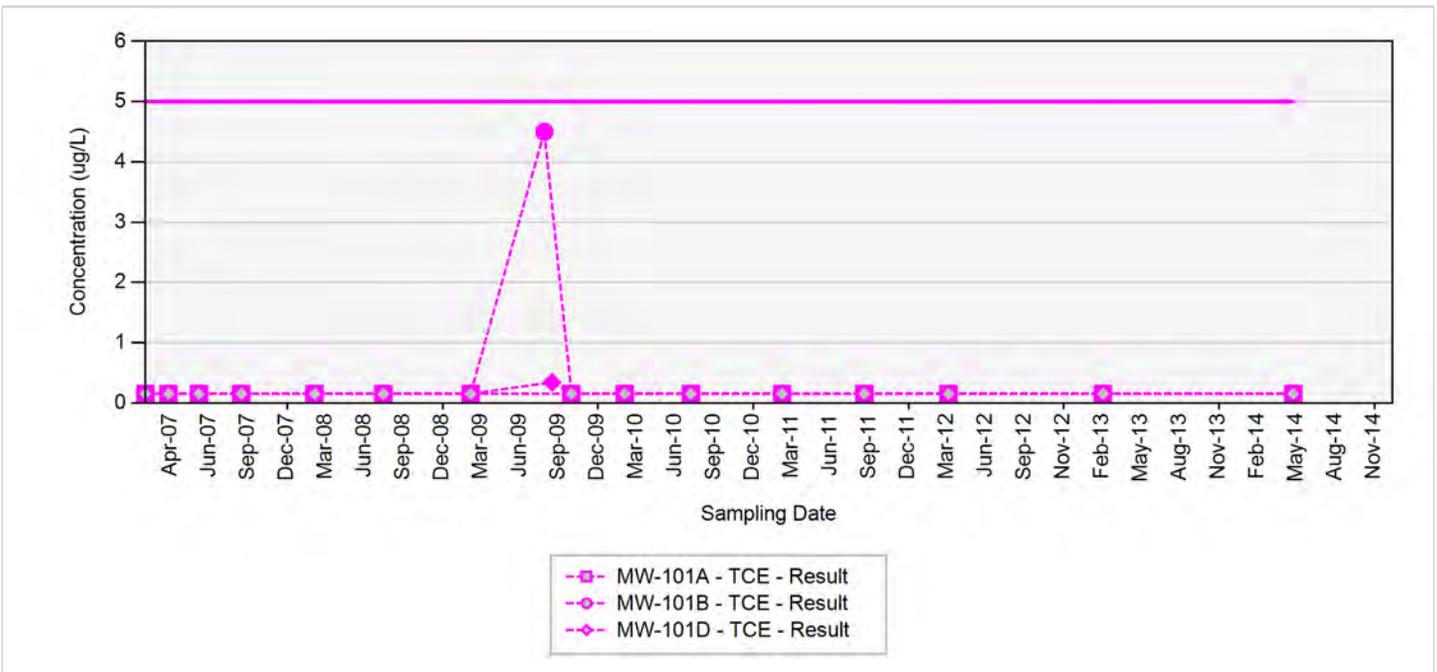
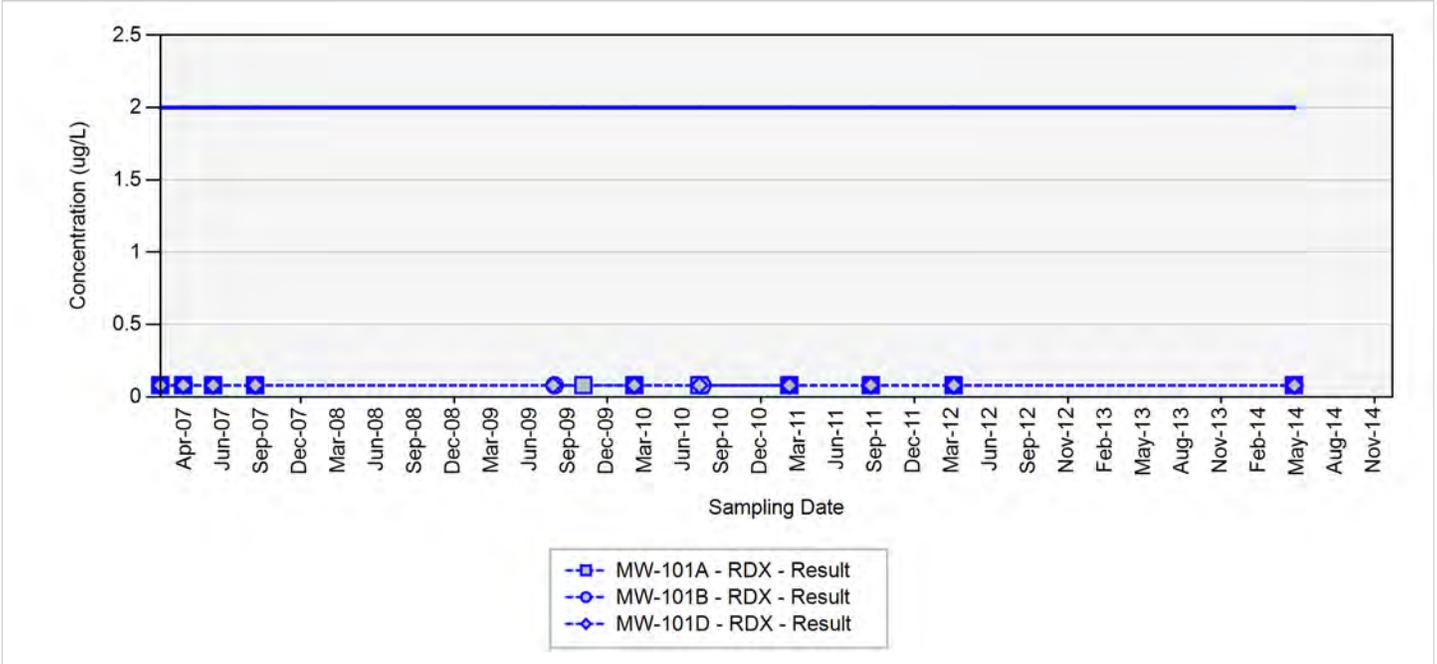
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-101



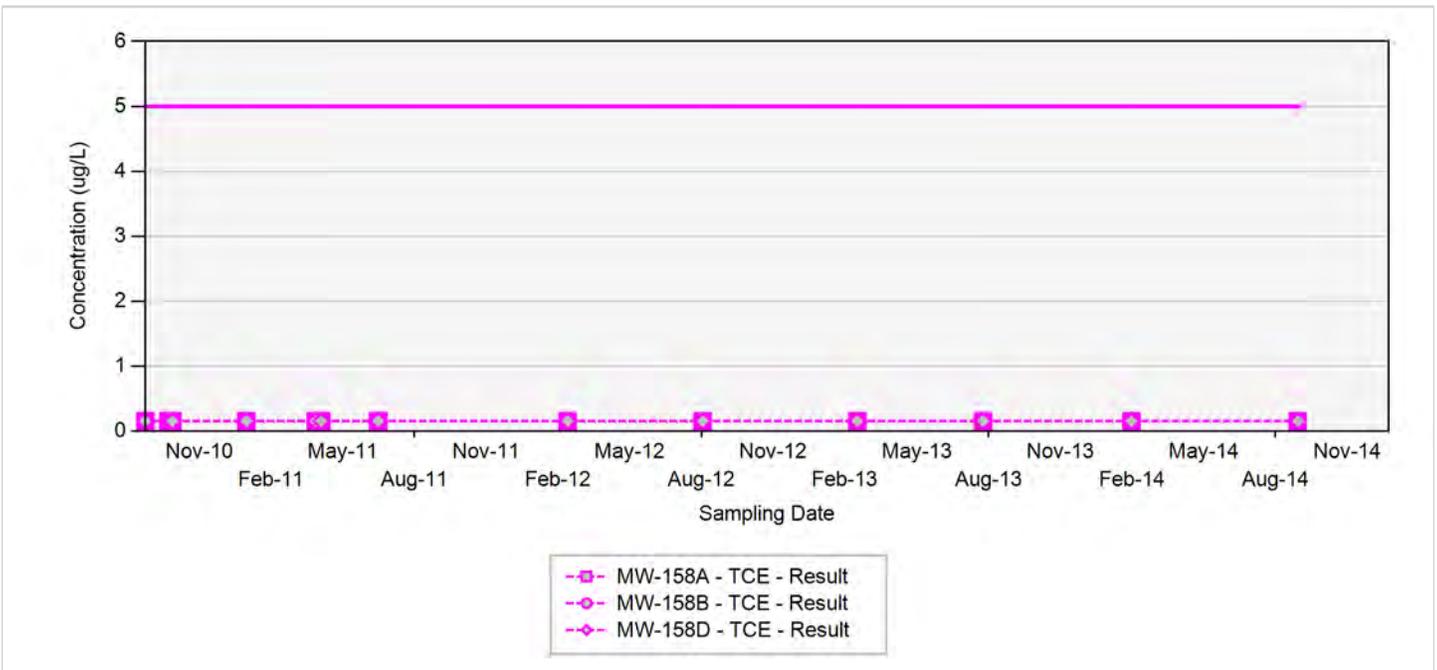
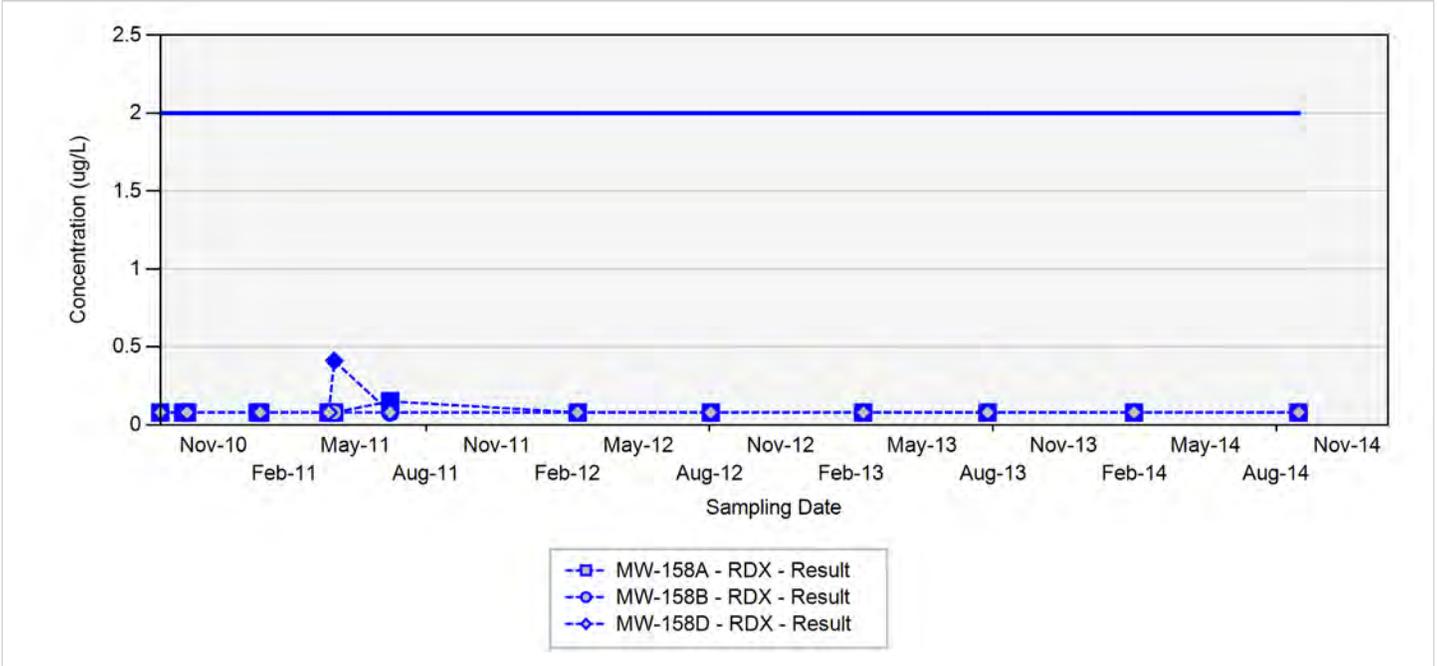
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-158



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

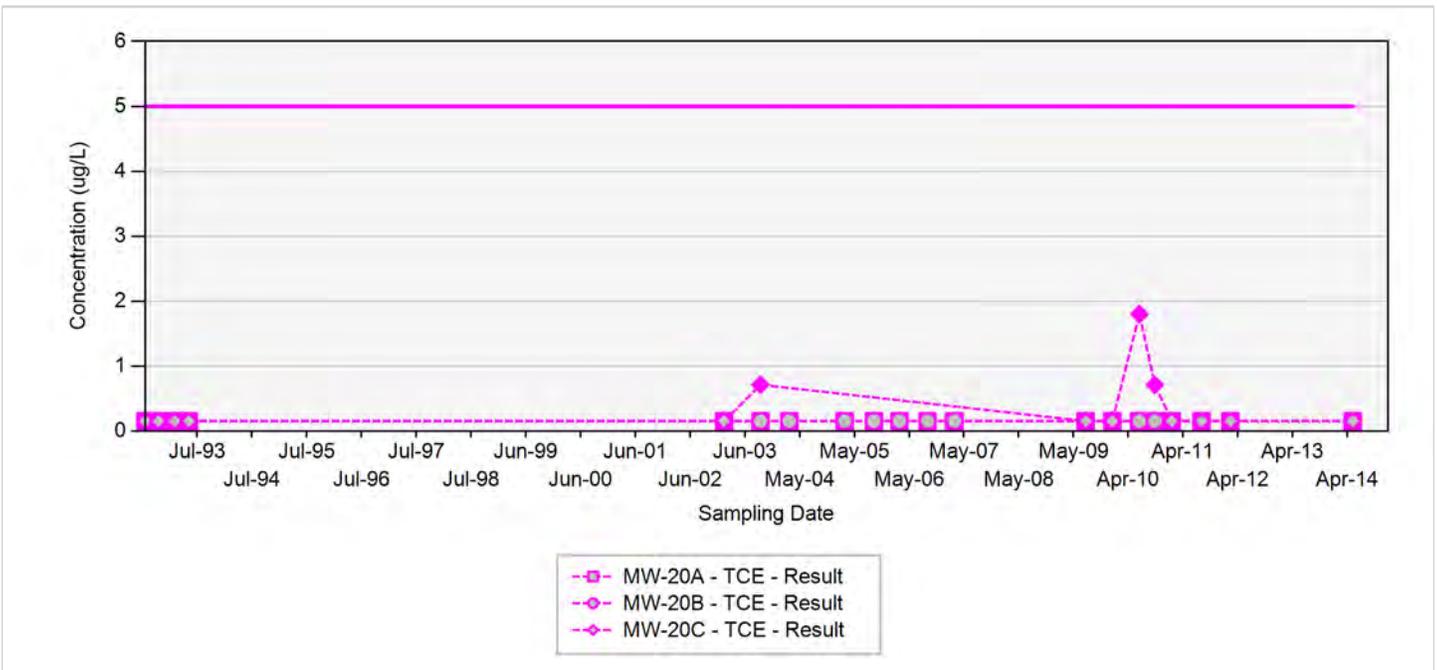
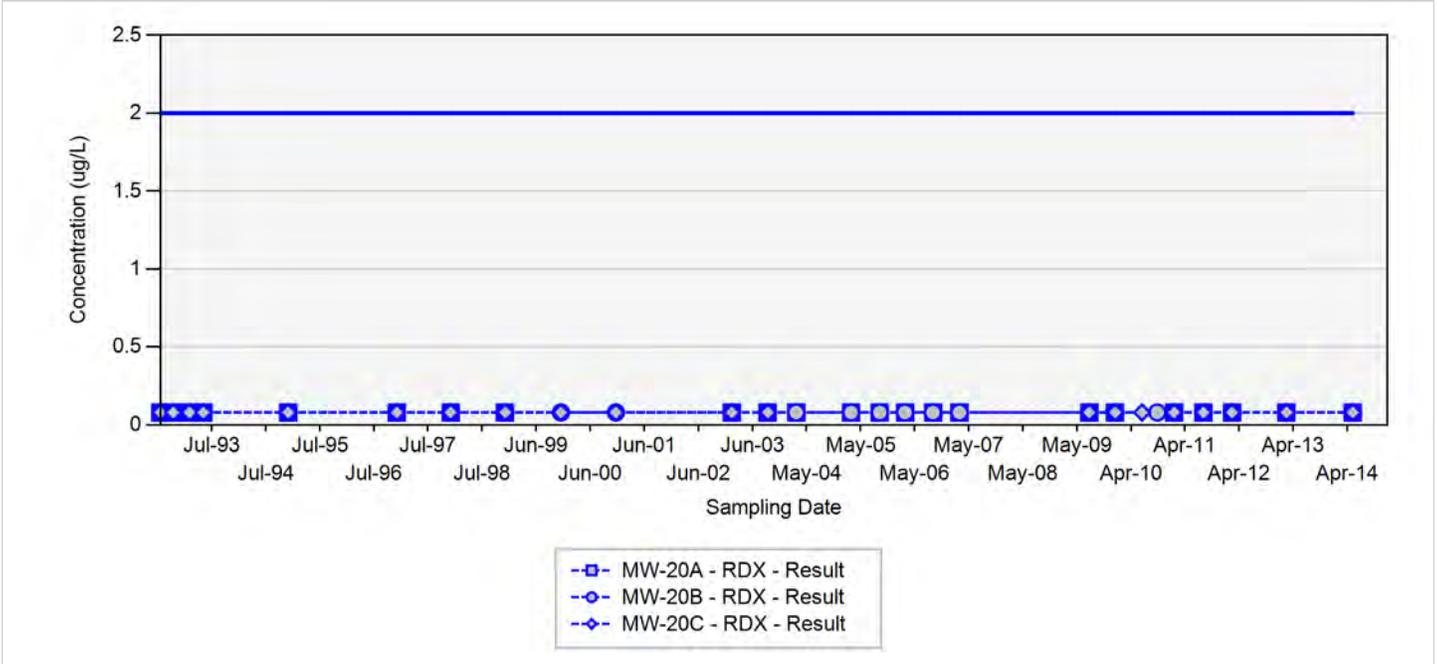
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-20



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

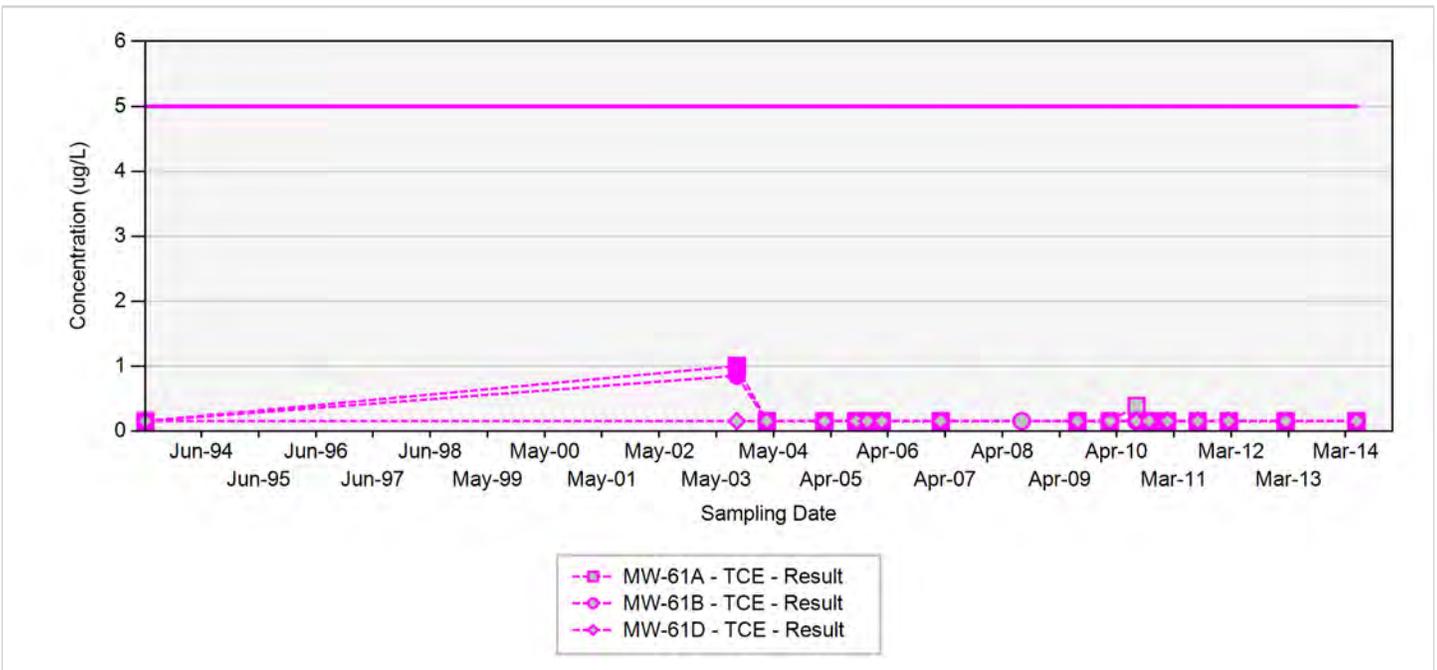
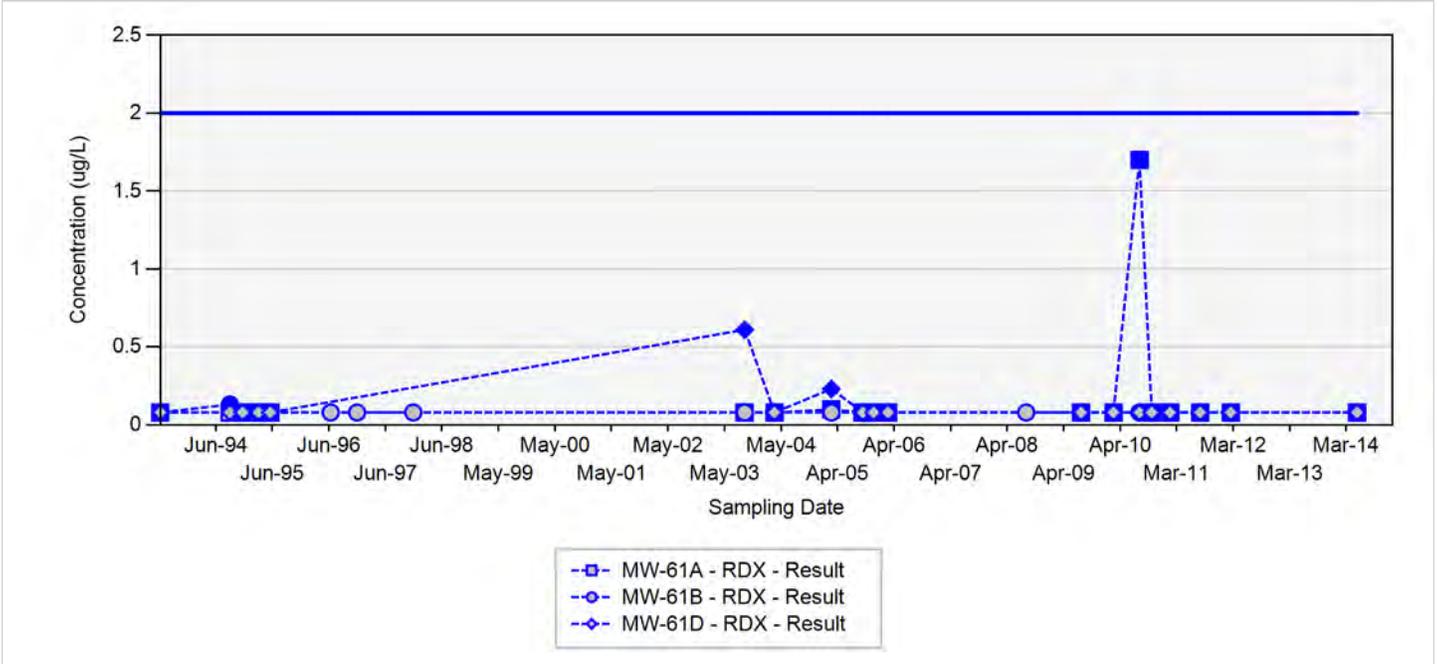
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-61



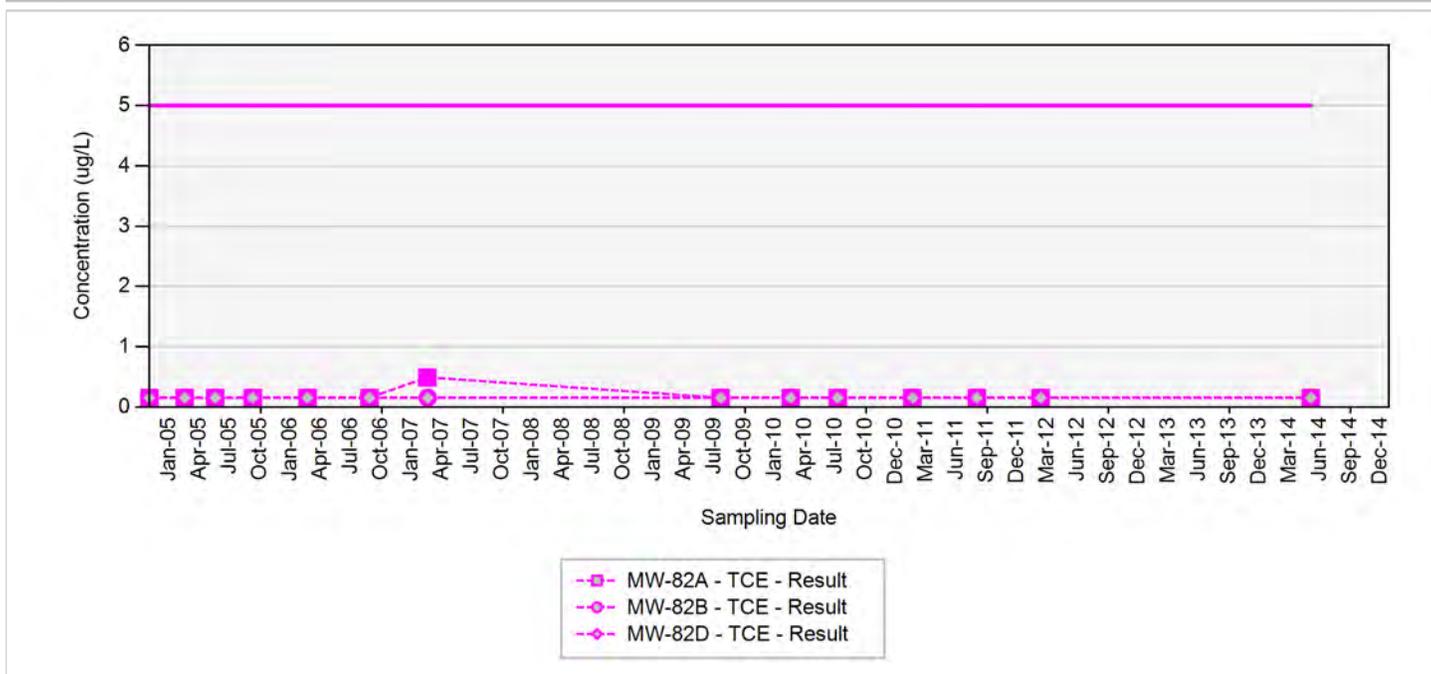
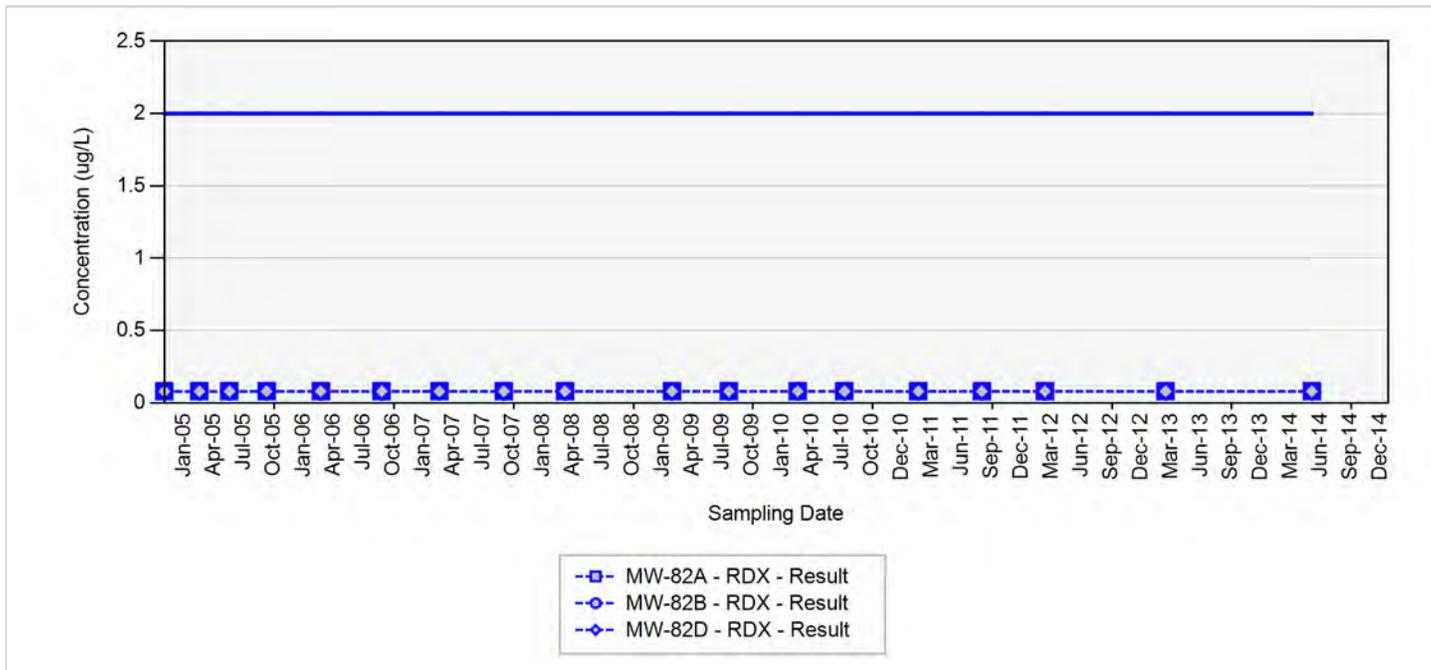
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

Appendix A Concentration Trend Charts for Compliance Monitoring Wells

MW-82



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

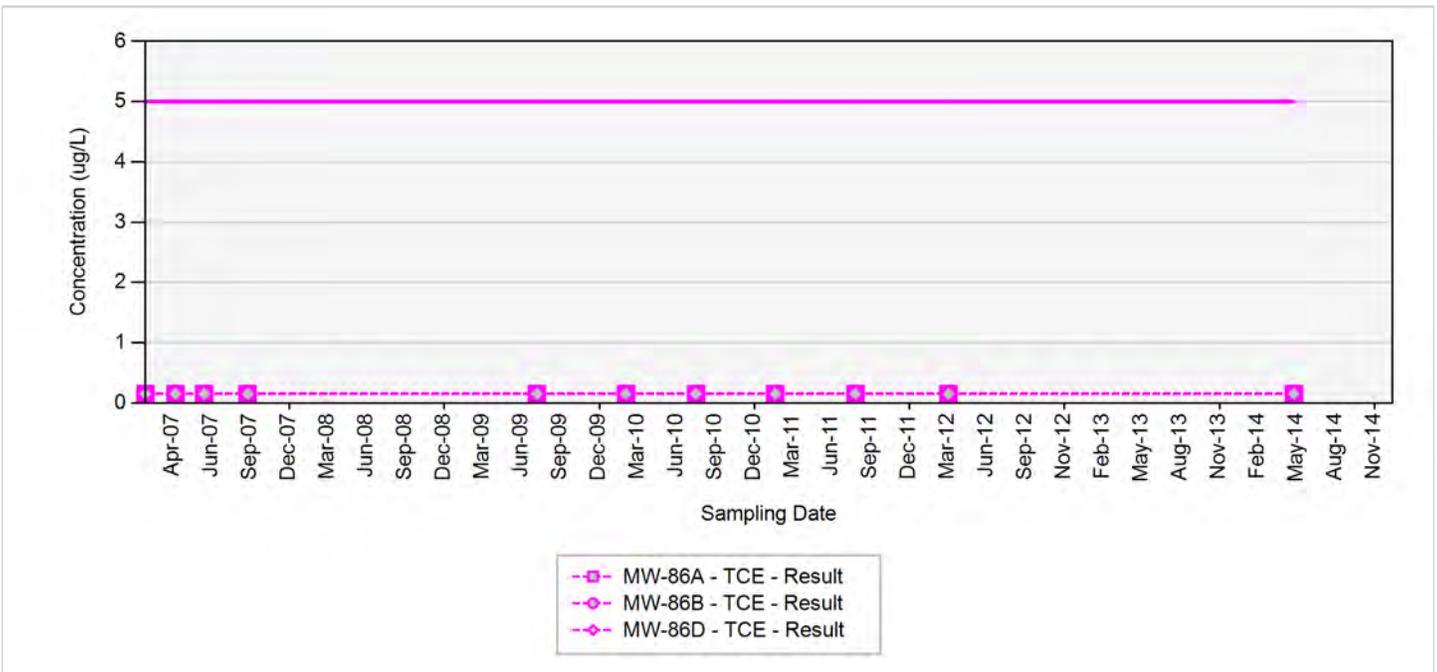
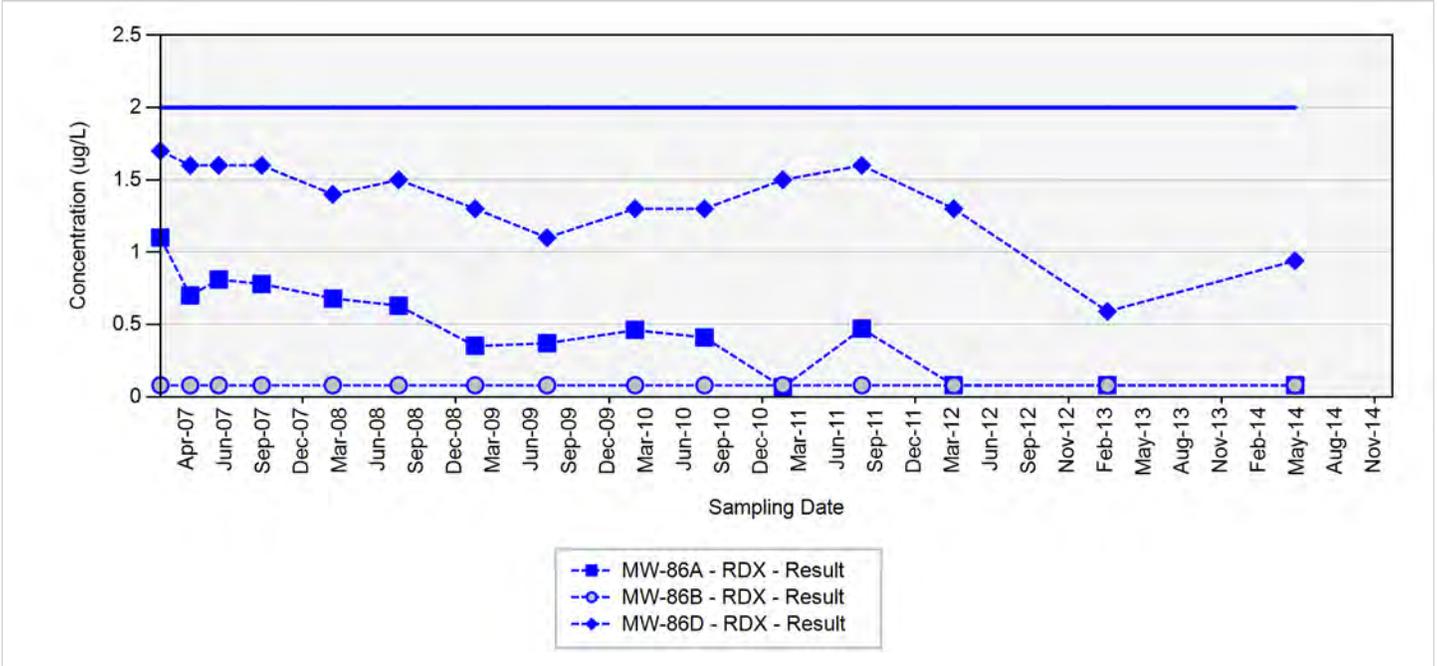
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-86



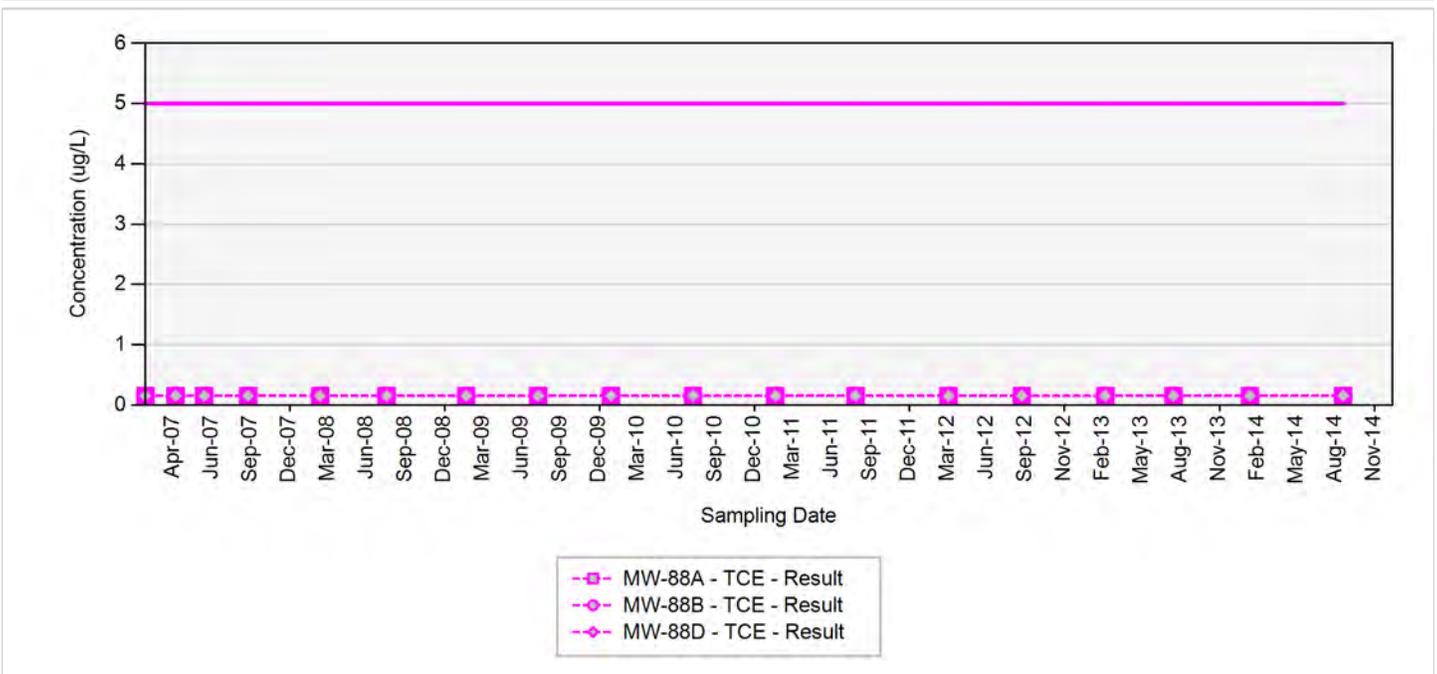
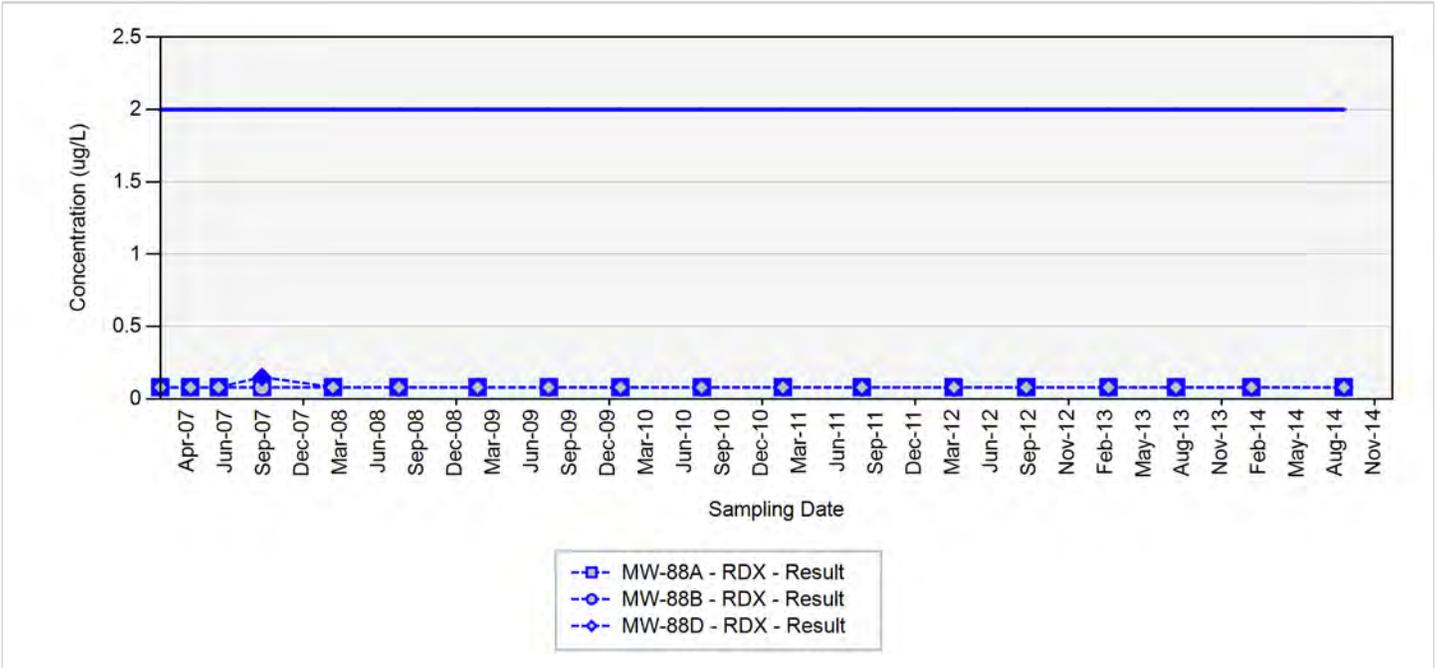
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-88



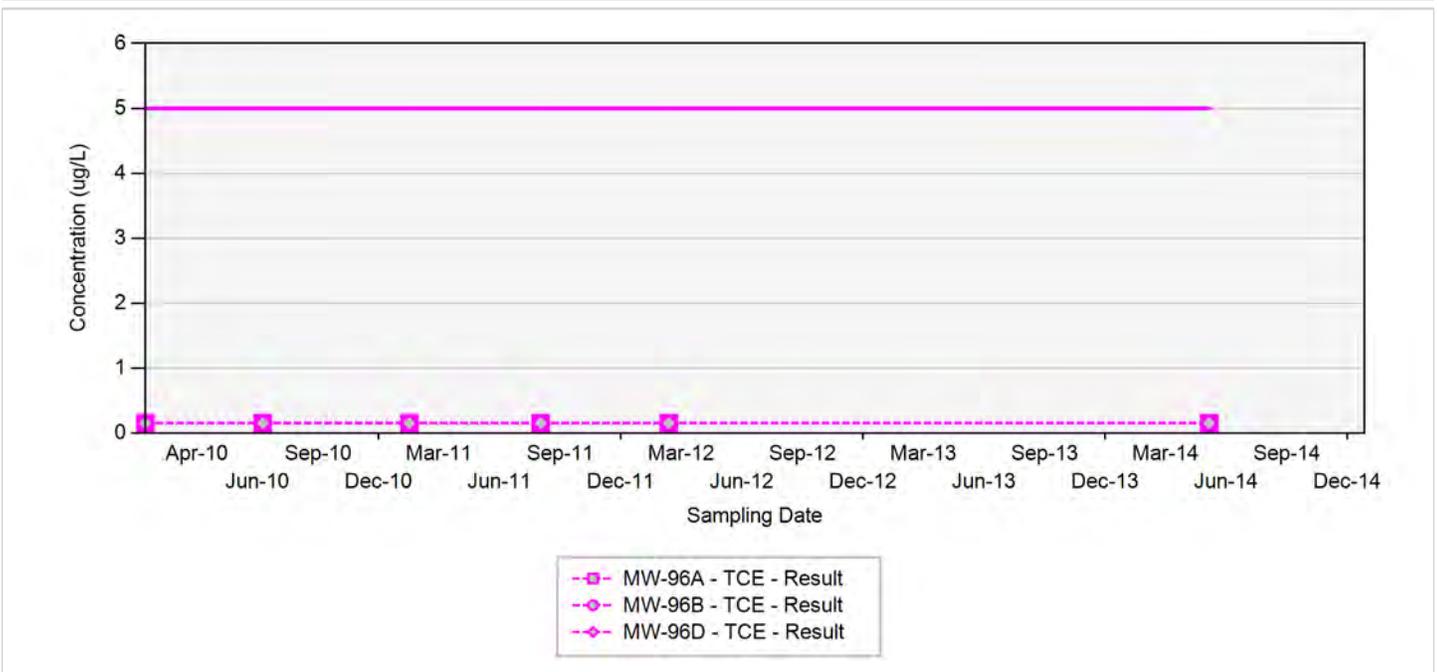
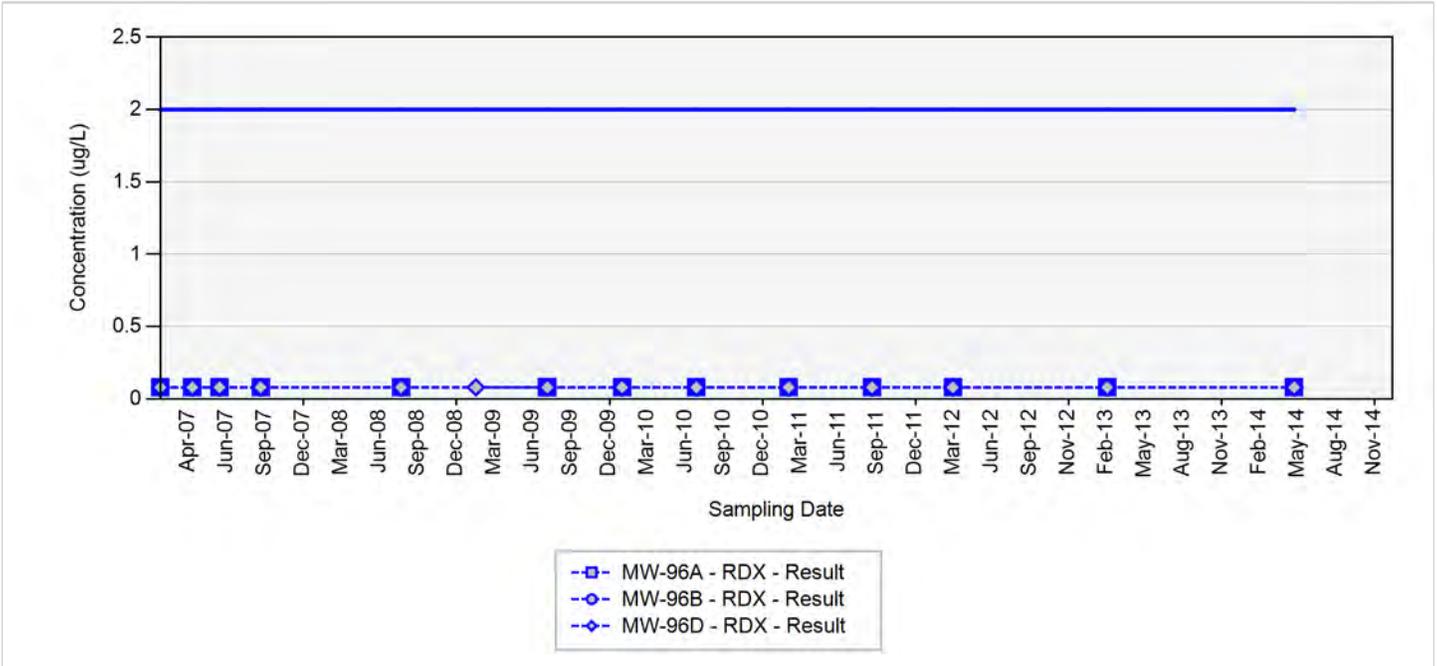
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-96



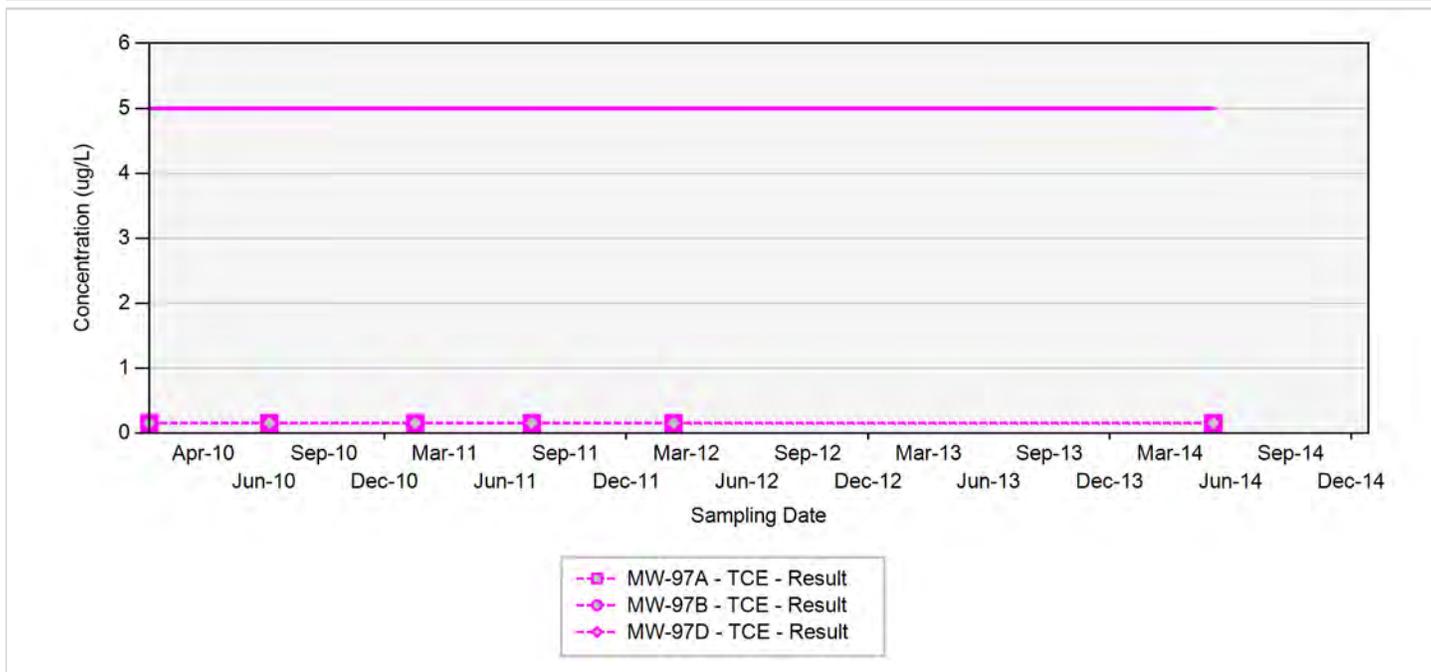
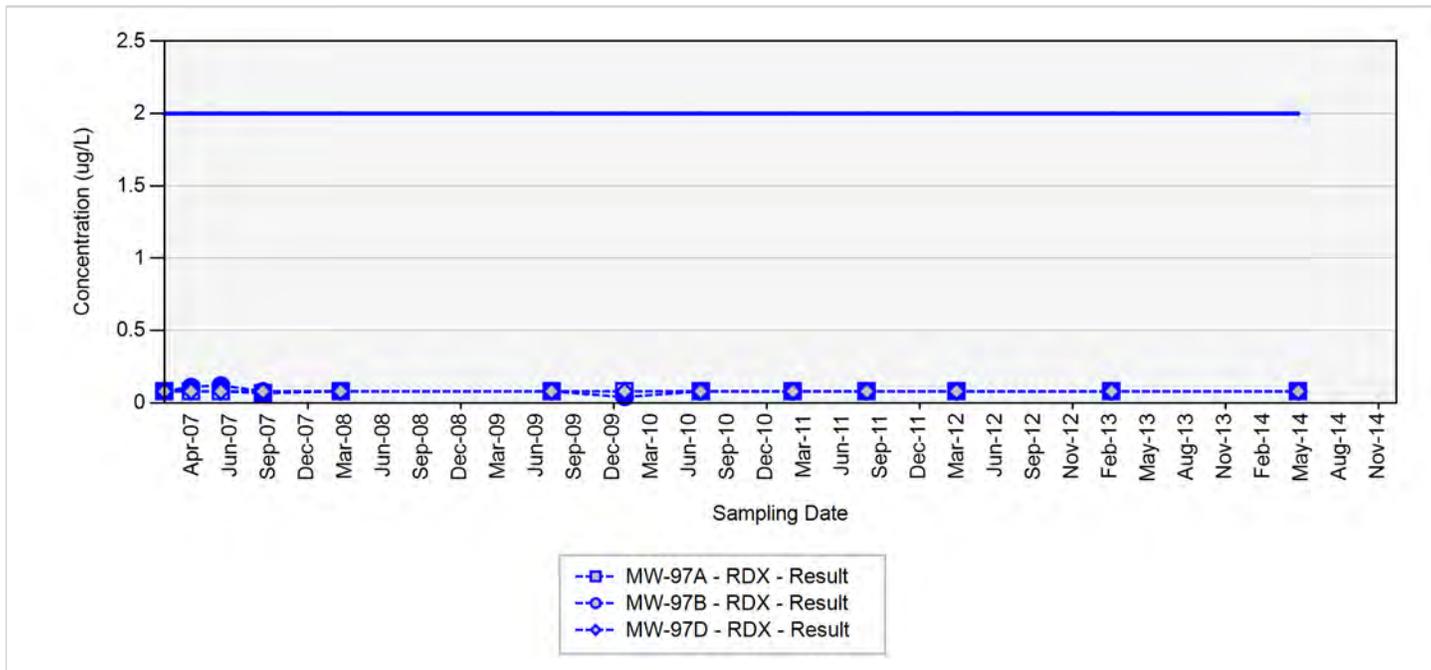
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-97



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

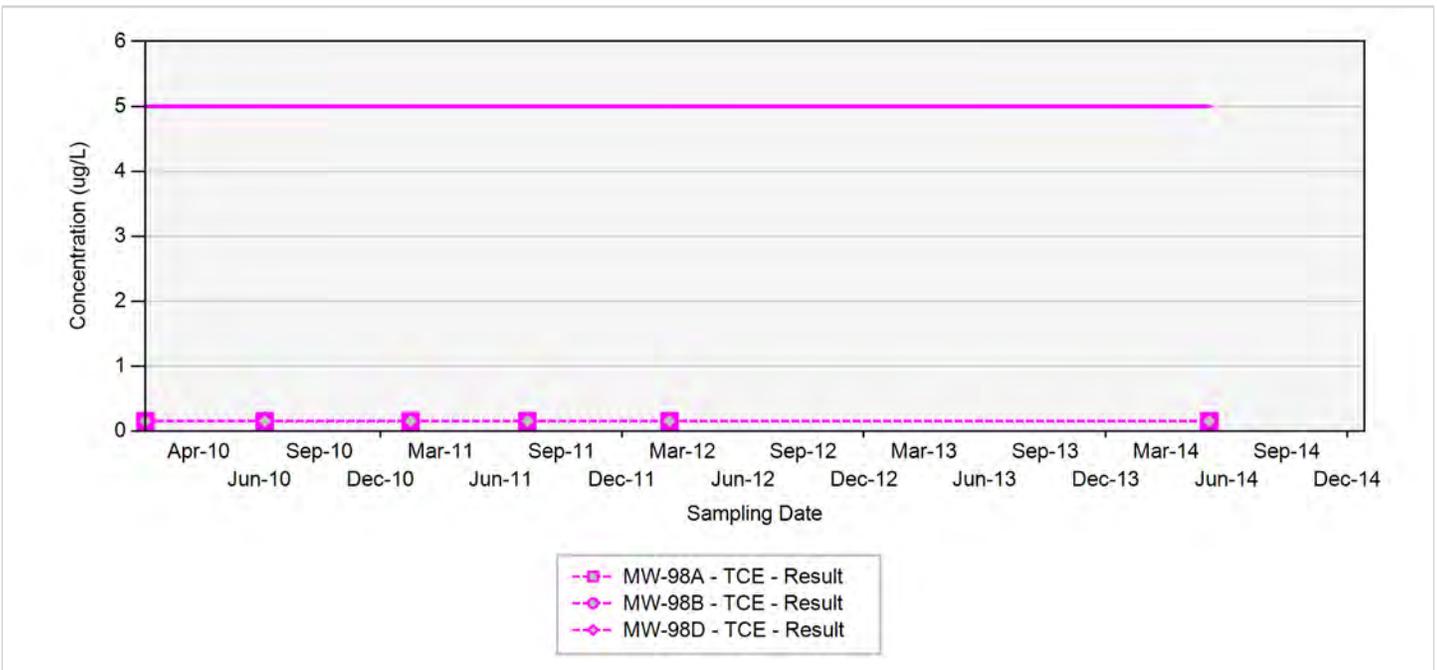
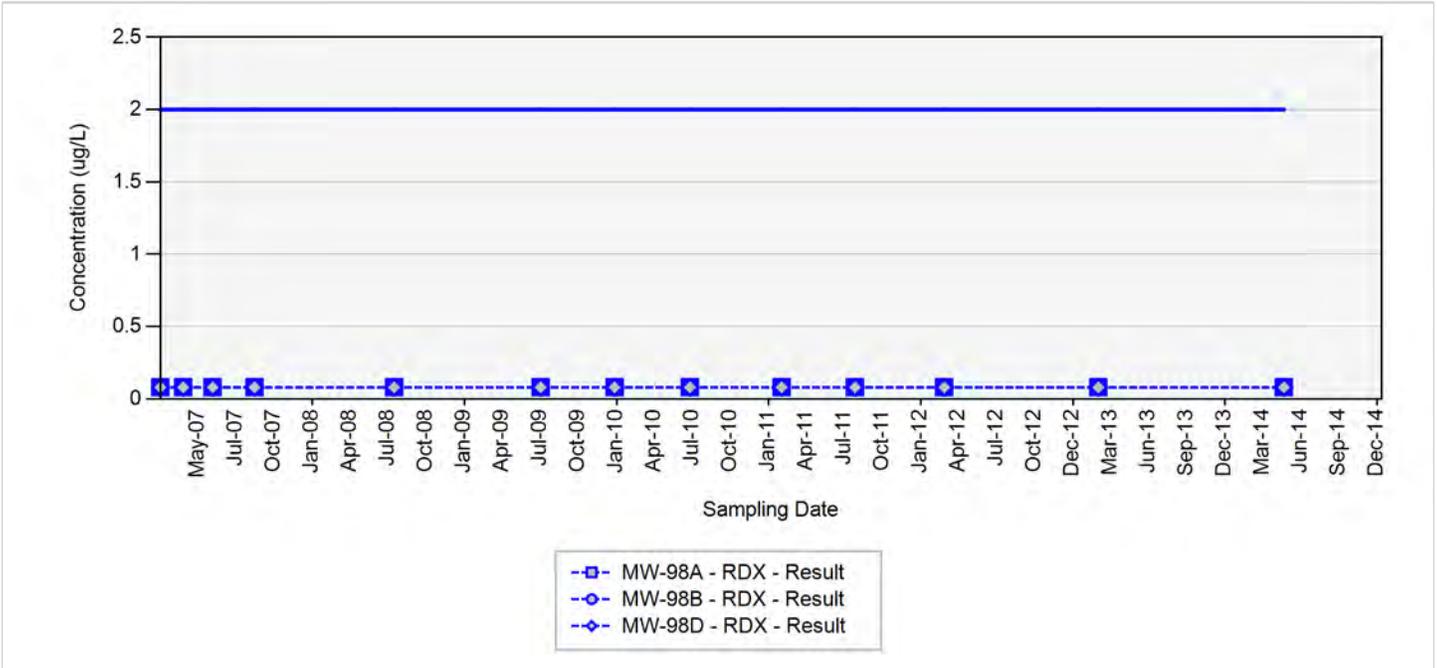
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix A
Concentration Trend Charts for Compliance Monitoring Wells**

MW-98



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

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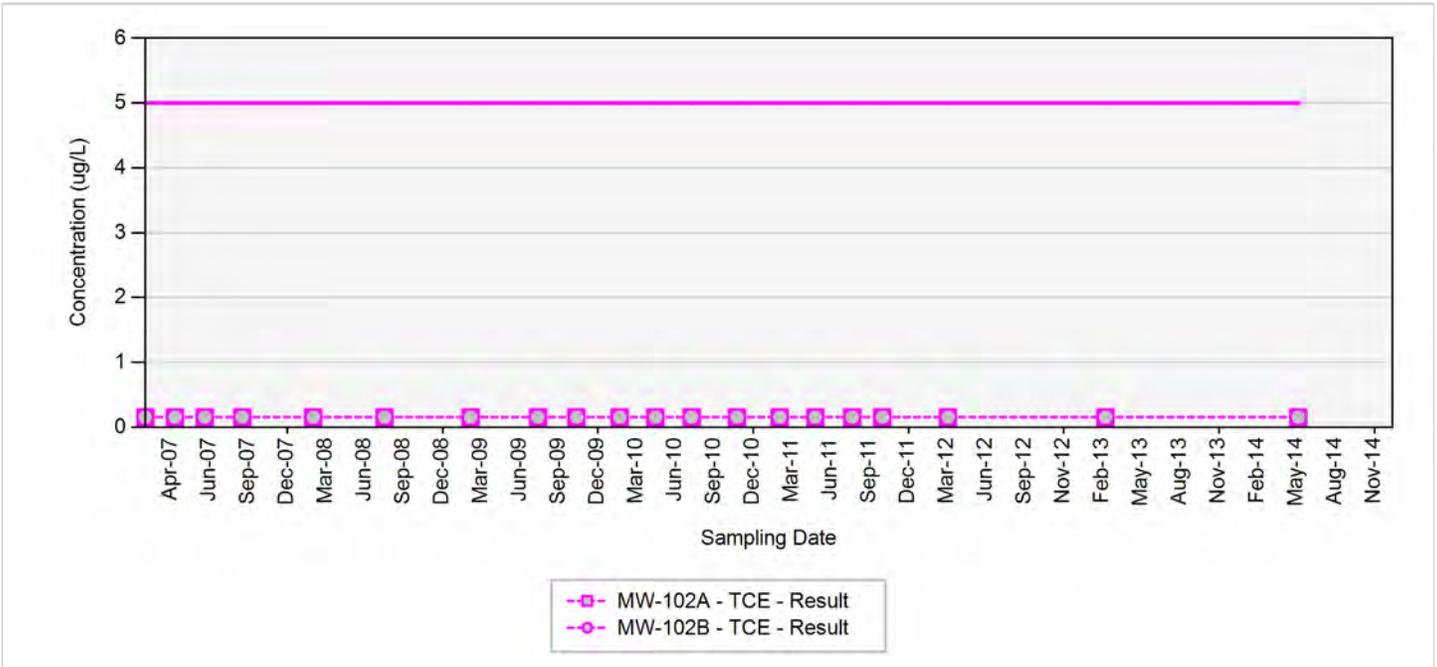
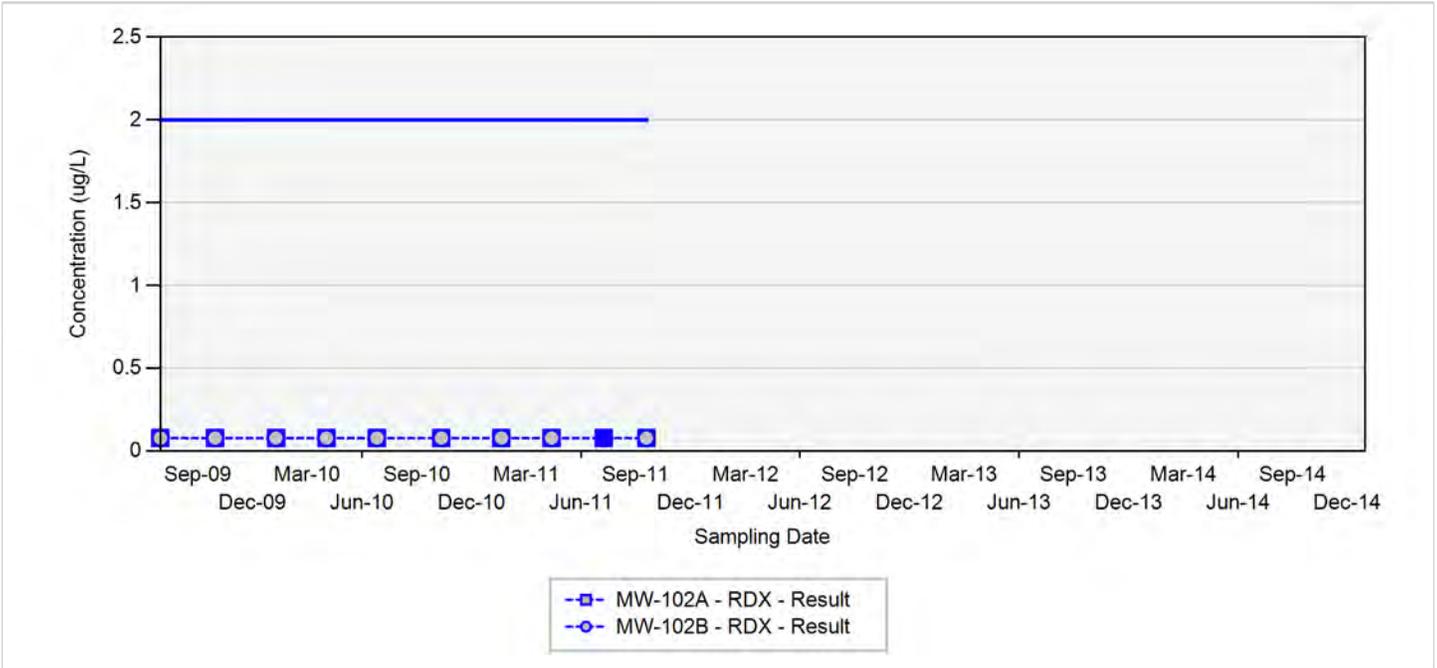
APPENDIX B

**CONCENTRATION TREND CHARTS FOR PERIMETER
MONITORING WELLS**

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**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-102



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

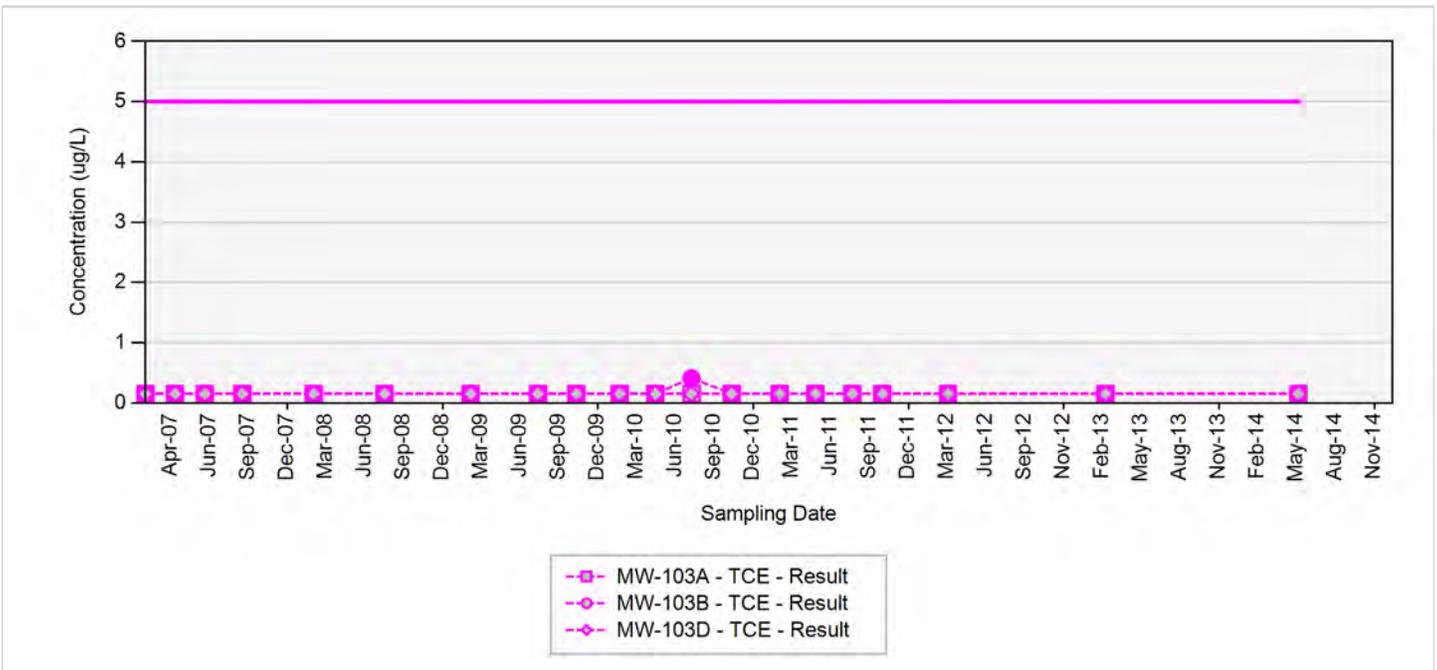
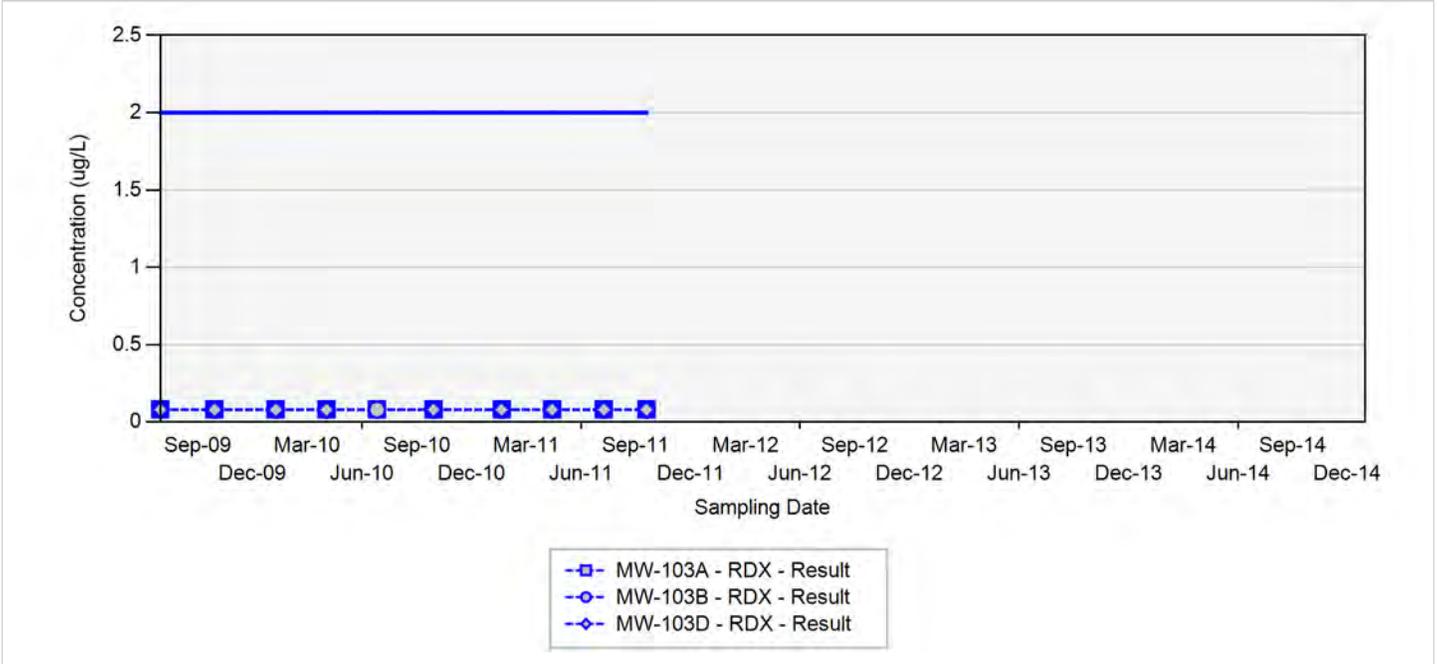
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-103



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

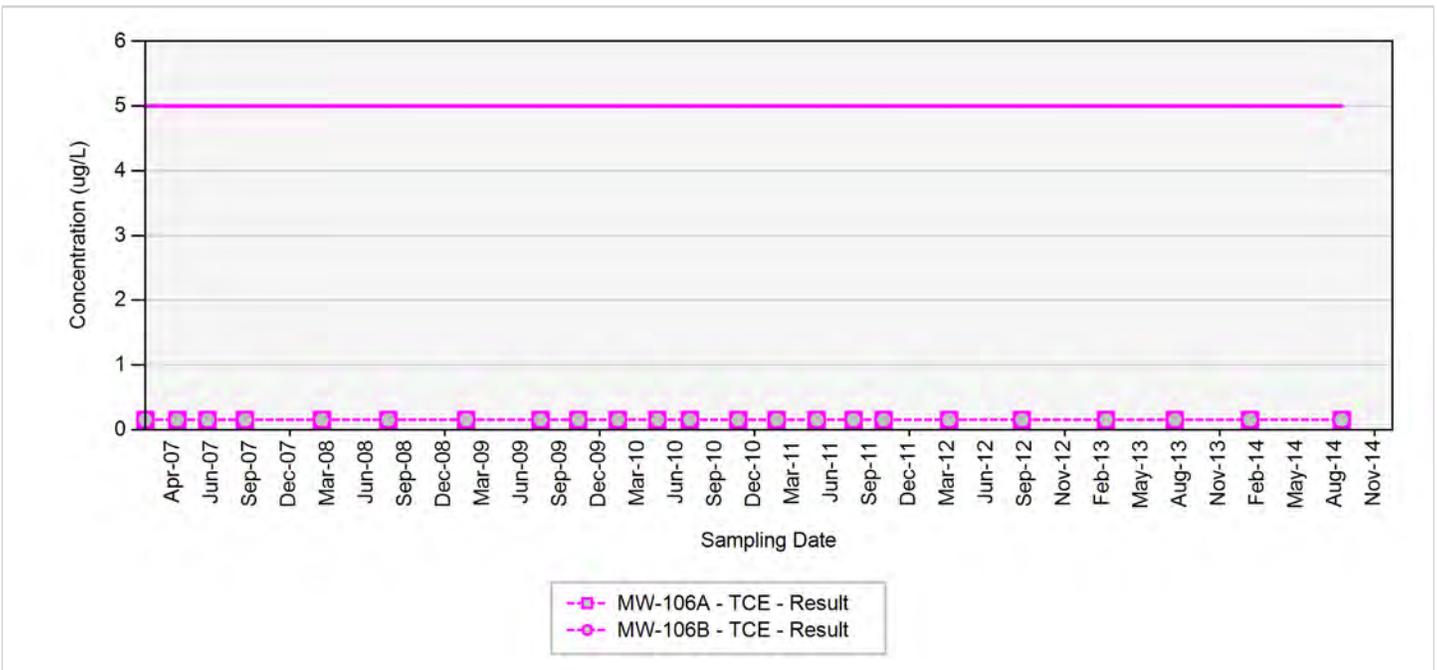
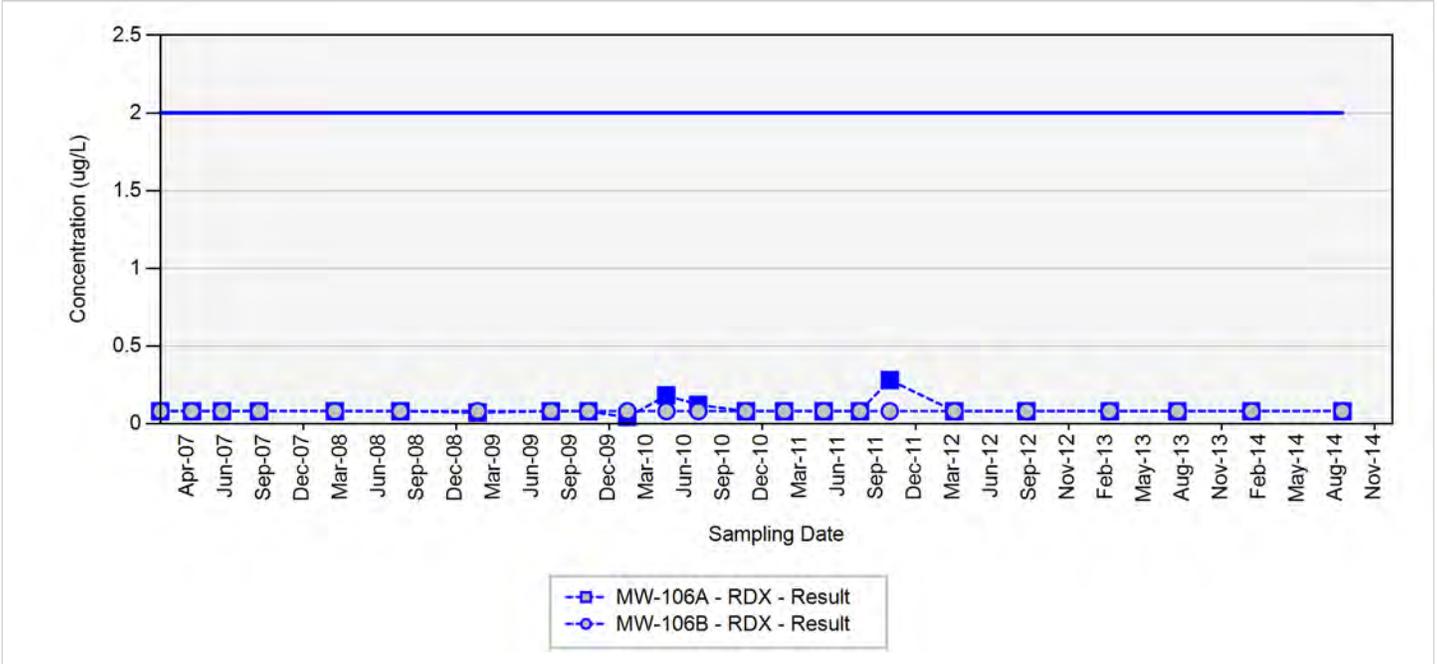
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-106



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

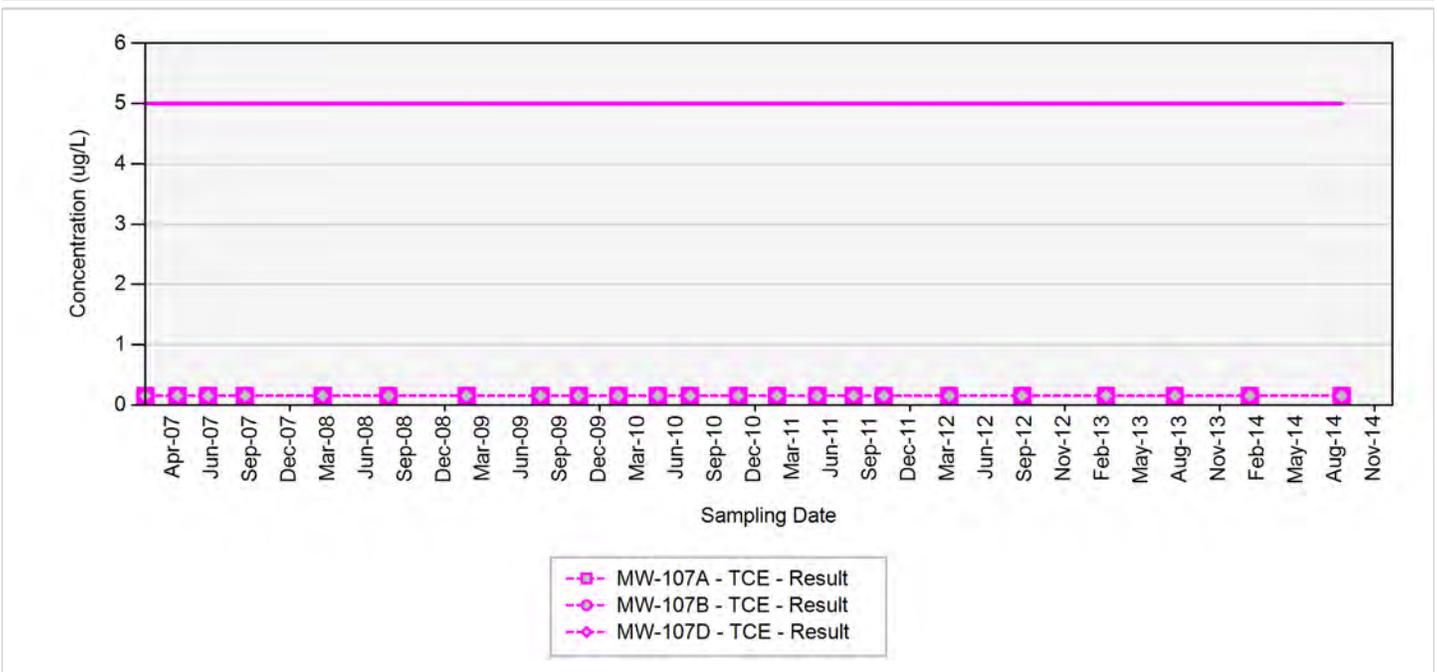
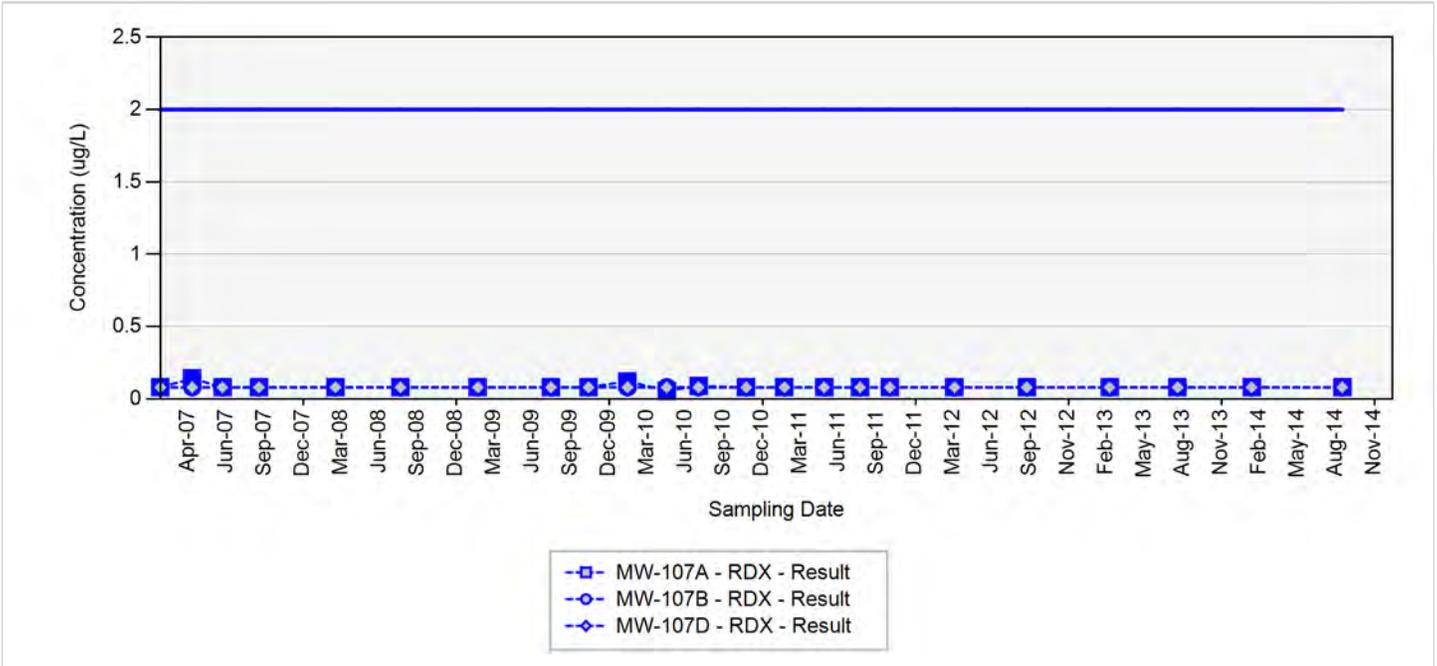
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-107



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

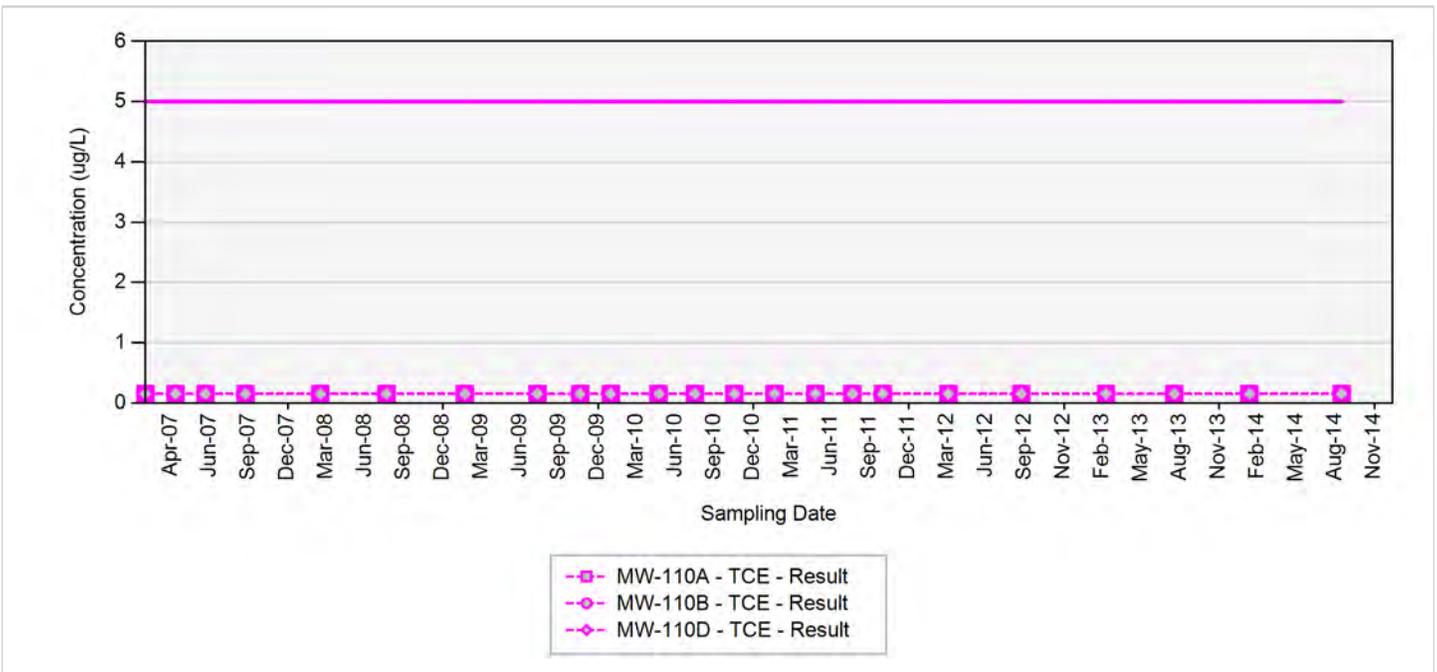
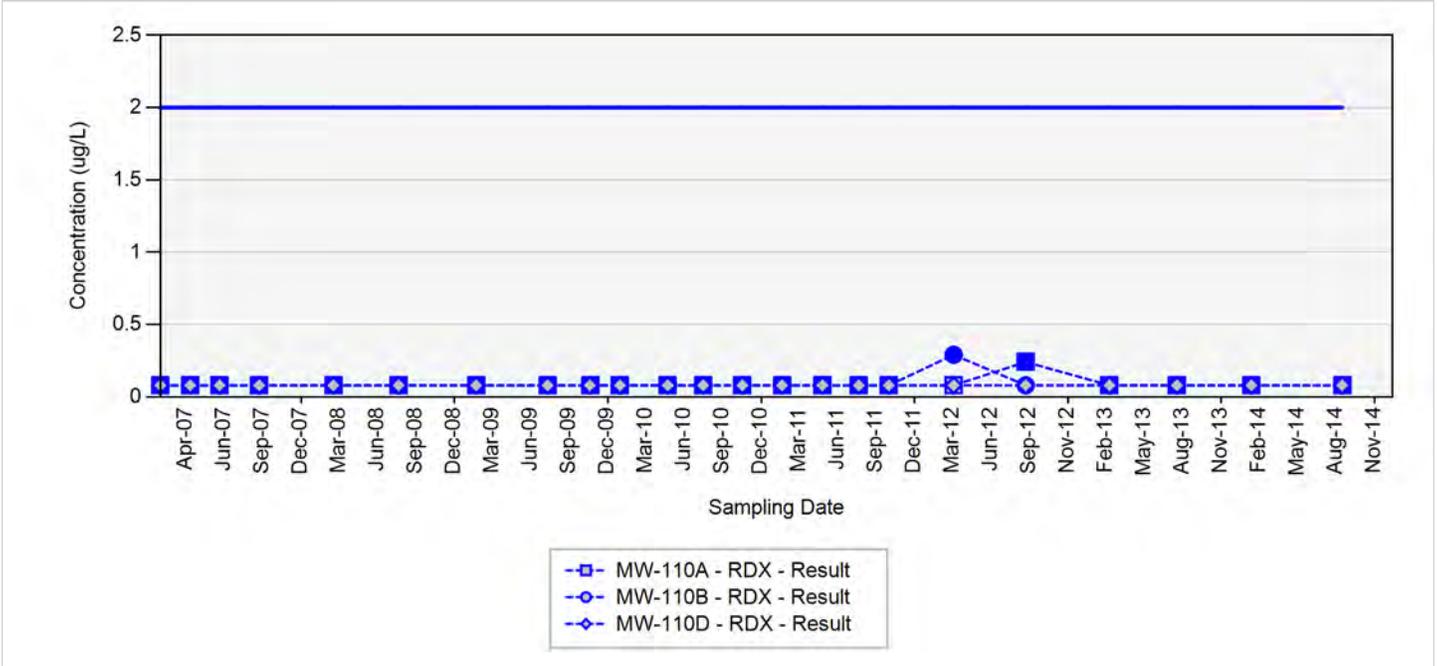
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-110



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

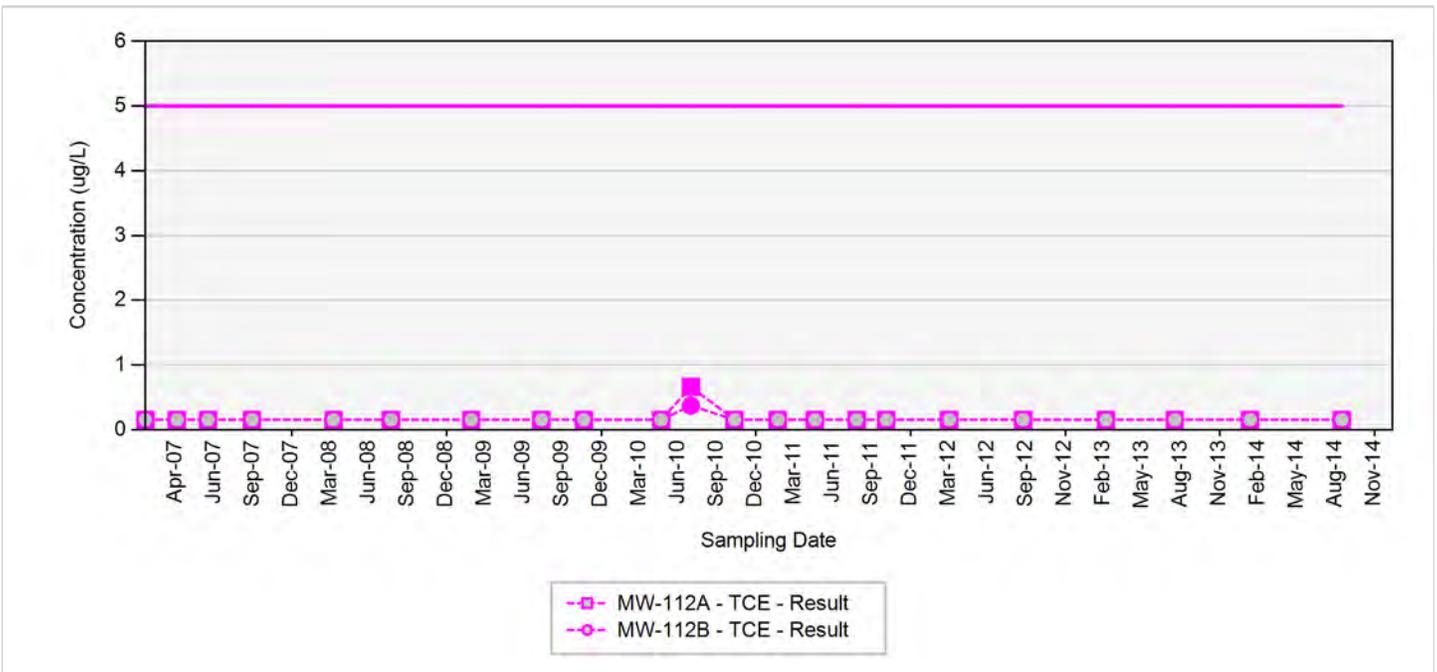
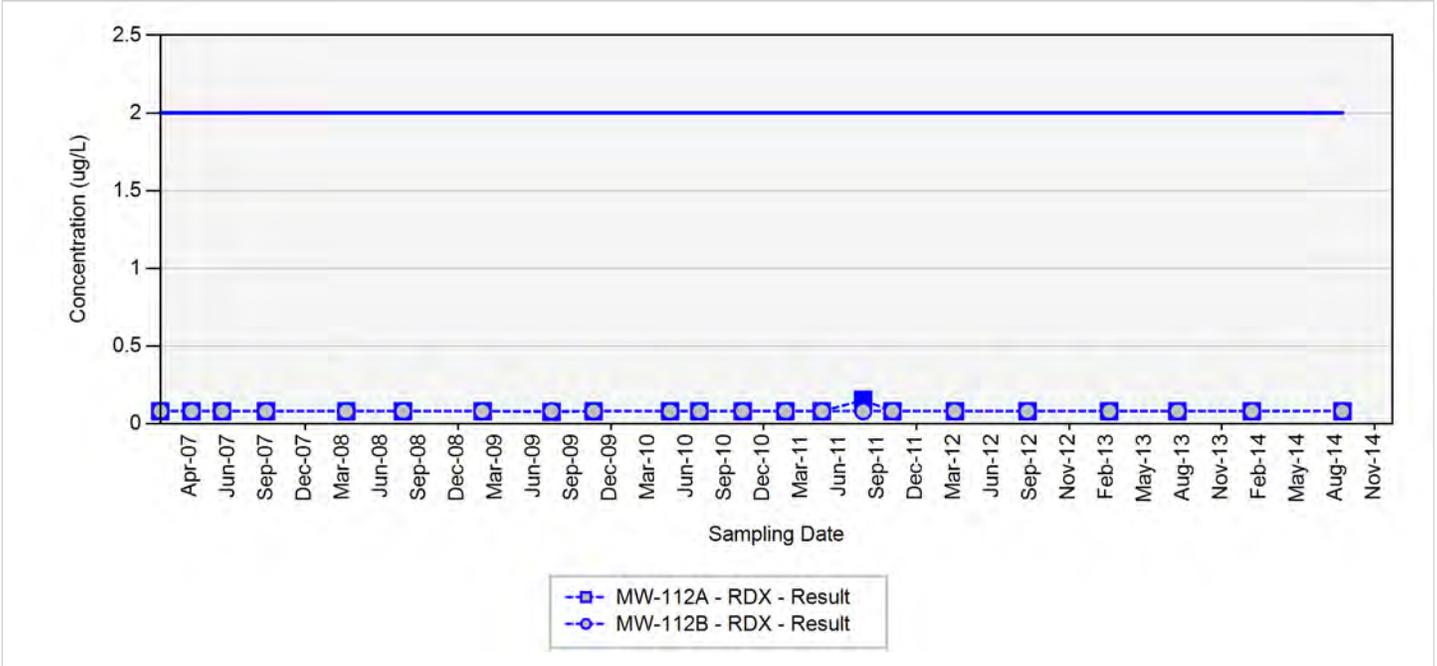
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-112



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

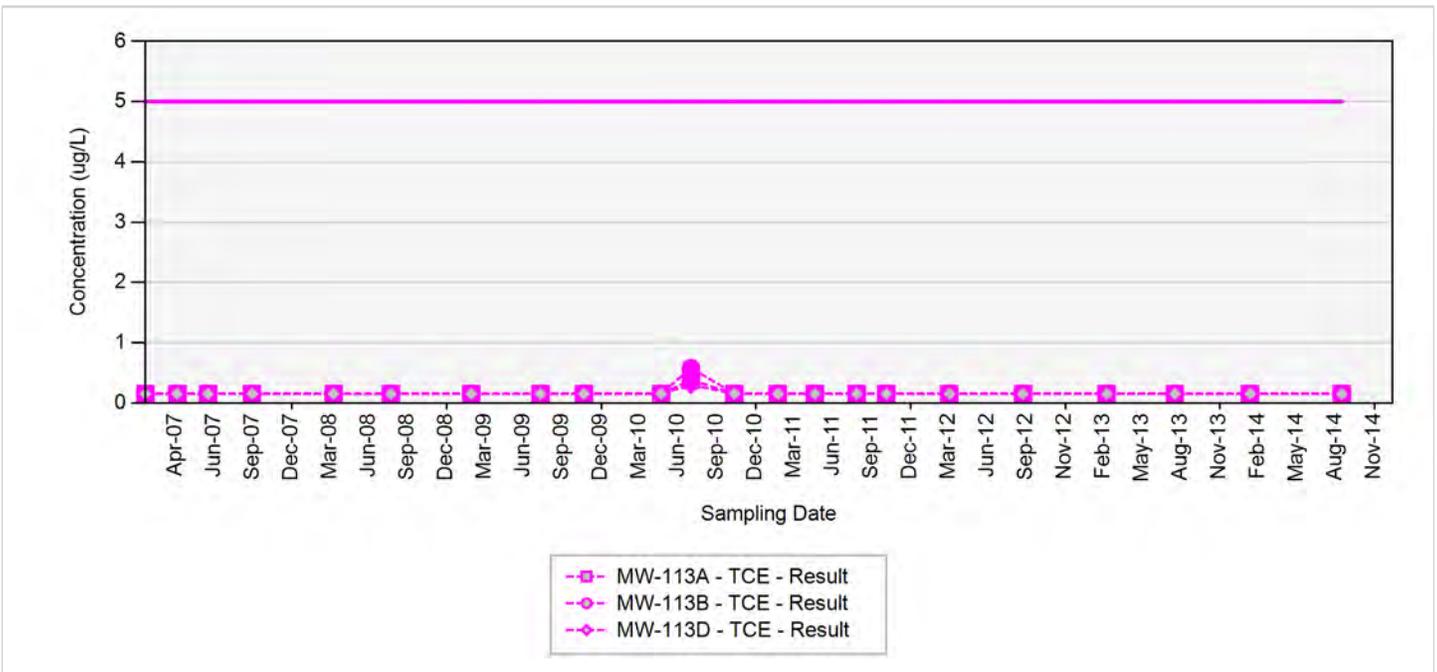
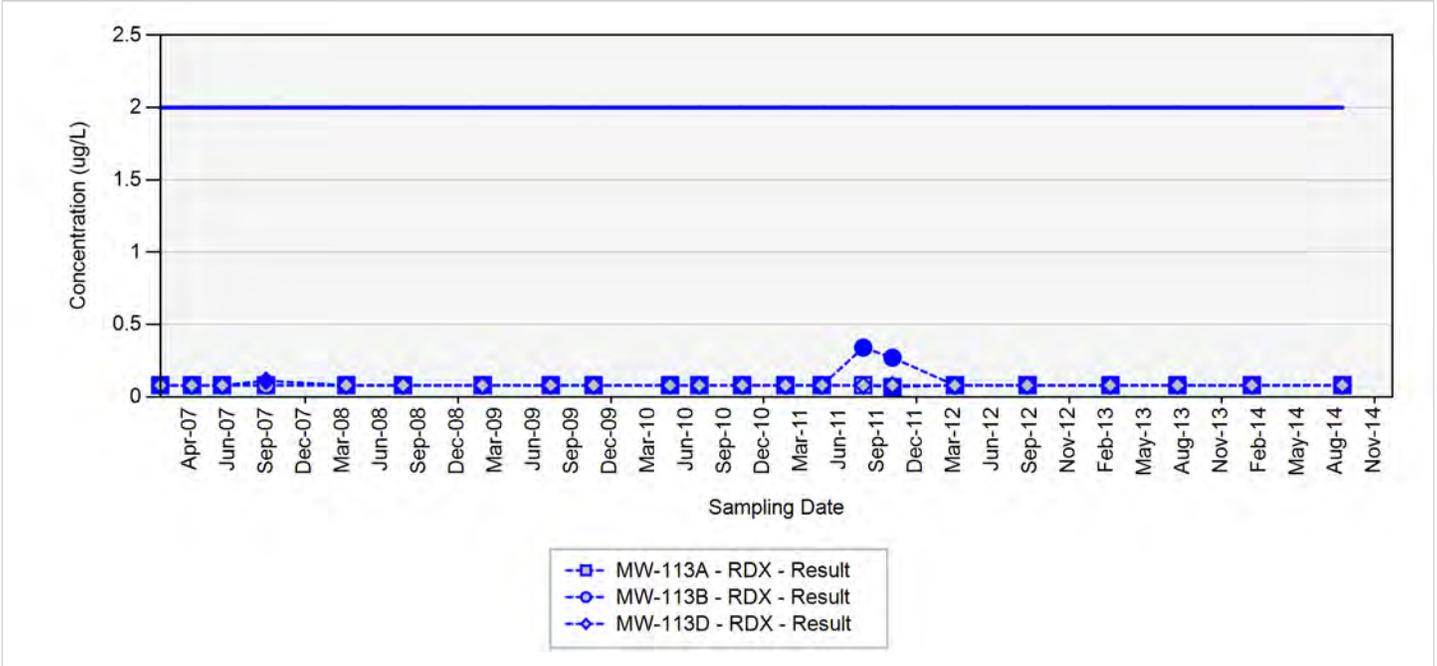
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-113



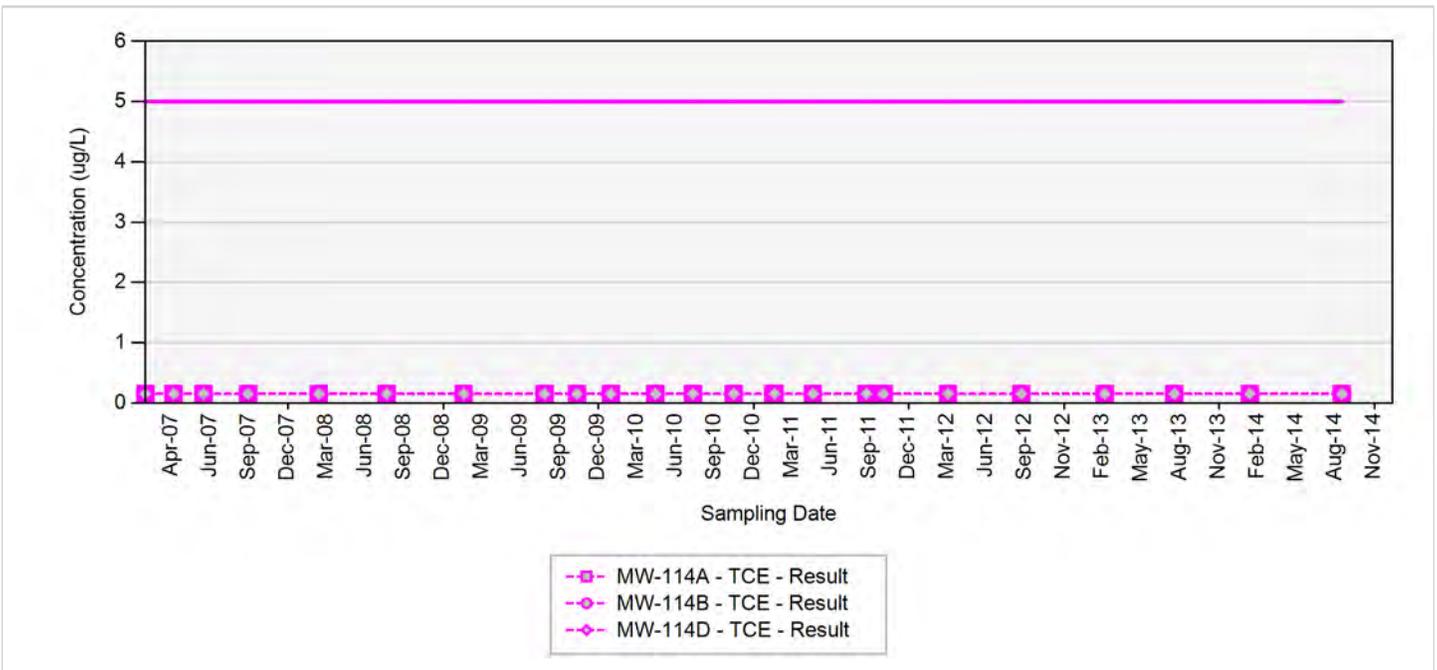
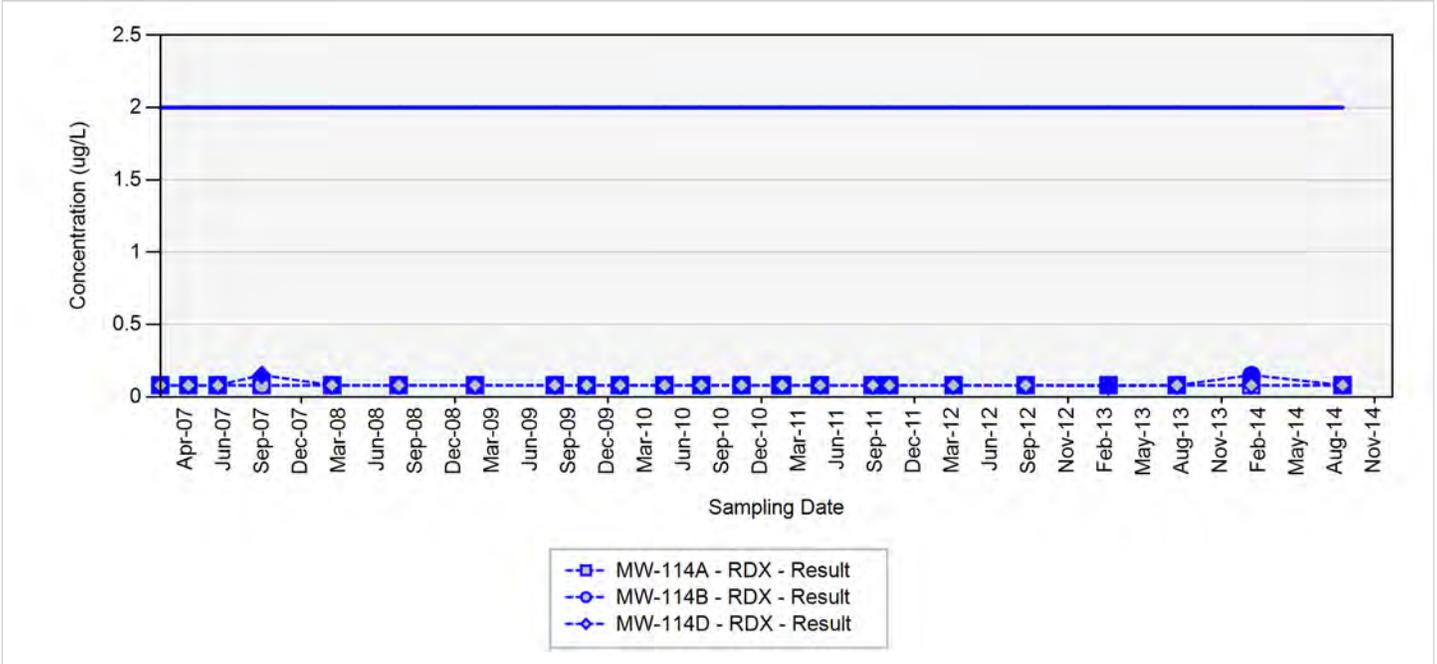
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-114



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

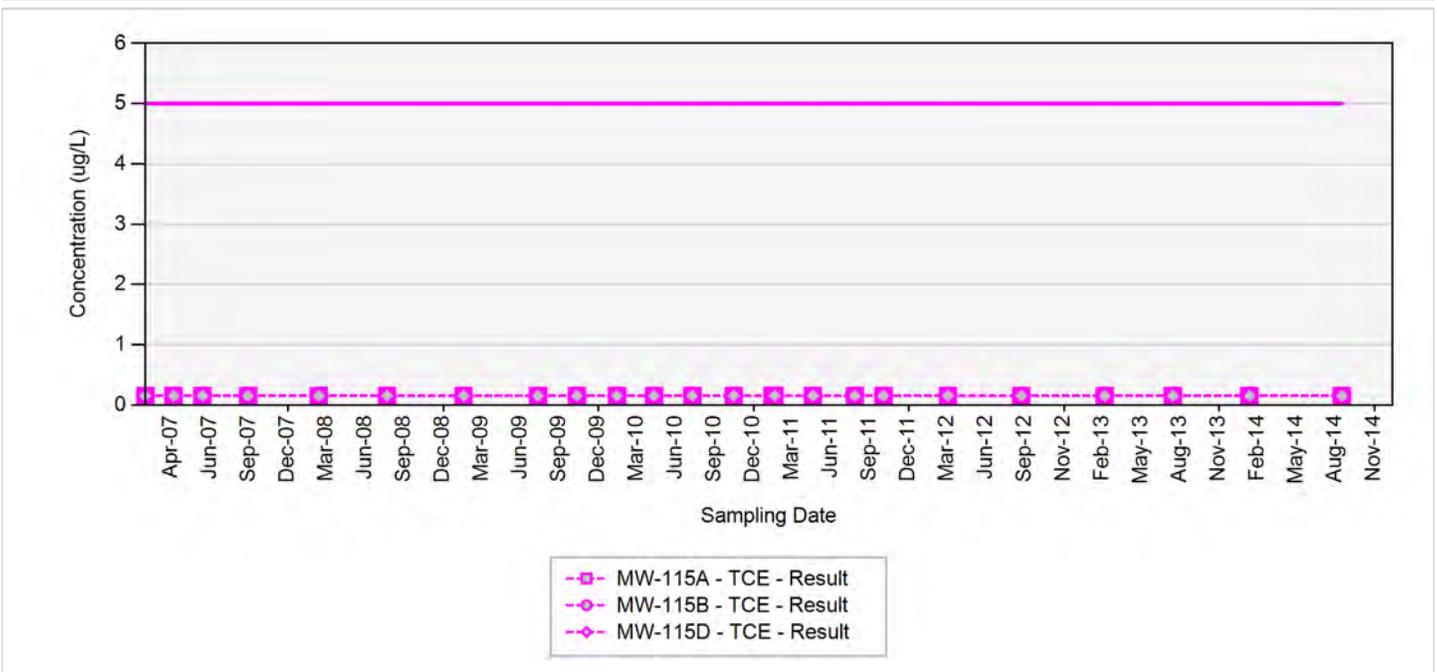
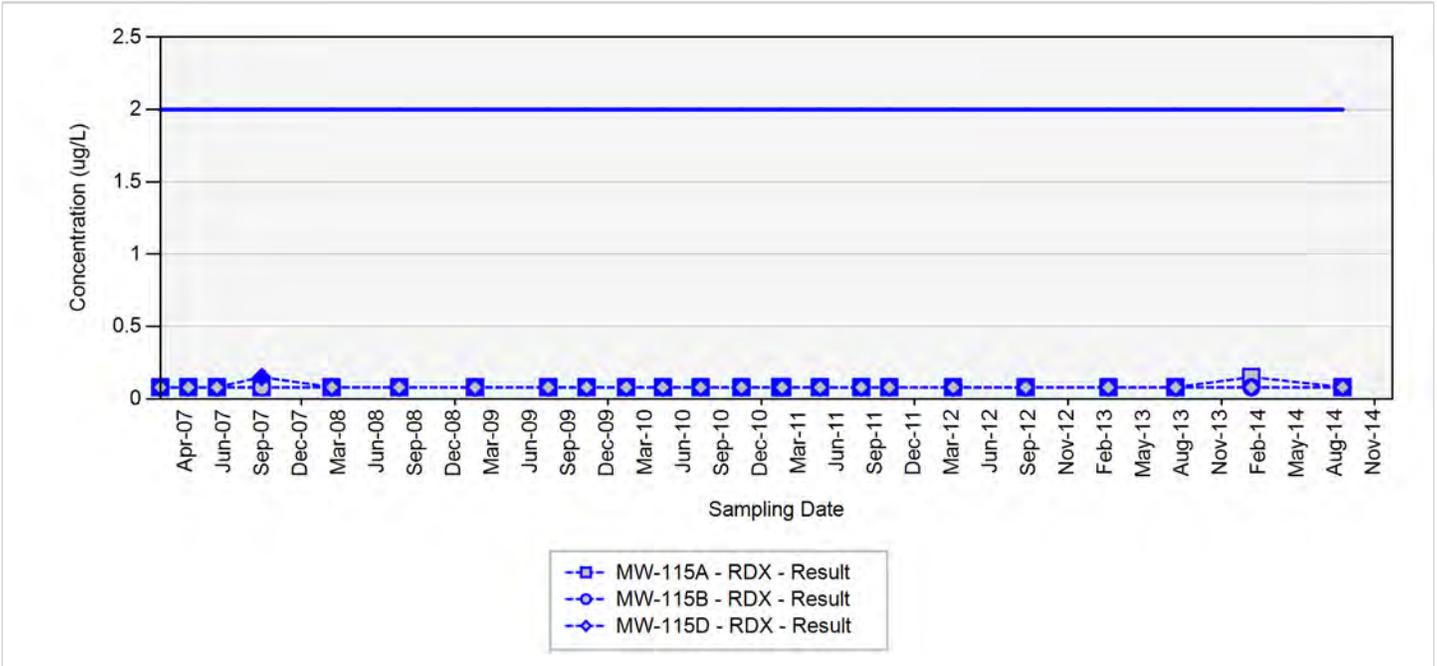
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-115



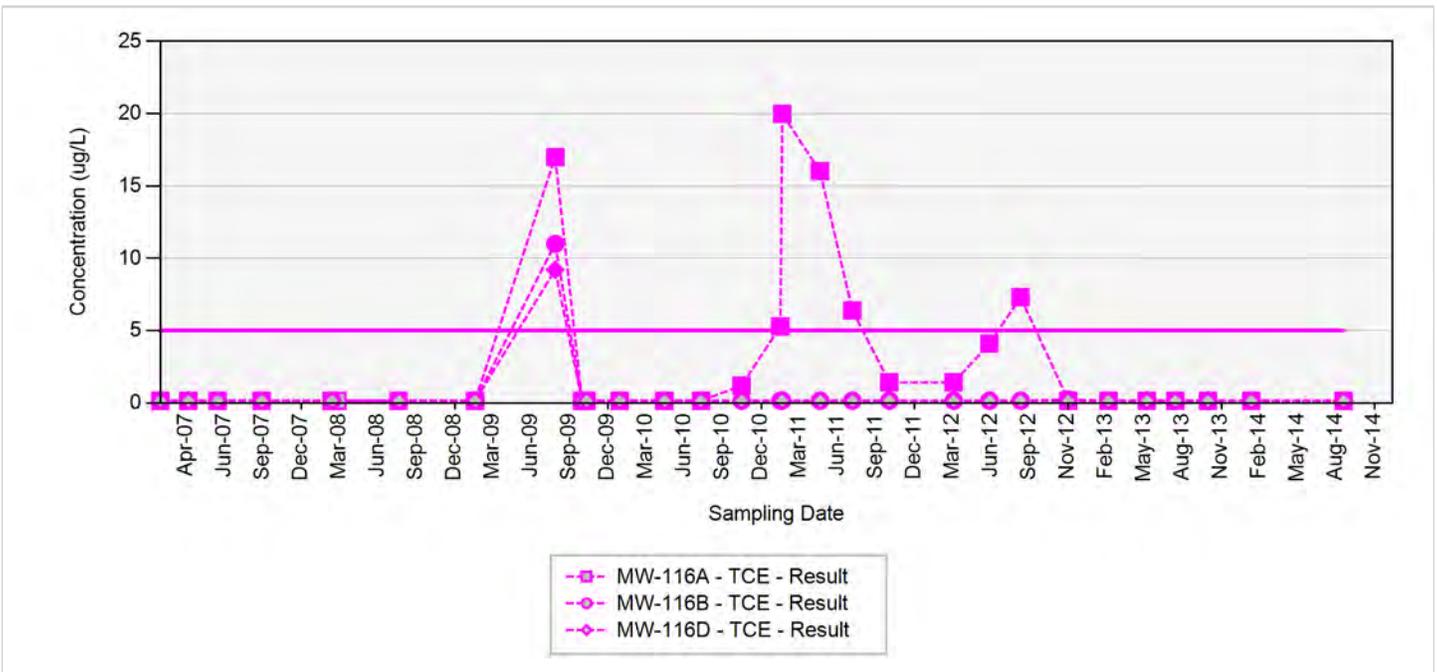
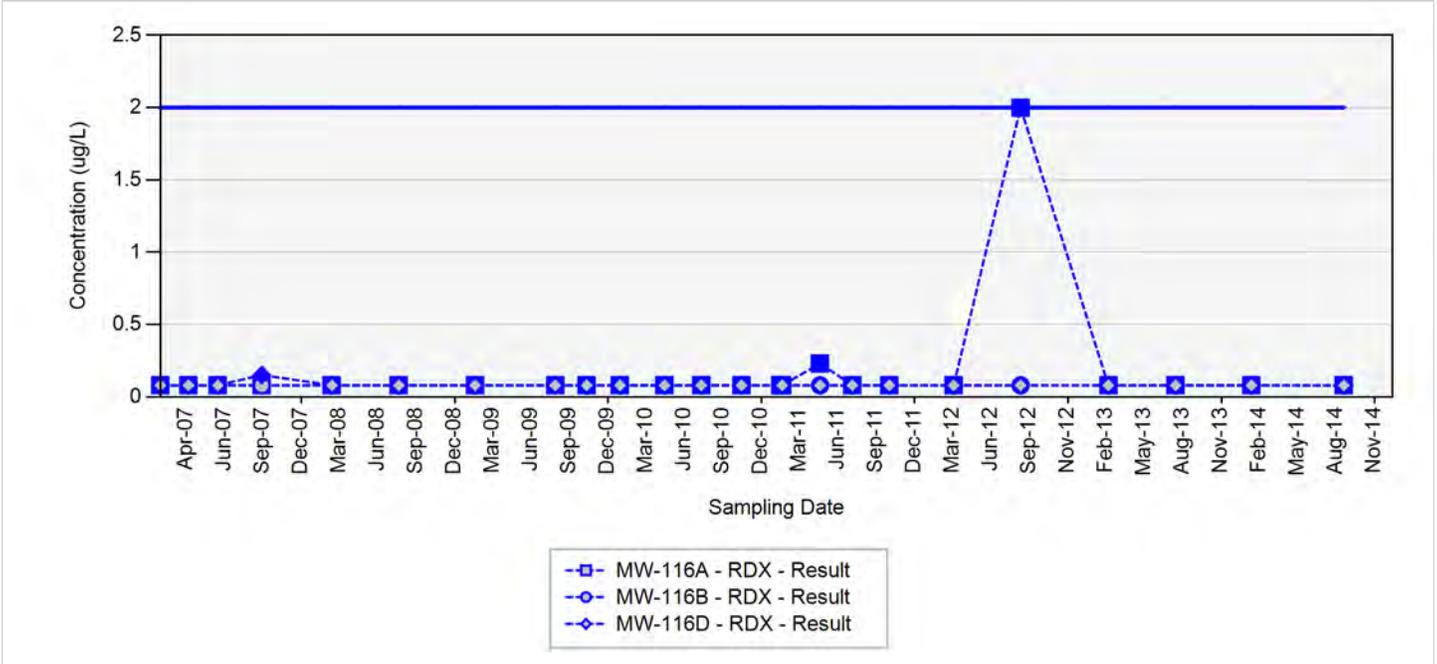
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-116



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

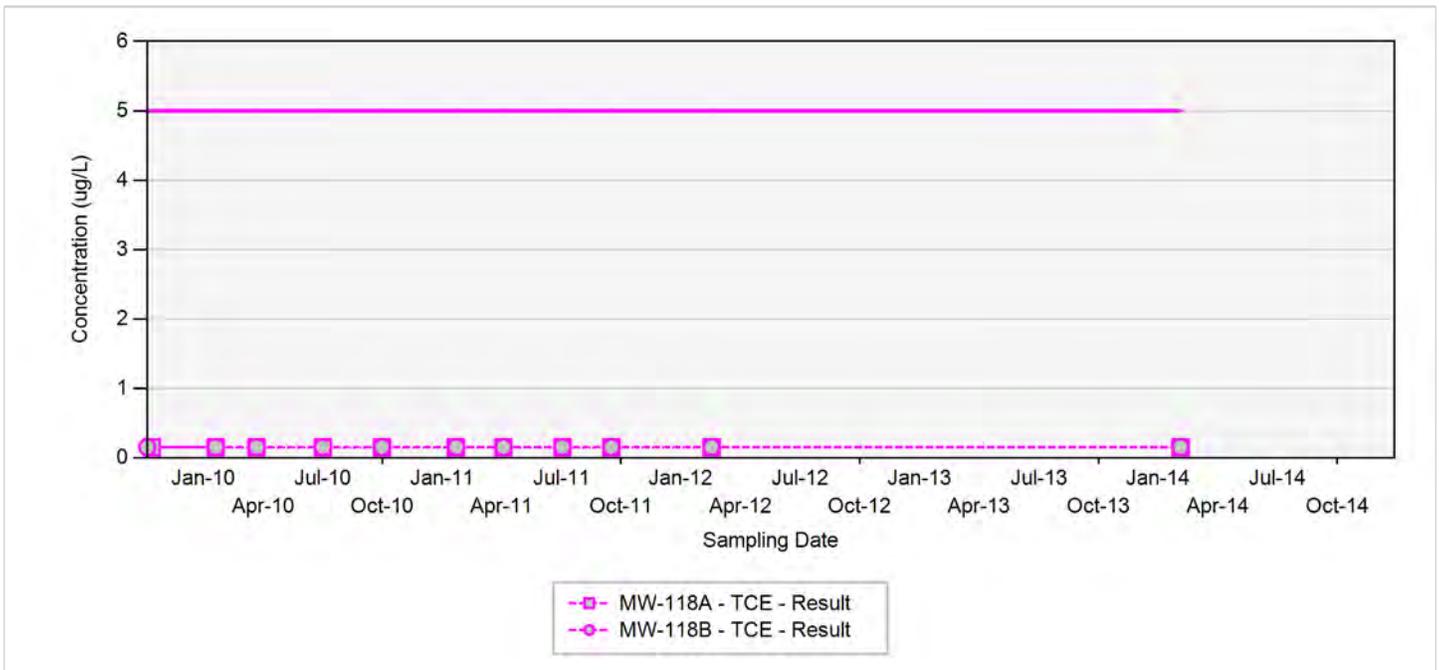
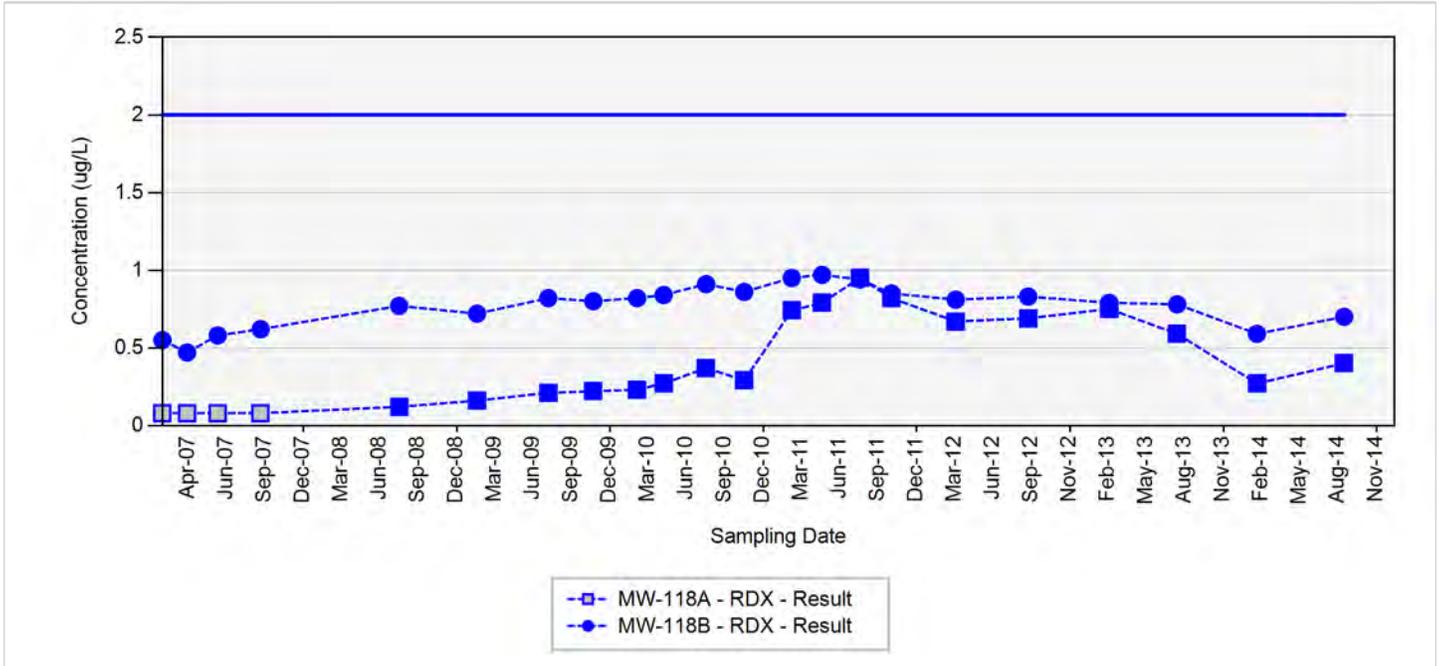
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-118



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

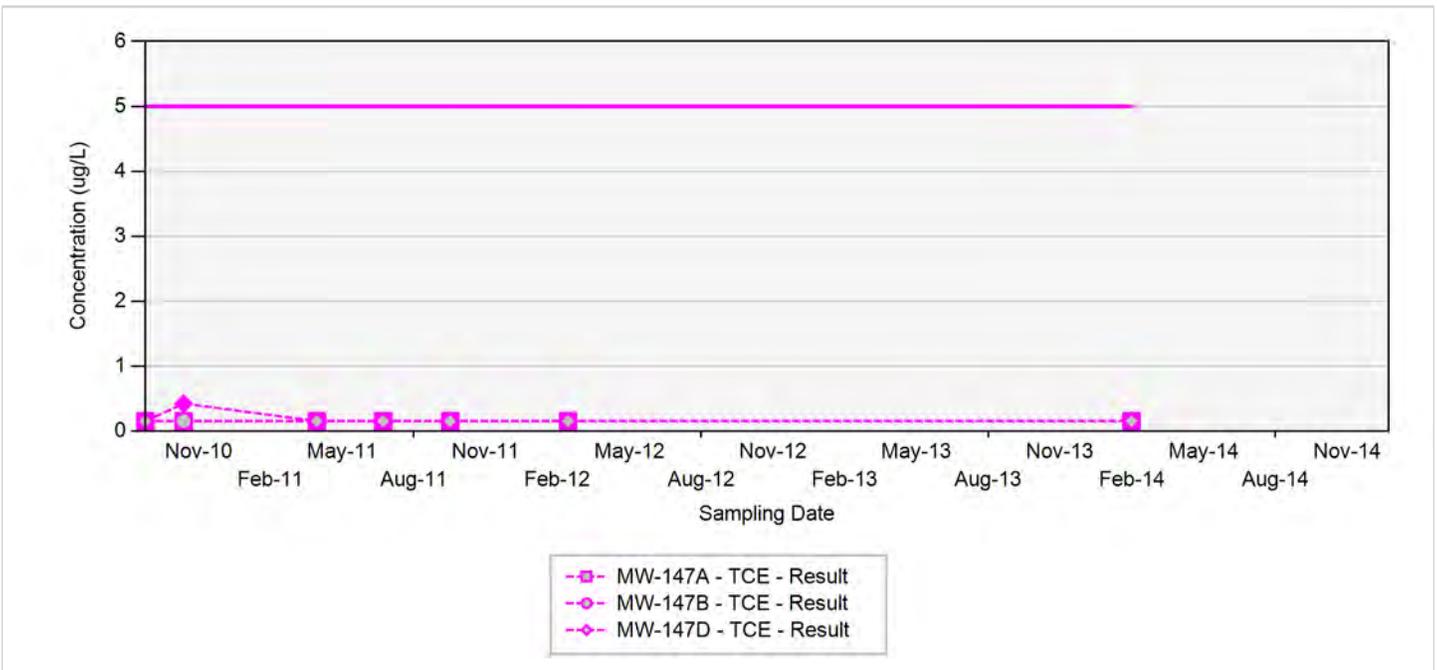
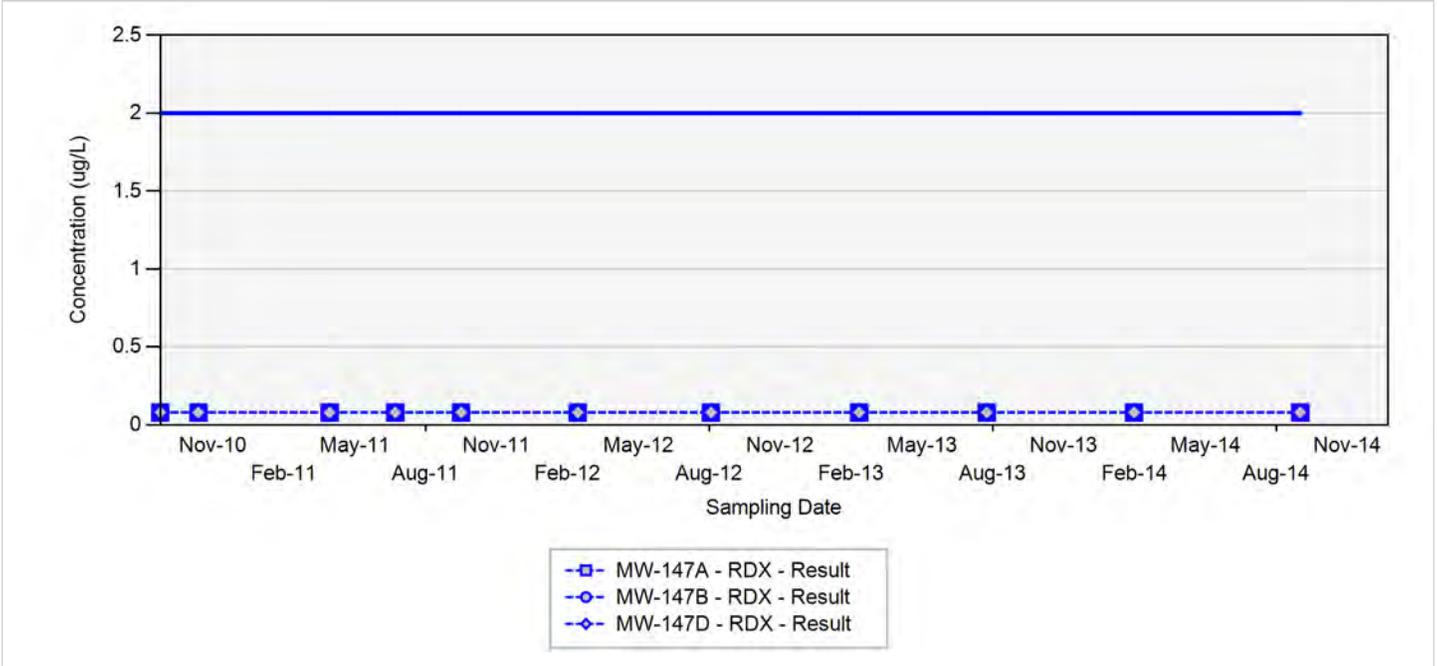
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-147



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

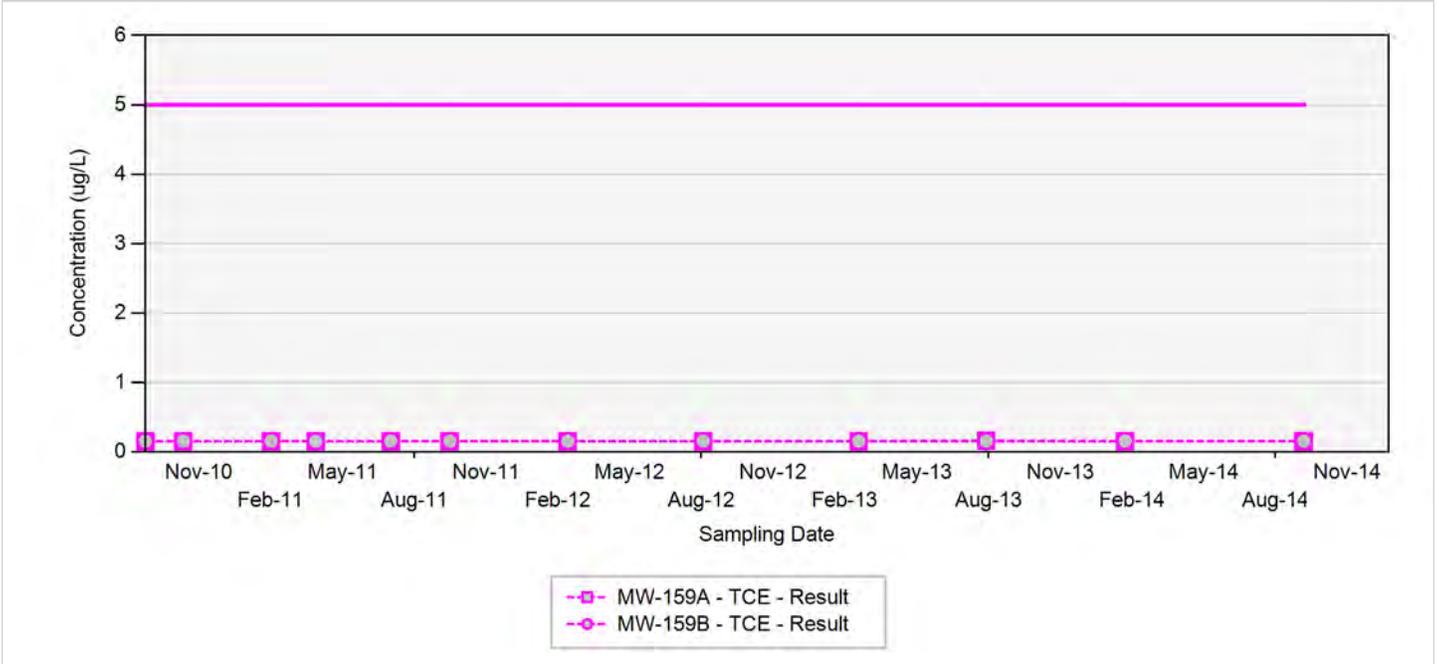
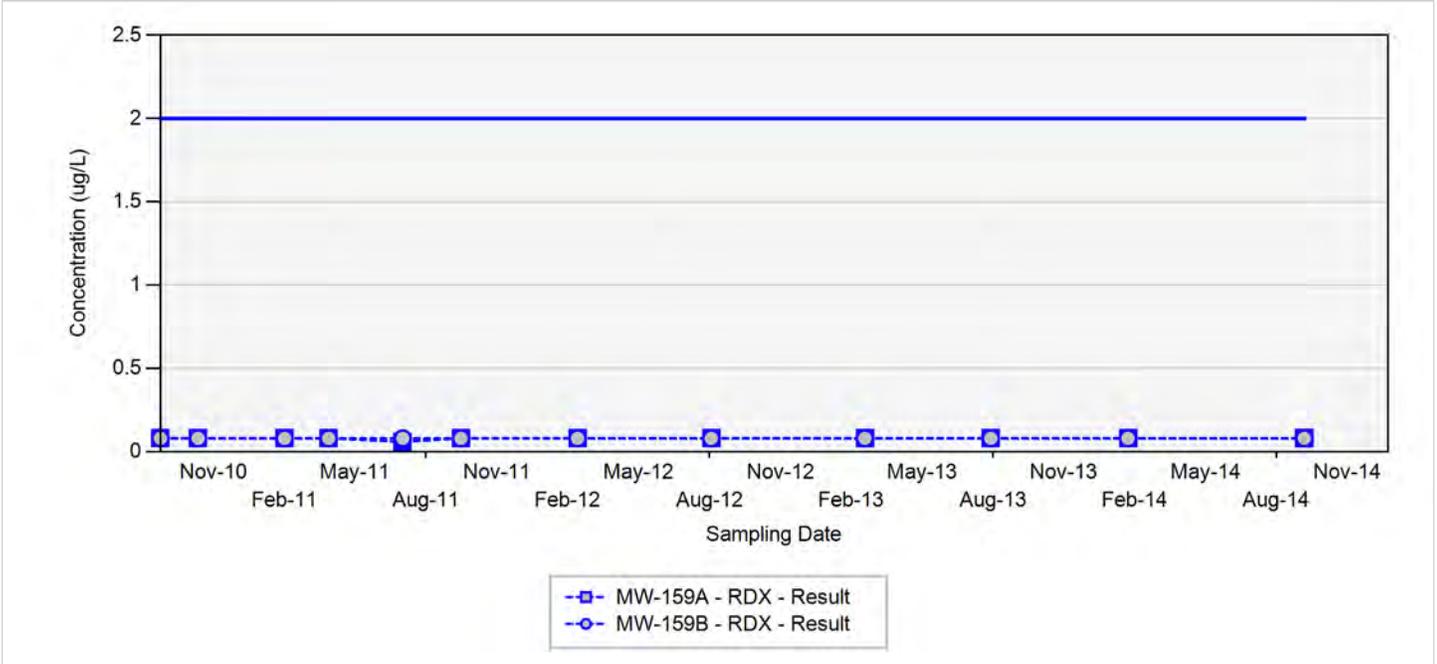
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-159



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

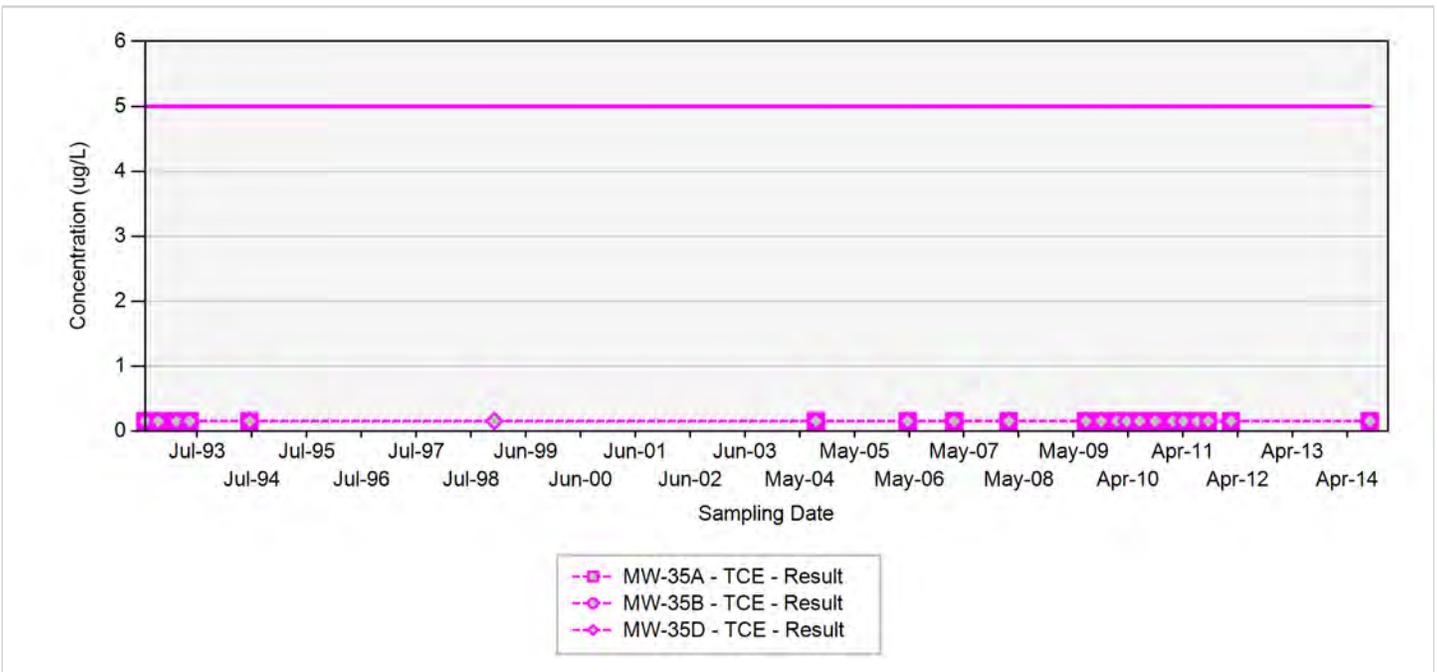
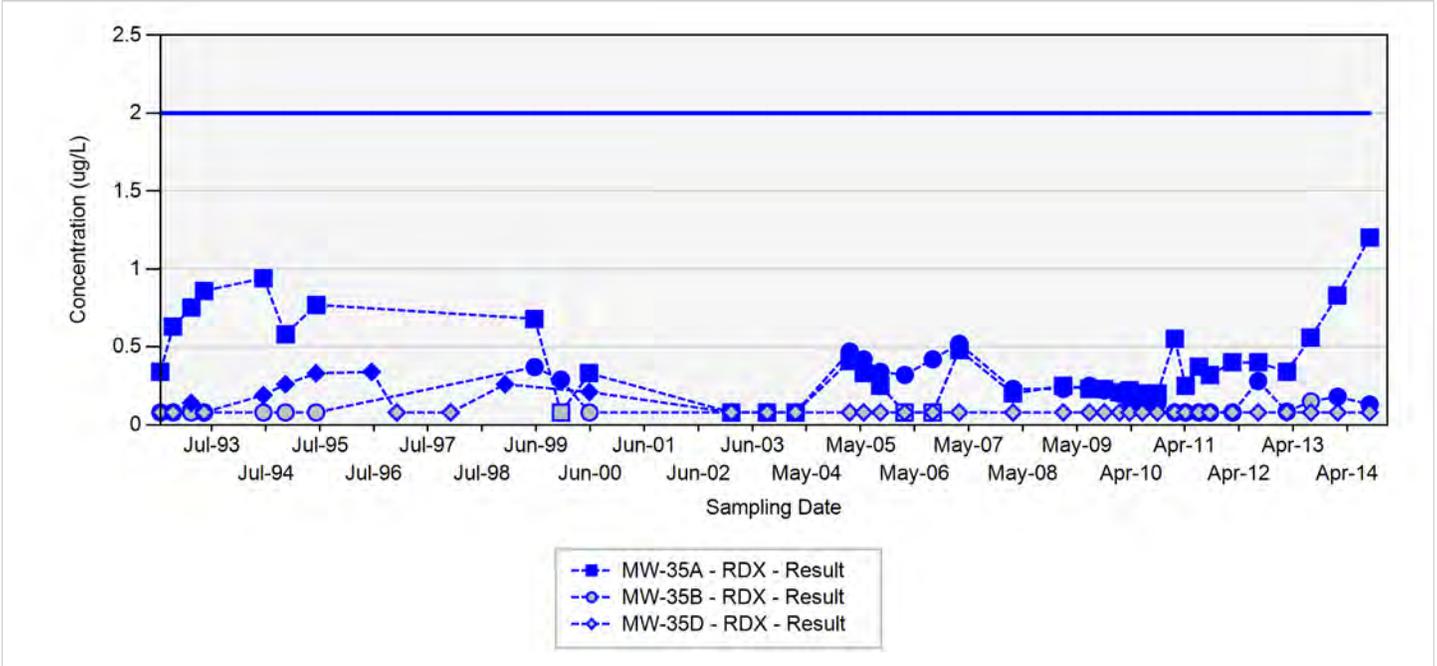
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-35



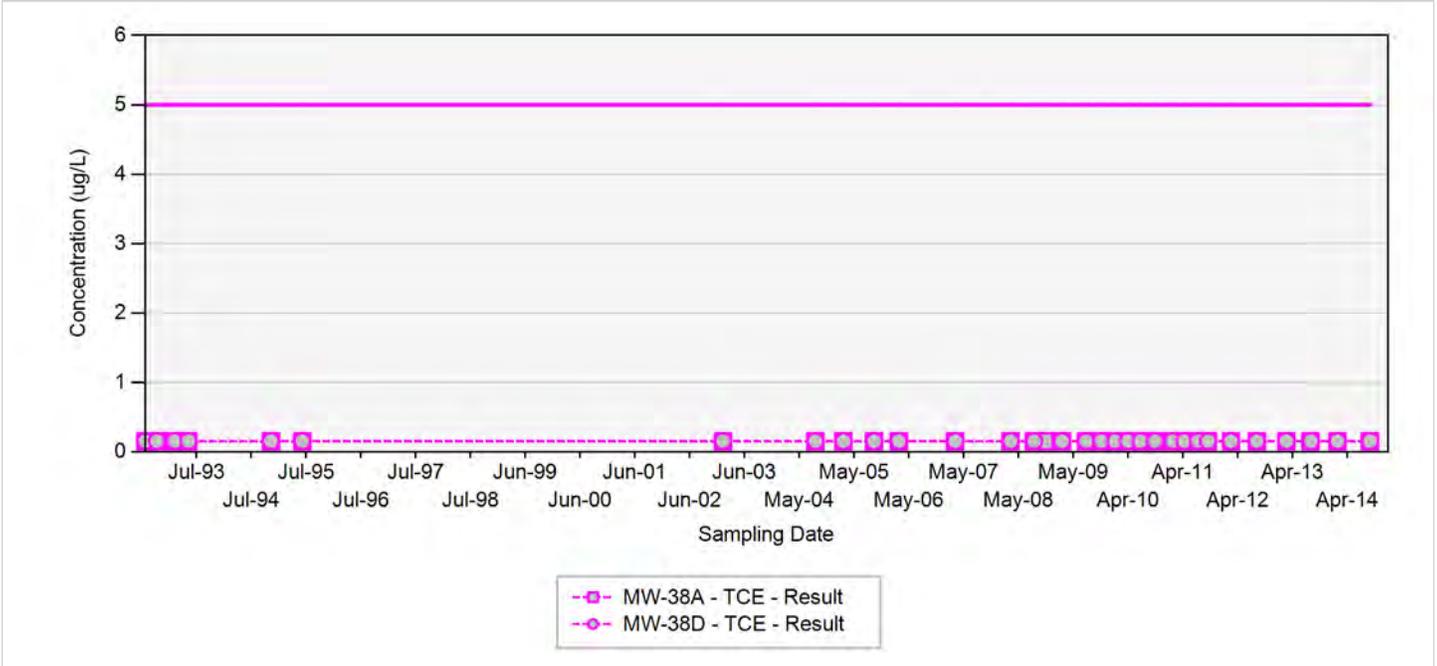
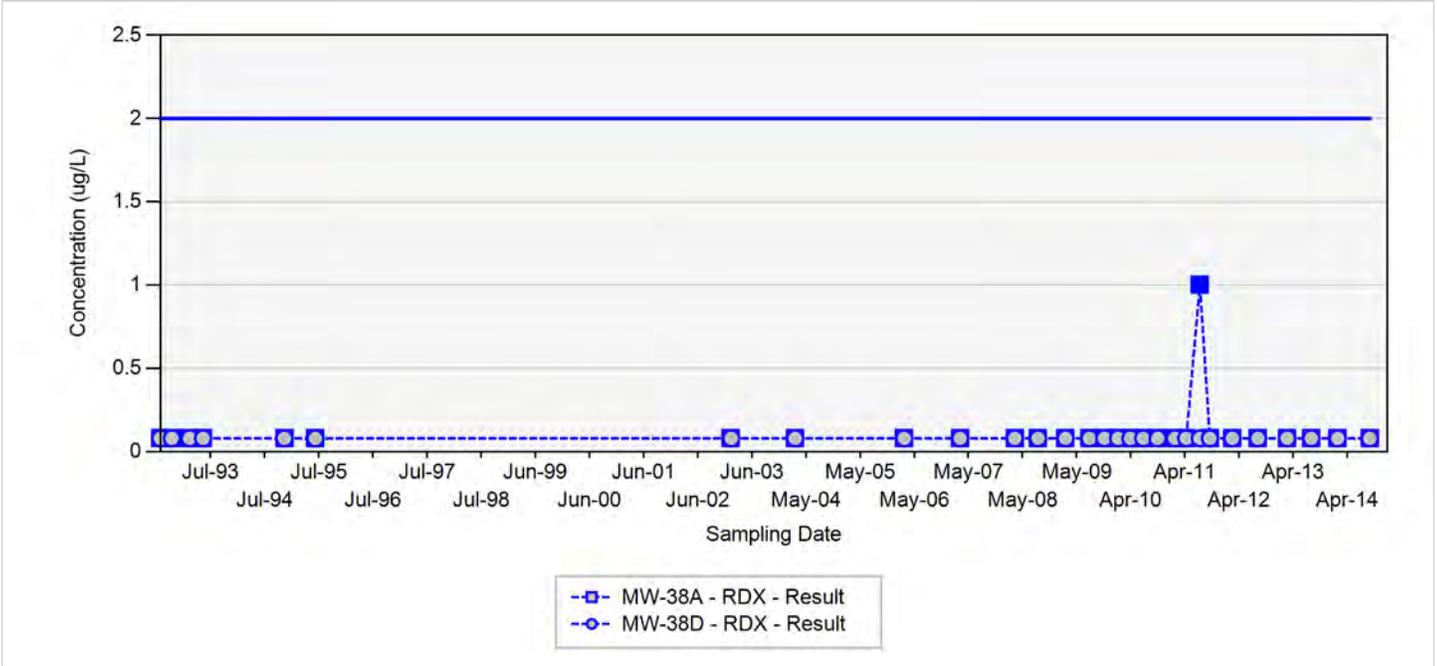
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-38



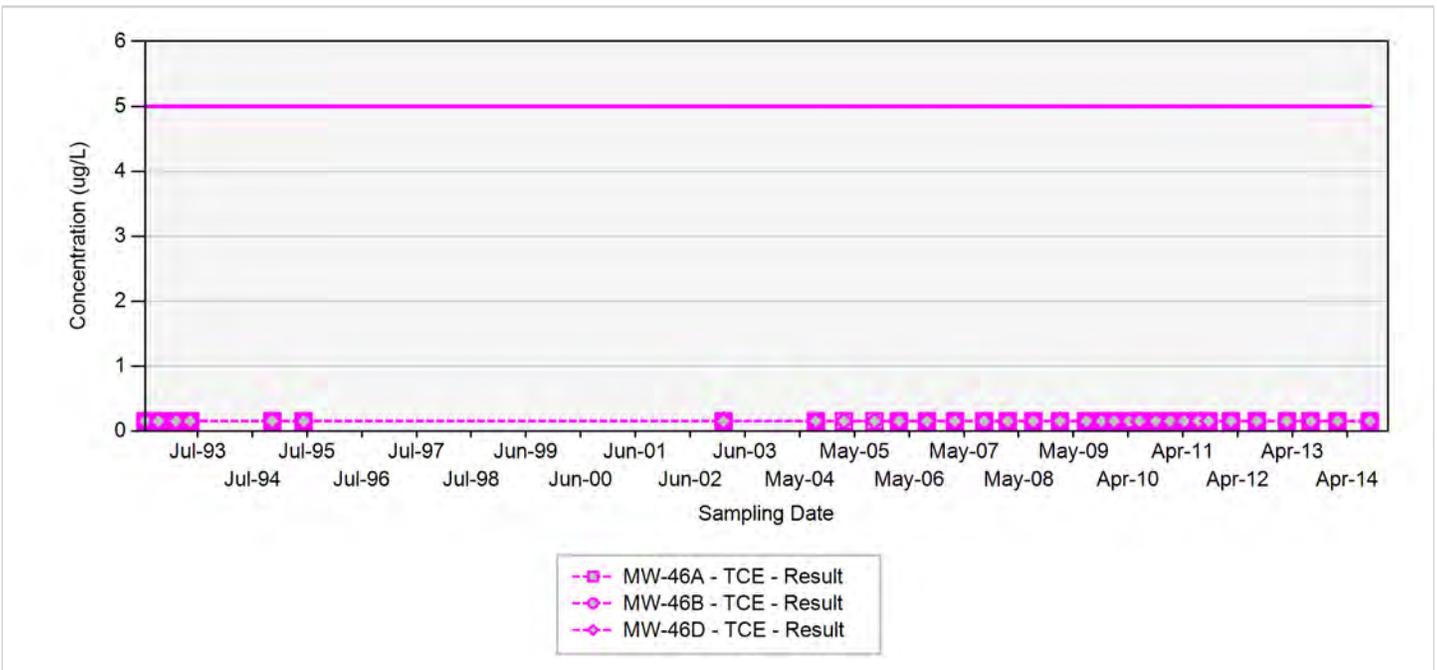
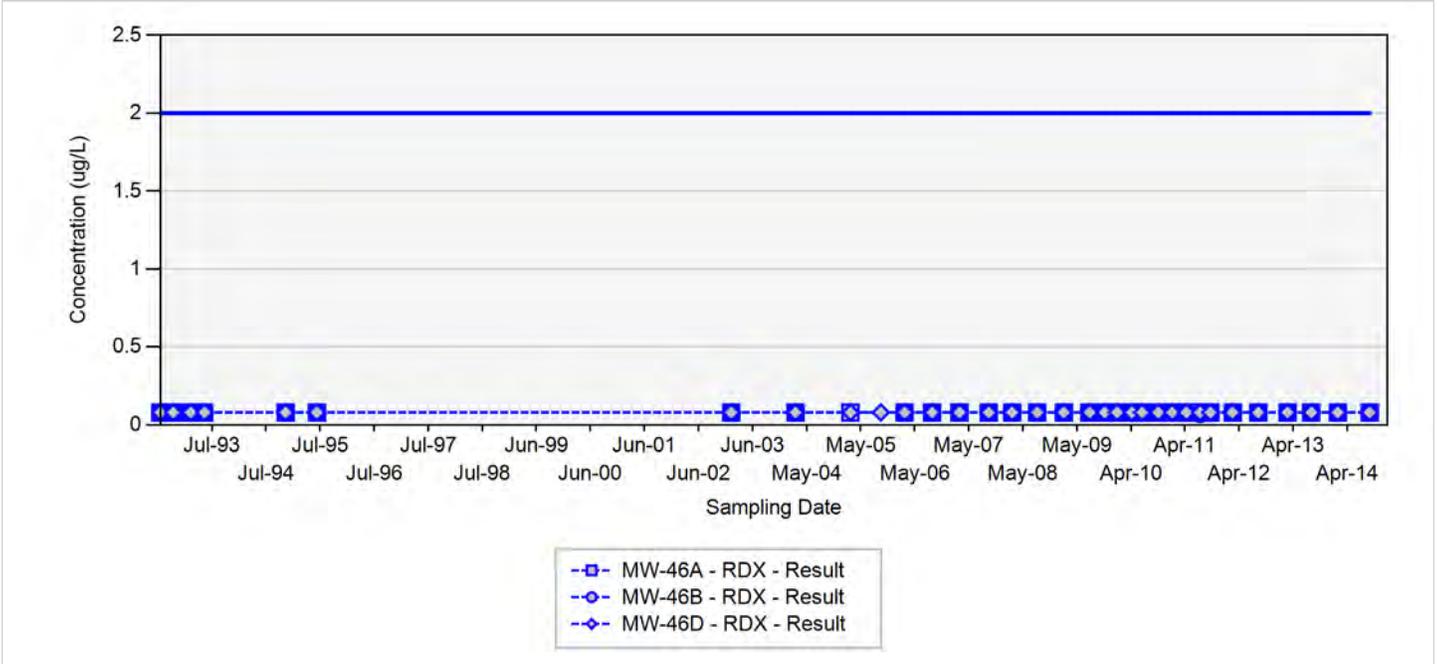
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-46



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

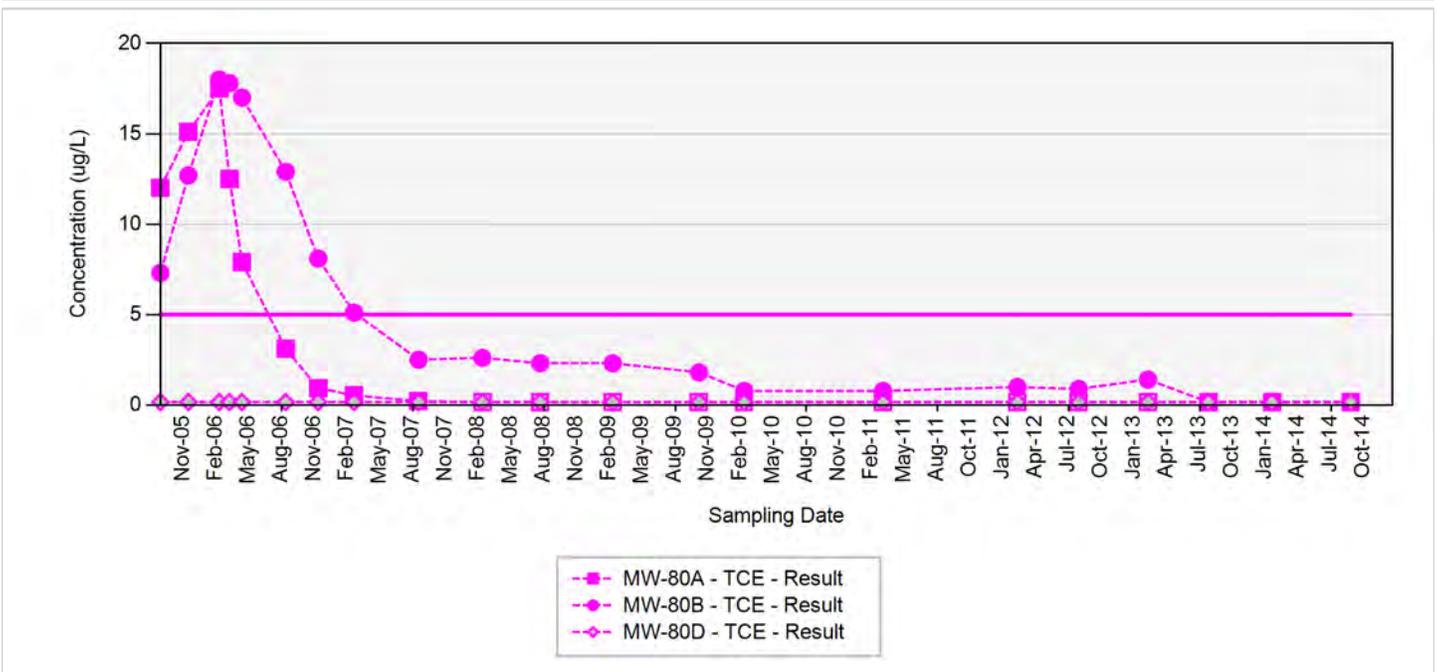
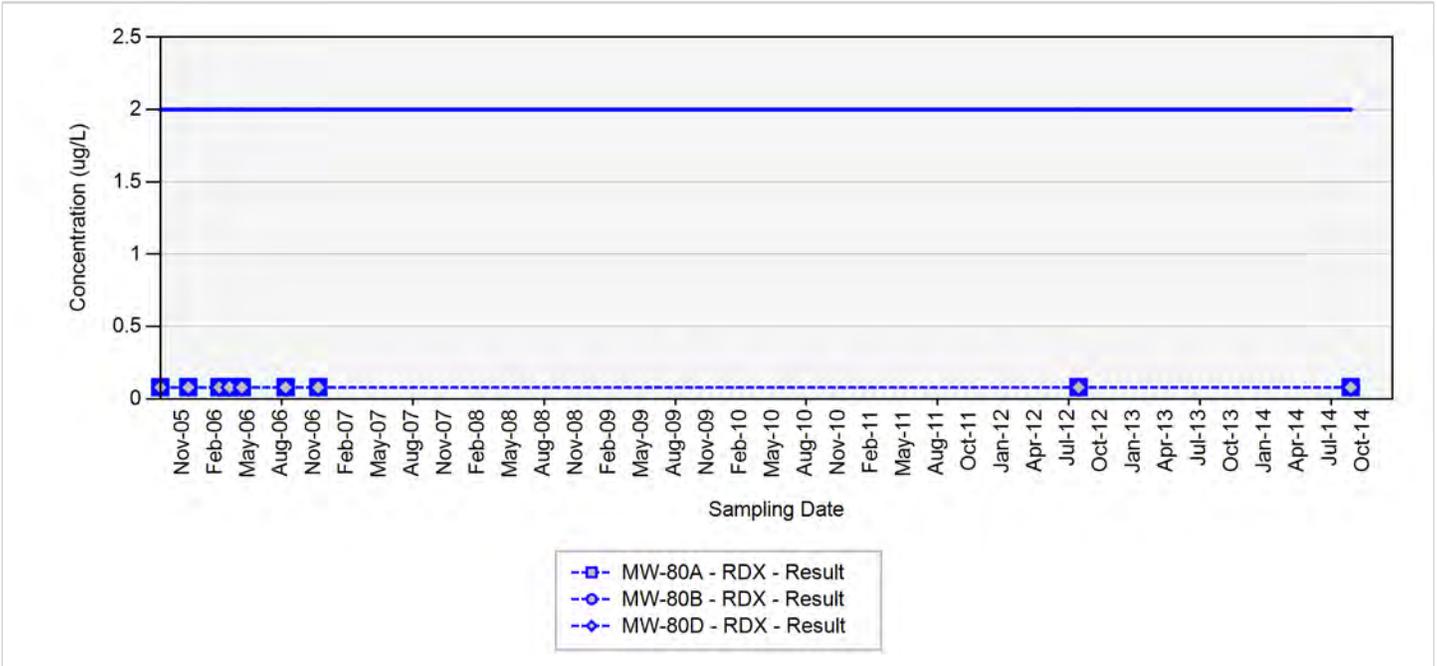
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-80



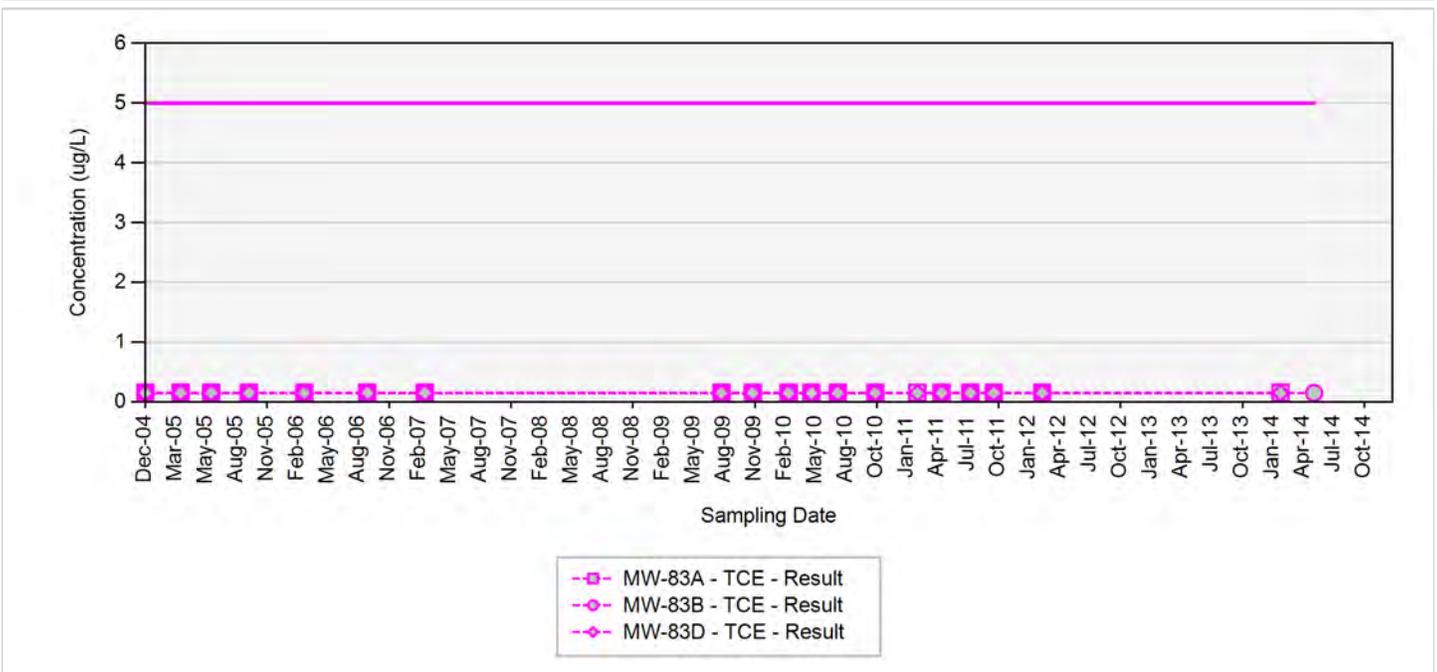
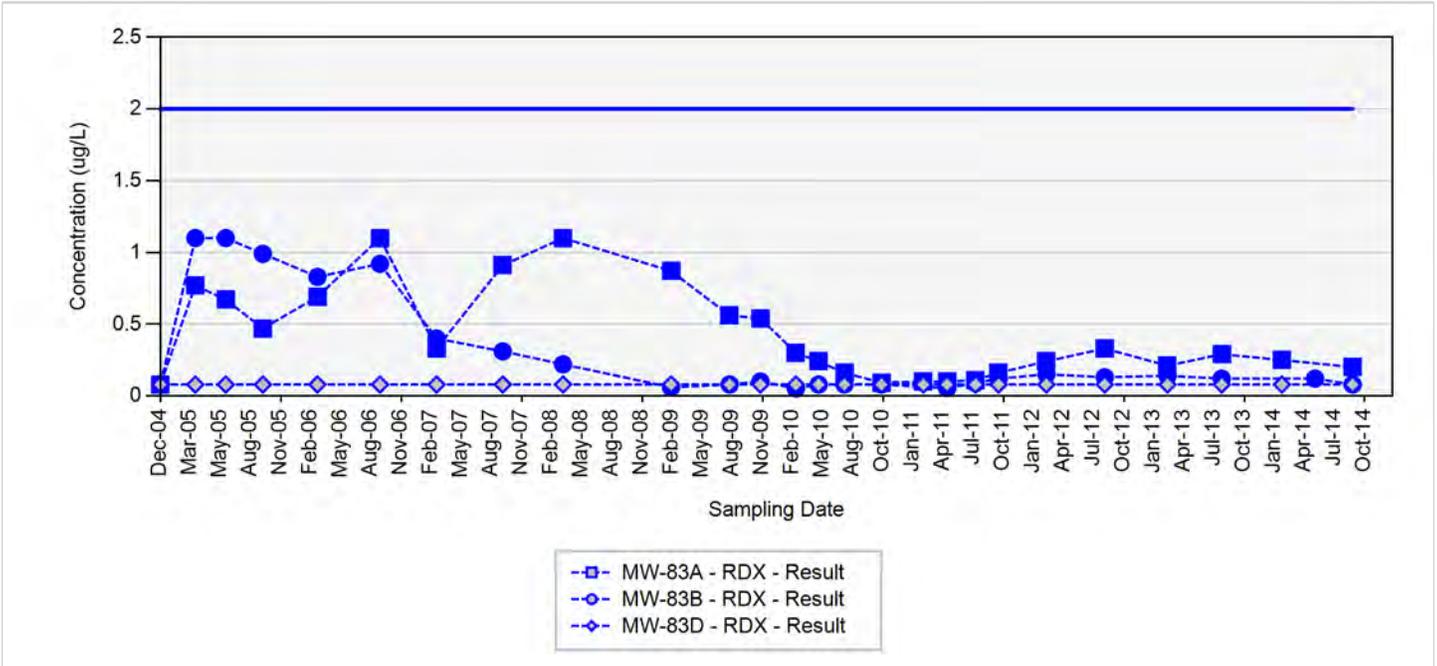
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-83



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

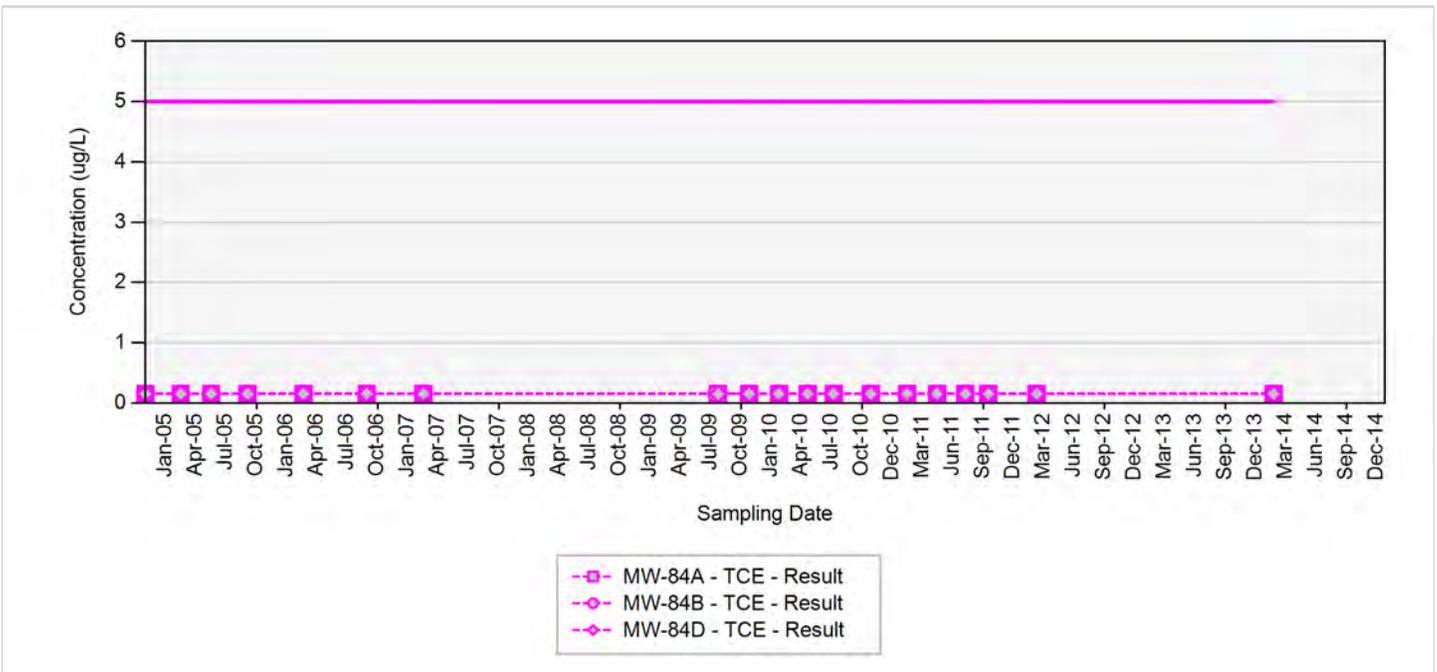
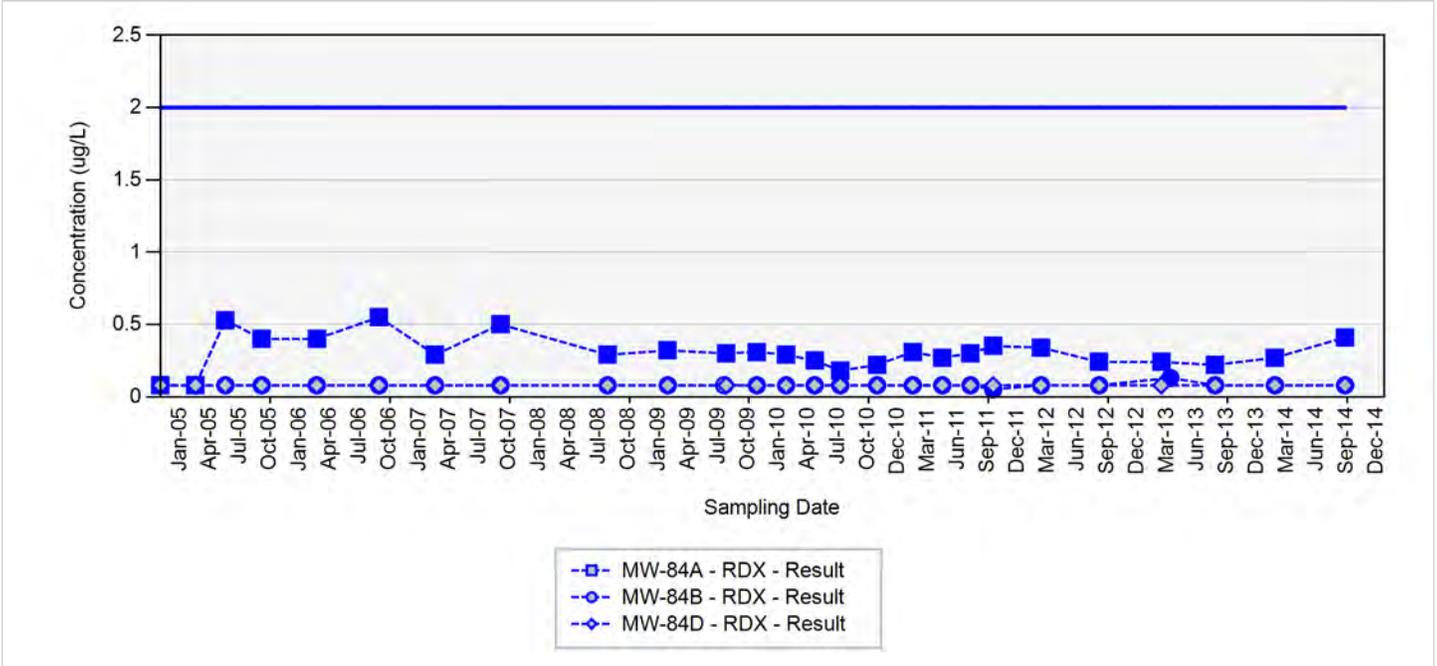
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-84



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

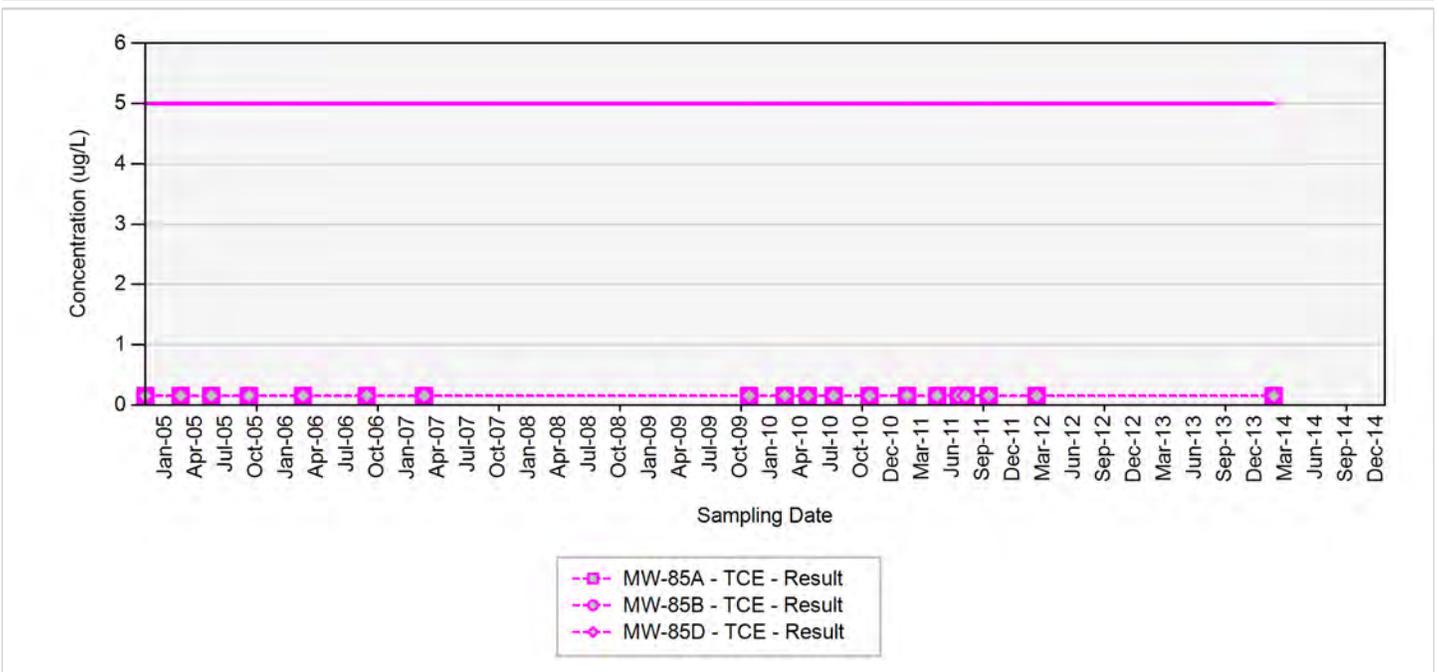
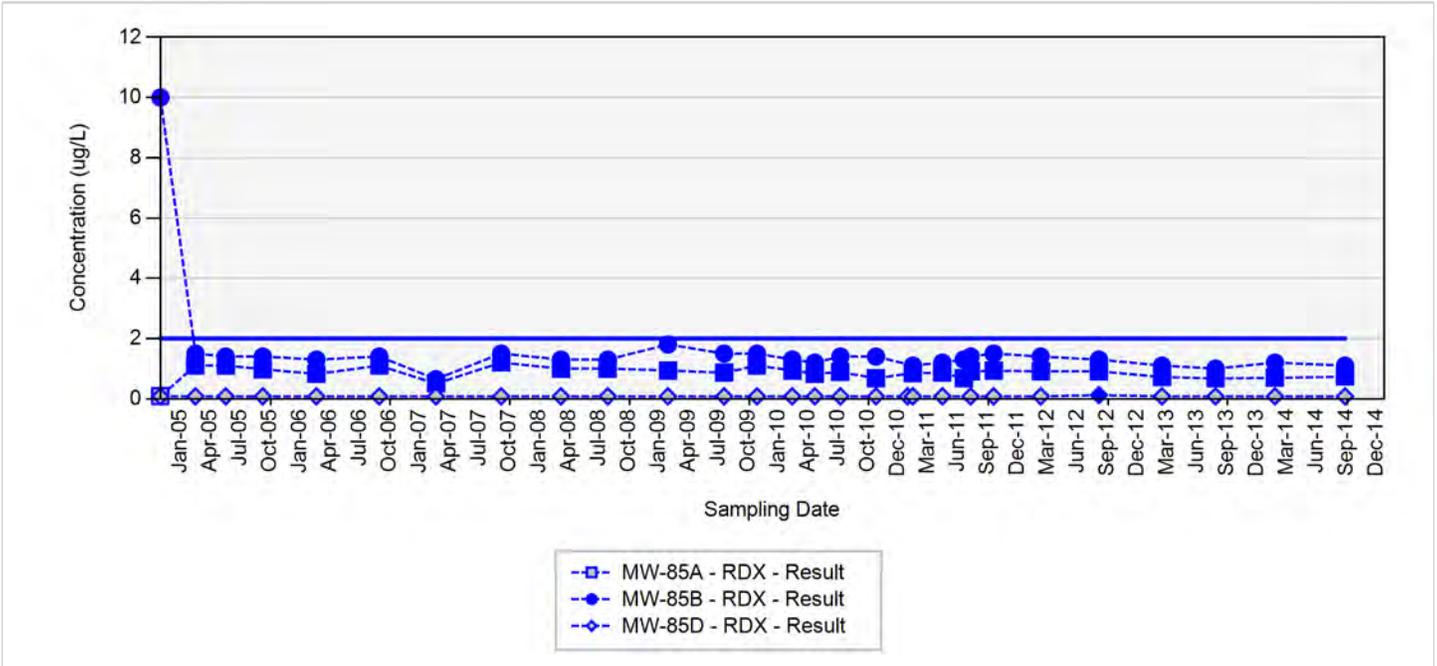
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-85



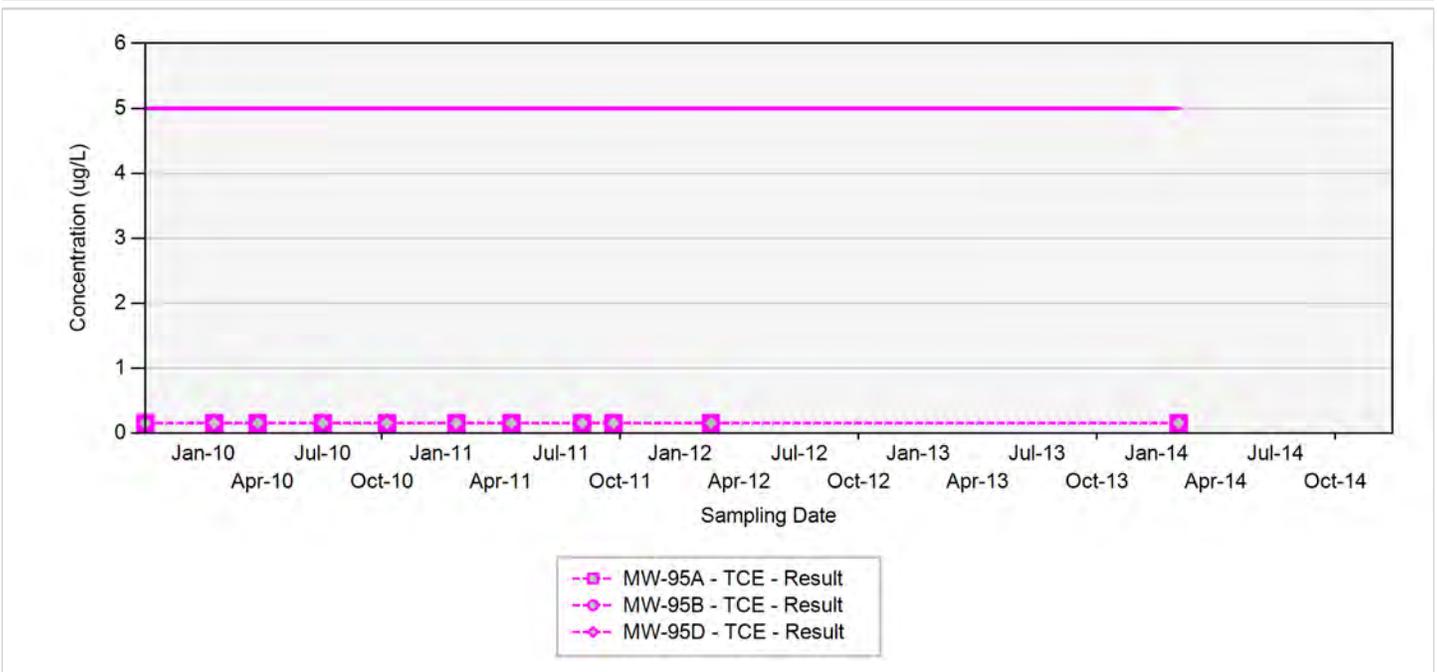
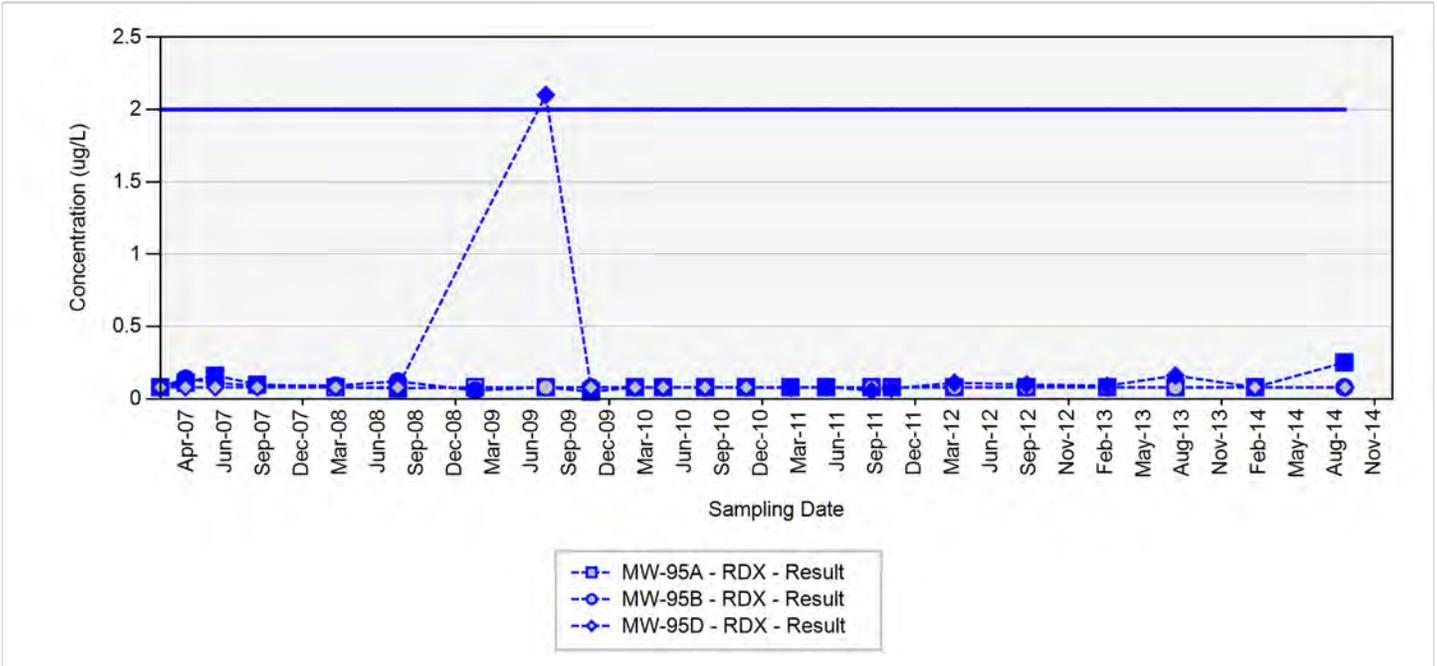
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells**

MW-95



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

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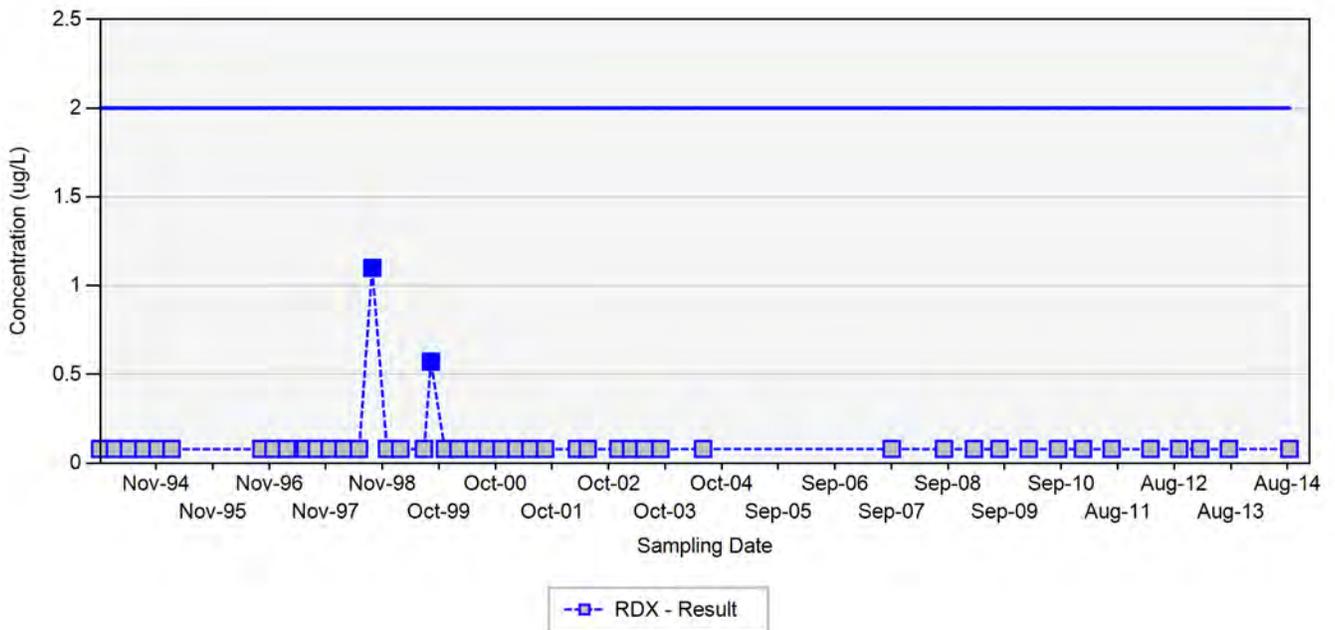
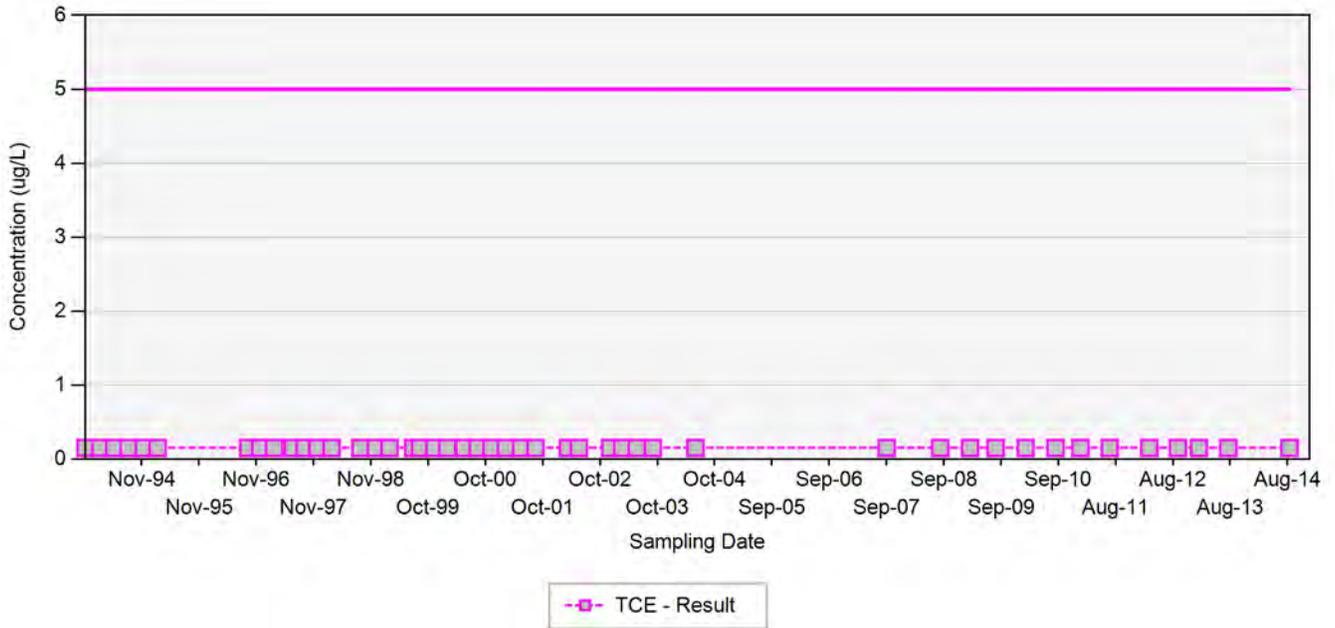
APPENDIX C

CONCENTRATION TREND CHARTS FOR WATER SUPPLY WELLS

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**Appendix C
Concentration Trend Charts for Water Supply Wells**

UNFL-09A



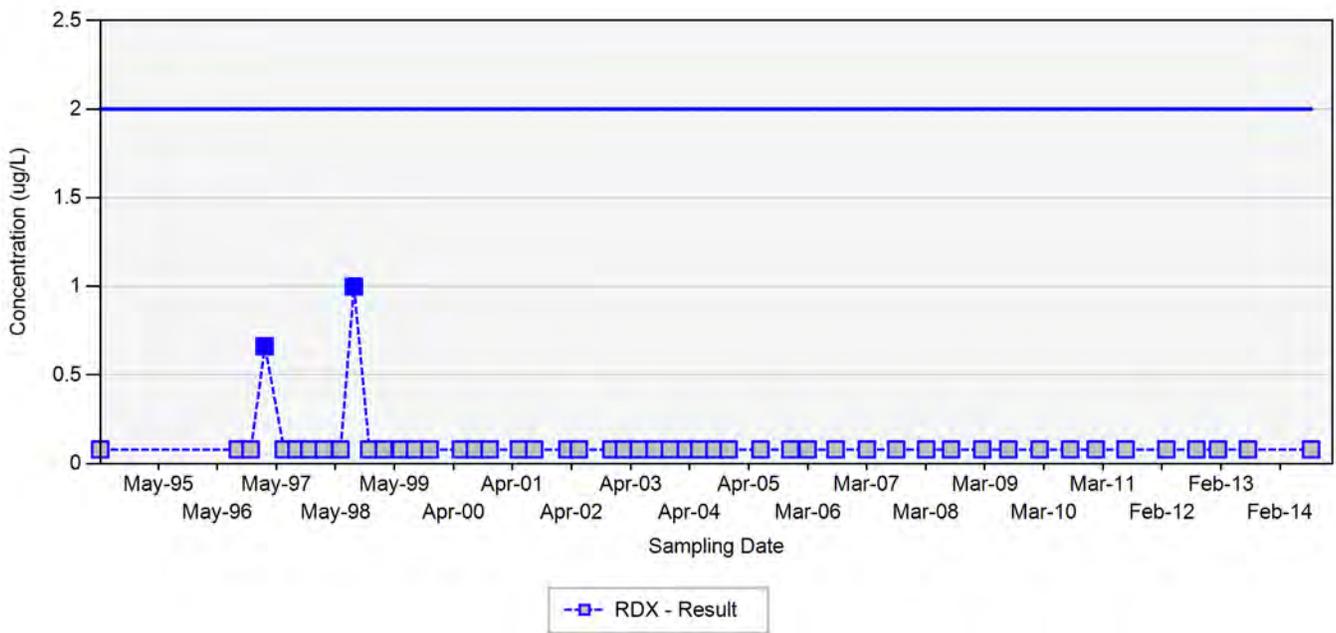
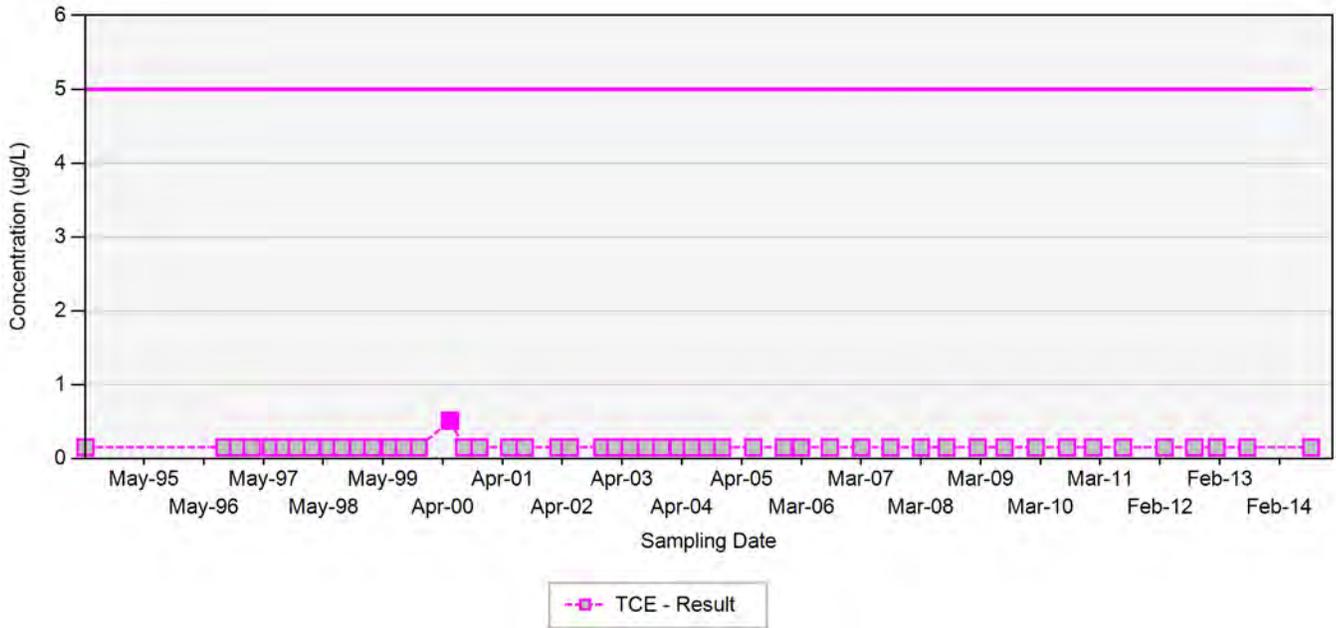
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

UNFL-10A



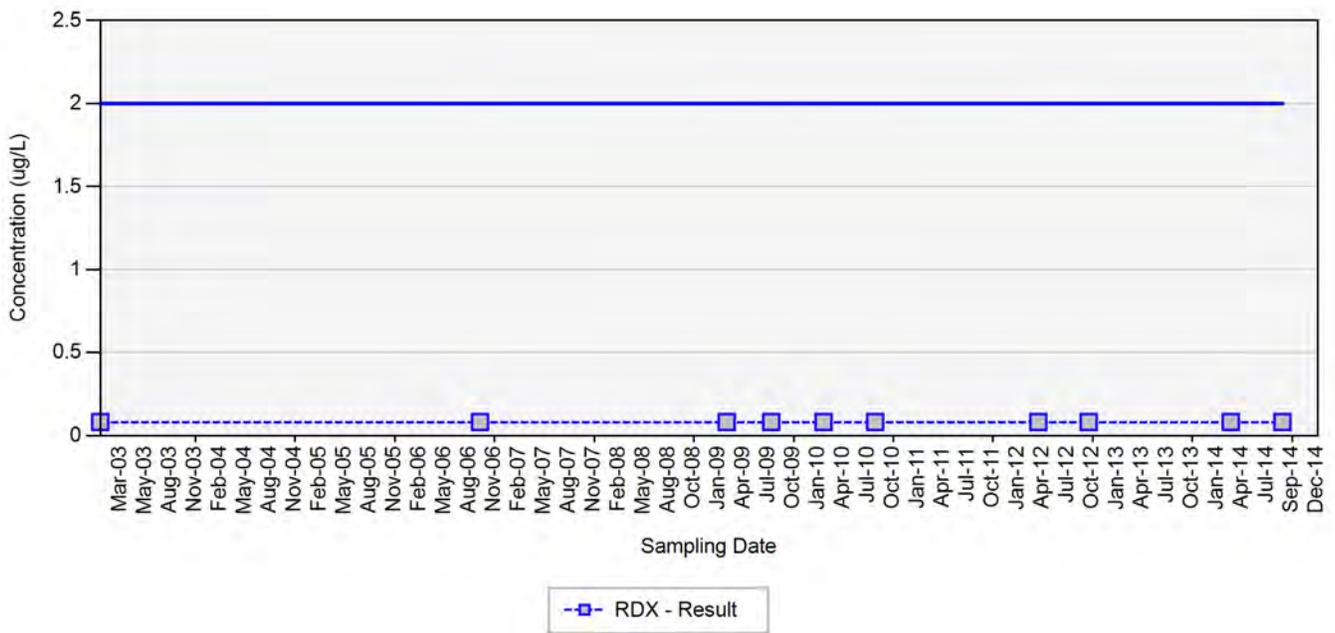
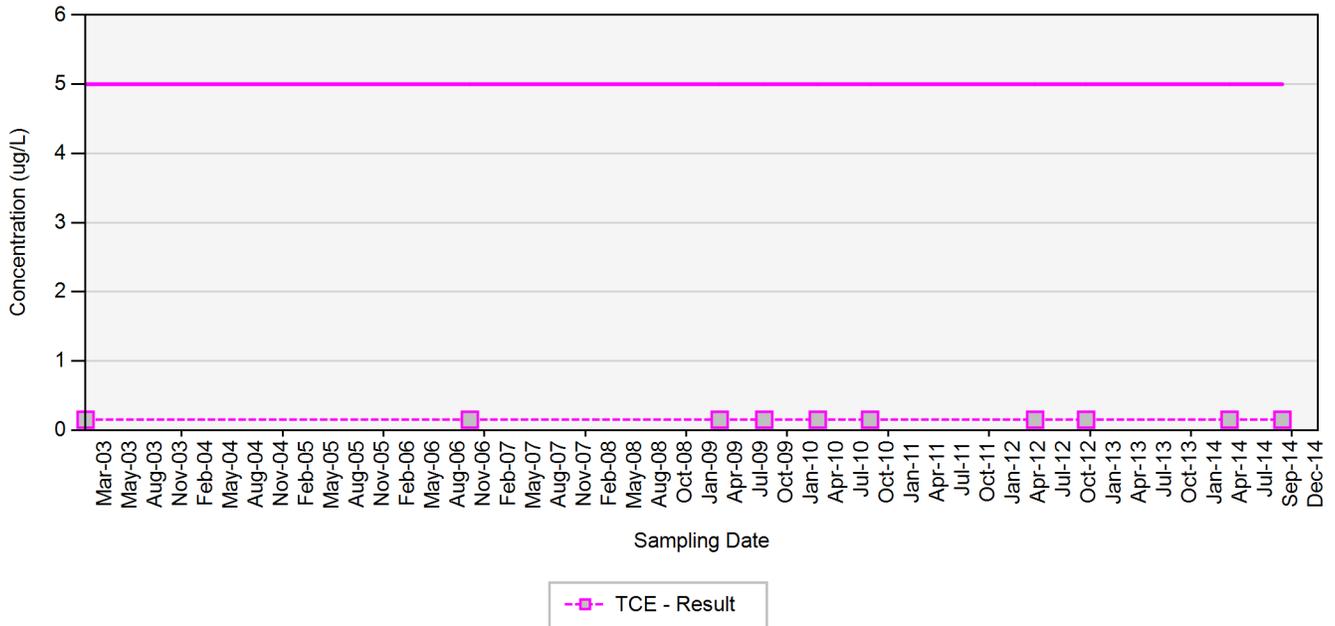
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

UNFL-12



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

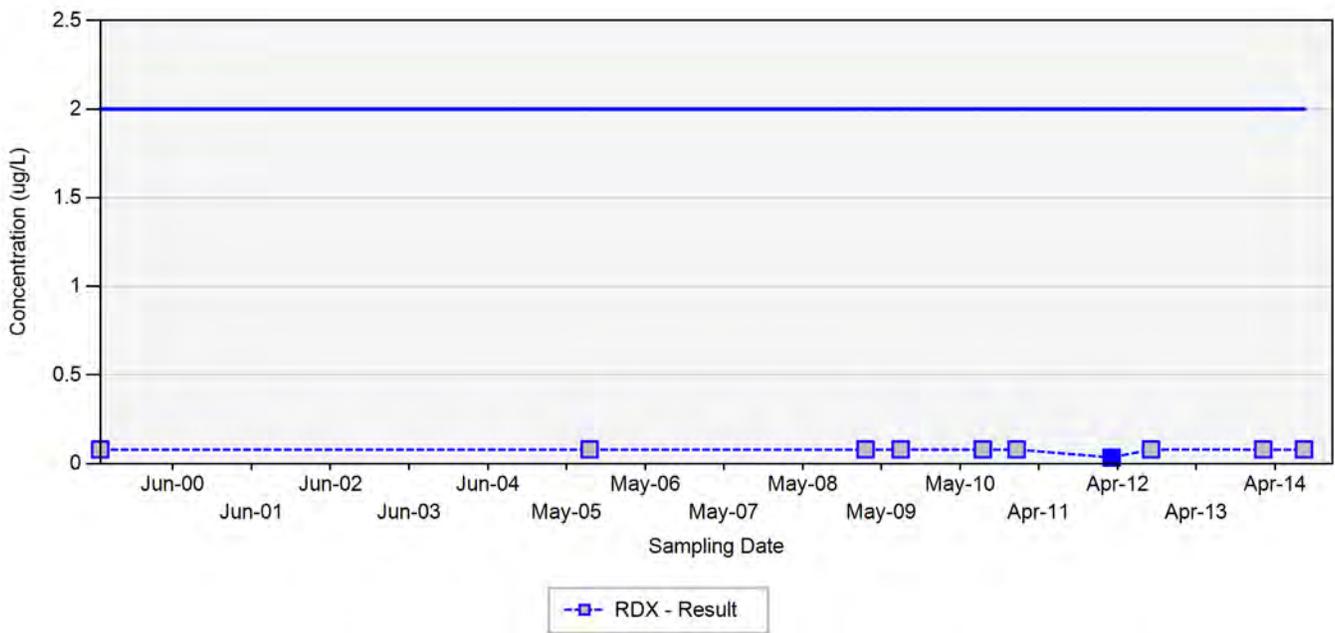
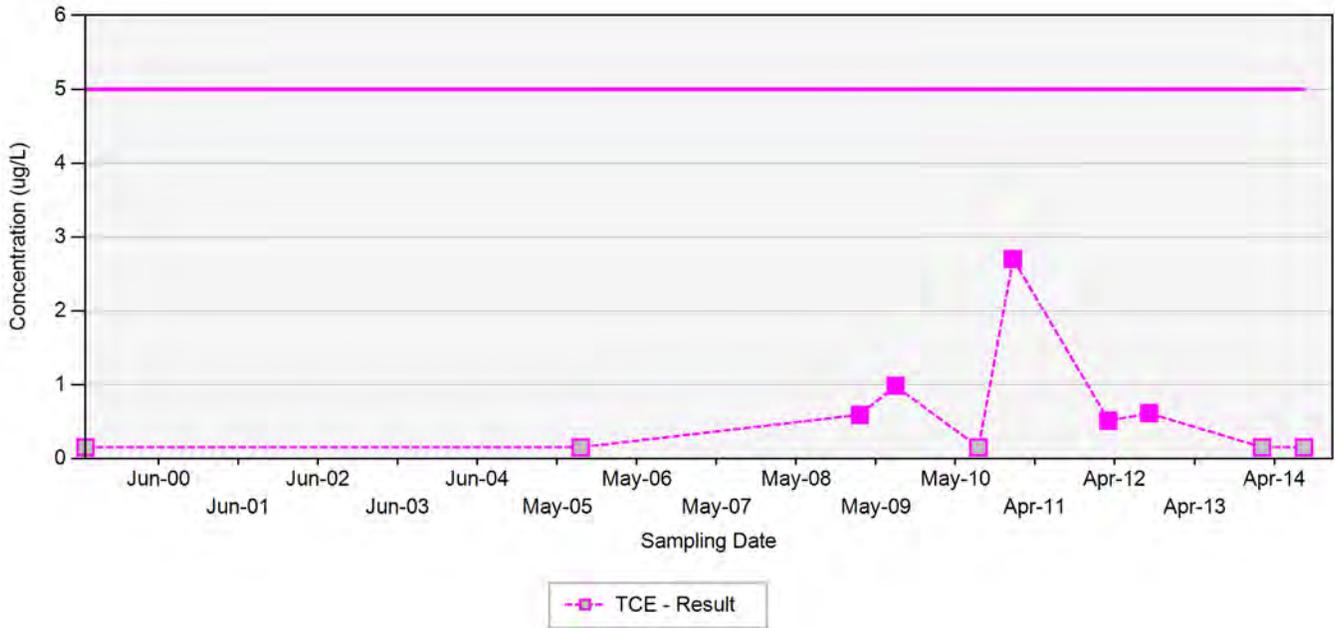
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

UNFL-23



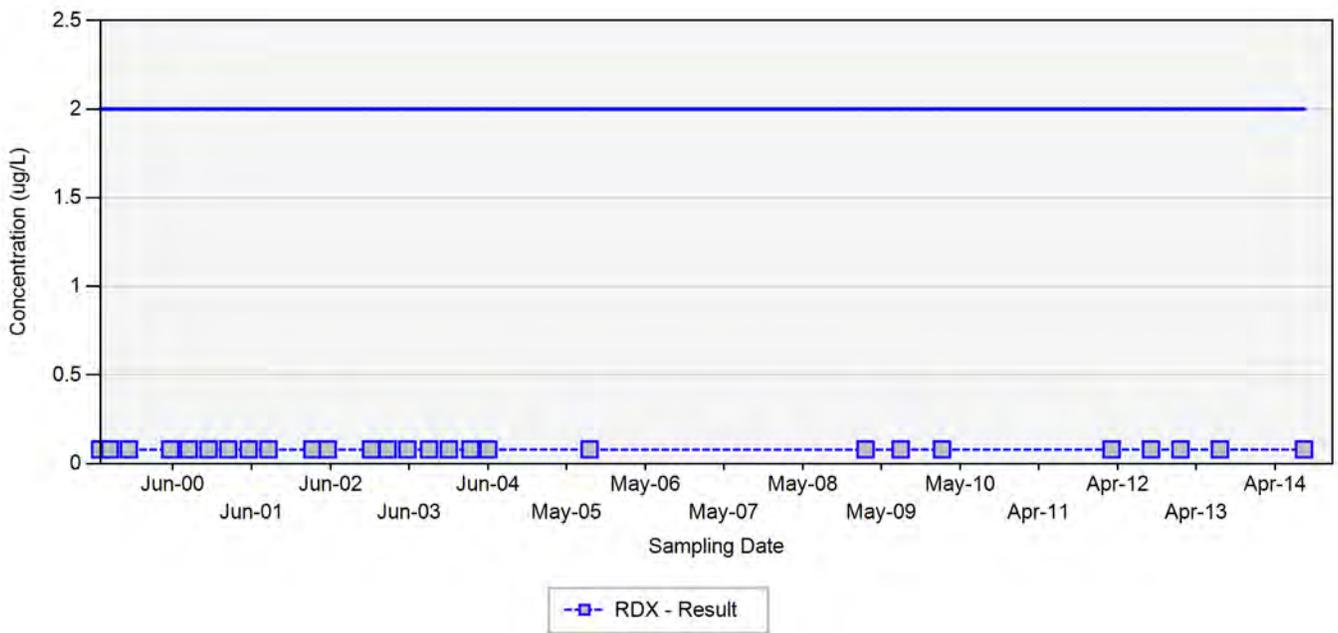
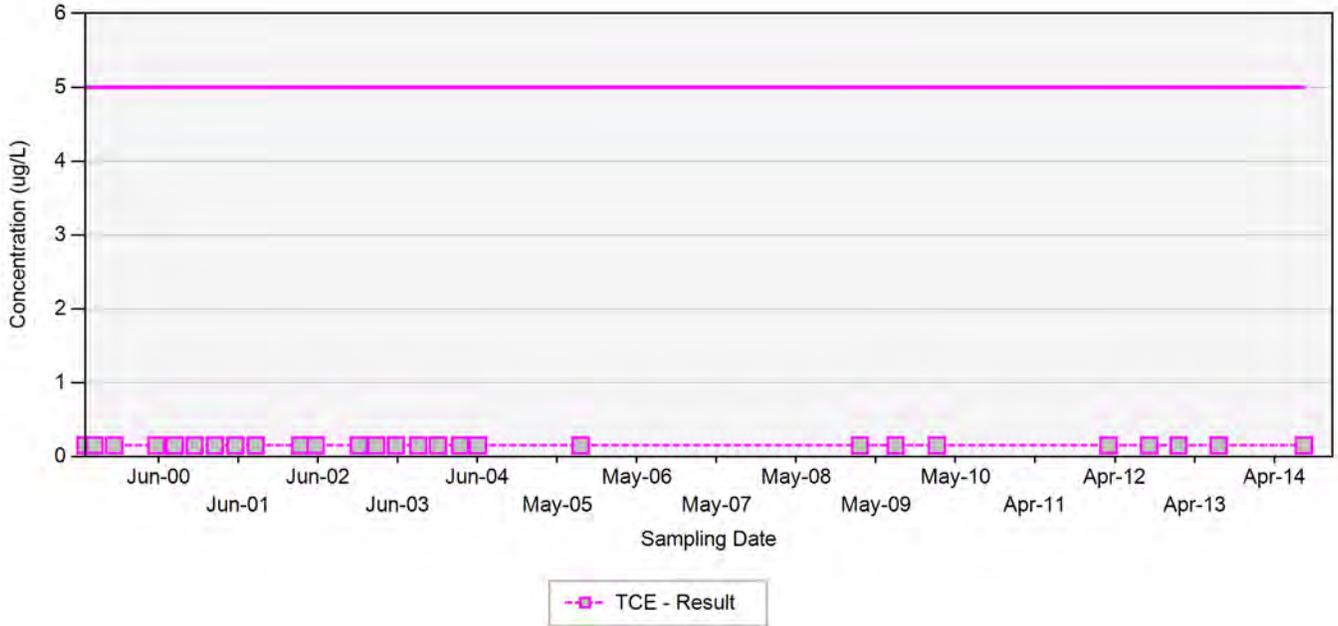
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

UNFL-27



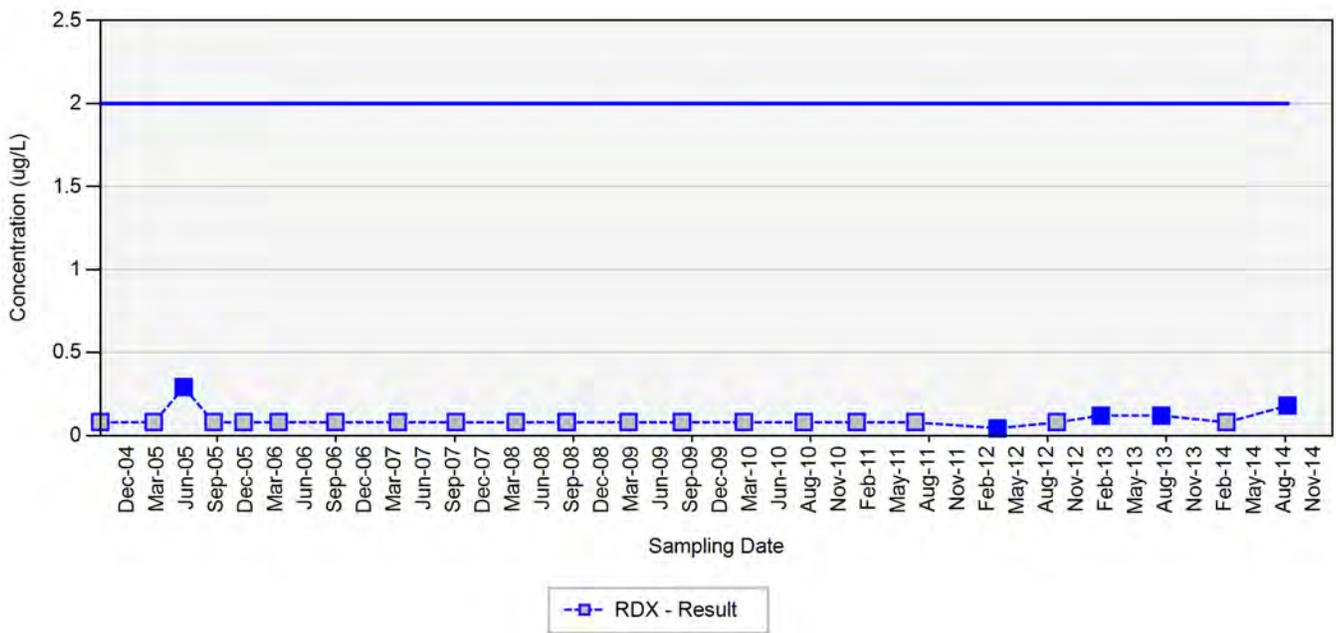
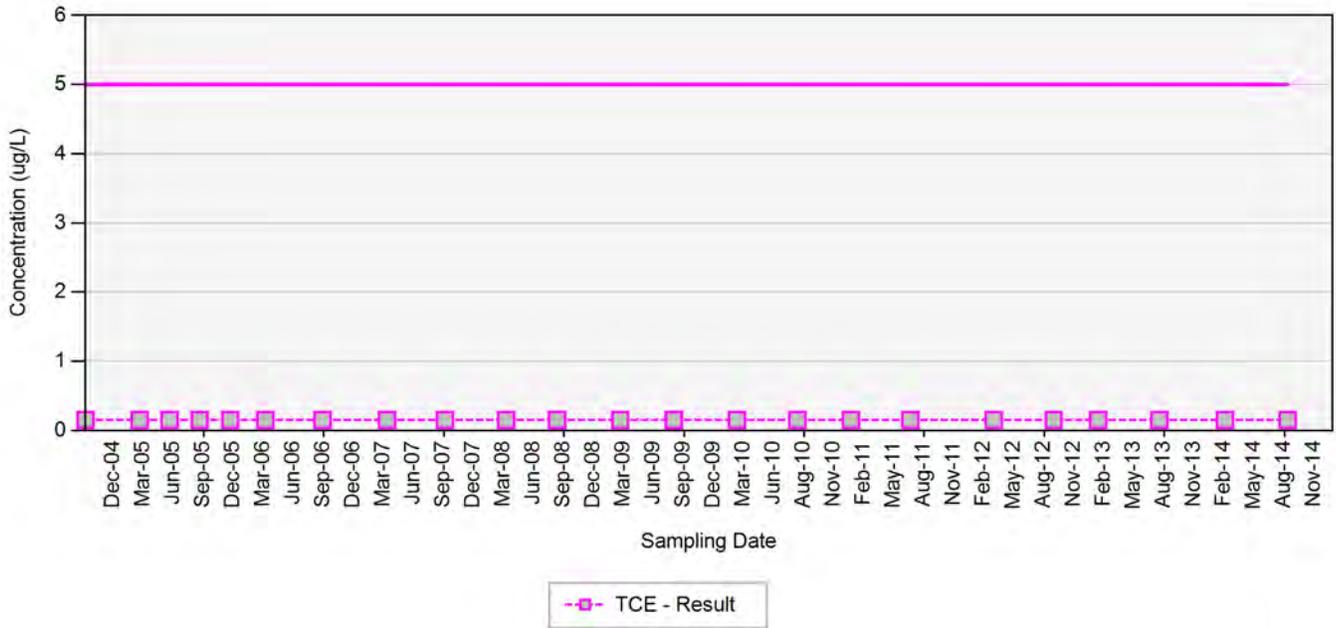
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-100



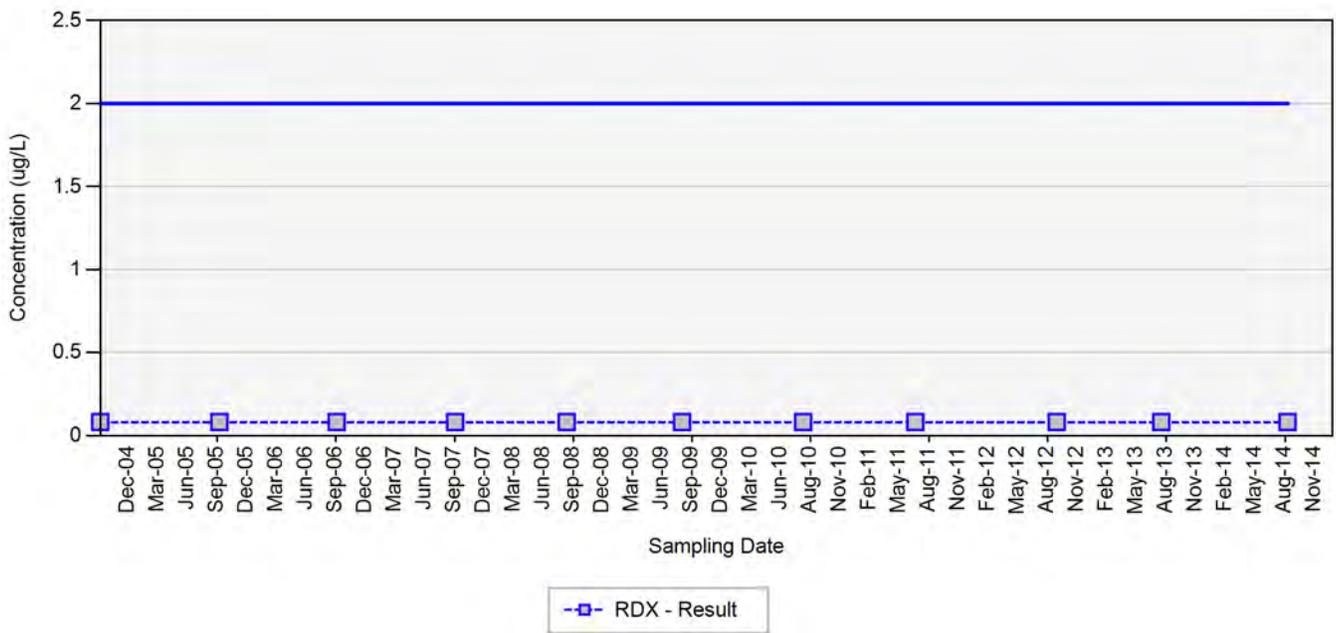
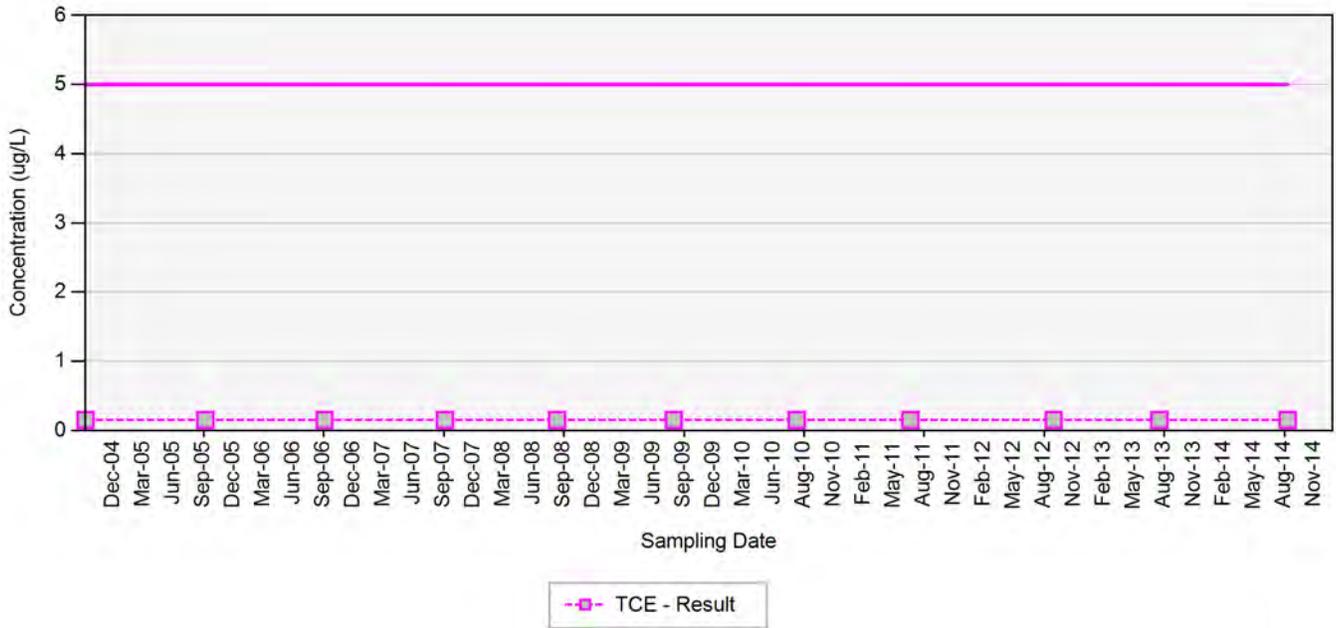
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-101



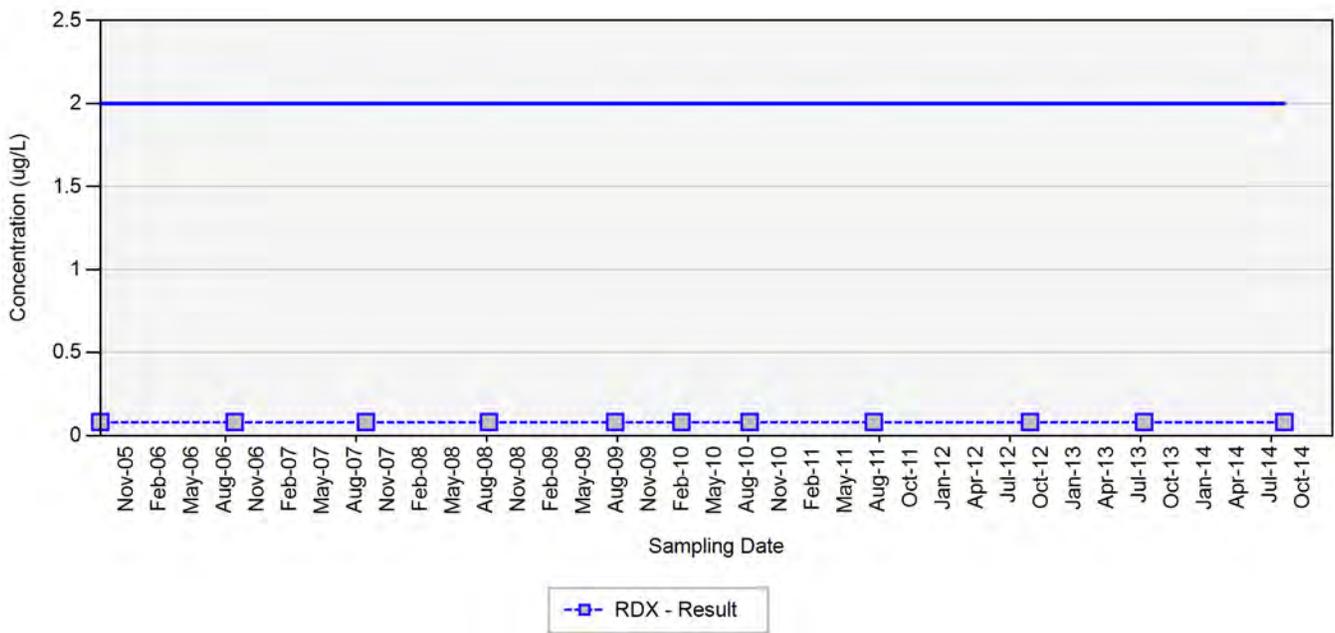
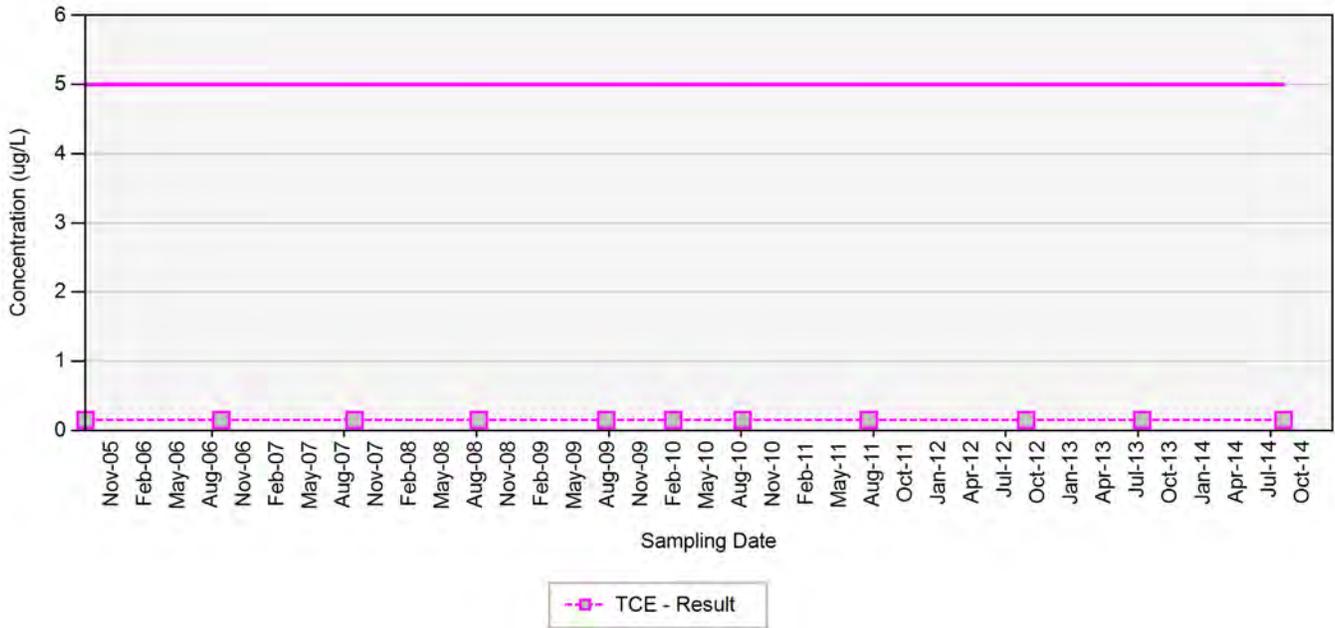
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-102



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

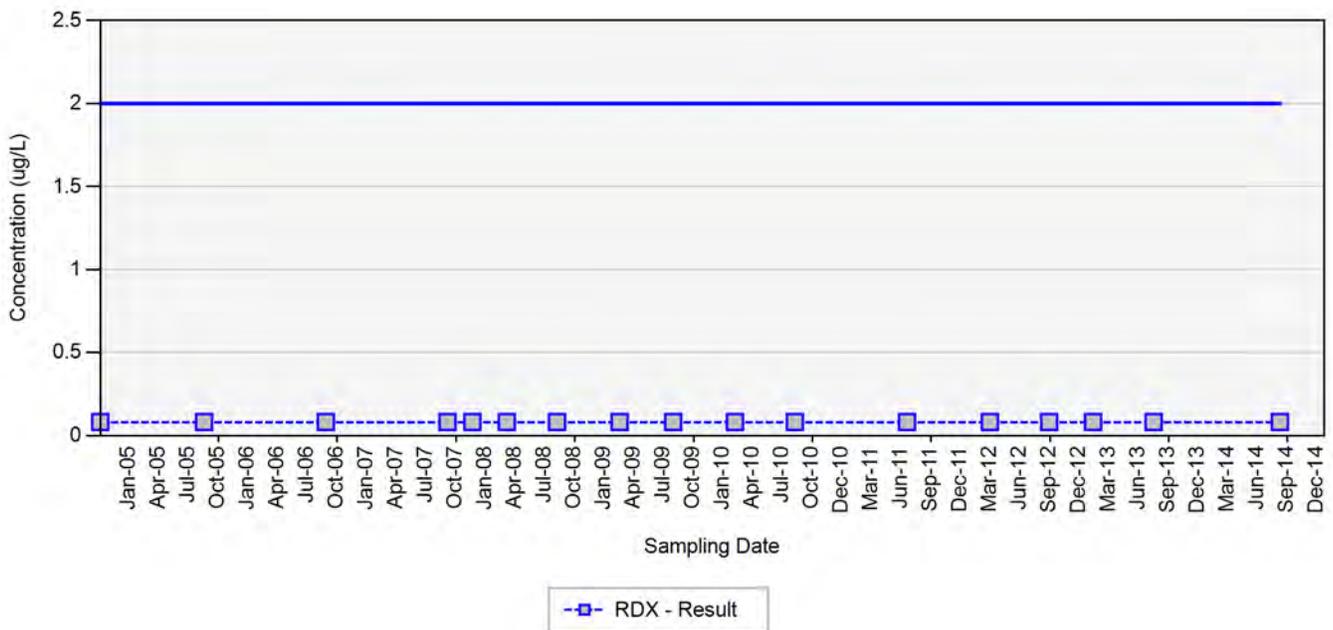
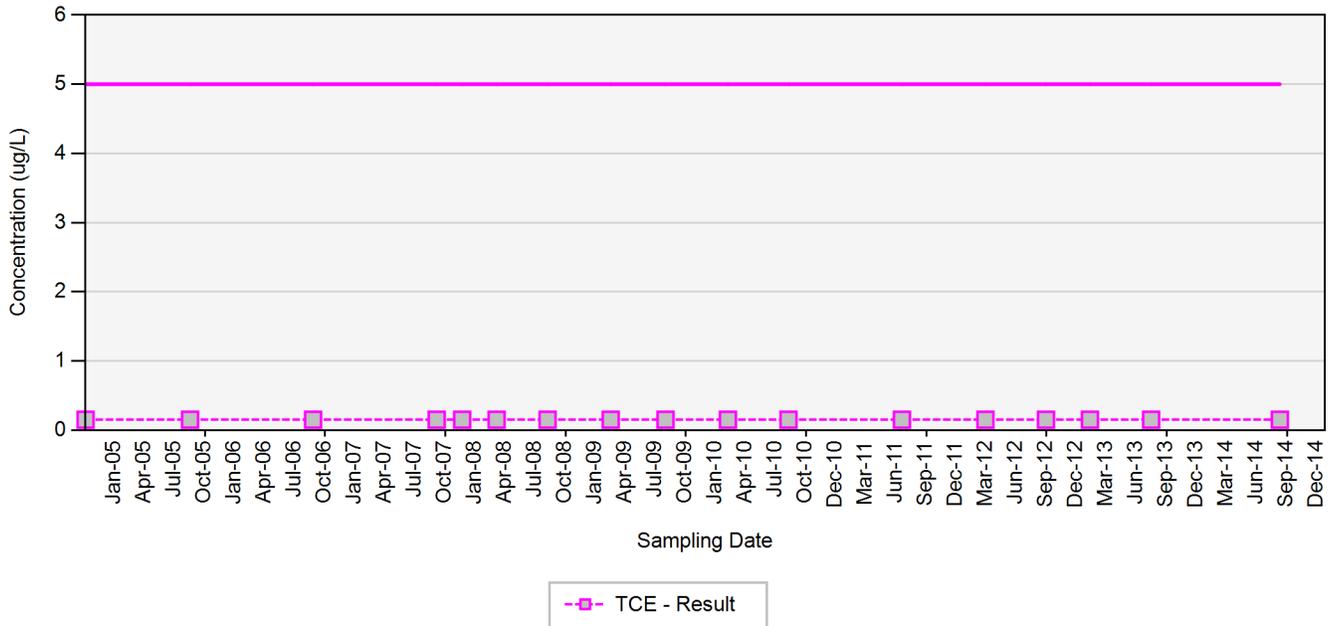
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-103



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

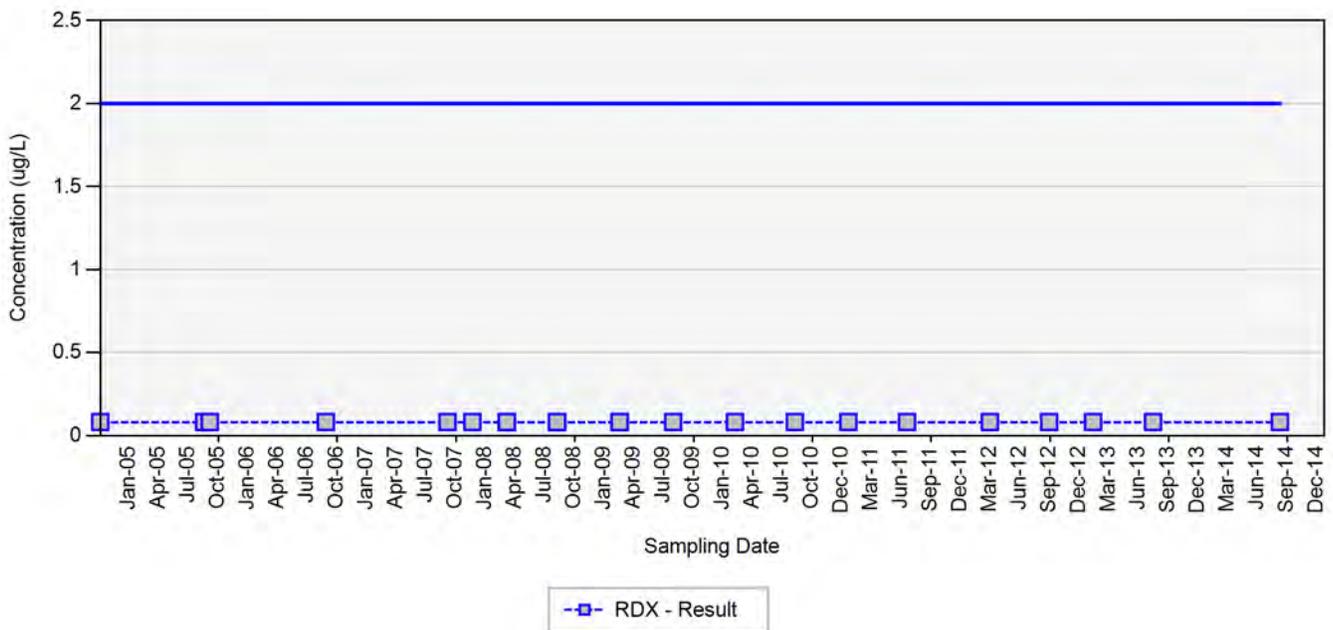
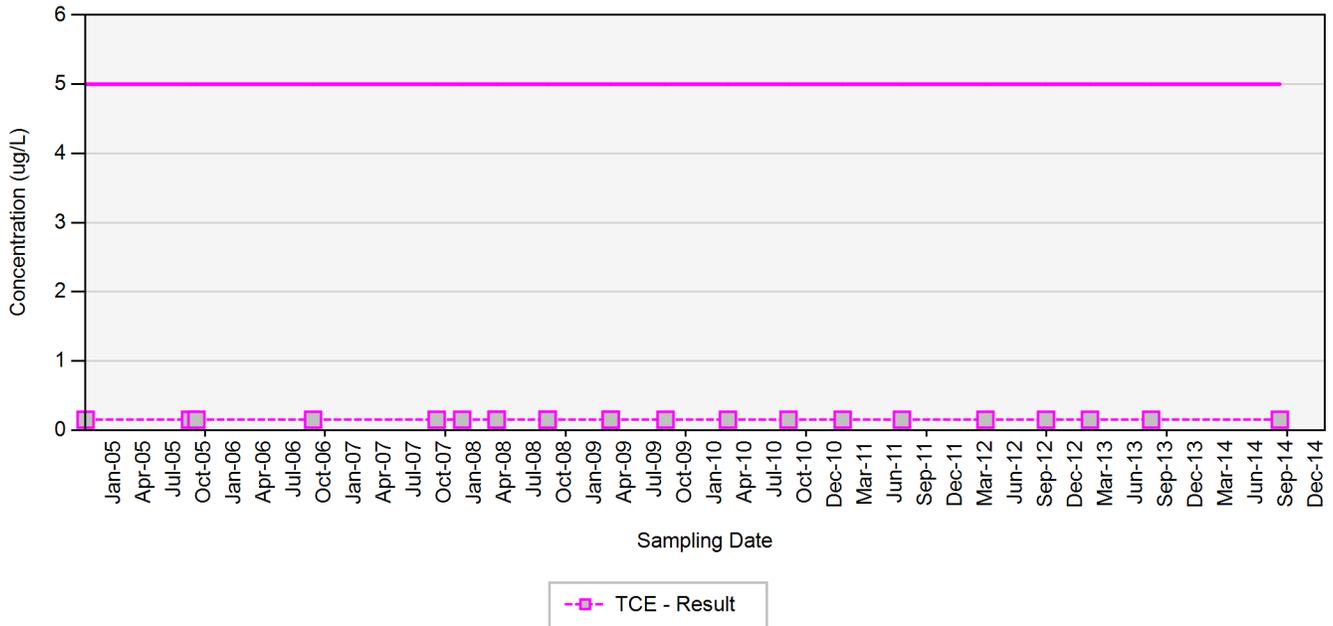
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-104

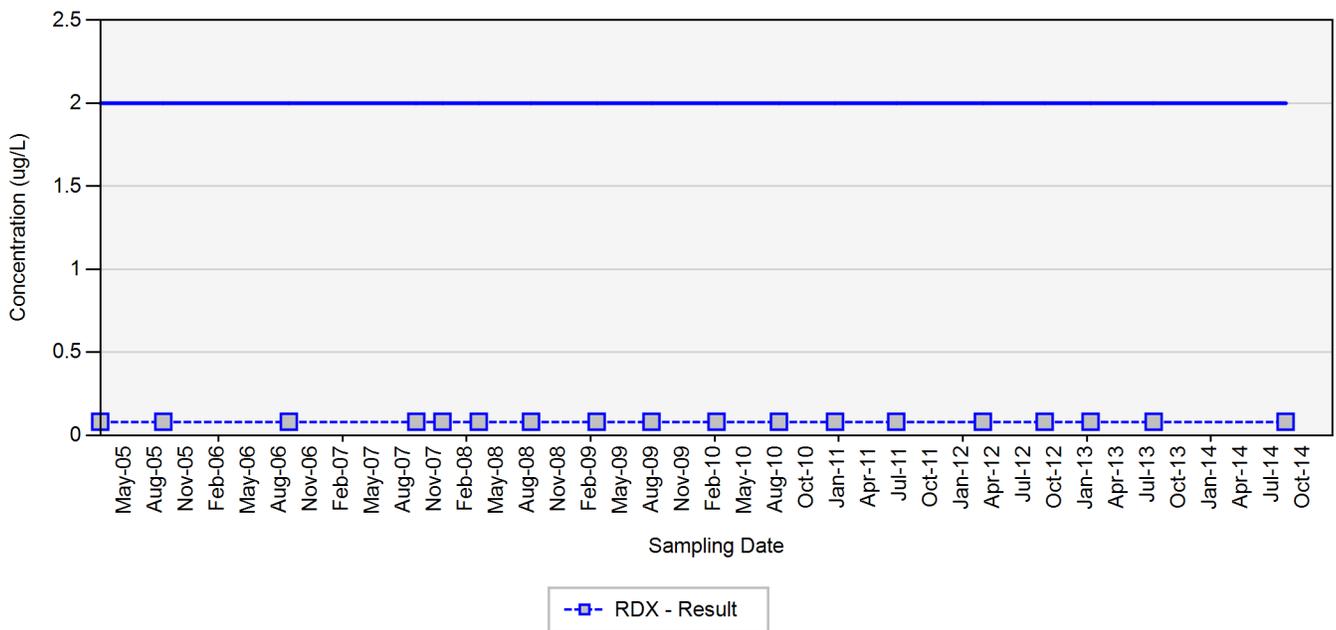
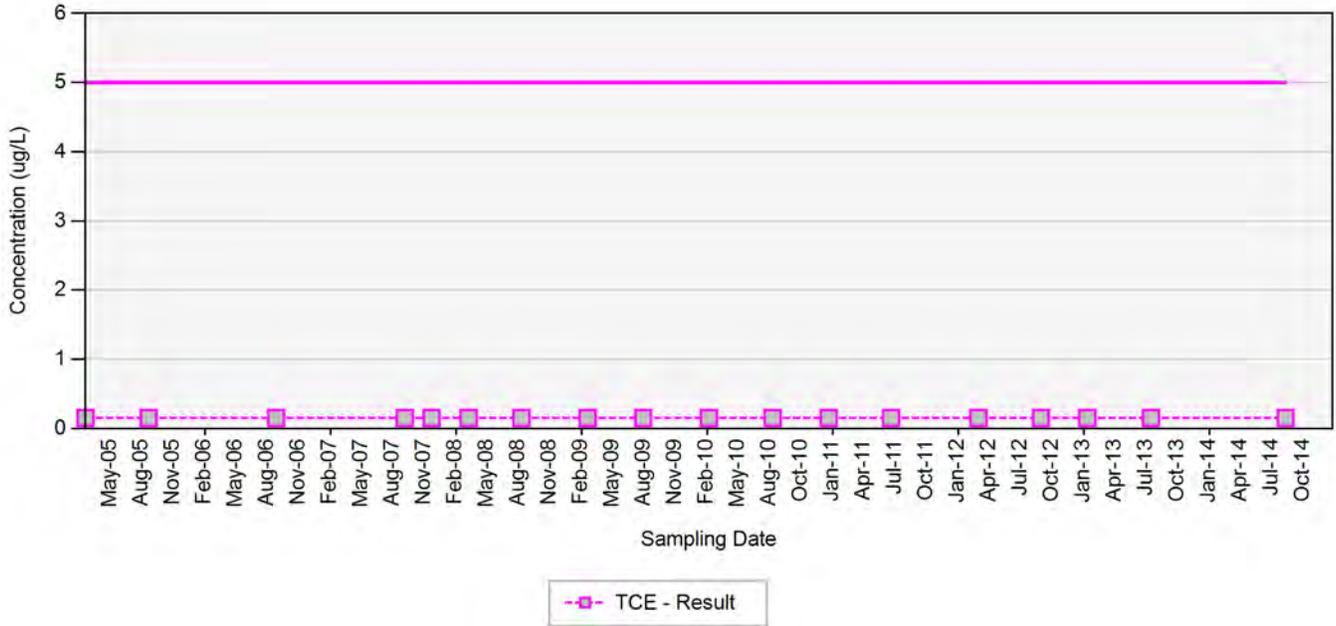


TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

Appendix C
Concentration Trend Charts for Water Supply Wells
WSW-105



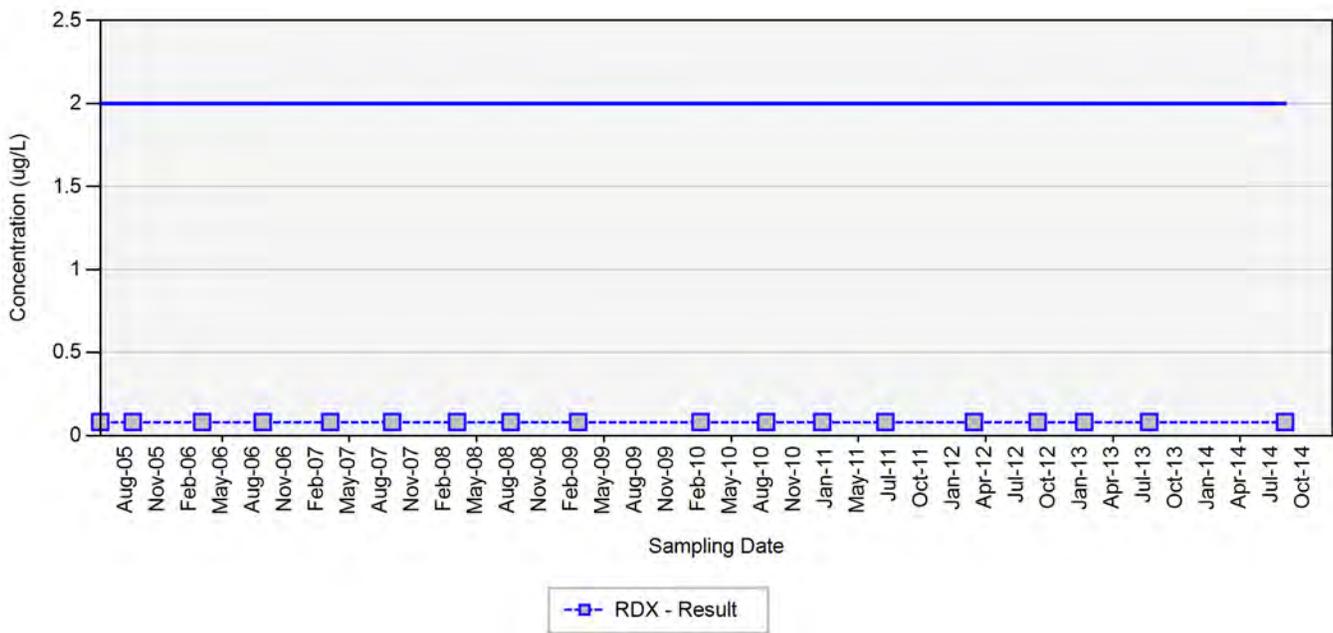
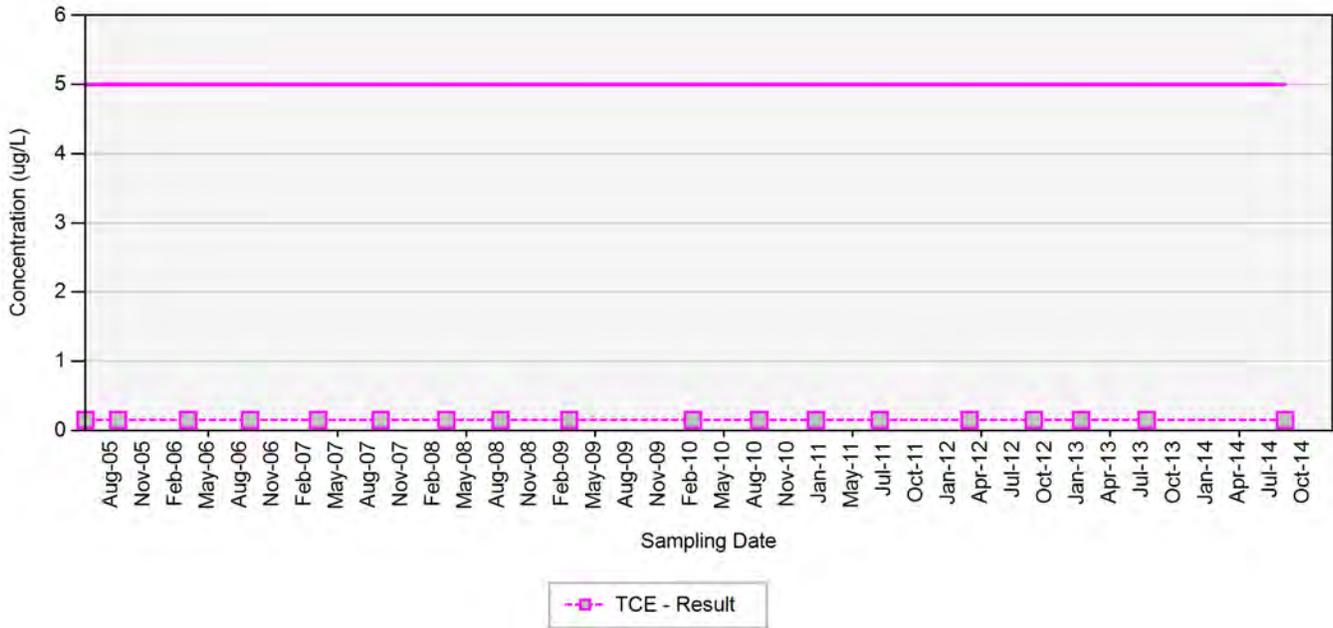
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-106



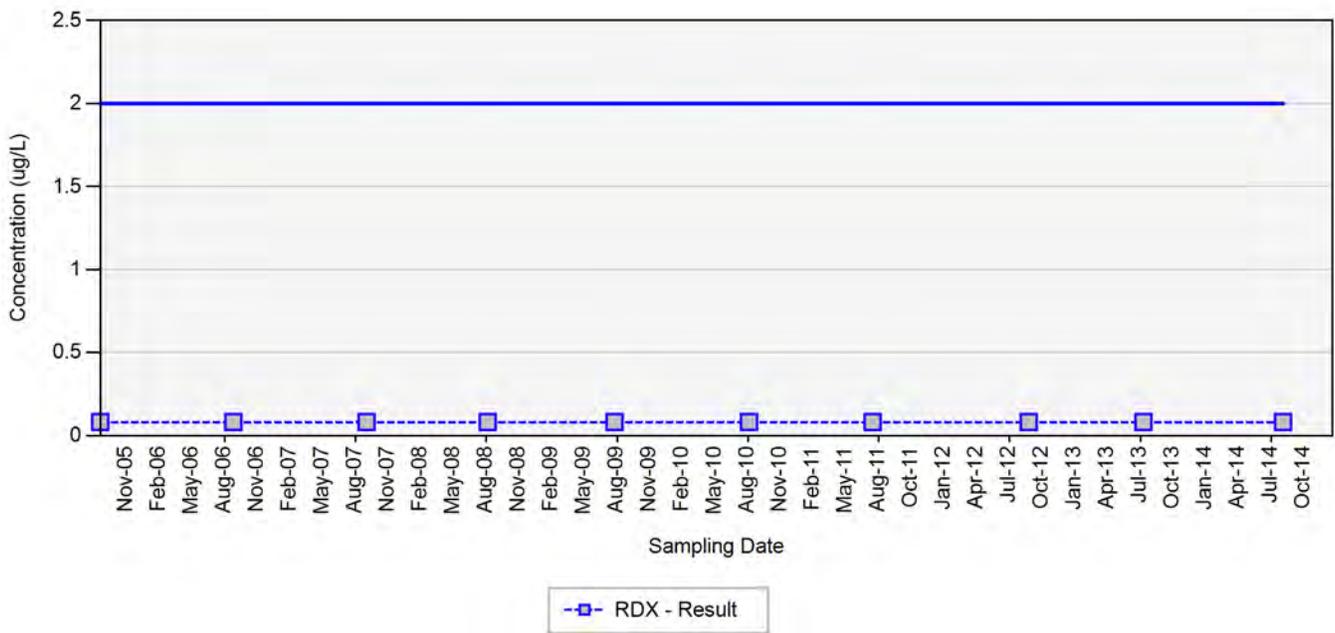
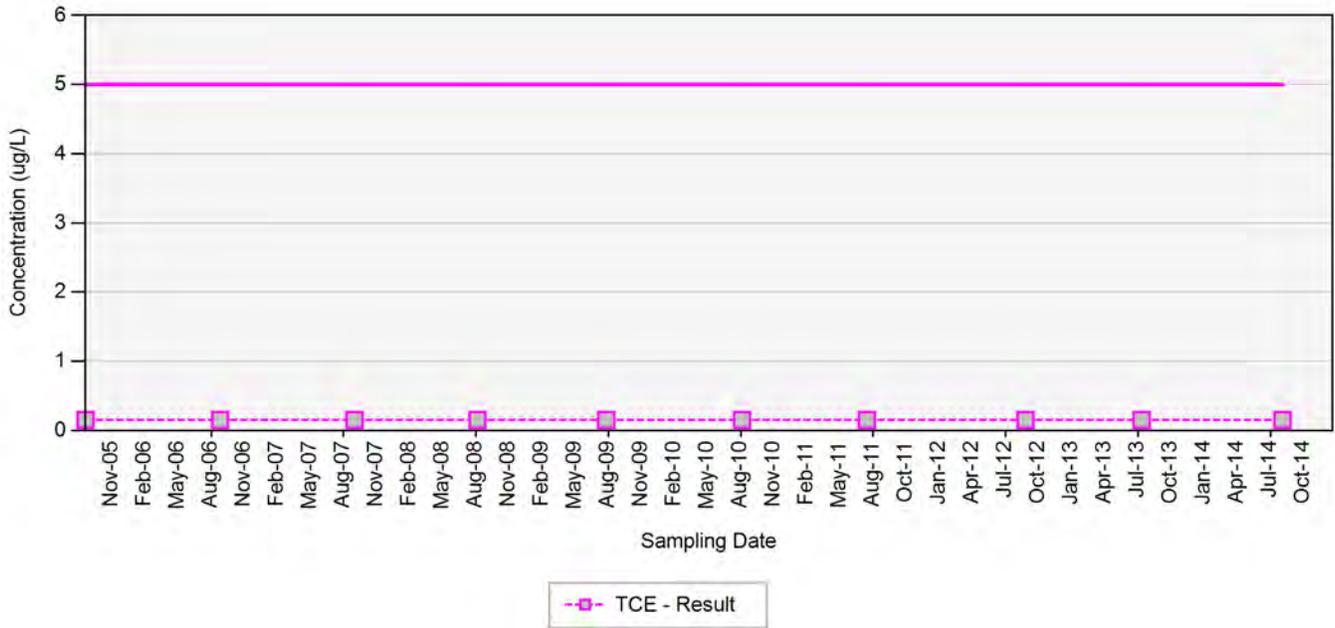
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-107



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

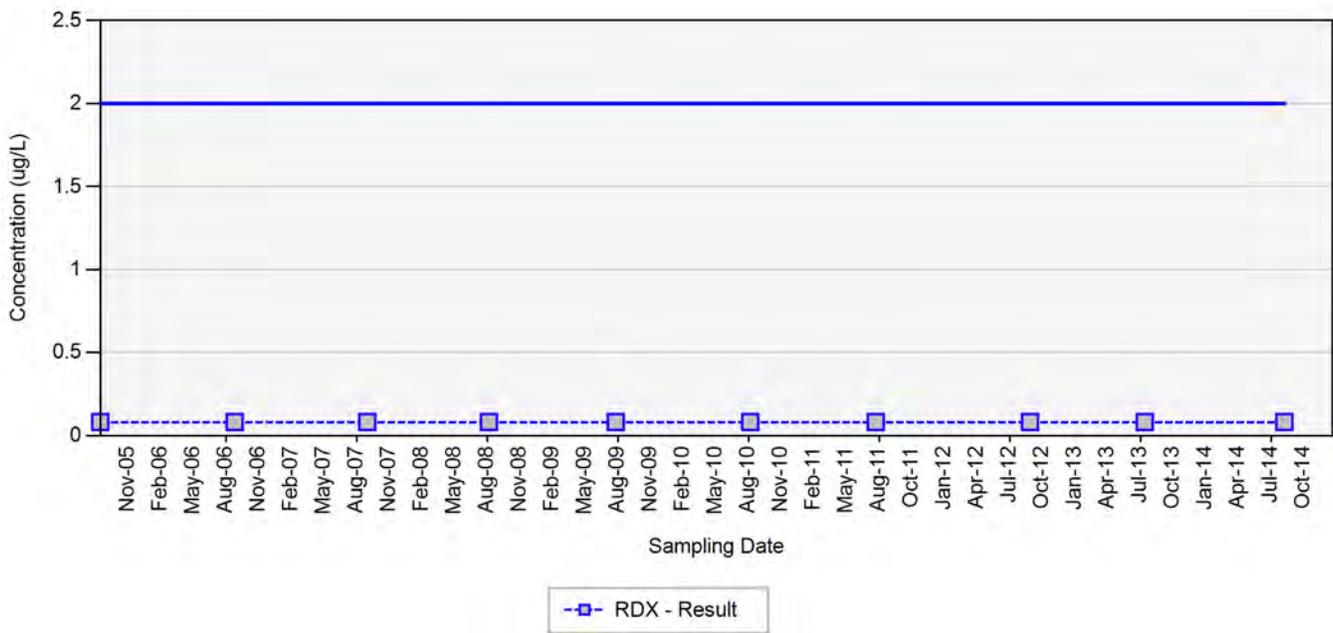
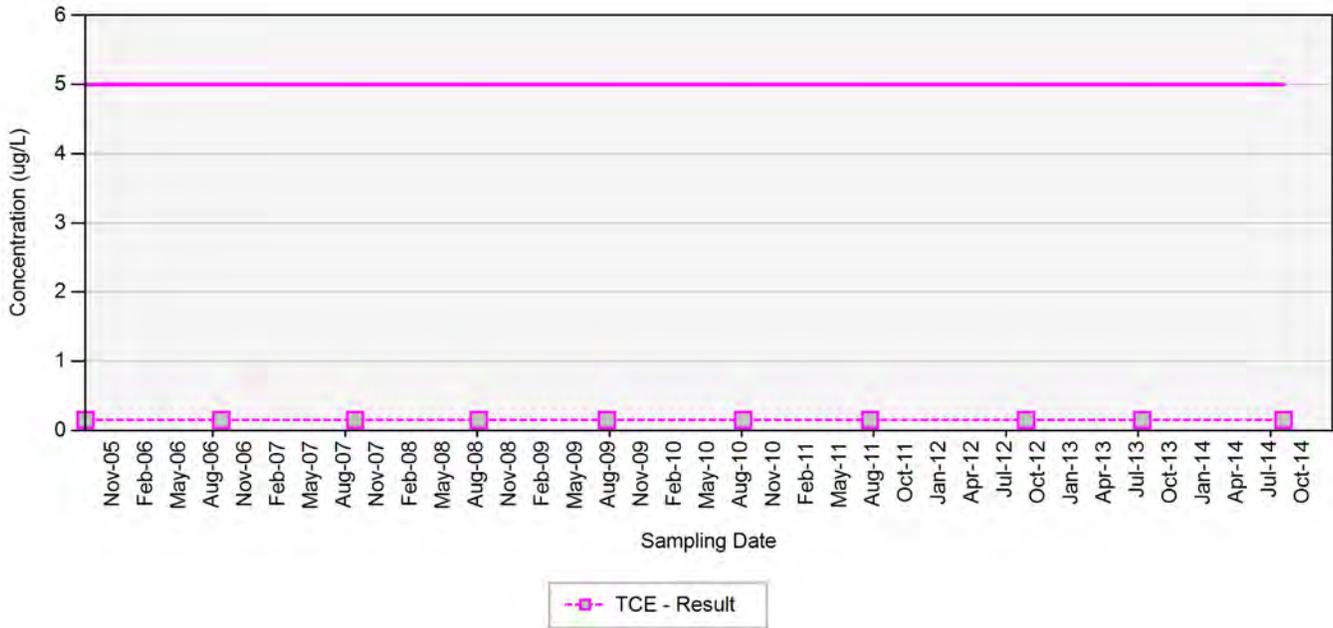
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-108



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

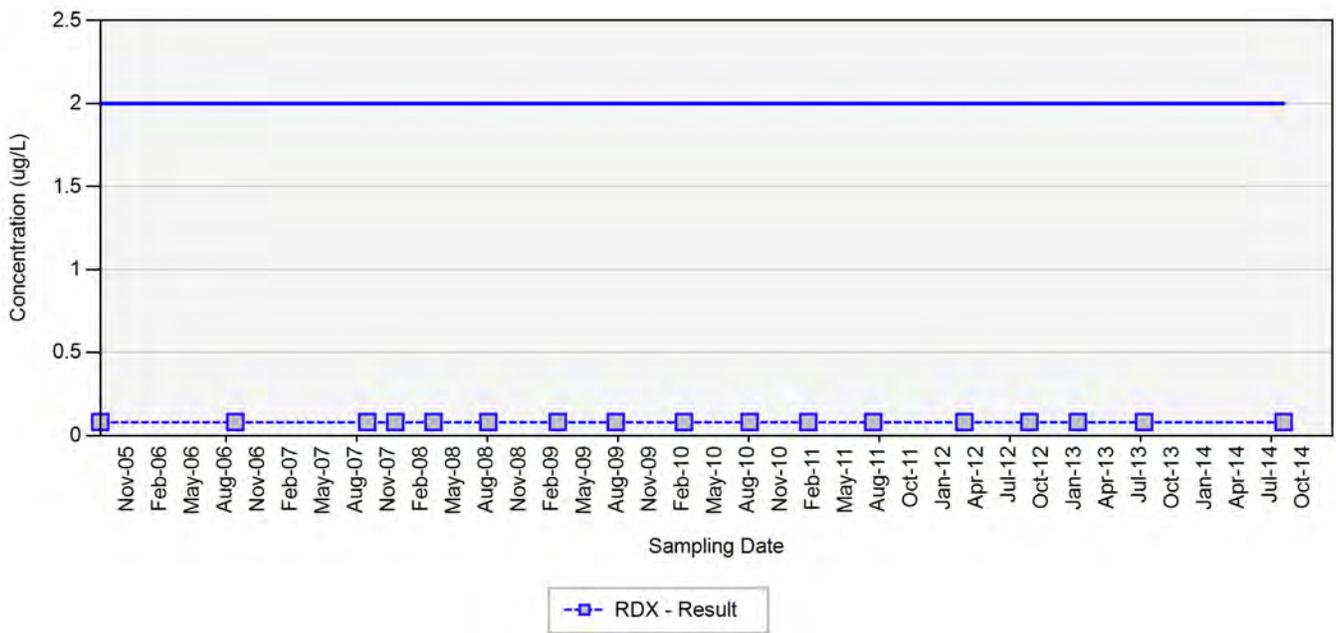
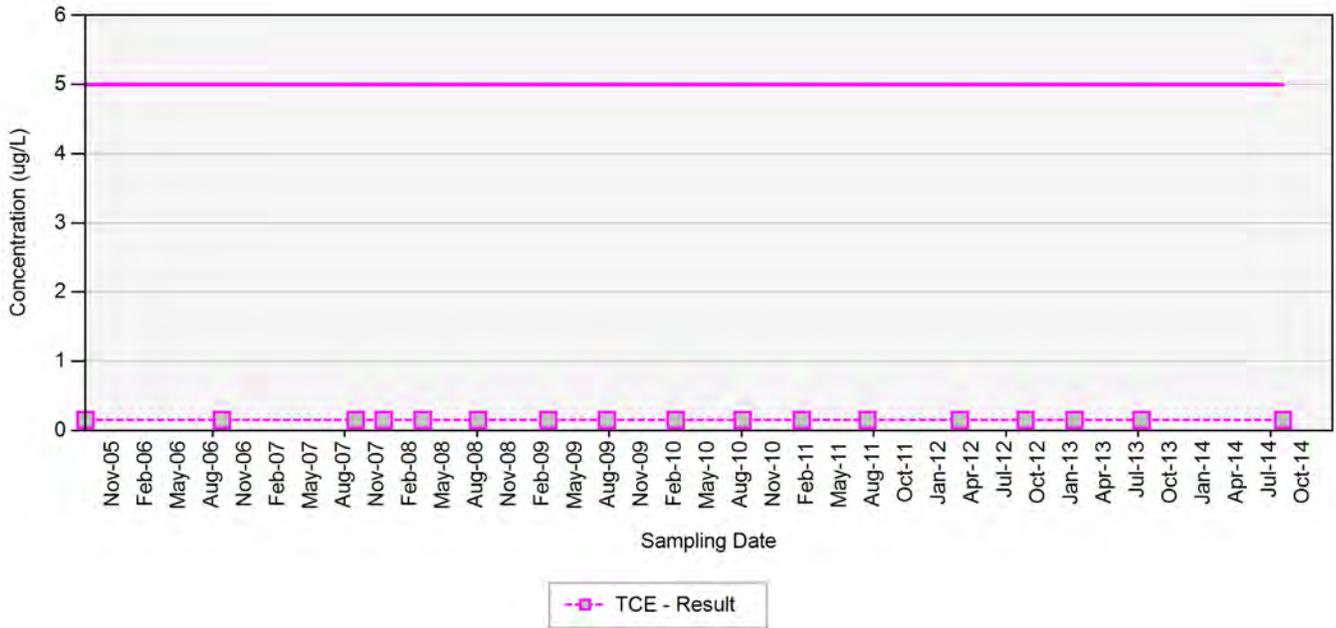
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-109



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

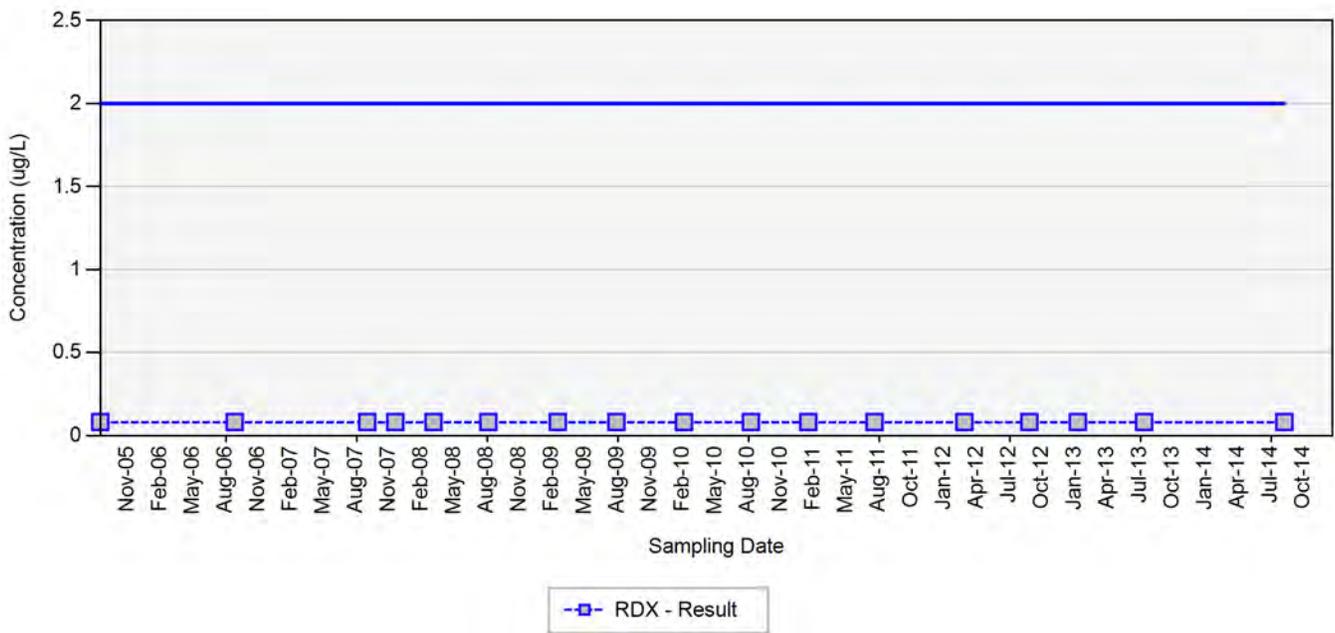
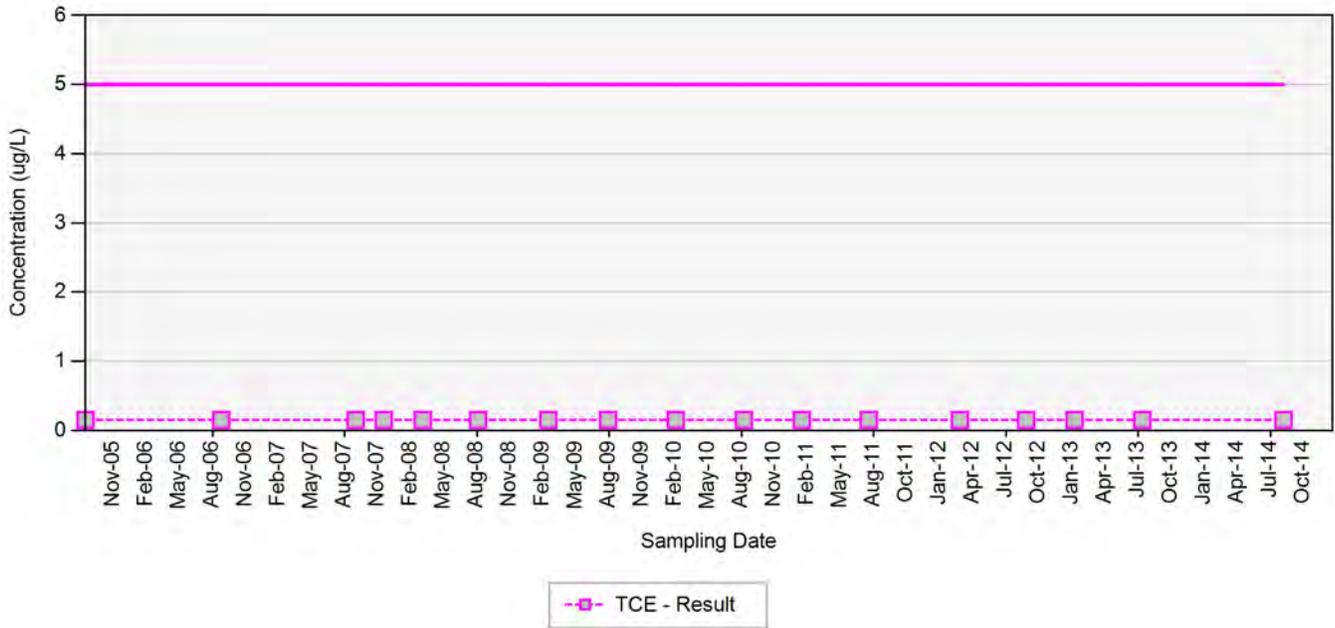
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-110



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

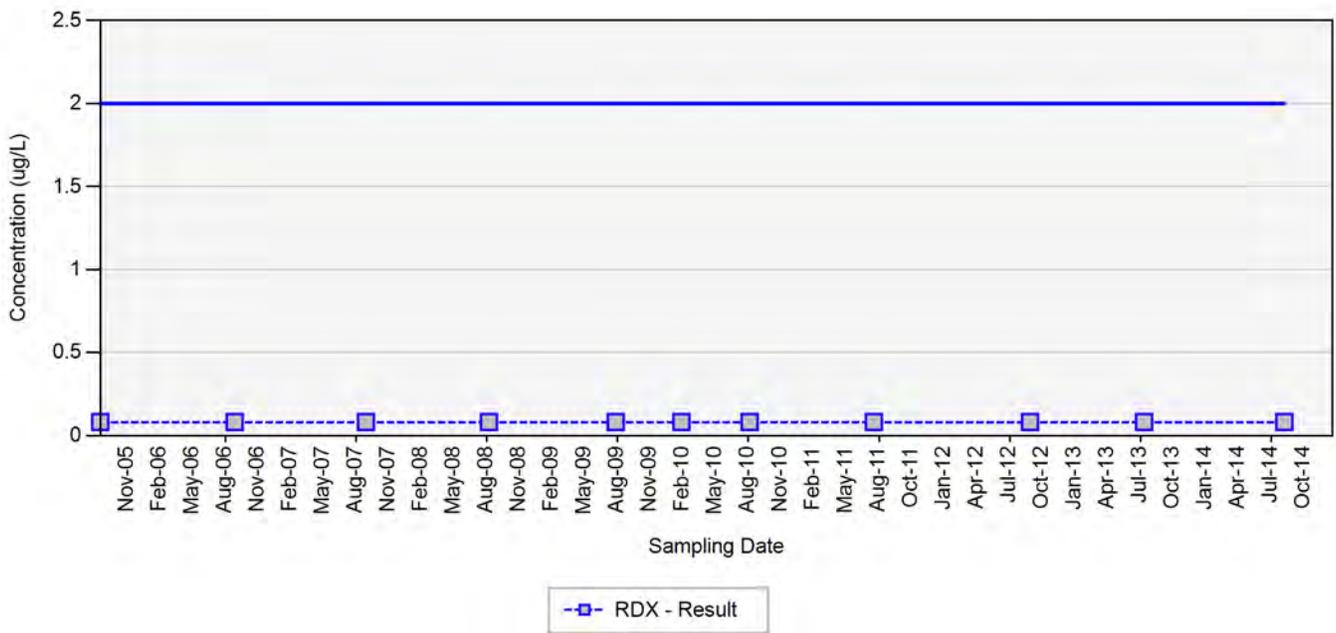
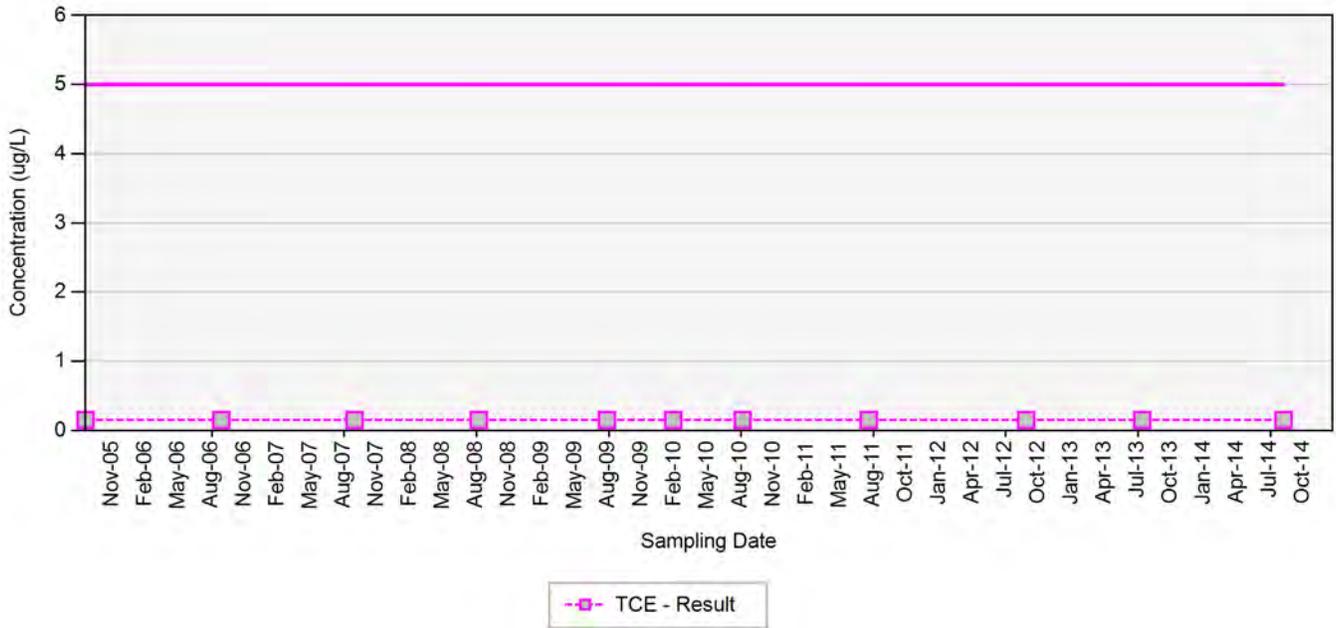
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-111



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

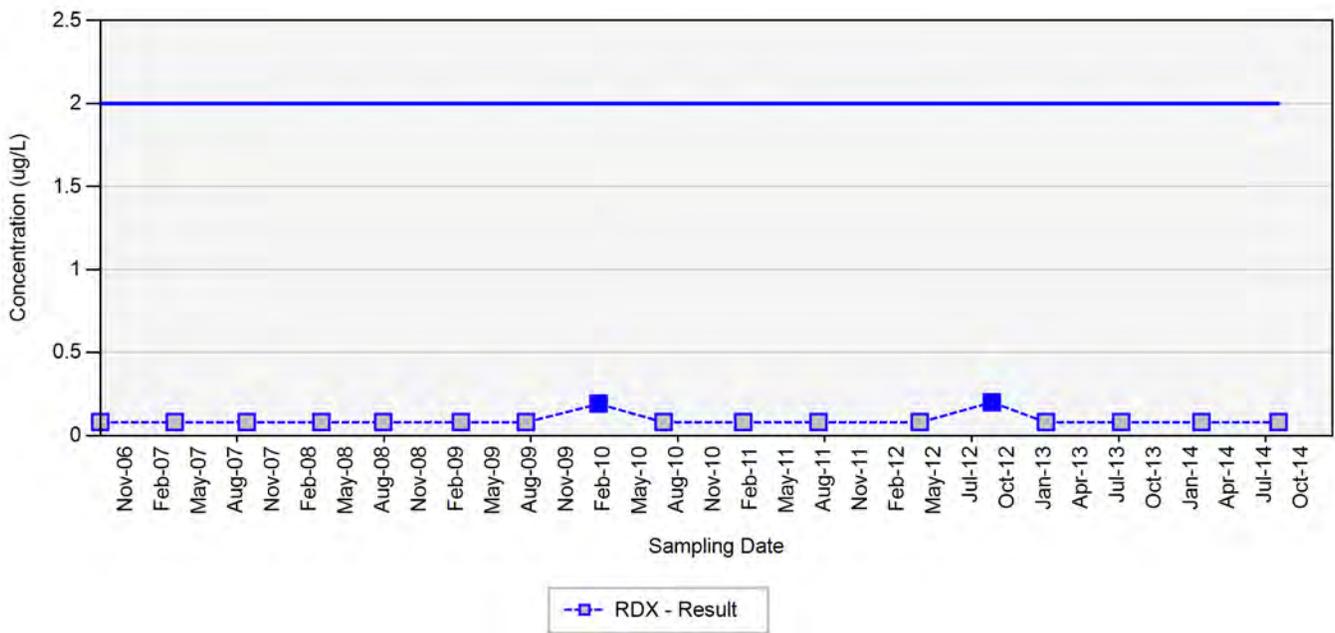
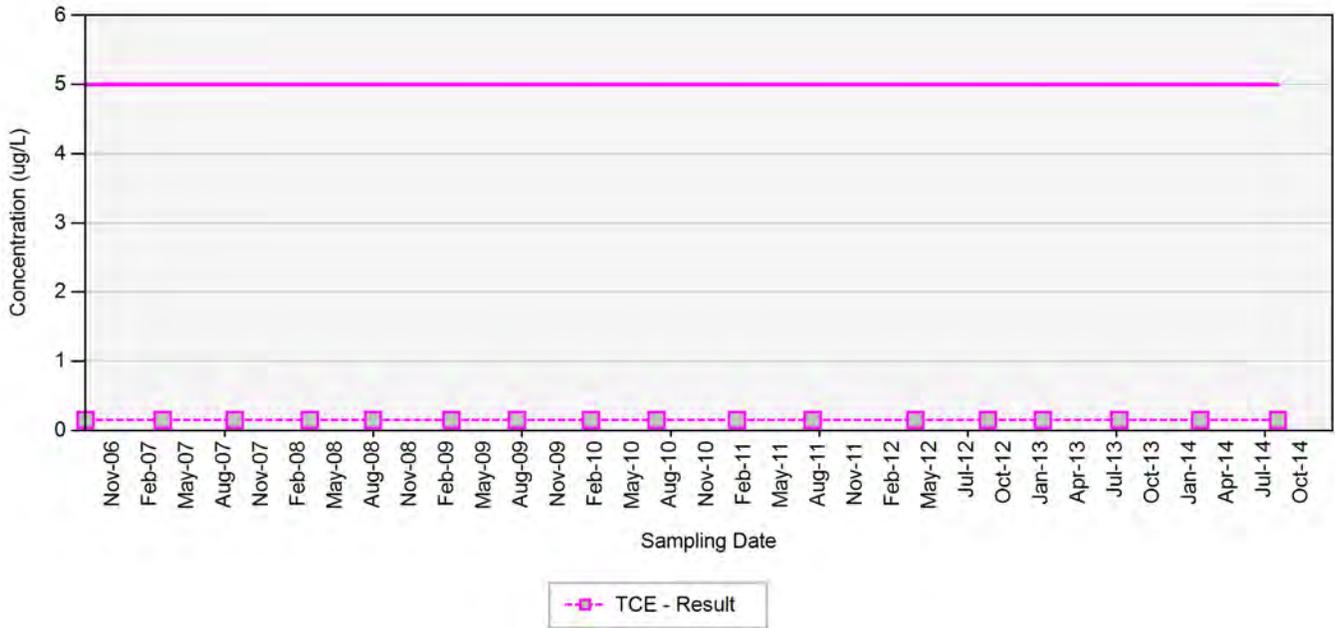
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-112



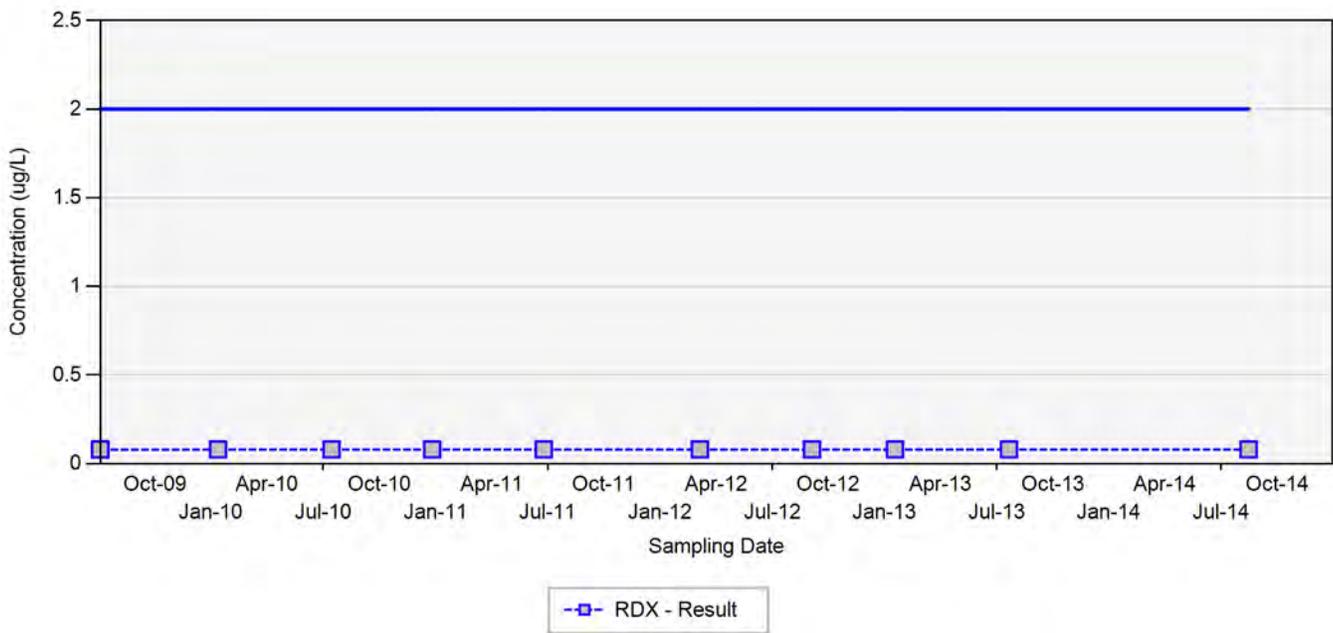
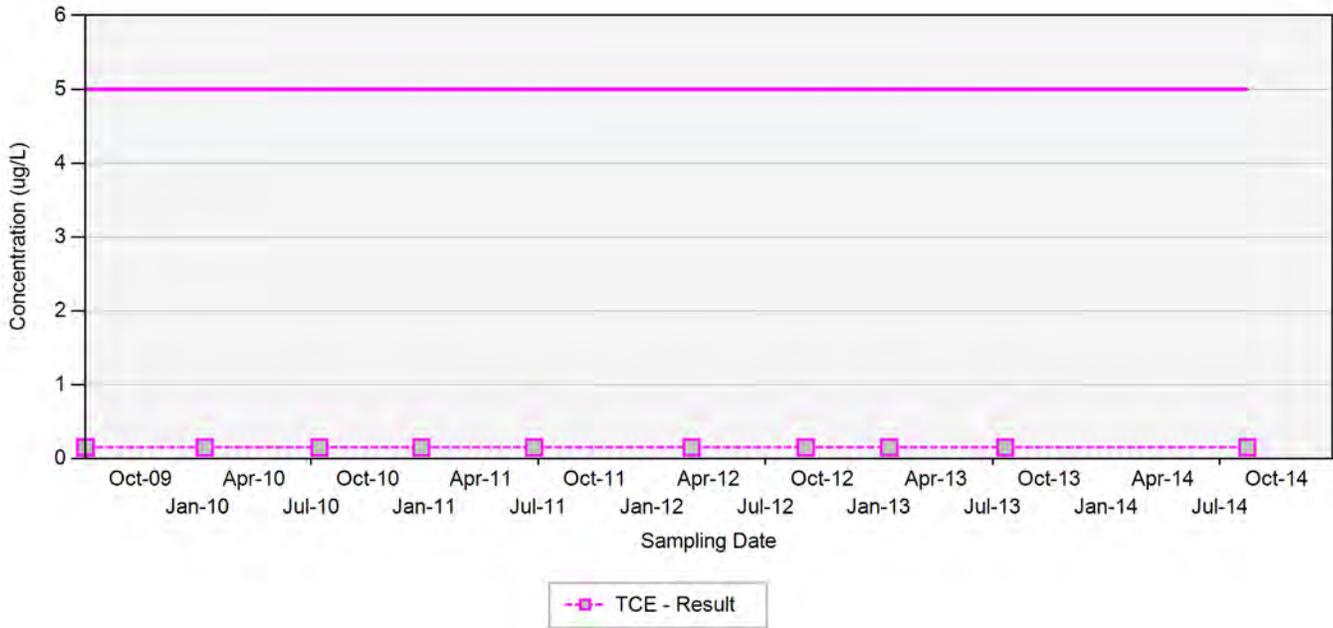
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-113



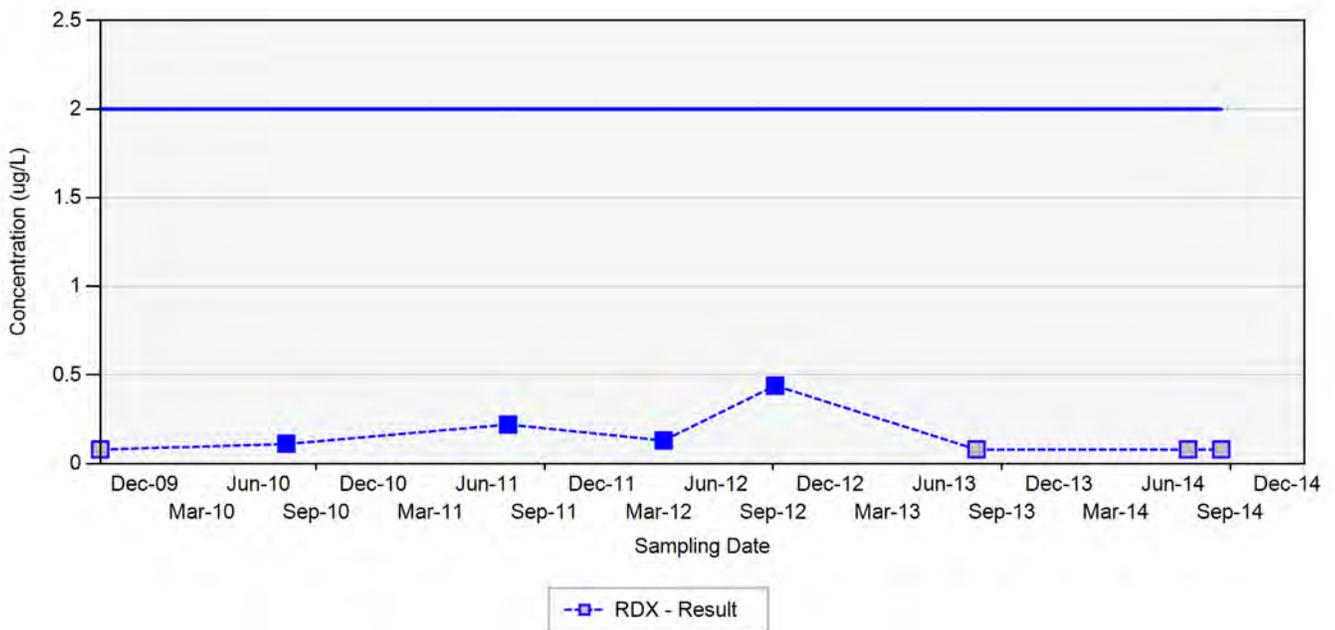
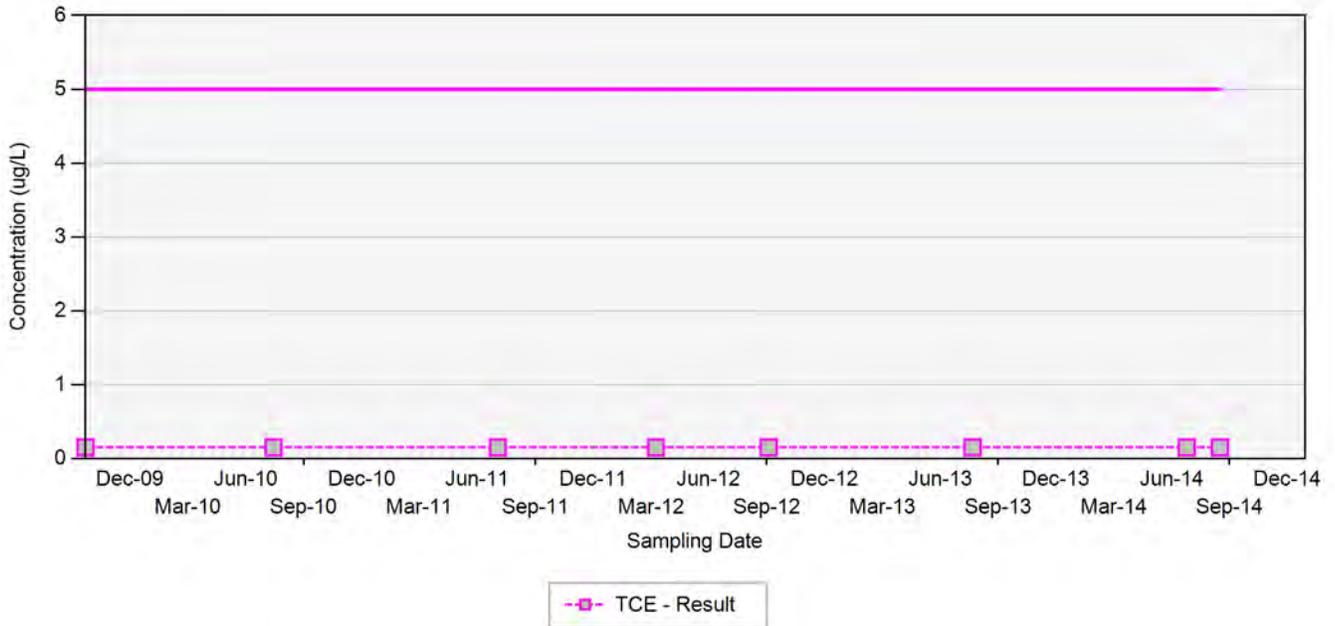
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-114



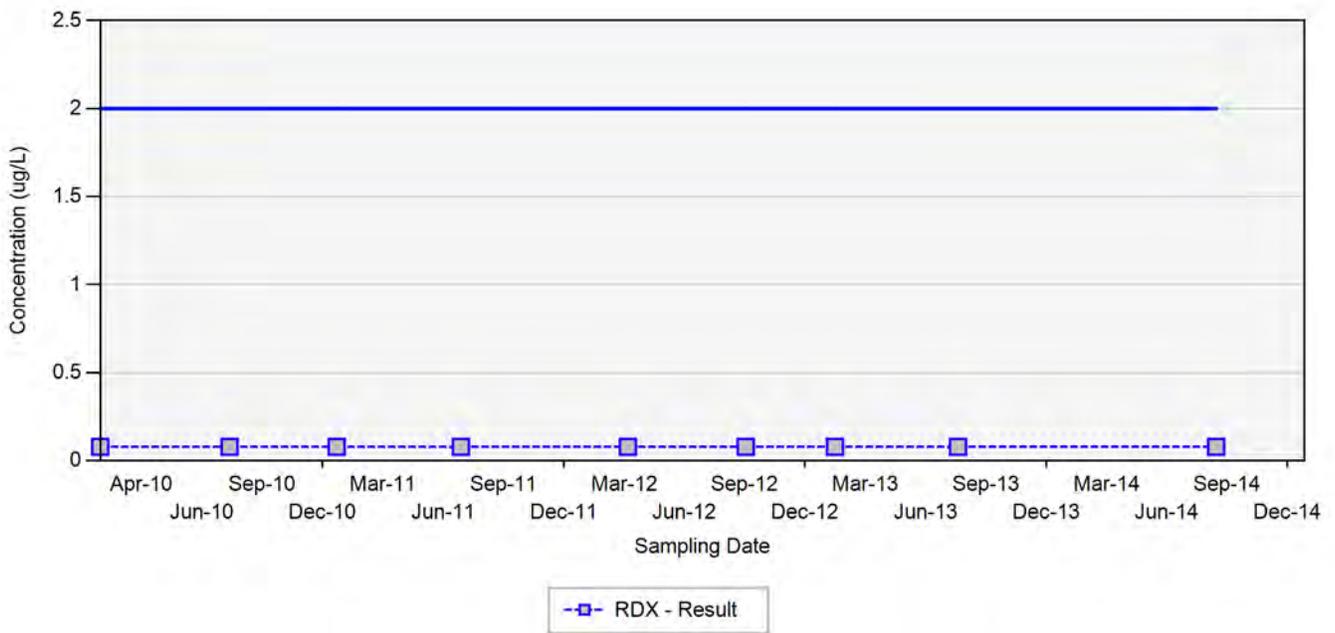
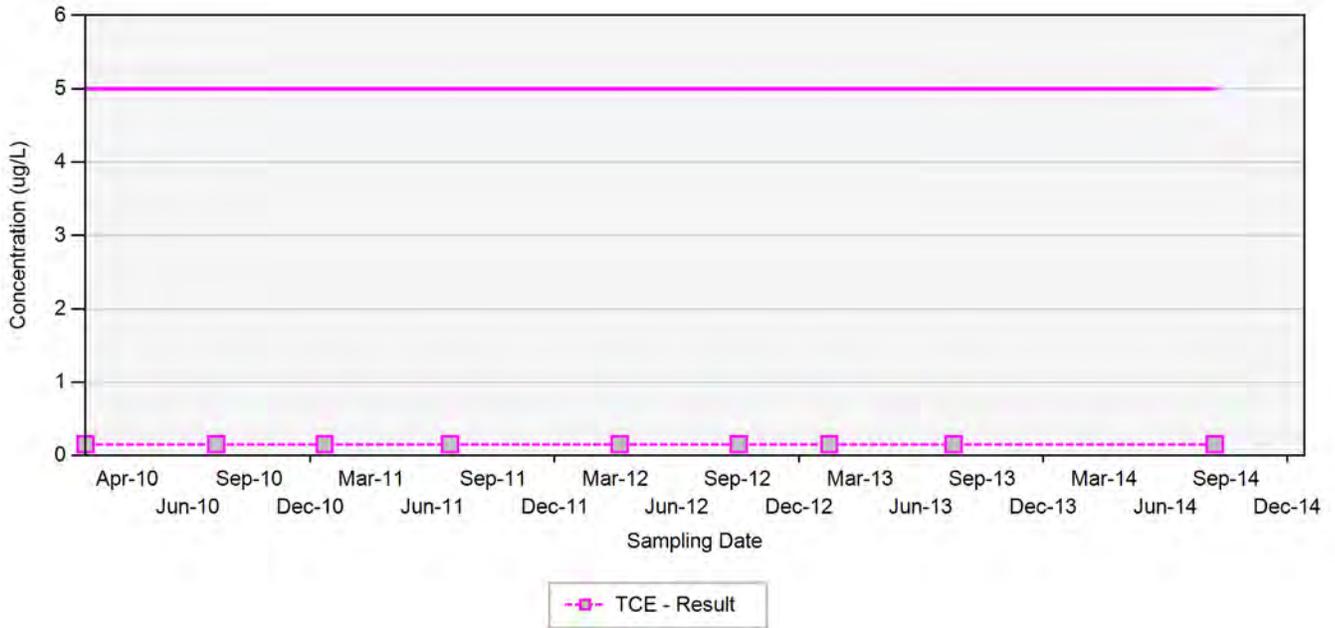
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-115



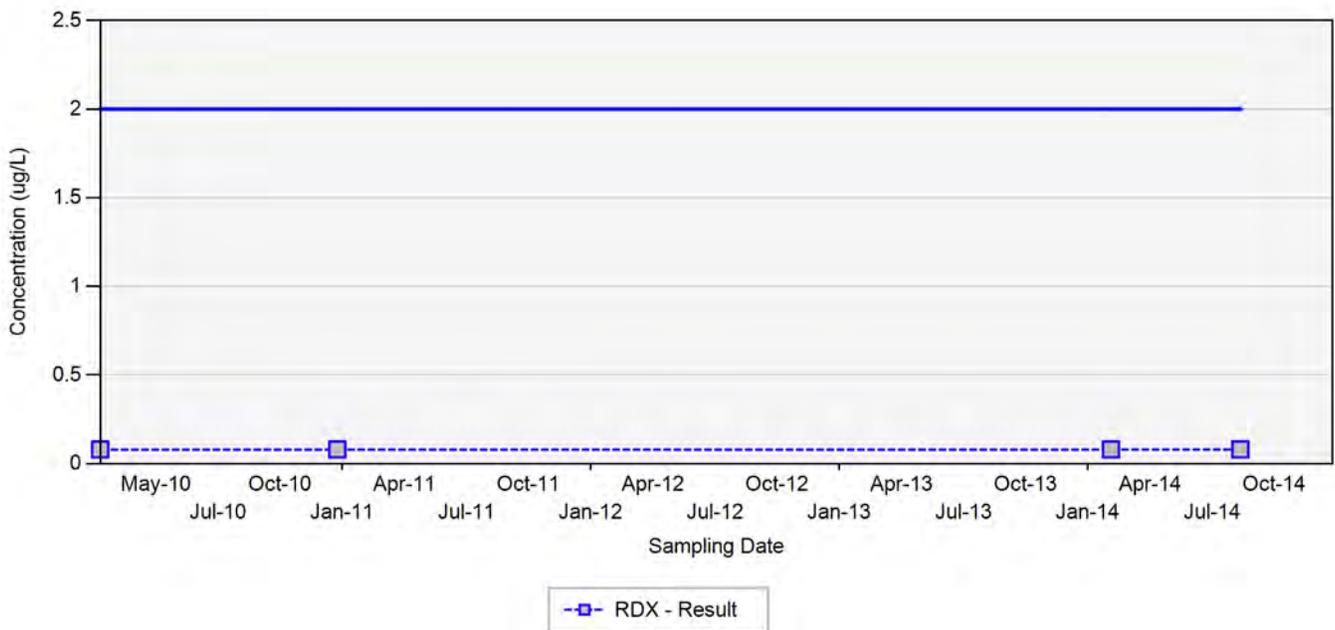
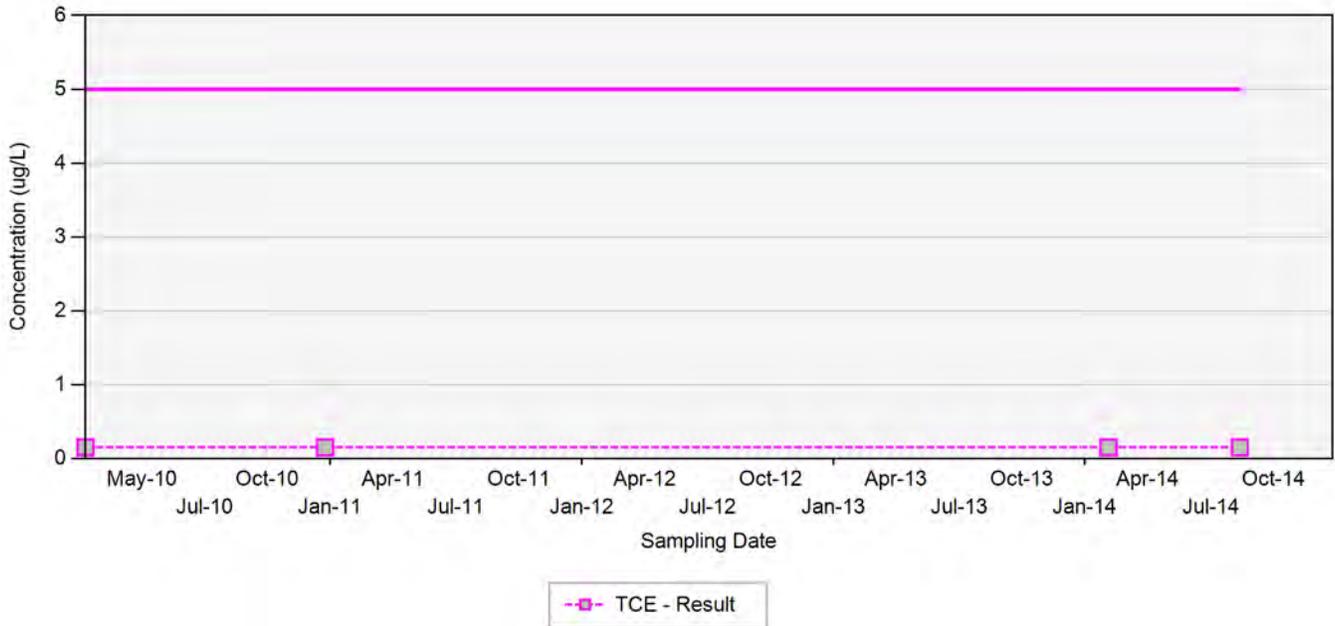
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-116



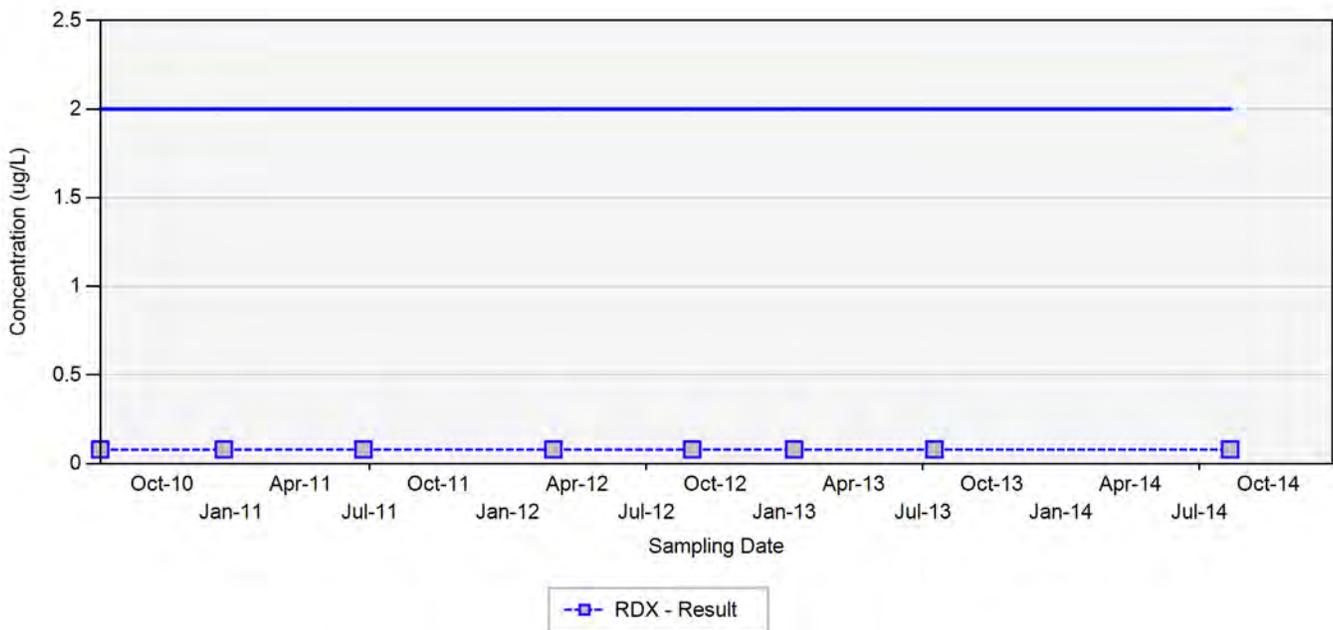
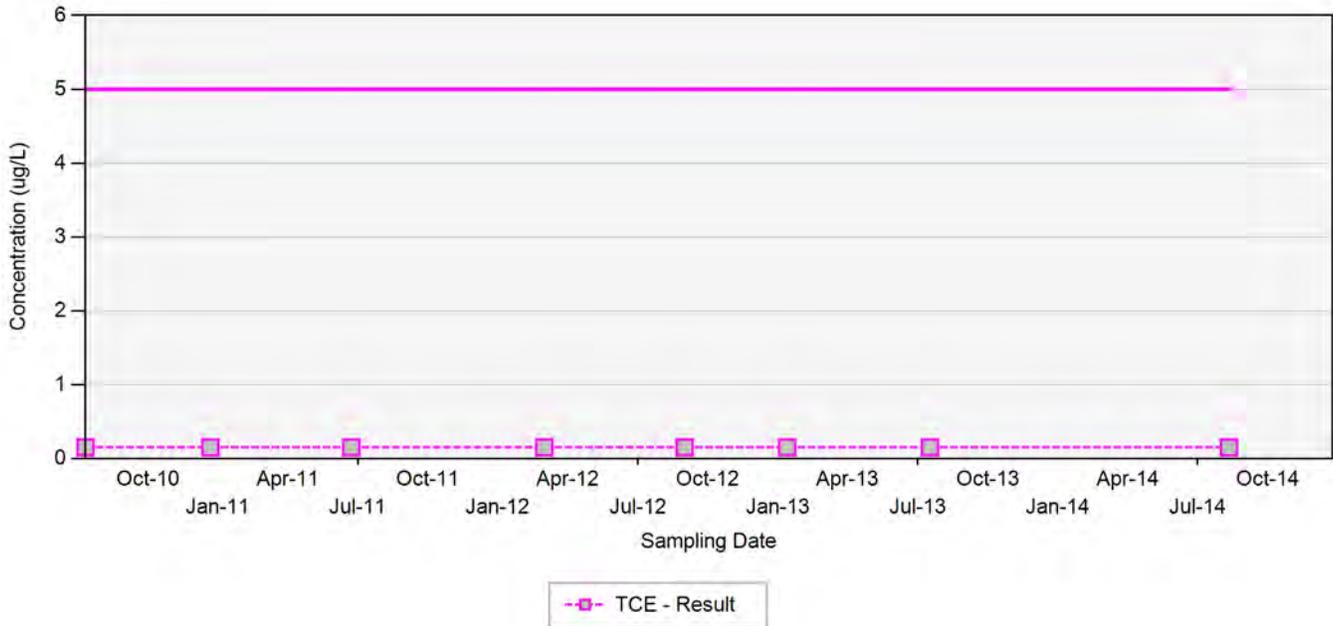
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-117



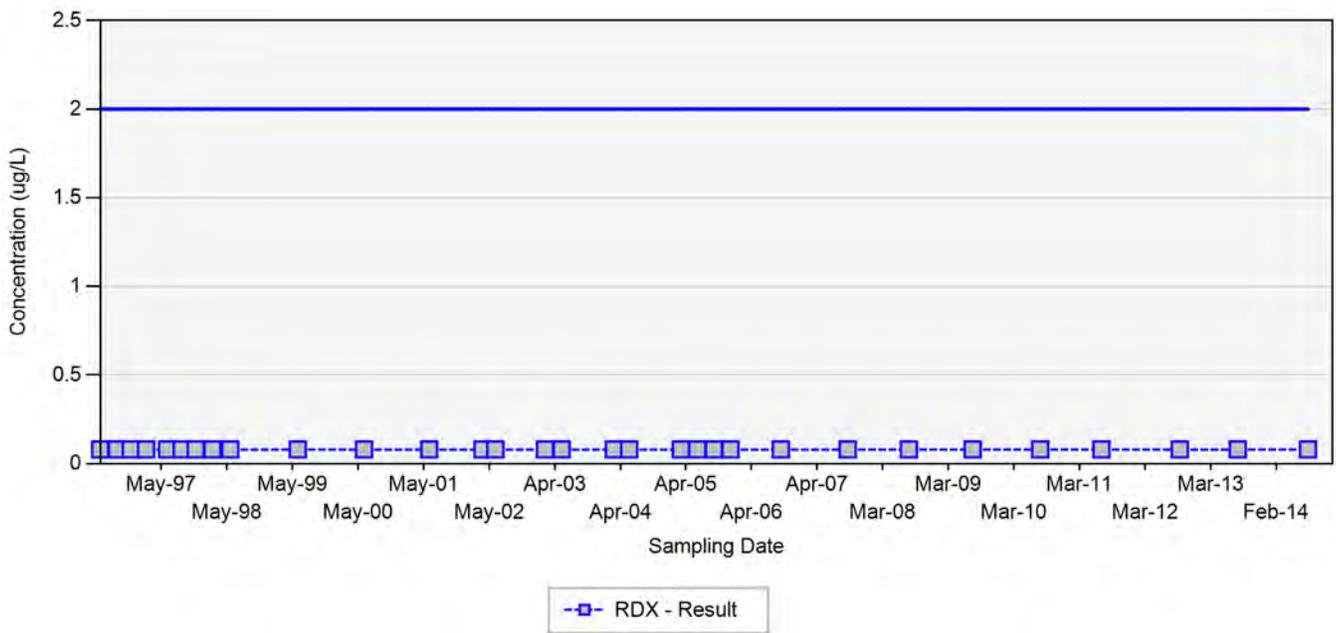
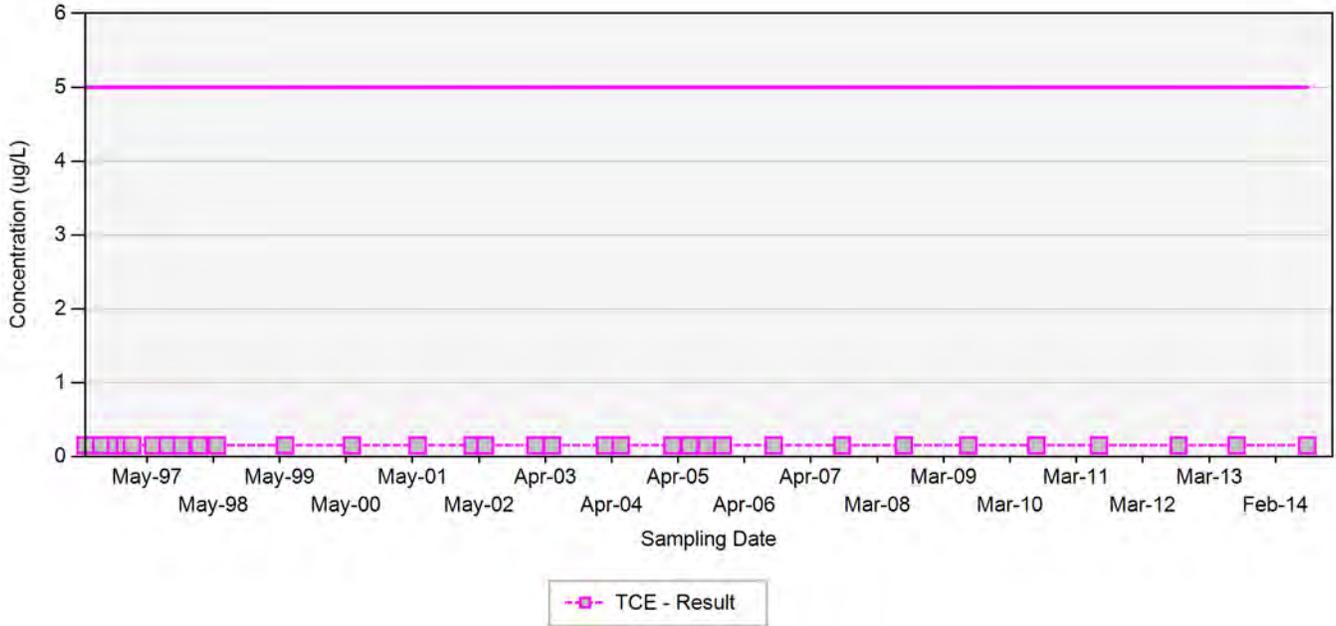
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-27



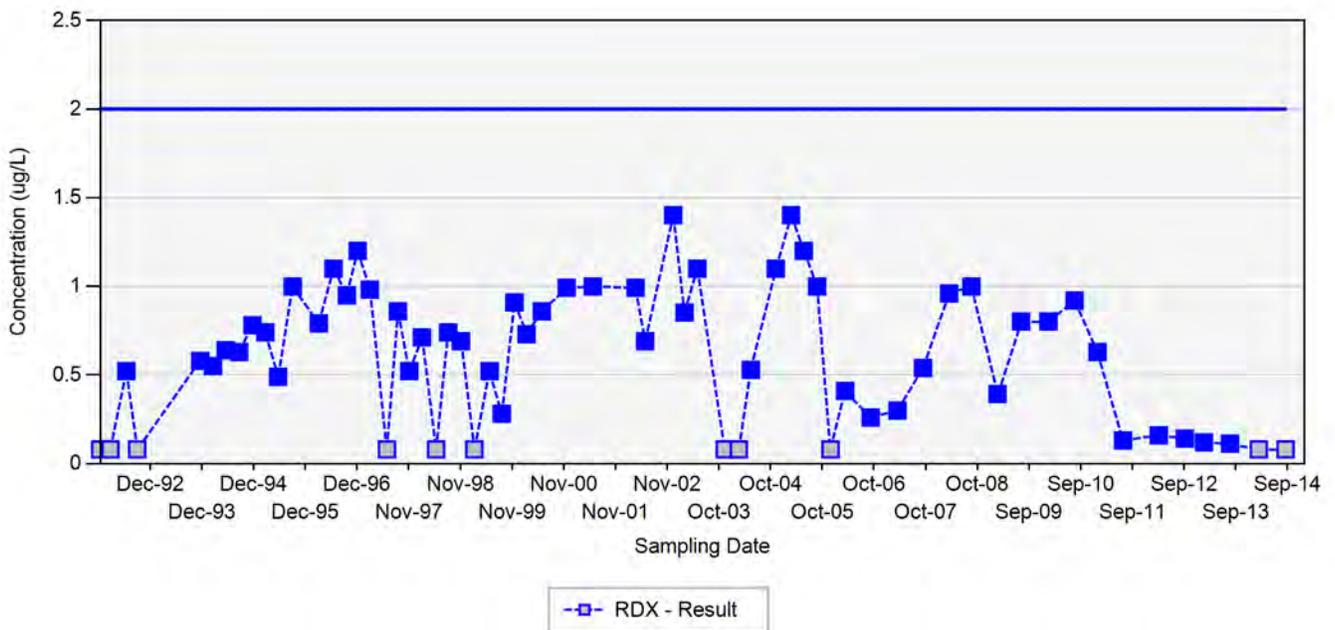
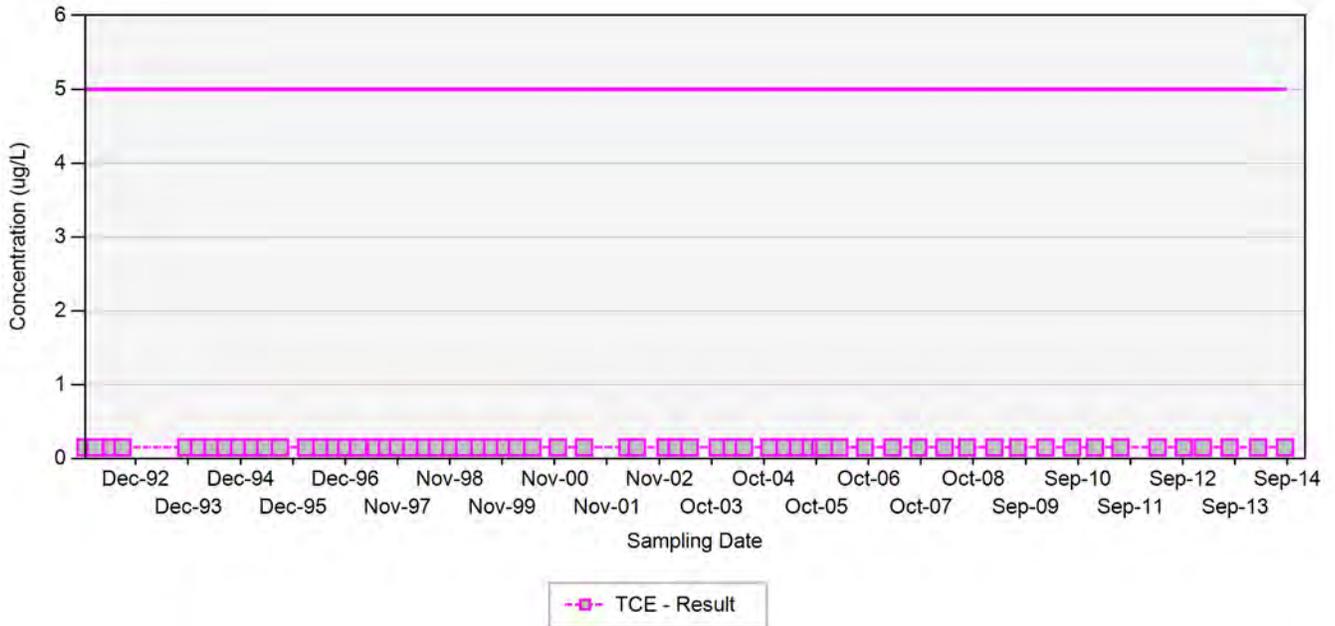
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-29



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

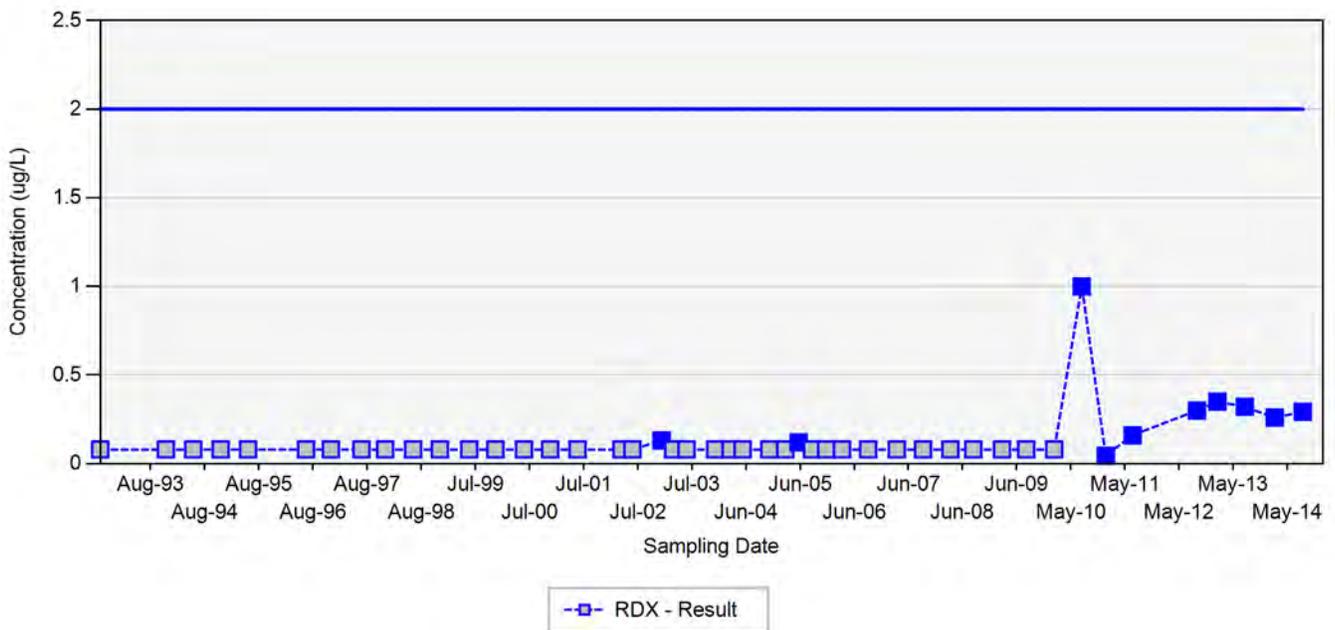
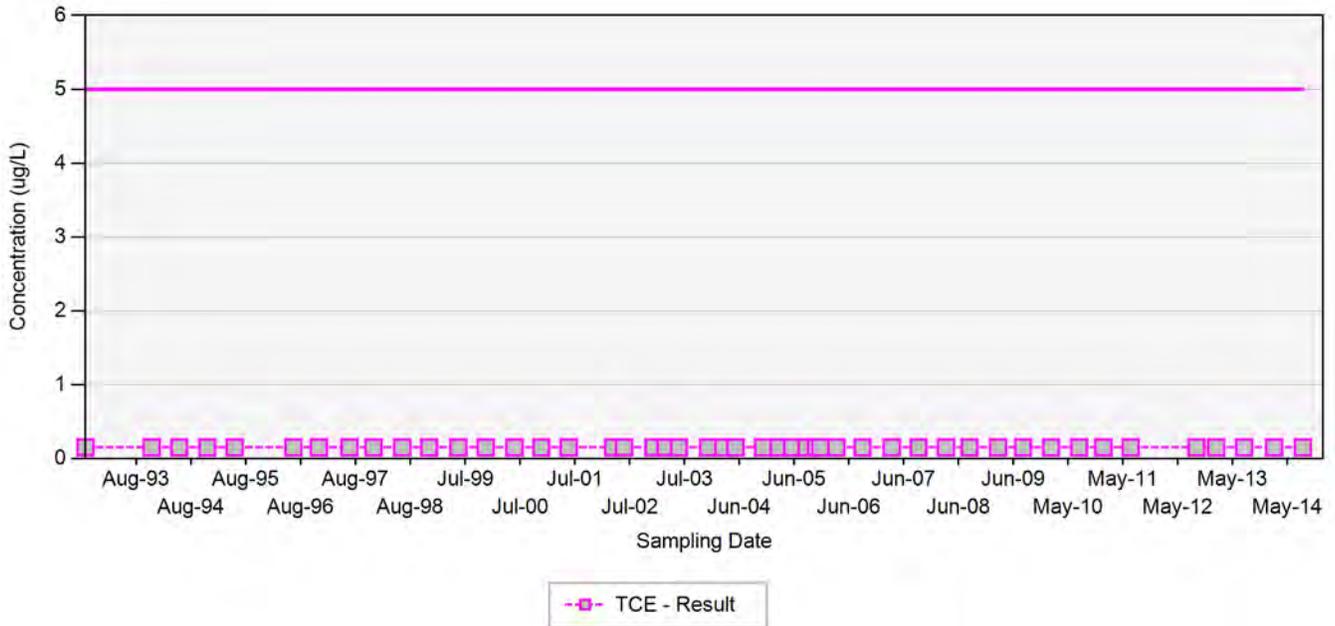
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-29A



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

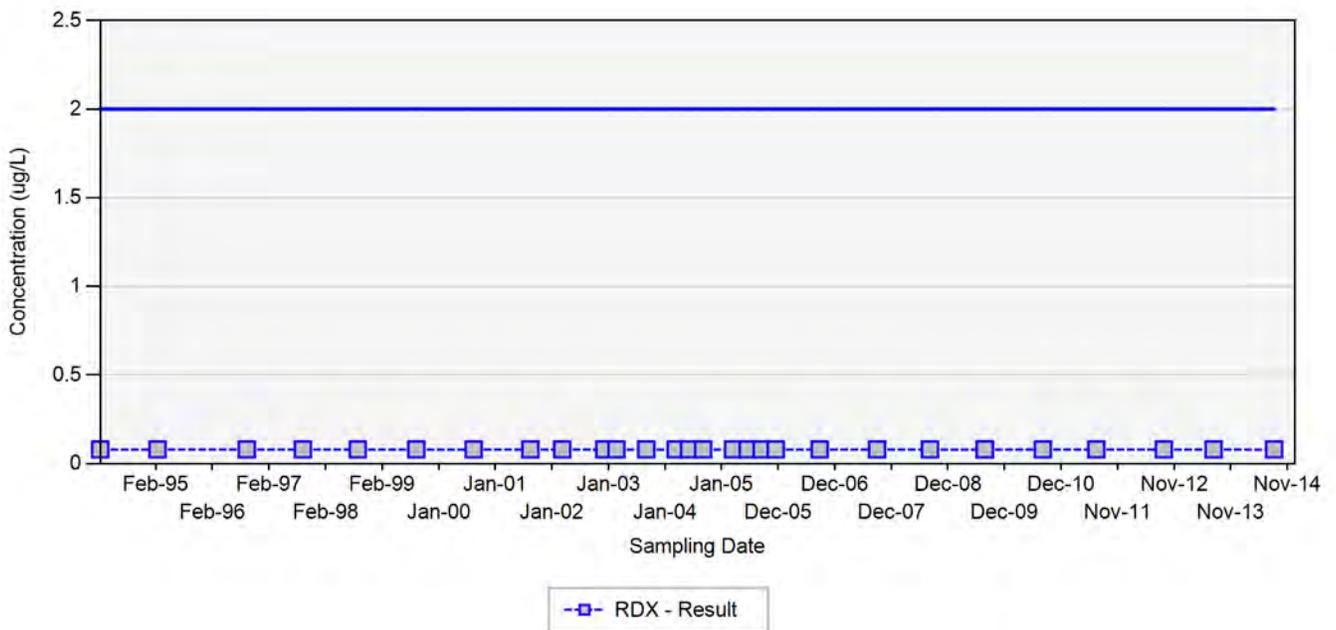
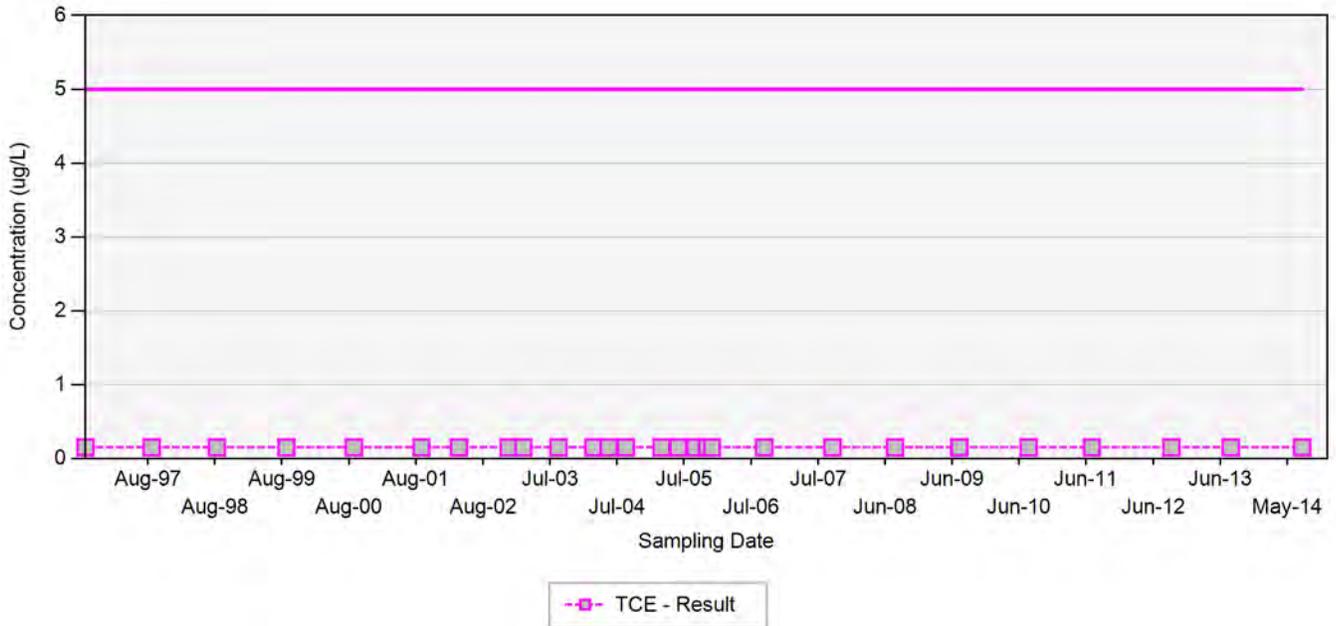
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-32



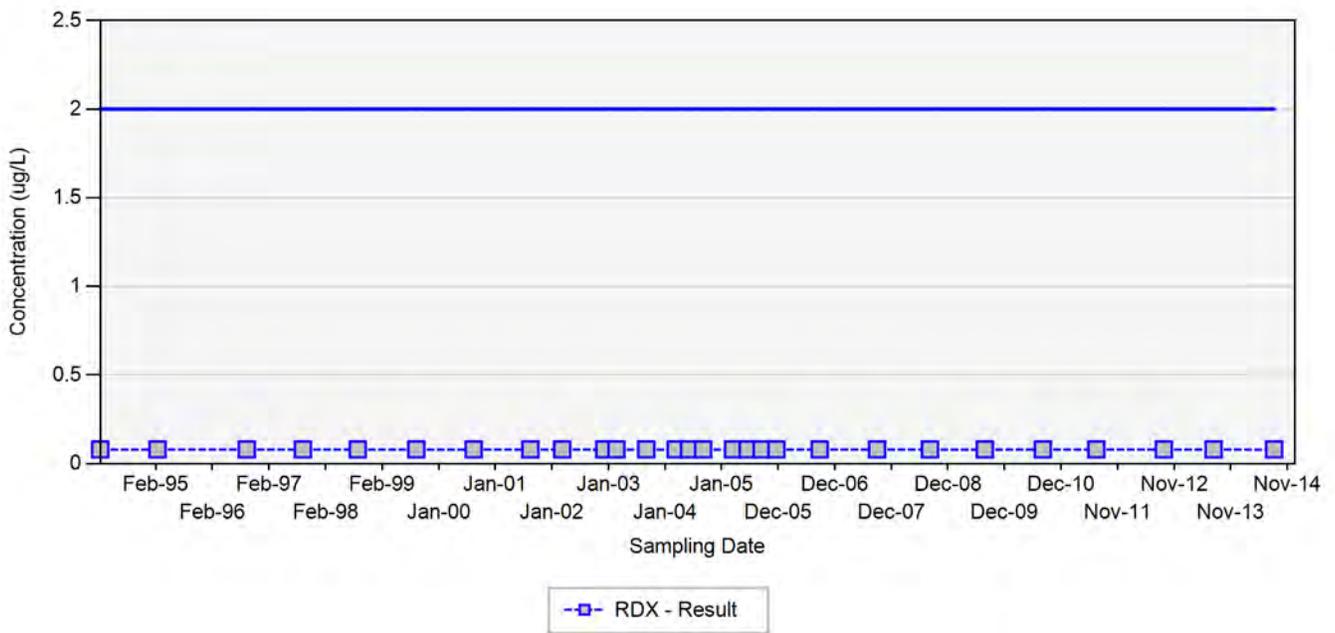
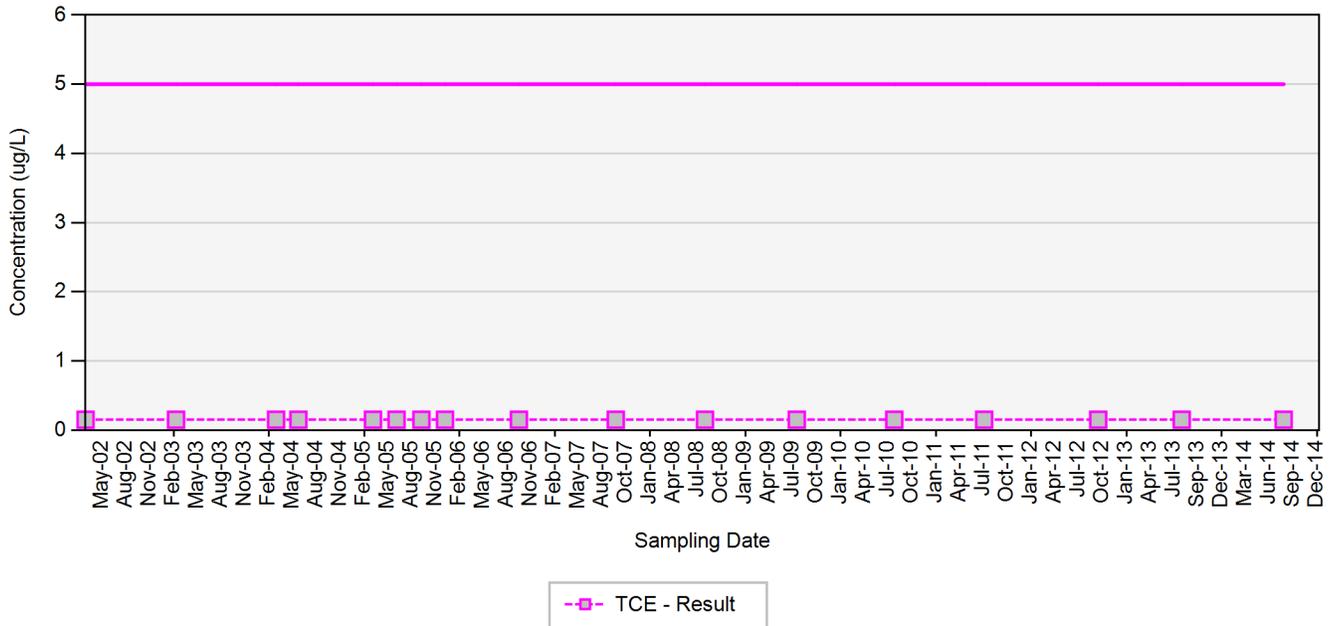
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-34



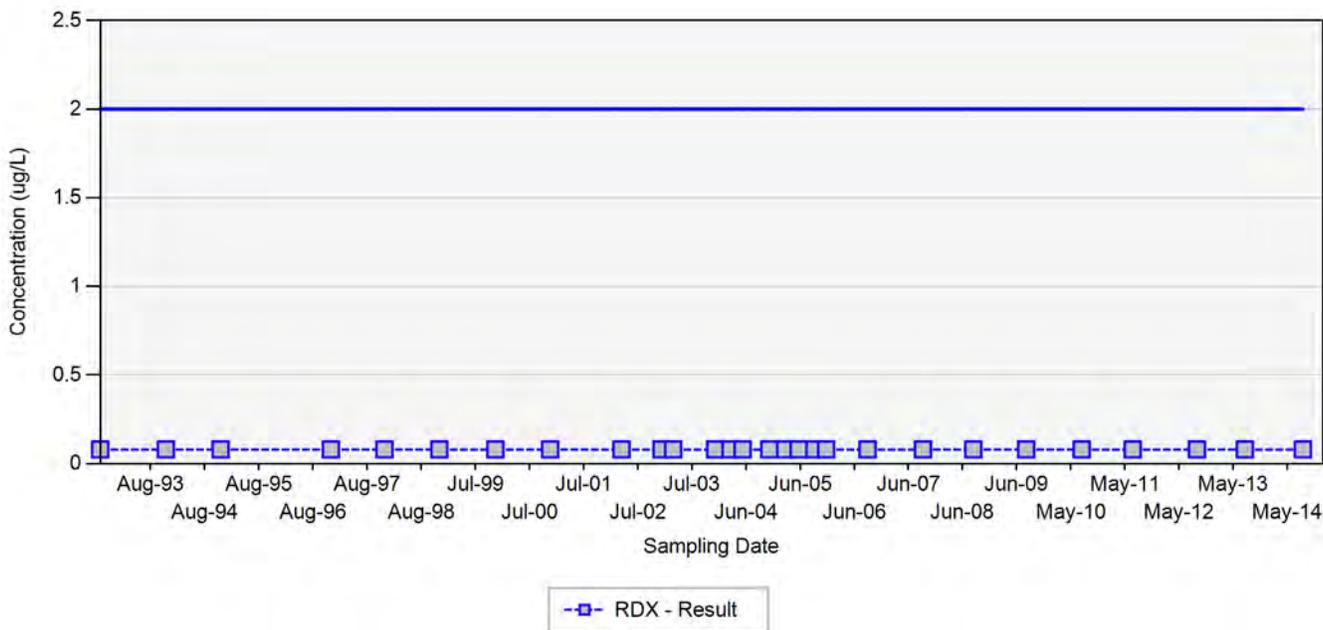
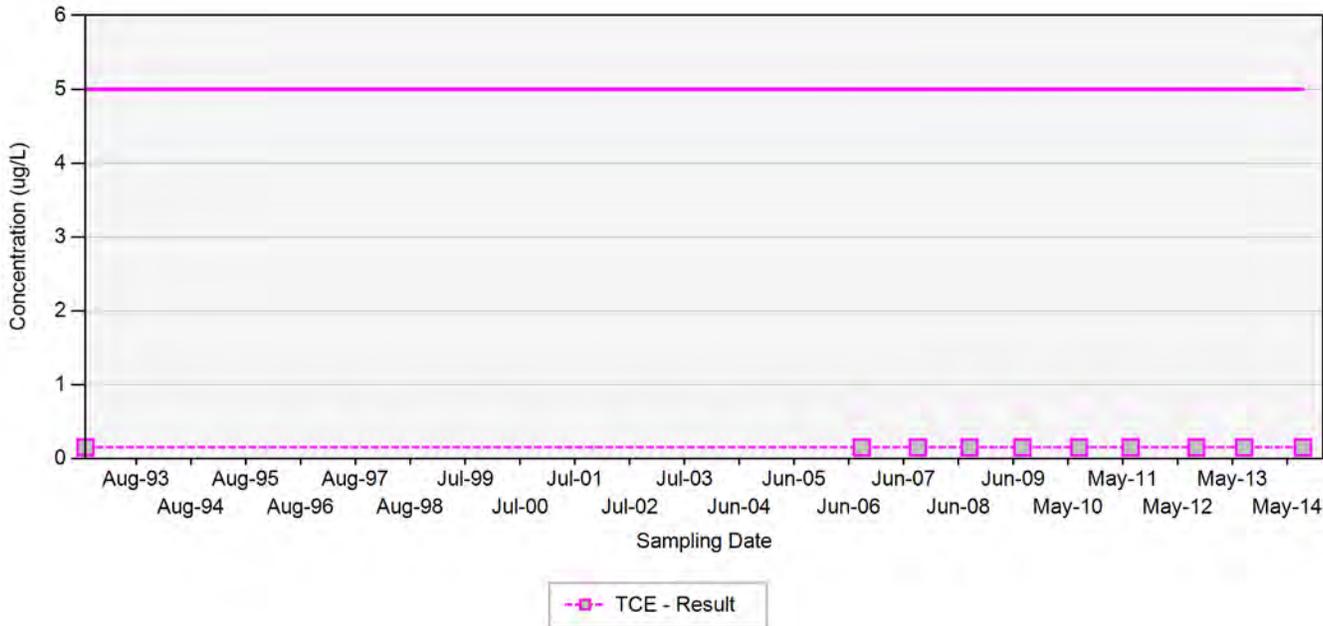
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-36



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

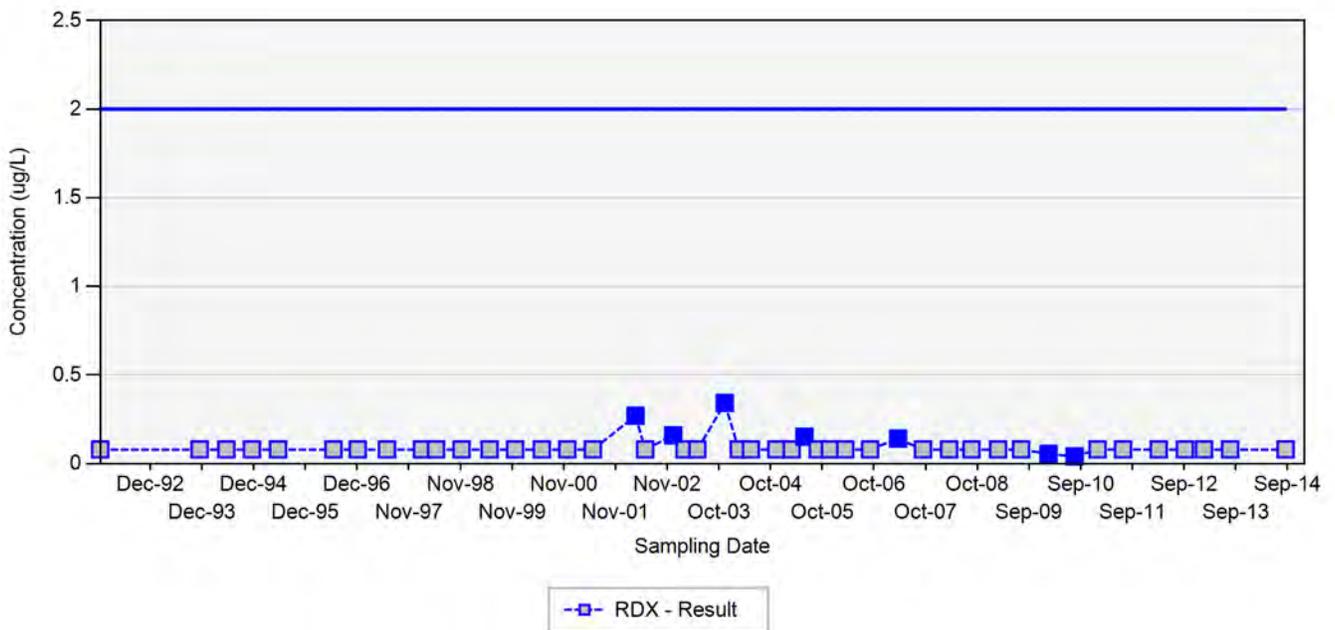
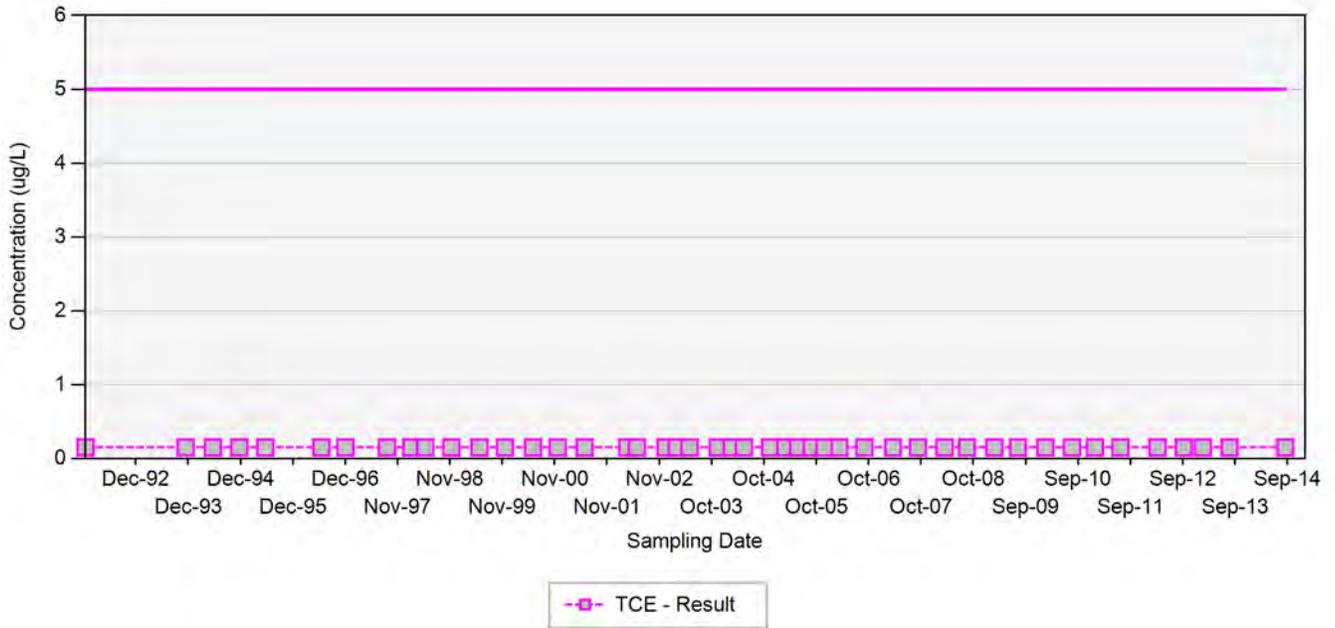
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-50A



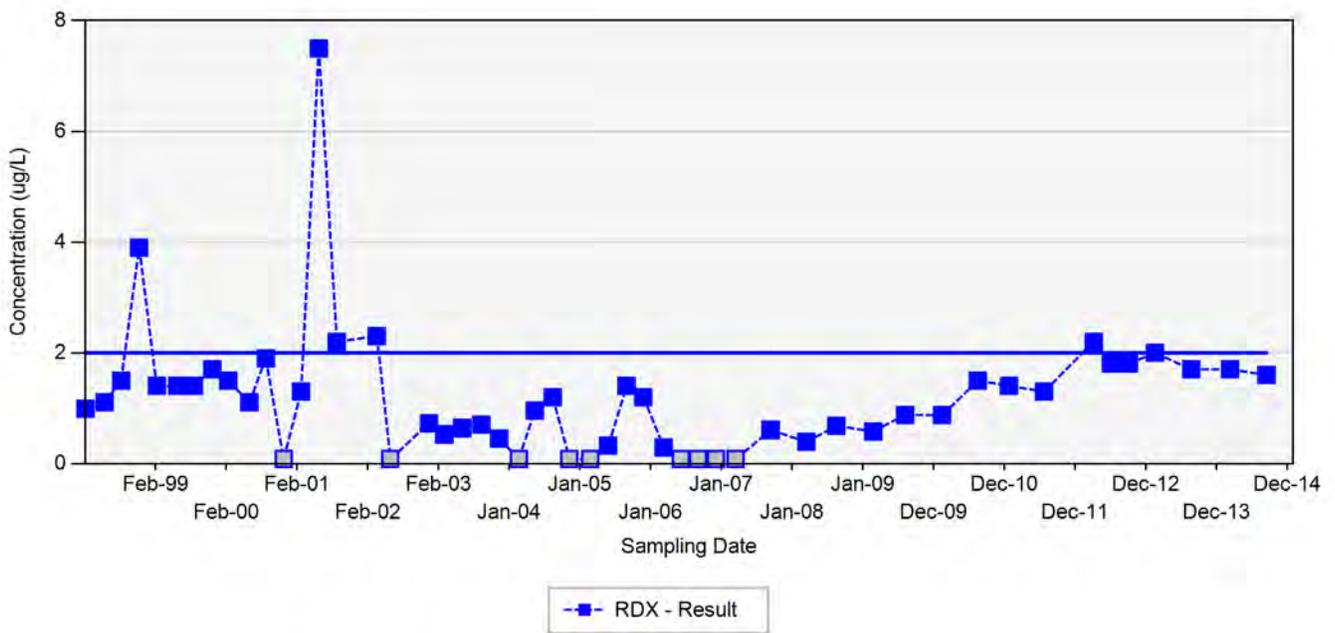
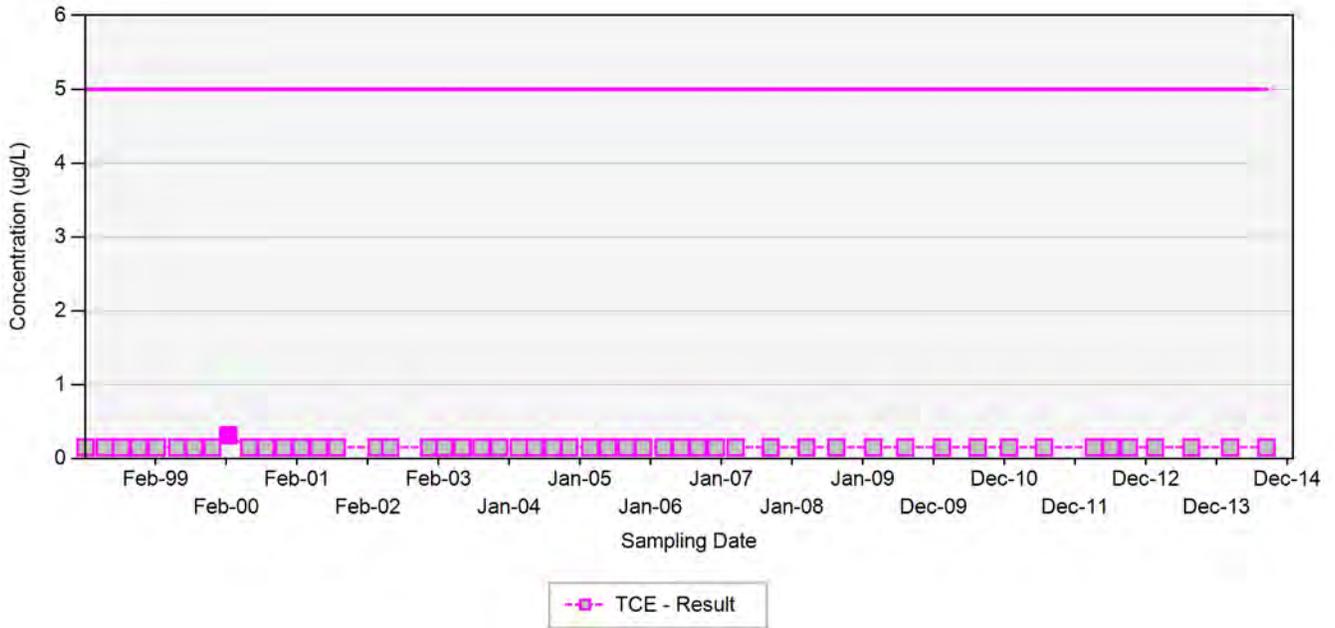
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-50B



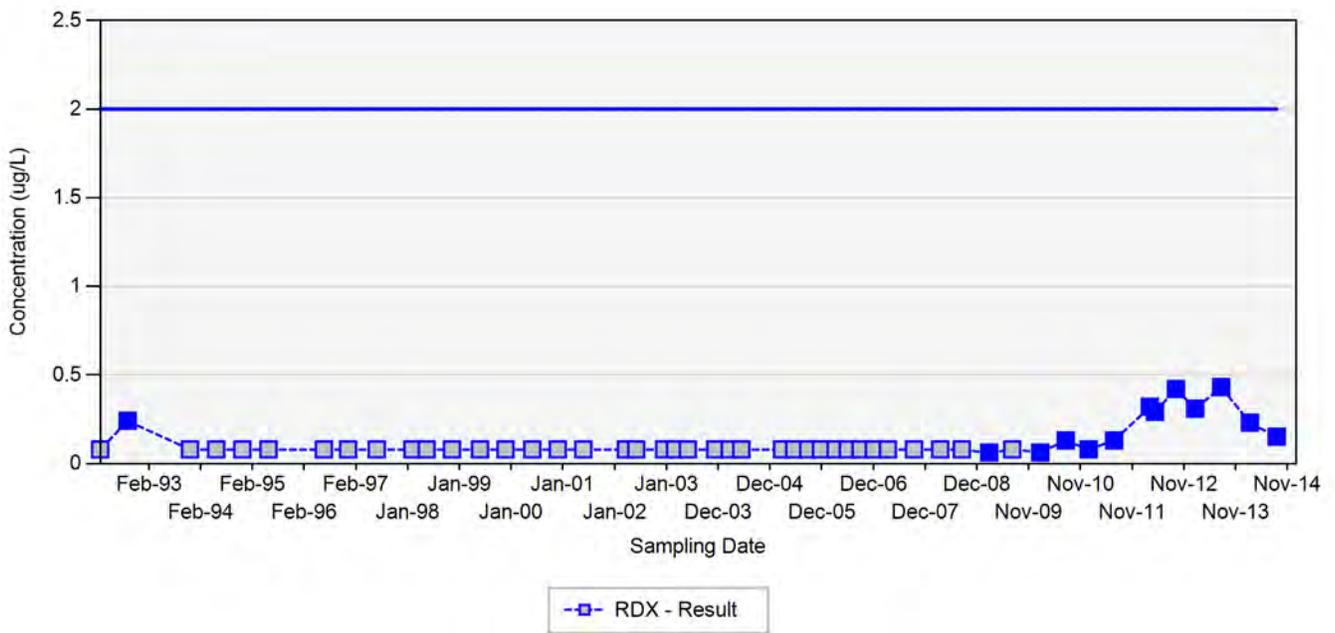
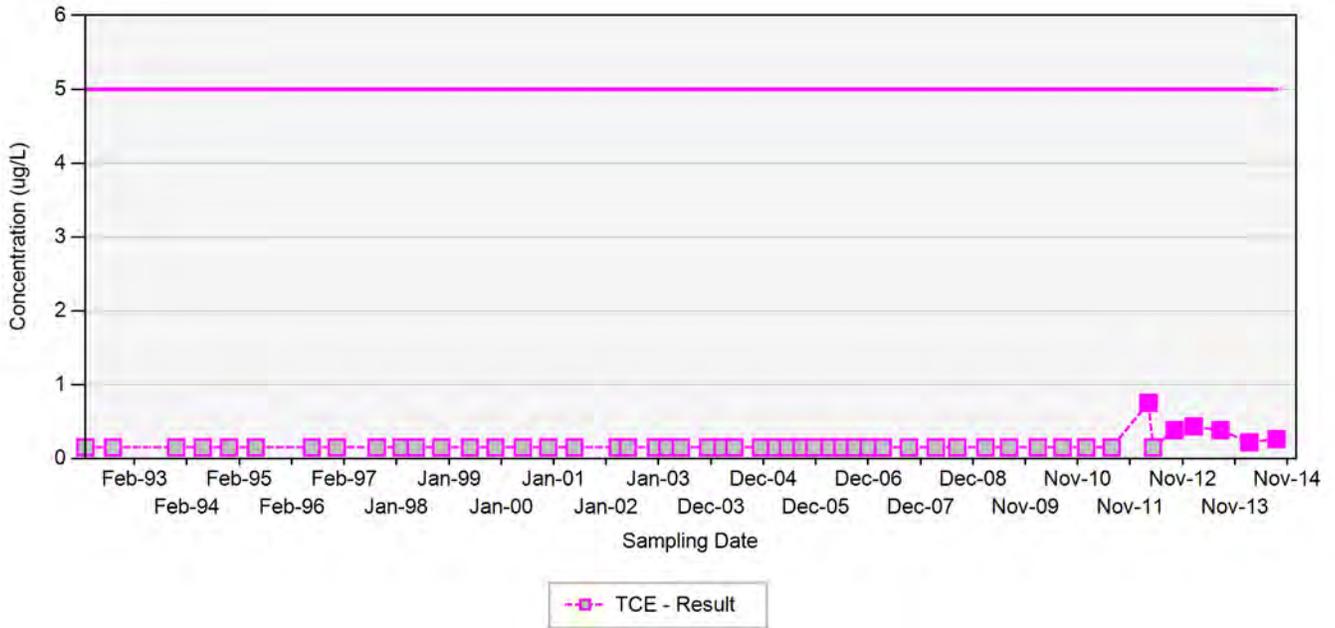
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-51



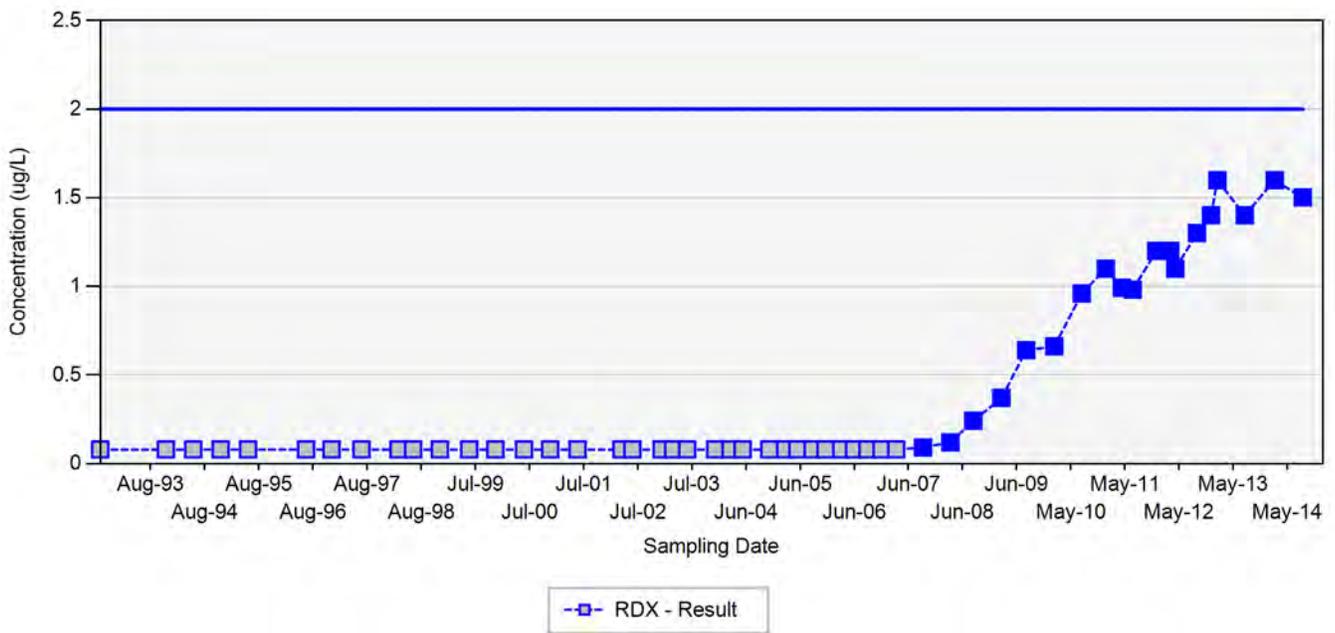
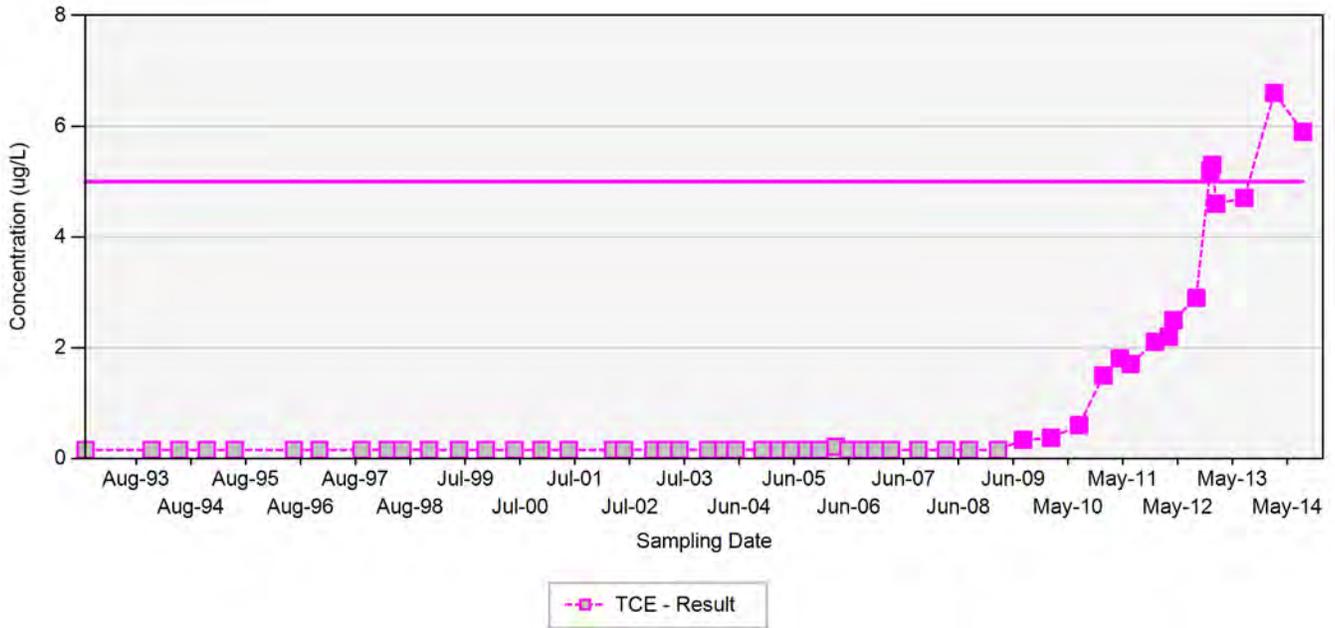
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-51A



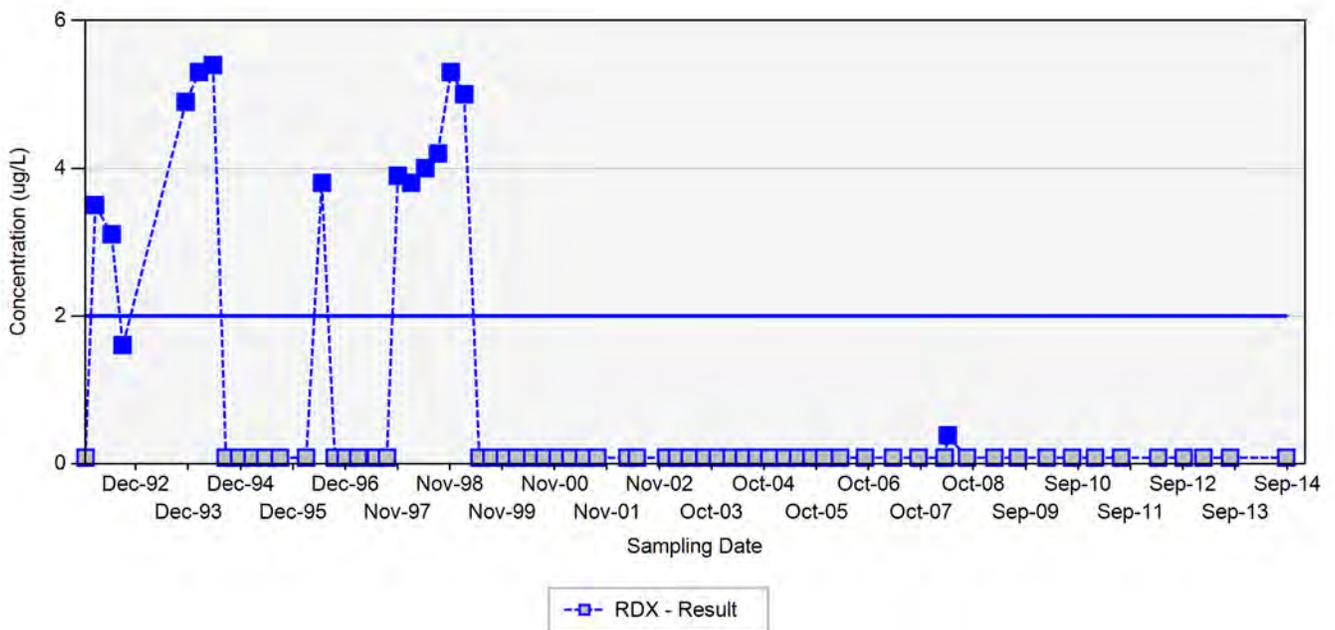
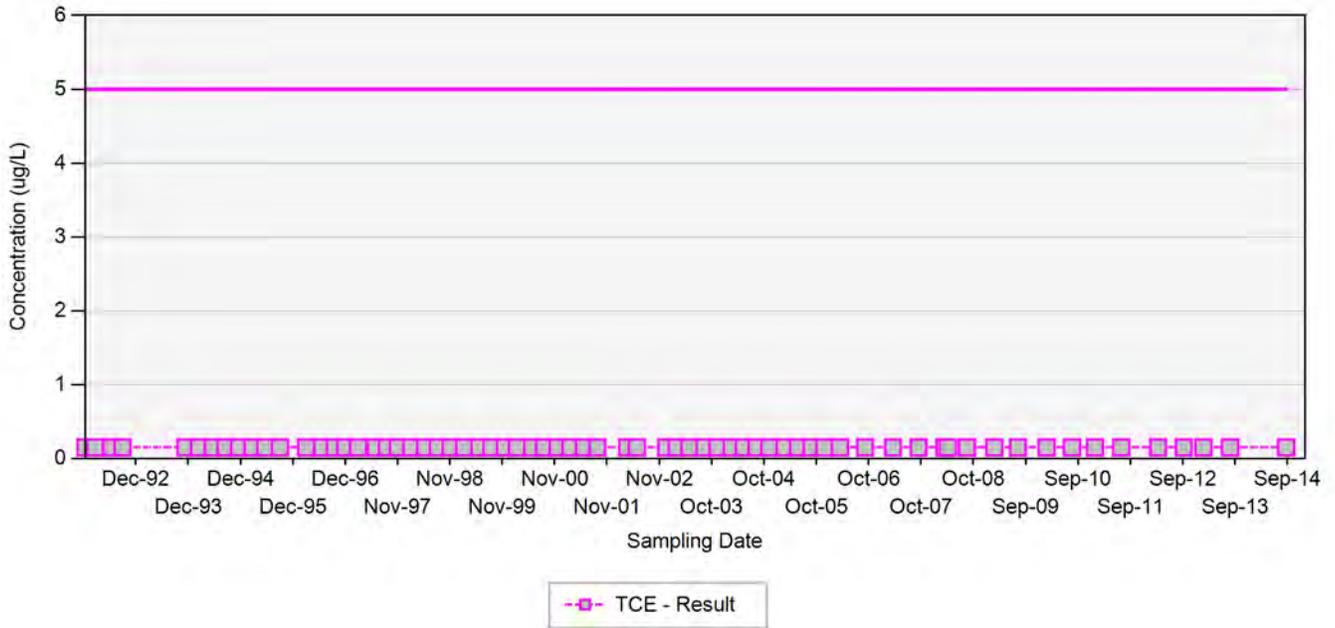
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-52A



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

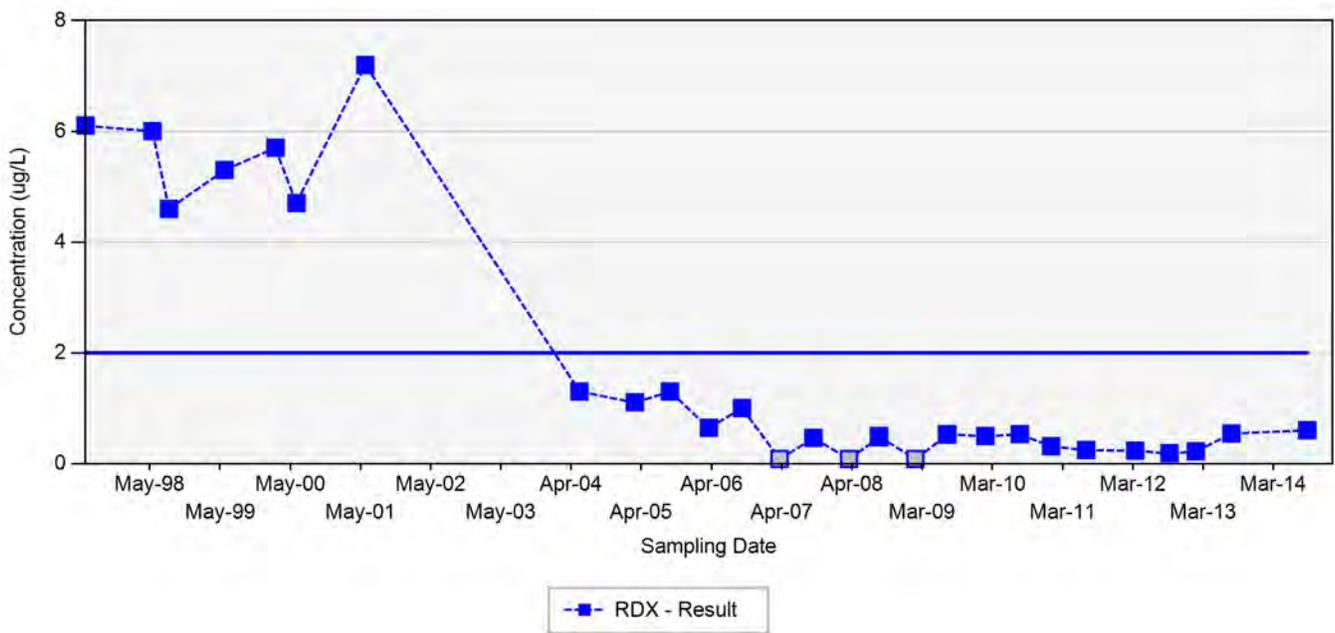
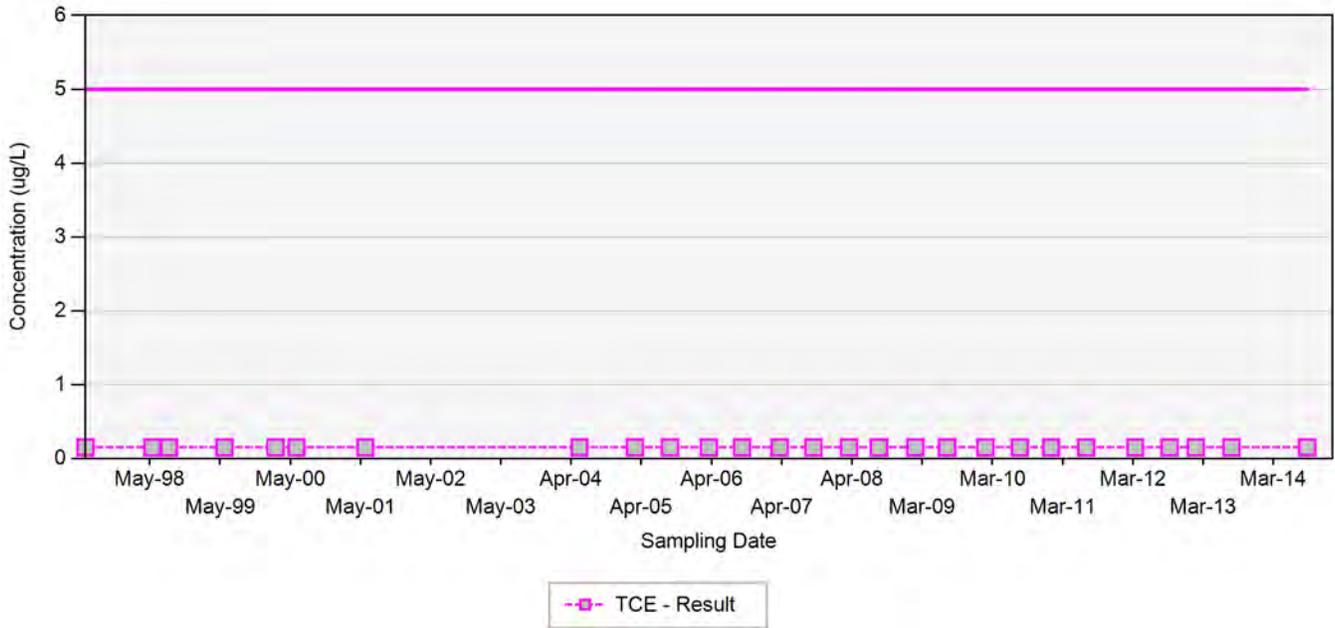
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-52A-B



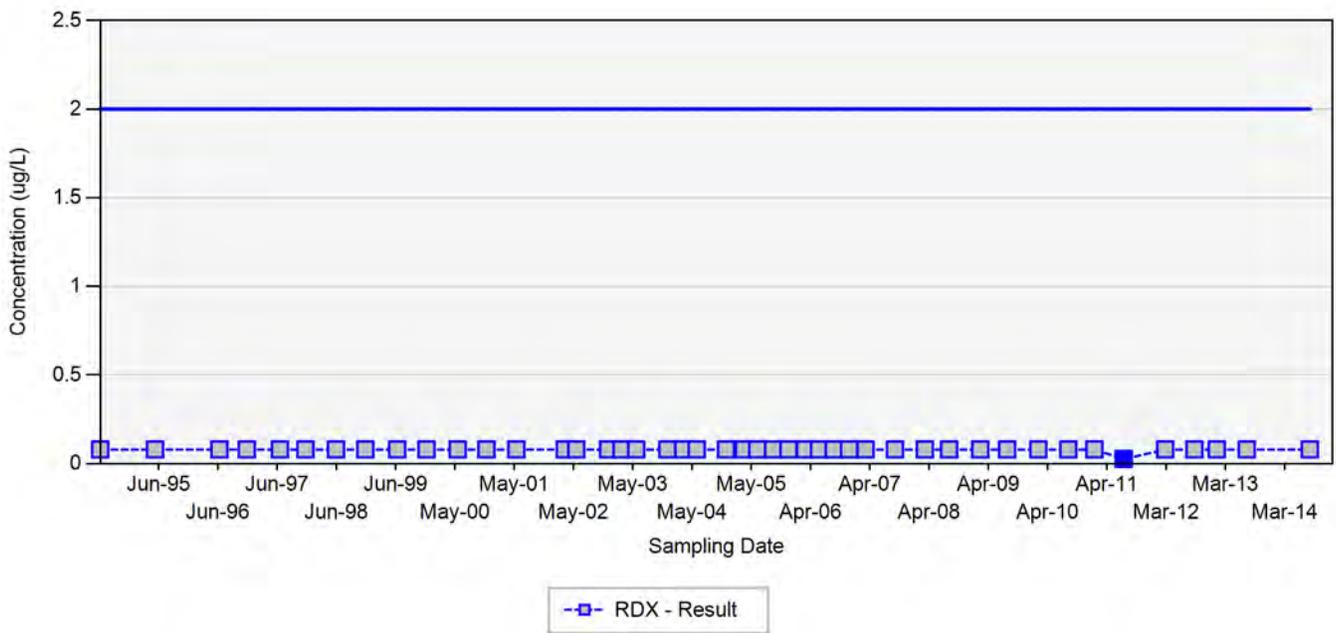
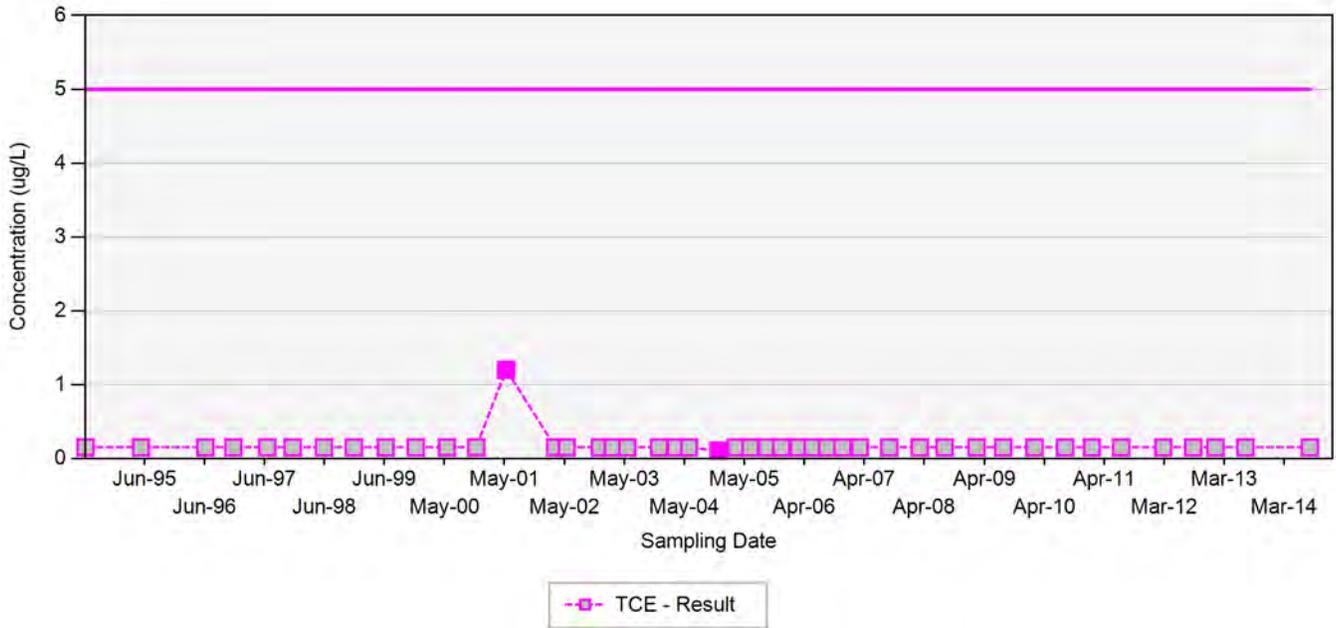
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-52B



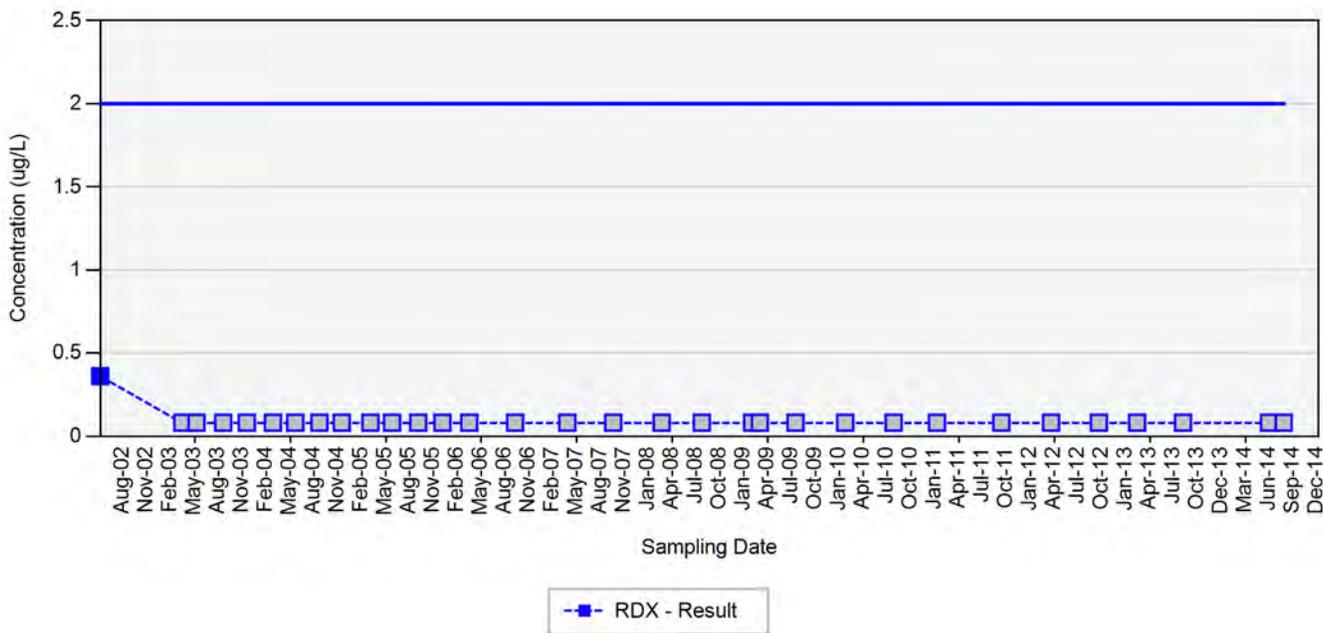
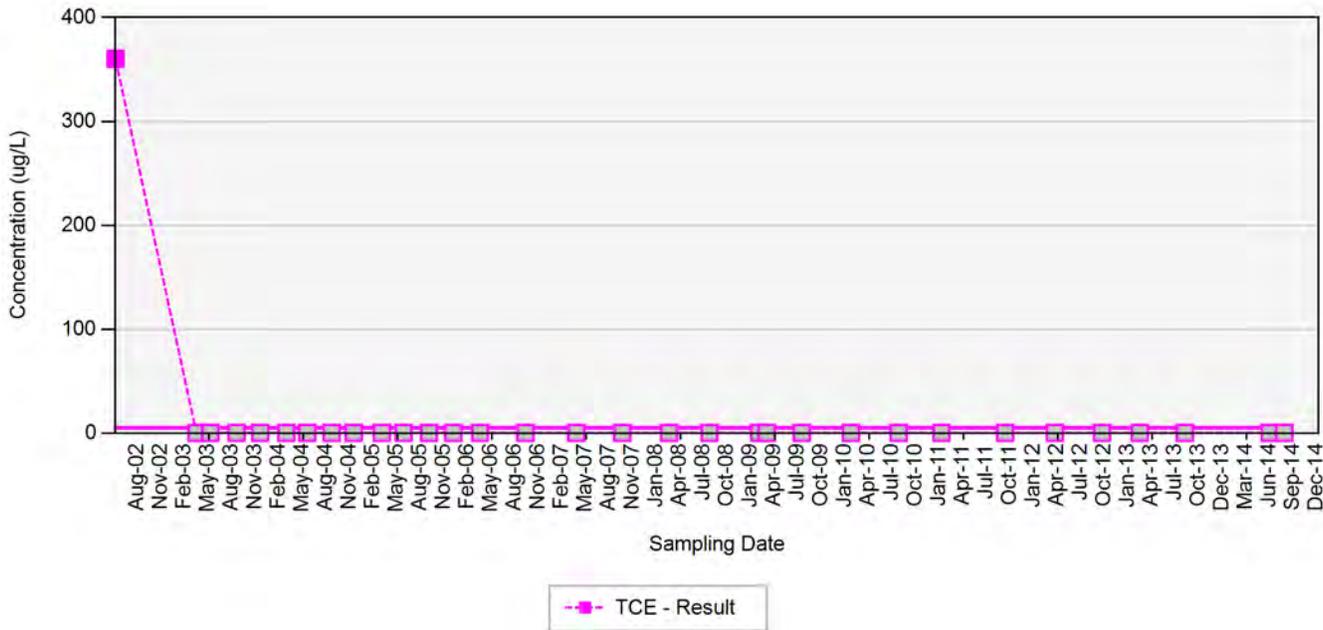
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-52C



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

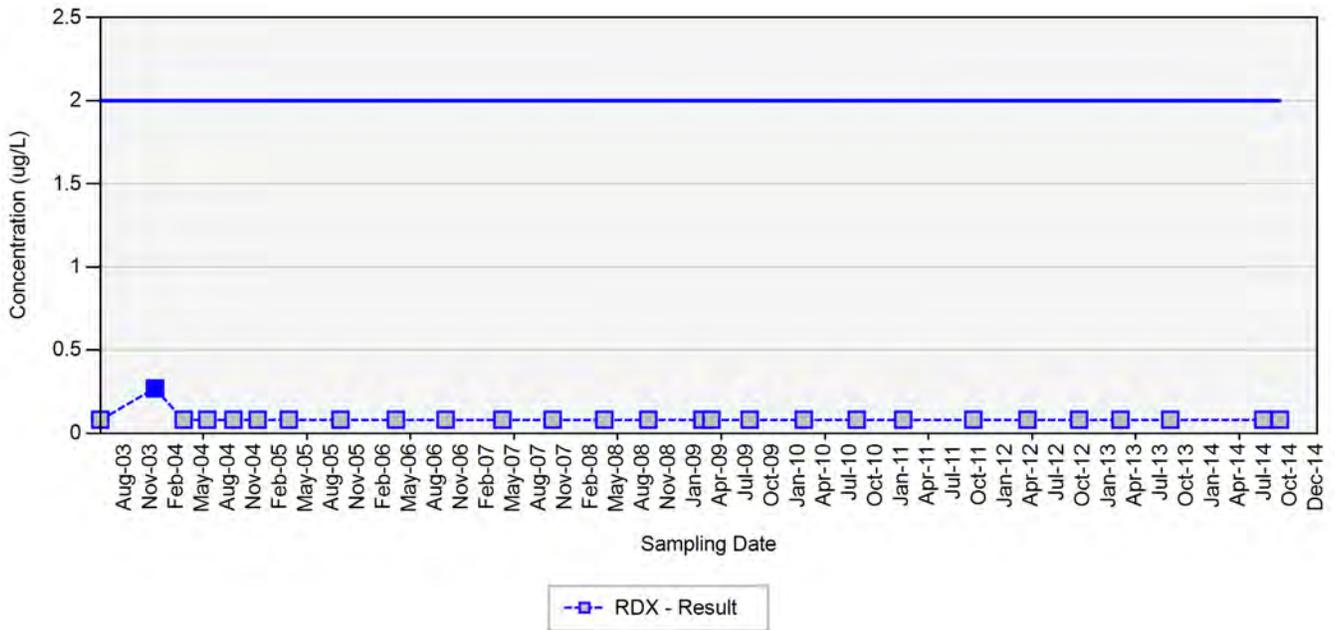
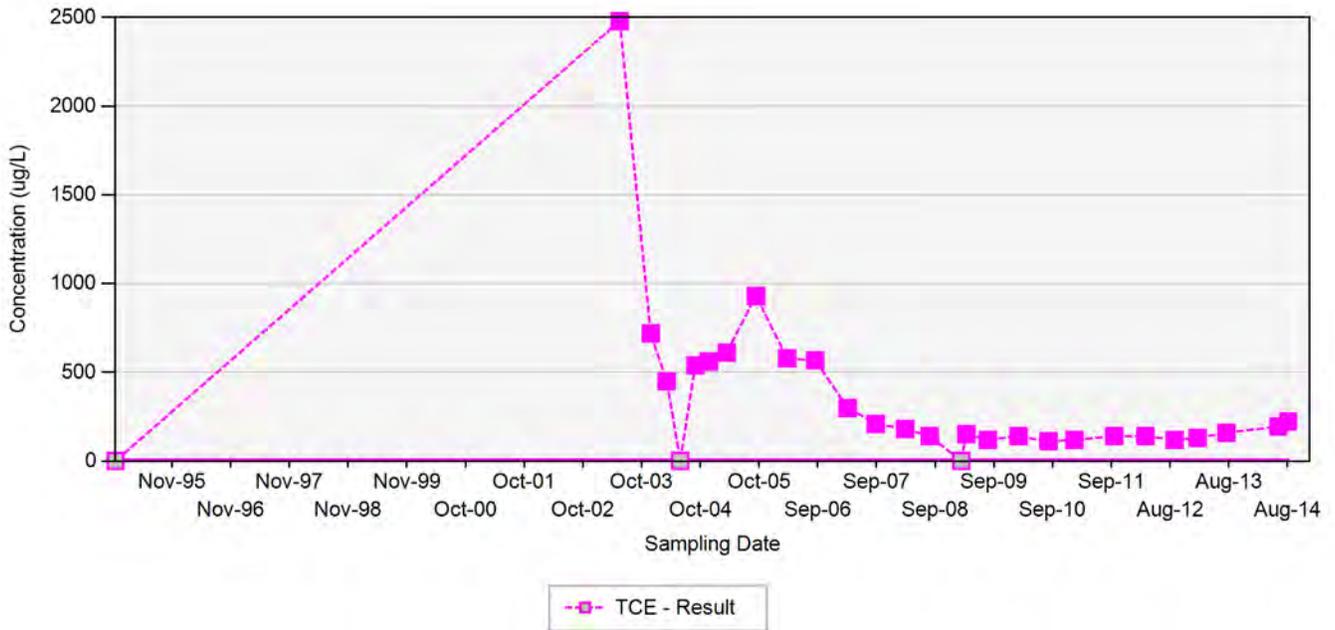
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-52C-B



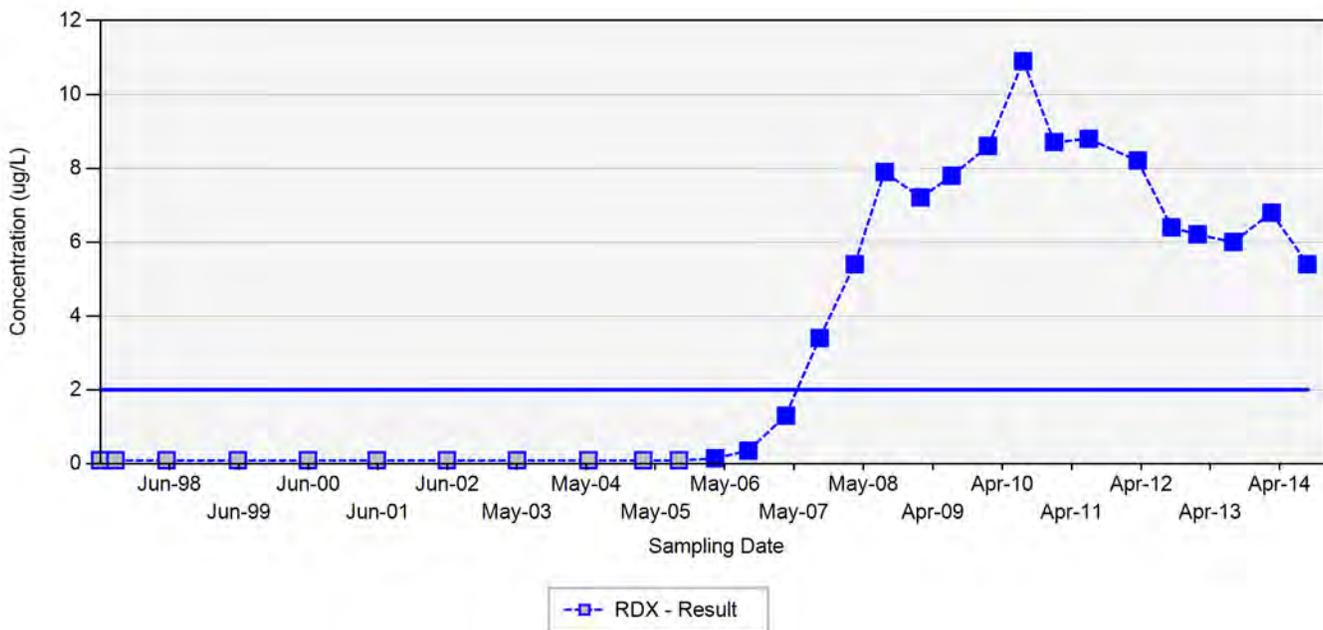
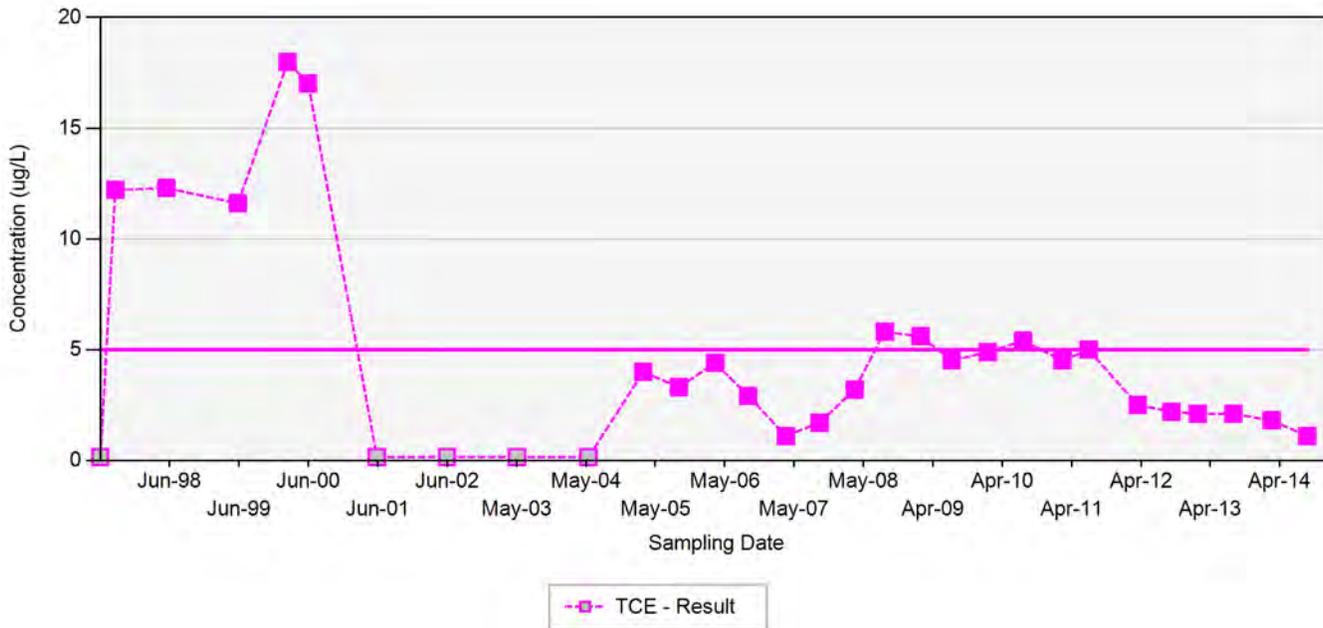
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-53-B



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

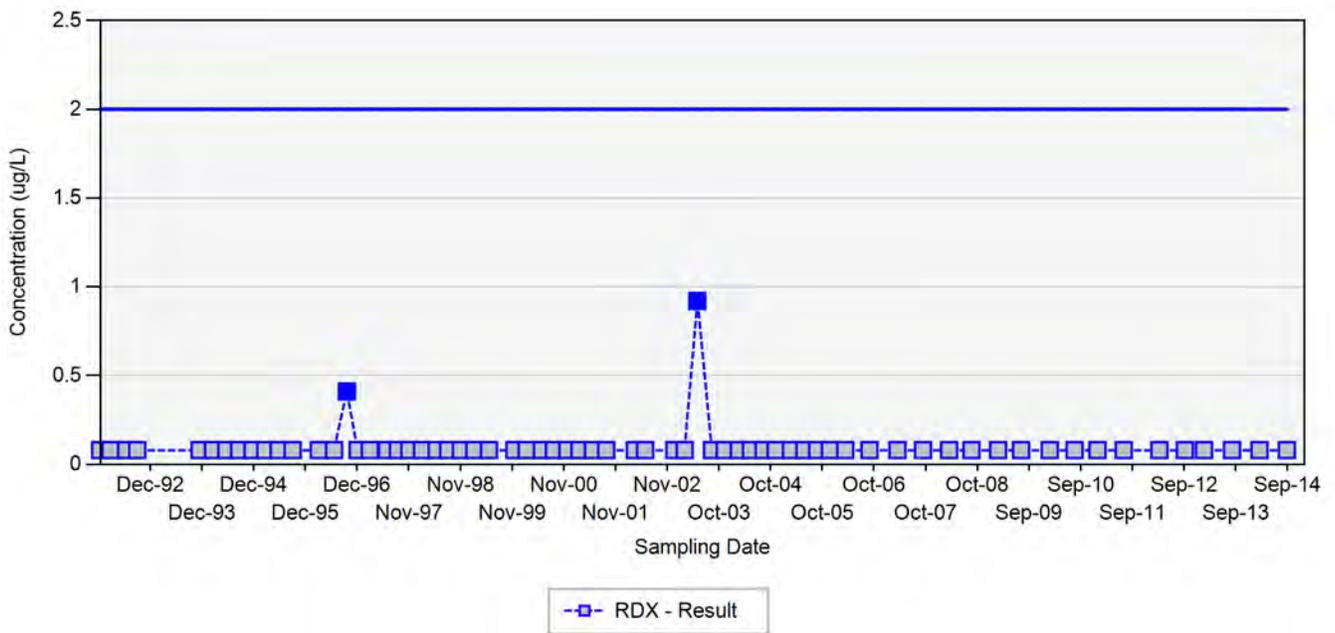
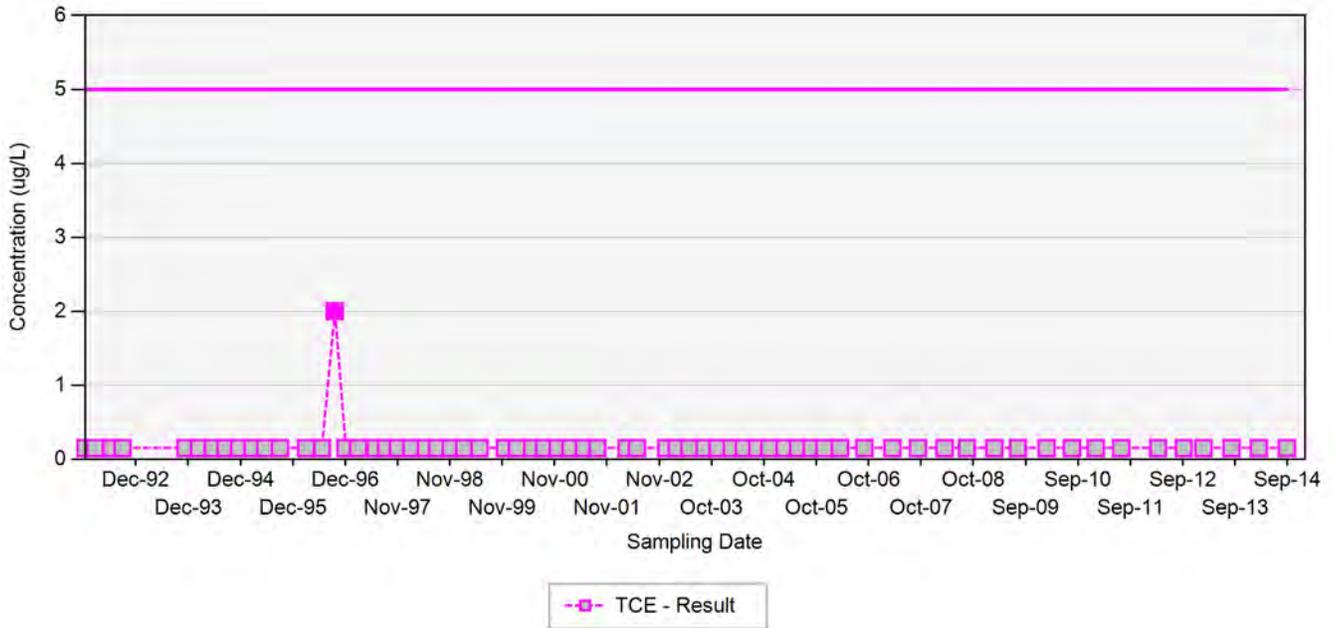
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-54



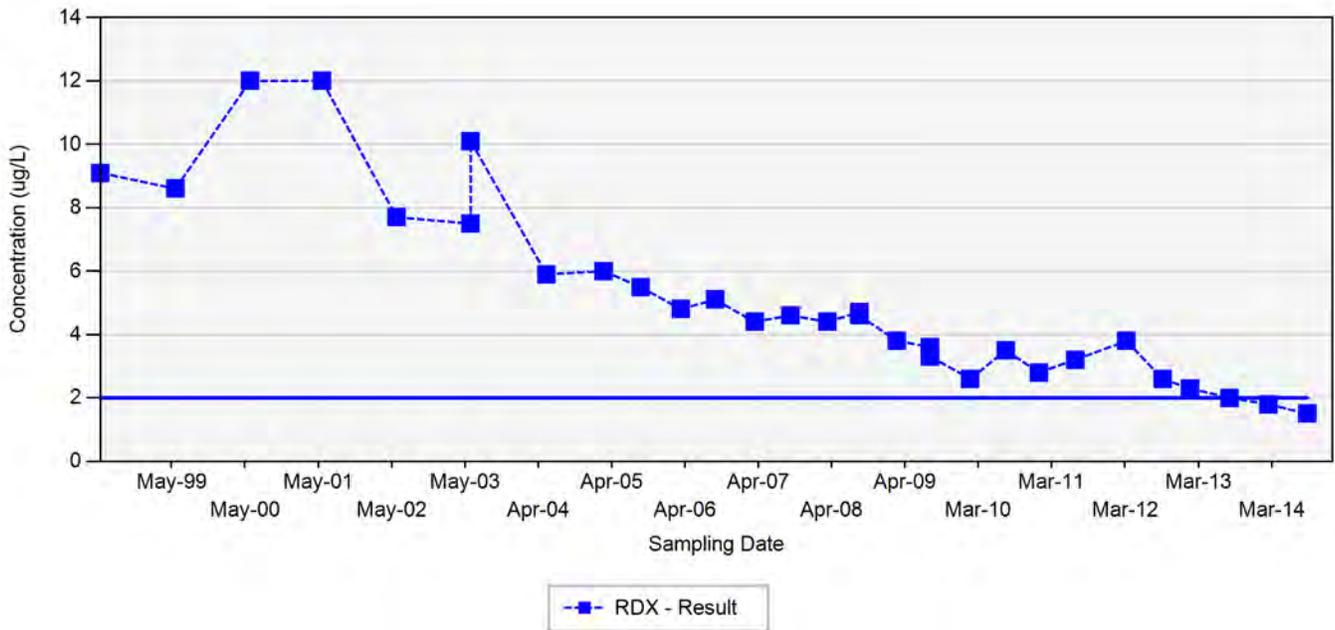
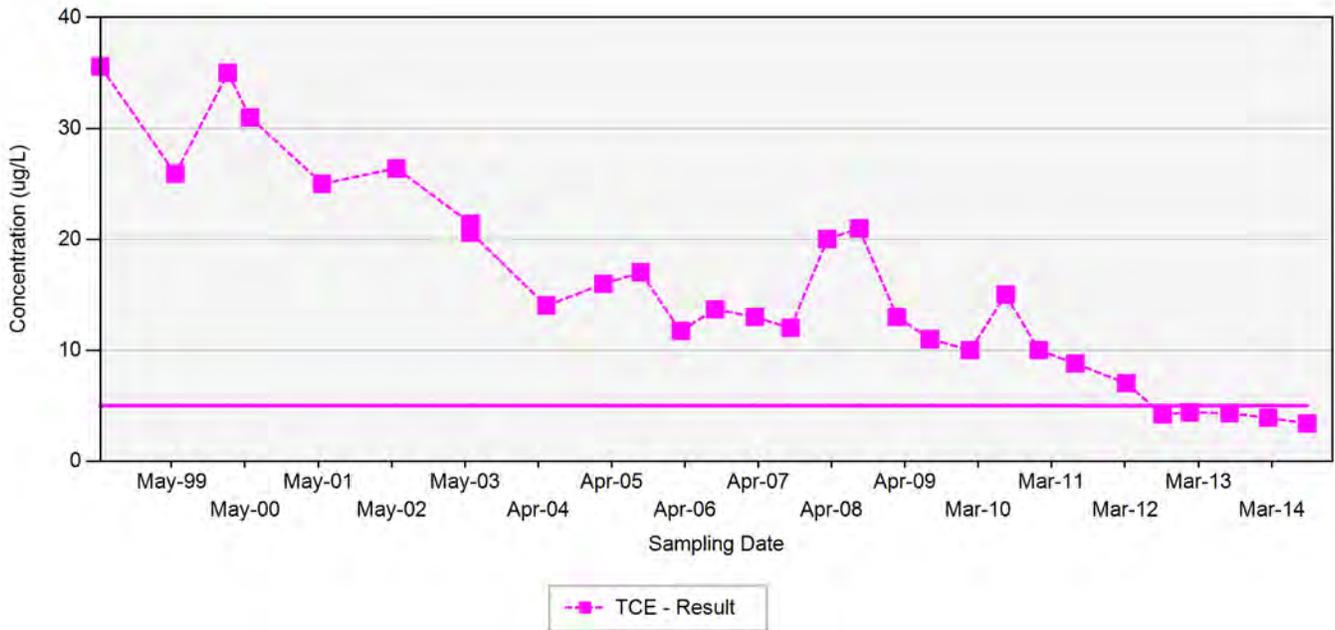
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-54-B



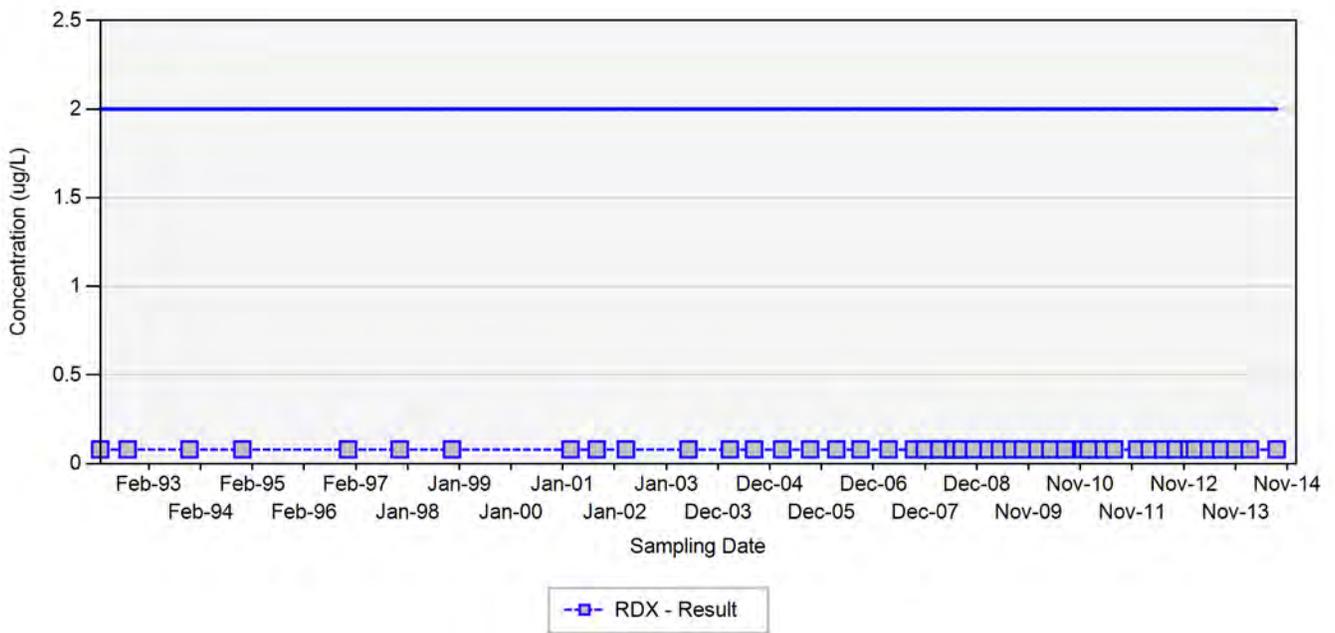
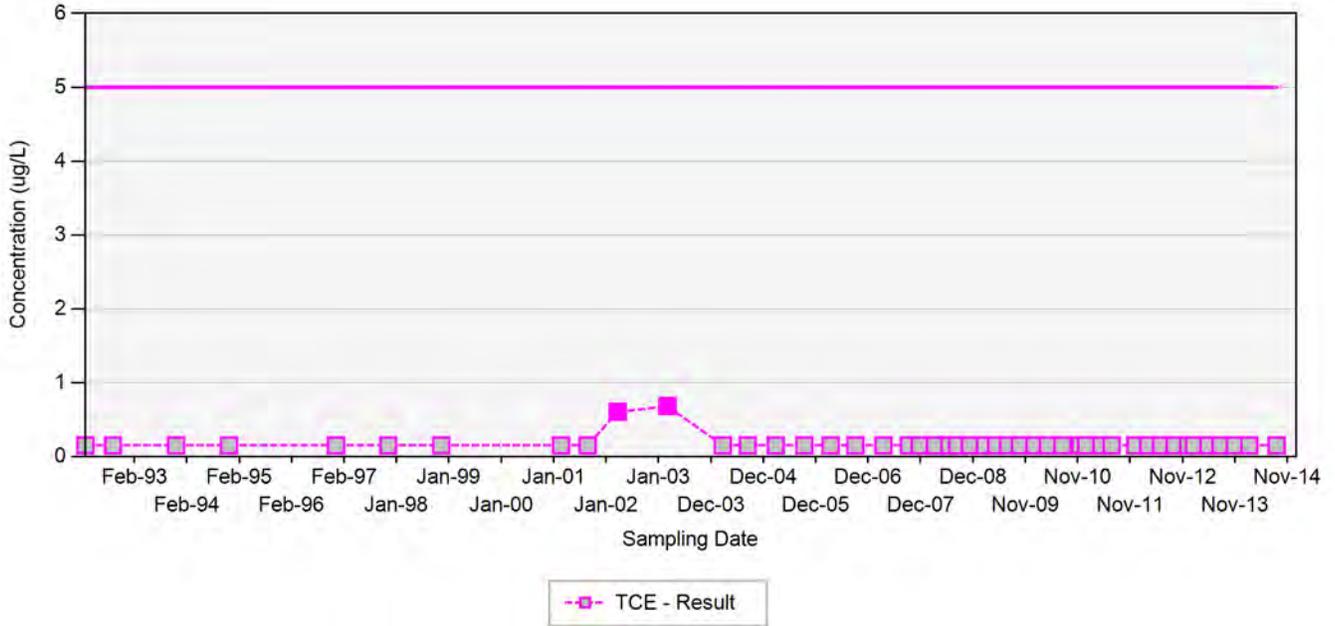
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-55



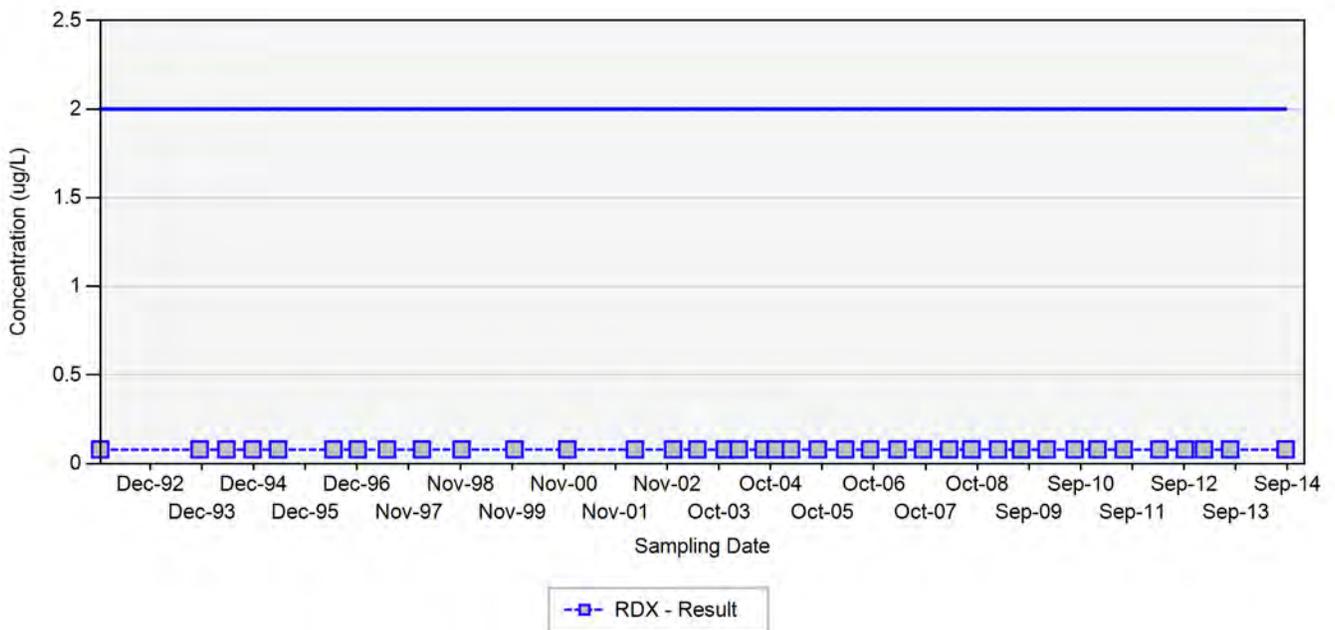
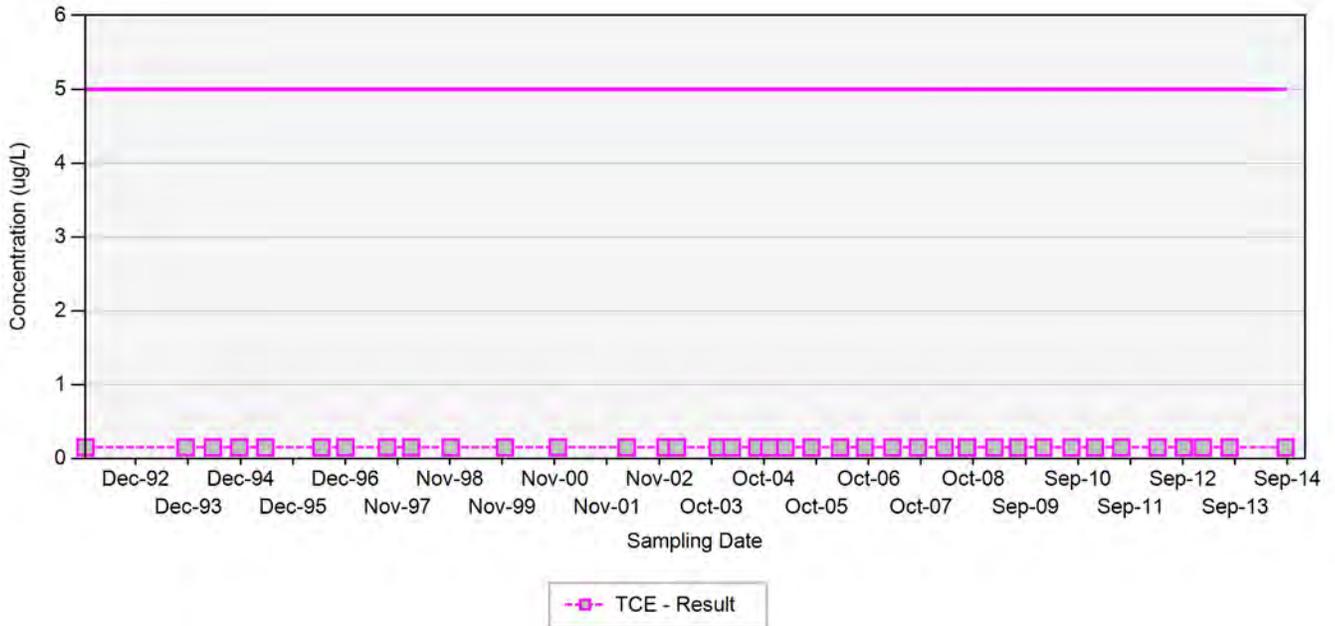
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-56



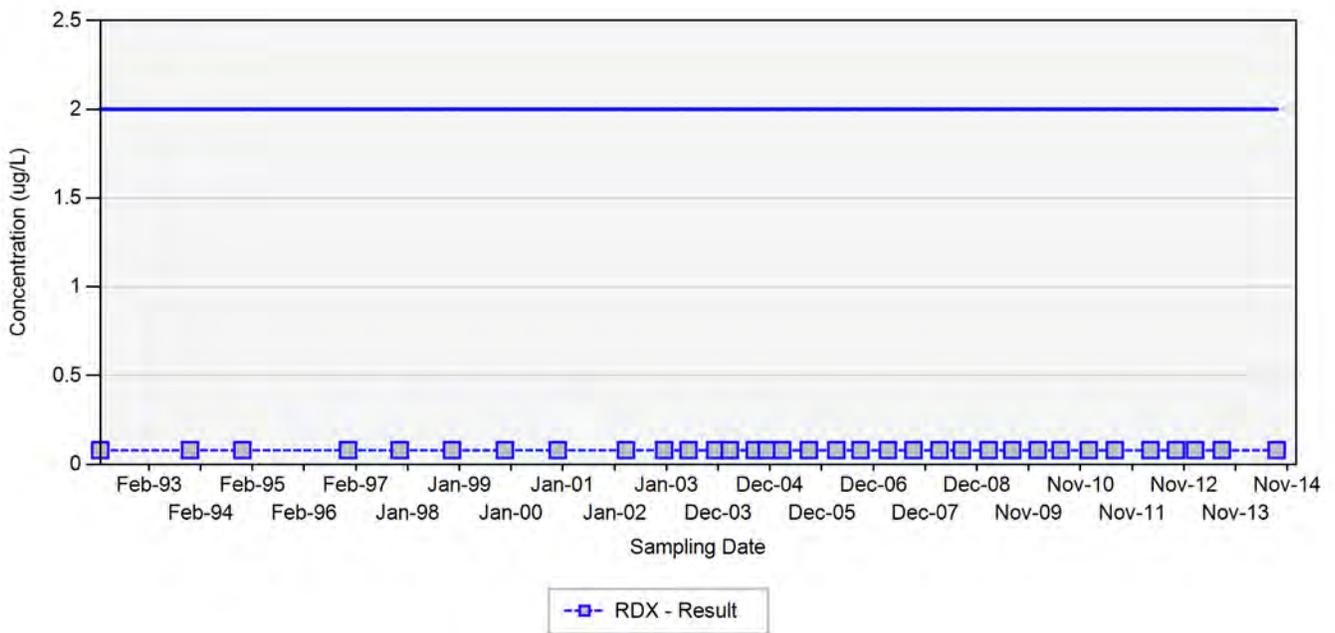
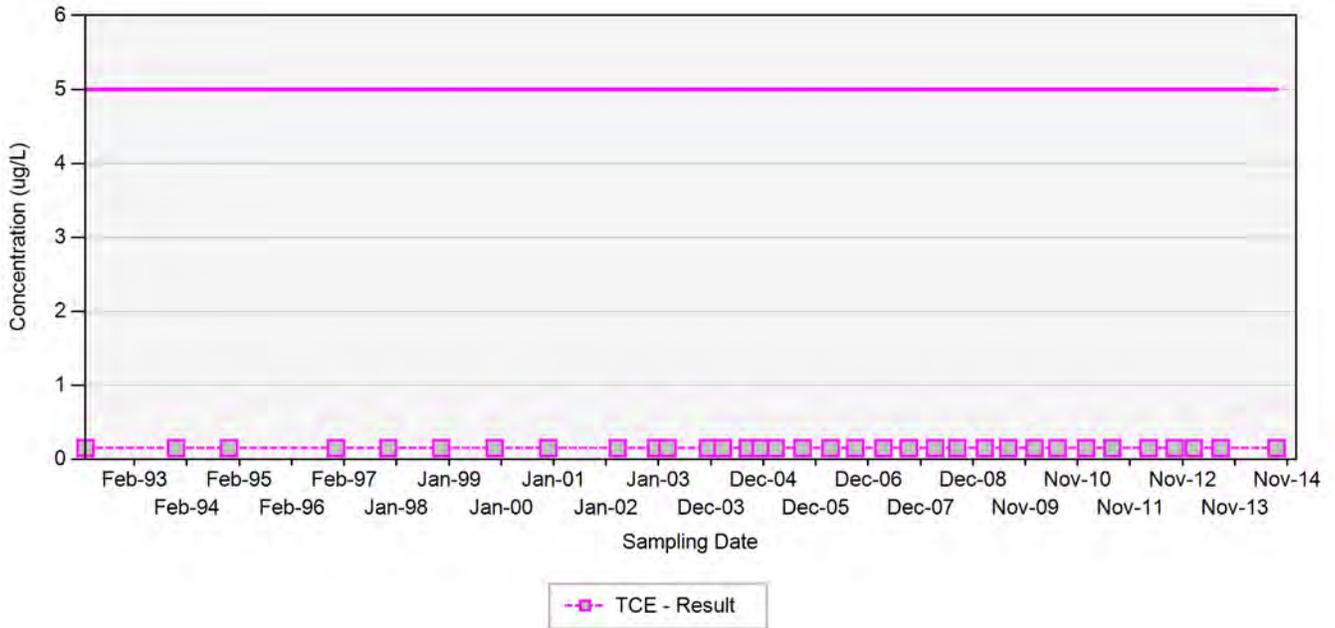
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-57



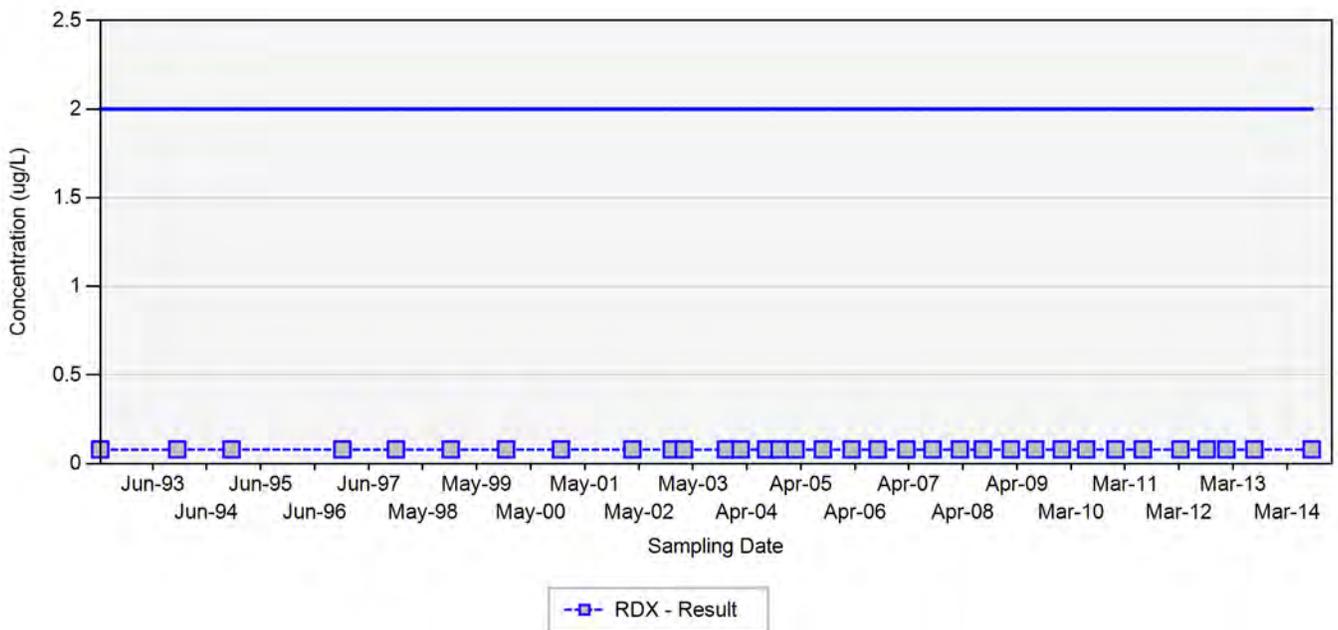
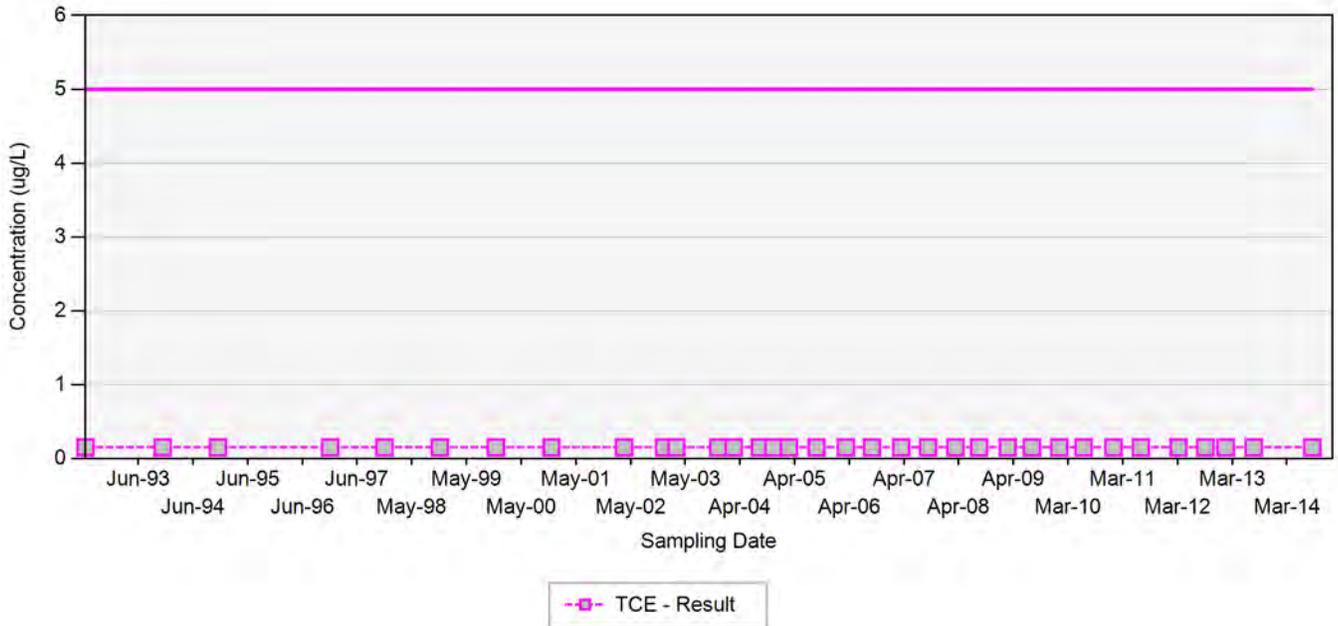
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-58

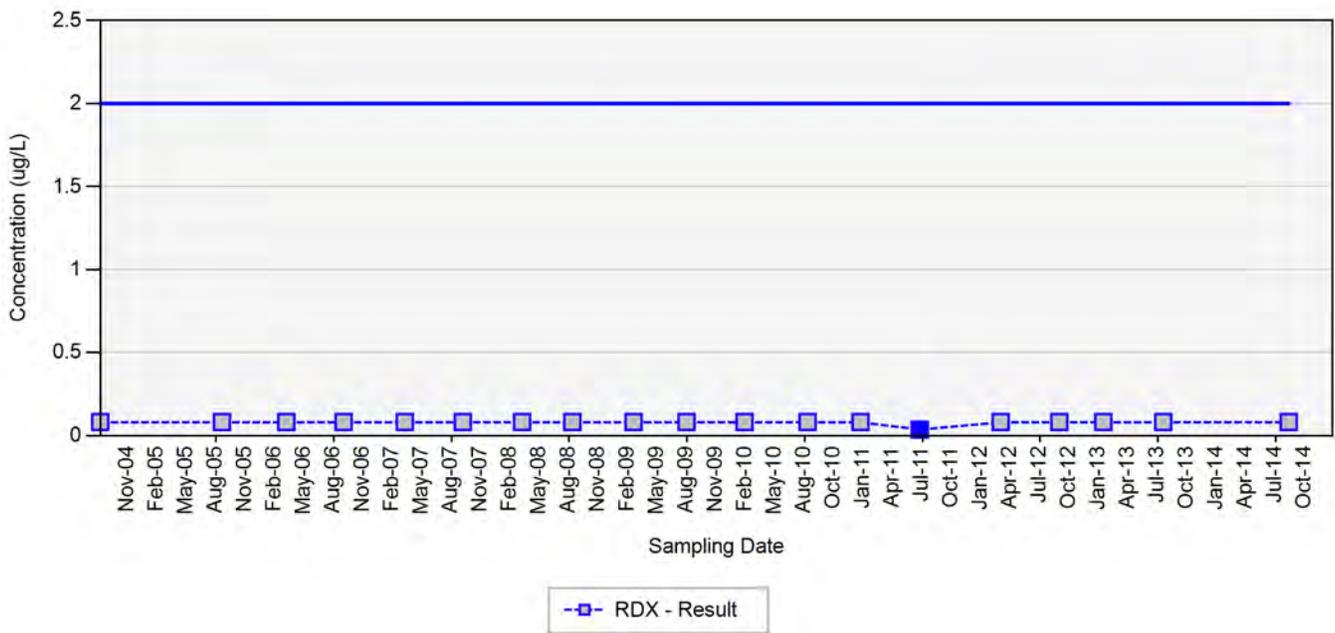
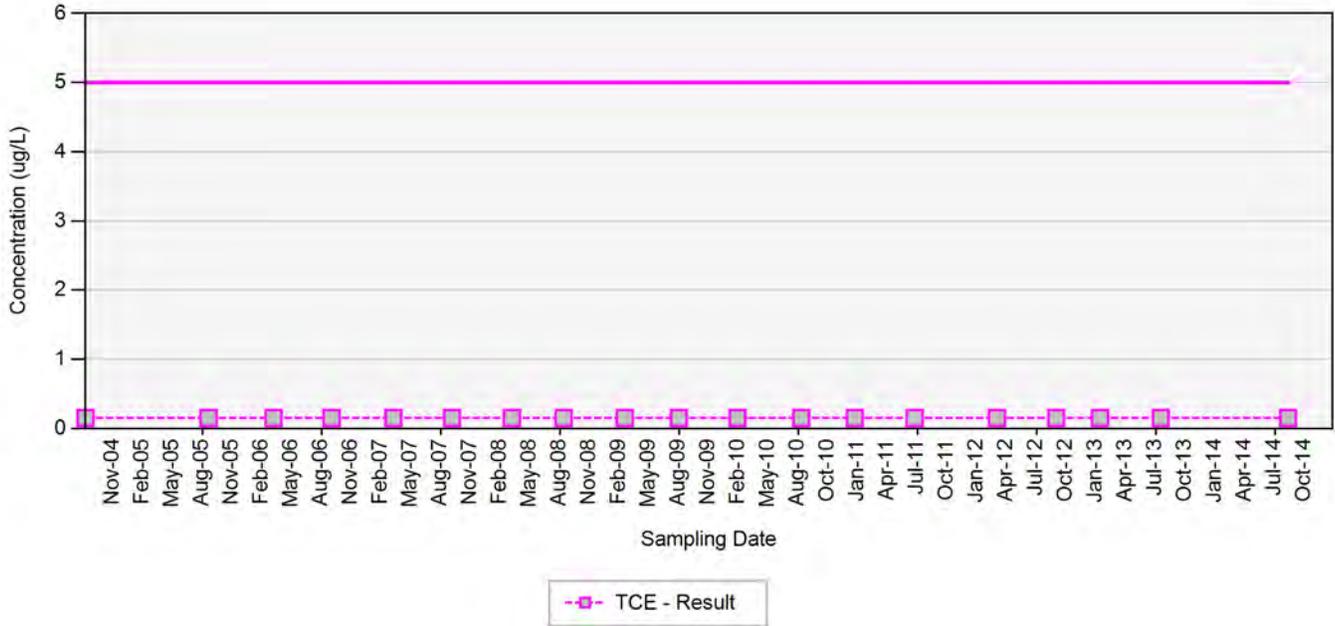


TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

Appendix C
Concentration Trend Charts for Water Supply Wells
WSW-59



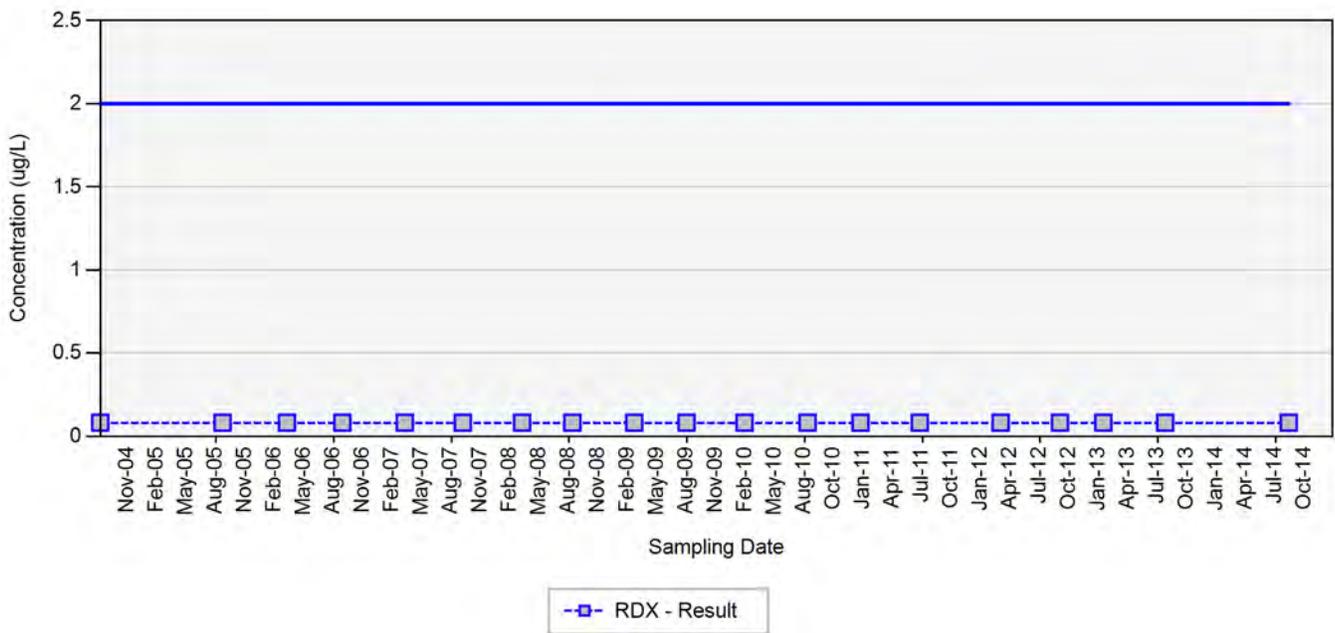
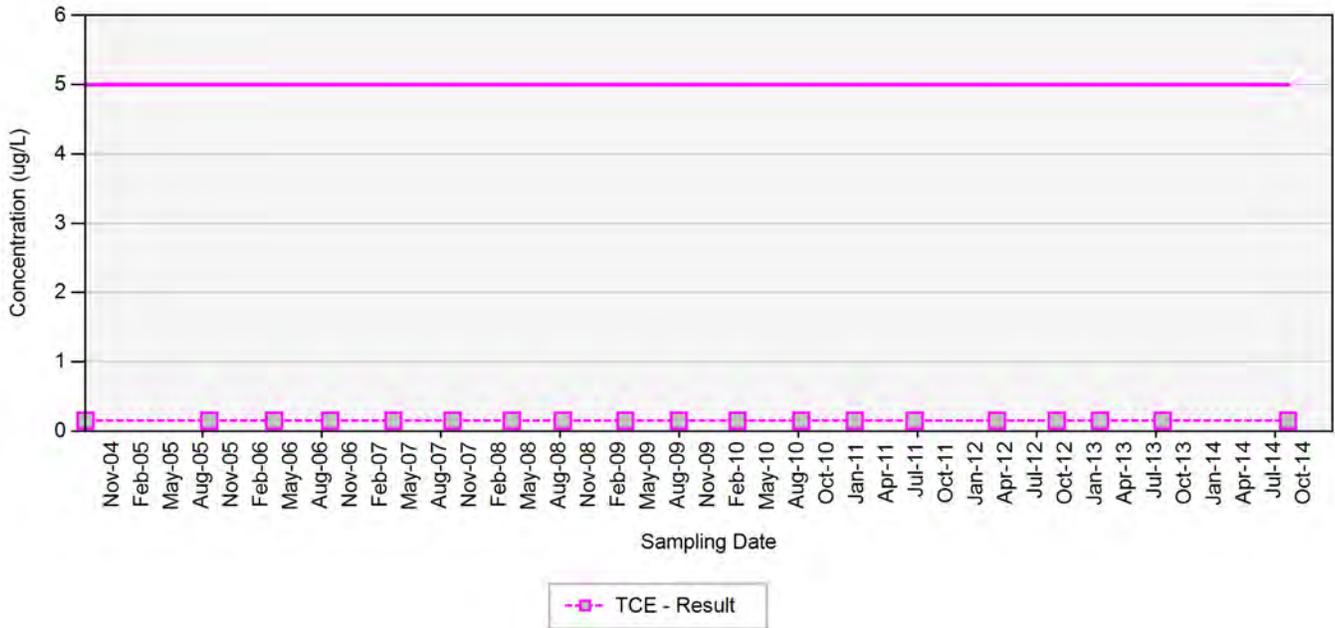
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-60



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

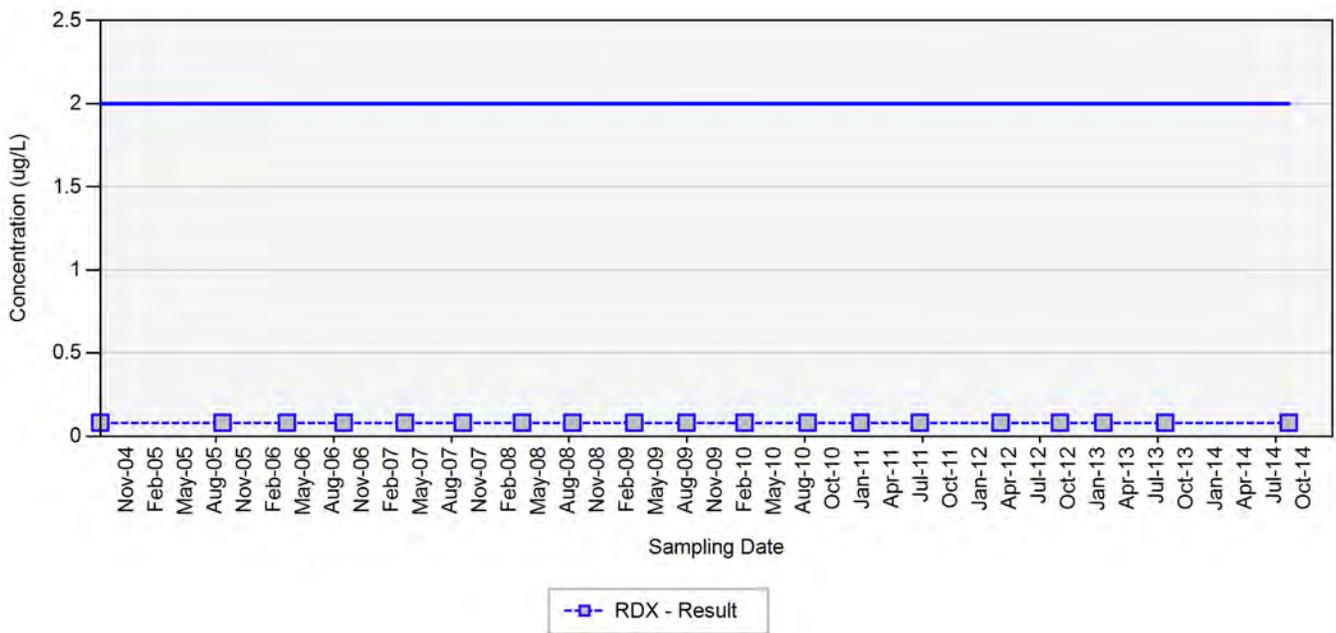
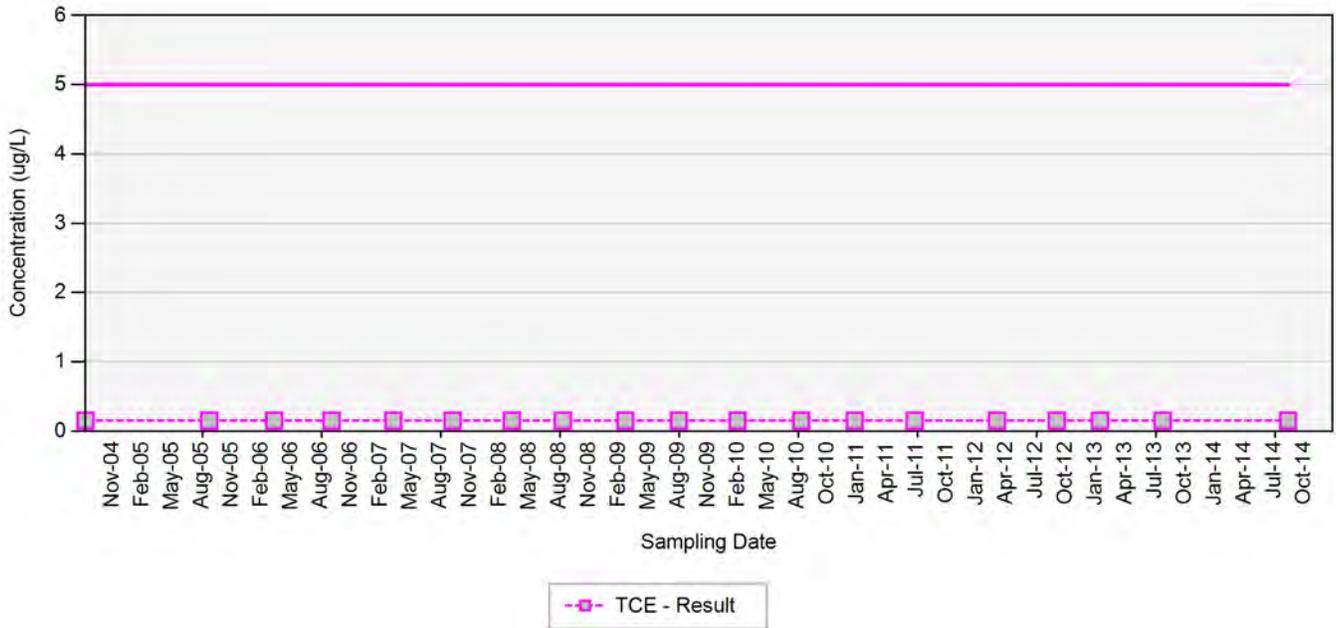
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-61



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

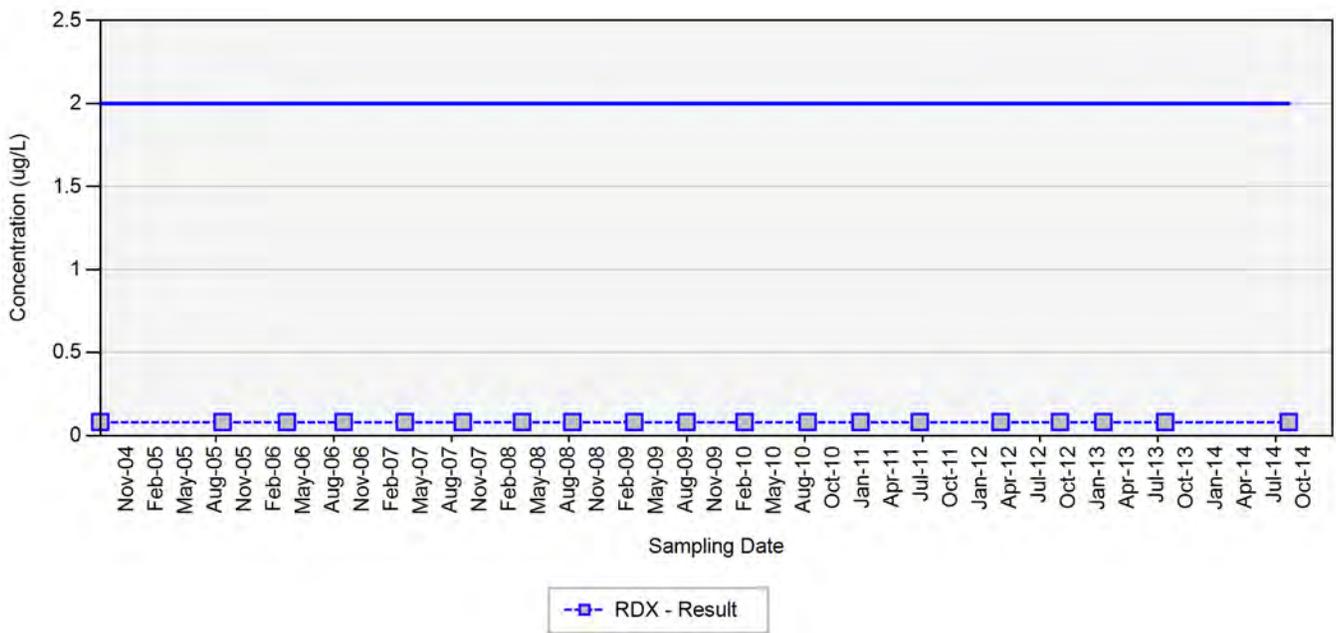
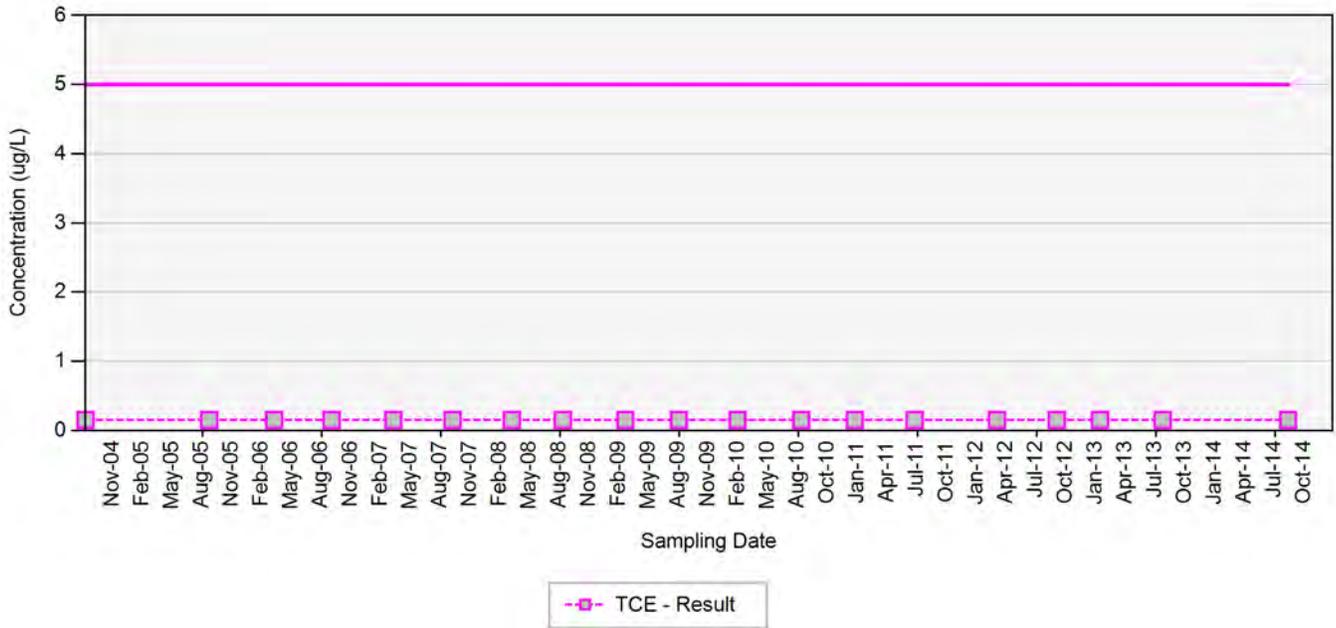
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-62



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

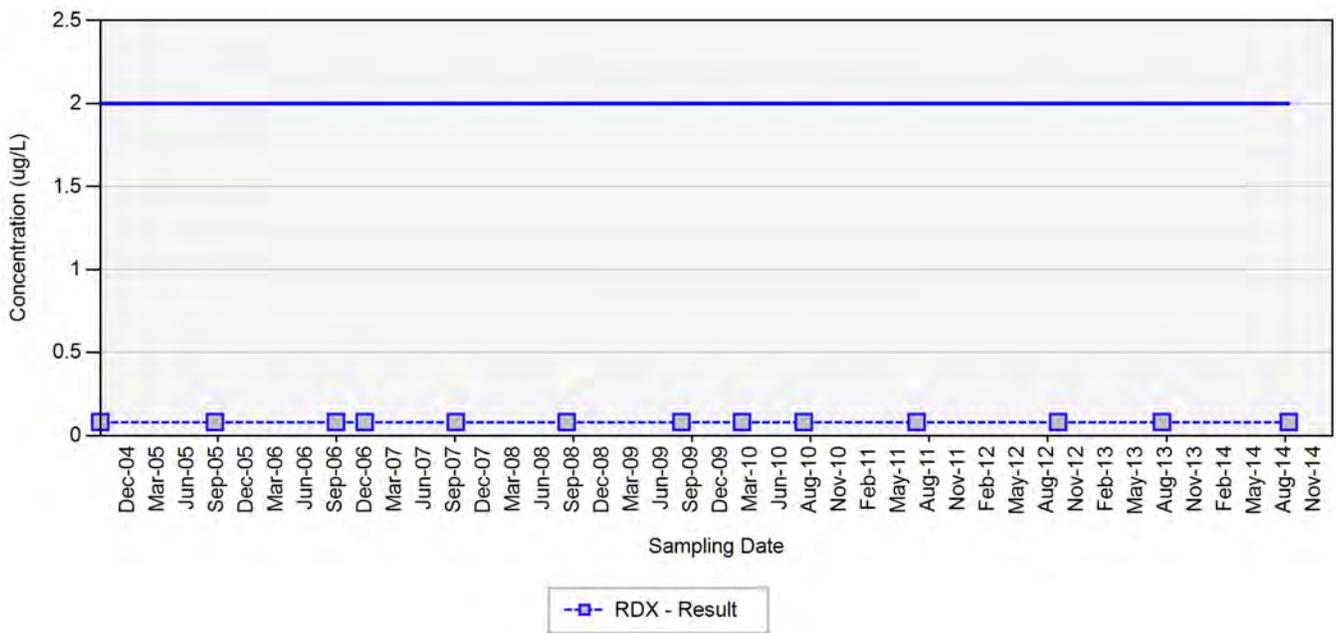
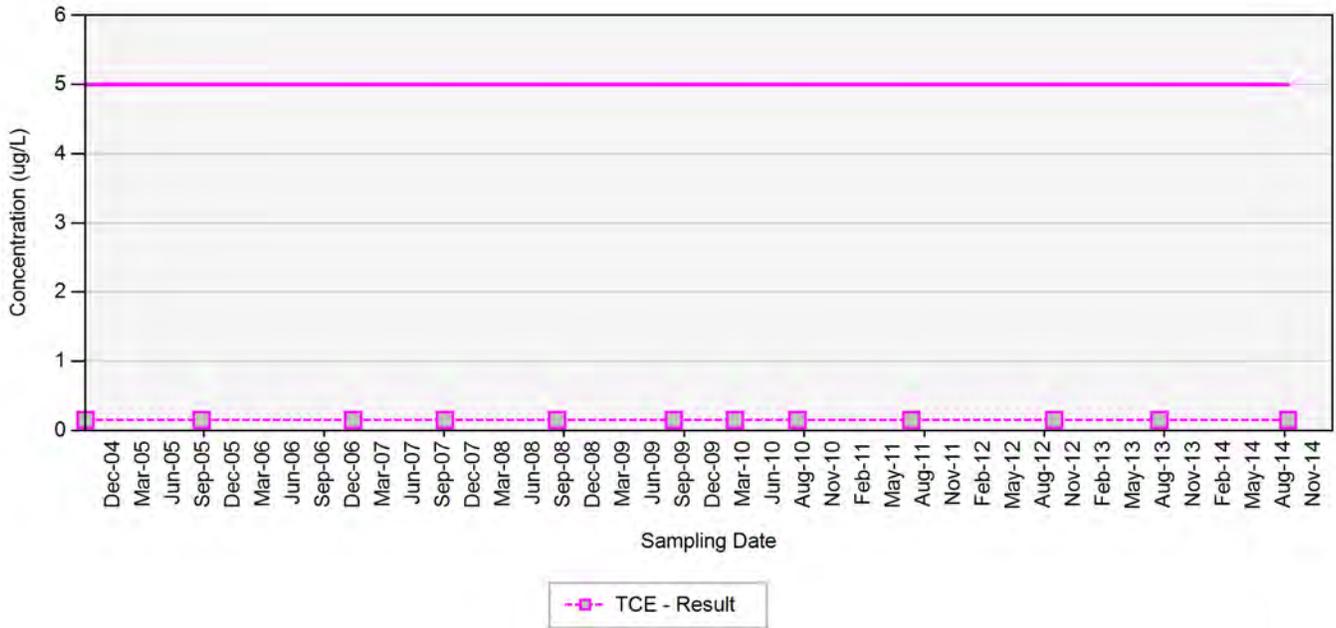
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-63



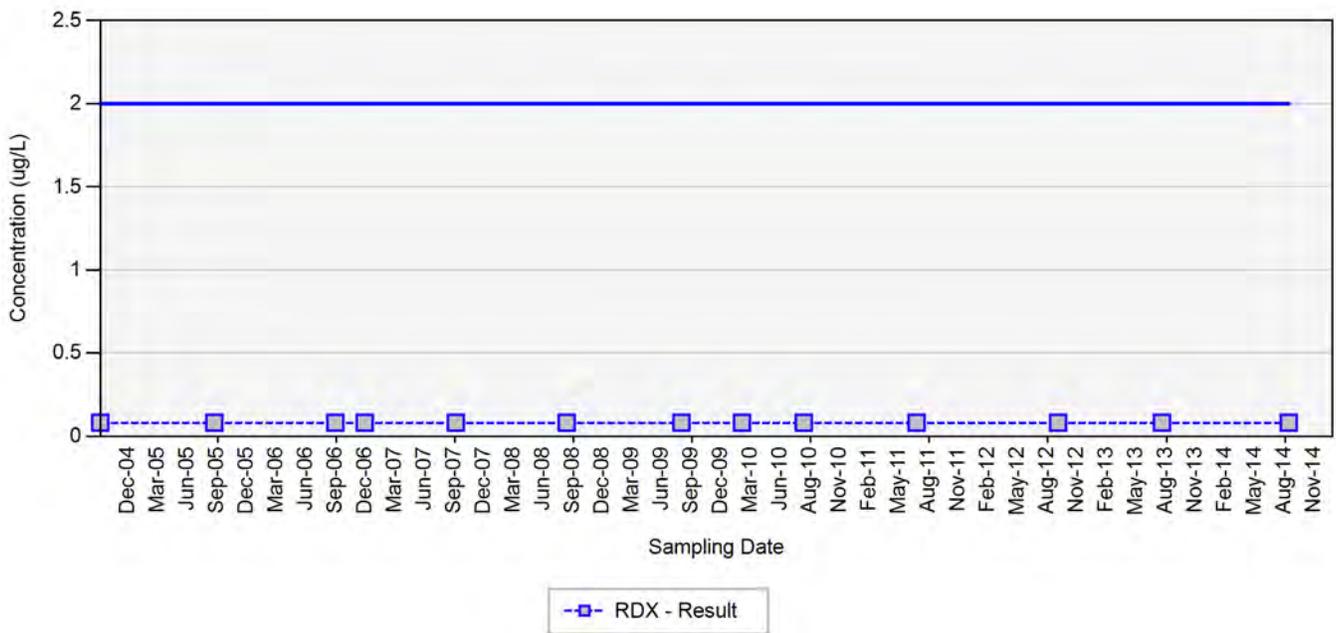
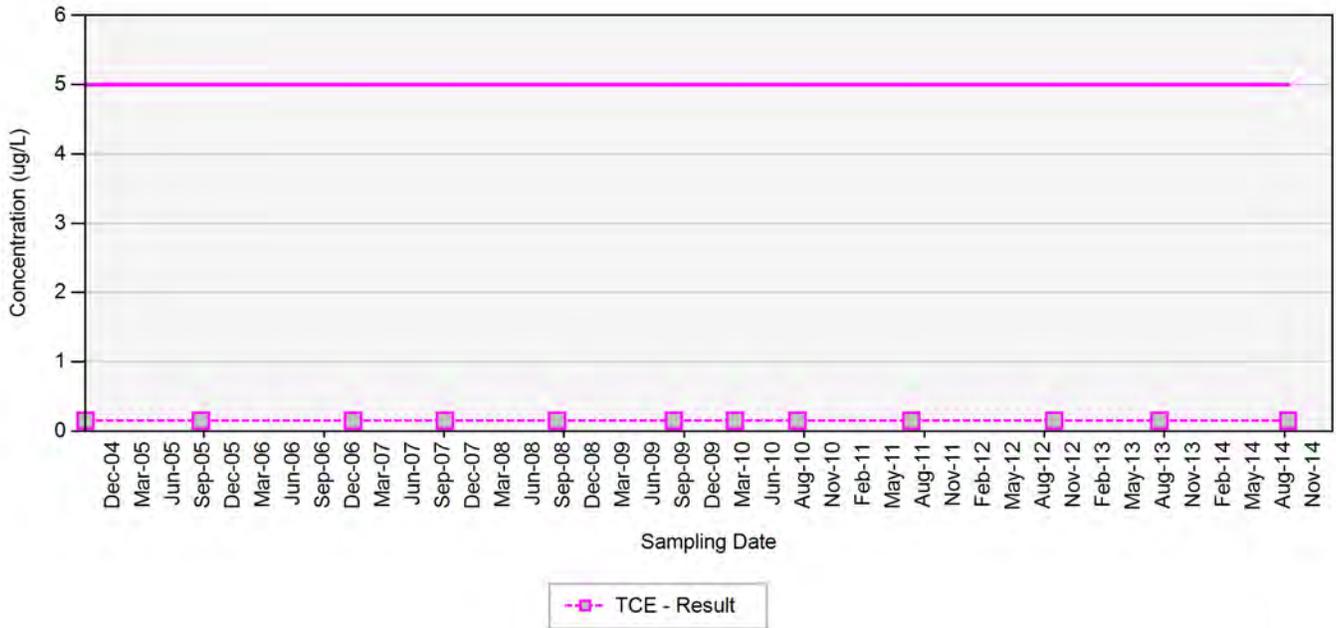
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-64



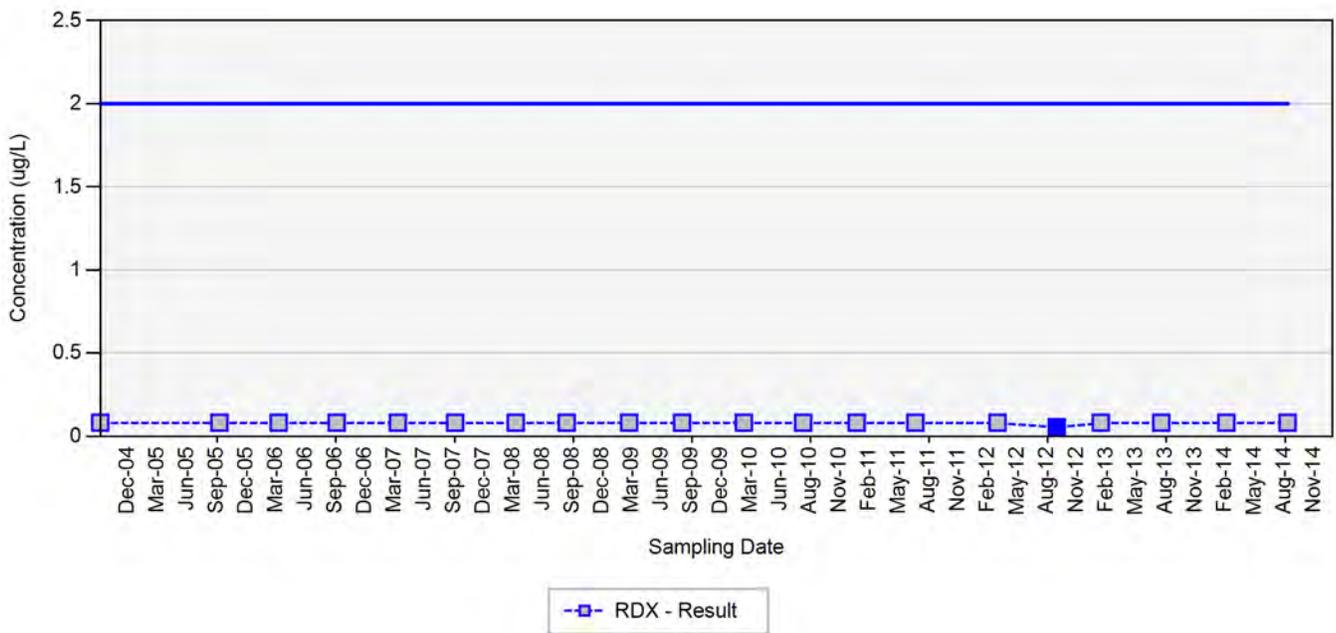
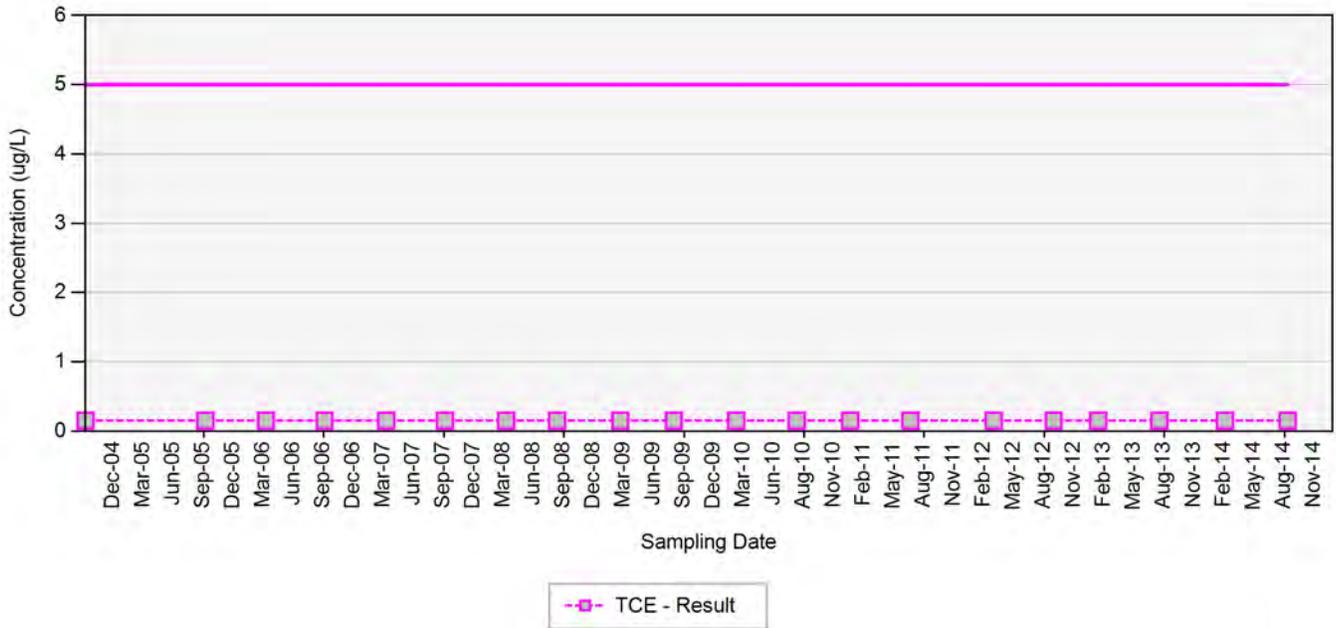
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-65



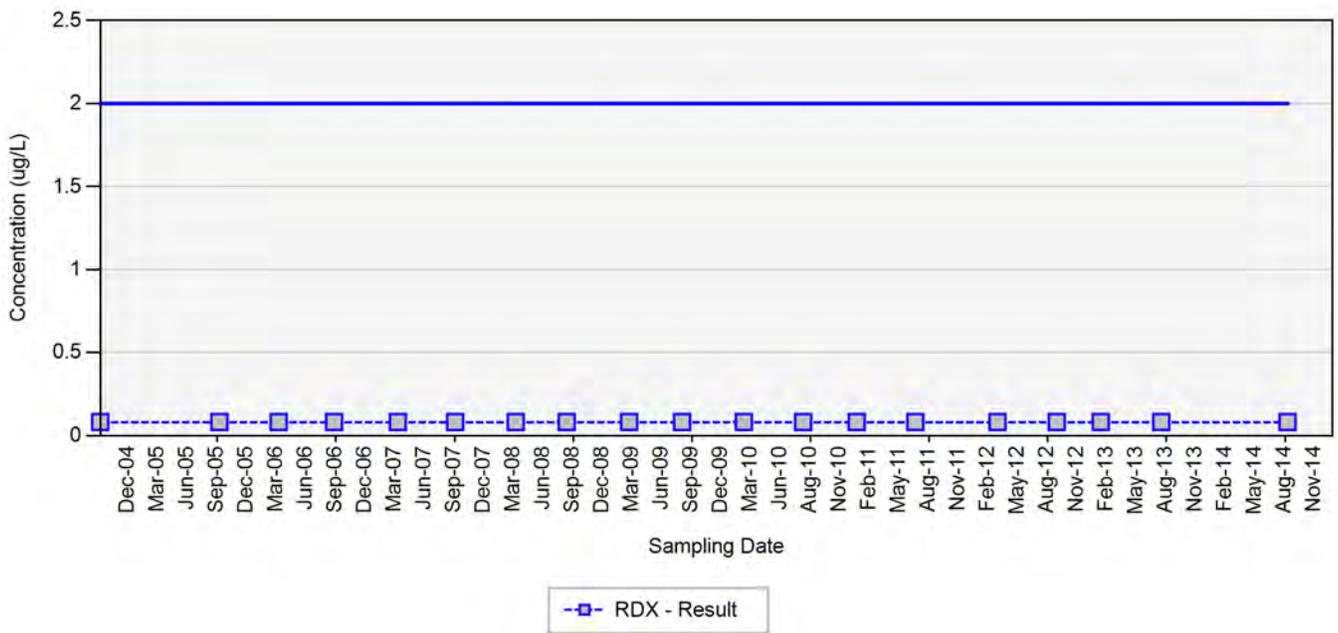
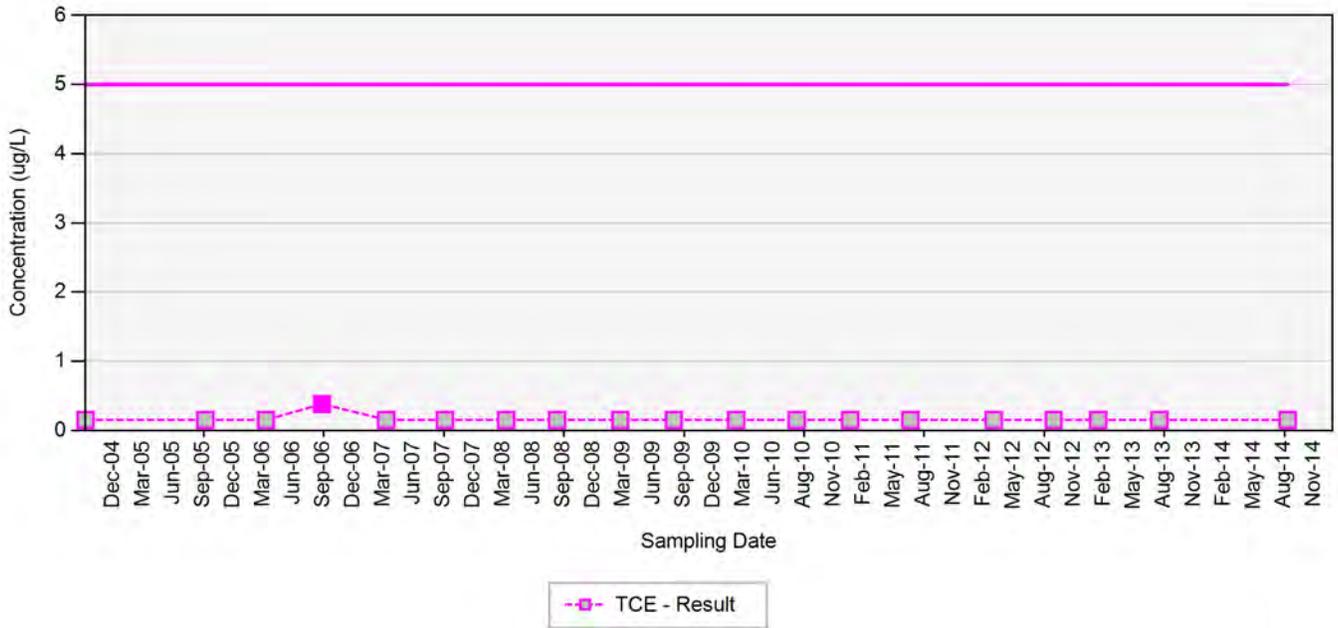
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-66



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

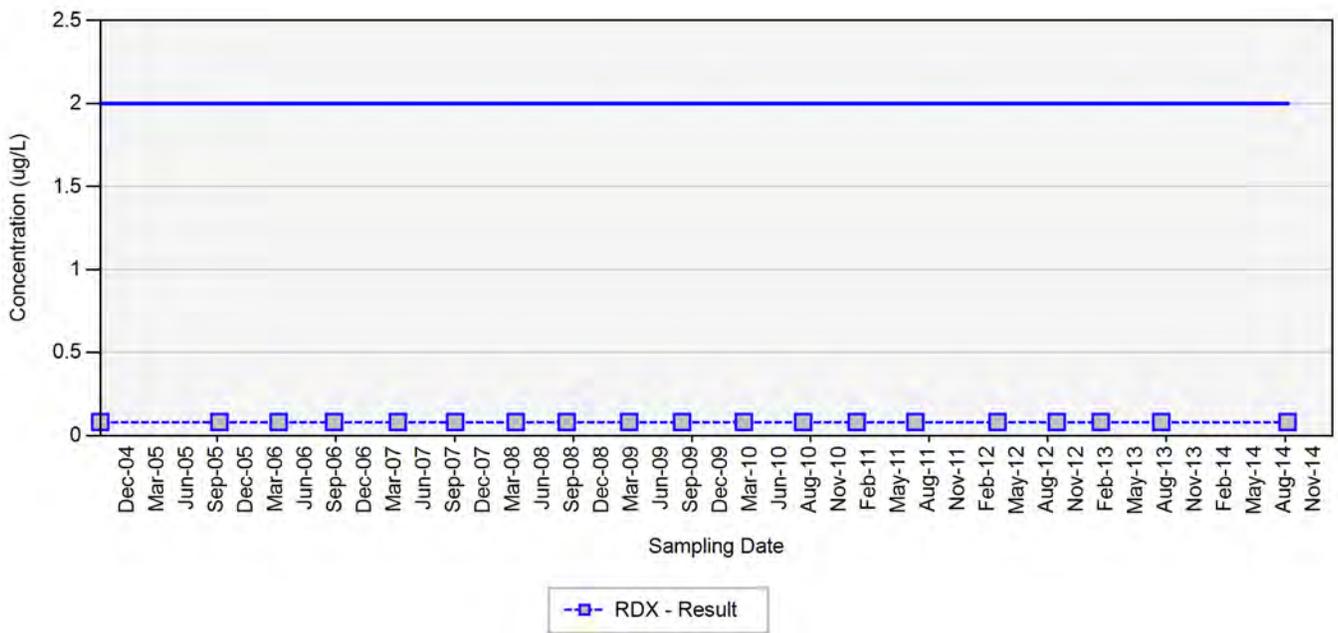
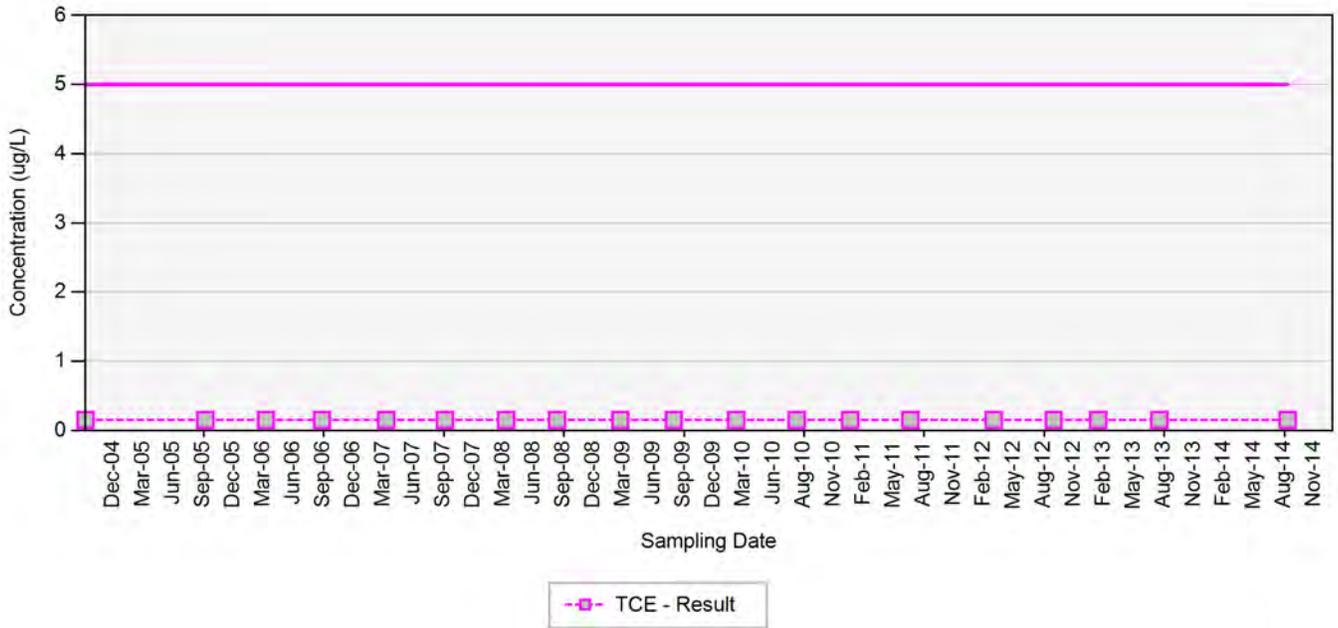
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-67



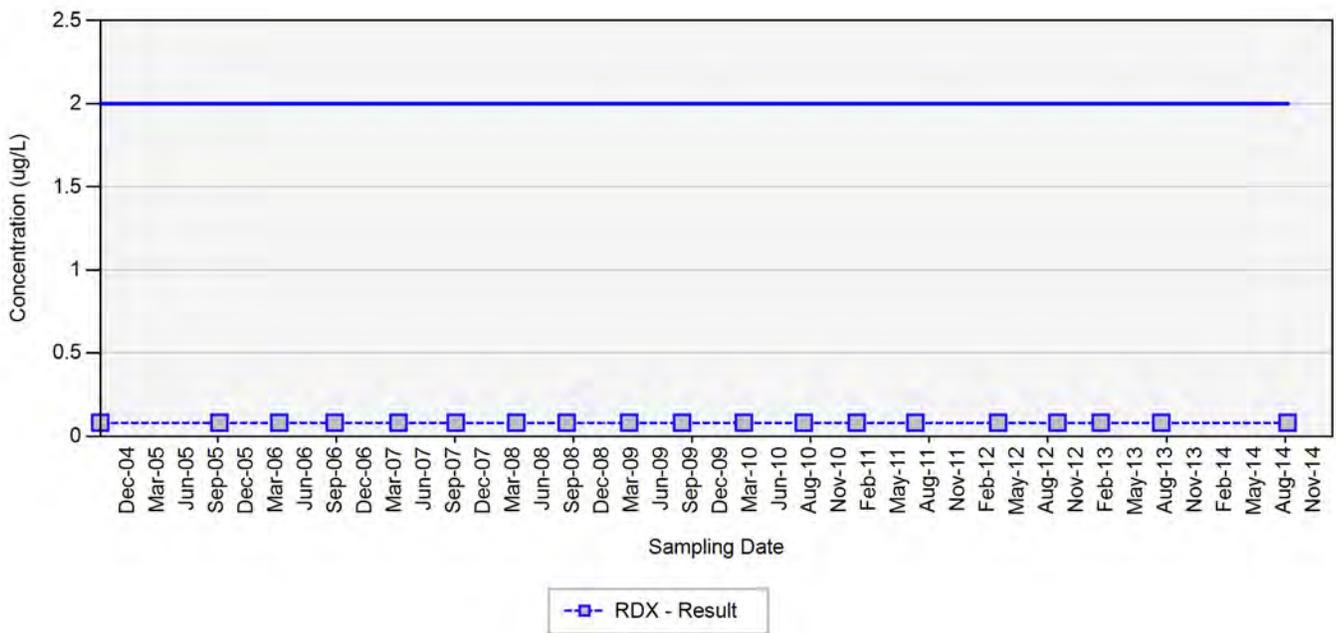
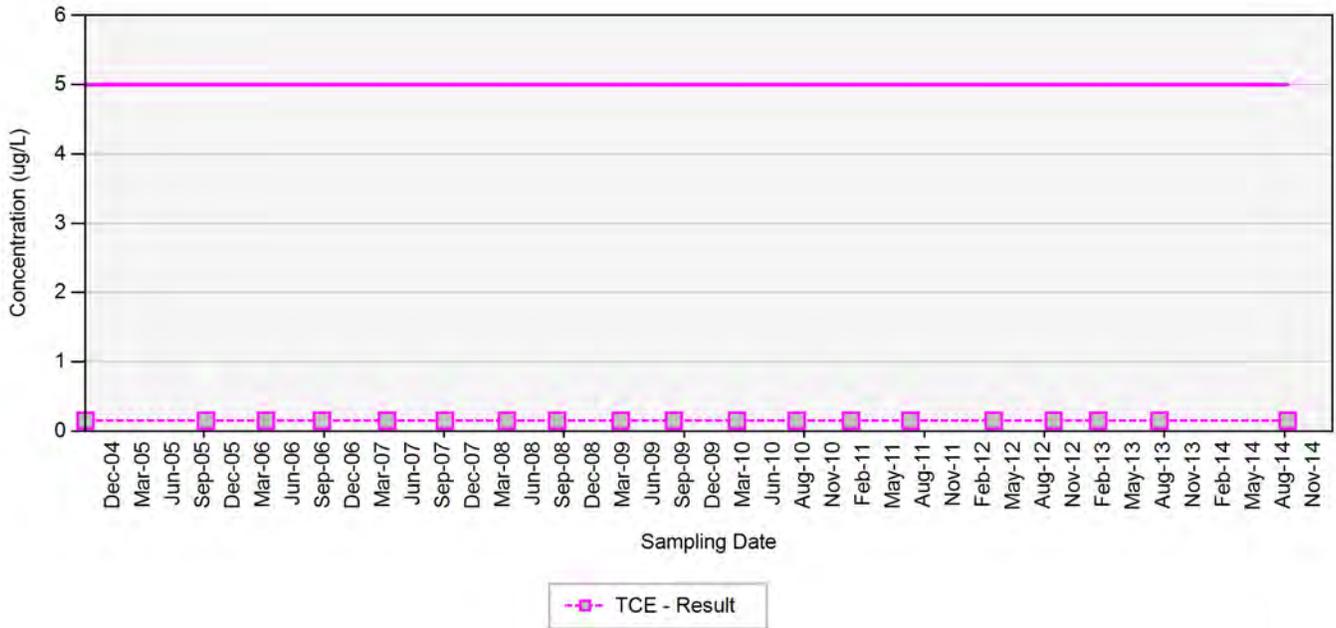
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-68



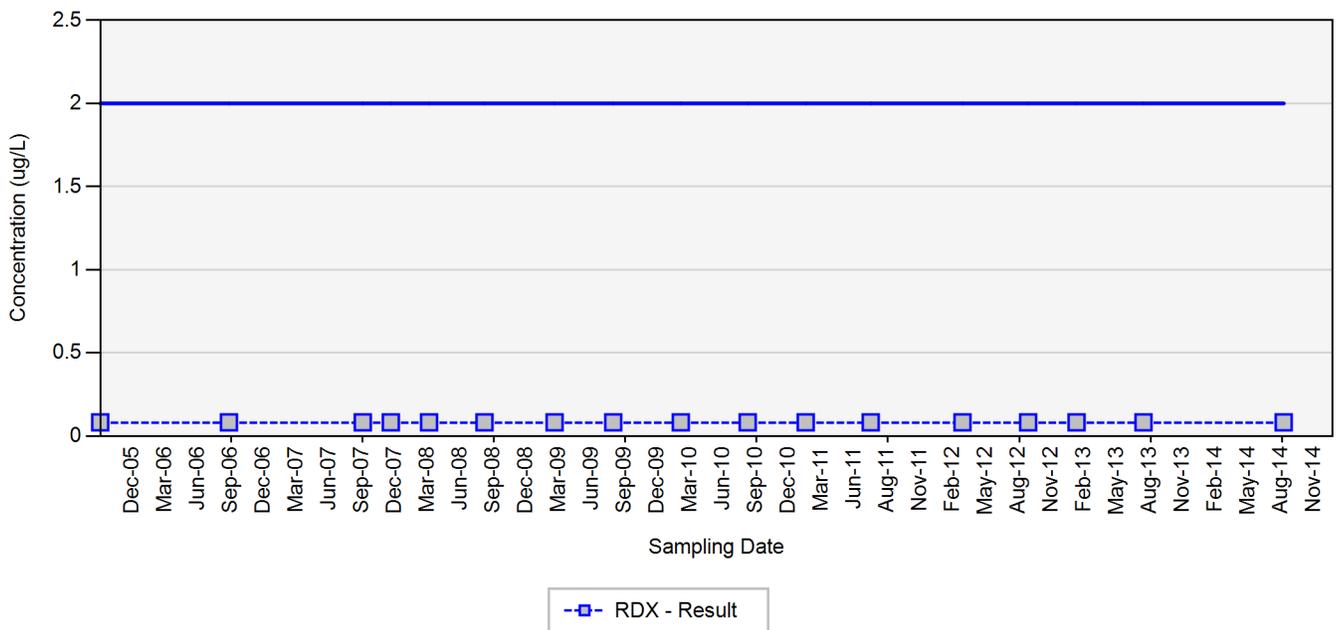
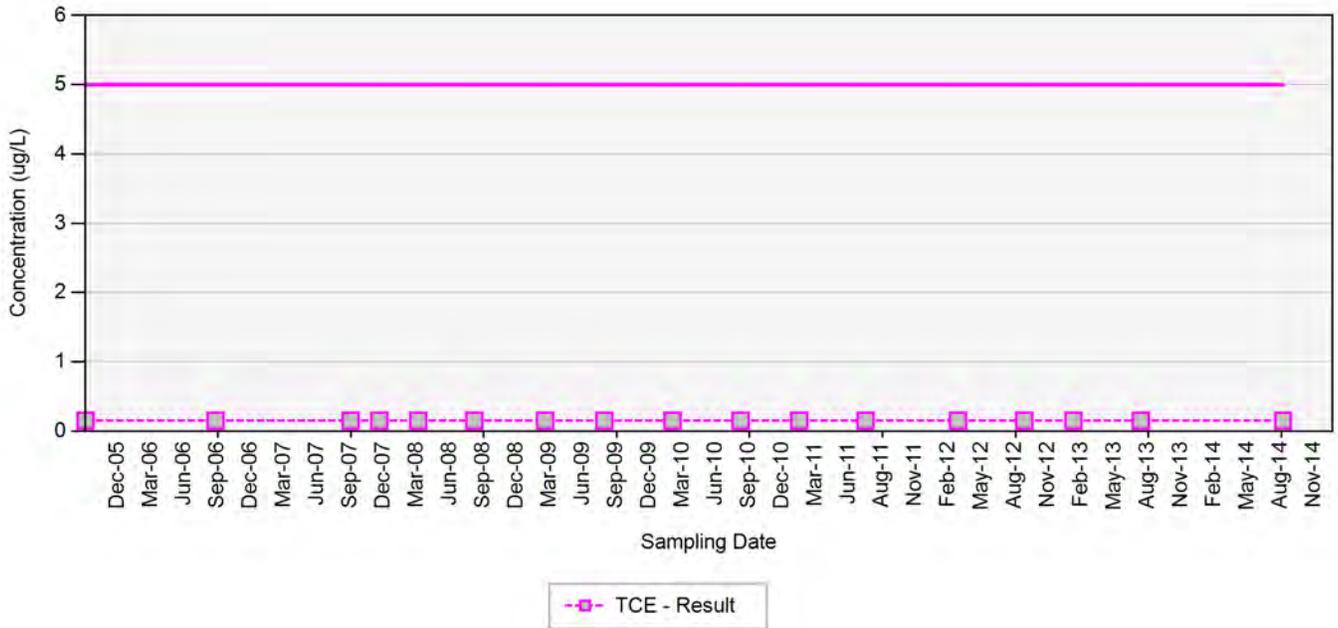
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-73



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

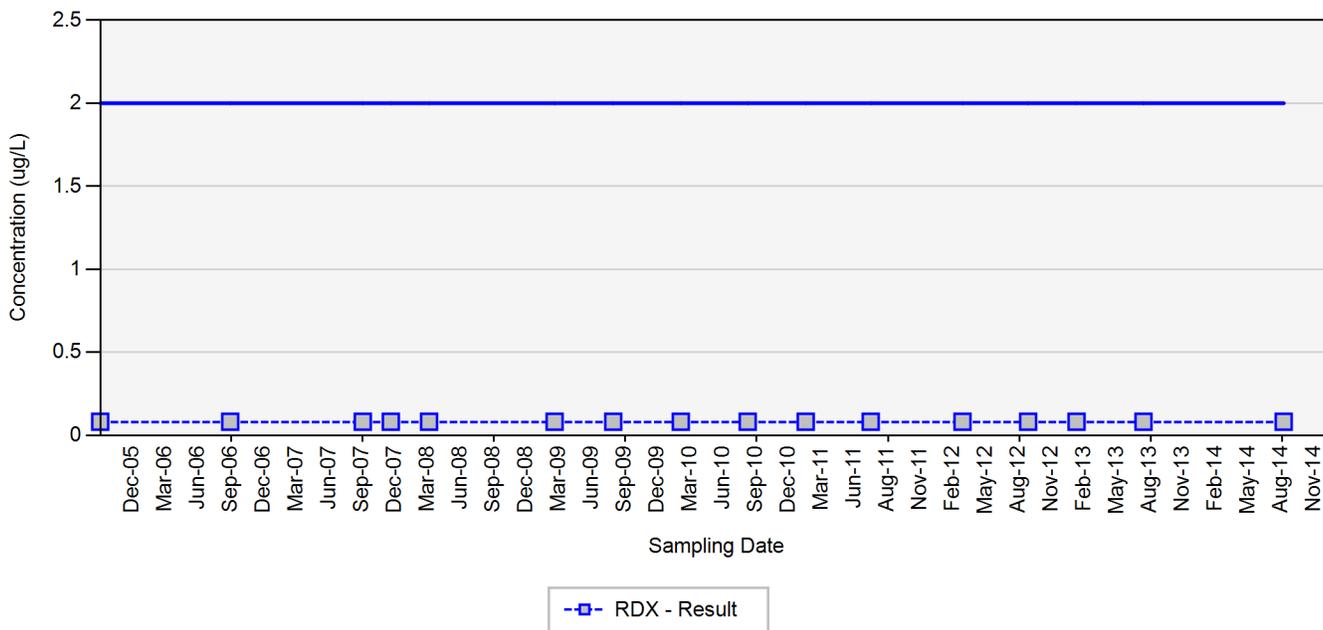
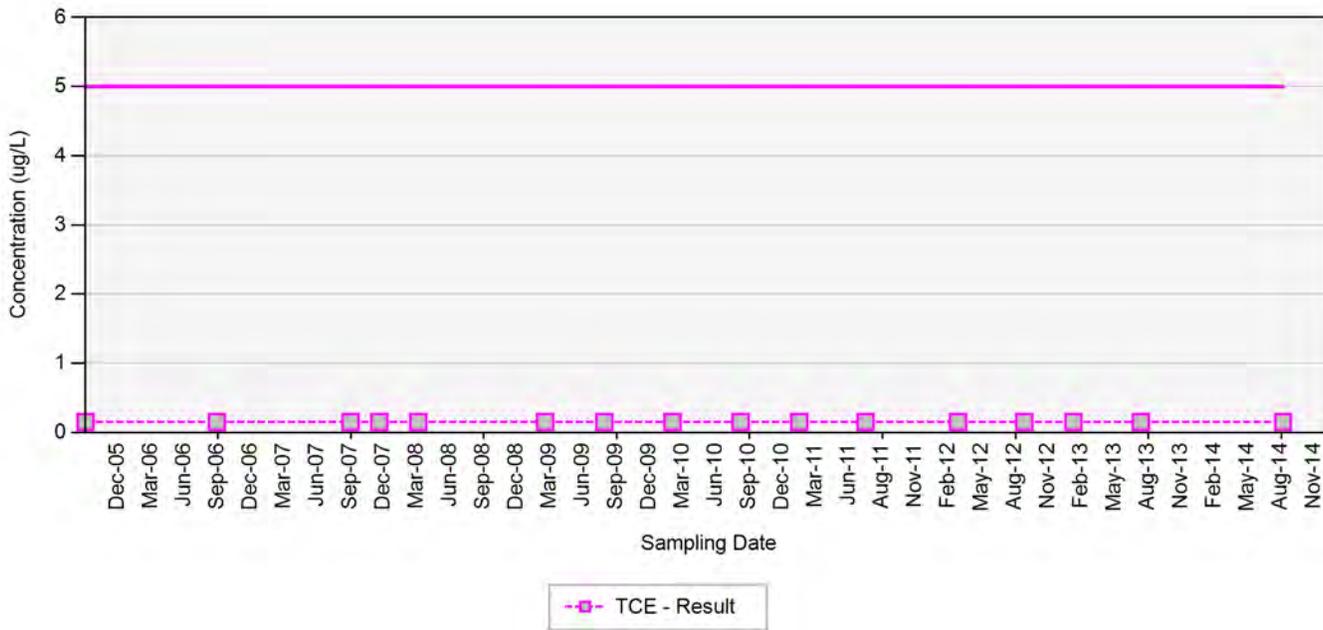
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-74



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

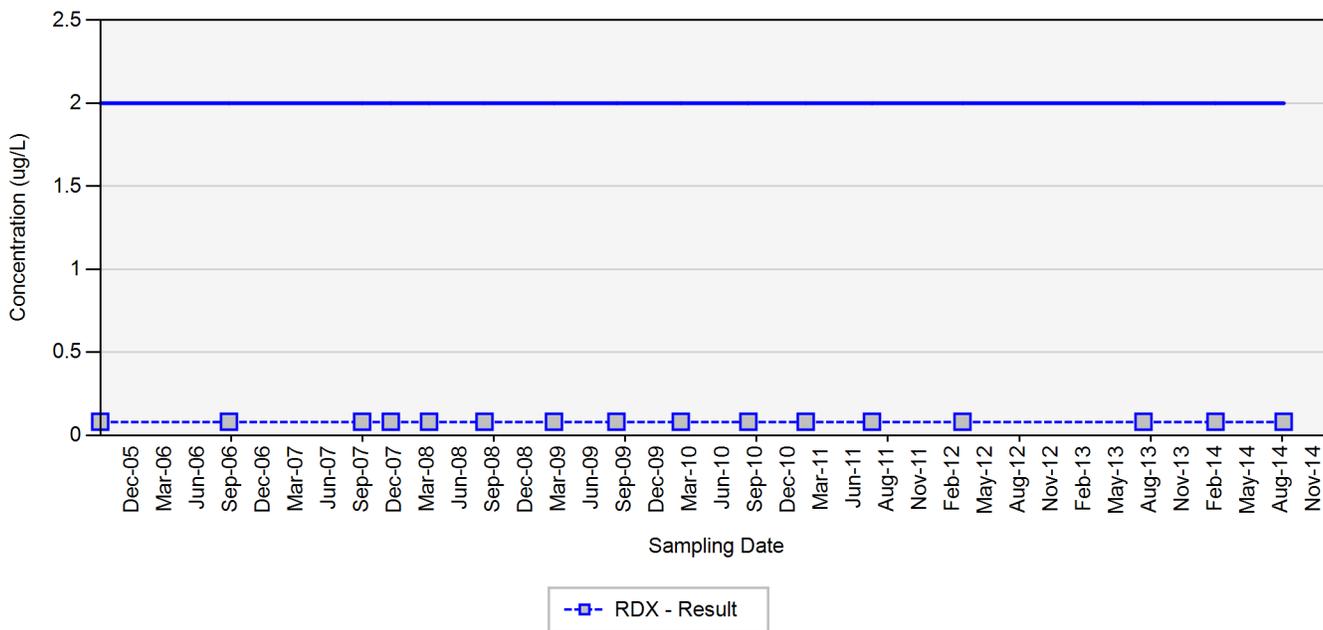
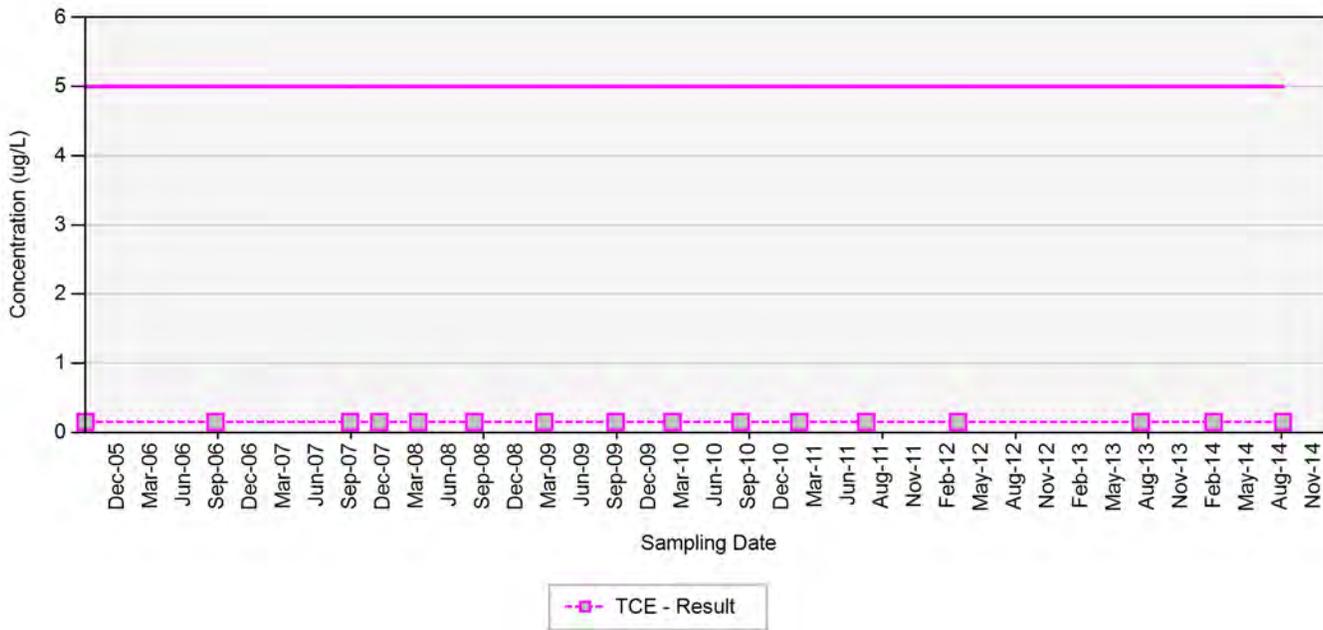
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-75



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

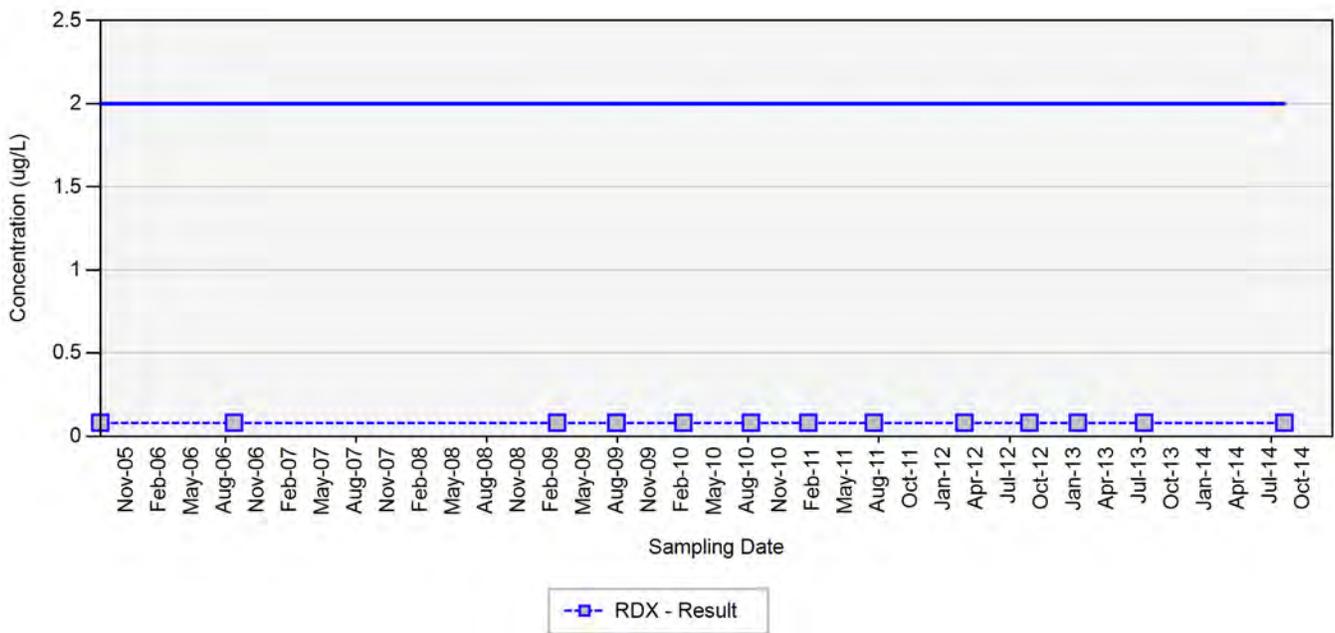
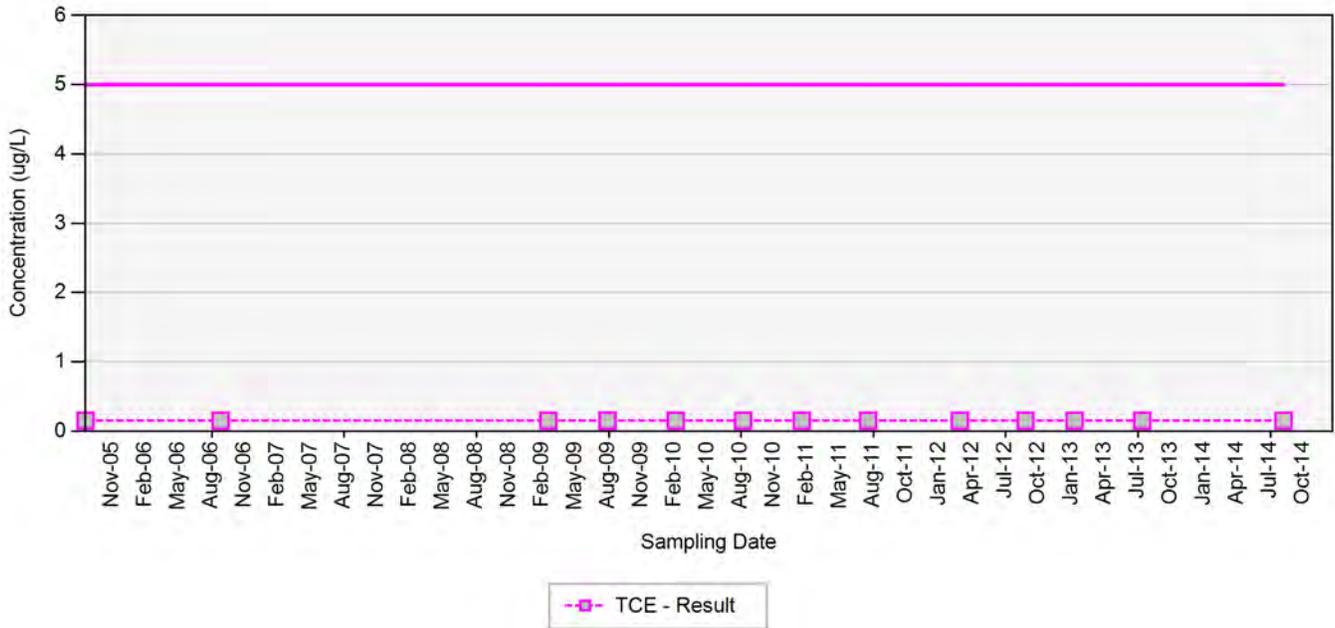
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-76



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

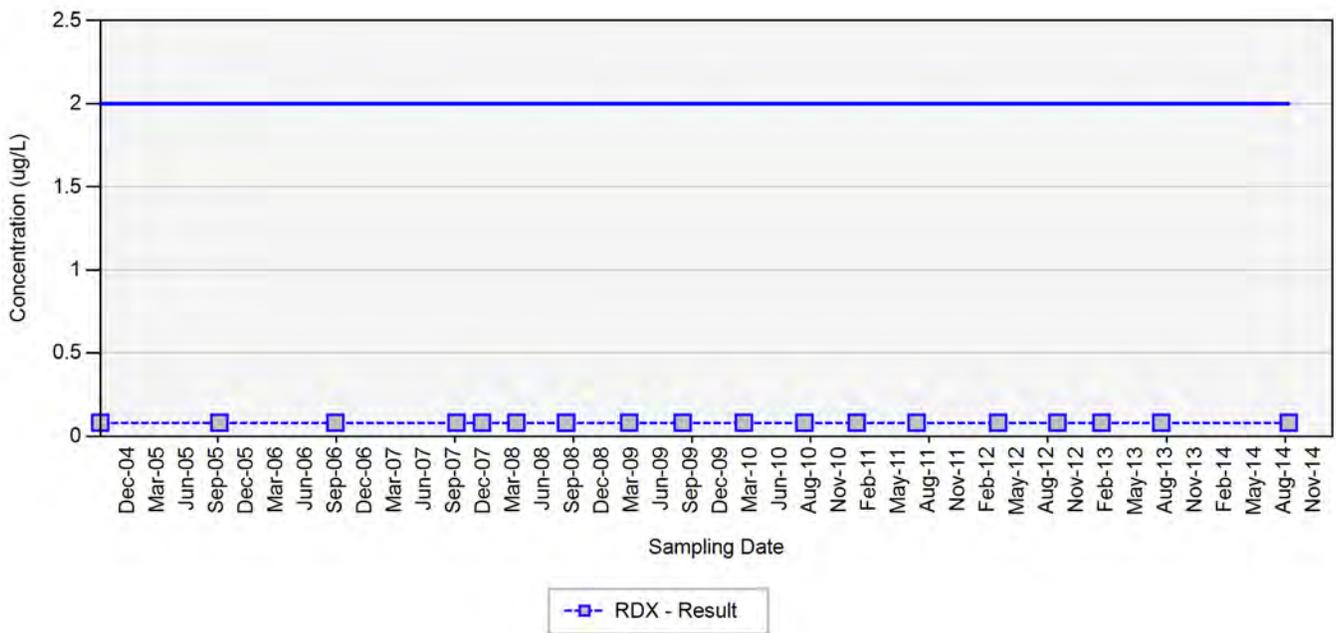
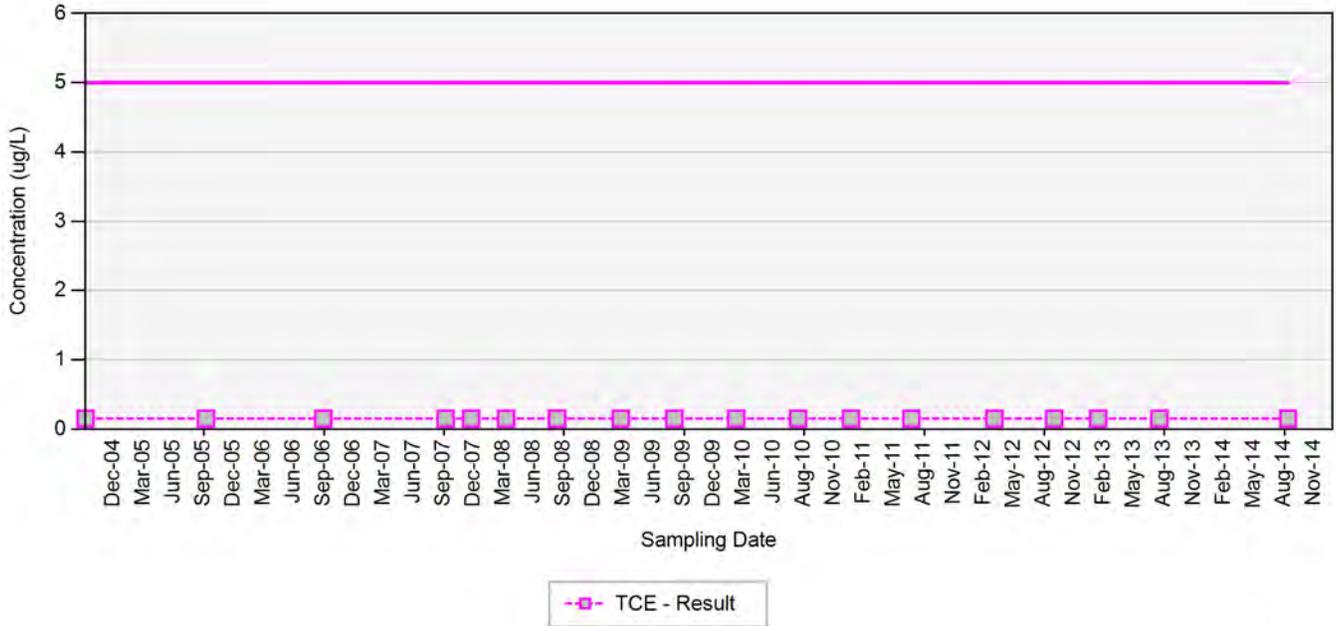
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-77



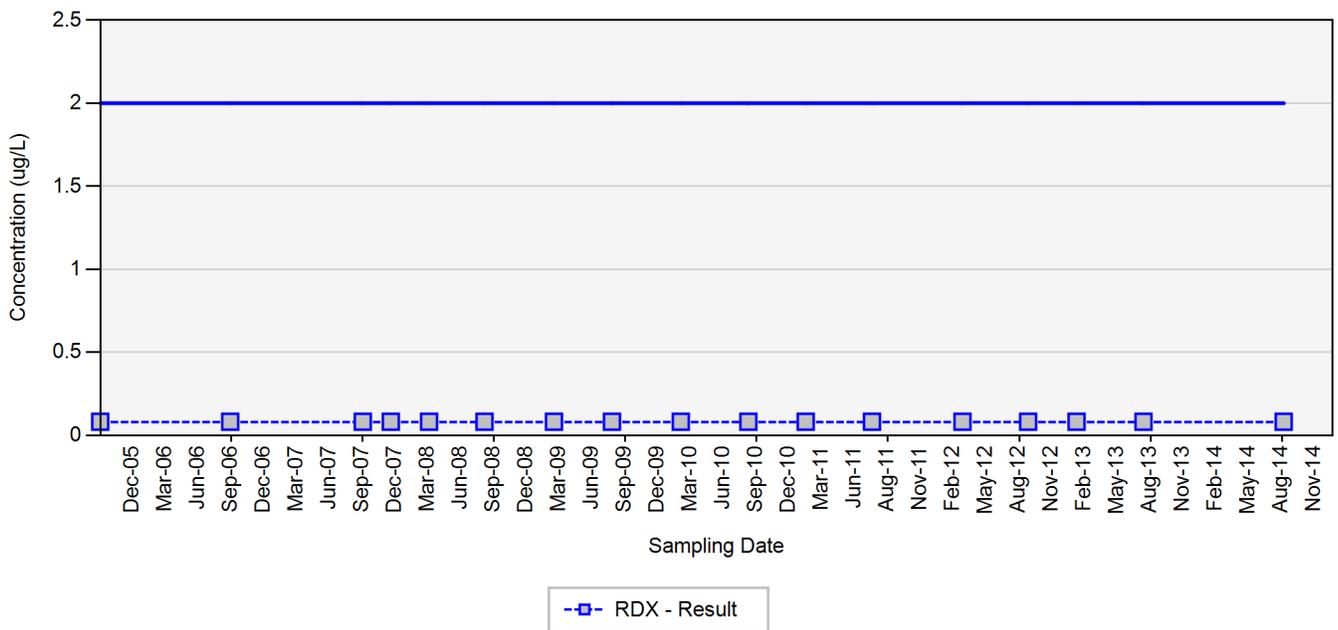
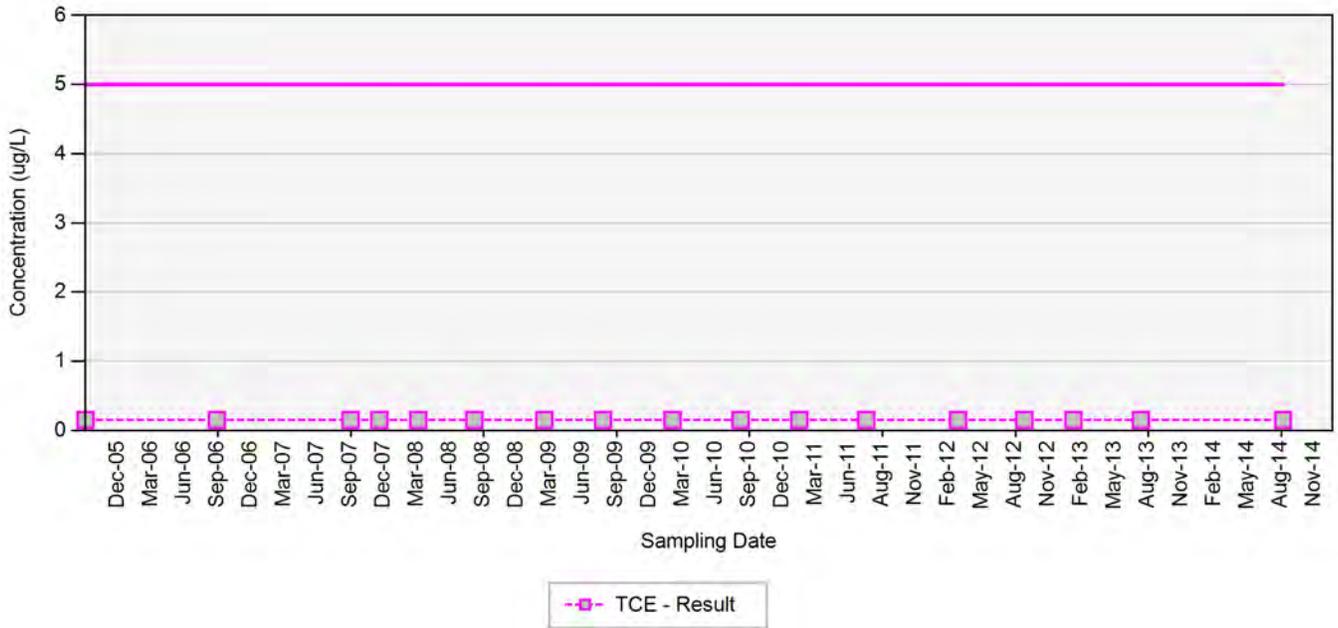
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-79



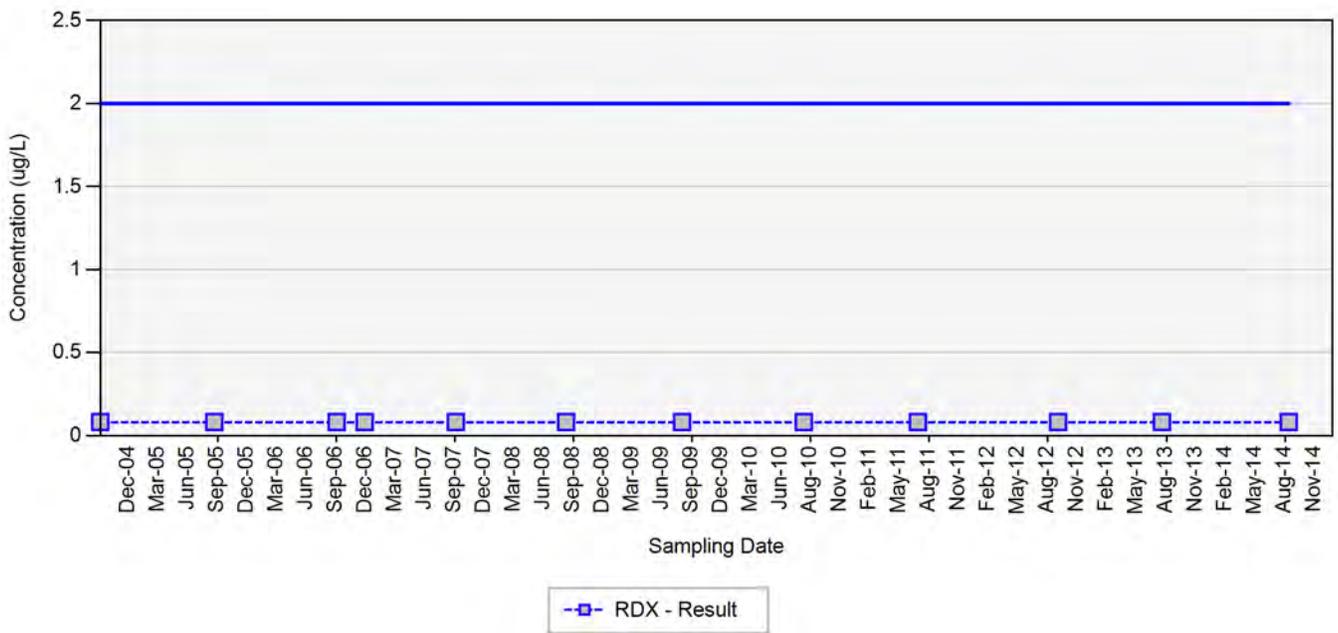
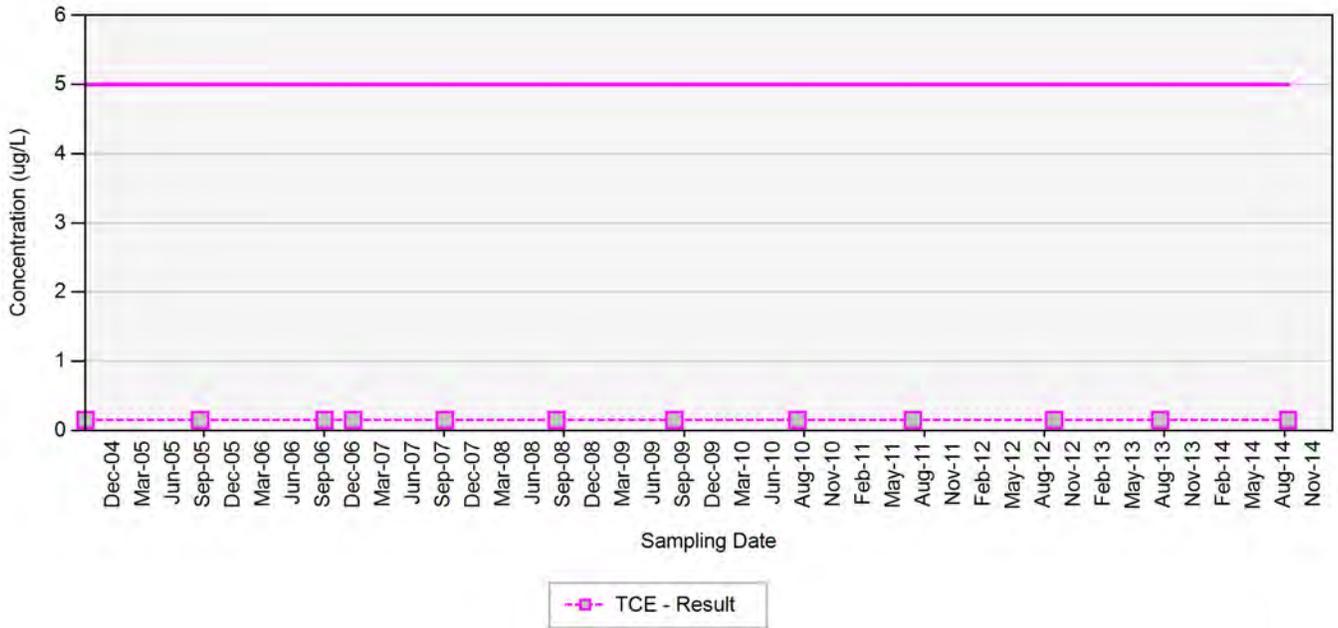
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-80



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

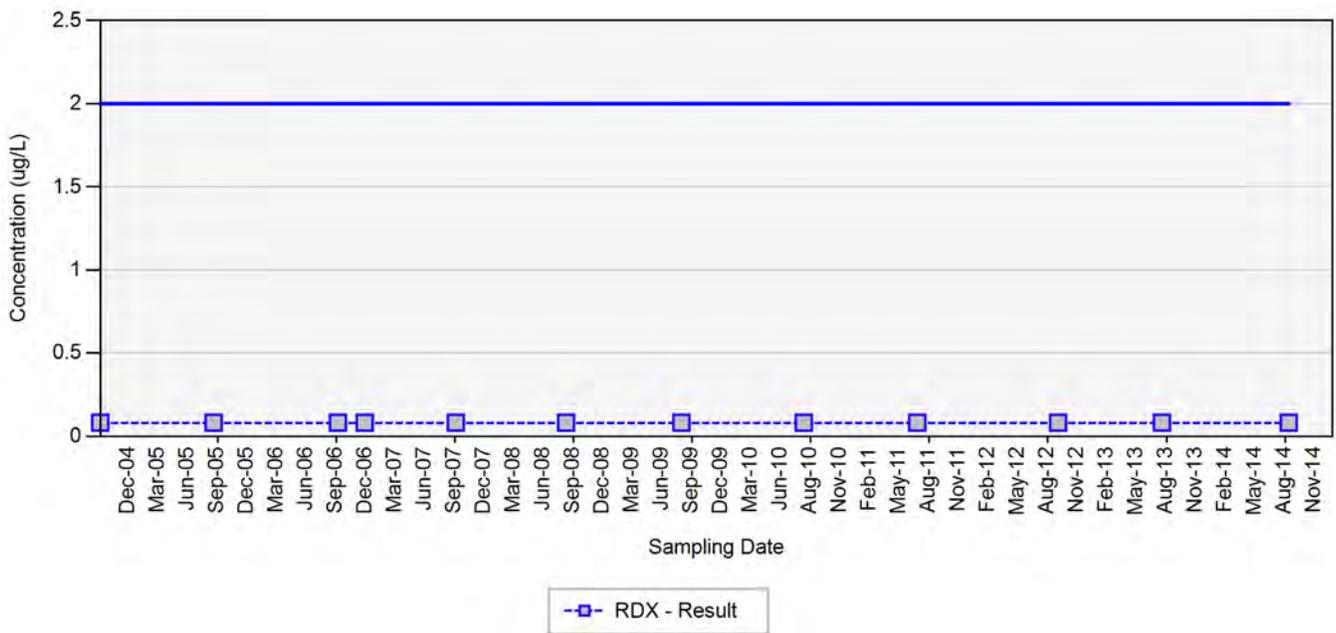
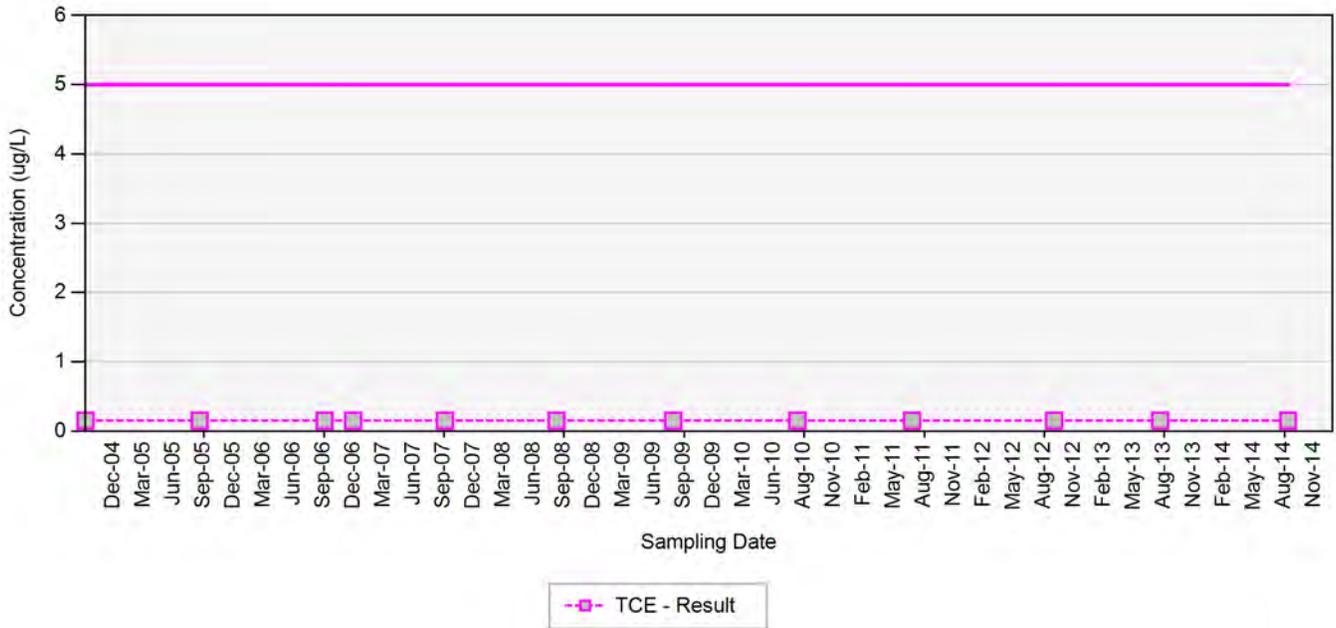
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-81



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

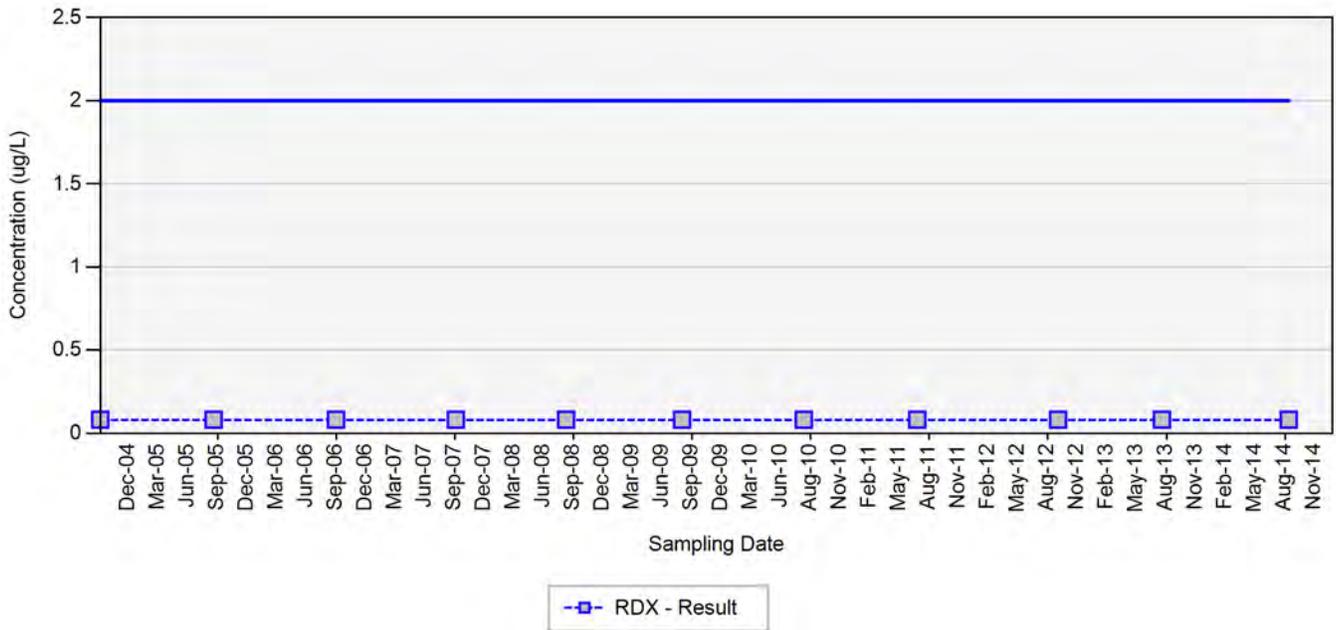
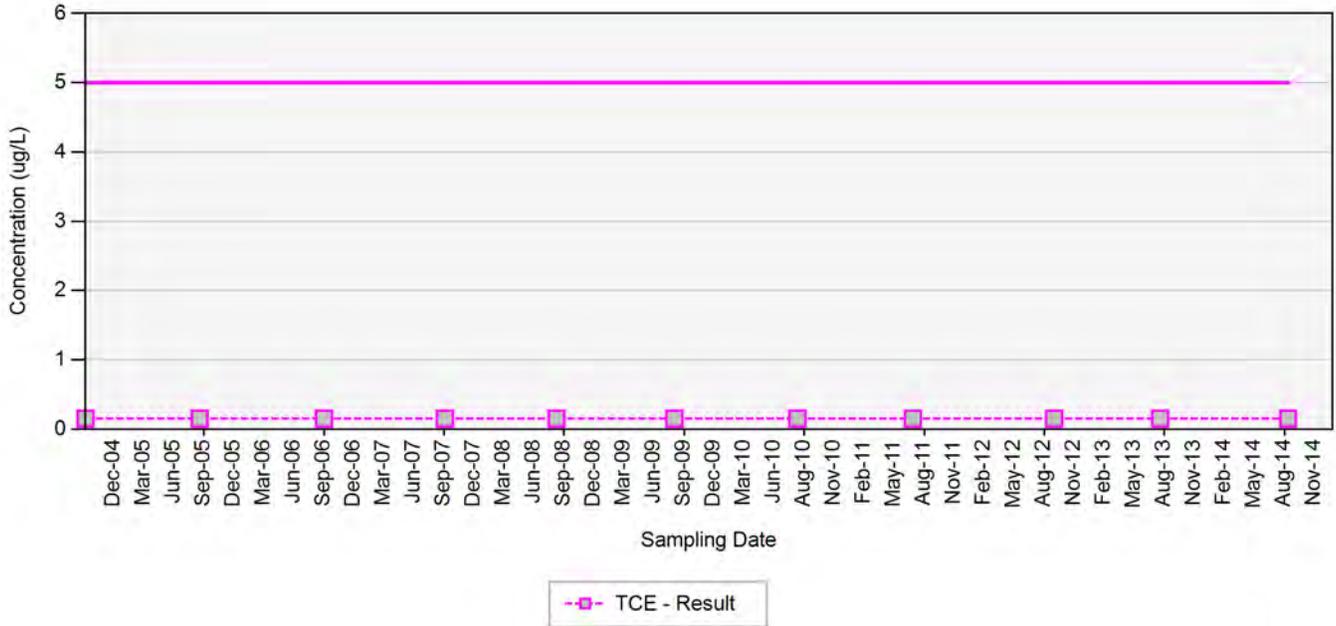
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-82



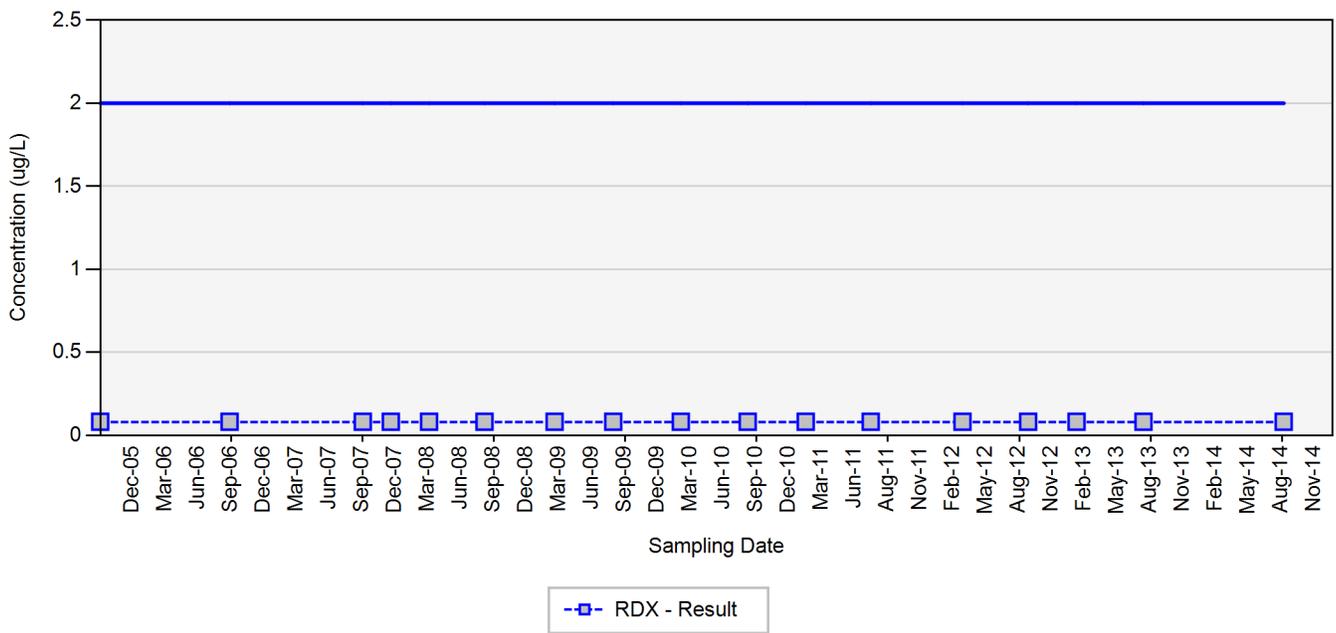
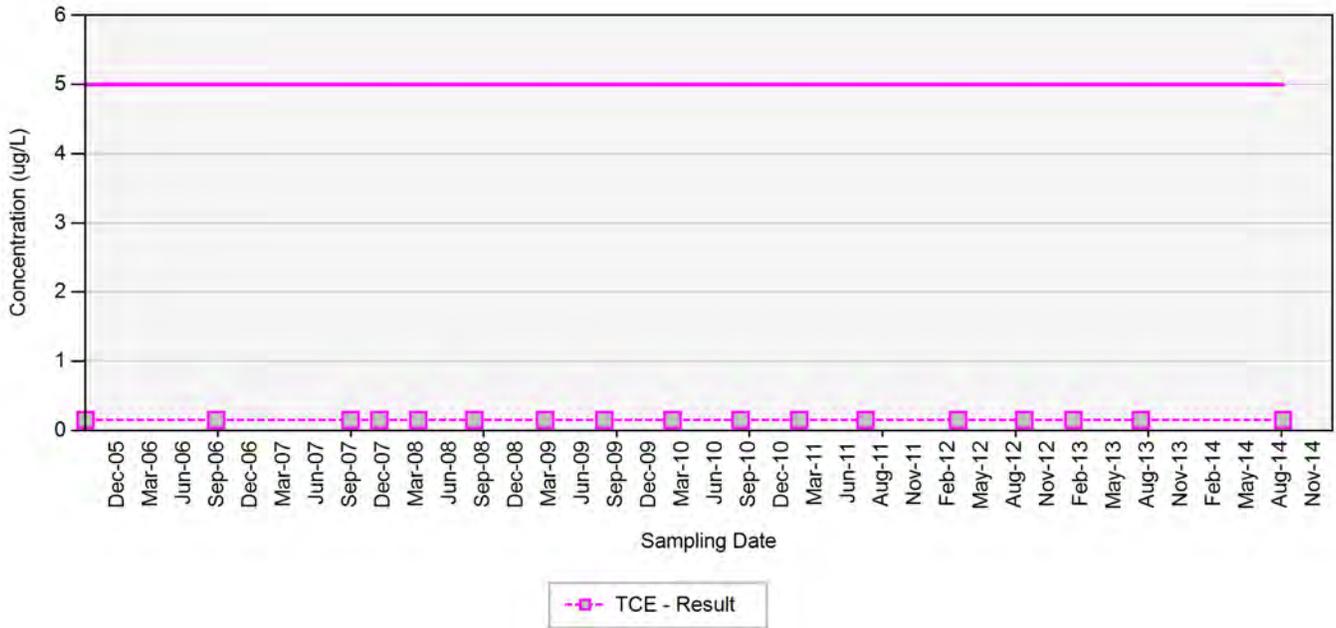
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-86



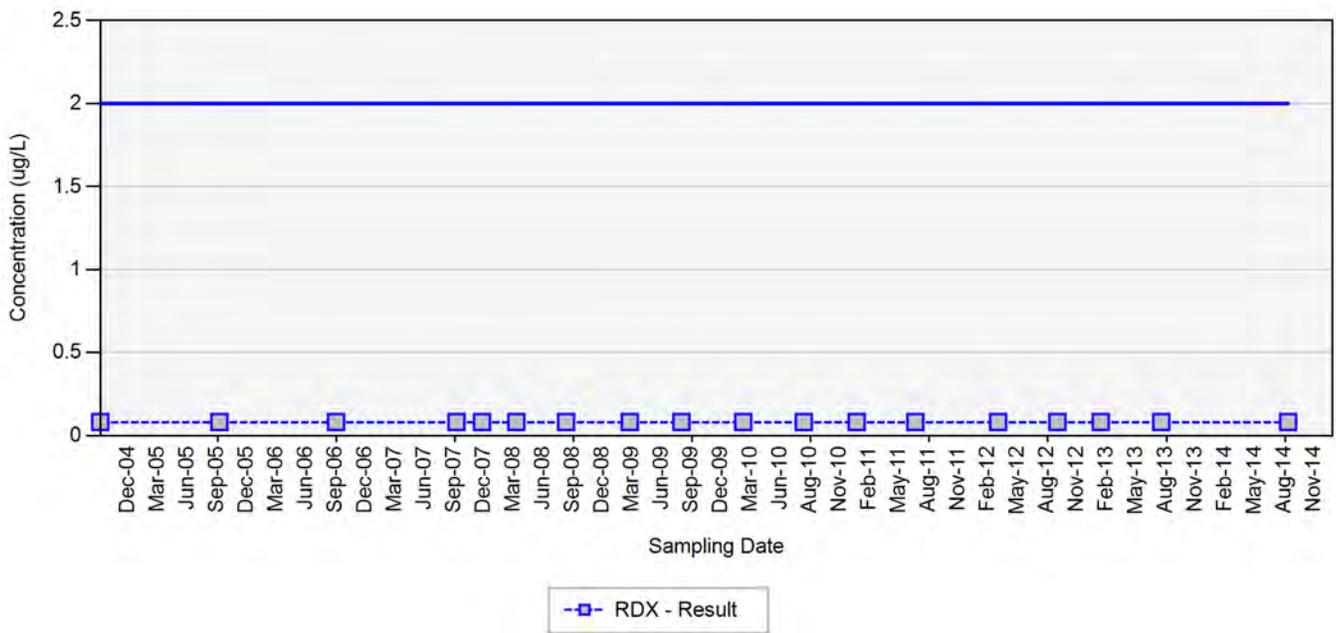
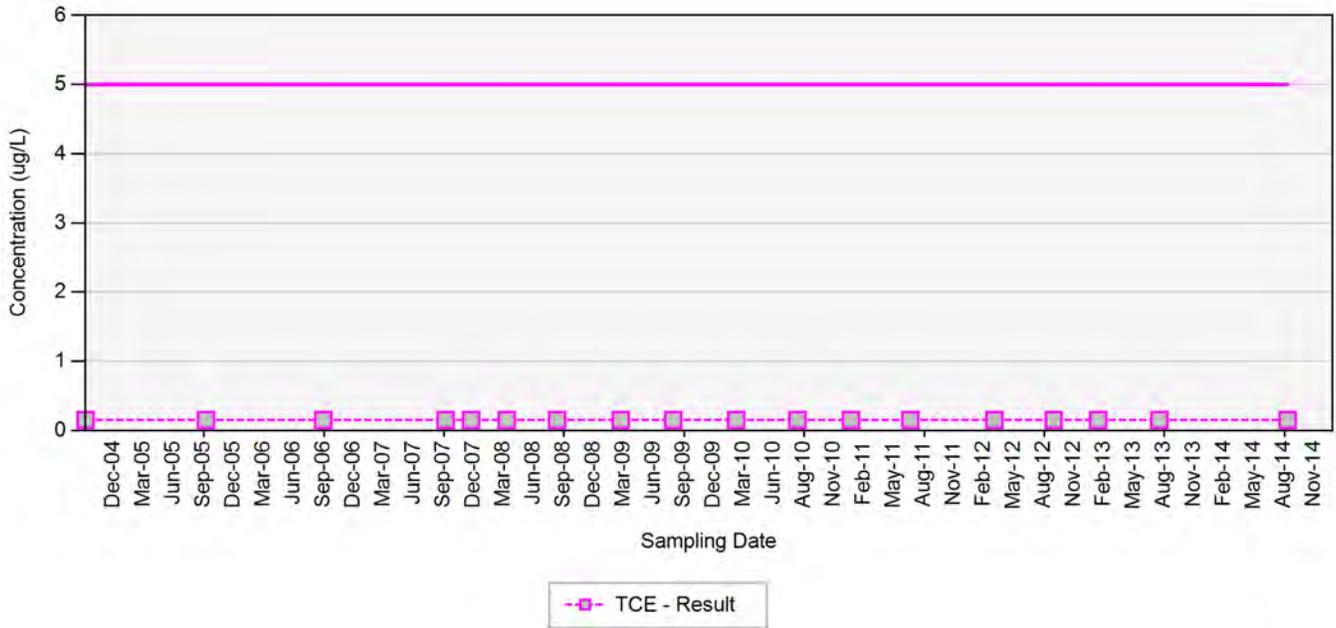
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-87



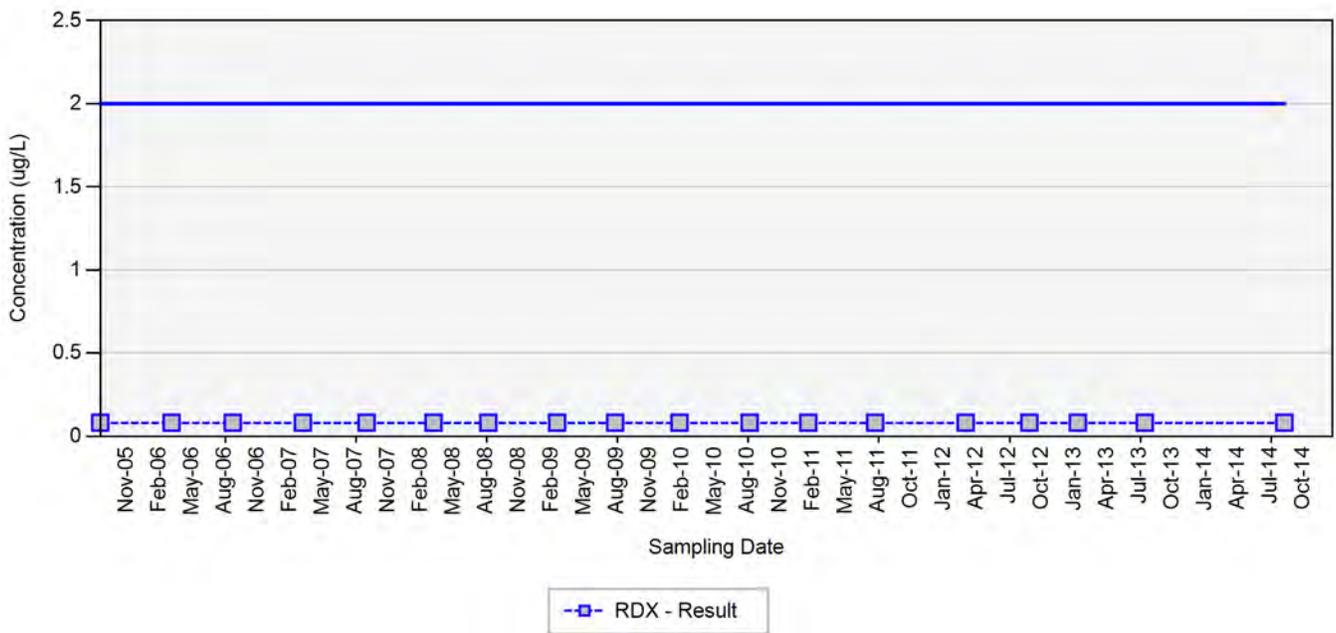
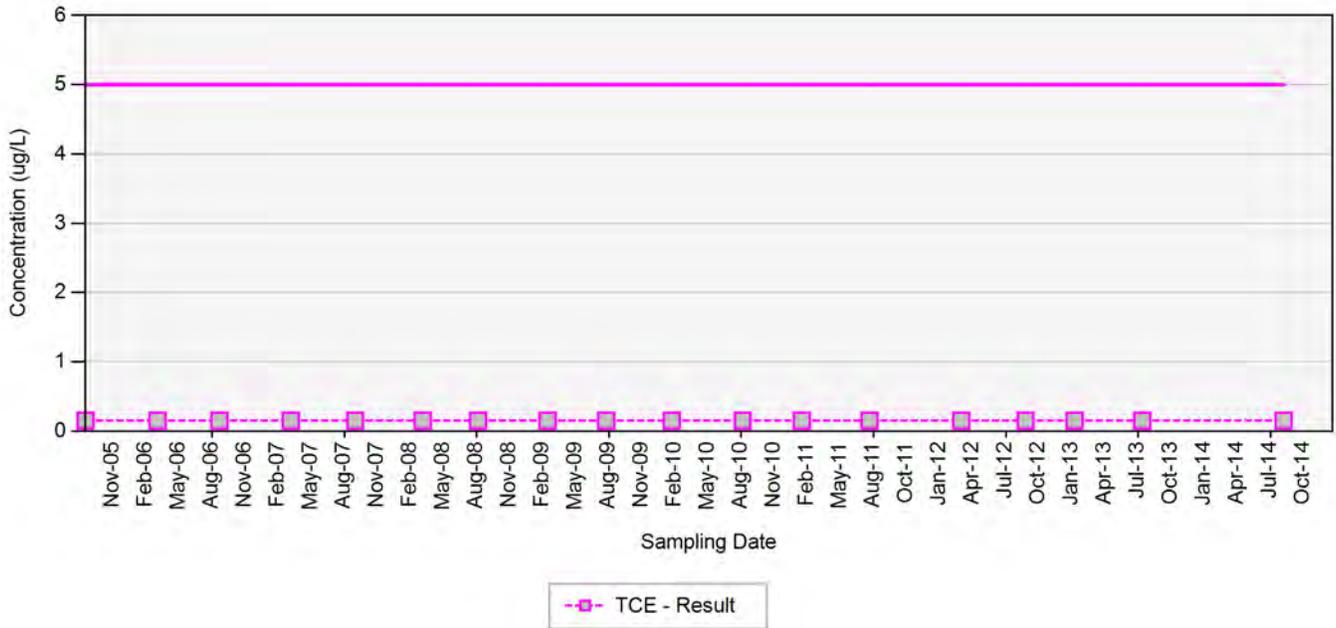
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-89



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

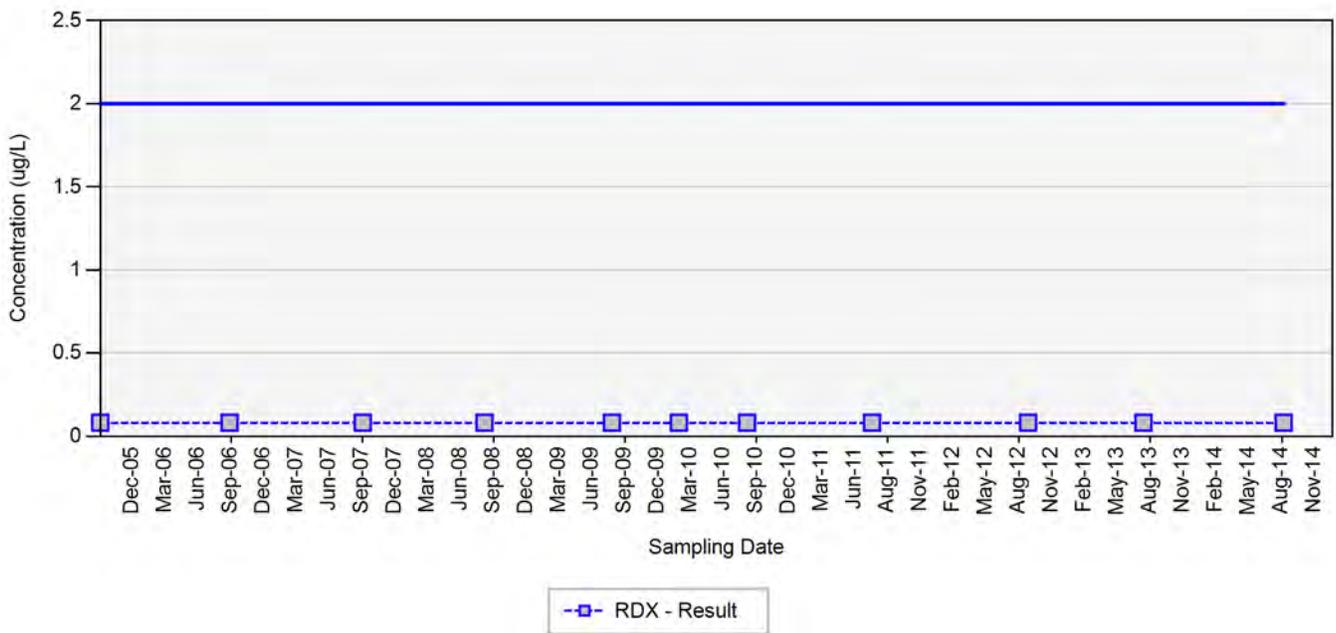
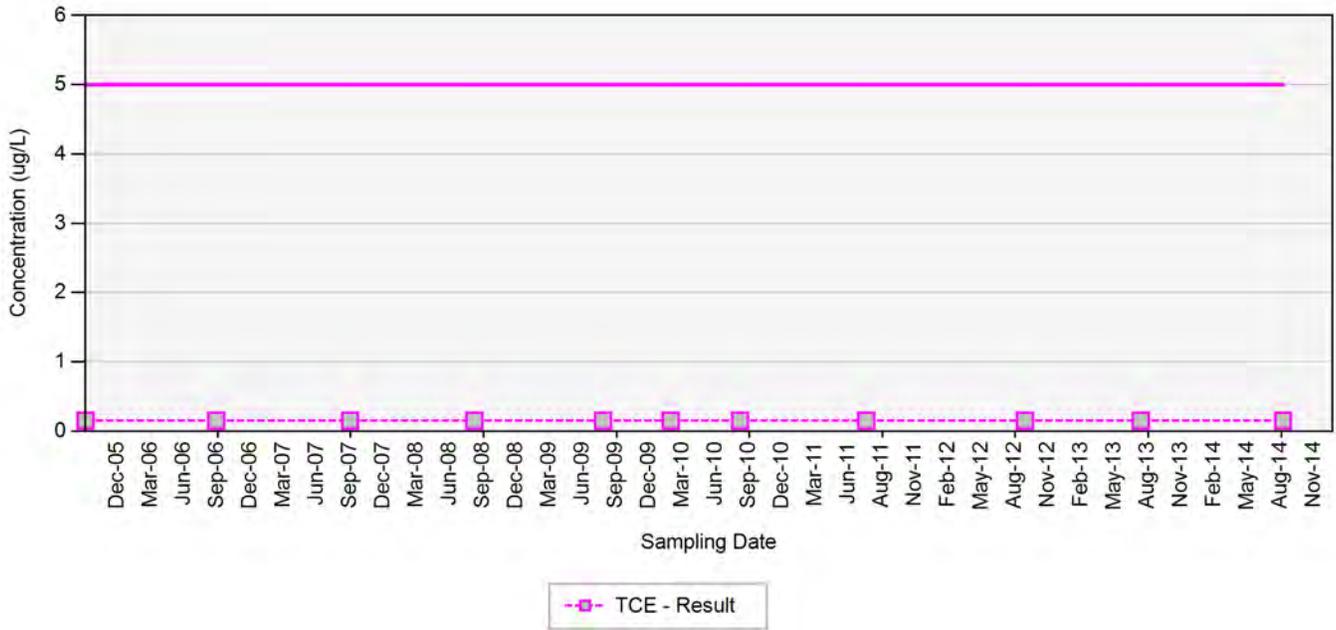
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-90



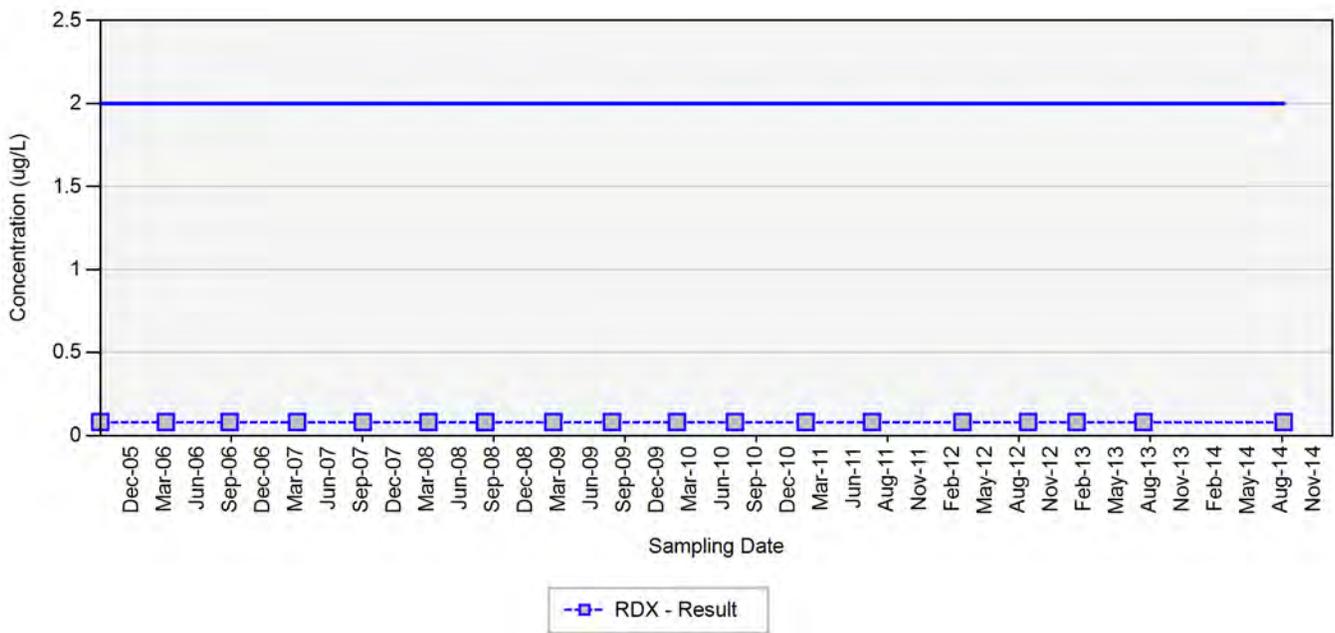
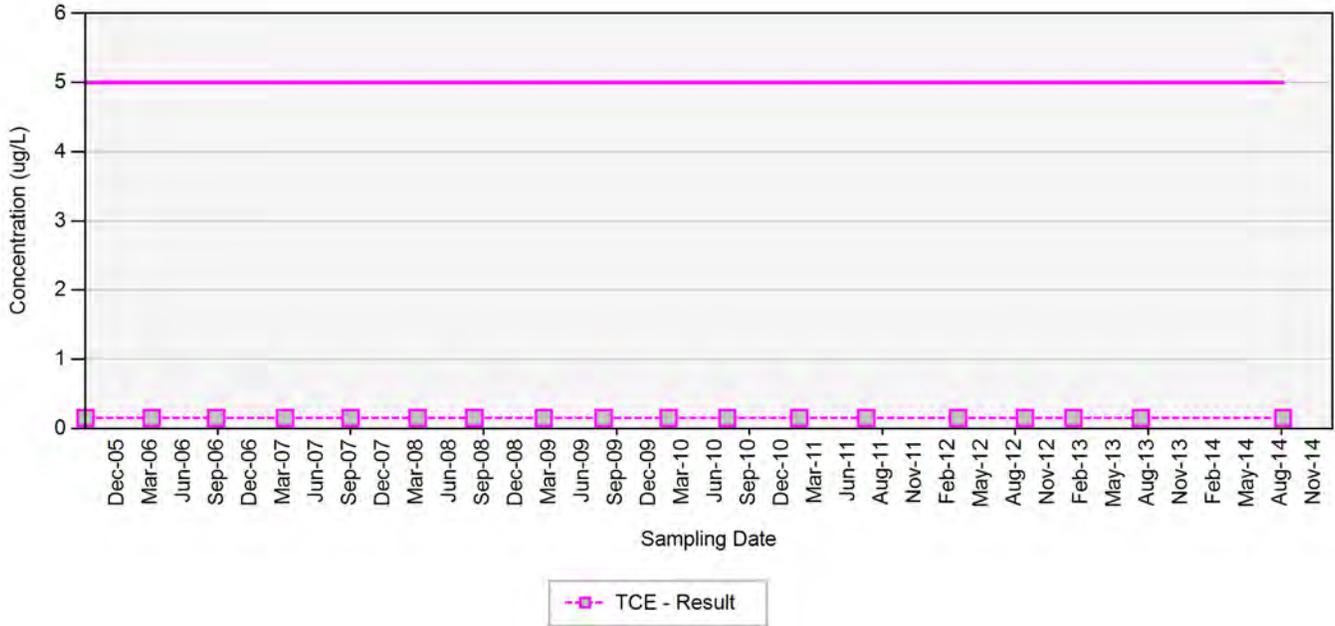
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

*ug/L: micrograms per liter
 Silver markers indicate non-detected results*

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-91



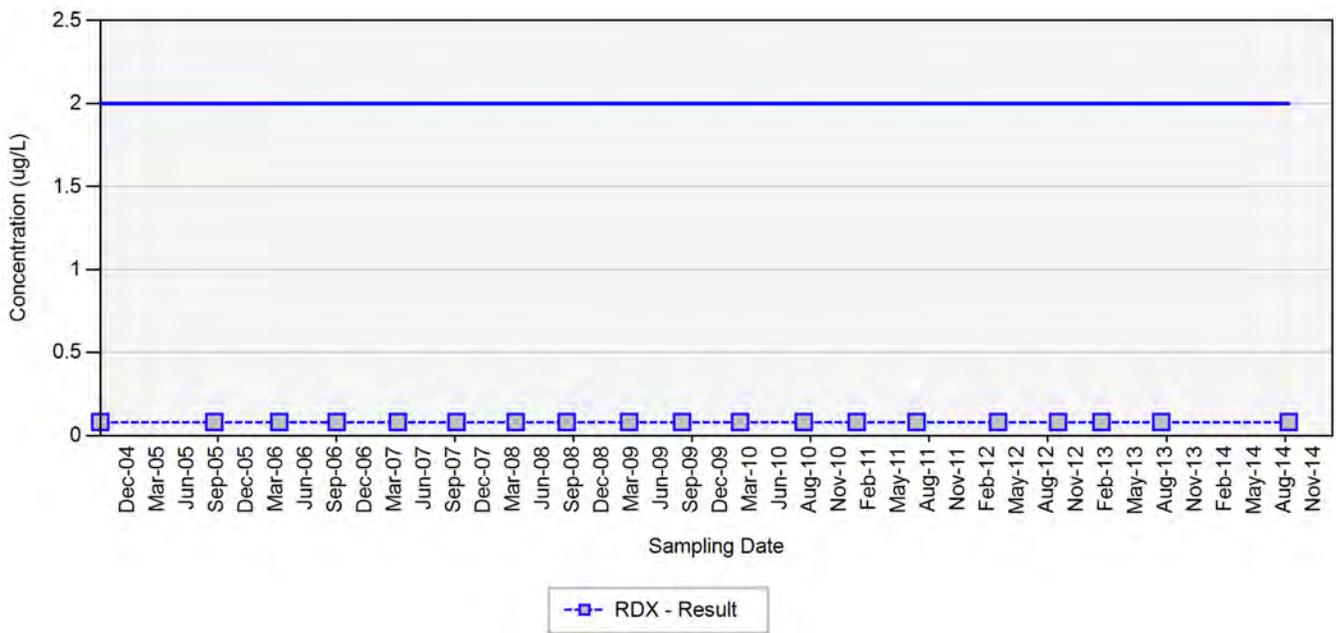
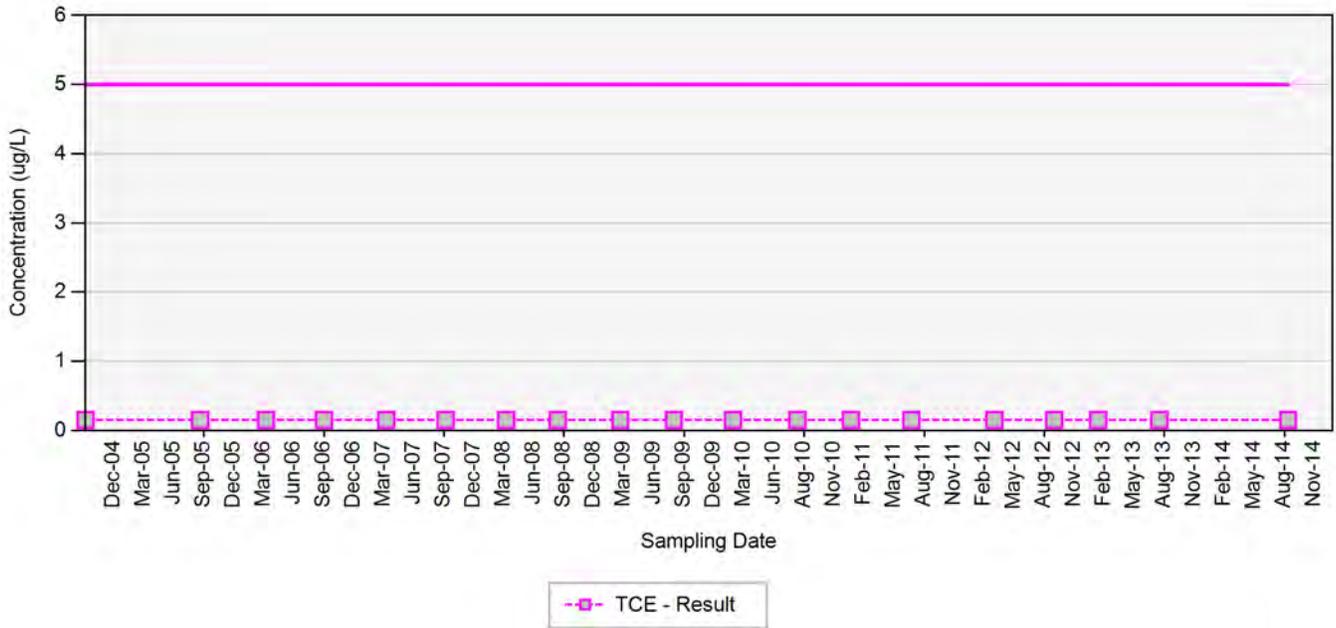
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-92



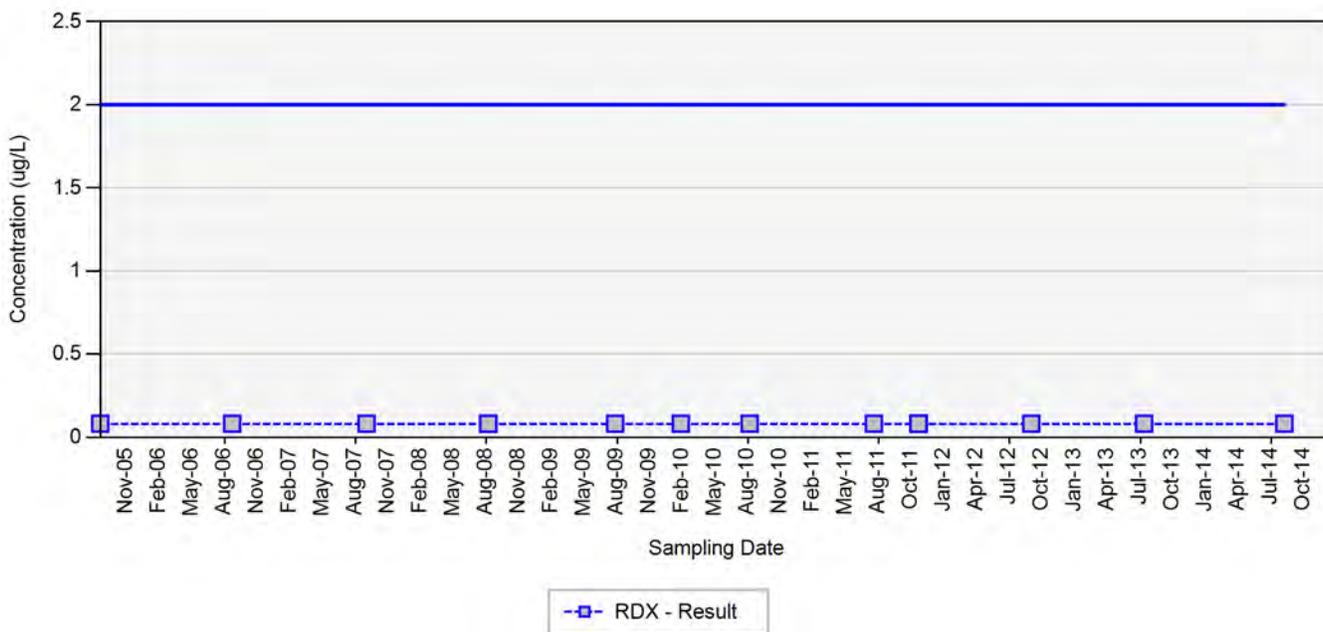
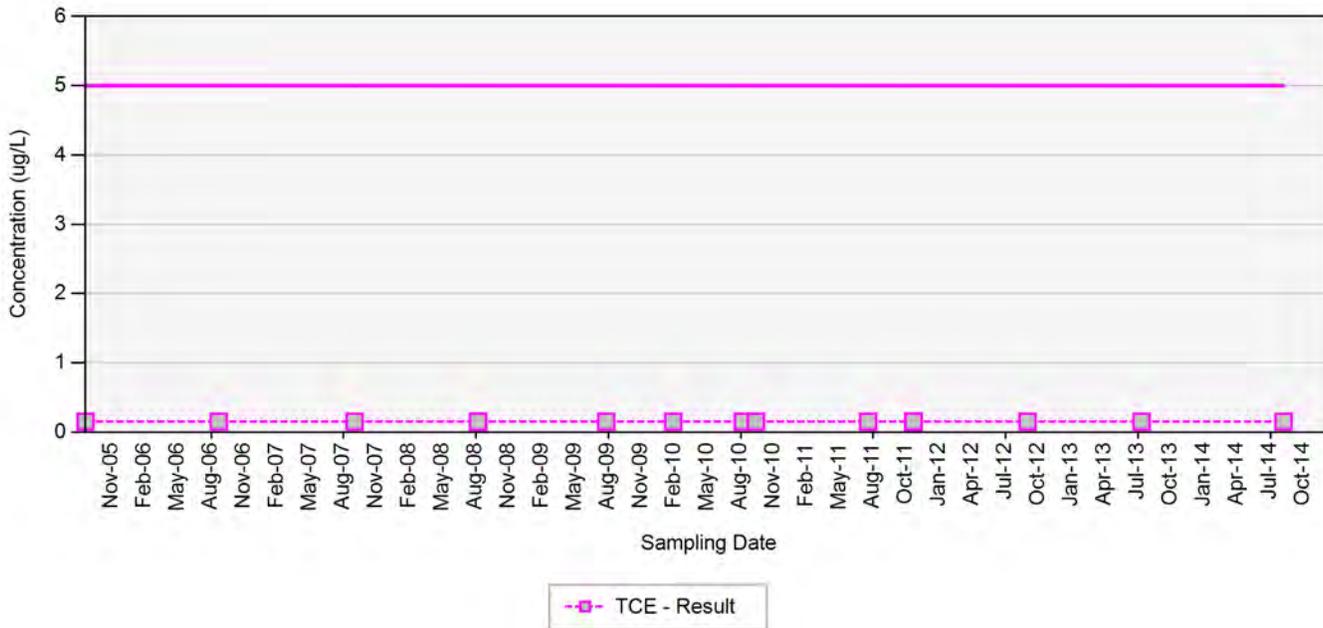
TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-93



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

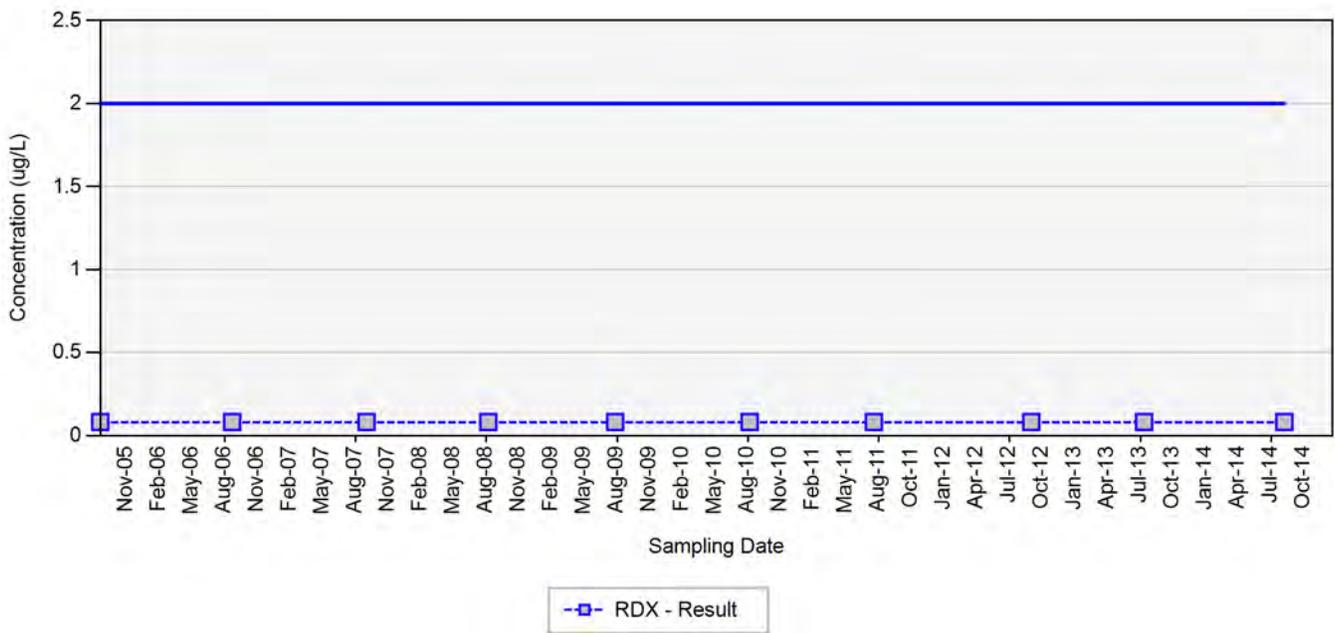
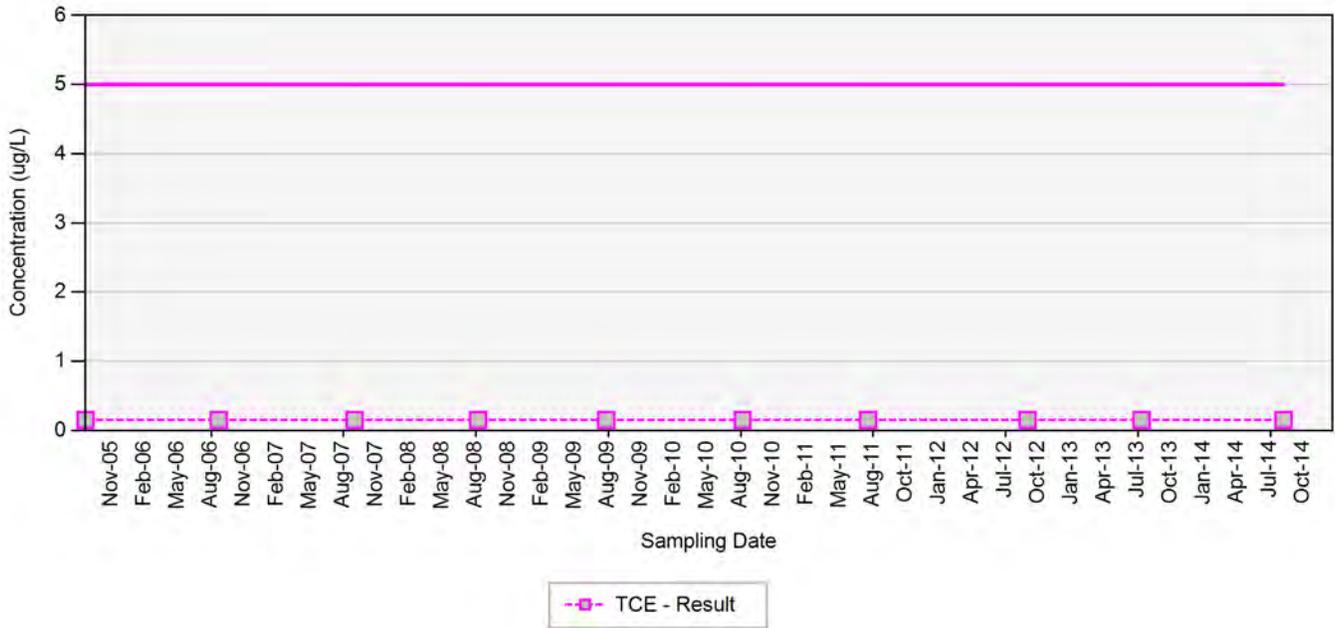
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-94



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

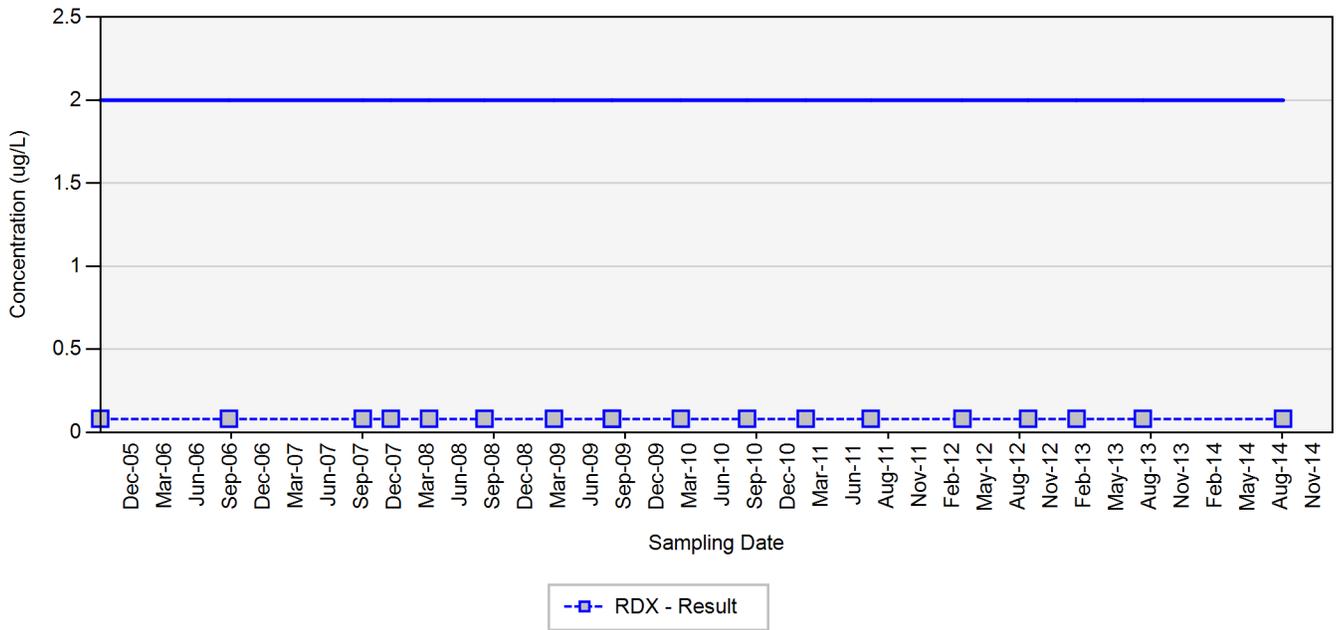
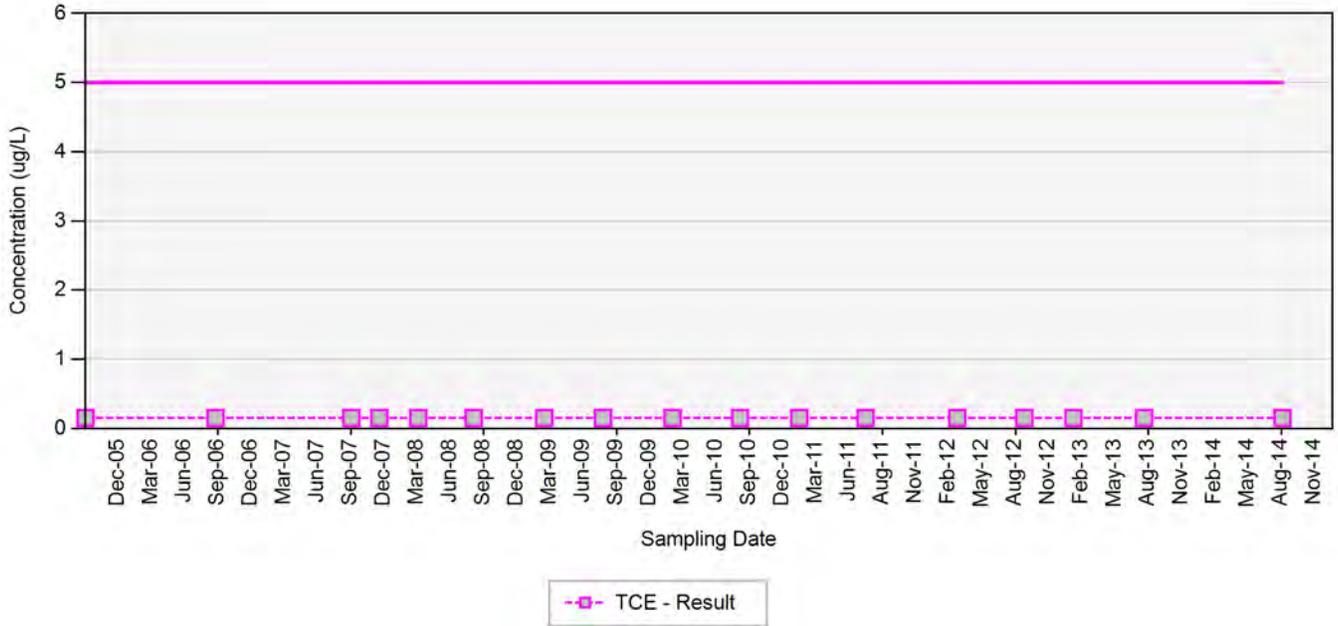
Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

Appendix C
Concentration Trend Charts for Water Supply Wells
WSW-95



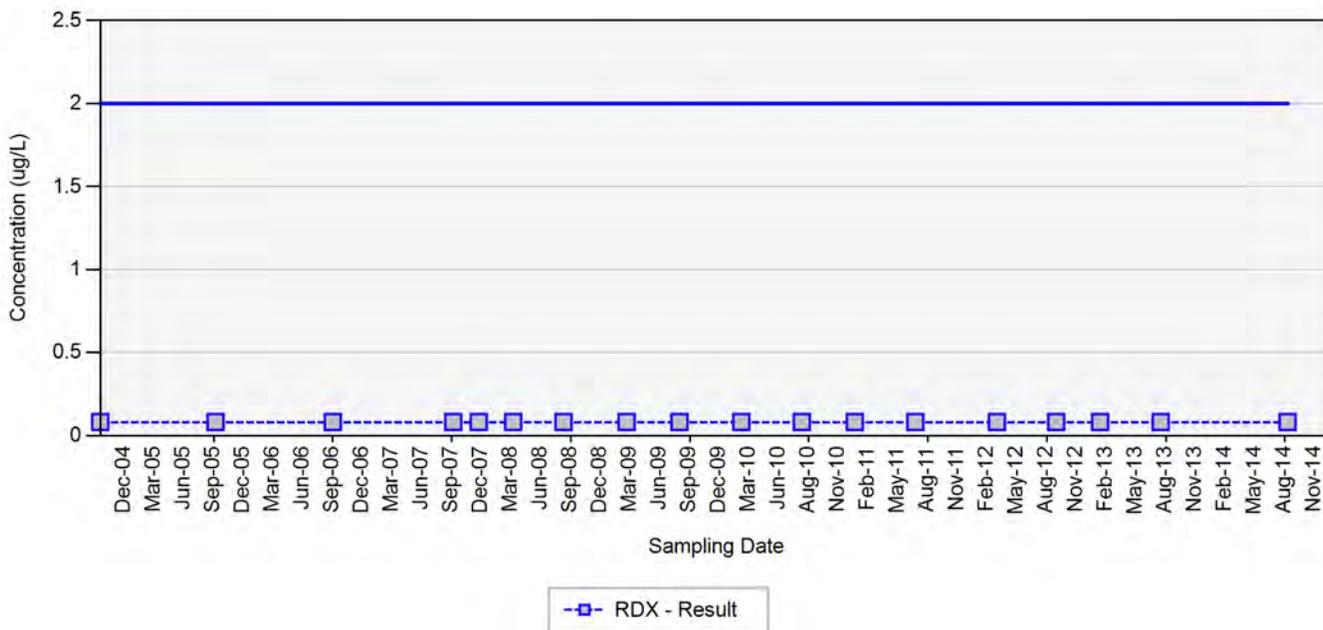
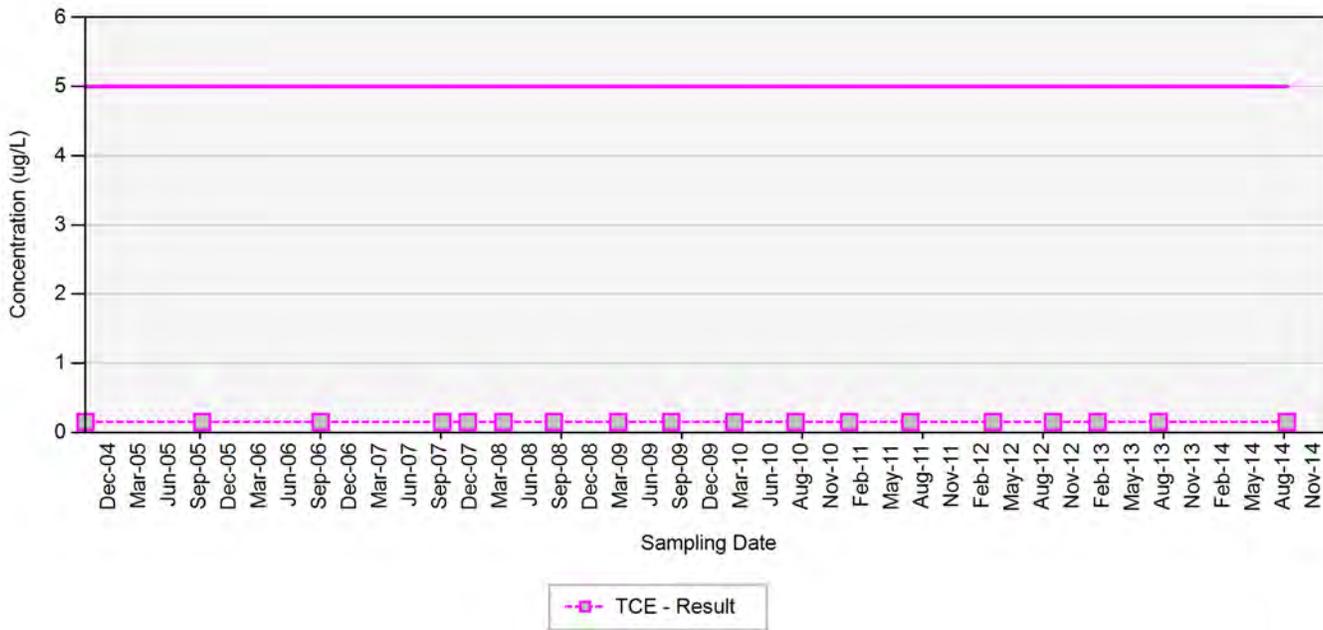
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-96



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

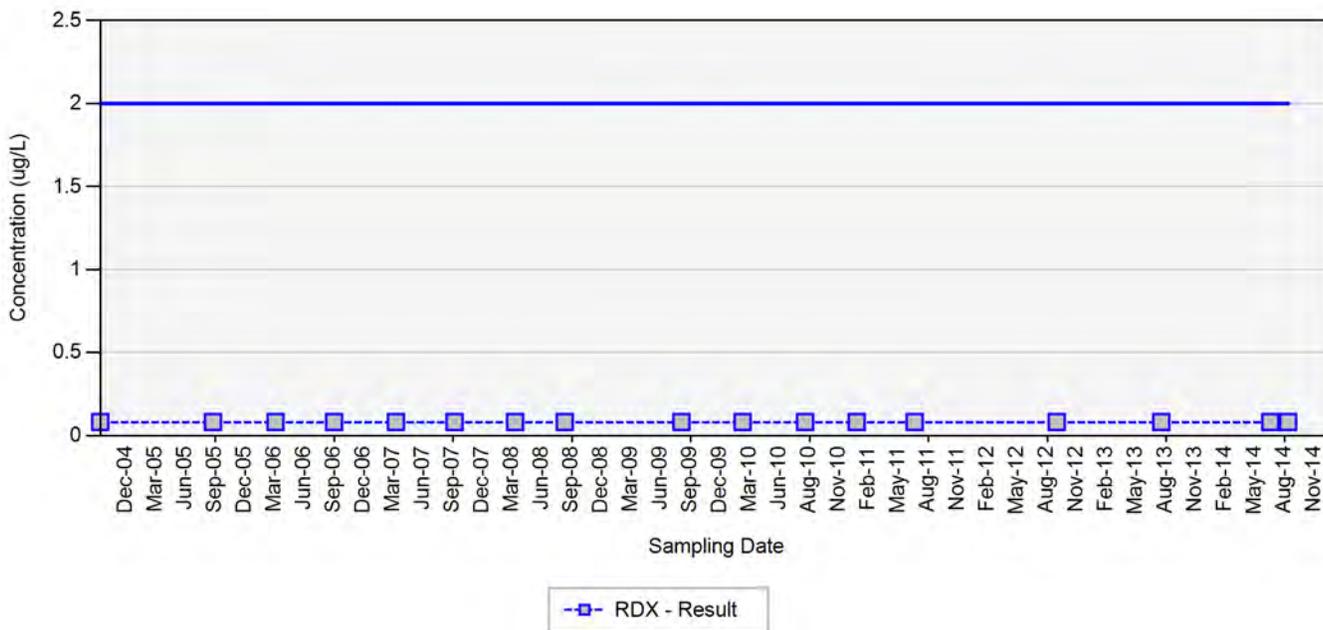
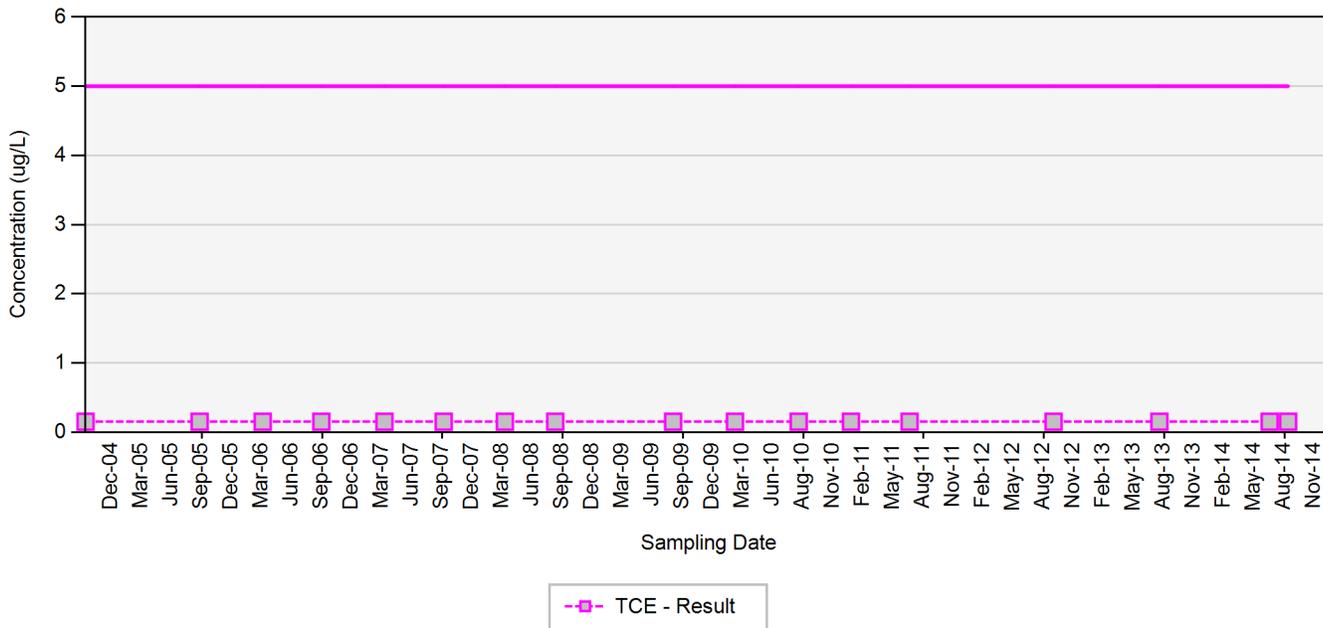
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-97



TCE - trichloroethene

RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine

Final Target Groundwater Cleanup Goals for TCE is 5 UG/L

Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

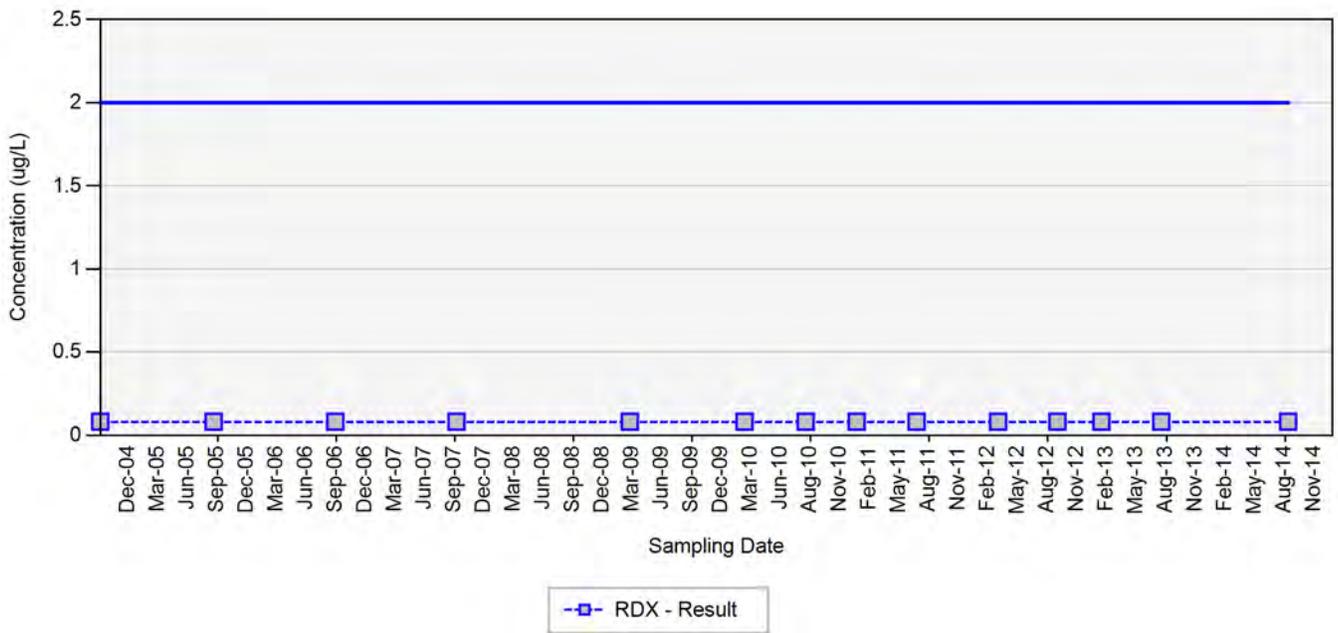
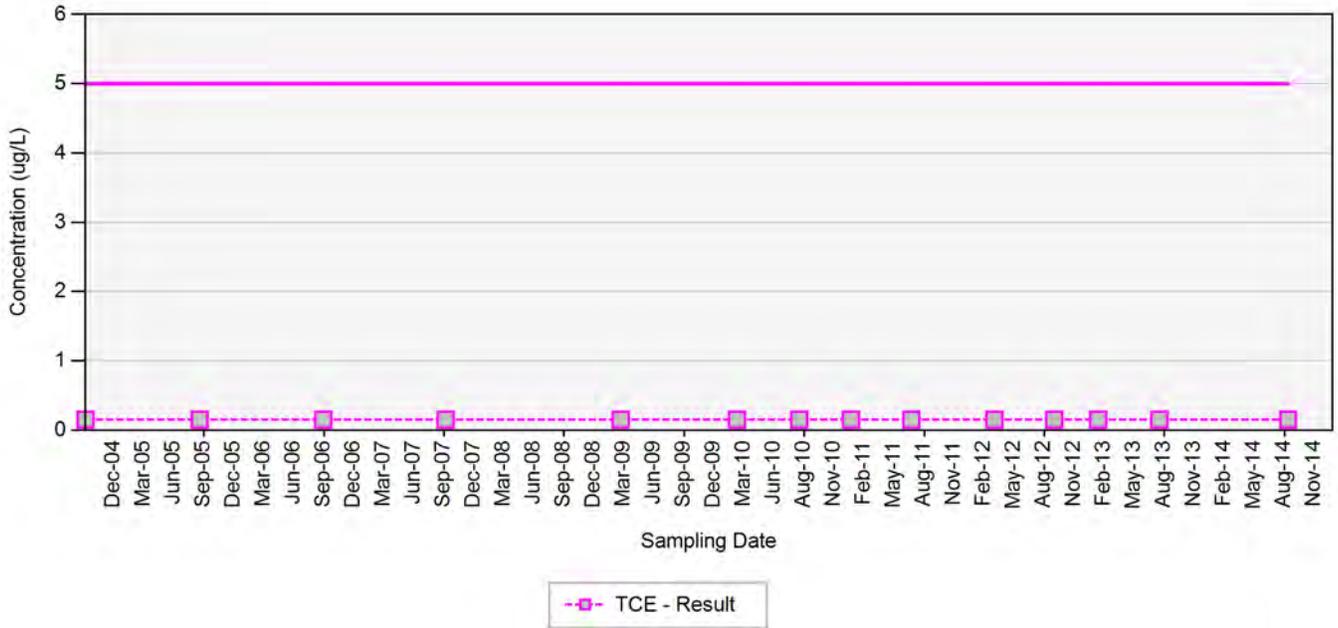
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter

Silver markers indicate non-detected results

**Appendix C
Concentration Trend Charts for Water Supply Wells**

WSW-99



TCE - trichloroethene
 RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
 Final Target Groundwater Cleanup Goals for TCE is 5 UG/L
 Final Target Groundwater Cleanup Goals for RDX is 2 UG/L

In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

ug/L: micrograms per liter
 Silver markers indicate non-detected results

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APPENDIX D

INPUTS AND ASSUMPTIONS FOR TRANSPORT SIMULATIONS

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Appendix D
Table D.1
General Assumptions for CE Transport Simulations
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Assumptions	Reference	Figure, Table, or Section
Initial Plumes	2014 CE (this document)	Appendix E, Figures E.1 and E.8; Appendix F, Figures F.1 and F.8
Former Nebraska Ordnance Plant Extraction Well Pumping Rates	2014 CE (this document)	Table D.4
Metropolitan Utilities District (Omaha) Pumping Rates	2014 CE (this document)	Table D.5
Lincoln Water Service Pumping Rates	2014 CE (this document)	Table D.6
Other Municipal Wells (Memphis, Mead, Ithaca, Ashland)	2014 CE (this document)	Table D.7
Irrigation Well Pumping Rates	2014 CE (this document)	Table D.8
Initial Heads	2014 CE (this document); GWM12 simulation of August 2014 water levels	Figure 3.2 approximates initial heads
Boundary Conditions	GWM12 Update (USACE, 2013a)	Section 4.4
Hydraulic Conductivity	GWM12 Update (USACE, 2013a); 2013 CE (HGL, 2014f)	Section 5.4.1; Table D.11
Storage Coefficients	2014 CE (this document)	Table D.10
Effective porosity	2014 CE (this document)	Table D.10
Boundary Conductance	GWM12 Update (USACE, 2013a)	Section 5.4.5
Evapotranspiration, Platte Valley ¹	GWM12 Update (USACE, 2013a)	Section 5.4.3
Evapotranspiration, Phreatophyte Zone ¹	GWM12 Update (USACE, 2013a)	Section 5.4.3
Recharge, Platte Valley ²	GWM12 Update (USACE, 2013a)	Section 5.4.2
Recharge, Todd Valley and Wahoo Valley ²	GWM12 Update (USACE, 2013a)	Section 5.4.2
Dispersivity	2014 CE (this document)	Table D.11
Bulk Density	2014 CE (this document)	Table D.11
TCE Half-Life	2014 CE (this document)	Table D.11
MT3DMS Computation Algorithm	GWM12 Update (USACE, 2013a)	Section 6.1
Distribution Coefficient	2014 CE (this document)	Table D.11

Notes:

¹Refer to Table D.2 for details

²Refer to Table D.3 for details

CE = Containment Evaluation

GWM12 = 2012 Groundwater Model

Appendix D
Table D.2
Evapotranspiration Assumptions
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period	Season/Zone	Evapotranspiration Rate (feet/day)		Evapotranspiration Rate (inches/day)	
		Non-Irrigation Season	Irrigation Season	Non-Irrigation Season	Irrigation Season
September 1-30, 2014	Phreatophyte Zone	1.13E-02	-	1.35E-01	
	Platte Valley	4.79E-03	-	5.75E-02	
	Todd Valley, Wahoo Valley	1.20E-03	-	1.44E-02	
October 1-31, 2014	Phreatophyte Zone	1.11E-02	-	1.33E-01	
	Platte Valley	4.71E-03	-	5.66E-02	
	Todd Valley, Wahoo Valley	1.18E-03	-	1.41E-02	
November 1-30, 2014	Phreatophyte Zone	7.01E-03	-	8.42E-02	
	Platte Valley	2.98E-03	-	3.58E-02	
	Todd Valley, Wahoo Valley	7.50E-04	-	8.95E-03	
December 1-31, 2014	Phreatophyte Zone	2.10E-03	-	2.51E-02	
	Platte Valley	8.90E-04	-	1.07E-02	
	Todd Valley, Wahoo Valley	2.20E-04	-	2.67E-03	
January 1, 2015 – August 31, 2044	Phreatophyte Zone	9.4E-03	1.88E-02	1.13E-01	2.26E-01
	Platte Valley	4.0E-03	8.0E-03	4.80E-02	9.60E-02
	Todd Valley, Wahoo Valley	1.0E-03	1.8E-03	1.20E-02	2.16E-02

Source - High Plains Regional Climate Center, Automated Weather Data Network (AWDN) Stations MEAD AGRO FARM (a255367), MEAD TURF FARM (a255368), and MEAD (a255369).

Appendix D
Table D.3
Recharge Assumptions
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period and Location	Recharge Rate (feet/day)		Recharge Rate (inches/day)	
	Non-Irrigation Season	Irrigation Season	Non-Irrigation Season	Irrigation Season
All Regions September 1-30, 2014	2.16E-03	-	2.59E-02	-
All Regions October 1-31, 2014	1.59E-03	-	1.90E-02	-
All Regions November 1-30, 2014	8.00E-05	-	9.60E-04	-
All Regions December 1-31, 2014	1.80E-04	-	2.16E-03	-
Todd Valley, Wahoo Valley January 1, 2015 – August 31, 2044	7.75E-04	1.49E-03	9.30E-03	1.79E-02
Platte Valley January 1, 2015 – August 31, 2044	1.03E-03	1.98E-03	1.24E-02	2.38E-02

Sources - National Climatic Data Center, Stations 255362 MEAD_6_S, NE and 250375 ASHLAND_2, NE; High Plains Regional Climate Center, Automated Weather Data Network (AWDN) Stations MEAD AGRO FARM (a255367), MEAD TURF FARM (a255368), and MEAD (a255369).

Appendix D
Table D.4
Proposed Former NOP Pumping Schedule for Next 30 Years
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	gallons per minute					
Stress Period:	1	2	3	4	5	6 - 64
Start Date:	9/1/14	10/1/14	11/1/14	12/1/14	1/1/15	6/1/15
End Date:	9/30/14	10/31/14	11/30/14	12/31/14	5/31/15	8/31/14
EW-1R	198	198	201	193	200	200
EW-2	0	0	0	0	0	0
EW-3	0	0	0	0	0	0
EW-4	94	93	95	72	100	100
EW-5	0	0	0	0	0	0
EW-6	0	0	0	0	0	0
EW-7	285	287	291	285	150	150
EW-9	167	162	168	165	105	105
EW-10	0	0	0	0	0	0
FEW-11	485	520	528	519	550	550
EW-12	237	228	218	224	275	275
EW-13	0	0	0	0	0	0
FEW-14	238	228	236	233	250	250
FEW-15	456	453	457	437	500	500
EW-16	0	0	0	0	0	0
EW-17	322	320	293	303	275	275
EW-18	0	0	0	0	0	150

	feet ³ /day					
Stress Period:	1	2	3	4	5	6 - 64
Start Date:	9/1/14	10/1/14	11/1/14	12/1/14	1/1/15	6/1/15
End Date:	9/30/14	10/31/14	11/30/14	12/31/14	5/31/15	8/31/14
EW-1R	38,152	38,069	38,598	37,099	38,500	38,500
EW-2	0	0	0	0	0	0
EW-3	0	0	0	0	0	0
EW-4	18,096	17,887	18,381	13,834	19,250	19,250
EW-5	0	0	0	0	0	0
EW-6	0	0	0	0	0	0
EW-7	54,880	55,184	55,985	54,865	28,875	28,875
EW-9	32,159	31,182	32,346	31,730	20,212	20,212
EW-10	0	0	0	0	0	0
FEW-11	93,434	100,023	101,660	99,846	105,875	105,875
EW-12	45,701	43,813	41,882	43,200	52,937	52,937
EW-13	0	0	0	0	0	0
FEW-14	45,763	43,873	45,456	44,783	48,125	48,125
FEW-15	87,748	87,108	88,060	84,115	96,250	96,250
EW-16	0	0	0	0	0	0
EW-17	61,988	61,657	56,435	58,302	52,937	52,937
EW-18	0	0	0	0	0	28,875

Notes:

Values reported for Stress Periods 1 through 4 are based on average monthly pumping rates for September through December 2014.

EW-18 is assumed to be implemented from June 1st, 2015, the beginning of the 2015 irrigation season. The pumping rate for EW-18 is assumed to be the optimized rate of 150 gpm.

EW = extraction well

FEW = focused extraction well

Appendix D

Table D.5

M.U.D. Platte West Well Field Estimated Pumping Rates (ft³/day)

2014 Containment Evaluation

Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1	2	3	4	5	6,8...64	7,9...63
Start Date	9/1/2014	10/1/2014	11/1/2014	12/1/2014	1/1/2015	6/1	9/1
End Date	9/30/2014	10/31/2014	11/30/2014	12/31/2014	5/31/2015	8/31	5/31
PW94-2	181,003	9,185	0	2,630	103,238	311,350	103,238
PW91-3	32,529	0	0	0	596,750	596,750	596,750
PW04-4	0	0	0	0	0	0	0
PW04-5	0	0	0	0	110,168	334,180	110,168
PW04-6	16,175	44,891	9,803	0	0	0	0
PW04-7	0	0	0	0	0	225,206	0
PW04-8	14,616	2,803	179,845	175,811	259,509	334,180	259,509
PW04-9	0	14,489	0	259	110,168	334,180	110,168
PW04-10	0	110,092	0	2,329	0	0	0
PW04-11	270,436	54,982	15,953	99,096	0	0	0
PW04-12	51,155	12,247	0	2,674	86,028	0	86,028
PW04-13	0	129	0	0	149,342	225,206	149,342
PW04-14	0	0	0	0	86,028	259,452	86,028
PW04-15	27,984	15,222	0	0	301,802	125,549	301,802
PW04-16	153,644	278,573	211,126	0	184,839	108,974	184,839
PW04-17	369,671	63,908	0	2,027	215,773	385,000	215,773
PW91-30	52,492	0	0	0	596,750	596,750	596,750
PW94-31	100,929	52,049	131,363	173,871	276,834	163,202	276,834
PW94-32	0	20,785	23,751	11,384	0	0	0
PW94-33	25,800	222,686	0	0	103,238	311,350	103,238
PW94-34	342,712	34,283	16,621	0	244,899	442,750	244,899
PW94-35	131,408	155,371	0	103,840	215,061	324,324	215,061
PW94-36	165,229	219,581	0	0	418,572	539,000	418,572
PW94-37	0	0	0	0	392,334	500,500	392,334
PW04-38	159,748	58,173	437,848	160,977	358,339	0	358,339
PW04-39	116,926	306,862	0	48,384	0	272,426	0
PW04-40	263,663	170,637	244,457	16,645	316,894	404,250	316,894
PW04-41	0	11,428	109,752	10,867	0	0	0
PW04-42	27,583	208,499	0	0	216,755	91,014	216,755
PW04-43	0	27,297	15,552	252,441	0	272,426	0
PW04-44	342,133	206,213	281,353	0	95,191	94,152	95,191
PW04-45	72,232	17,896	0	418,808	180,661	272,426	180,661
PW04-46	175,389	144,806	322,304	131,568	50,281	442,750	50,281
PW04-47	53,962	7,891	158,634	0	0	0	0
PW04-48	88,853	43,813	17,378	155,716	216,755	279,125	216,755
PW04-49	52,492	0	145,088	197,804	79,580	239,990	79,580
PW04-50	110,197	0	131,453	106,988	0	0	0

Appendix D
Table D.5 (continued)
M.U.D. Platte West Well Field Estimated Pumping Rates (ft³/day)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1	2	3	4	5	6,8...64	7,9...63
Start Date	9/1/2014	10/1/2014	11/1/2014	12/1/2014	1/1/2015	6/1	9/1
End Date	9/30/2014	10/31/2014	11/30/2014	12/31/2014	5/31/2015	8/31	5/31
PW04-51	66,439	35,231	66,172	78,613	31,705	91,014	31,705
PW04-52	92,730	19,147	85,957	67,530	0	207,573	0
PW04-53	146,648	260,203	102,934	271,716	122,700	188,111	122,700
PW04-54	0	94,482	0	100,260	94,056	279,125	94,056
PW04-55	28,920	67,832	0	0	0	0	0

Source: Metropolitan Utilities District (M.U.D.), 2015. Platte West Water Production Facilities 2014 Ground Water Well Report (G). Excel® spreadsheet transmitted via email from Kevin P. Tobin, M.U.D., to Bradley Brink, CENWK. February 10, 2015.

Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft³/day)

2014 Containment Evaluation

Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Start Date:	9/1/14	10/1/14	11/1/14	12/1/14	1/1/15	6/1/15	9/1/15	6/1/16	9/1/16	6/1/17	9/1/17	6/1/18	9/1/18	6/1/19	9/1/19	6/1/20	9/1/20	6/1/21	9/1/21	6/1/22	9/1/22	6/1/23
End Date:	9/30/14	10/31/14	11/30/14	12/31/14	5/31/15	8/31/15	5/31/16	8/31/16	5/31/17	8/31/17	5/31/18	8/31/18	5/31/19	8/31/19	5/31/20	8/31/20	5/31/21	8/31/21	5/31/22	8/31/22	5/31/23	8/31/23
LWS56-8	0	0	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS56-9	147,271	0	84,923	204,160	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS56-5	18,443	0	32,547	253,251	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS54-3	28,162	32,402	119,729	251,095	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS56-7	75,128	31,139	75,806	82,766	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS54-5	16,545	35,516	121,226	180,715	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS325A	0	0	0	0	108,342	205,850	110,099	209,071	111,856	212,292	113,320	215,220	115,077	218,441	116,834	221,662	118,590	224,590	120,055	227,811	121,811	231,032
LWS54-7	36,874	72,252	60,664	42,666	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS32-4-2	0	0	0	0	55,276	105,025	56,173	106,669	57,069	108,312	57,816	109,806	58,713	111,449	59,609	113,093	60,505	114,587	61,252	116,230	62,149	117,873
LWS54-9	254,728	220,840	88,938	203,134	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS32-4A-2	0	0	0	0	55,276	105,025	56,173	106,669	57,069	108,312	57,816	109,806	58,713	111,449	59,609	113,093	60,505	114,587	61,252	116,230	62,149	117,873
LWS54-6	5,588	78,958	82,231	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS32-3-2	139,210	707	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS54-8	20,805	113,719	85,524	158,907	99,498	189,046	101,111	192,004	102,725	194,962	104,069	197,651	105,683	200,609	107,296	203,567	108,910	206,256	110,254	209,214	111,868	212,172
LWS32-2-2	57,064	13,014	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS54-10	0	0	0	0	138,191	262,563	140,432	266,672	142,673	270,780	144,541	274,515	146,781	278,623	149,022	282,732	151,263	286,467	153,131	290,575	155,372	294,683
LWS32-1A	33,260	35,714	0	0	110,553	210,051	112,346	213,337	114,138	216,624	115,632	219,612	117,425	222,899	119,218	226,185	121,011	229,173	122,505	232,460	124,297	235,747
LWS56-1	117,559	89,657	67,674	9,642	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS49-7	52,955	880	37,257	781	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS49-8	0	0	0	0	108,618	206,375	110,380	209,604	112,141	212,833	113,609	215,769	115,370	218,998	117,132	222,227	118,893	225,163	120,361	228,392	122,122	231,621
LWS49-6	23,893	0	68,868	187,347	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS49-9	0	71,786	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS54-1	19,517	42,830	113,548	159,528	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS66 - 1	12,009	0	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS76 - 1	195,878	71,838	0	0	165,829	315,076	168,519	320,006	171,208	324,936	173,449	329,418	176,138	334,348	178,827	339,278	181,516	343,760	183,757	348,690	186,446	353,620
LWS66 - 4	71,925	802	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS76 - 2	0	0	1,520	0	165,829	315,076	168,519	320,006	171,208	324,936	173,449	329,418	176,138	334,348	178,827	339,278	181,516	343,760	183,757	348,690	186,446	353,620
LWS66 - 5	0	802	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS66 - 6	0	0	0	0	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS76 - 3	0	204,066	67,428	0	165,829	315,076	168,519	320,006	171,208	324,936	173,449	329,418	176,138	334,348	178,827	339,278	181,516	343,760	183,757	348,690	186,446	353,620
LWS76 - 4	22,882	169,593	88,724	0	165,829	315,076	168,519	320,006	171,208	324,936	173,449	329,418	176,138	334,348	178,827	339,278	181,516	343,760	183,757	348,690	186,446	353,620
LWS68-1A	24,085	217,576	19,807	0	124,372	236,307	126,389	240,004	128,406	243,702	130,086	247,063	132,103	250,761	134,120	254,459	136,137	257,820	137,818	261,517	139,835	265,215
LWS76 - 5	198,894	335,021	67,094	0	165,829	315,076	168,519	320,006	171,208	324,936	173,449	329,418	176,138	334,348	178,827	339,278	181,516	343,760	183,757	348,690	186,446	353,620
LWS76 - 6	0	0	0	0	99,498	189,046	101,111	192,004	102,725	194,962	104,069	197,651	105,683	200,609	107,296	203,567	108,910	206,256	110,254	209,214	111,868	212,172
LWS78574	80,395	59,553	103,215	247,520	77,387	147,035	78,642	149,336	79,897	151,637	80,943	153,728	82,198	156,029	83,453	158,330	84,707	160,421	85,753	162,722	87,008	165,023
LWS86-1	7,802	1,604	0	0	121,608	231,056	123,580	234,671	125,552	238,286	127,196	241,573	129,168	245,189	131,140	248,804	133,112	252,091	134,755	255,706	136,727	259,321
LWS86-2	20,885	414,496	99,374	0	121,608	231,056	123,580	234,671	125,552	238,286	127,196	241,573	129,168	245,189	131,140	248,804	133,112	252,091	134,755	255,706	136,727	259,321
LWS85451	1,051,816	429,529	21,228	3,333	674,373	1,281,309	685,309	1,301,358	696,245	1,321,407	705,358	1,339,633	716,294	1,359,682	727,229	1,379,731	738,165	1,397,957	747,278	1,418,006	758,214	1,438,055
LWS86646	4	116	18	0	674,373	1,281,309	685,309	1,301,358	696,245	1,321,407	705,358	1,339,633	716,294	1,359,682	727,229	1,379,731	738,165	1,397,957	747,278	1,418,006	758,214	1,438,055
Total (MGD)	20.4	20.5	11.3	14.8	37.0	70.3	37.6	71.4	38.2	72.5	38.7	73.5	39.3	74.6	39.9	75.7	40.5	76.7	41.0	77.8	41.6	78.9

Appendix D
Table D.6 (continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft³/day)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Start Date:	9/1/23	5/31/24	8/31/24	6/1/25	9/1/25	6/1/26	9/1/26	6/1/27	9/1/27	5/31/28	8/31/28	6/1/29	9/1/29	6/1/30	9/1/30	6/1/31	9/1/31	5/31/32	8/31/32	6/1/33	9/1/33	6/1/34
End Date:	5/30/24	8/30/24	5/31/25	8/31/25	5/31/26	8/31/26	5/31/27	8/31/27	5/30/28	8/30/28	5/31/29	8/31/29	5/31/30	8/31/30	5/31/31	8/31/31	5/30/32	8/30/32	5/31/33	8/31/33	5/31/34	8/31/34
LWS56-8	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS56-9	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS56-5	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS54-3	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS56-7	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS54-5	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS325A	123,568	233,960	125,325	237,181	127,375	241,573	129,717	245,965	132,060	250,065	134,110	254,457	136,452	258,849	138,502	263,242	140,844	267,634	143,187	271,733	145,237	276,125
LWS54-7	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS32-4-2	63,045	119,367	63,941	121,011	64,987	123,252	66,182	125,493	67,378	127,584	68,423	129,825	69,618	132,066	70,664	134,307	71,859	136,548	73,055	138,639	74,100	140,880
LWS54-9	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS32-4A-2	63,045	119,367	63,941	121,011	64,987	123,252	66,182	125,493	67,378	127,584	68,423	129,825	69,618	132,066	70,664	134,307	71,859	136,548	73,055	138,639	74,100	140,880
LWS54-6	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS32-3-2	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS54-8	113,481	214,861	115,095	217,819	116,977	221,853	119,128	225,887	121,280	229,651	123,162	233,685	125,313	237,719	127,196	241,752	129,347	245,786	131,498	249,551	133,381	253,585
LWS32-2-2	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS54-10	157,613	298,418	159,854	302,527	162,468	308,129	165,456	313,731	168,444	318,960	171,058	324,563	174,046	330,165	176,661	335,767	179,649	341,370	182,636	346,598	185,251	352,201
LWS32-1A	126,090	238,735	127,883	242,021	129,974	246,503	132,365	250,985	134,755	255,168	136,847	259,650	139,237	264,132	141,329	268,614	143,719	273,096	146,109	277,279	148,201	281,761
LWS56-1	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS49-7	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS49-8	123,884	234,557	125,645	237,786	127,700	242,189	130,048	246,593	132,397	250,703	134,452	255,106	136,800	259,510	138,855	263,913	141,204	268,317	143,552	272,426	145,607	276,830
LWS49-6	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS49-9	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS54-1	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS66 - 1	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS76 - 1	189,135	358,102	191,824	363,032	194,962	369,755	198,547	376,478	202,133	382,752	205,270	389,475	208,855	396,198	211,993	402,921	215,578	409,644	219,164	415,918	222,301	422,641
LWS66 - 4	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS76 - 2	189,135	358,102	191,824	363,032	194,962	369,755	198,547	376,478	202,133	382,752	205,270	389,475	208,855	396,198	211,993	402,921	215,578	409,644	219,164	415,918	222,301	422,641
LWS66 - 5	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS66 - 6	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS76 - 3	189,135	358,102	191,824	363,032	194,962	369,755	198,547	376,478	202,133	382,752	205,270	389,475	208,855	396,198	211,993	402,921	215,578	409,644	219,164	415,918	222,301	422,641
LWS76 - 4	189,135	358,102	191,824	363,032	194,962	369,755	198,547	376,478	202,133	382,752	205,270	389,475	208,855	396,198	211,993	402,921	215,578	409,644	219,164	415,918	222,301	422,641
LWS68-1A	141,851	268,576	143,868	272,274	146,221	277,316	148,910	282,358	151,599	287,064	153,952	292,106	156,642	297,148	158,995	302,191	161,684	307,233	164,373	311,939	166,726	316,981
LWS76 - 5	189,135	358,102	191,824	363,032	194,962	369,755	198,547	376,478	202,133	382,752	205,270	389,475	208,855	396,198	211,993	402,921	215,578	409,644	219,164	415,918	222,301	422,641
LWS76 - 6	113,481	214,861	115,095	217,819	116,977	221,853	119,128	225,887	121,280	229,651	123,162	233,685	125,313	237,719	127,196	241,752	129,347	245,786	131,498	249,551	133,381	253,585
LWS78574	88,263	167,114	89,518	169,415	90,982	172,552	92,655	175,690	94,329	178,618	95,793	181,755	97,466	184,892	98,930	188,030	100,603	191,167	102,276	194,095	103,741	197,232
LWS86-1	138,699	262,608	140,671	266,223	142,972	271,154	145,601	276,084	148,231	280,685	150,531	285,615	153,161	290,545	155,461	295,475	158,091	300,405	160,720	305,007	163,021	309,937
LWS86-2	138,699	262,608	140,671	266,223	142,972	271,154	145,601	276,084	148,231	280,685	150,531	285,615	153,161	290,545	155,461	295,475	158,091	300,405	160,720	305,007	163,021	309,937
LWS85451	769,150	1,456,281	780,086	1,476,330	792,844	1,503,670	807,425	1,531,009	822,006	1,556,526	834,764	1,583,865	849,345	1,611,205	862,104	1,638,544	876,685	1,665,884	891,266	1,691,400	904,024	1,718,740
LWS86646	769,150	1,456,281	780,086	1,476,330	792,844	1,503,670	807,425	1,531,009	822,006	1,556,526	834,764	1,583,865	849,345	1,611,205	862,104	1,638,544	876,685	1,665,884	891,266	1,691,400	904,024	1,718,740
Total (MGD)	42.2	79.9	42.8	81.0	43.5	82.5	44.3	84.0	45.1	85.4	45.8	86.9	46.6	88.4	47.3	89.9	48.1	91.4	48.9	92.8	49.6	94.3

Appendix D
Table D.6 (continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft³/day)
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Start Date:	9/1/34	6/1/35	9/1/35	6/1/36	9/1/36	6/1/37	9/1/37	6/1/38	9/1/38	6/1/39	9/1/39	6/1/40	9/1/40	6/1/41	9/1/41	6/1/42	9/1/42	6/1/43	9/1/43	6/1/44
End Date:	5/31/35	8/31/35	5/31/36	8/31/36	5/31/37	8/31/37	5/31/38	8/31/38	5/31/39	8/31/39	5/31/40	8/31/40	5/31/41	8/31/41	5/31/42	8/31/42	5/31/43	8/31/43	5/31/44	8/31/44
LWS56-8	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS56-9	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS56-5	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS54-3	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS56-7	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS54-5	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS325A	147,579	280,518	149,922	284,910	151,971	289,302	154,314	293,402	156,364	297,794	158,706	302,186	161,049	306,578	161,049	306,578	161,049	306,578	161,049	306,578
LWS54-7	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS32-4-2	75,296	143,121	76,491	145,362	77,536	147,603	78,732	149,695	79,777	151,936	80,973	154,177	82,168	156,417	82,168	156,417	82,168	156,417	82,168	156,417
LWS54-9	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS32-4A-2	75,296	143,121	76,491	145,362	77,536	147,603	78,732	149,695	79,777	151,936	80,973	154,177	82,168	156,417	82,168	156,417	82,168	156,417	82,168	156,417
LWS54-6	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS32-3-2	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS54-8	135,532	257,618	137,683	261,652	139,566	265,686	141,717	269,450	143,599	273,484	145,751	277,518	147,902	281,551	147,902	281,551	147,902	281,551	147,902	281,551
LWS32-2-2	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS54-10	188,239	357,803	191,227	363,405	193,841	369,008	196,829	374,237	199,444	379,839	202,431	385,441	205,419	391,044	205,419	391,044	205,419	391,044	205,419	391,044
LWS32-1A	150,591	286,243	152,981	290,724	155,073	295,206	157,463	299,389	159,555	303,871	161,945	308,353	164,335	312,835	164,335	312,835	164,335	312,835	164,335	312,835
LWS56-1	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS49-7	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS49-8	147,956	281,233	150,304	285,637	152,359	290,040	154,708	294,150	156,763	298,553	159,111	302,957	161,460	307,360	161,460	307,360	161,460	307,360	161,460	307,360
LWS49-6	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS49-9	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS54-1	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	115,035	218,984	115,035	218,984	115,035	218,984
LWS66 - 1	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	116,499	222,122	118,172	225,050	119,845	228,187
LWS76 - 1	225,887	429,364	229,472	436,087	232,609	442,809	236,195	449,084	239,332	455,807	242,918	462,530	246,503	469,252	249,641	475,975	253,226	482,250	256,812	488,973
LWS66 - 4	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	116,499	222,122	118,172	225,050	119,845	228,187
LWS76 - 2	225,887	429,364	229,472	436,087	232,609	442,809	236,195	449,084	239,332	455,807	242,918	462,530	246,503	469,252	249,641	475,975	253,226	482,250	256,812	488,973
LWS66 - 5	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	116,499	222,122	118,172	225,050	119,845	228,187
LWS66 - 6	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	116,499	222,122	118,172	225,050	119,845	228,187
LWS76 - 3	225,887	429,364	229,472	436,087	232,609	442,809	236,195	449,084	239,332	455,807	242,918	462,530	246,503	469,252	249,641	475,975	253,226	482,250	256,812	488,973
LWS76 - 4	225,887	429,364	229,472	436,087	232,609	442,809	236,195	449,084	239,332	455,807	242,918	462,530	246,503	469,252	249,641	475,975	253,226	482,250	256,812	488,973
LWS68-1A	169,415	322,023	172,104	327,065	174,457	332,107	177,146	336,813	179,499	341,855	182,188	346,897	184,877	351,939	187,230	356,981	189,920	361,687	192,609	366,730
LWS76 - 5	225,887	429,364	229,472	436,087	232,609	442,809	236,195	449,084	239,332	455,807	242,918	462,530	246,503	469,252	249,641	475,975	253,226	482,250	256,812	488,973
LWS76 - 6	135,532	257,618	137,683	261,652	139,566	265,686	141,717	269,450	143,599	273,484	145,751	277,518	147,902	281,551	149,784	285,585	151,936	289,350	154,087	293,384
LWS78574	105,414	200,370	107,087	203,507	108,551	206,644	110,224	209,573	111,688	212,710	113,362	215,847	115,035	218,984	116,499	222,122	118,172	225,050	119,845	228,187
LWS86-1	165,650	314,867	168,280	319,797	170,580	324,727	173,210	329,328	175,510	334,258	178,140	339,188	180,769	344,118	183,070	349,049	185,699	353,650	188,328	358,580
LWS86-2	165,650	314,867	168,280	319,797	170,580	324,727	173,210	329,328	175,510	334,258	178,140	339,188	180,769	344,118	183,070	349,049	185,699	353,650	188,328	358,580
LWS85451	918,605	1,746,079	933,186	1,773,419	945,945	1,800,758	960,526	1,826,275	973,284	1,853,615	987,865	1,880,954	1,002,446	1,908,293	1,015,205	1,935,633	1,029,786	1,961,150	1,044,367	1,988,489
LWS86646	918,605	1,746,079	933,186	1,773,419	945,945	1,800,758	960,526	1,826,275	973,284	1,853,615	987,865	1,880,954	1,002,446	1,908,293	1,015,205	1,935,633	1,029,786	1,961,150	1,044,367	1,988,489
Total (MGD)	50.4	95.8	51.2	97.3	51.9	98.8	52.7	100.2	53.4	101.7	54.2	103.2	55.0	104.7	55.4	105.6	55.9	106.5	56.4	107.4

Notes:

Stress Periods 1 through 4 are based on average monthly pumping rates from 2013 (Lincoln Water System, 2014)

ft³/day = cubic feet per day

LWS = Lincoln Water System

MGD = Millions of Gallons per day

Source: Lincoln Water System, 2014. Monthly Totals for Well Field Pumpage (MG). Excel® spreadsheet transmitted via email from Julie M. Vales, LWS, to Bradley Brink, CENWK. January 13, 2014.

Appendix D
Table D.7
Ashland, Ithaca, Mead, and Memphis Measured and Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	feet ³ /day							gallons per minute						
	1	2	3	4	5	6, 8...64	7, 9...63	1	2	3	4	5	6, 8...64	7, 9...63
Start Date	9/1/2014	10/1/2014	11/1/2014	12/1/2014	1/1/2015	6/1	9/1	9/1/2014	10/1/2014	11/1/2014	12/1/2014	1/1/2015	6/1	9/1
End Date	9/30/2014	10/31/2014	11/30/2014	12/31/2014	5/31/2015	8/31	5/31	9/30/2014	10/31/2014	11/30/2014	12/31/2014	5/31/2015	8/31	5/31
Ashland(82-1)	11,531	9,690	8,297	7,924	9,765	16,087	9,765	60	50	43	41	51	84	51
Ashland(#4)	11,531	9,690	8,297	7,924	9,765	16,087	9,765	60	50	43	41	51	84	51
Ashland(#5)	11,531	9,690	8,297	7,924	9,765	16,087	9,765	60	50	43	41	51	84	51
Ashland(2006-1)	11,531	9,690	8,297	7,924	9,765	16,087	9,765	60	50	43	41	51	84	51
Ashland Total	46,124	38,759	33,188	31,695	39,059	64,349	39,059	240	201	172	165	203	334	203
Ithaca(1)	1,116	1,116	1,116	1,116	1,116	1,116	1,116	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Ithaca(2)	1,116	1,116	1,116	1,116	1,116	1,116	1,116	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Ithaca Total	2,232	2,232	2,232	2,232	2,232	2,232	2,232	12	12	12	12	12	12	12
Mead(1)	1,732	1,956	2,000	1,931	1,989	2,792	1,989	9	10	10	10	10	15	10
Mead(2)	1,732	1,956	2,000	1,931	1,989	2,792	1,989	9	10	10	10	10	15	10
Mead(3)	1,732	1,956	2,000	1,931	1,989	2,792	1,989	9	10	10	10	10	15	10
Mead(4)	1,732	1,956	2,000	1,931	1,989	2,792	1,989	9	10	10	10	10	15	10
Mead Total	6,929	7,822	7,999	7,723	7,957	11,166	7,957	36	41	42	40	41	58	41
Memphis(73-1)	729	729	729	729	729	729	729	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Memphis(94-1)	729	729	729	729	729	729	729	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Memphis Total	1,457	1,457	1,457	1,457	1,458	1,458	1,458	7.6	7.6	7.6	7.6	7.6	7.6	7.6

Notes:

- (1) Ashland Stress Period 1 through 4 pumping rates are monthly averages of September - December 2014 measured rates (City of Ashland, 2015).
- (2) Rates for Ithaca are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2005 population of 167 ("Population Estimates and Census Data, 2005 Sub-County Population Estimates", NDNR, 2006).
- (3) Mead Stress Period 1 through 4 pumping rates are monthly averages of September - December 2014 measured rates (Village of Mead, 2015).
- (4) Rates for Memphis are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2005 population of 109 ("Population Estimates and Census Data, 2005 Sub-County Population Estimates", NDNR, 2006).
- (5) Ashland and Mead Stress Period 5-64 pumping rates are based on seasonal average pumping rates.

Sources:

City of Ashland, 2015. Ashland Well Production Since 2004. Excel® spreadsheet transmitted via email from Bill Torpy, City of Ashland, to Bradley Brink, CENWK. February 10, 2015.
 Nebraska Department of Natural Resources (NDNR), 2006. Relational/Tabular Databases, Population Estimates and Census Data, 2005 Sub-County Population Estimates.
<http://www.dnr.ne.gov/databank/census/SUB-EST2005-04-31.xls>. Accessed September 2006.
 Nebraska Natural Resources Commission (NNRC), 1998. "Estimated Water Use in Nebraska, 1995". <http://www.dnr.ne.gov/otherresources/waterreport95.html>. Accessed September 2006.
 Village of Mead, 2015. Mead Water Use. Email message transmitted from Nick Raver, Village of Mead, to Bradley Brink, CENWK. February 10, 2015.

Appendix D
Table D.8
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-000350	0	0	50,378	0	0	0	262	0
G-000377	0	0	58,565	0	0	0	304	0
G-000744	0	0	0	0	0	0	0	0
G-000745	0	0	25,189	0	0	0	131	0
G-000961	0	0	48,489	0	0	0	252	0
G-002172	0	0	50,378	0	0	0	262	0
G-002341	0	0	0	0	0	0	0	0
G-003848	0	0	25,189	0	0	0	131	0
G-004004	0	0	15,743	0	0	0	82	0
G-004168	0	0	11,020	0	0	0	57	0
G-004169	0	0	11,020	0	0	0	57	0
G-004183	0	0	0	0	0	0	0	0
G-008876	0	0	0	0	0	0	0	0
G-009033	0	0	50,378	0	0	0	262	0
G-009205	0	0	25,189	0	0	0	131	0
G-011280	0	0	22,040	0	0	0	114	0
G-013220	0	0	50,378	0	0	0	262	0
G-014161	0	0	0	0	0	0	0	0
G-014821	0	0	0	0	0	0	0	0
G-014822	0	0	0	0	0	0	0	0
G-014865	0	0	39,673	0	0	0	206	0
G-014866	0	0	33,061	0	0	0	172	0
G-015211	0	0	50,378	0	0	0	262	0
G-016190	0	0	62,973	0	0	0	327	0
G-017199	0	0	50,378	0	0	0	262	0
G-017200	0	0	0	0	0	0	0	0
G-017201	0	0	50,378	0	0	0	262	0
G-018285	0	0	31,486	0	0	0	164	0
G-018747	0	0	0	0	0	0	0	0
G-019020	0	0	0	0	0	0	0	0
G-020313	0	0	62,973	0	0	0	327	0
G-020550	0	0	40,932	0	0	0	213	0
G-020551	0	0	0	0	0	0	0	0
G-020552	0	0	0	0	0	0	0	0
G-021194	0	0	50,378	0	0	0	262	0
G-021492	0	0	42,192	0	0	0	219	0
G-022336	0	0	18,892	0	0	0	98	0
G-022506	0	0	0	0	0	0	0	0
G-023385	0	0	25,189	0	0	0	131	0
G-028138	0	0	0	0	0	0	0	0
G-030654	0	0	69,270	0	0	0	360	0
G-030678	0	0	56,675	0	0	0	294	0
G-031913	0	0	50,378	0	0	0	262	0
G-033472	0	0	37,784	0	0	0	196	0
G-033505	0	0	53,527	0	0	0	278	0
G-033747	0	0	0	0	0	0	0	0
G-033749	0	0	28,023	0	0	0	146	0
G-033750	0	0	25,004	0	0	0	130	0
G-033751	0	0	0	0	0	0	0	0
G-033752	0	0	0	0	0	0	0	0
G-033753	0	0	43,101	0	0	0	224	0
G-033754	0	0	0	0	0	0	0	0
G-033755	0	0	3,424	0	0	0	18	0
G-035213	0	0	54,471	0	0	0	283	0
G-035237	0	0	50,378	0	0	0	262	0
G-035273	0	0	44,081	0	0	0	229	0
G-035300	0	0	21,411	0	0	0	111	0
G-035461	0	0	26,763	0	0	0	139	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-035862	0	0	40,932	0	0	0	213	0
G-035976	0	0	64,232	0	0	0	334	0
G-036098	0	0	25,189	0	0	0	131	0
G-036212	0	0	0	0	0	0	0	0
G-036213	0	0	13,770	0	0	0	72	0
G-036214	0	0	0	0	0	0	0	0
G-037636	0	0	0	0	0	0	0	0
G-037637	0	0	44,081	0	0	0	229	0
G-037677	0	0	13,224	0	0	0	69	0
G-037681	0	0	25,189	0	0	0	131	0
G-037707	0	0	50,378	0	0	0	262	0
G-037709	0	0	37,784	0	0	0	196	0
G-037726	0	0	25,189	0	0	0	131	0
G-037984	0	0	45,655	0	0	0	237	0
G-040328	0	0	26,763	0	0	0	139	0
G-040351	0	0	75,567	0	0	0	393	0
G-041584	0	0	48,489	0	0	0	252	0
G-041786	0	0	44,081	0	0	0	229	0
G-042325	0	0	50,378	0	0	0	262	0
G-042956	0	0	0	0	0	0	0	0
G-044173	0	0	47,544	0	0	0	247	0
G-044312	0	0	16,243	0	0	0	84	0
G-046472	0	0	25,189	0	0	0	131	0
G-046552	0	0	36,209	0	0	0	188	0
G-046657	0	0	42,507	0	0	0	221	0
G-046970	0	0	50,378	0	0	0	262	0
G-047016	0	0	12,595	0	0	0	65	0
G-047077	0	0	0	0	0	0	0	0
G-047089	0	0	48,174	0	0	0	250	0
G-047357	0	0	43,136	0	0	0	224	0
G-047789	0	0	25,189	0	0	0	131	0
G-047830	0	0	37,784	0	0	0	196	0
G-048312	0	0	69,270	0	0	0	360	0
G-048425A	0	0	37,784	0	0	0	196	0
G-048425B	0	0	50,378	0	0	0	262	0
G-049256	0	0	50,378	0	0	0	262	0
G-049353	0	0	43,136	0	0	0	224	0
G-049439	0	0	75,567	0	0	0	393	0
G-050151	0	0	0	0	0	0	0	0
G-050176	0	0	50,378	0	0	0	262	0
G-050177	0	0	50,378	0	0	0	262	0
G-050878	0	0	6,297	0	0	0	33	0
G-050879	0	0	12,595	0	0	0	65	0
G-050995	0	0	47,229	0	0	0	245	0
G-051424	0	0	0	0	0	0	0	0
G-051685	0	0	25,189	0	0	0	131	0
G-051686	0	0	12,595	0	0	0	65	0
G-051786	0	0	50,378	0	0	0	262	0
G-051787	0	0	50,378	0	0	0	262	0
G-051860	0	0	50,378	0	0	0	262	0
G-051879	0	0	50,378	0	0	0	262	0
G-051927	0	0	47,544	0	0	0	247	0
G-052170	0	0	18,892	0	0	0	98	0
G-052354	0	0	50,378	0	0	0	262	0
G-052414	0	0	50,378	0	0	0	262	0
G-052415	0	0	34,635	0	0	0	180	0
G-052563	0	0	50,378	0	0	0	262	0
G-052785	0	0	50,378	0	0	0	262	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-053077	0	0	50,378	0	0	0	262	0
G-053078	0	0	25,189	0	0	0	131	0
G-053273	0	0	31,486	0	0	0	164	0
G-053428	0	0	50,378	0	0	0	262	0
G-053470	0	0	56,675	0	0	0	294	0
G-053629	0	0	25,189	0	0	0	131	0
G-053630	0	0	23,930	0	0	0	124	0
G-053656	0	0	50,378	0	0	0	262	0
G-053658	0	0	31,486	0	0	0	164	0
G-053764	0	0	31,486	0	0	0	164	0
G-053801	0	0	50,378	0	0	0	262	0
G-053963	0	0	22,040	0	0	0	114	0
G-054654	0	0	46,730	0	0	0	243	0
G-054655	0	0	34,168	0	0	0	177	0
G-054656 (#10)	7,508	8,342	8,342	8,342	39	43	43	43
G-055912	0	0	42,507	0	0	0	221	0
G-055913	0	0	0	0	0	0	0	0
G-055914	0	0	62,973	0	0	0	327	0
G-055915	0	0	47,229	0	0	0	245	0
G-056278	0	0	12,595	0	0	0	65	0
G-056513	0	0	9,446	0	0	0	49	0
G-056514	0	0	12,595	0	0	0	65	0
G-056515	0	0	0	0	0	0	0	0
G-056729	0	0	37,784	0	0	0	196	0
G-056849	0	0	0	0	0	0	0	0
G-057184	0	0	44,081	0	0	0	229	0
G-057314	0	0	0	0	0	0	0	0
G-057315	0	0	31,486	0	0	0	164	0
G-057497	0	0	50,378	0	0	0	262	0
G-057498	0	0	50,378	0	0	0	262	0
G-057634	0	0	62,973	0	0	0	327	0
G-058057	0	0	12,595	0	0	0	65	0
G-058058	0	0	18,892	0	0	0	98	0
G-058325	0	0	12,595	0	0	0	65	0
G-058437	0	0	18,892	0	0	0	98	0
G-058543	0	0	40,932	0	0	0	213	0
G-058723	0	0	25,189	0	0	0	131	0
G-058774	0	0	25,189	0	0	0	131	0
G-058820	0	0	55,101	0	0	0	286	0
G-058958	0	0	50,378	0	0	0	262	0
G-059114	0	0	12,595	0	0	0	65	0
G-059115	0	0	25,189	0	0	0	131	0
G-059231	0	0	31,486	0	0	0	164	0
G-059549	0	0	25,189	0	0	0	131	0
G-059681	0	0	23,615	0	0	0	123	0
G-060250	0	0	1,574	0	0	0	8	0
G-060417	0	0	16,688	0	0	0	87	0
G-060900	0	0	20,466	0	0	0	106	0
G-060987	0	0	25,189	0	0	0	131	0
G-060988	0	0	31,486	0	0	0	164	0
G-061009	0	0	75,567	0	0	0	393	0
G-061620	0	0	12,595	0	0	0	65	0
G-061703	0	0	33,061	0	0	0	172	0
G-062082	0	0	24,244	0	0	0	126	0
G-062094	0	0	0	0	0	0	0	0
G-062375	0	0	18,892	0	0	0	98	0
G-062530A	0	0	0	0	0	0	0	0
G-062530B	0	0	0	0	0	0	0	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-063187	0	0	25,189	0	0	0	131	0
G-063202	0	0	41,877	0	0	0	218	0
G-064065	0	0	47,229	0	0	0	245	0
G-064207	0	0	50,378	0	0	0	262	0
G-064243	0	0	31,801	0	0	0	165	0
G-064703	0	0	15,743	0	0	0	82	0
G-064906	0	0	47,229	0	0	0	245	0
G-065584	0	0	41,247	0	0	0	214	0
G-065589	0	0	50,378	0	0	0	262	0
G-065682	0	0	40,932	0	0	0	213	0
G-065683	0	0	26,763	0	0	0	139	0
G-065684	0	0	53,527	0	0	0	278	0
G-065871	0	0	47,229	0	0	0	245	0
G-065908	0	0	18,892	0	0	0	98	0
G-065987	0	0	48,804	0	0	0	254	0
G-066246	0	0	50,378	0	0	0	262	0
G-066364	0	0	50,378	0	0	0	262	0
G-066531	0	0	36,209	0	0	0	188	0
G-066614	0	0	0	0	0	0	0	0
G-067290	0	0	20,466	0	0	0	106	0
G-067472	0	0	50,378	0	0	0	262	0
G-067620	0	0	69,270	0	0	0	360	0
G-068060	0	0	21,299	0	0	0	111	0
G-069184	0	0	25,189	0	0	0	131	0
G-069208	0	0	73,993	0	0	0	384	0
G-069511	0	0	0	0	0	0	0	0
G-070210	0	0	48,174	0	0	0	250	0
G-070398	0	0	50,378	0	0	0	262	0
G-070615	0	0	50,378	0	0	0	262	0
G-071170	0	0	34,635	0	0	0	180	0
G-071362	0	0	28,338	0	0	0	147	0
G-071363	0	0	40,932	0	0	0	213	0
G-072122	0	0	34,950	0	0	0	182	0
G-072123	0	0	72,419	0	0	0	376	0
G-072139	0	0	37,784	0	0	0	196	0
G-072751	0	0	20,466	0	0	0	106	0
G-072842	0	0	18,892	0	0	0	98	0
G-073294	0	0	25,189	0	0	0	131	0
G-073449	0	0	50,378	0	0	0	262	0
G-073545	0	0	20,466	0	0	0	106	0
G-073751	0	0	40,932	0	0	0	213	0
G-073894	0	0	46,285	0	0	0	240	0
G-074349	0	0	37,784	0	0	0	196	0
G-074351	0	0	25,189	0	0	0	131	0
G-076374	0	0	41,562	0	0	0	216	0
G-076735	0	0	23,930	0	0	0	124	0
G-077970	0	0	40,932	0	0	0	213	0
G-078375	0	0	40,932	0	0	0	213	0
G-078376	0	0	25,189	0	0	0	131	0
G-078377	0	0	0	0	0	0	0	0
G-081565	0	0	39,358	0	0	0	204	0
G-081652	0	0	42,507	0	0	0	221	0
G-081653	0	0	24,559	0	0	0	128	0
G-082391	0	0	49,433	0	0	0	257	0
G-084655	0	0	12,280	0	0	0	64	0
G-085344	0	0	43,136	0	0	0	224	0
G-085522	0	0	75,567	0	0	0	393	0
G-087076	0	0	29,597	0	0	0	154	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-087283	0	0	23,615	0	0	0	123	0
G-087637	0	0	37,784	0	0	0	196	0
G-087929	0	0	45,635	0	0	0	237	0
G-088331	0	0	42,507	0	0	0	221	0
G-089306	0	0	20,466	0	0	0	106	0
G-090720	0	0	42,507	0	0	0	221	0
G-091546 (#9)	8,085	8,295	8,295	8,295	42	43	43	43
G-091614	0	0	37,784	0	0	0	196	0
G-093865	0	0	37,784	0	0	0	196	0
G-094011	0	0	40,932	0	0	0	213	0
G-094585	0	0	25,189	0	0	0	131	0
G-096581	0	0	0	0	0	0	0	0
G-096582	0	0	34,670	0	0	0	180	0
G-096584	0	0	43,043	0	0	0	224	0
G-096587	0	0	0	0	0	0	0	0
G-096588 (#27)	7,508	8,954	8,954	8,954	39	47	47	47
G-096589	0	0	12,370	0	0	0	64	0
G-096627	0	0	18,892	0	0	0	98	0
G-096904	0	0	40,932	0	0	0	213	0
G-096933	0	0	56,675	0	0	0	294	0
G-097207	0	0	11,020	0	0	0	57	0
G-098758	0	0	42,507	0	0	0	221	0
G-101198	0	0	31,486	0	0	0	164	0
G-104278	0	0	43,766	0	0	0	227	0
G-105704	0	0	15,743	0	0	0	82	0
G-105753	0	0	62,973	0	0	0	327	0
G-105797	0	0	40,932	0	0	0	213	0
G-105800	0	0	50,624	0	0	0	263	0
G-105801	0	0	40,746	0	0	0	212	0
G-105802	0	0	40,829	0	0	0	212	0
G-107321	0	0	34,635	0	0	0	180	0
G-108180	0	0	3,149	0	0	0	16	0
G-108647	0	0	26,763	0	0	0	139	0
G-109287	0	0	12,595	0	0	0	65	0
G-109425	0	0	20,466	0	0	0	106	0
G-109448	0	0	47,229	0	0	0	245	0
G-109619	0	0	8,186	0	0	0	43	0
G-110360	0	0	31,486	0	0	0	164	0
G-112438	0	0	37,784	0	0	0	196	0
G-113392	0	0	40,932	0	0	0	213	0
G-113882	0	0	26,763	0	0	0	139	0
G-114521	0	0	41,877	0	0	0	218	0
G-116108	0	0	28,338	0	0	0	147	0
G-116504	0	0	28,338	0	0	0	147	0
G-118340	0	0	0	0	0	0	0	0
G-127035	0	0	31,486	0	0	0	164	0
G-127071	0	0	47,229	0	0	0	245	0
G-127133	0	0	50,378	0	0	0	262	0
G-127250	0	0	34,635	0	0	0	180	0
G-127321	0	0	31,486	0	0	0	164	0
G-127545	0	0	20,466	0	0	0	106	0
G-128997	0	0	23,615	0	0	0	123	0
G-129063	0	0	97,293	0	0	0	505	0
G-130797	0	0	25,189	0	0	0	131	0
G-131085	0	0	55,731	0	0	0	290	0
G-132237	0	0	31,486	0	0	0	164	0
G-133366	0	0	34,635	0	0	0	180	0
G-134121	0	0	47,229	0	0	0	245	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
	Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-134176	0	0	22,040	0	0	0	114	0
G-135522	0	0	18,646	0	0	0	97	0
G-135542	0	0	25,189	0	0	0	131	0
G-135543	0	0	2,519	0	0	0	13	0
G-135895	0	0	20,466	0	0	0	106	0
G-136000	0	0	21,411	0	0	0	111	0
G-136149	0	0	28,023	0	0	0	146	0
G-136150	0	0	81,864	0	0	0	425	0
G-136318	0	0	44,081	0	0	0	229	0
G-136326	0	0	20,466	0	0	0	106	0
G-136327	0	0	27,393	0	0	0	142	0
G-136409	0	0	28,338	0	0	0	147	0
G-136423	0	0	42,507	0	0	0	221	0
G-136517	0	0	25,189	0	0	0	131	0
G-136617	0	0	31,486	0	0	0	164	0
G-137529	0	0	44,081	0	0	0	229	0
G-137912	0	0	24,559	0	0	0	128	0
G-138821	0	0	31,486	0	0	0	164	0
G-138924	0	0	64,547	0	0	0	335	0
G-139140	0	0	42,821	0	0	0	222	0
G-140041	0	0	50,378	0	0	0	262	0
G-140862	0	0	945	0	0	0	5	0
G-140863	0	0	25,189	0	0	0	131	0
G-144326	0	0	21,096	0	0	0	110	0
G-146158	0	0	44,081	0	0	0	229	0
G-146379	0	0	32,746	0	0	0	170	0
G-146939	0	0	34,635	0	0	0	180	0
G-149433	0	0	37,784	0	0	0	196	0
G-151522	0	0	12,595	0	0	0	65	0
G-152097	0	0	945	0	0	0	5	0
G-152423	0	0	11,020	0	0	0	57	0
G-152424	0	0	25,189	0	0	0	131	0
G-152458	0	0	13,854	0	0	0	72	0
G-155221	0	0	787	0	0	0	4	0
G-156154	0	0	56,675	0	0	0	294	0
G-157943	0	0	0	0	0	0	0	0
G-158669	0	0	20,057	0	0	0	104	0
G-158991	0	0	42,192	0	0	0	219	0
G-159854	0	0	32,555	0	0	0	169	0
G-161181	0	0	24,244	0	0	0	126	0
G-161182	0	0	24,244	0	0	0	126	0
G-161915	0	0	22,040	0	0	0	114	0
G-162095	0	0	21,411	0	0	0	111	0
G-163023	0	0	7,557	0	0	0	39	0
G-165856	0	0	20,466	0	0	0	106	0
G-166421	0	0	15,491	0	0	0	80	0
G-166653	0	0	31,486	0	0	0	164	0
G-168354	0	0	34,635	0	0	0	180	0
G-168439	0	0	29,282	0	0	0	152	0
G-168513	0	0	18,892	0	0	0	98	0
G-166429	0	0	0	0	0	0	0	0
G-166430	0	0	0	0	0	0	0	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	feet ³ /day				gallons per minute			
	1-4	5	6, 8, 10...64	7, 9, 11...63	1-4	5	6, 8, 10...64	7, 9, 11...63
Start Date:	9/1/13	1/1/14	6/1	9/1	9/1/13	1/1/14	6/1	9/1
End Date:	12/31/13	5/31/14	8/31	5/31	12/31/13	5/31/14	8/31	5/31
G-172243	0	0	20,466	0	0	0	106	0
G-172828	0	0	45,340	0	0	0	236	0
G-172955	0	0	12,595	0	0	0	65	0
G-173266	0	0	20,466	0	0	0	106	0
G-173267	0	0	14,169	0	0	0	74	0
G-173724	0	0	25,189	0	0	0	131	0
G-173725	0	0	15,649	0	0	0	81	0
G-173727	0	0	36,209	0	0	0	188	0

Note:

- (1) Refer to Table D.9 for details regarding the estimation of irrigation rates.
- (2) Wells shown with non-irrigation season pumping rates are water supply wells for the Agricultural Research and Development Center that operated in 2014.

Appendix D
Table D.9
Average Depth of Irrigation for ARDC Wells, 2000-2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Acres on Registration	Photo Est. Acres (1)	ARDC ID	Registration Pumping Rate (gpm)	Pumping Rate Based on Avg. Net Irrig. Req. (gpm) (2)	Pumping Rate Based on 72% of Avg. Net Irrig. Req. (gpm) (3)	2000 Pumping Rate (gpm)	2001 Pumping Rate (gpm)	2002 Pumping Rate (gpm)	2003 Pumping Rate (gpm)	2004 Pumping Rate (gpm)	2005 Pumping Rate (gpm)	2006 Pumping Rate (gpm)
G-033747	500	64	IR1	1200	88	63	62	342	89	110	146	0	0
G-033749	90	89	3R	430	122	88	61	430	133	159	154	153	139
G-033750	500	100	IR 4	1100	137	99	0	0	0	0	0	0	0
G-033752	400	97	6	750	133	96	0	0	0	0	0	0	133
G-033753	130	130	25	725	178	128	144	331	209	364	189	165	128
G-033754	200	0	7	400	0	0	0	0	0	0	0	0	0
G-033755	300	99	IR9	400	136	98	0	0	0	0	0	26	26
G-036213	75	110	13	800	151	108	0	0	0	0	0	0	151
G-036214	200	0	14	400	0	0	0	0	0	0	0	0	0
G-044312	75	58	16	1000	79	57	0	0	0	0	0	136	136
G-054654	200	158	IR19	800	216	156	162	314	382	389	226	283	294
G-054655	130	121	17R	787	166	119	0	0	224	264	215	229	206
G-068060	110	57	IR22	1000	78	56	107	142	127	169	132	112	178
G-087929	150	124	IR24	720	170	122	161	303	293	285	267	269	210
G-096581	65	30	IR21	900	41	30	73	110	112	156	0	0	53
G-096582	55	53/104	IRR18	671	142	103	96	127	130	135	72	199	144
G-096584	130	132	IR20	850	181	130	167	276	322	278	239	283	166
G-096589	100	150	15	800	205	148	0	0	0	0	0	103	103
G-105800	130	125	26	810	171	123	0	336	303	349	244	320	284
G-105801	130	142	28	850	194	140	0	294	210	241	227	288	242
G-105802	NA	120	29	740	164	118	0	700	322	289	239	261	195
G-135522	75	75	30	450	103	74	0	0	0	0	0	0	120
G-159854	123	123	32	675	168	121	0	0	0	0	0	0	0

Appendix D (Continued)
Table D.9
Average Depth of Irrigation for ARDC Wells, 2000-2014
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	2007 Pumping Rate (gpm)	2008 Pumping Rate (gpm)	2009 Pumping Rate (gpm)	2010 Pumping Rate (gpm)	2011 Pumping Rate (gpm)	2012 Pumping Rate (gpm)	2013 Pumping Rate (gpm)	2014 Pumping Rate (gpm)	Avg. Pumping Rate While in Use (gpm)	Avg. Depth of Irrigation (inches)	Notes
G-033747	0	0	0	0	0	0	0	0	150	11.41	Not used in average (data mainly from drought period)
G-033749	90	110	86	53	50	87	220	182	141	7.70	
G-033750	0	74	84	81	94	201	229	147	130	6.34	
G-033752	93	100	90	62	0	11	0	0	82	4.10	Agronomy (not used in average)
G-033753	272	230	206	146	137	299	328	211	224	8.40	Center pivot
G-033754	0	0	0	0	0	0	0	0	0	NA	Not used for irrigation (not used in average)
G-033755	18	20	18	12	0	13	0	9	18	0.88	Agronomy (not used in average)
G-036213	105	113	102	70	4	14	0	13	72	3.17	Agronomy (not used in average)
G-036214	0	0	0	0	14	38	0	25	26	NA	Not used for irrigation (not used in average)
G-044312	95	102	92	63	21	78	0	37	84	7.10	Agronomy (not used in average)
G-054654	154	157	166	78	95	398	380	164	243	7.50	Center pivot
G-054655	148	164	145	108	60	172	146	227	178	7.16	Center pivot
G-068060	64	76	47	52	40	167	160	88	111	9.47	
G-087929	204	201	161	153	151	288	356	254	237	9.33	
G-096581	0	0	0	0	0	0	0	0	101	16.40	Not used in average (flood irrigation data mainly from drought period)
G-096582	137	134	128	73	58	149	397	185	112/160	8.45	Acres increased to 104 in 2005
G-096584	118	191	125	108	133	333	352	264	224	8.26	Center pivot
G-096589	72	77	69	48	8	30	0	68.7	64	2.09	Agronomy (not used in average)
G-105800	293	222	207	113	112	323	321	254	263	10.26	Center pivot
G-105801	140	146	176	102	106	350	216	227	212	7.27	Center pivot
G-105802	150	209	145	103	93	247	316	189	212	8.62	Center pivot, first year not used (high volume probably from testing)
G-135522	86	45	99	38	30	137	222	95	97	6.30	
G-159854	0	0	0	0	64	178	153	282	169	6.71	
Average Depth of Irrigation (inches)										7.98	

Notes:

- 1) Aerial photos, NDNR 2005 land use irrigation map, or ARDC estimates were used instead of acreage on registration.
- 2) The average net irrigation requirement is 6.68 inches for fully irrigated corn based on temperature and precipitation data for the period 1949-2004. From "2006 Annual Evaluation of Hydrologically Connected Water Supplies" (NDNR, 2005). The estimated rate assumes a 92-day (June, July, and August) irrigation season, and assumes 100% water application efficiency. This is the method used to estimate the pumping rates for non-ARDC wells prior to the 2012 Groundwater Model Update (USACE, 2013)
- 3) After the 2012 Ground Water Model Update, 72% of the net irrigation requirement was used for non-ARDC wells based on a comparison between estimates using the net irrigation method and actual ARDC pumping records.

ARDC = Agricultural Research & Development Center
 Avg. = Average
 gpm = Gallons per minute
 I = Irrigation
 IR = Irrigation Well
 ID = Identification
 Irrig. Req. = Irrigation Requirement
 NA = Not Available or Not Applicable
 NDNR = Nebraska Department of Natural Resources
 USACE = U.S. Army Corps of Engineers

Appendix D
Table D.10
Storage Coefficients
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Aquifer	Storativity/ Specific Storage	Specific Yield	Effective Porosity
Platte Valley	0.01	0.25	0.3
Todd Valley	0.003	0.2	0.25
Wahoo Valley	0.01	0.25	0.25
Overbank Fines	0.00001	0.1	0.2

Source: USACE, 2013a. 2012 Groundwater Model Update Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns & McDonnell Company, Inc. October.

Appendix D
Table D.11
Fate and Transport Model Parameters
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Parameter	Value
Longitudinal dispersivity	1 ft
Transverse dispersivity	0.1 ft
Vertical dispersivity	0.01 ft
Bulk density	1.86 g/cm ³
Fraction of organic carbon (f _{oc}) in sand/gravel unit	3.00E-04
TCE K _{oc}	107 cm ³ /g
Distribution coefficient (K _d) of TCE for shallow/intermediate layers*	0.03 cm ³ /g
Distribution coefficient (K _d) of RDX for shallow/intermediate layers*	0.1 cm ³ /g
Biodegradation half-life	65 years

Notes:

*Unless otherwise noted in the report

cm³/g = cubic centimeters per gram

ft = feet

f_{oc} = fraction of total organic carbon

g/cm³ = grams per cubic centimeter

K_d = soil-water distribution coefficient

K_{oc} = Organic Carbon Partition Coefficient

TCE = trichloroethene

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine

Source:

USACE, 2013a. 2012 Groundwater Model Update Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. Prepared by ECC and Burns & McDonnell Company, Inc. October.

**Table D.12
Irrigation Well Updates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska**

Regis- tration Number	Nearby Well	Completion Date	Regis- tration Acres	Regis- tration Pumping Rate (gpm)	Decom- mission Date	Easting	Northing	Status	Former Model Pumping Rate (gpm)	New Model Pumping Rate (gpm)	Notes
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Well Inactivated Recently

G-157943	NA	9/9/2010	65	NA	NA	2,656,898	488,356	I	18	0	
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Wells Decommissioned Recently

G-040328	G-040328	8/29/1979	240	700	9/3/2013	2,590,042.00	517,726.00	X	236	0	<i>replaced with same registration number</i>
G-127250	G-127250	4/14/2004	110	550	12/26/2013	2,597,927	528,136	X	108	0	<i>replaced by well with same registration code; replacement registered as inactive, but assumed to be active</i>

Redundant Well Not Decommissioned or Inactivated

G-017200	G-173267	8/23/1956	200	1100		2,652,071.21	525,766.24	A	494	0	<i>made redundant by G-173267</i>
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Wells Replaced, But Replacement Not Yet Activated

G-037709	G-037709	8/25/1972	120	700	NA	2,600,719	516,647	A	118	118	<i>replaced by well with same registration code, but replacement not activated</i>
G-065683	G-118340	3/19/1981	85	700	NA	2,606,423	512,831	A	83	83	<i>replaced by G-118340, but new well not activated</i>
G-067472	G-067472	2/28/1981	160	900	NA	2,599,553	505,296	A	157	157	<i>replaced by well with same registration code, but replacement not activated</i>
G-073751	G-073751	4/20/1991	130	700	NA	2,599,167	528,473	A	128	128	<i>replaced by well with same registration code, but replacement not activated</i>
G-109448	G-109448	12/1/1999	235	750	NA	2,608,891	525,971	A	148	148	<i>replaced by well with same registration code, but replacement not activated</i>
G-127321	G-127321	8/8/2003	280	1200	NA	2,600,659	518,630	A	99	99	<i>replaced by well with same registration code, but replacement not activated; replacement in different quarter section</i>

Table D.12 (Continued)
Irrigation Well Updates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Regis- tration Number	Nearby Well	Completion Date	Regis- tration Acres	Regis- tration Pumping Rate (gpm)	Decom- mission Date	Easting	Northing	Status	Former Model Pumping Rate (gpm)	New Model Pumping Rate (gpm)	Notes
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Inactive Replacement Wells

G-037709	G-037709	4/22/2005	160	700	NA	2,600,750	516,588	S	NA	0	<i>replacement for well with same registration code, but replacement not activated</i>
G-067472	G-067472	7/22/2013	135	700	NA	2,598,881	505,816	S	NA	0	<i>replacement for well with same registration code, but replacement not activated</i>
G-073751	G-073751	8/5/2005	130	700	NA	2,599,272	528,362	S	NA	0	<i>replacement for well with same registration code, but replacement not activated</i>
G-109448	G-109448	10/10/2013	235	NA	NA	2,608,953	525,848	Z	NA	0	<i>replacement for well with same registration code, but replacement not activated</i>
G-118340	G-065683	6/26/2000	85	650	NA	2,606,423	512,824	I	NA	0	<i>replacement for G-065683, but replacement not activated</i>
G-127321	G-127321	9/3/2014	120	1200	NA	2,601,685	514,617	S	NA	0	<i>replacement for well with same registration code, but replacement not activated; replacement in different quarter section</i>

Active Replacement Wells

G-037677	G-037677	4/21/2014	42	650	NA	2,608,495	529,211	A	NA	69	<i>replaces well with same registration code formerly owned by Village of Mead that was not classified as an irrigation well in the model.</i>
G-040328	G-040328	1/3/2014	85	800	NA	2,590,562	517,798	A	NA	139	<i>replaces well with same registration code</i>
G-127250	G-127250	8/21/2013	119	NA	NA	2,598,198	528,264	I	NA	195	<i>replacement for well with same registration code; replacement registered as inactive, but assumed to be active because original well was decommissioned</i>

New Wells Not Activated

G-166429	G-135543	4/1/2011	40	NA	NA	2,641,953	501,772	I	NA	0	<i>nursery wells</i>
G-166430	G-135543	3/25/2011	40	NA	NA	2,641,886	500,782	I	NA	0	<i>nursery wells</i>

Table D.12 (Continued)
Irrigation Well Updates
2014 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Regis- tration Number	Nearby Well	Completion Date	Regis- tration Acres	Regis- tration Pumping Rate (gpm)	Decom- mission Date	Easting	Northing	Status	Former Model Pumping Rate (gpm)	New Model Pumping Rate (gpm)	Notes
Active New Wells Installed in 2014											
G-172243	NA	5/20/2014	65	800	NA	2,649,393	527,670	A	NA	106	
G-172828	NA	7/14/2014	144	800	NA	2,643,685	506,560	A	NA	236	
G-172955	NA	7/21/2014	40	800	NA	2,607,995	523,075	A	NA	65	
G-173266	NA	8/12/2014	65	800	NA	2,656,016	525,265	A	NA	106	
G-173267	G-017200	8/12/2014	45	800	NA	2,651,743	526,301	A	NA	74	<i>makes G-017200 redundant</i>
G-173724	NA	9/11/2014	80	1000	NA	2,663,909	475,977	A	NA	131	
G-173725	NA	9/11/2014	49.7	1000	NA	2,658,254	469,699	A	NA	81	
G-173727	NA	9/15/2014	115	800	NA	2,643,662	508,821	A	NA	188	

Notes:

ft BGS denotes "feet below ground surface"

gpm denotes "gallons per minute"

ID denotes "identification"

NA denotes "not applicable"

A denotes "Active"

I denotes "Inactive"

X denotes "Abandoned"

S denotes "Suspense (replacement well, original well not yet abandoned)"

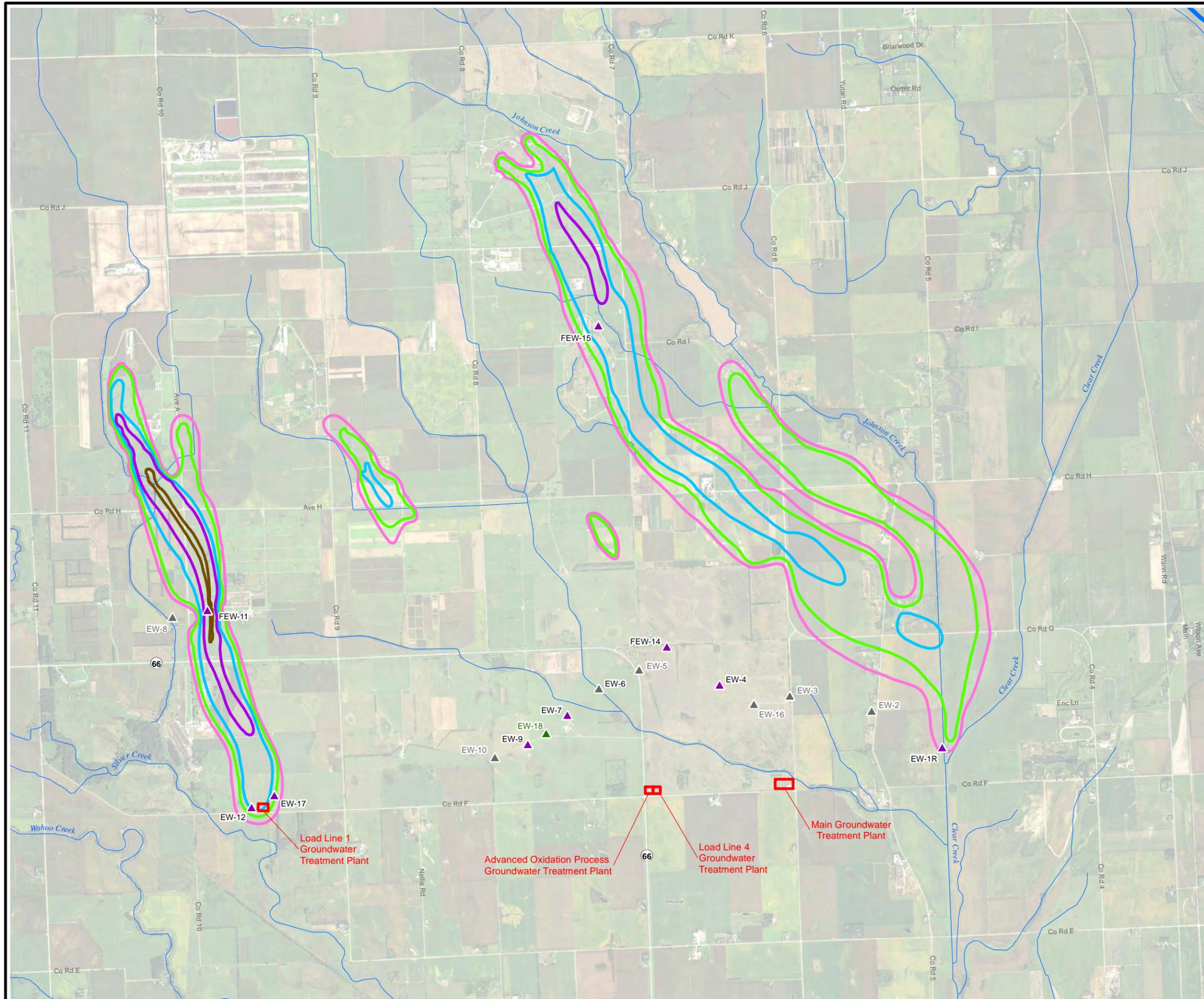
Z denotes "Inactive Suspense (pump not installed, replacement well, original well not yet abandoned)"

New model pumping rate based on acreage and 7.98 inches depth of irrigation per 92-day season

APPENDIX E

TCE TRANSPORT SIMULATIONS

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Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:
TCE = trichloroethene
µg/L = micrograms per liter



0 1,750 3,500 7,000
Feet

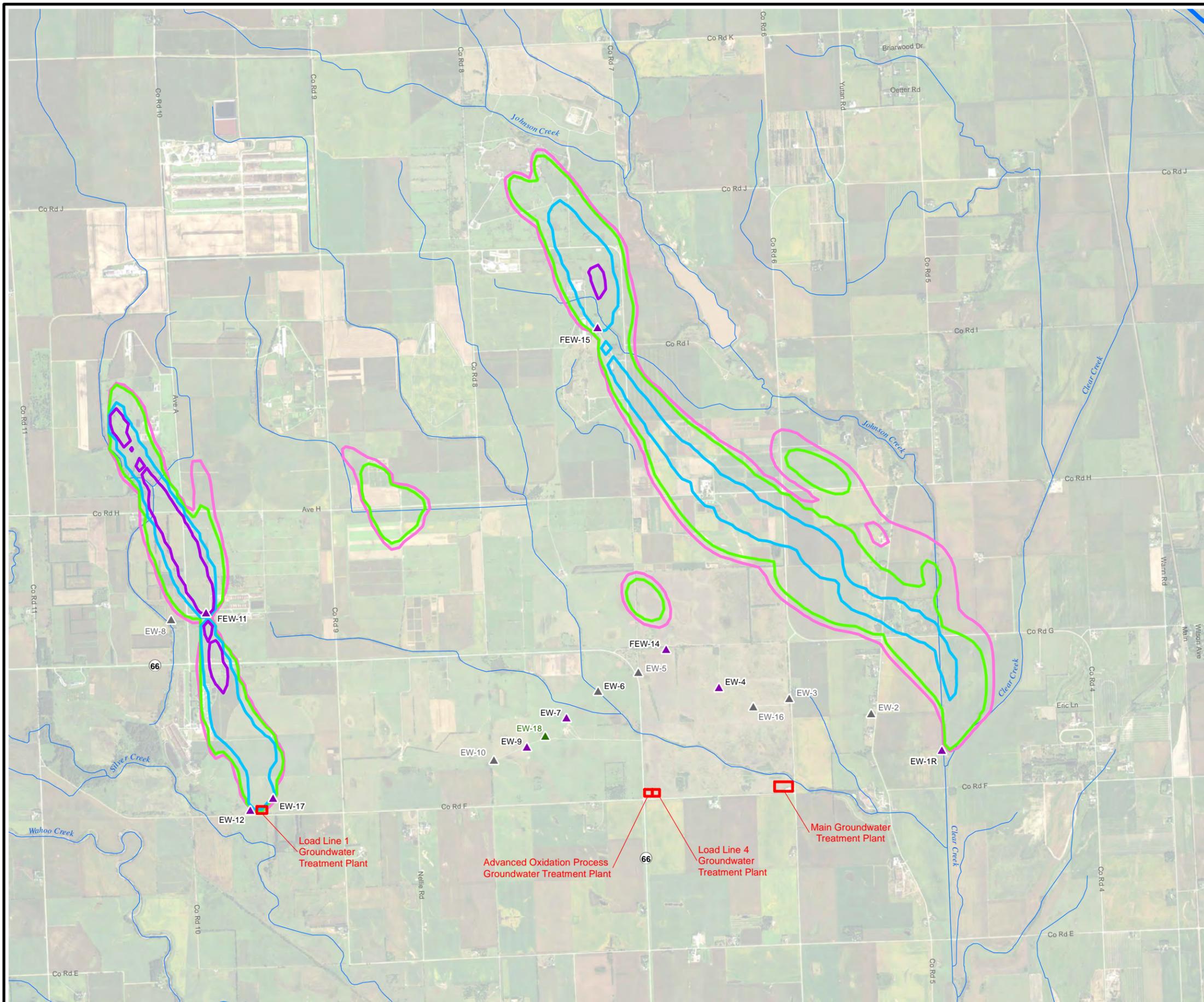


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Kansas City District

*Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation*

Figure E.1
Initial TCE Concentrations
Layer 2

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane Units: Feet



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well (Inactive)
- Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:
TCE = trichloroethene
µg/L = micrograms per liter

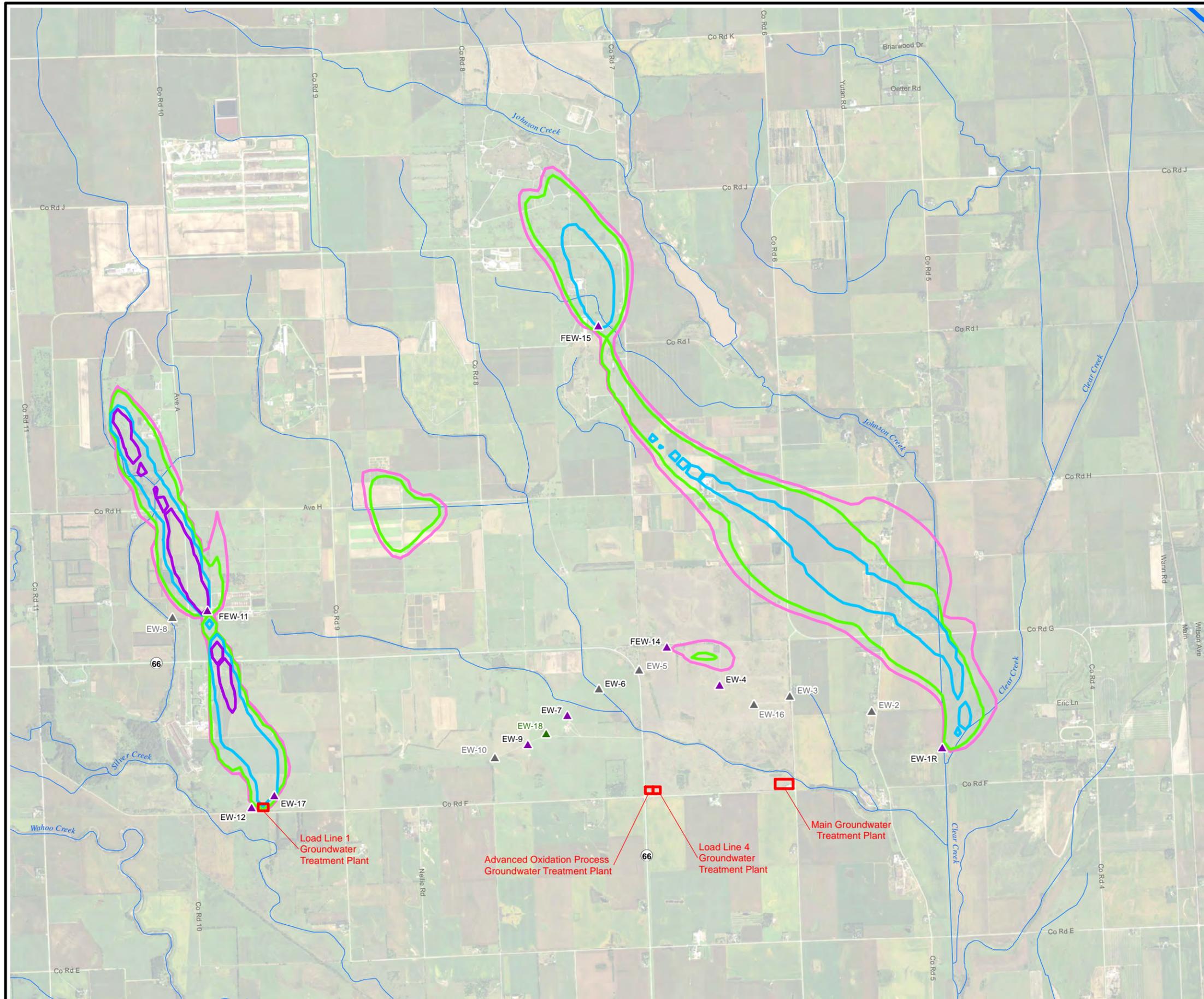
0 1,750 3,500 7,000
Feet

US Army Corps of Engineers
Kansas City District

*Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation*

Figure E.2
Predicted TCE Concentrations
Layer 2 - 2019

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane Units: Feet

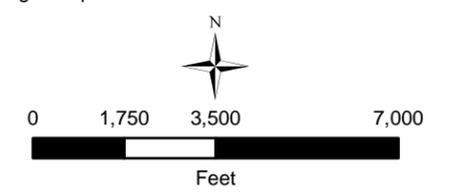


- ### Legend
- ▲ Groundwater Extraction Well
 - ▲ Groundwater Extraction Well (Inactive)
 - ▲ Groundwater Extraction Well (Proposed)
 - Groundwater Treatment Plant

- ### TCE Concentration
- 5 µg/L
 - 10 µg/L
 - 100 µg/L
 - 1,000 µg/L
 - 10,000 µg/L

NOTES:

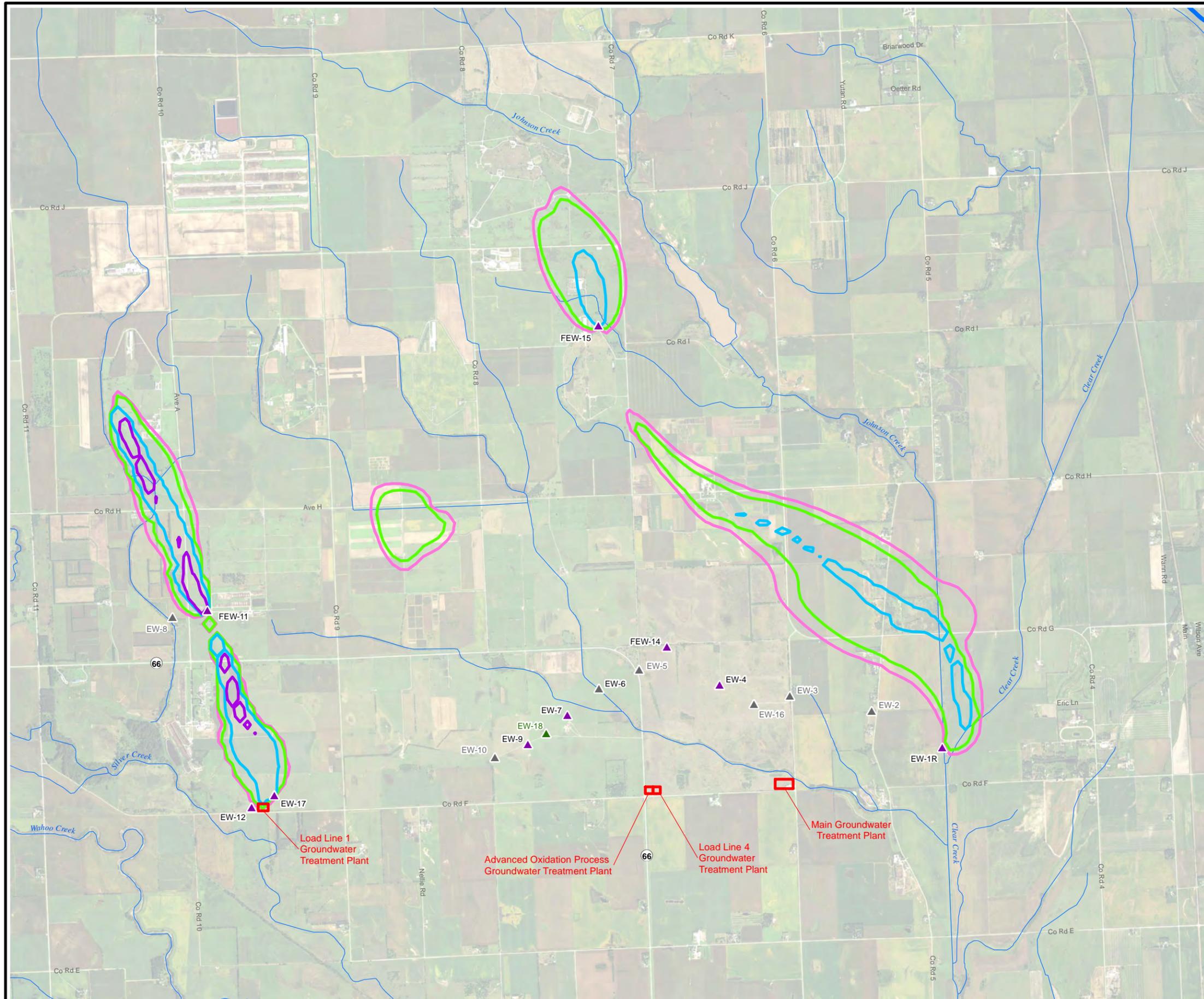
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.3
Predicted TCE Concentrations
Layer 2 - 2024

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet



Legend

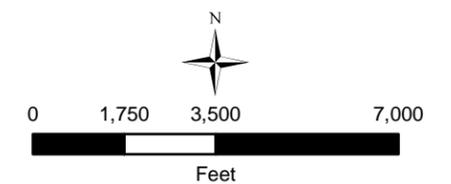
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

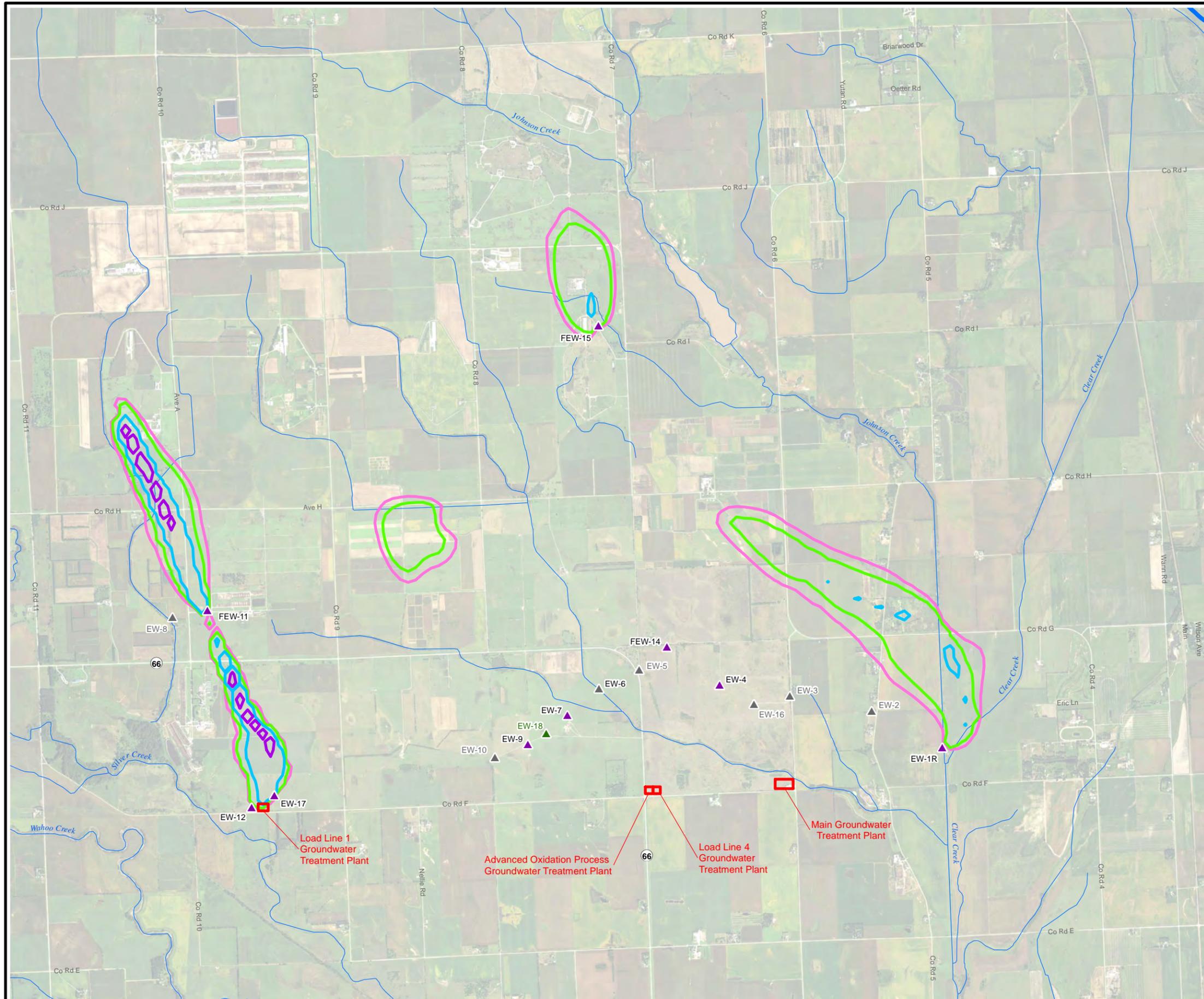
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.4
Predicted TCE Concentrations
Layer 2 - 2029

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well (Inactive)
- Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

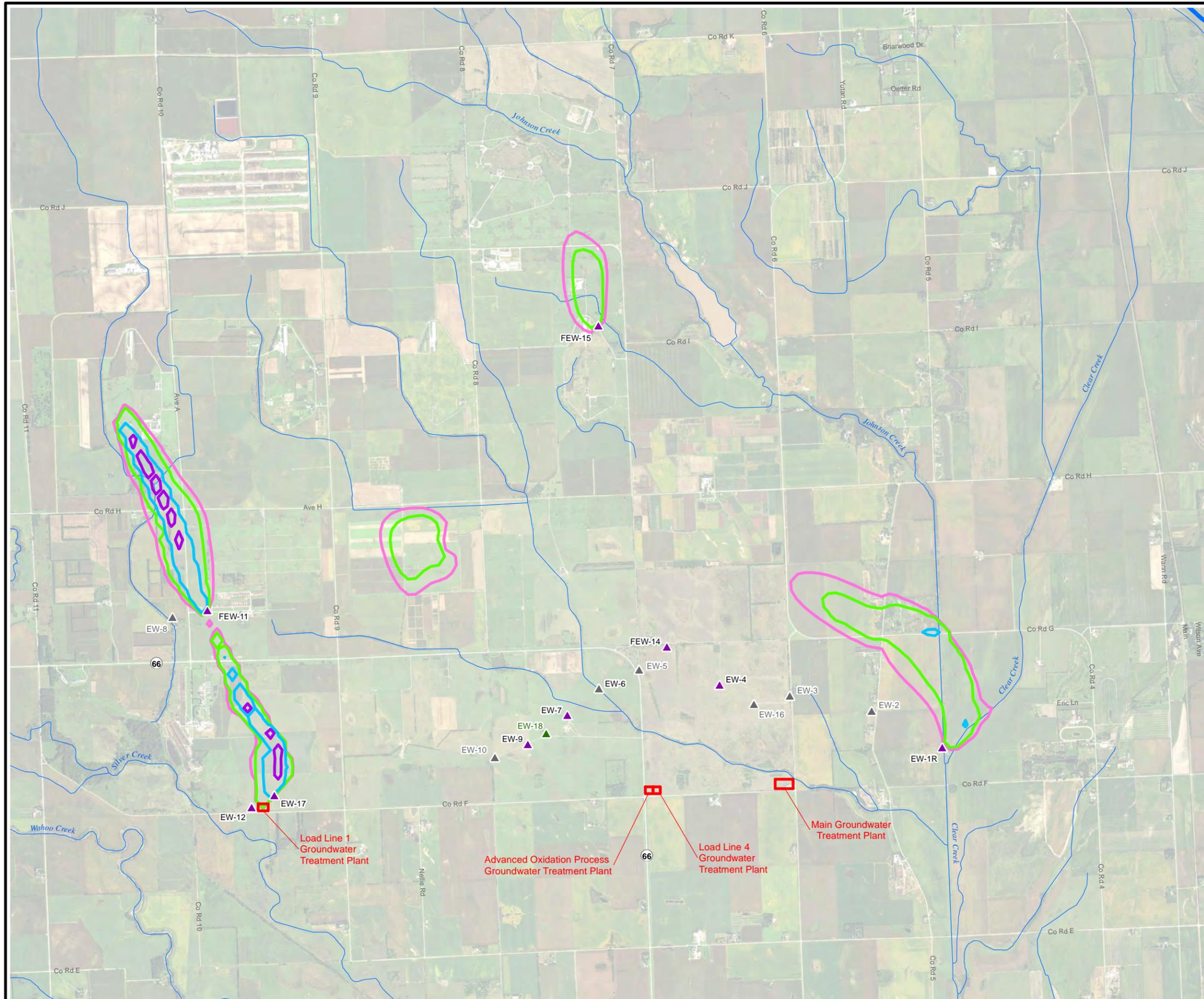
- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:
TCE = trichloroethene
µg/L = micrograms per liter

Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation

Figure E.5
Predicted TCE Concentrations
Layer 2 - 2034

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane Units: Feet



Legend

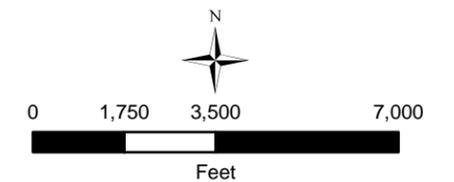
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

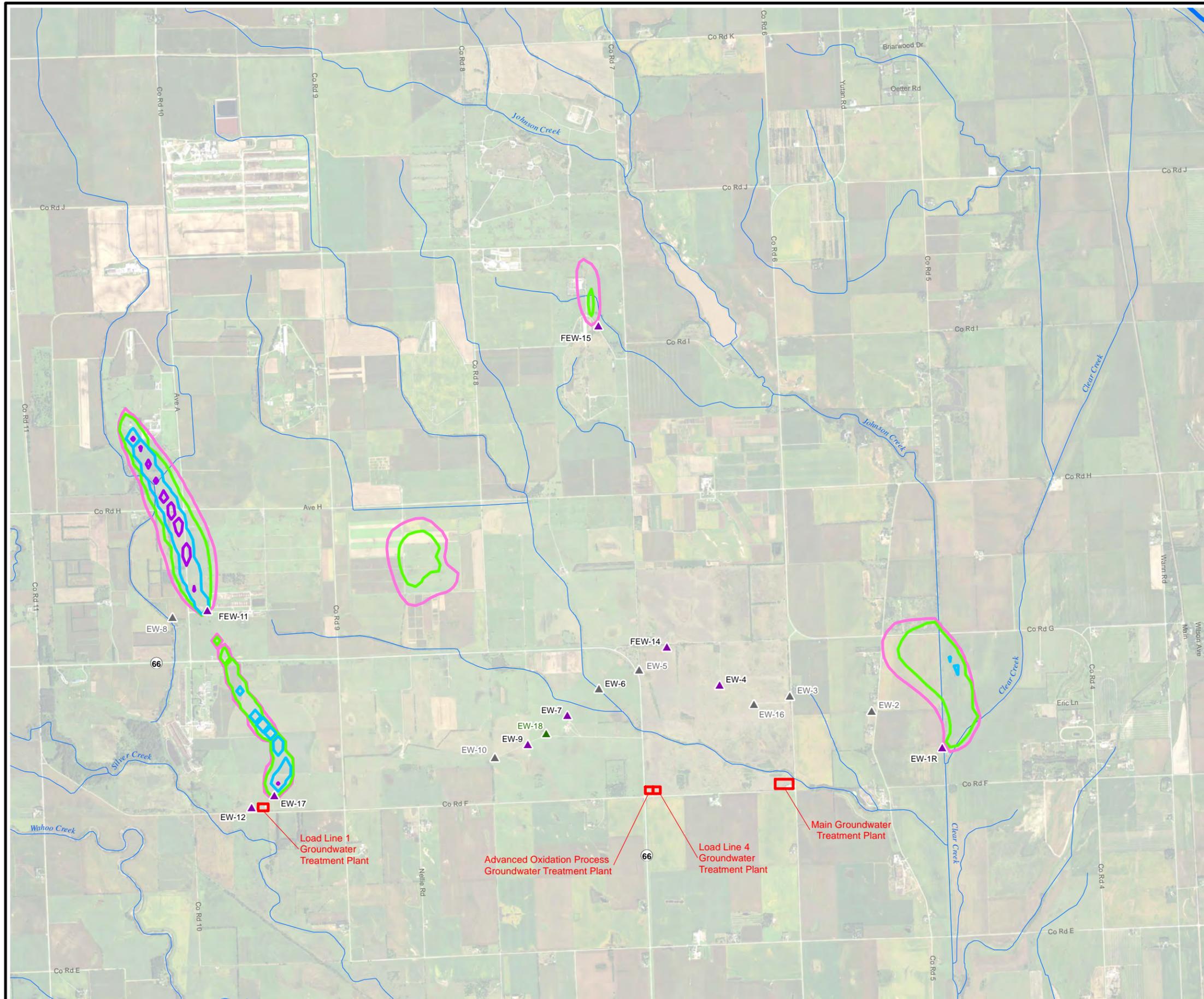
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.6
Predicted TCE Concentrations
Layer 2 - 2039

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet



Legend

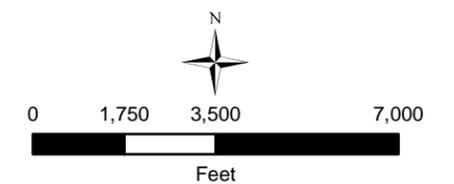
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

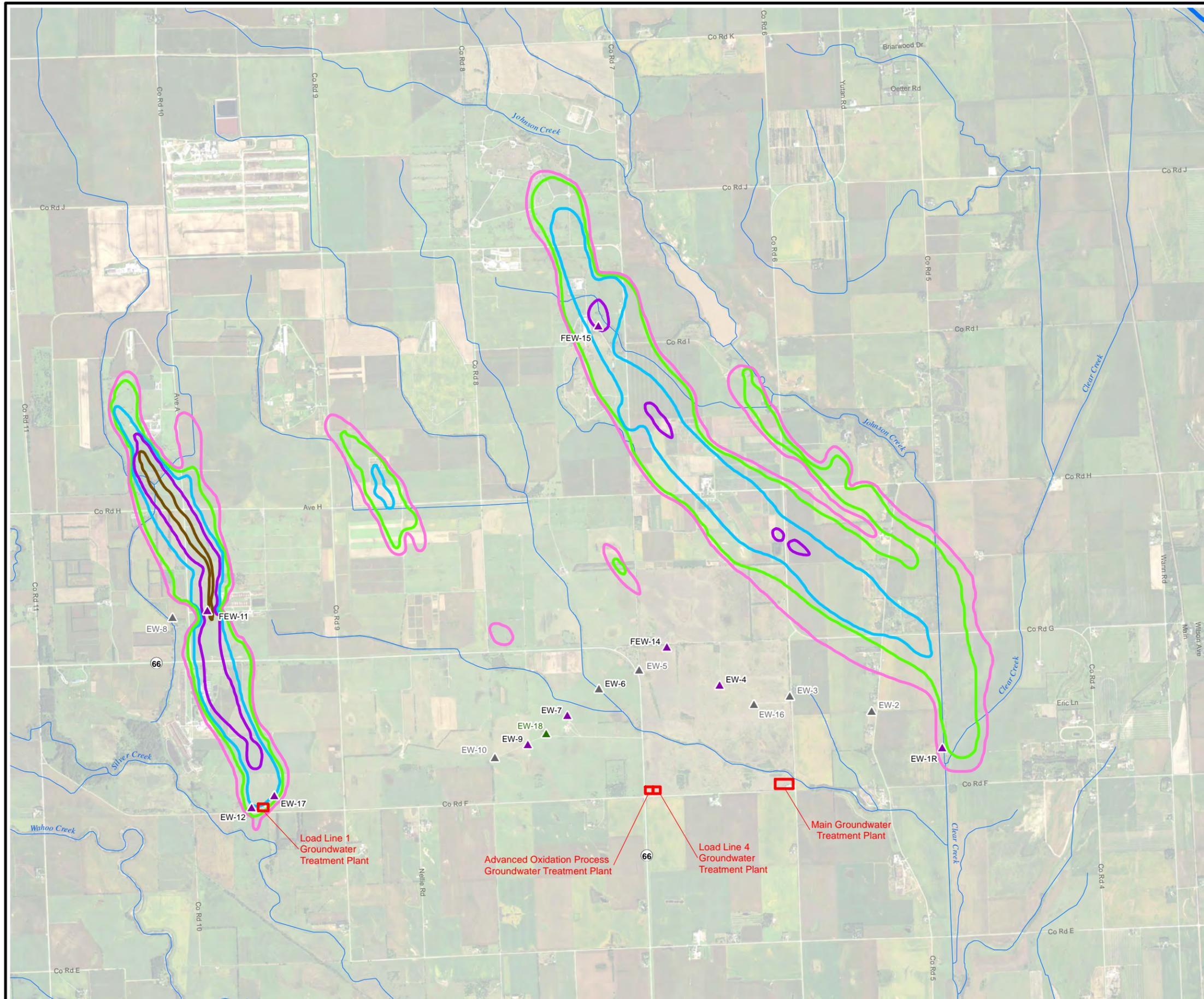
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.7
Predicted TCE Concentrations
Layer 2 - 2044

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet



Legend

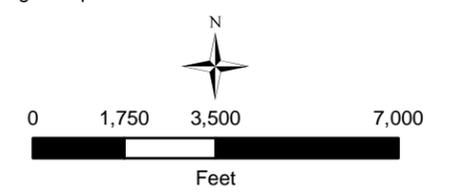
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

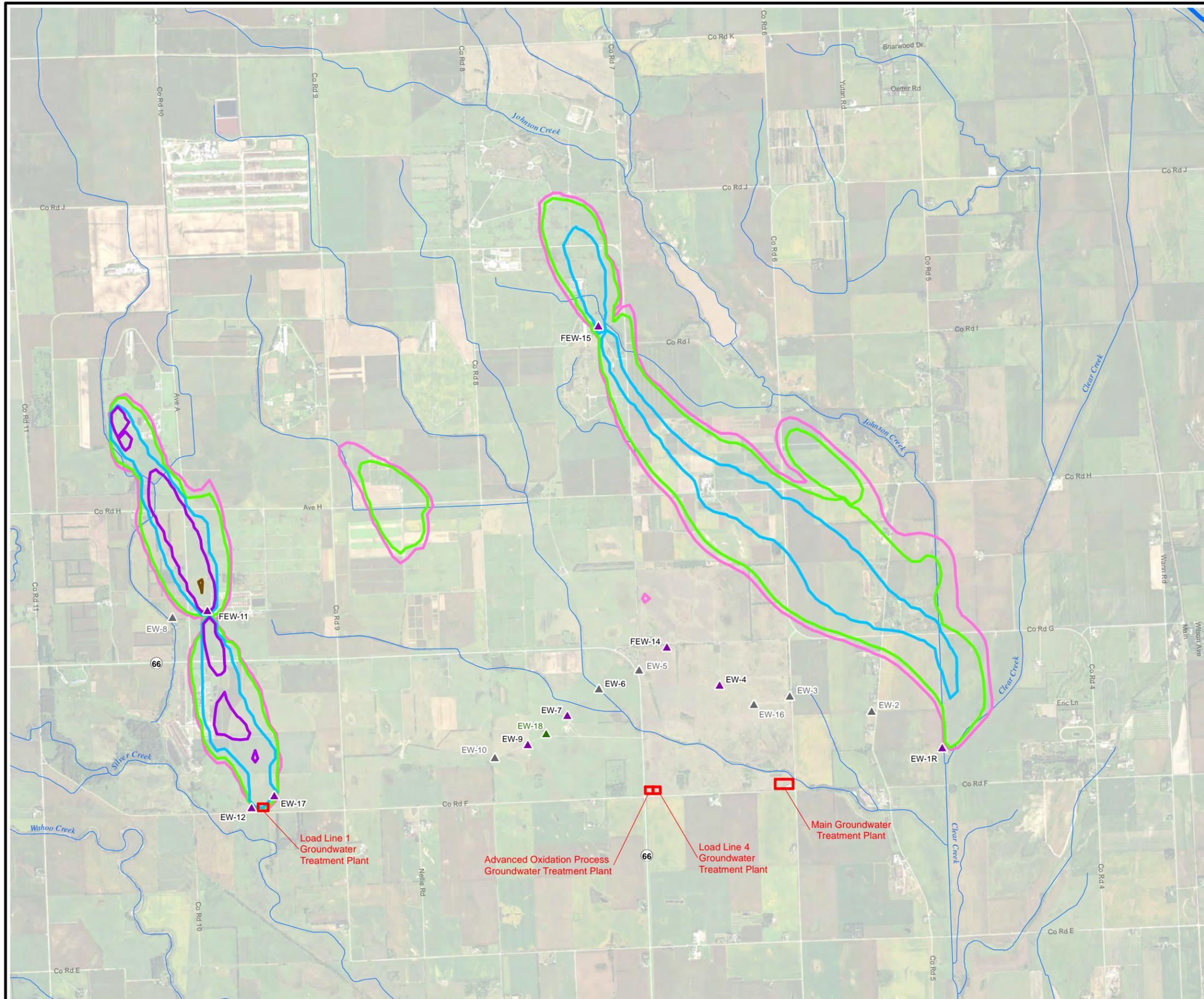
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.8
Initial TCE Concentrations
Layer 3

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet



Legend

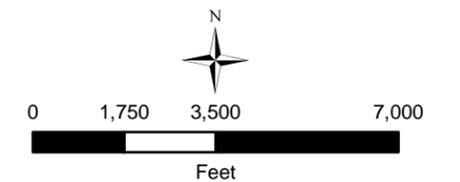
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

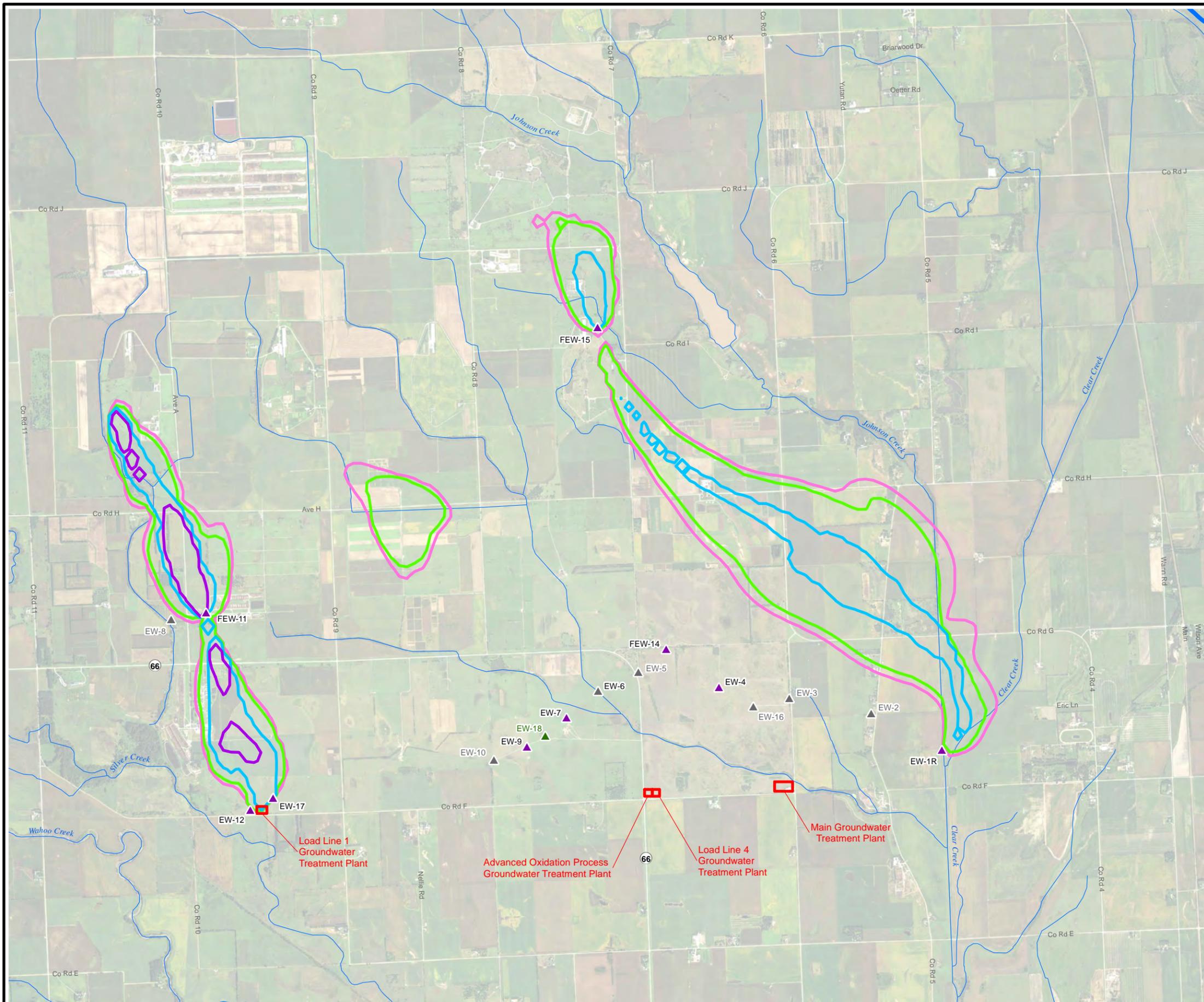
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.9
Predicted TCE Concentrations
Layer 3 - 2019

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane
		Units: Feet

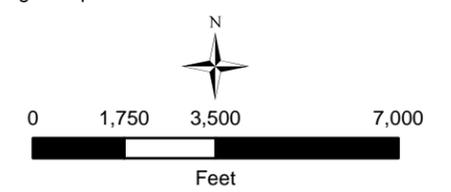


- ### Legend
- ▲ Groundwater Extraction Well
 - ▲ Groundwater Extraction Well (Inactive)
 - ▲ Groundwater Extraction Well (Proposed)
 - Groundwater Treatment Plant

- ### TCE Concentration
- 5 µg/L
 - 10 µg/L
 - 100 µg/L
 - 1,000 µg/L
 - 10,000 µg/L

NOTES:

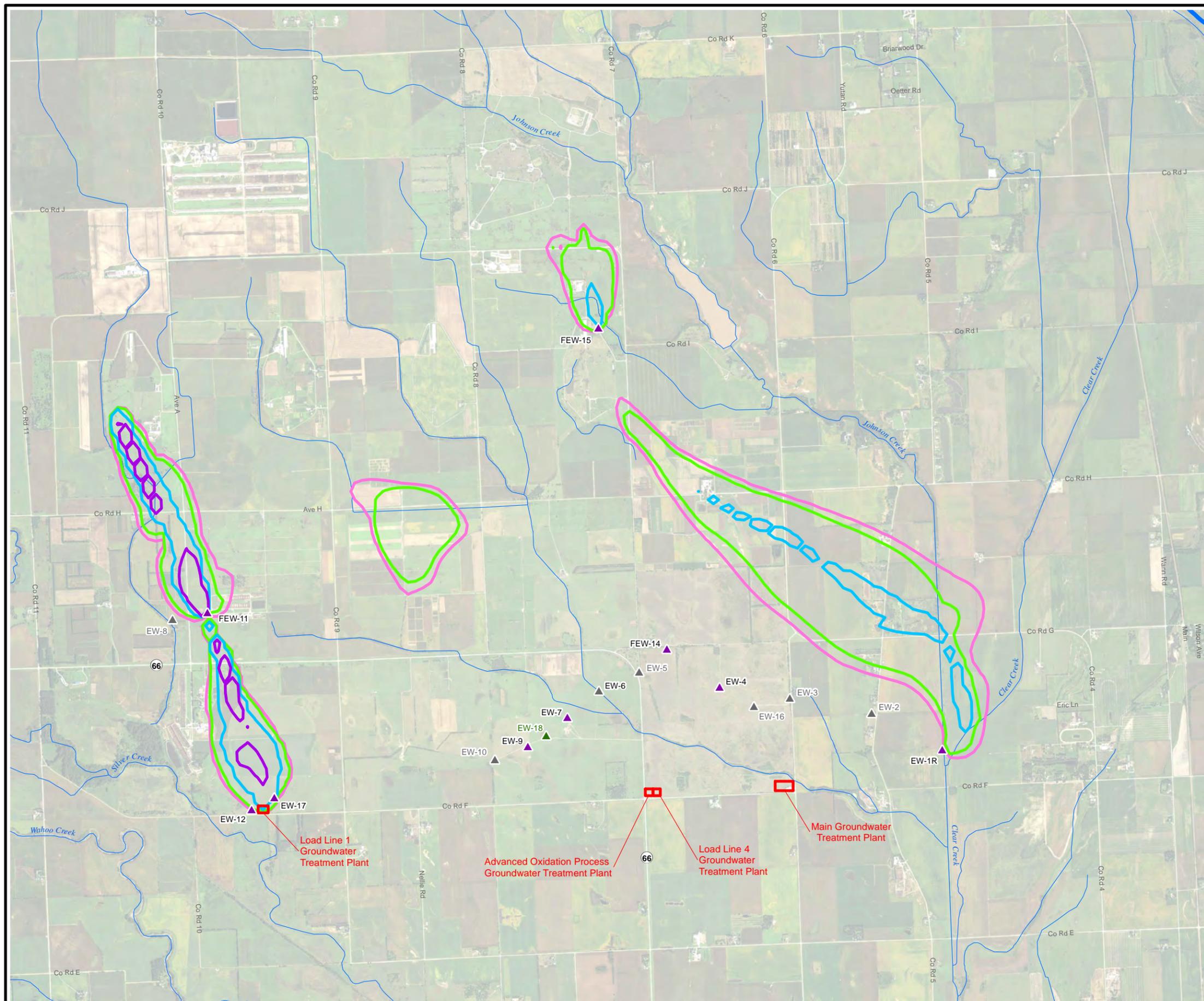
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.10
Predicted TCE Concentrations
Layer 3 - 2024

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane
		Units: Feet



Legend

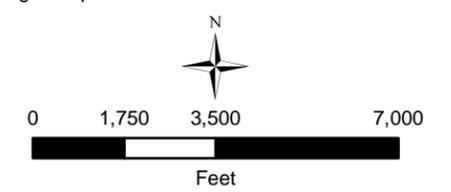
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

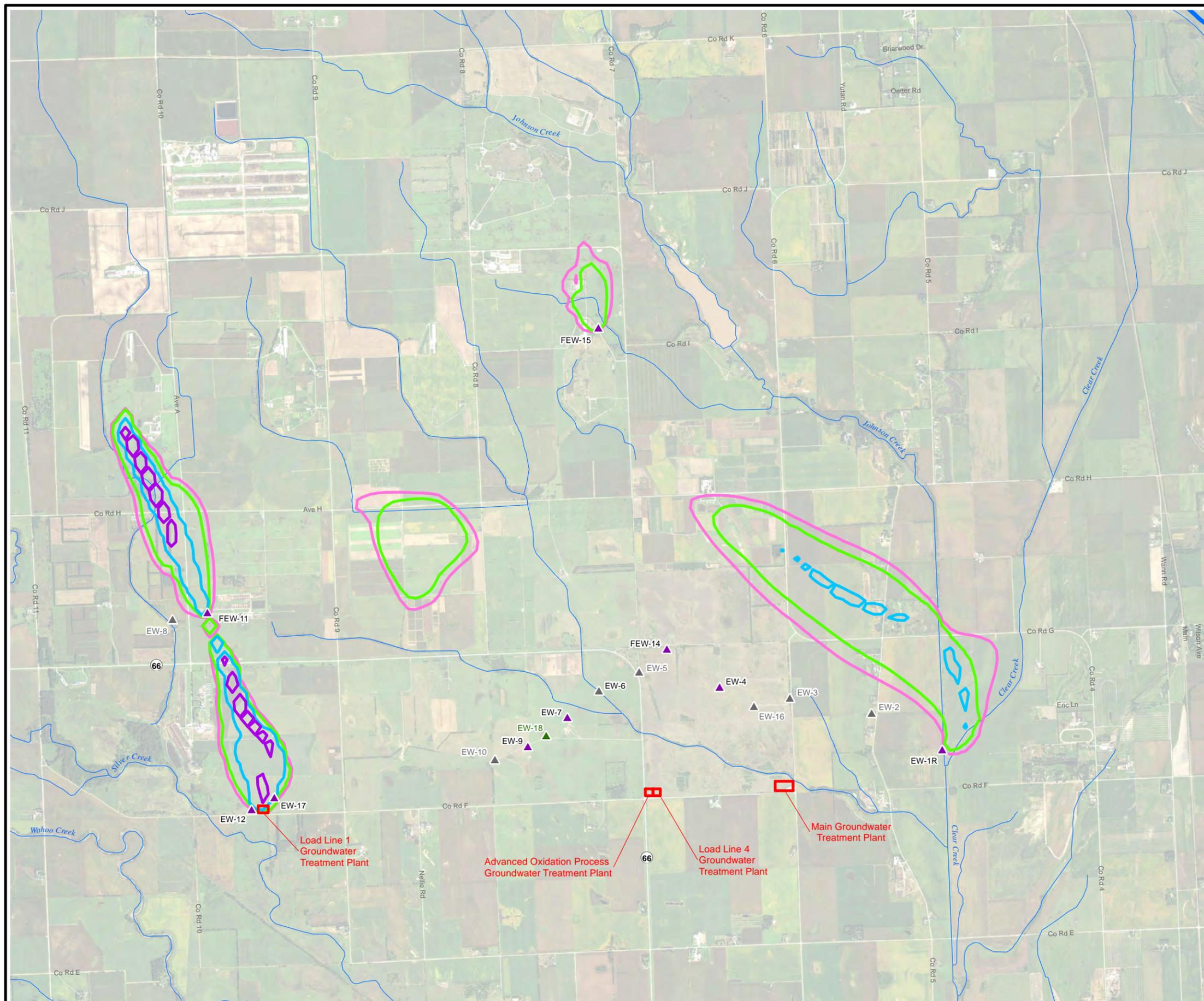
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.11
Predicted TCE Concentrations
Layer 3 - 2029

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane
		Units: Feet



Legend

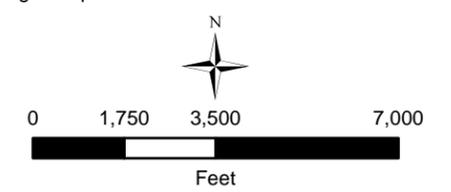
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

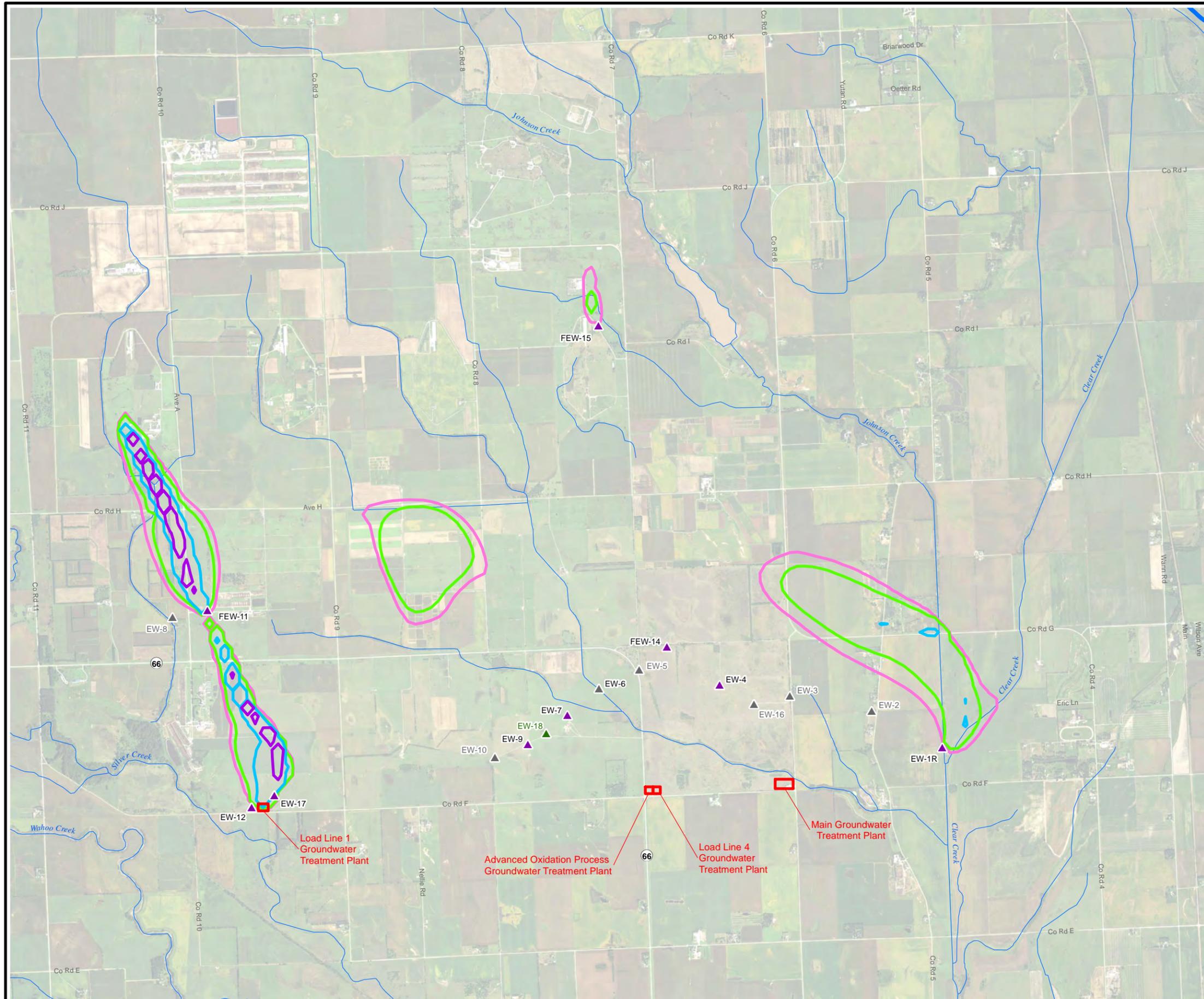
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.12
Predicted TCE Concentrations
Layer 3 - 2034

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane Units: Feet



Legend

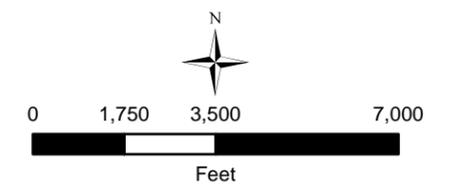
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

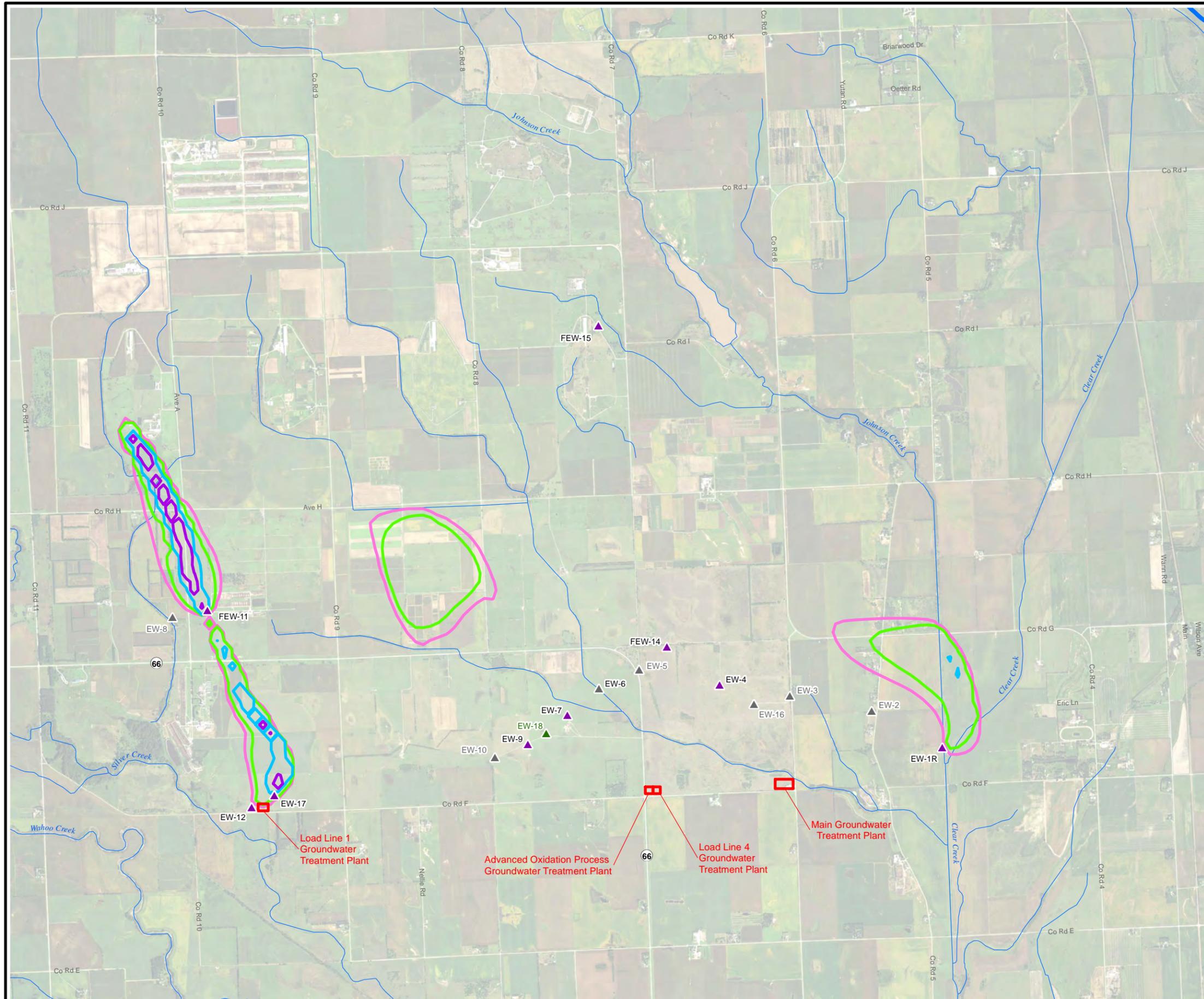
TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure E.13
Predicted TCE Concentrations
Layer 3 - 2039

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015	Nebraska State Plane Units: Feet



Legend

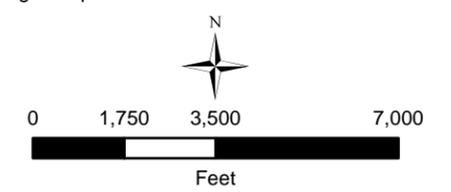
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

TCE = trichloroethene
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

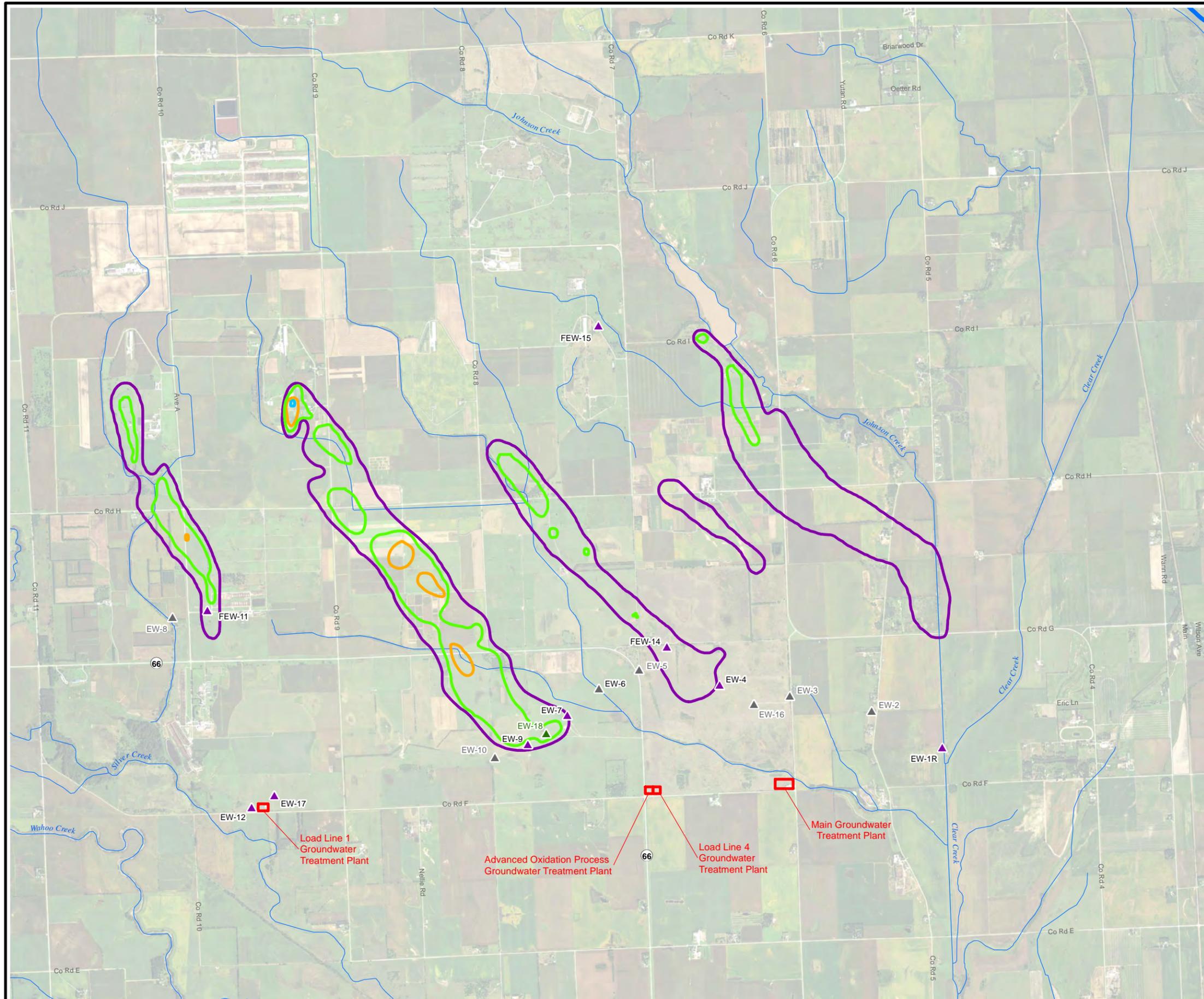
Figure E.14
Predicted TCE Concentrations
Layer 3 - 2044

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date:	Projection: NAD 1983
Version: 2	Revision Date / Initials: 03/19/2015 RR	Nebraska State Plane
		Units: Feet

APPENDIX F

RDX TRANSPORT SIMULATIONS

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Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:
 RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter

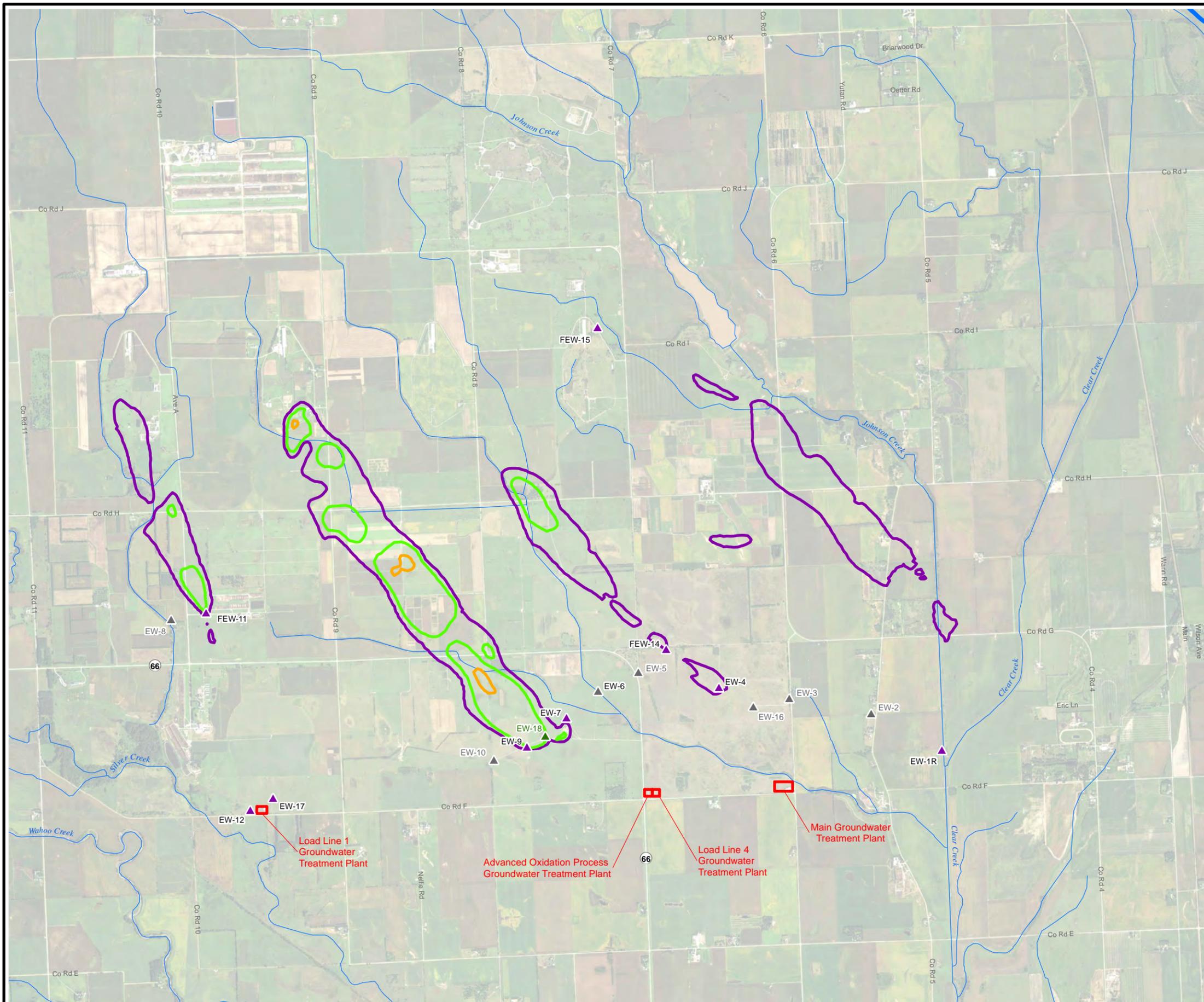
0 1,750 3,500 7,000
Feet

US Army Corps of Engineers
 Kansas City District

*Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation*

Figure F.1
Initial RDX Concentrations
Layer 2

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane Units: Feet



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:
 RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter

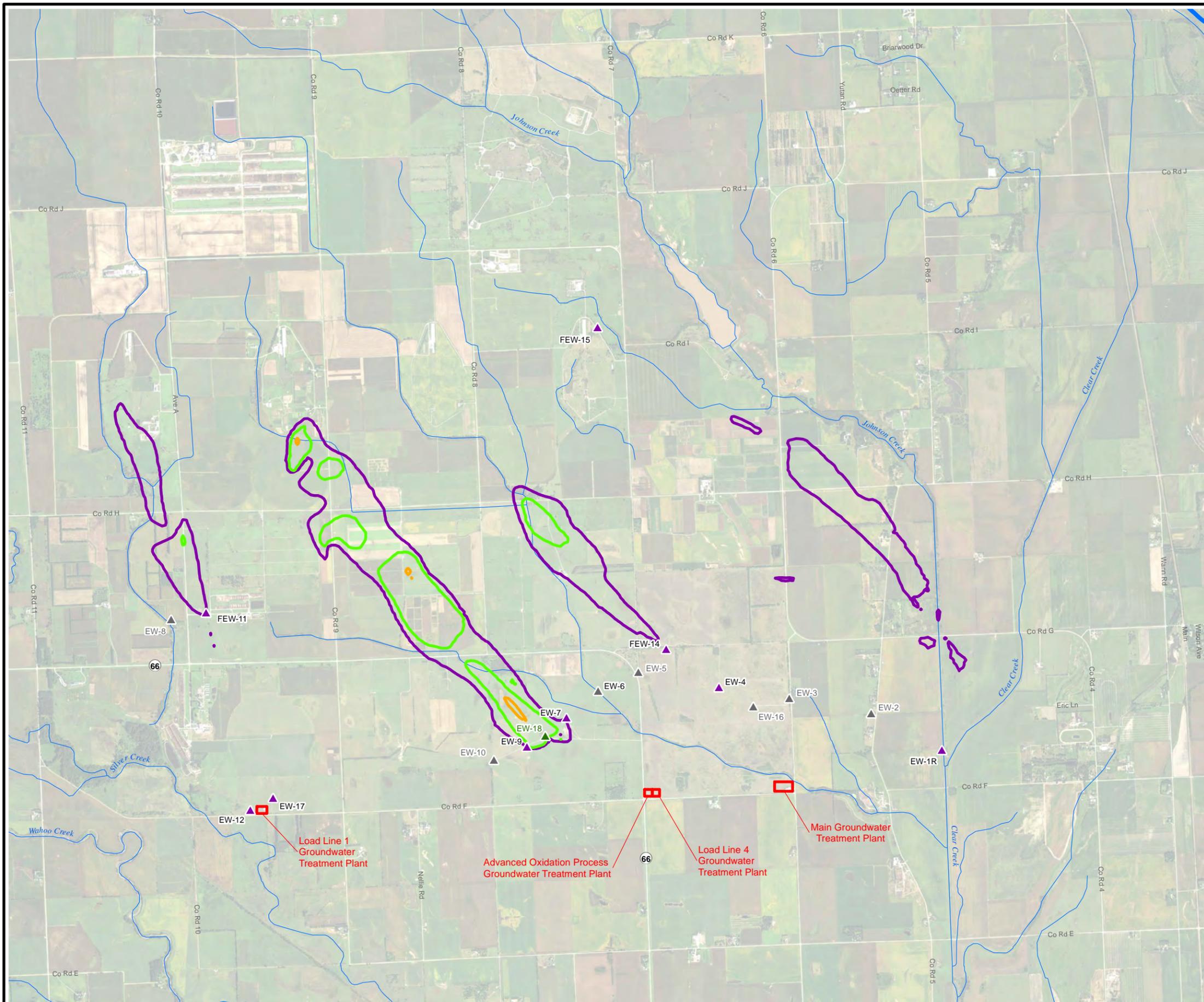
0 1,750 3,500 7,000
Feet

US Army Corps of Engineers
 Kansas City District

*Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation*

Figure F.2
Predicted RDX Concentrations
Layer 2 - 2019

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015	Nebraska State Plane Units: Feet



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)

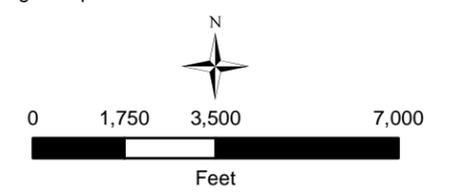
□ Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

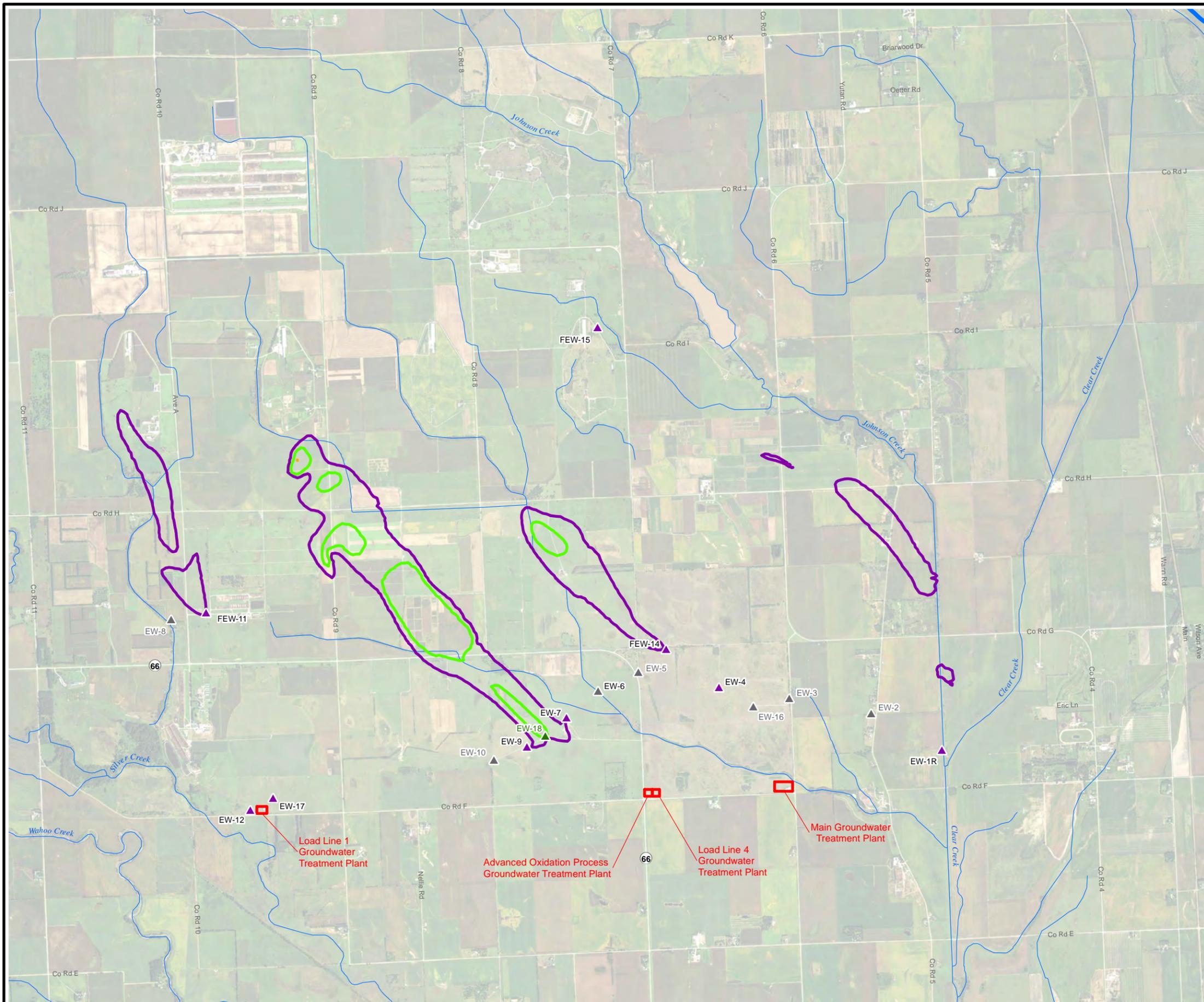
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
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Figure F.3
Predicted RDX Concentrations
Layer 2 - 2024

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well (Inactive)
- Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter

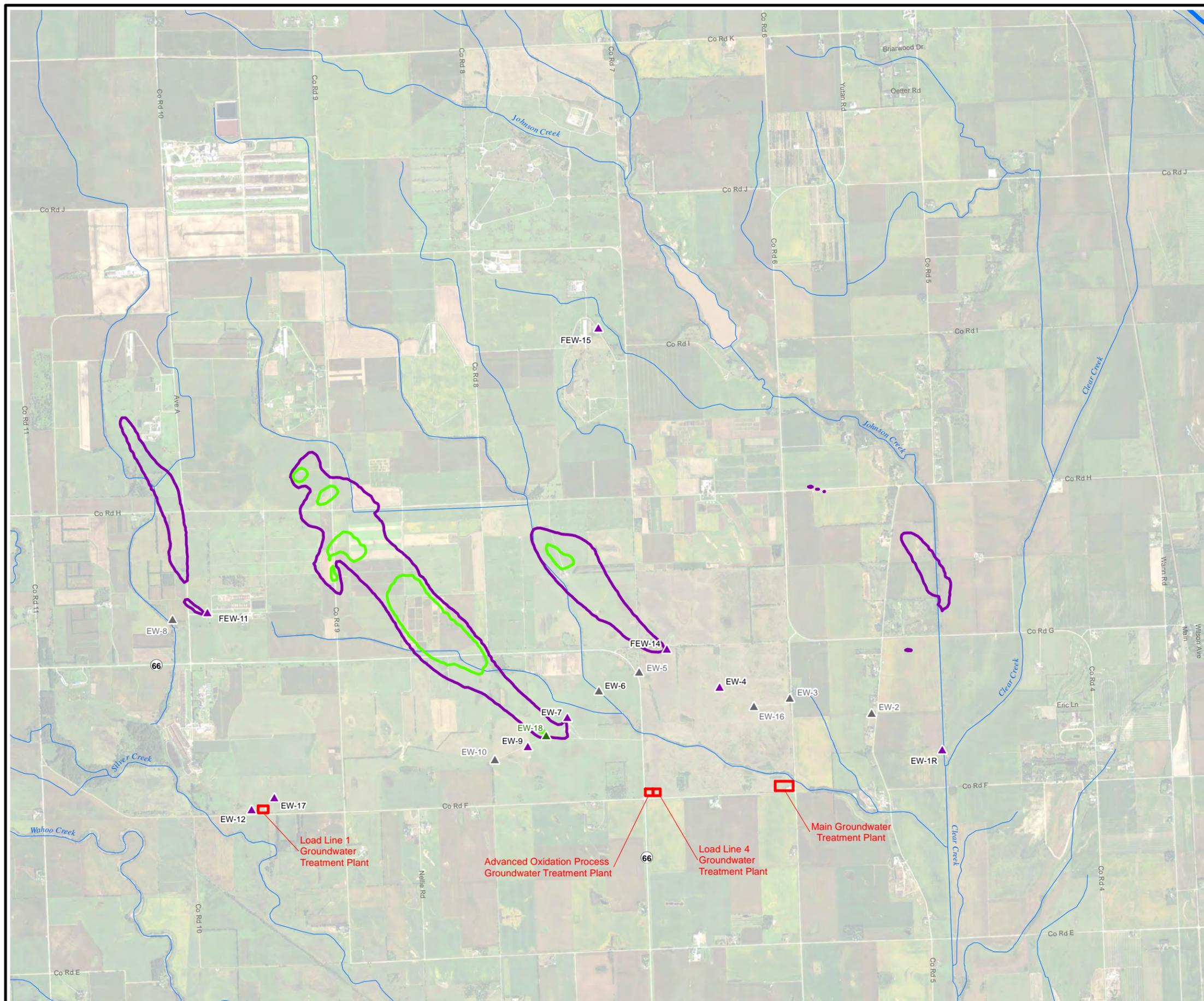
0 1,750 3,500 7,000
Feet

US Army Corps of Engineers
Kansas City District

*Former Nebraska Ordnance Plant
Mead, Nebraska
2014 Containment Evaluation*

Figure F.4
Predicted RDX Concentrations
Layer 2 - 2029

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 3	Revision Date / Initials: 03/24/2015	



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)

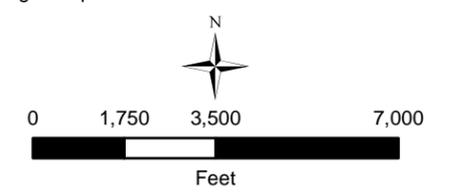
Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

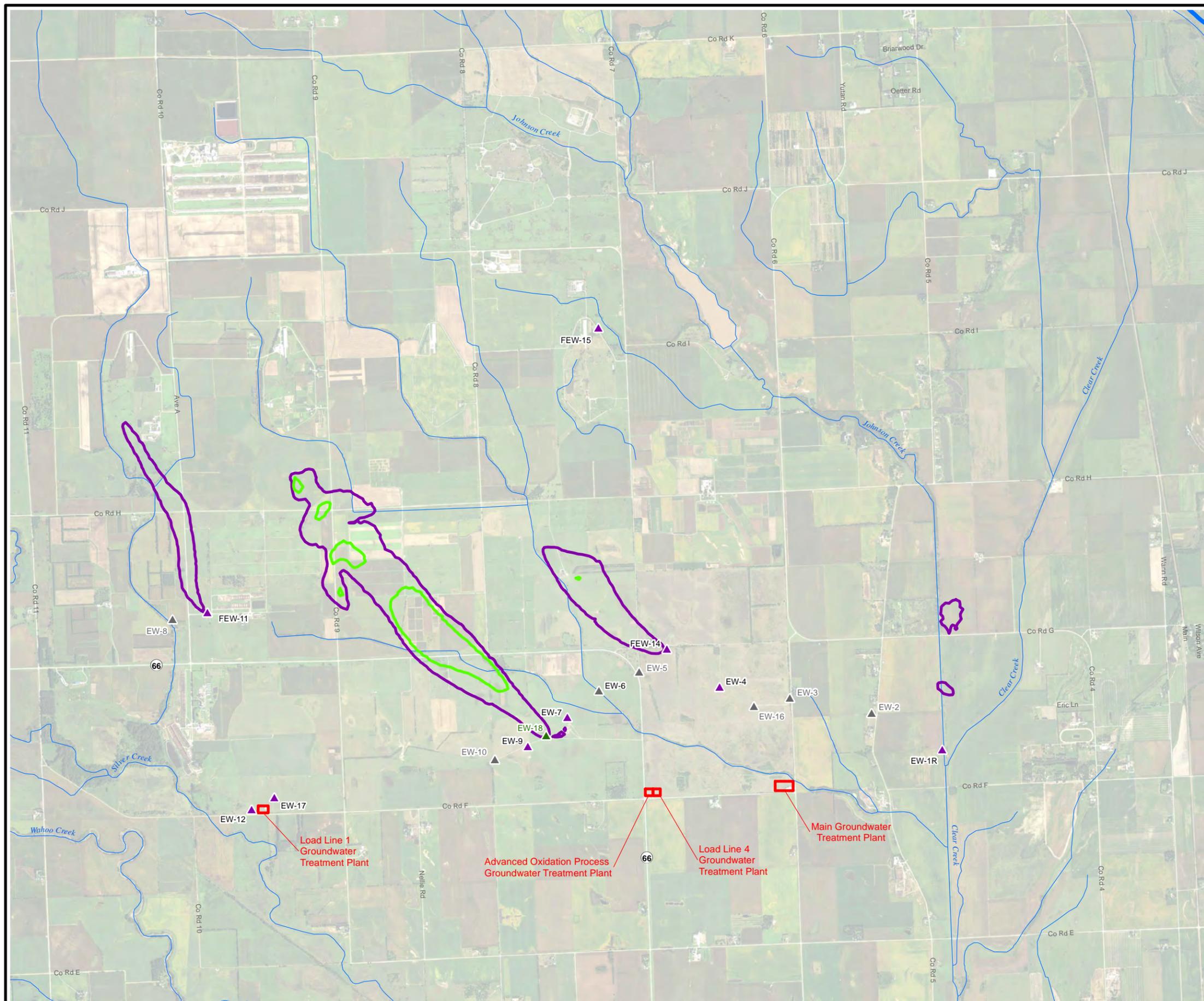
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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 Mead, Nebraska
 2014 Containment Evaluation*

**Figure F.5
 Predicted RDX Concentrations
 Layer 2 - 2034**

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983 Nebraska State Plane
Version: 3	Revision Date / Initials: 03/24/2015	Units: Feet



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)

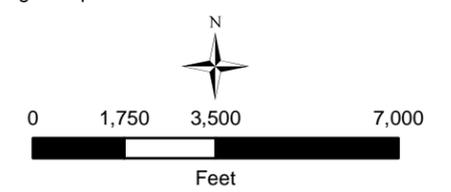
□ Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

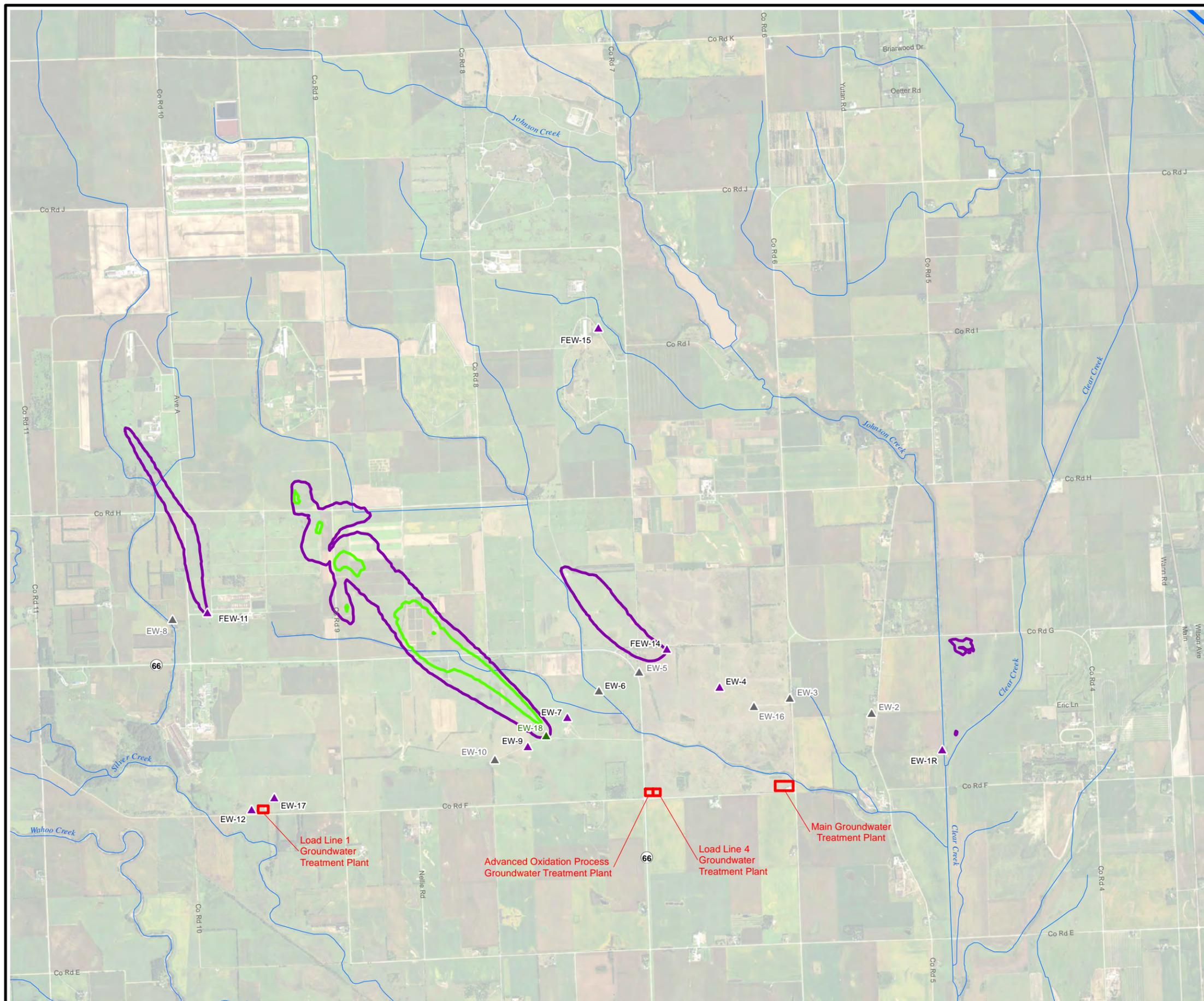
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



Former Nebraska Ordnance Plant
 Mead, Nebraska
 2014 Containment Evaluation

Figure F.6
Predicted RDX Concentrations
Layer 2 - 2039

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015	Nebraska State Plane
		Units: Feet



Legend

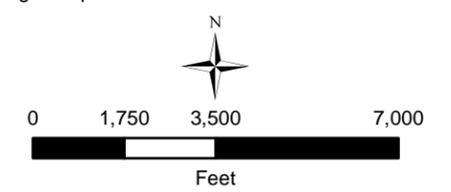
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

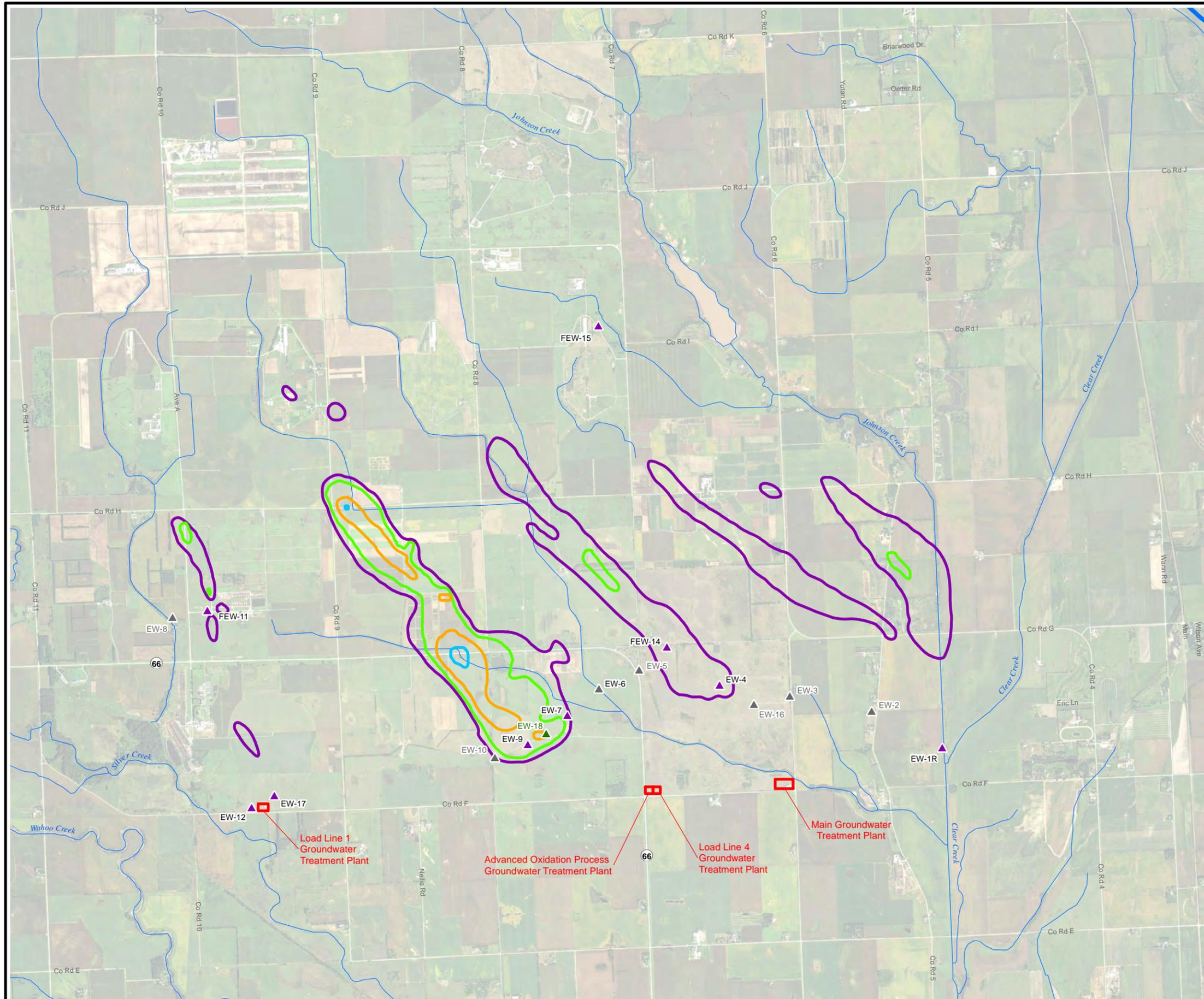
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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Figure F.7
Predicted RDX Concentrations
Layer 2 - 2044

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/10/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

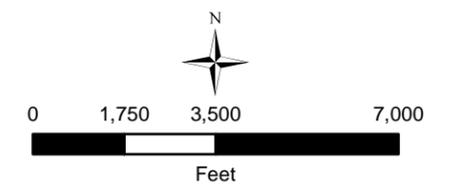
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

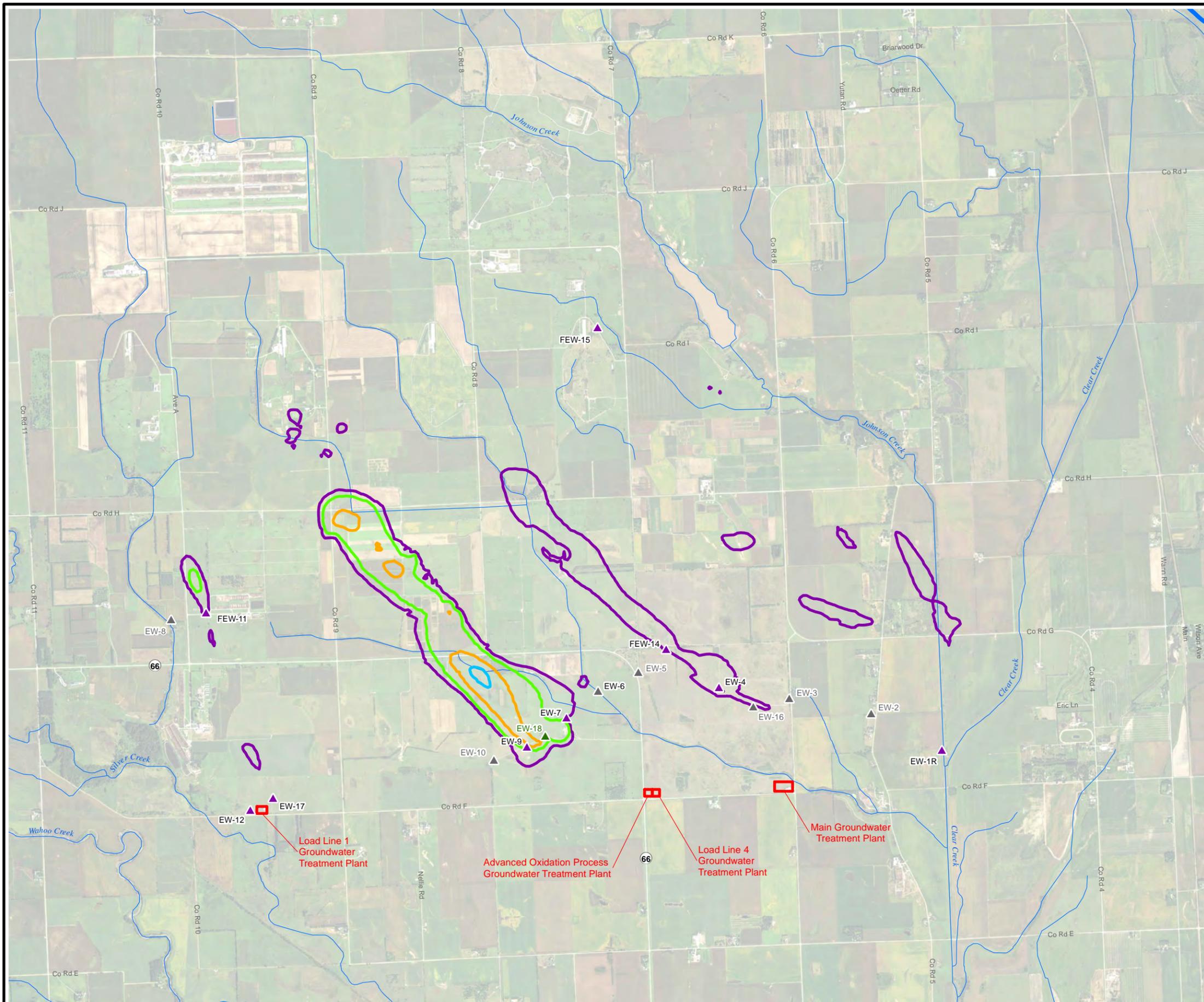
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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 Mead, Nebraska
 2014 Containment Evaluation

Figure F.8
Initial RDX Concentrations
Layer 3

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well (Inactive)
- Groundwater Extraction Well (Proposed)

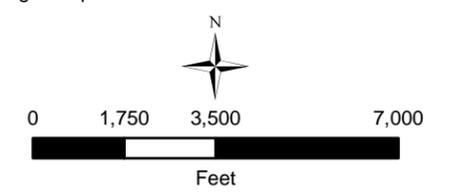
Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

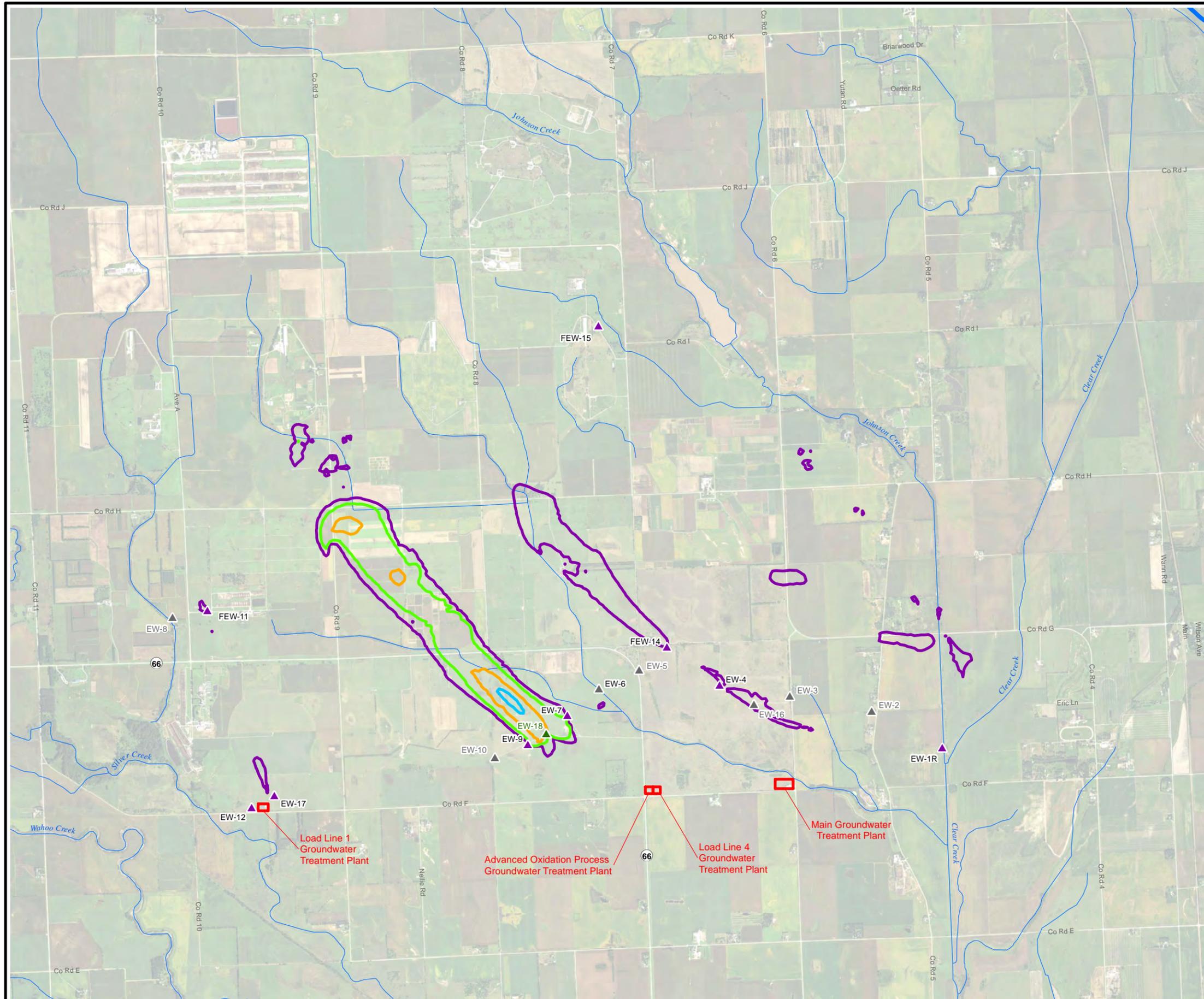
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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Figure F.9
Predicted RDX Concentrations
Layer 3 - 2019

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

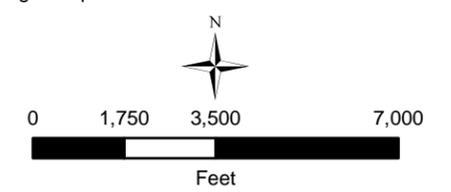
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

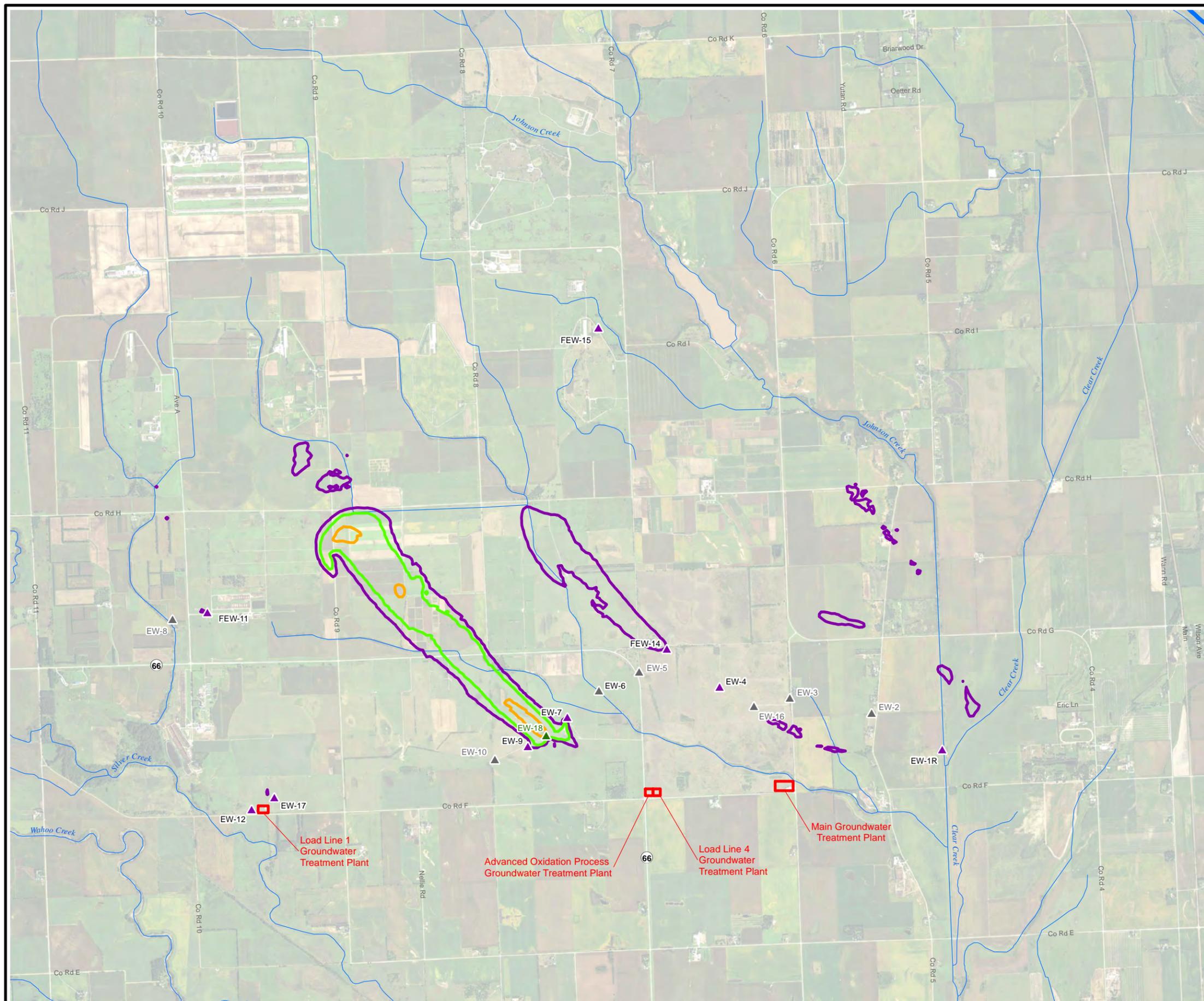
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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Figure F.10
Predicted RDX Concentrations
Layer 3 - 2024

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

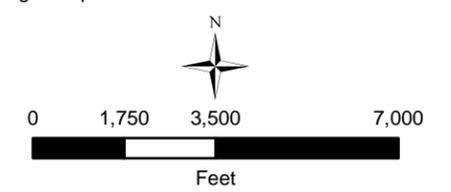
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

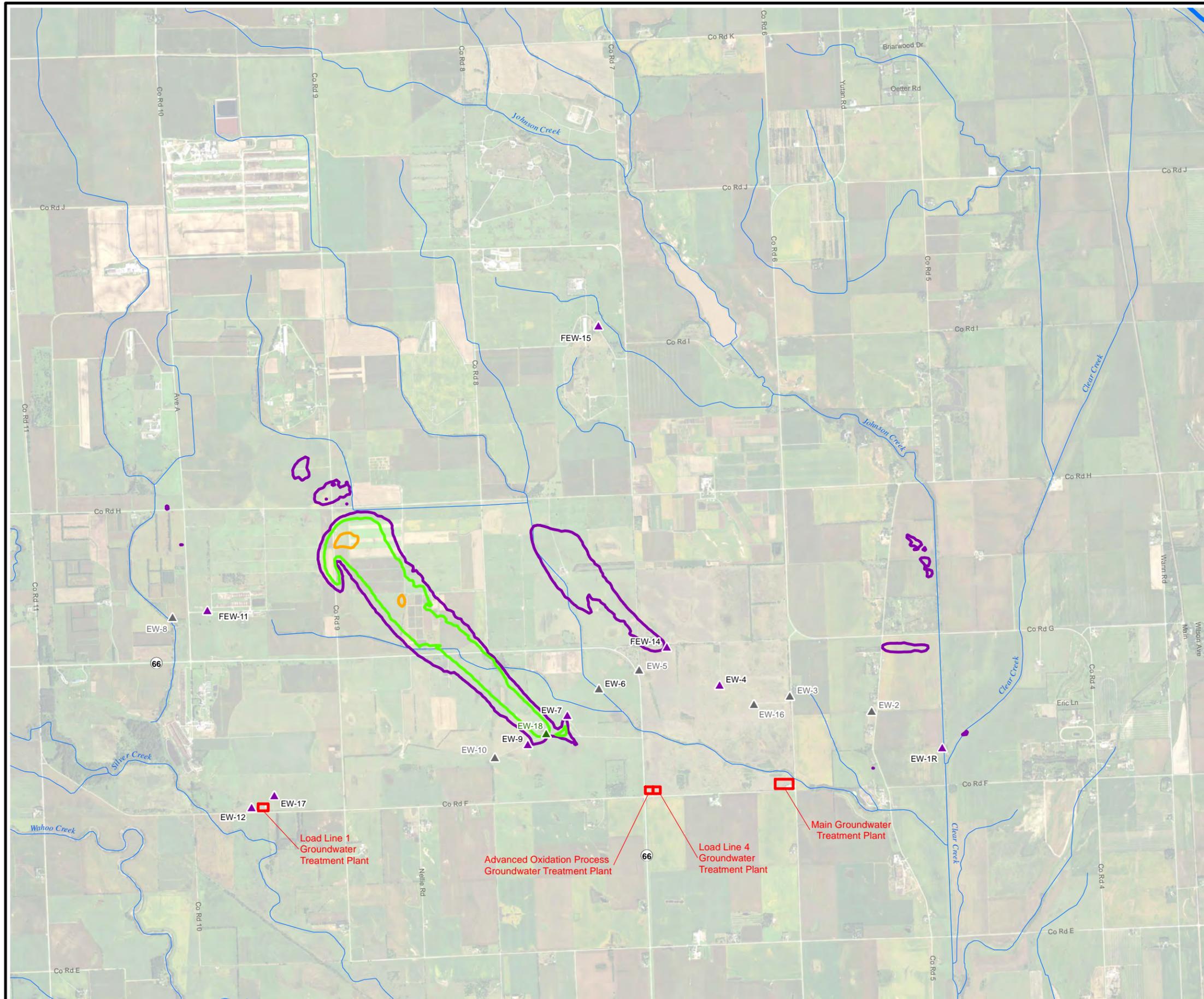
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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Figure F.11
Predicted RDX Concentrations
Layer 3 - 2029

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter

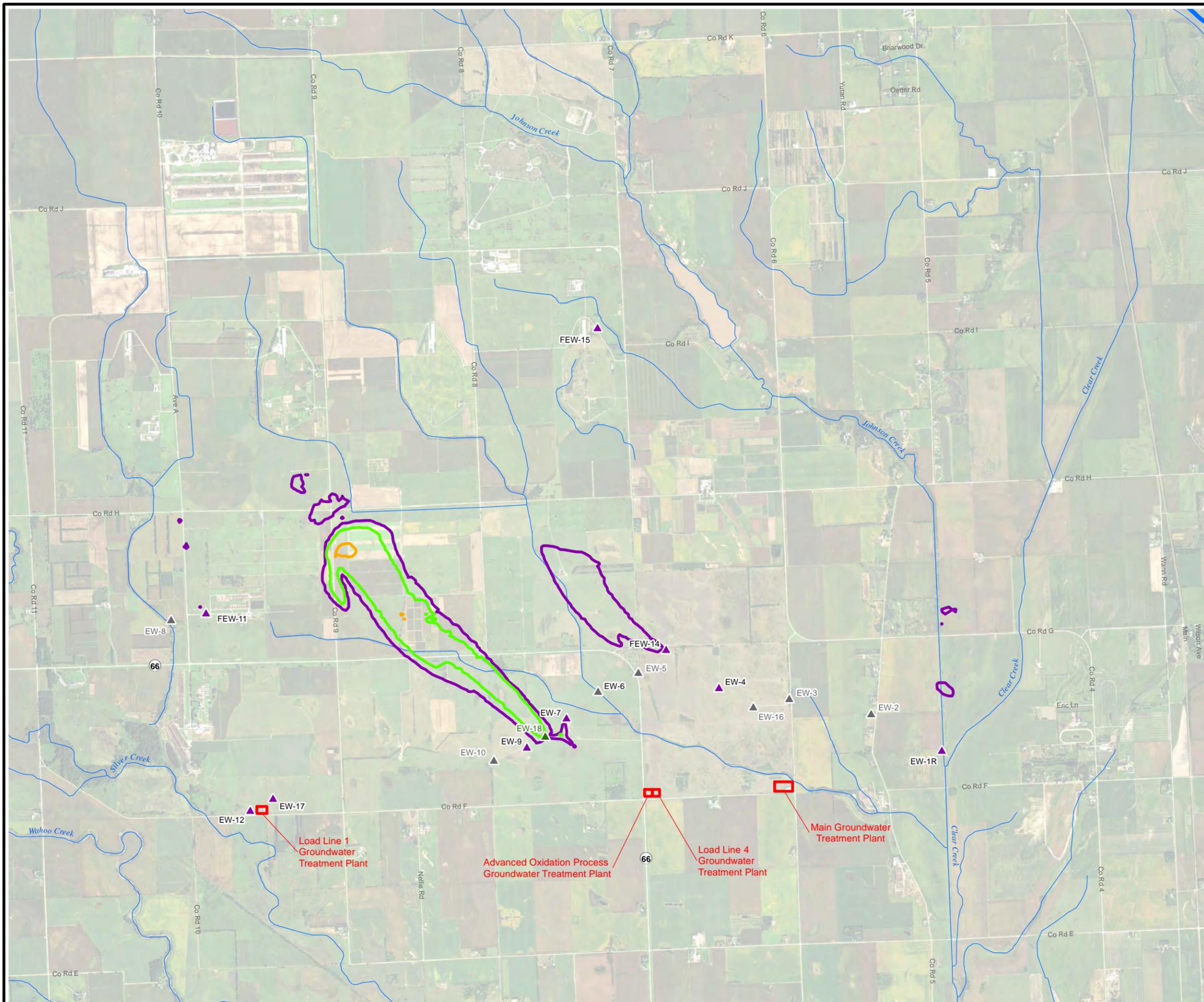
0 1,750 3,500 7,000
Feet

US Army Corps of Engineers
 Kansas City District

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 Mead, Nebraska
 2014 Containment Evaluation*

Figure F.12
Predicted RDX Concentrations
Layer 3 - 2034

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane Units: Feet



Legend

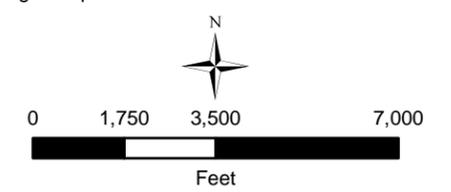
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

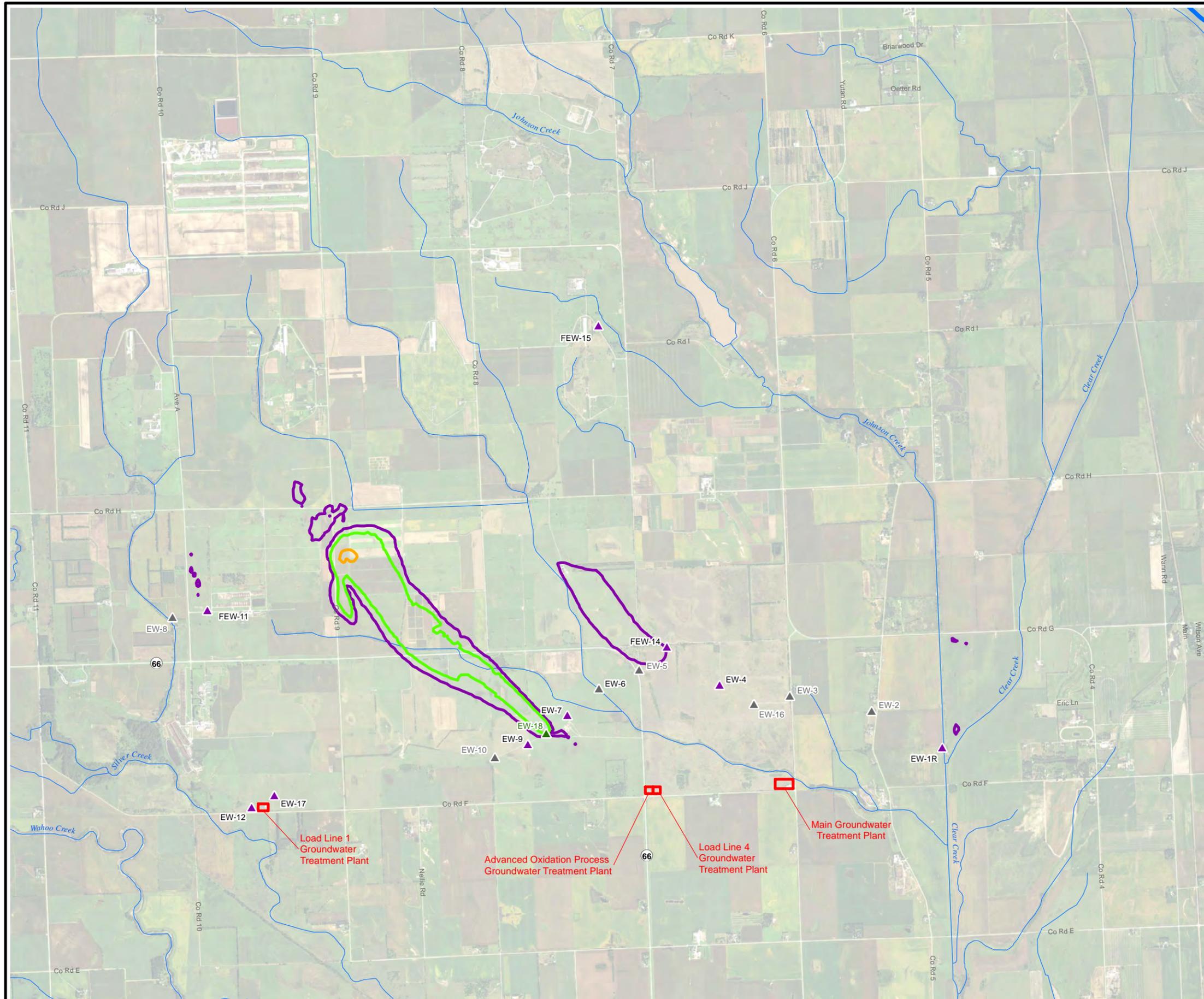
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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Figure F.13
Predicted RDX Concentrations
Layer 3 - 2039

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet



Legend

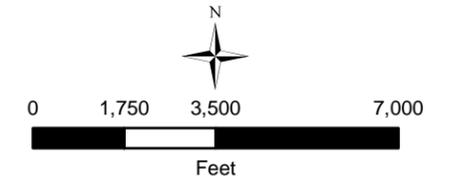
- ▲ Groundwater Extraction Well
- ▲ Groundwater Extraction Well (Inactive)
- ▲ Groundwater Extraction Well (Proposed)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
 µg/L = micrograms per liter



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 2014 Containment Evaluation

Figure F.14
Predicted RDX Concentrations
Layer 3 - 2044

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2014)
Date: 03/12/2015	Date: 03/23/2015	Projection: NAD 1983
Version: 3	Revision Date / Initials: 03/24/2015 RR	Nebraska State Plane
		Units: Feet