May 3, 2018

Ms. Janet Mathews-Flynn
USACE-PME-D
U.S. Army Corps of Engineers
601 E. 12th Street
Kansas City, MO 64106

RE: Final 2017 Containment Evaluation
Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska
Contract No. W912DQ-13-D-3000, Task Order No. 0002

Dear Ms. Mathews-Flynn:

HydroGeoLogic, Inc. (HGL) is submitting one hard copy and one electronic copy of the Final 2017 Containment Evaluation for Operable Unit No. 2 (Groundwater) for the former Nebraska Ordnance Plant near Mead, Nebraska. Two hard copies (1 bound and 1 unbound) and two electronic copies have been submitted to the Nebraska Department of Environmental Quality. One hard copy has been submitted to the Environmental Protection Agency.

Should you have any questions or comments about this document, please contact me at 913-378-2318.

Sincerely,

[redacted]

Lisa Tholl
HGL Project Manager

Enclosures

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read Instructions on the reverse side prior to initiating this form)

DATE	TRANSMITTAL NO.
05/03/18	114B

Section I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)

TO: US Army Engineer District, Kansas City Attn: CENWK-PM-ED (Ms. Janet Mathews-Flynn) 601 E. 12th Street Kansas City, MO 64106-2896	FROM: Lisa Tholl HydroGeoLogic, Inc. 6340 Glenwood, Suite, 200, #7 Overland Park, KS 66202	CONTRACT NO. W912DQ-13-D-3000 TASK ORDER NO. 002	CHECK ONE: [X] THIS IS A NEW TRANSMITTAL [ ] THIS IS A RESUBMITTAL OF TRANSMITTAL
SPECIFICATION SEC. NO. (Cover only one section with each transmittal) Task Order No. 002 - Scope of Work	PROJECT TITLE AND LOCATION:	NOP Mead, Mead, NE - Support Services	

ITEM NO a.	DESCRIPTION OF ITEM SUBMITTED *(Type, size, model number, etc.)* b.	MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. *(See Instruction No. 8)* c.	NO. OF COPIES d.	CONTRACT REFERENCE DOCUMENT SPEC. PARA. NO. e.	CONTRACT REFERENCE DOCUMENT DRAWING SHEET NO. f.	FOR CONTRACTOR USE CODE g.	VARIATION *(See instruction No. 6)* h.	FOR C E USE CODE i.
	Final 2017 Containment Evaluation	N/A	*	N/A	N/A	A		
	Distribution:							

REMARKS

QC CERTIFICATION

✓ This item(s) has been reviewed in detail and is correct and in strict conformance with the contract and specifications.

_____ Approved with corrections as noted on submittal data and/or attached sheet(s).

SIGNATURE: [redacted]

TITLE: QC Mgr

DATE: 5/4/18

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

HydroGeoLog[redacted]

Lisa Tholl, HG

N[redacted]

Section II - APPROVAL ACTION

ENCLOSURES RETURNED (List by Item No.)	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE
	CENWK PM. J. Mathews-Flynn	

REPLICA OF ENG FORM 4025, May 91

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, KANSAS CITY DISTRICT
635 FEDERAL BUILDING
601 E 12TH STREET
KANSAS CITY MO 64106-2824

REPLY TO
ATTENTION OF

May 3, 2018

Environmental Programs Branch
Planning, Programs and Project Management Division

Ms. Stacey Stricker
Nebraska Department of Environmental Quality
Suite 400, The Atrium
1200 N Street
Lincoln, NE 68509-8922

Mr. William Gresham
U.S. Environmental Protection Agency, Region VII
11201 Renner Blvd
Lenexa, Kansas 66219

Dear Ms. Stricker and Mr. Gresham

Enclosed for your records is the Final 2017 Containment Evaluation for Operable Unit 2 (Groundwater) for the former Nebraska Ordnance Plant near Mead, Nebraska.

One hard copy is being provided to the Environmental Protection Agency. Two hard copies (one bound and one unbound) and two CDs are being provided to the Nebraska Department of Environmental Quality. If you have any questions, please contact me at (816) 389-3756 or by email at Janet.S.Mathews-Flynn@usace.army.mil.

Sincerely,

[redacted]

Janet Mathews-Flynn
Project Manager

Enclosure

Final
2017 Containment Evaluation
Operable Unit No. 2 (Groundwater)
Former Nebraska Ordnance Plant, Mead, Nebraska

Contract No. W912DQ-13-D-3000, Task Order 0002

May 2018

Prepared for:

US Army Corps of Engineers ®
Kansas City District

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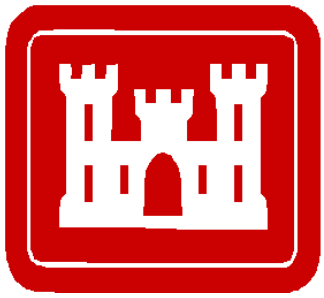
FINAL
2017 CONTAINMENT EVALUATION

OPERABLE UNIT NO. 2 (GROUNDWATER)
FORMER NEBRASKA ORDNANCE PLANT
MEAD, NEBRASKA



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

Contract W912DQ-13-D-3000
Task Order 0002

May 2018

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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	U.S. Army Corps of Engineers, Northwestern Division, Kansas City District
CEWP	Containment Evaluation Work Plan
COC	contaminant of concern
2,4-DNT	2,4-dinitrotoluene
EPA	U.S. Environmental Protection Agency
EW	extraction well
FEW	focused extraction well
ft	feet/foot
GAC	granular activated carbon
gpm	gallons per minute
GTP	groundwater treatment plant
GWM17	2017 Groundwater Model
LL	load line
LPNNRD	Lower Platte North Natural Resources District
LWS	Lincoln Water System
µg/L	micrograms per liter
MGD	million gallons per day
M.U.D.	Metropolitan Utilities District
MW	monitoring well
NDNR	Nebraska Department of Natural Resources
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

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

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2017 CONTAINMENT EVALUATION
OPERABLE UNIT NO. 2 (GROUNDWATER)
FORMER NEBRASKA ORDNANCE PLANT, MEAD, NEBRASKA

1.0 INTRODUCTION

This document provides the 2017 evaluation of the hydraulic containment component of the Remedial Action for Operable Unit (OU) No. 2 at the former Nebraska Ordnance Plant (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, 2013c). 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 2017 groundwater data from the compliance and the perimeter groundwater monitoring wells, and water supply wells (WSWs).
- 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 (EW) and focused extraction well (FEW) 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 (COCs), 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 aquifers, and the intermediate zone is the bottom half of the saturated thickness of the alluvial aquifers. Deep wells are screened in the Omadi Sandstone, which underlies the alluvium.

The groundwater flow direction in the Todd Valley aquifer 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 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 *2017 Groundwater Model Update, Operable Unit 2 (Groundwater)* (USACE, 2018a).

1.1.3 Description of Remedial Action

The remedial action objectives outlined in the *Record of Decision* (ROD), *Operable Unit No. 2 (Groundwater)* (USACE, 1997) 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.
- Implement focused extraction of groundwater in areas with relatively high concentrations of TCE and explosives.
- Treat all extracted groundwater using granular activated carbon (GAC) adsorption, advanced oxidation process (AOP), and air stripping. GAC 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 (µg/L) and/or TCE exceeding the Maximum Contaminant Level of 5 µg/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 was the only volatile organic compound (VOC) detected at the Site in 2017 at levels above the Final Target Groundwater Cleanup Goal. TCE concentrations exceeded the Final Target Groundwater Cleanup Goal of 5 µg/L in the LL1, AMA, 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) have been or 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 the only other volatile COC detected in 2017. The detection in MW-24B (1.7J µg/L) was below the Final Target Groundwater Cleanup Goal of 5 µg/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 µg/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 not detected.

The explosive COCs RDX, 1,3,5-trinitrobenzene (TNB), 2,4-dinitrotoluene (2,4-DNT), and 2,4,6-trinitrotoluene (TNT) were all detected above the Final Target Groundwater Cleanup Goals in monitoring wells at the Site in 2017. TNB, 2,4-DNT, and/or TNT were detected above the Final Target Groundwater Cleanup Goals in one or more of the following eight wells: interior wells MW-02B, MW-125B, MW-126B, MW-127B, MW-127E, and MW-141B at LL1 and MW-171B and MW-171E at LL2. With the exception of MW-127B and MW-127E, RDX concentrations in these wells also exceeded the Final Target Groundwater Cleanup Goal of 2 µg/L.

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 2017, is depicted on Figure 1.2. The plume interpretations on Figure 1.2 are the same as those presented in the *2017 Annual Summary Report* (USACE, 2018b).

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 (USACE, 2011a).
- *Aquifer Characterization Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2011b).
- *Groundwater Monitoring Program Optimization Investigation Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2012a).

- *Monitoring Well Network Optimization Data Summary Report, Phase II*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2013b).
- Monitoring Well MW-180 and Surrounding Area Groundwater Sampling Results Technical Memorandum, Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2013d).
- *2012 Annual Summary Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2013e).
- *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 (USACE, 2014a).
- *Quarterly Summary Report, First Quarter 2017 Sampling Events,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2017a).
- *Quarterly Summary Report, Second Quarter 2017 Sampling Events*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2017b).
- *Quarterly Summary Report, Third Quarter 2017 Sampling Events*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. (USACE, 2017e).
- *2017 Annual Summary Report*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant Mead, Nebraska (USACE, 2018b).

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 2017 was processed at three groundwater treatment plants (GTPs) designated as the LL1 GTP, the LL4 GTP, and the AOP GTP. The GTP locations are shown on Figure 1.2.

For the 2017 CE period (January 2017 through October 2017), the remedy included the following components:

- Seven extraction wells were in operation for all or part of 2017 to contain contaminated groundwater as presented on Figure 1.2. These wells were EW-1R, EW-4, EW-7, EW-9, EW-12, EW-16, EW-17, and EW-18.
    - 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 and EW-16 contain 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 and/or EW-16.

  - EW-7, EW-9, and EW-18 contain the contaminated groundwater associated with the LL2 RDX plume. EW-7, EW-9, and EW-18 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.
- Groundwater from EW-4, EW-7, EW-9, EW-16 and EW-18 was treated through ultraviolet (UV) photolysis. Treated water from EW-4 and EW-16 was discharged to Clear Creek, and treated water from EW-7, EW-9, and EW-18 was discharged to Wahoo Creek. The groundwater from EW-1R was treated by the air stripper at the LL4 GTP. 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 2017 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 treated using UV photolysis before being treated at the AOP GTP.
  - 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 treated using UV photolysis.
  - 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, 2009a).
- 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 (EPA) 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, 1997). These wells are EW-6, which is downgradient of the LL2 plume, and EW-3 and EW-16, which are downgradient of the LL3 plume (CENWK, 2012). EW-16 resumed operation in November 2017 (USACE, 2017c).
- 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). EW-18 added a sixth well-head UV treatment system when it began operation in September of 2016. The EW-18 UV treatment system was sized to treat contaminated water from EW-9 and EW-18 concurrently, and the EW-9 UV treatment system was taken offline in December 2016. The reactivation of EW-16 in November 2017 added a seventh well-head UV treatment system (USACE, 2017c).

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 (USACE, 1996);
- *Remedial Design Groundwater Model Technical Memorandum,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (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 (USACE, 1999);
- *Remedial Design Groundwater Model III Technical Memorandum,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2002);
- *Remedial Design Groundwater Model IV Technical Memorandum,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2004);
- Updates to Remedial Design Groundwater Model IV described in the *LL1 Containment System Remedial Design* (USACE, 2005);
- *2006 Groundwater Modeling Report,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2007);
- *2008 Groundwater Modeling Update*, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2009b);
- *2010 Groundwater Model Update,* Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2011c);
- *2012 Groundwater Model Update*, Operable Unit 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2013a); and
- *2017 Groundwater Model Update*, Operable Unit 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska (USACE, 2018a).

For ease of reference, the most recent version of the model is identified as the 2017 Groundwater Model (GWM17) (USACE, 2018a).

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, *GWM17 Update* (USACE, 2018a).

1.4 PROJECT SCOPE

Containment was evaluated based on chemical data collected in 2017 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 (GWM17).

2.0 COMPLIANCE MONITORING REVIEW

The foundation of the COC monitoring portion of the 2017 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, compliance, or interior plume wells. The interior plume wells include 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 2017 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 2017). ROD compliance is demonstrated when COCs are not detected above the Final Target Groundwater Cleanup Goals (presented in Table 1.1) in the compliance groundwater monitoring wells. If detections of COCs above the Final Target Groundwater Cleanup Goals occurred 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, 2013c) 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 be 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 2017.

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 2017, 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 2017 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 *2017 Annual Summary Report* (USACE, 2018b). 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 2017. The *2017 Annual Summary Report* (USACE, 2018b) presents the 2017 analytical results for all 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 2017; 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 2017 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 *2017 Annual Summary Report* (USACE, 2018b). 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 2017. The *2017 Annual Summary Report* (USACE, 2018b) presents the 2017 analytical results for all 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 2017; therefore, no response actions were warranted.

2.3 WATER SUPPLY WELLS

The water supply wells sampled in 2017 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 *2017 Annual Summary Report* (USACE, 2018b). 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.

The six domestic water supply wells in the AWS Program are sampled semiannually. Domestic water supply wells WSW-50B, WSW-51A, and WSW-52A are supplied with bottled water, and

domestic water supply wells WSW-51A, WSW-52A, WSW-52C, WSW-53, and WSW-54 are equipped with GAC units. 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 sample locations are listed 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 2017. 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 (USACE, 2018b). The remaining residential water supply wells sampled in 2017 had no detections of COCs above the Final Target Groundwater Cleanup Goals.

The pre-treatment RDX concentration at water supply well WSW-53-B exceeded the Final Target Groundwater Cleanup Goal for RDX (2.0 µg/L) in both the first and third quarters of 2017, at concentrations of 3.0 µg/L and 2.7 µg/L, respectively.

The pre-treatment TCE concentration in WSW-52C-B was 185 µg/L in the first quarter of 2017, and 182 µg/L in the third quarter of 2017. Both of these detections exceeded the TCE Final Target Groundwater Cleanup Goal of 5 µg/L. At WSW-51A-B, TCE was detected above the cleanup goal in both the first and third quarters at concentrations of 8.1 µg/L and 7.1 µg/L (Table 2.5), respectively.

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 2017.

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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, with concentrations 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 (GWM17) was performed in 2017, 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 *GWM17 Update* (USACE, 2018a).

For the 2017 CE, groundwater levels and analytical data collected during 2017 from existing and new groundwater sampling locations were examined, and the 2017 pumping rates obtained from the following sources were input into the groundwater model:

- Site extraction wells;
- Metropolitan Utilities District (M.U.D.) Platte West well field (M.U.D., 2017);
- Lincoln Water System (LWS) well field near the city of Ashland, Nebraska (LWS, 2017);
- Village of Mead water supply wells (Village of Mead, 2017);

- University of Nebraska-Lincoln Agricultural Research and Development Center (ARDC) irrigation and water supply wells (ARDC, 2017); and
- City of Ashland municipal water supply wells (City of Ashland, 2017).

Municipal pumping rates for the villages of Ithaca and Memphis were estimated using 2014 population statistics from the Nebraska Department of Natural Resources (NDNR) (NDNR, 2014) and average per capita usage of 100 gallons per day (NNRC, 1998).

Irrigation well status information, including new wells that were registered in 2017, was obtained from the NDNR (NDNR, 2017).

The new pumping data and Site information obtained during 2017 is consistent with 2017 climate information and the existing Site conceptual model.

3.2 STEP 2: REVIEW 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 2017. Detailed discussion of the current extent of contamination is presented in the *2017 Annual Summary Report* (USACE, 2018b). 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 2017 (see Tables 2.2 and 2.3).

3.2.1 Perimeter Wells

With the exception of RDX, COCs were not detected in the perimeter wells.

RDX was detected in several perimeter wells during the 2017 sampling events (Table 2.3). The samples were collected in the first and third quarters except as indicated:

- MW-35A (1.1 µg/L in the first quarter, 0.94 µg/L in the second quarter, nondetect in the third quarter, and 1.3 µg/L in the fourth quarter) near LL3;
- MW-35B (0.15J µg/L, and not detected at 0.27 µg/L);
- MW-35D (0.89 µg/L and 1.2 µg/L);
- MW-83E (0.33J µg/L and 0.32J µg/L) near LL2;
- MW-84A (not detected at 0.28 µg/L, and detected at 0.19J µg/L) near LL2;
- MW-85A (not detected at 0.28 µg/L, and detected at 0.71 µg/L) near LL3;
- MW-85B (not detected at 0.29 µg/L, and detected at 0.71 µg/L);
- MW-95A (0.15J µg/L and 0.17J µg/L) near LL2;
- MW-95B (0.23J µg/L and 0.27J µg/L);
- MW-118A (not detected at 0.27 µg/L, and detected at 0.29J µg/L) near LL3; and
- MW-118B (not detected at 0.28 µg/L, and detected at 0.63 µg/L).

3.2.2 Compliance Wells

As presented in Table 2.2, RDX was the only COC detected in any compliance monitoring well in 2017. The results from the Deeper Omadi wells are presented in Table 3.8 of the 2017 Annual Summary Report (USACE, 2018b), and are not part of the annual Containment Evaluation.

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 2017 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 Tables 2.2, 2.3, and 3.1, the monitoring well construction details are presented in Table 3.3, 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-91A/B/D, MW-93A/B, and MW-177A/B;
- Upgradient wells at MW-89A/B/D/E and MW-90A/B/D; and
- Downgradient wells at MW-80A/B/D, MW-101A/B/D, and MW-179A/B.

The analytical data in Table 3.1 illustrate that although higher TCE concentrations are approaching EW-12 and EW-17 from the plume interior as demonstrated by the generally increasing concentrations in upgradient wells MW-89B, MW-89E, MW-89D, MW-90A, and MW-90D 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 2017. The highest TCE concentration in 2017 in the MW-89 and MW-90 clusters was 1,050 µg/L in MW-89E. The screen elevations of MW-89E overlap the screen intervals of MW-80B, MW-90B, MW-91B, MW-101B, MW-177B, and MW-179B. Sidegradient wells at the MW-93 (Table 3.1) location remain nondetect for TCE. Downgradient wells at the MW-80 (Table 2.3), MW-101 (Table 2.2), and MW-179 (Table 3.1) locations remain nondetect for TCE.

EW-18 was installed near MW-180 between EW-7 and EW-9 in November 2015 as shown on Figure 1.2, and began operation in September 2016. For LL2, the analytical results for the following wells were reviewed:

- Upgradient wells at MW-169A/B and MW-170A;
- Leading edge plume wells at MW-180A/E; and
- Downgradient wells at MW-83A/B/D/E.

The RDX concentration in intermediate well MW-180A declined through first quarter 2017, before increasing in the third quarter. RDX concentrations in intermediate well MW-180E are generally

stable. The wells at the MW-83 location are downgradient of the MW-180 cluster. RDX concentrations in intermediate well MW-83A and deep well MW-83D were nondetect in 2017. RDX concentrations in intermediate well MW-83E are slowly decreasing. Simulations presented in Appendix F predict that EW-7, EW-9, and EW-18 will contain the LL2 RDX plume.

Based on this review, the extent of contamination above the Final Target Groundwater Cleanup Goals in LL2 depicted on Figure 1.2 in 2017 was similar to 2016 (USACE, 2017d).

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

- Leading plume edge wells at MW-131A/B/D,
- Sidegradient wells at MW-99A/B/D,
- Downgradient wells at MW-129A/B/D and MW-130A/B/D, and
- Upgradient wells at MW-172A/B and MW-173A.

The RDX concentration in deep well MW-131D increased from 2012 to 2015, but decreased in 2016 and 2017. The highest concentration was 0.71J µg/L in the fourth quarter of 2015; this value is much less than the Final Target Groundwater Cleanup Goal of 2 µg/L for RDX. The concentration in intermediate monitoring well MW-131A increased to 3.3 µg/L in the second quarter of 2016 before decreasing to 1.1 µg/L in the second and fourth quarters of 2017. RDX concentrations in MW-99A, MW-99B, MW-99D, and MW-173A continued to decline in 2017. RDX was not detected in MW-172B in 2017 as it was in 2016. 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 2017 was similar to the extent in 2016 (USACE, 2017d).

The 2017 RDX and TCE concentrations at MW-105 located near the leading edge of the LL4 TCE plume were similar to the observed TCE concentrations since 2014 (USACE, 2015, 2016, and 2017d). Based on this review, the extent of contamination above the Final Target Groundwater Cleanup Goals in LL4 depicted on Figure 1.2 in 2017 was inferred to be similar to the extent in 2016 (USACE, 2017d).

3.3 STEP 3: INTERPRET WATER LEVELS

Regional water levels were measured in March 2017 and August 2017. 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 Universal Kriging algorithm within the Surfer® program (version 12) 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, 2017, and August 24, 2017, 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, 2017);
- M.U.D. piezometers (LPNNRD, 2017); and
- LWS piezometers (LPNNRD, 2017).

Site-wide monitoring well groundwater elevations measured during 2017 generally showed an increase in the potentiometric surface when compared to the corresponding measurements in 2016. Average groundwater elevations were approximately 1.7 ft higher in March 2017 than in March 2016, and 0.3 ft higher in August 2017 than in August 2016.

Overall, the orientation of the potentiometric surfaces shown on Figures 3.1 and 3.2 is very similar to that observed in 2016. 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 0.020 in either a downward or upward direction are presented in Table 3.4. 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 2017, the range of downward gradients between the shallow and intermediate groundwater zones was from approximately 0.020 at MW-133 to 0.076 at MW-44. Most of the clusters with downward gradients are along upper Johnson Creek between the LPNNRD reservoir and the Platte Valley. In August 2017, the range of downward gradients was similar. The high downward gradient at MW-44 may be due to higher surface water elevations in the wetlands near MW-44.

Upward gradients from the intermediate to the shallow groundwater zones ranged in March 2017 and August 2017 from approximately -0.021 at MW-168 to -0.246 at MW-44. Most of the clusters with upward gradients are upgradient of the extraction wells (for example, MW-168, MW-174, and MW-175), and near the area where the Todd Valley aquifer discharges to the Platte Valley aquifer (for example, near MW-44 and MW-176). These upward gradients where the Todd Valley aquifer discharges to the Platte Valley aquifer create wetlands where the potentiometric surface intersects the ground surface.

As shown in Table 3.4, there were fewer groundwater elevations showing vertical gradients of more than 0.020 in either direction between the intermediate and deep groundwater zones, particularly in August 2017. Perimeter well MW-95 southwest of the LL2 plume showed the highest downward gradient from the intermediate to deep zone in March 2017 (0.038) and August 2017 (0.048). Downward gradients were observed at MW-133 located in the upper part of the LL4 plume adjacent to FEW-15.

The highest upward gradients between the deep and intermediate zone were observed at MW-135, located near FEW-15, and at MW-44, which is located near where the Todd Valley aquifer discharges to the Platte Valley aquifer. 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.

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 GWM17 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 and Transport Model for Containment Evaluation

The groundwater flow and transport model used for predicting future TCE and RDX distributions is the GWM17 model. Information relating to the model calibration is presented in the *GWM17 Update* (USACE, 2018a). There are three layers in the model. Layer 1, the uppermost layer, simulates the low permeability materials immediately below ground surface, including the Peoria Loess in Todd Valley and the till uplands; and the Platte Valley and Wahoo Valley overbank fines. Layer 2, in which the shallow "B" monitoring wells are screened, and Layer 3, in which the intermediate "A" monitoring wells are screened, simulate the principal aquifer. The principal aquifer in various locations consists of the Todd Valley alluvium, the Platte Valley alluvium, the Wahoo Valley alluvium, or the Uplands aquifer. The boundary conditions for the predictive model are the same as presented in the *GWM17 Update*. The predictive model hydrologic and groundwater extraction conditions beginning in September 2017 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 2017 through December 2017. The non-irrigation period from January 2018 through May 2018 is represented by a single SP (SP 5). SP 6 represents the first irrigation season in the model, from June 2018 through August 2018. SP 6 concludes the first year of the predictive simulation. The remainder of the simulation, 64 SPs in total, uses two SPs for each of the 29 subsequent years: a non-irrigation season of 273 days (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 2; for subsequent SPs, evapotranspiration and recharge rates are assumed to be the estimated long-term average for irrigation and non-irrigation seasons, respectively (USACE, 2018a).
- Site pumping rates for SPs 1 - 2 (September 2017 through October 2017) are based on the average measured pumping rates for those months, as presented in Table 3.5. 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 2018 through May 2018) and extending

throughout the simulation are assumed to be the average pumping rates from 2013 through 2017 rounded to the nearest 10 gallons per minute (gpm) with the following modifications:

  - The average pumping rate for EW-12 decreased from 239 gpm in 2014 to 180 gpm in 2015. EW-12 averaged 174 gpm in 2017, and the future average monthly pumping rate is assumed to be 180 gpm; and
  - A new extraction well, EW-18, was installed in the LL2 plume between EW-7 and EW-9. EW-18 began operation in September 2016 at a pumping rate of 175 gpm, and the pumping rates of EW-7 and EW-9 were changed to 175 gpm and 105 gpm, respectively in November 2016; and
  - Operation of EW-16 was suspended at the end of 2012 because modeling indicated that it was not necessary for immediate containment of the LL3 RDX plume (USACE, 2012b). The modeling indicated that operation of EW-16 may be necessary in the future. The decline in specific capacity of EW-4 has resulted in an average pumping rate of 68 gpm. EW-16 resumed operation in November 2017 at a pumping rate of approximately 150 gpm (USACE, 2017c).

- M.U.D. pumping rates for SPs 1 - 2 (September 2017 through October 2017) are based on the average measured pumping rates for those months (M.U.D., 2017). Pumping from individual wells shows seasonal variations; however, the total system pumping rates beginning with SP 3 (November 2017) 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 - 2 (September 2017 through October 2017) are based on the average measured pumping rates for those months (LWS, 2017). Pumping rates beginning with SP 3 (November 2017) are provided in Appendix D, Table D.6 and are estimated to increase approximately 1.1 percent per year following growth in demand projected by LWS (City of Lincoln, 2014).
- Municipal pumping rates for the villages of Ithaca and Memphis are estimated with per capita usage (NNRC, 1998) and population statistics (NDNR, 2014).
- The Mead and Ashland municipal pumping rates for SPs 1 - 2 (September 2017 through October 2017) are based on the average measured pumping rates for those months (City of Ashland, 2017, and Village of Mead, 2017). Pumping rates for the non-irrigation SPs beginning with SP 3 (November 2017) are the average of September through May rates measured from 2005 through 2017 (Appendix D, Table D.7). Pumping rates for the summer (irrigation) SPs beginning with SP 6 (June, July, and August 2018) are the average of summer rates measured from 2005 through 2017.
- The irrigation pumping rates during the summer season are assumed to be the long-term average for all irrigation SPs (Appendix D, Table D.8). One new irrigation well in the model area was installed and activated in 2017 (Appendix D, Table D.12) based on data from the NDNR (NDNR, 2017). A replacement well was installed but the well it replaced was not deactivated; therefore, it was assumed that the replacement well is pumping and the well it replaces is redundant and not operating. Pumping rates of zero were assigned to 47 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, 2017). The method for estimating long-term irrigation pumping rate averages is based on the average

application rate for the ARDC wells, 7.00 inches per irrigation season from 2000 through 2016 (Appendix D, Table D.9).

- River stages for the Platte and Elkhorn rivers, and for Wahoo, Silver, Clear, and Johnson creeks were based on long term averages as described in the *GWM17 Update* (USACE, 2018a).
- Storage coefficients used in the predictive model are the same as those described in the *GWM17 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 2017 from the GWM17 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 2017 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 *GWM17 Update*.

3.4.2.1 Initial Plume Conditions

The initial RDX and TCE concentrations were based on investigations through 2017 for the shallow groundwater (upper portion of the Todd Valley aquifer) and intermediate groundwater (lower portion of the Todd Valley aquifer) zones. In GWM17, 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 2016 initial plume contours (USACE, 2017d) modified using the 2017 groundwater monitoring results.

The sources for the 2017 RDX and TCE analytical data used in the plume interpretations are presented in Tables 3.1 through 3.8 of the *2017 Annual Summary Report* (USACE, 2018b).

3.4.2.2 Fate and Transport Parameters

The fate and transport parameters (Table D.11, Appendix D) and assumptions are consistent with GWM17.

As discussed in detail in the *GWM17 Update* (USACE, 2018a), local variations in the soil-water distribution coefficient in the model were used to simulate sorption, and heterogeneous geologic conditions. Possible residuals from historical high concentration areas were simulated using relatively large soil-water distribution coefficients. In addition, GWM17 conservatively assumed that some high concentration areas still existed on the southwest side of LL1 in 2017 and this assumption was maintained in the 2017 transport simulation. Specified concentration cells in the

area of highest concentration at LL1 were used to represent TCE contaminant mass loading decreasing over the next 16 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 (GWM17 Layer 2) and intermediate groundwater zone (GWM17 Layer 3). The figures provided in the appendices show the horizontal extent over time of groundwater with TCE (Appendix E) and RDX (Appendix F) concentrations 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, 2013d) indicated that even with EW-9 operating at its maximum sustainable rate (170 gpm), the LL2 RDX plume had 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 was 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 was installed in November 2015, and was activated in September 2016. EW-18 is included in the predictive simulations at the design pumping rate of 175 gpm beginning in September 2016, and the design pumping rates of EW-7 and EW-9 are 175 gpm and 105 gpm in the simulations, respectively.

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. Operation of EW-16 was suspended at the end of 2012 because modeling indicated that it was not necessary for the containment of the LL3 RDX plume at that time (USACE, 2012b). The modeling indicated that operation of EW-16 may be necessary in the future. The decline in specific capacity of EW-4 has resulted in an average pumping rate of 63 gpm in the first 10 months of 2017. EW-16 was reactivated in November 2017 and is included in the predictive simulations at a pumping rate of 150 gpm beginning in December 2017.

The transport simulations presented in Appendices E and F predict that the LL1 and AMA/LL4 plumes will be hydraulically contained for the next 10 years.

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 (GWM17), 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 evaluated by using the model to assess system performance under an expected range of site conditions and parameter uncertainty.

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 2017 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 wells 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 2017 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. MW-35D, which is located downgradient of the LL3 plume, had its first RDX detection since 2000 in 2016. The overall 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-B and WSW-52C-B) exceeded the Final Target Groundwater Cleanup Goals during 2017.

As shown in Appendix C, the concentration of RDX in WSW-53-B was 3.0 µg/L in the first quarter of 2017 and 2.7 µg/L in the third quarter. RDX concentrations in WSW-53-B continue to decline from its historical high of 10.9 µg/L observed in 2010. The concentration of TCE in WSW-51A-B has been generally increasing since 2010 and reached the Final Target Groundwater Cleanup Goal in 2012. The increase at WSW-51A-B 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. The southward shift of

the plume also is indicated by the increasing TCE concentrations (still well below the Final Target Groundwater Cleanup Goal) at WSW-51 since 2013. WSW-51 is located immediately south of WSW-51A-B. At well WSW-52C-B, measured TCE concentrations have been over 110 µg/L since 2009. However, the 2017 concentrations (185 µg/L and 182 µg/L) represent a decline from the 2014 TCE concentration of 223 µg/L. At WSW-54-B, both RDX and TCE continue to decline; RDX declined below the Final Target Groundwater Cleanup Goal in 2014 and TCE declined below the cleanup goal in 2012. At WSW-52A-B, RDX has shown a stable to decreasing trend and has remained below the Final Target Groundwater Cleanup Goal since 2004.

RDX increased in WSW-100 from 0.18J µg/L in 2014 to 0.66 µg/L in 2017. The increase may be related to the migration of a small plume west of the main LL2 plume that passed through MW-29A between 2006 and 2013 with a peak concentration of 4.3 µg/L.

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 2017 are located within the defined LL4 contaminant plume and provide additional information on contaminant distribution over time. The RDX and TCE concentrations 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 and the reactivation of EW-16.

The simulation results from the 2014 CE (USACE, 2015) 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. EW-18 was installed between EW-7 and EW-9 and began operation in September 2016. EW-7, EW-9, and EW-18 will contain the LL2 plume, as shown in the simulation results in Appendix F.

Finally, the 2014 CE simulation results showed the possibility that a portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals was projected to travel toward EW-16 and EW-1R at some point in the future. Operation of EW-16 was suspended at the end of 2012 because modeling indicated that it was not necessary for the containment of the LL3 RDX plume at that time (USACE, 2012b). The 2012 modeling indicated that operation of EW-16 may be necessary in the future. The decline in specific capacity of EW-4 has resulted in an average pumping rate of 68 gpm. EW-16 was reactivated in November 2017 and is included in the predictive simulations at a pumping rate of 150 gpm beginning in December 2017. EW-4 and EW-16 are predicted to contain the LL3 plume, as shown in the simulation results in Appendix F.

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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, 2013c), 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 2017 CE incorporates data collected during calendar year 2017. The tools used to complete the CE for 2017 indicate that the containment system is containing TCE and RDX contamination above the Final Target Groundwater Cleanup Goals of 5 µg/L and 2 µg/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 2017 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 2017 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 2017 in any perimeter groundwater monitoring well at a concentration greater than the Final Target Groundwater Cleanup Goals. Together, the groundwater chemical data collected in 2017 from compliance and perimeter groundwater monitoring wells indicate that the remedy is operating properly and successfully.

During 2017, 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.

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 GWM17 (USACE, 2018a) based on additional data collected since the previous groundwater model update (USACE, 2013a). The new data and Site information obtained during 2017 is consistent with the Site conceptual model refined during the preparation of the *GWM17 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 monitoring well chemical data. The current extent of contamination indicated that plume containment has been maintained.
- Step 3: Interpret water level data. The horizontal gradients and vertical gradients at the Site in 2017 are similar to the 2016 values and did not adversely impact containment.

- Step 4: Evaluate capture using contaminant transport simulations. The transport simulation results in the 2012 Groundwater Model Update (USACE, 2013a) predicted that a portion of the LL2 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals would migrate between EW 7 and EW 9. An additional extraction well, EW 18 was installed between EW-7 and EW 9 in November 2015, and was activated in September 2016. The transport simulation results in the 2014 CE (USACE, 2015) predicted that a portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals was projected to travel beyond the capture zone of EW-4 toward inactive EW-16 at some point in the future. The resumption of pumping at EW-16 in November 2017 is expected to mitigate the migration of RDX concentrations greater than the Final Target Cleanup Goals from migrating southeasterly beyond the capture zone of EW-16.
- 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 2016. The concentrations in 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 now that EW-16 and EW-18 are operational. Current extraction well pumping rates with the addition of EW-16 and EW-18 are satisfactory for containment over the next 10 years.

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TABLES

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Table 1.1
Final Target Groundwater Cleanup Goals
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Contaminants of Concern	Final Target Groundwater Cleanup Goal (µg/L)
Volatile Organic Compounds	
Methylene chloride	5
1,2-DCP	5
TCE	5
Explosive Compounds	
TNB	0.778
2,4-DNT	1.24
RDX	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
µg/L = micrograms per liter
RDX = hexahydro-l,3,5-trinitro-1,3,5-triazine
TCE = trichloroethene
TNB = 1,3,5-trinitrobenzene
TNT = 2,4,6-trinitrotoluene

Table 2.1
Monitoring Well Clusters Evaluated
2017 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 LL4/AMA 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, Sidegradient of EW-1R	Provide Sidegradient 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, EW-9, and EW-18	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
2017 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 and EW-10 (inactive)	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
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-20A	Deep	-	ND	Second Quarter 2017
MW-20B	Intermediate	-	ND	Second Quarter 2017
MW-20C	Shallow	-	ND	Second Quarter 2017
MW-61A	Intermediate	ND	-	Second Quarter 2017
MW-61B	Shallow	ND	-	Second Quarter 2017
MW-61D	Deep	ND	-	Second Quarter 2017
MW-82A	Intermediate	-	ND	Second Quarter 2017
MW-82B	Shallow	-	ND	Second Quarter 2017
MW-82D	Deep	-	ND	Second Quarter 2017
MW-86A	Intermediate	-	ND	Second Quarter 2017
MW-86B	Shallow	-	ND	Second Quarter 2017
MW-86D	Deep	-	0.61	Second Quarter 2017
MW-88A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-88B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-88D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-96A	Intermediate	-	ND	Second Quarter 2017
MW-96B	Shallow	-	ND	Second Quarter 2017
MW-96D	Deep	-	ND	Second Quarter 2017
MW-97A	Intermediate	-	ND	Second Quarter 2017
MW-97B	Shallow	-	ND	Second Quarter 2017
MW-97D	Deep	-	ND	Second Quarter 2017
MW-98A	Intermediate	-	ND	Second Quarter 2017
MW-98B	Shallow	-	ND	Second Quarter 2017
MW-98D	Deep	-	ND	Second Quarter 2017
MW-100A	Intermediate	ND	ND	Second Quarter 2017
MW-100B	Shallow	ND	ND	Second Quarter 2017
MW-100D	Deep	ND	ND	Second Quarter 2017
MW-101A	Intermediate	ND	-	Second Quarter 2017
MW-101B	Shallow	ND	-	Second Quarter 2017
MW-101D	Deep	ND	-	Second Quarter 2017
MW-158A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-158B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-158D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017

Notes:

All results in µg/L (micrograms per liter).

Results for remaining COCs are provided in Table 3.2 of the 2017 Annual Summary Report (USACE, 2018b)

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

- = Not analyzed

Table 2.3
TCE and/or RDX in Perimeter Monitoring Wells
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-35A	Intermediate	-	1.1	First Quarter 2017
		-	0.94	Second Quarter 2017
		-	ND	Third Quarter 2017
		-	1.3	Fourth Quarter 2017
MW-35B	Shallow	-	0.15 J	First Quarter 2017
		-	ND	Third Quarter 2017
MW-35D	Deep	-	0.89	First Quarter 2017
		-	1.2	Third Quarter 2017
MW-38A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-38D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-46A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-46B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-46D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-80A	Intermediate	ND	-	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-80B	Shallow	ND	-	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-80D	Deep	ND	-	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-83A	Intermediate	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-83B	Shallow	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-83D	Deep	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-83E	Intermediate	-	0.33 J	First Quarter 2017
			0.32 J	Third Quarter 2017
MW-84A	Intermediate	-	ND	First Quarter 2017
		-	0.19 J	Third Quarter 2017
MW-84B	Shallow	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-84D	Deep	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-85A	Intermediate	-	ND	First Quarter 2017
		-	0.71	Third Quarter 2017

Table 2.3 (Continued)
TCE and/or RDX in Perimeter Monitoring Wells
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-85B	Shallow	-	ND	First Quarter 2017
		-	0.71	Third Quarter 2017
MW-85D	Deep	-	ND	First Quarter 2017
MW-95A	Intermediate	-	0.15 J	First Quarter 2017
		-	0.17 J	Third Quarter 2017
MW-95B	Shallow	-	0.23 J	First Quarter 2017
		-	0.27 J	Third Quarter 2017
MW-95D	Deep	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-102A	Intermediate	ND	-	Second Quarter 2017
MW-102B	Shallow	ND	-	Second Quarter 2017
MW-103A	Intermediate	ND	-	Second Quarter 2017
MW-103B	Shallow	ND	-	Second Quarter 2017
MW-103D	Deep	ND	-	Second Quarter 2017
MW-106A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-106B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-107A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-107B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-107D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-110A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-110B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-110D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-112A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-112B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-113A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-113B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-113D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017

Table 2.3 (Continued)
TCE and/or RDX in Perimeter Monitoring Wells
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-114A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-114B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-114D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-115A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-115B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-115D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-116A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-116B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-116D	Deep	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-118A	Intermediate	-	ND	First Quarter 2017
		-	0.29 J	Third Quarter 2017
MW-118B	Shallow	-	ND	First Quarter 2017
		-	0.63	Third Quarter 2017
MW-147A	Intermediate	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-147B	Shallow	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-147D	Deep	-	ND	First Quarter 2017
		-	ND	Third Quarter 2017
MW-159A	Intermediate	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017
MW-159B	Shallow	ND	ND	First Quarter 2017
		ND	ND	Third Quarter 2017

Notes:

All results in µg/L (micrograms per liter).

TCE and RDX were not detected above Final Target Groundwater Cleanup Goals in 2017.

Results for remaining COCs are provided in Table 3.1 of the 2017 Annual Report (USACE, 2018b).

-- 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 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Identification	Required Analyses	GPS Location[1] Northing (NAD 83 State Plane feet)	GPS Location[1] Easting (NAD 83 State Plane feet)
WSW-29	E, V	493,553	2,632,818
WSW-29A	E, V	494,120	2,632,506
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-B	E, V	498,189	2,632,594
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-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-65	E, V	491,734	2,614,640
WSW-75	E, V	494,855	2,638,732
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-97	E, V	496,114	2,637,891
WSW-100	E, V	495,185	2,615,279
WSW-103	E, V	498,075	2,639,207
WSW-104	E, V	498,343	2,639,997
WSW-106	E, V	496,389	2,638,316
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

Table 2.4 (Continued)
Water Supply Wells Sampled in 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Identification	Required Analyses	GPS Location[1] Northing (NAD 83 State Plane feet)	GPS Location[1] Easting (NAD 83 State Plane feet)
WSW-124	E, V	506,000	2,634,698
WSW-125	E, V	505,823	2,631,655
WSW-126	E, V	507,361	2,634,317
WSW-127	E, V	505,823	2,631,655
WSW-128	E, V	495,169	2,638,603
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.

[1]GPS locations are general and not for other use

GPS = global positioning system

NAD 83 State Plane = North American Datum 1983 State Plane Coordinate System

TSS = Total Suspended Solids

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.

Table 2.5
Water Supply Wells with Detections over Final Target Groundwater Cleanup Goals
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Sample Location	Quarter (2016)	TCE Result (µg/L)	RDX Result (µg/L)
WSW-51A-B	1st	**8.1**	1.1
WSW-51A-B	3rd	**7.1**	1.0
WSW-52C-B	1st	**185**	ND
WSW-52C-B	3rd	**182**	ND
WSW-53-B	1st	0.29 J	**3.0**
WSW-53-B	3rd	0.21 J	**2.7**

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. All Post-carbon unit samples were below final target groundwater cleanup goals.

J = estimated quantity

µg/L = micrograms per liter

ND = Sample result below detection limit

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
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
Load Line 1				
MW-89A	Intermediate	7.7	--	Second Quarter 2017
MW-89B	Shallow	305	--	Second Quarter 2017
MW-89D	Deep	7.1	--	Second Quarter 2017
MW-89E	Intermediate	1,050	--	Second Quarter 2017
MW-90A	Intermediate	559	0.67	Second Quarter 2017
		429	0.47	Fourth Quarter 2017
MW-90B	Shallow	35.3	ND	Second Quarter 2017
		28.1	ND	Fourth Quarter 2017
MW-90D	Deep	502	0.49	Second Quarter 2017
		493	0.41	Fourth Quarter 2017
MW-91A	Intermediate	ND	--	Second Quarter 2017
		ND	--	Fourth Quarter 2017
MW-91B	Shallow	ND	--	Second Quarter 2017
		ND	--	Fourth Quarter 2017
MW-91D	Deep	ND	--	Second Quarter 2017
		ND	--	Fourth Quarter 2017
MW-93A	Intermediate	ND	--	Second Quarter 2017
MW-93B	Shallow	ND	--	Second Quarter 2017
MW-177A	Intermediate	ND	--	First Quarter 2017
		ND	--	Third Quarter 2017
MW-177B	Shallow	ND	--	First Quarter 2017
		ND	--	Third Quarter 2017
MW-179A	Intermediate	ND	--	First Quarter 2017
		ND	--	Third Quarter 2017
MW-179B	Shallow	ND	--	First Quarter 2017
		ND	--	Third Quarter 2017
Load Line 2				
MW-169A	Intermediate	-	0.81	First Quarter 2017
		-	0.77	Third Quarter 2017
MW-169B	Shallow	-	1.8	First Quarter 2017
		-	2.1	Third Quarter 2017
MW-170A	Intermediate	-	4.2	First Quarter 2017
		-	4.1	Third Quarter 2017
MW-180A	Intermediate	--	0.74	First Quarter 2017
		--	1.2	Third Quarter 2017
MW-180E	Intermediate	--	24.8	First Quarter 2017
		--	24.2	Third Quarter 2017

Table 3.1 (Continued)
TCE and/or RDX in Monitoring Wells in Vicinity of Extraction Wells
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
Load Line 3				
MW-99A	Intermediate	--	0.27 J	Second Quarter 2017
MW-99B	Shallow	--	0.43 J	Second Quarter 2017
MW-99D	Deep	--	1.7	Second Quarter 2017
MW-129A	Intermediate	--	0.25 J	Second Quarter 2017
MW-129B	Shallow	--	0.17 J	Second Quarter 2017
MW-129D	Deep	--	ND	Second Quarter 2017
MW-130A	Intermediate	--	1.2	Second Quarter 2017
MW-130B	Shallow	--	2.4	Second Quarter 2017
MW-130D	Deep	--	ND	Second Quarter 2017
MW-131A	Intermediate	--	1.1	Second Quarter 2017
		--	1.1	Fourth Quarter 2017
MW-131B	Shallow	--	0.87	Second Quarter 2017
		--	0.72	Fourth Quarter 2017
MW-131D	Deep	--	0.50	Second Quarter 2017
		--	0.56	Fourth Quarter 2017
MW-172A	Intermediate	--	ND	First Quarter 2017
		--	ND	Third Quarter 2017
MW-172B	Shallow	--	ND	First Quarter 2017
		--	ND	Third Quarter 2017
MW-173A	Intermediate	--	3.7	First Quarter 2017
		--	ND	Third Quarter 2017
Load Line 4				
MW-105A	Intermediate	12.4	ND	Second Quarter 2017
		13.6	ND	Fourth Quarter 2017
MW-105B	Shallow	11.7	ND	Second Quarter 2017
		15.4	ND	Fourth Quarter 2017
MW-105O	Overburden	ND	ND	Second Quarter 2017
		ND	ND	Fourth Quarter 2017

Notes:
All results in µg/L (micrograms per liter).
-- Sample not taken
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 and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
EW-1R	NA	2,634,925.77	495,204.36	1079.32	20.98	1058.40	12.32	1067.00
EW-4	NA	2,627,116.43	497,384.83	1148.69	84.85	1063.80	83.79	1064.90
EW-7	NA	2,621,782.09	496,330.98	1148.38	62.25	1086.10	61.88	1086.50
EW-9	NA	2,620,401.74	495,320.21	1154.64	69.62	1085.00	69.54	1085.10
FEW-11	NA	2,609,168.86	499,999.37	1163.08	66.40	1096.30	66.88	1096.20
EW-12	NA	2,610,717.96	493,105.58	1113.72	67.85	1045.80	61.84	1051.88
FEW-14	NA	2,625,285.16	498,738.33	1155.99	74.17	1082.00	74.09	1081.90
FEW-15	NA	2,622,861.01	509,956.02	1169.64	66.94	1102.90	66.64	1103.00
EW-17	NA	2,611,514.79	493,535.90	1113.62	58.30	1057.60	60.53	1053.09
EW-18	NA	2,621,010.14	495,666.82	1159.14	70.14	1089.00	NM	NM
MW-02A	Intermed.	2,606,800.10	506,250.32	1174.77	37.97	1136.80	38.67	1136.10
MW-03A	Intermed.	2,607,532.26	506,223.42	1179.56	41.13	1135.93	42.08	1137.48
MW-04A	Intermed.	2,612,041.94	506,256.77	1168.73	35.21	1133.52	35.68	1133.05
MW-05A	Intermed.	2,613,044.09	507,097.63	1168.12	33.41	1134.71	33.87	1134.25
MW-07A	Intermed.	2,618,267.10	507,274.83	1164.85	37.43	1127.42	37.93	1126.92
MW-08A	Intermed.	2,622,863.97	506,814.76	1165.92	47.07	1118.85	47.43	1118.49
MW-09A	Intermed.	2,623,570.81	507,435.84	1171.46	52.33	1119.13	52.72	1118.74
MW-10A	Intermed.	2,607,883.83	496,858.27	1150.35	39.46	1110.89	39.64	1110.71
MW-11	Intermed.	2,626,486.32	509,499.80	1153.22	30.14	1123.08	29.83	1123.39
MW-17B	Intermed.	2,603,293.03	499,101.48	1128.50	6.83	1121.67	7.55	1120.95
MW-18A	Deep	2,629,150.33	506,832.34	1145.43	41.28	1104.15	41.71	1103.72
MW-18B	Intermed.	2,629,156.57	506,827.46	1145.57	41.72	1103.85	42.13	1103.44
MW-18C	Shallow	2,629,148.53	506,821.93	1146.05	39.34	1106.71	38.61	1107.44
MW-19B	Intermed.	2,618,429.63	517,576.97	1158.59	9.99	1148.60	9.79	1148.80
MW-20B	Intermed.	2,616,633.43	493,191.47	1160.29	57.86	1102.43	58.04	1102.25
MW-20D1	Deep	2,616,654.10	493,189.16	1160.29	57.96	1102.33	58.16	1102.13
MW-20D2	Deep	2,616,660.91	493,190.06	1160.33	57.99	1102.34	58.19	1102.14
MW-20D3	Deep	2,616,669.39	493,190.03	1160.60	58.36	1102.24	58.55	1102.05
MW-21A	Intermed.	2,607,121.37	503,524.81	1165.63	34.70	1130.93	35.03	1130.60
MW-24A	Intermed.	2,608,476.90	501,919.83	1163.41	39.86	1123.55	39.87	1123.54
MW-25A	Intermed.	2,608,308.41	504,875.16	1175.25	43.00	1132.25	43.79	1131.46
MW-27B	Shallow	2,611,427.01	508,110.55	1176.06	36.84	1139.22	37.07	1138.99
MW-28A	Intermed.	2,612,951.02	502,242.71	1172.22	49.90	1122.32	50.11	1122.11
MW-29A	Intermed.	2,614,469.84	498,383.11	1160.06	48.71	1111.35	48.50	1111.56
MW-29B	Shallow	2,614,460.98	498,382.37	1161.03	49.84	1111.19	49.41	1111.62
MW-31A	Intermed.	2,617,943.95	503,233.70	1167.38	47.59	1119.79	47.53	1119.85
MW-32A	Intermed.	2,619,697.25	499,062.26	1154.17	47.22	1106.95	46.81	1107.36
MW-33A	Intermed.	2,622,410.84	502,847.91	1160.32	50.78	1109.54	50.43	1109.89
MW-34A	Intermed.	2,624,442.78	498,806.30	1156.79	57.99	1098.80	57.60	1099.19
MW-35A	Intermed.	2,629,595.76	496,323.64	1139.81	50.39	1089.42	50.47	1089.34
MW-38A	Intermed.	2,638,131.88	496,248.57	1082.32	5.02	1077.30	7.57	1074.75
MW-40A	Intermed.	2,623,018.62	511,963.35	1172.09	41.66	1130.43	41.44	1130.65
MW-42A	Intermed.	2,629,385.20	501,582.56	1146.53	50.53	1096.00	50.59	1095.94

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
MW-43A	Intermed.	2,629,243.07	504,317.91	1142.90	43.35	1099.55	43.43	1099.47
MW-44A	Intermed.	2,632,953.68	500,415.12	1093.68	8.26	1085.40	8.58	1085.10
MW-44B	Shallow	2,632,954.90	500,426.32	1092.46	7.81	1086.33	10.36	1082.10
MW-44D	Deep	2,632,952.84	500,403.76	1094.20	7.05	1085.38	7.32	1086.88
MW-46A	Intermed.	2,637,464.94	499,387.37	1082.70	2.82	1079.88	5.20	1077.50
MW-46B	Shallow	2,637,464.42	499,396.68	1082.81	2.91	1079.90	5.33	1077.48
MW-46D	Deep	2,637,465.40	499,375.99	1082.65	2.74	1079.91	5.12	1077.53
MW-53B	Shallow	2,627,885.40	508,166.61	1136.91	24.92	1111.99	24.17	1112.74
MW-56A	Intermed.	2,628,206.01	508,215.32	1125.96	16.11	1109.85	16.45	1109.51
MW-56B	Shallow	2,628,195.32	508,217.29	1126.24	14.87	1111.37	14.15	1112.09
MW-57B	Shallow	2,607,621.51	516,363.44	1196.27	36.91	1159.36	37.28	1158.99
MW-60A	Intermed.	2,624,702.83	489,585.15	1145.83	51.09	1094.74	51.83	1094.00
MW-61A	Intermed.	2,608,656.02	492,900.05	1108.96	5.15	1103.81	5.97	1102.99
MW-61D1	Deep	2,608,647.29	492,895.05	1109.53	5.69	1103.84	6.54	1102.99
MW-61D2	Deep	2,608,642.52	492,898.35	1109.53	6.16	1103.37	6.99	1102.54
MW-61D3	Deep	2,608,638.09	492,901.37	1109.46	5.59	1103.87	6.37	1103.09
MW-65A	Intermed.	2,613,203.05	506,090.52	1165.02	32.62	1132.40	32.97	1132.05
MW-66B	Shallow	2,613,268.32	506,027.61	1165.02	31.87	1131.21	32.21	1132.81
MW-72A	Intermed.	2,622,930.98	512,064.69	1170.37	37.42	1132.95	40.07	1130.30
MW-73A	Intermed.	2,623,060.93	511,909.15	1166.95	40.33	1126.62	37.20	1129.75
MW-73B	Shallow	2,623,052.30	511,908.70	1166.90	39.87	1127.03	37.15	1129.75
MW-78A	Intermed.	2,623,223.84	512,032.75	1165.27	35.57	1129.70	35.34	1129.93
MW-80A	Intermed.	2,610,925.54	492,067.12	1107.43	6.30	1101.13	7.21	1100.22
MW-80B	Shallow	2,610,916.24	492,064.59	1107.65	6.57	1101.08	7.49	1100.16
MW-80D	Deep	2,610,935.55	492,068.65	1107.40	6.24	1101.16	7.16	1100.24
MW-82A	Intermed.	2,619,288.65	493,318.05	1149.14	47.81	1101.33	47.87	1101.27
MW-82D1	Deep	2,619,288.38	493,312.94	1149.27	48.57	1100.70	48.80	1100.47
MW-82D2	Deep	2,619,283.77	493,320.27	1148.94	48.33	1100.61	48.44	1100.50
MW-82D3	Deep	2,619,279.94	493,326.61	1149.05	48.30	1100.75	48.52	1100.53
MW-83A	Intermed.	2,621,924.08	495,274.66	1152.41	54.17	1098.24	54.13	1098.28
MW-83B	Shallow	2,621,921.79	495,302.77	1152.28	53.95	1098.33	53.90	1098.38
MW-83D	Deep	2,621,922.97	495,288.85	1152.32	54.14	1098.18	54.31	1098.01
MW-84A	Intermed.	2,624,277.77	495,685.51	1145.34	48.18	1097.16	47.89	1097.45
MW-84B	Shallow	2,624,272.04	495,712.90	1145.62	48.35	1097.27	47.92	1097.70
MW-84D	Deep	2,624,275.75	495,695.58	1145.37	48.18	1097.19	48.10	1097.27
MW-85A	Intermed.	2,628,326.53	494,439.02	1132.58	41.68	1090.90	41.83	1090.75
MW-86A	Intermed.	2,631,939.21	493,759.74	1114.15	30.91	1083.24	31.31	1082.84
MW-86D1	Deep	2,631,943.24	493,764.17	1113.84	30.52	1083.32	30.99	1082.85
MW-86D2	Deep	2,631,936.60	493,765.86	1114.20	30.97	1083.23	31.42	1082.78
MW-86D3	Deep	2,631,930.05	493,767.70	1114.77	31.82	1082.95	32.29	1082.48
MW-88A	Intermed.	2,637,643.92	494,045.13	1081.22	4.91	1076.31	8.58	1072.64
MW-88D1	Deep	2,637,650.78	494,025.19	1078.42	2.27	1076.15	4.89	1073.53
MW-88D2	Deep	2,637,643.46	494,024.15	1078.32	2.19	1076.13	4.79	1073.53

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
MW-88D3	Deep	2,637,636.08	494,023.70	1078.27	2.17	1076.10	4.79	1073.48
MW-89A	Intermed.	2,610,430.84	494,253.88	1160.99	56.14	1104.85	56.36	1104.63
MW-90A	Intermed.	2,611,235.54	494,302.04	1151.11	45.57	1105.54	45.86	1105.25
MW-90D1	Deep	2,611,237.39	494,291.09	1150.87	45.59	1105.28	45.93	1104.94
MW-90D2	Deep	2,611,229.62	494,288.22	1150.61	45.32	1105.29	45.64	1104.97
MW-90D3	Deep	2,611,247.28	494,295.19	1151.02	45.76	1105.26	46.07	1104.95
MW-91A	Intermed.	2,612,076.97	494,323.00	1152.04	46.81	1105.23	46.88	1105.16
MW-93A	Intermed.	2,612,162.89	493,551.29	1124.26	21.05	1103.21	20.95	1103.31
MW-94A	Intermed.	2,617,023.16	496,428.72	1153.06	47.30	1105.76	46.91	1106.15
MW-95A	Intermed.	2,617,552.81	494,508.64	1156.81	52.75	1104.06	52.63	1104.18
MW-95B	Shallow	2,617,546.97	494,508.01	1156.46	52.38	1104.08	52.27	1104.19
MW-95D	Deep	2,617,558.46	494,509.13	1156.82	53.85	1102.97	54.03	1102.79
MW-96A	Intermed.	2,621,468.23	493,387.73	1148.56	50.76	1097.80	50.09	1098.47
MW-96D1	Deep	2,621,487.55	493,388.06	1149.57	50.74	1098.83	51.15	1098.42
MW-96D2	Deep	2,621,487.27	493,396.10	1149.33	50.55	1098.78	50.94	1098.39
MW-96D3	Deep	2,621,460.85	493,395.28	1148.77	50.03	1098.74	50.42	1098.35
MW-97A	Intermed.	2,623,938.04	493,492.83	1143.08	46.40	1096.68	46.95	1096.13
MW-97B	Shallow	2,623,932.70	493,492.45	1143.18	46.48	1096.70	47.00	1096.18
MW-97D	Deep	2,623,943.48	493,493.13	1143.18	46.54	1096.64	47.05	1096.13
MW-97D1	Deep	2,623,959.13	493,501.25	1142.74	46.11	1096.63	46.64	1096.10
MW-97D2	Deep	2,623,965.85	493,501.39	1142.68	46.69	1095.99	46.59	1096.09
MW-97D3	Deep	2,623,972.91	493,501.03	1142.48	45.62	1096.86	46.42	1096.06
MW-98A	Intermed.	2,626,495.30	493,604.94	1141.52	47.40	1094.12	47.85	1093.67
MW-98D1	Deep	2,626,488.15	493,612.75	1141.69	47.67	1094.02	48.11	1093.58
MW-98D2	Deep	2,626,494.77	493,612.79	1141.59	47.64	1093.95	48.03	1093.56
MW-98D3	Deep	2,626,503.90	493,612.64	1141.82	47.89	1093.93	48.30	1093.52
MW-99A	Intermed.	2,627,117.43	498,780.95	1163.04	67.85	1095.19	67.59	1095.45
MW-99B	Shallow	2,627,118.41	498,787.93	1163.19	68.00	1095.19	67.77	1095.42
MW-99D	Deep	2,627,116.78	498,773.69	1162.76	67.62	1095.14	67.36	1095.40
MW-100A	Intermed.	2,629,718.84	493,770.41	1141.18	52.73	1088.45	53.04	1088.14
MW-100D1	Deep	2,629,711.48	493,769.53	1140.86	52.49	1088.37	52.80	1088.06
MW-100D2	Deep	2,629,711.34	493,776.59	1140.83	52.46	1088.37	52.79	1088.04
MW-100D3	Deep	2,629,710.89	493,782.88	1140.87	52.44	1088.43	52.76	1088.11
MW-101A	Intermed.	2,610,929.39	491,574.12	1107.43	6.53	1100.90	7.55	1099.88
MW-101D1	Deep	2,610,937.09	491,565.95	1107.19	6.36	1100.83	7.34	1099.85
MW-101D2	Deep	2,610,930.57	491,564.79	1107.33	6.51	1100.82	7.50	1099.83
MW-101D3	Deep	2,610,922.47	491,563.87	1107.41	6.59	1100.82	7.58	1099.83
MW-102A	Intermed.	2,622,929.38	514,541.24	1170.90	34.91	1135.99	34.51	1136.39
MW-103A	Intermed.	2,623,590.77	513,115.79	1173.58	41.71	1131.87	41.43	1132.15
MW-104A	Intermed.	2,634,092.18	499,205.59	1081.26	1.87	1079.39	2.63	1078.63
MW-104O	Overburden	2,634,073.87	499,205.00	1081.69	3.01	1078.68	2.68	1079.01
MW-106A	Intermed.	2,630,544.55	506,843.26	1118.06	16.64	1101.42	17.36	1100.70
MW-106B	Shallow	2,630,539.26	506,844.10	1117.98	16.53	1101.45	16.91	1101.07

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
MW-107A	Intermed.	2,631,375.72	506,138.76	1135.79	38.06	1097.73	39.03	1096.76
MW-107B	Shallow	2,631,374.08	506,125.16	1136.72	38.81	1097.91	38.91	1097.81
MW-107D	Deep	2,631,375.03	506,131.87	1136.35	38.63	1097.72	39.60	1096.75
MW-107D1	Deep	2,631,373.39	506,104.76	1138.33	40.48	1097.85	41.47	1096.86
MW-107D2	Deep	2,631,373.82	506,110.94	1137.94	40.10	1097.84	41.03	1096.91
MW-107D3	Deep	2,631,374.08	506,117.84	1137.49	39.62	1097.87	40.60	1096.89
MW-109A	Intermed.	2,634,807.18	501,896.06	1086.25	0.25	1086.00	2.82	1083.43
MW-109O	Overburden	2,634,805.17	501,911.81	1085.88	4.17	1081.71	7.21	1078.67
MW-110A	Intermed.	2,634,397.71	504,432.79	1094.10	4.73	1089.37	6.38	1087.72
MW-111A	Intermed.	2,636,151.56	499,337.97	1082.82	3.08	1079.74	5.02	1077.80
MW-111B	Shallow	2,636,151.75	499,348.24	1082.61	2.81	1079.80	4.72	1077.89
MW-111O	Overburden	2,636,152.14	499,356.67	1082.48	3.98	1078.50	7.91	1074.57
MW-112A	Intermed.	2,637,365.72	501,825.77	1082.03	-0.10	1082.13	1.68	1080.35
MW-112B	Shallow	2,637,365.30	501,832.67	1082.02	-0.15	1082.17	1.63	1080.39
MW-112D1	Deep	2,637,365.36	501,848.01	1081.98	-1.00	1082.98	1.55	1080.43
MW-112D2	Deep	2,637,365.71	501,842.49	1082.03	-0.95	1082.98	1.54	1080.49
MW-112D3	Deep	2,637,365.81	501,836.65	1082.13	-0.90	1083.03	1.68	1080.45
MW-113A	Intermed.	2,637,420.11	500,472.22	1080.47	-0.11	1080.58	1.56	1078.91
MW-113B	Shallow	2,637,419.51	500,477.68	1080.42	-0.11	1080.53	1.52	1078.90
MW-113D	Deep	2,637,420.34	500,466.05	1080.49	-0.10	1080.59	1.60	1078.89
MW-114A	Intermed.	2,637,470.60	497,206.93	1080.32	2.56	1077.76	NM	NM
MW-115A	Intermed.	2,637,702.52	495,346.88	1081.67	4.85	1076.82	7.32	1074.35
MW-116A	Intermed.	2,636,335.80	495,297.60	1080.53	4.46	1076.07	NM	NM
MW-116B	Shallow	2,636,331.54	495,297.24	1080.49	4.40	1076.09	NM	NM
MW-116D	Deep	2,636,334.22	495,293.68	1080.46	4.49	1075.97	NM	NM
MW-118A	Intermed.	2,625,890.45	496,207.70	1143.87	48.50	1095.37	48.35	1095.52
MW-119A	Intermed.	2,607,952.61	499,580.81	1159.14	42.93	1116.21	42.76	1116.38
MW-120A	Intermed.	2,609,372.30	499,419.07	1166.32	51.73	1114.59	51.61	1114.71
MW-120E	Intermed.	2,609,372.68	499,430.79	1166.43	51.84	1114.59	51.76	1114.67
MW-121A	Intermed.	2,609,752.79	500,071.02	1170.04	54.09	1115.95	54.12	1115.92
MW-122A	Intermed.	2,609,240.41	498,101.34	1165.76	53.21	1112.55	53.19	1112.57
MW-123A	Intermed.	2,608,677.91	499,909.07	1168.99	53.61	1115.38	53.57	1115.42
MW-124A	Intermed.	2,609,115.81	501,486.16	1161.89	41.33	1120.56	41.31	1120.58
MW-124B	Shallow	2,609,107.79	501,496.31	1161.59	41.01	1120.58	40.97	1120.62
MW-124D	Deep	2,609,125.65	501,475.69	1161.82	41.67	1120.15	41.60	1120.22
MW-125A	Intermed.	2,609,457.06	500,663.23	1162.05	44.64	1117.41	44.64	1117.41
MW-126A	Intermed.	2,607,483.63	504,504.82	1170.87	38.54	1132.33	39.12	1131.75
MW-126D	Deep	2,607,483.02	504,494.77	1170.26	37.86	1132.40	38.38	1131.88
MW-127A	Intermed.	2,606,121.55	506,918.35	1168.95	30.46	1138.49	31.18	1137.77
MW-128A	Intermed.	2,624,836.13	498,190.80	1156.97	59.15	1097.82	58.82	1098.15
MW-129A	Intermed.	2,627,766.39	496,542.43	1149.77	57.96	1091.81	57.59	1092.18
MW-130A	Intermed.	2,629,053.38	496,650.27	1145.47	55.28	1090.19	55.26	1090.21
MW-131A	Intermed.	2,626,341.54	496,939.83	1148.09	53.48	1094.61	53.22	1094.87

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
MW-131B	Shallow	2,626,348.52	496,944.69	1147.94	53.31	1094.63	53.08	1094.86
MW-131D	Deep	2,626,333.42	496,933.31	1148.10	53.46	1094.64	53.24	1094.86
MW-133A	Intermed.	2,622,522.67	509,720.93	1167.41	44.39	1123.02	44.63	1122.78
MW-133B	Shallow	2,622,522.69	509,729.90	1167.55	44.37	1123.18	44.62	1122.93
MW-133D	Deep	2,622,523.17	509,713.15	1167.19	44.42	1122.77	44.67	1122.52
MW-134A	Intermed.	2,623,417.21	509,045.74	1168.44	46.68	1121.76	47.00	1121.44
MW-134B	Shallow	2,623,413.31	509,052.47	1168.55	46.71	1121.84	47.03	1121.52
MW-134D	Deep	2,623,421.55	509,039.29	1168.68	46.55	1122.13	46.94	1121.74
MW-135A	Intermed.	2,623,150.45	509,762.33	1165.77	43.61	1122.16	44.57	1121.20
MW-135B	Shallow	2,623,151.02	509,772.44	1165.71	43.55	1122.16	43.91	1121.80
MW-135D	Deep	2,623,149.03	509,752.68	1165.51	42.74	1122.77	43.04	1122.47
MW-136A	Intermed.	2,623,054.23	510,561.26	1167.96	43.37	1124.59	43.51	1124.45
MW-137A	Intermed.	2,622,837.54	511,702.36	1166.31	36.25	1130.06	36.01	1130.30
MW-138A	Intermed.	2,622,366.41	512,816.57	1175.83	42.63	1133.20	42.22	1133.61
MW-139A	Intermed.	2,621,290.29	514,264.29	1180.32	43.85	1136.47	43.38	1136.94
MW-140A	Intermed.	2,634,717.63	503,375.83	1092.50	4.86	1087.64	NM	NM
MW-140O	Overburden	2,634,717.20	503,393.26	1092.60	8.46	1084.14	NM	NM
MW-141A	Intermed.	2,608,446.60	502,590.64	1162.07	36.12	1125.95	36.31	1125.76
MW-142A	Intermed.	2,610,572.95	495,594.89	1154.43	46.63	1107.80	47.06	1107.37
MW-143B	Shallow	2,621,339.98	502,719.77	1155.87	44.66	1111.21	44.27	1111.60
MW-144A	Intermed.	2,614,012.25	503,570.97	1164.17	39.28	1124.89	39.32	1124.85
MW-145A	Intermed.	2,617,407.83	500,652.84	1160.75	47.08	1113.67	46.62	1114.13
MW-146A	Intermed.	2,618,871.66	494,899.38	1148.18	46.03	1102.15	45.90	1102.28
MW-147A	Intermed.	2,620,042.45	494,474.75	1148.92	48.49	1100.43	48.71	1100.21
MW-148B	Shallow	2,620,179.92	504,425.78	1160.53	42.33	1118.20	43.38	1117.15
MW-149A	Intermed.	2,622,398.38	502,086.76	1152.23	43.99	1108.24	43.81	1108.42
MW-150A	Intermed.	2,624,201.15	499,856.55	1147.59	46.58	1101.01	46.15	1101.44
MW-151A	Intermed.	2,624,392.64	506,668.08	1158.65	42.92	1115.73	43.32	1115.33
MW-152B	Shallow	2,627,865.21	506,805.72	1148.37	39.72	1108.65	39.03	1109.34
MW-153A	Intermed.	2,627,200.19	504,130.22	1146.17	43.32	1102.85	43.17	1103.00
MW-154A	Intermed.	2,631,170.17	504,308.25	1141.11	45.69	1095.42	46.25	1094.86
MW-154B	Shallow	2,631,165.22	504,308.20	1141.16	45.11	1096.05	45.74	1095.42
MW-155A	Intermed.	2,629,444.96	502,435.45	1141.95	45.27	1096.68	44.31	1097.64
MW-156A	Intermed.	2,633,019.60	501,928.83	1093.89	4.51	1089.38	5.15	1088.74
MW-156B	Shallow	2,633,018.32	501,922.48	1093.96	4.26	1089.70	5.17	1088.79
MW-157A	Intermed.	2,632,549.30	499,117.46	1102.64	17.79	1084.85	18.20	1084.44
MW-157D1	Deep	2,632,596.51	499,121.05	1099.76	15.58	1084.18	15.02	1084.74
MW-157D2	Deep	2,632,588.24	499,120.93	1100.22	16.12	1084.10	15.62	1084.60
MW-157D3	Deep	2,632,579.52	499,120.26	1100.75	16.63	1084.12	16.00	1084.75
MW-158A	Intermed.	2,635,279.53	493,887.42	1076.69	1.81	1074.88	3.44	1073.25
MW-158B	Shallow	2,635,272.00	493,887.38	1076.36	1.53	1074.83	3.16	1073.20
MW-158D	Deep	2,635,266.75	493,887.31	1076.63	1.91	1074.72	3.55	1073.08
MW-158D1	Deep	2,635,300.13	493,891.61	1076.48	1.02	1075.46	2.73	1073.75

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
MW-158D2	Deep	2,635,293.61	493,891.42	1076.65	1.18	1075.47	2.83	1073.82
MW-158D3	Deep	2,635,286.72	493,891.48	1076.82	1.38	1075.44	3.10	1073.72
MW-159A	Intermed.	2,629,111.80	510,307.65	1163.51	47.53	1115.98	47.87	1115.64
MW-160A	Intermed.	2,609,501.29	496,947.49	1154.35	47.77	1106.58	47.85	1106.50
MW-160B	Shallow	2,609,505.06	496,954.30	1154.18	47.76	1106.42	47.77	1106.41
MW-161A	Intermed.	2,608,418.56	503,133.22	1166.48	42.00	1124.48	42.35	1124.13
MW-161B	Shallow	2,608,419.67	503,123.84	1167.00	42.19	1124.81	42.51	1124.49
MW-162A	Deep	2,618,293.12	498,773.02	1148.90	44.11	1104.79	43.71	1105.19
MW-163A	Deep	2,618,961.89	498,952.86	1159.74	55.04	1104.70	54.51	1105.23
MW-164A	Deep	2,617,493.86	498,294.97	1150.11	45.31	1104.80	44.86	1105.25
MW-165B	Deep	2,617,933.42	498,609.92	1148.89	44.11	1104.78	43.71	1105.18
MW-166A	Intermed.	2,618,657.29	496,609.56	1150.73	48.94	1101.79	48.74	1101.99
MW-166B	Shallow	2,618,661.42	496,616.20	1150.81	48.86	1101.95	48.67	1102.14
MW-167A	Intermed.	2,619,420.51	497,423.40	1147.66	45.72	1101.94	45.38	1102.28
MW-167B	Shallow	2,619,428.96	497,426.56	1147.62	45.90	1101.72	45.60	1102.02
MW-168A	Intermed.	2,620,186.36	498,009.89	1152.75	51.58	1101.17	51.21	1101.54
MW-168B	Shallow	2,620,178.27	498,011.71	1152.17	51.45	1100.72	51.04	1101.13
MW-169A	Intermed.	2,619,932.75	495,501.60	1145.61	47.81	1097.80	47.72	1097.89
MW-169B	Shallow	2,619,942.57	495,502.95	1145.52	47.80	1097.72	47.73	1097.79
MW-170A	Intermed.	2,621,225.19	496,442.89	1145.46	48.81	1096.65	48.66	1096.80
MW-171A	Intermed.	2,615,668.94	501,881.31	1160.22	43.63	1116.59	43.42	1116.80
MW-171B	Shallow	2,615,662.16	501,881.10	1159.79	43.49	1116.30	43.23	1116.56
MW-172A	Intermed.	2,625,763.50	497,428.55	1146.97	54.76	1092.21	54.43	1092.54
MW-172B	Shallow	2,625,755.51	497,431.53	1146.88	54.31	1092.57	54.03	1092.85
MW-173A	Intermed.	2,627,008.04	497,957.67	1148.57	57.21	1091.36	56.93	1091.64
MW-174A	Intermed.	2,622,869.28	497,380.64	1142.13	45.91	1096.22	45.58	1096.55
MW-174B	Shallow	2,622,865.16	497,375.02	1141.72	46.03	1095.69	45.75	1095.97
MW-175A	Intermed.	2,622,690.12	501,101.54	1151.79	49.02	1102.77	48.61	1103.18
MW-175B	Shallow	2,622,680.35	501,098.07	1151.03	49.25	1101.78	48.80	1102.23
MW-176A	Intermed.	2,632,839.14	499,810.44	1090.01	7.69	1082.32	7.97	1082.04
MW-176B	Shallow	2,632,839.67	499,818.35	1089.11	8.19	1080.92	8.50	1080.61
MW-177A	Intermed.	2,609,971.19	492,953.37	1104.43	5.73	1098.70	6.50	1097.93
MW-177B	Shallow	2,609,974.65	492,954.44	1105.90	5.48	1100.42	6.23	1099.67
MW-178B	Shallow	2,628,870.63	506,851.75	1140.34	40.44	1099.90	40.80	1099.54
MW-179A	Intermed.	2,611,664.67	493,135.13	1107.45	10.52	1096.93	10.45	1097.00
MW-179B	Shallow	2,611,658.78	493,134.48	1107.64	11.17	1096.47	11.19	1096.45
MW-180A	Intermed.	2,621,006.62	495,570.71	1155.12	60.70	1094.42	60.58	1094.54
MW-180D1	Deep	2,621,025.57	495,574.55	1158.20	58.77	1099.43	58.65	1099.55
MW-180D2	Deep	2,621,035.70	495,575.36	1158.31	58.83	1099.48	58.76	1099.55
MW-180D3	Deep	2,621,044.63	495,576.60	1158.41	58.97	1099.44	58.87	1099.54
MW-180E	Intermed.	2,621,013.00	495,571.85	1155.22	60.95	1094.27	60.83	1094.39
OW-05	Intermed.	2,634,934.82	495,184.29	1080.35	9.05	1071.30	10.34	1070.01
OW-06	Intermed.	2,634,884.33	495,208.11	1079.22	6.54	1072.68	7.80	1071.42

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
OW-07	Intermed.	2,634,884.15	495,203.34	1079.06	5.72	1073.34	6.98	1072.08
OW-08	Intermed.	2,634,786.34	495,194.19	1078.43	4.57	1073.86	NM	NM
OW-09	Intermed.	2,634,937.80	495,134.36	1080.96	7.92	1073.04	9.23	1071.73
OW-12	Intermed.	2,636,332.13	495,279.48	1080.19	4.11	1076.08	NM	NM
OW-13	Intermed.	2,634,929.33	495,121.80	1081.25	8.13	1073.12	9.42	1071.83
OW-14	Intermed.	2,634,937.07	494,987.77	1080.52	6.52	1074.00	7.84	1072.68
OW-15	Intermed.	2,634,948.12	494,788.06	1080.66	6.45	1074.21	7.77	1072.89
OW-16	Intermed.	2,633,480.01	495,159.25	1078.22	0.60	1077.62	NM	NM
OW-18	Intermed.	2,608,114.43	499,884.02	1162.21	45.65	1116.56	45.56	1116.65
OW-22	Intermed.	2,608,019.74	499,355.14	1161.24	45.25	1115.99	45.09	1116.15
OW-23	Intermed.	2,607,158.35	499,656.44	1162.08	44.76	1117.32	NM	NM
OW-24	Intermed.	2,629,552.06	496,984.50	1153.07	63.02	1090.05	63.00	1090.07
OW-25	Intermed.	2,629,511.42	496,932.08	1155.71	65.64	1090.07	65.64	1090.07
OW-26	Intermed.	2,629,214.17	496,664.05	1148.64	58.04	1090.60	58.03	1090.61
OW-27	Intermed.	2,629,582.05	496,942.21	1153.30	63.44	1089.86	63.44	1089.86
OW-28	Intermed.	2,629,581.52	496,898.00	1153.81	64.08	1089.73	64.10	1089.71
OW-31	Intermed.	2,624,242.96	497,898.99	1155.78	56.74	1099.04	56.28	1099.50
OW-32	Intermed.	2,624,139.95	497,845.07	1153.87	54.80	1099.07	54.45	1099.42
OW-33	Intermed.	2,623,750.57	497,669.79	1154.67	55.52	1099.15	55.19	1099.48
OW-34	Intermed.	2,624,320.18	497,868.57	1154.70	56.14	1098.56	55.79	1098.91
OW-35	Intermed.	2,624,360.77	497,738.45	1154.10	55.41	1098.69	55.06	1099.04
OW-36	Intermed.	2,624,413.00	497,337.59	1157.23	58.91	1098.32	58.56	1098.67
OW-37	Intermed.	2,624,838.27	498,178.35	1157.36	59.61	1097.75	59.30	1098.06
OW-38	Intermed.	2,621,733.08	496,294.86	1151.19	54.54	1096.65	54.40	1096.79
OW-39	Intermed.	2,621,620.02	496,212.33	1151.39	53.52	1097.87	53.38	1098.01
OW-40	Intermed.	2,621,297.36	495,975.58	1157.66	58.88	1098.78	58.70	1098.96
OW-41	Intermed.	2,621,816.64	496,281.90	1150.22	54.10	1096.12	53.77	1096.45
OW-42	Intermed.	2,621,899.70	496,169.43	1151.21	53.90	1097.31	53.57	1097.64
OW-43	Intermed.	2,622,135.38	495,845.76	1156.74	58.48	1098.26	58.16	1098.58
OW-44	Intermed.	2,622,302.63	496,682.05	1147.84	48.58	1099.26	48.25	1099.59
OW-45	Intermed.	2,619,203.17	494,842.21	1152.47	50.70	1101.77	50.57	1101.90
OW-46	Intermed.	2,619,059.00	494,783.36	1151.55	49.58	1101.97	49.45	1102.10
OW-47	Intermed.	2,618,684.83	494,630.88	1153.44	50.80	1102.64	50.66	1102.78
OW-48	Intermed.	2,619,283.37	494,800.47	1153.38	51.60	1101.78	51.51	1101.87
OW-49	Intermed.	2,619,315.78	494,671.87	1154.09	52.54	1101.55	52.41	1101.68
OW-50	Intermed.	2,619,465.62	494,300.16	1151.16	49.65	1101.51	49.51	1101.65
OW-51	Intermed.	2,619,790.64	495,096.02	1149.86	48.93	1100.93	48.80	1101.06
OW-52	Intermed.	2,610,585.60	493,033.91	1107.14	9.56	1097.58	10.21	1096.93
OW-53	Intermed.	2,610,555.96	493,019.67	1107.13	8.50	1098.63	9.13	1098.00
OW-54	Intermed.	2,611,356.56	493,520.93	1115.39	17.93	1097.46	17.98	1097.41
OW-55	Intermed.	2,610,821.53	492,991.93	1107.05	11.41	1095.64	12.30	1094.75
OW-56	Intermed.	2,611,642.99	493,196.43	1112.15	12.40	1099.75	12.38	1099.77
OW-57	Intermed.	2,611,768.76	493,277.87	1114.84	14.30	1100.54	14.20	1100.64

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
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Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
OW-58	Intermed.	2,611,366.56	493,009.96	1109.00	8.48	1100.52	9.03	1099.97
OW-59	Intermed.	2,611,579.97	493,019.21	1110.50	9.95	1100.55	10.21	1100.29
OW-60	Intermed.	2,627,137.87	497,440.67	1149.15	56.15	1093.00	55.88	1093.27
OW-61	Intermed.	2,627,191.65	497,571.53	1148.81	55.17	1093.64	55.00	1093.81
OW-62	Intermed.	2,627,351.22	497,954.27	1151.40	56.95	1094.45	56.83	1094.57
OW-63	Intermed.	2,627,527.96	497,841.89	1152.90	58.75	1094.15	58.62	1094.28
OW-64	Intermed.	2,627,299.94	497,308.27	1148.12	55.10	1093.02	55.00	1093.12
OW-65	Intermed.	2,627,672.94	497,146.26	1147.36	54.97	1092.39	54.86	1092.50
OW-66	Intermed.	2,622,938.07	497,314.20	1147.09	47.68	1099.41	47.61	1099.48
OW-67	Intermed.	2,622,730.72	497,150.23	1149.64	50.36	1099.28	50.03	1099.61
OW-68	Intermed.	2,622,418.58	496,526.17	1146.89	48.20	1098.69	48.86	1098.03
OW-69	Intermed.	2,623,044.57	497,134.81	1147.02	47.96	1099.06	47.65	1099.37
OW-70	Intermed.	2,623,340.91	496,845.85	1146.14	47.41	1098.73	47.09	1099.05
OW-71	Intermed.	2,623,796.31	497,474.10	1158.23	59.41	1098.82	59.03	1099.20
OW-72	Intermed.	2,620,345.78	495,292.98	1156.05	57.50	1098.55	57.59	1098.46
OW-73	Intermed.	2,620,217.61	495,239.66	1157.61	58.11	1099.50	58.21	1099.40
OW-74	Intermed.	2,619,854.18	494,895.06	1148.38	47.40	1100.98	47.25	1101.13
OW-75	Intermed.	2,620,487.46	495,139.42	1154.51	55.43	1099.08	55.38	1099.13
OW-76	Intermed.	2,620,657.85	494,777.17	1148.68	49.40	1099.28	49.33	1099.35
OW-77	Intermed.	2,621,414.78	495,808.38	1157.82	59.26	1098.56	59.10	1098.72
OW-78	Intermed.	2,609,111.28	499,977.47	1163.94	52.48	1111.46	52.49	1111.45
OW-79	Intermed.	2,608,989.60	499,915.27	1167.29	53.49	1113.80	53.50	1113.79
OW-80	Intermed.	2,608,751.82	499,731.59	1169.30	54.06	1115.24	54.03	1115.27
OW-81	Intermed.	2,609,233.49	499,803.10	1164.13	49.65	1114.48	49.72	1114.41
OW-82	Intermed.	2,609,366.00	499,415.33	1169.05	54.36	1114.69	54.30	1114.75
OW-83	Intermed.	2,609,754.89	500,075.01	1173.20	57.02	1116.18	57.06	1116.14
OW-89	Intermed.	2,632,605.05	496,433.60	1092.56	11.31	1081.25	11.85	1080.71
OW-90	Intermed.	2,625,244.14	498,690.84	1153.30	58.38	1094.92	58.10	1095.20
OW-92	Intermed.	2,625,155.78	498,583.33	1154.30	57.57	1096.73	57.26	1097.04
OW-93	Intermed.	2,625,291.12	498,721.87	1156.87	63.24	1093.63	63.00	1093.87
OW-94	Intermed.	2,625,433.51	498,611.46	1153.21	56.60	1096.61	56.91	1096.30
OW-95	Intermed.	2,625,755.73	498,358.54	1150.04	53.48	1096.56	53.18	1096.86
OW-96	Intermed.	2,628,354.01	496,783.72	1146.64	54.62	1092.02	54.60	1092.04
OW-97	Intermed.	2,628,422.98	496,909.51	1146.21	54.81	1091.40	54.72	1091.49
OW-98	Intermed.	2,628,617.39	497,268.67	1150.67	59.08	1091.59	58.98	1091.69
OW-99	Intermed.	2,628,520.49	496,667.07	1146.97	55.98	1090.99	55.95	1091.02
OW-100	Intermed.	2,628,885.60	496,489.50	1147.39	56.99	1090.40	56.98	1090.41
OW-101	Intermed.	2,622,907.33	509,987.52	1168.26	47.28	1120.98	47.62	1120.64
OW-102	Intermed.	2,623,025.62	510,070.30	1166.49	43.99	1122.50	47.28	1119.21
OW-103	Intermed.	2,623,370.57	510,291.27	1169.13	44.48	1124.65	44.66	1124.47
OW-104	Intermed.	2,622,969.37	509,760.45	1167.73	45.94	1121.79	43.29	1124.44
OW-105	Intermed.	2,623,170.60	509,450.30	1165.40	43.26	1122.14	43.59	1121.81
OW-106	Intermed.	2,611,437.33	493,518.06	1116.11	19.27	1096.84	19.34	1096.77

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
OW-107	Intermed.	2,611,686.03	493,492.60	1116.01	15.37	1100.64	15.30	1100.71
OW-108	Intermed.	2,611,480.69	493,520.70	1115.83	21.09	1094.74	21.29	1094.54
OW-109	Deep	2,634,943.10	495,096.30	1077.58	6.92	1070.66	9.27	1068.31
OW-110	Intermed.	2,634,942.69	495,106.01	1077.52	7.45	1070.07	8.76	1068.76
OW-111	Intermed.	2,620,978.97	495,642.20	1156.53	56.47	1100.06	56.38	1100.15
OW-112	Intermed.	2,620,948.75	495,616.71	1157.25	56.81	1100.44	56.70	1100.55
OW-113	Intermed.	2,620,861.85	495,545.09	1157.54	56.48	1101.06	56.36	1101.18
OW-114R	Deep	2,621,051.50	495,691.94	1157.59	56.12	1101.47	NM	NM
OW-115	Deep	2,621,041.01	495,690.07	1157.35	55.83	1101.52	55.67	1101.68
OW-116	Deep	2,621,032.89	495,685.13	1157.10	56.53	1100.57	56.41	1100.69
OW-117	Deep	2,627,120.29	497,394.59	1148.70	54.92	1093.78	54.81	1093.89
OW-118	Deep	2,627,123.41	497,402.93	1148.49	54.70	1093.79	54.47	1094.02
OW-119	Deep	2,627,126.50	497,411.48	1148.64	55.53	1093.11	55.28	1093.36
OW-120	Deep	2,611,545.22	493,538.69	1116.09	12.59	1103.50	13.07	1103.02
OW-121	Deep	2,611,534.36	493,536.92	1115.56	11.91	1103.65	12.38	1103.18
OW-122	Deep	2,611,526.07	493,535.65	1116.11	12.41	1103.70	12.85	1103.26
PZ-01	Intermed.	2,632,385.13	499,049.59	1116.38	31.09	1085.29	31.50	1084.88
PZ-02	Intermed.	2,631,558.74	499,022.44	1130.80	42.22	1088.58	42.31	1088.49
PZ-11	Deep	2,633,021.33	501,935.48	1097.61	4.73	1089.45	5.03	1092.58
PZ-12	Deep	2,632,569.72	499,118.82	1105.36	15.92	1089.44	16.88	1088.48
PZ-13	Intermed.	2,633,396.43	499,150.91	1085.78	0.05	1081.18	1.05	1084.73
PZ-14	Intermed.	2,633,403.55	499,154.07	1084.94	-0.05	1080.57	0.33	1084.61
TH-EW-12	Intermed.	2,610,738.32	493,102.14	1107.37	20.63	1086.74	22.59	1084.78
TH-EW-13	Intermed.	2,611,511.12	493,072.65	1111.04	10.82	1100.22	11.13	1099.91
TH-EW-14R1	Intermed.	2,625,268.99	498,721.42	1156.72	64.10	1092.62	63.56	1093.16
TH-EW-14R2	Intermed.	2,625,871.91	497,850.00	1151.08	54.33	1096.75	54.00	1097.08
TH-EW-15	Intermed.	2,622,870.43	509,960.21	1172.51	50.39	1122.12	50.80	1121.71
TH-EW-16	Intermed.	2,628,310.33	496,736.54	1147.71	56.20	1091.51	56.11	1091.60
TH-EW-17	Intermed.	2,611,500.55	493,522.80	1116.45	28.07	1088.38	29.13	1087.32
Brabec	NA	2,618,637.53	493,130.49	1149.97	47.69	1102.31	47.64	1102.33
D.Starns	NA	2,647,807.25	467,164.01	1064.47	11.97	1052.53	10.95	1053.52
Frahm	NA	2,626,738.84	493,304.52	1146.04	52.05	1093.95	52.47	1093.57
Hanson	NA	2,623,180.17	493,348.86	1144.38	46.92	1097.48	47.35	1097.03
Heldt	NA	2,641,871.40	488,866.68	1078.68	4.86	1073.82	8.73	1069.95
LPN 06-01	NA	2,642,292.17	478,302.11	1066.68	3.13	1063.55	5.09	1061.59
LPN 06-18	NA	2,635,721.74	504,500.62	1088.45	0.85	1087.60	2.88	1085.57
LPN 06-19	NA	2,634,208.23	514,979.75	1140.81	34.86	1105.95	36.85	1103.96
LPN 06-20	NA	2,631,355.09	520,347.13	1208.77	59.20	1149.57	58.63	1150.14
LPN 06-21	NA	2,628,536.27	525,369.84	1204.53	49.34	1155.19	51.70	1152.83
M90-01	NA	2,640,590.79	488,958.80	1074.38	1.74	1072.64	5.62	1068.76
M90-02	NA	2,645,833.34	489,117.85	1075.70	4.75	1070.95	7.82	1067.88
M90-04	NA	2,640,807.93	484,163.23	1071.08	2.87	1068.21	6.61	1064.47
M90-05R	NA	2,645,266.37	482,393.07	1076.50	14.62	1061.88	14.79	1061.71

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
M90-09	NA	2,640,866.61	478,557.35	1067.97	1.89	1066.08	NM	NM
M90-12R	NA	2,647,999.03	479,369.24	1070.00	6.30	1063.70	6.34	1063.66
M90-15	NA	2,641,258.12	472,881.56	1065.39	3.80	1061.59	6.39	1059.00
M90-16R	NA	2,645,344.89	473,282.19	1063.57	3.31	1060.26	3.49	1060.08
M90-17R	NA	2,648,791.50	473,326.64	1067.54	8.47	1059.07	7.62	1059.92
M90-20R	NA	2,651,427.57	470,805.41	1066.45	8.04	1058.41	7.71	1058.74
M90-21	NA	2,642,068.72	468,390.33	1064.09	4.05	1060.04	6.83	1057.26
M90-22R	NA	2,645,116.45	467,804.04	1063.17	6.64	1056.53	8.50	1054.67
M90-23R	NA	2,649,222.45	468,585.23	1056.70	8.87	1047.83	6.25	1050.45
M90-24R	NA	2,650,175.62	465,992.63	1059.05	12.84	1046.21	11.26	1047.79
M90-26R	NA	2,652,730.86	465,392.21	1057.07	6.56	1050.51	4.26	1052.81
M90-36R	NA	2,653,436.76	465,017.15	1059.30	6.73	1052.57	6.05	1053.25
M90-37	NA	2,652,867.09	463,331.64	1054.19	2.87	1051.32	3.11	1051.08
MUD 06-28	NA	2,638,860.99	509,627.35	1087.13	0.12	1087.01	2.22	1084.91
MUD 90-10	NA	2,645,430.50	516,093.59	1099.56	7.45	1092.11	10.48	1089.08
MUD 94-3	NA	2,646,191.75	498,899.86	1085.52	4.64	1080.88	6.93	1078.59
MUD 94-4	NA	2,645,711.85	509,564.70	1094.81	9.58	1085.23	13.02	1081.79
MUD 94-5	NA	2,640,274.41	514,549.30	1097.79	3.22	1094.57	5.69	1092.10
MUD 94-6	NA	2,639,186.28	503,954.84	1085.55	1.32	1084.23	4.06	1081.49
MUD 94-7	NA	2,643,737.28	493,588.88	1083.07	5.78	1077.29	8.71	1074.36
N.Keiser	NA	2,632,144.97	495,084.13	1104.21	21.53	1082.67	21.91	1082.30
N.Wann	NA	2,642,527.93	520,660.55	1107.29	2.33	1104.97	3.29	1104.00
PV-37	NA	2,644,077.01	514,703.40	1100.86	9.46	1091.44	12.35	1088.51
PV-38	NA	2,642,740.13	516,679.62	1099.98	4.12	1095.88	6.39	1093.59
PV-39	NA	2,635,348.70	501,827.54	1084.02	-0.01	1084.01	1.84	1082.18
PV-40	NA	2,645,297.73	502,916.41	1088.88	6.41	1082.49	8.67	1080.21
PV-41	NA	2,642,173.78	514,040.50	1096.17	3.94	1092.26	6.95	1089.22
S.Keiser	NA	2,632,579.63	493,968.08	1114.21	32.75	1081.45	33.25	1080.96
TV-16	NA	2,623,841.69	492,107.27	1140.28	43.78	1096.52	44.68	1095.60
TV-17A	NA	2,627,487.94	482,977.99	1137.75	48.16	1089.59	48.67	1089.08
UNL-CSD	NA	2,641,218.70	473,036.06	1065.78	2.98	1062.80	5.51	1060.27
13N_10E32ADDD1_M90-30R	NA	2,657,224.00	466,089.97	1055.83(1)	3.19	1052.64	3.78	1052.05
13N_10E32DBBA1_M28R_ISLAND_NORTH_WELL	NA	2,655,098.69	465,594.25	1057.81(1)	3.38	1054.43	3.29	1054.52
13N_10E32DCAA1_M91-58R	NA	2,655,932.93	464,009.48	1056.35(3)	NM	NM	NM	NM
13N_10E32DCAC1_M90-29R	NA	2,655,788.51	463,800.77	1054.43(3)	NM	NM	NM	NM
13N_10E32DCAD1_M91-50R	NA	2,656,085.99	464,016.01	1055.84(1)	4.22	1051.62	6.82	1049.02

Table 3.2 (Continued)
Groundwater Elevations - March and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Zone Desig-nation	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Measuring Point Elevation (ft amsl)	Depth to Water (ft BTOC) 3/31/17	Ground-water Elevation (ft amsl) 3/31/17	Depth to Water (ft BTOC) 8/24/17	Ground-water Elevation (ft amsl) 8/24/17
13N_10E32DDBC1_ M91-54R	NA	2,656,171.15	463,817.09	1055.34(1)	NM	NM	NM	NM
14N_8E2ADDA1	NA	2,607,322.38	522,542.09	1194.22(5)	25.22	1179.78	NM	NM
14N_8E3AACC1	NA	2,600,711.92(4)	523,098.18(4)	1194.51(4)	18.07	1176.44	NM	NM
14N_8E14CC1	NA	2,602,677.44(4)	508,724.58(4)	1175.85(4)	NM	NM	NM	NM
14N_8E24ACD2_ MEAD	NA	2,611,823.40(4)	506,654.30(4)	1175.09(4)	30.78	1144.31	NM	NM
14N_8E27BAAB1	NA	2,599,758.53(4)	503,210.55(4)	1167.67(4)	33.80	1133.87	NM	NM
14N_8E36DD1	NA	2,613,895.26(4)	493,065.13(4)	1151.80(4)	49.12	1102.68	NM	NM
14N_9E20DD1	NA	2,624,003.87(4)	504,150.95(4)	1160.64(4)	50.30	1110.34	NM	NM
14N_9E26CBAB1	NA	2,635,353.74	501,420.02	1082.21(5)	NM	NM	NM	NM
14N_9E32DD1	NA	2,624,278.44(4)	493,503.18(4)	1137.03(4)	40.81	1096.224	NM	NM

Notes:

(1) Ground surface elevation from Lincoln Water Service.
(2) Ground surface elevation from U.S. Geological Survey (USGS) reference elevation.
(3) Ground surface elevation from Digital Elevation Model.
(4) Ground surface elevation and Location from U.S. Army Corps of Engineers survey.
(5) Ground surface elevation from LIDAR.
amsl = above mean sea level
ft = feet
gpm = gallons per minute
Intermed. = intermediate
NAD = North American Datum
NA = not applicable
NM = no measurement
USGS Source: http://nwis.waterdata.usgs.gov/ne/nwis/gwlevels?search_criteria=search_station_nm&submitted_form=introduction

Table 3.3
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
EW-1R	2634925.77	495204.36	1079.38	1078.31	24.50	1053.81	40.50	1037.81	41.50	1036.81
EW-2	2632445.94	496479.68	1104.28	1101.00	46.85	1054.15	56.85	1044.15	57.85	1043.15
EW-3	2629583.28	497009.50	1150.01	1148.00	87.04	1060.96	102.04	1045.96	103.04	1044.96
EW-4	2627116.43	497384.83	1148.65	1147.2	82.04	1065.15	101.04	1046.15	102.04	1045.15
EW-5	2624295.95	497923.55	1153.98	1151.00	81.10	1069.90	102.10	1048.90	103.10	1047.90
EW-6	2622893.13	497269.21	1147.98	1144.00	71.30	1072.70	86.30	1057.70	87.30	1056.70
EW-7	2621782.09	496330.98	1148.35	1147.25	76.10	1071.15	91.10	1056.15	92.21	1055.04
EW-8	2607941.21	499754.08	1160.39	1159.03	72.00	1087.03	152.00	1007.03	152.00	1007.03
EW-9	2620401.74	495320.21	1154.62	1152.95	78.33	1074.62	98.33	1056.29	99.43	1053.52
EW-10	2619241.53	494857.11	1150.64	1148.00	78.77	1069.23	98.77	1049.23	99.77	1048.23
FEW-11	2609168.86	499999.37	1162.70	1161.84	93.44	1068.40	138.44	1023.40	138.44	1023.40
EW-12	2610717.96	493105.58	1113.65	1111.04	65.89	1045.15	95.89	1015.15	96.69	1014.35
FEW-14	2625285.16	498738.33	1156.17	1155.26	88.09	1067.17	104.09	1051.17	104.09	1051.17
FEW-15	2622861.01	509956.02	1169.84	1168.98	80.14	1088.84	109.14	1059.84	110.14	1058.84
EW-16	2628322.89	496730.64	1146.97	1144.95	80.00	1064.95	100.00	1044.95	100.85	1044.10
EW-17	2611514.8	493535.902	1115.90	1114.46	58.54	1055.92	88.54	1025.92	90.38	1024.08
EW-18	2621010.1	495666.823	1159.14	1156.93	88.00	1068.93	108.00	1048.93	109.00	1047.93
MW-02A	2606800.10	506250.32	1174.77	1172.62	67.70	1104.92	96.90	1075.72	99.20	1073.42
MW-02B	2606808.90	506255.48	1175.18	1172.73	34.30	1138.43	63.50	1109.23	64.00	1108.73
MW-03A	2607532.26	506223.42	1179.56	1177.65	97.00	1080.65	145.80	1031.85	148.50	1029.15
MW-03B	2607542.05	506225.42	1179.83	1177.60	39.90	1137.70	98.40	1079.20	98.90	1078.70
MW-04A	2612041.94	506256.77	1168.73	1166.51	74.20	1092.31	103.50	1063.01	105.80	1060.71
MW-04B	2612051.44	506259.36	1168.85	1166.43	32.10	1134.33	71.20	1095.23	71.70	1094.73
MW-05A	2613044.09	507097.63	1168.12	1166.10	61.80	1104.30	100.80	1065.30	103.00	1063.10
MW-05B	2613053.87	507097.47	1168.18	1165.88	30.00	1135.88	59.30	1106.58	59.80	1106.08
MW-07A	2618267.10	507274.83	1164.85	1162.69	70.20	1092.49	99.50	1063.19	102.00	1060.69
MW-07B	2618276.53	507276.12	1164.64	1162.34	34.70	1127.64	73.70	1088.64	74.20	1088.14
MW-08A	2622863.97	506814.76	1165.92	1163.62	84.00	1079.62	123.00	1040.62	125.50	1038.12
MW-08B	2622872.08	506820.56	1165.92	1163.60	42.10	1121.50	81.00	1082.60	81.50	1082.10
MW-09A	2623570.81	507435.84	1171.46	1168.78	89.00	1079.78	128.00	1040.78	130.50	1038.28
MW-09B	2623580.33	507436.09	1171.60	1169.00	46.30	1122.70	85.30	1083.70	85.80	1083.20
MW-09D	2623593.10	507436.00	1171.28	1169.31	131.00	1038.31	136.00	1033.31	136.79	1032.52
MW-10A	2607883.83	496858.27	1150.35	1147.91	61.40	1086.51	100.40	1047.51	102.70	1045.21
MW-10B	2607893.74	496858.92	1150.31	1147.74	33.00	1114.74	62.20	1085.54	62.70	1085.04
MW-11	2626486.32	509499.80	1153.22	1150.76	18.80	1131.96	48.00	1102.76	50.20	1100.56
MW-16B	2604911.66	514026.38	1188.68	1186.48	NA	1186.48	NA	NA	NA	NA
MW-16C	2604917.63	514034.74	1189.40	1186.74	31.50	1155.24	41.50	1145.24	41.90	1144.84
MW-17B	2603293.03	499101.48	1128.50	1126.20	50.40	1075.80	55.80	1070.40	56.20	1070.00
MW-18A	2629150.33	506832.34	1145.43	1142.80	122.00	1020.80	125.00	1017.80	125.00	1017.80
MW-18B	2629156.57	506827.46	1145.57	1142.96	NA	1142.96	101.00	1041.96	101.02	1041.94
MW-18C	2629148.53	506821.93	1146.05	1143.38	36.70	1106.68	46.70	1096.68	47.10	1096.28
MW-19B	2618429.63	517576.97	1158.59	1156.27	98.00	1058.27	103.00	1053.27	103.40	1052.87
MW-20A	2616622.54	493189.94	1160.42	1157.97	145.00	1012.97	150.40	1007.57	150.40	1007.57
MW-20B	2616633.43	493191.47	1160.29	1157.72	128.60	1029.12	133.60	1024.12	134.00	1023.72
MW-20C	2616611.43	493187.61	1160.29	1157.84	50.30	1107.54	60.30	1097.54	60.70	1097.14
MW-20D1	2616654.10	493189.16	1160.29	1158.09	170.25	987.84	180.25	977.84	180.55	977.54
MW-20D2	2616660.91	493190.06	1160.33	1158.17	200.00	958.17	210.00	948.17	210.30	947.87
MW-20D3	2616669.39	493190.03	1160.60	1158.21	224.80	933.41	234.80	923.41	235.00	923.21
MW-21A	2607121.37	503524.81	1165.63	1163.72	116.00	1047.72	126.00	1037.72	126.81	1036.91
MW-21B	2607111.29	503524.05	1165.59	1163.67	66.00	1097.67	76.00	1087.67	76.53	1087.14
MW-21D	2607131.41	503525.83	1165.57	1163.67	133.00	1030.67	138.00	1025.67	138.69	1024.98
MW-24A	2608476.90	501919.83	1163.41	1161.37	111.50	1049.87	121.50	1039.87	121.50	1039.87
MW-24B	2608477.73	501909.01	1163.46	1161.27	56.00	1105.27	66.00	1095.27	66.50	1094.77
MW-25A	2608308.41	504875.16	1175.25	1173.23	145.00	1028.23	155.00	1018.23	156.06	1017.17

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-25B	2608308.27	504885.58	1174.71	1172.93	74.00	1098.93	84.00	1088.93	84.82	1088.11
MW-27B	2611427.01	508110.55	1176.06	1174.12	61.50	1112.62	71.50	1102.62	72.00	1102.12
MW-28A	2612951.02	502242.71	1172.22	1170.29	127.60	1042.69	137.60	1032.69	138.10	1032.19
MW-28B	2612936.01	502242.26	1172.52	1170.43	67.50	1102.93	77.50	1092.93	78.03	1092.40
MW-28D	2612969.60	502242.92	1171.99	1169.84	144.00	1025.84	149.00	1020.84	149.50	1020.34
MW-29A	2614469.84	498383.11	1160.06	1158.50	122.60	1035.90	132.60	1025.90	134.10	1024.40
MW-29B	2614460.98	498382.37	1161.03	1158.75	64.50	1094.25	74.50	1084.25	75.00	1083.75
MW-31A	2617943.95	503233.70	1167.38	1165.35	94.50	1070.85	104.50	1060.85	105.00	1060.35
MW-31B	2617935.17	503238.63	1166.95	1165.06	50.00	1115.06	60.00	1105.06	60.90	1104.16
MW-32A	2619697.25	499062.26	1154.17	1152.35	88.50	1063.85	98.50	1053.85	99.37	1052.98
MW-32B	2619696.91	499069.08	1154.10	1152.31	71.00	1081.31	81.00	1071.31	81.50	1070.81
MW-32D	2619697.54	499055.63	1154.02	1152.07	106.50	1045.57	111.50	1040.57	112.13	1039.94
MW-33A	2622410.84	502847.91	1160.32	1158.43	100.50	1057.93	110.50	1047.93	111.00	1047.43
MW-33B	2622401.05	502854.78	1160.37	1158.53	73.50	1085.03	83.50	1075.03	84.26	1074.27
MW-33D	2622421.53	502856.97	1160.24	1158.29	120.00	1038.29	125.00	1033.29	125.50	1032.79
MW-34A	2624442.78	498806.30	1156.79	1155.05	102.00	1053.05	112.00	1043.05	112.50	1042.55
MW-34B	2624443.06	498814.11	1157.00	1155.00	65.00	1090.00	75.00	1080.00	75.50	1079.50
MW-35A	2629595.76	496323.64	1139.81	1137.80	81.50	1056.30	91.50	1046.30	92.00	1045.80
MW-35B	2629595.84	496329.37	1139.57	1137.76	57.00	1080.76	67.00	1070.76	67.60	1070.16
MW-35D	2629595.80	496317.10	1139.67	1137.78	100.50	1037.28	105.50	1032.28	106.50	1031.28
MW-38A	2638131.88	496248.57	1082.32	1079.98	44.70	1035.28	49.20	1030.78	50.90	1029.08
MW-38D	2638138.80	496250.60	1081.92	1079.98	58.50	1021.48	63.50	1016.48	64.00	1015.98
MW-40A	2623018.62	511963.35	1172.09	1170.09	120.50	1049.59	125.50	1044.59	126.14	1043.95
MW-40B	2623006.75	511962.76	1172.34	1170.38	54.00	1116.38	64.00	1106.38	64.75	1105.63
MW-42A	2629385.20	501582.56	1146.53	1144.54	86.00	1058.54	96.00	1048.54	96.71	1047.83
MW-42B	2629385.28	501592.64	1146.64	1144.51	53.00	1091.51	63.00	1081.51	63.50	1081.01
MW-42D	2629384.99	501572.17	1146.20	1144.41	103.20	1041.21	108.20	1036.21	109.23	1035.18
MW-43A	2629243.07	504317.91	1142.90	1141.02	90.50	1050.52	100.50	1040.52	101.51	1039.51
MW-43B	2629244.24	504328.20	1142.74	1140.90	40.00	1100.90	50.00	1090.90	50.95	1089.95
MW-43D	2629242.21	504308.09	1142.95	1140.95	106.40	1034.55	111.40	1029.55	111.90	1029.05
MW-44A	2632953.68	500415.12	1093.68	1091.91	29.50	1062.41	39.50	1052.41	40.00	1051.91
MW-44B	2632954.90	500426.32	1092.46	1090.62	16.00	1074.62	26.00	1064.62	26.50	1064.12
MW-44D	2632952.84	500403.76	1094.20	1092.31	50.80	1041.51	55.80	1036.51	56.60	1035.71
MW-46A	2637464.94	499387.37	1082.70	1080.71	33.20	1047.51	43.20	1037.51	44.26	1036.45
MW-46B	2637464.42	499396.68	1082.81	1080.77	21.00	1059.77	31.00	1049.77	31.76	1049.01
MW-46D	2637465.40	499375.99	1082.65	1080.71	52.50	1028.21	57.50	1023.21	58.00	1022.71
MW-53A	2627897.77	508169.88	1136.36	1134.42	87.00	1047.42	97.00	1037.42	97.70	1036.72
MW-53B	2627885.40	508166.61	1136.91	1134.89	27.50	1107.39	37.50	1097.39	38.10	1096.79
MW-56A	2628206.01	508215.32	1125.96	1124.17	69.00	1055.17	79.00	1045.17	79.50	1044.67
MW-56B	2628195.32	508217.29	1126.24	1124.44	21.00	1103.44	31.00	1093.44	31.50	1092.94
MW-57B	2607621.51	516363.44	1196.27	1194.32	55.00	1139.32	65.00	1129.32	65.50	1128.82
MW-60A	2624702.83	489585.15	1145.83	1143.95	92.00	1051.95	102.00	1041.95	102.50	1041.45
MW-61A	2608656.02	492900.05	1108.96	1106.91	75.70	1031.21	85.70	1021.21	86.00	1020.91
MW-61B	2608644.38	492898.60	1108.96	1106.84	25.00	1081.84	35.00	1071.84	35.30	1071.54
MW-61D	2608667.93	492901.85	1108.96	1106.85	97.00	1009.85	102.00	1004.85	102.50	1004.35
MW-61D1	2608647.29	492895.05	1109.53	1106.88	115.00	991.88	125.00	981.88	125.30	981.58
MW-61D2	2608642.52	492898.35	1109.53	1106.91	144.20	962.71	154.20	952.71	154.50	952.41
MW-61D3	2608638.09	492901.37	1109.46	1106.94	179.70	927.24	189.70	917.24	190.00	916.94
MW-65A	2613203.05	506090.52	1163.99	1164.83	92.50	1072.33	102.50	1062.33	103.00	1061.83
MW-65B	2613193.30	506091.23	1164.02	1164.86	35.40	1129.46	65.40	1099.46	66.20	1098.66
MW-66B	2613268.32	506027.61	1163.08	1163.92	34.00	1129.92	64.00	1099.92	64.50	1099.42
MW-72A	2622930.98	512064.69	1170.37	1171.21	88.00	1083.21	108.00	1063.21	108.50	1062.71
MW-72B	2622921.73	512064.19	1169.92	1170.76	40.00	1130.76	70.00	1100.76	70.50	1100.26
MW-73A	2623060.93	511909.15	1166.95	1167.79	88.00	1079.79	108.00	1059.79	108.50	1059.29

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-73B	2623052.30	511908.70	1166.90	1167.74	40.00	1127.74	70.00	1097.74	70.50	1097.24
MW-78A	2623223.84	512032.75	1165.27	1166.11	85.00	1081.11	105.00	1061.11	105.50	1060.61
MW-78B	2623213.77	512031.30	1165.35	1166.19	40.00	1126.19	70.00	1096.19	70.50	1095.69
MW-80A	2610925.54	492067.12	1107.43	1105.27	69.17	1036.10	79.17	1026.10	79.17	1026.10
MW-80B	2610916.24	492064.59	1107.65	1105.46	30.00	1075.46	40.00	1065.46	40.00	1065.46
MW-80D	2610935.55	492068.65	1107.40	1105.22	87.70	1017.52	92.70	1012.52	92.70	1012.52
MW-82A	2619288.65	493318.05	1149.14	1147.10	89.50	1057.60	94.50	1052.60	94.50	1052.60
MW-82B	2619284.94	493325.47	1149.12	1147.20	61.20	1086.00	65.70	1081.50	66.50	1080.70
MW-82D	2619293.00	493310.90	1149.22	1147.10	120.00	1027.10	125.00	1022.10	125.50	1021.60
MW-82D1	2619288.38	493312.94	1149.27	1146.81	150.00	996.81	160.00	986.81	160.30	986.51
MW-82D2	2619283.77	493320.27	1148.94	1146.86	183.00	963.86	193.00	953.86	193.30	953.56
MW-82D3	2619279.94	493326.61	1149.05	1146.96	210.60	936.36	220.60	926.36	220.75	926.21
MW-83A	2621911.72	495271.64	1152.47	1150.19	103.50	1046.69	108.50	1041.69	109.00	1041.19
MW-83B	2621909.67	495299.59	1152.26	1150.11	75.00	1075.11	80.00	1070.11	80.00	1070.11
MW-83D	2621910.82	495285.82	1152.47	1150.21	116.00	1034.21	121.00	1029.21	122.50	1027.71
MW-83E	2621907.36	495313.87	1152.67	1150.44	80.50	1069.94	90.50	1059.94	91.00	1059.44
MW-84A	2624277.77	495685.51	1145.34	1143.20	87.13	1056.07	91.13	1052.07	91.65	1051.55
MW-84B	2624272.04	495712.90	1145.62	1143.30	66.50	1076.80	71.50	1071.80	72.00	1071.30
MW-84D	2624275.75	495695.58	1145.37	1143.20	103.50	1039.70	108.50	1034.70	110.00	1033.20
MW-85A	2628314.39	494435.59	1132.58	1130.11	81.00	1049.11	86.00	1044.11	86.00	1044.11
MW-85B	2628302.79	494446.44	1132.37	1130.19	62.00	1068.19	67.00	1063.19	66.30	1063.89
MW-85DR	2628331.98	494435.32	1132.46	1129.79	90.00	1039.79	95.00	1034.79	95.30	1034.49
MW-86A	2631939.21	493759.74	1114.15	1111.78	52.50	1059.28	62.50	1049.28	62.50	1049.28
MW-86B	2631933.61	493758.65	1114.58	1112.08	43.00	1069.08	53.00	1059.08	54.00	1058.08
MW-86D	2631944.47	493760.43	1113.90	1111.48	68.98	1042.50	74.50	1036.98	74.50	1036.98
MW-86D1	2631943.24	493764.17	1113.84	1111.40	95.00	1016.40	105.00	1006.40	105.30	1006.10
MW-86D2	2631936.60	493765.86	1114.20	1111.92	125.00	986.92	135.00	976.92	135.30	976.62
MW-86D3	2631930.05	493767.70	1114.77	1112.25	161.00	951.25	171.00	941.25	171.30	940.95
MW-88A	2637643.92	494045.13	1081.22	1078.71	35.00	1043.71	45.00	1033.71	45.00	1033.71
MW-88B	2637639.18	494044.21	1081.27	1078.71	20.00	1058.71	30.00	1048.71	30.00	1048.71
MW-88D	2637648.62	494046.08	1081.30	1078.71	50.50	1028.21	55.50	1023.21	57.50	1021.21
MW-88D1	2637650.78	494025.19	1078.42	1078.78	65.00	1013.78	75.00	1003.78	75.20	1003.58
MW-88D2	2637643.46	494024.15	1078.32	1078.70	90.70	988.00	100.70	978.00	100.90	977.80
MW-88D3	2637636.08	494023.70	1078.27	1078.55	119.10	959.45	129.10	949.45	129.30	949.25
MW-89A	2610430.84	494253.88	1160.99	1158.81	129.20	1029.61	139.20	1019.61	139.20	1019.61
MW-89B	2610408.69	494254.10	1161.37	1159.20	65.00	1094.20	75.70	1083.50	75.70	1083.50
MW-89D	2610451.41	494254.27	1160.65	1158.55	145.00	1013.55	150.60	1007.95	150.60	1007.95
MW-89E	2610466.38	494253.06	1157.24	1161.43	85.00	1076.43	95.00	1066.43	95.00	1066.43
MW-90A	2611235.54	494302.04	1151.11	1148.94	112.20	1036.74	123.40	1025.54	123.40	1025.54
MW-90B	2611226.60	494297.96	1150.77	1148.60	65.35	1083.25	75.45	1073.15	75.45	1073.15
MW-90D	2611244.85	494306.05	1151.44	1149.25	130.20	1019.05	135.20	1014.05	135.20	1014.05
MW-90D1	2611237.39	494291.09	1150.87	1148.85	146.80	1002.05	156.60	992.25	156.80	992.05
MW-90D2	2611229.62	494288.22	1150.61	1148.65	166.80	981.85	176.80	971.85	177.00	971.65
MW-90D3	2611247.28	494295.19	1151.02	1148.97	219.30	929.67	229.30	919.67	229.50	919.47
MW-91A	2612076.97	494323.00	1152.04	1149.85	109.20	1040.65	119.20	1030.65	119.20	1030.65
MW-91B	2612067.85	494317.53	1151.87	1149.66	67.60	1082.06	77.60	1072.06	77.60	1072.06
MW-91D	2612085.70	494327.97	1151.95	1149.78	125.20	1024.58	130.20	1019.58	130.20	1019.58
MW-93A	2612162.89	493551.29	1124.26	1122.07	84.20	1037.87	94.20	1027.87	94.20	1027.87
MW-93B	2612154.07	493546.80	1123.90	1121.70	60.00	1061.70	70.00	1051.70	70.00	1051.70
MW-94A	2617023.16	496428.72	1153.06	1150.75	84.00	1066.75	94.00	1056.75	94.00	1056.75
MW-94B	2617023.07	496434.50	1153.09	1150.56	64.00	1086.56	74.00	1076.56	74.00	1076.56
MW-95A	2617552.81	494508.64	1156.81	1154.32	93.00	1061.32	103.00	1051.32	104.00	1050.32
MW-95B	2617546.97	494508.01	1156.46	1154.15	65.00	1089.15	75.00	1079.15	76.00	1078.15
MW-95D	2617558.46	494509.13	1156.82	1154.45	124.50	1029.95	129.50	1024.95	130.00	1024.45

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-96A	2621468.23	493387.73	1148.56	1146.00	82.50	1063.50	92.50	1053.50	92.50	1053.50
MW-96B	2621468.23	493387.80	1148.56	1146.00	71.00	1075.00	81.00	1065.00	81.00	1065.00
MW-96D	2621476.25	493387.89	1148.58	1146.00	101.50	1044.50	106.00	1040.00	106.50	1039.50
MW-96D1	2621487.55	493388.06	1149.57	1147.45	150.00	997.45	160.00	987.45	160.20	987.25
MW-96D2	2621487.27	493396.10	1149.33	1147.34	180.00	967.34	190.00	957.34	190.20	957.14
MW-96D3	2621460.85	493395.28	1148.77	1146.23	217.00	929.23	227.00	919.23	227.20	919.03
MW-97A	2623938.04	493492.83	1143.08	1140.60	83.00	1057.60	93.00	1047.60	93.00	1047.60
MW-97B	2623932.70	493492.45	1143.18	1140.60	68.00	1072.60	73.00	1067.60	73.00	1067.60
MW-97D	2623943.48	493493.13	1143.18	1140.60	99.98	1040.62	105.50	1035.10	105.50	1035.10
MW-97D1	2623959.13	493501.25	1142.74	1140.27	148.20	992.07	158.20	982.07	158.40	981.87
MW-97D2	2623965.85	493501.39	1142.68	1140.16	184.60	955.56	194.60	945.56	194.80	945.36
MW-97D3	2623972.91	493501.03	1142.48	1140.01	209.80	930.21	219.80	920.21	220.00	920.01
MW-98A	2626495.30	493604.94	1141.52	1139.00	82.00	1057.00	92.00	1047.00	92.00	1047.00
MW-98B	2626488.71	493605.28	1141.58	1139.00	64.00	1075.00	69.00	1070.00	69.00	1070.00
MW-98D	2626502.36	493605.21	1141.58	1139.00	97.00	1042.00	102.00	1037.00	105.00	1034.00
MW-98D1	2626488.15	493612.75	1141.69	1139.27	155.80	983.47	165.80	973.47	166.00	973.27
MW-98D2	2626494.77	493612.79	1141.59	1139.45	182.80	956.65	192.80	946.65	193.00	946.45
MW-98D3	2626503.90	493612.64	1141.82	1139.39	209.10	930.29	219.10	920.29	219.30	920.09
MW-99A	2627117.43	498780.95	1163.04	1160.69	102.00	1058.69	112.00	1048.69	112.00	1048.69
MW-99B	2627118.41	498787.93	1163.19	1160.87	75.00	1085.87	85.00	1075.87	86.00	1074.87
MW-99D	2627116.78	498773.69	1162.76	1160.38	118.50	1041.88	123.50	1036.88	125.00	1035.38
MW-100A	2629718.84	493770.41	1141.18	1138.60	83.00	1055.60	93.00	1045.60	93.00	1045.60
MW-100B	2629718.07	493777.19	1141.12	1138.60	65.00	1073.60	75.00	1063.60	75.00	1063.60
MW-100D	2629718.36	493783.73	1141.22	1138.60	99.90	1038.70	104.90	1033.70	104.90	1033.70
MW-100D1	2629711.48	493769.53	1140.86	1138.49	124.80	1013.69	134.80	1003.69	135.00	1003.49
MW-100D2	2629711.34	493776.59	1140.83	1138.49	161.80	976.69	171.80	966.69	172.00	966.49
MW-100D3	2629710.89	493782.88	1140.87	1138.52	196.00	942.52	206.00	932.52	206.20	932.32
MW-101A	2610929.39	491574.12	1107.43	1104.99	83.00	1021.99	93.00	1011.99	93.00	1011.99
MW-101B	2610923.62	491573.82	1107.44	1104.99	30.00	1074.99	40.00	1064.99	40.00	1064.99
MW-101D	2610935.30	491574.49	1107.45	1104.99	90.00	1014.99	95.00	1009.99	96.20	1008.79
MW-101D1	2610937.09	491565.95	1107.19	1104.97	110.10	994.87	120.10	984.87	120.30	984.67
MW-101D2	2610930.57	491564.79	1107.33	1104.91	136.60	968.31	146.60	958.31	146.80	958.11
MW-101D3	2610922.47	491563.87	1107.41	1105.01	178.00	927.01	188.00	917.01	188.20	916.81
MW-102A	2622929.38	514541.24	1170.90	1168.76	117.00	1051.76	127.00	1041.76	127.00	1041.76
MW-102B	2622923.37	514540.93	1171.13	1168.76	50.00	1118.76	60.00	1108.76	60.00	1108.76
MW-103A	2623590.77	513115.79	1173.58	1171.11	116.00	1055.11	126.00	1045.11	126.50	1044.61
MW-103B	2623591.23	513110.25	1173.80	1171.36	50.00	1121.36	60.00	1111.36	60.00	1111.36
MW-103D	2623589.45	513132.90	1173.22	1170.78	130.00	1040.78	135.00	1035.78	135.70	1035.08
MW-104A	2634092.18	499205.59	1081.26	1078.50	31.10	1047.40	40.60	1037.90	41.20	1037.30
MW-104B	2634082.83	499205.61	1081.27	1078.38	15.10	1063.28	24.60	1053.78	25.10	1053.28
MW-104D	2634100.80	499205.35	1081.87	1078.81	44.60	1034.21	49.10	1029.71	49.60	1029.21
MW-104O	2634073.87	499205.00	1081.69	1078.59	5.30	1073.29	7.30	1071.29	7.50	1071.09
MW-105A	2635041.98	496642.99	1079.60	1076.84	30.17	1046.67	39.67	1037.17	40.26	1036.58
MW-105B	2635042.34	496652.98	1079.77	1076.72	14.75	1061.97	24.25	1052.47	24.95	1051.77
MW-105O	2635040.67	496662.29	1080.04	1076.73	5.00	1071.73	6.60	1070.13	6.70	1070.03
MW-106A	2630544.55	506843.26	1118.06	1115.50	57.00	1058.50	67.00	1048.50	67.00	1048.50
MW-106B	2630539.26	506844.10	1117.98	1115.50	25.00	1090.50	35.00	1080.50	35.00	1080.50
MW-107A	2631375.72	506138.76	1135.79	1136.12	78.00	1058.12	88.00	1048.12	88.00	1048.12
MW-107B	2631374.08	506125.16	1136.72	1136.95	45.00	1091.95	55.00	1081.95	55.00	1081.95
MW-107D	2631375.03	506131.87	1136.35	1136.70	95.50	1041.20	100.50	1036.20	100.50	1036.20
MW-107D1	2631373.39	506104.76	1138.33	1138.56	110.60	1027.96	120.60	1017.96	120.80	1017.76
MW-107D2	2631373.82	506110.94	1137.94	1138.21	128.10	1010.11	138.10	1000.11	138.30	999.91
MW-107D3	2631374.08	506117.84	1137.49	1137.72	143.60	994.12	153.60	984.12	153.90	983.82
MW-109A	2634807.18	501896.06	1086.25	1083.19	36.85	1046.34	46.35	1036.84	46.95	1036.24

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-109B	2634805.75	501904.25	1085.98	1083.11	19.20	1063.91	28.70	1054.41	29.30	1053.81
MW-109O	2634805.17	501911.81	1085.88	1083.06	6.70	1076.36	9.20	1073.86	9.50	1073.56
MW-110A	2634397.71	504432.79	1094.10	1091.71	39.50	1052.21	44.50	1047.21	45.00	1046.71
MW-110B	2634397.16	504438.89	1094.49	1092.01	23.00	1069.01	28.00	1064.01	28.50	1063.51
MW-110D	2634398.64	504425.93	1094.36	1091.71	50.00	1041.71	55.00	1036.71	55.00	1036.71
MW-111A	2636151.56	499337.97	1082.82	1079.82	31.23	1048.59	40.73	1039.09	41.33	1038.49
MW-111B	2636151.75	499348.24	1082.61	1079.42	14.50	1064.92	24.00	1055.42	24.60	1054.82
MW-111O	2636152.14	499356.67	1082.48	1079.40	5.00	1074.40	6.50	1072.90	6.80	1072.60
MW-112A	2637365.72	501825.77	1082.03	1082.38	42.50	1039.88	47.50	1034.88	48.00	1034.38
MW-112B	2637365.30	501832.67	1082.02	1082.38	21.00	1061.38	26.00	1056.38	26.00	1056.38
MW-112D1	2637365.36	501848.01	1081.98	1082.29	52.80	1029.49	62.80	1019.49	63.10	1019.19
MW-112D2	2637365.71	501842.49	1082.03	1082.32	71.90	1010.42	81.90	1000.42	82.10	1000.22
MW-112D3	2637365.81	501836.65	1082.13	1082.36	103.00	979.36	113.00	969.36	113.30	969.06
MW-113A	2637420.11	500472.22	1080.47	1080.82	36.00	1044.82	41.00	1039.82	41.00	1039.82
MW-113B	2637419.51	500477.68	1080.42	1080.82	26.00	1054.82	31.00	1049.82	31.00	1049.82
MW-113D	2637420.34	500466.05	1080.49	1080.82	48.70	1032.12	53.70	1027.12	55.50	1025.32
MW-114A	2637470.60	497206.93	1080.32	1077.87	37.00	1040.87	47.00	1030.87	47.00	1030.87
MW-114B	2637465.73	497204.32	1080.43	1077.87	20.00	1057.87	30.00	1047.87	30.00	1047.87
MW-114D	2637475.70	497209.79	1080.23	1077.87	52.44	1025.43	58.00	1019.87	58.00	1019.87
MW-115A	2637702.52	495346.88	1081.67	1079.36	43.00	1036.36	48.00	1031.36	48.00	1031.36
MW-115B	2637696.42	495346.87	1081.77	1079.36	28.00	1051.36	33.00	1046.36	33.00	1046.36
MW-115D	2637708.86	495346.84	1081.66	1079.36	53.89	1025.47	59.40	1019.96	59.40	1019.96
MW-116A	2636335.80	495297.60	1080.53	1078.07	37.50	1040.57	42.50	1035.57	42.50	1035.57
MW-116B	2636331.54	495297.24	1080.49	1078.07	27.00	1051.07	32.00	1046.07	32.00	1046.07
MW-116D	2636334.22	495293.68	1080.46	1078.07	47.98	1030.09	53.50	1024.57	53.50	1024.57
MW-118A	2625890.45	496207.70	1143.87	1141.67	84.75	1056.92	95.25	1046.42	95.25	1046.42
MW-118B	2625884.54	496207.84	1143.91	1141.81	70.00	1071.81	75.00	1066.81	75.00	1066.81
MW-119A	2607952.61	499580.81	1159.14	1159.38	119.70	1039.68	129.20	1030.18	129.60	1029.78
MW-119B	2607941.55	499593.35	1159.28	1159.66	74.00	1085.66	83.50	1076.16	84.10	1075.56
MW-120A	2609372.30	499419.07	1166.32	1166.72	128.70	1038.02	138.20	1028.52	138.60	1028.12
MW-120B	2609372.70	499438.97	1166.33	1166.51	65.50	1101.01	75.00	1091.51	75.60	1090.91
MW-120D	2609371.09	499409.47	1166.62	1166.88	144.00	1022.88	148.40	1018.48	148.80	1018.08
MW-120E	2609372.68	499430.79	1166.43	1166.76	95.30	1071.46	104.80	1061.96	105.20	1061.56
MW-121A	2609752.79	500071.02	1170.04	1170.27	132.60	1037.67	142.10	1028.17	142.50	1027.77
MW-121B	2609779.26	500071.59	1170.13	1170.48	75.70	1094.78	85.20	1085.28	85.80	1084.68
MW-121E	2609763.30	500071.29	1170.07	1170.27	105.50	1064.77	115.00	1055.27	115.60	1054.67
MW-122A	2609240.41	498101.34	1165.76	1166.25	128.50	1037.75	138.00	1028.25	138.40	1027.85
MW-122B	2609232.29	498114.61	1166.52	1166.89	97.60	1069.29	107.10	1059.79	107.80	1059.09
MW-123A	2608677.91	499909.07	1168.99	1169.28	131.80	1037.48	141.30	1027.98	141.70	1027.58
MW-123B	2608666.00	499909.02	1168.97	1169.33	90.10	1079.23	99.60	1069.73	100.20	1069.13
MW-124A	2609115.81	501486.16	1161.89	1162.25	100.30	1061.95	109.80	1052.45	110.40	1051.85
MW-124B	2609107.79	501496.31	1161.59	1162.12	69.70	1092.42	79.20	1082.92	79.80	1082.32
MW-124D	2609125.65	501475.69	1161.82	1162.24	121.30	1040.94	125.70	1036.54	126.10	1036.14
MW-125A	2609457.06	500663.23	1162.05	1162.35	117.90	1044.45	127.40	1034.95	128.00	1034.35
MW-125B	2609468.11	500661.63	1162.14	1162.54	76.70	1085.84	86.20	1076.34	86.80	1075.74
MW-125D	2609446.30	500664.74	1161.52	1161.80	134.40	1027.40	138.80	1023.00	139.20	1022.60
MW-126A	2607483.63	504504.82	1170.87	1171.21	112.30	1058.91	121.80	1049.41	122.40	1048.81
MW-126B	2607482.56	504514.66	1171.29	1171.60	82.30	1089.30	91.80	1079.80	92.50	1079.10
MW-126D	2607483.02	504494.77	1170.26	1170.71	148.80	1021.91	153.20	1017.51	153.60	1017.11
MW-127A	2606121.55	506918.35	1168.95	1169.30	118.50	1050.80	128.00	1041.30	128.40	1040.90
MW-127B	2606121.65	506931.42	1169.37	1169.66	71.90	1097.76	81.40	1088.26	82.00	1087.66
MW-127E	2606121.31	506941.60	1169.40	1169.84	51.60	1118.24	61.10	1108.74	61.70	1108.14
MW-128A	2624836.13	498190.80	1156.97	1154.26	96.20	1058.06	106.20	1048.06	106.20	1048.06
MW-128B	2624838.49	498197.84	1156.94	1154.30	79.50	1074.80	90.10	1064.20	90.10	1064.20

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-129A	2627766.39	496542.43	1149.77	1146.77	89.50	1057.27	99.50	1047.27	99.50	1047.27
MW-129B	2627771.40	496545.39	1149.72	1146.79	74.10	1072.69	84.10	1062.69	84.10	1062.69
MW-129D	2627759.96	496536.62	1149.46	1146.52	106.00	1040.52	111.00	1035.52	112.00	1034.52
MW-130A	2629053.38	496650.27	1145.47	1143.16	89.00	1054.16	99.00	1044.16	99.00	1044.16
MW-130B	2629059.01	496659.85	1145.92	1143.22	69.90	1073.32	79.90	1063.32	79.90	1063.32
MW-130D	2629047.82	496641.12	1145.15	1142.69	101.00	1041.69	106.00	1036.69	106.00	1036.69
MW-131A	2626341.54	496939.83	1148.09	1145.38	88.50	1056.88	98.50	1046.88	99.00	1046.38
MW-131B	2626348.52	496944.69	1147.94	1145.27	70.50	1074.77	80.50	1064.77	80.50	1064.77
MW-131D	2626333.42	496933.31	1148.10	1145.22	102.00	1043.22	107.00	1038.22	107.00	1038.22
MW-133A	2622522.67	509720.93	1167.41	1167.03	96.50	1070.53	106.50	1060.53	106.50	1060.53
MW-133B	2622522.69	509729.90	1167.55	1167.03	66.00	1101.03	76.00	1091.03	76.00	1091.03
MW-133D	2622523.17	509713.15	1167.19	1167.05	111.00	1056.05	117.00	1050.05	117.50	1049.55
MW-134A	2623417.21	509045.74	1168.44	1168.62	103.00	1065.62	113.00	1055.62	113.00	1055.62
MW-134B	2623413.31	509052.47	1168.55	1168.71	68.00	1100.71	78.00	1090.71	78.00	1090.71
MW-134D	2623421.55	509039.29	1168.68	1168.85	123.00	1045.85	127.00	1041.85	127.00	1041.85
MW-135A	2623150.45	509762.33	1165.77	1165.62	99.70	1065.92	109.70	1055.92	110.00	1055.62
MW-135B	2623151.02	509772.44	1165.71	1165.69	60.00	1105.69	70.00	1095.69	70.00	1095.69
MW-135D	2623149.03	509752.68	1165.51	1165.67	117.00	1048.67	122.00	1043.67	122.00	1043.67
MW-136A	2623054.23	510561.26	1167.96	1168.40	99.50	1068.90	109.00	1059.40	109.60	1058.80
MW-136B	2623064.05	510560.70	1168.14	1168.34	65.00	1103.34	74.50	1093.84	75.10	1093.24
MW-136D	2623043.85	510561.58	1167.61	1168.07	120.00	1048.07	124.40	1043.67	124.80	1043.27
MW-136E	2623075.88	510559.75	1168.29	1168.69	40.50	1128.19	60.00	1108.69	60.60	1108.09
MW-137A	2622837.54	511702.36	1166.31	1166.48	93.20	1073.28	102.70	1063.78	103.20	1063.28
MW-137B	2622846.21	511704.35	1166.04	1166.43	62.60	1103.83	72.10	1094.33	72.70	1093.73
MW-137E	2622857.08	511706.78	1166.17	1166.44	42.35	1124.09	62.05	1104.39	62.75	1103.69
MW-138A	2622366.41	512816.57	1175.83	1173.35	117.10	1056.25	126.60	1046.75	127.00	1046.35
MW-138B	2622378.08	512817.20	1176.22	1173.22	64.49	1108.73	73.99	1099.23	74.59	1098.63
MW-139A	2621290.29	514264.29	1180.32	1177.69	131.50	1046.19	141.00	1036.69	141.40	1036.29
MW-139B	2621297.04	514275.44	1180.61	1177.86	71.33	1106.53	81.20	1096.66	81.75	1096.11
MW-140A	2634717.63	503375.83	1092.50	1089.68	37.00	1052.68	46.50	1043.18	47.20	1042.48
MW-140B	2634717.22	503383.63	1092.42	1089.89	13.00	1076.89	22.50	1067.39	23.10	1066.79
MW-140D	2634718.42	503365.40	1092.30	1090.06	57.10	1032.96	61.50	1028.56	61.90	1028.16
MW-140O	2634717.20	503393.26	1092.60	1089.93	6.50	1083.43	9.00	1080.93	9.30	1080.63
MW-141A	2608445.22	502590.49	1162.53	1163.04	105.00	1058.04	115.00	1048.04	115.00	1048.04
MW-141B	2608445.07	502597.12	1162.55	1163.04	50.00	1113.04	60.00	1103.04	60.00	1103.04
MW-141E	2608445.06	502604.24	1162.57	1162.94	80.00	1082.94	90.00	1072.94	90.00	1072.94
MW-142A	2610572.01	495594.53	1154.77	1155.01	115.00	1040.01	125.00	1030.01	135.00	1020.01
MW-142E	2610563.13	495594.64	1154.36	1155.00	90.00	1065.00	100.00	1055.00	100.00	1055.00
MW-143B	2621339.29	502720.41	1156.15	1156.62	52.00	1104.62	62.00	1094.62	62.00	1094.62
MW-144A	2614011.01	503571.17	1164.39	1165.08	91.00	1074.08	101.00	1064.08	101.00	1064.08
MW-144E	2614018.70	503573.32	1164.68	1165.24	75.00	1090.24	85.00	1080.24	85.00	1080.24
MW-145A	2617406.95	500653.18	1161.08	1161.68	85.70	1075.98	95.70	1065.98	95.70	1065.98
MW-145B	2617398.29	500653.48	1160.83	1161.50	51.69	1109.81	61.69	1099.81	61.69	1099.81
MW-145E	2617413.57	500653.39	1161.23	1161.72	72.00	1089.72	82.00	1079.72	82.00	1079.72
MW-146A	2618871.42	494899.28	1148.46	1148.74	87.00	1061.74	97.00	1051.74	97.00	1051.74
MW-146B	2618864.71	494900.68	1148.33	1148.73	67.00	1081.73	77.00	1071.73	77.00	1071.73
MW-147A	2620041.68	494475.14	1149.21	1149.64	90.00	1059.64	100.00	1049.64	100.00	1049.64
MW-147B	2620044.70	494471.76	1149.05	1149.34	67.00	1082.34	77.00	1072.34	77.00	1072.34
MW-147D	2620047.28	494467.82	1148.77	1149.26	115.00	1034.26	125.00	1024.26	125.00	1024.26
MW-148A	2620168.94	504431.22	1161.31	1161.73	94.91	1066.82	104.91	1056.82	104.91	1056.82
MW-148B	2620180.48	504425.89	1160.74	1161.39	65.00	1096.39	75.00	1086.39	75.00	1086.39
MW-149A	2622397.76	502087.51	1152.54	1152.84	80.00	1072.84	90.00	1062.84	90.00	1062.84
MW-150A	2624200.70	499857.12	1147.97	1148.62	80.00	1068.62	90.00	1058.62	90.00	1058.62
MW-150B	2624200.43	499864.70	1147.87	1148.12	65.00	1083.12	75.00	1073.12	75.00	1073.12

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-151A	2624391.74	506669.16	1158.97	1159.76	94.00	1065.76	104.00	1055.76	104.00	1055.76
MW-151B	2624385.52	506668.32	1159.03	1159.39	70.00	1089.39	80.00	1079.39	80.00	1079.39
MW-152B	2627864.58	506807.07	1148.79	1148.90	60.00	1088.90	70.00	1078.90	70.00	1078.90
MW-153A	2627199.73	504131.32	1146.45	1146.92	89.50	1057.42	99.50	1047.42	99.50	1047.42
MW-153B	2627192.43	504130.58	1146.58	1146.86	69.00	1077.86	79.00	1067.86	79.00	1067.86
MW-154A	2631169.93	504309.48	1141.33	1141.84	76.00	1065.84	86.00	1055.84	86.00	1055.84
MW-154B	2631164.95	504309.39	1141.44	1141.82	55.00	1086.82	65.00	1076.82	65.00	1076.82
MW-155A	2629444.74	502436.50	1142.16	1142.88	89.00	1053.88	99.00	1043.88	99.00	1043.88
MW-155B	2629444.07	502453.84	1141.92	1142.60	54.65	1087.95	64.65	1077.95	64.65	1077.95
MW-155E	2629444.58	502445.47	1142.02	1142.40	69.00	1073.40	79.00	1063.40	79.00	1063.40
MW-156A	2633019.55	501930.18	1094.22	1094.67	36.00	1058.67	46.00	1048.67	46.00	1048.67
MW-156B	2633018.10	501923.95	1094.25	1094.77	16.00	1078.77	26.00	1068.77	26.00	1068.77
MW-157A	2632549.52	499118.40	1102.69	1102.66	45.00	1057.66	55.00	1047.66	55.00	1047.66
MW-157B	2632559.20	499119.16	1101.94	1102.53	27.00	1075.53	37.00	1065.53	37.00	1065.53
MW-157D1	2632596.51	499121.05	1099.76	1100.06	64.80	1035.26	74.80	1025.26	75.00	1025.06
MW-157D2	2632588.24	499120.93	1100.22	1100.54	85.00	1015.54	95.00	1005.54	95.50	1005.04
MW-157D3	2632579.64	499120.18	1100.85	1101.11	120.00	981.11	130.00	971.11	130.20	970.91
MW-158A	2635272.69	493888.36	1076.94	1077.24	27.00	1050.24	37.00	1040.24	37.00	1040.24
MW-158B	2635280.33	493888.61	1076.62	1076.99	14.00	1062.99	24.00	1052.99	24.00	1052.99
MW-158D	2635267.51	493888.355	1077.19	1077.60	44.00	1033.60	49.00	1028.60	49.00	1028.60
MW-158D1	2635300.13	493891.61	1076.48	1076.98	66.10	1010.88	76.10	1000.88	76.30	1000.68
MW-158D2	2635293.70	493891.27	1076.69	1077.09	95.00	982.09	105.00	972.09	105.20	971.89
MW-158D3	2635286.75	493891.36	1076.895	1077.34	114.80	962.54	124.80	952.54	125.00	952.34
MW-159A	2629111.02	510309.30	1163.76	1164.31	110.00	1054.31	120.00	1044.31	120.00	1044.31
MW-159B	2629110.79	510302.11	1163.79	1164.22	75.00	1089.22	85.00	1079.22	85.00	1079.22
MW-160A	2609504.55	496944.82	1158.48	1159.11	113.01	1046.10	123.01	1036.10	123.01	1036.10
MW-160B	2609507.91	496951.66	1158.44	1158.98	82.92	1076.06	92.92	1066.06	92.92	1066.06
MW-161A	2608420.93	503131.00	1170.10	1170.49	105.25	1065.24	115.25	1055.24	115.25	1055.24
MW-161B	2608421.89	503121.65	1170.17	1170.61	74.53	1096.08	84.53	1086.08	84.53	1086.08
MW-162A	2618295.54	498770.90	1152.59	1153.02	72.15	1080.87	82.15	1070.87	82.15	1070.87
MW-163A	2618964.30	498950.29	1163.30	1163.63	98.18	1065.45	108.18	1055.45	108.18	1055.45
MW-164A	2617496.50	498292.53	1153.68	1153.86	89.16	1064.70	99.16	1054.70	99.16	1054.70
MW-165B	2617936.15	498608.09	1152.44	1152.82	74.01	1078.81	84.01	1068.81	84.01	1068.81
MW-166A	2618659.22	496607.49	1153.12	1153.64	91.81	1061.83	101.81	1051.83	101.81	1051.83
MW-166B	2618663.18	496614.67	1153.08	1153.63	51.01	1102.62	61.01	1092.62	61.01	1092.62
MW-167A	2619424.15	497421.26	1150.21	1150.74	87.33	1063.41	97.33	1053.41	97.33	1053.41
MW-167B	2619432.79	497424.55	1150.39	1150.71	59.78	1090.93	69.78	1080.93	69.78	1080.93
MW-168A	2620189.00	498007.76	1156.33	1156.71	91.25	1065.46	101.25	1055.46	101.25	1055.46
MW-168B	2620180.55	498008.93	1156.21	1156.79	71.60	1085.19	81.60	1075.19	81.60	1075.19
MW-169A	2619936.51	495499.64	1148.26	1148.76	89.27	1059.49	99.27	1049.49	99.27	1049.49
MW-169B	2619946.31	495501.14	1148.18	1148.70	65.07	1083.63	75.07	1073.63	75.07	1073.63
MW-170A	2621229.15	496441.18	1147.57	1147.91	80.32	1067.59	90.32	1057.59	90.32	1057.59
MW-171A	2615671.56	501878.74	1163.19	1163.61	87.25	1076.36	97.25	1066.36	97.25	1066.36
MW-171B	2615664.35	501878.69	1163.03	1163.57	56.87	1106.70	66.87	1096.70	66.87	1096.70
MW-172A	2625765.61	497426.57	1150.82	1148.37	85.80	1062.57	95.80	1052.57	95.80	1052.57
MW-172B	2625757.29	497429.64	1150.42	1148.28	66.00	1082.28	76.00	1072.28	76.00	1072.28
MW-173A	2627010.64	497955.47	1151.65	1149.18	80.41	1068.77	90.41	1058.77	90.41	1058.77
MW-174A	2622871.80	497378.37	1145.60	1146.10	83.01	1063.09	93.01	1053.09	93.01	1053.09
MW-174B	2622867.51	497372.58	1145.74	1145.99	64.73	1081.26	74.73	1071.26	74.73	1071.26
MW-175A	2622692.46	501098.98	1155.10	1155.57	80.08	1075.49	90.08	1065.49	90.08	1065.49
MW-175B	2622682.34	501095.95	1155.29	1155.69	65.73	1089.96	75.73	1079.96	75.73	1079.96
MW-176A	2632841.64	499808.09	1093.29	1093.88	43.50	1050.38	53.50	1040.38	53.50	1040.38
MW-176B	2632842.12	499815.76	1093.86	1094.19	24.10	1070.09	34.10	1060.09	34.10	1060.09
MW-177A	2609973.28	492951.12	1108.24	1106.17	73.30	1032.87	83.30	1022.87	83.30	1022.87

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
MW-177B	2609973.55	492956.37	1108.21	1106.03	34.68	1071.35	44.68	1061.35	44.68	1061.35
MW-178B	2628872.75	506849.36	1145.04	1145.45	78.87	1066.58	88.87	1056.58	88.87	1056.58
MW-179A	2611667.23	493133.26	1111.59	1109.09	74.51	1034.58	84.51	1024.58	84.51	1024.58
MW-179B	2611660.97	493132.33	1111.53	1109.20	34.81	1074.39	44.81	1064.39	44.81	1064.39
MW-180A	2621008.98	495568.24	1158.58	1158.89	101.00	1057.89	111.00	1047.89	111.00	1047.89
MW-180D1	2621025.54	495574.59	1158.39	1158.77	165.60	993.17	175.60	983.17	175.90	982.87
MW-180D2	2621035.72	495575.36	1158.51	1158.74	204.90	953.84	214.90	943.84	215.25	943.49
MW-180D3	2621044.51	495576.63	1158.62	1158.81	225.40	933.41	235.40	923.41	235.75	923.06
MW-180E	2621015.56	495569.40	1158.73	1158.96	76.00	1082.96	86.00	1072.96	86.00	1072.96
OW-01	2607922.86	499747.98	1161.41	1159.51	62.00	1097.51	152.00	1007.51	152.30	1007.21
OW-02	2607882.80	499737.42	1161.57	1159.42	61.00	1098.42	151.00	1008.42	151.30	1008.12
OW-03	2607936.15	499790.42	1161.69	1159.38	61.70	1097.68	151.70	1007.68	152.00	1007.38
OW-04	2607936.23	499764.72	1161.75	1159.50	62.00	1097.50	152.00	1007.50	152.30	1007.20
OW-05	2634934.82	495184.29	1080.35	1078.11	18.50	1059.61	38.50	1039.61	39.00	1039.11
OW-06	2634886.40	495212.30	1079.50	1076.93	60.00	1016.93	70.00	1006.93	70.30	1006.63
OW-07	2634886.70	495207.45	1079.41	1077.18	18.70	1058.48	38.70	1038.48	39.00	1038.18
OW-08	2634788.69	495198.15	1078.70	1076.04	19.40	1056.64	39.40	1036.64	39.70	1036.34
OW-09	2634940.30	495138.05	1081.33	1079.50	19.00	1060.50	39.00	1040.50	39.30	1040.20
OW-10	2635084.86	495206.73	1079.79	1076.84	19.00	1057.84	39.00	1037.84	39.50	1037.34
OW-11	2635254.36	495167.81	1078.66	1075.87	23.00	1052.87	43.00	1032.87	43.00	1032.87
OW-12	2636332.13	495279.48	1080.19	1077.53	21.00	1056.53	41.00	1036.53	41.00	1036.53
OW-13	2634932.05	495125.51	1081.65	1078.85	18.50	1060.35	38.50	1040.35	38.50	1040.35
OW-14	2634939.53	494991.11	1080.70	1078.23	19.00	1059.23	39.00	1039.23	39.00	1039.23
OW-15	2634950.71	494791.74	1080.91	1078.50	21.00	1057.50	41.00	1037.50	41.00	1037.50
OW-16	2633480.01	495159.25	1078.22	1075.13	18.00	1057.13	38.00	1037.13	38.00	1037.13
OW-17	2607999.94	499877.66	1161.58	1159.10	48.00	1111.10	138.00	1021.10	138.00	1021.10
OW-18	2608114.43	499884.02	1162.21	1159.80	48.00	1111.80	138.00	1021.80	138.00	1021.80
OW-19	2608709.98	499902.62	1172.28	1169.49	49.00	1120.49	144.00	1025.49	144.00	1025.49
OW-20	2607954.58	499696.42	1162.79	1160.12	49.00	1111.12	139.00	1021.12	139.00	1021.12
OW-21	2607936.83	499559.45	1159.81	1156.90	47.00	1109.90	147.00	1009.90	147.00	1009.90
OW-22	2608019.74	499355.14	1161.24	1158.59	45.00	1113.59	140.00	1018.59	140.00	1018.59
OW-23	2607158.35	499656.44	1162.08	1158.88	50.00	1108.88	130.00	1028.88	130.00	1028.88
OW-24	2629552.06	496984.50	1153.07	1149.56	50.00	1099.56	95.00	1054.56	100.00	1049.56
OW-25	2629511.42	496932.08	1155.71	1152.33	50.00	1102.33	105.00	1047.33	110.00	1042.33
OW-26	2629214.17	496664.05	1148.64	1145.12	50.00	1095.12	95.00	1050.12	100.00	1045.12
OW-27	2629582.05	496942.21	1153.30	1149.80	50.00	1099.80	90.00	1059.80	95.00	1054.80
OW-28	2629581.52	496898.00	1153.81	1150.76	50.00	1100.76	95.00	1055.76	100.00	1050.76
OW-31	2624242.96	497898.99	1155.78	1152.35	47.00	1105.35	97.00	1055.35	105.00	1047.35
OW-32	2624139.95	497845.07	1153.87	1151.31	50.00	1101.31	95.00	1056.31	100.00	1051.31
OW-33	2623750.57	497669.79	1154.67	1152.38	50.00	1102.38	110.00	1042.38	113.39	1038.99
OW-34	2624320.18	497868.57	1154.70	1151.61	48.00	1103.61	93.00	1058.61	93.00	1058.61
OW-35	2624360.77	497738.45	1154.10	1150.66	50.00	1100.66	95.00	1055.66	100.00	1050.66
OW-36	2624413.00	497337.59	1157.23	1153.96	50.00	1103.96	105.00	1048.96	110.00	1043.96
OW-37	2624838.27	498178.35	1157.36	1154.41	50.00	1104.41	100.00	1054.41	105.00	1049.41
OW-38	2621733.08	496294.86	1151.19	1147.66	50.00	1097.66	90.00	1057.66	90.00	1057.66
OW-39	2621620.02	496212.33	1151.39	1147.82	50.00	1097.82	95.00	1052.82	100.00	1047.82
OW-40	2621297.36	495975.58	1157.66	1154.21	50.00	1104.21	100.00	1054.21	105.00	1049.21
OW-41	2621816.64	496281.90	1150.22	1146.75	50.00	1096.75	90.00	1056.75	95.00	1051.75
OW-42	2621899.70	496169.43	1151.21	1147.71	50.00	1097.71	90.00	1057.71	95.00	1052.71
OW-43	2622135.38	495845.76	1156.74	1153.24	50.00	1103.24	100.00	1053.24	105.00	1048.24
OW-44	2622302.63	496682.05	1147.84	1144.63	50.00	1094.63	90.00	1054.63	95.00	1049.63
OW-45	2619203.17	494842.21	1152.47	1149.11	44.00	1105.11	104.00	1045.11	108.00	1041.11
OW-46	2619059.00	494783.36	1151.55	1148.16	46.00	1102.16	96.00	1052.16	100.00	1048.16
OW-47	2618684.83	494630.88	1153.44	1149.85	47.00	1102.85	97.00	1052.85	100.00	1049.85

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
OW-48	2619283.37	494800.47	1153.38	1150.11	48.50	1101.61	113.50	1036.61	114.50	1035.61
OW-49	2619315.78	494671.87	1154.09	1150.81	50.00	1100.81	110.00	1040.81	110.50	1040.31
OW-50	2619465.62	494300.16	1151.16	1147.70	47.00	1100.70	97.00	1050.70	97.50	1050.20
OW-51	2619790.64	495096.02	1149.86	1146.50	50.00	1096.50	100.00	1046.50	105.00	1041.50
OW-52	2610585.60	493033.91	1107.14	1104.93	55.65	1049.28	86.00	1018.93	86.00	1018.93
OW-53	2610555.96	493019.67	1107.13	1104.92	51.65	1053.27	82.00	1022.92	82.00	1022.92
OW-54	2611356.54	493520.28	1115.45	1112.85	56.15	1056.70	86.50	1026.35	86.50	1026.35
OW-55	2610821.53	492991.93	1107.05	1104.87	57.17	1047.70	87.60	1017.27	88.00	1016.87
OW-56	2611642.99	493196.43	1112.15	1109.96	52.67	1057.29	83.00	1026.96	83.00	1026.96
OW-57	2611768.76	493277.87	1114.84	1112.62	52.65	1059.97	83.00	1029.62	83.00	1029.62
OW-58	2611366.56	493009.96	1109.00	1106.77	55.67	1051.10	86.00	1020.77	86.00	1020.77
OW-59	2611579.97	493019.21	1110.50	1108.33	54.17	1054.16	84.50	1023.83	84.50	1023.83
OW-60	2627137.87	497440.67	1149.15	1146.66	81.00	1065.66	101.00	1045.66	101.00	1045.66
OW-61	2627191.65	497571.53	1148.81	1146.51	81.00	1065.51	101.30	1045.21	101.30	1045.21
OW-62	2627351.22	497954.27	1151.40	1149.12	81.00	1068.12	101.30	1047.82	101.30	1047.82
OW-63	2627527.96	497841.89	1152.90	1150.58	81.00	1069.58	101.30	1049.28	101.30	1049.28
OW-64	2627299.94	497308.27	1148.12	1145.62	81.00	1064.62	101.30	1044.32	101.30	1044.32
OW-65	2627672.94	497146.26	1147.36	1144.93	81.00	1063.93	101.30	1043.63	101.30	1043.63
OW-66	2622938.07	497314.20	1147.09	1144.70	71.00	1073.70	86.00	1058.70	86.00	1058.70
OW-67	2622730.72	497150.23	1149.64	1147.31	71.00	1076.31	86.00	1061.31	86.00	1061.31
OW-68	2622418.58	496526.17	1146.89	1144.49	62.20	1082.29	77.20	1067.29	77.20	1067.29
OW-69	2623044.57	497134.81	1147.02	1144.82	71.00	1073.82	86.00	1058.82	86.00	1058.82
OW-70	2623340.91	496845.85	1146.14	1143.72	71.00	1072.72	86.00	1057.72	86.00	1057.72
OW-71	2623796.31	497474.10	1158.23	1155.75	78.50	1077.25	108.50	1047.25	109.00	1046.75
OW-72	2620345.78	495292.98	1156.05	1153.61	77.00	1076.61	97.00	1056.61	97.00	1056.61
OW-73	2620217.61	495239.66	1157.61	1154.97	77.00	1077.97	97.00	1057.97	97.00	1057.97
OW-74	2619854.18	494895.06	1148.38	1146.17	65.80	1080.37	85.80	1060.37	85.80	1060.37
OW-75	2620487.46	495139.42	1154.51	1152.14	77.00	1075.14	97.00	1055.14	97.00	1055.14
OW-76	2620657.85	494777.17	1148.68	1146.27	77.00	1069.27	97.00	1049.27	97.00	1049.27
OW-77	2621414.78	495808.38	1157.82	1155.32	65.00	1090.32	85.00	1070.32	85.00	1070.32
OW-78	2609111.28	499977.47	1163.94	1161.86	97.00	1064.86	137.00	1024.86	137.00	1024.86
OW-79	2608989.60	499915.27	1167.29	1167.59	95.50	1072.09	135.50	1032.09	135.50	1032.09
OW-80	2608751.82	499731.59	1169.30	1166.93	73.00	1093.93	113.00	1053.93	113.00	1053.93
OW-81	2609233.49	499803.10	1164.13	1161.98	97.00	1064.98	137.00	1024.98	137.00	1024.98
OW-82	2609366.00	499415.33	1169.05	1166.76	97.00	1069.76	137.00	1029.76	137.00	1029.76
OW-83	2609754.89	500075.01	1173.20	1170.94	97.00	1073.94	137.10	1033.84	137.10	1033.84
OW-89	2632605.05	496433.60	1092.56	1092.96	37.30	1055.66	47.30	1045.66	47.30	1045.66
OW-90	2625244.14	498690.84	1153.30	1152.00	88.00	1064.00	103.00	1049.00	103.00	1049.00
OW-92	2625155.78	498583.33	1154.30	1151.63	89.10	1062.53	104.10	1047.53	104.10	1047.53
OW-93	2625291.12	498721.87	1156.87	1153.90	87.00	1066.90	97.00	1056.90	97.00	1056.90
OW-94	2625433.51	498611.46	1153.21	1150.48	90.00	1060.48	105.00	1045.48	105.00	1045.48
OW-95	2625755.73	498358.54	1150.04	1147.57	89.00	1058.57	104.00	1043.57	104.00	1043.57
OW-96	2628354.01	496783.72	1146.64	1143.33	74.00	1069.33	94.00	1049.33	94.00	1049.33
OW-97	2628422.98	496909.51	1146.21	1143.71	83.00	1060.71	103.00	1040.71	103.00	1040.71
OW-98	2628617.39	497268.67	1150.67	1148.38	84.00	1064.38	104.00	1044.38	104.00	1044.38
OW-99	2628520.49	496667.07	1146.97	1144.12	79.50	1064.62	99.50	1044.62	99.50	1044.62
OW-100	2628885.60	496489.50	1147.39	1144.96	78.00	1066.96	98.00	1046.96	98.00	1046.96
OW-101	2622907.33	509987.52	1168.26	1168.27	79.00	1089.27	109.00	1059.27	109.00	1059.27
OW-102	2623025.62	510070.30	1166.49	1166.47	79.00	1087.47	109.50	1056.97	109.50	1056.97
OW-103	2623370.57	510291.27	1169.13	1169.11	82.00	1087.11	112.00	1057.11	112.00	1057.11
OW-104	2622969.37	509760.45	1167.73	1167.73	79.00	1088.73	109.00	1058.73	109.00	1058.73
OW-105	2623170.60	509450.30	1165.40	1165.34	84.00	1081.34	114.00	1051.34	114.00	1051.34
OW-106	2611437.28	493518.11	1115.75	1113.30	58.50	1054.80	88.50	1024.80	88.50	1024.80
OW-107	2611689.20	493490.18	1115.24	1114.56	59.00	1055.56	89.00	1025.56	89.00	1025.56

Table 3.3 (Continued)
Well Construction Details
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Well Name	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Top of Screen		Bottom of Screen		Bottom of Well	
					Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)	Depth (ft bgs)	Elevation (ft NAVD88)
OW-108	2611503.37	493497.76	1115.89	1113.80	62.34	1051.46	92.34	1021.46	92.34	1021.46
OW-109	2634945.68	495093.57	1081.46	1079.24	105.00	974.24	115.00	964.24	115.00	964.24
OW-110	2634945.32	495103.58	1081.38	1079.45	65.00	1014.45	75.00	1004.45	75.00	1004.45
OW-111	2620978.97	495642.20	1156.53	1157.245	87.70	1069.55	107.70	1049.55	108.00	1049.25
OW-112	2620948.75	495616.71	1157.25	1157.601	85.75	1071.85	105.75	1051.85	106.00	1051.60
OW-113	2620861.85	495545.09	1157.54	1158.10	85.60	1072.50	105.60	1052.50	105.90	1052.20
OW-114R	2621051.50	495691.94	1157.59	1157.724	228.00	929.72	238.00	919.72	238.30	919.42
OW-115	2621041.01	495690.07	1157.35	1157.465	166.30	991.17	176.30	981.17	176.60	980.87
OW-116	2621032.89	495685.13	1157.10	1157.257	125.60	1031.66	135.50	1021.76	136.00	1021.26
OW-117	2627120.29	497394.59	1148.70	1146.70	198.60	948.10	208.60	938.10	208.80	937.90
OW-118	2627123.41	497402.93	1148.49	1146.66	164.70	981.96	174.70	971.96	175.00	971.66
OW-119	2627126.50	497411.48	1148.64	1146.67	118.80	1027.87	128.80	1017.87	129.00	1017.67
OW-120	2611545.2	493538.69	1116.09	1114.10	204.90	909.20	214.90	899.20	215.20	898.90
OW-121	2611534.4	493536.92	1115.56	1113.61	158.75	954.86	168.75	944.86	168.95	944.66
OW-122	2611526.1	493535.65	1116.11	1114.07	112.00	1002.07	122.00	992.07	122.20	991.87
PZ-01	2632385.13	499049.59	1116.38	1114.43	47.80	1066.63	67.80	1046.63	67.80	1046.63
PZ-02	2631558.74	499022.44	1130.80	1128.98	58.70	1070.28	78.70	1050.28	78.90	1050.08
PZ-11	2633021.21	501936.69	1094.41	1094.98	55.00	1039.98	60.00	1034.98	60.00	1034.98
PZ-12	2632570.04	499119.97	1101.31	1101.52	63.00	1038.52	68.00	1033.52	68.00	1033.52
PZ-13	2633396.65	499152.04	1081.66	1081.90	35.00	1046.90	40.00	1041.90	40.00	1041.90
PZ-14	2633403.76	499155.23	1081.03	1081.42	49.00	1032.42	54.00	1027.42	54.00	1027.42
TH-EW-12	2610738.32	493102.14	1107.37	1105.17	57.17	1048.00	87.50	1017.67	87.50	1017.67
TH-EW-13	2611511.12	493072.65	1111.04	1108.85	53.50	1055.35	83.83	1025.02	84.83	1024.02
TH-EW-14R1	2625268.99	498721.42	1156.72	1154.02	88.00	1066.02	103.00	1051.02	103.00	1051.02
TH-EW-14R2	2625871.91	497850.00	1151.08	1147.74	85.00	1062.74	105.00	1042.74	105.00	1042.74
TH-EW-15	2622870.43	509960.21	1172.51	1168.34	79.00	1089.34	109.00	1059.34	109.00	1059.34
TH-EW-16	2628310.33	496736.54	1147.71	1144.38	74.00	1070.38	99.00	1045.38	99.00	1045.38
TH-EW-17	2611500.79	493522.97	1116.41	1113.96	59.00	1054.96	89.00	1024.96	89.00	1024.96
TH-EW-18	2621024.9	495678.23	1156.55	1156.85	88.00	1068.85	108.00	1048.85	108.30	1048.55

Notes:

bgs = below ground surface
EW = extraction well
FEW = focused extraction well
ft = feet
MW = monitoring well
NAD83 = North American Datum of 1983
NAVD88 = North American Vertical Datum of 1988
OW = observation well
PZ = piezometer
TH = test hole

Table 3.4
Vertical Gradient Directions and Values, March 2017 and August 2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Monitoring Event	Vertical Flow Direction	Flow Between Shallow Zone and Intermediate Zone		Flow Between Intermediate Zone and Deep Zone	
		Well Cluster	Gradient*	Well Cluster	Gradient*
March 31, 2017	Downward Flow	MW-44	0.076	MW-95	0.038
		MW-56	0.031	MW-124	0.022
		MW-154	0.030	MW-133	0.020
		MW-177	0.043		
	Upward Flow	MW-168	-0.023	MW-134	-0.022
		MW-174	-0.030	MW-135	-0.041
		MW-175	-0.073		
		MW-176	-0.074		
August 24, 2017	Downward Flow	MW-56	0.053	MW-83	0.022
		MW-107	0.031	MW-95	0.048
		MW-154	0.027	MW-133	0.021
		MW-177	0.043		
	Upward Flow	MW-44	-0.246	MW-44	-0.097
		MW-168	-0.021	MW-135	-0.086
		MW-174	-0.033		
		MW-175	-0.070		
		MW-176	-0.076		

Notes:

1. Positive gradient indicates downward flow between the two zones. Negative gradient indicates upward flow between the two zones.

2. Only vertical gradients equal to or greater than 0.020 in either a downward or upward direction are presented in this table.

MW = monitoring well

Table 3.5
Extraction Well Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-04 (gpm)	EW-07 (gpm)	EW-09 (gpm)	FEW-11 (gpm)	EW-12 (gpm)	FEW-14 (gpm)	FEW-15 (gpm)	EW-16 (gpm)	EW-17 (gpm)	EW-18 (gpm)	Total (gpm)
Feb-02	185	132	331	268	0	0	0	0	0	0	0	916
Mar-02	181	132	329	263	0	0	0	0	0	0	0	905
Apr-02	180	124	328	261	0	0	0	0	0	0	0	893
May-02	179	119	328	250	0	0	0	0	0	0	0	876
Jun-02	177	120	328	250	0	0	0	0	0	0	0	875
Jul-02	175	123	330	231	0	0	0	0	0	0	0	859
Aug-02	174	120	330	231	0	0	0	0	0	0	0	855
Nov-02	171	115	320	226	0	0	0	0	0	0	0	832
Feb-03	168	110	315	221	0	0	0	0	0	0	0	814
May-03	164	109	314	216	0	0	0	0	0	0	0	803
Aug-03	160	105	299	215	0	0	0	0	0	0	0	779
Nov-03	154	107	300	215	0	0	0	0	0	0	0	776
Mar-04	148	117	299	210	0	0	0	0	0	0	0	774
Apr-04	148	116	280	185	0	0	0	0	0	0	0	729
Aug-04	198	122	298	194	0	0	0	0	0	0	0	812
Oct-04	200	119	302	185	0	0	0	0	0	0	0	806
Jan-05	197	115	274	180	0	0	0	0	0	0	0	766
May-05	200	110	264	180	0	0	0	0	0	0	0	754
Aug-05	197	105	305	178	0	0	0	0	0	0	0	785
Oct-05	187	104	304	171	0	0	0	0	0	0	0	766
Jan-06	177	105	308	158	0	0	0	0	0	0	0	747
Feb-06	163	95	294	143	0	0	0	0	0	0	0	695
Mar-06	171	89	316	152	0	350	0	0	0	0	0	1,078
Apr-06	156	98	294	141	0	275	0	0	0	0	0	964
May-06	157	103	312	145	0	303	0	0	0	0	0	1,020
Jun-06	85	90	284	138	0	268	0	0	0	0	0	864
Jul-06	134	83	302	144	0	323	0	0	0	0	0	987
Aug-06	74	102	308	125	0	321	0	0	0	0	0	930
Sep-06	220	109	300	129	0	306	0	0	0	0	0	1,063
Oct-06	234	115	303	137	0	318	0	0	0	0	0	1,106
Nov-06	204	96	194	86	0	316	0	0	0	0	0	896
Dec-06	183	81	281	148	0	263	0	0	0	0	0	956
Jan-07	211	84	294	137	0	307	0	0	0	0	0	1,033
Feb-07	198	81	290	129	0	300	0	0	0	0	0	999
Mar-07	187	79	288	121	0	280	0	0	0	0	0	956
Apr-07	188	81	308	96	0	313	0	0	0	0	0	986
May-07	140	72	269	109	0	249	0	0	0	0	0	839
Jun-07	202	80	321	157	0	182	0	0	0	0	0	942
Jul-07	202	65	310	154	0	329	0	0	0	0	0	1,059
Aug-07	184	73	274	127	0	238	0	0	0	0	0	896
Sep-07	190	79	292	146	0	315	0	0	0	0	0	1,022
Oct-07	190	81	296	148	0	320	0	0	0	0	0	1,035
Nov-07	116	77	301	151	0	325	0	0	0	0	0	969
Dec-07	193	70	299	150	0	324	0	0	0	0	0	1,037

Table 3.5 (Continued)
Extraction Well Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-04 (gpm)	EW-07 (gpm)	EW-09 (gpm)	FEW-11 (gpm)	EW-12 (gpm)	FEW-14 (gpm)	FEW-15 (gpm)	EW-16 (gpm)	EW-17 (gpm)	EW-18 (gpm)	Total (gpm)
Jan-08	168	59	286	138	0	313	0	0	0	0	0	964
Feb-08	177	64	293	147	0	324	0	0	0	0	0	1,005
Mar-08	181	65	177	87	236	305	0	0	0	0	0	1,050
Apr-08	181	68	314	156	441	325	0	0	0	0	0	1,486
May-08	167	64	292	143	459	323	0	0	0	0	0	1,448
Jun-08	160	69	277	144	328	320	0	0	0	0	0	1,296
Jul-08	166	78	304	160	277	321	0	0	0	0	0	1,306
Aug-08	160	77	309	161	542	324	0	0	0	0	0	1,573
Sep-08	156	73	245	160	545	323	0	0	0	0	0	1,502
Oct-08	96	66	261	159	495	320	0	0	0	0	0	1,398
Nov-08	48	44	319	164	562	324	0	0	0	0	0	1,461
Dec-08	81	61	313	158	548	314	0	0	0	0	0	1,475
Jan-09	185	93	322	166	542	308	0	0	0	0	0	1,617
Feb-09	185	86	314	159	585	313	0	0	0	0	0	1,644
Mar-09	169	93	231	112	467	321	0	0	0	0	0	1,391
Apr-09	189	92	237	134	476	307	0	0	0	0	0	1,435
May-09	178	93	227	125	379	301	0	0	0	0	0	1,303
Jun-09	186	91	298	165	480	317	165	0	140	0	0	1,842
Jul-09	172	88	302	139	520	212	184	0	94	0	0	1,710
Aug-09	168	73	216	137	441	175	186	0	90	0	0	1,486
Sep-09	169	77	278	131	491	196	176	0	88	0	0	1,605
Oct-09	177	78	293	142	530	269	188	0	90	0	0	1,767
Nov-09	173	81	288	126	526	321	188	0	90	0	0	1,793
Dec-09	147	68	254	122	426	260	164	0	81	0	0	1,522
Jan-10	160	76	277	133	477	273	179	9	88	0	0	1,673
Feb-10	155	79	287	135	533	303	187	0	87	0	0	1,766
Mar-10	151	77	282	140	506	320	185	0	84	0	0	1,746
Apr-10	148	78	288	144	523	322	191	110	85	0	0	1,888
May-10	143	77	292	147	533	320	194	329	87	0	0	2,123
Jun-10	140	76	261	131	173	306	195	340	92	0	0	1,715
Jul-10	131	75	294	140	347	294	194	345	105	0	0	1,925
Aug-10	109	76	300	146	391	277	204	372	105	0	0	1,979
Sep-10	138	75	292	144	285	291	202	246	117	0	0	1,789
Oct-10	166	71	274	126	536	237	205	221	111	0	0	1,947
Nov-10	121	39	292	146	547	120	205	495	105	0	0	2,070
Dec-10	168	78	288	142	534	255	171	480	90	0	0	2,205
Jan-11	162	94	287	141	534	306	188	489	103	0	0	2,305
Feb-11	176	95	292	143	535	323	192	487	101	0	0	2,344
Mar-11	176	95	292	144	489	323	194	496	98	0	0	2,307
Apr-11	171	93	284	140	512	310	189	474	95	0	0	2,268
May-11	179	98	277	145	518	315	195	344	96	0	0	2,166
Jun-11	141	93	270	135	432	306	186	304	95	0	0	1,962

Table 3.5 (Continued)
Extraction Well Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-04 (gpm)	EW-07 (gpm)	EW-09 (gpm)	FEW-11 (gpm)	EW-12 (gpm)	FEW-14 (gpm)	FEW-15 (gpm)	EW-16 (gpm)	EW-17 (gpm)	EW-18 (gpm)	Total (gpm)
Jul-11	190	97	289	130	501	306	190	297	99	0	0	2,098
Aug-11	214	97	172	84	245	291	189	319	98	0	0	1,710
Sep-11	196	93	285	140	514	279	192	458	97	0	0	2,253
Oct-11	196	93	288	140	543	292	192	497	105	0	0	2,346
Nov-11	140	88	281	140	494	120	191	317	101	0	0	1,872
Dec-11	199	96	286	135	540	261	182	493	99	0	0	2,291
Jan-12	200	89	287	139	546	313	183	528	99	0	0	2,384
Feb-12	97	95	279	135	515	306	183	487	96	0	0	2,193
Mar-12	250	93	276	135	513	319	184	485	96	0	0	2,350
Apr-12	198	93	280	133	518	296	179	466	105	0	0	2,268
May-12	196	92	280	130	522	309	186	476	99	0	0	2,289
Jun-12	199	94	284	142	517	316	188	467	98	0	0	2,304
Jul-12	199	94	284	129	N/A	307	190	487	93	0	0	1,782
Aug-12	197	75	282	134	312	120	184	483	94	0	0	1,883
Sep-12	165	77	240	118	391	175	156	451	82	0	0	1,855
Oct-12	194	90	281	144	508	237	176	447	90	0	0	2,165
Nov-12	199	77	285	145	278	210	180	448	99	0	0	1,921
Dec-12	186	63	265	128	457	209	173	410	91	0	0	1,982
Jan-13	200	96	290	140	543	298	249	483	4	0	0	2,304
Feb-13	200	99	289	140	550	309	251	472	0	0	0	2,310
Mar-13	200	100	288	139	548	289	249	488	0	0	0	2,300
Apr-13	199	99	287	140	521	287	244	472	0	0	0	2,249
May-13	126	98	278	135	386	141	233	468	0	136	0	2,002
Jun-13	245	101	290	139	492	204	249	476	0	249	0	2,445
Jul-13	250	97	287	136	428	264	247	411	0	312	0	2,432
Aug-13	242	99	285	202	167	274	247	372	0	324	0	2,211
Sep-13	208	98	285	172	157	274	246	100	0	322	0	1,861
Oct-13	177	87	251	150	460	273	211	194	0	315	0	2,117
Nov-13	125	67	175	109	110	275	157	79	0	325	0	1,421
Dec-13	182	95	250	158	203	274	236	265	0	323	0	1,986
Jan-14	200	97	265	167	525	267	240	484	0	315	0	2,561
Feb-14	189	97	282	169	479	272	248	488	0	323	0	2,546
Mar-14	197	97	283	167	498	258	243	483	0	310	0	2,535
Apr-14	197	98	283	168	516	233	241	477	0	309	0	2,523
May-14	163	96	123	164	490	236	236	390	0	321	0	2,219
Jun-14	192	90	263	165	494	232	229	449	0	316	0	2,429
Jul-14	195	89	256	166	474	233	241	443	0	315	0	2,413
Aug-14	197	95	277	164	334	235	233	446	0	311	0	2,293
Sep-14	198	94	285	167	485	237	238	456	0	322	0	2,483
Oct-14	198	93	287	162	520	228	228	453	0	320	0	2,487
Nov-14	201	95	291	168	528	218	236	457	0	293	0	2,487
Dec-14	193	72	285	165	519	224	233	437	0	303	0	2,430

Table 3.5 (Continued)
Extraction Well Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-04 (gpm)	EW-07 (gpm)	EW-09 (gpm)	FEW-11 (gpm)	EW-12 (gpm)	FEW-14 (gpm)	FEW-15 (gpm)	EW-16 (gpm)	EW-17 (gpm)	EW-18 (gpm)	Total (gpm)
Jan-15	200	96	285	164	518	220	232	448	0	295	0	2,458
Feb-15	192	93	275	160	443	214	219	427	0	306	0	2,328
Mar-15	89	35	263	74	58	100	215	404	0	309	0	1,548
Apr-15	189	91	263	153	441	154	218	412	0	304	0	2,225
May-15	192	91	267	163	348	177	222	423	0	303	0	2,186
Jun-15	184	91	261	165	468	227	230	426	0	306	0	2,358
Jul-15	52	90	258	149	494	208	228	412	0	296	0	2,187
Aug-15	190	86	259	163	493	155	227	422	0	279	0	2,273
Sep-15	193	87	268	167	468	192	231	428	0	288	0	2,321
Oct-15	167	87	269	169	444	174	232	429	0	242	0	2,213
Nov-15	187	86	218	133	437	208	238	415	0	289	0	2,212
Dec-15	188	84	264	164	501	126	235	420	0	166	0	2,147
Jan-16	195	88	277	174	523	200	249	443	0	324	0	2,473
Feb-16	184	87	261	163	447	206	233	416	0	281	0	2,278
Mar-16	194	89	278	176	486	209	248	438	0	319	0	2,437
Apr-16	195	55	280	175	289	207	240	442	0	296	0	2,179
May-16	176	54	269	170	489	173	227	407	0	215	0	2,180
Jun-16	197	66	209	133	511	207	246	451	0	322	0	2,342
Jul-16	198	70	277	181	522	204	223	460	0	324	0	2,459
Aug-16	197	66	278	183	516	187	250	458	0	323	0	2,458
Sep-16	198	68	186	92	362	185	196	368	0	325	58	2,038
Oct-16	193	67	204	107	482	179	209	379	0	321	147	2,288
Nov-16	194	67	118	118	342	175	167	325	0	315	191	2,012
Dec-16	200	69	178	110	533	180	210	494	0	314	180	2,468
Jan-17	194	68	175	111	466	180	247	478	0	325	180	2,424
Feb-17	200	67	175	111	529	180	251	493	0	325	181	2,512
Mar-17	187	67	172	111	512	180	243	460	0	314	183	2,429
Apr-17	180	65	162	108	477	174	234	458	0	271	185	2,314
May-17	194	64	177	112	518	174	250	474	0	281	171	2,415
Jun-17	186	56	179	112	276	180	247	456	0	280	177	2,149
Jul-17	194	66	178	111	335	180	249	473	0	290	175	2,251
Aug-17	177	59	178	110	444	180	248	480	0	290	173	2,339
Sep-17	67	53	180	108	0	72	247	486	0	98	176	1,487
Oct-17	200	65	180	109	0	240	248	486	0	325	176	2,029

Notes:

1. Values reported from 2006 through 2017 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.

EW = extraction well

FEW = focused extraction well

gpm = gallons per minute

N/A = not available

FIGURES

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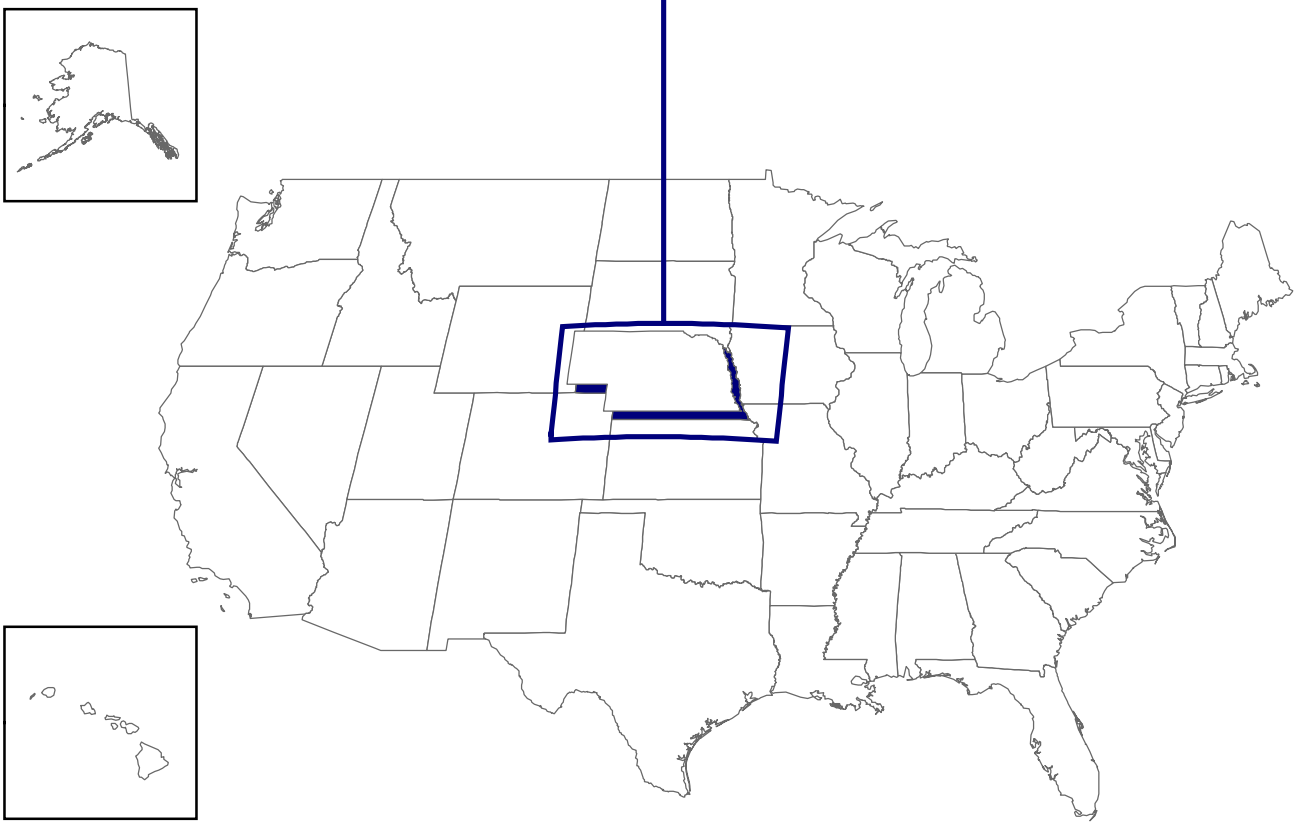

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Legend

- Former Nebraska Ordnance Plant
- County
- State

Figure 1.1
Site Location

Drawn by: RR	Reviewed by: TH	Source: HGL
Date: 11/07/2017	Date: 12/19/2017	Projection: NAD 1983 Nebraska State Plane (Nebraska inset map)
Version: 1	Revision Date / Initials:	Units: Feet

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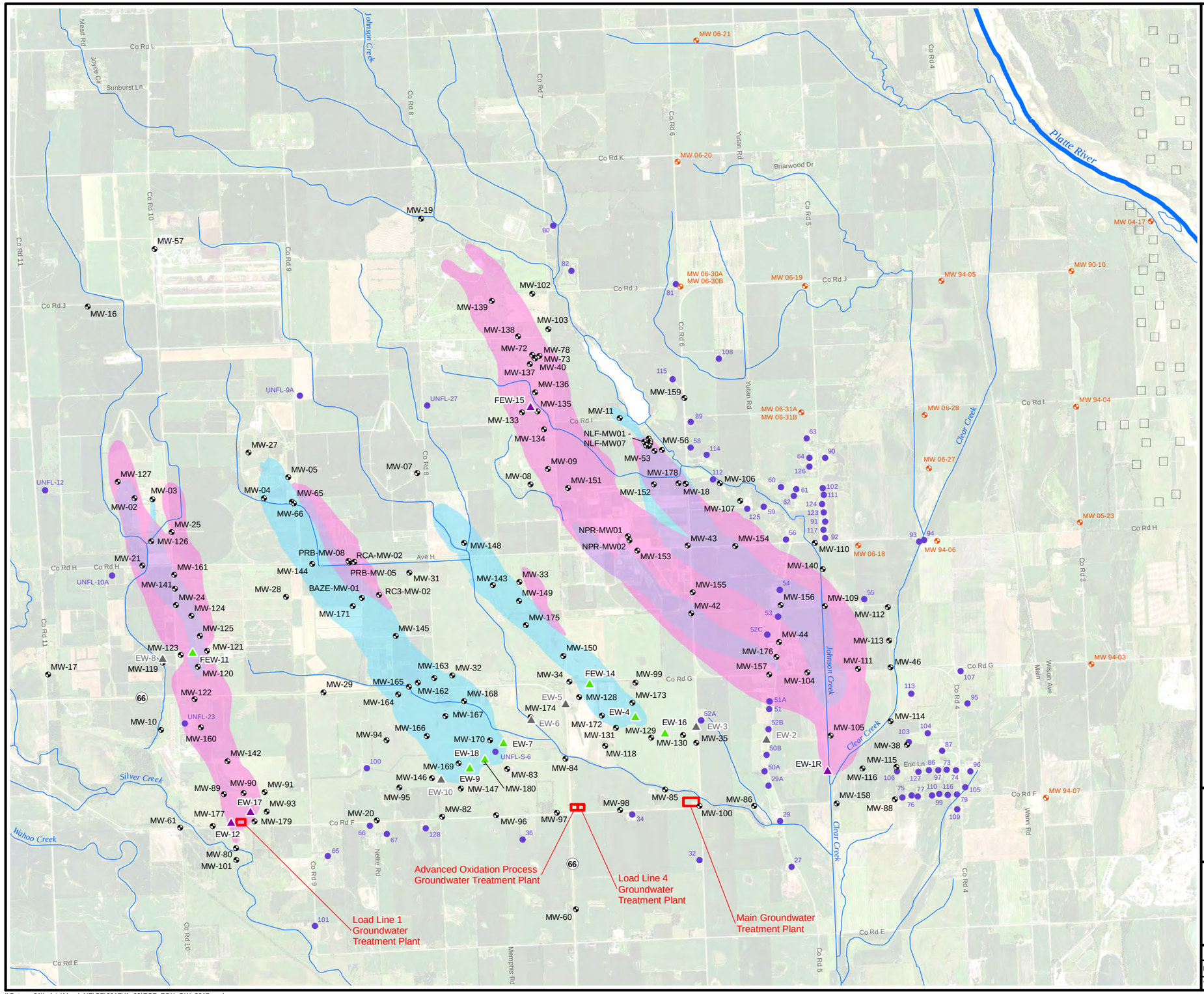

Legend

- Groundwater Monitoring Well/Well Cluster
- Water Supply Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 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 (2017)
- Approximate Area of RDX at a Concentration of 2 µg/L or Greater (2017)
- 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 (2017)

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.
The extent of RDX east and west of the primary LL2 plume is based on monitoring well trends at MW-29 and professional judgment.
The extent of RDX east of the primary LL3 plume is based on monitoring well trends at MW-99 and professional judgment.

AOP UV = Advanced Oxidation Process ultraviolet
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)

N

0 2,000 4,000 8,000

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure 1.2
TCE and RDX in Groundwater

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2014)
Date: 12/13/2017	Date: 01/15/2017	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 3	Revision Date / Initials: 01/15/2017 RR	

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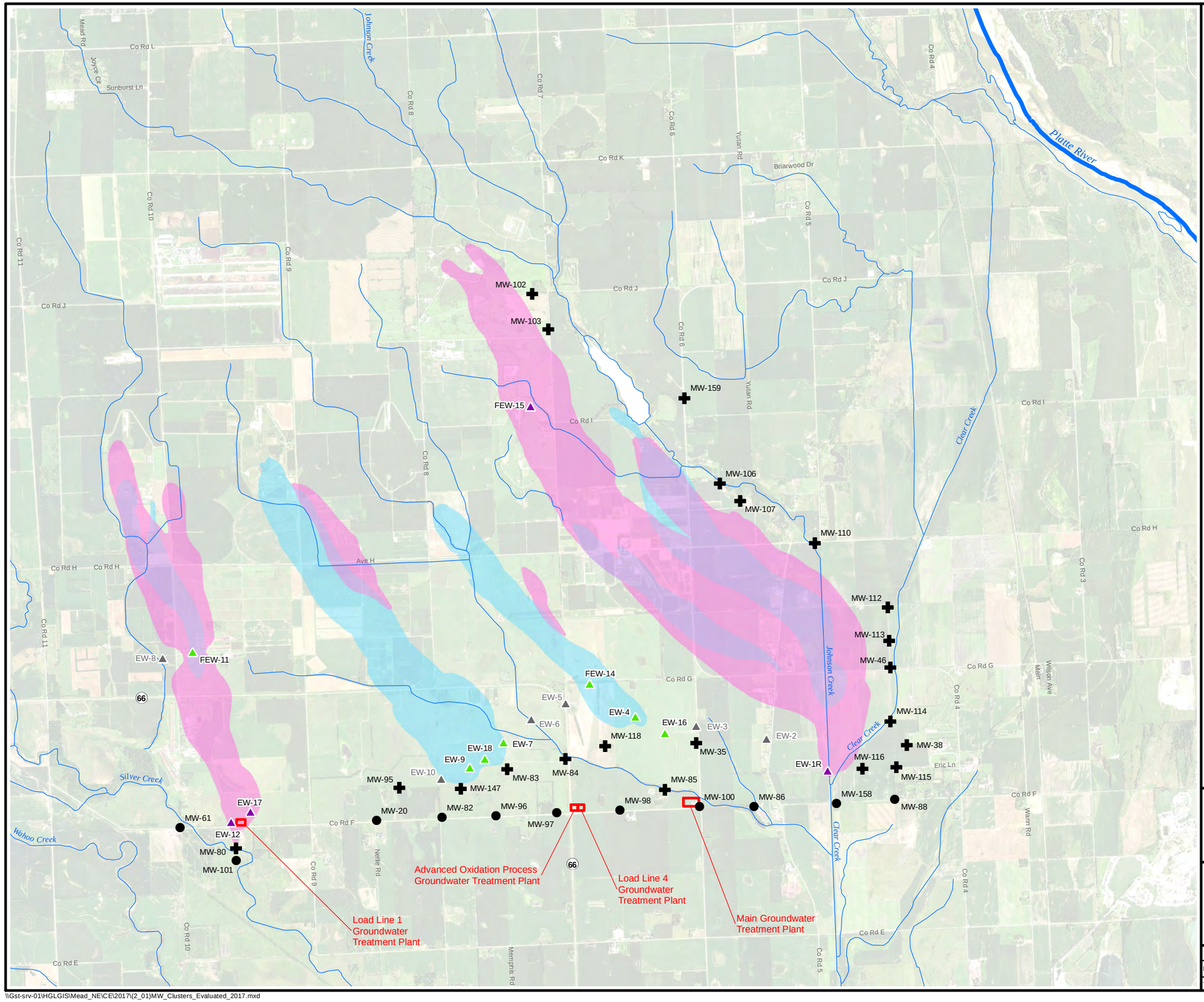

Legend

- Compliance Monitoring Well Cluster
- Perimeter Monitoring Well Cluster
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

Contaminant Plume

- Approximate Area of TCE at a Concentration of 5 µg/L or Greater (2017)
- Approximate Area of RDX at a Concentration of 2 µg/L or Greater (2017)
- 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 (2017)

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.
The extent of RDX east and west of the primary LL2 plume is based on monitoring well trends at MW-29 and professional judgment.
The extent of RDX east of the primary LL3 plume is based on monitoring well trends at MW-99 and professional judgment.

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 2,000 4,000 8,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure 2.1
Groundwater Monitoring Well Clusters Evaluated

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016)
Date: 12/13/2017	Date: 12/19/2017	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 12/19/2017 RR	

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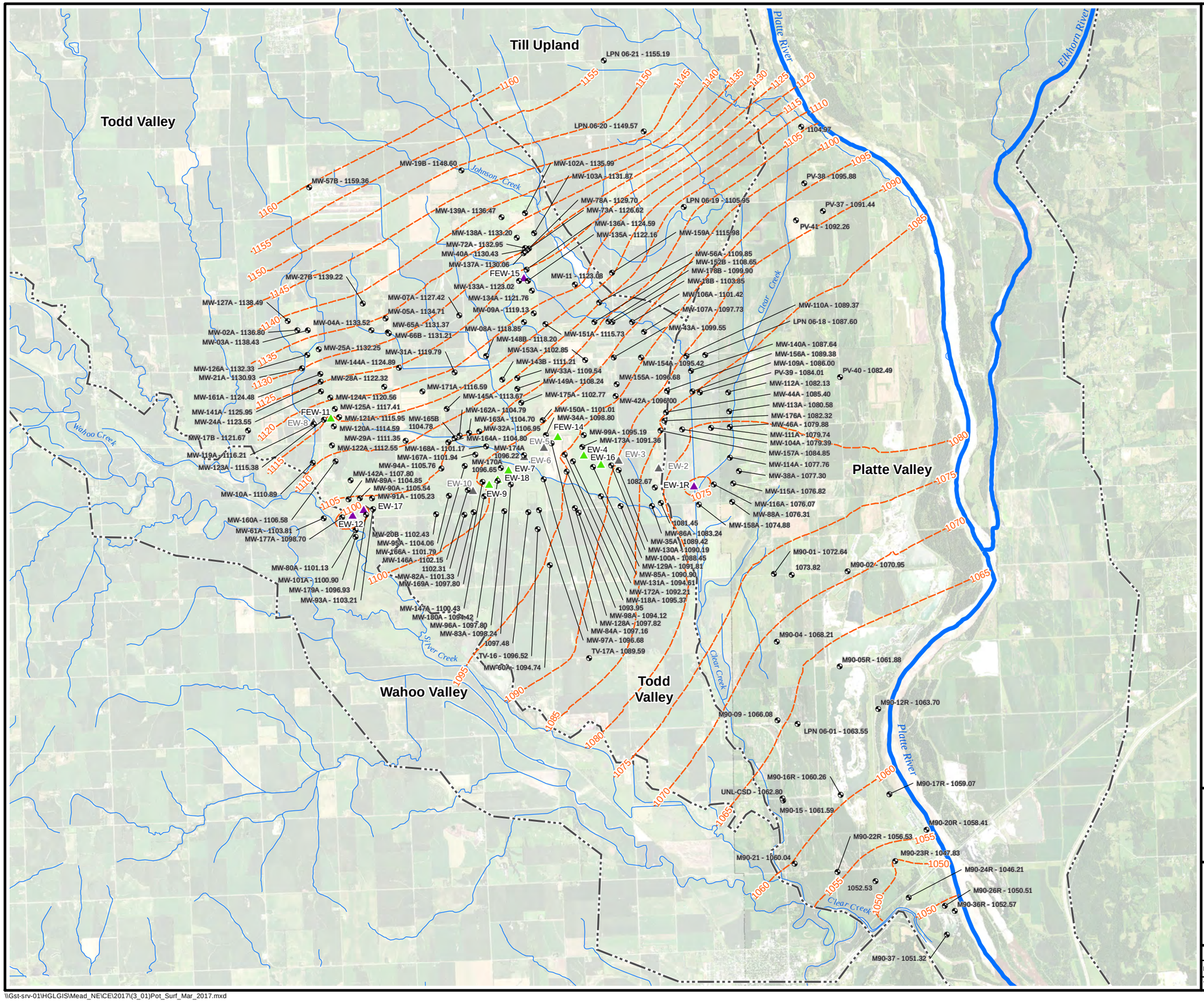

Legend

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 1100 March 2017 Potentiometric Contour
- Basin Boundary

MW-107A - 1097.73
Well ID - Water Level Elevation

1102.31
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.

March 2017 data collected on March 31, 2017.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,500 7,000 14,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure 3.1
Interpreted Potentiometric Surface Intermediate Zone - March 2017

Drawn by: RR	Reviewed by: TH, JM, MW, JG	Source: HGL, ECC, NAIP (2016)
Date: 12/18/2017	Date: 03/01/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 5	Revision Date / Initials: 03/01/2018 RR	

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Legend

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 1100 August 2017 Potentiometric Contour
- Basin Boundary
- MW-107A - 1096.76 — Well ID - Water Level Elevation
- 1102.36 — 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 2017 data collected on August 24, 2017.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,500 7,000 14,000

Feet

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure 3.2
Interpreted Potentiometric Surface Intermediate Zone - August 2017

Drawn by: RR	Reviewed by: TH, JM	Source: HGL, ECC, NAIP (2016)
Date: 12/18/2017	Date: 01/03/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 3	Revision Date / Initials: 01/03/2018 RR	

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APPENDIX A

CONCENTRATION TREND CHARTS FOR COMPLIANCE MONITORING WELLS

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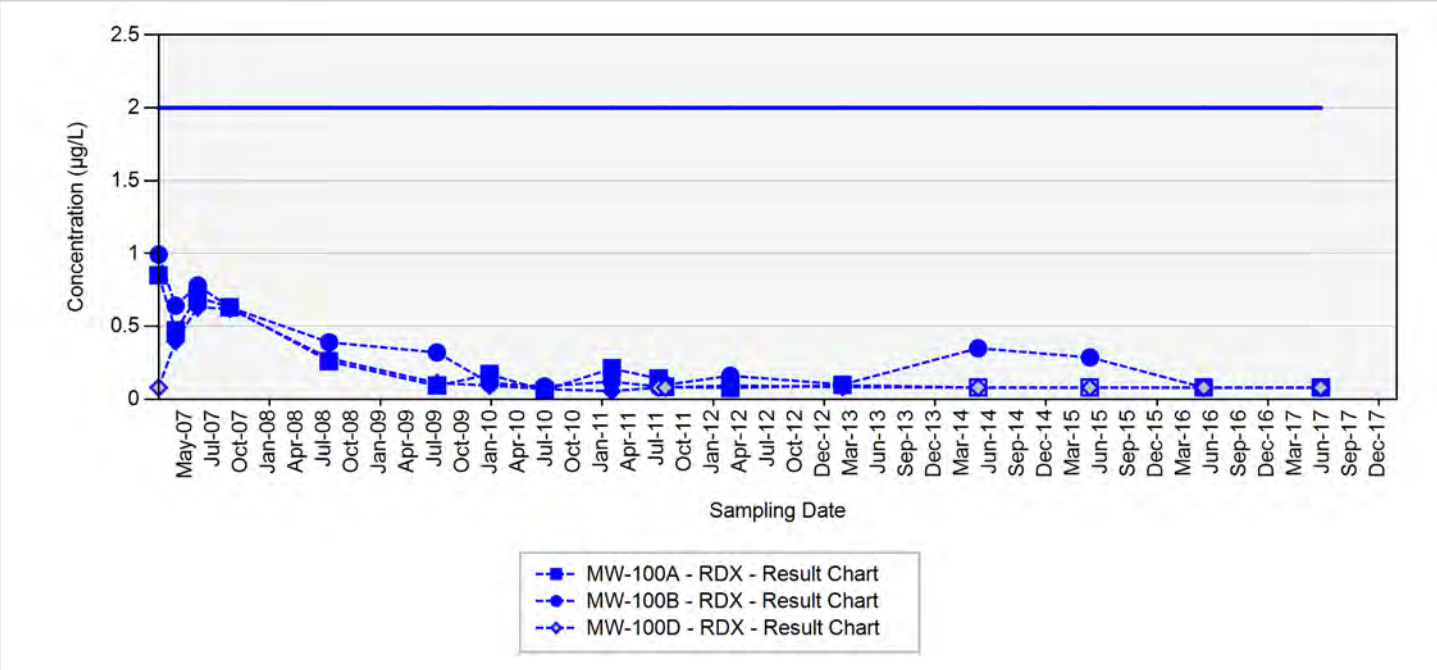
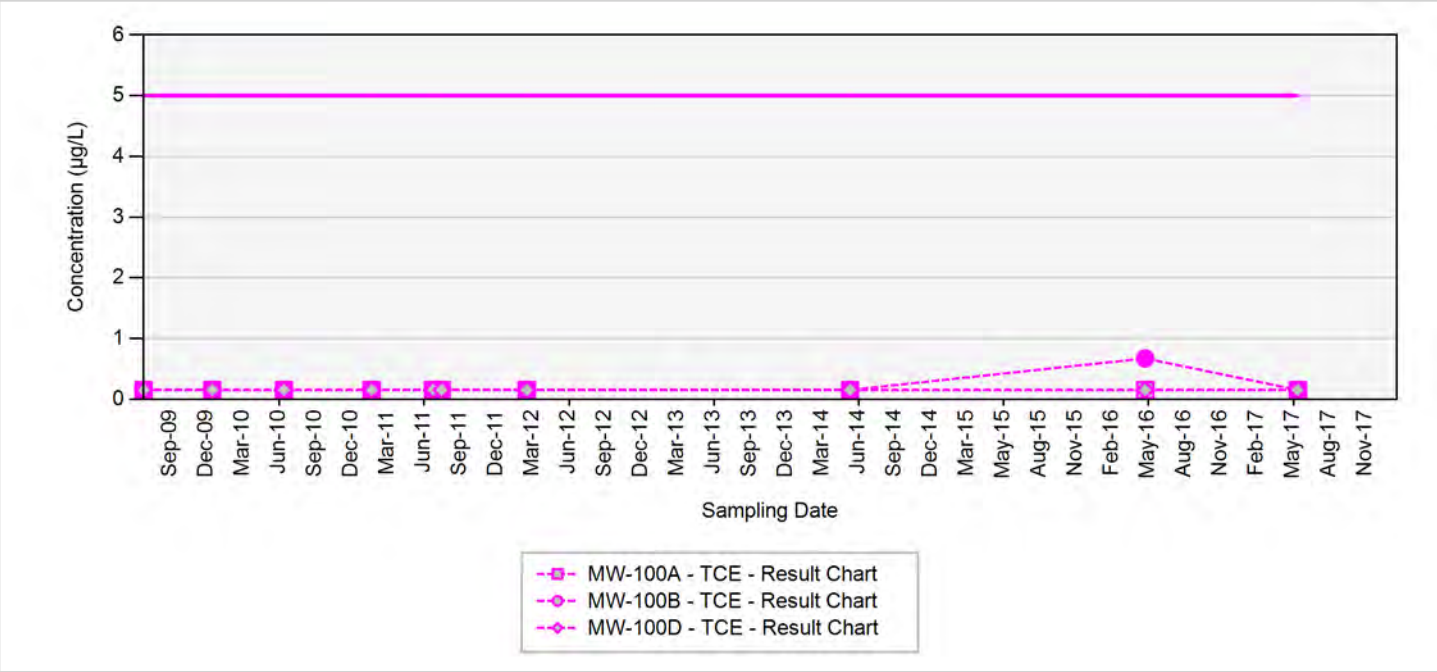
Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-100





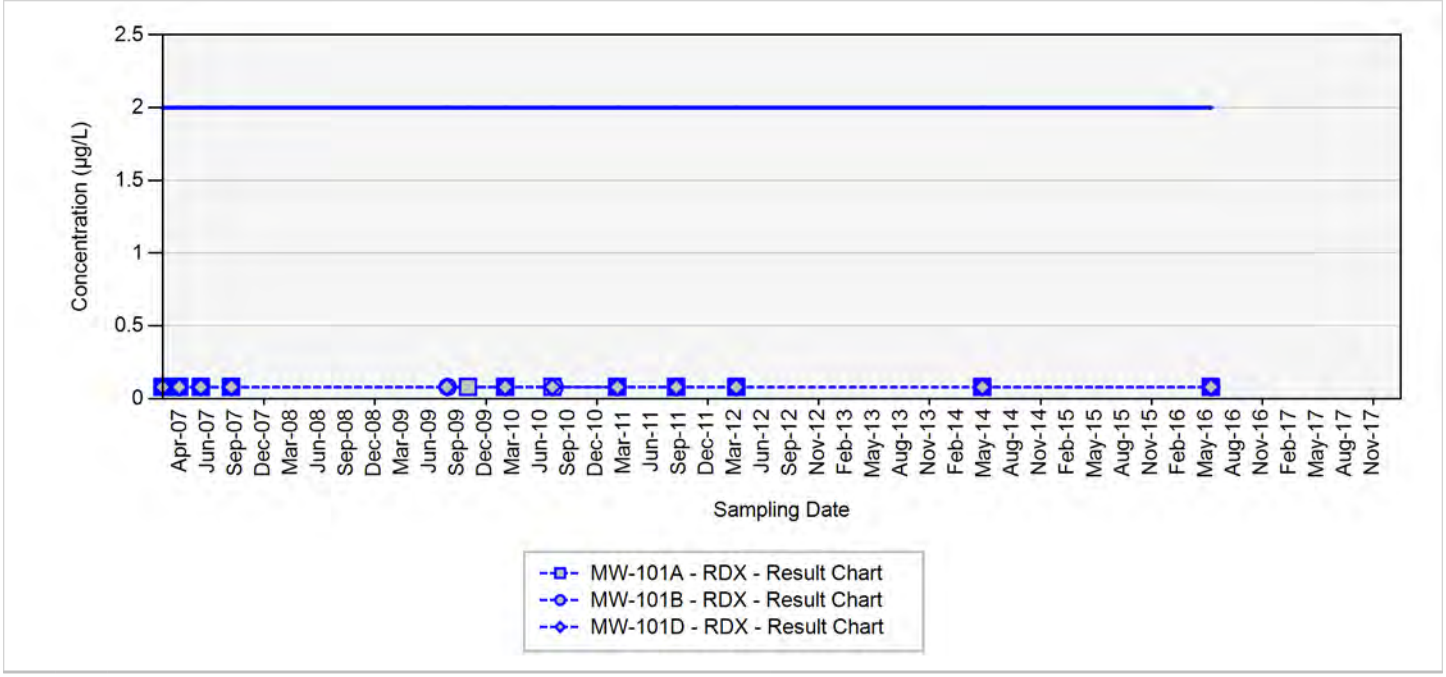
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

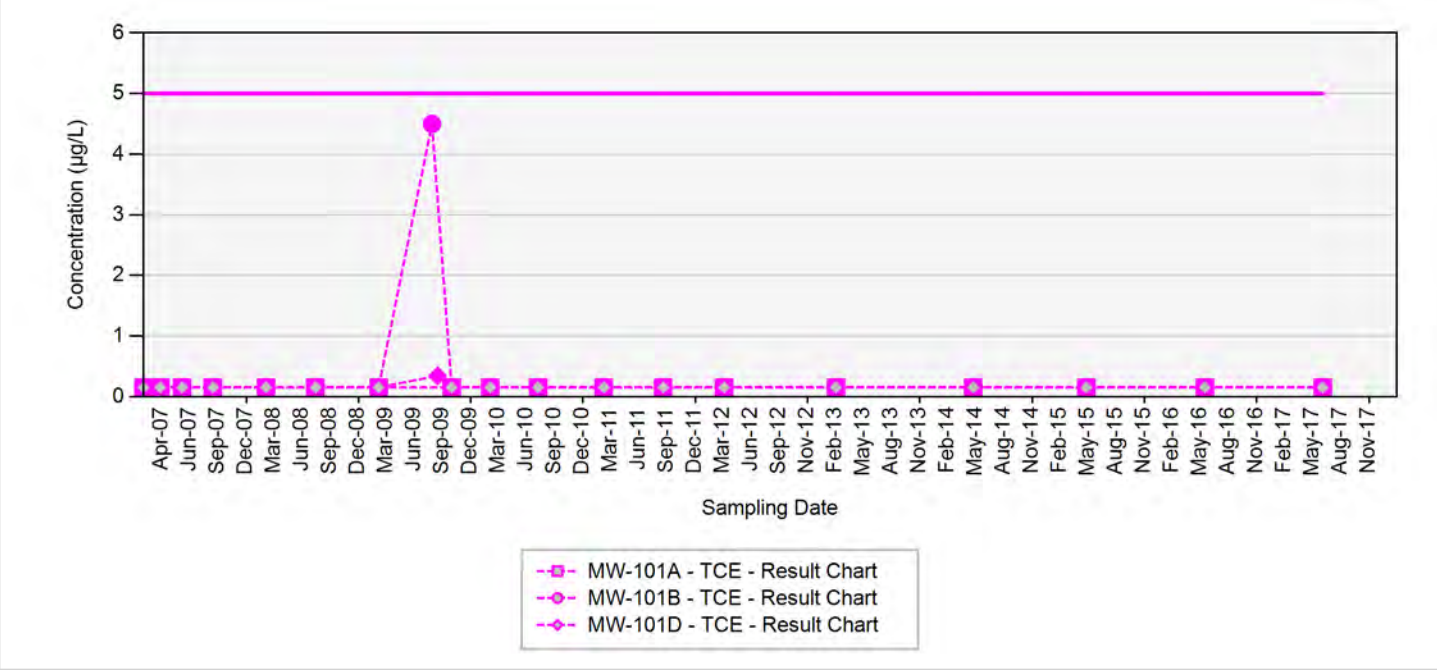
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-101





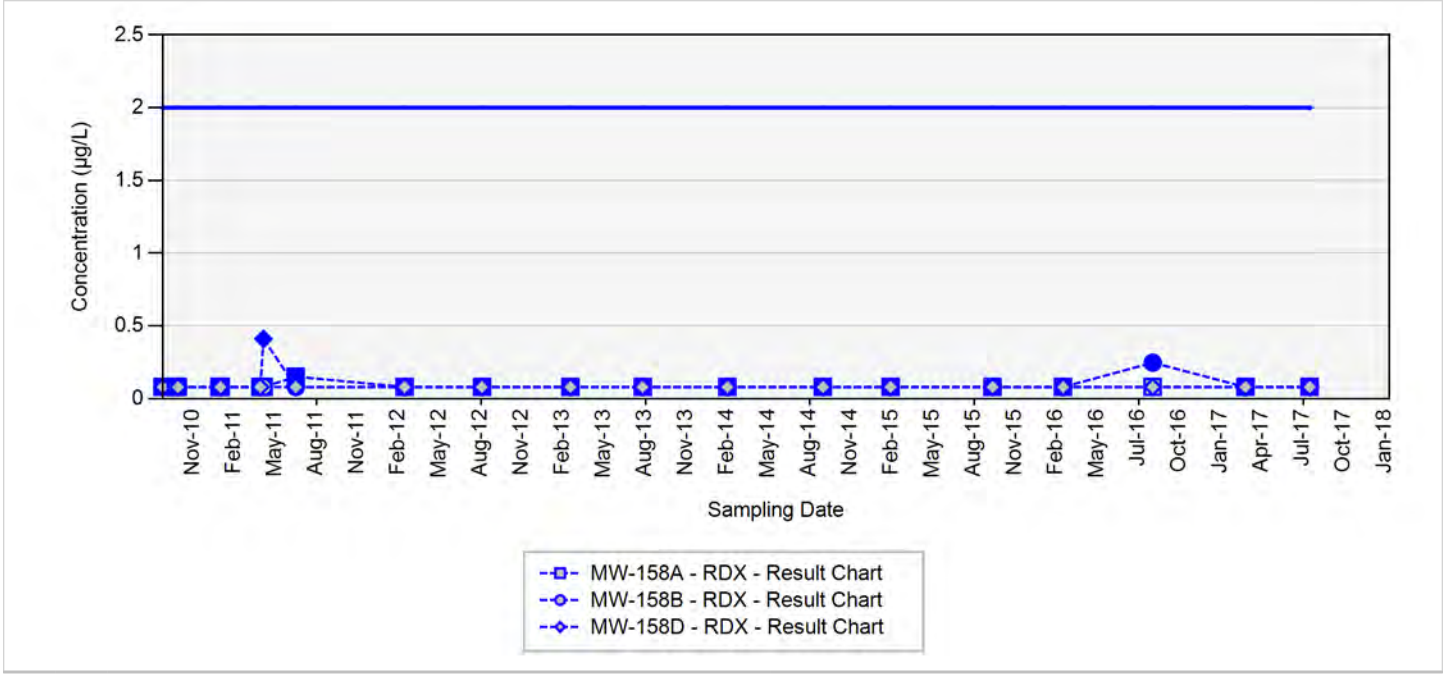
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

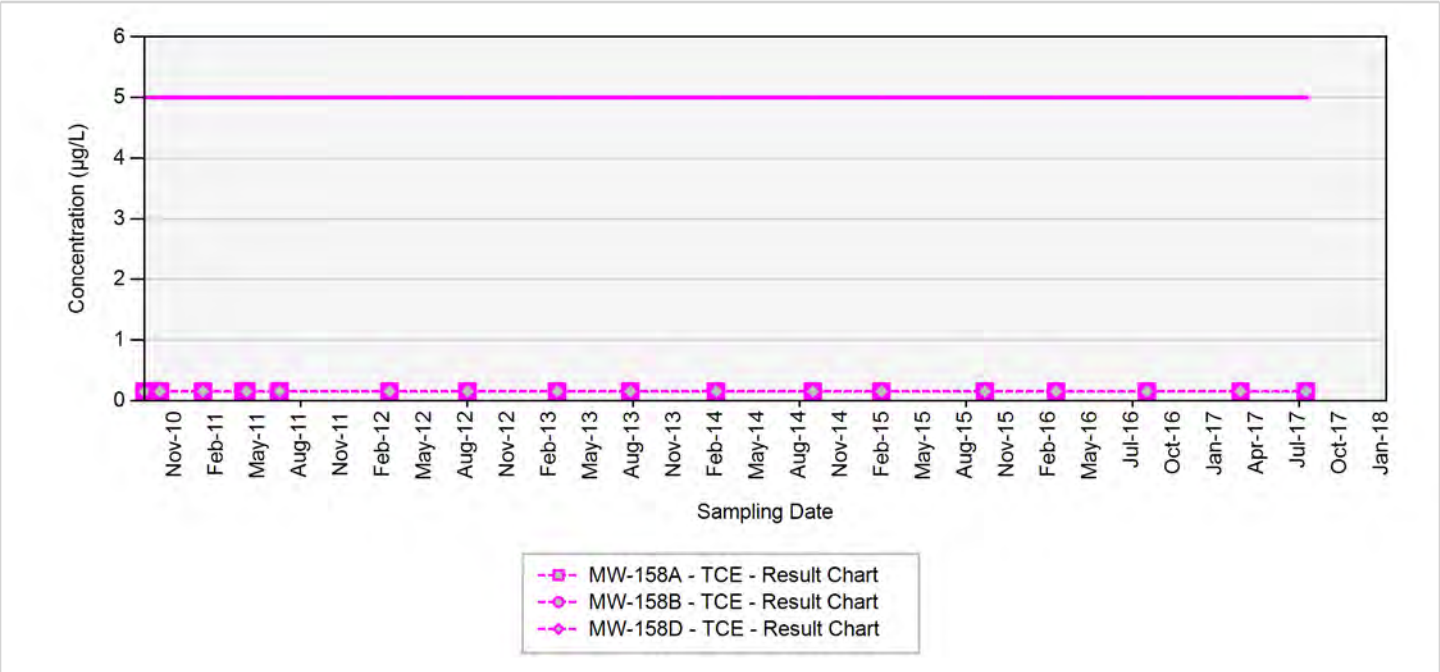
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-158





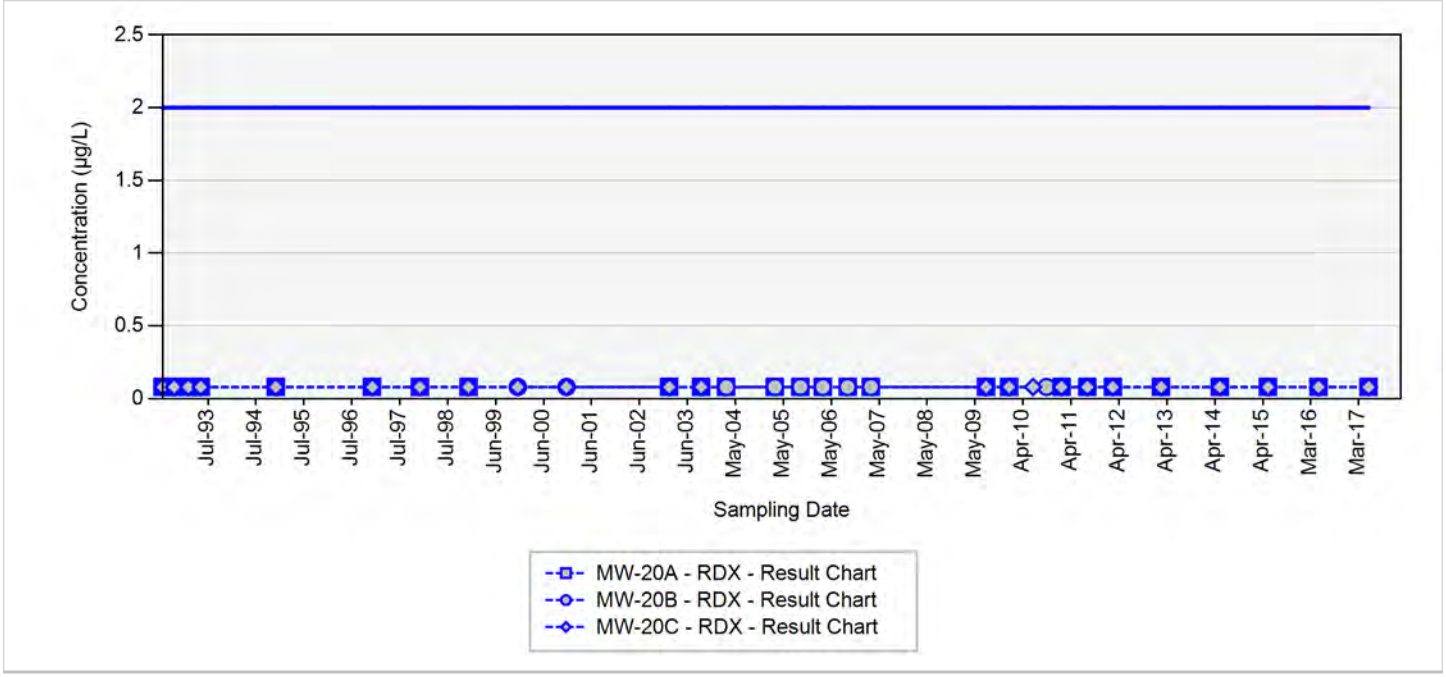
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

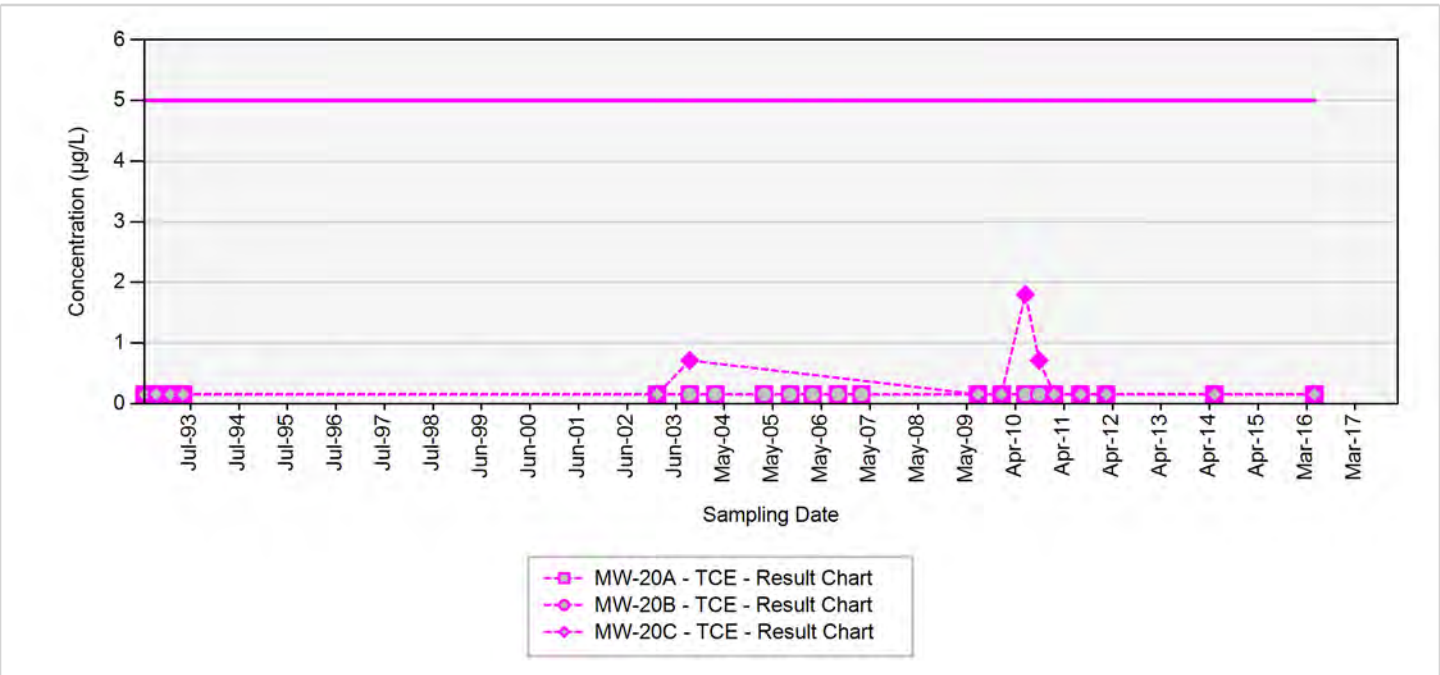
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-20





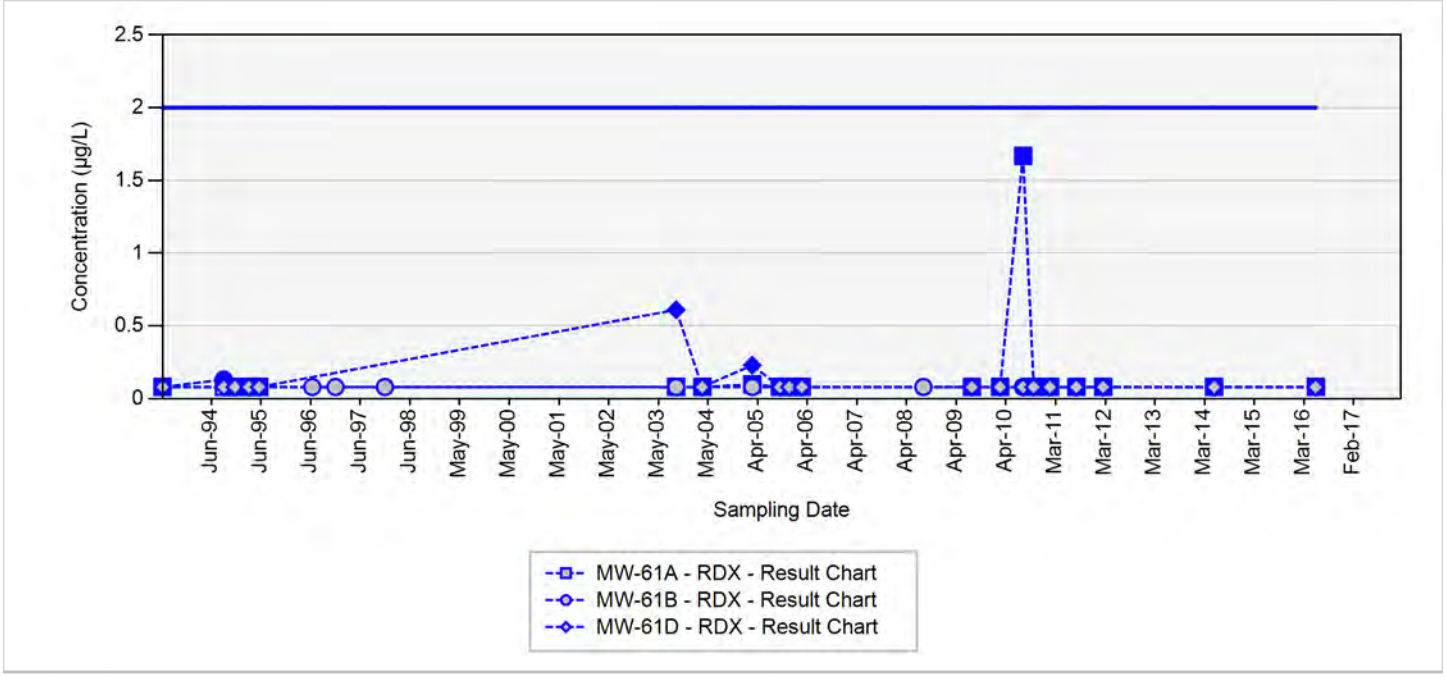
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

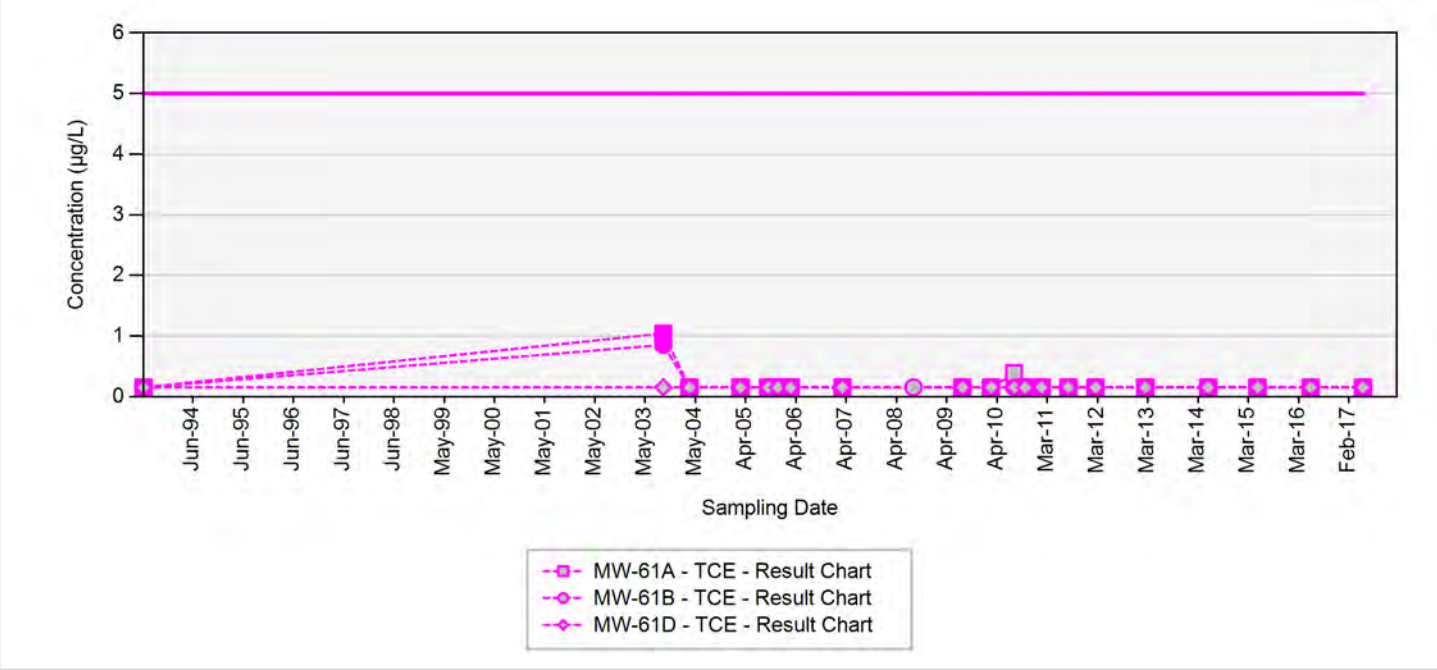
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-61





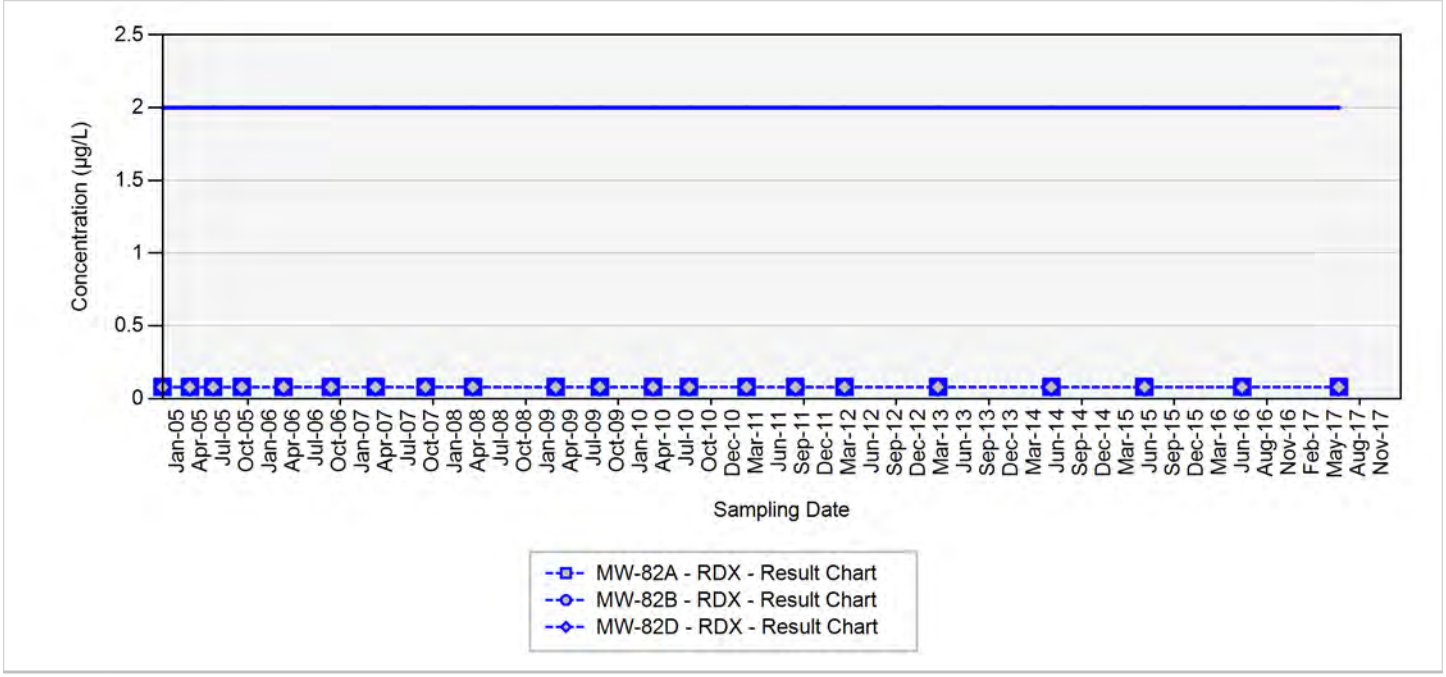
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

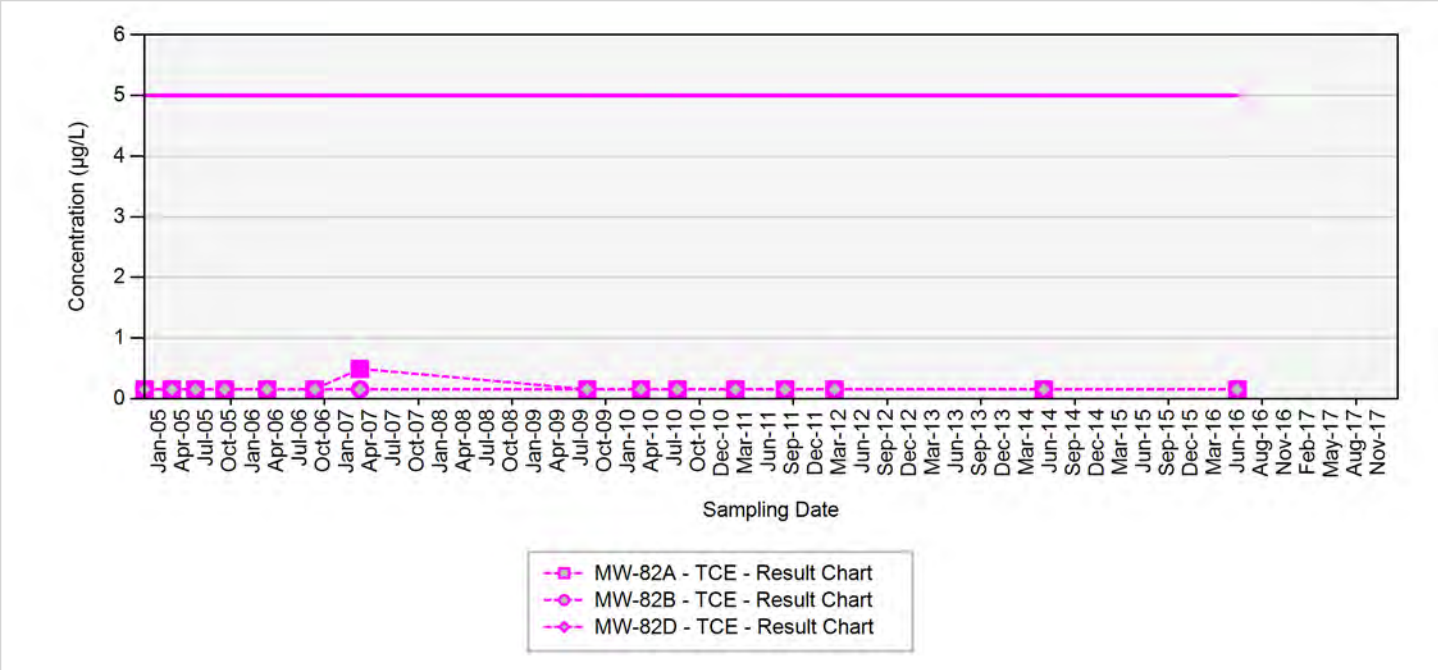
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-82





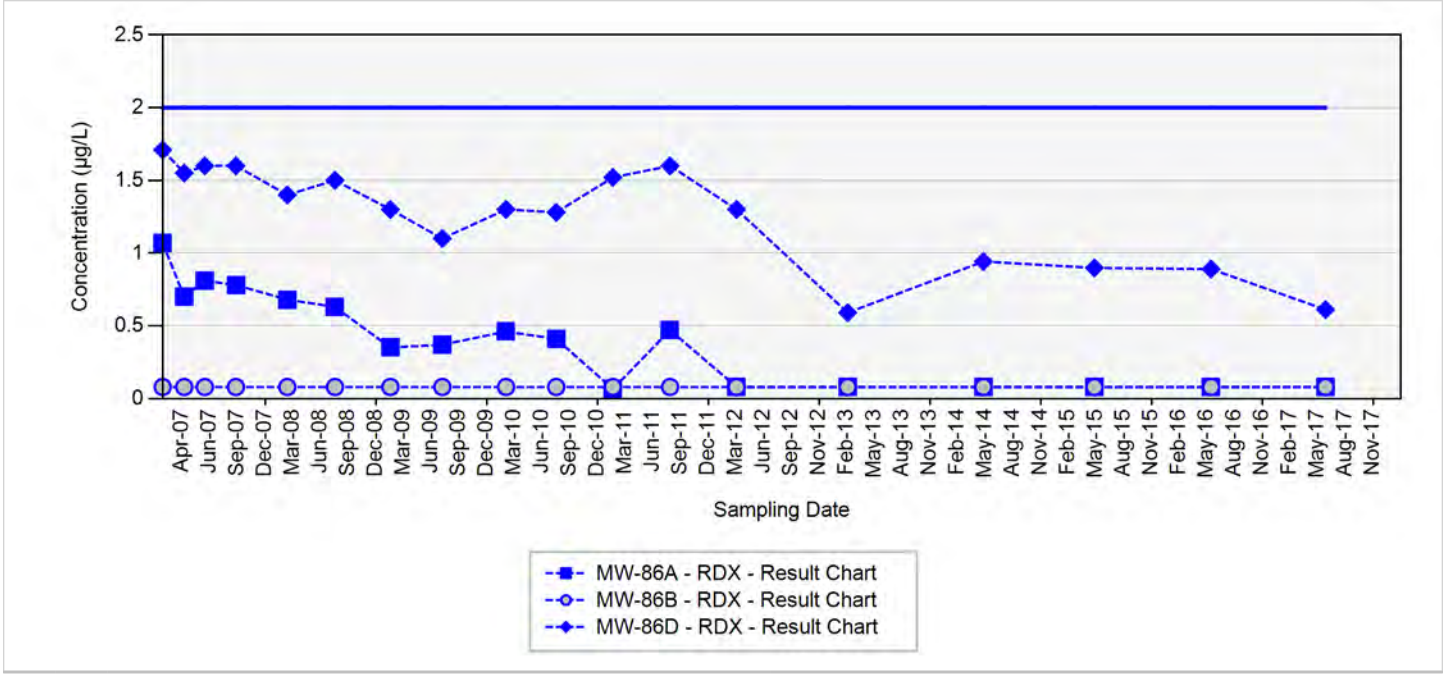
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

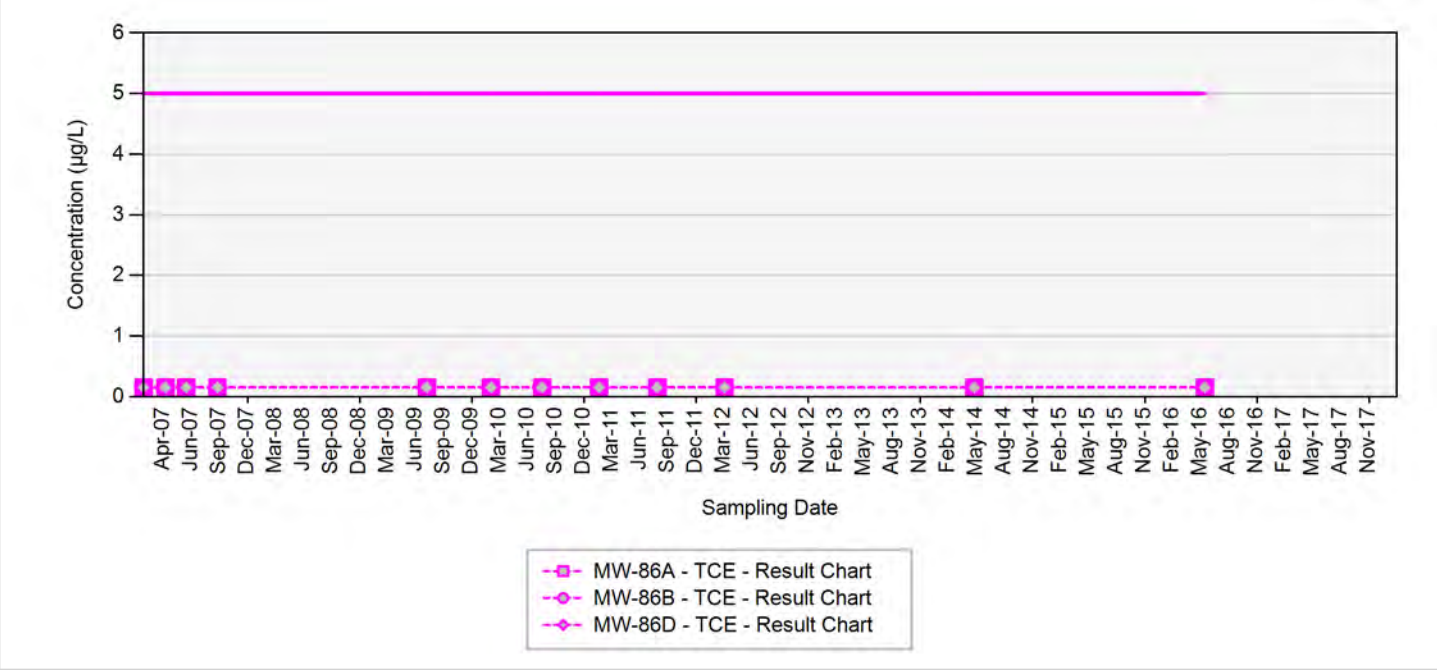
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-86





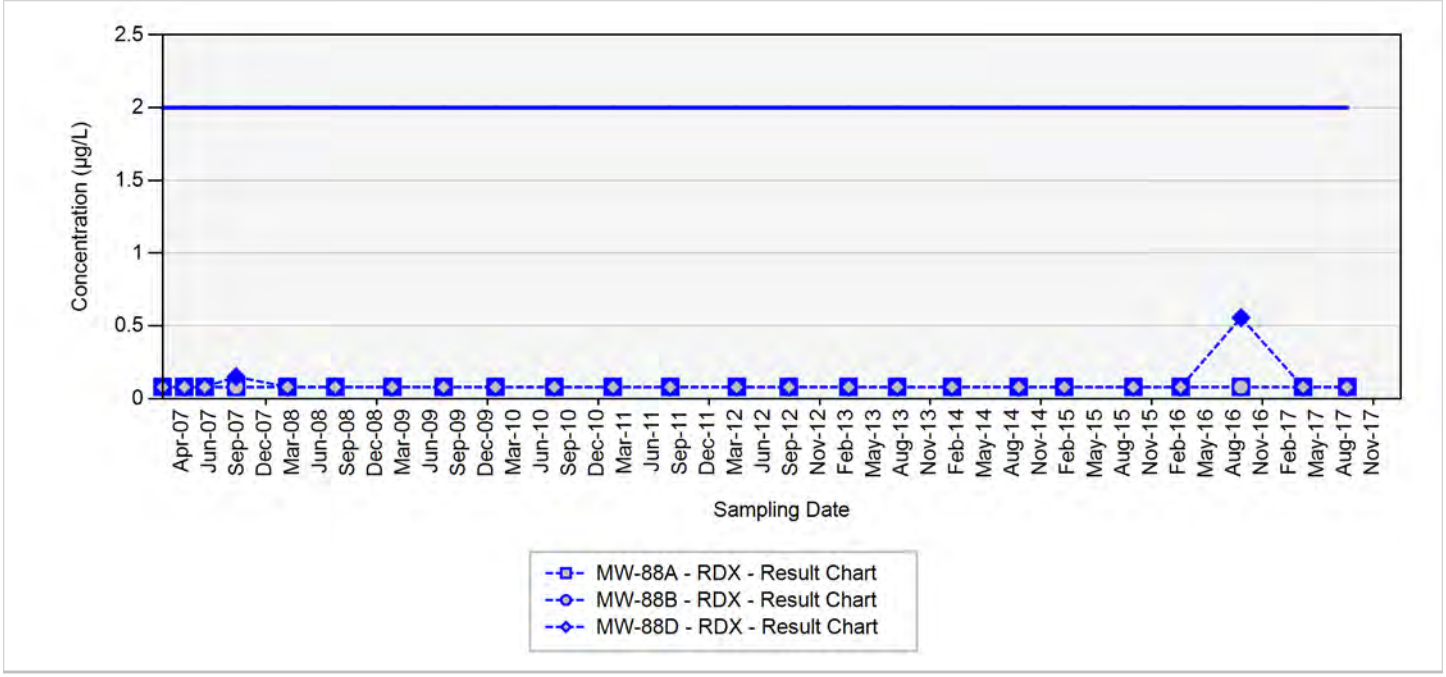
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

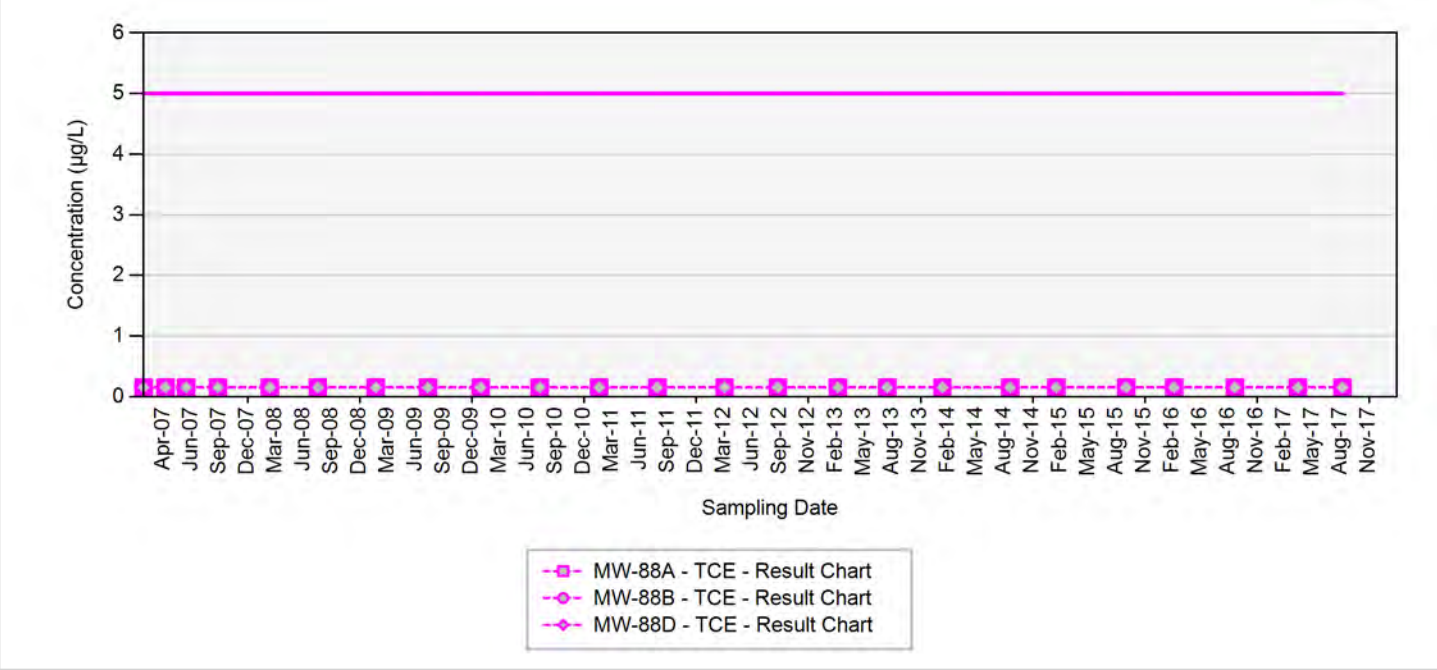
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-88





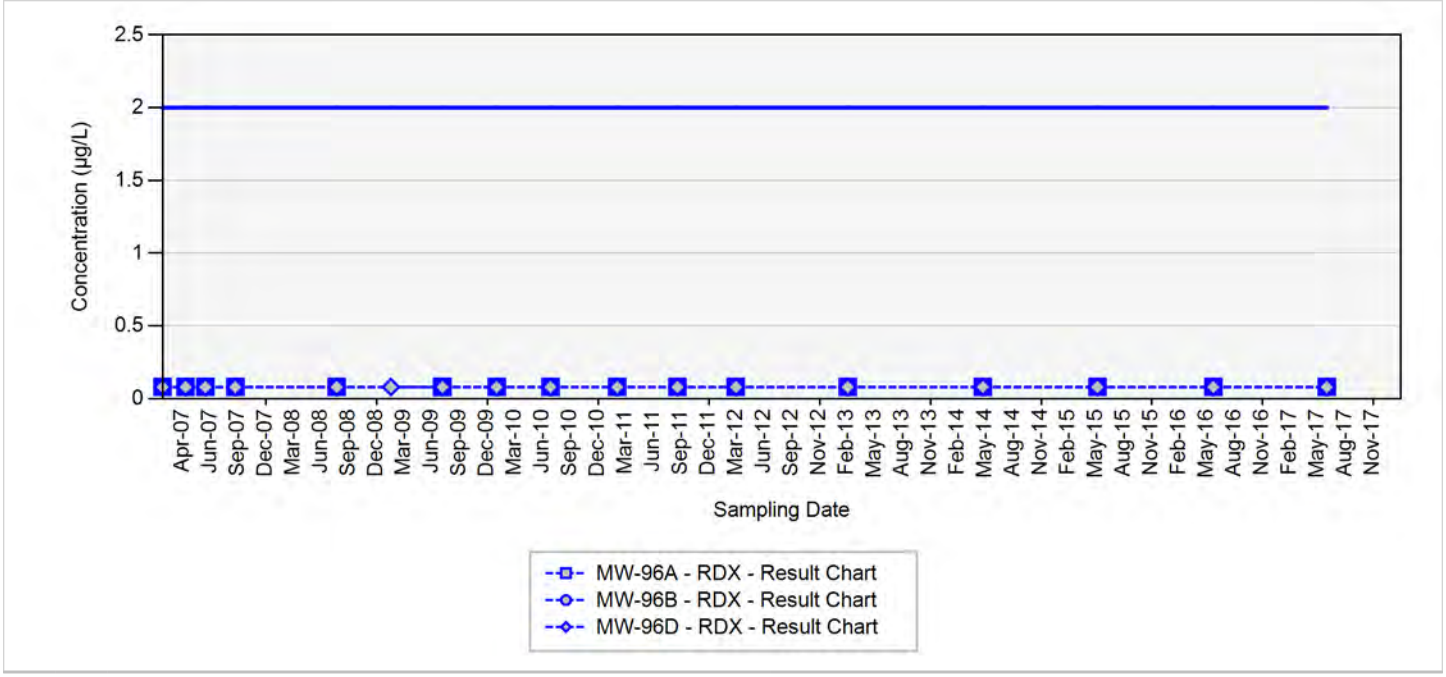
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

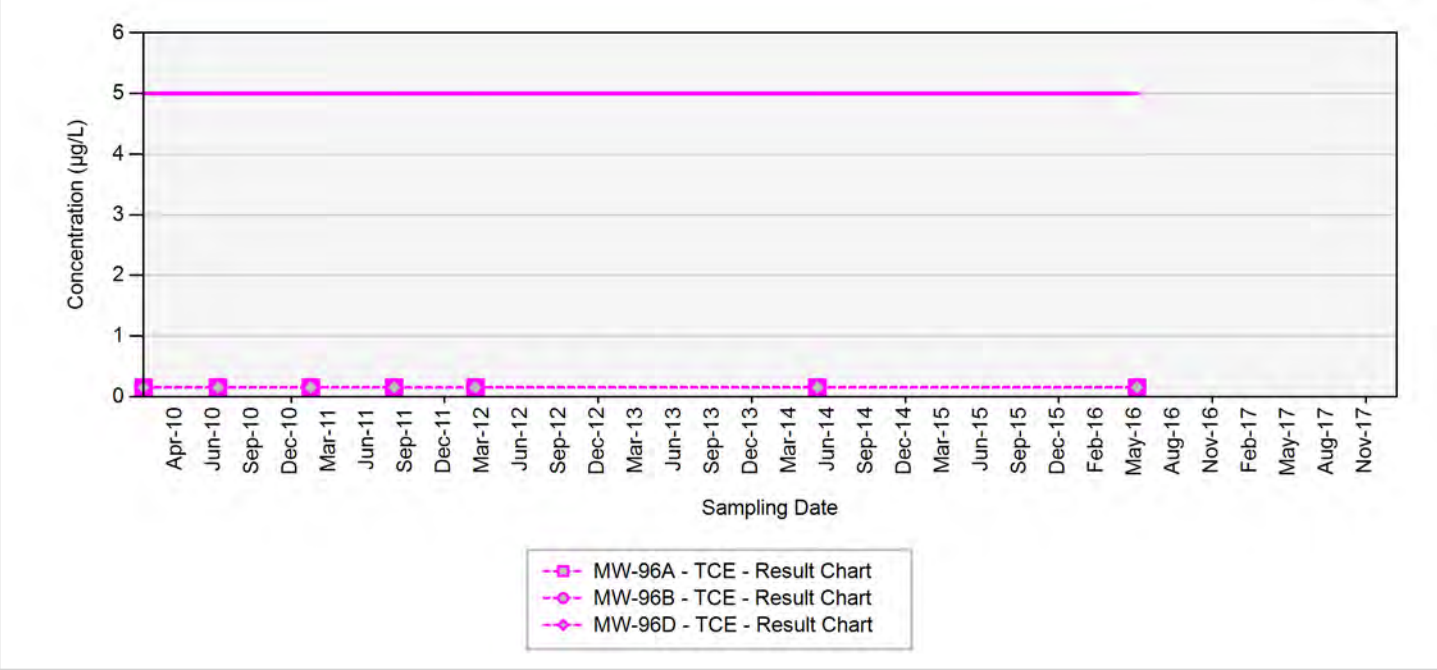
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-96





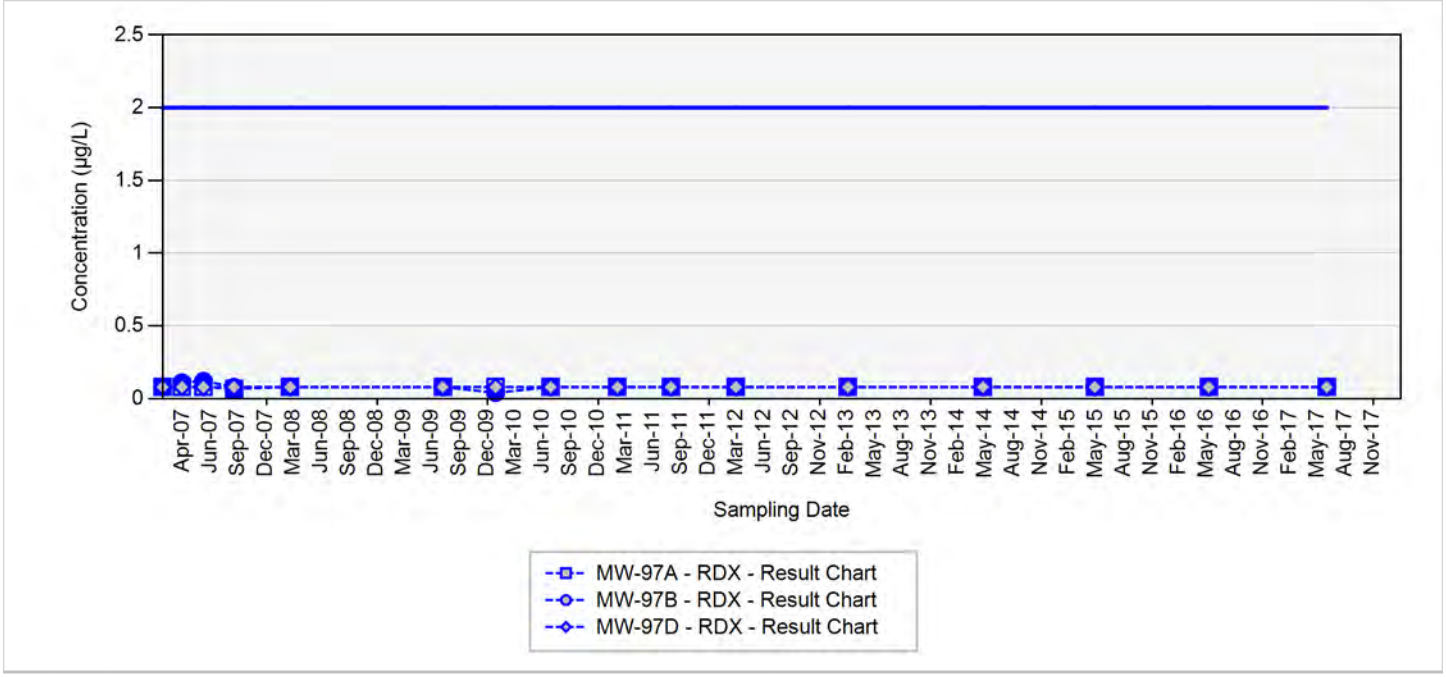
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

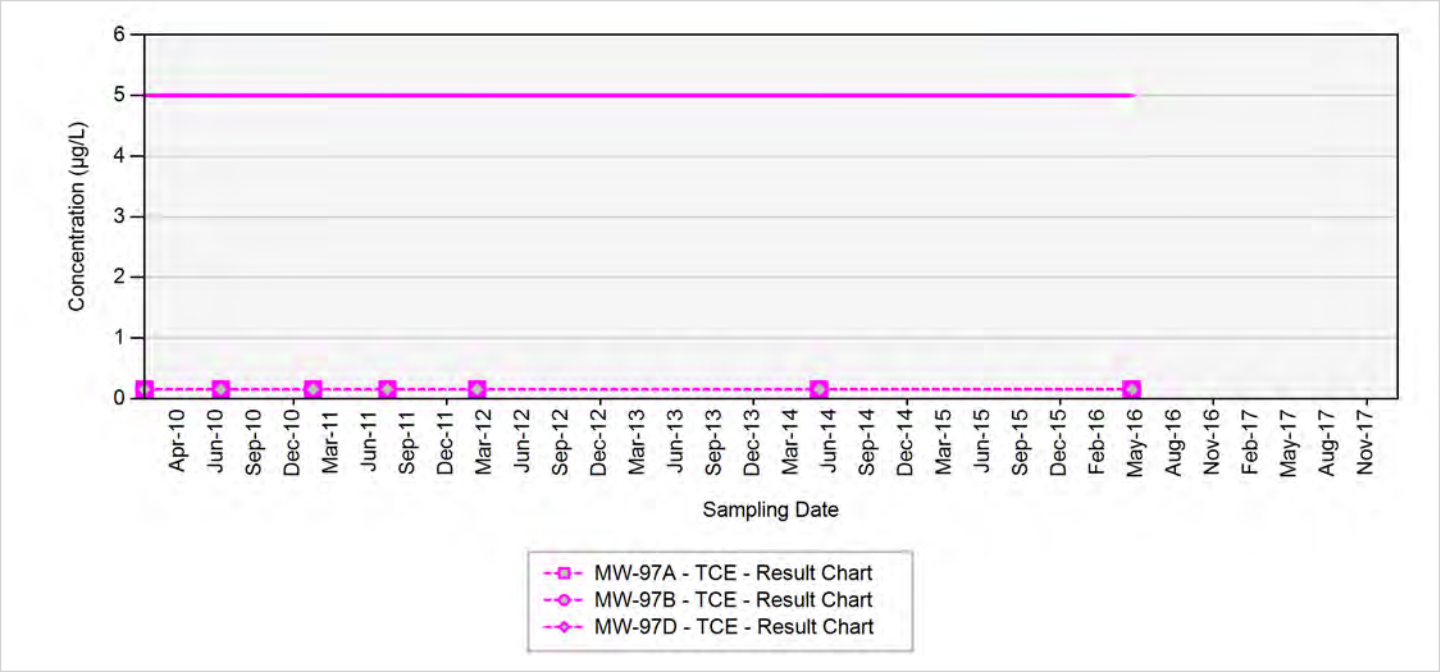
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix A
Concentration Trend Charts for Compliance Monitoring Wells

MW-97





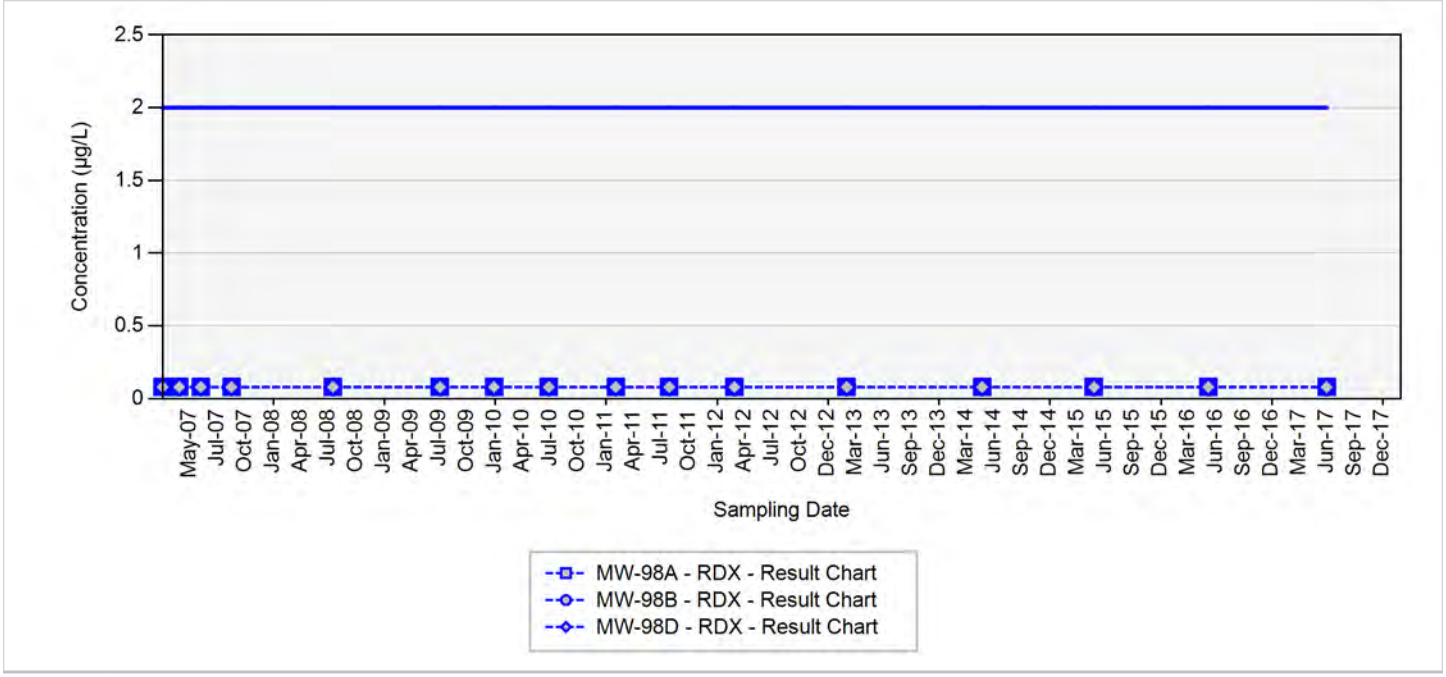
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

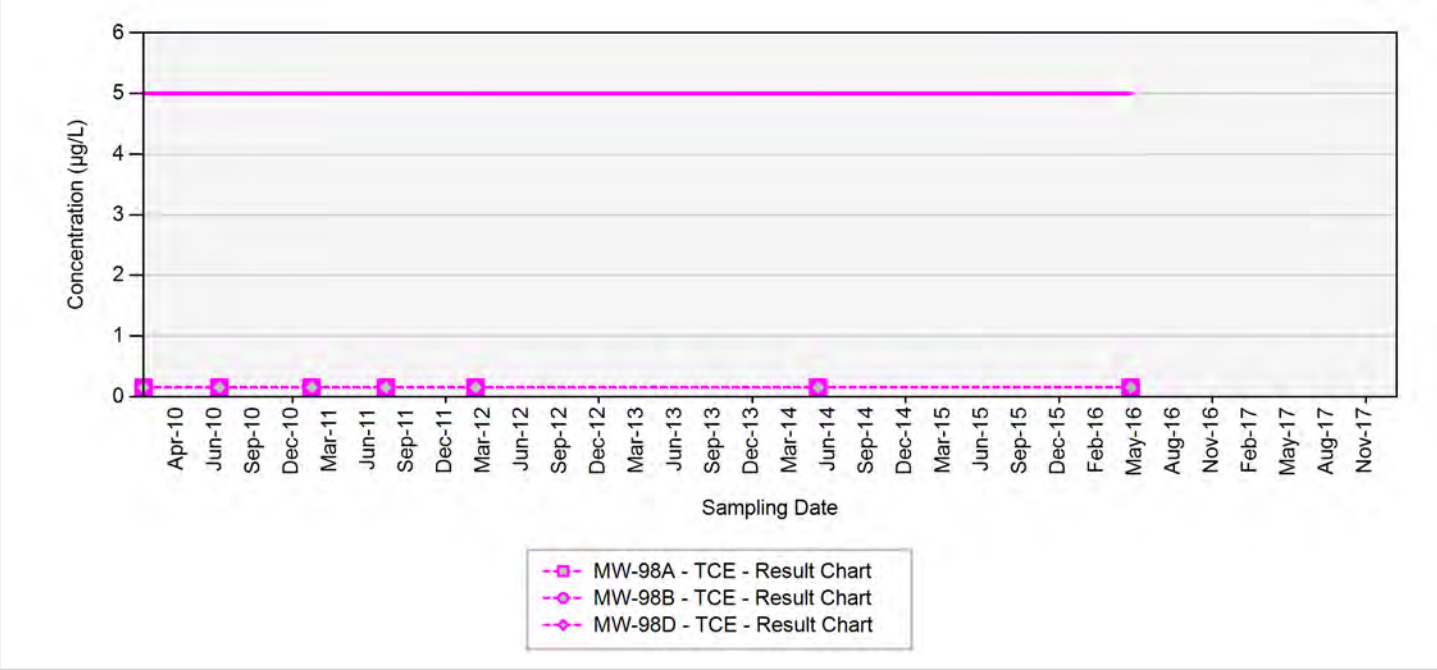
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

µg/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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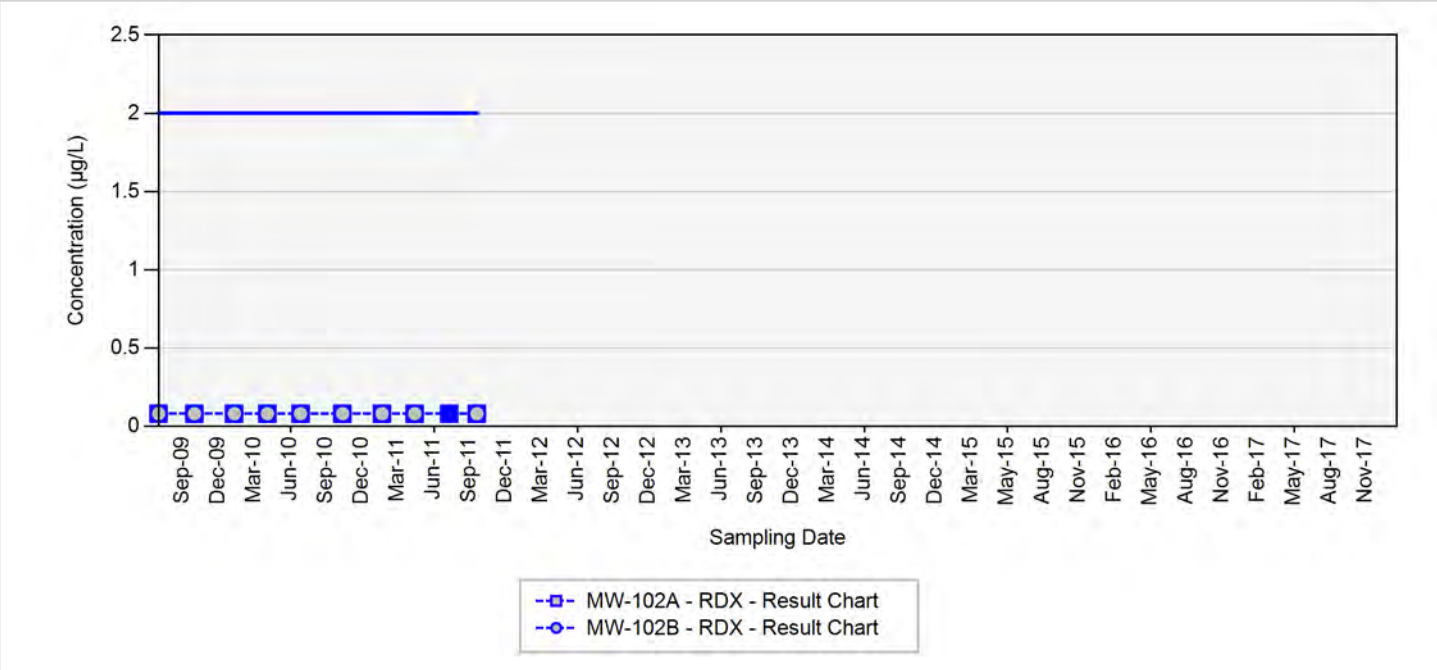
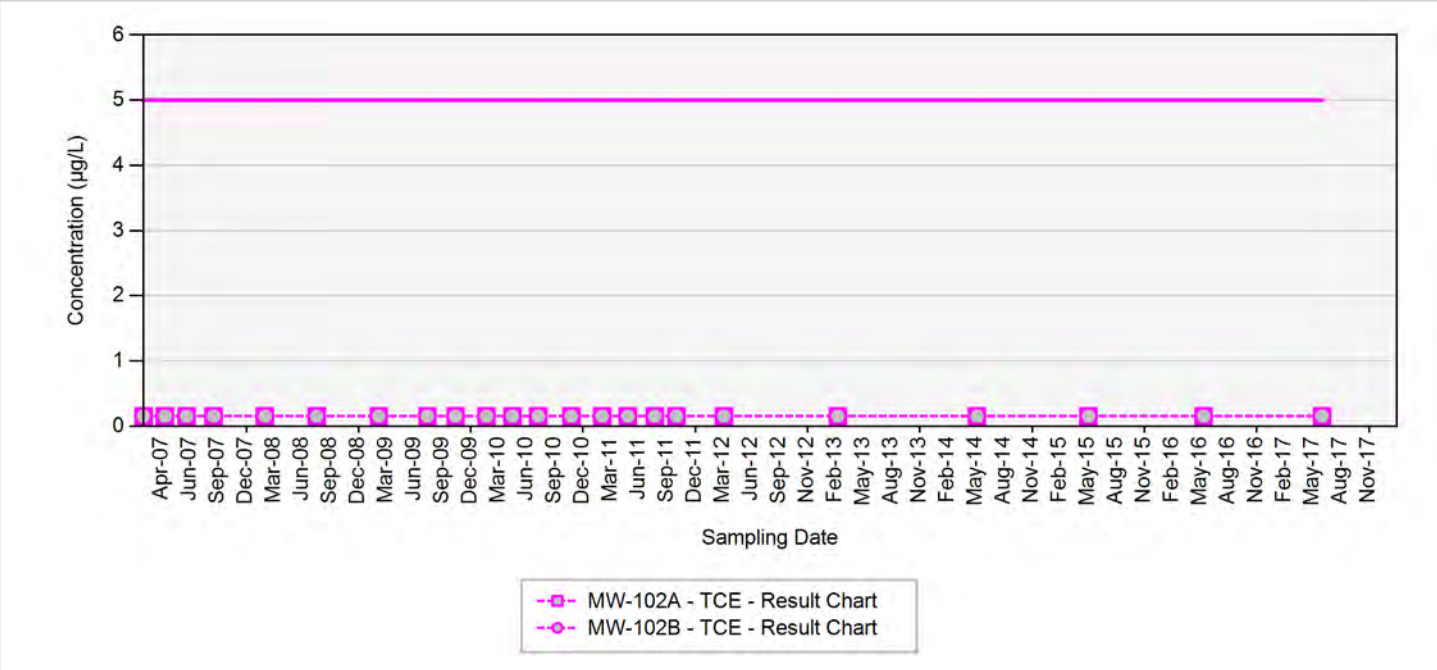
Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-102





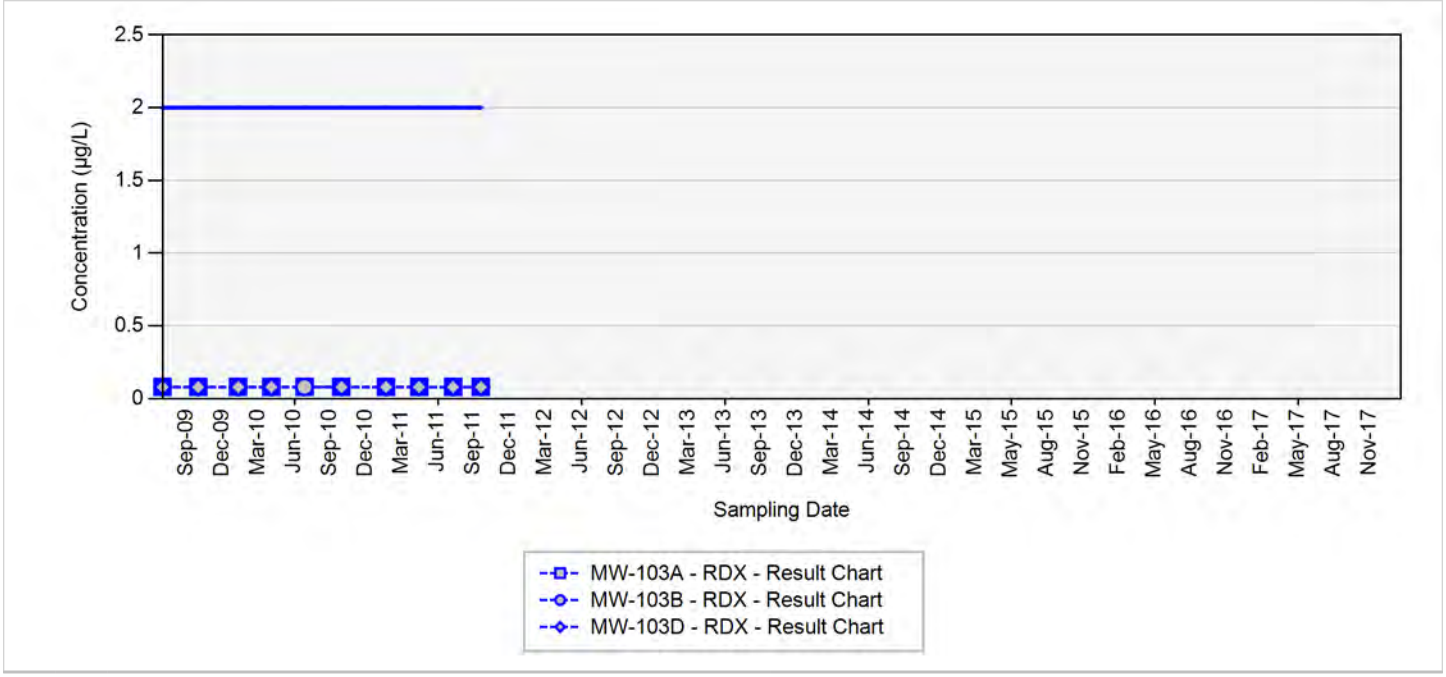
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

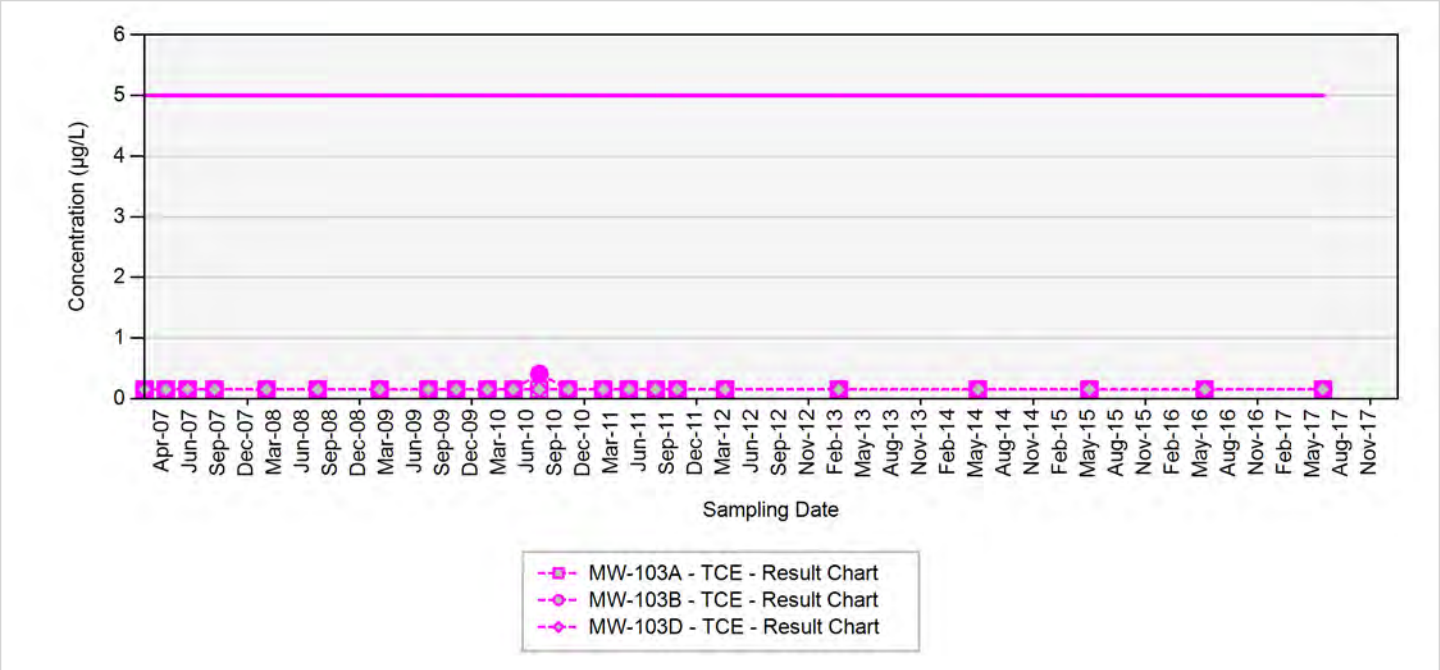
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-103





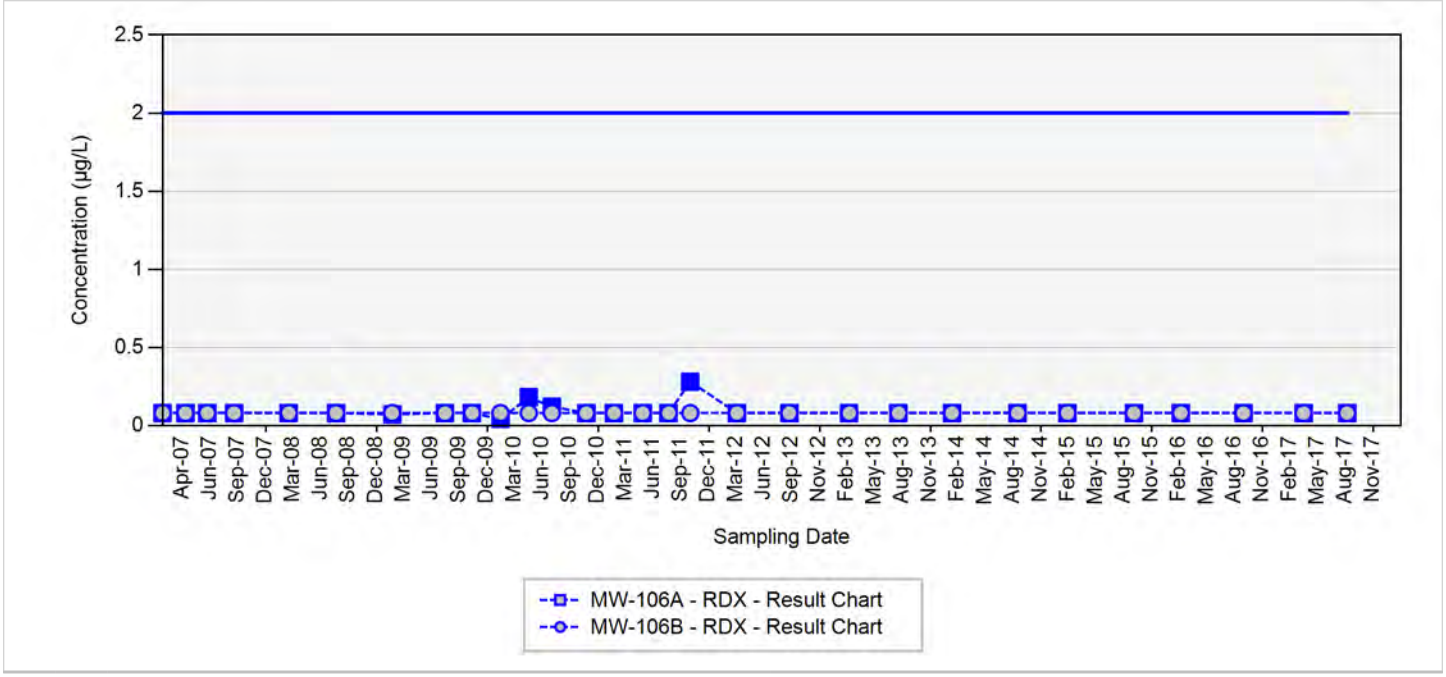
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

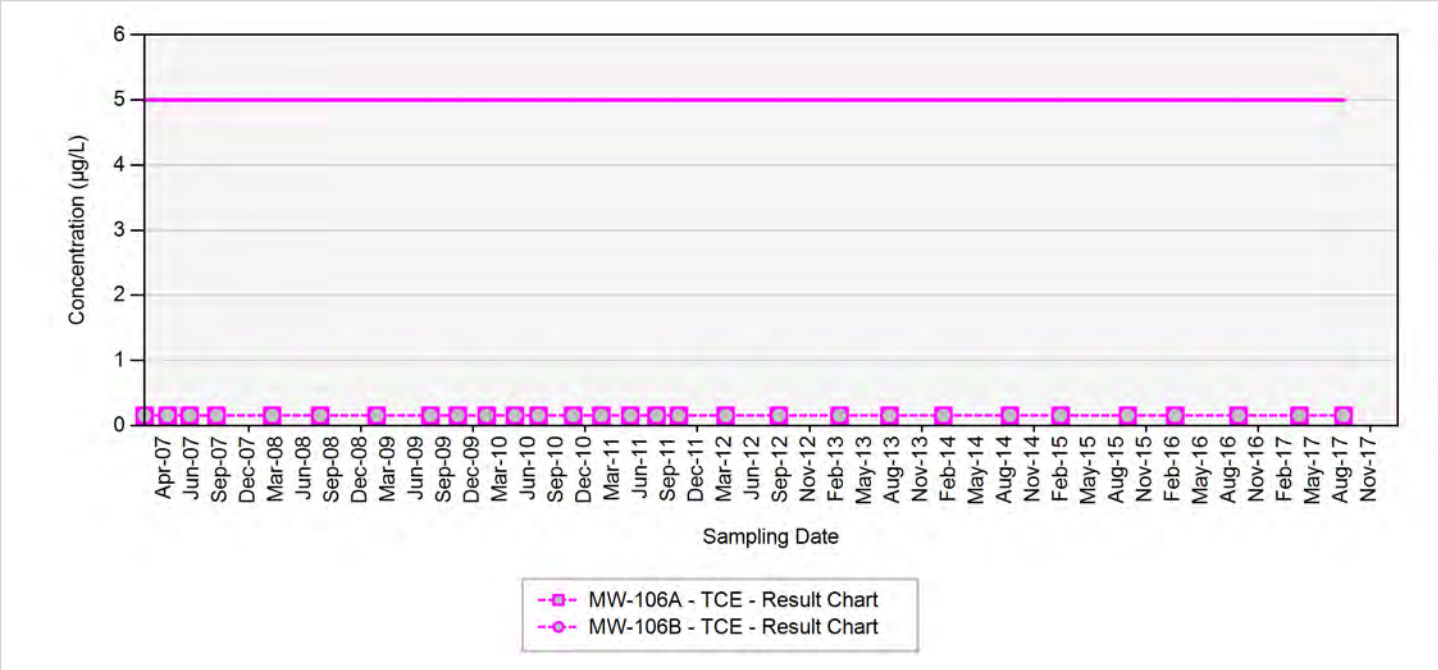
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-106





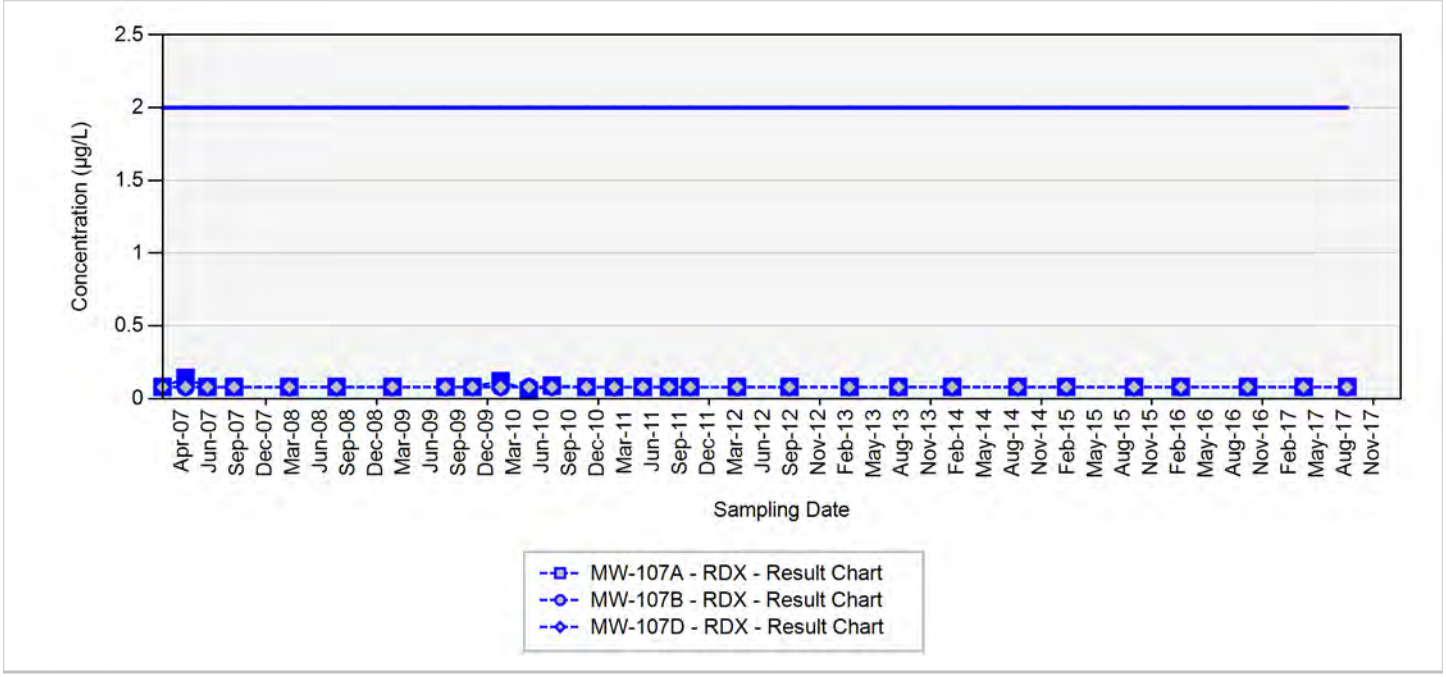
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

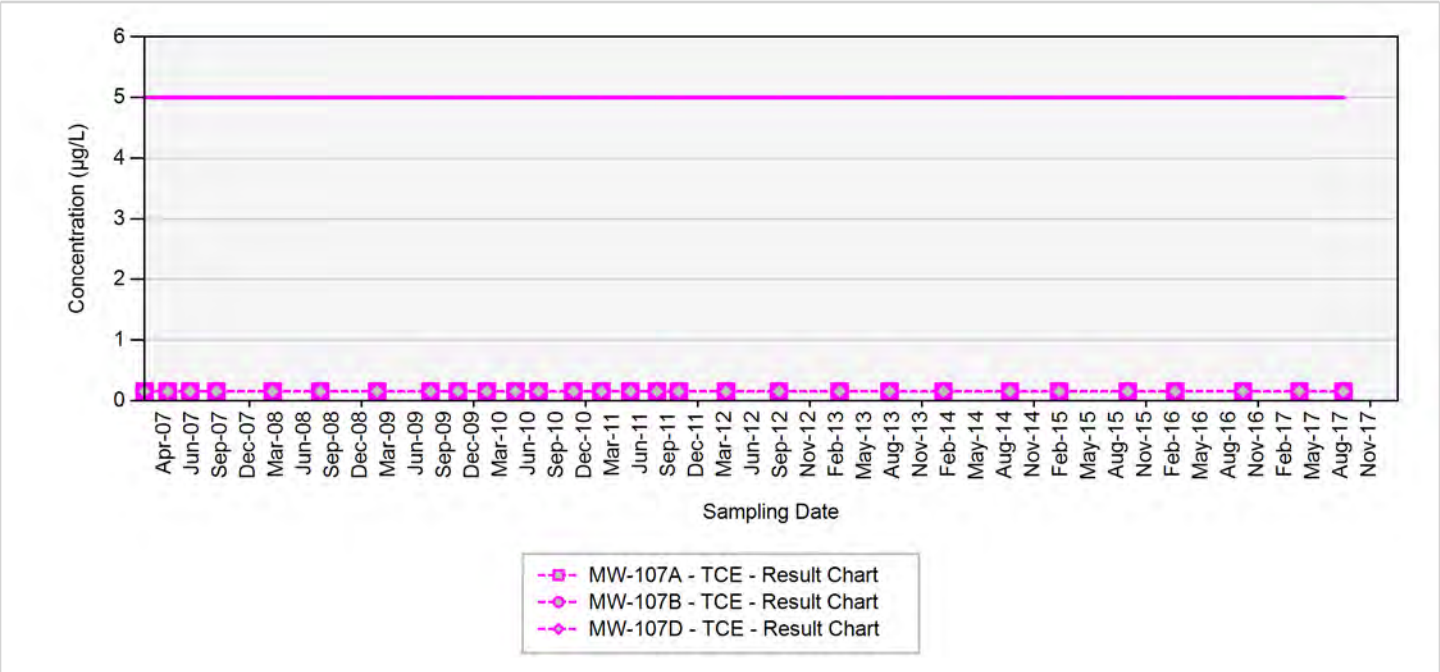
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-107





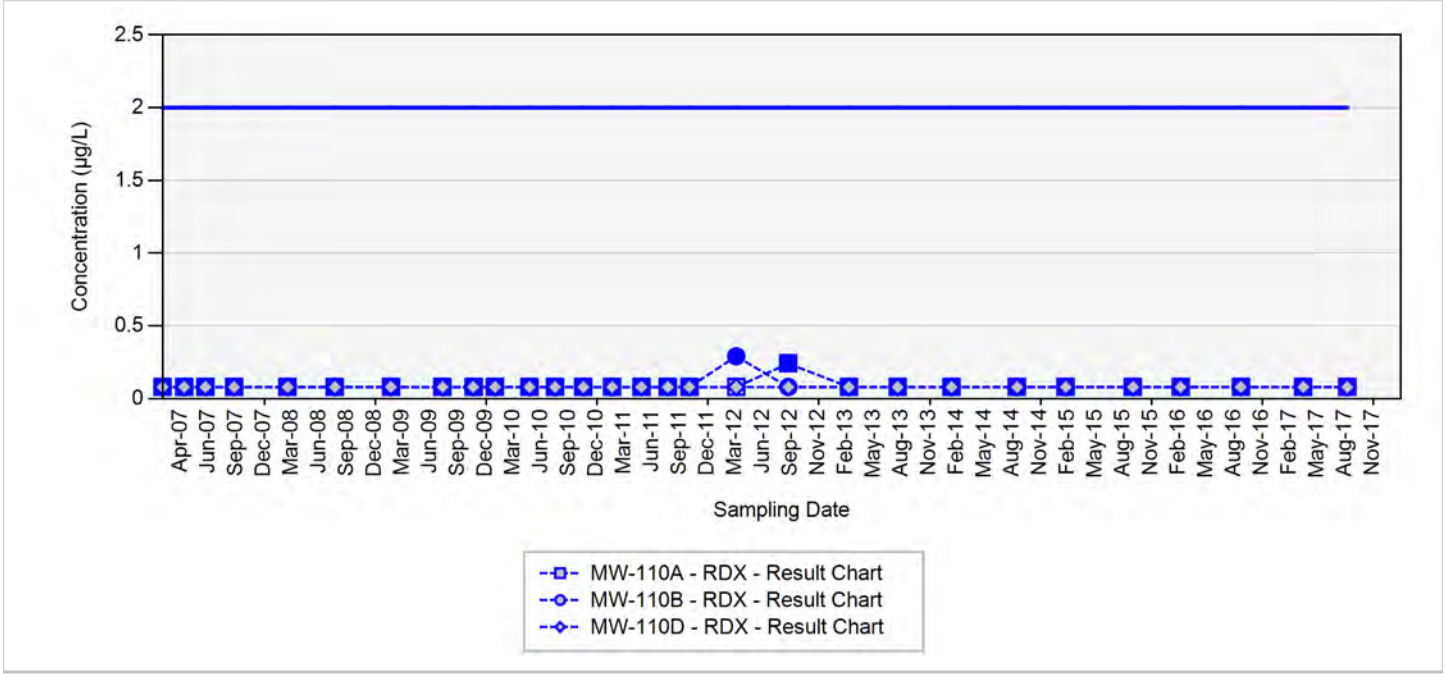
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

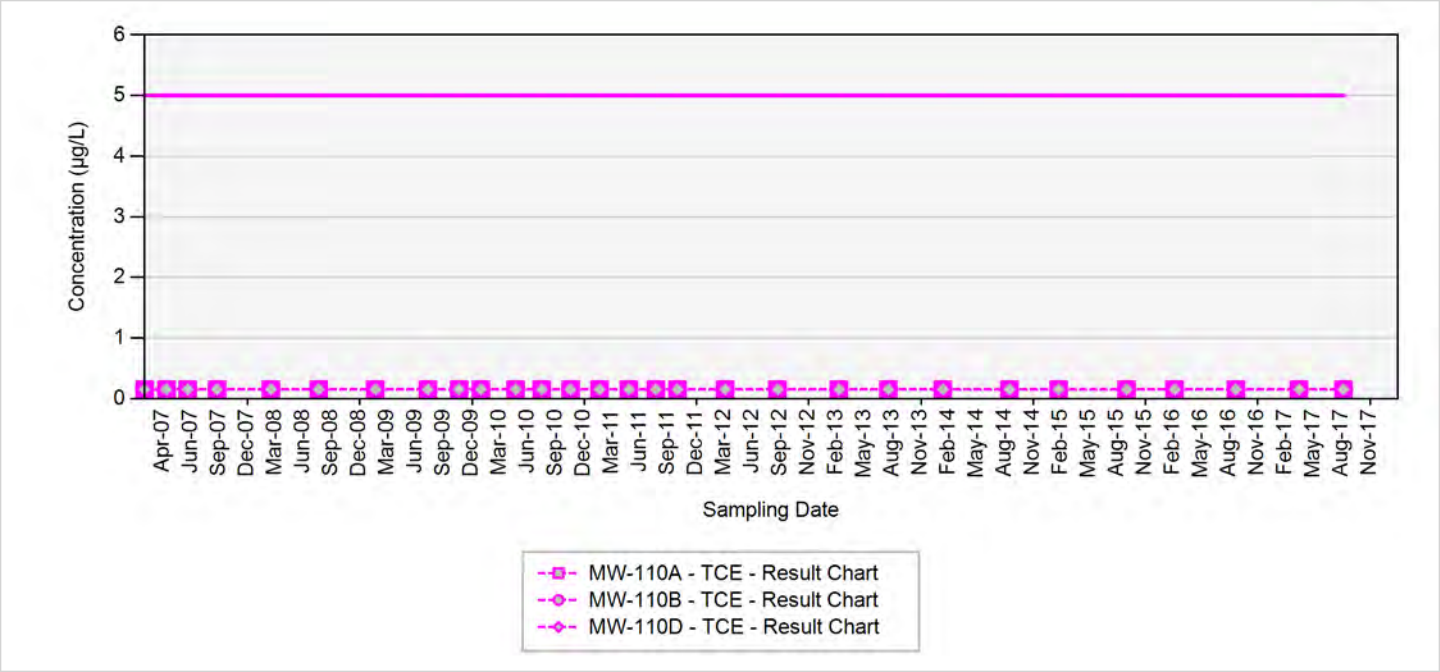
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-110





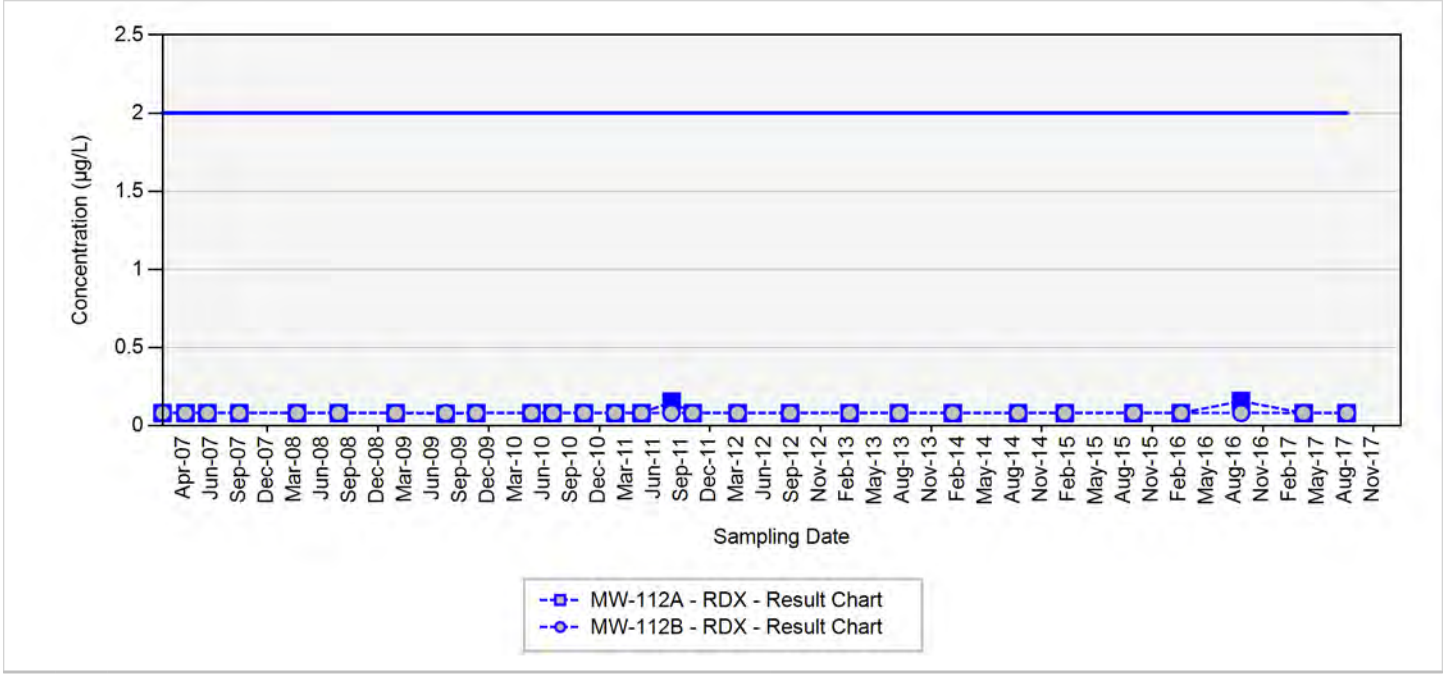
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

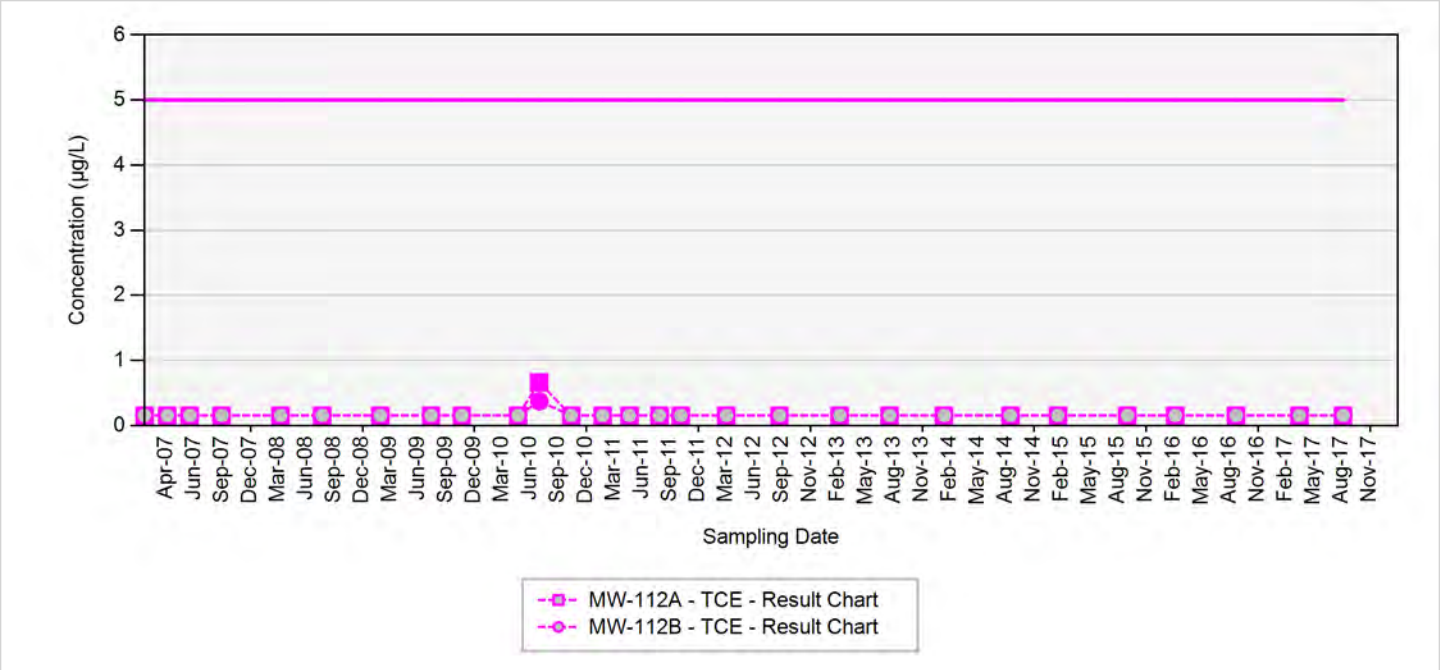
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-112





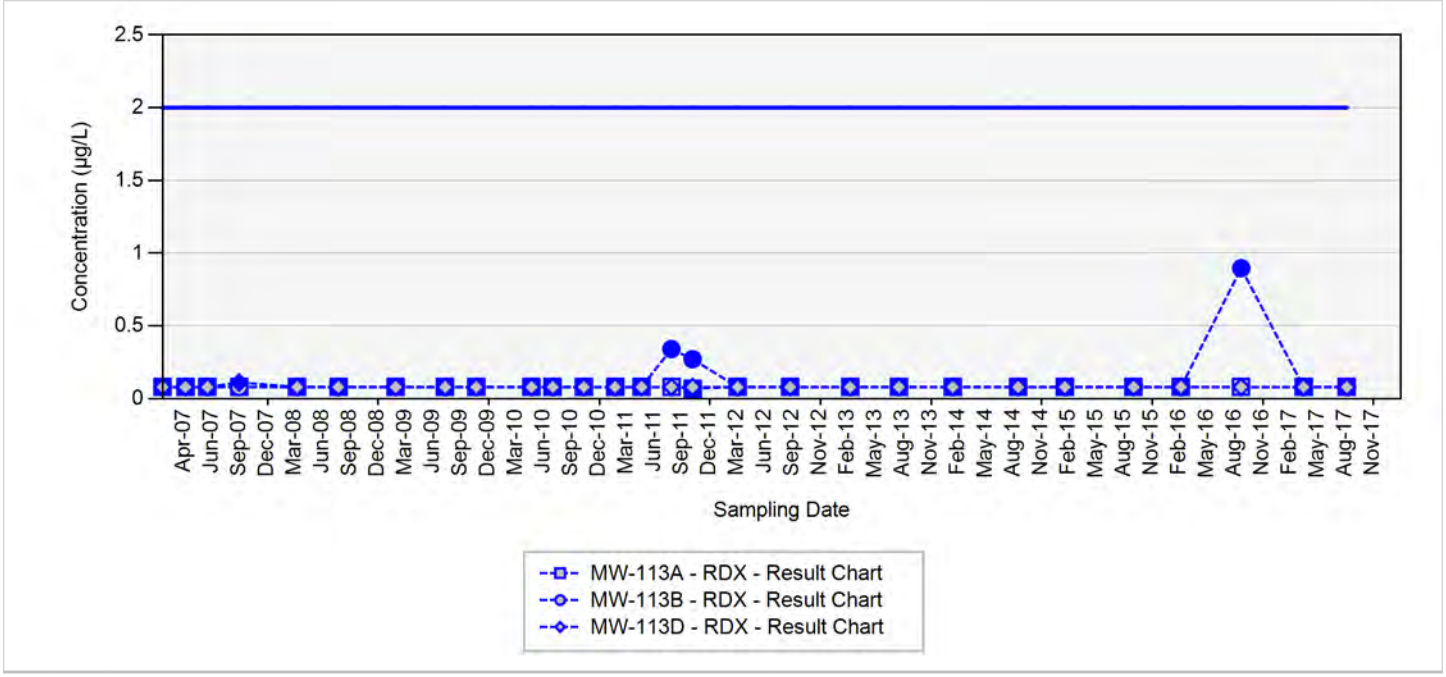
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

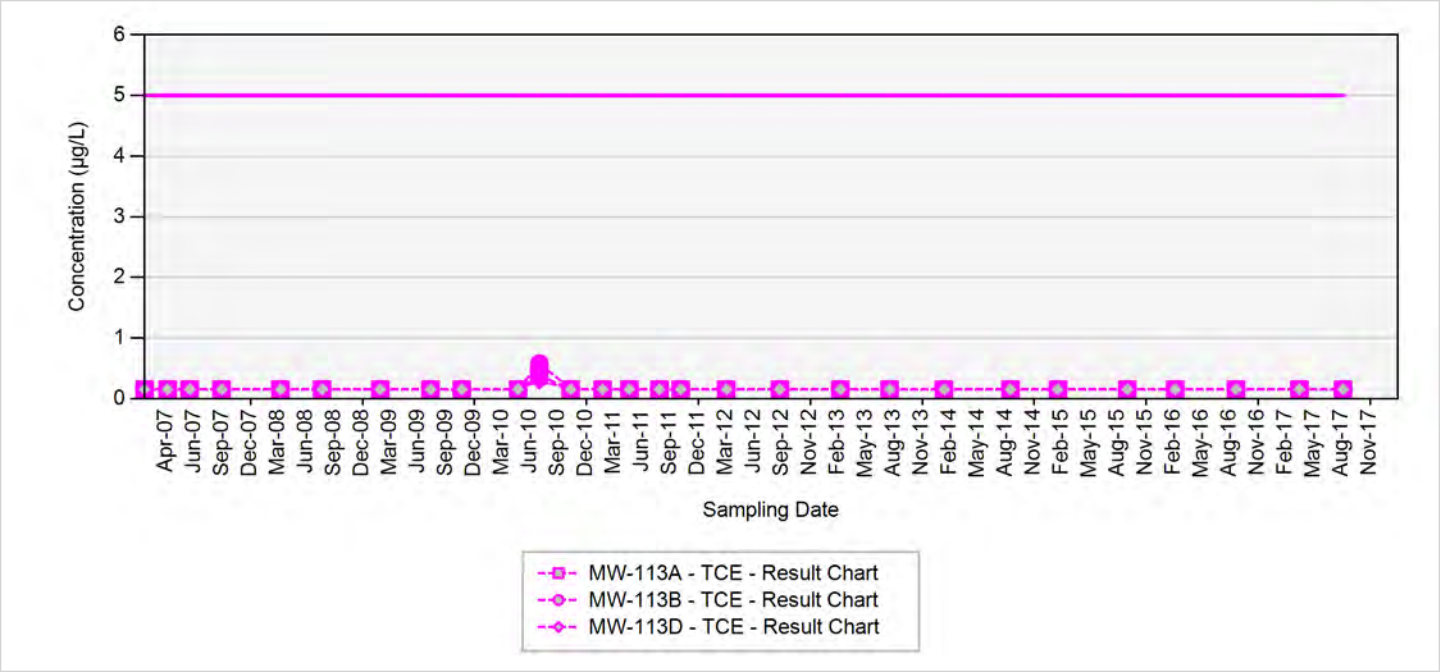
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-113





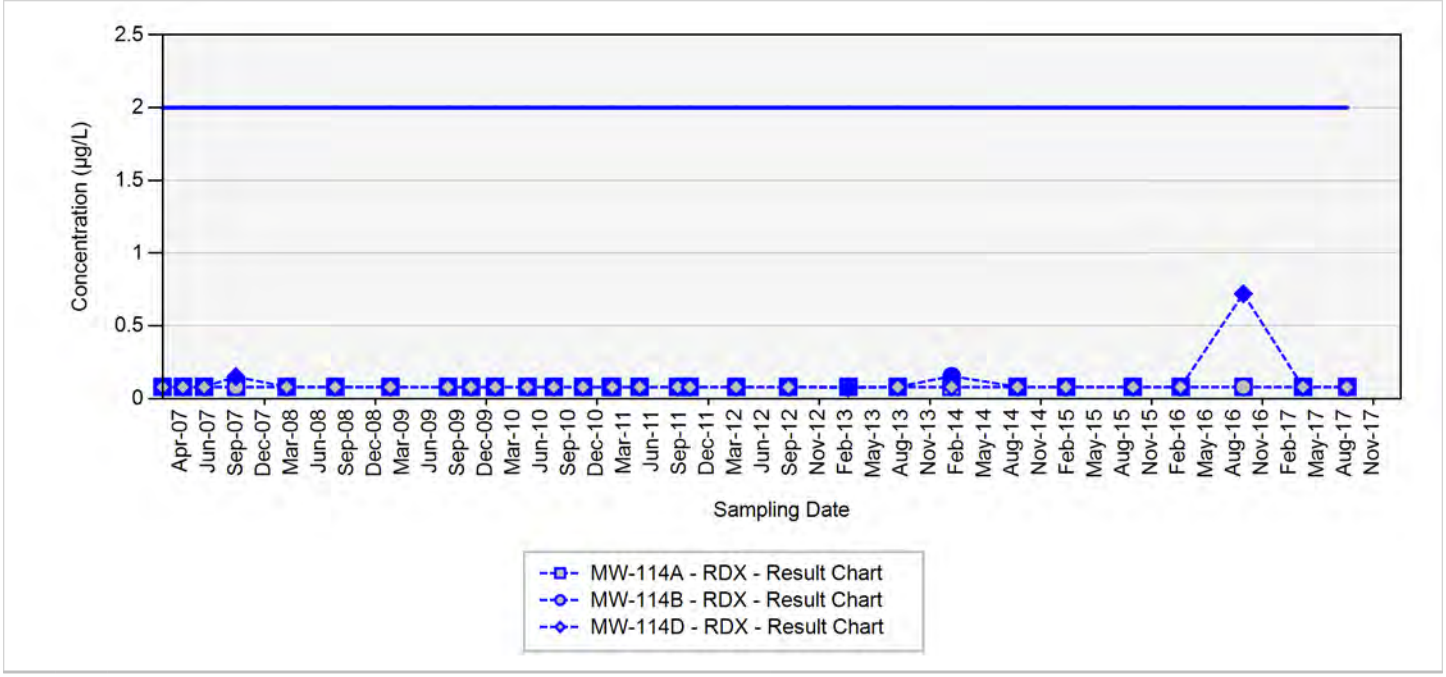
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

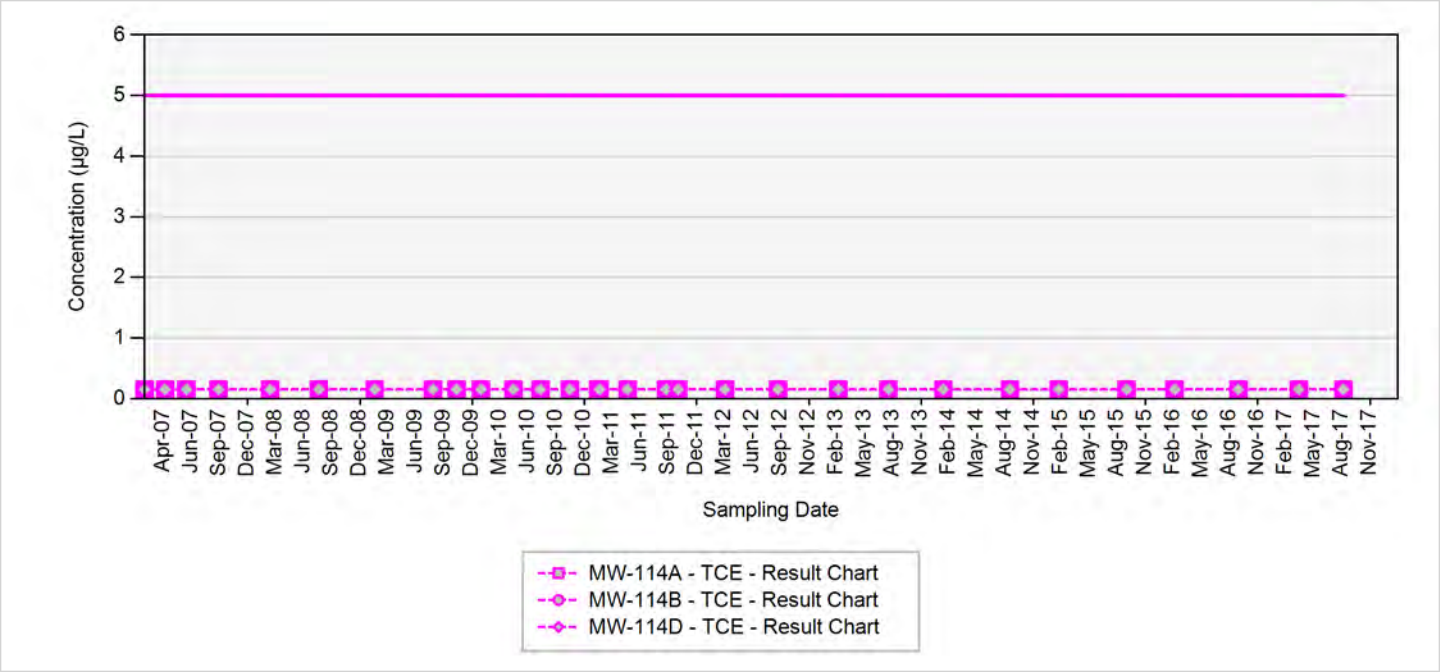
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-114





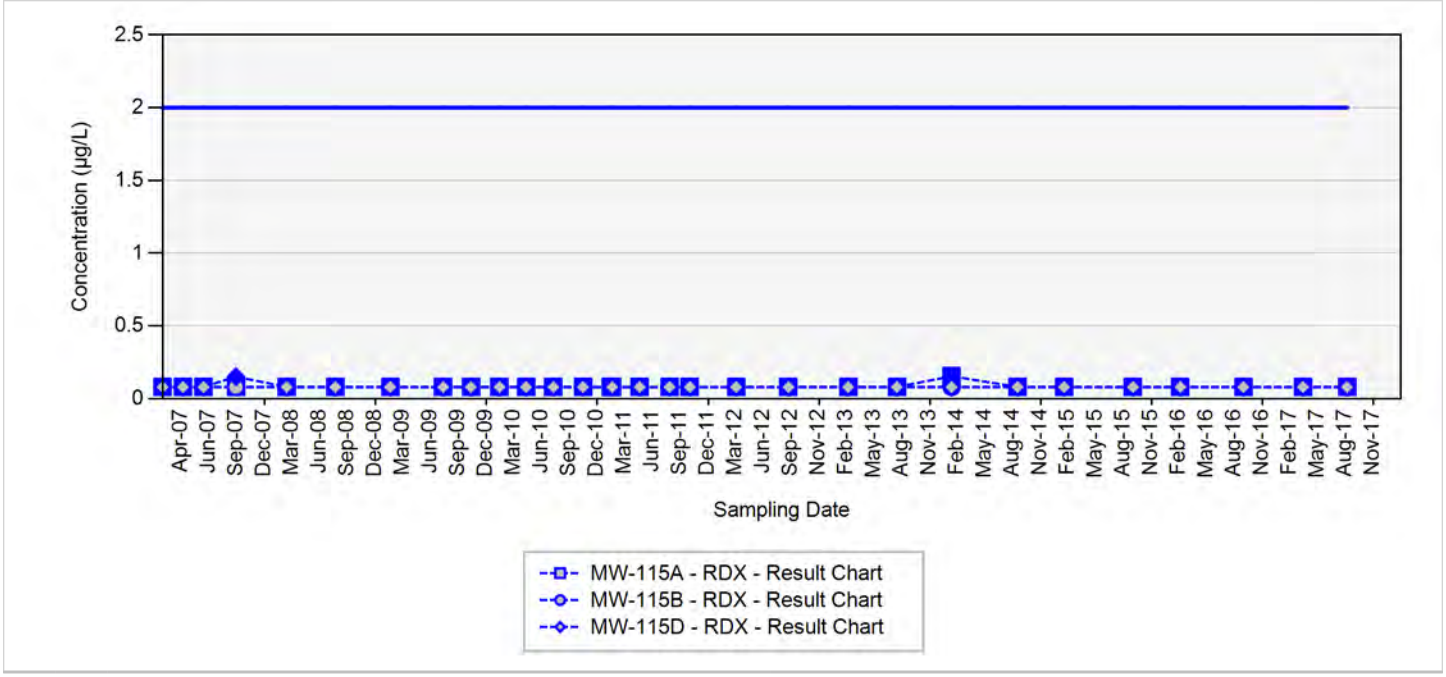
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

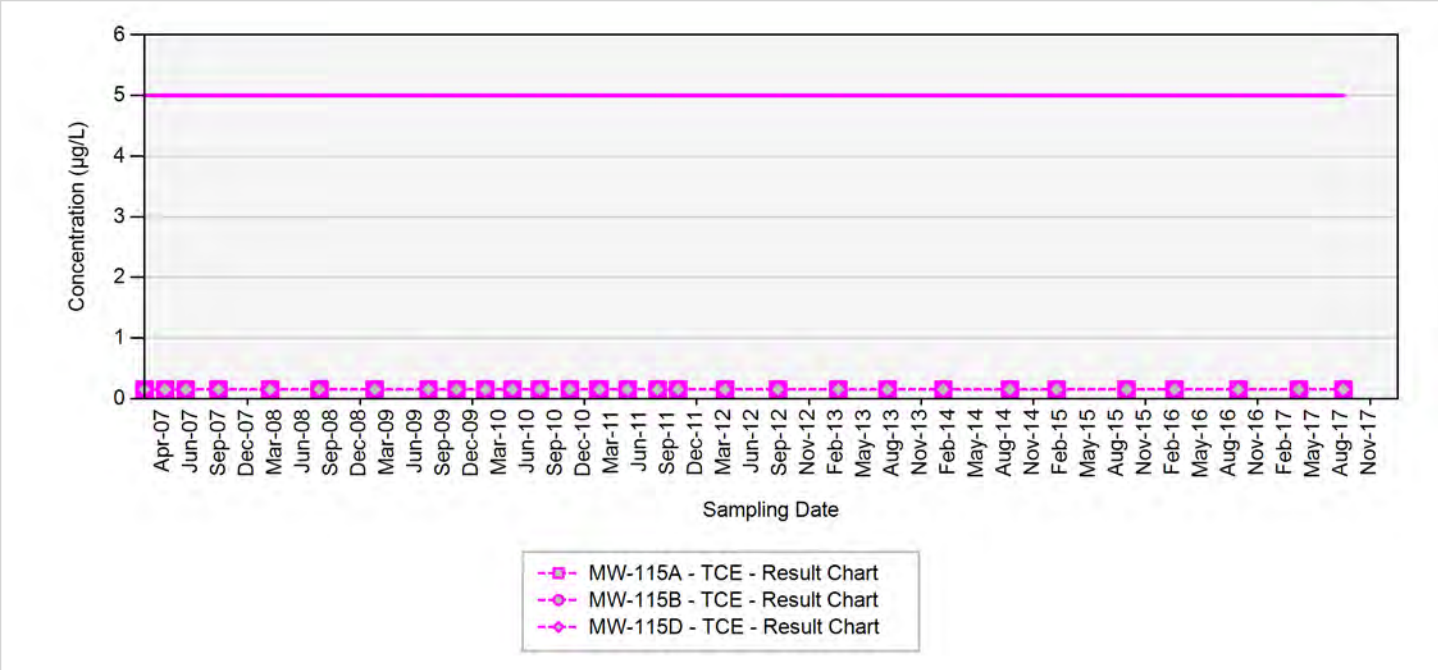
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-115





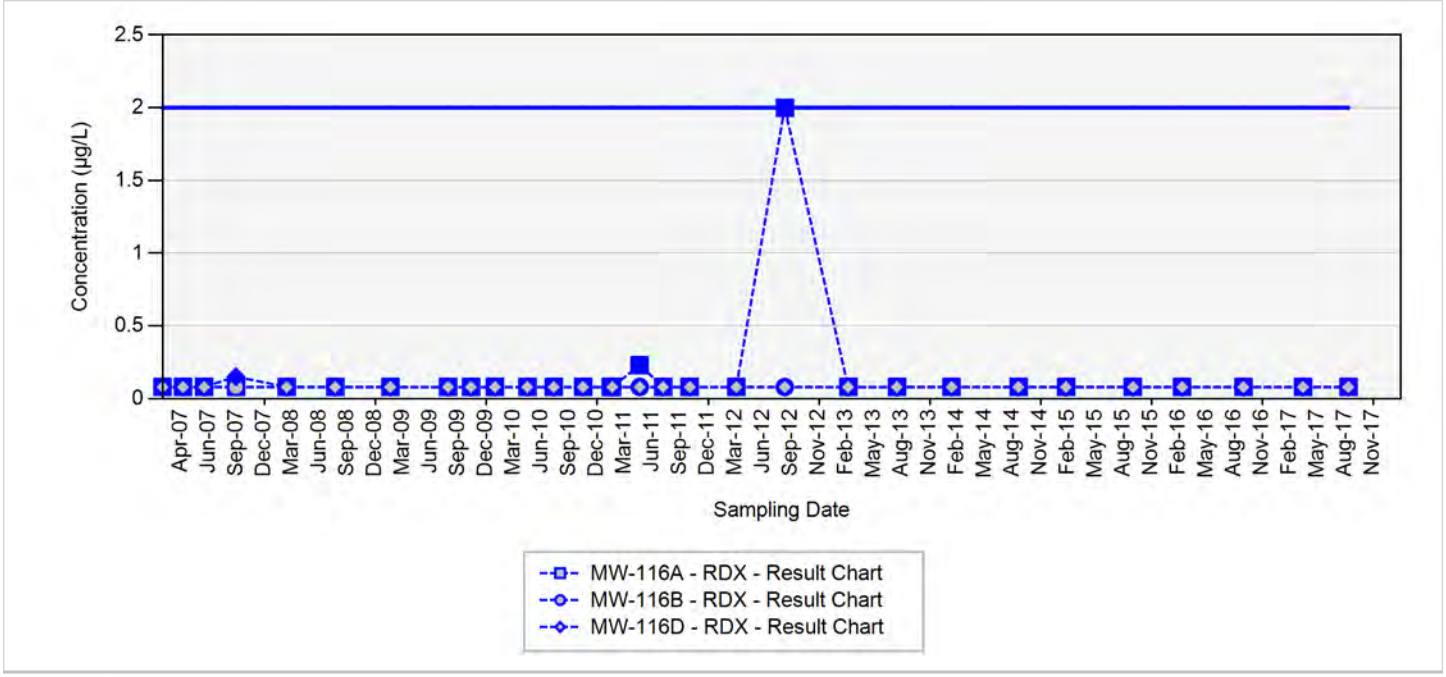
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

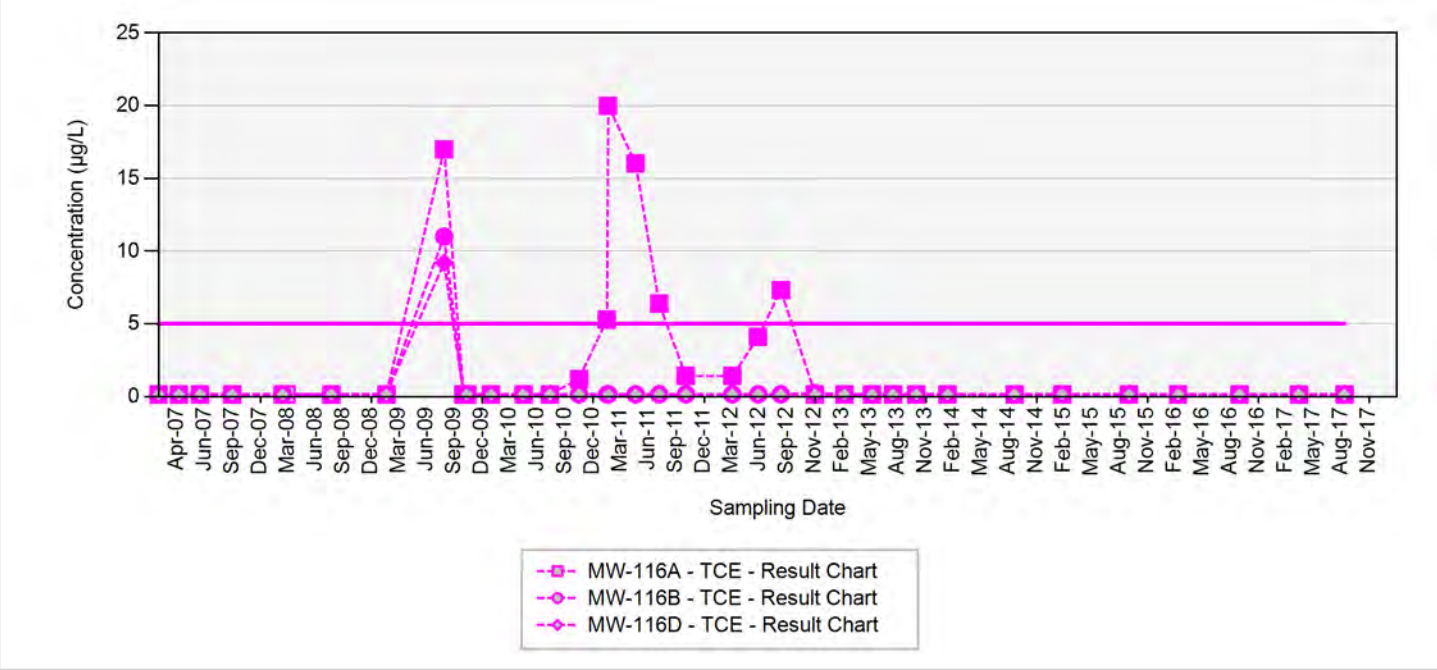
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-116





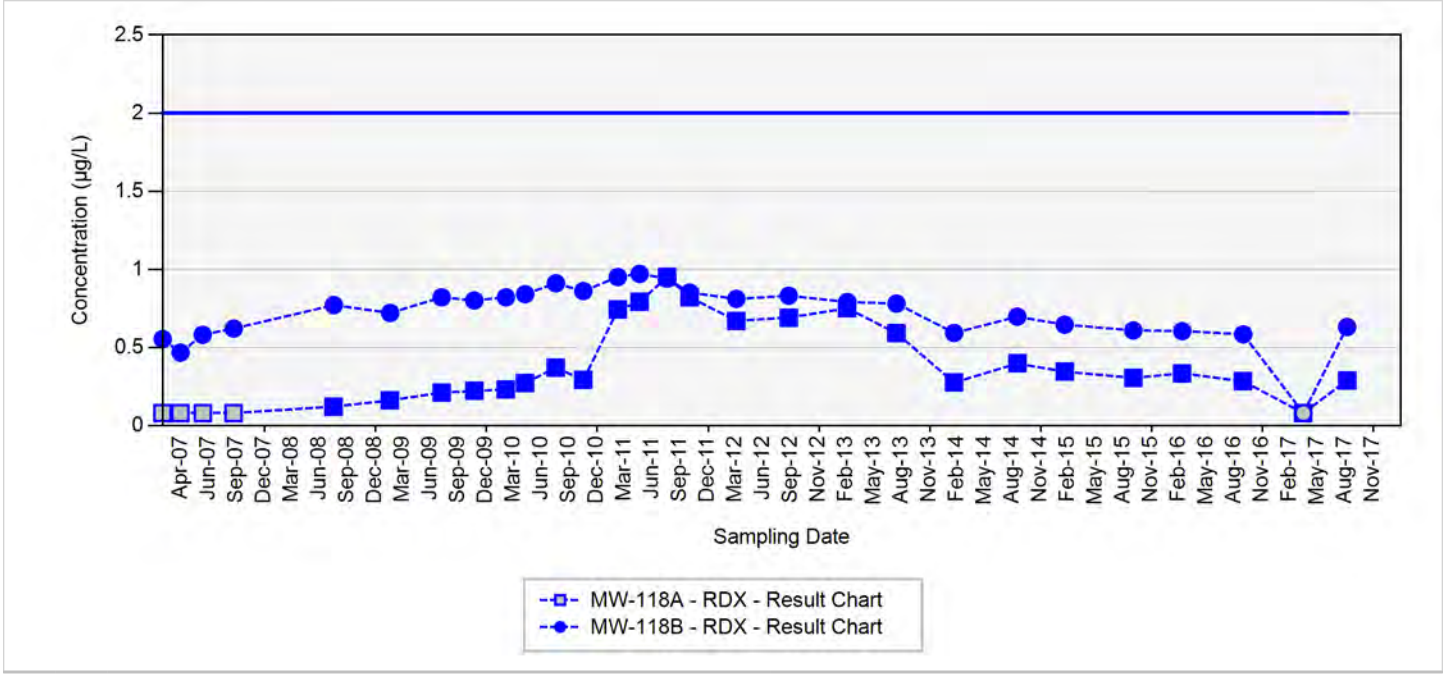
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

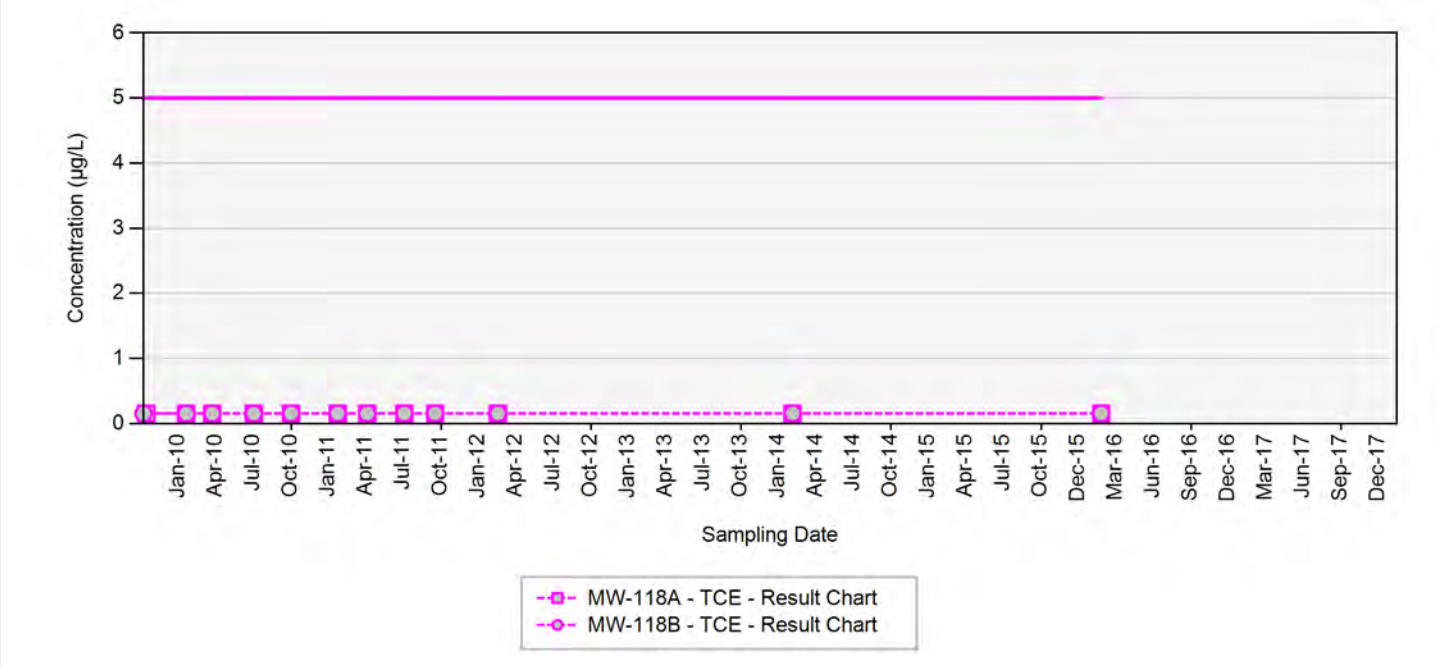
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-118





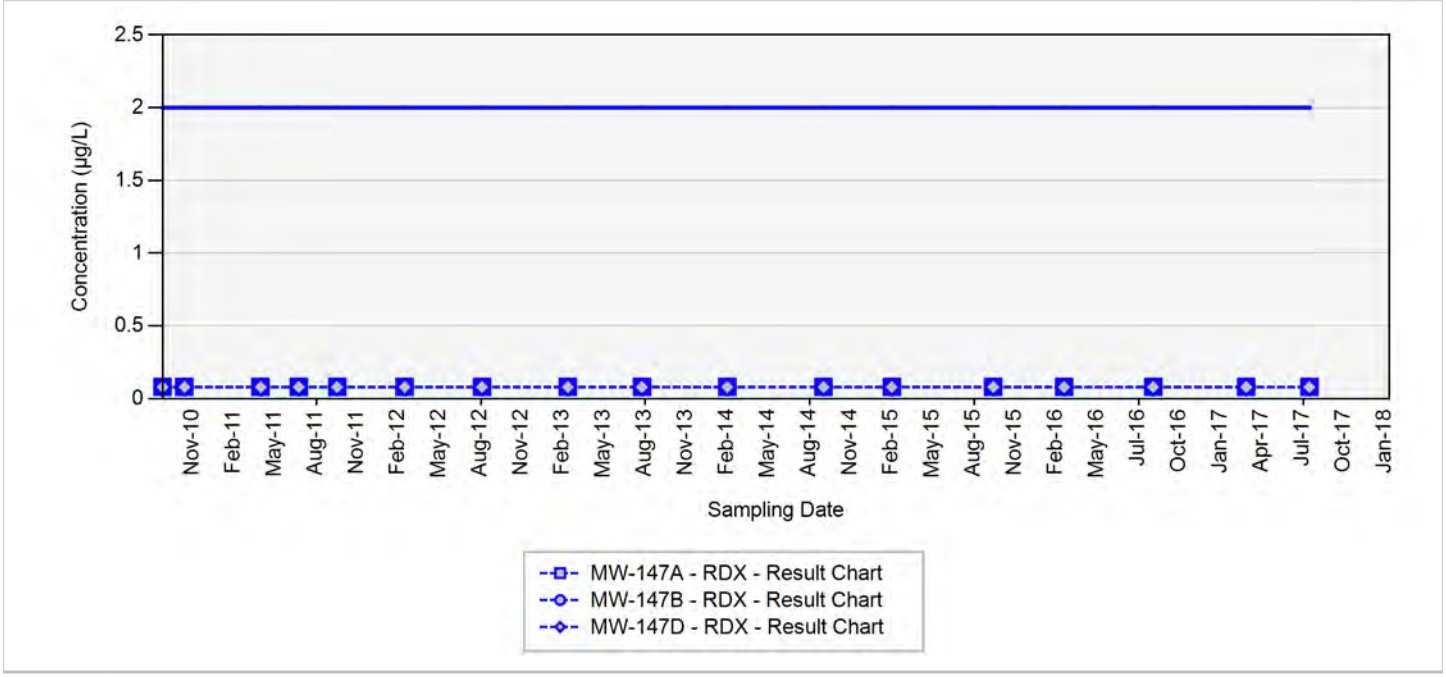
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

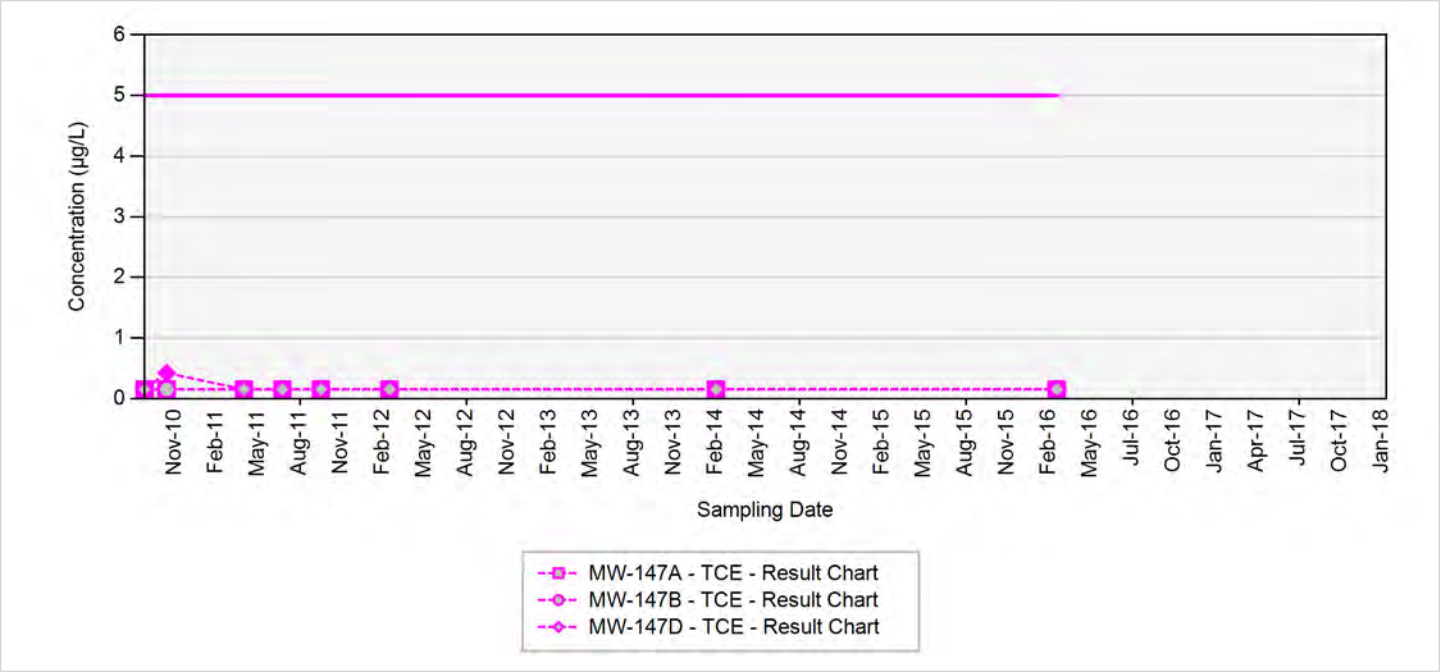
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-147





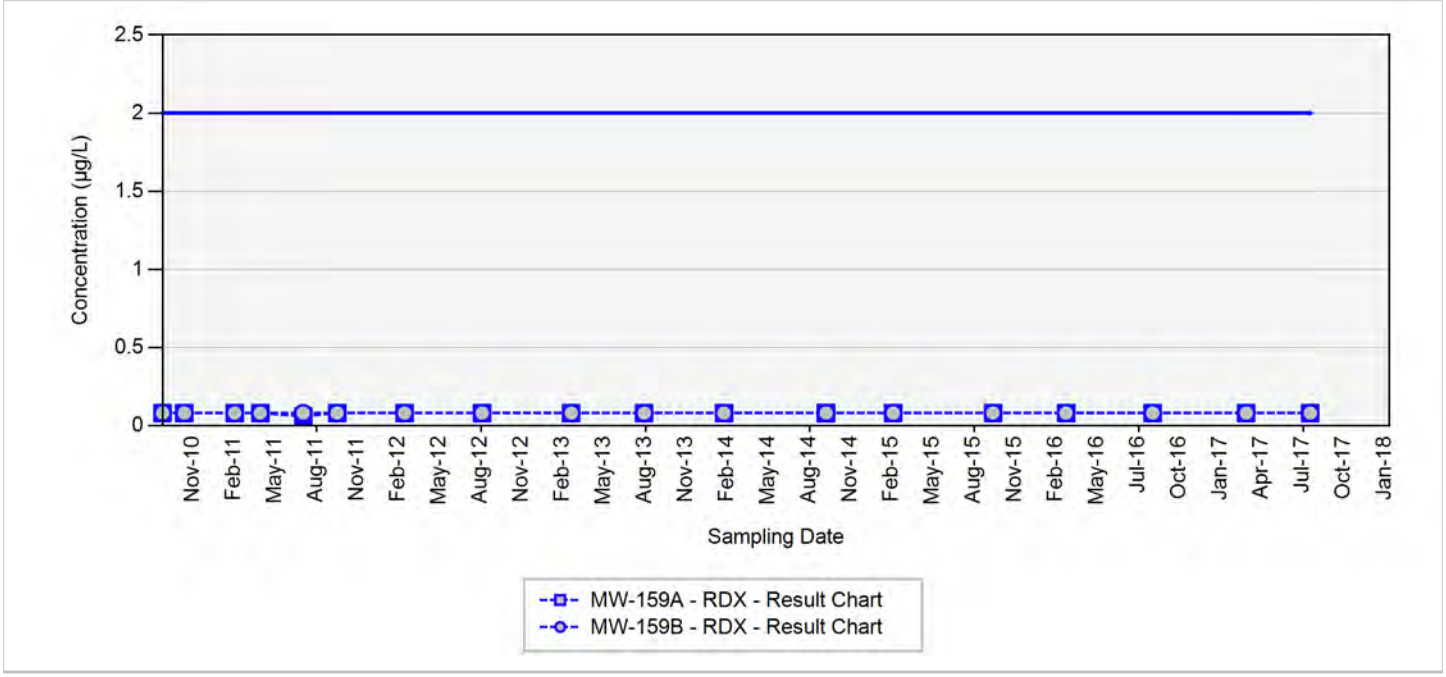
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

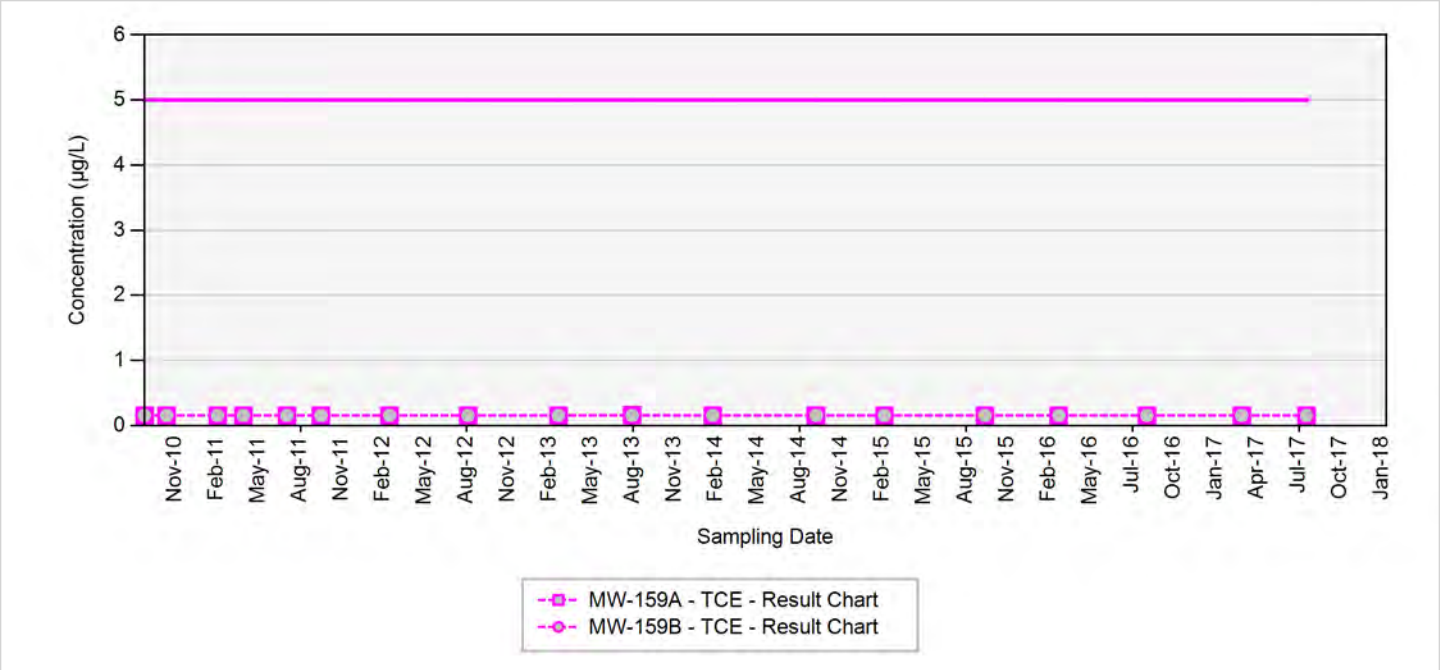
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-159





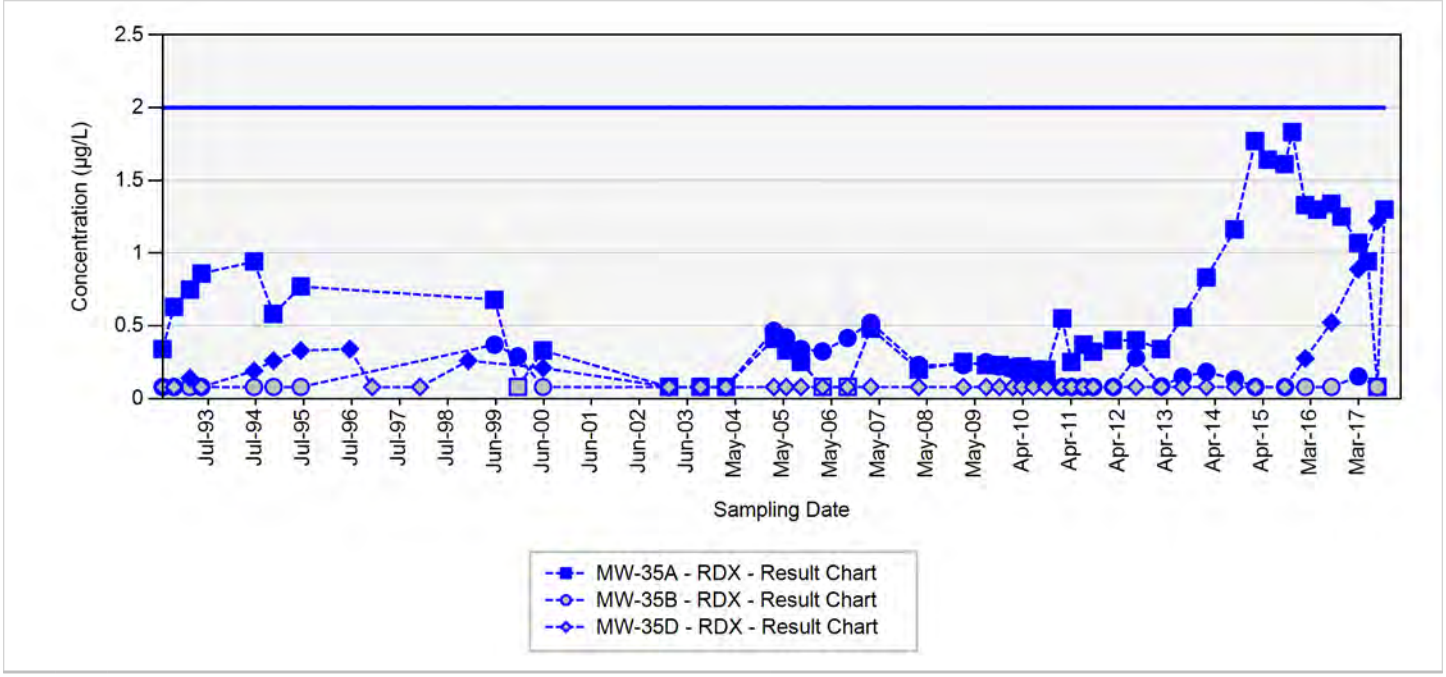
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

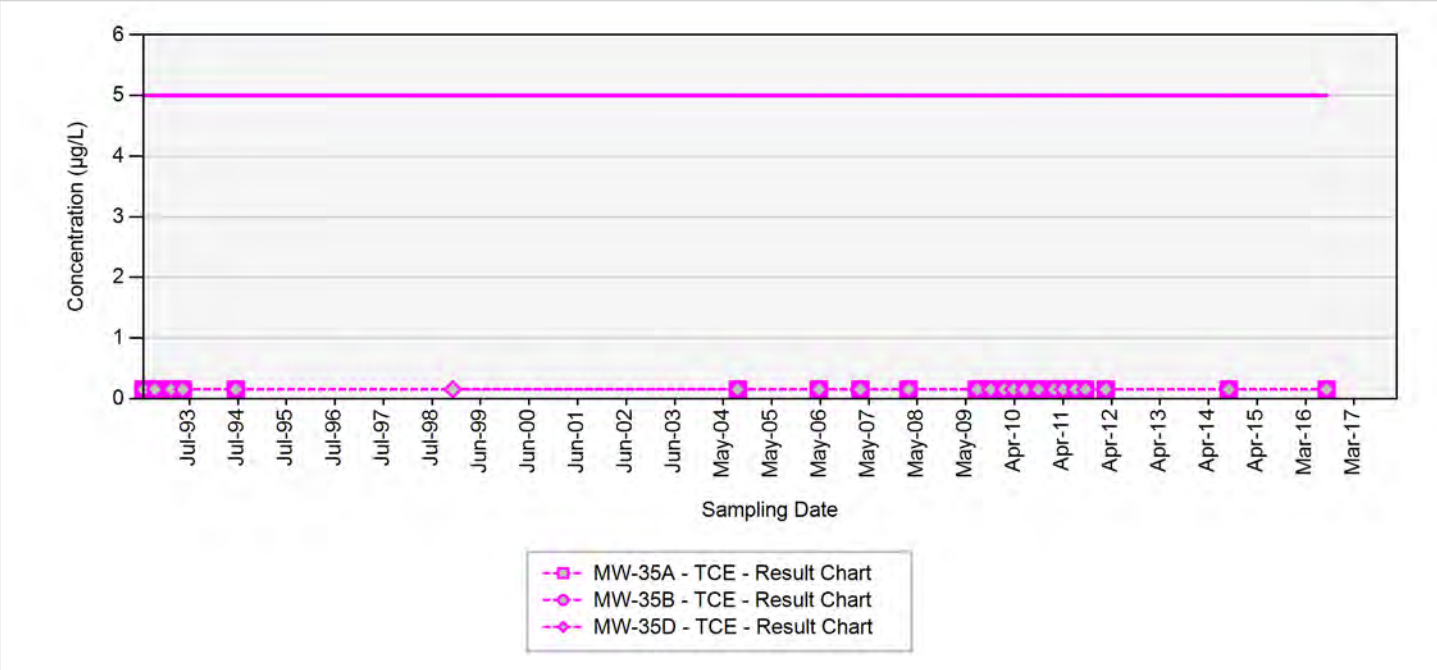
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-35





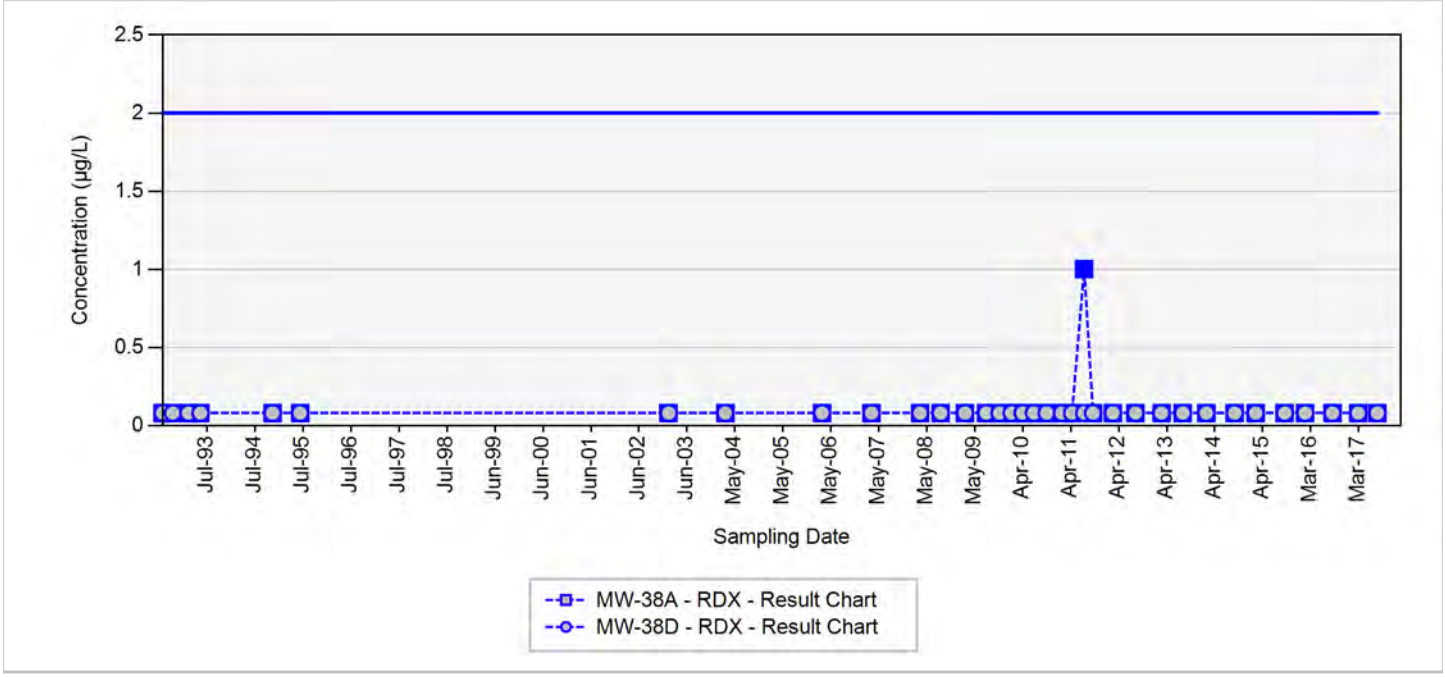
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

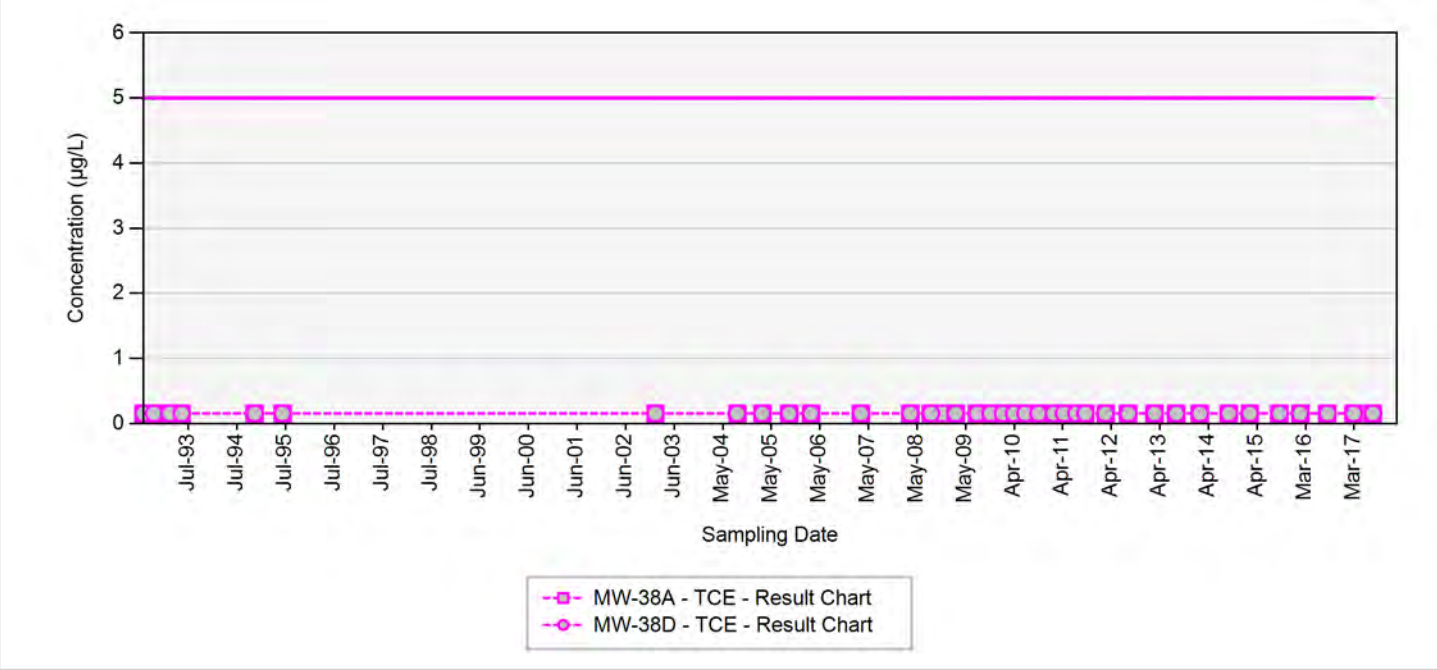
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-38





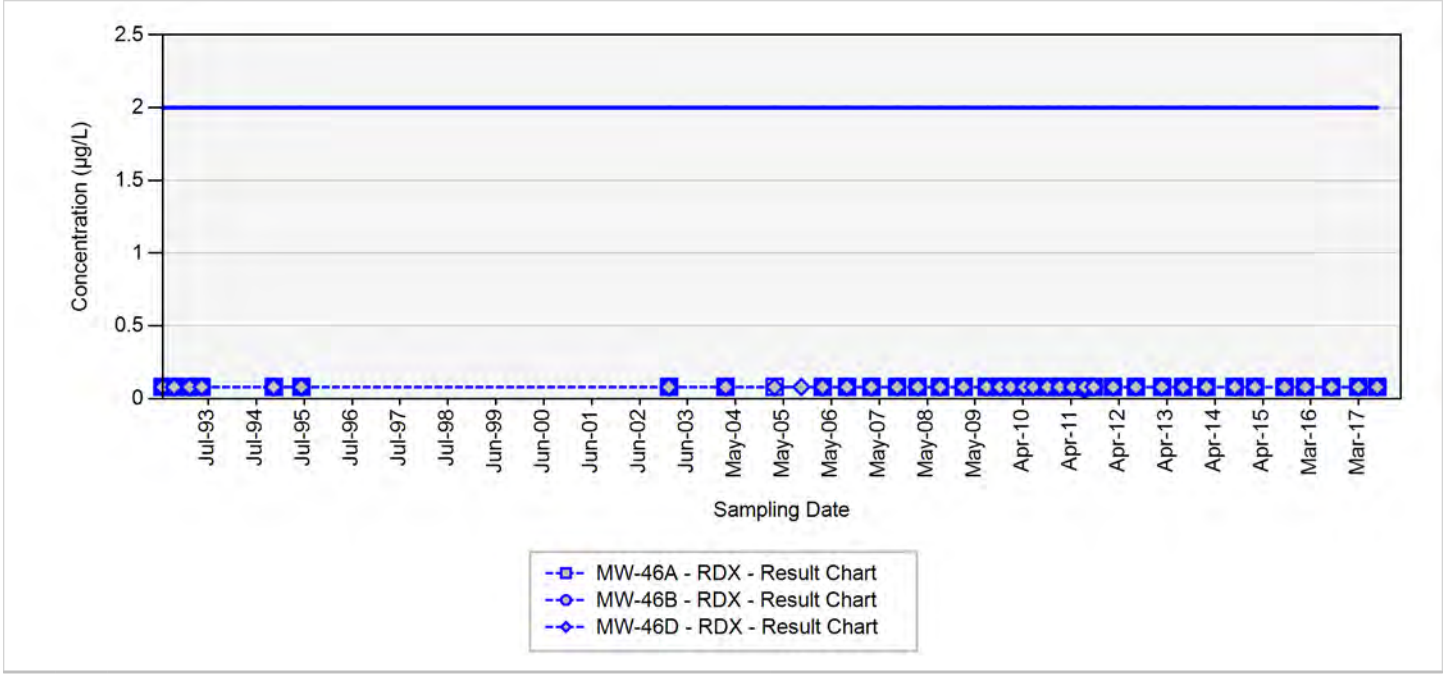
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

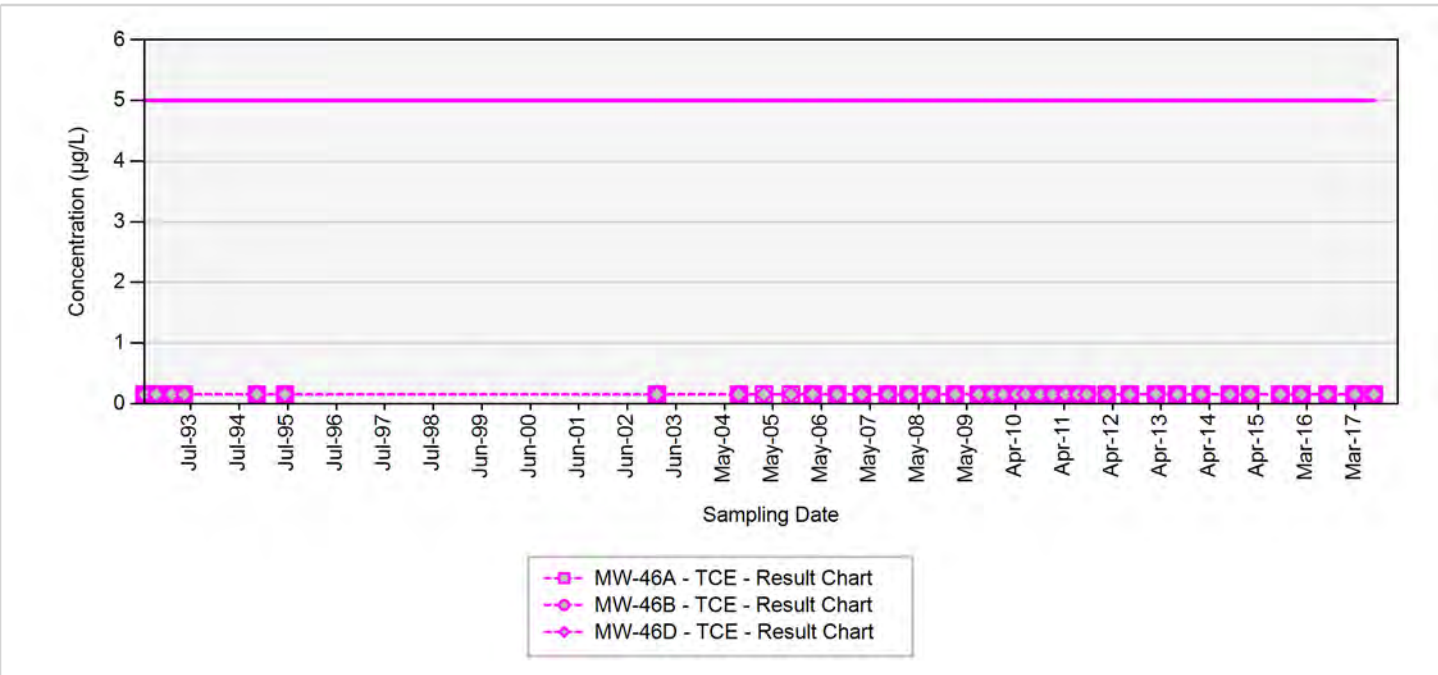
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-46





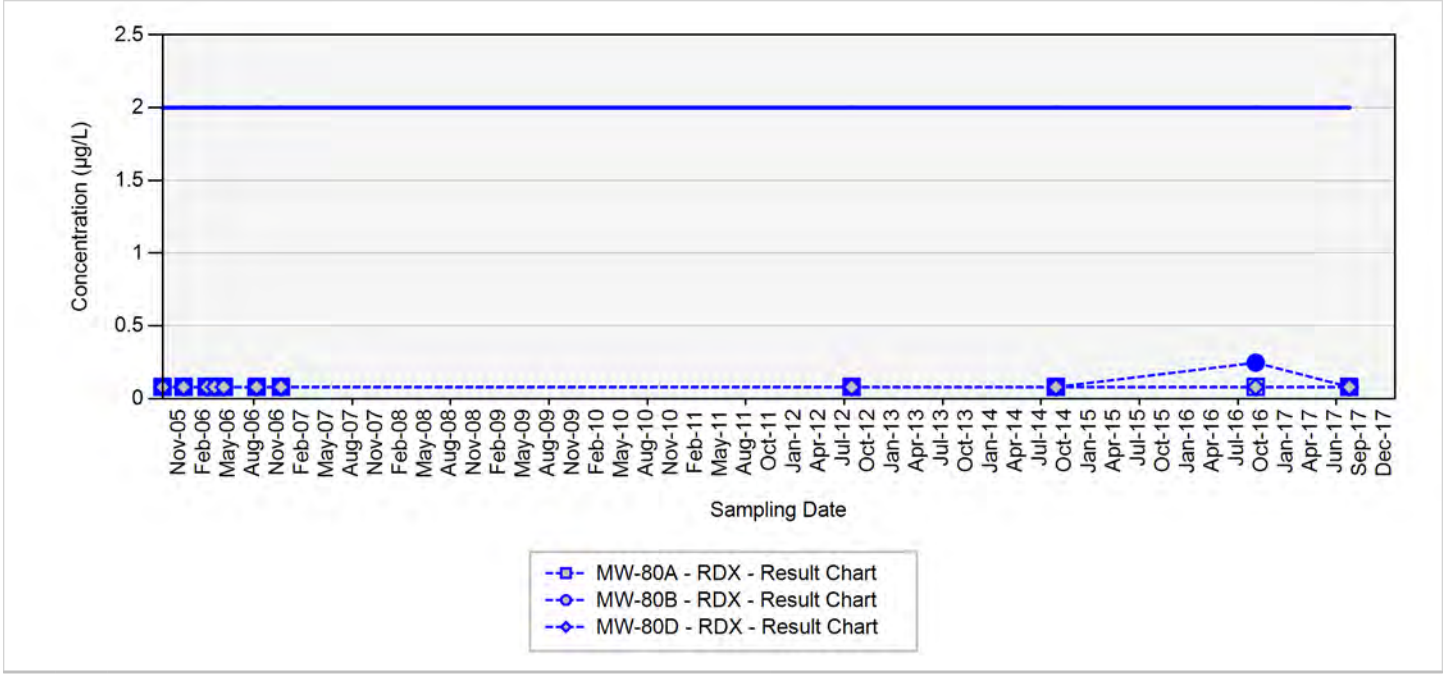
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

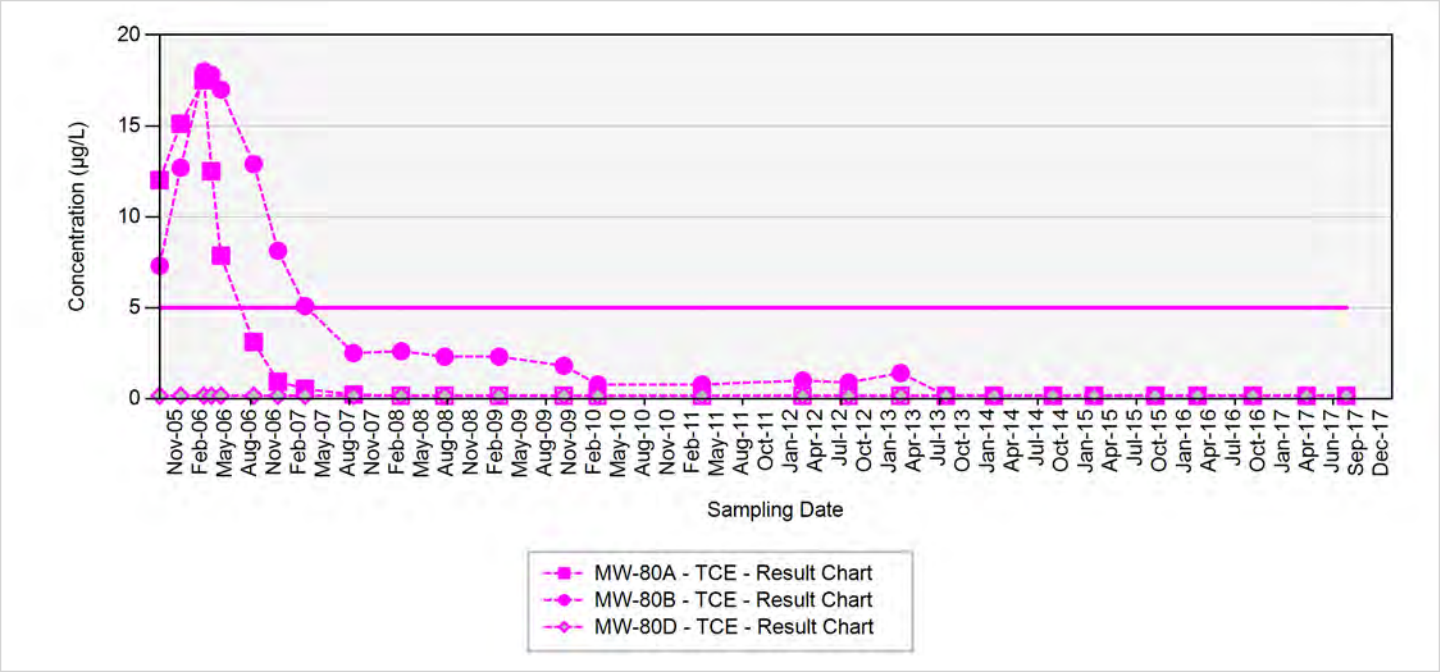
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-80





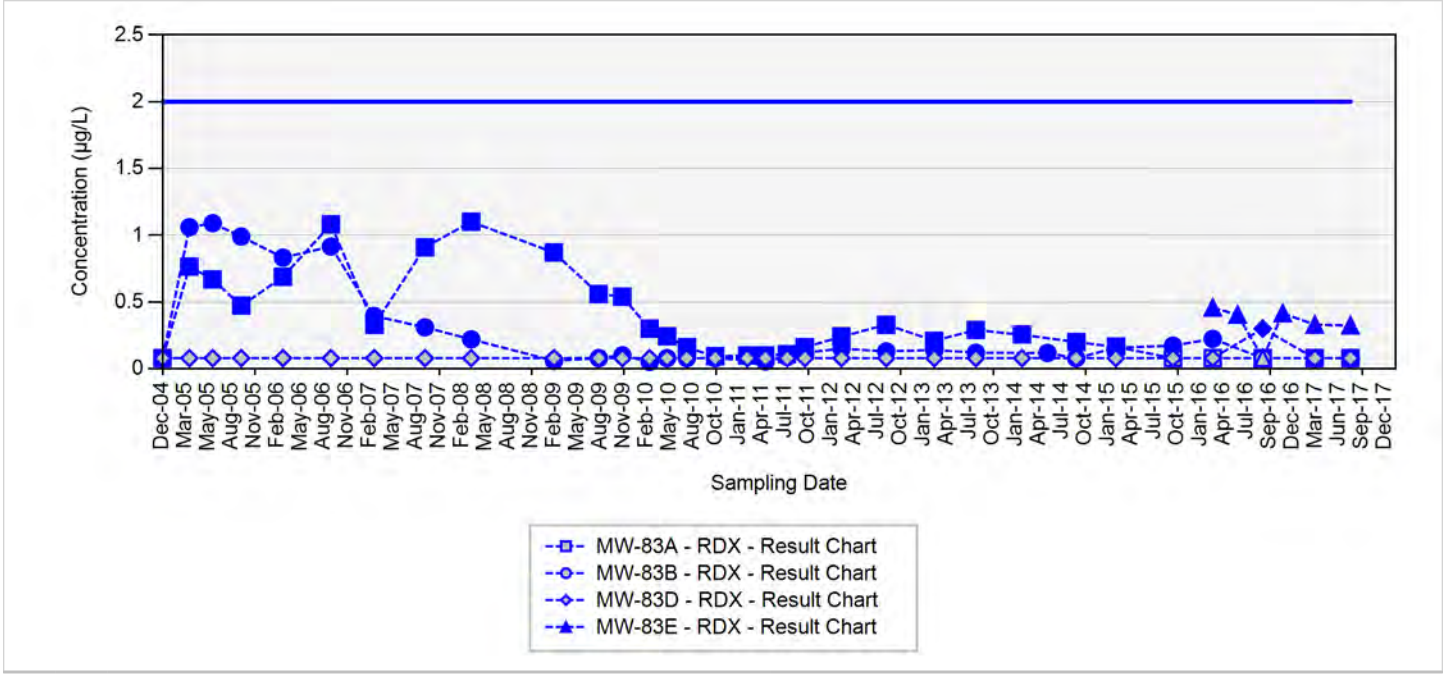
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

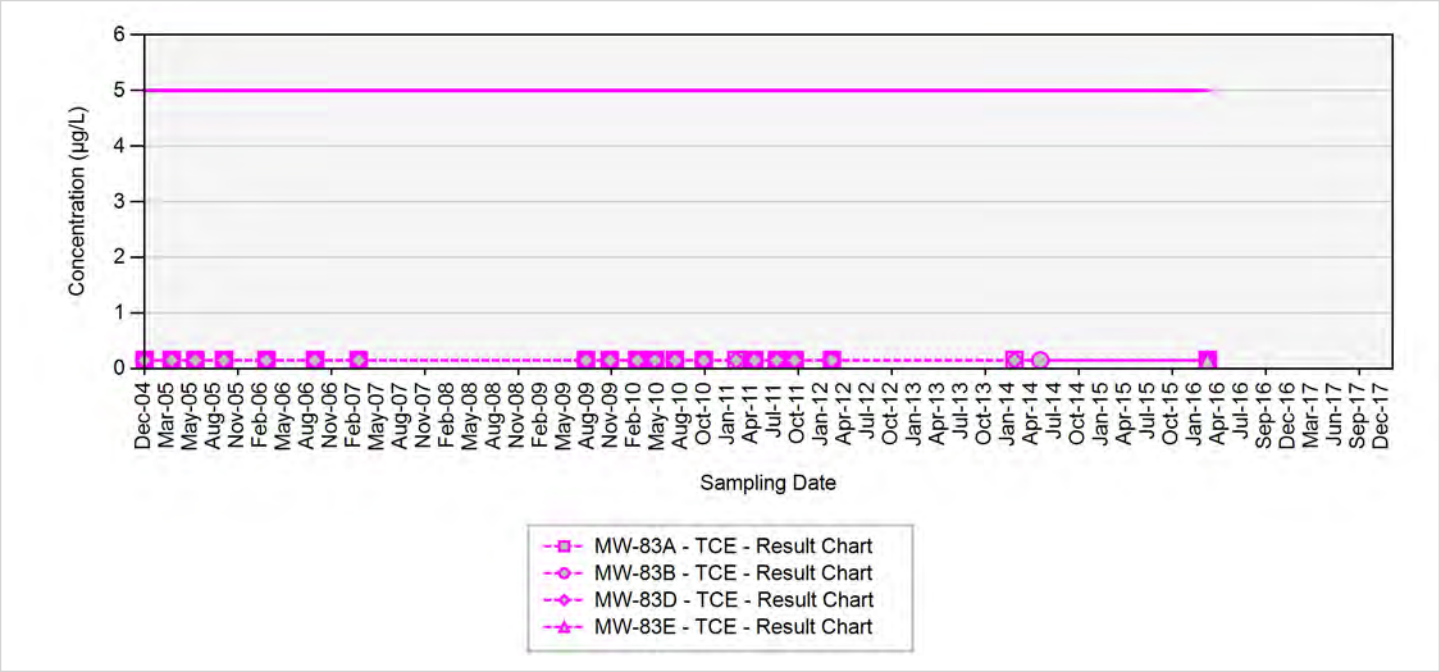
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-83





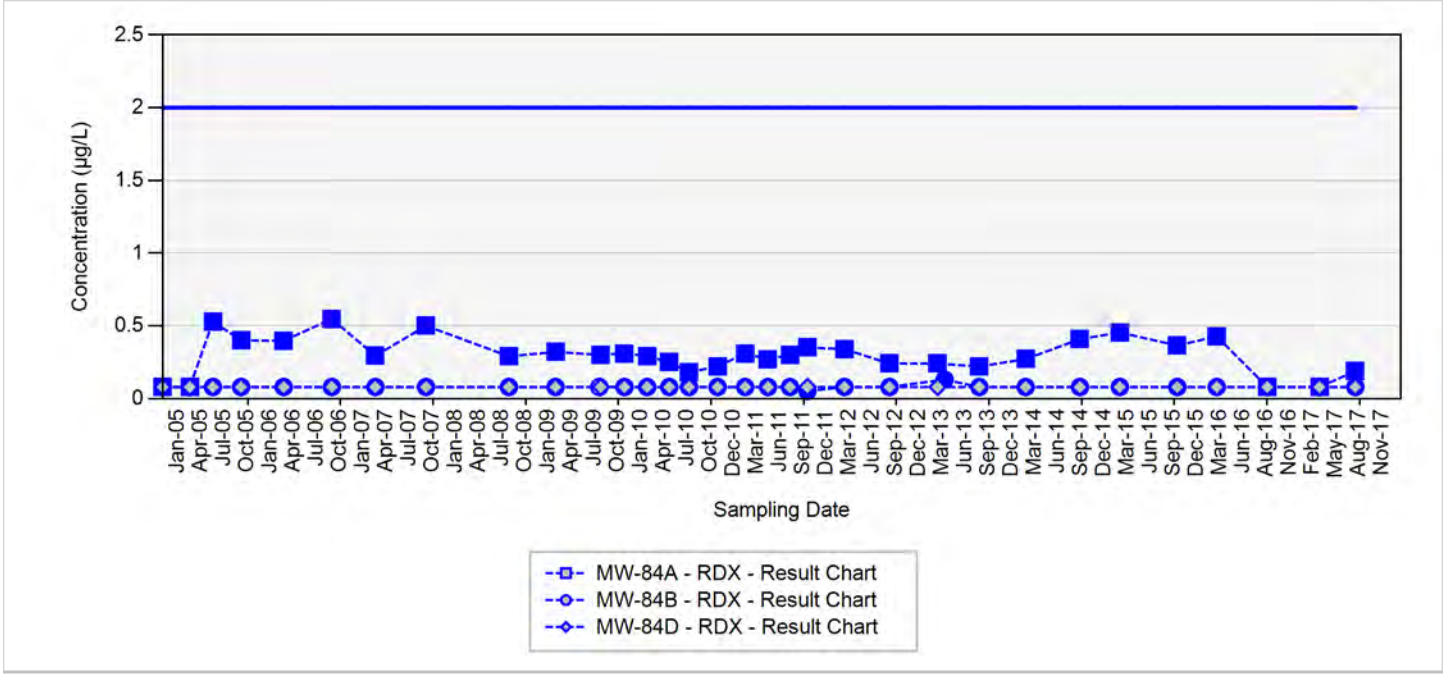
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

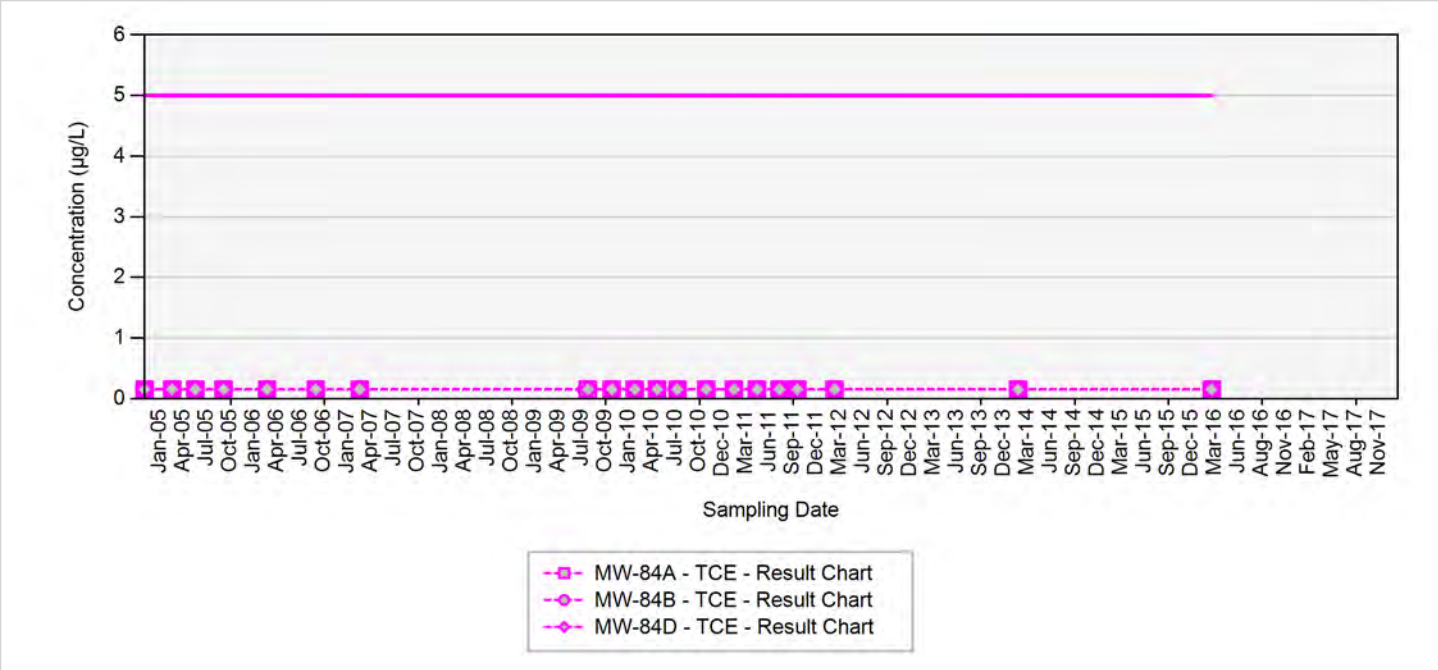
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-84





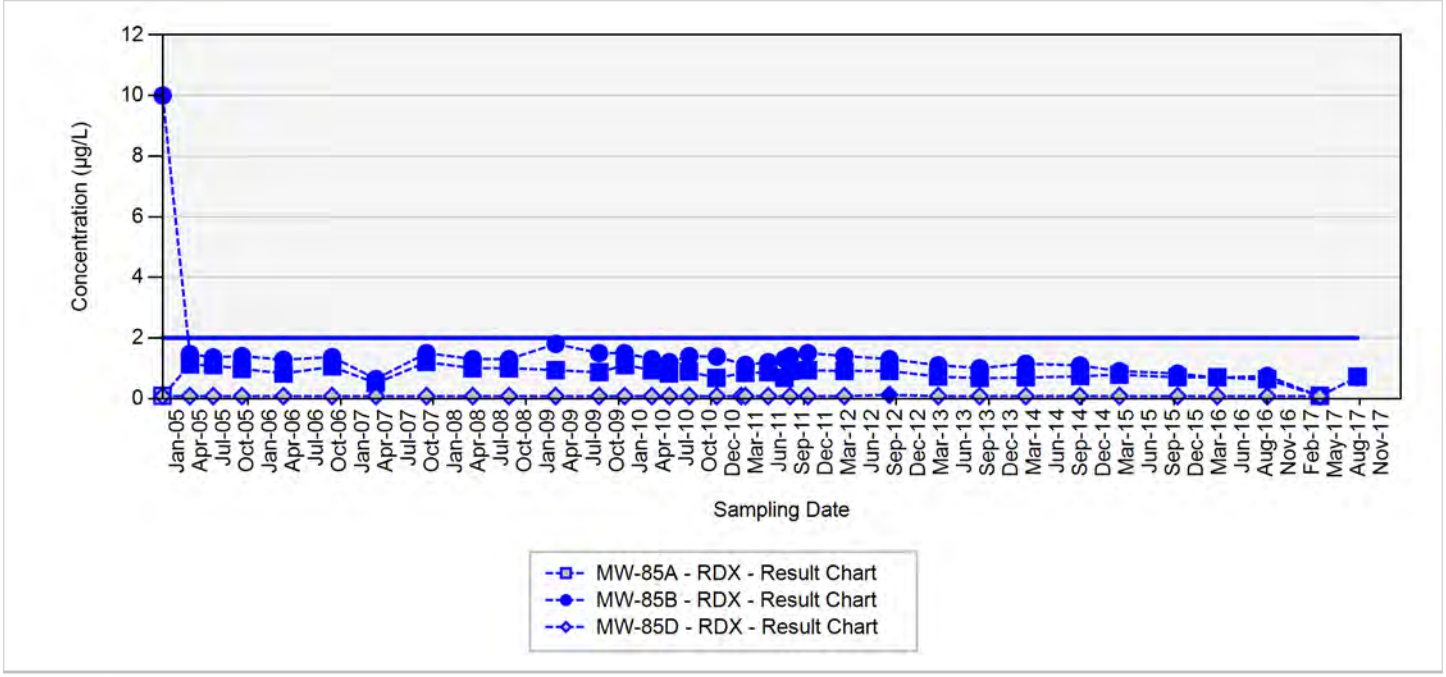
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

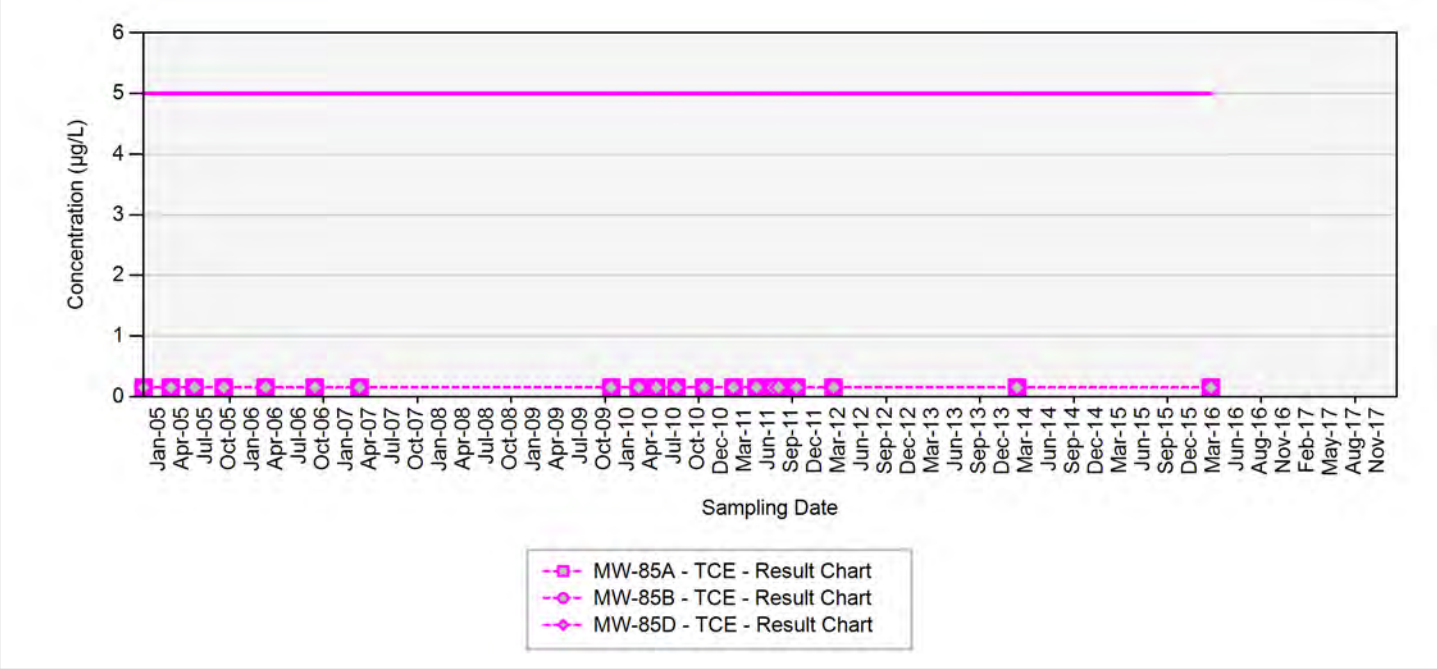
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B
Concentration Trend Charts for Perimeter Monitoring Wells

MW-85





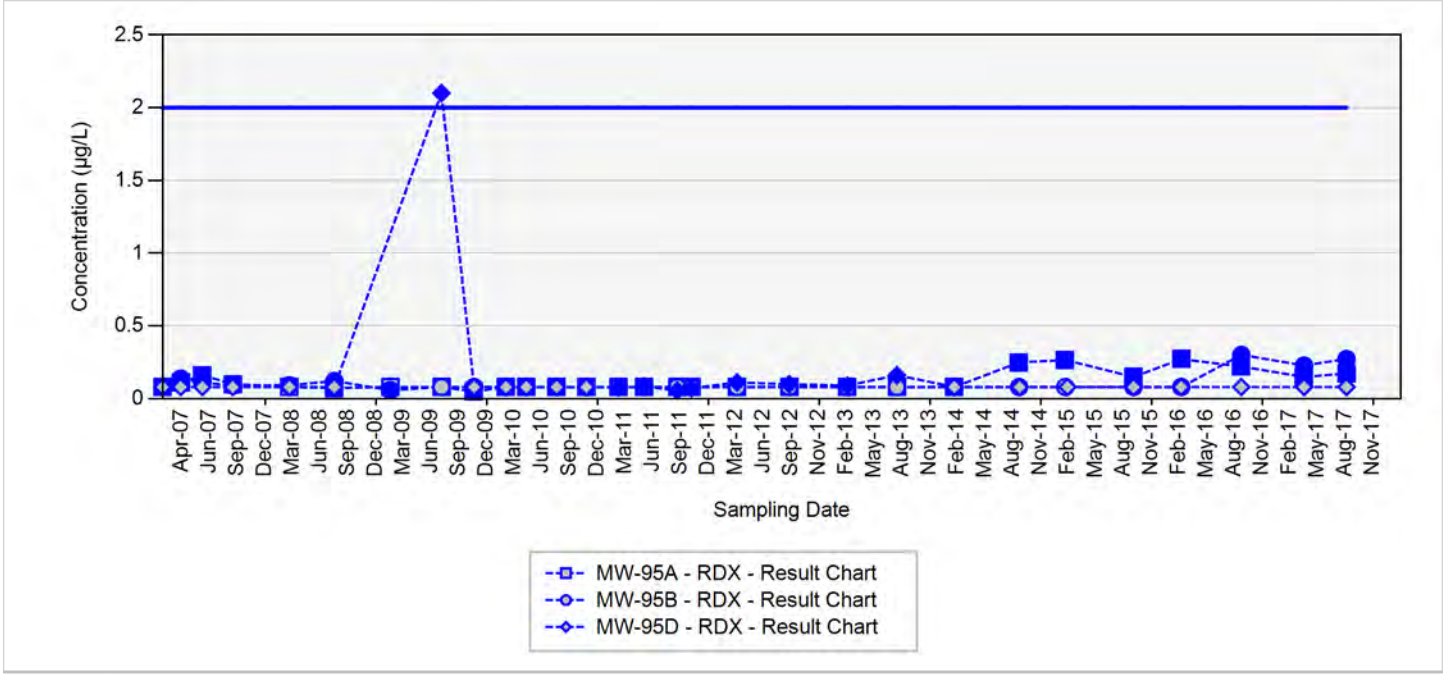
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

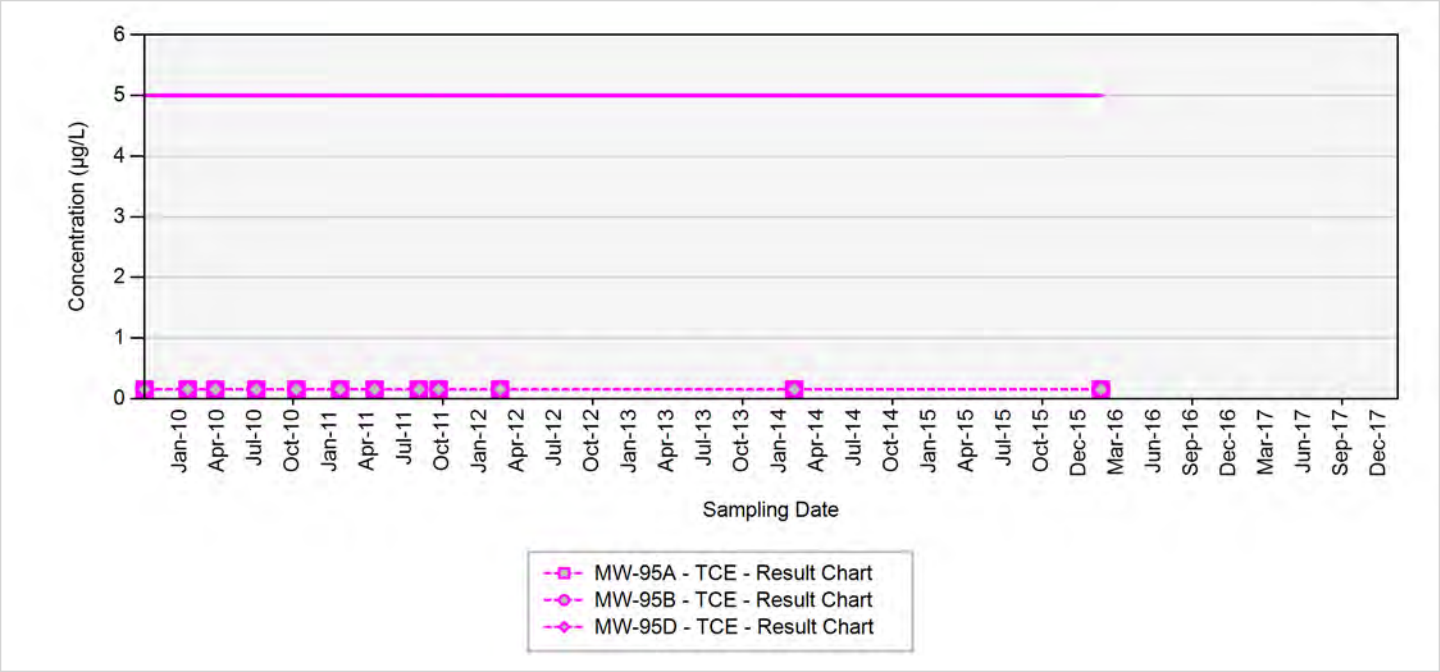
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

µg/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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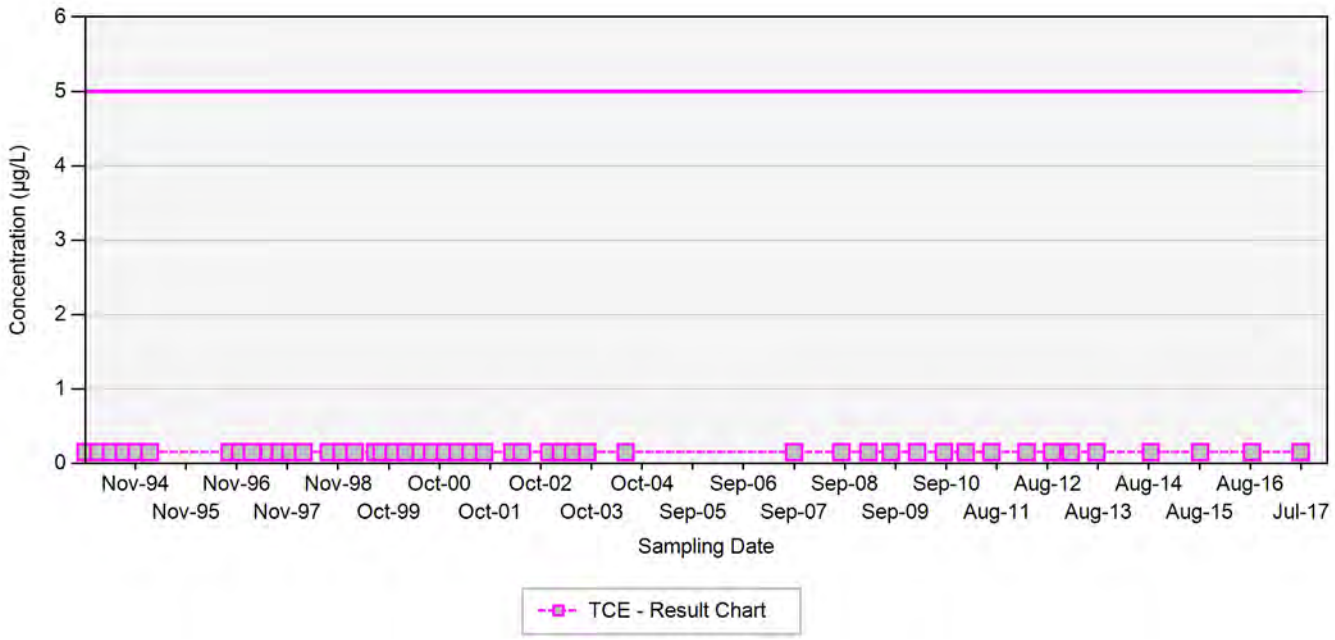
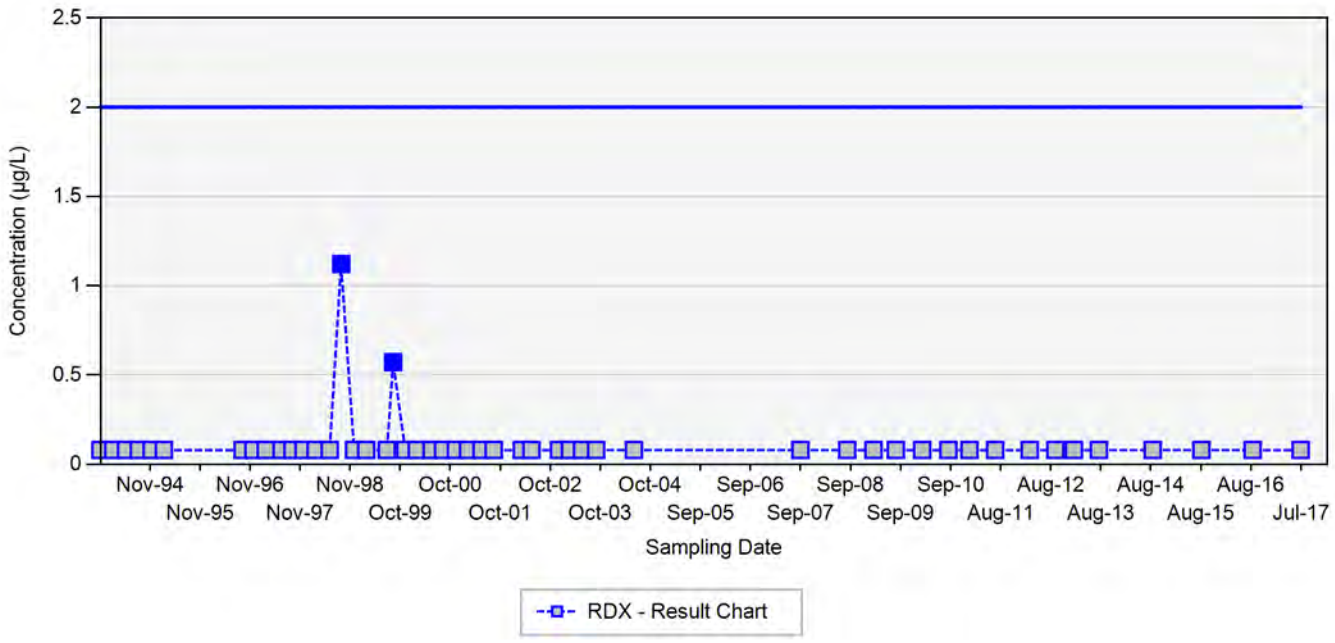
Appendix C
Concentration Trend Charts for Water Supply Wells

UNFL-09A





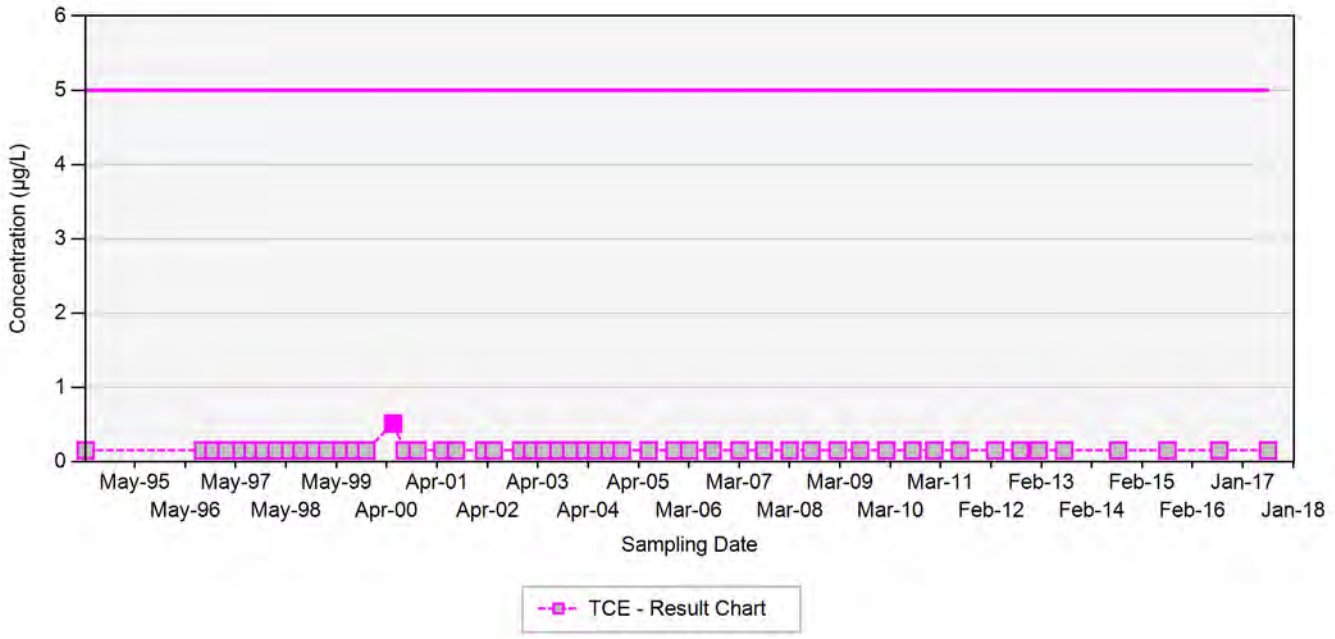
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

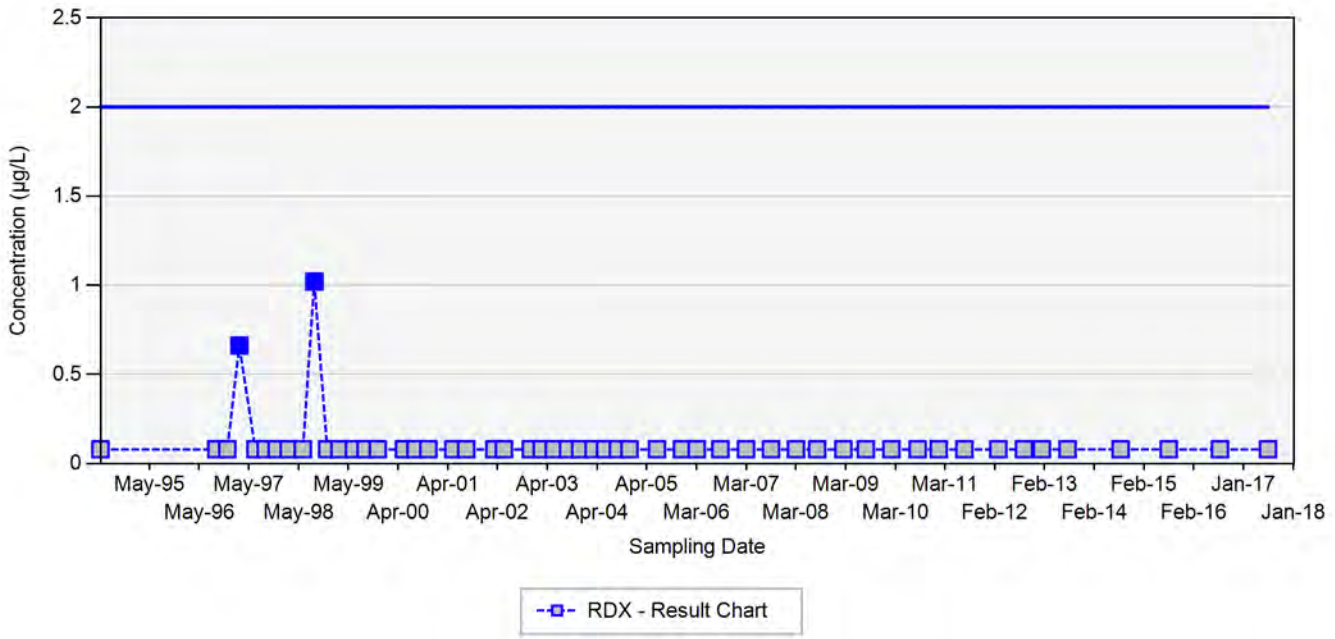
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

UNFL-10A





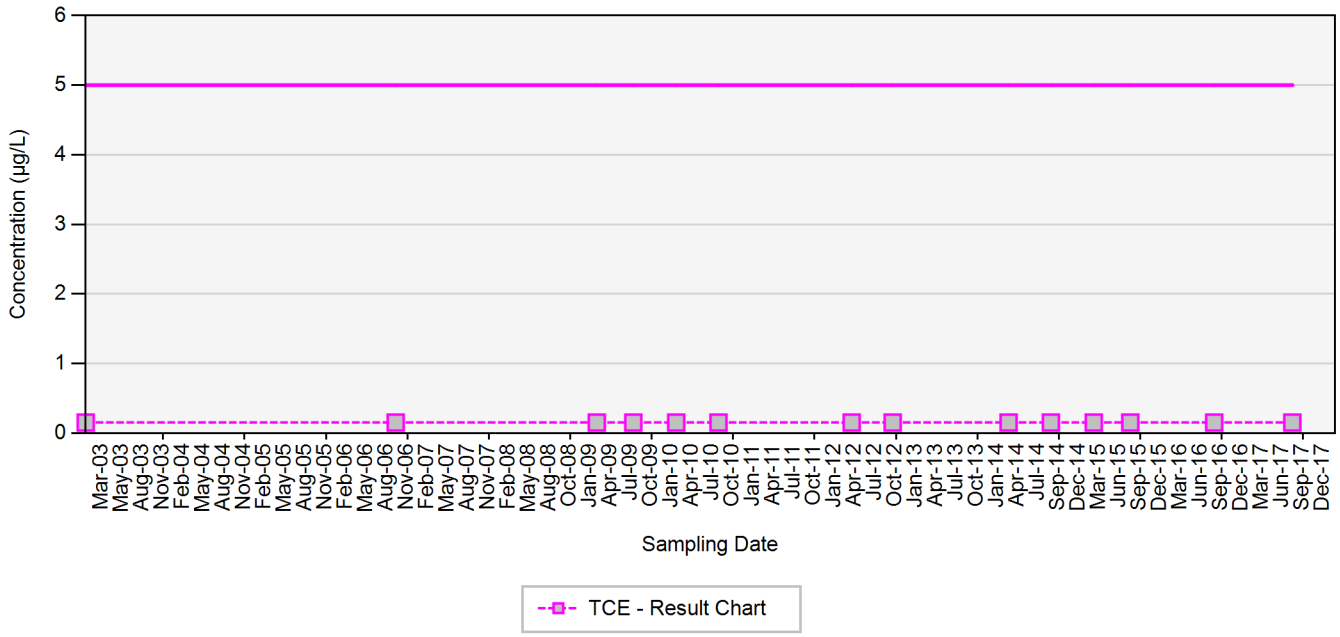
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

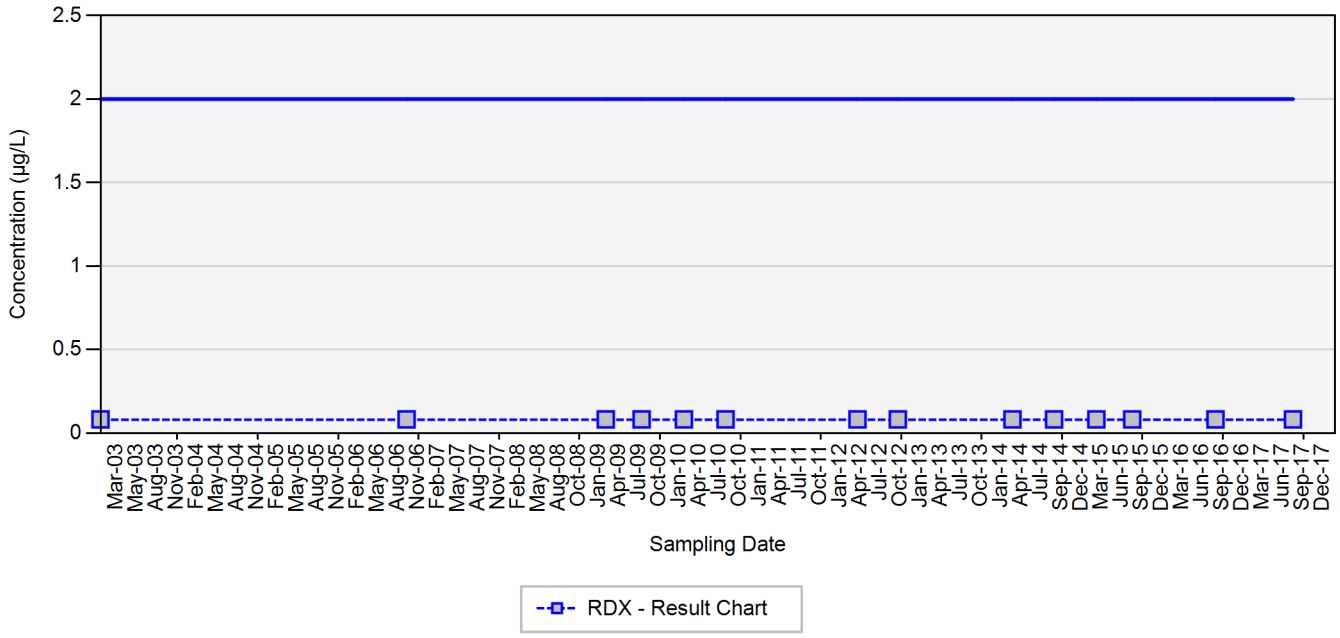
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

UNFL-12





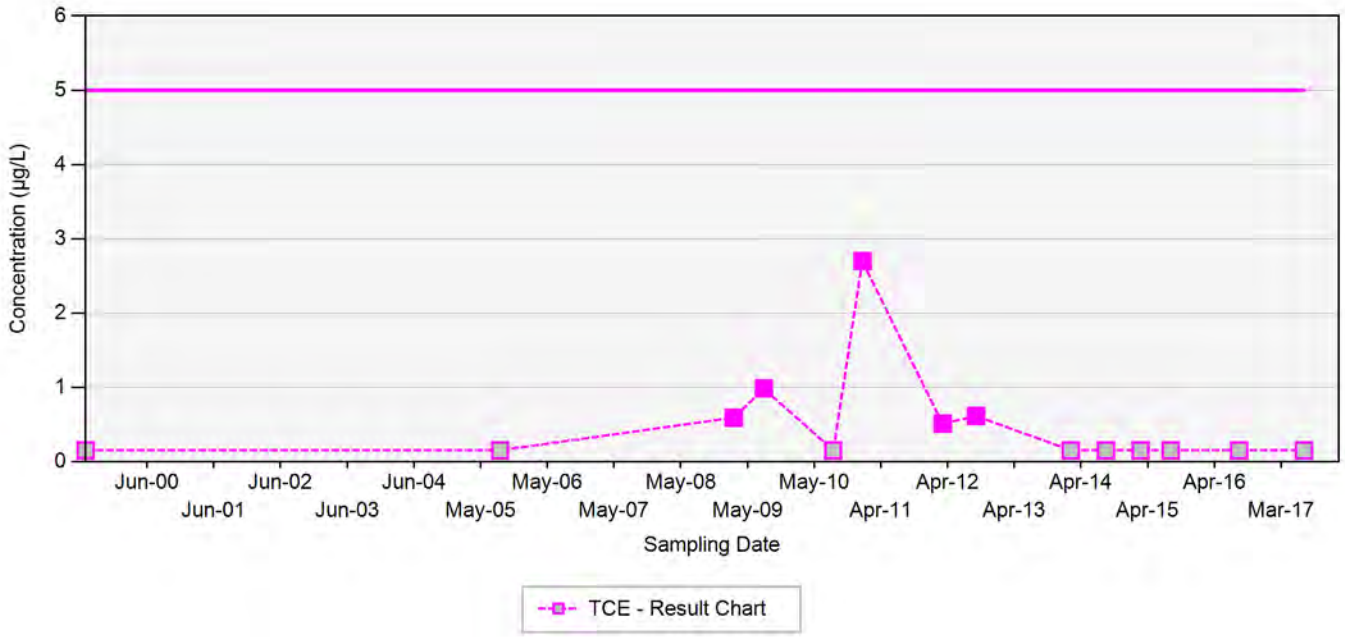
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

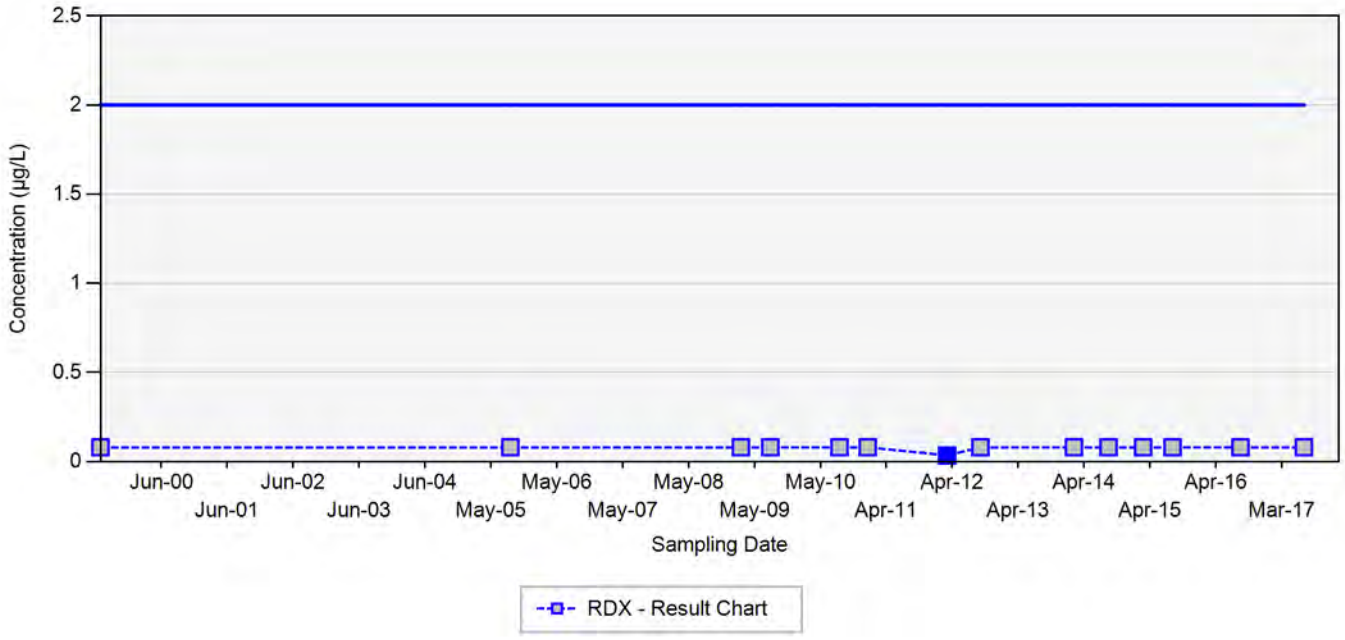
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

UNFL-23





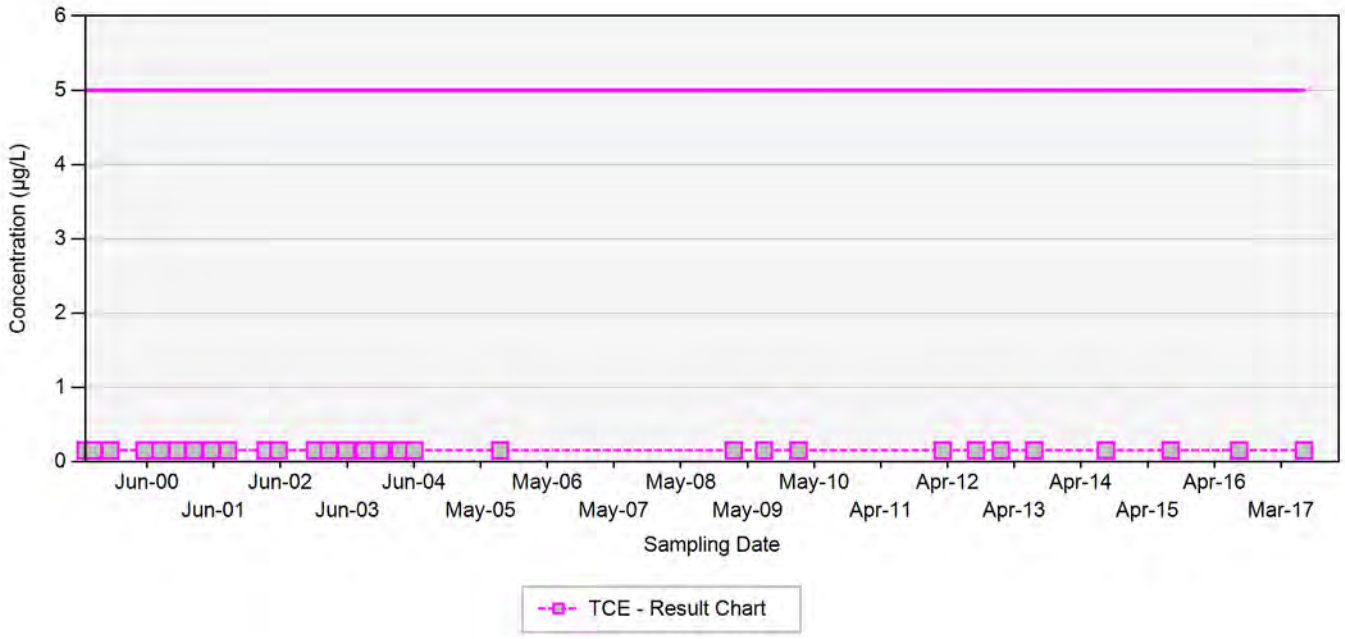
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

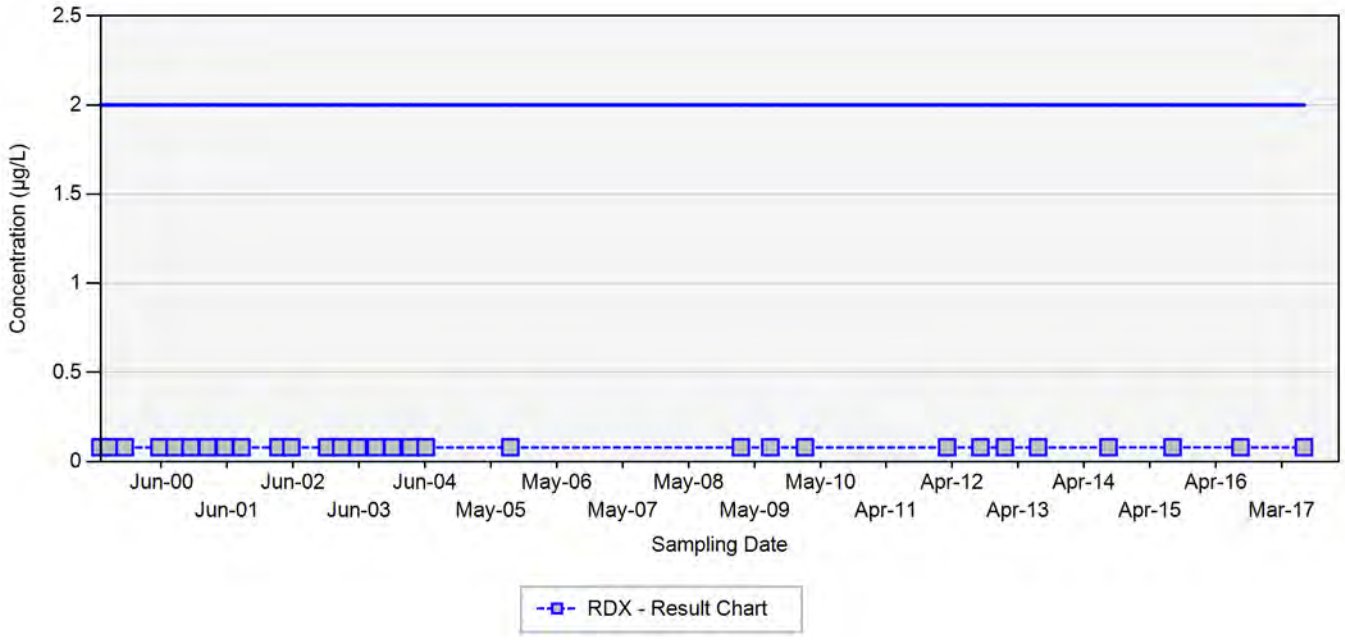
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

UNFL-27





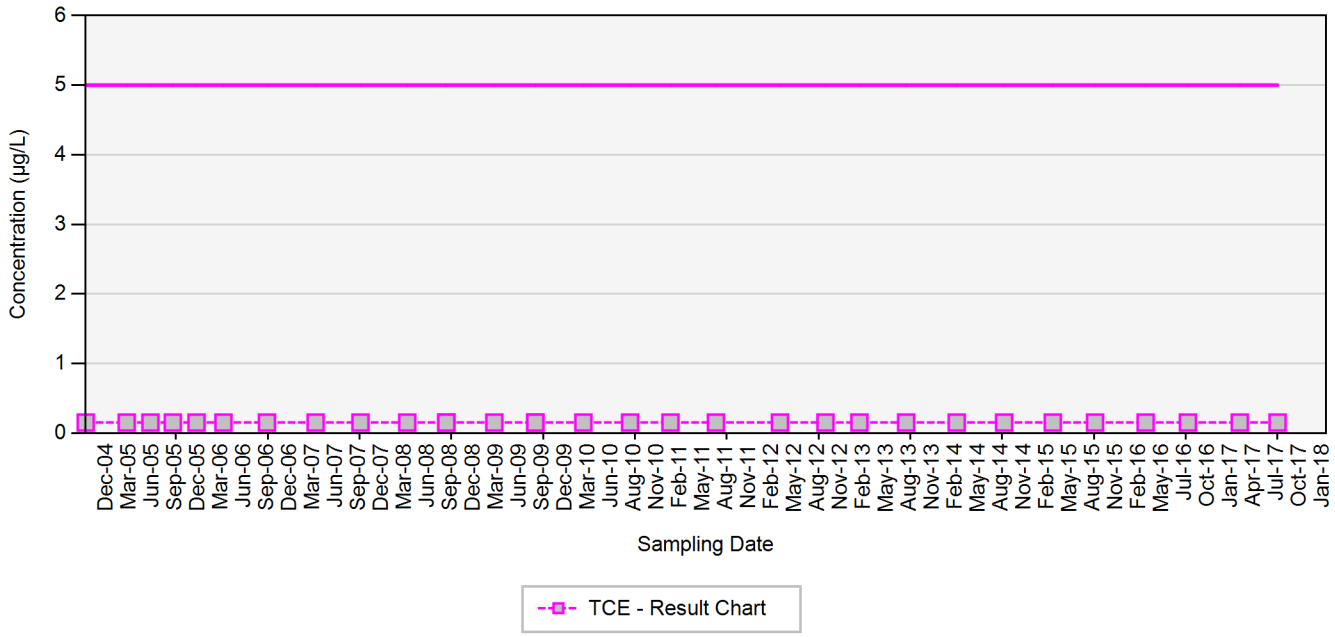
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

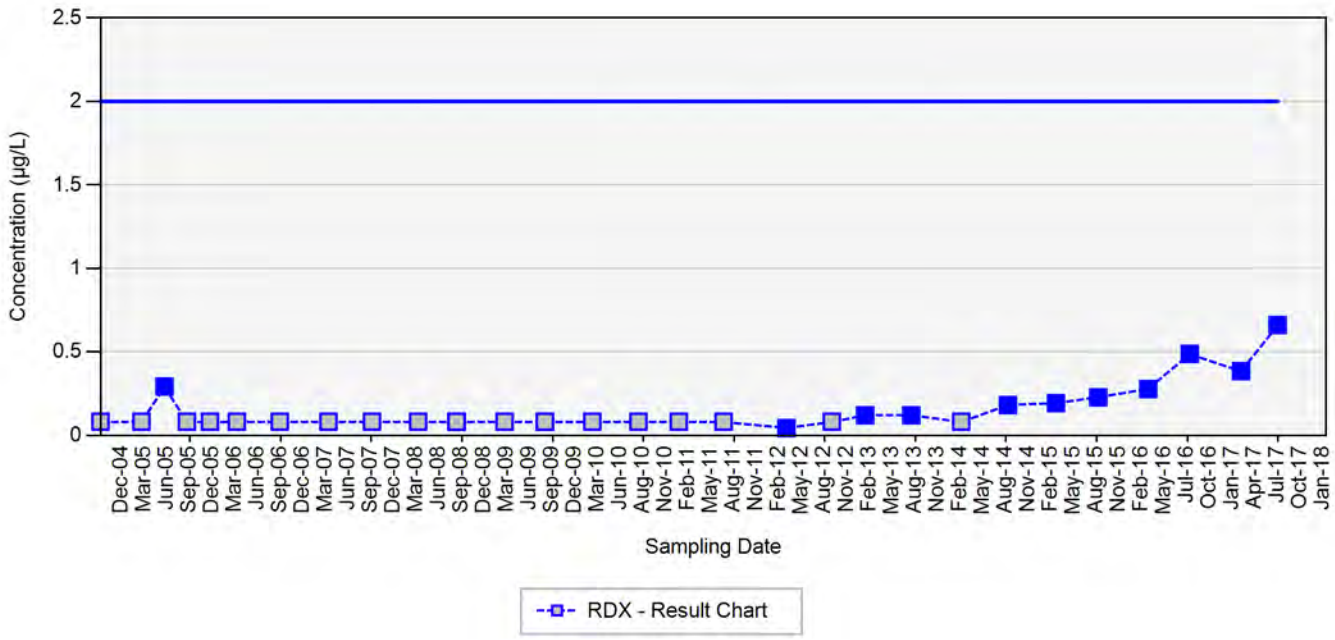
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-100





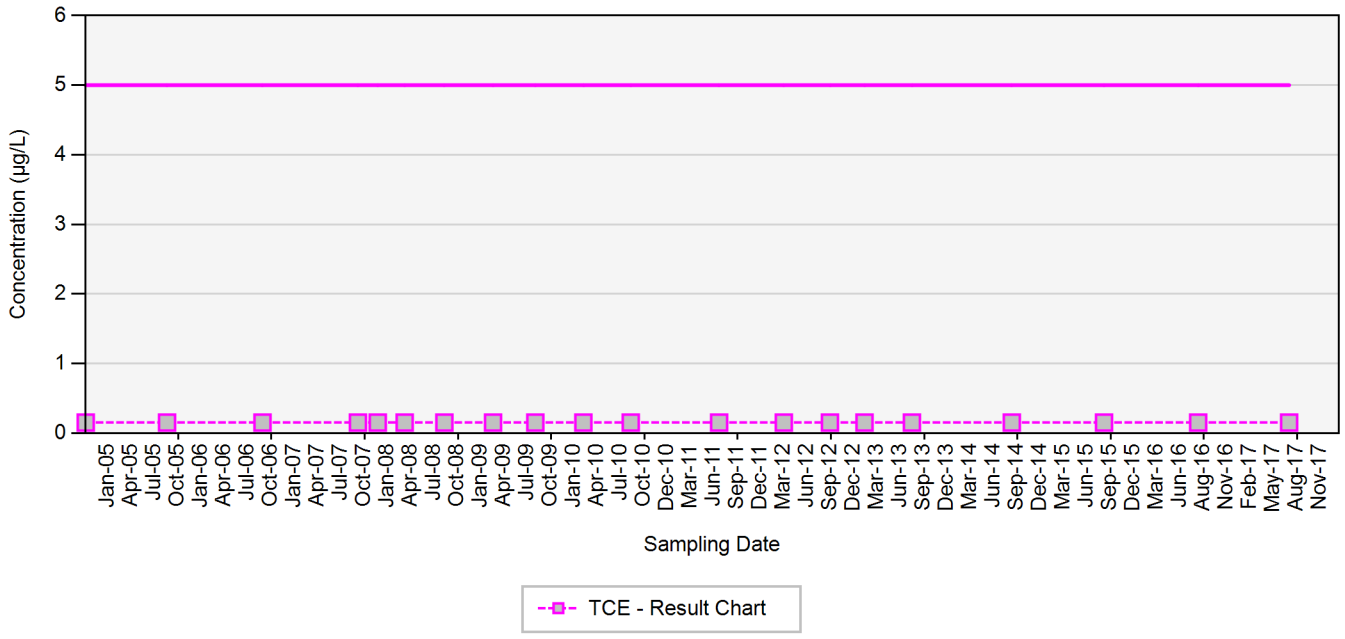
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

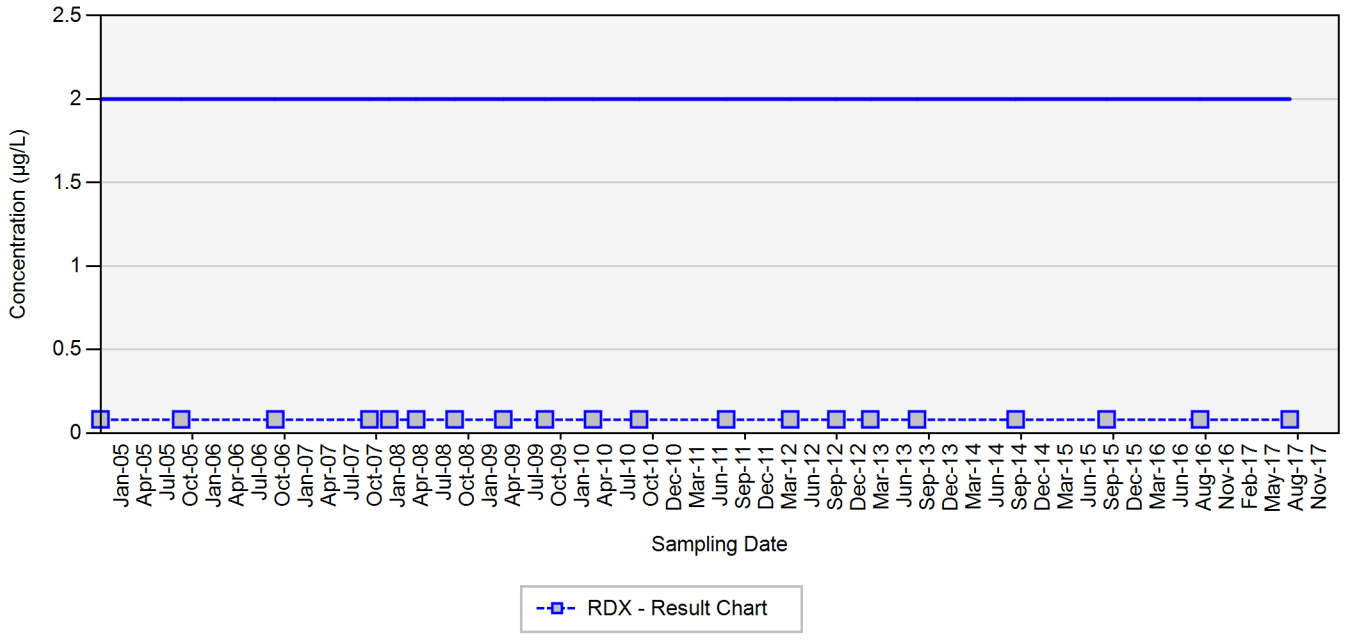
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-103





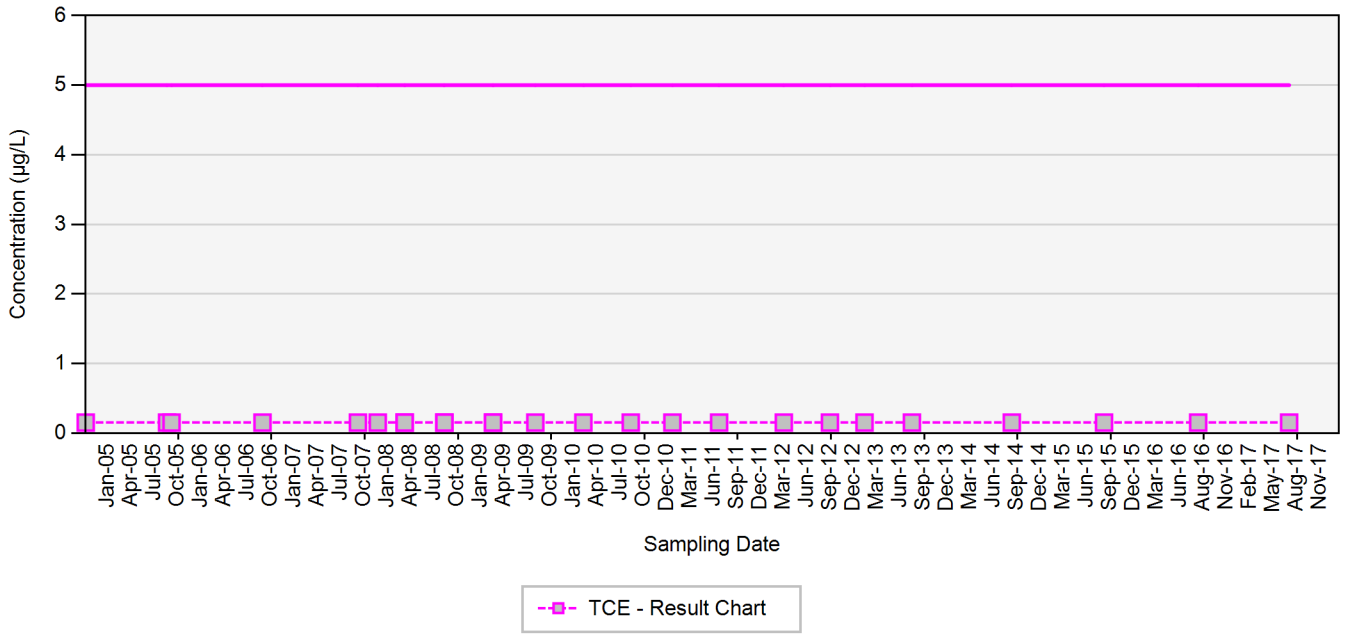
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

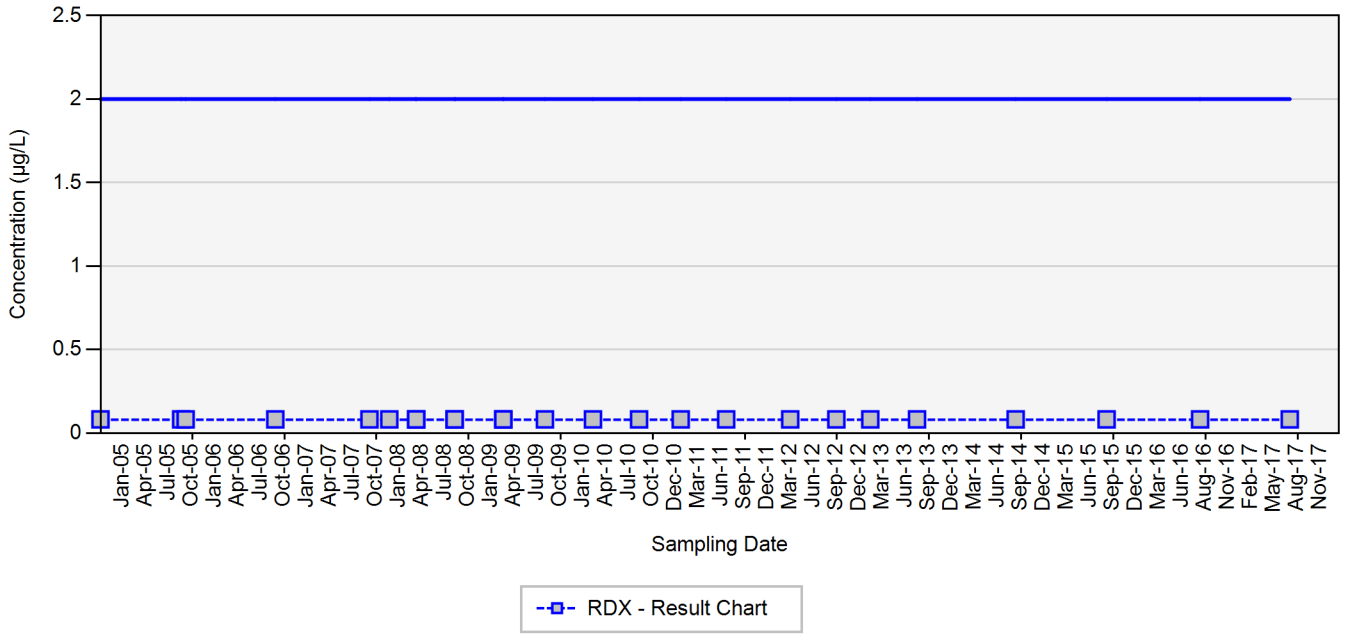
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-104





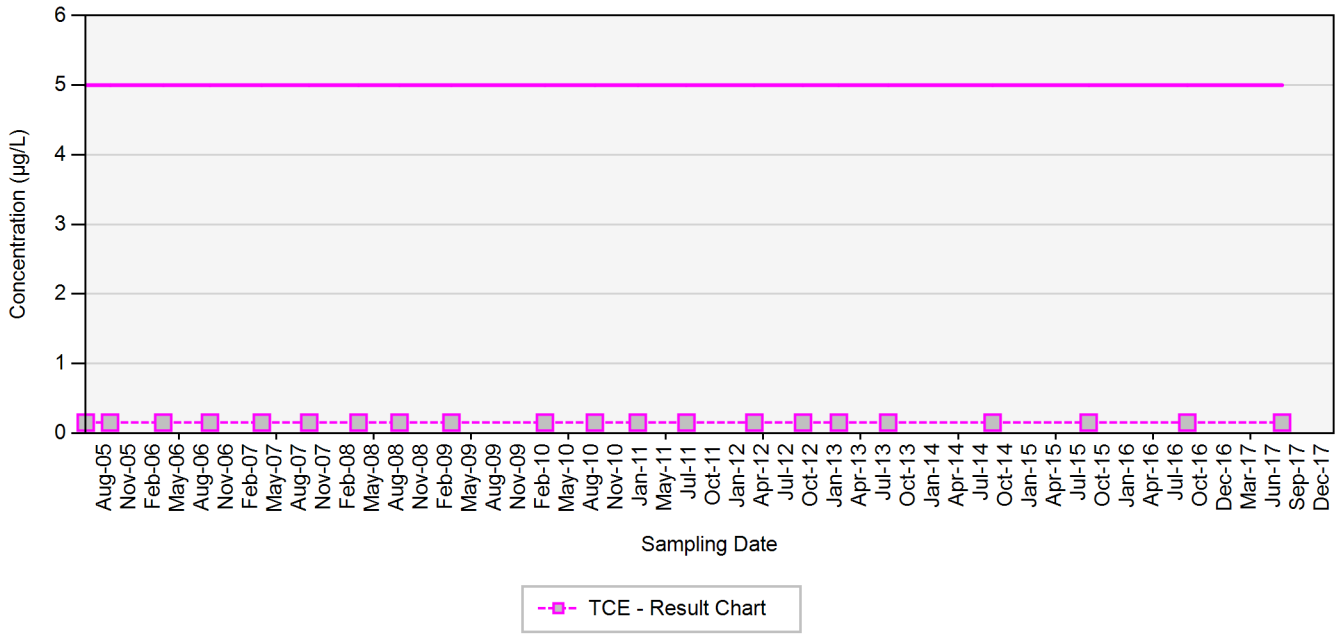
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

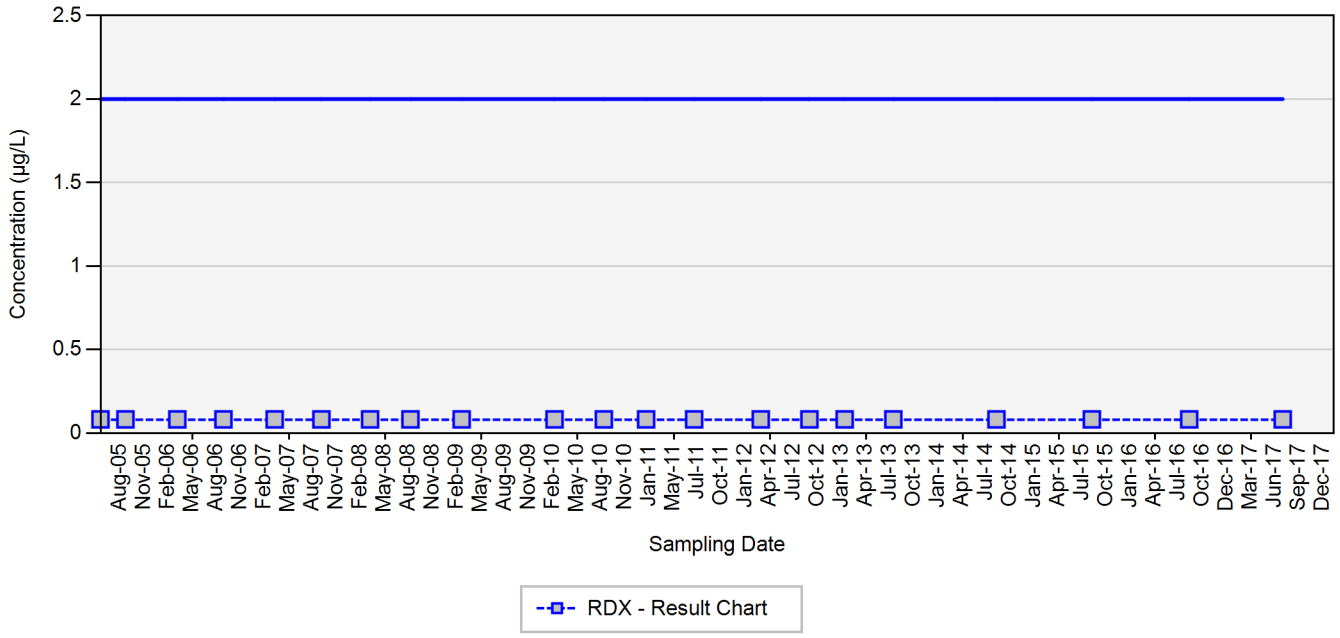
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-106





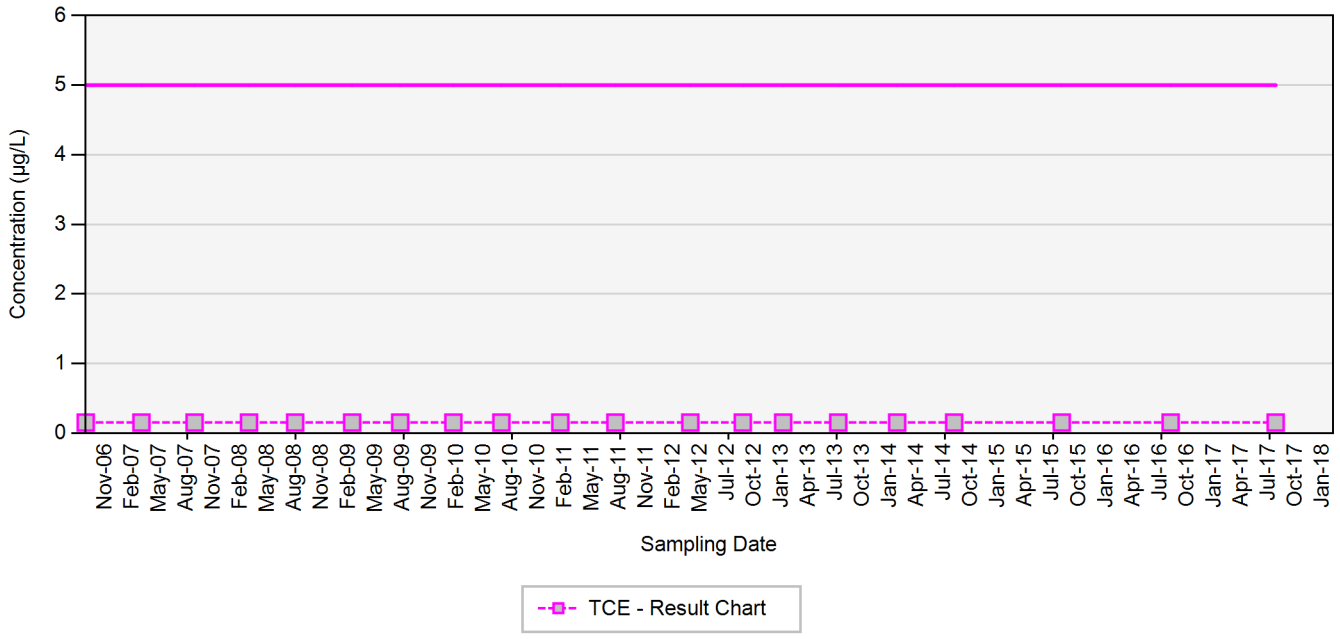
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

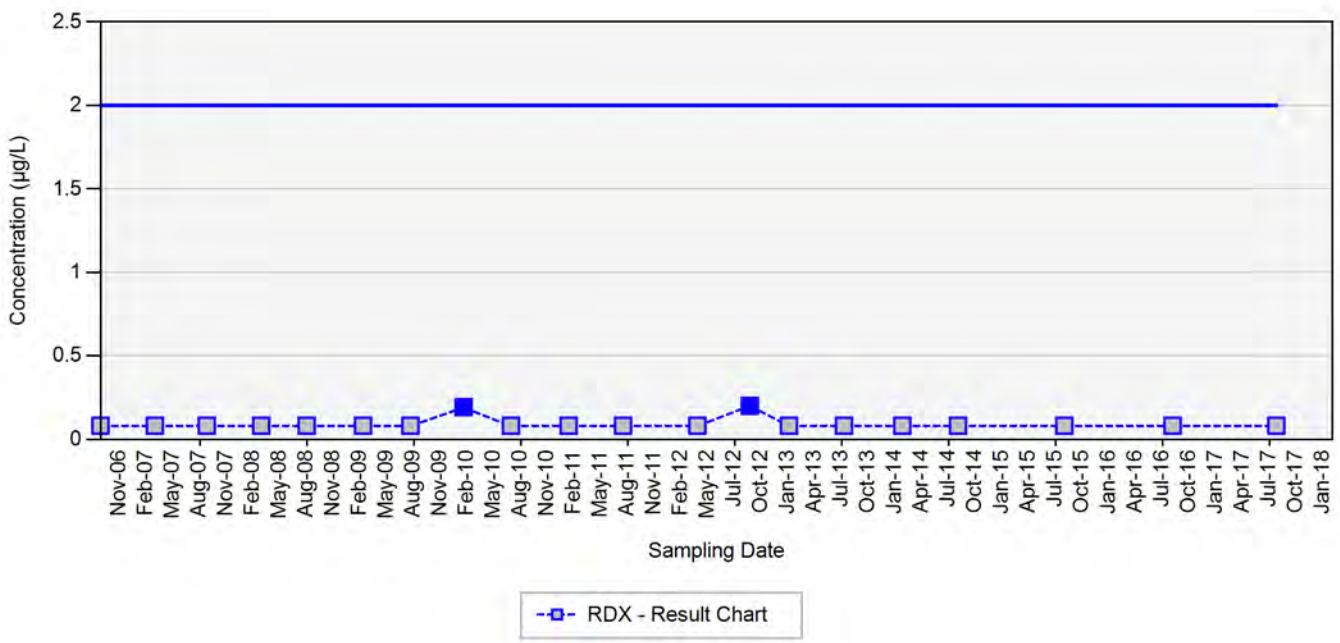
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-112





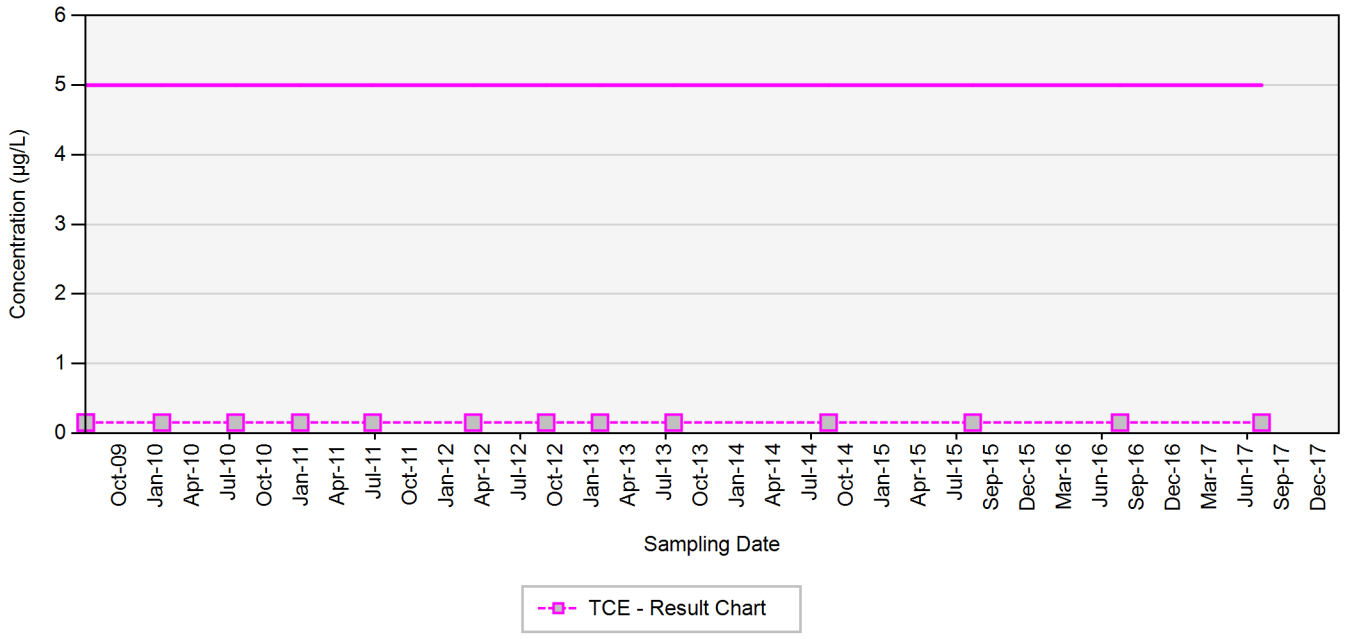
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

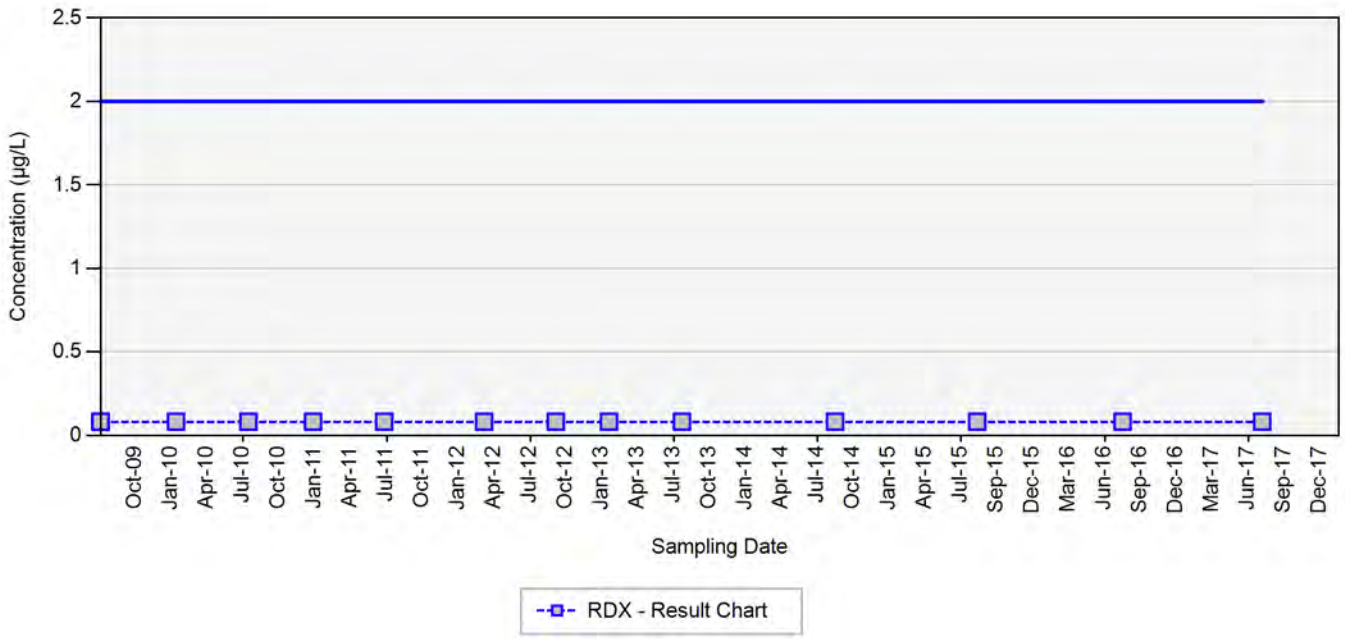
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-113





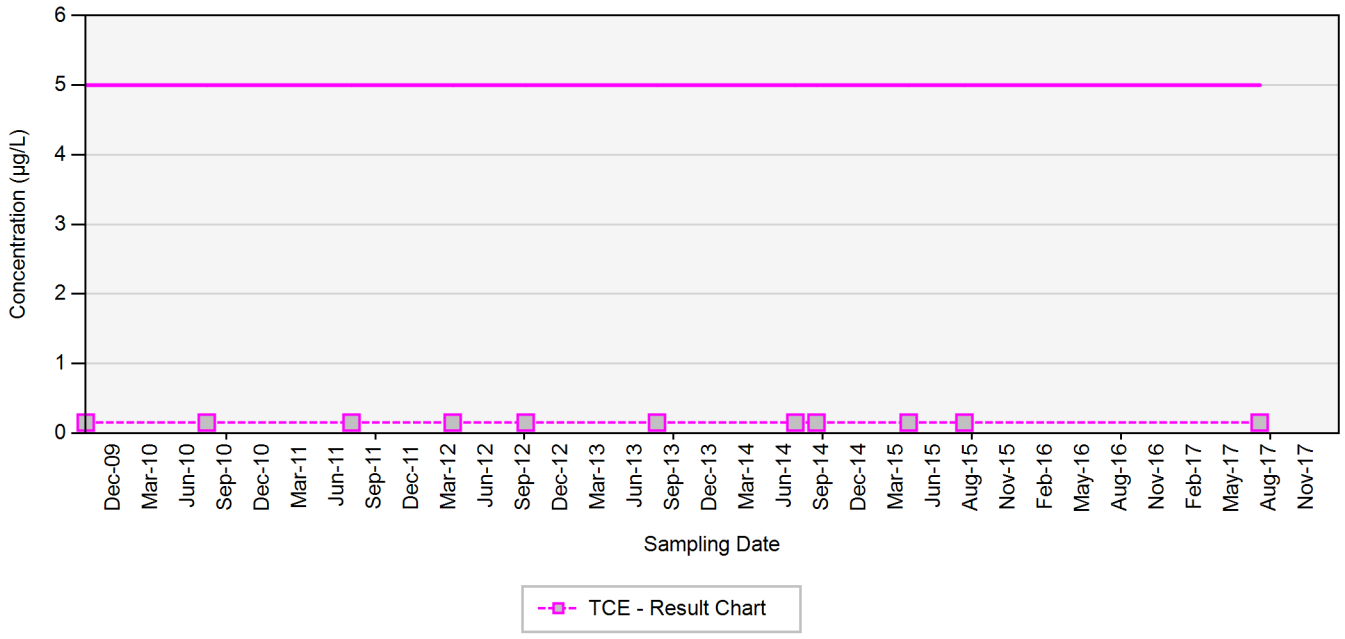
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

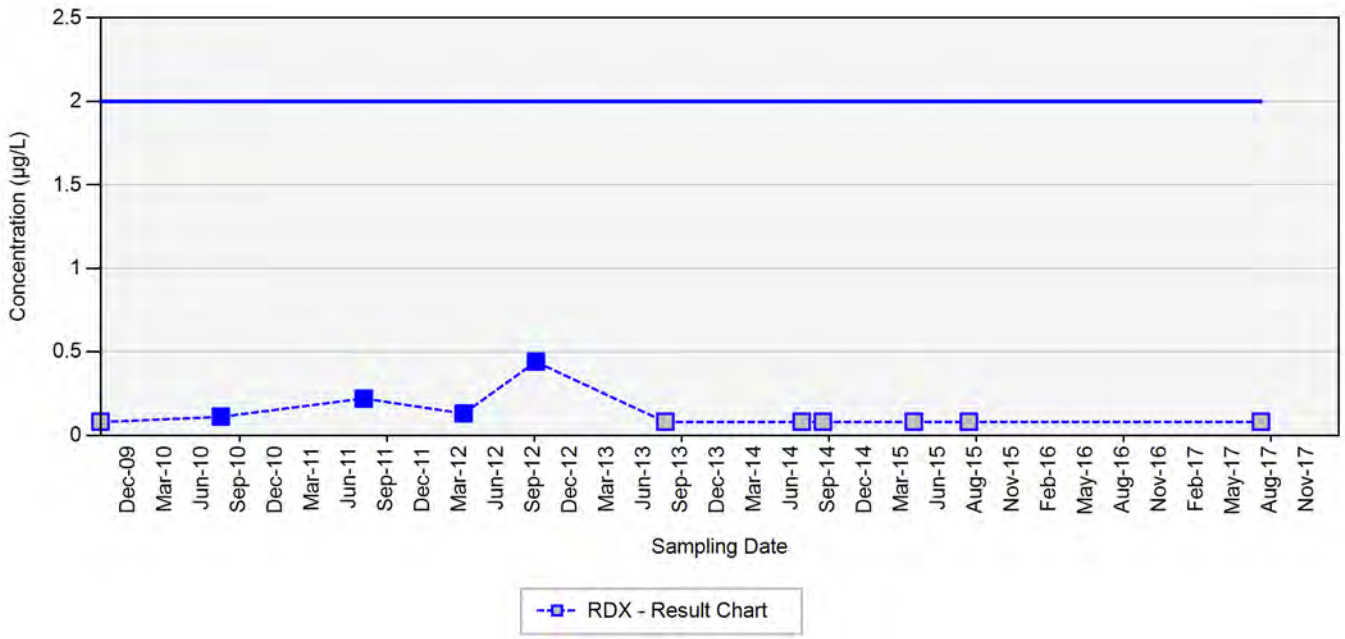
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-114





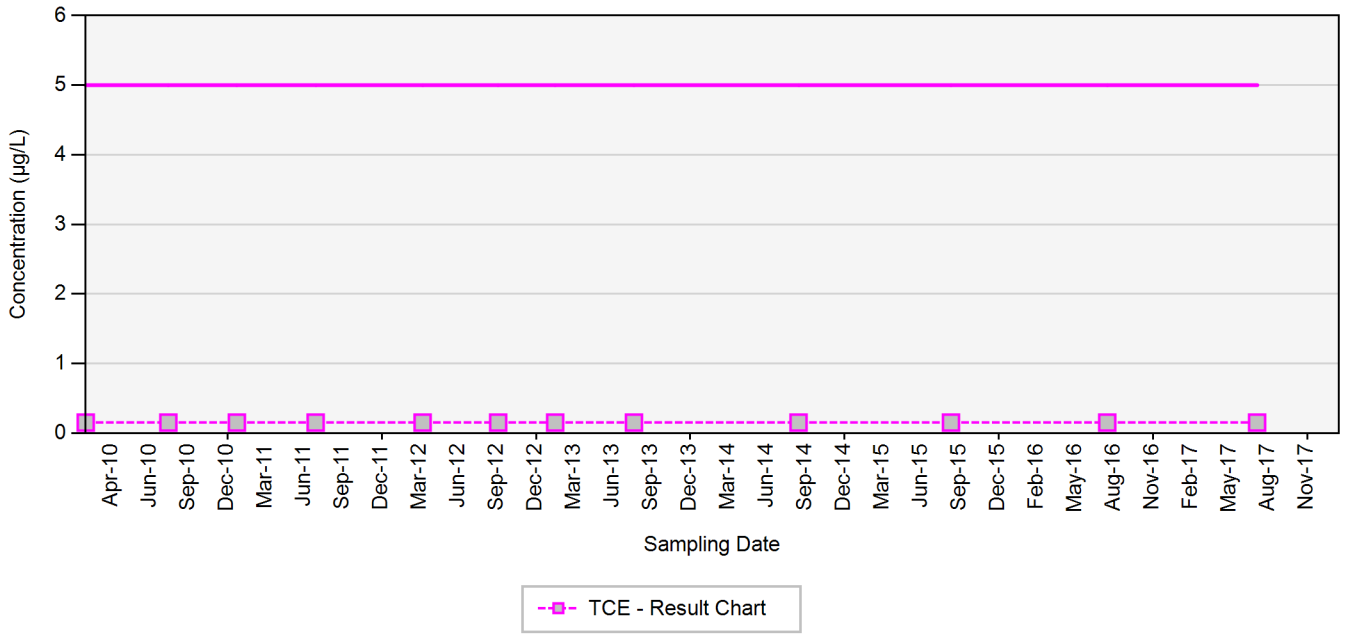
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

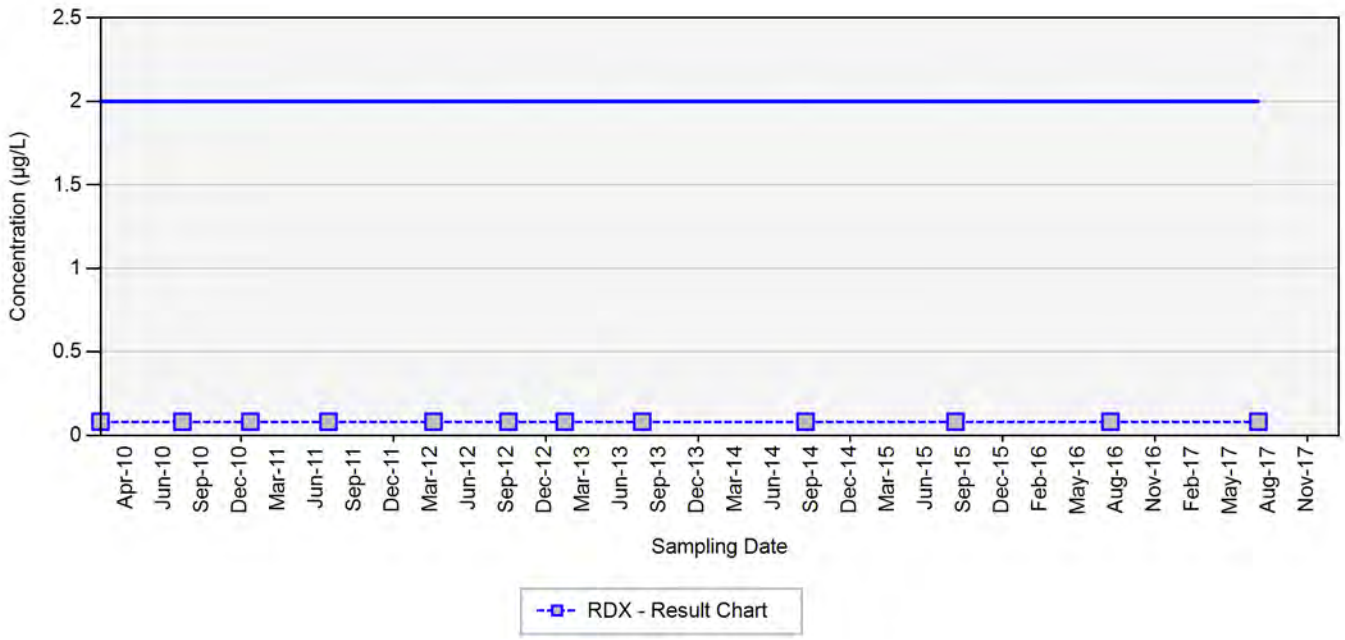
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-115





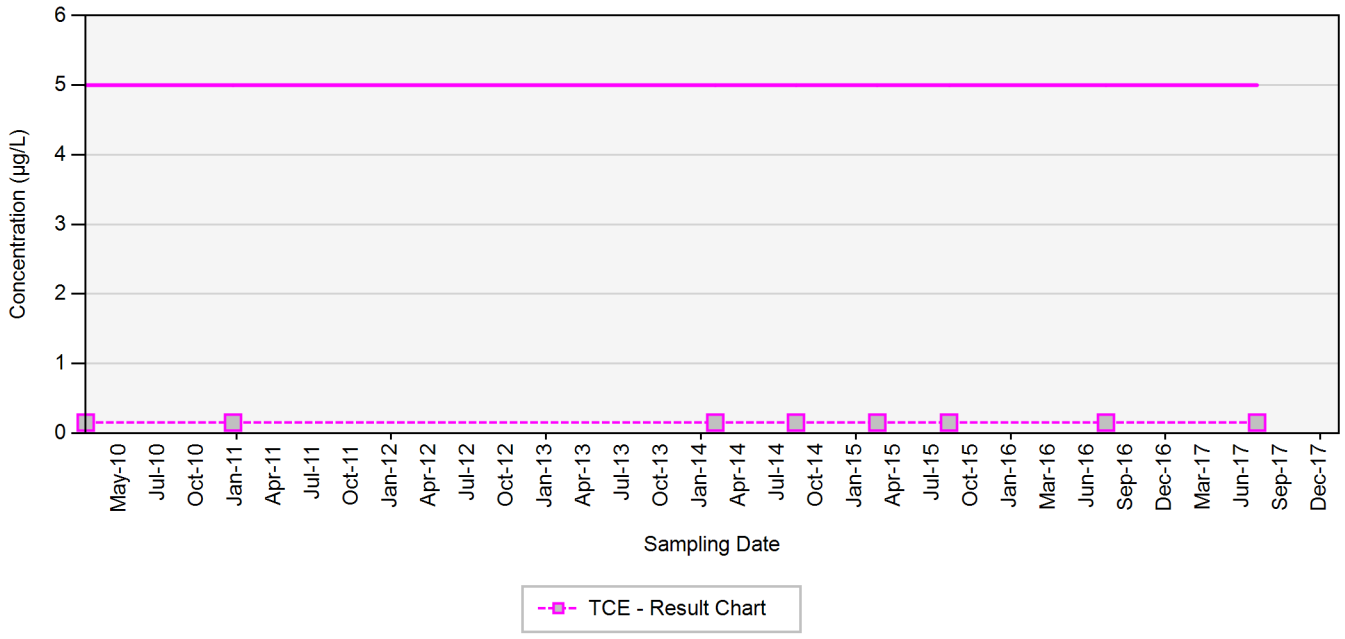
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

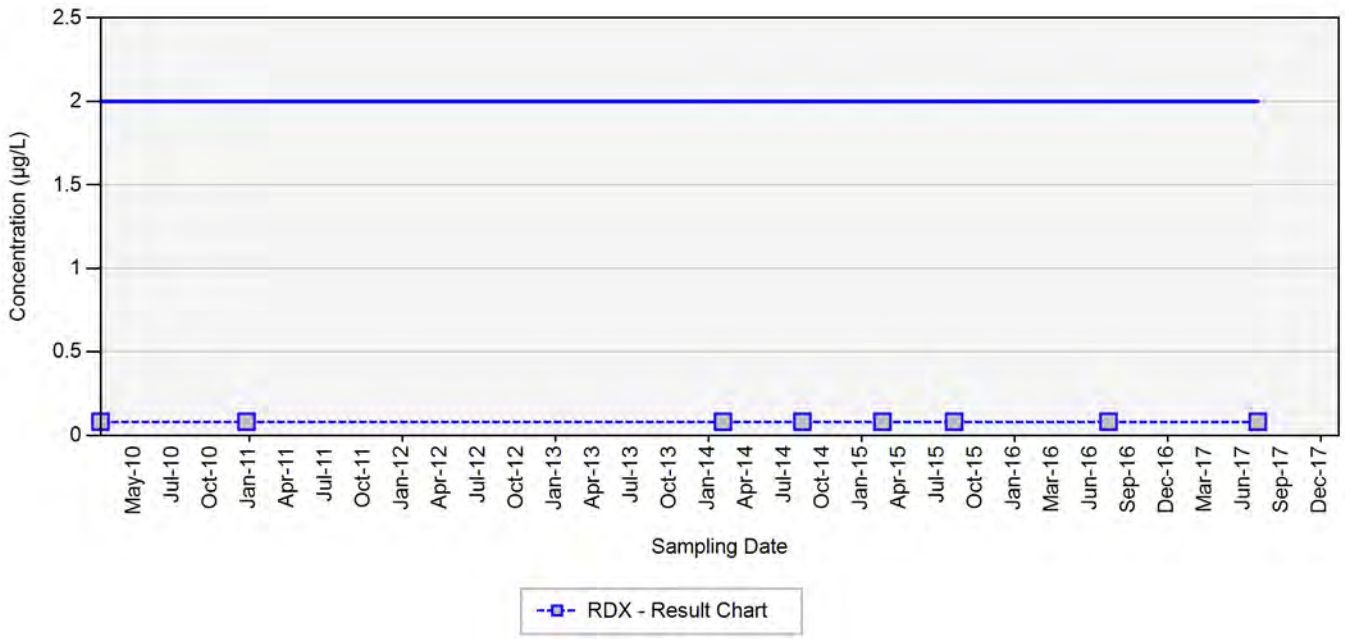
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-116





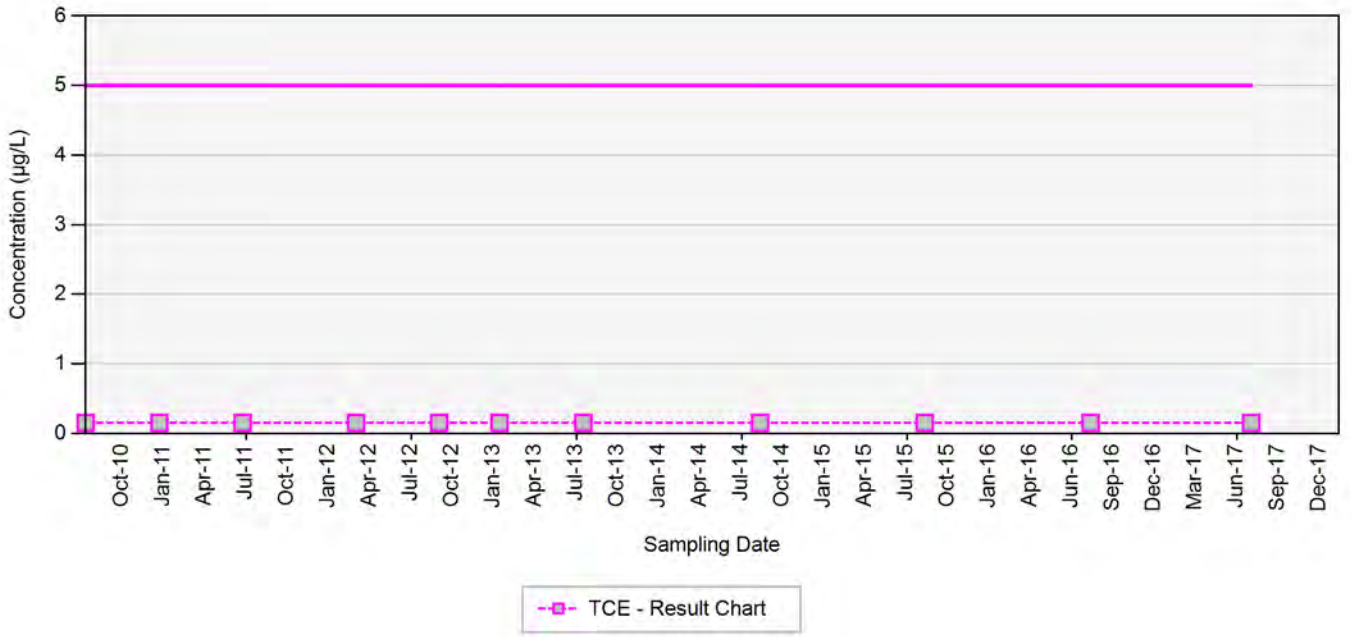
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

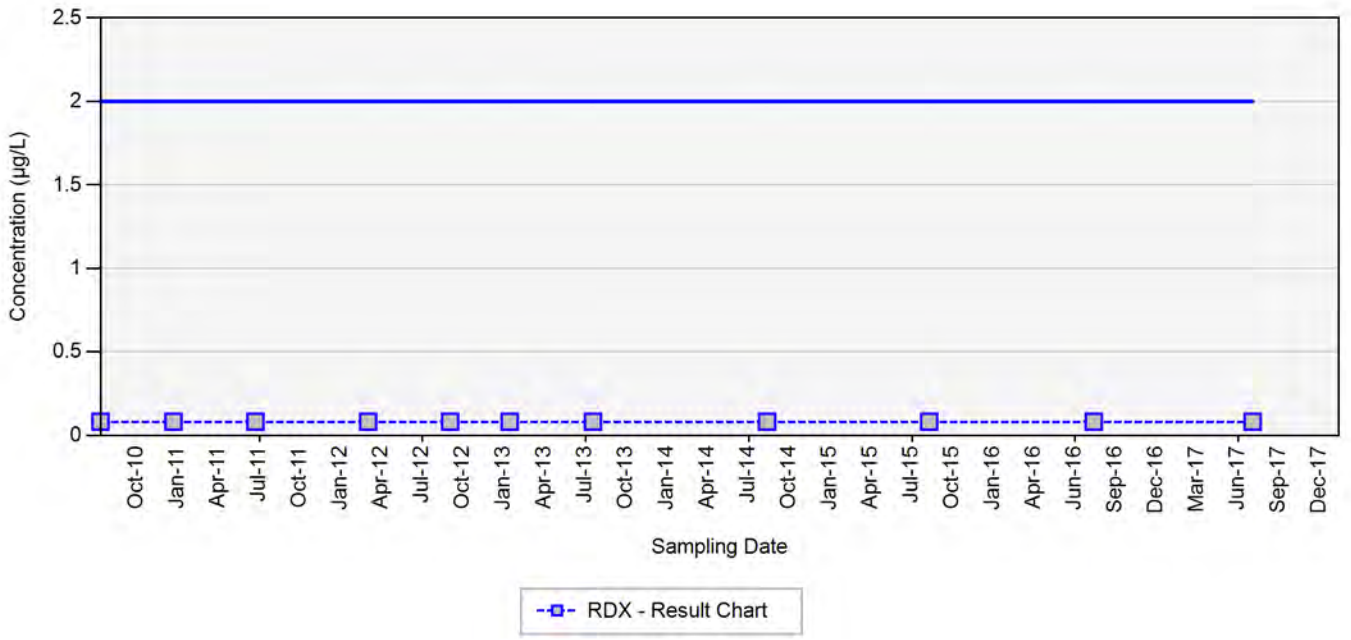
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-117





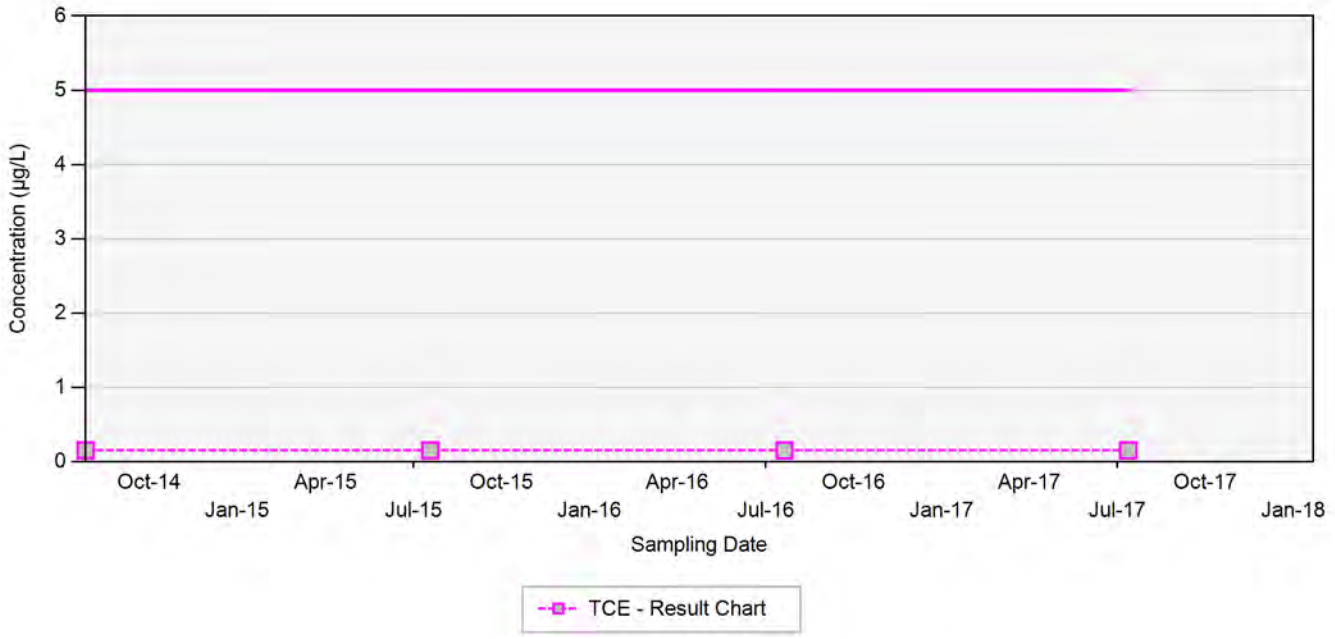
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

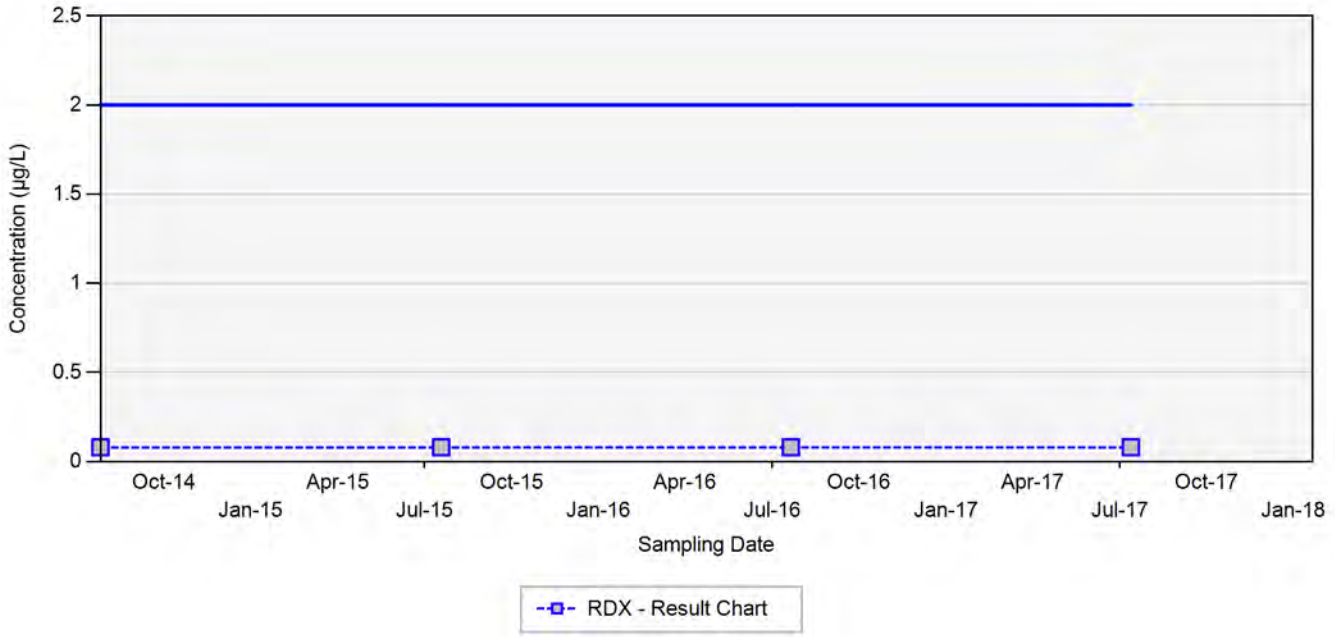
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-123





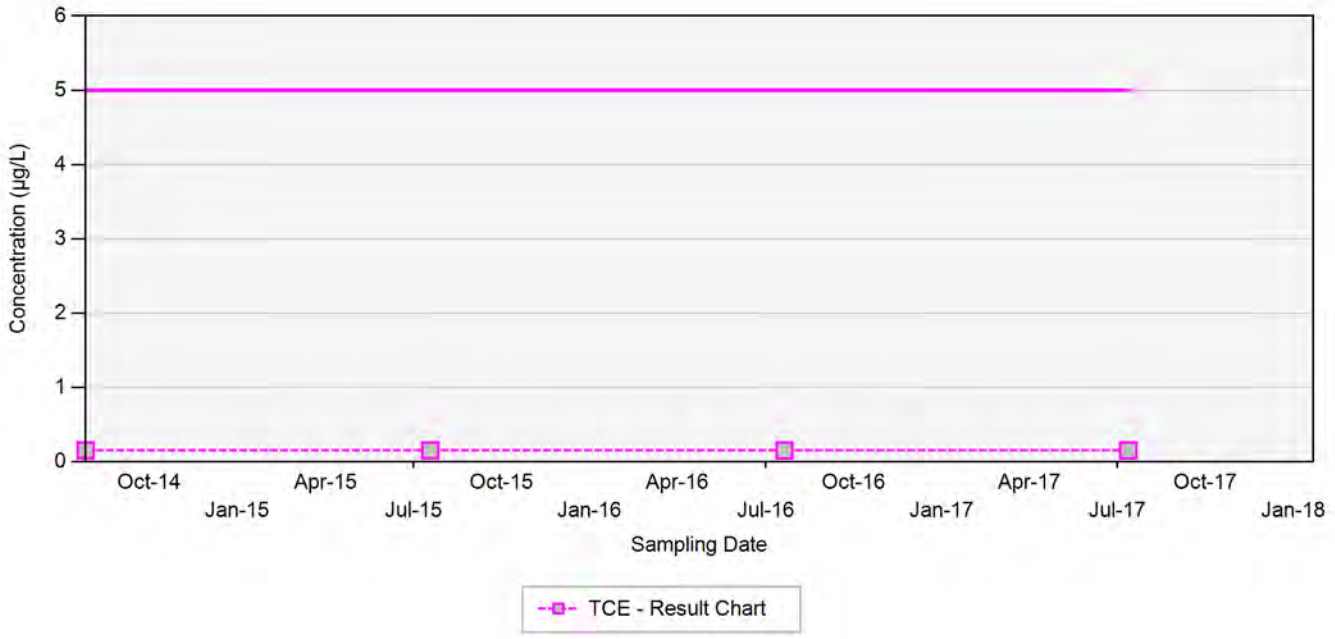
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

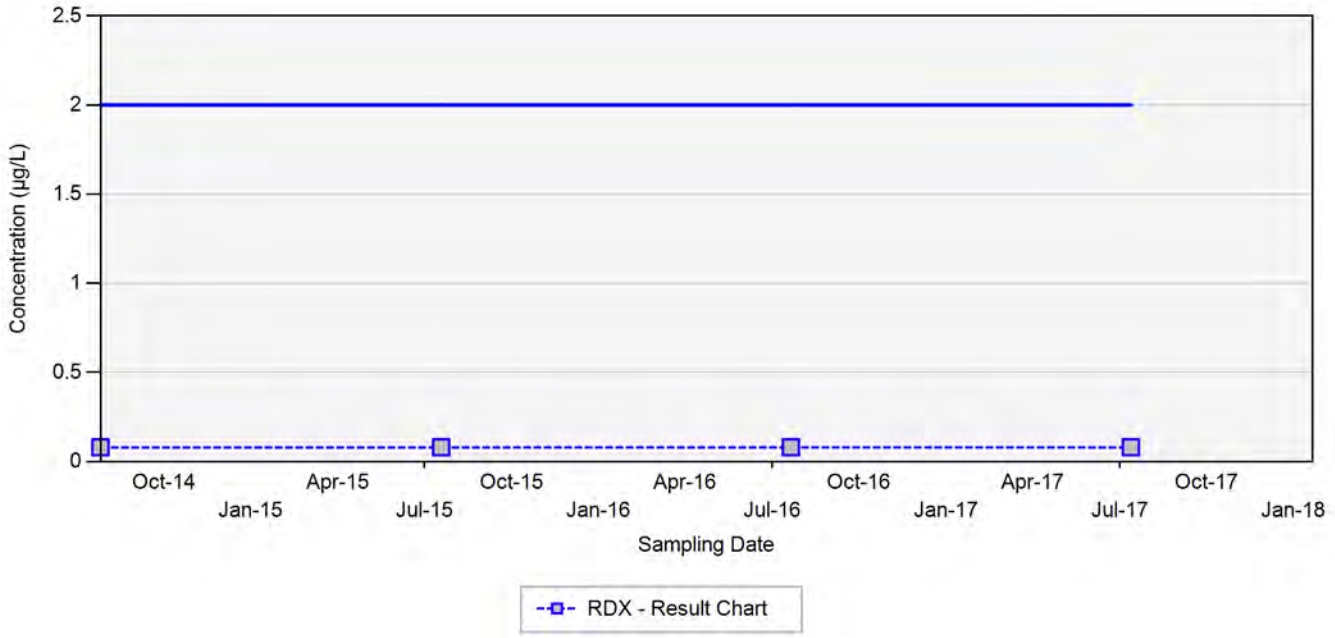
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-124





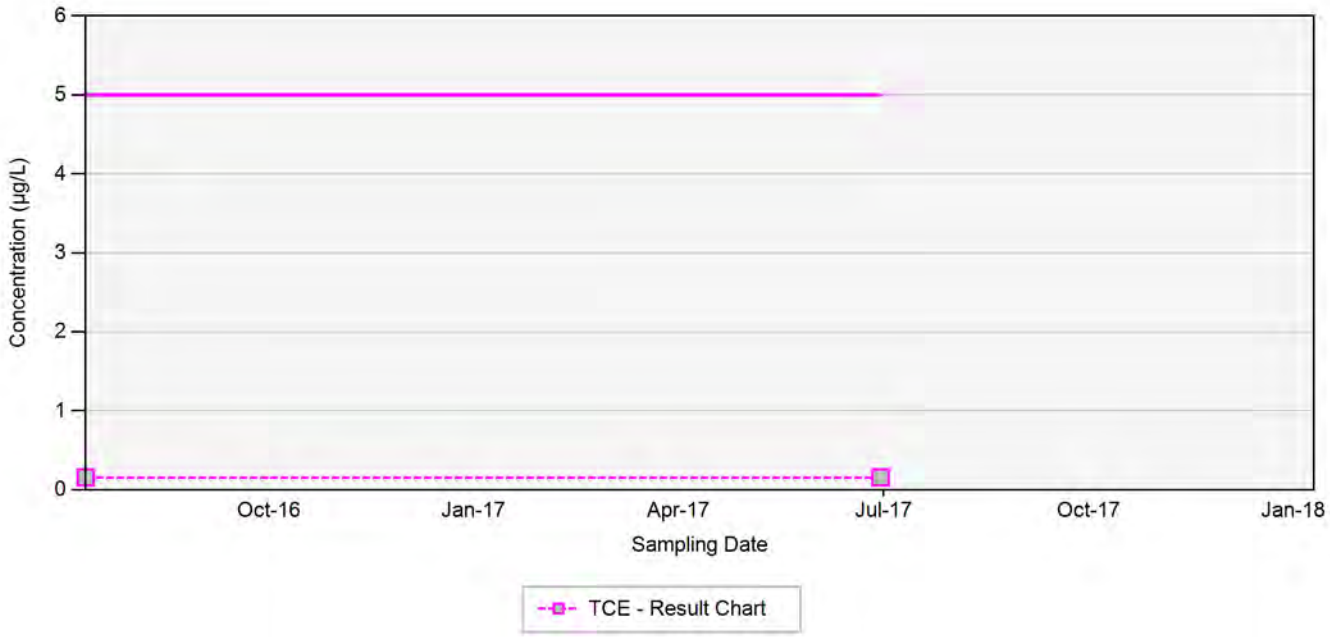
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

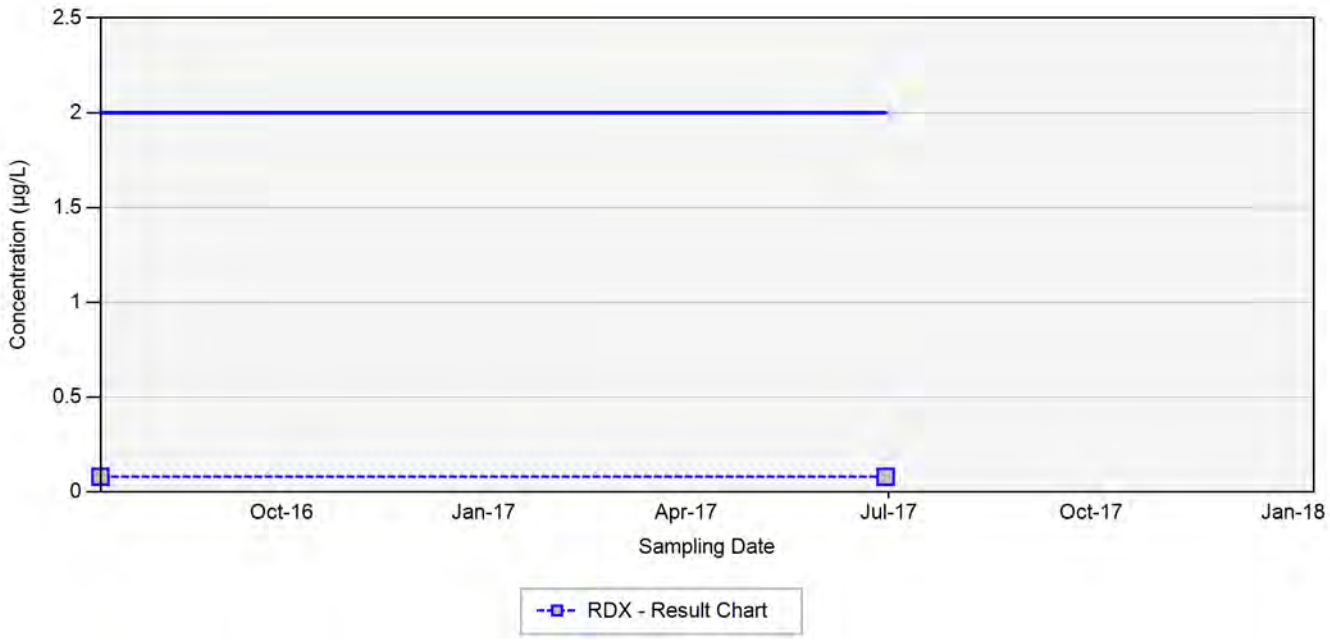
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-125





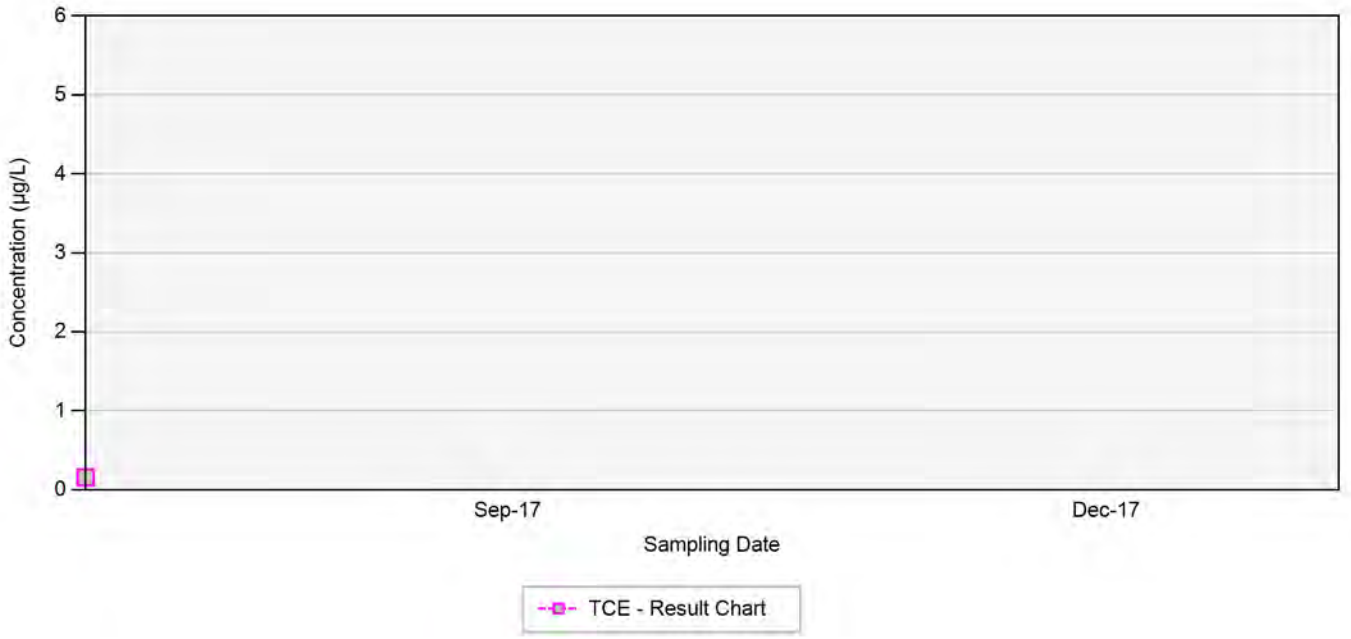
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

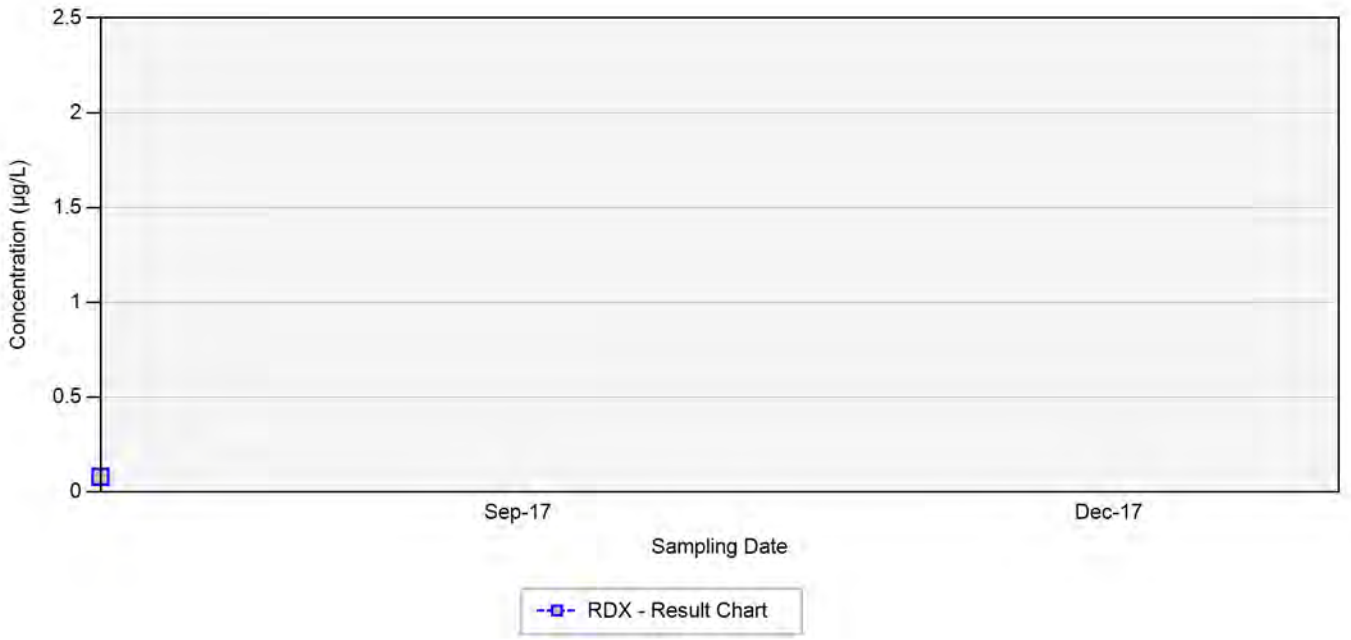
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-126





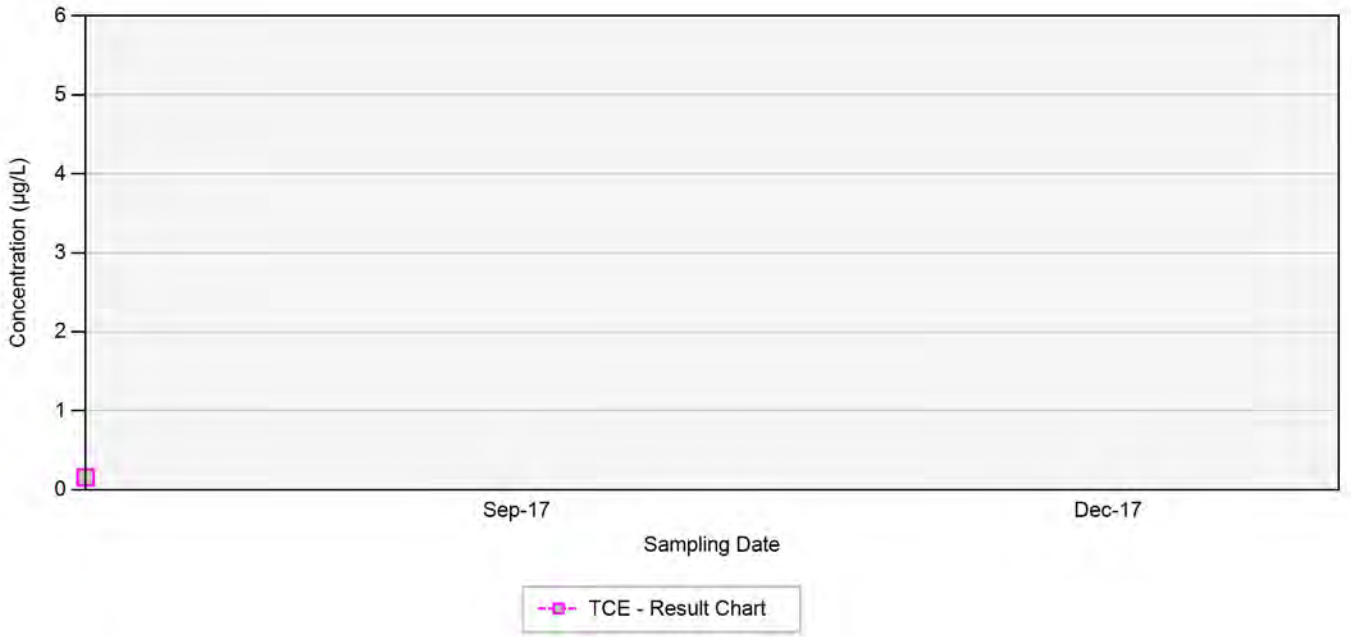
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

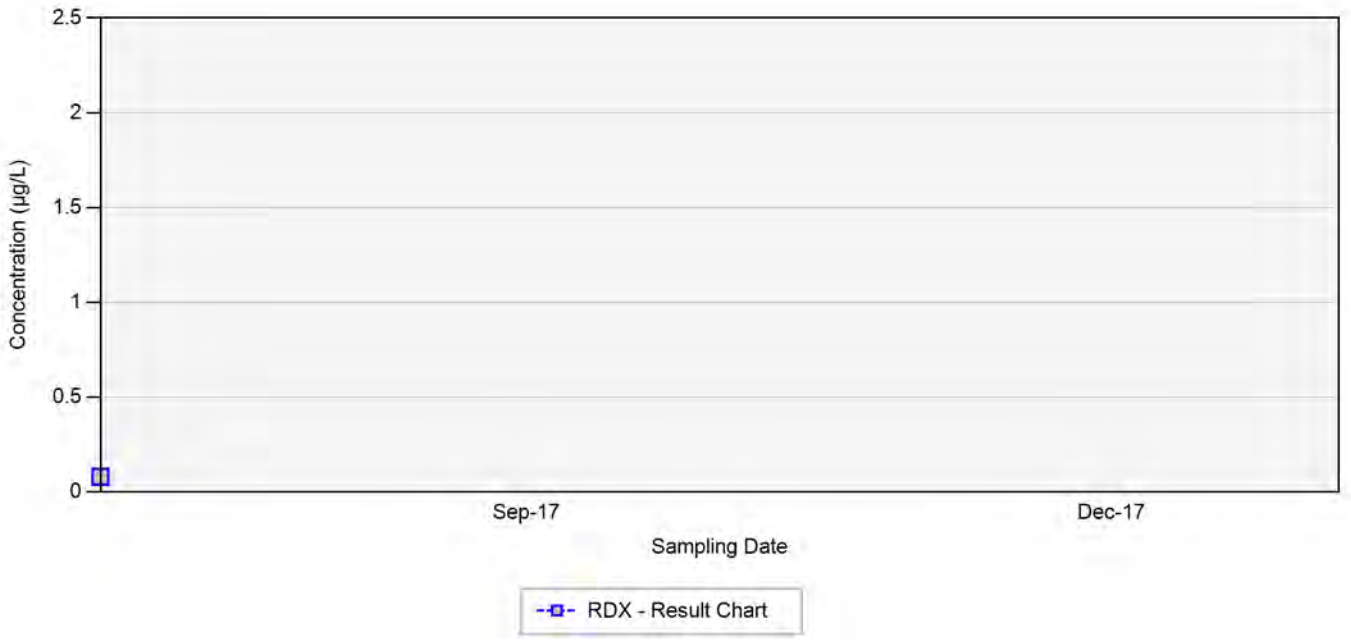
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

µg/L: micrograms per liter
Silver markers indicate non-detected results
This water supply well was first sampled in July 2017 during the Third Quarter Water Supply Well Sampling Event. Because there is only a single data point, lines representing the Final Target Groundwater Cleanup Goals are not drawn.

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-127





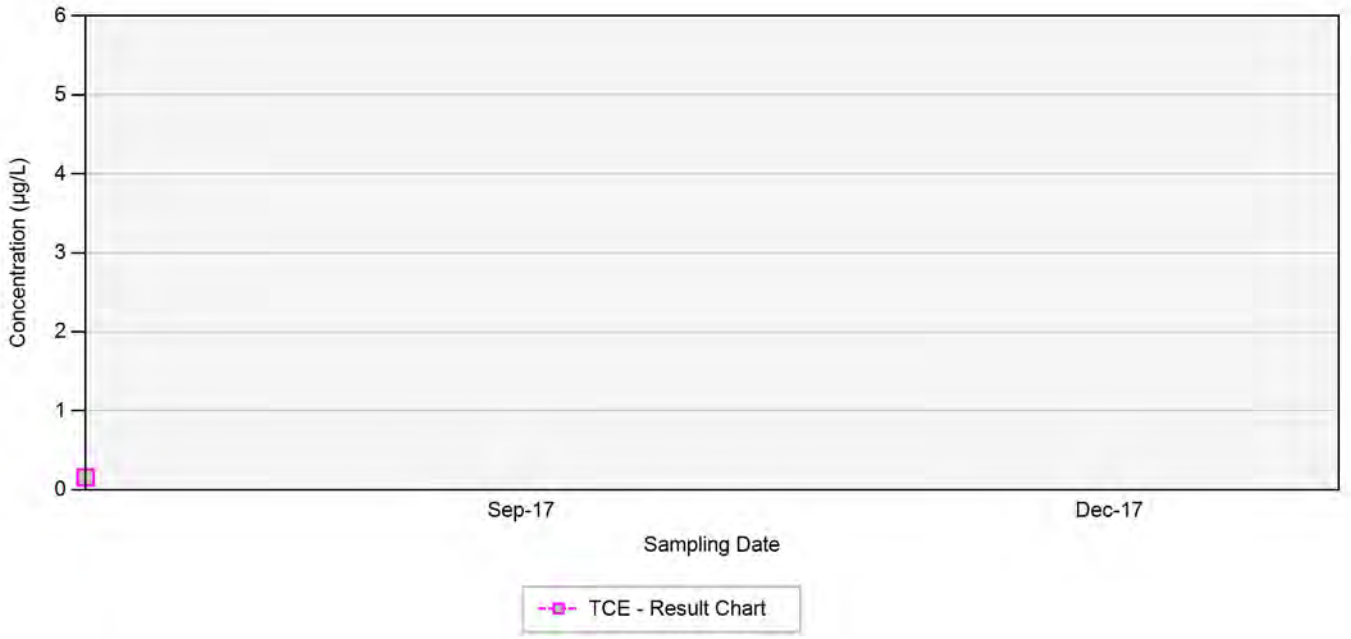
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

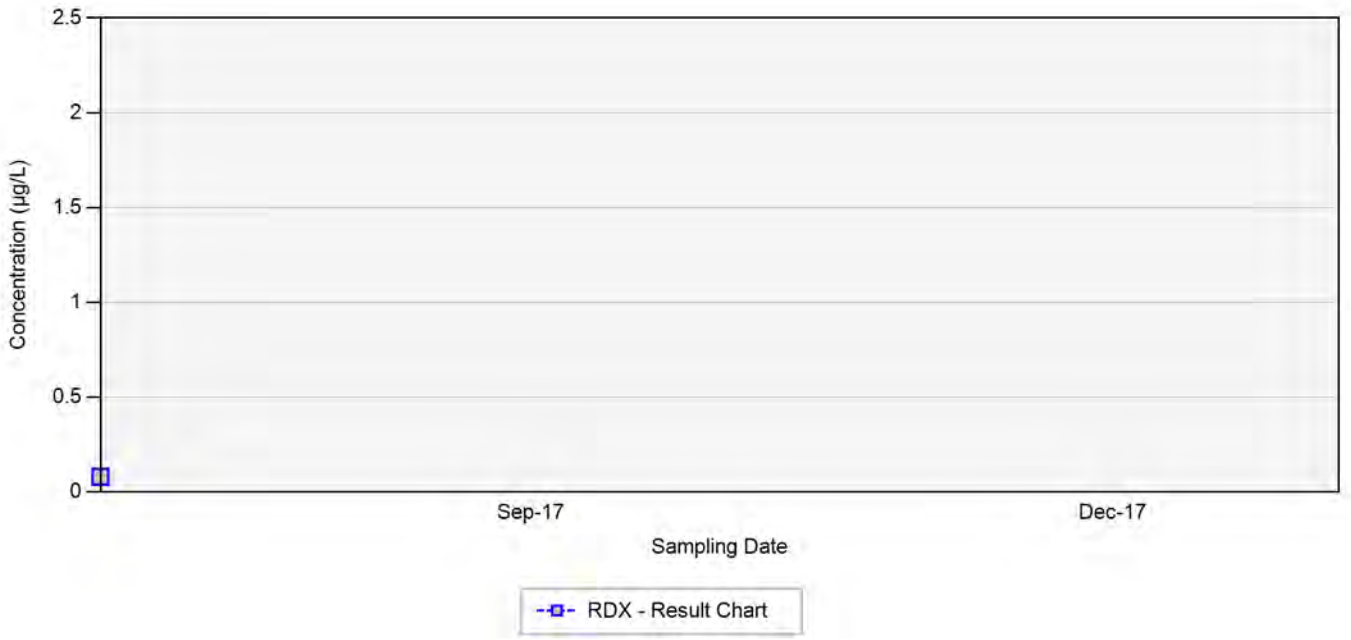
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

µg/L: micrograms per liter
Silver markers indicate non-detected results
This water supply well was first sampled in July 2017 during the Third Quarter Water Supply Well Sampling Event. Because there is only a single data point, lines representing the Final Target Groundwater Cleanup Goals are not drawn.

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-128





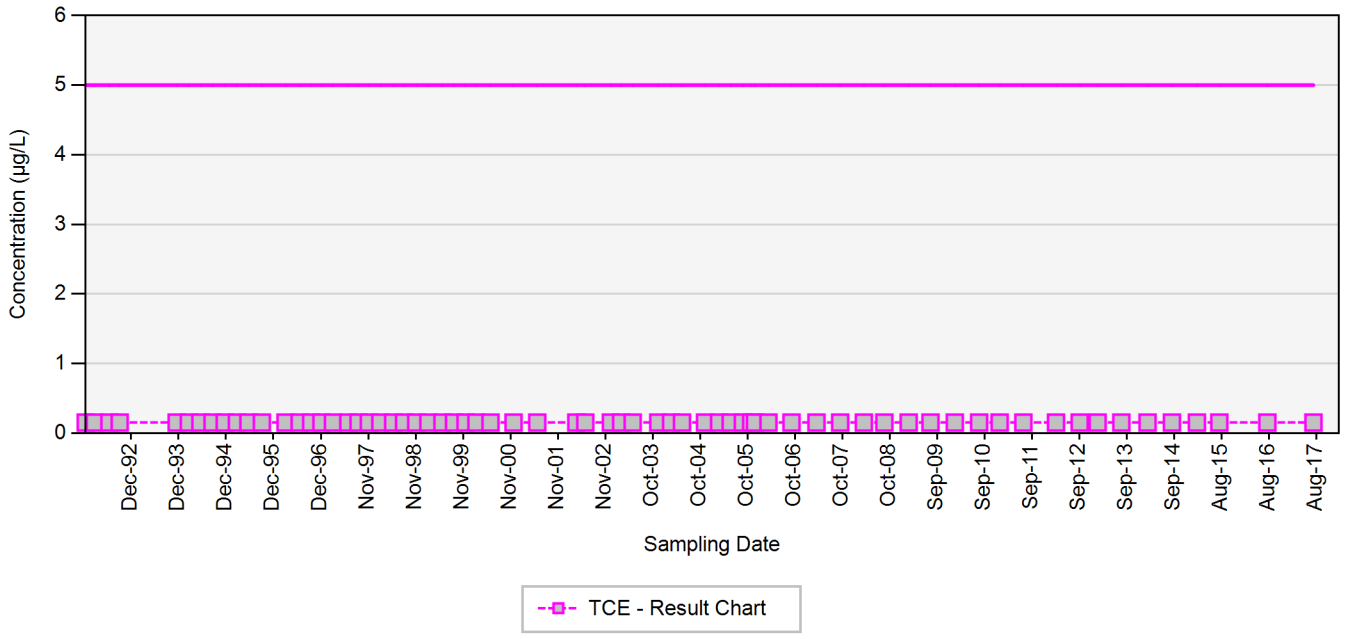
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

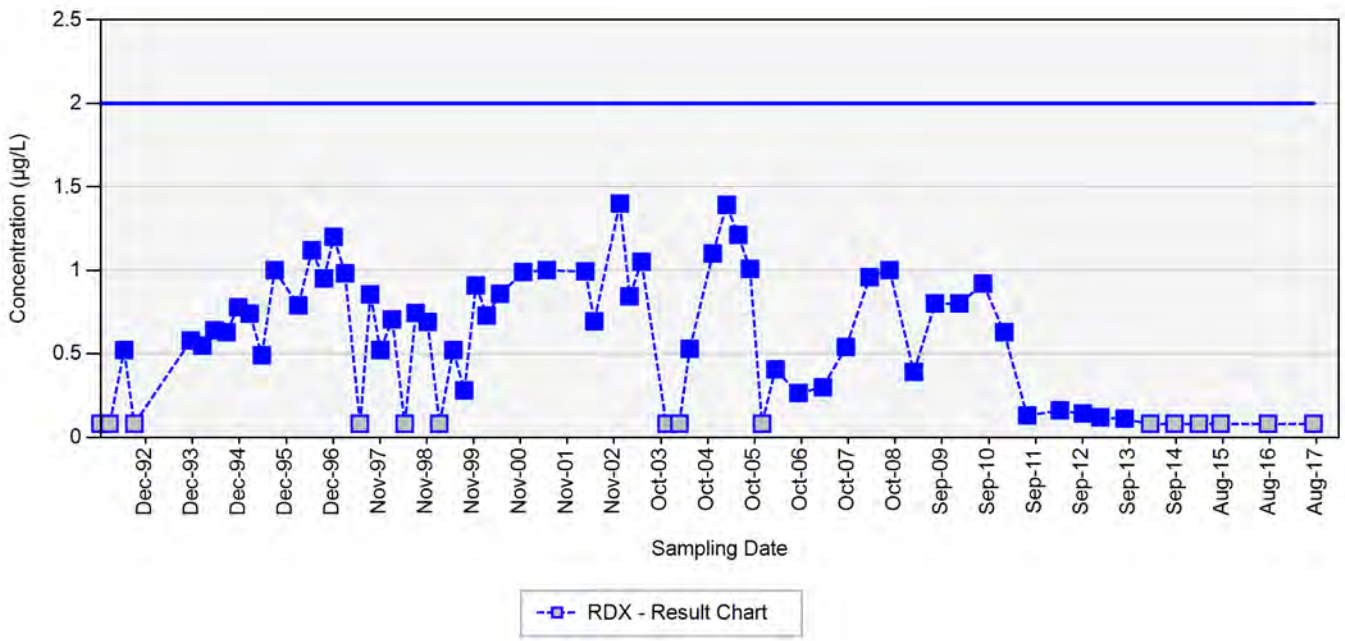
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

µg/L: micrograms per liter
Silver markers indicate non-detected results
This water supply well was first sampled in July 2017 during the Third Quarter Water Supply Well Sampling Event. Because there is only a single data point, lines representing the Final Target Groundwater Cleanup Goals are not drawn.

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-29





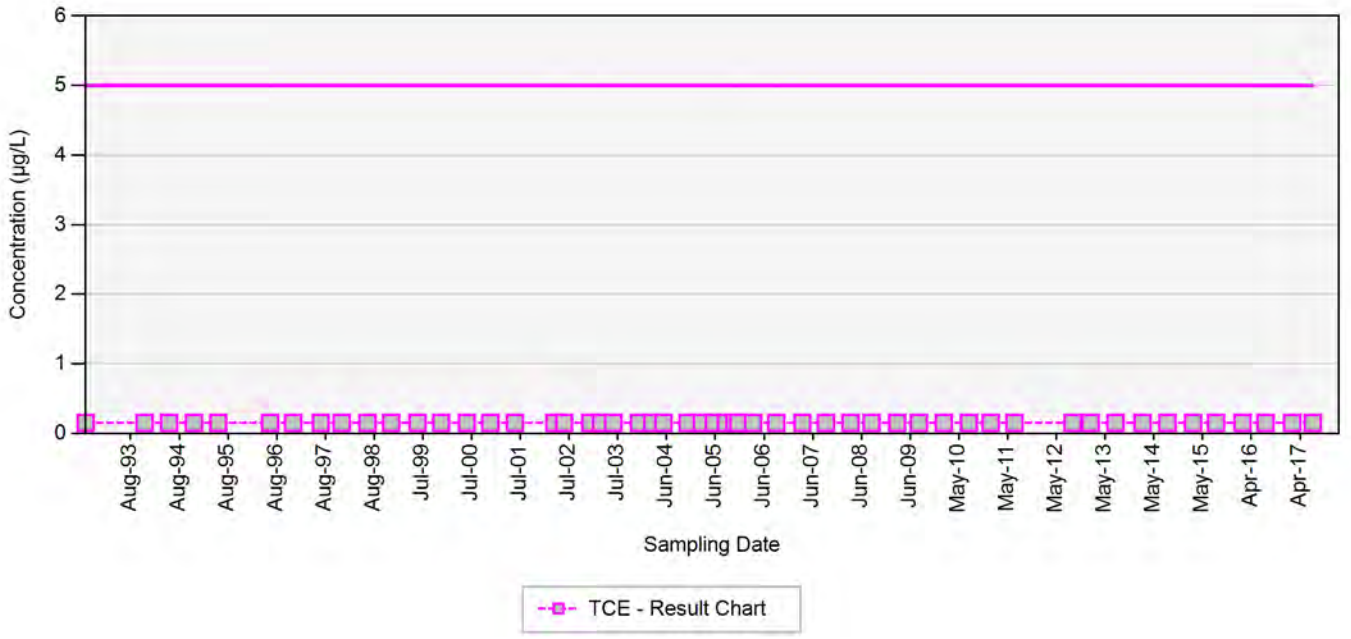
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

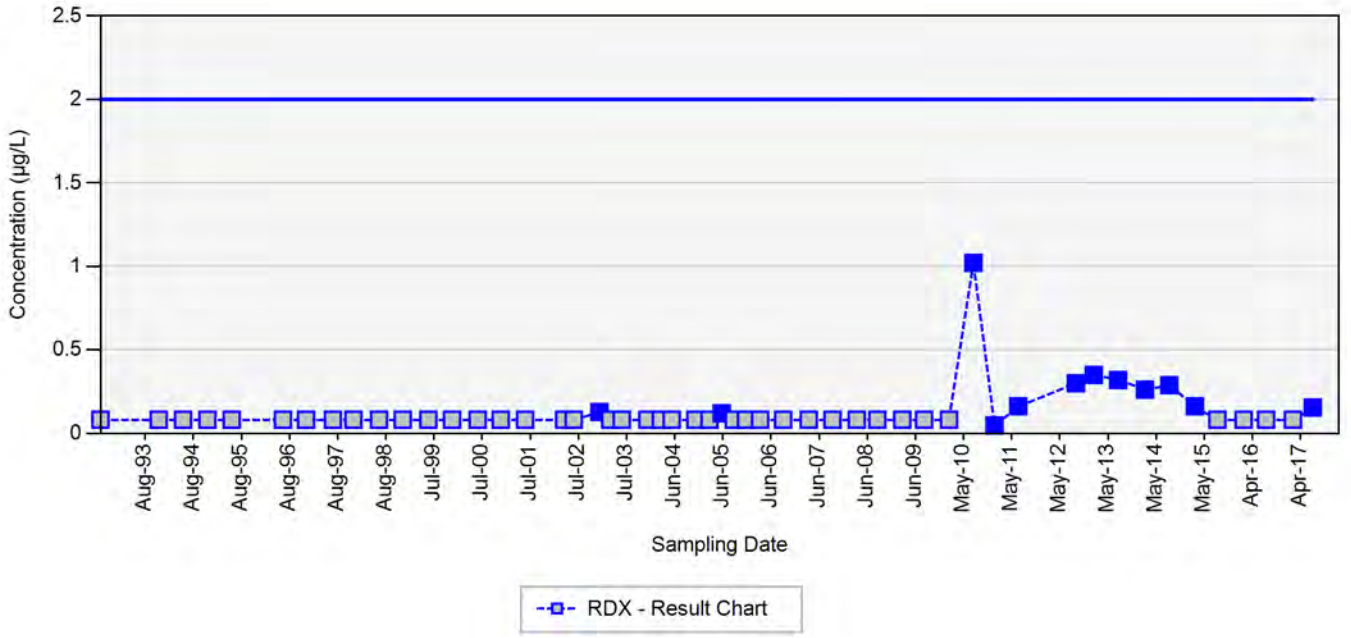
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-29A





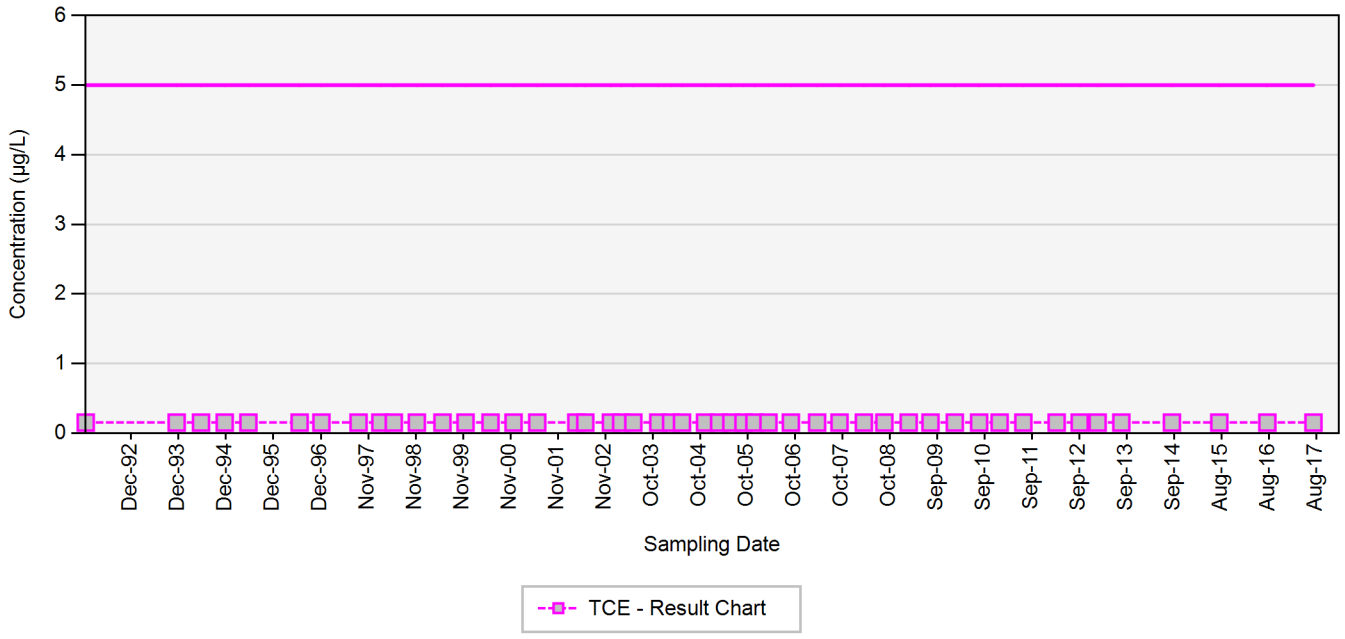
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

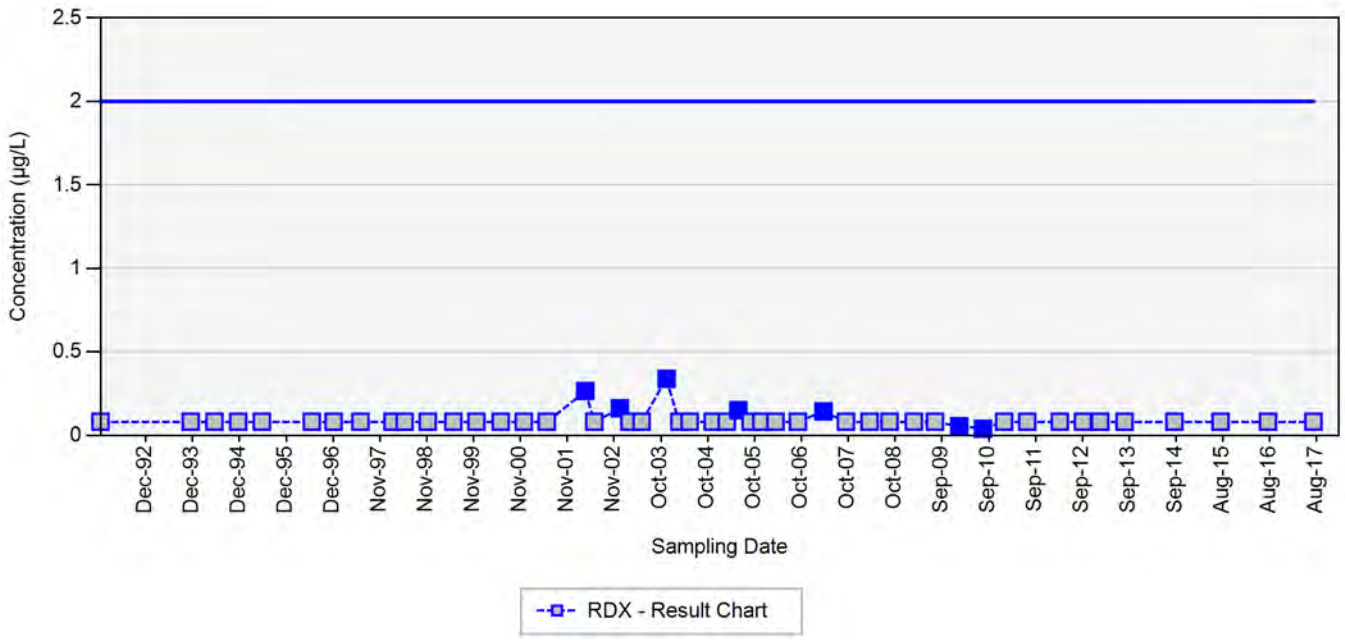
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-50A





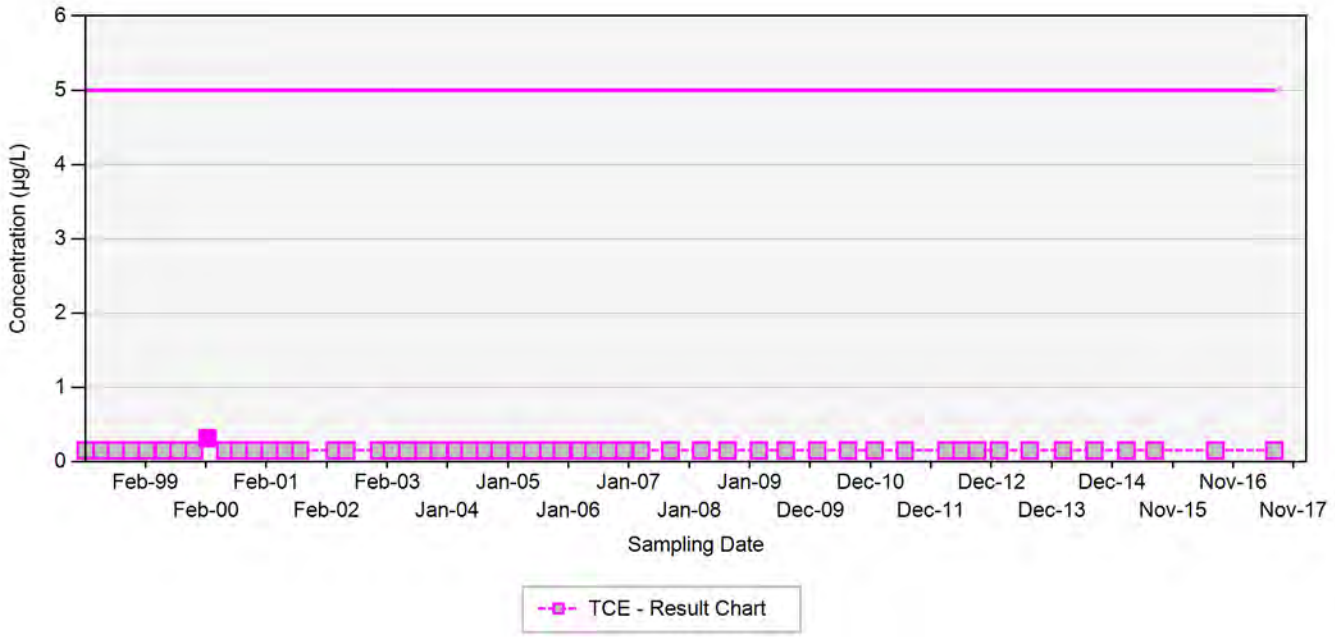
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

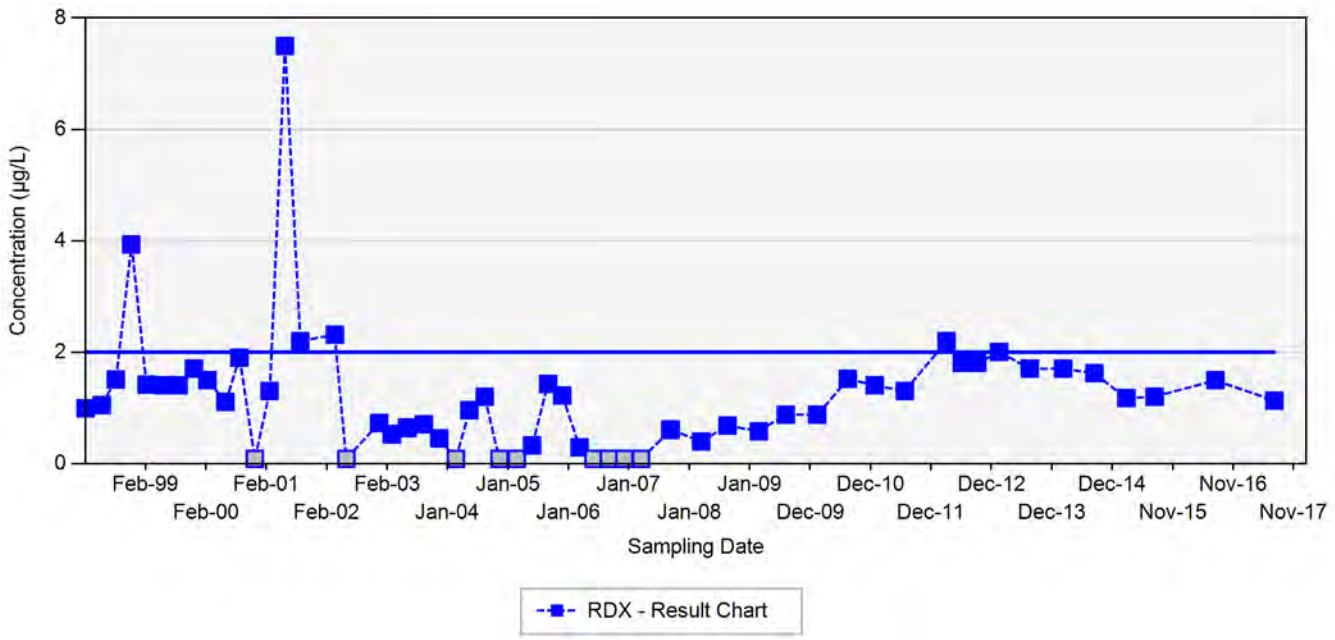
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-50B





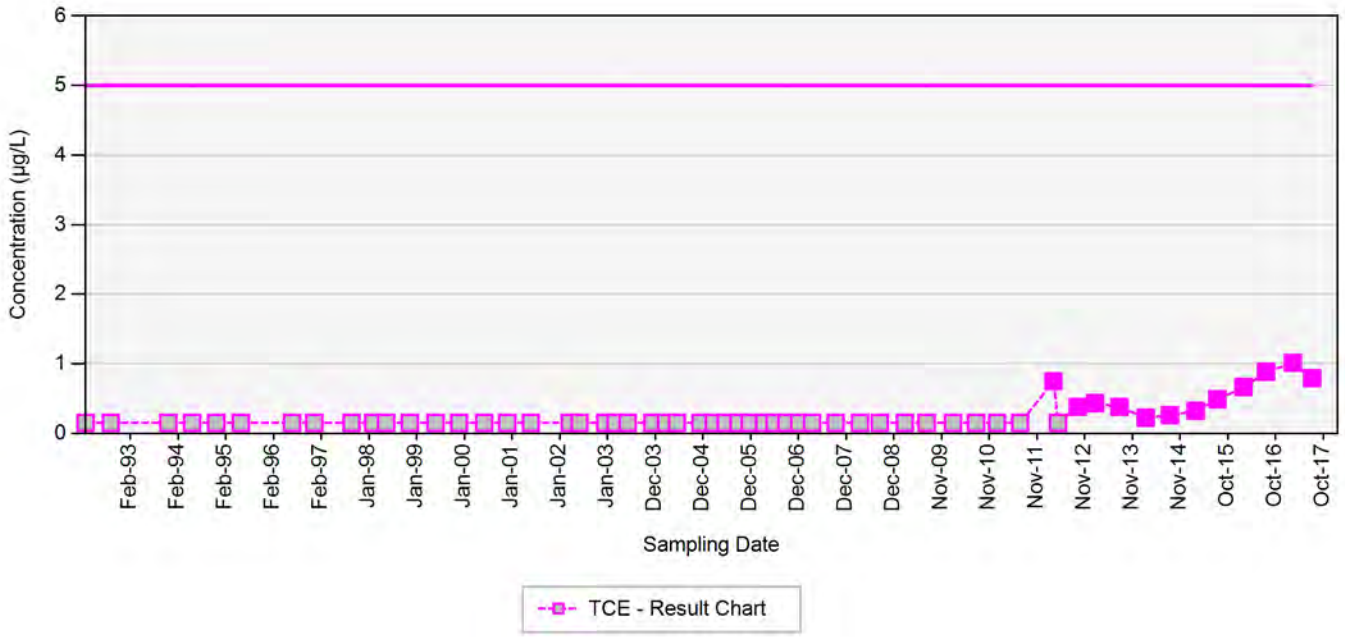
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

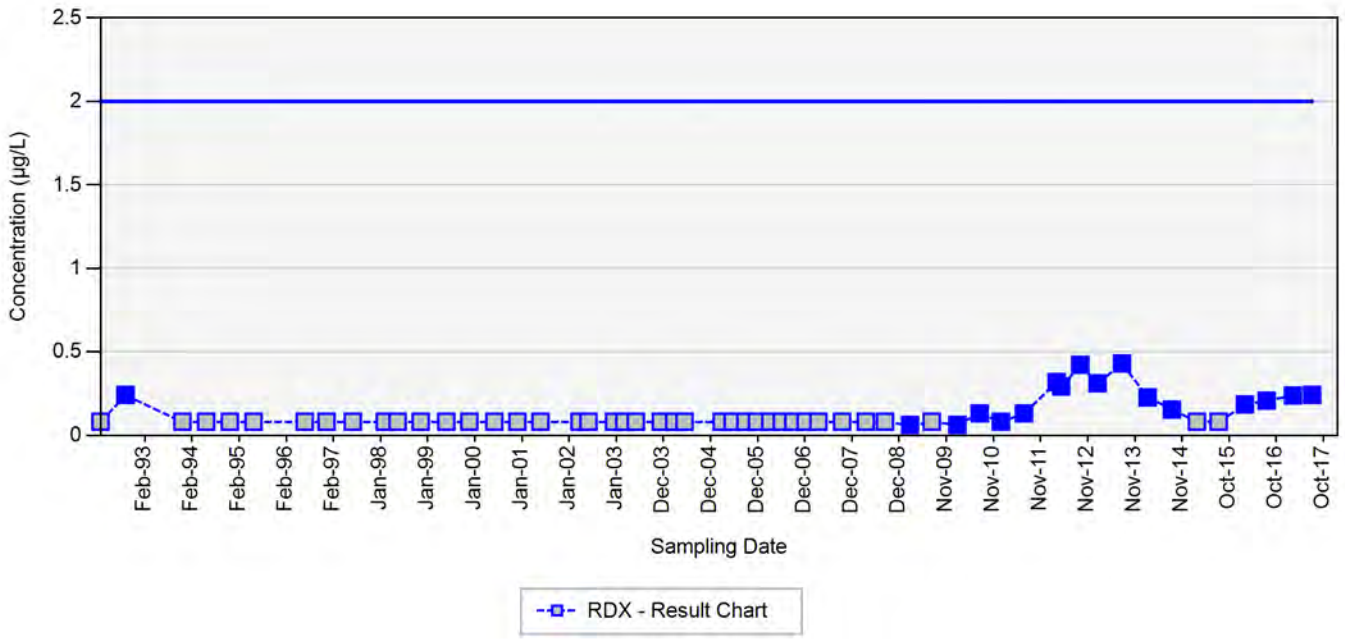
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-51





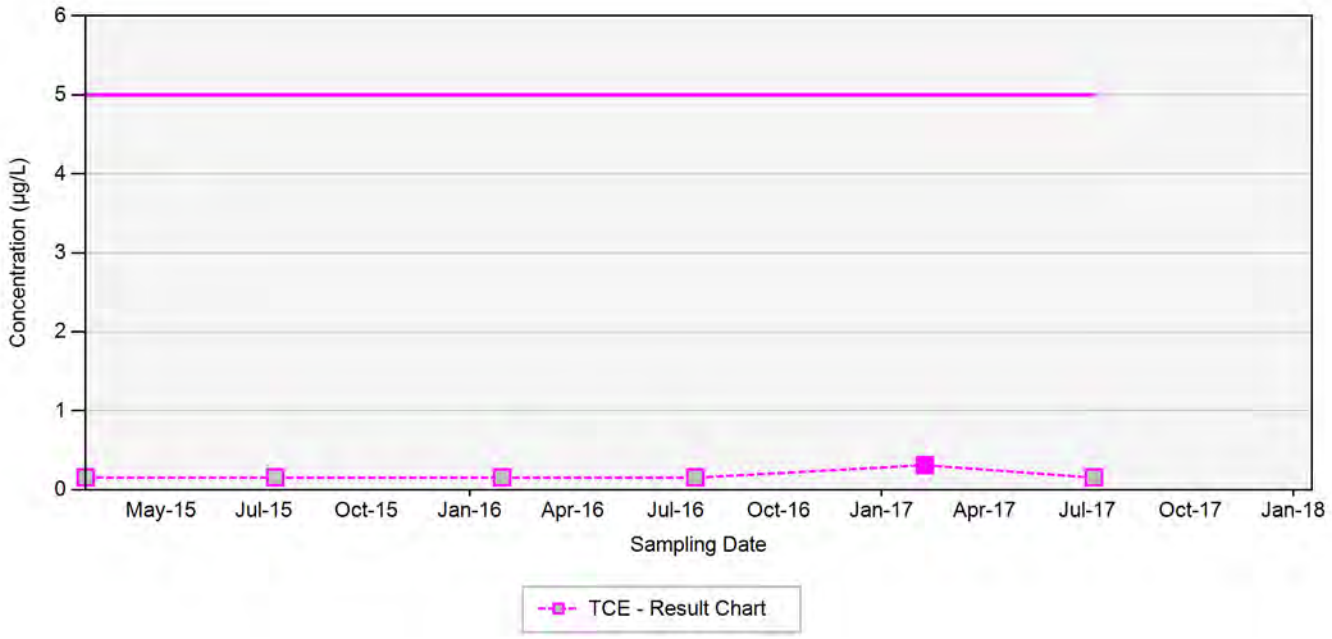
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

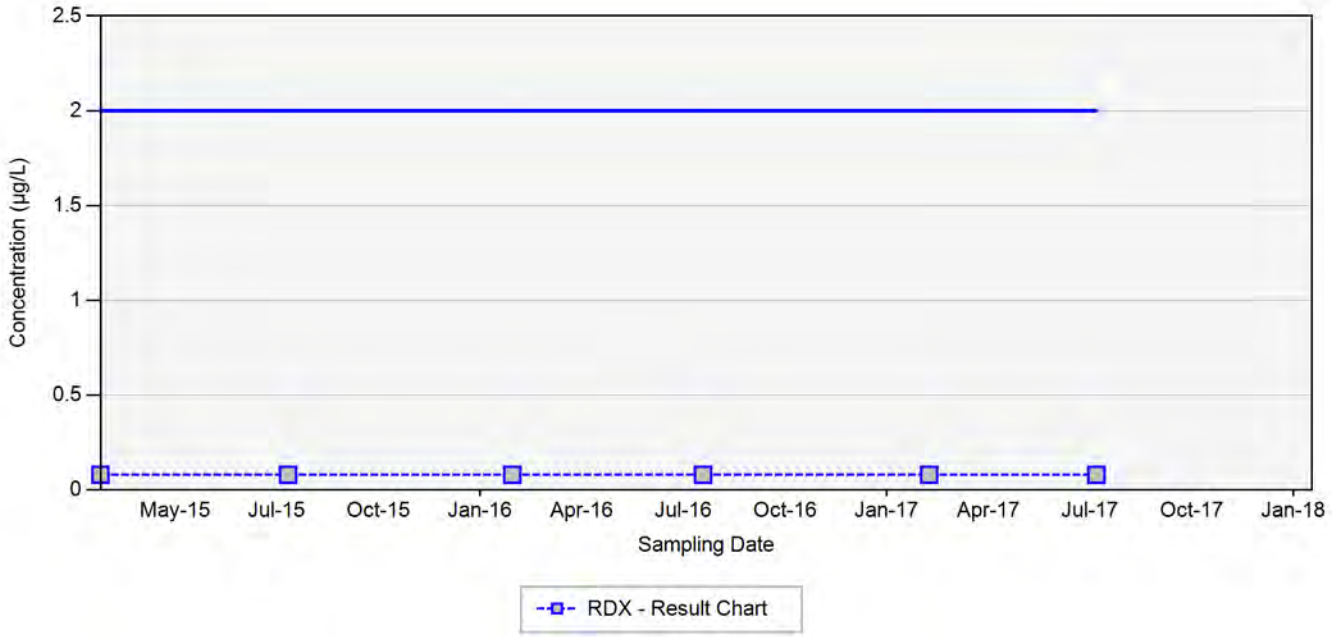
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-51A





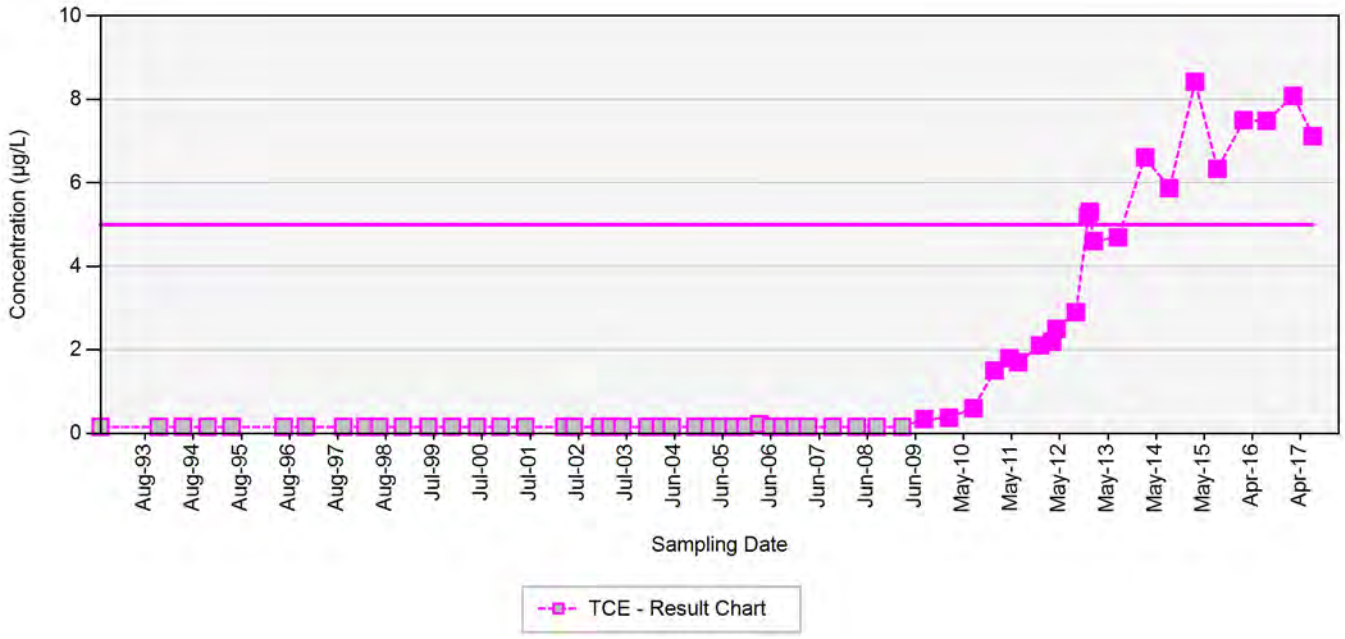
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

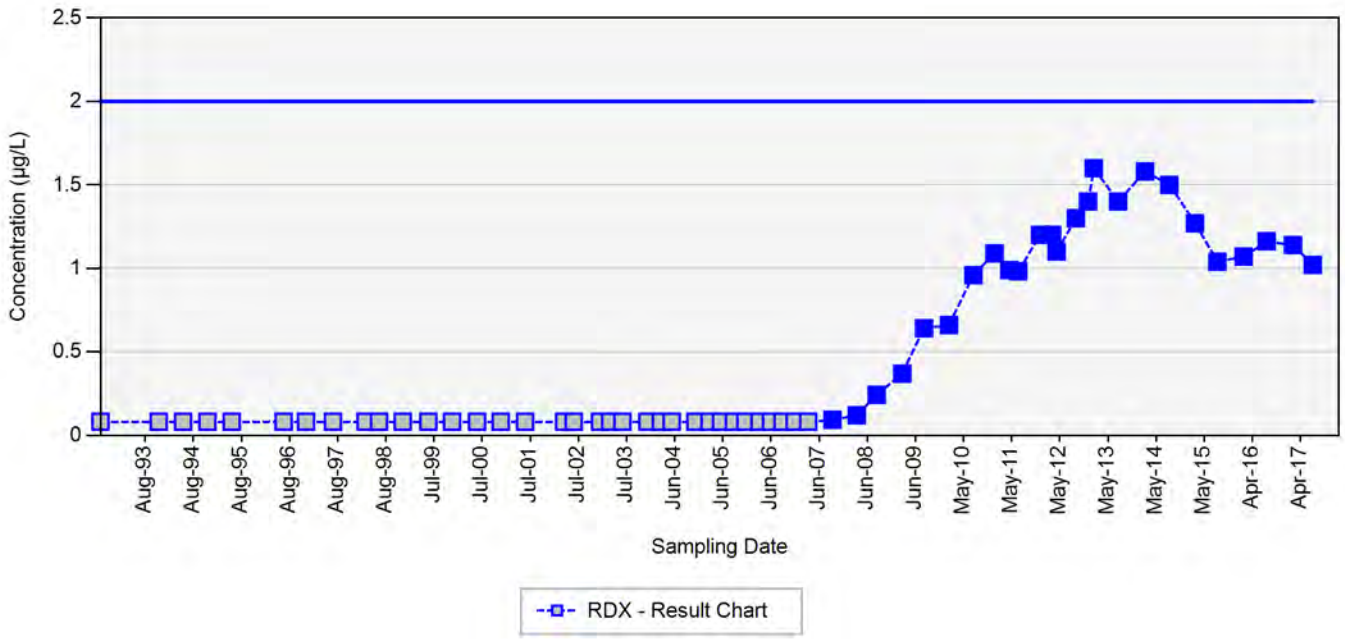
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-51A-B





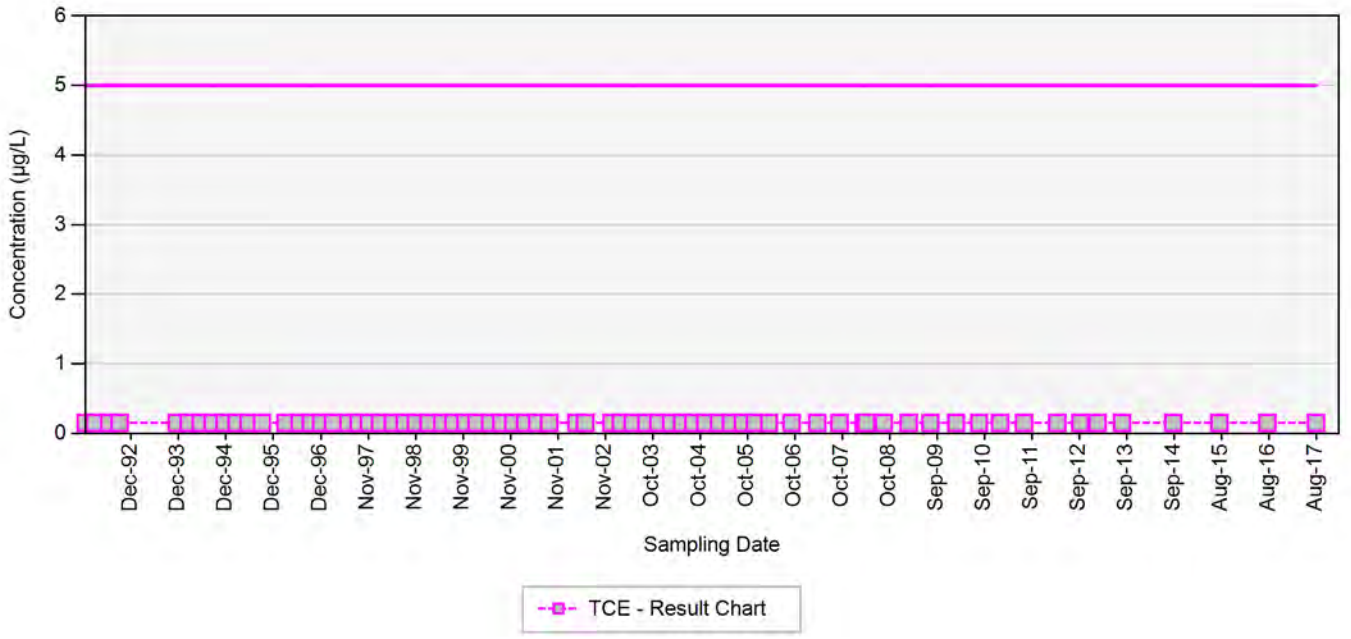
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

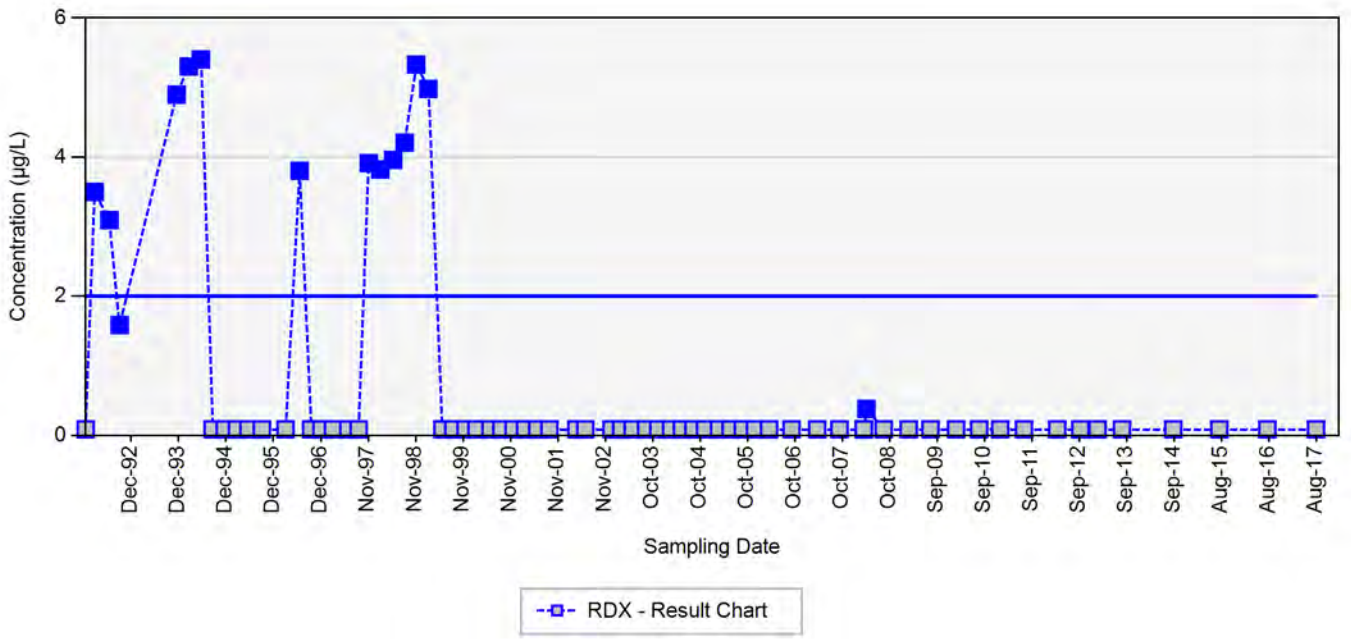
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-52A





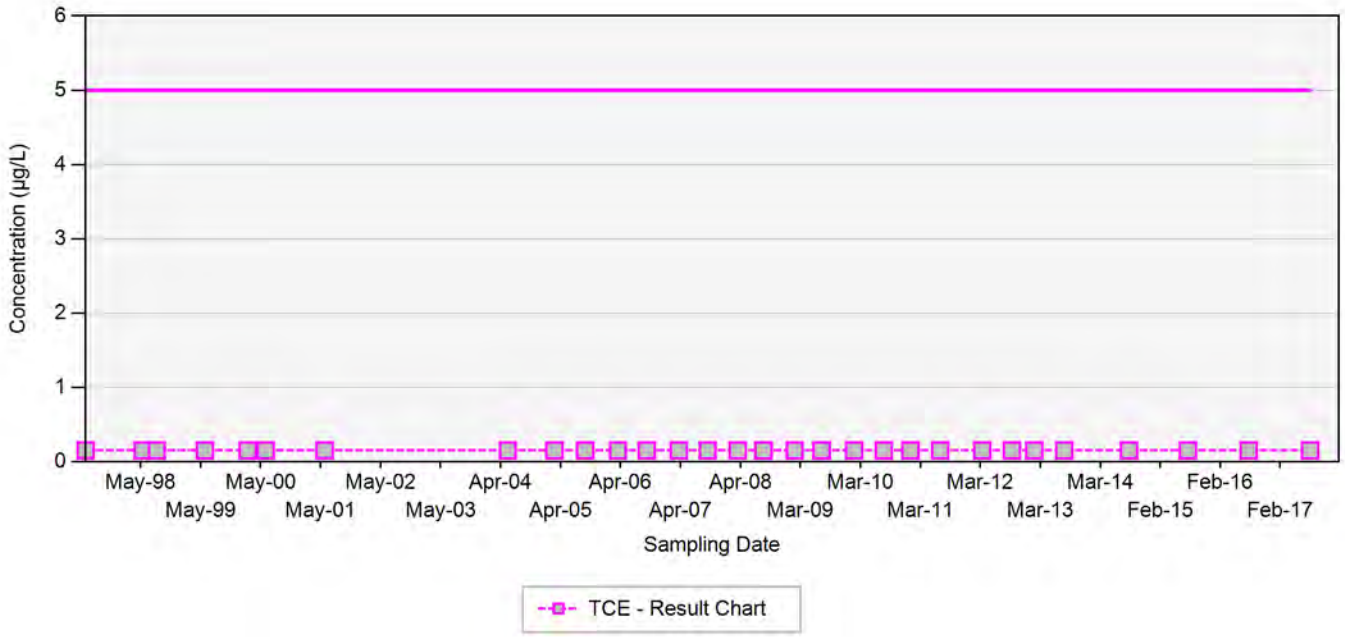
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

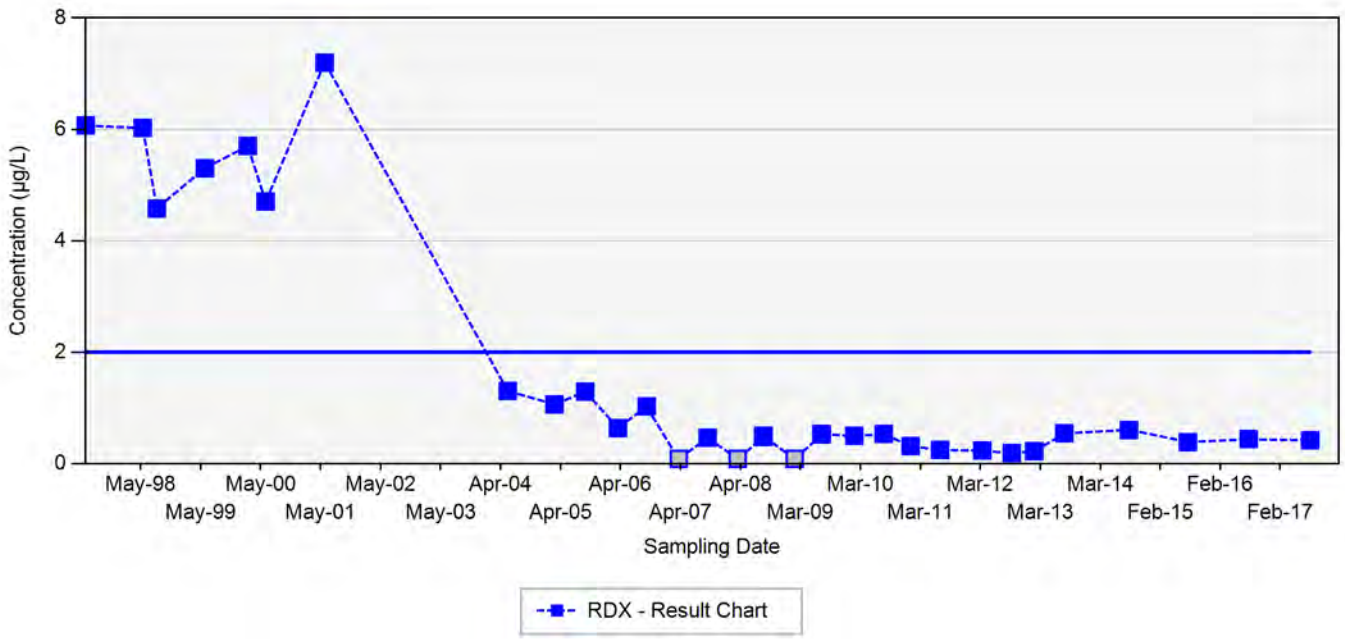
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-52A-B





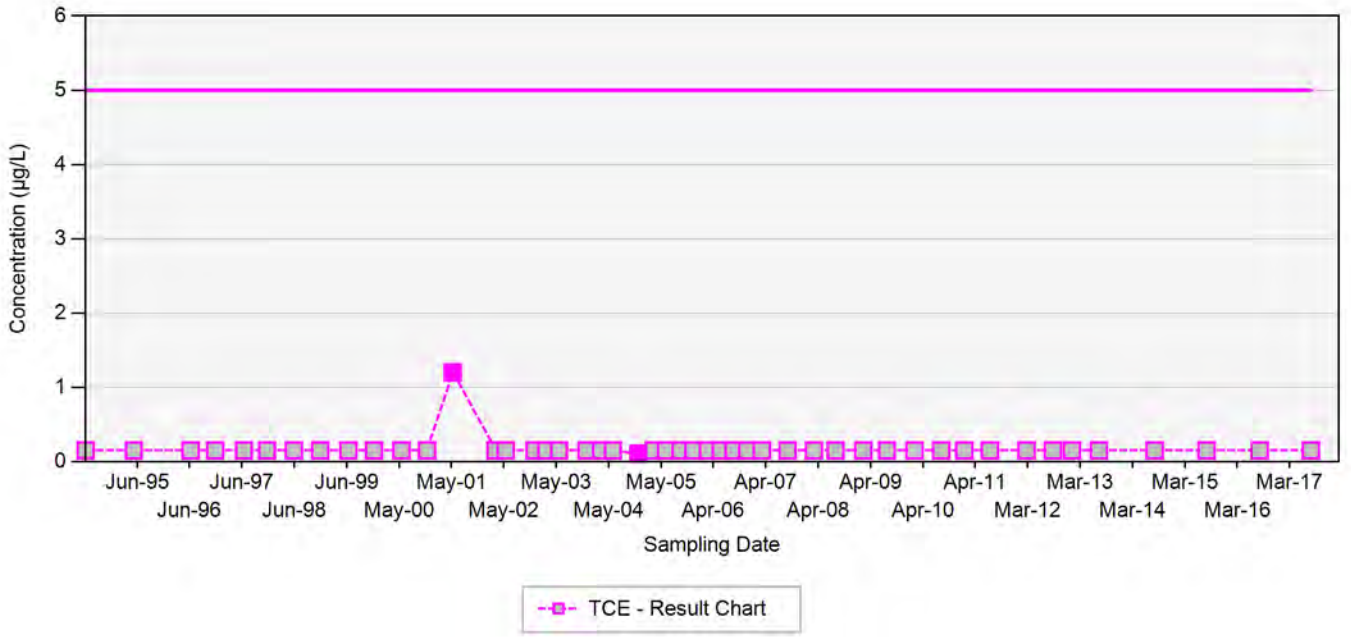
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

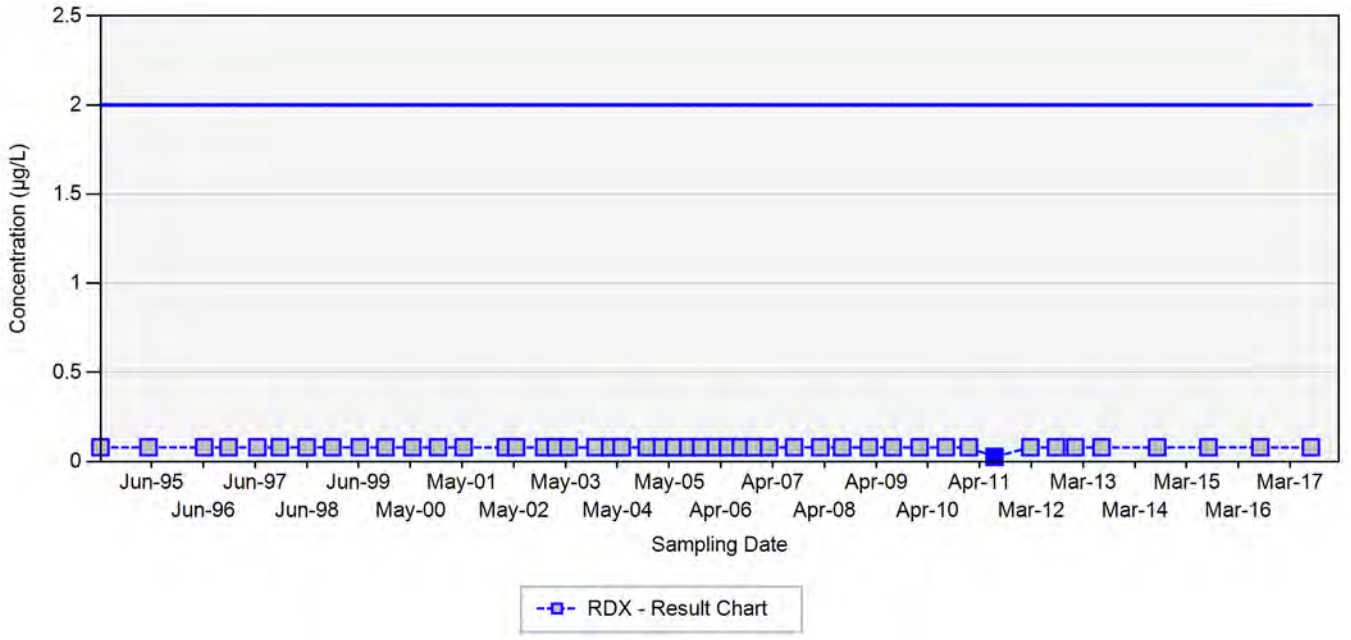
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-52B





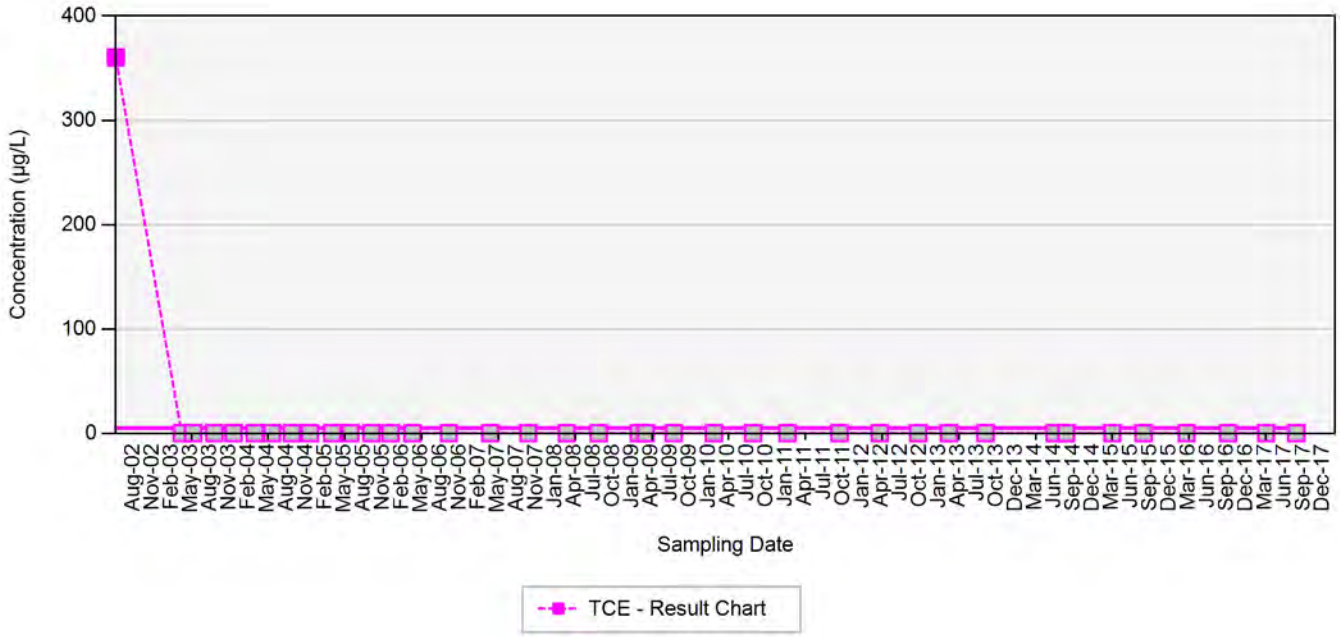
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

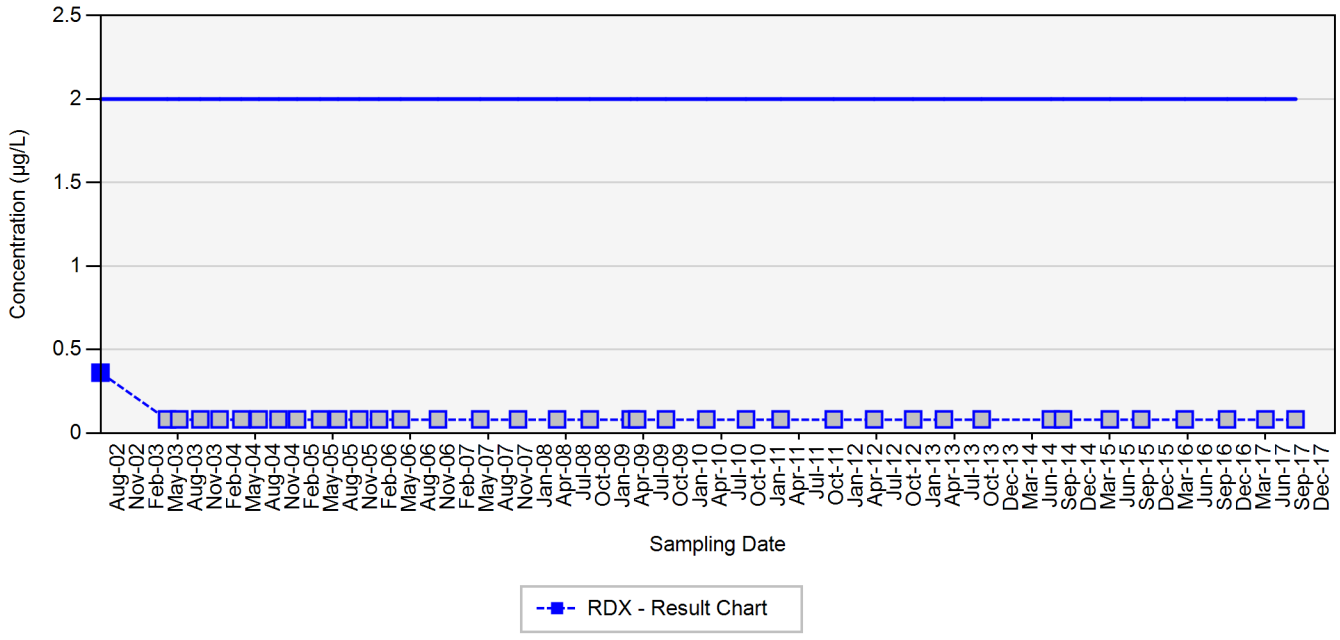
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-52C





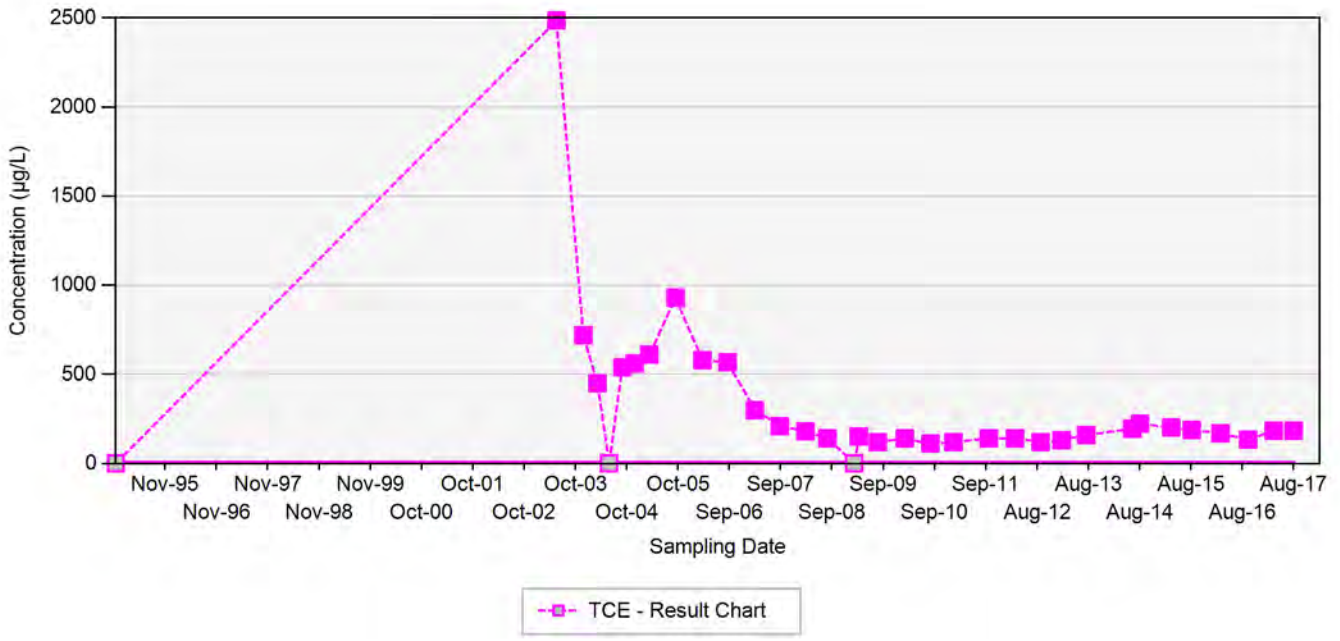
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

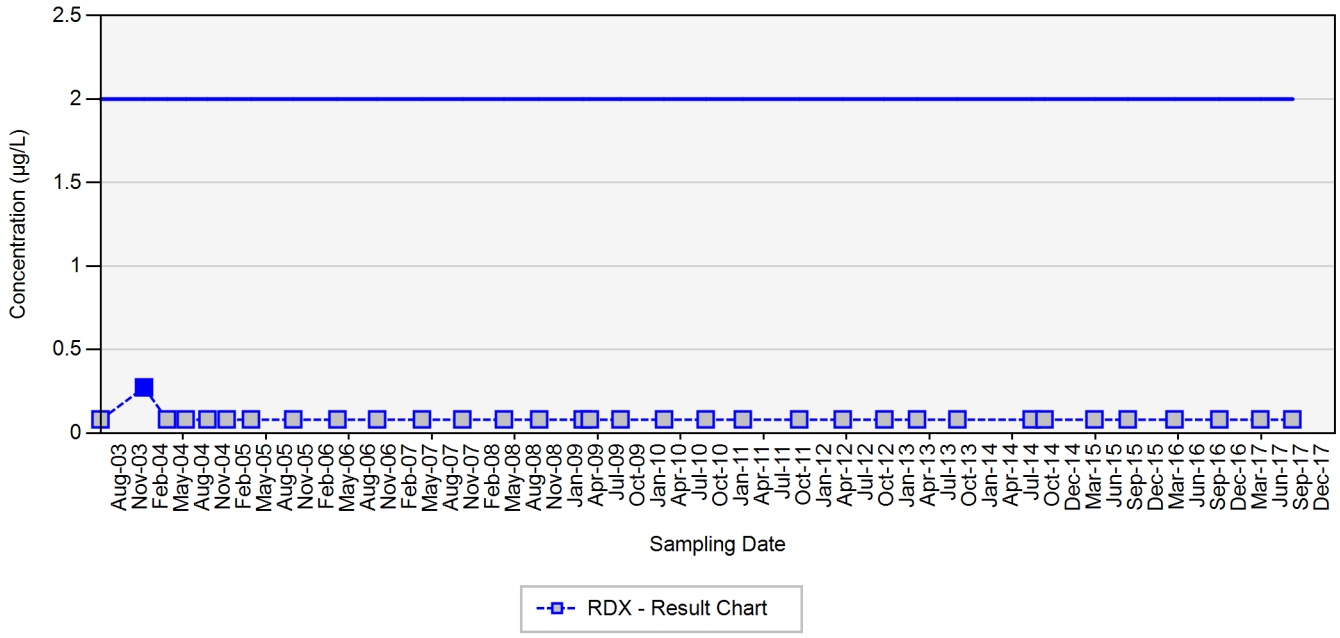
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-52C-B





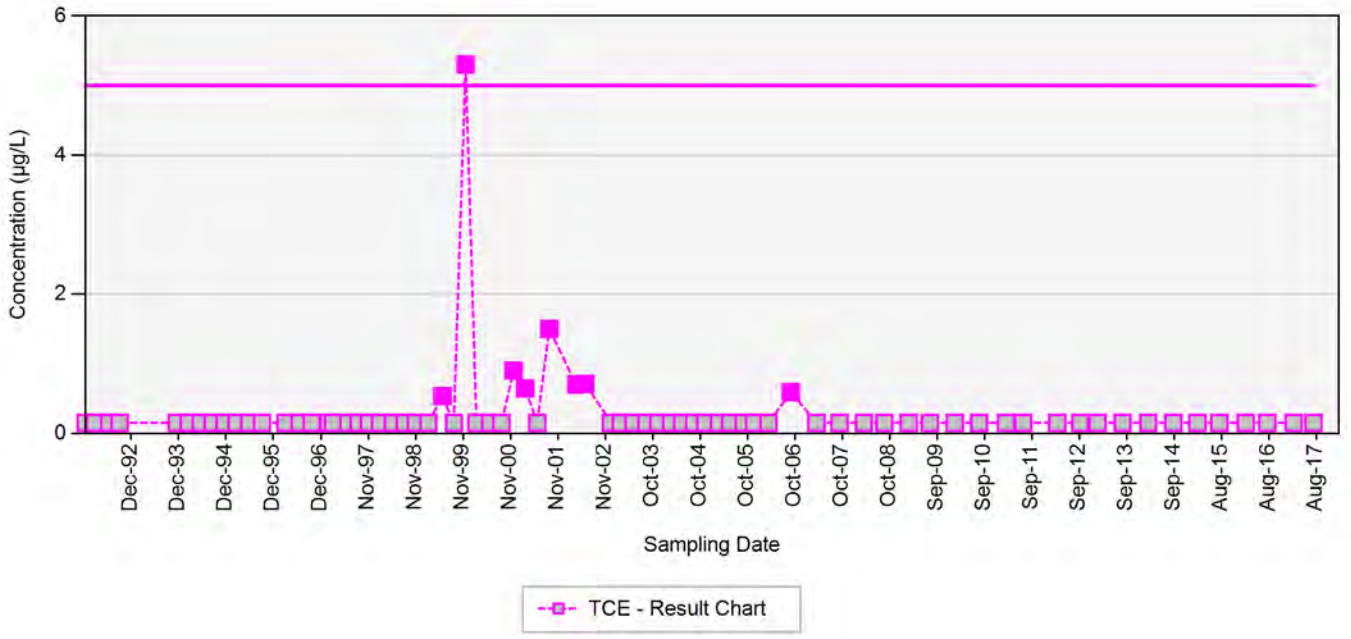
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

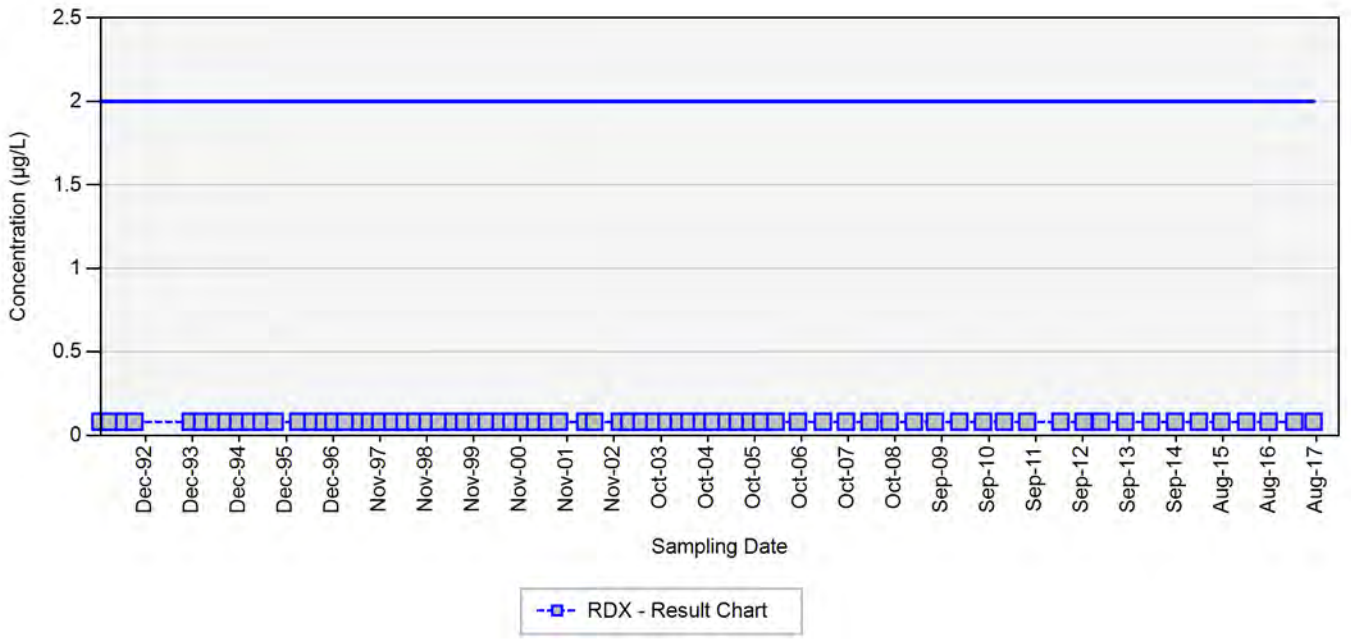
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-53





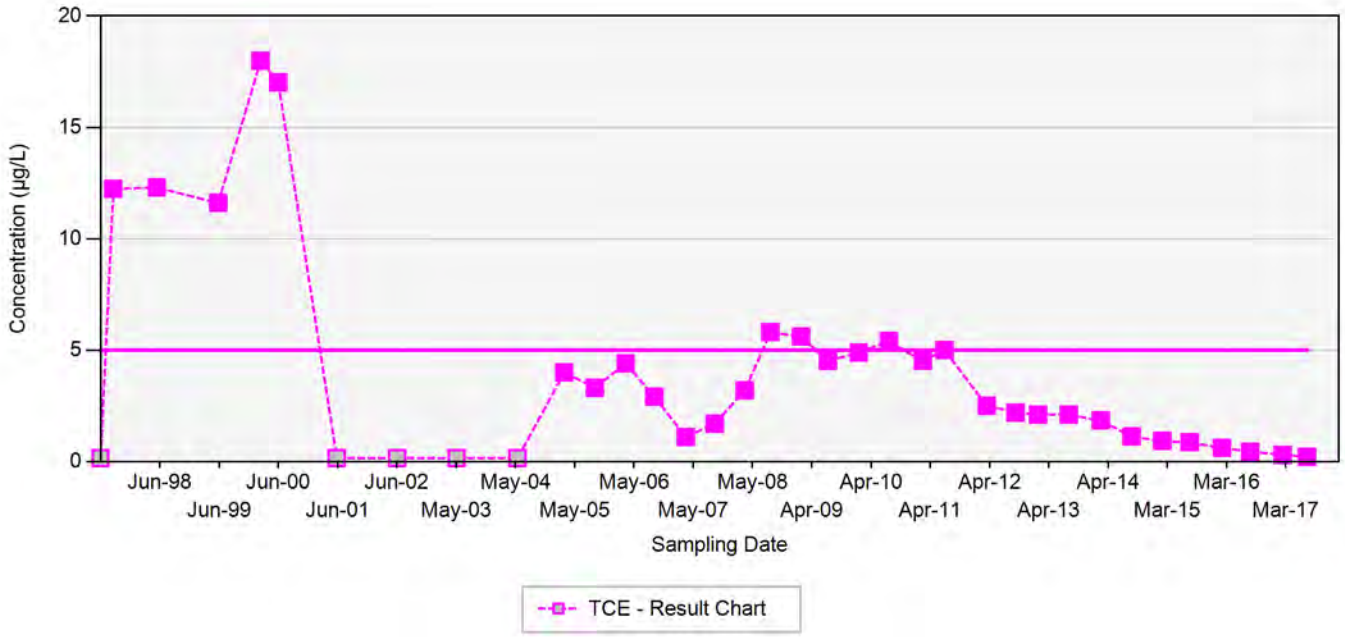
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

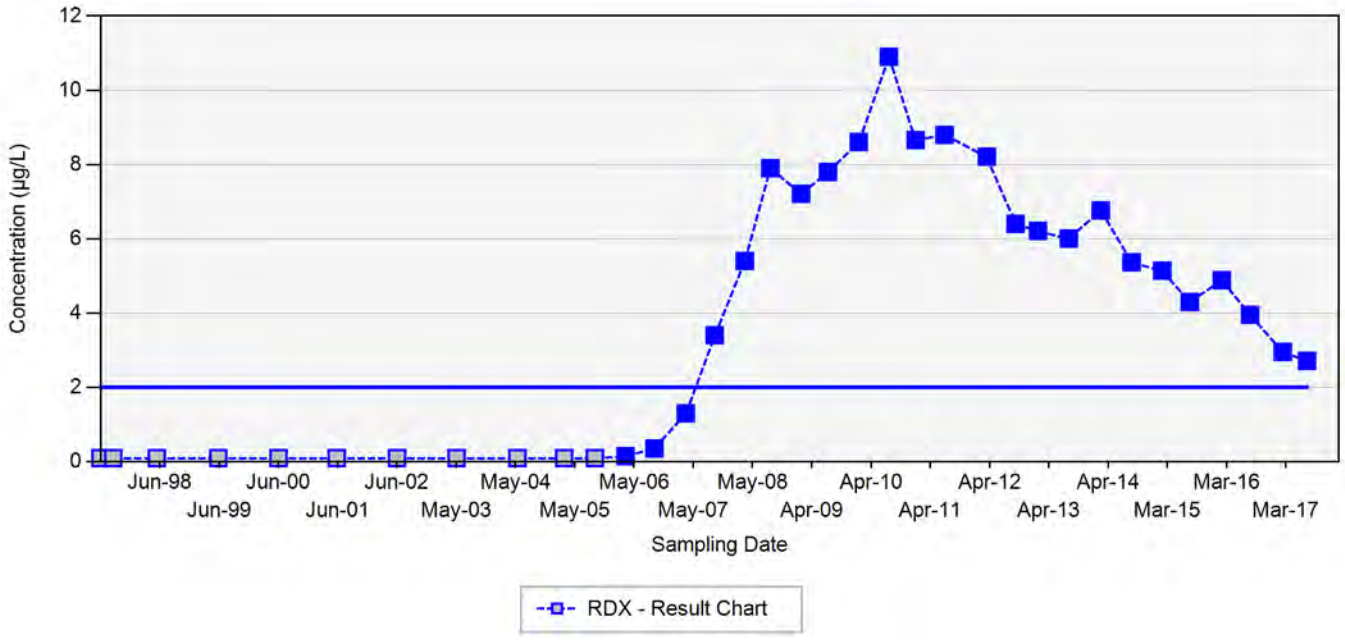
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-53-B





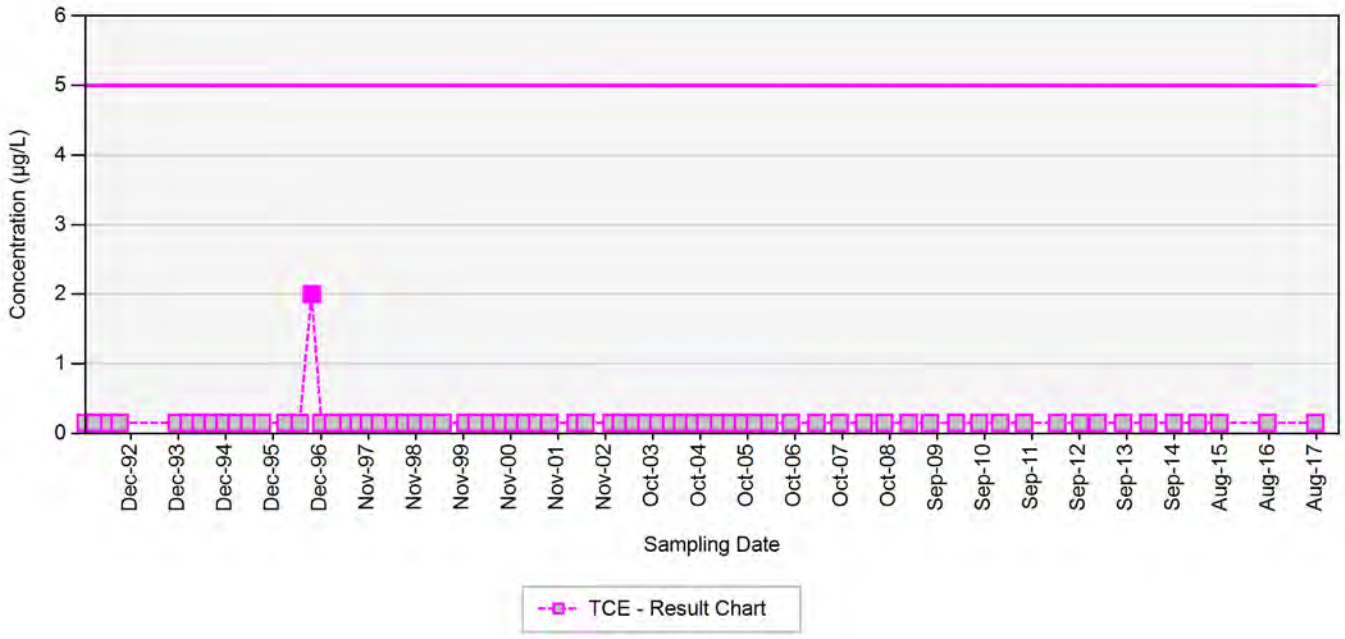
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

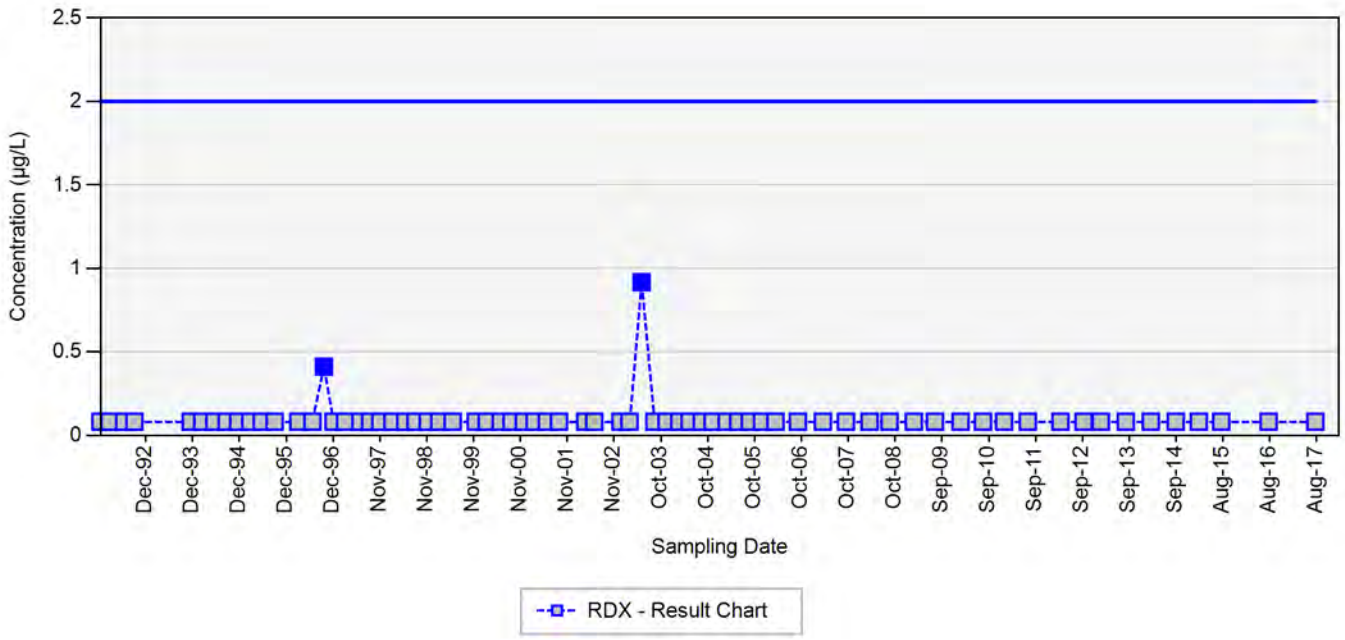
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-54





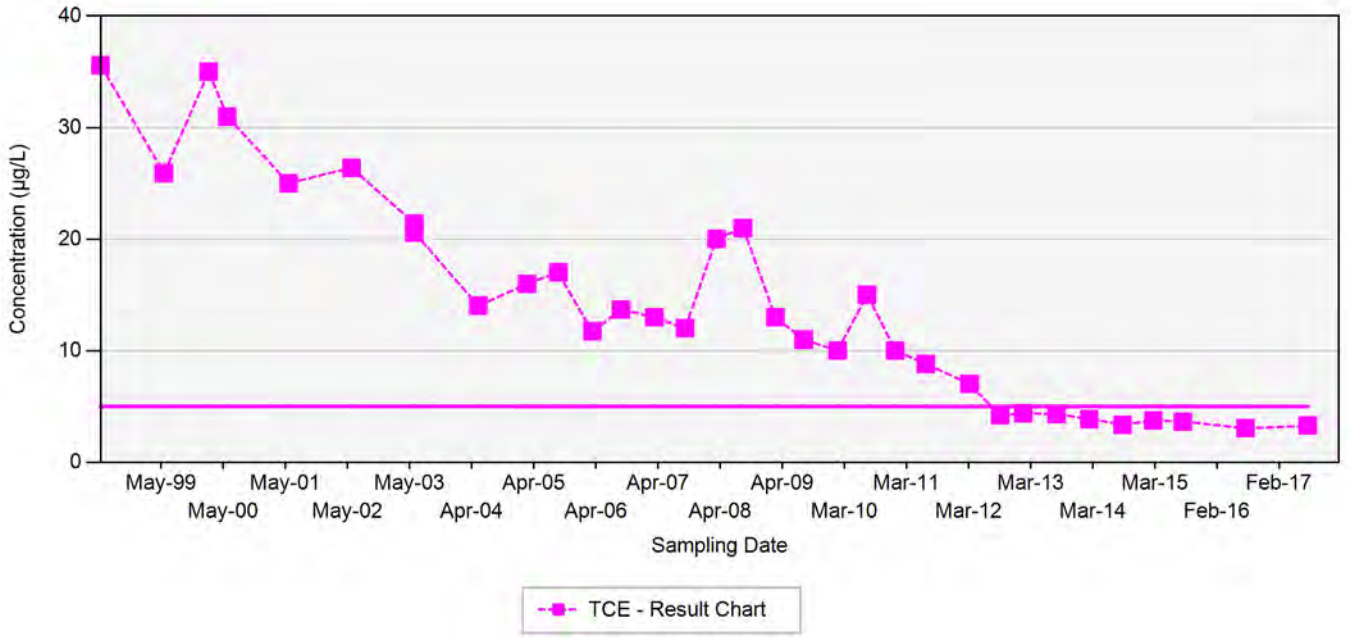
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

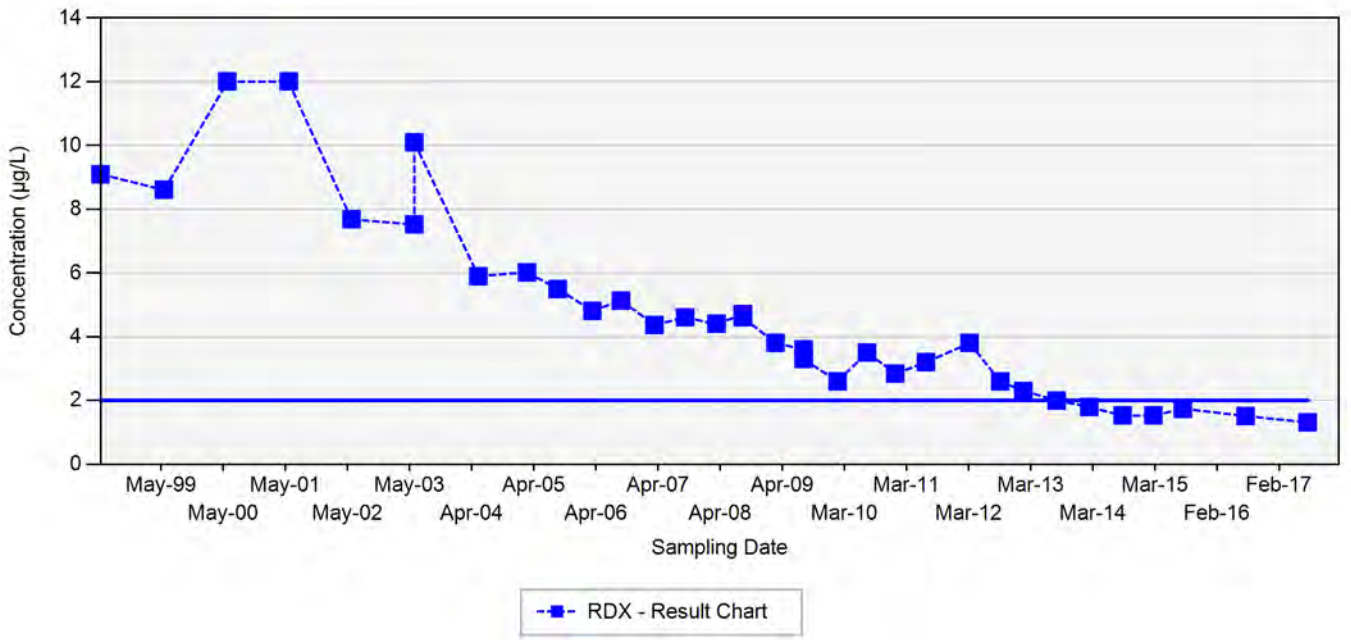
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-54-B





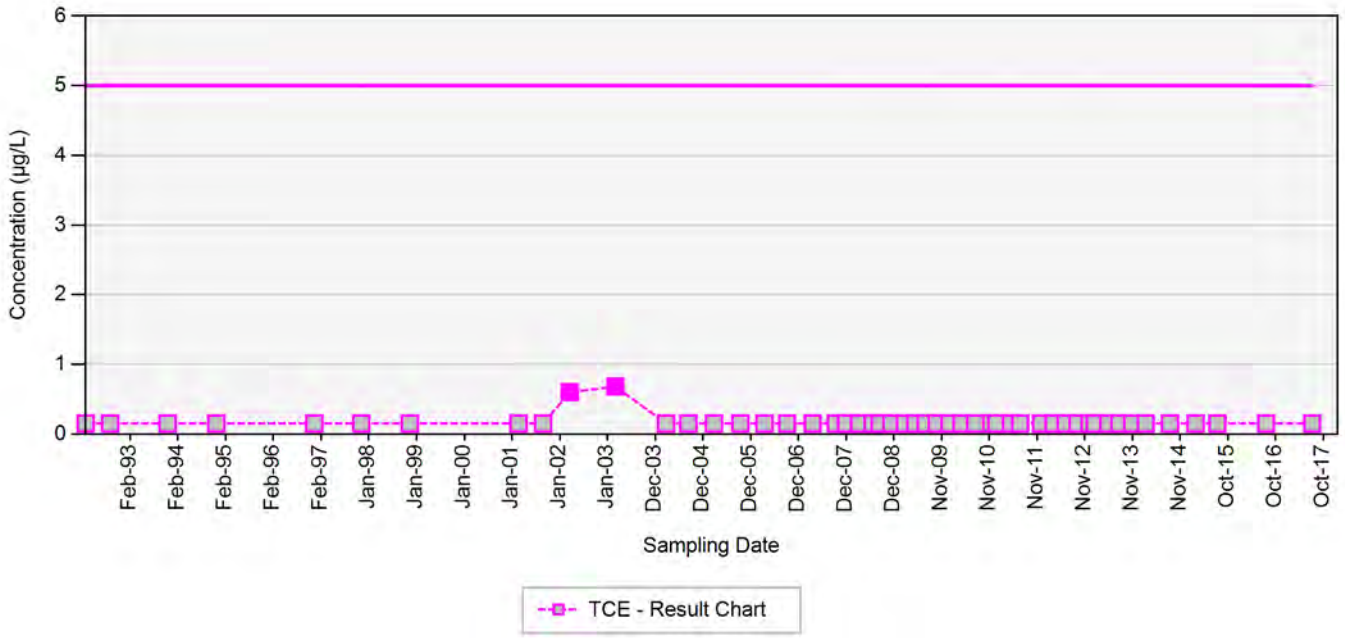
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

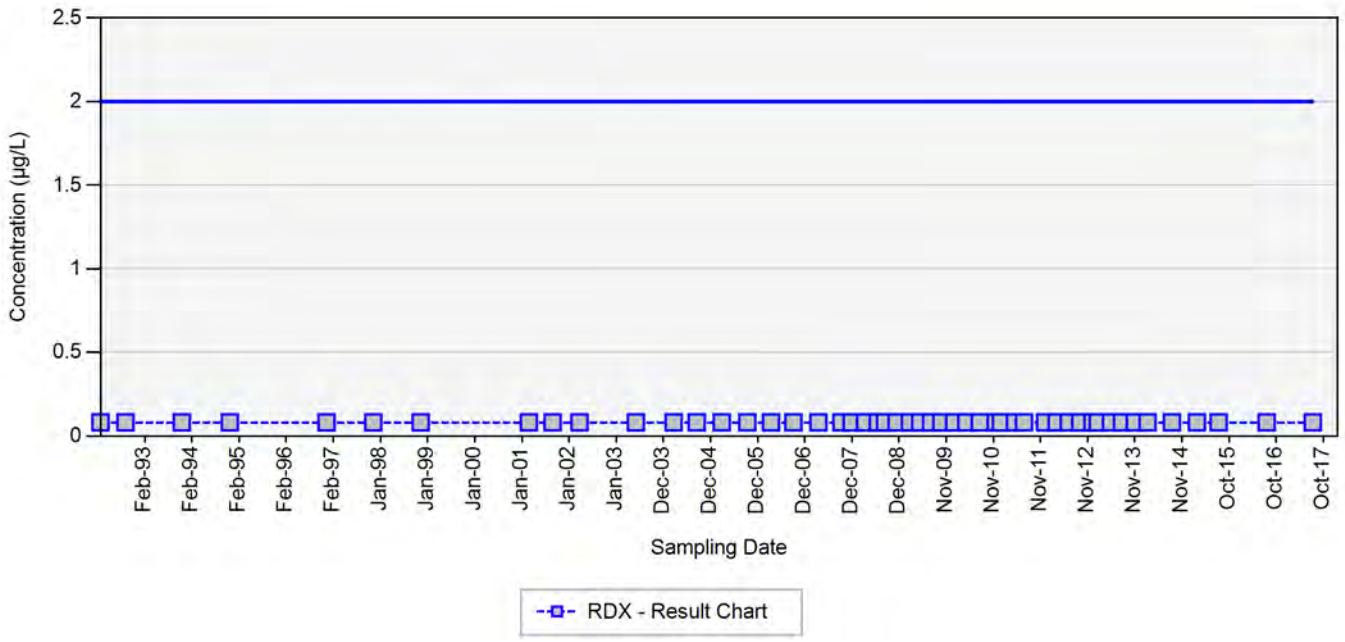
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-55





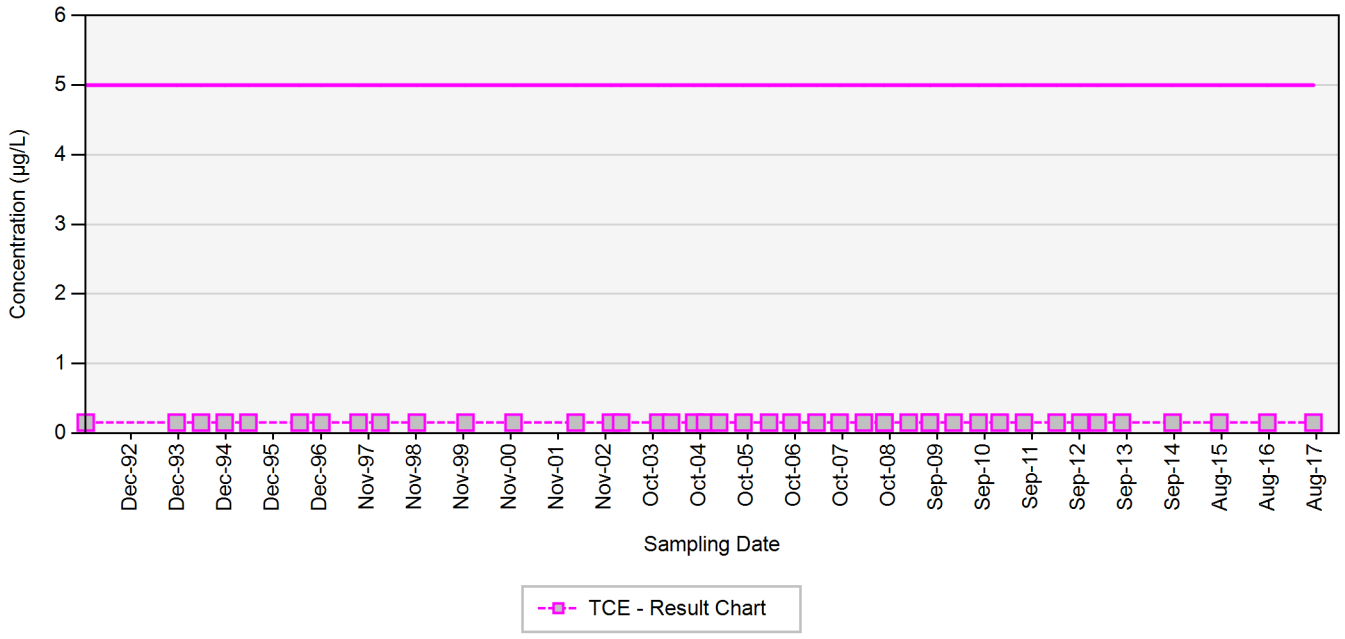
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

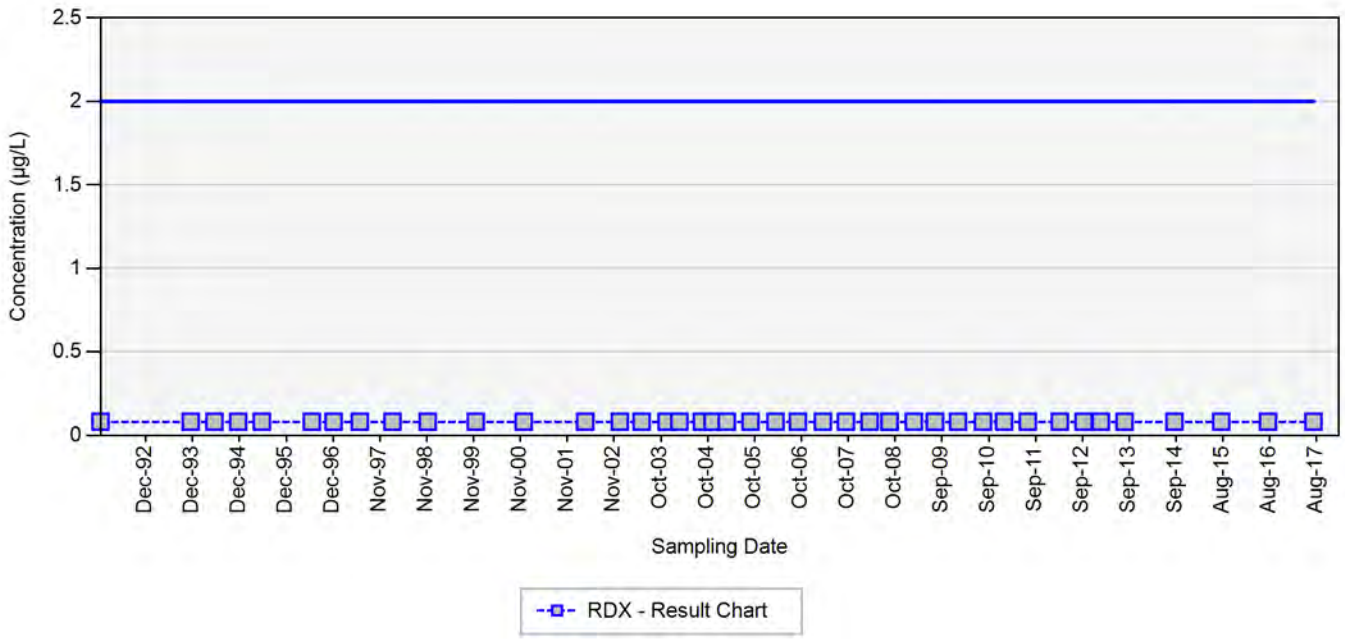
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-56





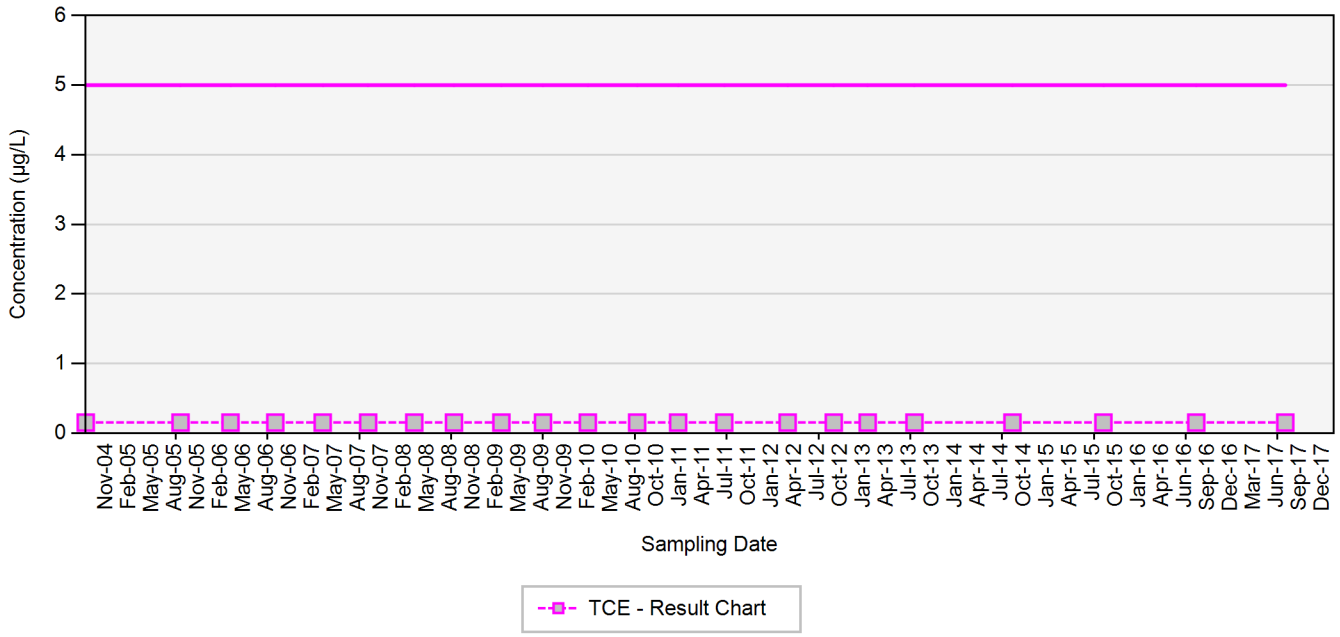
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

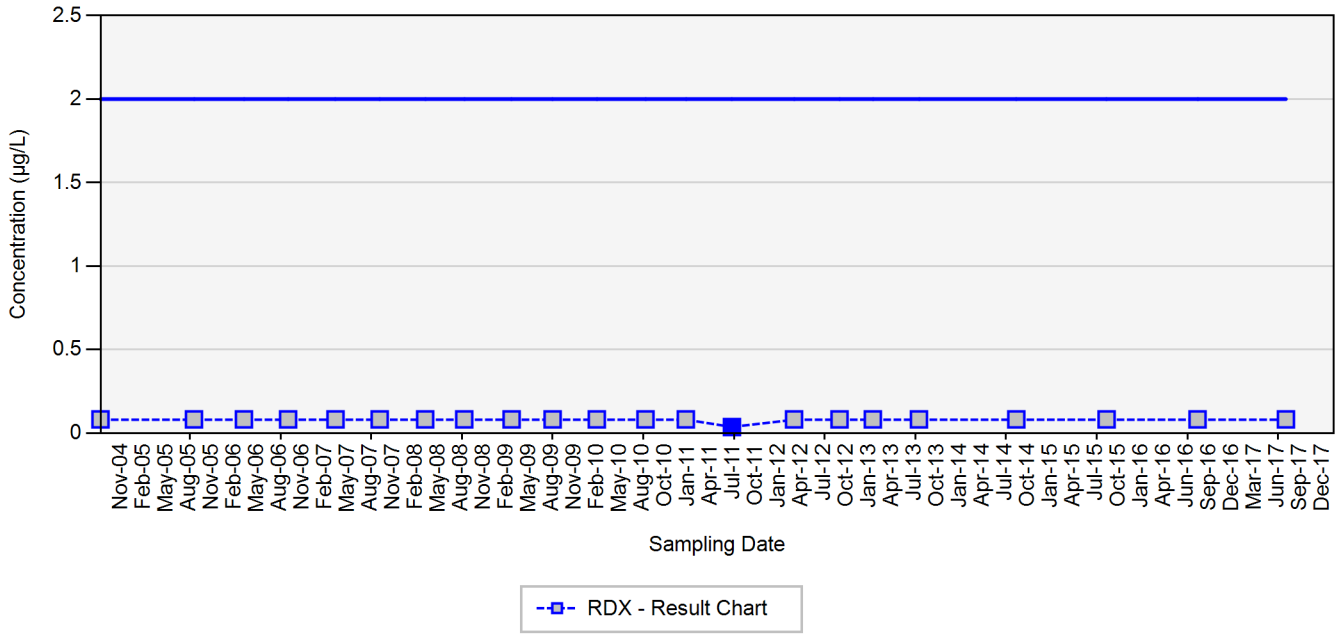
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-59





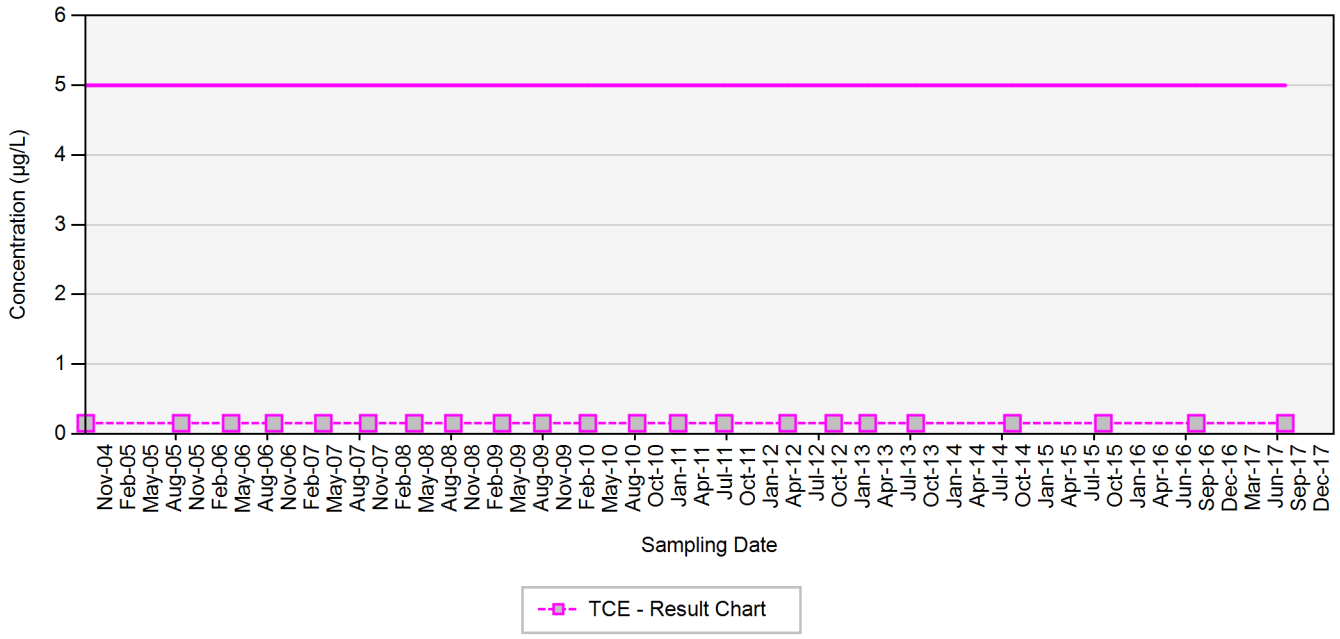
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

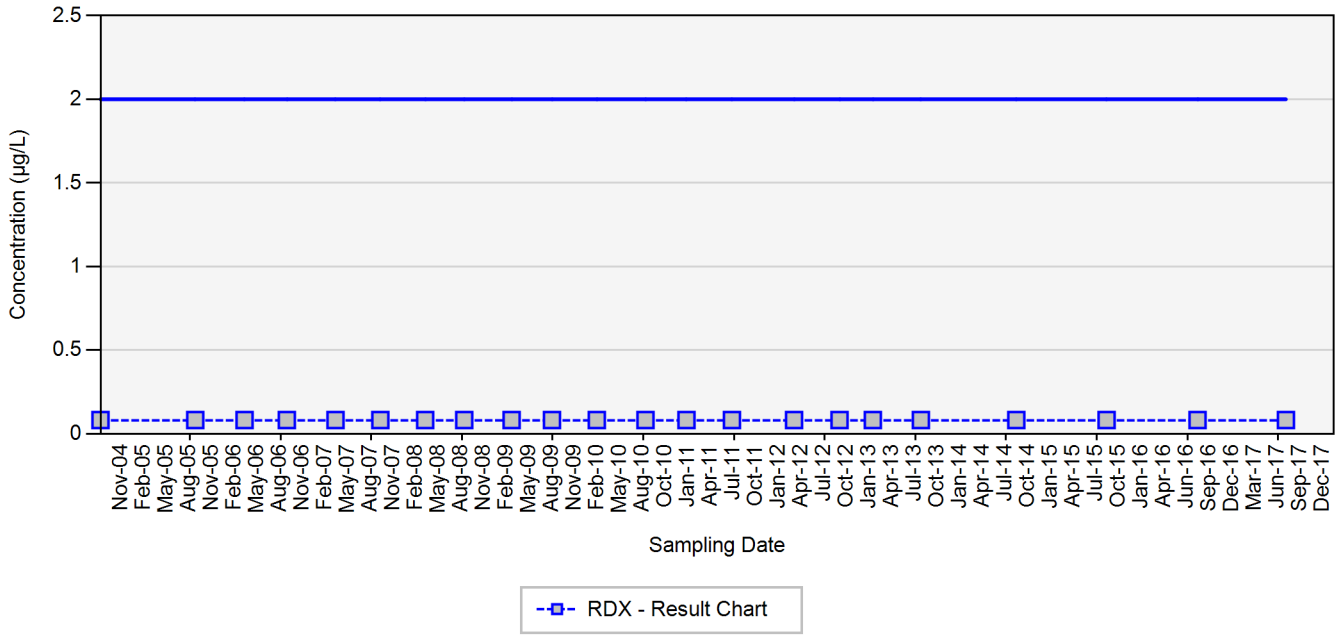
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-60





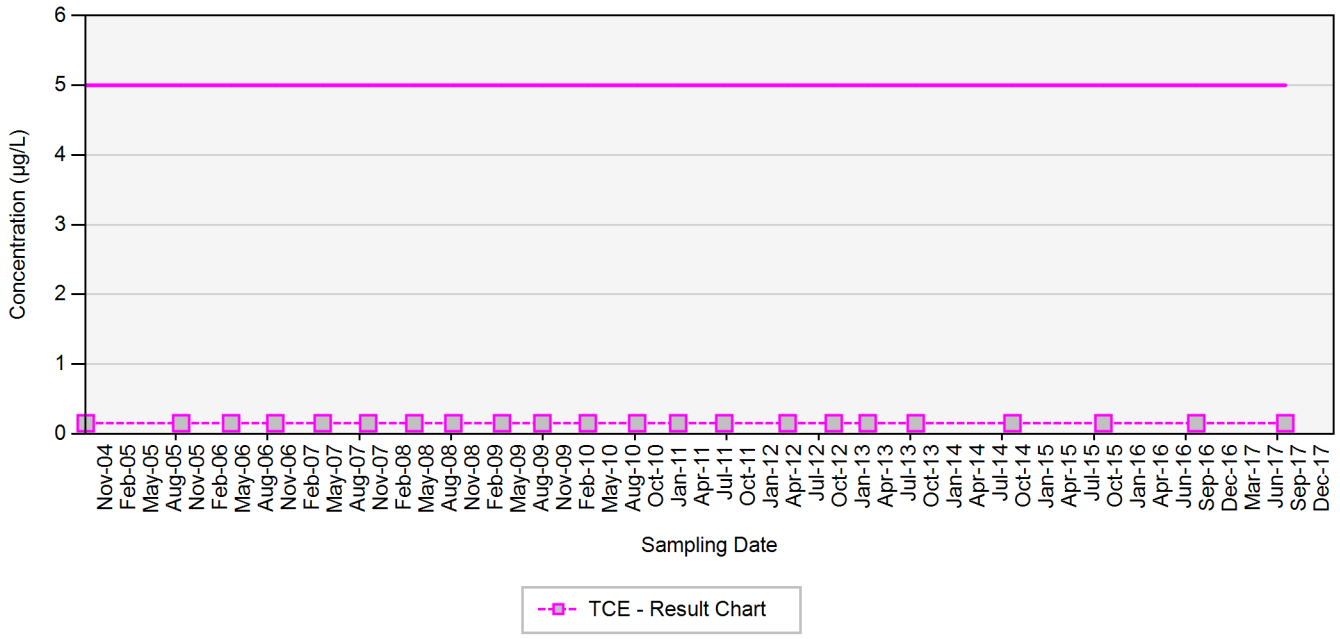
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

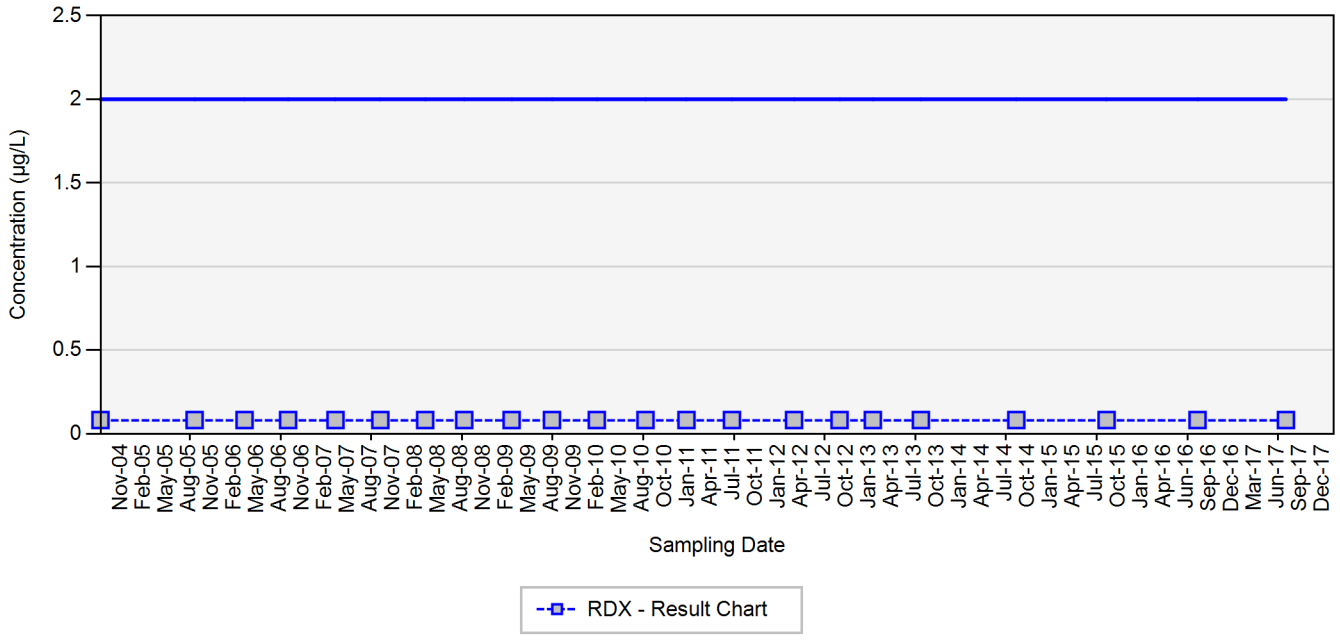
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-61





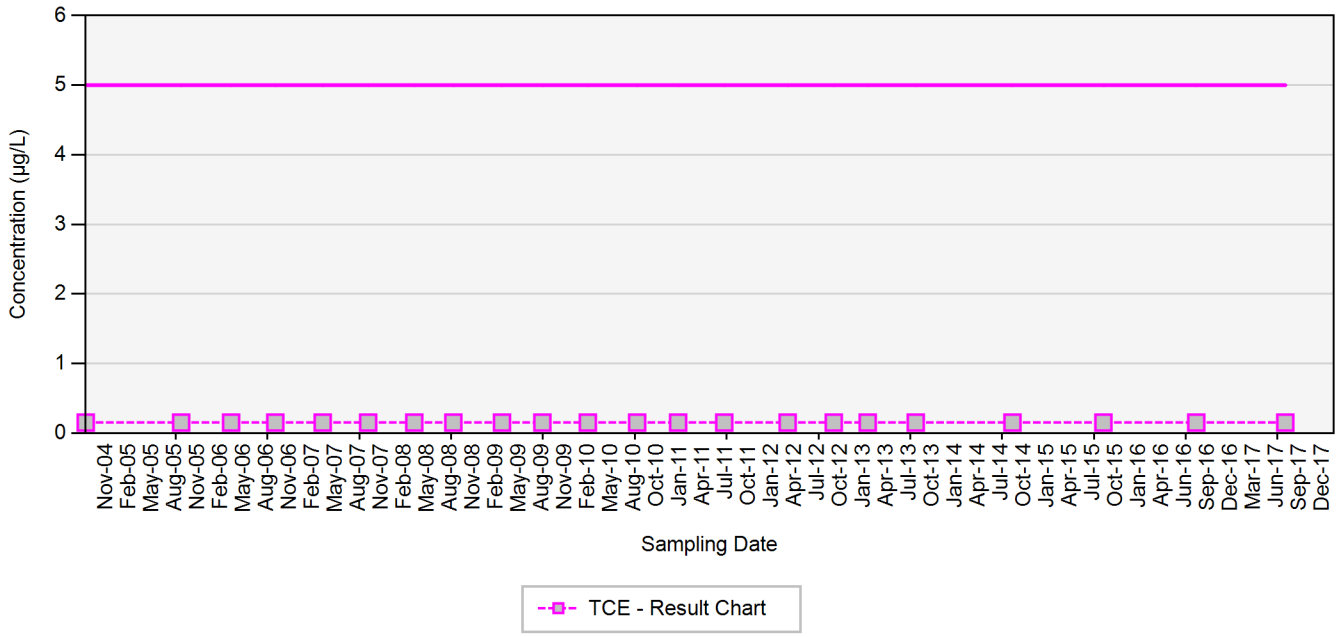
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

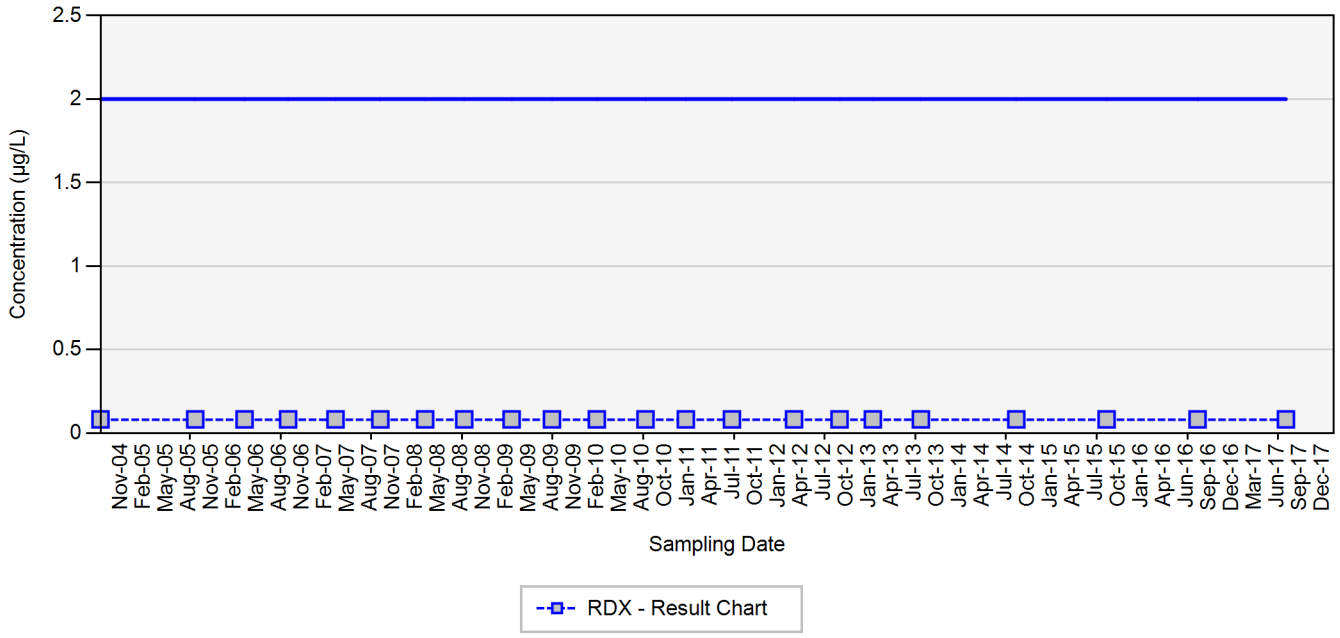
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-62





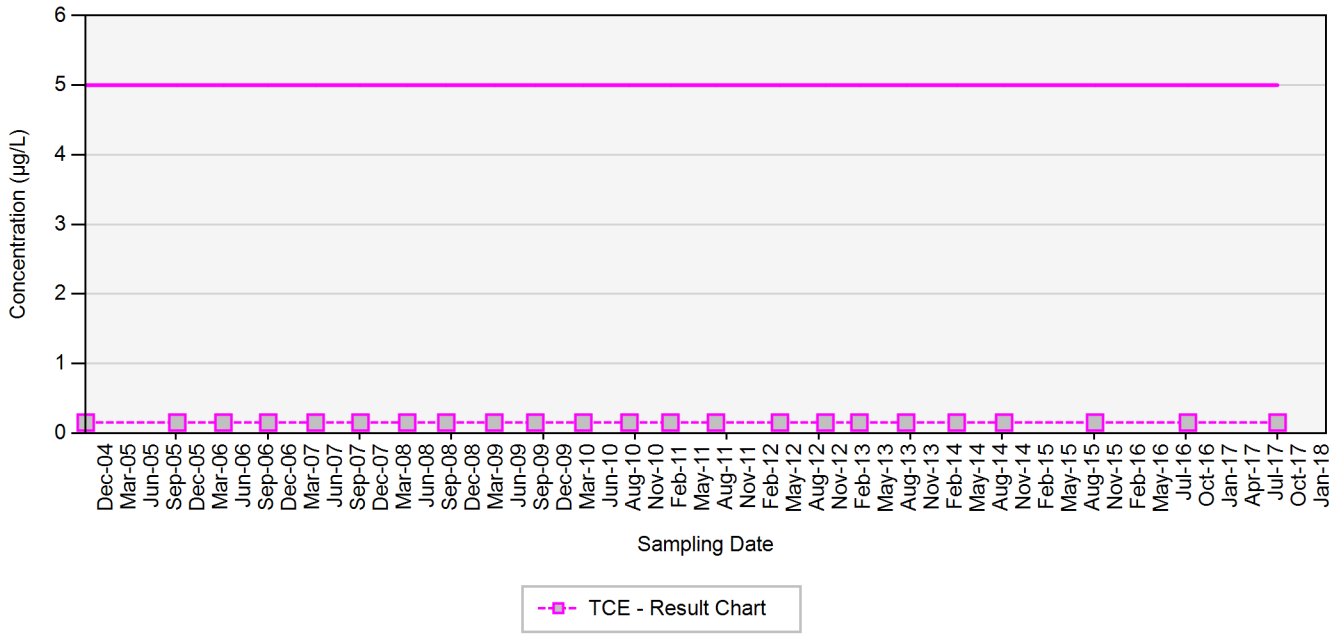
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

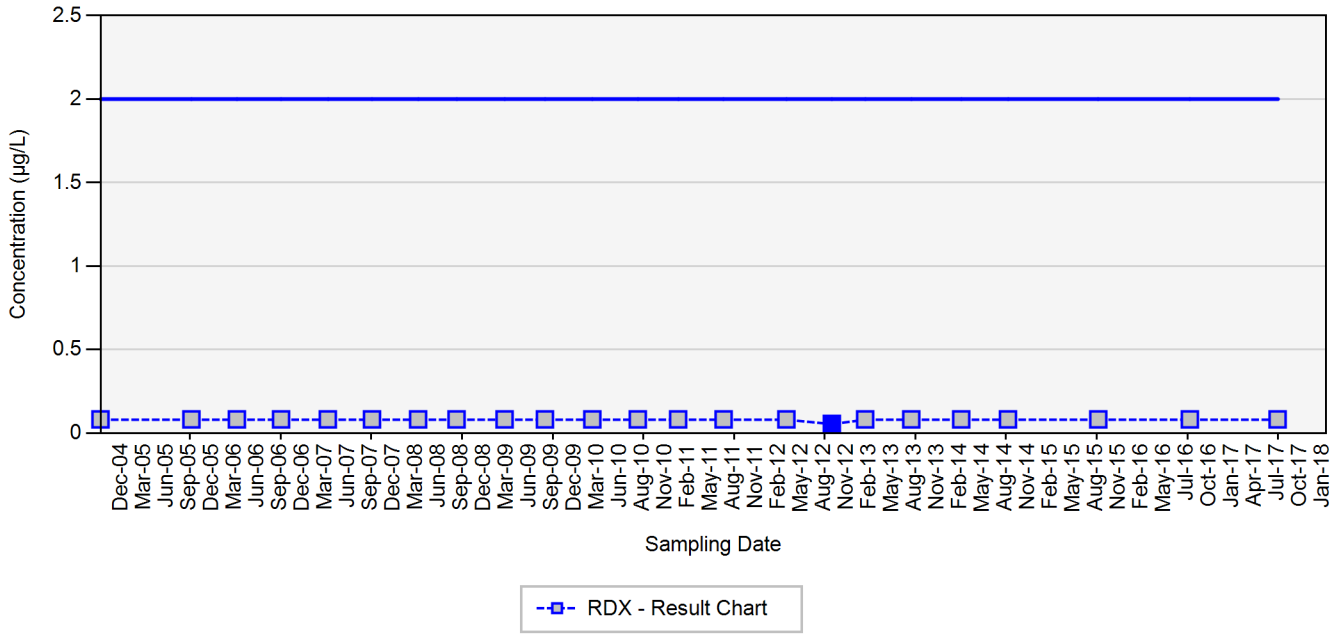
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-65





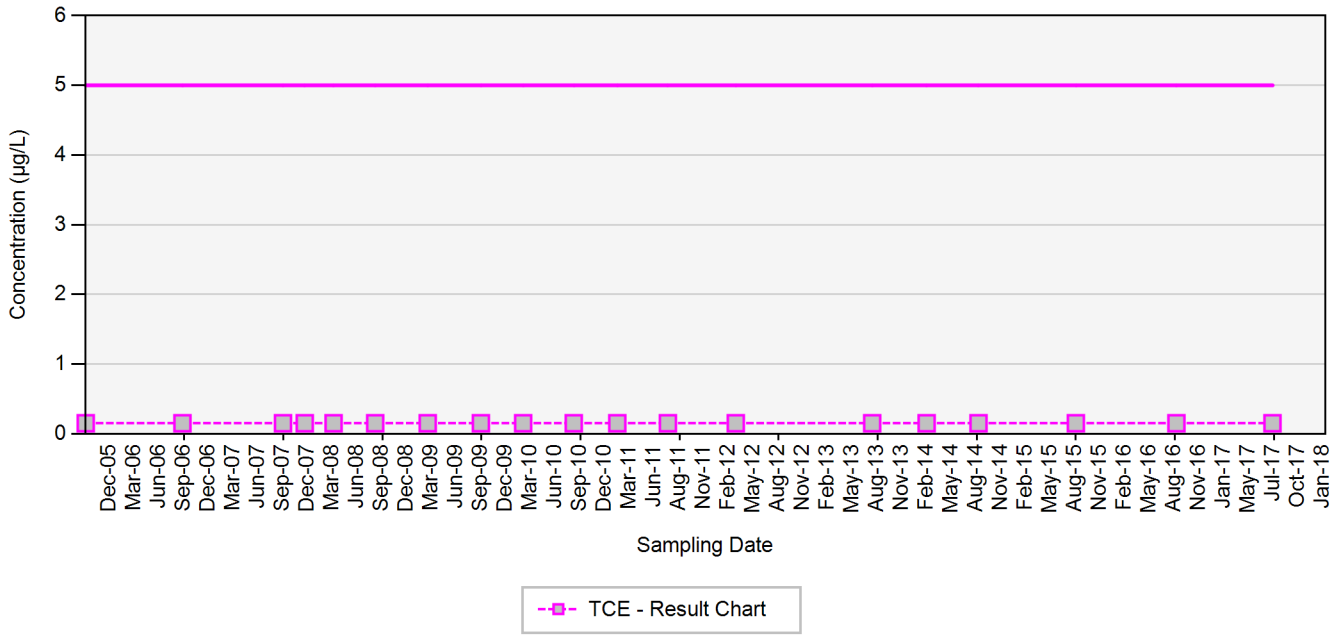
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

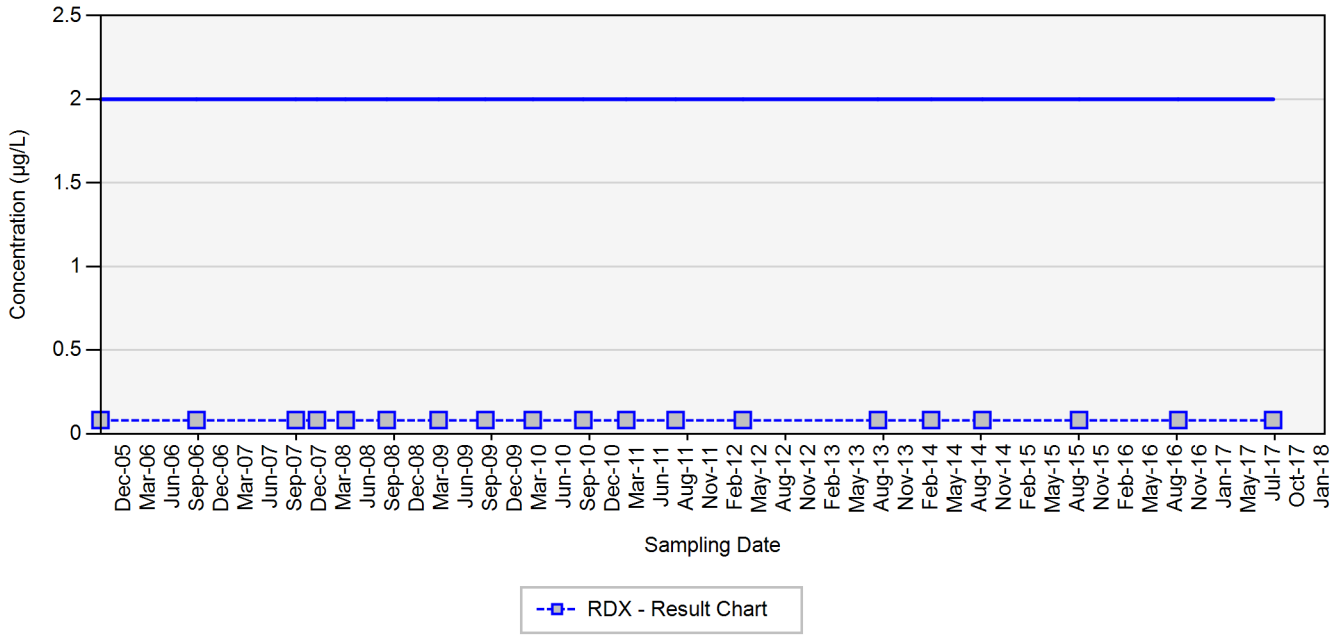
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-75





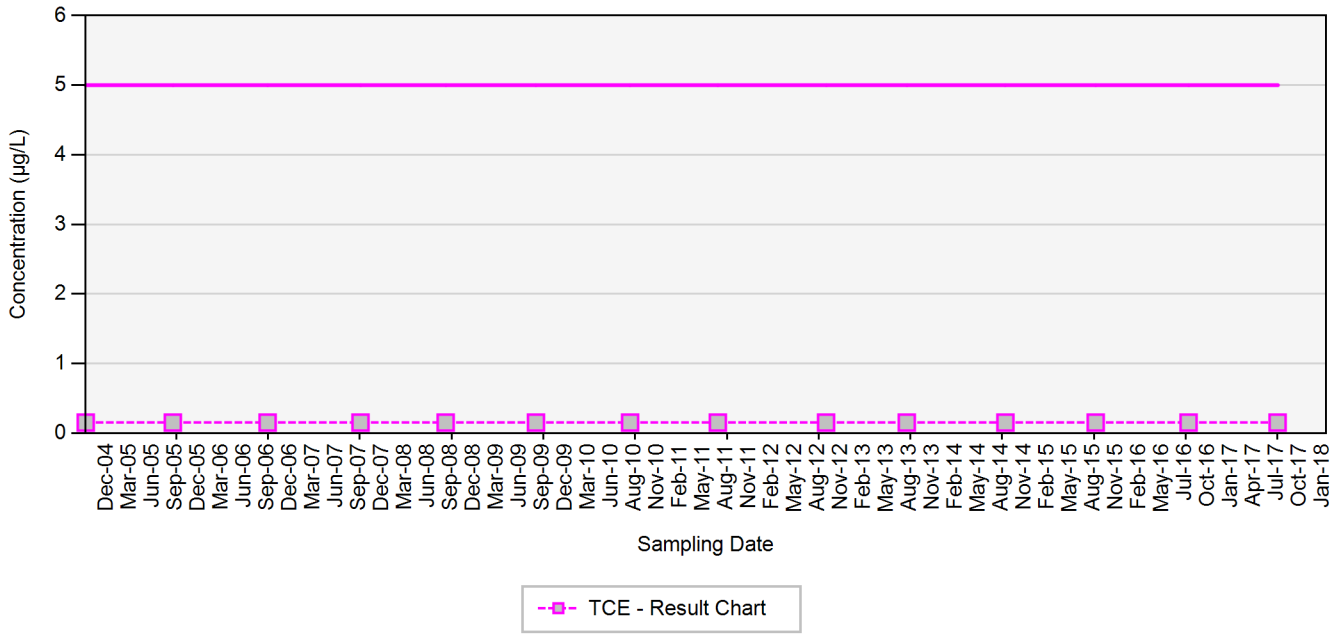
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

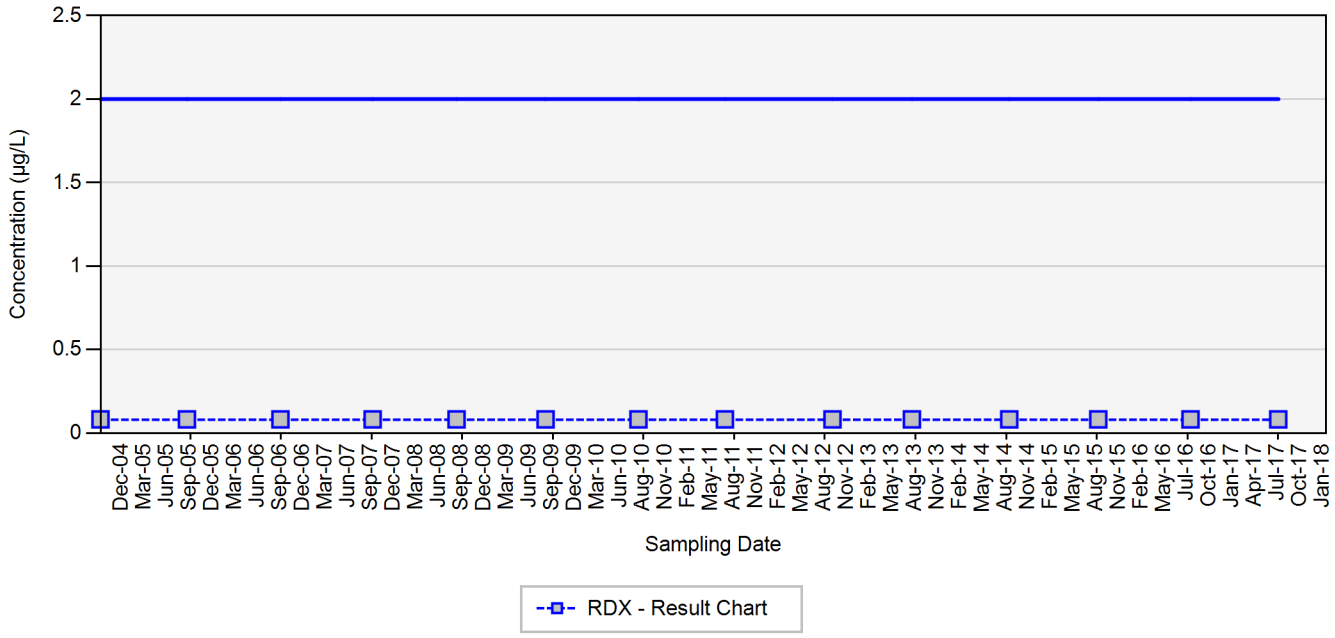
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-82





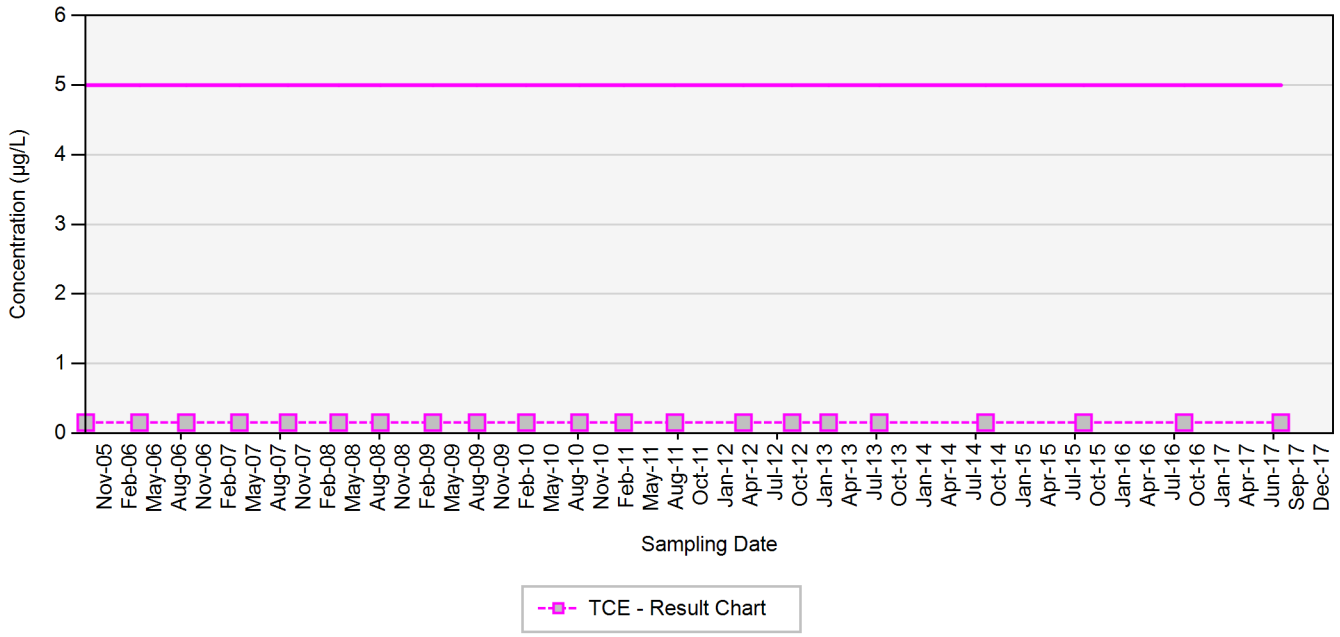
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

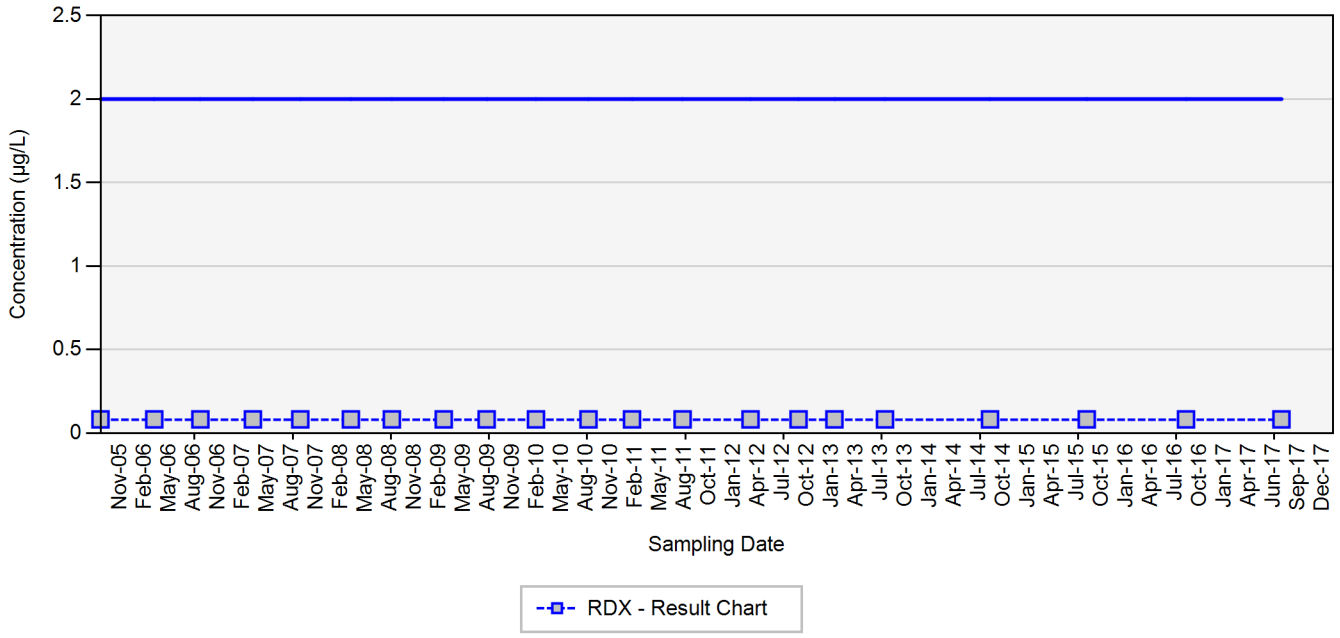
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-89





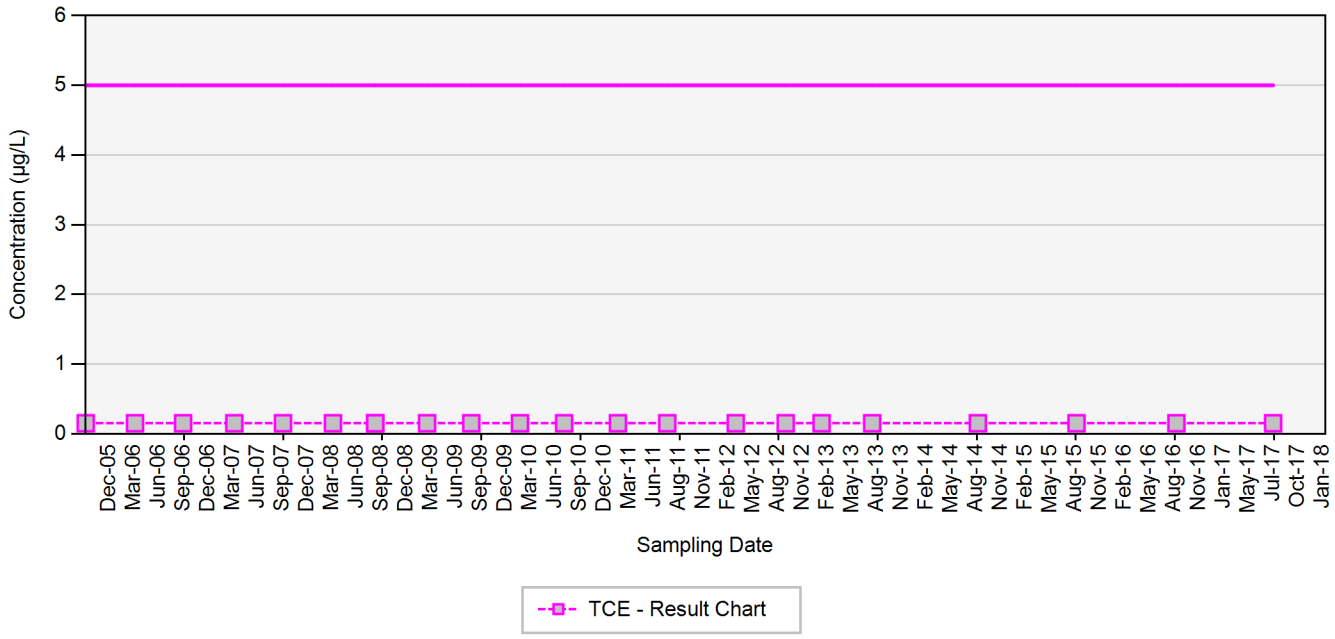
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

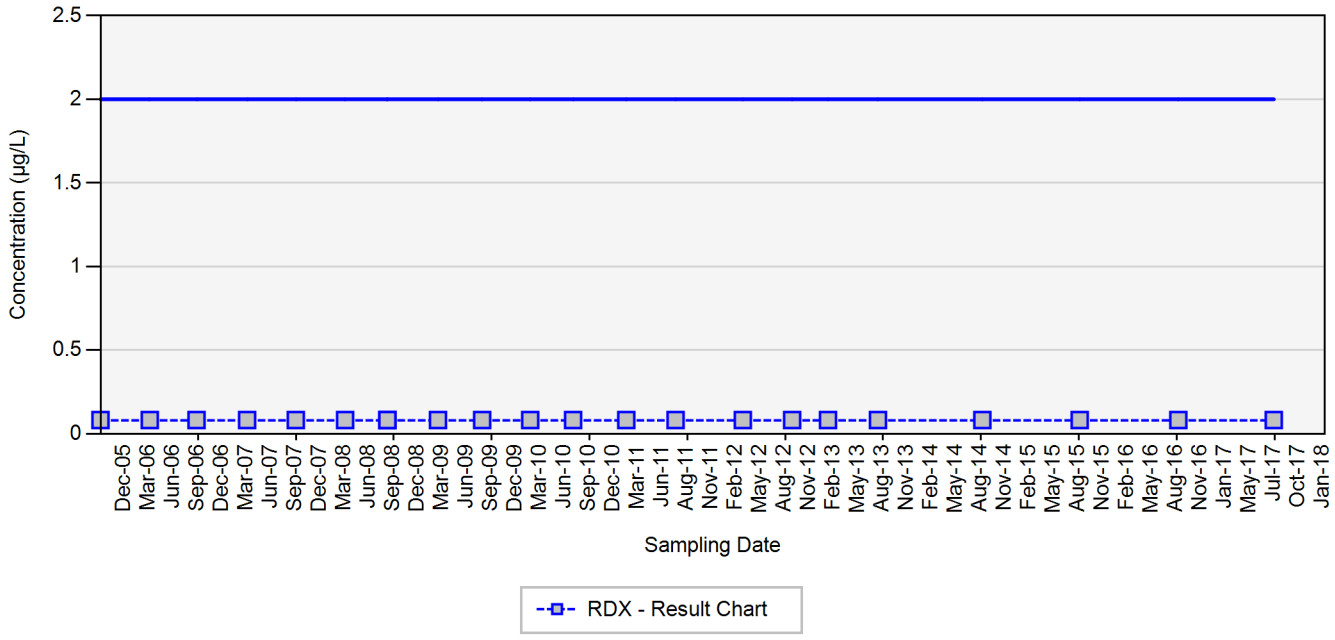
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-91





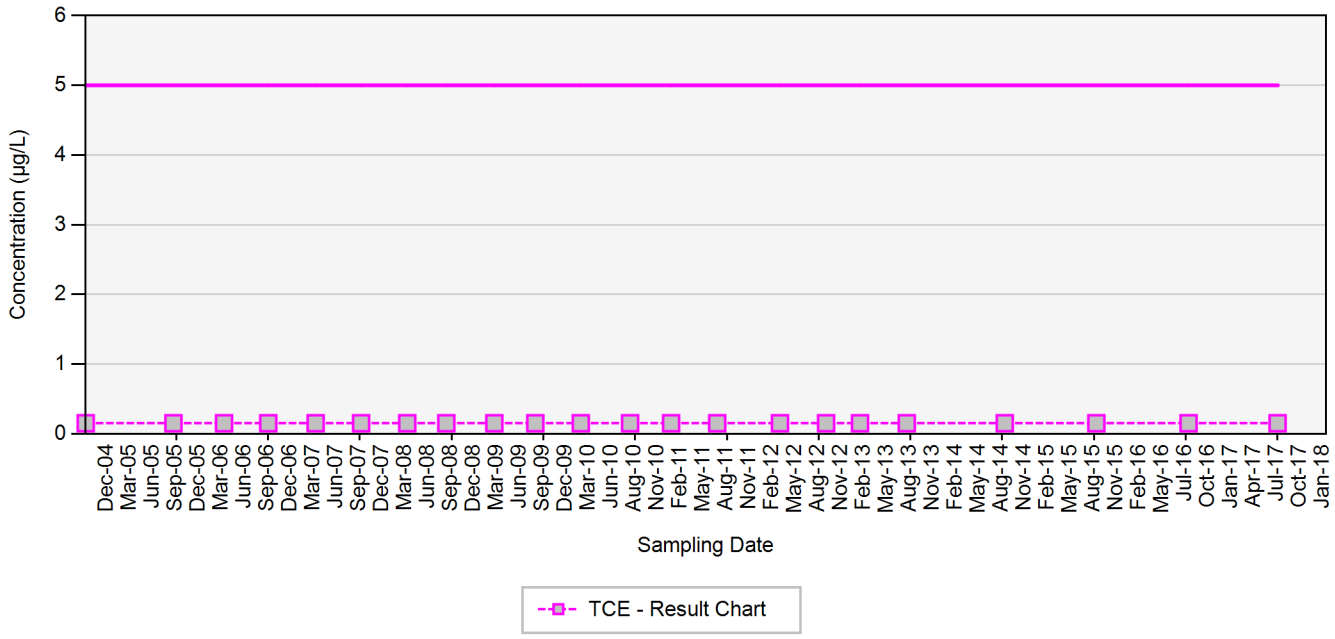
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

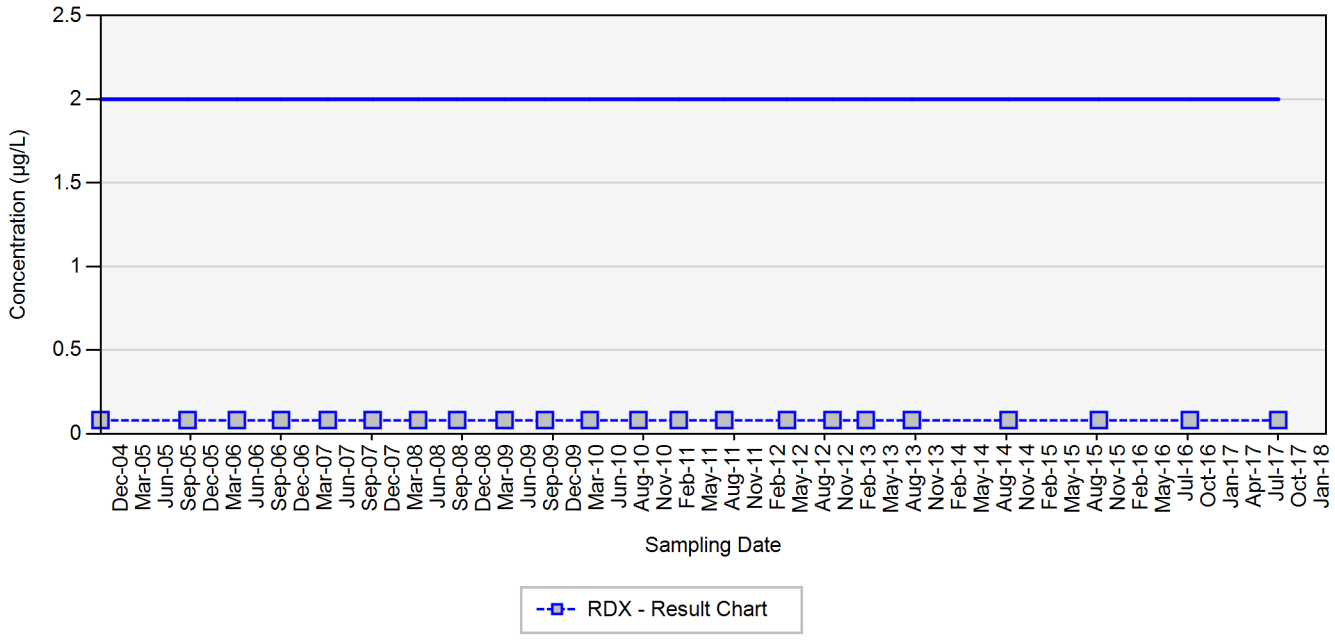
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix C
Concentration Trend Charts for Water Supply Wells

WSW-92





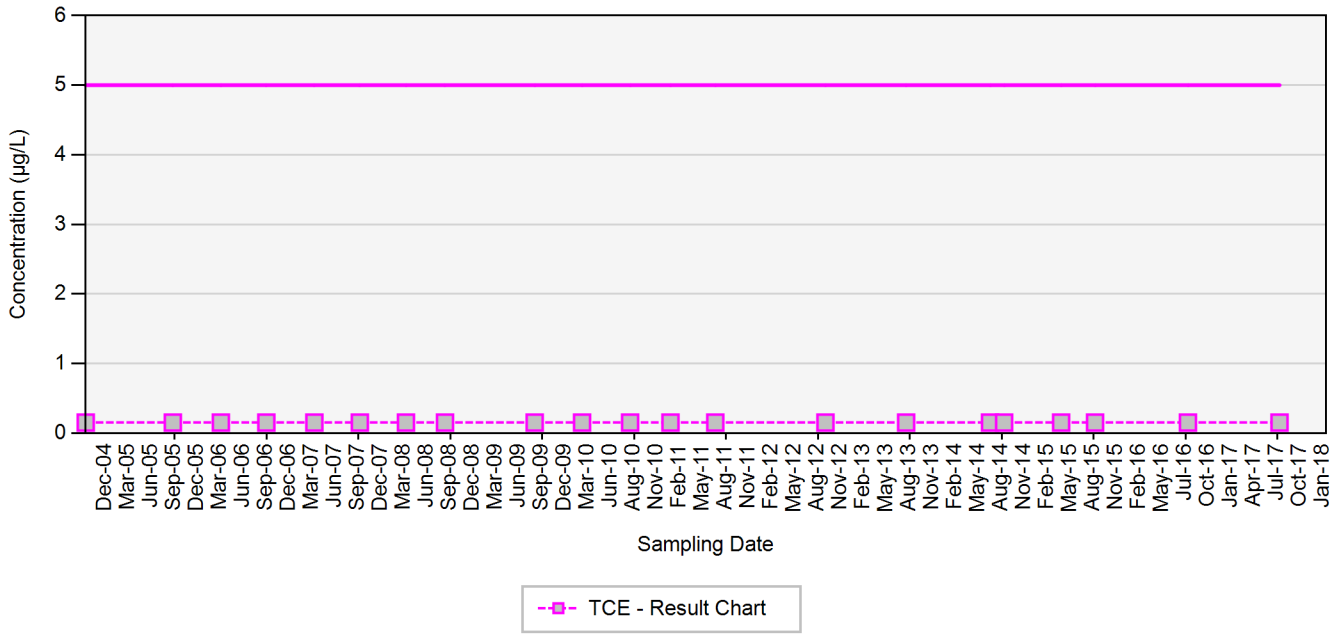
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

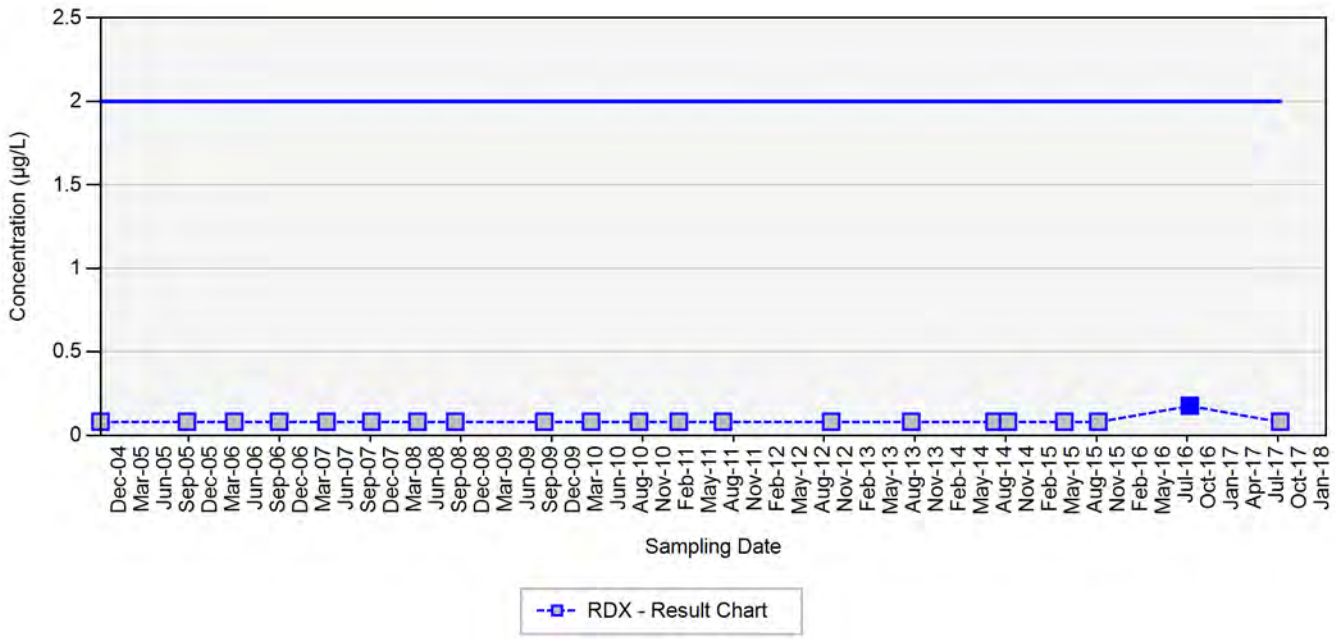
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

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

APPENDIX D

INPUTS AND ASSUMPTIONS FOR TRANSPORT SIMULATIONS

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Appendix D
Table D.1
General Specifications for CE Transport Simulations
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Assumptions	Reference	Figure, Table, or Section
Initial Plumes	2017 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	2017 CE (this document)	Table D.4
Metropolitan Utilities District (Omaha) Pumping Rates	2017 CE (this document)	Table D.5
Lincoln Water Service Pumping Rates	2017 CE (this document)	Table D.6
Other Municipal Wells (Memphis, Mead, Ithaca, Ashland)	2017 CE (this document)	Table D.7
Irrigation Well Pumping Rates	2017 CE (this document)	Table D.8
Initial Heads	2017 CE (this document); GWM17 Update (USACE, 2018a) simulation of August 31, 2017 water levels ("2017GWM_Predictive.hds," stress period 1, time step 10)	Figure 3.2 of 2017 CE (this document) approximates initial heads
Boundary Conditions	GWM17 Update (USACE, 2018a)	Section 4.4
Hydraulic Conductivity	GWM17 Update (USACE, 2018a); 2017 CE (this document)	Section 5.4.1 (USACE, 2018a); Table D.11 (this document)
Storage Coefficients	2017 CE (this document)	Table D.10
Effective porosity	2017 CE (this document)	Table D.10
Boundary Conductance	GWM17 Update (USACE, 2018a)	Section 5.4.5
Evapotranspiration, Platte Valley(1)	GWM17 Update (USACE, 2018a)	Section 5.4.3
Evapotranspiration, Phreatophyte Zone(1)	GWM17 Update (USACE, 2018a)	Section 5.4.3
Recharge, Platte Valley(2)	GWM17 Update (USACE, 2018a)	Section 5.4.2
Recharge, Todd Valley and Wahoo Valley(2)	GWM17 Update (USACE, 2017)	Section 5.4.2
Dispersivity	2017 CE (this document)	Table D.11
Bulk Density	2017 CE (this document)	Table D.11
Biodegradation HalfLife	2017 CE (this document)	Table D.11
MT3DMS Computation Algorithm	GWM17 Update (USACE, 2018a)	Section 6.1
Distribution Coefficient	2017 CE (this document)	Table D.11

Notes:

(1) Refer to Table D.2 for details

(2) Refer to Table D.3 for details

CE = Containment Evaluation

GWM17 = 2017 Groundwater Model

Sources:

USACE, 2018a. 2017 Groundwater Model Update, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. January.

Appendix D
Table D.2
Evapotranspiration Assumptions
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

		Evapotranspiration Rate (feet/day)		Evapotranspiration Rate (inches/day)	
Time Period	**Season/Zone**	**Non-Irrigation Season**	**Irrigation Season**	**Non-Irrigation Season**	**Irrigation Season**
September 1-30, 2017	Phreatophyte Zone	1.40E-02	-	1.63E-01	-
	Platte Valley	5.80E-03	-	6.92E-02	-
	Todd Valley, Wahoo Valley	1.40E-03	-	1.73E-02	-
October 1-31, 2017	Phreatophyte Zone	1.00E-02	-	1.22E-01	-
	Platte Valley	4.30E-03	-	5.17E-02	-
	Todd Valley, Wahoo Valley	1.10E-03	-	1.29E-02	-
November 1-30, 2017	Phreatophyte Zone	6.40E-03	-	7.64E-02	-
	Platte Valley	2.70E-03	-	3.25E-02	-
	Todd Valley, Wahoo Valley	6.70E-04	-	8.09E-03	-
December 1-31, 2017	Phreatophyte Zone	3.40E-03	-	4.14E-02	-
	Platte Valley	1.50E-03	-	1.76E-02	-
	Todd Valley, Wahoo Valley	3.70E-04	-	4.39E-03	-
January 1, 2018 - August 31, 2047	Phreatophyte Zone	9.40E-03	1.88E-02	1.22E-01	2.30E-01
	Platte Valley	4.00E-03	8.00E-03	5.19E-02	9.78E-02
	Todd Valley, Wahoo Valley	1.00E-03	1.80E-03	1.29E-02	2.44E-02

Notes:

1) Data from High Plains Regional Climate Center, Automated Weather Data Network (AWDN) Stations MEMPHIS_5N (station a255367, formerly known as "MEAD AGRO FARM") and ITHACA_3E (station a255369, formerly known as "MEAD").

2) Evapotranspiration rate for phreatophyte zone is based on meterological data. The rate for the Platte Valley is assumed to be 42.5% of the rate in the phreatophyte zone, and the rate in the Todd and Wahoo valleys is assumed to be 10.6% of the rate in the phreatophyte zone. These are the same ratios used for the predictive simulations in the 2012 and 2017 Groundwater Model Updates.

3) Evapotranspiration rates in the phreatophyte zone for predictive simulations are based on average of normals from both stations.

Appendix D
Table D.3
Recharge Assumptions
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	Recharge Rate (feet/day)		Recharge Rate (inches/day)	
Time Period and Location	**Non-Irrigation Season**	**Irrigation Season**	**Non-Irrigation Season**	**Irrigation Season**
All Regions September 1-30, 2017	2.24E-03	-	2.69E-02	-
All Regions October 1-31, 2017	2.46E-03	-	2.95E-02	-
Todd Valley, Wahoo Valley November 1, 2017 – August 31, 2047	1.19E-03	2.29E-03	1.43E-02	2.75E-02
Platte Valley November 1, 2017 – August 31, 2047	1.58E-03	3.05E-03	1.90E-02	3.66E-02

Notes:

1) Recharge for September 1 through October 31, 2017 estimated at 20 percent of precipitation based on 2017 Groundwater Model Update (USACE, 2018a).

2) September and October 2017 precipitation averaged from National Climatic Data Center stations 255362 MEAD 6 S, 250375 ASHLAND 2, NESN0001 WAHOO 1.7 S, 253467 GRETNA 4 NE, and 258795 VALLEY 1 WNW; and Automated Weather Data Network station A255367 MEADAGROFARM (April-October only).

3) Long term recharge rates beginning November 1, 2017 are based on predicted rates from 2017 Groundwater Model Update (USACE, 2018a). Long-term recharge in the Todd and Wahoo valleys is 20 percent of normal precipitation.

4) Long-term recharge rates are 33 percent higher in the Platte Valley than the Todd & Wahoo valleys.

Appendix D
Table D.4
Proposed Former NOP Pumping Schedule for Next 30 Years
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	gallons per minute				
Stress Period:	**1**	**2**	**3**	**4**	**5 - 64**
Start Date:	**9/1/17**	**10/1/17**	**11/1/17**	**12/1/17**	**1/1/18**
End Date:	**9/30/17**	**10/31/17**	**11/30/17**	**12/31/17**	**8/31/47**
EW-1R	67	200	190	190	190
EW-4	53	65	65	65	65
EW-7	180	180	175	175	175
EW-9	108	109	105	105	105
FEW-11	0	0	430	430	430
EW-12	72	240	180	180	180
FEW-14	247	248	230	230	230
FEW-15	486	486	410	410	410
EW-16	0	0	150	150	150
EW-17	98	325	300	300	300
EW-18	176	176	175	175	175

	$feet^3/day$				
Stress Period:	**1**	**2**	**3**	**4**	**5 - 64**
Start Date:	**9/1/17**	**10/1/17**	**11/1/17**	**12/1/17**	**1/1/18**
End Date:	**9/30/17**	**10/31/17**	**11/30/17**	**12/31/17**	**8/31/47**
EW-1R	12,897	38,500	36,575	36,575	36,575
EW-4	10,202	12,512	12,512	12,512	12,512
EW-7	34,650	34,650	33,687	33,687	33,687
EW-9	20,790	20,982	20,212	20,212	20,212
FEW-11	0	0	82,775	82,775	82,775
EW-12	13,860	46,200	34,650	34,650	34,650
FEW-14	47,547	47,740	44,275	44,275	44,275
FEW-15	93,555	93,555	78,925	78,925	78,925
EW-16	0	0	28,875	28,875	28,875
EW-17	18,865	62,562	57,750	57,750	57,750
EW-18	33,880	33,880	33,687	33,687	33,687

Notes:

Values reported for Stress Periods 1 through 2 are based on average monthly pumping rates for September and October 2017.

The first full month EW-16 will pump continuously is December 2017.

The assumed future pumping rates for EW-4 (65 gpm) and EW-12 (180 gpm) are the average pumping rates for June 2016-October 2017.

EW = extraction well

FEW = focused extraction well

$feet^3/day$ = cubic feet per day

Appendix D
Table D.5
M.U.D. Platte West Well Field Estimated Pumping Rates (ft^3/day)
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1	2	3	4	5	6,8…64	7,9…63
Start Date	9/1/2017	10/1/2017	11/1/2017	12/1/2017	1/1/2018	6/1	9/1
End Date	9/30/2017	10/31/2017	11/30/2017	12/31/2017	5/31/2018	8/31	5/31
PW04-04	0	0	0	0	0	0	0
PW04-05	0	0	0	0	0	0	0
PW04-06	162,110	55,973	122,986	122,986	122,986	184,479	122,986
PW04-07	16,175	0	0	0	0	0	0
PW04-08	0	0	61,493	61,493	61,493	92,240	61,493
PW04-09	0	0	0	0	0	0	0
PW04-10	82,615	0	184,479	184,479	184,479	276,719	184,479
PW04-11	0	0	307,465	307,465	307,465	461,198	307,465
PW04-12	328,052	416,221	184,479	184,479	184,479	276,719	184,479
PW04-13	0	0	0	0	0	0	0
PW04-14	9,090	0	61,493	61,493	61,493	92,240	61,493
PW04-15	0	0	122,986	122,986	122,986	184,479	122,986
PW04-16	411,513	459,430	61,493	61,493	61,493	92,240	61,493
PW04-17	327,205	326,526	184,479	184,479	184,479	276,719	184,479
PW04-38	175,834	320,230	245,972	245,972	245,972	368,958	245,972
PW04-39	0	131,697	307,465	307,465	307,465	461,198	307,465
PW04-40	0	16,430	245,972	245,972	245,972	368,958	245,972
PW04-41	0	0	61,493	61,493	61,493	92,240	61,493
PW04-42	0	9,703	184,479	184,479	184,479	276,719	184,479
PW04-43	14,348	0	122,986	122,986	122,986	184,479	122,986
PW04-44	363,878	190,344	245,972	245,972	245,972	368,958	245,972
PW04-45	389,367	401,343	307,465	307,465	307,465	461,198	307,465
PW04-46	66,885	256,322	245,972	245,972	245,972	368,958	245,972
PW04-47	87,917	13,756	61,493	61,493	61,493	92,240	61,493
PW04-48	131,542	7,202	61,493	61,493	61,493	92,240	61,493
PW04-49	358,843	305,395	245,972	245,972	245,972	368,958	245,972
PW04-50	109,930	0	61,493	61,493	61,493	92,240	61,493
PW04-51	138,448	42,821	122,986	122,986	122,986	184,479	122,986
PW04-52	313,926	169,084	184,479	184,479	184,479	276,719	184,479
PW04-53	6,595	21,605	122,986	122,986	122,986	184,479	122,986
PW04-54	0	52,437	61,493	61,493	61,493	92,240	61,493
PW04-55	57,260	39,587	61,493	61,493	61,493	92,240	61,493
PW91-03	267,183	5,304	122,986	122,986	122,986	184,479	122,986
PW91-30	277,209	150,498	122,986	122,986	122,986	184,479	122,986
PW94-02	114,252	0	245,972	245,972	245,972	368,958	245,972
PW94-31	397,566	290,777	245,972	245,972	245,972	368,958	245,972
PW94-32	158,590	0	61,493	61,493	61,493	92,240	61,493

Appendix D
Table D.5 (continued)
M.U.D. Platte West Well Field Estimated Pumping Rates (ft^3/day)
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1	2	3	4	5	6,8…64	7,9…63
Start Date	9/1/2017	10/1/2017	11/1/2017	12/1/2017	1/1/2018	6/1	9/1
End Date	9/30/2017	10/31/2017	11/30/2017	12/31/2017	5/31/2018	8/31	5/31
PW94-33	173,562	33,593	245,972	245,972	245,972	368,958	245,972
PW94-34	289,196	134,543	184,479	184,479	184,479	276,719	184,479
PW94-35	345,653	155,587	245,972	245,972	245,972	368,958	245,972
PW94-36	196,109	186,204	245,972	245,972	245,972	368,958	245,972
PW94-37	0	37,042	184,479	184,479	184,479	276,719	184,479
Total	5,770,856	4,229,652	6,149,305	6,149,305	6,149,305	9,223,958	6,149,305

Notes:

1) The total pumping rate for Metropolitan Utilities District (M.U.D.) wells is 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.
2) The portion of the total assigned to each well is based on the annual average pumped by each well from 2013 to 2016 rounded to the nearest percent.

ft^3/day = cubic foot per day

Source: M.U.D., 2017. 2017 Platte West Flow Data. Excel© spreadsheets transmitted via email from Kevin P. Tobin, M.U.D., to Bradley Brink, U.S. Army Corps of Engineers, Northwestern Division, Kansas City District. November 3, 2017.

Appendix D
Table D.6
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 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
Start Date:	**9/1/17**	**10/1/17**	**11/1/17**	**12/1/17**	**1/1/18**	**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:	**9/30/17**	**10/31/17**	**11/30/17**	**12/31/17**	**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**
A-010367A	0	785	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367B	166,780	27,900	161,609	161,609	161,609	259,738	163,226	262,330	164,883	265,016	166,789	268,377	168,944	271,832	171,099	275,288
A-010367C	64,635	802	161,609	161,609	161,609	259,738	163,226	262,330	164,883	265,016	166,789	268,377	168,944	271,832	171,099	275,288
A-010367CC	73,631	781	109,477	109,477	109,477	175,952	110,572	177,707	111,695	179,527	112,986	181,804	114,446	184,144	115,906	186,485
A-010367D	46,819	31,812	78,198	78,198	78,198	125,680	78,980	126,934	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367DD	53	832	72,985	72,985	72,985	117,301	73,715	118,471	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367E(1R)	188,940	1,583	78,198	78,198	78,198	125,680	78,980	126,934	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367EE	112,430	824	67,772	67,772	67,772	108,922	68,449	110,009	69,144	111,136	69,944	112,545	70,847	113,994	71,751	115,443
A-010367H	0	0	26,066	26,066	26,066	41,893	26,327	42,311	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
A-010367HH	110,754	0	57,345	57,345	57,345	92,165	57,919	93,085	58,507	94,038	59,183	95,230	59,948	96,457	60,712	97,683
A-010367I	28,581	919	62,558	62,558	62,558	100,544	63,184	101,547	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
A-010367J	0	569	20,853	20,853	20,853	33,515	21,061	33,849	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
A-010367JJ	63,440	18,715	67,772	67,772	67,772	108,922	68,449	110,009	69,144	111,136	69,944	112,545	70,847	113,994	71,751	115,443
A-010367K	138,613	750	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367KK	0	819	78,198	78,198	78,198	125,680	78,980	126,934	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367L	0	686	72,985	72,985	72,985	117,301	73,715	118,471	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367MM	309,328	29,647	182,462	182,462	182,462	293,253	184,287	296,179	186,158	299,212	188,310	303,006	190,743	306,907	193,176	310,809
A-010367N	0	19,021	52,132	52,132	52,132	83,786	52,653	84,622	53,188	85,489	53,803	86,573	54,498	87,688	55,193	88,802
A-010367P	0	1,673	26,066	26,066	26,066	41,893	26,327	42,311	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
A-010367Q(1R)	1,885	0	140,757	140,757	140,757	226,223	142,164	228,481	143,608	230,821	145,268	233,747	147,145	236,757	149,022	239,767
A-010367QQ	0	940	72,985	72,985	72,985	117,301	73,715	118,471	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367R	161,513	38,651	104,264	104,264	104,264	167,573	105,307	169,245	106,376	170,978	107,606	173,146	108,996	175,376	110,386	177,605
A-010367S(1R)	19,188	643	41,706	41,706	41,706	67,029	42,123	67,698	42,550	68,391	43,042	69,258	43,598	70,150	44,155	71,042
A-010367T	75,743	755	140,757	140,757	140,757	226,223	142,164	228,481	143,608	230,821	145,268	233,747	147,145	236,757	149,022	239,767
A-010367X(1R)	0	871	62,558	62,558	62,558	100,544	63,184	101,547	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
A-010367Y	41,820	21,911	119,904	119,904	119,904	192,709	121,103	194,632	122,333	196,625	123,747	199,118	125,346	201,682	126,944	204,246
G-070300	0	772	20,853	20,853	20,853	33,515	21,061	33,849	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
G-070303	191,052	62,670	36,492	36,492	36,492	58,651	36,857	59,236	37,232	59,842	37,662	60,601	38,149	61,381	38,635	62,162
G-070304	161,023	22,536	36,492	36,492	36,492	58,651	36,857	59,236	37,232	59,842	37,662	60,601	38,149	61,381	38,635	62,162
G-070305	333,658	85,029	156,396	156,396	156,396	251,359	157,960	253,867	159,564	256,467	161,409	259,719	163,494	263,063	165,579	266,407
G-070306	0	638	15,640	15,640	15,640	25,136	15,796	25,387	15,956	25,647	16,141	25,972	16,349	26,306	16,558	26,641
G-070307	0	806	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-070308	89,085	46,115	20,853	20,853	20,853	33,515	21,061	33,849	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
G-070309	216,491	14,739	78,198	78,198	78,198	125,680	78,980	126,934	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
G-070310(1R)	125,896	1,186	26,066	26,066	26,066	41,893	26,327	42,311	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
G-070311	106,820	52,364	88,625	88,625	88,625	142,437	89,511	143,858	90,420	145,332	91,465	147,174	92,647	149,069	93,828	150,964
G-070312	0	893	26,066	26,066	26,066	41,893	26,327	42,311	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
G-070412	0	819	62,558	62,558	62,558	100,544	63,184	101,547	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
G-072911	0	1,708	15,640	15,640	15,640	25,136	15,796	25,387	15,956	25,647	16,141	25,972	16,349	26,306	16,558	26,641
G-072912	369,542	48,992	135,543	135,543	135,543	217,845	136,899	220,018	138,289	222,272	139,888	225,090	141,695	227,988	143,502	230,886
G-076884	687,809	722,574	651,651	651,651	651,651	1,047,330	658,167	1,057,780	664,851	1,068,614	672,537	1,082,164	681,226	1,096,097	689,914	1,110,031
G-077983	1,611,225	1,817,965	813,260	813,260	813,260	1,307,068	821,393	1,320,110	829,734	1,333,630	839,326	1,350,541	850,170	1,367,930	861,013	1,385,319
G-175675	1,041,866	1,394,715	980,083	980,083	980,083	1,575,185	989,884	1,590,902	999,936	1,607,196	1,011,496	1,627,575	1,024,564	1,648,531	1,037,631	1,669,486
Total (MGD)	**48.91**	**33.49**	**39.00**	**39.00**	**39.00**	**62.68**	**39.39**	**63.31**	**39.79**	**63.95**	**40.25**	**64.77**	**40.77**	**65.60**	**41.29**	**66.43**

Stress Period:	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Start Date:	**9/1/23**	**6/1/24**	**9/1/24**	**6/1/25**	**9/1/25**	**6/1/26**	**9/1/26**	**6/1/27**	**9/1/27**	**6/1/28**	**9/1/28**	**6/1/29**	**9/1/29**	**6/1/30**	**9/1/30**	**6/1/31**
End Date:	**5/31/24**	**8/31/24**	**5/31/25**	**8/31/25**	**5/31/26**	**8/31/26**	**5/31/27**	**8/31/27**	**5/31/28**	**8/31/28**	**5/31/29**	**8/31/29**	**5/31/30**	**8/31/30**	**5/31/31**	**8/31/31**
A-010367A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367B	173,295	278,843	175,450	282,199	177,563	285,654	179,718	289,110	181,914	292,670	184,069	296,021	186,224	299,476	188,586	303,508
A-010367C	173,295	278,843	175,450	282,199	177,563	285,654	179,718	289,110	181,914	292,670	184,069	296,021	186,224	299,476	188,586	303,508
A-010367CC	117,393	188,894	118,853	191,167	120,285	193,508	121,744	195,848	123,232	198,260	124,692	200,530	126,152	202,871	127,752	205,602
A-010367D	83,852	134,924	84,895	136,548	85,918	138,220	86,960	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251	146,858
A-010367DD	78,262	125,929	79,235	127,445	80,190	129,005	81,163	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168	137,068
A-010367E(1R)	83,852	134,924	84,895	136,548	85,918	138,220	86,960	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251	146,858
A-010367EE	72,672	116,934	73,576	118,341	74,462	119,790	75,366	121,240	76,287	122,733	77,190	124,138	78,094	125,587	79,084	127,277
A-010367H	27,951	44,975	28,298	45,516	28,639	46,073	28,987	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417	48,953
A-010367HH	61,492	98,944	62,256	100,135	63,006	101,361	63,771	102,587	64,550	103,851	65,315	105,040	66,079	106,266	66,918	107,696
A-010367I	67,082	107,939	67,916	109,238	68,734	110,576	69,568	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001	117,487
A-010367J	22,361	35,980	22,639	36,413	22,911	36,859	23,189	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334	39,162
A-010367JJ	72,672	116,934	73,576	118,341	74,462	119,790	75,366	121,240	76,287	122,733	77,190	124,138	78,094	125,587	79,084	127,277
A-010367K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367KK	83,852	134,924	84,895	136,548	85,918	138,220	86,960	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251	146,858
A-010367L	78,262	125,929	79,235	127,445	80,190	129,005	81,163	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168	137,068
A-010367MM	195,656	314,823	198,088	318,611	200,475	322,513	202,907	326,414	205,387	330,434	207,820	334,217	210,253	338,118	212,919	342,670
A-010367N	55,902	89,949	56,597	91,032	57,278	92,146	57,974	93,261	58,682	94,410	59,377	95,491	60,072	96,605	60,834	97,906
A-010367P	27,951	44,975	28,298	45,516	28,639	46,073	28,987	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417	48,953
A-010367Q(1R)	150,934	242,863	152,811	245,786	154,652	248,796	156,529	251,805	158,441	254,906	160,318	257,824	162,195	260,834	164,252	264,345
A-010367QQ	78,262	125,929	79,235	127,445	80,190	129,005	81,163	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168	137,068
A-010367R	111,803	179,899	113,193	182,064	114,557	184,293	115,947	186,522	117,364	188,819	118,754	190,981	120,144	193,210	121,668	195,811
A-010367S(1R)	44,721	71,960	45,277	72,825	45,823	73,717	46,379	74,609	46,946	75,528	47,502	76,392	48,058	77,284	48,667	78,325
A-010367T	150,934	242,863	152,811	245,786	154,652	248,796	156,529	251,805	158,441	254,906	160,318	257,824	162,195	260,834	164,252	264,345
A-010367X(1R)	67,082	107,939	67,916	109,238	68,734	110,576	69,568	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001	117,487
A-010367Y	128,574	206,884	130,172	209,373	131,740	211,937	133,339	214,501	134,969	217,142	136,567	219,628	138,166	222,192	139,918	225,183
G-070300	22,361	35,980	22,639	36,413	22,911	36,859	23,189	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334	39,162
G-070303	39,131	62,965	39,618	63,722	40,095	64,503	40,581	65,283	41,077	66,087	41,564	66,843	42,051	67,624	42,584	68,534
G-070304	39,131	62,965	39,618	63,722	40,095	64,503	40,581	65,283	41,077	66,087	41,564	66,843	42,051	67,624	42,584	68,534
G-070305	167,705	269,848	169,790	273,095	171,835	276,439	173,921	279,784	176,046	283,229	178,131	286,472	180,217	289,816	182,502	293,717
G-070306	16,770	26,985	16,979	27,310	17,184	27,644	17,392	27,978	17,605	28,323	17,813	28,647	18,022	28,982	18,250	29,372
G-070307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-070308	22,361	35,980	22,639	36,413	22,911	36,859	23,189	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334	39,162
G-070309	83,852	134,924	84,895	136,548	85,918	138,220	86,960	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251	146,858
G-070310(1R)	27,951	44,975	28,298	45,516	28,639	46,073	28,987	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417	48,953
G-070311	95,033	152,914	96,214	154,754	97,373	156,649	98,555	158,544	99,759	160,497	100,941	162,334	102,123	164,229	103,418	166,440
G-070312	27,951	44,975	28,298	45,516	28,639	46,073	28,987	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417	48,953
G-070412	67,082	107,939	67,916	109,238	68,734	110,576	69,568	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001	117,487
G-072911	16,770	26,985	16,979	27,310	17,184	27,644	17,392	27,978	17,605	28,323	17,813	28,647	18,022	28,982	18,250	29,372
G-072912	145,344	233,869	147,151	236,683	148,924	239,581	150,731	242,479	152,573	245,465	154,380	248,275	156,188	251,174	158,169	254,555
G-076884	698,770	1,124,368	707,459	1,137,898	715,980	1,151,831	724,669	1,165,765	733,525	1,180,122	742,214	1,193,632	750,902	1,207,565	760,426	1,223,821
G-077983	872,065	1,403,211	882,909	1,420,096	893,544	1,437,485	904,387	1,454,874	915,439	1,472,792	926,283	1,489,652	937,126	1,507,041	949,012	1,527,328
G-175675	1,050,950	1,691,049	1,064,018	1,711,398	1,076,835	1,732,354	1,089,902	1,753,310	1,103,221	1,774,903	1,116,289	1,795,222	1,129,357	1,816,178	1,143,681	1,840,626
Total (MGD)	**41.82**	**67.29**	**42.34**	**68.10**	**42.85**	**68.93**	**43.37**	**69.77**	**43.90**	**70.63**	**44.42**	**71.44**	**44.94**	**72.27**	**45.51**	**73.24**

Stress Period:	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Start Date:	**9/1/31**	**6/1/32**	**9/1/32**	**6/1/33**	**9/1/33**	**6/1/34**	**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**
End Date:	**5/31/32**	**8/31/32**	**5/31/33**	**8/31/33**	**5/31/34**	**8/31/34**	**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**
A-010367A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367B	191,113	307,649	193,641	311,570	196,128	315,602	198,655	319,633	201,224	323,781	203,711	327,696	206,197	331,727	208,725	335,759
A-010367C	191,113	307,649	193,641	311,570	196,128	315,602	198,655	319,633	201,224	323,781	203,711	327,696	206,197	331,727	208,725	335,759
A-010367CC	129,464	208,408	131,176	211,064	132,861	213,795	134,573	216,526	136,313	219,335	137,998	221,988	139,682	224,719	141,394	227,450
A-010367D	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464
A-010367DD	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633
A-010367E(1R)	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464
A-010367EE	80,144	129,014	81,204	130,659	82,247	132,349	83,307	134,040	84,384	135,779	85,427	137,421	86,470	139,111	87,530	140,802
A-010367H	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155
A-010367HH	67,814	109,166	68,711	110,557	69,594	111,988	70,491	113,418	71,402	114,890	72,284	116,279	73,167	117,710	74,064	119,140
A-010367I	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971
A-010367J	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324
A-010367JJ	80,144	129,014	81,204	130,659	82,247	132,349	83,307	134,040	84,384	135,779	85,427	137,421	86,470	139,111	87,530	140,802
A-010367K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367KK	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464
A-010367L	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633
A-010367MM	215,773	347,346	218,627	351,773	221,434	356,325	224,288	360,876	227,189	365,559	229,996	369,979	232,803	374,531	235,657	379,083
A-010367N	61,650	99,242	62,465	100,507	63,267	101,807	64,082	103,107	64,911	104,445	65,713	105,708	66,515	107,009	67,331	108,309
A-010367P	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155
A-010367Q(1R)	166,454	267,953	168,655	271,368	170,821	274,879	173,022	278,390	175,260	282,003	177,425	285,413	179,591	288,924	181,793	292,435
A-010367QQ	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633
A-010367R	123,299	198,483	124,930	201,013	126,534	203,614	128,165	206,215	129,822	208,891	131,426	211,417	133,030	214,018	134,661	216,619
A-010367S(1R)	49,320	79,393	49,972	80,405	50,614	81,446	51,266	82,486	51,929	83,556	52,571	84,567	53,212	85,607	53,864	86,647
A-010367T	166,454	267,953	168,655	271,368	170,821	274,879	173,022	278,390	175,260	282,003	177,425	285,413	179,591	288,924	181,793	292,435
A-010367X(1R)	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971
A-010367Y	141,794	228,256	143,669	231,165	145,514	234,156	147,389	237,147	149,296	240,224	151,140	243,129	152,985	246,120	154,860	249,111
G-070300	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324
G-070303	43,155	69,469	43,725	70,355	44,287	71,265	44,858	72,175	45,438	73,112	45,999	73,996	46,561	74,906	47,131	75,817
G-070304	43,155	69,469	43,725	70,355	44,287	71,265	44,858	72,175	45,438	73,112	45,999	73,996	46,561	74,906	47,131	75,817
G-070305	184,949	297,725	187,395	301,520	189,801	305,421	192,247	309,322	194,733	313,336	197,139	317,125	199,546	321,026	201,992	324,928
G-070306	18,495	29,773	18,739	30,152	18,980	30,542	19,225	30,932	19,473	31,334	19,714	31,713	19,955	32,103	20,199	32,493
G-070307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-070308	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324
G-070309	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464
G-070310(1R)	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155
G-070311	104,804	168,711	106,190	170,861	107,554	173,072	108,940	175,283	110,349	177,557	111,712	179,704	113,076	181,915	114,462	184,126
G-070312	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155
G-070412	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971
G-072911	18,495	29,773	18,739	30,152	18,980	30,542	19,225	30,932	19,473	31,334	19,714	31,713	19,955	32,103	20,199	32,493
G-072912	160,289	258,028	162,409	261,317	164,494	264,698	166,614	268,079	168,769	271,558	170,854	274,842	172,939	278,223	175,059	281,604
G-076884	770,619	1,240,522	780,811	1,256,332	790,837	1,272,588	801,029	1,288,843	811,389	1,305,568	821,414	1,321,355	831,440	1,337,610	841,632	1,353,866
G-077983	961,732	1,548,171	974,453	1,567,902	986,964	1,588,189	999,685	1,608,477	1,012,613	1,629,348	1,025,125	1,649,051	1,037,637	1,669,338	1,050,357	1,689,625
G-175675	1,159,011	1,865,744	1,174,340	1,889,523	1,189,419	1,913,972	1,204,748	1,938,420	1,220,329	1,963,574	1,235,407	1,987,318	1,250,485	2,011,766	1,265,815	2,036,215
Total (MGD)	**46.12**	**74.24**	**46.73**	**75.19**	**47.33**	**76.16**	**47.94**	**77.13**	**48.56**	**78.14**	**49.16**	**79.08**	**49.76**	**80.05**	**50.37**	**81.03**

Stress Period:	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Start Date:	**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**	**9/1/44**	**6/1/45**	**9/1/45**	**6/1/46**	**9/1/46**	**6/1/47**
End Date:	**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**	**5/31/45**	**8/31/45**	**5/31/46**	**8/31/46**	**5/31/47**	**8/31/47**
A-010367A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367B	211,294	339,912	213,780	343,822	216,267	347,853	218,794	351,884	221,363	356,044	223,891	359,947	226,377	363,979	228,864	368,010
A-010367C	211,294	339,912	213,780	343,822	216,267	347,853	218,794	351,884	221,363	356,044	223,891	359,947	226,377	363,979	228,864	368,010
A-010367CC	143,135	230,263	144,819	232,911	146,503	235,642	148,215	238,373	149,956	241,191	151,668	243,835	153,352	246,566	155,037	249,297
A-010367D	102,239	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279	108,334	174,168	109,537	176,119	110,741	178,069
A-010367DD	95,423	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794	101,112	162,557	102,235	164,377	103,358	166,198
A-010367E(1R)	102,239	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279	108,334	174,168	109,537	176,119	110,741	178,069
A-010367EE	88,607	142,544	89,650	144,183	90,692	145,874	91,752	147,564	92,830	149,309	93,890	150,946	94,932	152,636	95,975	154,327
A-010367H	34,080	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426	36,111	58,056	36,512	58,706	36,914	59,356
A-010367HH	74,975	120,614	75,858	122,001	76,740	123,432	77,637	124,862	78,548	126,338	79,445	127,723	80,327	129,154	81,210	130,584
A-010367I	81,791	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823	86,668	139,334	87,630	140,895	88,592	142,456
A-010367J	27,264	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941	28,889	46,445	29,210	46,965	29,531	47,485
A-010367JJ	88,607	142,544	89,650	144,183	90,692	145,874	91,752	147,564	92,830	149,309	93,890	150,946	94,932	152,636	95,975	154,327
A-010367K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-010367KK	102,239	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279	108,334	174,168	109,537	176,119	110,741	178,069
A-010367L	95,423	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794	101,112	162,557	102,235	164,377	103,358	166,198
A-010367MM	238,558	383,772	241,365	388,186	244,172	392,737	247,026	397,289	249,926	401,985	252,780	406,392	255,587	410,944	258,395	415,495
A-010367N	68,159	109,649	68,961	110,910	69,763	112,211	70,579	113,511	71,408	114,853	72,223	116,112	73,025	117,412	73,827	118,713
A-010367P	34,080	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426	36,111	58,056	36,512	58,706	36,914	59,356
A-010367Q(1R)	184,030	296,053	186,196	299,458	188,361	302,969	190,563	306,480	192,800	310,103	195,002	313,502	197,167	317,014	199,333	320,525
A-010367QQ	95,423	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794	101,112	162,557	102,235	164,377	103,358	166,198
A-010367R	136,319	219,298	137,923	221,820	139,527	224,421	141,158	227,022	142,815	229,706	144,446	232,224	146,050	234,825	147,654	237,426
A-010367S(1R)	54,527	87,719	55,169	88,728	55,811	89,769	56,463	90,809	57,126	91,882	57,778	92,890	58,420	93,930	59,062	94,970
A-010367T	184,030	296,053	186,196	299,458	188,361	302,969	190,563	306,480	192,800	310,103	195,002	313,502	197,167	317,014	199,333	320,525
A-010367X(1R)	81,791	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823	86,668	139,334	87,630	140,895	88,592	142,456
A-010367Y	156,766	252,193	158,611	255,093	160,456	258,084	162,331	261,076	164,237	264,161	166,113	267,058	167,957	270,049	169,802	273,040
G-070300	27,264	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941	28,889	46,445	29,210	46,965	29,531	47,485
G-070303	47,712	76,754	48,273	77,637	48,834	78,547	49,405	79,458	49,985	80,397	50,556	81,278	51,117	82,189	51,679	83,099
G-070304	47,712	76,754	48,273	77,637	48,834	78,547	49,405	79,458	49,985	80,397	50,556	81,278	51,117	82,189	51,679	83,099
G-070305	204,478	328,947	206,884	332,731	209,290	336,632	211,736	340,533	214,223	344,558	216,669	348,336	219,075	352,237	221,481	356,139
G-070306	20,448	32,895	20,688	33,273	20,929	33,663	21,174	34,053	21,422	34,456	21,667	34,834	21,907	35,224	22,148	35,614
G-070307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-070308	27,264	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941	28,889	46,445	29,210	46,965	29,531	47,485
G-070309	102,239	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279	108,334	174,168	109,537	176,119	110,741	178,069
G-070310(1R)	34,080	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426	36,111	58,056	36,512	58,706	36,914	59,356
G-070311	115,871	186,403	117,234	188,547	118,598	190,758	119,984	192,969	121,393	195,250	122,779	197,390	124,142	199,601	125,506	201,812
G-070312	34,080	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426	36,111	58,056	36,512	58,706	36,914	59,356
G-070412	81,791	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823	86,668	139,334	87,630	140,895	88,592	142,456
G-072911	20,448	32,895	20,688	33,273	20,929	33,663	21,174	34,053	21,422	34,456	21,667	34,834	21,907	35,224	22,148	35,614
G-072912	177,214	285,088	179,300	288,367	181,385	291,748	183,505	295,129	185,660	298,617	187,780	301,891	189,865	305,272	191,950	308,654
G-076884	851,992	1,370,614	862,017	1,386,377	872,043	1,402,633	882,235	1,418,889	892,595	1,435,660	902,787	1,451,400	912,812	1,467,656	922,838	1,483,912
G-077983	1,063,286	1,710,526	1,075,797	1,730,199	1,088,309	1,750,486	1,101,029	1,770,773	1,113,958	1,791,703	1,126,678	1,811,347	1,139,190	1,831,635	1,151,702	1,851,922
G-175675	1,281,396	2,061,403	1,296,474	2,085,112	1,311,552	2,109,560	1,326,881	2,134,009	1,342,462	2,159,232	1,357,792	2,182,906	1,372,870	2,207,354	1,387,948	2,231,803
Total (MGD)	**50.99**	**82.03**	**51.59**	**82.97**	**52.19**	**83.94**	**52.80**	**84.92**	**53.42**	**85.92**	**54.03**	**86.86**	**54.63**	**87.84**	**55.23**	**88.81**

Appendix D
Table D.7
Ashland, Ithaca, Mead, and Memphis Measured and Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day							gallons per minute						
Stress Period	**1**	**2**	**3**	**4**	**5**	**6, 8…64**	**7, 9…63**	**1**	**2**	**3**	**4**	**5**	**6, 8…64**	**7, 9…63**
Start Date	**9/1/2017**	**10/1/2017**	**11/1/2017**	**12/1/2017**	**1/1/2018**	**6/1**	**9/1**	**9/1/2017**	**10/1/2017**	**11/1/2017**	**12/1/2017**	**1/1/2018**	**6/1**	**9/1**
End Date	**9/30/2017**	**10/31/2017**	**11/30/2017**	**12/31/2017**	**5/31/2018**	**8/31**	**5/31**	**9/30/2017**	**10/31/2017**	**11/30/2017**	**12/31/2017**	**5/31/2018**	**8/31**	**5/31**
Ashland(82-1)	9,215	6,447	9,828	9,828	9,828	16,918	9,828	47.9	33.5	51.1	51.1	51.1	88	51.1
Ashland(#2-A)	15,587	10,207	9,828	9,828	9,828	16,918	9,828	81	53	51	51	51	88	51
Ashland(#5)	17,650	10,569	9,828	9,828	9,828	16,918	9,828	91.7	54.9	51.1	51.1	51.1	88	51.1
Ashland(2006-1)	22,801	14,006	9,828	9,828	9,828	16,918	9,828	118.4	72.8	51.1	51.1	51.1	88	51.1
Ashland Total	**65,254**	**41,230**	**39,313**	**39,313**	**39,313**	**67,673**	**39,313**	**339**	**214**	**204**	**204**	**204**	**352**	**204**
Ithaca(1)	1,009	1,009	1,009	1,009	1,009	1,009	1,009	5.24	5.24	5.24	5.24	5.24	5.24	5.24
Ithaca(2)	1,009	1,009	1,009	1,009	1,009	1,009	1,009	5.24	5.24	5.24	5.24	5.24	5.24	5.24
Ithaca Total	**2,019**	**2,019**	**2,019**	**2,019**	**2,019**	**2,019**	**2,019**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**
Mead(1)	2,129	1,838	1,999	1,999	1,999	2,776	1,999	11.1	9.5	10.4	10.4	10.4	14.4	10.4
Mead(2)	2,129	1,838	1,999	1,999	1,999	2,776	1,999	11.1	9.5	10.4	10.4	10.4	14.4	10.4
Mead(3)	2,129	1,838	1,999	1,999	1,999	2,776	1,999	11.1	9.5	10.4	10.4	10.4	14.4	10.4
Mead(4)	2,129	1,838	1,999	1,999	1,999	2,776	1,999	11.1	9.5	10.4	10.4	10.4	14.4	10.4
Mead Total	**8,515**	**7,352**	**7,996**	**7,996**	**7,996**	**11,103**	**7,996**	**44.2**	**38.2**	**41.5**	**41.5**	**41.5**	**57.7**	**41.5**
Memphis(73-1)	762	762	762	762	762	762	762	3.96	3.96	3.96	3.96	3.96	3.96	3.96
Memphis(94-1)	762	762	762	762	762	762	762	3.96	3.96	3.96	3.96	3.96	3.96	3.96
Memphis Total	**1,524**	**1,524**	**1,524**	**1,524**	**1,524**	**1,524**	**1,524**	**7.92**	**7.92**	**7.92**	**7.92**	**7.92**	**7.92**	**7.92**

Notes:

(1) Ashland Stress Period 1 through 2 pumping rates are monthly averages of September - October 2017 measured rates (City of Ashland, 2017).

(2) Rates for Ithaca are population based, assuming a 100 gallons per day per capita water use (NNRC, 1998), and a 2014 population of 151 (NDNR, 2014).

(3) Mead Stress Period 1 through 2 pumping rates are monthly averages of September - October 2017 measured rates (Village of Mead, 2017).

(4) Rates for Memphis are population based, assuming a 100 gallons per day per capita water use (NNRC, 1998), and a 2014 population of 114 (NDNR, 2014).

(5) Ashland Stress Period 5-64 pumping rates are based on seasonal average pumping rates from 2004 to 2016. Ashland Well "#4" (A-010589C) was removed from service in March 2014. Replacemnt "#2-A" began pumping in August 2017.

(6) Mead Stress Period 5-64 pumping rates are based on seasonal average pumping rates from 2005 to 2016.

Sources:

City of Ashland, 2017. Ashland Well Production Since 2004. Excel© spreadsheet transmitted via email from Bill Torpy, City of Ashland, to Bradley Brink, U.S. Army Corps of Engineers, Northwestern Division, Kansas City District (CENWK). November 7, 2017.

Nebraska Department of Natural Resources (NDNR), 2014. 2014 Sub-County Population Estimates. http://www.dnr.ne.gov/population-estimates-2014. Accessed January 22, 2016.

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, 2017. Mead Water Use. Email message transmitted from Nick Raver, Village of Mead, to Bradley Brink, CENWK. November 14, 2017.

Appendix D
Table D.8
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-000350	0	0	44,191	0	0	0	230	0
G-000377	0	0	51,372	0	0	0	267	0
G-000744	0	0	0	0	0	0	0	0
G-000745	0	0	22,096	0	0	0	115	0
G-000961	0	0	42,534	0	0	0	221	0
G-002172	0	0	44,191	0	0	0	230	0
G-002341	0	0	0	0	0	0	0	0
G-003848	0	0	22,096	0	0	0	115	0
G-004004	0	0	13,810	0	0	0	72	0
G-004168	0	0	9,667	0	0	0	50	0
G-004169	0	0	11,876	0	0	0	62	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	44,191	0	0	0	230	0
G-009205	0	0	22,096	0	0	0	115	0
G-011280	0	0	19,334	0	0	0	100	0
G-013220	0	0	35,077	0	0	0	182	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	34,801	0	0	0	181	0
G-014866	0	0	29,001	0	0	0	151	0
G-015211	0	0	88,383	0	0	0	459	0
G-016190	0	0	0	0	0	0	0	0
G-017199	0	0	44,191	0	0	0	230	0
G-017200	0	0	0	0	0	0	0	0
G-017201	0	0	60,763	0	0	0	316	0
G-018285	0	0	27,620	0	0	0	143	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	48,334	0	0	0	251	0
G-020550	0	0	0	0	0	0	0	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	44,191	0	0	0	230	0
G-021492	0	0	37,010	0	0	0	192	0
G-022336	0	0	16,572	0	0	0	86	0
G-022506	0	0	0	0	0	0	0	0
G-023385	0	0	22,096	0	0	0	115	0
G-028138	0	0	0	0	0	0	0	0
G-030654	0	0	60,763	0	0	0	316	0
G-030678	0	0	49,715	0	0	0	258	0
G-031913	0	0	44,191	0	0	0	230	0
G-033472	0	0	33,143	0	0	0	172	0
G-033505	0	0	40,048	0	0	0	208	0
G-033747	0	0	0	0	0	0	0	0
G-033749	0	0	24,228	0	0	0	126	0
G-033750	0	0	19,805	0	0	0	103	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	38,332	0	0	0	199	0
G-033754	0	0	0	0	0	0	0	0
G-033755	0	0	3,025	0	0	0	16	0
G-035213	0	0	47,782	0	0	0	248	0
G-035237	0	0	38,391	0	0	0	199	0
G-035273	0	0	40,325	0	0	0	209	0
G-035300	0	0	7,733	0	0	0	40	0
G-035461	0	0	23,477	0	0	0	122	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-035862	0	0	35,905	0	0	0	187	0
G-035976	0	0	41,429	0	0	0	215	0
G-036098	0	0	22,096	0	0	0	115	0
G-036212 (#12)	0	0	0	0	0	0	0	0
G-036213	0	0	12,255	0	0	0	64	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	35,905	0	0	0	187	0
G-037677	0	0	11,600	0	0	0	60	0
G-037681	0	0	22,096	0	0	0	115	0
G-037707	0	0	44,191	0	0	0	230	0
G-037709	0	0	33,143	0	0	0	172	0
G-037726	0	0	0	0	0	0	0	0
G-037984	0	0	40,048	0	0	0	208	0
G-040328	0	0	23,477	0	0	0	122	0
G-040351	0	0	66,287	0	0	0	344	0
G-041584	0	0	42,534	0	0	0	221	0
G-041786	0	0	38,667	0	0	0	201	0
G-042325	0	0	44,191	0	0	0	230	0
G-042956	0	0	0	0	0	0	0	0
G-044173	0	0	29,277	0	0	0	152	0
G-044312	0	0	14,666	0	0	0	76	0
G-046472	0	0	18,781	0	0	0	98	0
G-046552	0	0	31,763	0	0	0	165	0
G-046657	0	0	37,286	0	0	0	194	0
G-046970	0	0	29,001	0	0	0	151	0
G-047016	0	0	11,048	0	0	0	57	0
G-047077	0	0	0	0	0	0	0	0
G-047089	0	0	37,563	0	0	0	195	0
G-047357	0	0	36,458	0	0	0	189	0
G-047789	0	0	22,096	0	0	0	115	0
G-047830	0	0	31,486	0	0	0	164	0
G-048035	0	0	33,143	0	0	0	172	0
G-048312	0	0	0	0	0	0	0	0
G-048425A	0	0	60,763	0	0	0	316	0
G-048425B	0	0	60,763	0	0	0	316	0
G-049256	0	0	36,734	0	0	0	191	0
G-049353	0	0	37,839	0	0	0	197	0
G-049439	0	0	27,620	0	0	0	143	0
G-050151	0	0	0	0	0	0	0	0
G-050176	0	0	44,191	0	0	0	230	0
G-050177	0	0	36,458	0	0	0	189	0
G-050878	0	0	5,524	0	0	0	29	0
G-050879	0	0	20,715	0	0	0	108	0
G-050995	0	0	22,096	0	0	0	115	0
G-051424	0	0	0	0	0	0	0	0
G-051685	0	0	18,229	0	0	0	95	0
G-051686	0	0	10,495	0	0	0	55	0
G-051786	0	0	39,496	0	0	0	205	0
G-051787	0	0	32,315	0	0	0	168	0
G-051860	0	0	33,420	0	0	0	174	0
G-051879	0	0	44,191	0	0	0	230	0
G-051927	0	0	34,524	0	0	0	179	0
G-052170	0	0	17,400	0	0	0	90	0
G-052354	0	0	9,501	0	0	0	49	0
G-052414	0	0	44,191	0	0	0	230	0
G-052415	0	0	30,382	0	0	0	158	0
G-052563	0	0	44,191	0	0	0	230	0
G-052785	0	0	44,191	0	0	0	230	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-053077	0	0	43,639	0	0	0	227	0
G-053078	0	0	35,905	0	0	0	187	0
G-053273	0	0	0	0	0	0	0	0
G-053428	0	0	32,591	0	0	0	169	0
G-053470	0	0	26,515	0	0	0	138	0
G-053629	0	0	22,096	0	0	0	115	0
G-053630	0	0	20,991	0	0	0	109	0
G-053656	0	0	44,191	0	0	0	230	0
G-053658	0	0	27,620	0	0	0	143	0
G-053764	0	0	27,620	0	0	0	143	0
G-053801	0	0	35,629	0	0	0	185	0
G-053963	0	0	18,229	0	0	0	95	0
G-054654	0	0	41,273	0	0	0	214	0
G-054655	0	0	30,689	0	0	0	159	0
G-054656 (#10)	12,531	12,531	12,531	12,531	65	65	65	65
G-055912	0	0	37,286	0	0	0	194	0
G-055913	0	0	0	0	0	0	0	0
G-055914	0	0	55,239	0	0	0	287	0
G-055915	0	0	41,429	0	0	0	215	0
G-056278	0	0	11,048	0	0	0	57	0
G-056513	0	0	8,286	0	0	0	43	0
G-056514	0	0	11,048	0	0	0	57	0
G-056515	0	0	0	0	0	0	0	0
G-056729	0	0	33,143	0	0	0	172	0
G-056849	0	0	0	0	0	0	0	0
G-057184	0	0	37,286	0	0	0	194	0
G-057314	0	0	0	0	0	0	0	0
G-057315	0	0	27,620	0	0	0	143	0
G-057497	0	0	44,191	0	0	0	230	0
G-057498	0	0	37,563	0	0	0	195	0
G-057634	0	0	41,982	0	0	0	218	0
G-058057	0	0	11,048	0	0	0	57	0
G-058058	0	0	16,572	0	0	0	86	0
G-058325	0	0	9,391	0	0	0	49	0
G-058437	0	0	16,572	0	0	0	86	0
G-058543	0	0	35,905	0	0	0	187	0
G-058723	0	0	16,296	0	0	0	85	0
G-058774	0	0	0	0	0	0	0	0
G-058820	0	0	48,334	0	0	0	251	0
G-058958	0	0	32,315	0	0	0	168	0
G-059114	0	0	11,048	0	0	0	57	0
G-059115	0	0	44,191	0	0	0	230	0
G-059231	0	0	27,620	0	0	0	143	0
G-059549	0	0	22,096	0	0	0	115	0
G-059681	0	0	9,667	0	0	0	50	0
G-060250	0	0	1,381	0	0	0	7	0
G-060417	0	0	14,086	0	0	0	73	0
G-060900	0	0	17,953	0	0	0	93	0
G-060987	0	0	28,724	0	0	0	149	0
G-060988	0	0	27,620	0	0	0	143	0
G-061009	0	0	66,287	0	0	0	344	0
G-061620	0	0	11,048	0	0	0	57	0
G-061703	0	0	29,001	0	0	0	151	0
G-062082	0	0	19,886	0	0	0	103	0
G-062094	0	0	0	0	0	0	0	0
G-062375	0	0	16,572	0	0	0	86	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
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-063187	0	0	18,505	0	0	0	96	0
G-063202	0	0	36,734	0	0	0	191	0
G-064065	0	0	8,010	0	0	0	42	0
G-064207	0	0	44,191	0	0	0	230	0
G-064243	0	0	27,896	0	0	0	145	0
G-064703	0	0	13,810	0	0	0	72	0
G-064906	0	0	41,429	0	0	0	215	0
G-065584	0	0	35,353	0	0	0	184	0
G-065589	0	0	35,905	0	0	0	187	0
G-065682	0	0	35,905	0	0	0	187	0
G-065683	0	0	23,477	0	0	0	122	0
G-065684	0	0	46,953	0	0	0	244	0
G-065871	0	0	42,258	0	0	0	220	0
G-065908	0	0	16,572	0	0	0	86	0
G-065987	0	0	37,563	0	0	0	195	0
G-066246	0	0	33,420	0	0	0	174	0
G-066364	0	0	30,934	0	0	0	161	0
G-066531	0	0	31,763	0	0	0	165	0
G-066614	0	0	0	0	0	0	0	0
G-067290	0	0	17,953	0	0	0	93	0
G-067472	0	0	44,191	0	0	0	230	0
G-067620	0	0	60,763	0	0	0	316	0
G-068060	0	0	18,715	0	0	0	97	0
G-068383	0	0	17,124	0	0	0	89	0
G-069184	0	0	22,096	0	0	0	115	0
G-069208	0	0	55,792	0	0	0	290	0
G-069511	0	0	0	0	0	0	0	0
G-070210	0	0	42,258	0	0	0	220	0
G-070398	0	0	44,191	0	0	0	230	0
G-070615	0	0	37,286	0	0	0	194	0
G-071170	0	0	27,067	0	0	0	141	0
G-071362	0	0	24,581	0	0	0	128	0
G-071363	0	0	34,801	0	0	0	181	0
G-072122	0	0	29,829	0	0	0	155	0
G-072123	0	0	64,906	0	0	0	337	0
G-072139	0	0	33,696	0	0	0	175	0
G-072751	0	0	84,516	0	0	0	439	0
G-072842	0	0	16,572	0	0	0	86	0
G-073294	0	0	22,096	0	0	0	115	0
G-073449	0	0	44,191	0	0	0	230	0
G-073545	0	0	17,953	0	0	0	93	0
G-073751	0	0	35,905	0	0	0	187	0
G-073894	0	0	40,601	0	0	0	211	0
G-074349	0	0	19,058	0	0	0	99	0
G-074351	0	0	22,096	0	0	0	115	0
G-076374	0	0	38,115	0	0	0	198	0
G-076735	0	0	0	0	0	0	0	0
G-077970	0	0	55,515	0	0	0	288	0
G-078375	0	0	55,239	0	0	0	287	0
G-078376	0	0	22,096	0	0	0	115	0
G-078377	0	0	0	0	0	0	0	0
G-081565	0	0	34,524	0	0	0	179	0
G-081652	0	0	37,286	0	0	0	194	0
G-081653	0	0	21,543	0	0	0	112	0
G-082391	0	0	43,363	0	0	0	225	0
G-084655	0	0	10,772	0	0	0	56	0
G-085344	0	0	36,458	0	0	0	189	0
G-085522	0	0	70,154	0	0	0	364	0
G-087076	0	0	27,620	0	0	0	143	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-087283	0	0	37,286	0	0	0	194	0
G-087637	0	0	29,829	0	0	0	155	0
G-087929	0	0	40,914	0	0	0	213	0
G-088331	0	0	37,563	0	0	0	195	0
G-089306	0	0	17,953	0	0	0	93	0
G-090720	0	0	38,115	0	0	0	198	0
G-091546 (#27)	6,132	6,132	6,132	6,132	32	32	32	32
G-091614	0	0	38,667	0	0	0	201	0
G-093865	0	0	19,334	0	0	0	100	0
G-094011	0	0	38,391	0	0	0	199	0
G-094585	0	0	22,096	0	0	0	115	0
G-096581	0	0	0	0	0	0	0	0
G-096582	0	0	25,986	0	0	0	135	0
G-096584	0	0	38,264	0	0	0	199	0
G-096587 (#23)	0	0	0	0	0	0	0	0
G-096588 (#9)	8,935	8,935	8,935	8,935	46	46	46	46
G-096589	0	0	11,138	0	0	0	58	0
G-096627	0	0	16,572	0	0	0	86	0
G-096904	0	0	33,420	0	0	0	174	0
G-096933	0	0	49,715	0	0	0	258	0
G-097207	0	0	9,667	0	0	0	50	0
G-098758	0	0	37,286	0	0	0	194	0
G-101198	0	0	27,620	0	0	0	143	0
G-104278	0	0	38,391	0	0	0	199	0
G-105704	0	0	13,810	0	0	0	72	0
G-105753	0	0	66,287	0	0	0	344	0
G-105797	0	0	35,905	0	0	0	187	0
G-105800	0	0	45,165	0	0	0	235	0
G-105801	0	0	36,636	0	0	0	190	0
G-105802	0	0	35,472	0	0	0	184	0
G-107321	0	0	30,382	0	0	0	158	0
G-108180	0	0	2,762	0	0	0	14	0
G-108647	0	0	23,477	0	0	0	122	0
G-109287	0	0	11,048	0	0	0	57	0
G-109425	0	0	17,953	0	0	0	93	0
G-109448	0	0	0	0	0	0	0	0
G-109619	0	0	7,181	0	0	0	37	0
G-110360	0	0	27,620	0	0	0	143	0
G-112438	0	0	37,010	0	0	0	192	0
G-113392	0	0	23,753	0	0	0	123	0
G-113882	0	0	23,477	0	0	0	122	0
G-114521	0	0	36,734	0	0	0	191	0
G-116108	0	0	24,858	0	0	0	129	0
G-116504	0	0	24,858	0	0	0	129	0
G-118340	0	0	0	0	0	0	0	0
G-127035	0	0	24,029	0	0	0	125	0
G-127071	0	0	35,353	0	0	0	184	0
G-127133	0	0	44,191	0	0	0	230	0
G-127250	0	0	32,867	0	0	0	171	0
G-127321	0	0	77,335	0	0	0	402	0
G-127545	0	0	17,953	0	0	0	93	0
G-128997	0	0	20,715	0	0	0	108	0
G-129063	0	0	57,173	0	0	0	297	0
G-130797	0	0	25,134	0	0	0	131	0
G-131085	0	0	48,887	0	0	0	254	0
G-132237	0	0	27,620	0	0	0	143	0
G-133366	0	0	30,382	0	0	0	158	0
G-134121	0	0	41,429	0	0	0	215	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-134176	0	0	24,305	0	0	0	126	0
G-135522	0	0	16,438	0	0	0	85	0
G-135542	0	0	22,096	0	0	0	115	0
G-135543	0	0	2,210	0	0	0	11	0
G-135895	0	0	17,953	0	0	0	93	0
G-136000	0	0	18,781	0	0	0	98	0
G-136149	0	0	24,581	0	0	0	128	0
G-136150	0	0	71,811	0	0	0	373	0
G-136318	0	0	38,667	0	0	0	201	0
G-136326	0	0	14,638	0	0	0	76	0
G-136327	0	0	14,362	0	0	0	75	0
G-136409	0	0	24,858	0	0	0	129	0
G-136423	0	0	29,829	0	0	0	155	0
G-136517	0	0	22,096	0	0	0	115	0
G-136617	0	0	13,534	0	0	0	70	0
G-137529	0	0	38,667	0	0	0	201	0
G-137912	0	0	21,543	0	0	0	112	0
G-138821	0	0	27,620	0	0	0	143	0
G-138924	0	0	56,620	0	0	0	294	0
G-139140	0	0	36,458	0	0	0	189	0
G-139933	0	0	42,810	0	0	0	222	0
G-140041	0	0	33,696	0	0	0	175	0
G-140862	0	0	829	0	0	0	4	0
G-140863	0	0	14,362	0	0	0	75	0
G-144326	0	0	18,505	0	0	0	96	0
G-146158	0	0	38,667	0	0	0	201	0
G-146379	0	0	28,724	0	0	0	149	0
G-146939	0	0	30,382	0	0	0	158	0
G-149433	0	0	22,372	0	0	0	116	0
G-151522	0	0	11,048	0	0	0	57	0
G-152097	0	0	829	0	0	0	4	0
G-152423	0	0	9,667	0	0	0	50	0
G-152424	0	0	22,096	0	0	0	115	0
G-152458	0	0	12,153	0	0	0	63	0
G-155221	0	0	690	0	0	0	4	0
G-156154	0	0	49,715	0	0	0	258	0
G-157943	0	0	0	0	0	0	0	0
G-158669	0	0	17,594	0	0	0	91	0
G-158706	0	0	42,258	0	0	0	220	0
G-158991	0	0	37,010	0	0	0	192	0
G-159854	0	0	22,874	0	0	0	119	0
G-161181	0	0	21,267	0	0	0	110	0
G-161182	0	0	21,267	0	0	0	110	0
G-161915	0	0	19,334	0	0	0	100	0
G-162095	0	0	18,781	0	0	0	98	0
G-163023	0	0	674	0	0	0	4	0
G-165856	0	0	17,953	0	0	0	93	0
G-166421	0	0	13,589	0	0	0	71	0
G-166429	0	0	11,048	0	0	0	57	0
G-166430	0	0	11,048	0	0	0	57	0
G-166653	0	0	27,620	0	0	0	143	0
G-168354	0	0	30,382	0	0	0	158	0
G-168439	0	0	25,686	0	0	0	133	0
G-168513	0	0	16,572	0	0	0	86	0
G-172243	0	0	17,953	0	0	0	93	0
G-172828	0	0	39,772	0	0	0	207	0
G-172955	0	0	11,048	0	0	0	57	0
G-173266	0	0	17,953	0	0	0	93	0
G-173267	0	0	12,429	0	0	0	65	0
G-173724	0	0	22,096	0	0	0	115	0

Appendix D
Table D.8 (continued)
Irrigation Well Estimated Pumping Rates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day				gallons per minute			
Stress Period:	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**	**1-4**	**5**	**6, 8, 10…64**	**7, 9, 11…63**
Start Date:	**9/1/17**	**1/1/18**	**6/1**	**9/1**	**9/1/17**	**1/1/18**	**6/1**	**9/1**
End Date:	**12/31/17**	**5/31/18**	**8/31**	**5/31**	**12/31/17**	**5/31/18**	**8/31**	**5/31**
G-173725	0	0	13,727	0	0	0	71	0
G-173727	0	0	31,763	0	0	0	165	0
G-175926	0	0	55,239	0	0	0	287	0
G-176297	0	0	47,782	0	0	0	248	0
G-177249	0	0	37,444	0	0	0	195	0
G-177837	0	0	35,905	0	0	0	187	0
G-178486	0	0	20,162	0	0	0	105	0
G-181885	0	0	34,842	0	0	0	181	0
G-182259	0	0	38,692	0	0	0	201	0

Notes:

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 2017.

Appendix D
Table D.9
Average Depth of Irrigation for ARDC Wells, 2000-2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Acres on Regis-tration	Photo Estimated Acres [1]	ARDC Identi-fication	Regis-tration Pumping Rate (gpm)	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)	2007 Pumping Rate (gpm)	2008 Pumping Rate (gpm)
G-033747	500	64	IR1	1200	62	342	89	110	146	0	0	0	0
G-033749	90	89	3R	430	61	430	133	159	154	153	139	90	110
G-033750	500	100	IR 4	1100	0	0	0	0	0	0	0	0	74
G-033752	400	97	6	750	0	0	0	0	0	0	133	93	100
G-033753	130	130	25	725	144	331	209	364	189	165	128	272	230
G-033754	200	0	7	400	0	0	0	0	0	0	0	0	0
G-033755	300	99	IR9	400	0	0	0	0	0	26	26	18	20
G-036212	100	0	IR12		151	183	59	73	80	0	70	10	0
G-036213	75	110	13	800	0	0	0	0	0	0	151	105	113
G-036214	200	0	14	400	0	0	0	0	0	0	0	0	0
G-044312	75	58	16	1000	0	0	0	0	0	136	136	95	102
G-054654	200	158	IR19	800	162	314	382	389	226	283	294	154	157
G-054655	130	121	17R	787	0	0	224	264	215	229	206	148	164
G-054656	0	0	10A		151	183	59	73	80	0	80	74	47
G-068060	110	57	IR22	1000	107	142	127	169	132	112	178	64	76
G-087929	150	124	IR24	720	161	303	293	285	267	269	210	204	201
G-091546	0	0	27		0	0	0	0	0	0	0	0	5
G-096581	65	30	IR21	900	73	110	112	156	0	0	53	0	0
G-096582	55	53/104	IRR18	671	96	127	130	135	72	199	144	137	134
G-096584	130	132	IR20	850	167	276	322	278	239	283	166	118	191
G-096587	0	0	23		0	0	0	0	0	0	0	0	0
G-096588	0	0	9A		0	0	0	0	0	0	0	62	59
G-096589	100	150	15	800	0	0	0	0	0	103	103	72	77
G-105800	130	125	26	810	0	336	303	349	244	320	284	293	222
G-105801	130	142	28	850	0	294	210	241	227	288	242	140	146
G-105802	NA	120	29	740	0	700	322	289	239	261	195	150	209
G-135522	75	75	30	450	0	0	0	0	0	0	120	86	45
G-159854	123	123	32	675	0	0	0	0	0	0	0	0	0
G-163023	24	24	31	300	0	0	0	0	0	0	0	0	0

Appendix D (Continued)
Table D.9
Average Depth of Irrigation for ARDC Wells, 2000-2017
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	2009 Pumping Rate (gpm)	2010 Pumping Rate (gpm)	2011 Pumping Rate (gpm)	2012 Pumping Rate (gpm)	2013 Pumping Rate (gpm)	2014 Pumping Rate (gpm)	2015 Pumping Rate (gpm)	2016 Pumping Rate (gpm)	2017 Pumping Rate (gpm)	Average Pumping Rate While in Use (gpm)	Average Pumping Rate While in Use (gpm)	Average Depth of Irrigation (inches)	Notes
G-033747	0	0	0	0	0	0	0	0	0	150	150	11.41	Not used in average (data from drought period)
G-033749	86	53	50	87	182	150	46	55	146	127	126	6.96	
G-033750	84	81	94	201	189	121	43	39	116	104	103	5.09	
G-033752	90	62	0	11	0	0	0	0	0	82	82	4.10	Agronomy (not used in average)
G-033753	206	146	137	299	271	174	68	53	138	196	199	7.35	Center pivot
G-033754	0	0	0	0	0	0	0	0	0	0	0	NA	Not used for irrigation (not used in average)
G-033755	18	12	0	13	0	7	1	0	1	14	16	0.70	Agronomy (not used in average)
G-036212	0	0	0	0	0	0	0	0	0	89	89	NA	Non-irrigation, no longer used (assume 0 gpm)
G-036213	102	70	4	14	0	11	3	0	14	59	64	2.61	Agronomy (not used in average)
G-036214	0	0	14	38	0	21	5	0	0	20	20	NA	Decommissioned in 2015 (not used in average)
G-044312	92	63	21	78	0	30	9	0	25	72	76	6.01	Agronomy (not used in average)
G-054654	166	78	95	398	314	135	30	69	104	208	214	6.43	Center pivot
G-054655	145	108	60	172	121	188	68	80	155	159	159	6.42	Center pivot
G-054656	41	41	20	52	39	39	27	0	28	65	67	NA	Year-round, non-irrigation, not used in average
G-068060	47	52	40	167	132	73	8	28	79	96	97	8.24	
G-087929	161	153	151	288	294	210	82	81	149	209	213	8.22	
G-091546	4	4	66	57	34	42	35	0	35	31	31	NA	Year-round, non-irrigation, not used in average
G-096581	0	0	0	0	0	0	0	0	0	101	101	16.40	Not used in average (data from drought period)
G-096582	128	73	58	149	328	152	51	66	164	112/137	112/135	8.13	Acres increased to 104 in 2005
G-096584	125	108	133	333	291	218	61	72	184	198	199	7.32	Center pivot
G-096587	0	0	10	0	0	0	0	0	0	0	0	NA	Non-irrigation, no longer used (assume 0 gpm)
G-096588	57	57	4	50	48	39	42	0	42	42	46	NA	Year-round, non-irrigation, not used in average
G-096589	69	48	8	30	0	57	12	0	30.08	55	58	1.80	Agronomy (not used in average)
G-105800	207	113	112	323	265	210	83	89	183	232	235	9.04	Center pivot
G-105801	176	102	106	350	178	187	71	88	148	188	190	6.45	Center pivot
G-105802	145	103	93	247	261	156	57	37	58	176	184	7.17	Center pivot, first year of 2001 not used (high volume likely from testing)
G-135522	99	38	30	137	184	78	0	37	63	83	85	5.42	
G-159854	0	0	64	178	126	233	33	79	144	122	119	4.86	
G-163023	0	0	0	0	0	0	2	5	0	4	4	0.71	Not used in average (small test plots)
Average Depth of Irrigation 2000-2017 (inches)[3,4]												**6.94**	

Notes:

1) Aerial photos, NDNR 2005 land use irrigation map, or ARDC estimates were used instead of acreage on registration.
2) The estimated rates assume a 92-day (June, July, and August) irrigation season,
365 days of pumping is assumed for non-irrigation wells.
3) The average net irrrigation requirement is 6.68 inches for fully irrigated corn based on
temperature and precipitation data for Wahoo for the period 1949-2004 (NDNR, 2005).
4) The 2000-2016 average depth of irrigation of ARDC fields is used to estimate the rate for non-ARDC wells in Table D-8.

ARDC = Agricultural Research & Development Center
gpm = gallons per minute
IR = Irrigation Well
NA = Not Available or Not Applicable
NDNR = Nebraska Department of Natural Resources

Appendix D
Table D.10
Storage Coefficients
2017 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, 2018a. 2017 Groundwater Model Update Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. January.

Appendix D
Table D.11
Fate and Transport Model Parameters
2017 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

cm^3/g = cubic centimeters per gram

ft = feet

f_{oc} = fraction of total organic carbon

g/cm^3 = 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, 2018a. 2017 Groundwater Model Update Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska. January.

Table D.12
Irrigation Well Updates
2017 Containment Evaluation
Former Nebraska Ordnance Plant, Mead, Nebraska

Registration 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
Redundant Well Not Decommisioned or Inactivated											
G-048312	G-182259	12/20/1975	220	1100	NA	2,589,106	529,249	A	316	0	*Made redundant by G-182259*
Replacement Well											
G-182259	G-048312	2/10/2017	140	NA	NA	2,606,242	515,409	I	NA	201	*Made G-048312 redundant*
Well Installed in Previous Years and Activated in 2017											
G-181885	NA	5/6/1996	270	800	NA	2,624,350	529,140	A	NA	181	*Pumping rate based on estimated acreage of center pivot field (126 acres) on satelite imagery rather than registered acreage.*

Notes:

New model pumping rate based on acreage and 7.0 inches depth of irrigation per 92-day season.

gpm = gallons per minute

NA = not applicable

A = Active

I = Inactive

X = Abandoned

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APPENDIX E

TCE TRANSPORT SIMULATIONS

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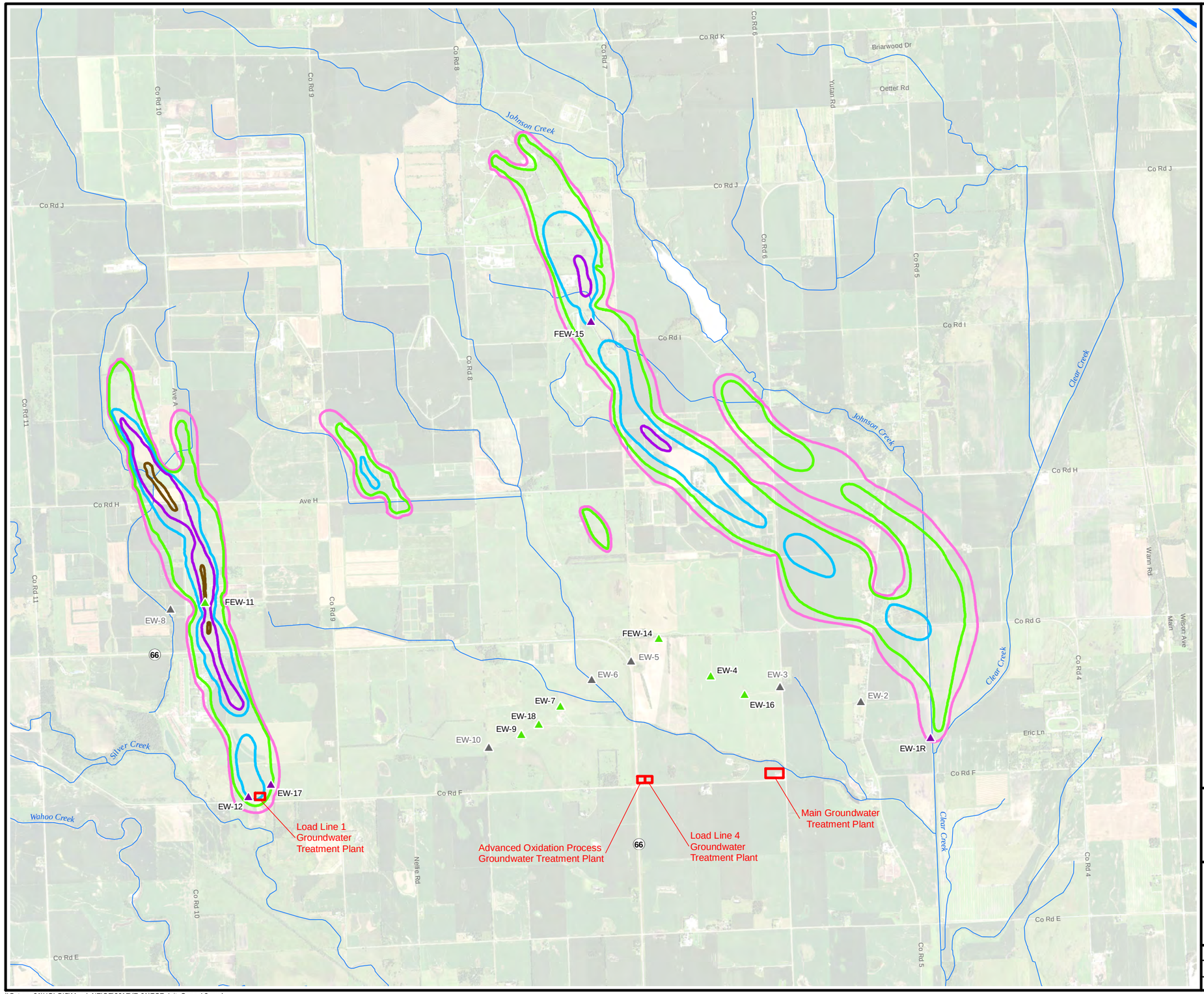

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.1
Initial TCE Concentrations
Layer 2 - 2017

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 1	Revision Date / Initials:	

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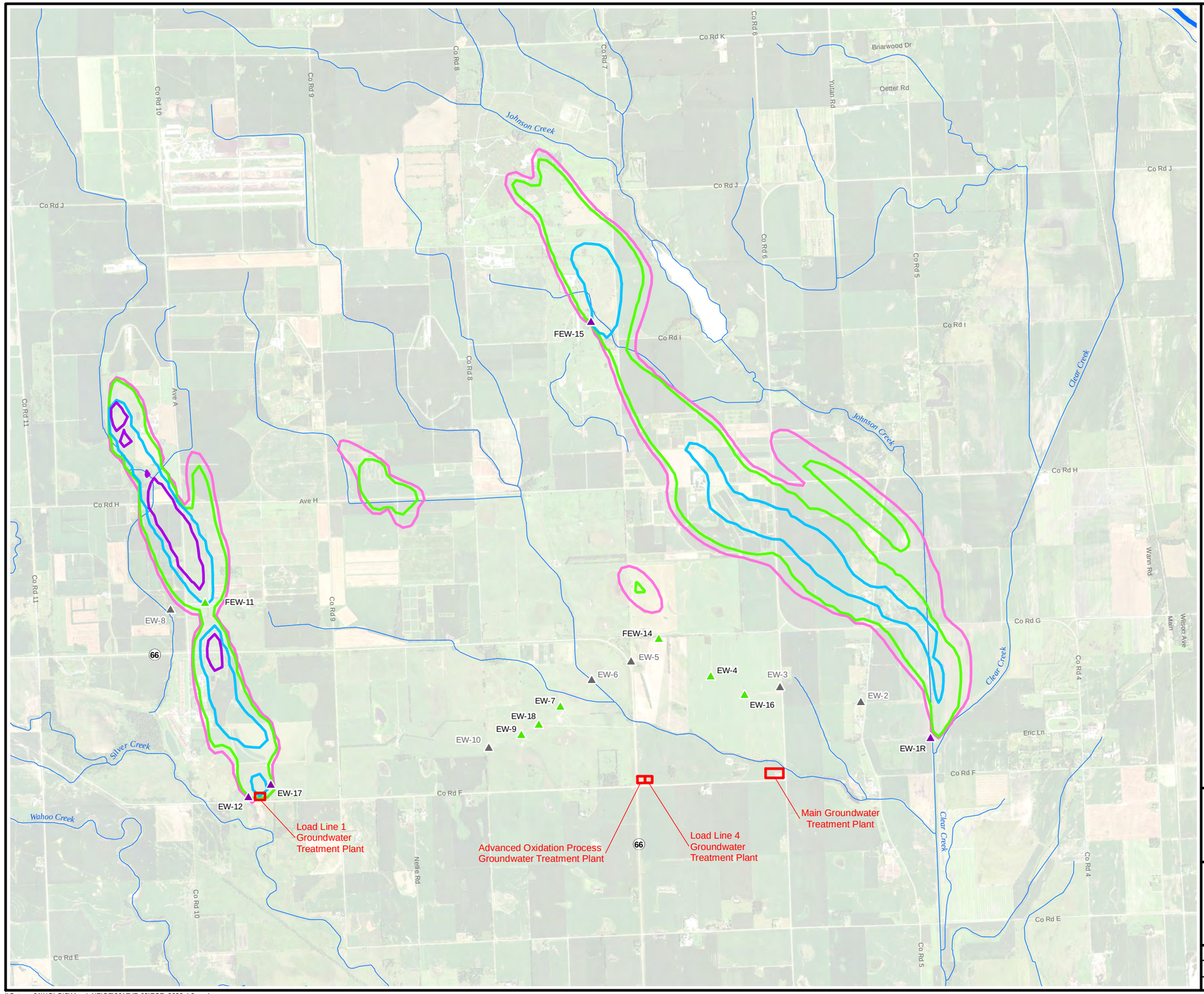

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

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TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.2
Predicted TCE Concentrations
Layer 2 - 2022

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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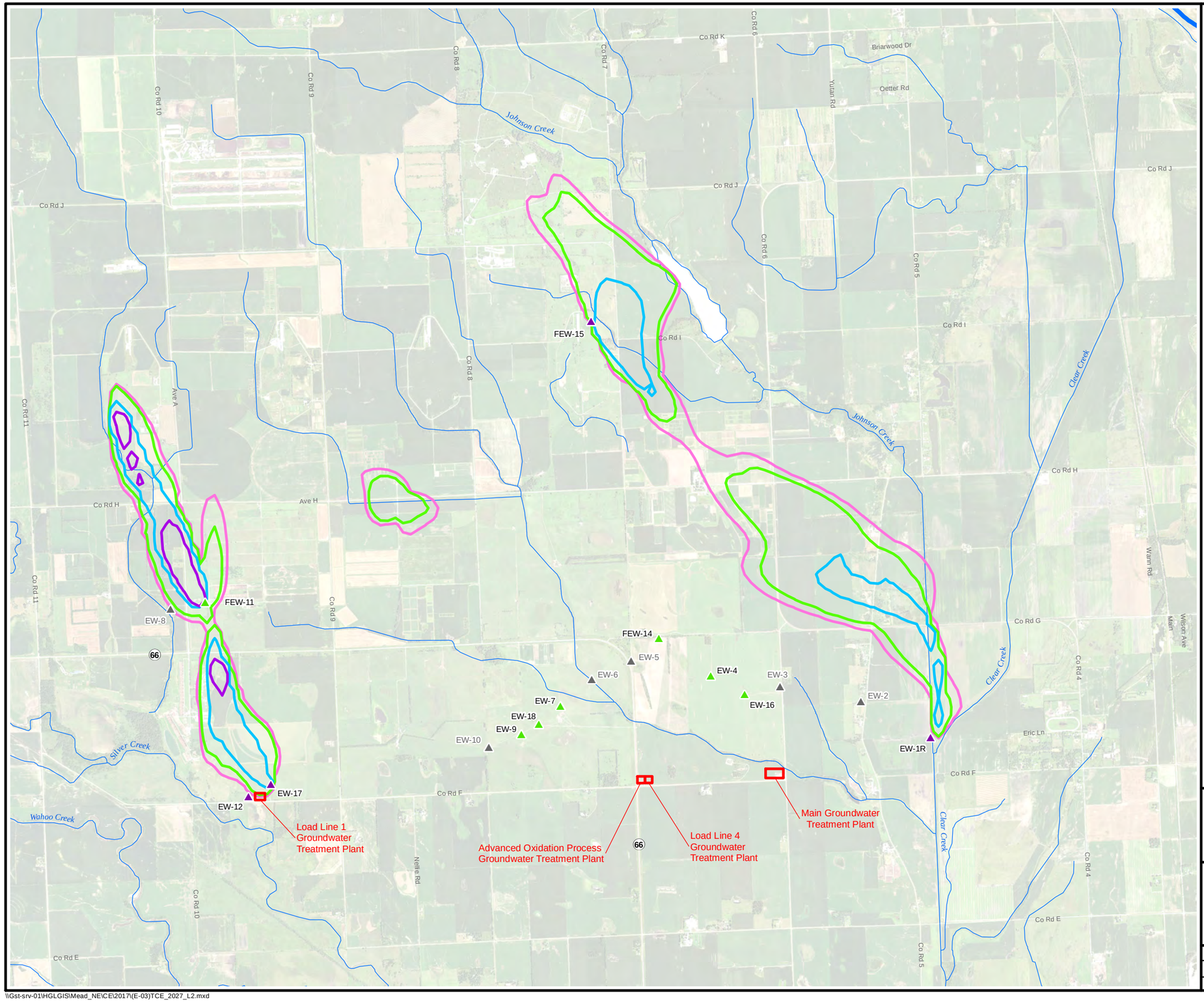

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.3
Predicted TCE Concentrations
Layer 2 - 2027

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 1	Revision Date / Initials:	

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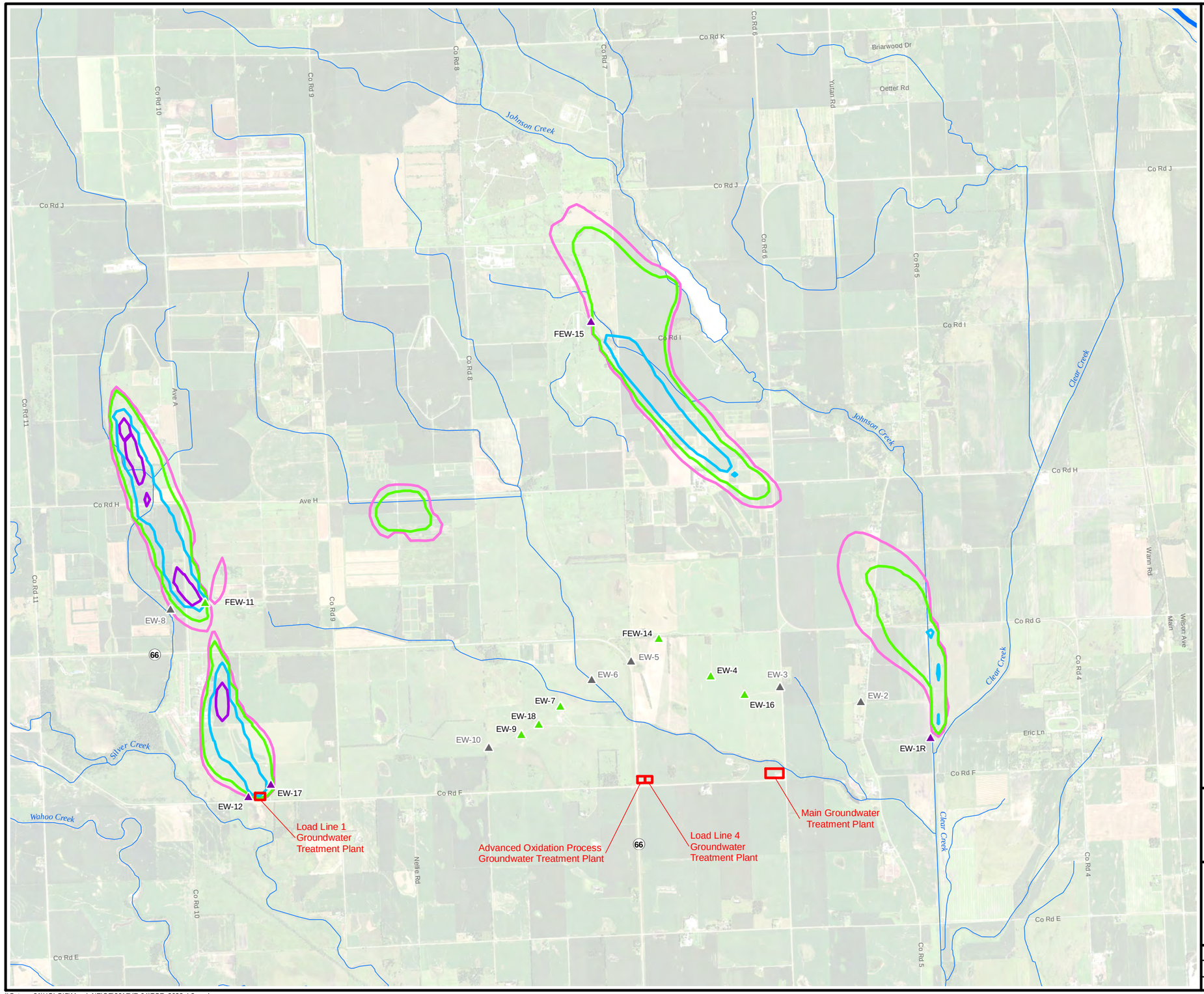

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.4
Predicted TCE Concentrations
Layer 2 - 2032

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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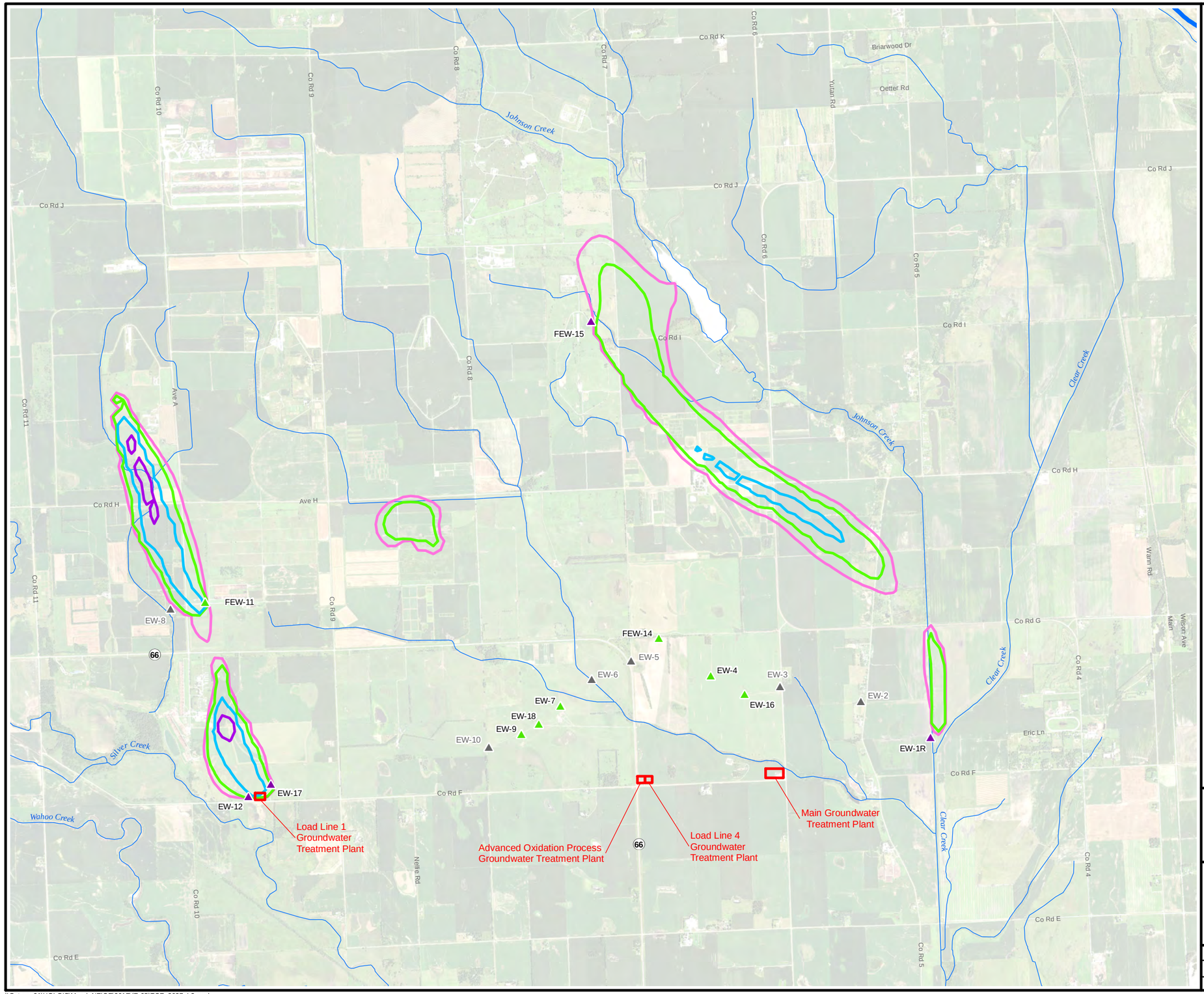

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.5
Predicted TCE Concentrations
Layer 2 - 2037

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
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Version: 1	Revision Date / Initials:	

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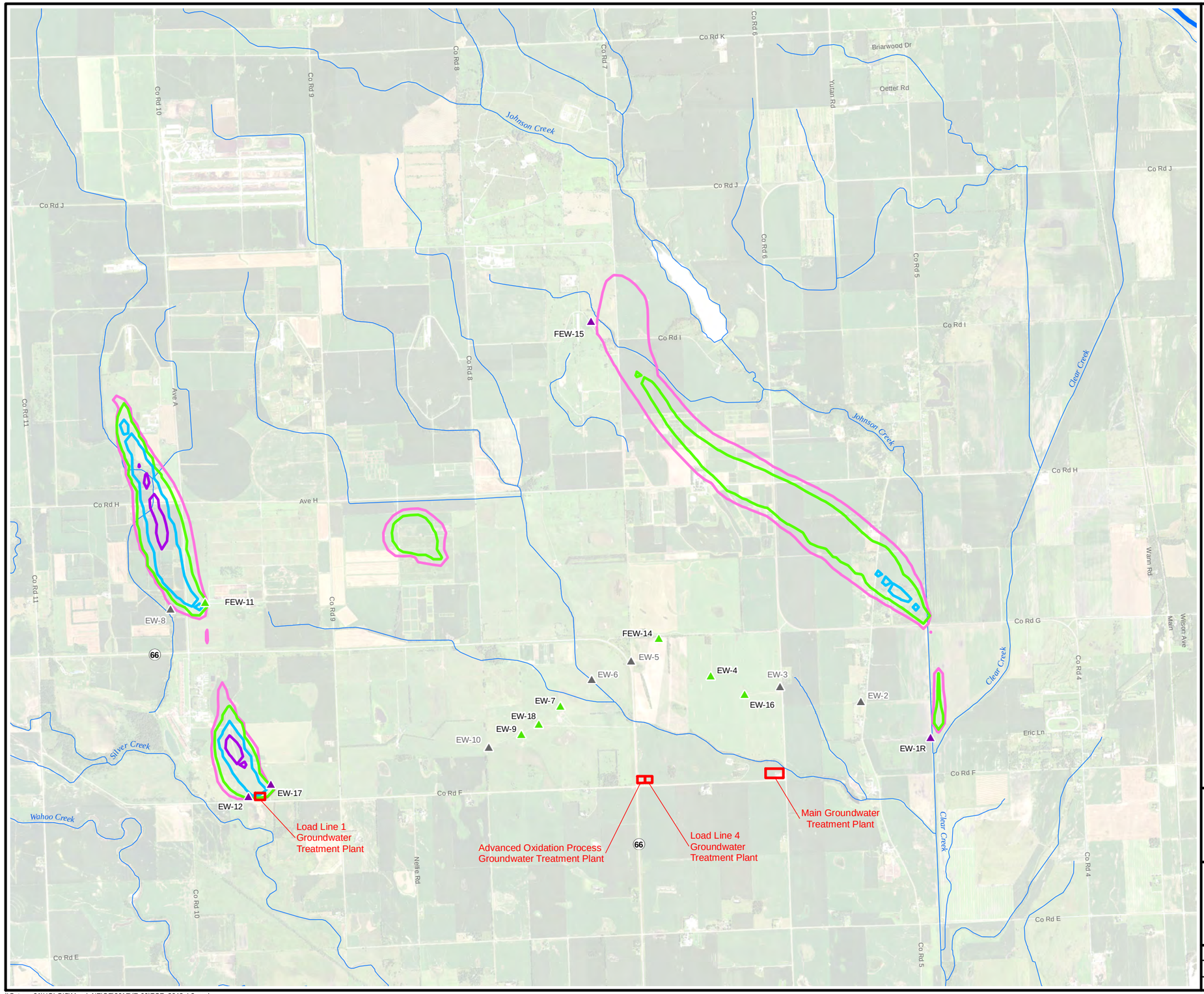

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.6
Predicted TCE Concentrations
Layer 2 - 2042

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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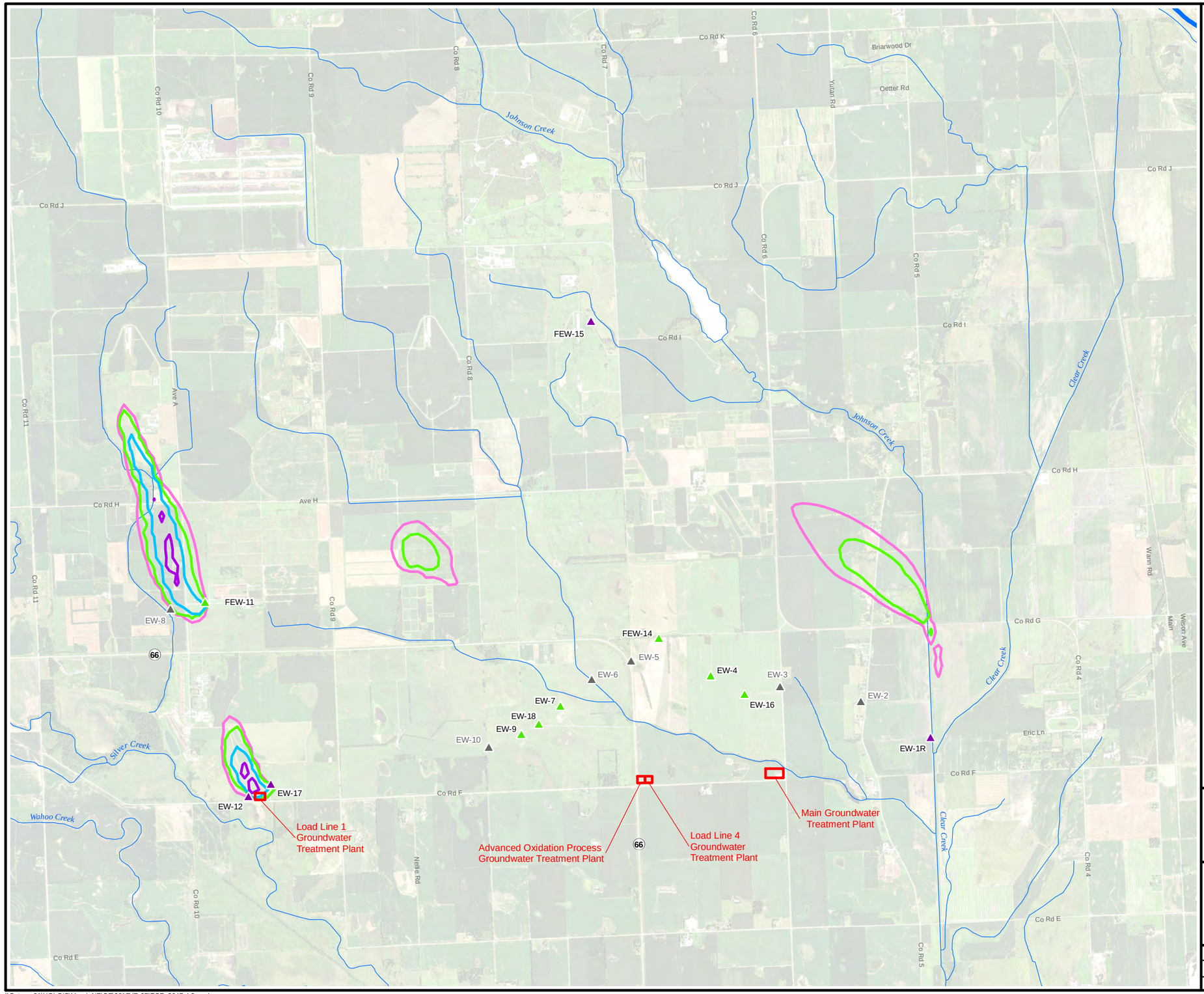

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.7
Predicted TCE Concentrations
Layer 2 - 2047

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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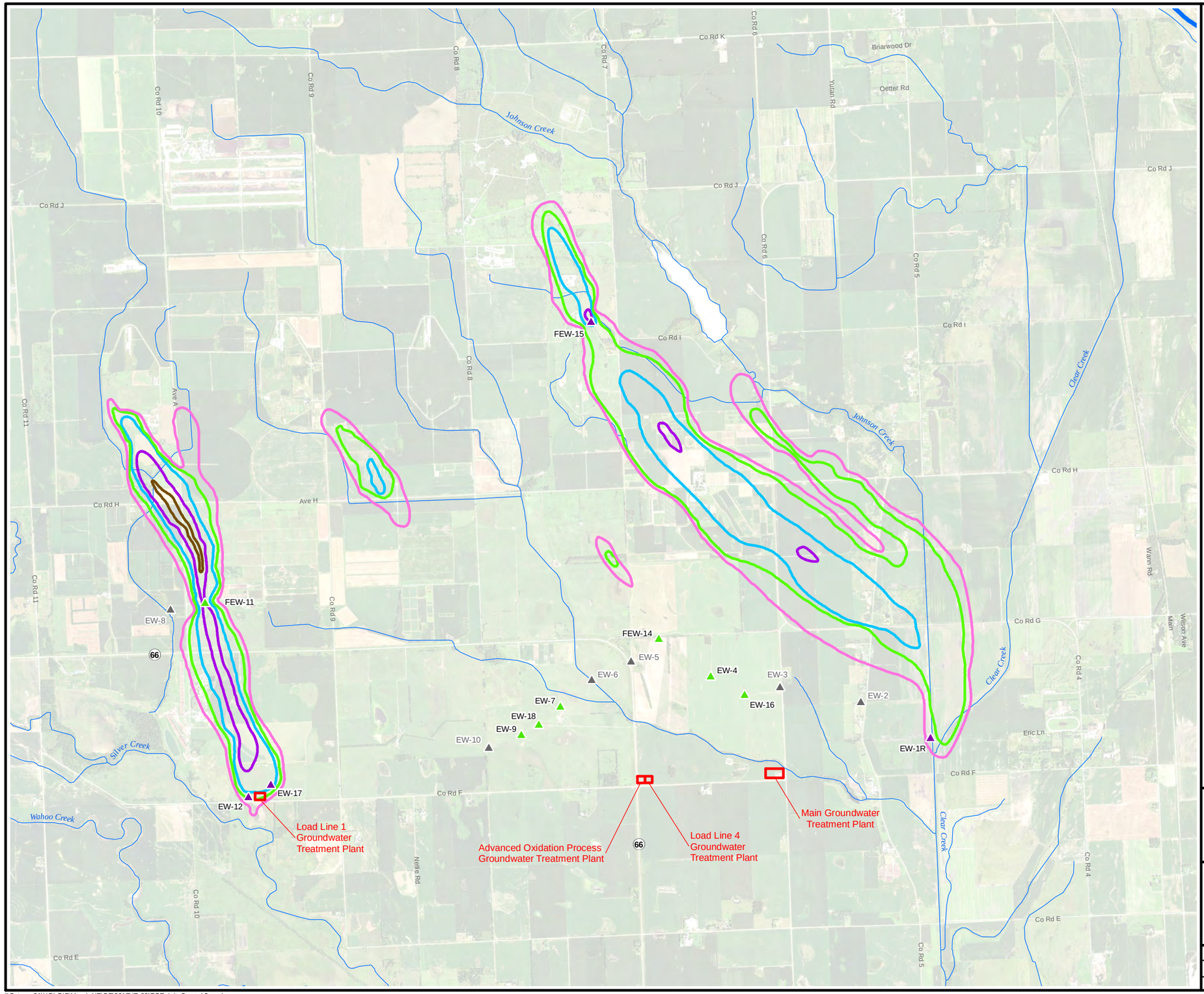

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.8
Initial TCE Concentrations
Layer 3 - 2017

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 1	Revision Date / Initials:	

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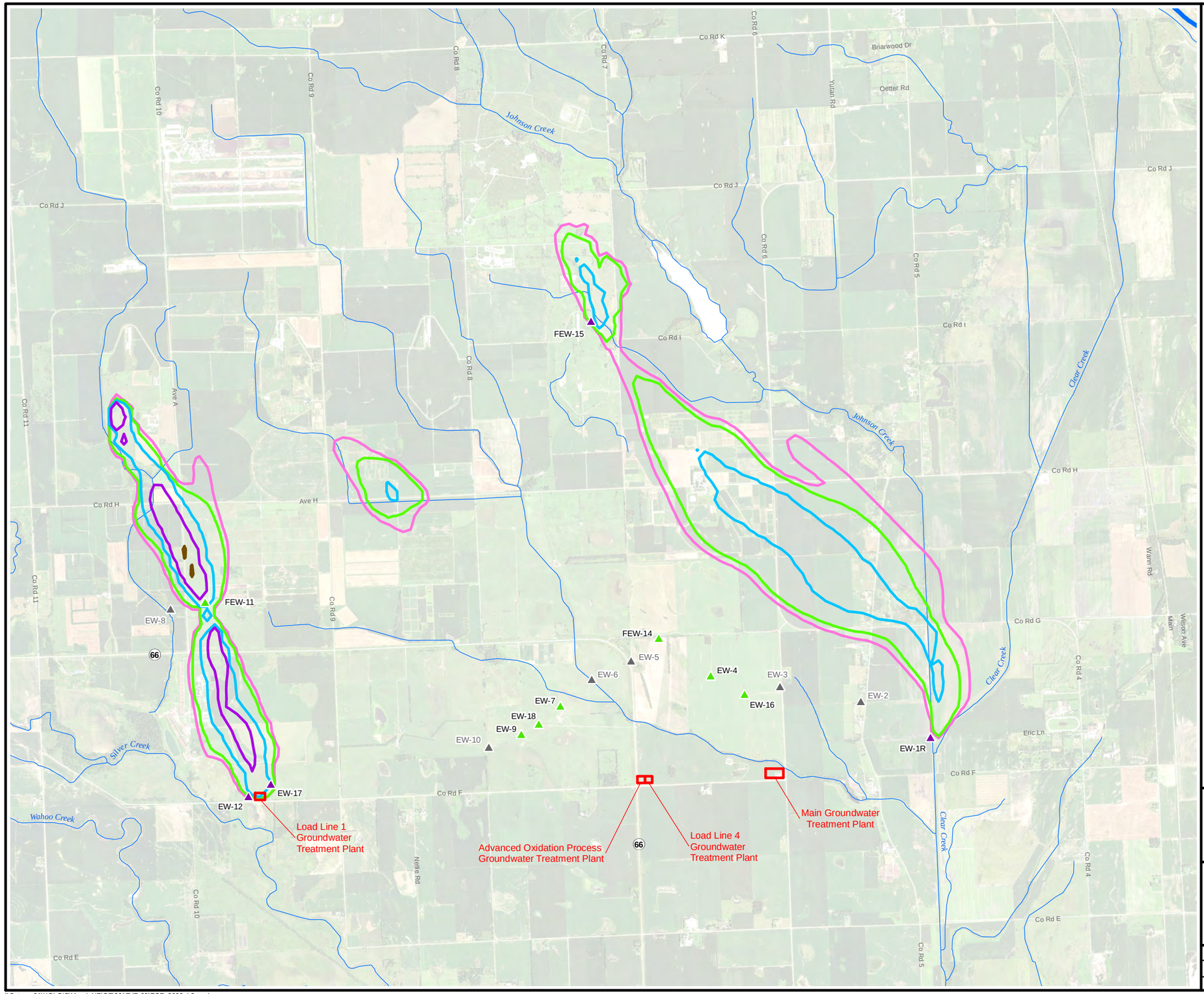

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.9
Predicted TCE Concentrations
Layer 3 - 2022

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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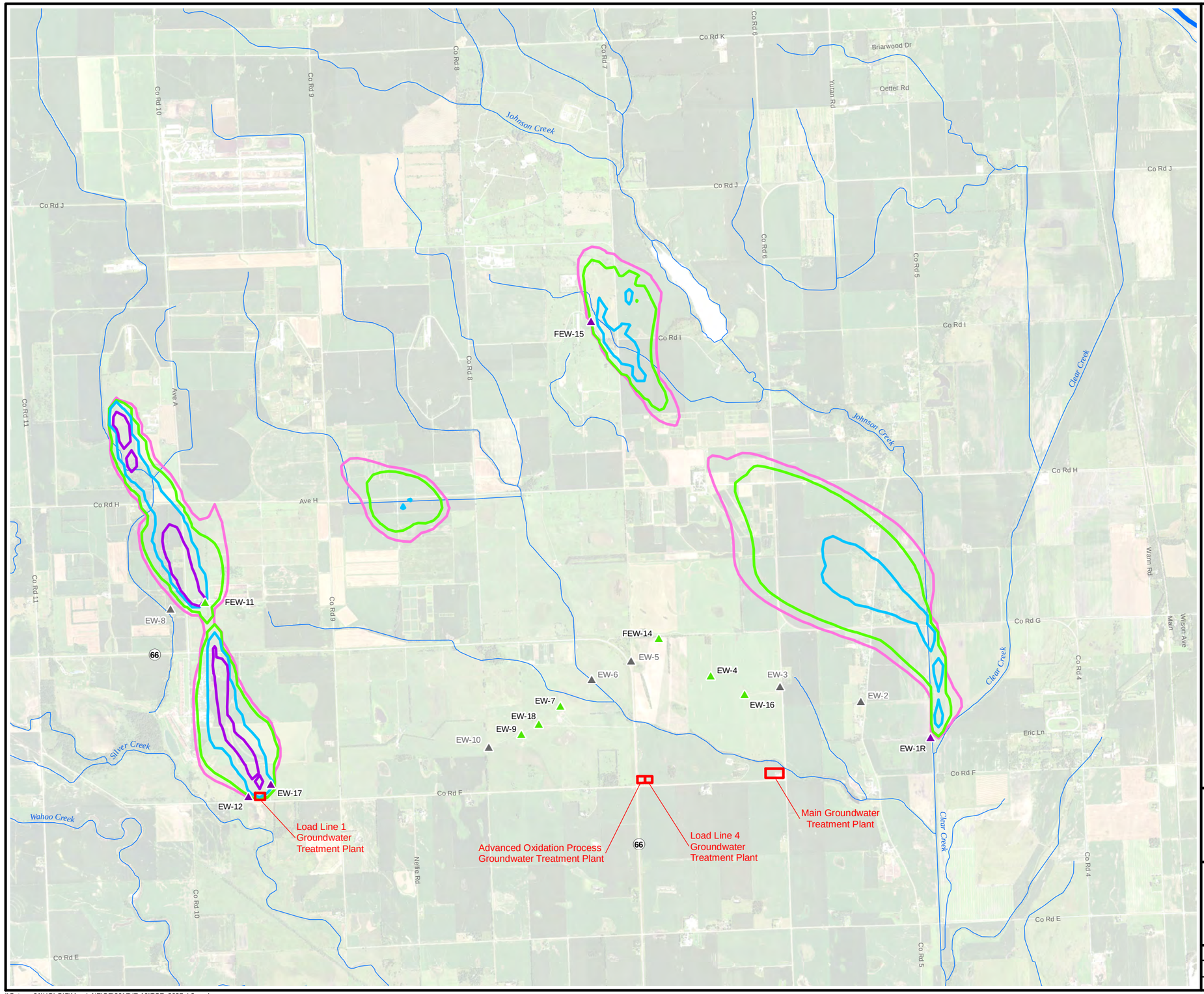

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.10
Predicted TCE Concentrations
Layer 3 - 2027

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 1	Revision Date / Initials:	

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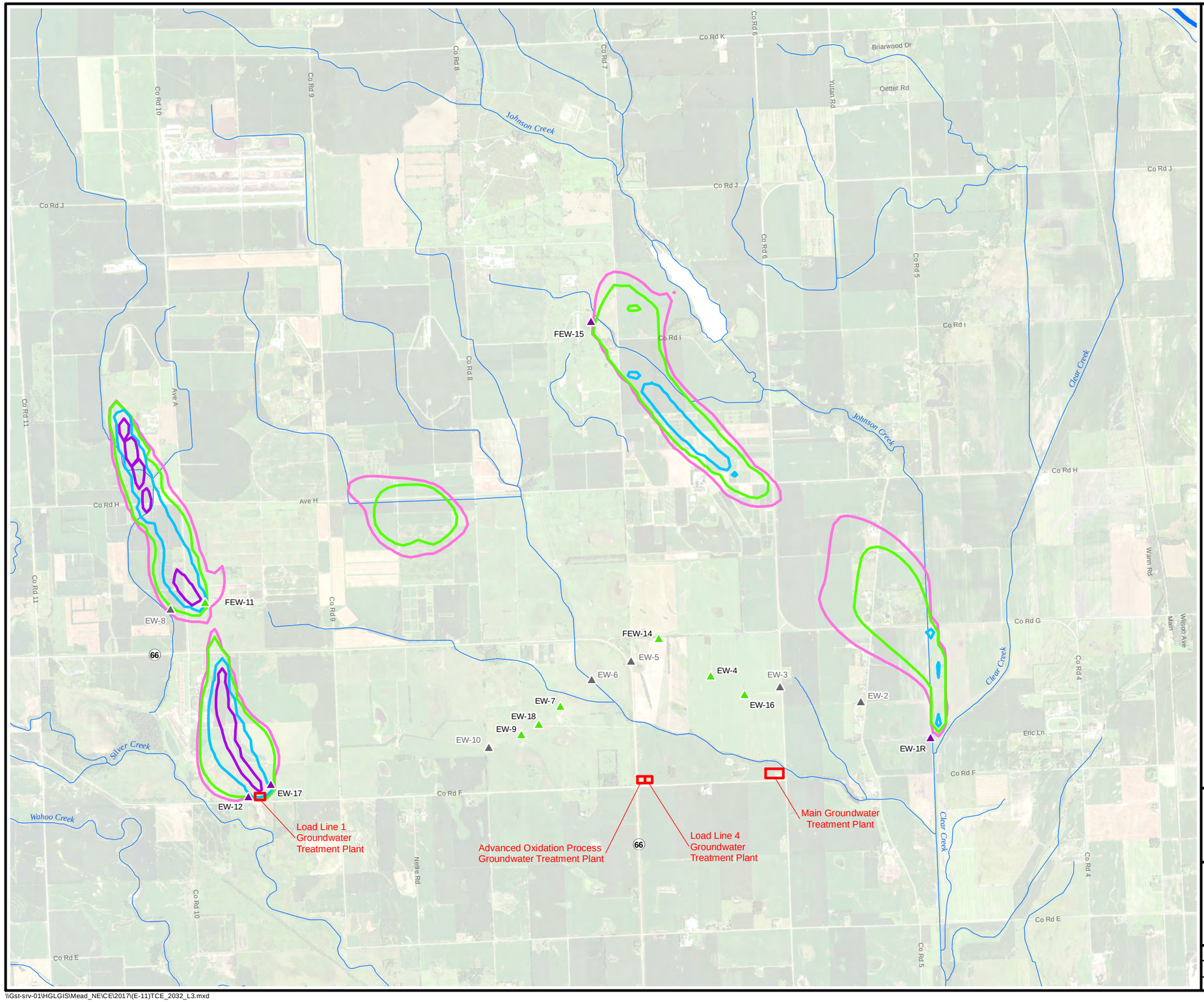

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure E.11
Predicted TCE Concentrations
Layer 3 - 2032

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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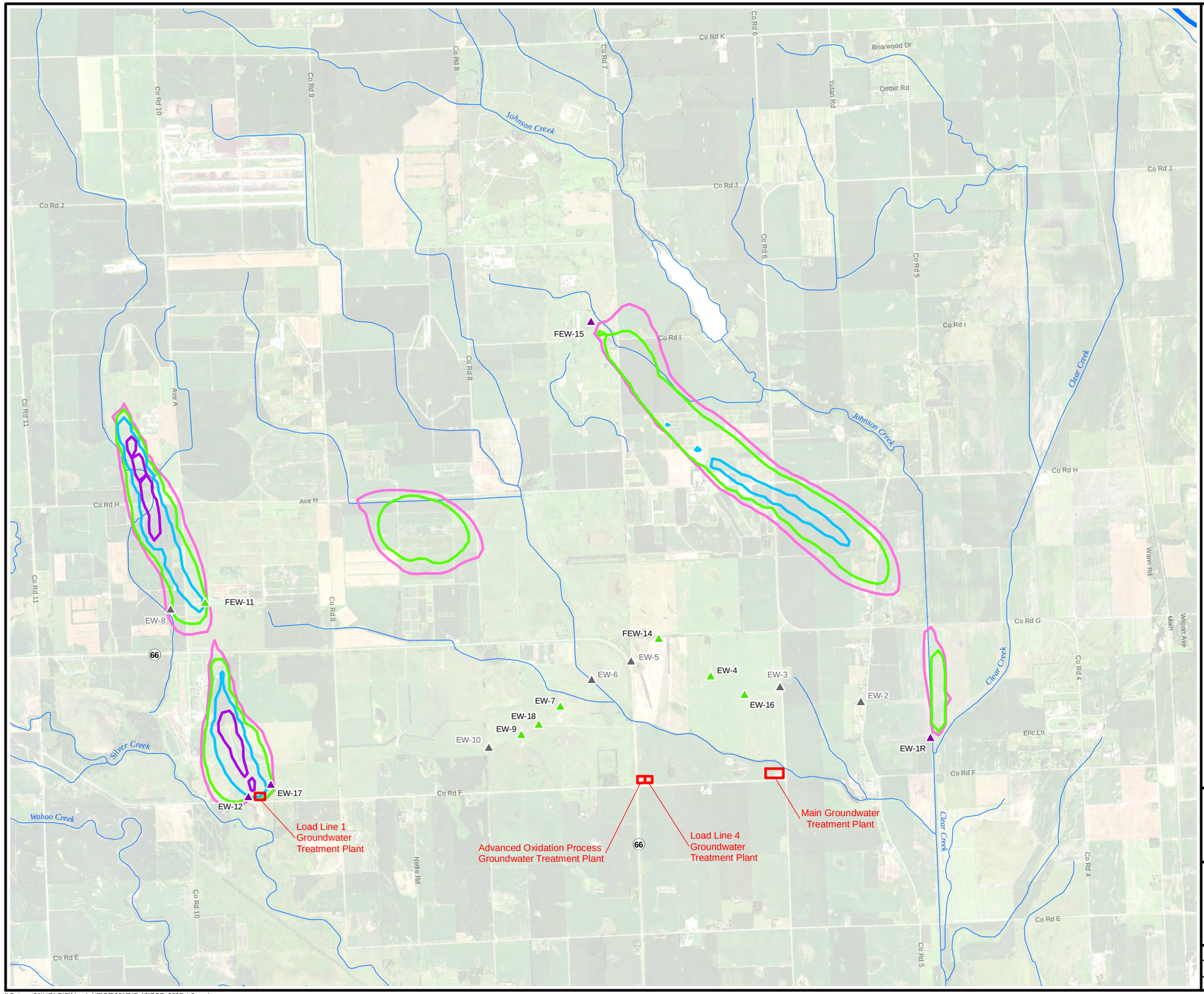

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Kansas City District

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Mead, Nebraska
2017 Containment Evaluation

Figure E.12
Predicted TCE Concentrations
Layer 3 - 2037

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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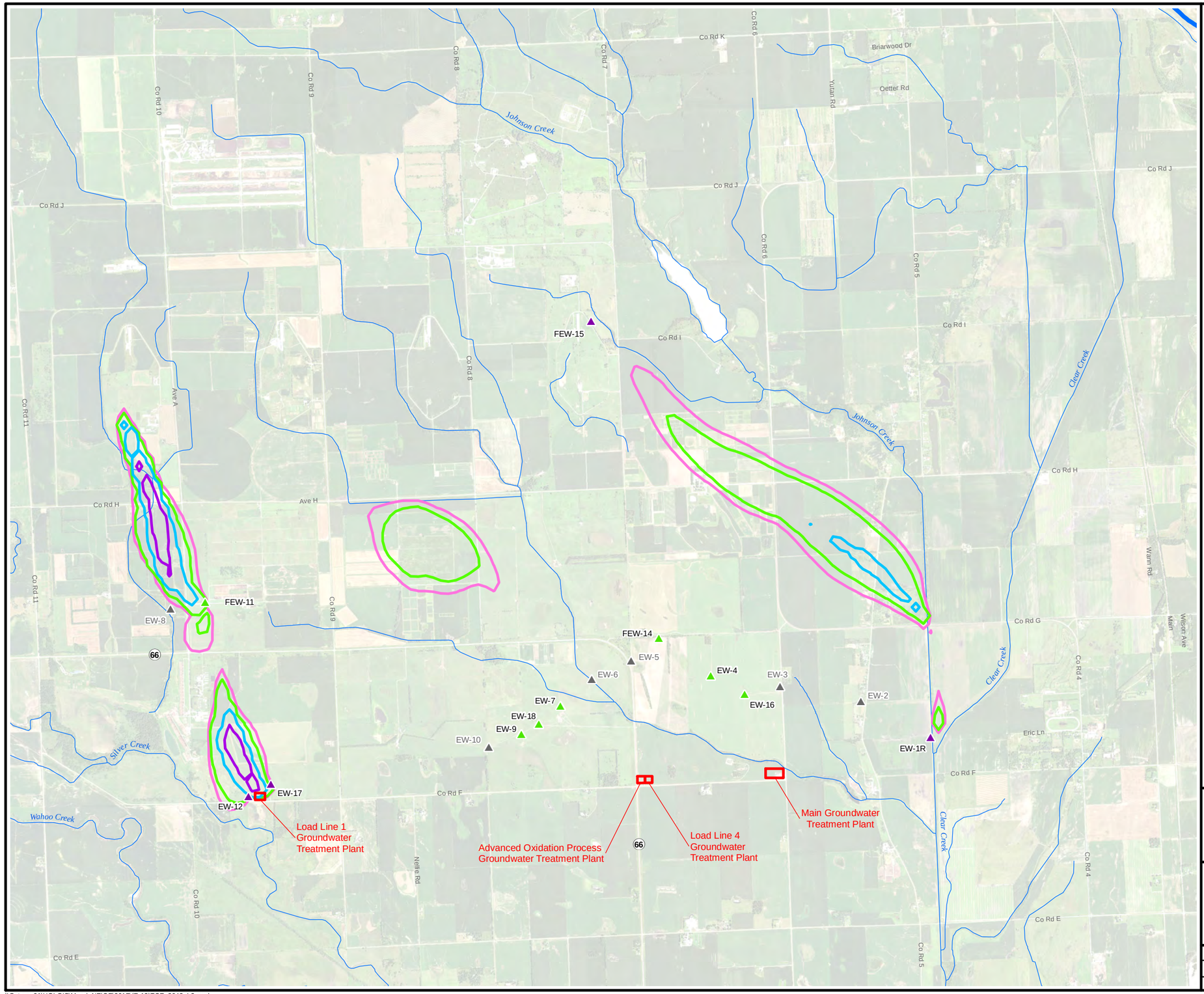

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Kansas City District

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Mead, Nebraska
2017 Containment Evaluation

Figure E.13
Predicted TCE Concentrations
Layer 3 - 2042

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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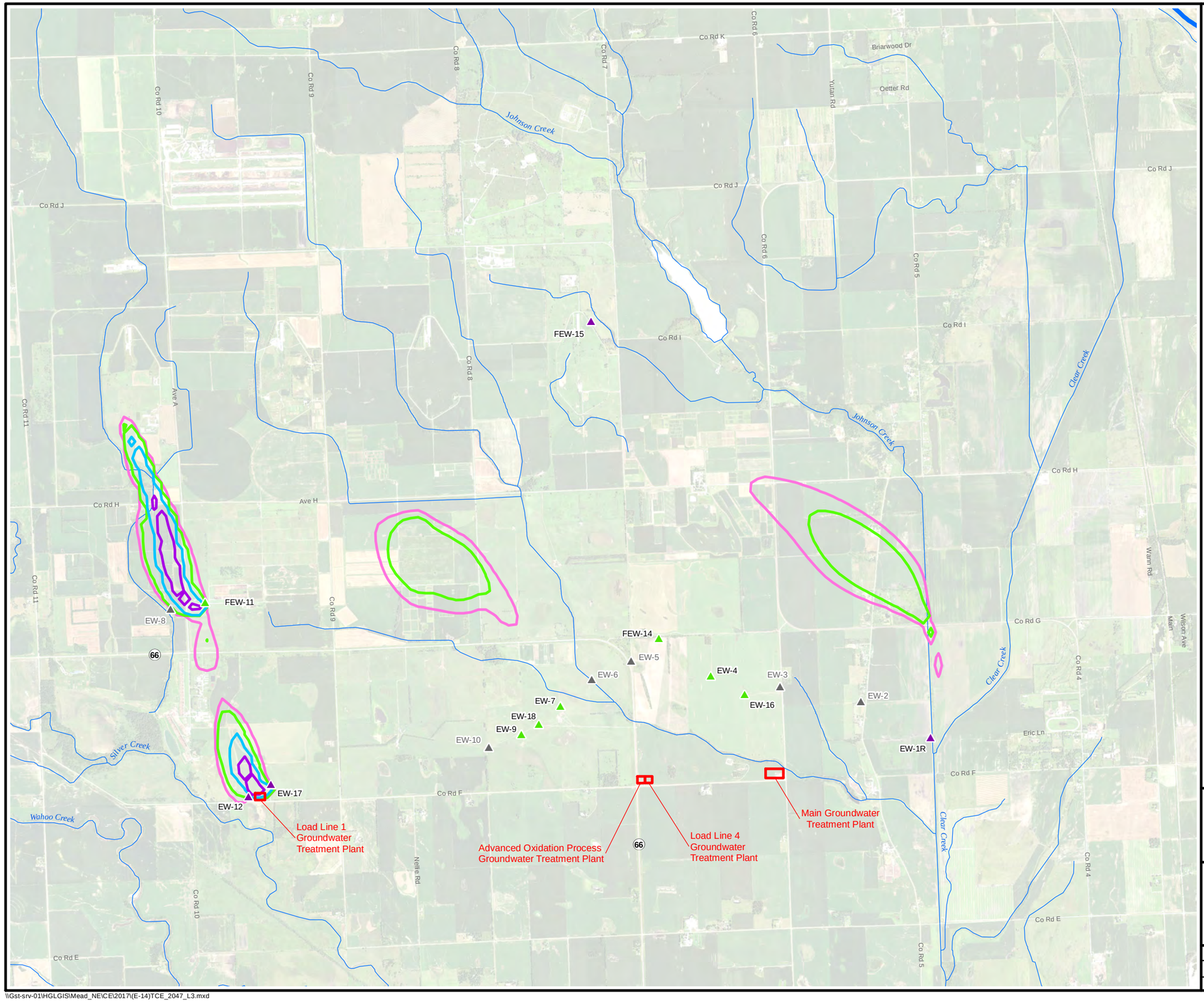

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

TCE Concentration

- 5 µg/L
- 10 µg/L
- 100 µg/L
- 1,000 µg/L
- 10,000 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure E.14
Predicted TCE Concentrations
Layer 3 - 2047

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 1	Revision Date / Initials:	

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APPENDIX F

RDX TRANSPORT SIMULATIONS

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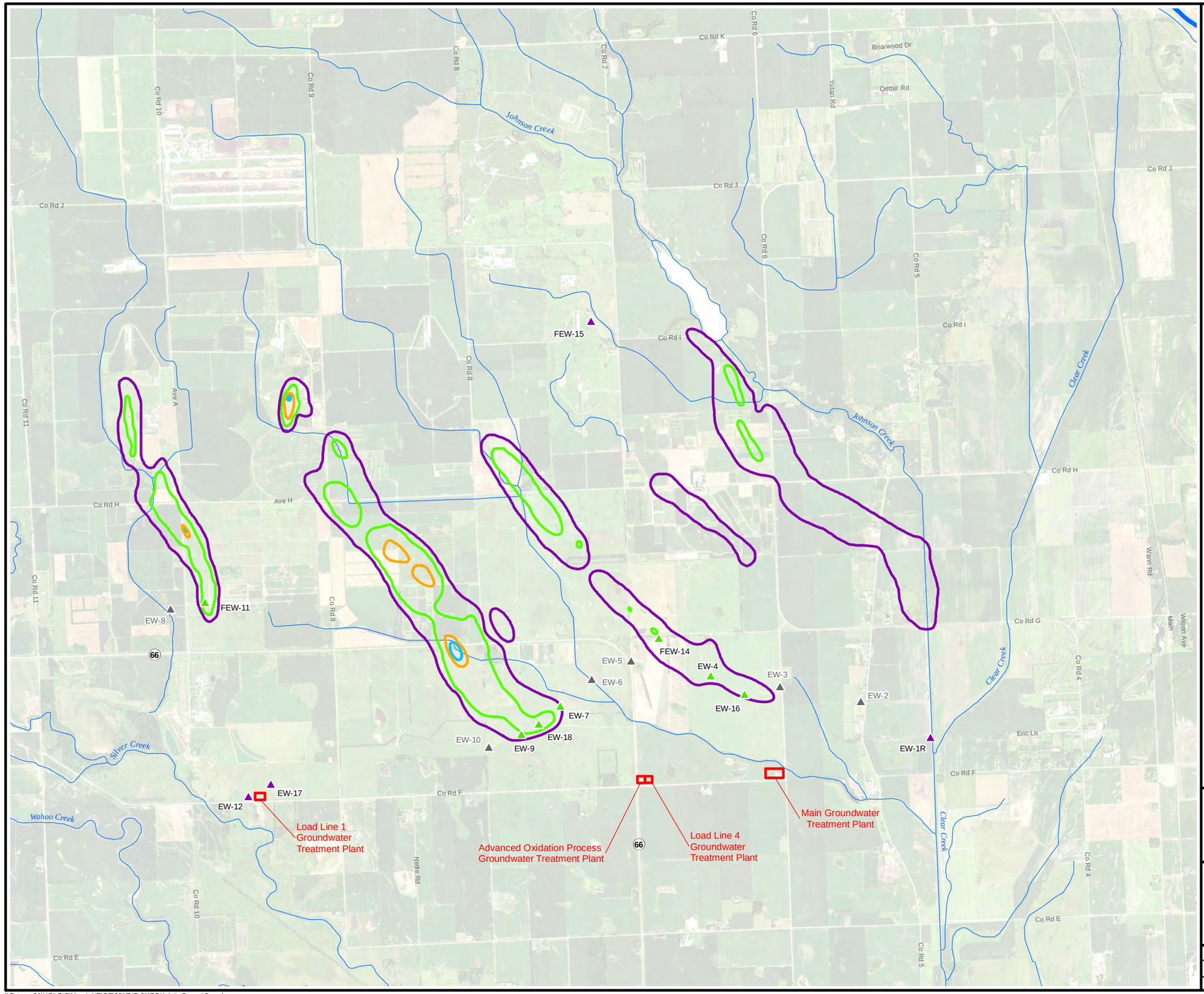

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure F.1
Initial RDX Concentrations
Layer 2 - 2017

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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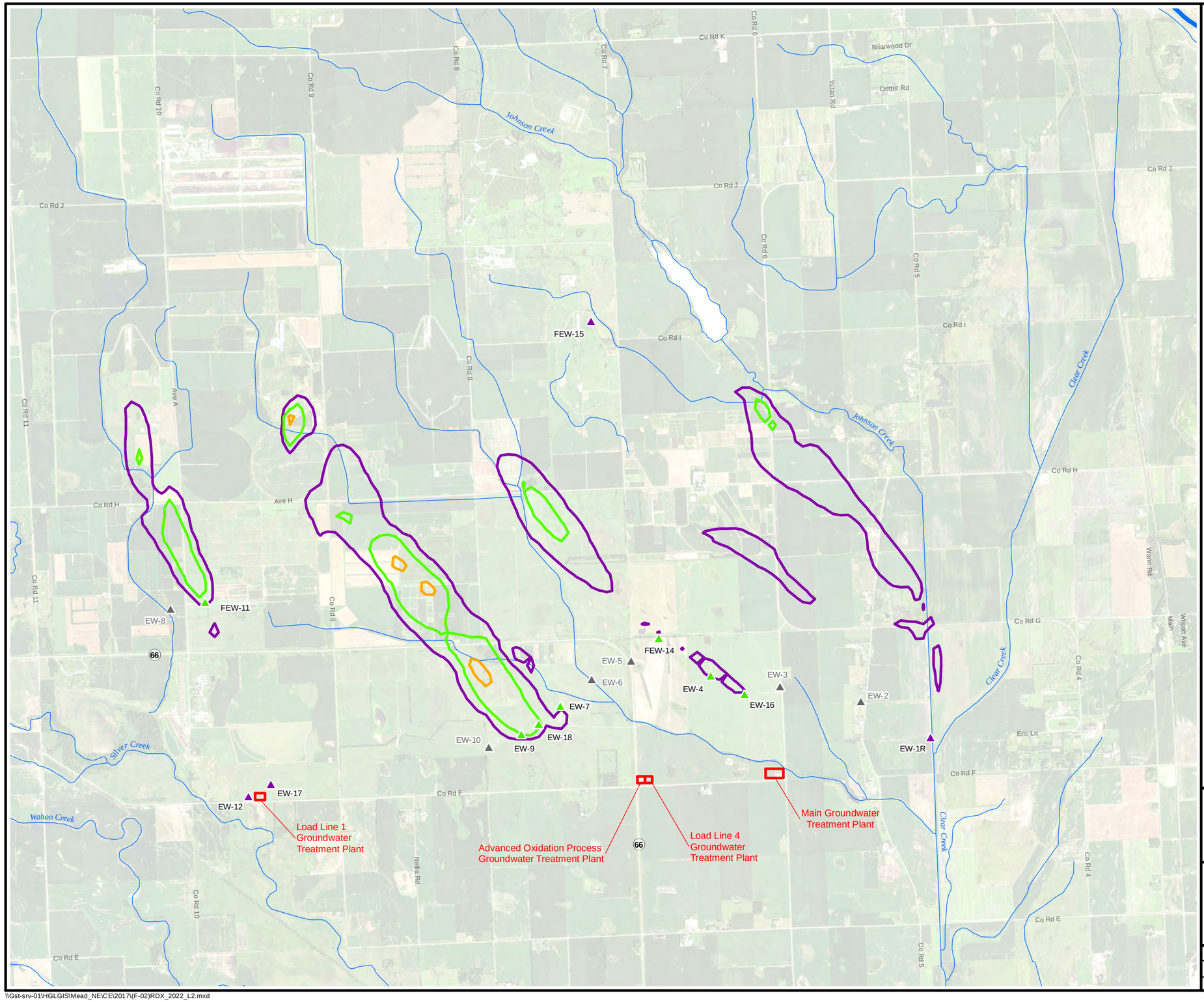

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure F.2
Predicted RDX Concentrations
Layer 2 - 2022

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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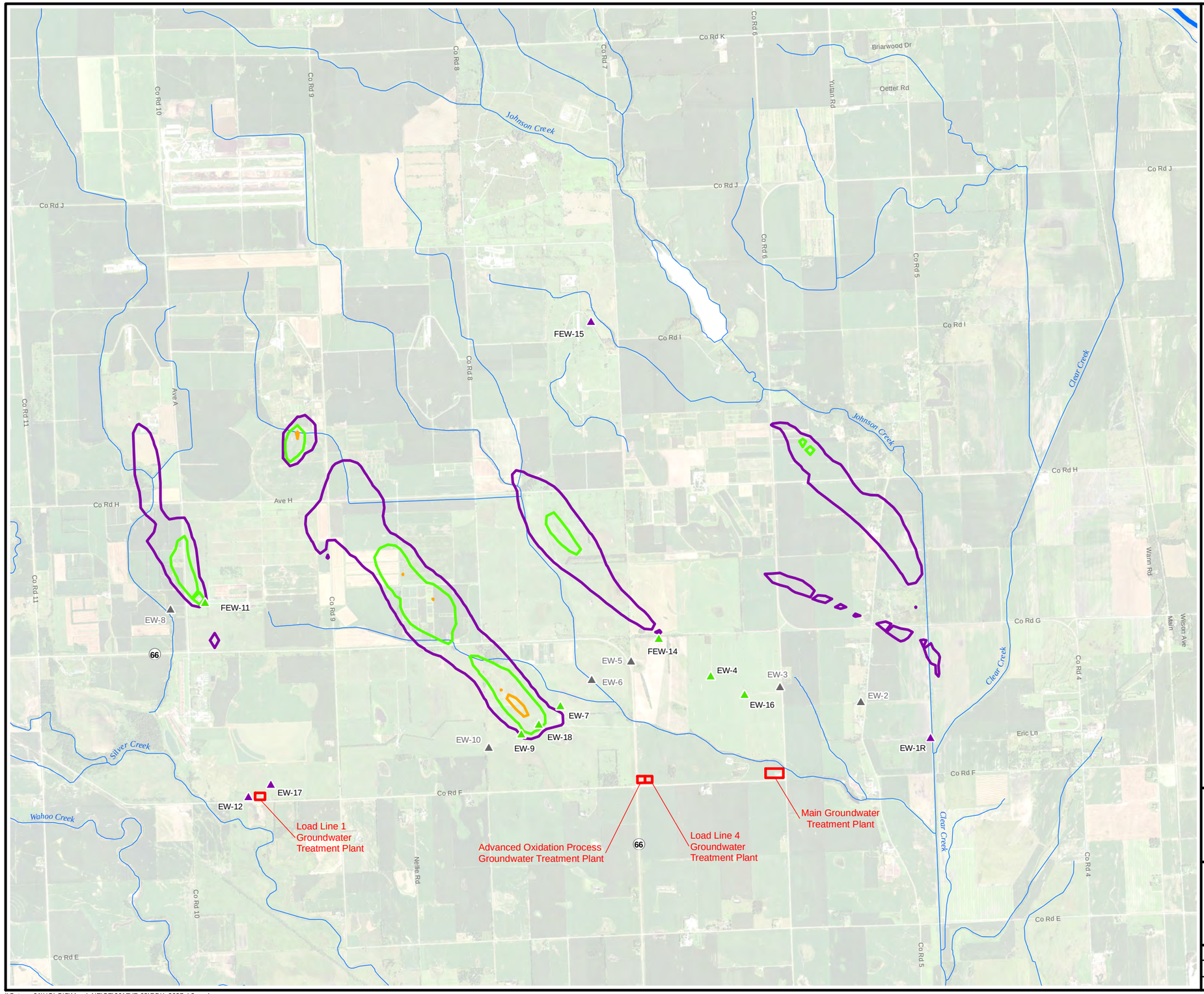

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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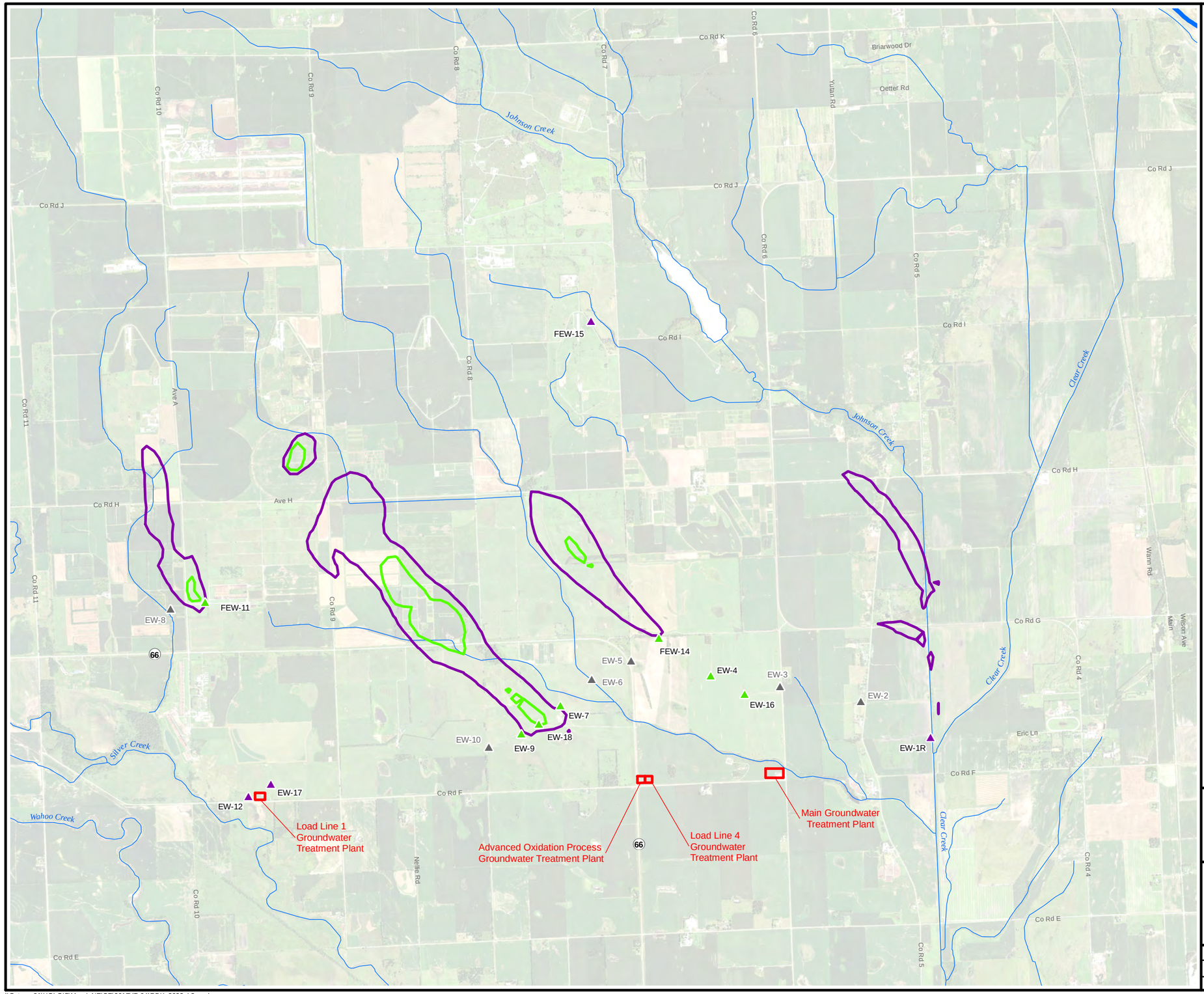
Mead, Nebraska
2017 Containment Evaluation

Figure F.3
Predicted RDX Concentrations
Layer 2 - 2027

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane
Version: 2	Revision Date / Initials: 01/08/2018 RR	Units: Feet

\\Gst-srv-01\HGLGIS\Mead_NE\CE\2017\(F-03)RDX_2027_L2.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.4
Predicted RDX Concentrations
Layer 2 - 2032

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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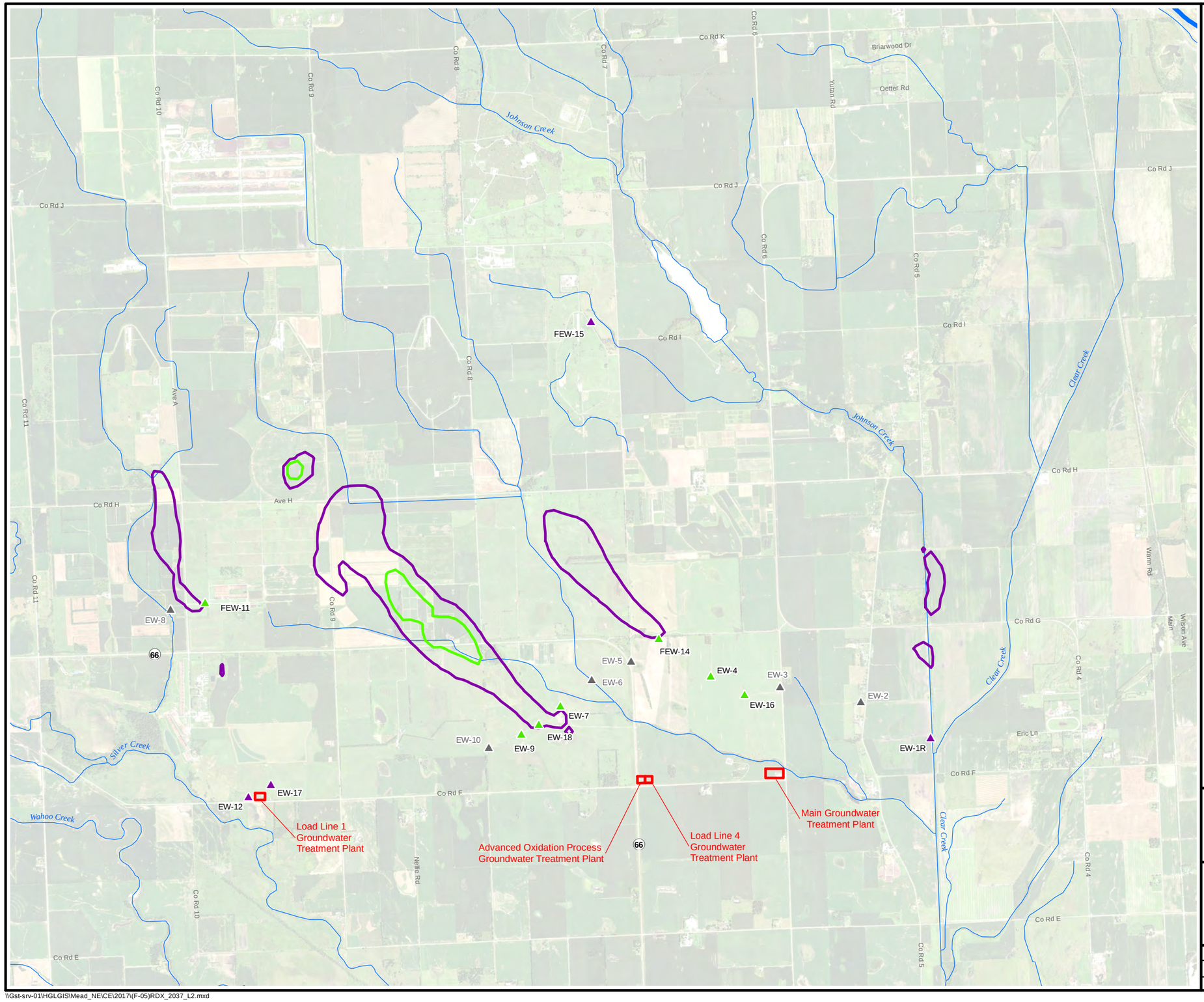

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.5
Predicted RDX Concentrations
Layer 2 - 2037

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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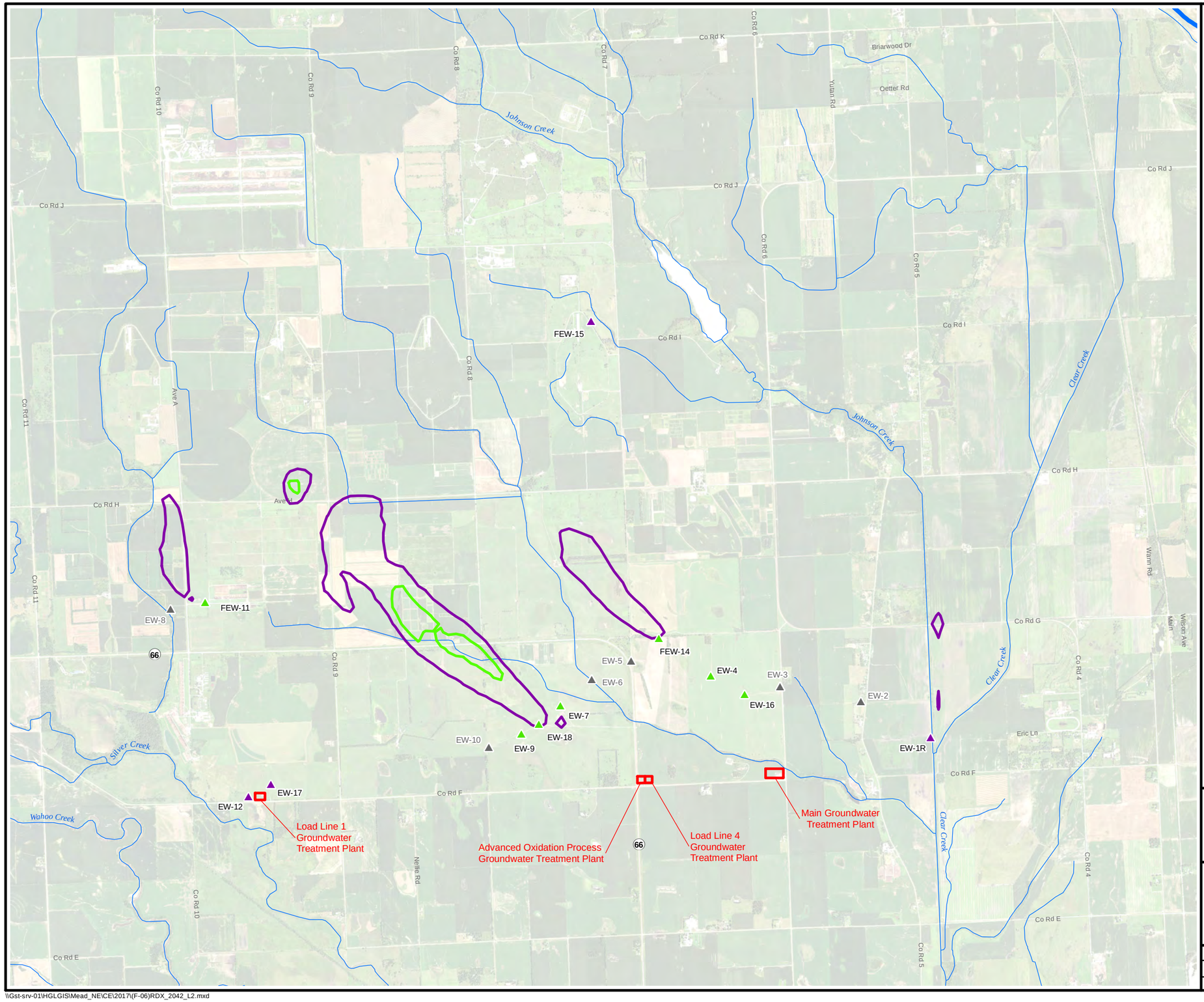

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.6
Predicted RDX Concentrations
Layer 2 - 2042

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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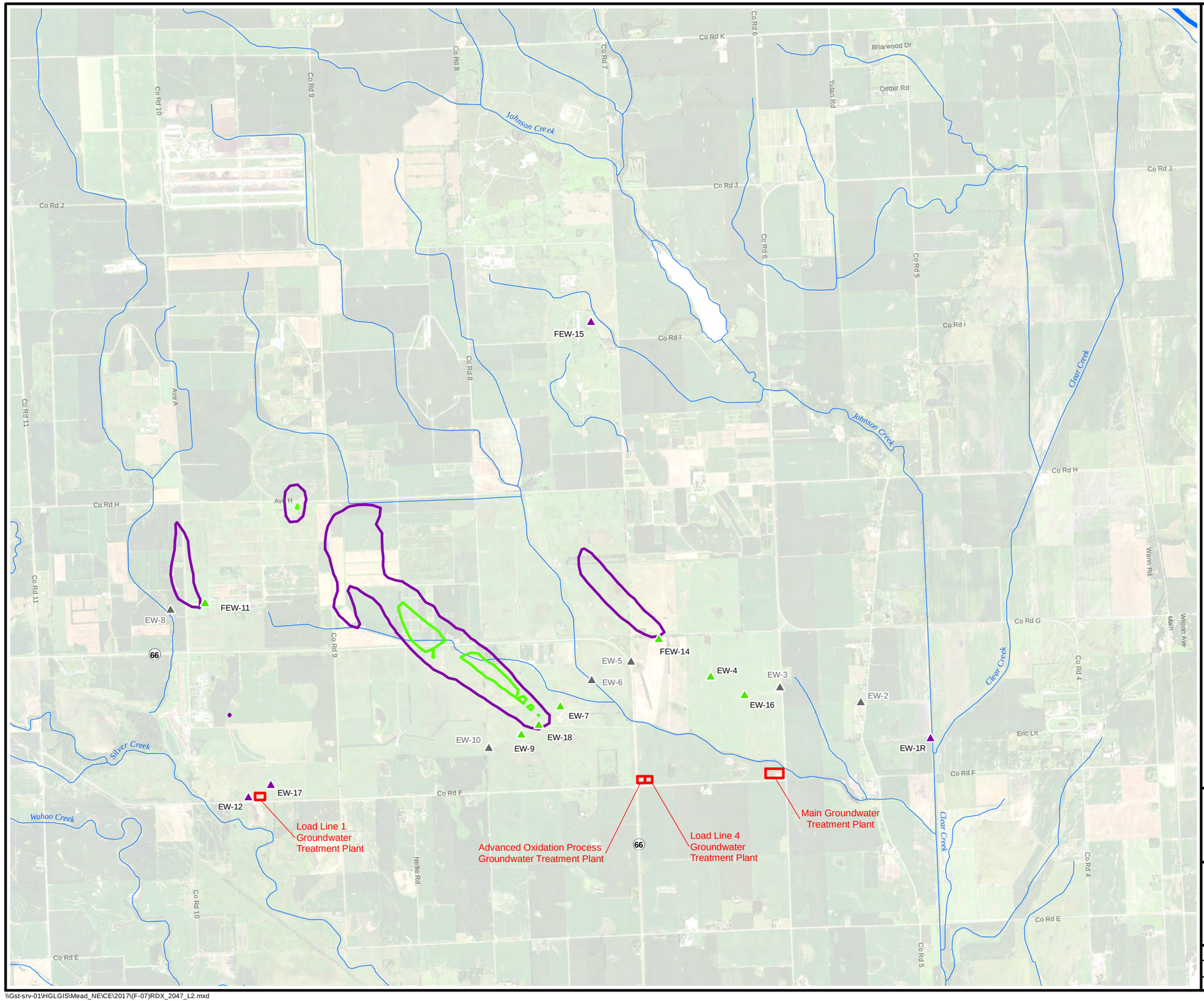

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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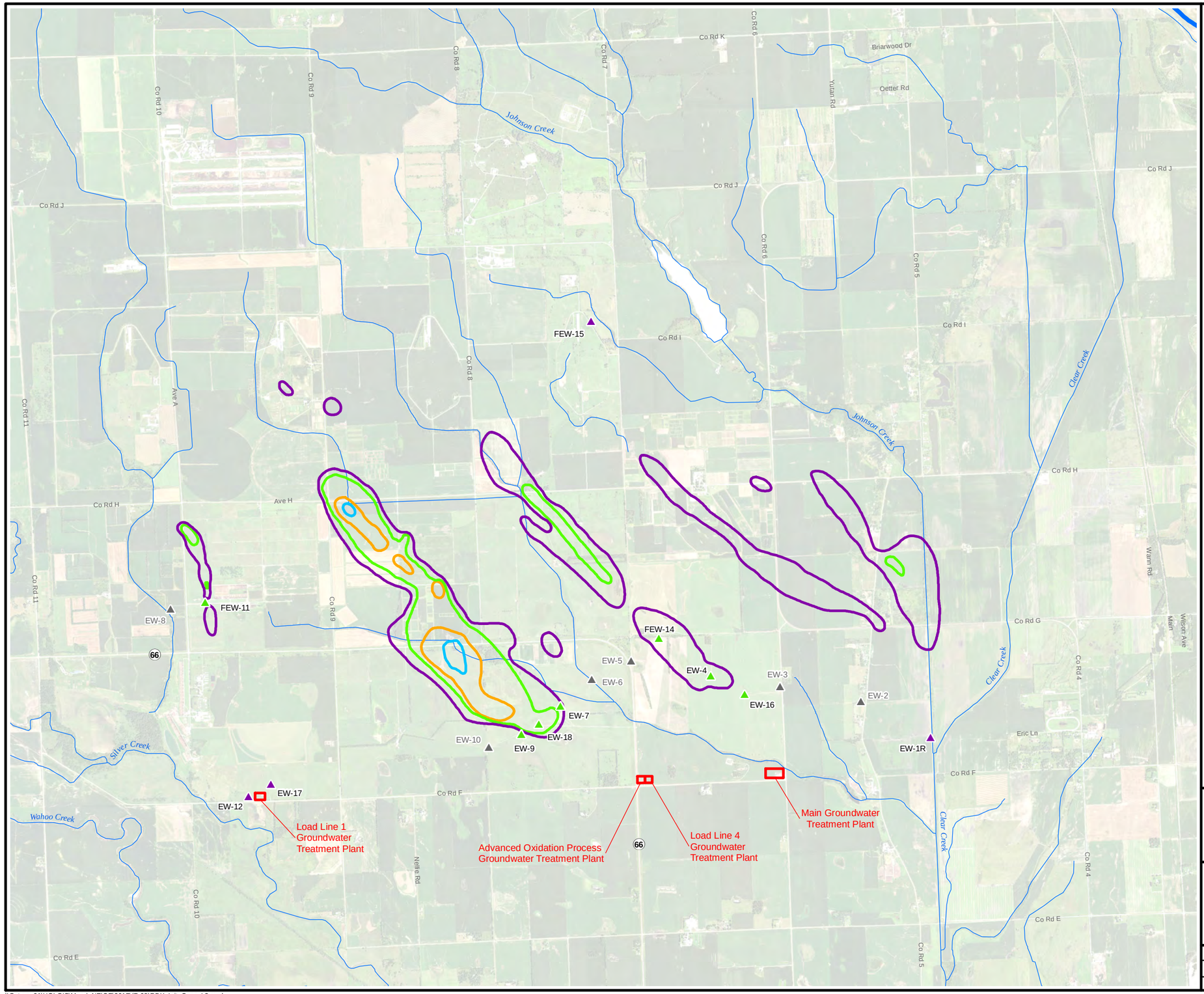
Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.7
Predicted RDX Concentrations
Layer 2 - 2047

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

\\Gst-srv-01\HGLGIS\Mead_NE\CE\2017\(F-07)RDX_2047_L2.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.8
Initial RDX Concentrations
Layer 3 - 2017

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 1	Revision Date / Initials:	

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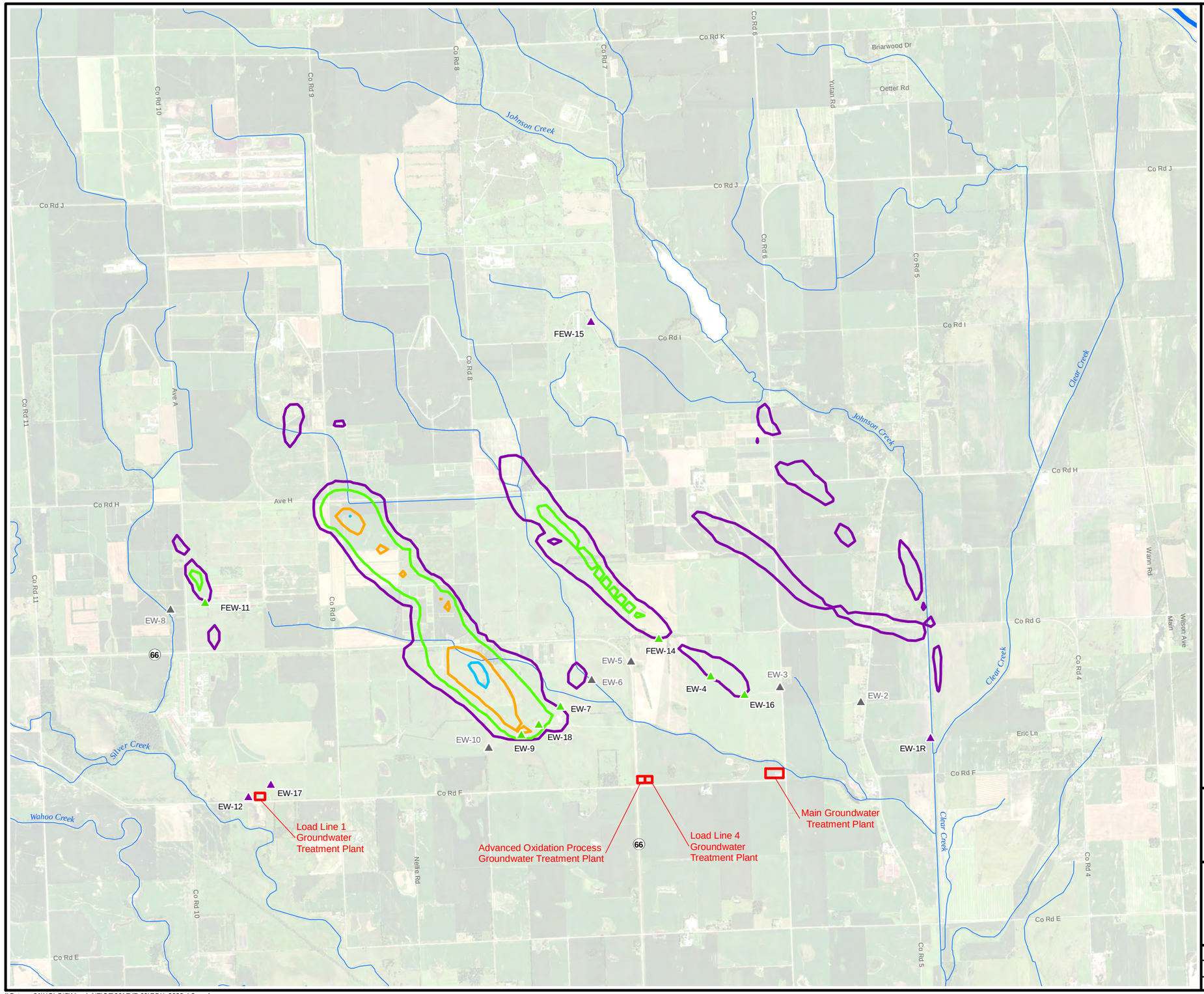

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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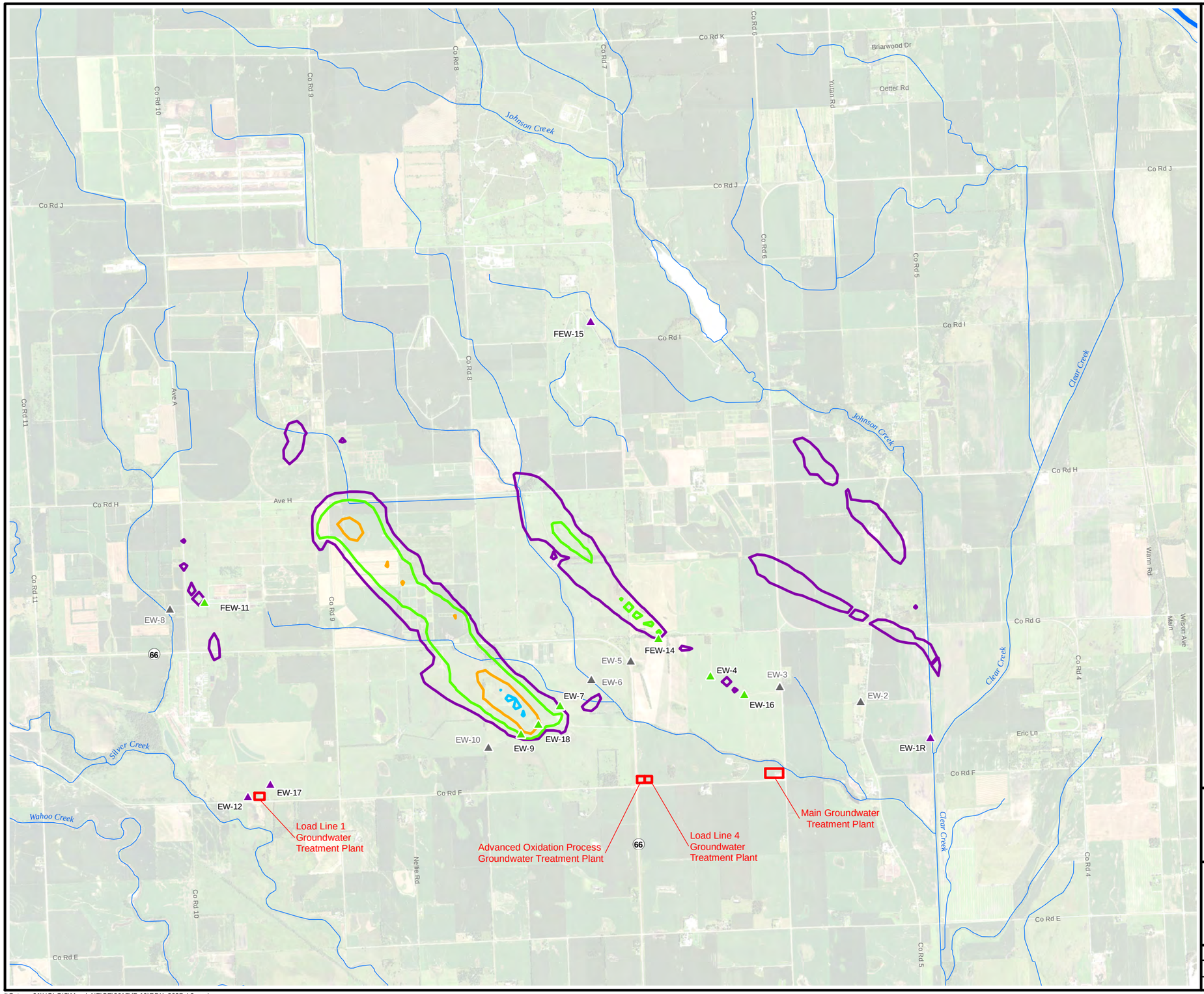
Mead, Nebraska
2017 Containment Evaluation

Figure F.9
Predicted RDX Concentrations
Layer 3 - 2022

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane
Version: 2	Revision Date / Initials: 01/08/2018 RR	Units: Feet

\\Gst-srv-01\HGLGIS\Mead_NE\CE\2017\(F-09)RDX_2022_L3.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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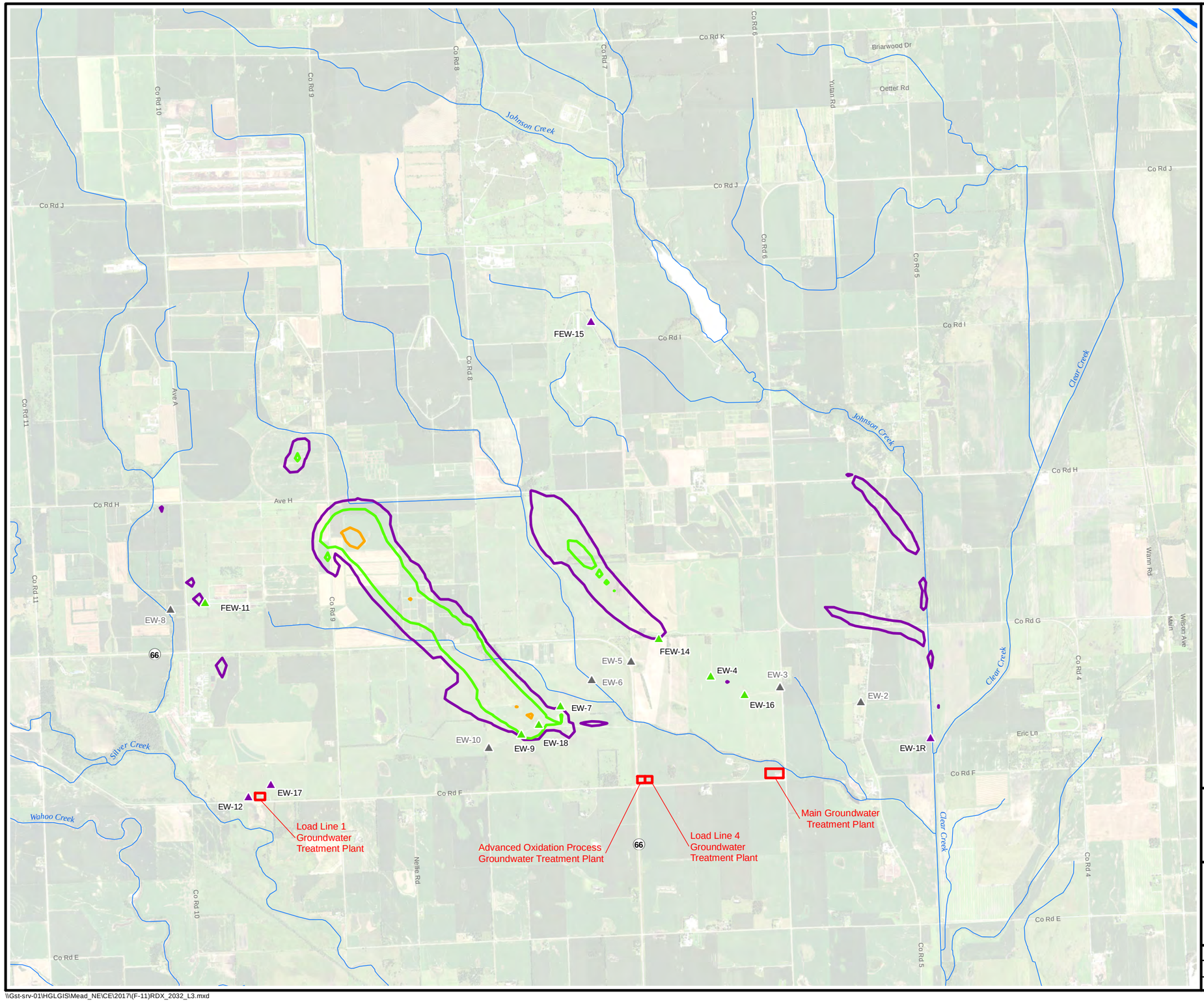
Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.10
Predicted RDX Concentrations
Layer 3 - 2027

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

\\Gst-srv-01\HGLGIS\Mead_NE\CE\2017\(F-10)RDX_2027_L3.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.11
Predicted RDX Concentrations
Layer 3 - 2032

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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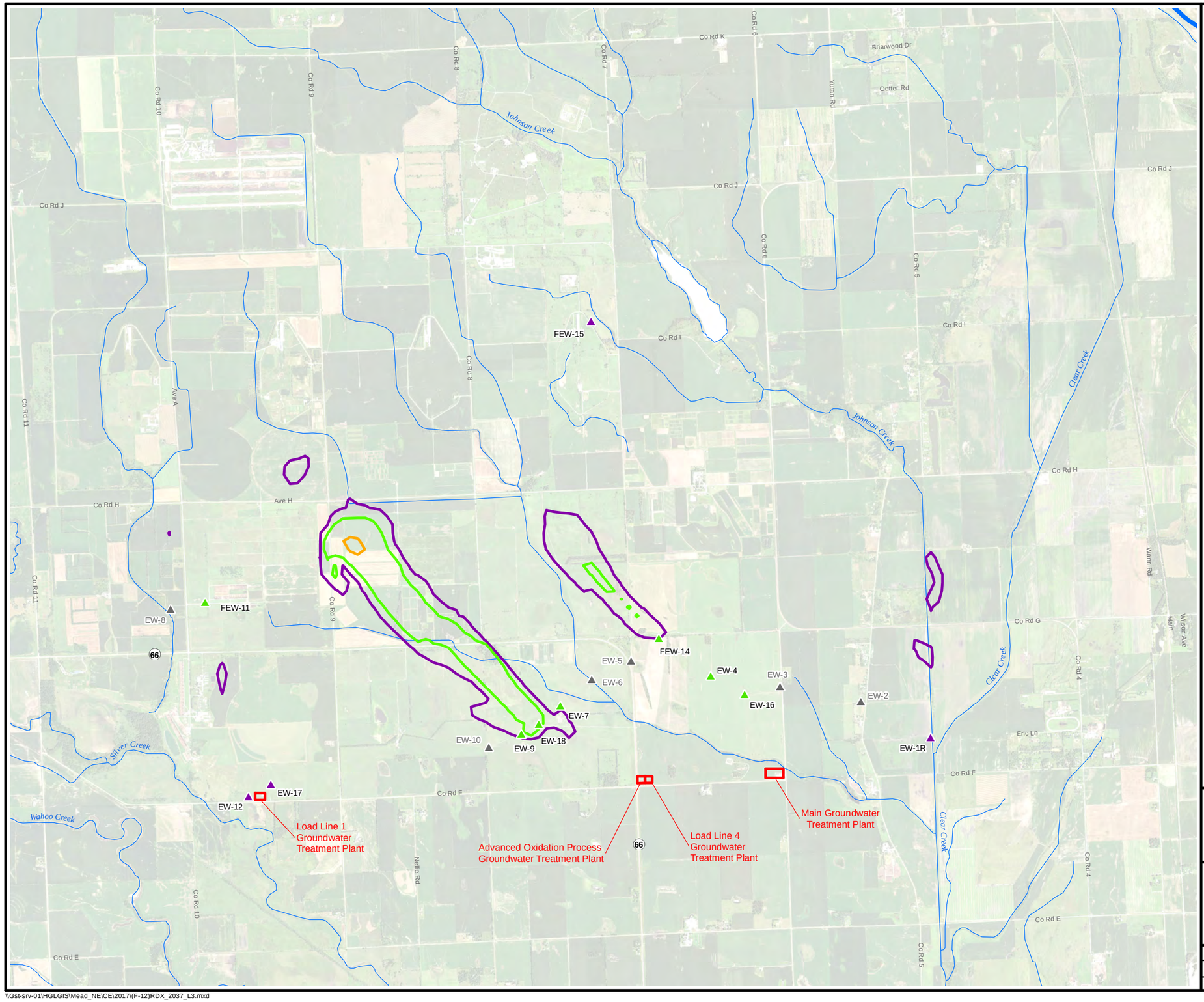

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure F.12
Predicted RDX Concentrations
Layer 3 - 2037

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 12/14/2017	Date: 01/08/2018	
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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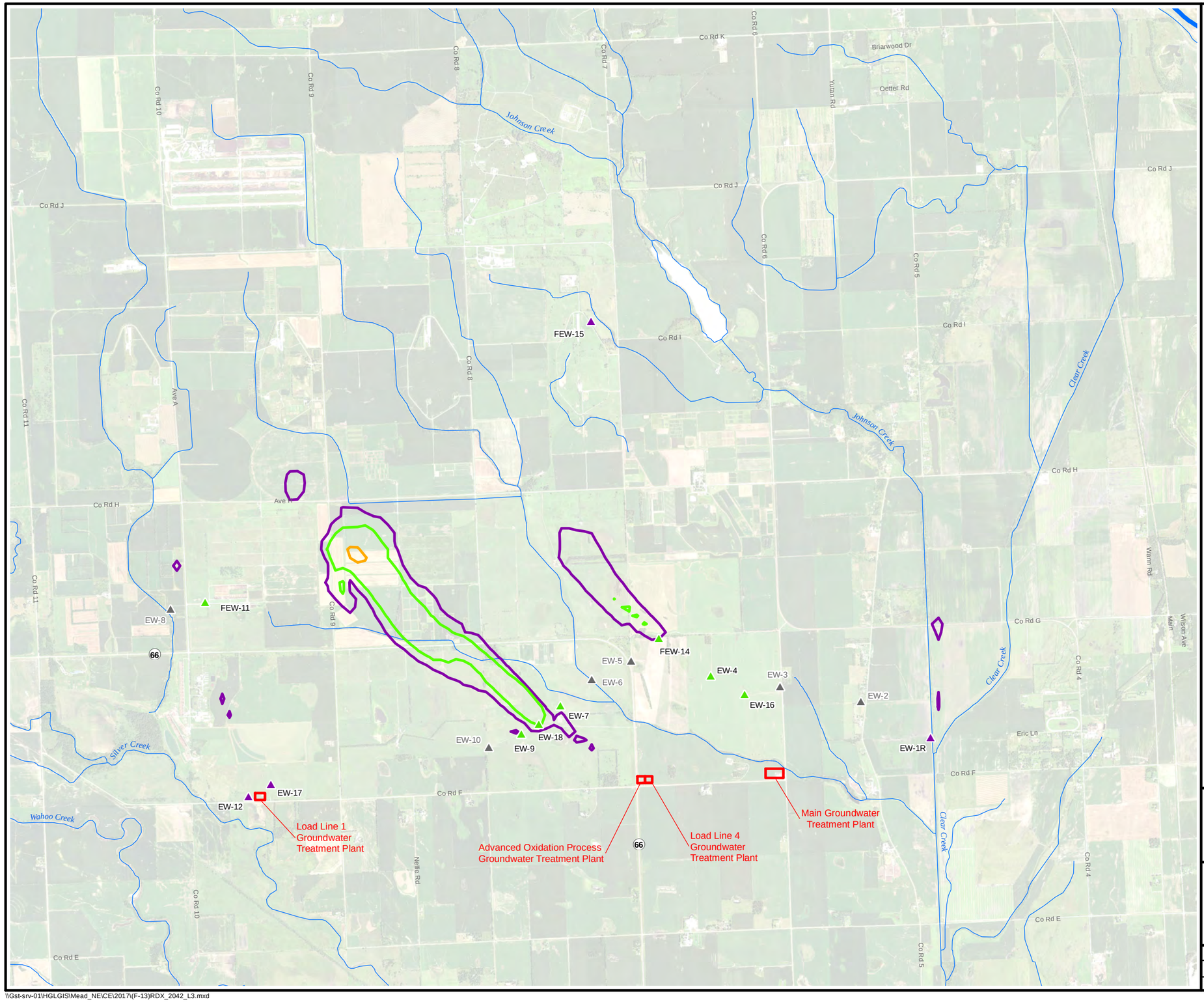

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Mead, Nebraska
2017 Containment Evaluation

Figure F.13
Predicted RDX Concentrations
Layer 3 - 2042

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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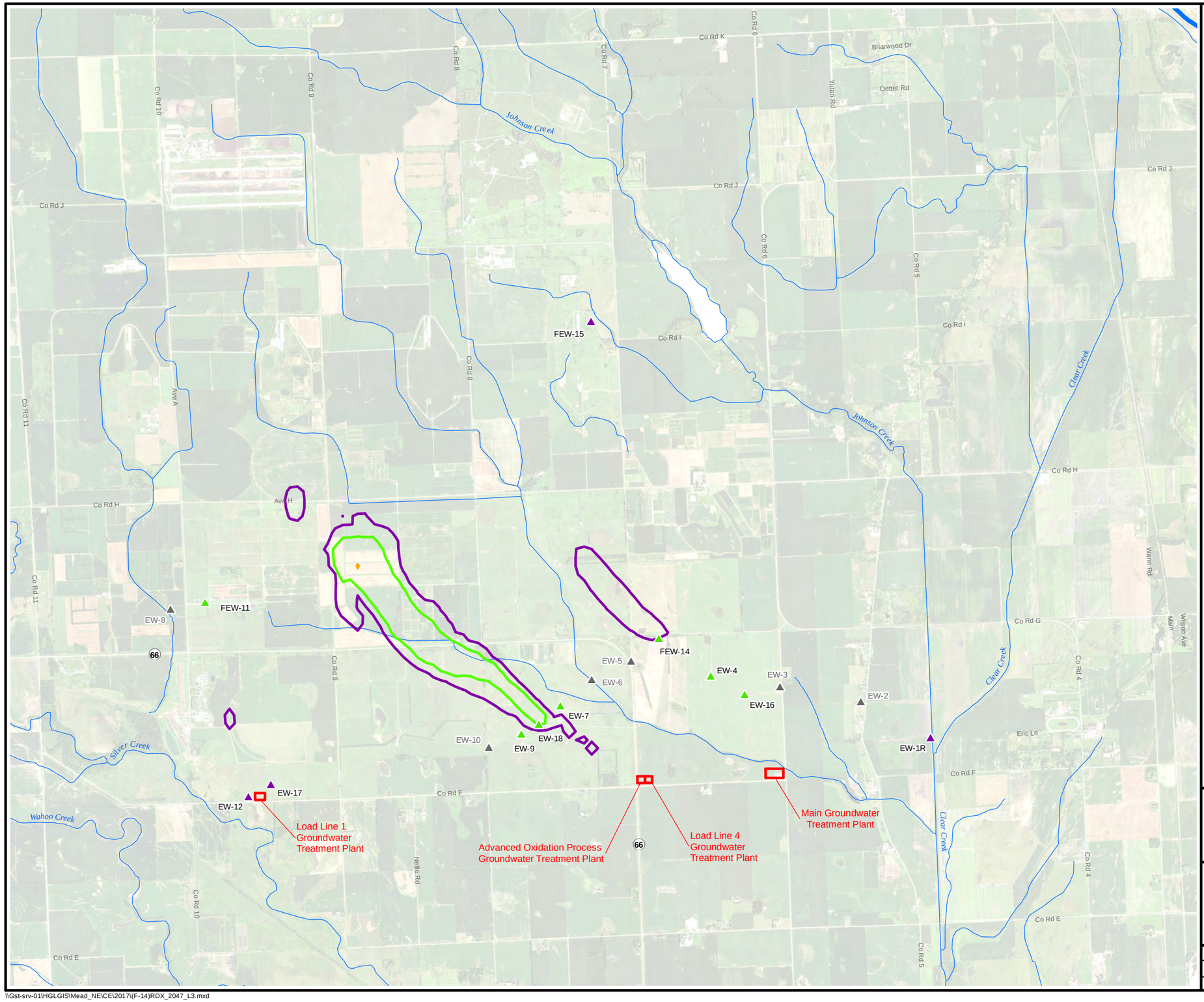

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Treatment Plant

RDX Concentration

- 2 µg/L
- 10 µg/L
- 50 µg/L
- 100 µg/L

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Containment Evaluation

Figure F.14
Predicted RDX Concentrations
Layer 3 - 2047

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NAIP (2016)
Date: 12/14/2017	Date: 01/08/2018	Projection: NAD 1983 Nebraska State Plane Units: Feet
Version: 2	Revision Date / Initials: 01/08/2018 RR	

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