HGL
HydroGeoLogic, Inc
Exceeding Expectations

Kansas City Operations

April 19, 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 Groundwater Model Update
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 Groundwater Model Update 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

6340 Glenwood, Suite 200, Building #7, Overland Park, KS 66202
Phone: (913) 317-8860 Fax: (913) 225-8091
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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: 04/19/18

TRANSMITTAL NO.: 105C

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:
[ ] THIS IS A NEW TRANSMITTAL
[X] 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 Groundwater Model Update Former Nebraska Ordnance Plant, Mead, Nebraska	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: 4/19/18

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
HydroGeoLogic, Inc. [redacted]

Lisa Tholl, HGL P[redacted]
NAME AND SIGNATURE OF CONTRACTOR

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

April 19, 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 Groundwater Model Update 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 CD 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

Printed on Recycled Paper

FINAL
2017 GROUNDWATER MODEL UPDATE

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

April 2018

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FINAL
2017 GROUNDWATER MODEL UPDATE

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

U.S. Army Corps of Engineers
Kansas City District

Contract W912DQ-13-D-3000
Task Order 0002

April 2018

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Appendix B Monitoring Well Concentration Trend Charts Over Time
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ACRONYMS, ABBREVIATIONS AND SYMBOLS

AMA	Atlas Missile Area
ARDC	Agricultural Research and Development Center
AWDN	Automated Weather Data Network
AOP	Advanced Oxidation Process
BAZE	Biologically Active Zone Enhancement
bgs	below ground surface
CAI	Chatman & Associates, Inc.
CALMIT	Center for Advanced Land Management Information Technologies
CE	Containment Evaluation
CENWK	Northwestern Division, Kansas City District
cfs	cubic feet per second
cis-1,2-DCE	cis-1,2-dichloroethene
CSD	Conservation and Survey Division, University of Nebraska - Lincoln
DNAPL	dense non-aqueous phase liquid
DNX	hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
ET	evapotranspiration
EW	extraction well
FEW	focused extraction well
f_{oc}	fraction of total organic carbon
ft	feet
ft^2	square feet
GCW	groundwater circulation well
GMP	Groundwater Monitoring Program
GMPOI	Groundwater Monitoring Program Optimization Investigation
gpm	gallons per minute
GTP	groundwater treatment plant
GWM05	2005 Groundwater Model
GWM06	2006 Groundwater Model
GWM08	2008 Groundwater Model
GWM10	2010 Groundwater Model
GWM12	2012 Groundwater Model
GWM17	2017 Groundwater Model
HDR	HDR Engineering, Inc.
HEM	Helicopter Electromagnetic and Magnetic
HMOC	hybrid method of characteristics
HMX	1,3,5,7-tetranitrol-1,3,5,7-tetrazine
HPG	hydroxy propyl guar
HPRCC	High Plains Regional Climate Center

K_d	soil-water distribution coefficient
k_{oc}	organic carbon partition coefficient
K_z	vertical hydraulic conductivity
L/kg	liters per kilogram
LL	Load Line
LPNNRD	Lower Platte North Natural Resources District
LWS	Lincoln Water System
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MGD	million gallons per day
MNX	hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
M.U.D.	Metropolitan Utilities District
MW	monitoring well
NDNR	Nebraska Department of Natural Resources
NOP	Nebraska Ordnance Plant
NWS	National Weather Service
OU	Operable Unit
PET	potential evapotranspiration
PTA	Preliminary Treatment Area
RDGM I	Remedial Design Groundwater Model, Version I
RDGM II	Remedial Design Groundwater Model, Version II
RDGM III	Remedial Design Groundwater Model, Version III
RDGM IV	Remedial Design Groundwater Model, Version IV
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
Site	former Nebraska Ordnance Plant
TCE	trichloroethene
TH	test hole
TNT	2,4,6-trinitrotoluene
TNX	trinitroxylene
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
UV	ultraviolet
ZVI	zero valent iron

2017 GROUNDWATER MODEL UPDATE
OPERABLE UNIT NO. 2 (GROUNDWATER)
FORMER NEBRASKA ORDNANCE PLANT, MEAD, NEBRASKA

1.0 INTRODUCTION

This document presents the 2017 version of the former Nebraska Ordnance Plant (NOP) groundwater model (GWM17), prepared as a part of Operable Unit (OU) 2 activities for the former NOP (Site) near Mead, Nebraska. Figure 1.1 shows the general location of the Site and Figure 1.2 is the Site map.

GWM17 is an updated version of the 2012 groundwater model (GWM12) (USACE, 2013e), and incorporates new data collected since 2012. The conceptual model for GWM12 was also refined based on the new information collected since 2012.

Additional data and refinements incorporated into GWM17 include:

- Updated plume extents for hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and trichloroethene (TCE) at Load Line (LL) 1, LL2, LL3, LL4, and the Atlas Missile Area (AMA), based on data collected during the Site-wide Groundwater Monitoring Program (GMP) (USACE, 2017b).
- Refined hydraulic conductivity distribution based on data collected from pumping tests at extraction well (EW)-17 (USACE, 2013d) and EW-18 (USACE, 2017c).
- Refined bedrock surface elevations based on stratigraphic data from monitoring wells installed in 2016 (USACE, 2017a).
- Site extraction system operational changes.
- Refined recharge values based on varied precipitation and observed water levels in Site wells from 2014 through 2017.
- Updated water level measurements from August 2014, March and August 2015, March and August 2016, and March 2017 that were coordinated by the Lower Platte North Natural Resources District (LPNNRD) with cooperation from the Lincoln Water System (LWS), the Metropolitan Utilities District (M.U.D.), the U.S. Army Corps of Engineers (USACE) Northwestern Division, Kansas City District (CENWK), and the U.S. Geological Survey (USGS).

1.1 PURPOSE AND OBJECTIVES

The purpose of this report is to document major changes to the Site regional groundwater model that have been implemented since 2012. The objective of GWM17 is to evaluate and support containment and focused extraction of contaminated groundwater. Model development is an iterative process that integrates geologic, hydraulic, and chemical data into a dynamic system that is governed by groundwater flow and fate and transport principles. The development of the regional model enables continuous improvement in understanding Site hydrogeologic conditions

and plume fate and transport behavior. The numerical model itself can be used as an effective tool to assess containment and remedial alternatives.

GWM17 is the latest in a succession of groundwater models (Section 1.2) that have been developed and used as an effective tool to:

- Assess regional-scale groundwater flow patterns;
- Monitor general plume trajectory;
- Evaluate plume containment design and containment performance (including the impacts of groundwater extraction stress on the performance of neighboring plume extraction wells and focused extraction wells [FEWs]);
- Support evaluation of pilot scale studies;
- Optimize groundwater extraction system and support evaluation of additional extraction wells;
- Assess transient impacts of local and regional irrigation and municipal pumping on the groundwater flow regimen and containment compliance; and
- Support future Containment Evaluations (CE).

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 LL1, 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 AMA was built north of LL4. 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 of 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.

1.2 SUMMARY OF PREVIOUS MODELS

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, 1996a);
- *Remedial Design Groundwater Model Technical Memorandum, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 1998) (RDGM I);
- *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) (RDGM II);
- *Remedial Design Groundwater Model III Technical Memorandum, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2002) (RDGM III);
- *Remedial Design Groundwater Model IV Technical Memorandum, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2004a) (RDGMIV);
- Updates to Remedial Design Groundwater Model IV described in the *Draft Final LL1 Containment System Remedial Design* (USACE, 2005);
- *2006 Groundwater Modeling Report, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2007) (GWM06);
- *2008 Groundwater Modeling Update, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2009) (GWM08);
- *2010 Groundwater Model Update, Operable Unit No. 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2011e) (GWM10); and
- *2012 Groundwater Model Update, Operable Unit 2 (Groundwater), Former Nebraska Ordnance Plant, Mead, Nebraska* (USACE, 2013e).

For ease of reference, the current version model is identified as GWM17.

1.2.1 Remedial Design Groundwater Models I, II, and III

The primary purpose of the Remedial Design Groundwater Model (RDGM) I and II modeling activities was to provide a basis of design for the hydraulic containment system. The containment system was designed to hydraulically contain the area of attainment boundary as defined on Figure 3 in the Record of Decision (USACE, 1997).

The total pumping rate for the initial RDGM I containment system design was 7,680 gallons per minute (gpm), 5,000 gpm of which would be generated by focused extraction wells in higher concentration areas. The revisions incorporated in RDGM II were a response to public perception that the RDGM I design would create potential water supply problems by increasing drawdowns in private wells. The RDGM II design targeted an extraction flow rate less than 4,000 gpm by limiting the extraction wells to the LL1 RDX plume and the AMA TCE plume, while keeping the total pumping rate of the hydraulic containment wells similar to the RDGM I design rate. The RDGM II design included alternatives for focused extraction wells (total pumping rate of 800 gpm), or the use of groundwater circulation wells (GCWs) instead of extraction wells in areas with higher concentrations.

RDGM III (USACE, 2002) used the same model grid as RDGM II; however, the bedrock surface within the model was modified using new pilot-hole data. The hydraulic conductivity distribution was modified using data from tests of the newly installed extraction wells. The initial total pumping rate at startup in 2002 for the groundwater extraction and treatment system was 2,610 gpm. This total does not include FEW-11, which was installed in 2001, but did not begin pumping until the Advanced Oxidation Process (AOP) treatment plant began operation in 2008.

1.2.2 Remedial Design Groundwater Model IV

In 2003-2004, significant revisions were incorporated in RDGM IV and included:

- Expansion of the model domain to nearby physical boundaries of the aquifer (e.g., the Platte River, Silver Creek, and the loess-mantled till uplands).
- Refinement of the model grid dimensions to place observation wells in cells separate from pumping wells.
- Re-characterization of initial contaminant concentrations near LL1 using supplemental groundwater data collected in 2004 by direct-push methods near Silver Creek.

The RDGM IV modeling simulated the first year and a half of pumping through October 2003, at which time the total pumping rate was 2,345 gpm.

1.2.3 2005 Groundwater Model Update

The groundwater model was further updated in 2005 to support the design of the LL1 treatment system including EW-12 and EW-13. The *Draft Final LL1 Containment System Remedial Design* (USACE, 2005) documents the changes to RDGM IV that resulted in the 2005 Groundwater Model (GWM05) (a separate groundwater model report was not issued), and how the model was used during the design process. GWM05 used the same model grid and surfaces as RDGM IV but incorporated the following changes:

- Inclusion of Wahoo Creek by expanding the active part of the model from Silver Creek to the southwest edge of the Wahoo Valley (i.e., to the loess-mantled till uplands south of Wahoo Creek).
- Adjustment of drain cell elevations in the Platte River valley to generally within 1 to 5 feet (ft) of ground surface.

- Addition of registered irrigation and municipal supply wells. This includes use of LWS wells in the history matching and predictive simulations, and the use of M.U.D. Platte West wells in predictive simulations.

1.2.4 2006 Groundwater Model Update

The GWM06 model (USACE, 2007) was an expansion and refinement of the GWM05. GWM06 was extended farther south to include all the LWS water supply wells near Ashland, and farther east to include the east valley wall of the Platte and Elkhorn rivers. During the acquisition of data to define the GWM06 model layers in the new areas, new data were also incorporated into the existing portions of the model previously covered by GWM05. As in the previous model revisions, the conceptual model was re-evaluated based on the new information.

Major refinements in GWM06 included:

- Expanding and updating the bedrock surface and the base of the loess.
- Converting model coordinates from North American Datum of 1927 to North American Datum of 1983.
- Incorporating additional characterization data collected by direct-push methods in Fall 2005 and Spring 2006 (USACE, 2006); as well as data collected during the 2006 Site-Wide GMP.
- Replacing the regions of constant hydraulic conductivity with a more detailed hydraulic conductivity distribution created using MODAC™, an automated parameter estimation tool (Guo and Zhang, 2000).
- Detailed calibration consisting of a quasi-steady state calibration; five-year transient calibration (since the beginning of Site pumping in 2002); short-term transient calibration using December 2006 system-wide shutdown water levels; quasi-steady state verification using October 2006 regional water levels; history matching of plume migration pathways using particle tracking; and history matching of plume migration using transport modeling.
- Adjusting hydrologic parameter values to improve the model capability to accurately simulate all available Site data.

1.2.5 2008 Groundwater Model Update

GWM08 (USACE, 2009) used the same grid and covered the same area as GWM06. Between GWM06 and GWM08, the LL1, LL2, and LL3 plumes were further characterized; and stream-aquifer interaction data were collected near Johnson Creek and the Platte River. Incorporation of these data and the revised conceptual model necessitated an extensive update and recalibration.

Major refinements in GWM08 included the following:

- Refining the model based on new plume characterization data;
- Revisiting the soil-water distribution coefficient (K_d) based on new total organic carbon (TOC) data;

- Refining hydraulic conductivity data based on aquifer tests and slug tests;
- Revising the assumed TCE source area simulation based on new analytical data;
- Refining the bedrock surface;
- Revising the simulation of the Johnson Creek seep and drainage tiles based on measured flow rates; and
- Conducting fate and transport modeling of a combined TCE and RDX plume.

1.2.6 2010 Groundwater Model Update

GWM10 (USACE, 2011e) covered the same area as GWM08. Between GWM08 and GWM10, the LL1, LL2, LL3, and LL4/AMA plumes were further characterized and additional hydraulic conductivity data was available from aquifer tests and slug tests.

Major refinements in GWM10 included, but were not limited, to the following:

- Refining the plume distributions based on data collected during the Aquifer Characterization (USACE, 2011c), Pre-Pilot Study Investigation (USACE, 2011b), 2009 GMP (USACE, 2010), and 2010 GMP (USACE, 2011d);
- Refining hydraulic conductivity data based on pumping tests, slug tests, and water levels;
- Refining the bedrock surface based on stratigraphic data from monitoring wells installed in 2010;
- Incorporating changes to the extraction system;
- Refining recharge values based on varied precipitation and higher observed water levels in Site wells in 2009 and 2010;
- Refining the model grid near the extraction wells to better simulate the capture zones; and
- Revising the conceptual models of the high concentration areas at LL1 based on data collected during the 2011 Aquifer Characterization, and ongoing monitoring well trends.

1.2.7 2012 Groundwater Model Update

GWM12 (USACE, 2013e) incorporated changes to plume extents, hydraulic conductivity distribution, hydrostratigraphy, and recharge.

Additional data and refinements to GWM12 included:

- Updating plume extents for RDX and TCE at LL1, LL2, LL3, LL4, and the AMA, based on direct-push data collected during the GMP Optimization Investigation (GMPOI) in 2011 (USACE, 2012a) and data collected during the Site-wide GMP (USACE, 2012b and 2013a);
- Refining the hydraulic conductivity distribution using was available from data collected from pumping tests at EW-1R; aquifer testing at test hole (TH)-EW-17; and slug tests in

new and existing wells conducted during the Monitoring Well Network Optimization, Phase II (USACE, 2013b);

- Refining the bedrock surface based on stratigraphic data collected from monitoring wells and bedrock borings installed in 2012;
- Refining recharge values based on varied precipitation, drought conditions and observed water levels in Site wells in 2011 and 2012; and
- Refining additional hydrostratigraphic based on boring logs and preliminary results from the Helicopter Electromagnetic and Magnetic (HEM) Geophysical Survey (USACE, 2013c).

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2.0 SITE DATA AND GROUNDWATER FLOW CONCEPTUAL MODEL

Section 2.0 presents a general description of the physiography, geology, hydrogeology, and aquifer withdrawals within the groundwater model area. A conceptual model for the Site geology and hydrology is presented and forms the current basis for the development of the GWM17 numerical flow and transport model.

2.1 PHYSIOGRAPHY AND TOPOGRAPHY

The physiography of eastern Saunders County where the Site is located can be divided into three regions: floodplain, terrace plain, and uplands. Figure 2.1 shows the physiographic boundaries and ground surface elevations developed as described in the GWM08.

The floodplain primarily consists of the floodplains of the Platte River and Wahoo Creek. Ground surface elevations in the Wahoo Valley range from 1,050 ft (North American Vertical Datum 88) near Ashland to 1,130 ft near Ithaca. Elevations in the Platte Valley range from 1,050 ft near Ashland to 1,120 ft near Leshara in the Platte Valley. The topography is flat, sloping 4 ft/mile in the Platte Valley and 6 ft/mile in the Wahoo Valley.

The terrace plain is known as Todd Valley, and is a stream terrace abandoned when the ancestral Platte River pirated a tributary of the Elkhorn River. The terrace is generally 50 ft higher in elevation than the Wahoo Creek and Platte River floodplains. Elevations here range from 1,220 ft near Colon in the northwest corner of the model area to 1,100 ft in the southeast, with a slope of approximately 9 ft/mile.

There are two areas of till uplands in the model area. One area is between the Todd Valley and the Platte Valley, and the other is southwest of Wahoo Creek. In contrast to the relatively flat Todd Valley terrace plain, the uplands are hilly with elevations ranging between 50 ft and 200 ft higher than the Todd Valley.

2.2 GEOLOGY

The geology of the Site consists of Cretaceous-age bedrock, Quaternary-age glacial deposits, and Quaternary-age alluvial deposits. The following subsections describe updates to the geologic model made since GWM12.

2.2.1 Bedrock

The Cretaceous Omadi Formation underlies the Todd Valley and Platte Valley sands and gravels. Although the term “Dakota Group” is more commonly used to describe the Cretaceous bedrock in the vicinity of the former NOP, the term “Omadi Formation” is used in this memorandum to be consistent with the term used by Piskin (1972) and in previous USACE reports. The Omadi Formation underlies all but the southeastern portion of Saunders County (Divine, 2015). According to Piskin (1972), the Omadi Formation is characterized by shale and sandstone lithofacies that exhibit abrupt lateral and vertical changes in lithology. The shale typically occurs in the upper part of the Omadi and is thickest in the central and northern part of the former NOP

where the Omadi is thicker. The lower part of the Omadi is predominantly poorly cemented sandstone.

The Omadi is thickest (133 ft) near EW-18, and is absent in the southeast corner of Saunders County. In southeastern Saunders County, the uppermost bedrock consists of Pennsylvanian limestones and shales (Divine, 2015) that act as an aquitard (Hanson et al., 2012).

Figure 2.2 shows the interpreted bedrock surface. The surface was developed using data presented in Tables 2.1 and 2.2. The data in Table 2.2 is from the following sources:

- USACE boring logs;
- Nebraska Department of Natural Resources (NDNR) registered well database through July 2017 (NDNR, 2017);
- USGS boring logs (Souders, 1967);
- Hydrogeology of the University of Nebraska Field Laboratory at Mead, Nebraska (Piskin, 1972); and
- The Groundwater Atlas of Saunders County, Nebraska (Divine, 2015);

The boring log data in the NDNR registered well database varies in quality. Many of the logs are drillers' logs based on cuttings rather than discrete samples, and the Omadi Formation is not consistently identified. The top of bedrock contour map (Figure 2.2) was generated by compiling data from the posted sources, and outliers were removed by comparing the elevations to each other and a digitized contour of Figure 3 ("Elevation of Top of Bedrock") from *The Groundwater Atlas of Saunders County, Nebraska* (Divine, 2015). Where nearby data points conflicted, preference was given to data from borings with discrete samples. Borings with discrete samples included USACE monitoring well borings, USACE extraction well pilot holes, USACE bedrock borings, and LWS and M.U.D. municipal well field test holes. Among borings sampled from cuttings, preference was given to the USGS (Souders, 1967) and Piskin (1972) boring logs over irrigation well logs. The bedrock surface was contoured using a kriging algorithm and the program Surfer® (version 12) developed by Golden Software.

The top of the Omadi Formation beneath the former NOP generally slopes to the southeast. The axes of two tributary paleovalleys identified by Divine (2015) are corroborated by the bedrock surface elevations shown on Figure 2.2. The southern tributary paleovalley begins near LL1 and follows the western edge of Todd Valley before turning east along County Road D beyond the extent of Figure 2.2. The northern tributary paleovalley is beneath the till uplands northeast of LL4 and is relatively short. It appears to converge north of the town of Wann with a large north-south paleovalley under the Platte Valley beyond the extent of Figure 2.2.

2.2.2 Loess and Alluvial Overbank Fines

During Wisconsinan-age time, the Todd Valley and the surrounding uplands were covered by the light brown and light gray mottled Peoria Loess. The loess typically ranges between 10 and 20 ft in thickness in the Todd Valley. The loess is absent in the Platte River and Wahoo Creek valleys. The silts and clays overlying the Platte River sands and gravels are alluvial overbank deposits,

which are not related to the Peoria Loess. The thickness of the overbank fines typically ranges from 0 to 20 ft. Figure 2.3 represents the base of the loess in the Todd Valley and the overbank fines in the Platte Valley. The surface was contoured using a kriging algorithm and Surfer®. The surface was developed using data presented in Table 2.2 from the NDNR registered well database (through July 2017), and USACE boring logs.

2.3 HYDROGEOLOGY

The hydrogeology of the Site modeled area consists of three major alluvial aquifers (Todd Valley aquifer, Platte Valley aquifer, and Wahoo Valley aquifer) and one minor aquifer (the till Uplands aquifer). All four aquifers are underlain by the Omadi Formation (as discussed in Section 2.2.1), except where the Omadi is absent and the subcrop consists of Pennsylvanian strata near the LWS Ashland well field. Slug tests performed as part of the 2016 Omadi Assessment (USACE, 2017a) indicated the range of hydraulic conductivity values for wells in the Omadi formation was 3.24 ft/day in monitoring well (MW) 61D to 134 ft/day in MW-82D. Although there was a wide range of hydraulic conductivity values at all depths within the Omadi Formation, hydraulic conductivity is generally lower near the top of the Omadi Formation.

2.3.1 Platte Valley Aquifer

The hydrostratigraphy of the Platte Valley consists of two principal layers:

1) Silt and clay overbank deposits approximately 5 to 20 ft thick (partially to fully saturated); and
2) Coarse grained sand and gravel alluvium (fully saturated).

The low permeability, saturated overbank fines act as an upper leaky confining unit over the Platte Valley aquifer, which impedes but does not prevent groundwater discharge from the aquifer to the ground surface (USACE, 1996a). The range of hydraulic conductivity values for wells in the Platte Valley was 93 to 328 ft/day (USACE, 2011c and USACE, 2013b). Previous hydraulic conductivity estimates in the Platte West Well Field ranged between 450 ft/day to 600 ft/day (CAI, 2005).

<u>EW-1R Pumping Tests</u>

Constant rate pumping tests and recovery tests were conducted at EW-1R at the leading edge of the LL4/AMA contaminant plume; results were reported in the *EW-1R Post Installation Technical Memorandum* (USACE, 2012c). The values for transmissivity, hydraulic conductivity, and storativity were calculated using the Hantush-Jacob method for leaky confined aquifers. Transmissivity values ranged from 5,657 to 15,240 square feet (ft^2)/day. Assuming a saturated aquifer thickness of 23 ft (based on borehole logs at EW-1R), hydraulic conductivity estimates ranged from 245 to 662 ft/day. The dimensionless storativity values ranged from 2.7×10^{-4} to 7.7×10^{-3}. The distance-drawdown data suggest hydraulic conductivity near EW-1R is approximately 350 to 370 ft/day. The calculated values for transmissivity, hydraulic conductivity, and storativity are similar to those estimated based on the 2011 pumping test (352 to 370 ft/day) and the October 2008 pumping test at EW-1 (314 to 447 ft/day) (USACE, 2012c).

2.3.2 Todd Valley Aquifer

The hydrostratigraphy of the Todd Valley aquifer consists of two principal sedimentary units:

1) The Peoria Loess, ranges from 4 ft to 23 ft thick at the Site, and is unsaturated.
2) The Todd Valley sands and gravels, which are partially saturated, are typically between 80 ft and 110 ft thick, but can be as thick as 157 ft (near LL1), and as thin as 48 ft (southwest of the former Landfill area). The former Landfill area is located approximately one mile east of LL4, south of the LPNNRD Reservoir. The water-bearing portions of the unconsolidated material in the Todd Valley are generally divided into an upper fine sand unit (12 to 77 ft thick) and a lower sand and gravel unit (17.5 ft to 72 ft thick).

The Todd Valley aquifer is unconfined in nearly all of the model area; however, it may be confined in the northwest corner of the model area where the groundwater elevation is higher than the estimated base of the loess. The saturated thickness of the aquifer is controlled by the eroded bedrock surface at its base and the elevation of the potentiometric surface, except where it is confined. Throughout the modeled area the saturated thickness of the aquifer ranges from approximately 30 ft in the southeast to over 100 ft near LL1 and near the Village of Mead.

Figure 2.4 depicts a generalized cross-section of subsurface materials along Country Road F (located in the southern portion of the Site).

Slug tests were conducted in wells screened in the Todd Valley aquifer as part of the Monitoring Well Network Optimization, Phase II (USACE, 2013b). The average hydraulic conductivity value of the Todd Valley aquifer was approximately 190 ft/day and ranged between 73 and 349 ft/day.

A silty clay zone was encountered in two borings south of the former Landfill area at a depth of approximately 55 to 75 ft below ground surface (bgs) (USACE, 2011c). Slug tests from MW-152, MW-154 and MW-156, which are located along the eastern portion of the LL4/AMA contaminant plume and south of the former Landfill, have an average hydraulic conductivity of 33 ft/day. The wells along the western portion of the LL4/AMA plume (MW-151, MW-153, MW-155 and MW-157) have an average hydraulic conductivity of 124 ft/day, approximately four times higher than the eastern side of the plume. This difference in the average hydraulic conductivity shows the localized variability in the Todd Valley aquifer, especially between the western and eastern sides of the LL4/AMA plumes.

<u>EW-18 Pumping Tests</u>

Constant rate pumping tests were conducted at EW-18 at the leading edge of the LL2 RDX plume; results were reported in the *EW-18 Construction Completion Report* (USACE, 2017c). Time-drawdown data were analyzed using the Neuman method for unconfined aquifers, and distance-drawdown data were analyzed using the Theim-Dupuit method for unconfined aquifers. Transmissivity values ranged from 8,400 to 9,100 ft^2/day. Assuming a saturated aquifer thickness of 43.3 ft (based on the TH-EW-18 borehole log), hydraulic conductivity estimates ranged from 174 to 188 ft/day. The dimensionless storativity values ranged from 1.0×10^{-3} to 2.8×10^{-3}.

2.3.3 Wahoo Valley Aquifer

The hydrostratigraphy of the Wahoo Valley aquifer consists of two principal sedimentary units:

1) Silt and clay overbank deposits typically 2 ft to 15 ft thick (partially to fully saturated); and
2) Sand and gravel alluvium, interlayered with silt and clay, typically 30 ft to 80 ft thick (fully saturated).

Where present, the low permeability, saturated overbank fines act as a leaky confining layer over the Wahoo Valley aquifer that impedes, but does not prevent, groundwater discharge from the aquifer to the ground surface. The Wahoo Valley aquifer is distinguished from the Todd Valley aquifer by greater heterogeneity. As shown on cross sections by Souders (1967), the Wahoo Valley sediments are stratigraphically distinct from the Todd Valley, possibly representing finer grained Wahoo Creek and Silver Creek sediments filling the last channel of the ancestral Platte River through the Todd Valley. Boring logs in the EW-12/EW-17 area show the sediments to be more stratigraphically complex than the sediments in the Todd Valley, with interbedded fine and coarse-grained materials. Results from slug tests conducted in the Wahoo Valley during the Aquifer Characterization (USACE, 2011c) indicated significant heterogeneity. Hydraulic conductivity values ranged two orders of magnitude from 1 ft/day to 417 ft/day along a 4,000 ft transect. The higher values of hydraulic conductivity reported from slug tests at direct-push locations in the Wahoo Valley aquifer and within the LL1 plume are likely associated with the sand and gravel zones that have been noted in nearby boring logs (USACE, 2011c). Direct-push soil profiling and ground-based geophysics conducted during the GMPOI in October and November 2011 provided further data indicating heterogeneity of overburden materials and variation in depth to bedrock (USACE, 2012a).

<u>EW-17 Pumping Tests</u>

Constant-rate and step-drawdown pumping tests (USACE, 2013d) were conducted at EW-17, which is located at the downgradient portion of the LL1 TCE contaminant plume in the Wahoo Valley aquifer near the boundary with the Todd Valley aquifer. Time-drawdown data were analyzed using the Neuman-Tartakovsky method for unconfined aquifers, and distance-drawdown data were analyzed using the Jacob method for unconfined aquifers. Transmissivity values ranged from 2,200 to 5,300 ft^2/day. Assuming a saturated aquifer thickness of 77 ft (based on the TH-EW-17 borehole log), hydraulic conductivity estimates ranged from 29 to 68 ft/day. The dimensionless storativity values ranged from 8.8×10^{-5} to 1.4×10^{-3}.

2.3.4 Till Uplands Aquifer

The hydrostratigraphy of the till uplands aquifer consists of:

1) The Peoria Loess (unsaturated);
2) Till interlayered with silt and clay (partially saturated with local, perched water tables inferred by Souders (1967) from intermittent stream flow); and
3) Possible buried Quaternary sand and gravel alluvium in channels beneath the till inferred by Souders (1967) (saturated).

The transmissivities in the till uplands (CSD, 2005) are generally lower than those in the Todd Valley, despite the greater saturated thickness (CSD, 1996). Souders (1967) used the configuration of the bedrock surface and data on the ease or difficulty in obtaining water supplies to infer the presence of buried Quaternary channels beneath the till uplands. Clays, silts, and sands near the margins of Todd Valley, such as those near the Landfill in the northeastern portion of the Site, may be remnant fluvio-glacial deposits of the Early or Medial-Pleistocene.

Souders (1967) infers, based on limited data, a southeast trending channel along the Todd Valley side of the till uplands. The sediments composing this terrace have a lower transmissivity than the surrounding material, despite the greater thickness, as illustrated on the "Transmissivity of the Principal Aquifer, 2005" map (CSD, 2005).

2.3.5 Potentiometric Surface

Regional water levels were measured in August 2014, March and August 2015, March and August 2016, and March 2017. Water levels recorded during these monitoring events are presented in Table 2.3. Well construction details are provided in Table 2.1.

The water levels used in creating the potentiometric surface maps are from the deepest well in the unconsolidated aquifer in each monitoring well cluster, which is typically the intermediate zone well. These interpretations, based on water levels from the following sources, were contoured using a kriging algorithm and the program Surfer®:

- USACE monitoring wells, observation wells, and piezometers;
- LPNNRD piezometers and irrigation wells (LPNNRD, 2017);
- M.U.D. piezometers (LPNNRD, 2017);
- LWS piezometers (LPNNRD, 2017);
- USGS observation wells (USGS, 2017a); and
- USGS surface water stations (USGS, 2017b).

The USGS wells in Table 2.3 were mainly used to establish regional water levels along the margins of the GWM17. Some of the USGS wells not in the LPNNRD Wann Basin network are not surveyed, and water levels are measured from ground surface. Where nearby data points conflicted, preference was given to data from surveyed wells (i.e., USACE monitoring wells, observation wells, and piezometers).

Historically, the shallow zone potentiometric surface has had essentially the same flow directions (southeast) and hydraulic gradients as the intermediate zone potentiometric surface; therefore, only the intermediate zone potentiometric surfaces were produced for this report. Groundwater flow in the Todd Valley aquifer is to the south-southeast. The depth to groundwater in the Todd Valley ranges from approximately 40 to 70 ft bgs. East of Johnson Creek, the groundwater flow direction in the Platte River alluvial aquifer is to the south, paralleling the Platte River Valley with depths to groundwater in the Platte Valley ranging up to 10 ft.

More recent intermediate zone potentiometric surfaces for August 2014 (Figure 2.5), March 2015 (Figure 2.6), August 2015 (Figure 2.7), March 2016 (Figure 2.8), August 2016 (Figure 2.9), and March 2017 (Figure 2.10) are similar to historical potentiometric surfaces. Groundwater elevations measured during March 2015, 2016, and 2017 were an average of 0.58 ft higher compared to the August 2014, 2015, and 2016 groundwater elevations.

2.4 SURFACE WATER

The location of USGS, M.U.D., and USACE surface water gages and measurement locations for the Site are shown on Figure 2.1. Flow statistics are presented in Table 2.4. The stream staff gage elevations from August 2014 through October 2017 are presented in Table 2.5. The 2016 water year summaries for the Platte River, Elkhorn River, and Wahoo Creek are presented in Appendix A.

2.4.1 Platte River

The gradient of the Platte River is approximately 4 ft/mile between Venice and Ashland. A discussion of the flow in the Platte River was summarized in the M.U.D. *Phase II Platte West Well Field/Groundwater Modeling Study* (CAI, 2005). River flow statistics are presented in Table 2.4.

The 2016 USGS Water Data Reports for the Platte River at Leshara, Venice, and Ashland, and the report for the Elkhorn River at Waterloo are included in Appendix A. The annual seven-day minimum flows for the period of record for the Platte River at Leshara and Ashland, and the Elkhorn River at Waterloo are presented in Table 2.6. This low flow can be considered to be an estimate of groundwater baseflow, and generally reflective of the stream flow without significant surface runoff. The average flow for the years 2010 through 2016 was also calculated for the three gages and is summarized in Table 2.6.

The Elkhorn River enters the Platte River between Leshara and Ashland. In 2010 through 2013 and in 2016, the average annual combined flow of the Platte River at Leshara and the flow of the Elkhorn at Waterloo was greater than the flow of the Platte River at Ashland. The smaller flow observed at Ashland suggests the Platte River was a losing stream between Leshara and Ashland during those years, and a gaining stream during 2014 and 2015. During years when the combined discharge at Leshara and Waterloo is less than the discharge at Ashland, the average difference is approximately 200 cubic feet per second (cfs). Groundwater pumping near the Platte River may account for some of the difference. The combined annual average pumping rate of the M.U.D. Platte West well field and the LWS Ashland well field was approximately 100 cfs in 2016.

As presented in Table 2.4, the 90 percent flow exceedance value of the Platte River at Ashland, 1,474 million gallons per day (MGD), is approximately 28 times the maximum average annual pumping rate for which the M.U.D. Platte West well field is permitted (approximately 52 MGD).

Figure 2.11 shows the stage at the Venice Station. A review of this data suggests that the river stage typically peaks in mid-winter and late spring, and decreases during irrigation season in mid-summer.

2.4.2 Elkhorn River

The Elkhorn River is a major tributary to the lower Platte River. Flow statistics are provided in Table 2.4. The estimated average flow (based upon the 50 percent exceedance frequency) is 824 cfs at Waterloo for the period of record (USGS, 2017b).

The Waterloo gage is located in an entrenched portion of the Elkhorn River that has a flatter gradient than the Platte River. The gradient of the Elkhorn River is approximately 2 ft/mile between Waterloo and the Platte River. It is difficult to determine if the Elkhorn River is a losing or gaining stream in the reach below Waterloo because of the lack of a gage in the Elkhorn River near the confluence with the Platte River; however, previous reports have suggested that it might be a gaining stream (USACE, 2009).

2.4.3 Clear Creek

Clear Creek once flowed through Yutan in the till uplands, and then through the Platte Valley to Wahoo Creek. Clear Creek is within half a mile of the Platte River north of the M.U.D. well pumping field. At that location, a diversion channel has been cut to divert the flow into the Platte River, dividing Clear Creek into Upper Clear Creek and Lower Clear Creek. In this report, Clear Creek is used interchangeably with Lower Clear Creek.

The gradient of Clear Creek is steeper (approximately 6 to 7 ft/mile) between the origin of Lower Clear Creek near the Platte River and the section of Clear Creek above Johnson Creek (approximately 3 ft/mile) (USACE, 2009). This may result in seepage from the Platte River to the aquifer that subsequently discharges to Clear Creek. Below the confluence of Clear Creek and Johnson Creek, the gradient of Clear Creek was historically measured at approximately 1.3 ft/mile (USACE, 2011e).

Base flows above the Johnson Creek confluence are typically 2 to 3 cfs, but can exceed 6 cfs after rainfall events. Base flows below the Johnson Creek confluence are approximately 6 cfs (USACE, 1993a).

Based on the 2016 flow meter totalizer reading for Clear Creek, approximately 200 million gallons (at an average rate of 0.8 cfs [380 gpm]) from Site groundwater treatment systems were discharged to Clear Creek for beneficial reuse (USACE, 2017b).

2.4.4 Johnson Creek

Johnson Creek originates in the till uplands north of the Village of Mead, flows through the Todd Valley and into the LPNNRD Reservoir north of the former Landfill area. Souders' (1967) interpretation of the potentiometric surface is not affected by the upper portion of Johnson Creek in Todd Valley indicating a lack of hydraulic connection between the stream and groundwater. Johnson Creek is usually dry between the LPNNRD Reservoir and the Platte Valley. The USGS measured flow at the outlet of the LPNNRD Reservoir 29 times between March 1990 and October 1992, and flow was zero on all but one occasion. Where Johnson Creek enters the Platte Valley, the highest flow was less than 0.05 cfs during the five occasions USGS measured flow (USACE, 2009). Field observations of Johnson Creek in the Todd Valley suggest it is a losing

stream and any water in the creek recharges the groundwater until Johnson Creek reaches the Platte Valley. Johnson Creek gains water in the Platte Valley primarily due to groundwater collected from agricultural drain tiles discharging to the creek. Upstream of the confluence with Clear Creek, Johnson Creek flows through an area of silty clay loam that is drained by agricultural tiles.

The gradient of Johnson Creek in the Platte Valley is steeper than the gradients of other streams in the model area. Upstream of the former Johnson Creek Memphis stream gage, gradients are greater than 10 ft/mile. The gradients of other streams in the Platte Valley and the Wahoo Creek Valley range from 2 to 8 ft/mile (USACE, 2009).

Flow statistics through 2009 at the former Johnson Creek Memphis gage are presented in Table 2.4. The average flow (based upon 50 percent exceedance frequency) was 1.7 cfs. Flow measurements of Johnson Creek collected during previous Site activities are discussed in the GWM08 report (USACE, 2009) and the GWM10 report (USACE, 2011e).

2.4.5 Wahoo Creek

Wahoo Creek originates in western Saunders County and flows out of the till uplands near the town of Wahoo. The Wahoo Creek valley below Wahoo is closer in elevation to the Platte Valley than it is to Todd Valley. Souders' (1967) interpreted potentiometric surface suggests that Wahoo Creek is a gaining stream. The gradient of Wahoo Creek is approximately 3.5 ft/mile.

Two USGS staff gages are located on Wahoo Creek (Ithaca and Ashland), as shown on Figure 2.1. The flow statistics for these gages are presented in Table 2.4. The 50 percent exceedance frequency was 43 cfs at Ithaca and 73 cfs at Ashland (USGS, 2017b).

Downstream of Ithaca, combined effluent from Site treatment systems discharged approximately 1 billion gallons of treated groundwater to Wahoo Creek for beneficial reuse in 2016, at an average rate of 4.3 cfs [1,900 gpm] (USACE, 2017b).

2.4.6 Silver Creek

Silver Creek originates in the Todd Valley near Cedar Bluffs, and flows south approximately 14 miles where it enters the Wahoo Creek Valley near Ithaca. Souders (1967) shows that Silver Creek is a gaining stream throughout most of its reach. In the Wahoo Creek Valley, Silver Creek is an entrenched stream. Silver Creek once flowed into Memphis Lake, and the outlet stream that drains Memphis Lake was the original channel of Silver Creek. However, a diversion channel redirected the upper portion of Silver Creek to Wahoo Creek near Memphis. In this report, Silver Creek refers to the stream that discharges to Wahoo Creek, and the smaller stream that drains Memphis Lake and is often dry, is called Lower Silver Creek.

The gradient of Silver Creek is generally steeper than other streams in the model area at approximately 7 ft/mile. As part of the annual GMP, surface water levels are collected at several locations along Silver Creek.

2.5 CLIMATE

Climatic factors must be accounted for in groundwater models. Precipitation and evapotranspiration (ET) are described for the Site model area below.

2.5.1 Precipitation

Tables 2.7 through 2.15 show monthly precipitation for National Weather Service (NWS) cooperative stations at Mead, Ashland, Wahoo, Gretna, and Valley; and the High Plains Regional Climate Center (HPRCC) Automated Weather Data Network (AWDN) stations at Ithaca (formerly designated "Mead"), and Memphis (formerly designated "Mead Agro Farm"). The normal annual precipitation from these stations (except Wahoo) ranges between 29.4 and 33.6 inches (MRCC, 2017, and HPRCC, 2017). The Wahoo station does not have a sufficiently long record to calculate normal annual ranges.

Figure 2.12 illustrates the monthly precipitation at each station, the monthly average of the seven stations, and the average monthly normal of the six stations other than Wahoo.

2.5.2 Evapotranspiration

ET from groundwater occurs in areas where groundwater is shallow, such as the Platte Valley and Wahoo Valley, and is represented as a loss from groundwater. Potential ET (PET), which is estimated based on several parameters (including temperature, wind speed, and solar radiation), averages 53.0 inches/year at the Ithaca (formerly "Mead") AWDN station (Table 2.14) (HPRCC, 2017). PET averages 55.8 inches/year at the Memphis (formerly "Mead Agro Farm") AWDN station (Table 2.15) (HPRCC, 2017). As shown in Figure 2.13, the PET was generally less than normal in 2015 and 2016, with the exception of March 2015 and June 2016. Section 2.9.2 provides additional information on ET.

2.6 AQUIFER WITHDRAWALS

In the GWM17, aquifer withdrawals include extraction wells, municipal water supplies, and irrigation wells. The withdrawal and use of groundwater within the Site GWM17 boundary is described in the following subsections.

2.6.1 Former Nebraska Ordnance Plant Containment System

EW-1 and EW-8 began pumping in October 1998 as part of the initial Containment Removal Action. EW-2 through EW-7, EW-9, and EW-10 began operation in February 2002. The locations of the extraction wells are shown on Figure 1.2. The total pumping rate for these wells gradually declined from approximately 2,600 gpm in February 2002 to 2,200 gpm in March 2006 as the saturated thickness of the aquifer decreased approximately 4 percent, partially due to a multi-year drought (USACE, 2007). In February 2006, EW-12 was added to the containment system at the leading edge of the LL1 plume. EW-13 was also installed in February 2006 at the leading edge of the LL1 plume, but was not connected to the containment system due to low yield. Pumping at EW-8 in the LL1 plume, which had been pumping at approximately 290 gpm, was stopped in August 2007 and replaced in March 2008 by FEW-11 with a pumping rate of approximately 550 gpm (USACE, 2009). Pumping at EW-2 (LL1 plume) and EW-5 (LL4 plume) was stopped

in late February 2009, based on recommendations from previous groundwater models, which demonstrated that turning off these two wells did not impact containment of the plumes (USACE, 2011e). FEW-14 and EW-16 in the LL3 plume were installed between April and May 2009 and brought online in June 2009. Pumping at EW-10 was stopped in late February 2010, based on evaluations indicating that the well no longer benefited the containment of the LL2 plume (CENWK, 2010). FEW-15 near the LL4/AMA plume was brought on line in May 2010 at 375 gpm and then increased to 500 gpm at the end of August 2010 (USACE, 2011a). EW-1 was abandoned and replaced by EW-1R in February 2012 due to a damaged well casing (USACE, 2012c).

Pumping at EW-3, EW-6, and EW-16 was stopped January 2013 to increase the efficiency of the groundwater containment system (CENWK, 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 (Table 2.16). EW-16 resumed operation downgradient of EW-4 in late 2017 at a pumping rate of approximately 150 gpm.

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 approximately 175 gpm and 105 gpm, respectively (USACE, 2017c). Pumping rates from February 2002 through July 2017 are detailed in Table 2.16. The pumping rates in the table represents cumulative flow for each extraction well or focused extraction well for that particular month divided by the number of days in the month.

2.6.2 Municipal Water Supplies and Irrigation Wells

Six municipal water supply systems are in the Site groundwater model area. A description of each supply system and their pumping rates are described below.

2.6.2.1 <u>Metropolitan Utility District (Omaha) Platte West Field</u>

The M.U.D. Platte West Field is located on both sides of the Platte River in Saunders and Douglas counties. Construction began in 2004 and the well field began intermittent pumping in July 2008 related to preliminary operations, and shakedown testing through October 2008. The well field did not operate from mid-November to mid-February 2009 (HDR, 2012). Full-scale operations began in mid-February 2009. The Platte West Field is permitted to pump up to 104 million gallons on any given day but is restricted to an annual average of 52 MGD. The average daily pumping rate was 29.6 MGD in 2014, 28.2 MGD in 2015, and 29.0 MGD in 2016 (M.U.D., 2017). M.U.D. also operates large well fields near the Platte River in Sarpy County and near the Missouri River in Douglas County.

The Platte West Field is located in a north to south trending area of increased saturated thickness of the Platte River alluvial aquifer, and in an area where the Platte River recharges the aquifer. The field has 42 production wells classified as either “storage wells” (over 500 ft from the river) that will produce groundwater from aquifer storage, or “river wells” (within 500 ft of the river) that are expected to produce groundwater derived largely from recharge from the river (CAI, 2005). During average river stage, the base well field production will be provided by the river wells to minimize the number of wells operating and to preserve groundwater available from

aquifer storage for use during low river flow conditions (CAI, 2005). Monthly pumping rates for individual wells from 2014 through June 2017 are presented in Table 2.17.

2.6.2.2 Lincoln Water System Ashland Field

The well field near Ashland supplies nearly all the water for the LWS. Therefore, the future total pumping rate of the well field can be estimated using the projected water demand for the entire system provided in the "Lincoln Water System Facilities Master Plan" (City of Lincoln, 2014). The average annual pumping rates for the LWS Ashland well field were approximately 29.7 MGD in 2014, 33.2 MGD in 2015, and 36.2 MGD in 2016. The summer seasonal average pumping rate was approximately 55.1 MGD from 2000 to 2012 with an average maximum daily demand of approximately 77.1 MGD (City of Lincoln, 2014). According to the Master Plan, the average daily pumping rate will increase to 49 MGD in 2025, and 66 MGD in 2050. The LWS monthly pumping rates for the well field from January 2014 through July 2017 (LWS, 2017) are presented in Table 2.18.

2.6.2.3 Other Municipal Water Supplies

The pumping volumes for Ashland, Ithaca, Mead, and Memphis from January 2014 to June 2017 are presented in Table 2.19.

Ashland

The City of Ashland had four registered municipal water supply wells, but one had been out of service since 2014, and was decommissioned in June 2017. From 2004 to 2016, the annual average combined pumping rate ranged from 0.30 MGD to 0.43 MGD. The maximum monthly average pumping rate was 0.91 MGD in July 2012 (City of Ashland, 2017).

Ithaca

The Village of Ithaca has two registered public supply wells with a total pumping rate of 300 gpm, according to registration records. Assuming a 100-gallons per day per-capita water use (NNRC, 1998), and a 2014 population of 151 (NDNR, 2014), the average water use based on per capita usage is estimated at 10 gpm.

Memphis

The Village of Memphis has two registered public supply wells with a total pumping rate of 500 gpm, according to registration records. Assuming a 100-gallons per day per-capita water use (NNRC, 1998), and a 2014 population of 114 (NDNR, 2014), the average water use based on per capita usage is estimated at 8 gpm.

Mead

The Village of Mead has four registered public supply wells with a total pumping rate of 1,050 gpm according to registration records. From 2005 to 2016, the annual average pumping rate ranged from 38 gpm to 52 gpm (Village of Mead, 2017).

2.6.2.4 Irrigation

As of July 2017, approximately 361 irrigation wells are within the active area of the Site model. There are 314 irrigation wells that are assumed to be pumping in the model, and the remaining are considered redundant because they are located in the same parcel as another operating well. The average acreage to be irrigated on the registrations is 110 acres, which is close to the 126 acres covered by a typical center-pivot. The average registered pumping rate is 752 gpm for irrigation wells in the 2017 Well Inventory (USACE, 2017e), which covered most of the model area between Silver Creek and the Platte River.

In irrigated fields identified on the 2005 Nebraska Land Use Map (CALMIT, 2007) (Figure 2.14) with more than one registered active irrigation well, it is assumed that only one well is active. Typically, when center pivot irrigation wells are installed in the center of quarter-sections, older flood irrigation wells (usually at a topographic high point at the edge of the field) are not decommissioned. The existence of dormant wells still registered as "active" is evident in the Agricultural Research and Development Center (ARDC) pumping records, which show many wells that are not used every year. Dormant, backup, or underused wells are also evident in the registration records, which list sections with total registered acreage greater than 640 acres. In irrigated fields with more than one well, the newest well is assumed to be active.

The pumping volumes for the ARDC irrigation wells are presented in Table 2.19. The average depth of irrigation for the ARDC wells was 7.00 inches from 2000 to 2016. The depth of irrigation for the ARDC wells was 2.05 inches in 2015 (ARDC, 2016), and 2.35 inches in 2016 (ARDC, 2017). Pumping rates for other irrigation wells are estimated using the acreage associated with each irrigation well and the average depth of irrigation from the ARDC wells. The estimated irrigation pumping rates for the non-ARDC wells during a three-month irrigation season are presented in Table 2.21.

2.7 CONCEPTUAL MODEL

The Todd Valley physiographic area is an abandoned stream terrace of the ancestral Platte River bounded by till uplands to the northeast, the Wahoo Valley to the west and south, and the Platte Valley to the southeast. The Wahoo Valley is incised into the Todd Valley terrace. The Todd Valley aquifer is unconfined and has approximately 20 ft to 70 ft of unsaturated thickness; the saturated thickness of the Todd Valley aquifer ranges between 30 to 100 ft. Bedrock beneath the alluvium consists of poorly cemented sandstone interbedded with shale and siltstone of the Cretaceous-age Omadi Formation. The vertical hydraulic communication between the bedrock and the alluvium is limited due to the small vertical gradient and the two-orders of magnitude difference in vertical hydraulic conductivities, as estimated from a number of slug tests.

Generally, the Platte River is a losing stream during most years, whereas the Elkhorn River and Clear, Johnson, Silver, and Wahoo creeks are typically gaining streams. The overbank fine-grained deposits (fines) in the Platte Valley and Wahoo Valley act as leaky confining layers over the aquifers because of their low hydraulic conductivity. The transition from unconfined conditions to confined conditions is evident along Johnson Creek. The portion of Johnson Creek that is in the Todd Valley is typically dry, except during precipitation events. The portion of Johnson Creek in the Platte Valley, however, typically flows because of groundwater discharge

through the agricultural drain tiles and seeps as water flows from the unconfined Todd Valley aquifer into the Platte Valley aquifer. The upward leakage from the sand and gravel aquifer to the overlying overbank fines in the Platte Valley results in significant ET. Figure 2.15 presents this conceptual model.

A water budget is presented in Section 5.3.1. The primary inflows include the Platte River and the LPNNRD Reservoir, and recharge. The primary outflows include rivers and creeks, ET, and groundwater withdrawals from wells.

2.7.1 Groundwater Flow Directions

The groundwater flow direction in the Todd Valley aquifer is generally southeast, along the axis of the valley. Groundwater in the Todd Valley discharges into Silver Creek to the southwest of the Site, into the Wahoo Valley aquifer to the south, and into the Platte Valley aquifer to the southeast. Locally, the aquifer discharge zones alter the groundwater flow direction. Specifically, in the southwestern portion of the model area, the influence of Silver Creek and Wahoo Creek create a more southerly groundwater flow direction than observed along the axis of the Todd Valley. Along the eastern boundary of the Site, the groundwater flow direction in the Todd Valley becomes more easterly as it discharges into the Platte Valley aquifer at the contact between the Todd Valley and Platte Valley aquifers.

Groundwater flow in the Wahoo Valley aquifer is generally southeast with a southerly component near Silver and Wahoo creeks. The Wahoo Valley aquifer receives a large amount of groundwater flux from the Todd Valley aquifer where the two aquifers join.

The Platte Valley aquifer also receives a large amount of groundwater flux from the Todd Valley aquifer at the contact between the two valleys. The general groundwater flow direction of the Platte Valley aquifer is southeast as groundwater exits the Todd Valley and enters the Platte Valley. The groundwater flow directions from the Todd Valley side and the Platte River side of the aquifer converge on Clear Creek near the confluence with Johnson Creek.

2.7.2 Groundwater Gradients

The horizontal groundwater gradient in Todd Valley between MW-07A and MW-100A is approximately 12 ft/mile. Generally, groundwater gradients in the Todd Valley range from approximately 10 ft/mile in the western portion to 15 ft/mile in the southeastern portion (Figures 2.5 through 2.10). Horizontal groundwater gradients in the Platte Valley and Wahoo Creek valley are approximately 5 ft/mile.

Both upward and downward vertical gradients are distributed in all parts of the monitoring well network, with the exception of the LPNNRD Reservoir, where vertical hydraulic gradients are generally downward. The vertical gradients between the deep (“D”) wells and the intermediate (“A”) wells ranged from 0.35 downward to 0.044 upward in March 2016, and 0.045 downward and 0.079 upward in August 2016 (USACE, 2017f). The vertical gradients between the intermediate (“A”) wells and the shallow (“B”) wells ranged from 0.030 downward and 0.075 upward in March 2016, and ranged from 0.045 downward and 0.071 upward in August 2016. These median gradients are consistent with vertical gradient data from GWM12.

The most significant upward gradients are observed between the intermediate ("A") wells and the shallow ("B") wells located near the groundwater discharge area west of Johnson Creek. This area contains wetlands and tile-drained cropland. The upward gradients are caused by the higher hydraulic heads beneath the Todd Valley terrace discharging to the confined Platte Valley aquifer at the valley wall. The most significant downward gradients are observed between the intermediate ("A") wells and the shallow ("B") wells near the LPNNRD Reservoir caused by recharge from the reservoir.

2.8 GROUNDWATER RECHARGE

Sources of groundwater recharge, as presented in the conceptual model (Figure 2.15), include localized groundwater recharge from the surface water bodies (the LPNNRD Reservoir and the Platte River) and recharge derived from precipitation.

A significant source of recharge to the Platte Valley aquifer is the Platte River. Data collected from a well point installed in the riverbed indicated that the river is losing even under non-pumping conditions (Layne Christensen Company, 2008). According to Layne Christensen (2008), 80 percent of the 2,300 gpm pumped from M.U.D. well PW04 39 during a 2008 pumping test was induced outflow from the Platte River.

According to Szilagyi et al. (2003), the long-term mean annual base groundwater recharge in the study area ranges from 3.5 to 4.3 inches/year, and the long-term mean total recharge ranges from 3.9 to 5.9 inches/year (Szilagyi et al., 2005). Base recharge is defined by Szilagyi et al. (2005) as the total recharge minus any potential losses from groundwater storage other than discharge to streams. According to figures presented in Szilagyi et al. (2005), the base recharge in the Todd Valley is similar to base recharge in the Platte Valley. Due to the depth to groundwater, evapotranspiration in the Platte Valley is greater than in the Todd Valley. Therefore, total recharge is higher in the Platte Valley. The amount of recharge attributed to precipitation is discussed in Section 5.4.2.

2.9 GROUNDWATER DISCHARGE

Groundwater discharges as shown in the Site groundwater flow conceptual model (Figure 2.15) include wells, ET, and localized groundwater discharge to surface water bodies.

2.9.1 Wells

According to "Water Use in Nebraska, 2005" (USGS, 2005), the major uses of groundwater in Saunders County are irrigation and public water supply. The major public water supply fields are the M.U.D. Platte West and the LWS Ashland well fields. The water use rates by category are summarized in Table 2.22.

In the model area, the primary uses of groundwater include municipal water supply, irrigation, and extraction from the Site hydraulic containment system.

2.9.2 Evapotranspiration

ET from groundwater occurs in areas where groundwater is shallow, such as the Platte Valley and Wahoo Valley, and represents a loss from groundwater. Studies conducted by Szilagyi et al. (2003) and Suyker and Verma (2009) estimate total annual ET between 21.7 inches to 29.4 inches. The effective groundwater ET, which can be considered the difference between total recharge and base recharge, is 0.4 to 1.6 inches/year.

ET from groundwater is greatest in riparian forest areas with phreatophytes. Areas of riparian forest are identified in a band ranging from 0 to 0.5 miles wide along the Platte River on the 2005 Nebraska Land Use Map (CALMIT, 2007), and are presented on Figure 2.14.

2.9.3 Localized Groundwater Discharge

Groundwater discharges to Silver Creek and the Elkhorn River occur under normal conditions (i.e., they are gaining streams). Groundwater also discharges through drain tiles, seeps, and wetlands near the confluence of Johnson Creek and Clear Creek in the Platte Valley (Figure 2.15). The GWM08 report (USACE, 2009) describes in detail a series of field investigations conducted in 2007 and 2008, including stream/drain-tile flow measurement, surface water sampling, and the EW-1 pumping test to improve the conceptual model near Johnson Creek. The GWM10 report (USACE, 2011e) further discusses the hydrogeologic conditions at the boundary of the Todd Valley and Platte Valley.

The gradient observations presented in GWM12 and GWM17 are consistent with those observed as part of the 1993 groundwater flow net analysis (USACE, 1993a). The 1993 flow net analysis was based on a temporary east-west piezometer array located along the half-section road approximately one-half mile north of County Road G (i.e., the road along which the line MW-157 and MW-46 are located). The 1993 analysis reported hydraulic heads in the sand/gravel unit several feet higher than the water levels in the overbank fines, indicating an upward vertical hydraulic gradient.

2.9.3.1 <u>Drain Tiles</u>

In the Platte Valley, Johnson Creek and Clear Creek flow through the overbank fines with relatively constant base flow rate (as discussed in Section 2.4). This relatively constant base flow in both creeks is mainly sustained by discharge from agricultural drain tiles and seeps along the creeks.

The farmlands in the vicinity, including the east portion of Section 34 and the portion between Johnson Creek and Clear Creek in Section 35, are sub-irrigated by upward flowing groundwater. Drain tiles were installed in the farmlands to drain excess water to keep the water level below the desired elevation. Approximately 21 drain tiles along Johnson Creek primarily discharge along the west side of Johnson Creek; however, some drain tiles discharge along the east side of Johnson Creek.

The drain tiles flow during all seasons, but discharge is greater during the non-irrigation season when the groundwater levels are higher, and less during irrigation season when pumping and high

ET lower the groundwater table. Precipitation amounts have a significant influence on the drain tile flow rates. During rainfall or snow melt, the drain tiles and culverts convey precipitation infiltration, as well as groundwater flow, and overland flow.

In the GWM08 report (USACE, 2009), a detailed discussion was provided on measurements from drain tiles. Based on the December 2007 measurements, the total drain tile flow rates from the areas east and west of Johnson Creek were 180 gpm and 1,450 gpm, respectively. Additional flow measurements presented in the GWM10 report (USACE, 2011e) from locations along Johnson Creek showed increased flow approximately two miles downstream of where Johnson Creek flows out of the Todd Valley into the Platte Valley. The GMW12 report (USACE, 2013e) provides a detailed discussion of the conceptual model of the drain tiles.

The GWM08, GWM10, and GWM12 reports also discuss TCE and RDX detections in surface water and drain tile sample results, indicating groundwater discharge to the ground surface and flowing into Johnson Creek through drain tiles or seeps.

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3.0 GROUNDWATER CONTAMINANT TRANSPORT CONCEPTUAL MODEL

The following sections describe the Site groundwater contaminant transport conceptual model including the contaminant plumes characterization and interpretations, focused remediation, and fate and transport of the contaminant plumes.

3.1 PLUME CHARACTERIZATION

The Site areal distributions of the main contaminants of concern (RDX and TCE) are based on previous characterizations (USACE, 2017f) updated with recently collected groundwater monitoring well data from the first and second quarters of 2017 (USACE, 2017g and 2017h). The analytical results used in the characterization are presented in Table 3.1.

3.2 PLUME INTERPRETATION

Figures 3.1 through 3.4 were prepared to define the initial TCE and RDX concentrations for contaminant transport simulations. For the purpose of this regional groundwater model, the saturated thickness of the sand and gravel aquifer is divided approximately equally into the shallow layer (Layer 2), which contains the shallow monitoring wells, and the intermediate layer (Layer 3), which contains the intermediate monitoring wells. There are also five monitoring wells in the Platte Valley overbank fines (Layer 1). TCE and RDX distributions were evaluated using data collected from the most recent monitoring well data collected as part of the GMP, and to a lesser extent the direct-push data collected through 2014. The maximum concentration of TCE or RDX at each location in the shallow or intermediate zone was used in a contouring program using kriging to create a two-dimensional representation of contaminant levels. These contours were then adjusted based on professional judgment using historical information and groundwater flow directions.

Graphs of concentration over time for selected wells are provided in Appendix B. These graphs show varying constituent concentration trends, which are discussed further in the following sections.

3.3 HISTORICAL ACTIVITIES

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. 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, 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, approximately 17,250 acres were determined to be surplus and were transferred to the General Services Administration for disposition.

From 1959 to 1960, the AMA was built north of LL4. TCE was used during construction to degrease and clean pipelines used to carry liquid oxygen fuel for missiles. The northern end of LL1 was formerly used as the Air Force Ballistic Missile Division Tech Area.

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 Reserves, and the U.S. Department of Commerce have conducted operations at the Site.

3.3.1 Past Activities Related to the Use of Explosives

The munitions assembly and load lines were active during World War II and the Korean Conflict. The load lines are numbered 1 through 4 from west to east, and are identifiable on maps by the diamond-shaped roads surrounding their former locations. Based on the available data, the RDX plumes appear to emanate from the load line areas, and from a cluster of potential sites including the former Burning Grounds and former Proving Grounds near the former Landfill area, as well as the former Landfill area itself. The former Landfill area is located approximately one mile east of LL4, south of the LPNNRD Reservoir. The explosive 2,4,6-trinitrotoluene (TNT) and/or Composition B, which consists of RDX and TNT, were handled at all four load lines (USACE, 1993b). The explosive 1,3,5,7-tetranitrol-1,3,5,7-tetrazine (HMX) is a by-product of RDX production, and was detected primarily in Remedial Investigation soil samples near LL2 (USACE, 1993b). TNT and HMX usually co-exist in groundwater with the more prevalent RDX.

3.3.2 Past Activities Related to the Use of TCE at LL1

The northern end of LL1 was formerly used as the Air Force Ballistic Missile Division Tech Area. TCE, as a dense non-aqueous-phase liquid (DNAPL), was allegedly disposed of in ditches, possibly between 1959 and 1964 (USACE, 1993b). The high soil gas concentrations located at the northwestern end of Load Line 1 (USACE, 1993b), and the soil vapor extraction pilot test results (USACE, 1996b) support the possibility of this location as a possible release area of TCE. These soil gas concentrations are about one order of magnitude higher than soil gas concentrations in the AMA area.

3.3.3 Past Activities Related to the Use of TCE at LL2 and LL3

Past activities associated with TCE at LL2 and LL3 are unknown. The past source area of the LL2 TCE plume is assumed to be in the vicinity of LL2, although the location of any releases is unknown. The LL2 and LL3 TCE plumes are less extensive than the LL1 TCE plume or the AMA TCE plume. This may be due to TCE being released at a later date and/or because a smaller amount of TCE solvent was released as compared to the LL1 and AMA sites.

3.3.4 Past Activities Related to the Use of TCE at LL4/AMA and Former Landfill Area

Based on the available data, separate TCE plumes appear to emanate from the AMA, LL4, and from a cluster of potential sites including the former Burning Grounds, former Proving Grounds, and the Landfill area. TCE solvent was allegedly used to clean liquid oxygen pipelines at the AMA around 1959 and allegedly disposed of on the ground. Similar to LL1, the areal distribution of TCE concentrations suggests that multiple release areas within the AMA cannot be ruled out. The upgradient extent of the TCE plume near the AMA forms two lobes; one lobe is in the center

of the ring road connecting the former silos, and the other lobe is near a holding pond northeast of the former silos (Figure 3.1). The southwestern lobe is located approximately 400 ft south-southeast from the area with the highest soil gas concentrations in 1992 (USACE, 1993b).

The concentrations of TCE in groundwater near the former Burning Grounds, former Proving Grounds and the former Landfill area suggest past activities related to TCE were minimal as concentrations in groundwater are currently below 50 micrograms per liter (µg/L).

3.4 FOCUSED REMEDIATION

Focused remediation at the Site has included focused extraction wells and two separate pilot studies; one utilizing GCWs and one conducted investigating the use of Biologically Active Zone Enhancement (BAZE).

3.4.1 Groundwater Circulation Wells

Two pilot GCWs were installed in 2000, and their locations are shown on Figure 1.2. GCW-1 is located near MW-40 in an area of elevated TCE concentrations north of LL4 and southeast of the former AMA (USACE, 2001). TCE is extracted from groundwater with an air stripper, and the treated groundwater is returned to the aquifer at a rate of approximately 20 gpm (USACE, 2017b). GCW-1 treated approximately 5.9 million gallons of groundwater in 2016, and removed approximately 34 pounds of TCE. Since startup in 2004, GCW-1 has treated approximately 52 million gallons of groundwater, and removed approximately 673 pounds of TCE.

GCW-2 was located in the center of the RDX plume southeast of LL2 (USACE, 2001). Groundwater was extracted with a submersible pump and RDX was treated with ultraviolet (UV) light. The treated groundwater was returned to the aquifer at a rate of approximately 20 gpm. From 2005 to 2007, the GCW-2 system removed approximately 1.82 pounds of RDX (USACE, 2017b). The system was shut down in July 2008.

3.4.2 Biologically Active Zone Enhancement

Although it was not part of focused extraction, a BAZE Pilot Study involving injection of acetate to enhance in situ RDX degradation was implemented in the LL2 plume approximately one mile southeast of GCW-2.

3.4.3 Focused Extraction Wells

The locations of the focused extraction wells are shown on Figure 1.2 and Figures 3.1 through 3.4. FEW-11 is a focused extraction well that extracts TCE-contaminated groundwater from the middle portion of the LL1 plume where TCE concentrations initially exceeded 10,000 µg/L. Extraction at FEW-11 minimizes TCE concentrations in the portion of the plume migrating south to EW-12 and EW-17. In 2016, FEW-11 extracted approximately 242 million gallons of groundwater with an average TCE concentration of 179 µg/L, and an average RDX concentration of 3.9 µg/L (USACE, 2017b). RDX influent concentrations have remained steady since 2012, but TCE influent concentrations have decreased. In 2012, TCE influent concentrations were between 1,600 and 2,000 µg/L (USACE, 2013e). Contaminated groundwater from FEW-11 is treated by a UV

system and the AOP plant. During 2016, 3,331 pounds of TCE were removed by the AOP plant, and 7 pounds of RDX were removed by the FEW-11 UV System (USACE, 2017b).

FEW-14 was installed in 2009 to extract RDX-contaminated groundwater from the portion of the LL3 RDX plume where RDX concentrations initially exceeded 10 µg/L. Contaminated groundwater from FEW-14 is treated by the FEW-14 UV System. In 2016, FEW-14 extracted approximately 119 million gallons of groundwater with an average TCE concentration of 2.3 µg/L and an average RDX concentration of 3.6 µg/L (USACE, 2017b).

FEW-15 was installed downgradient of GCW-1 in 2009 to extract TCE-contaminated groundwater from the northern portion of the LL4/AMA plume where TCE concentrations have exceeded 10,000 µg/L. Contaminated groundwater from FEW-15 is treated at the LL4 Groundwater Treatment Plant (GTP). In 2016, FEW-15 extracted approximately 223 million gallons of groundwater with an average TCE concentration of 265 µg/L (USACE, 2017b). During 2016, 481 pounds of TCE were removed by the LL4 GTP (USACE, 2017b).

3.4.4 LL2 Pilot Studies

The LL2 Pilot Study consisted of in situ remediation at two areas within the LL2 plumes. The first area, Preliminary Treatment Area (PTA) 1, was a permeable reaction barrier in the LL2 TCE plume consisting of zero valent iron (ZVI) and hydroxy propyl guar (HPG) that was installed in 2012. Performance monitoring was conducted through 2015. Breakdown of TCE to cis-1,2-dichloroethene (cis-1,2-DCE) was attributed to degrading HPG gel rather than ZVI, and the *Preliminary Treatment Area Pilot Study Evaluation Technical Memorandum* (USACE, 2017d) concluded that additional ZVI would be necessary to degrade the cis-1,2-DCE to vinyl chloride and eventually to ethene.

The second area, PTA-2, focused on the RDX plume using four sodium acetate recirculation systems, with each system consisting of one extraction well flanked by two injection wells. PTA-2 operated from 2012 to 2016. Although samples from one monitoring well showed positive degradation results, results from other monitoring wells indicated temporary and/or incomplete results due to biofouling of the injection wells (USACE, 2017d).

3.5 FATE AND TRANSPORT

Advection, dispersion, and retardation are the primary processes controlling contaminant transport. The following sections describe the Site plumes and the primary transport mechanisms.

3.5.1 LL1 TCE Plume

The chlorinated solvent TCE is believed to have been released into the subsurface at LL1 between 1959 and 1964. The extent of the 1,000 µg/L TCE isoconcentration contour within the shallow zone in 2017 was approximately one-mile long. The extent of the LL1 TCE plume over 5 µg/L in 2017 was approximately 3.2 miles long and is up to approximately 2,500 ft wide as shown on Figures 3.1 and 3.2.

Appendix B presents TCE concentration trend charts in interior plume wells. Some partially interior wells indicate decreasing concentrations that could be due to slight shifts in the plume (due to variable operation and pumping rate of irrigation wells or changes in operation of FEW-11 and EW-8) or a natural downgradient migration of the plume. Concentrations of TCE in MW-127B and MW-127E, which are located in the area of historically high concentrations downgradient the assumed source area, have been decreasing.

The presence of large-scale TCE plumes with concentrations greater than 1 percent of TCE solubility suggest the possible presence of DNAPL (EPA, 1992). However, a field investigation conducted in 2007 (Brown and Caldwell, 2007) did not find any direct evidence of DNAPL in the subsurface.

3.5.2 LL2 and LL3 TCE Plumes

As discussed in Section 3.3.3, little is known about historical activities using solvents at LL2 and LL3. The maximum concentrations at the LL2 and LL3 TCE plumes are below 200 µg/L. The extent of the LL2 TCE plume over 5 µg/L in 2017 was approximately 1.1 miles long and is up to 1,500 ft wide (Figures 3.1 and 3.2). The extent of the LL3 plume over 5 µg/L in 2017 was approximately 3,300 ft long and up to 700 ft wide (Figures 3.1 and 3.2). TCE at a concentration of 2.3 µg/L was detected in the FEW-14 influent in May 2016 (USACE, 2017b), indicating that the plume may reach FEW-14 in the future. The conceptual understanding of transport of the LL2 and LL3 plumes is that the plumes are generally advecting with groundwater flow and there is no longer a residual high concentration zone.

Based on the data gathered at the Site to date, the presence of TCE degradation products and dissolved gases data do not indicate that significant reductive dechlorination is occurring at LL2 or LL3.

3.5.3 LL4/AMA and Landfill TCE Plumes

The conceptual model of the LL4/AMA plume assumes that the primary transport mechanisms are advection and retardation because concentrations above 1 percent of the solubility of TCE are not widely present in these plumes.

The TCE plume that emanates from the LL4/AMA areas is approximately 5 miles long. The original TCE solvent release in the suspected AMA historical high concentration area probably has been dissolved and flushed downgradient. The plume that emanates from the Landfill area is approximately two miles long (Figures 3.1 and 3.2) before becoming comingled with LL4/AMA plume. A bedrock high between LL4 and the former Landfill area and the distribution of contaminants indicate that TCE was released both at the LL4/AMA area and near the Landfill, which is east of the bedrock high.

Data gathered within the LL4/AMA TCE plume indicates TCE is present at high concentrations in the upper portion of the saturated zone between GCW-1 and FEW-15 (Figure 3.1); however, farther downgradient, the high concentration core has migrated to the lower portion of the aquifer. The higher concentration core (greater than 1,000 µg/L) of TCE in groundwater is approximately 4 miles long and 1,700 ft wide.

The increase in TCE concentrations at MW-9A and MW-42A (Appendix B) may have resulted from pumping at EW-2 and EW-5 until 2009, and EW-3 and EW-6 until 2013, which increased a transverse shift of the LL4/AMA plumes to the south-southwest. Predictive simulations in the *2016 Containment Evaluation* (USACE, 2017f) indicate that the south-southwestward shift will continue, possibly due to continued pumping at FEW-14 and EW-4, and resumed pumping at EW-16.

3.5.4 Summary of TCE Plumes

In general, the areal extent of TCE in the shallow and intermediate zone is similar. TCE transport is dominated by advection and, to a lesser extent, retardation. Along the horizontal transport pathway, the plumes have gradually migrated to the lower portion of the aquifer, due to:

1) Minor downward hydraulic gradients between the shallow and intermediate layers as the result of areal groundwater recharge and seasonal irrigation pumping; and
2) Groundwater containment extraction near the leading edge of the plumes, which has created a downward gradient.

The TCE plumes at LL1 and LL4/AMA are longer than the RDX plumes for these load lines. The LL2 and LL3 TCE plumes are smaller in extent and lower in concentration than the LL1 and LL4/AMA plumes and also smaller in extent than the RDX plumes at LL2 and LL3 indicating different historical TCE release scenarios at LL2 and LL3.

3.5.5 LL1 RDX Plume

The LL1 RDX plume is the shortest RDX plume at approximately 1.6 miles long and is largely present only in the shallow layer, which is different from the other RDX plumes (Figure 3.3). This may be related to the difference of the saturated thickness in different plumes. The lower RDX concentrations in the LL1 RDX plume may be diluted below the Health Advisory Level (2 μg/L) before moving downgradient and/or migrating to the intermediate layer.

The LL1 RDX plume has not completely detached from the suspected release area yet, even though shallow soil associated with production activities was excavated in 1997 as part of the OU1 Remedial Action (OHM Remedial Services Corporation, 1998). Within the RDX plume, there are no strong concentration gradients (i.e., the concentrations at the suspected release area or upgradient are not higher than the concentrations in the downgradient area).

The LL1 RDX plume is shorter in length than the LL1 TCE plumes, suggesting that although the plumes are being transported through advection, a higher retardation factor is a component in the overall fate and transport of RDX.

3.5.6 LL2 RDX Plume

The LL2 RDX plume has the highest maximum RDX concentrations. RDX concentrations were up to 994 μg/L in pre-BAZE pilot sampling in 2003 (USACE, 2017d), and the maximum concentration was at least 75 μg/L in 2017 (Figure 3.3). The leading edge of the LL2 RDX plume has travelled approximately 3 miles from the center of the load line (Figures 3.3 and 3.4). This is

similar to the leading edge of the LL3 RDX plume indicating that RDX was released at roughly the same time period. Similar to the LL1 plume, the LL2 RDX plume has not yet completely detached from the suspected release area, even though shallow soil associated with production activities was excavated in 1997 as part of the OU1 Remedial Action (OHM Remedial Services Corporation, 1998). Statistical analysis indicated a decreasing trend for RDX in MW-05B, in the upgradient portion of the plume (USACE, 2013a).

Data from the Pre-Pilot Study Investigation (USACE, 2011b) demonstrated that reductive processes are occurring in the aquifer. Low level detections of other explosive compounds indicated that some in situ RDX transformation is occurring via biotic and abiotic processes (USACE, 2011b); however, it does not appear to be a major component in the overall fate and transport of RDX.

3.5.7 LL3 RDX Plume

The LL3 plume has a lower maximum RDX concentration (19.7 µg/L in MW-149A) than the LL1 and LL2 RDX plumes. The areal concentration distributions of the LL3 RDX plumes (Figures 3.3 and 3.4) suggest that there is no longer a high concentration source area contributing RDX; the current depiction of the RDX plume appears to have detached from the load line. The current depiction of the LL3 RDX plume shows the portion of the plume exceeding 2 µg/L (extending to the EW-4 area) does not extend as far downgradient as it did in 2010 (extending from MW-99 to EW-3). However, the 2016 CE simulation results (USACE, 2017f) showed that a portion of the LL3 RDX plume with concentrations greater than the Final Target Groundwater Cleanup Goals was projected to travel past EW-4 toward EW-16 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, but it might be necessary in the future (CENWK, 2012). EW-16 resumed operation in late 2017 downgradient of EW-4.

3.5.8 LL4 and Burning Grounds/Proving Grounds RDX Plume

The LL4 and Burning Grounds/Proving Grounds area RDX plumes have the lowest maximum RDX concentrations (5.5 µg/L at MW-18C). The LL4 RDX plume is approximately 2 miles long and the Burning Grounds/Proving Grounds area RDX plume is approximately 3 miles long (Figure 3.3 and 3.4). The Burning Grounds/Proving Grounds area RDX plume is shorter in length than the Burning Grounds/Proving Grounds area TCE plume, suggesting that although the plumes are being transported through advection, a higher retardation factor is a component in the overall fate and transport of RDX. Alternatively, the shorter length of the RDX plume could be due to the lower concentrations in the RDX plume compared to the TCE plume.

3.5.9 Summary of RDX Plumes

In general, the RDX plumes are longer or the same length in the shallow layer as they are in intermediate layer, and the concentrations in the shallow layer are higher in the upgradient portions of the plumes than in the downgradient portions, while the intermediate layer concentrations are higher in the downgradient portions than in the upgradient portions. This can also be observed from the concentration temporal trend charts (Appendix B). In the upgradient portion of the plume the shallow RDX concentrations are usually higher than the intermediate concentrations in the

same well cluster, while in the downgradient portion, the shallow RDX concentrations are generally lower than the intermediate concentrations. This may indicate that the initial RDX plumes originated in the shallow portion of the aquifer in the upgradient area, as would be characteristic of a surface release of RDX as indicated in the conceptual model. Along with the horizontal migration downgradient, the plumes have gradually migrated to the lower portion of the aquifer, due to:

1) Minor downward hydraulic gradients between the shallow and intermediate layers as the result of areal groundwater recharge and seasonal irrigation pumping; and
2) Groundwater containment extraction near the leading edge of the plumes, which has created a downward gradient.

3.5.10 Retardation

Dissolved-phase contaminants can be adsorbed to and desorbed from soil particles during contaminant plume migration; another term for this process is retardation. Adsorption/desorption can be an important fate and transport mechanism, and has an effect on the rate of plume migration and the longevity of the contaminant plume.

<u>TCE</u>
The adsorption and desorption of dissolved TCE is commonly related to the TOC content in the saturated soil and, in some situations, the cation exchange capacity. The GWM08 report (USACE, 2009) discussed available TOC data across the Site. The TOC concentrations from the analysis of sand and gravel samples ranged between 68 milligrams per kilogram (mg/kg) and 3,690 mg/kg, with a geometric mean of 224 mg/kg. The TOC concentrations in clay and silt samples are much higher than those in the sand and gravel samples. The TOC concentration in soil samples collected from the overbank fines ranged between 810 mg/kg and 43,400 mg/kg (in highly organic clay), with the detections having a geometric mean of 4,200 mg/kg. With a typical organic carbon partition coefficient (k_{oc}) of 107 liters per kilogram (L/kg) (Knox et al., 1993), and a fraction of organic carbon (f_{oc}) of 2.24E-04 for sands, the TCE K_d within the sands is approximately equal to 0.024 L/kg. With a f_{oc} of 4.2E-03 for clays and silts, the TCE K_d within the overbank fines or clay zones is estimated to be 0.4 L/kg. The low TOC concentrations in the sands and gravels and the low K_d value are consistent with the fast advective transport as observed at the TCE plumes. The low K_d value implies that the sorption is reversible and desorption and adsorption may occur at similar rates.

<u>RDX</u>
The transport of RDX at the Site is limited by retardation. According to Yamamoto et al. (2004), adsorption and desorption of RDX is not only proportional to the soil TOC, but also depends on soil particle size distribution, pH, cation exchange capacity, and total iron content. A K_d value for RDX was estimated based on comparison with literature values, the observed RDX concentration distribution at the Site, and historical plume matching model simulations presented in the GWM08 (USACE, 2009) and the GWM10 (USACE, 2011e) reports.

Yamamoto et al. (2004) reported that the estimated RDX K_d values in a sandy alluvial aquifer at the Massachusetts Military Reservation varied between 0.072 L/kg in the deep soil to 0.37 L/kg (adsorption) and 1.5 L/kg (desorption) in the surficial soil, respectively. The f_{oc} in the deep soil at

the Massachusetts Military Reservation is 0.04 percent, which is similar to the f_{oc} value (0.022 percent) in the sand and gravel unit at the Site.

3.5.11 Biodegradation

TCE

Biodegradation of TCE at the Site is limited based on data gathered during the Pre-Pilot Study (USACE, 2011b) and the limited presence of the degradation product, cis-1,2-DCE. Where cis-1,2-DCE is detected in monitoring wells, it is found at low concentrations. These observations suggest that biodegradation of TCE is not an important component in TCE fate and transport and, therefore, a half-life of 65 years was used in the model based on professional judgment. This is the same value estimated for the former Blaine Naval Ammunition Depot site in Hastings, Nebraska (USACE, 2004b).

RDX

McCormick et al. (1981) noted that RDX is resistant to microbial transformation in aerobic soils, but reported RDX biodegradation within anaerobic sludge and described a potential pathway based on the sequential reduction of RDX to hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine (MNX), hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine (DNX), and trinitroxylene (TNX). Freedman and Sutherland (1998) subsequently found that RDX biodegrades after nitrate is completely consumed. Bernstein et al. (2010) estimated RDX biodegradation half-lives ranging from 4.4 to 31.2 years based on isotope analysis in the upper 49 feet of aquifer material studied.

Low concentrations of MNX, DNX, and TNX were detected in groundwater at the Site and provide direct evidence that some in-situ RDX transformation is occurring via biotic and abiotic processes. In general, the RDX plumes are not undergoing significant natural biodegradation; therefore, a long half-life of 65 years was used based on professional judgment (this is the same value estimated for the former Blaine Naval Ammunition Depot site in Hastings, Nebraska [USACE, 2004b]).

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4.0 GROUNDWATER MODEL CONSTRUCTION

The following sections provide details of the code, model domain and grid, model layers and boundary conditions for GWM17.

4.1 CODE SELECTION

The MODFLOW-2005 code (Harbaugh, 2005), a three-dimensional, finite difference groundwater flow computer code, was selected to update the Site groundwater flow model. MODFLOW-2005 is a widely used, public domain groundwater flow code that is accepted by academia, industry, and regulatory agencies and is currently being supported by the USGS. The three-dimensional finite difference groundwater fate and transport code, MT3DMS (Zheng and Wang, 1998), was selected to simulate plume migration.

4.2 MODEL DOMAIN AND GRID

The numerical model domain covers a rectangular area of 200 square miles, as shown on Figure 4.1. The model domain is much larger than the 20-square mile area encompassing the Site plumes. The larger model domain allows:

- Use of the natural boundaries as model boundaries to reduce potential boundary effects on simulation of remedial alternatives in the plume area.
- Simulation of stream-aquifer interactions that have a significant impact on the groundwater system.
- Simulation of the groundwater extraction at the M.U.D. and LWS well fields.

The model origin (lower-left corner) is located at X = 2,590,000 ft and Y = 460,000 ft in Nebraska State Plane coordinates (North American Datum of 1983). There is no rotation of the model grid.

The active model domain comprises portions of the Platte Valley aquifer, the Todd Valley aquifer, the Wahoo Valley aquifer, and the Uplands aquifer. Areas outside of these permeable units, the uplands southwest of Wahoo Creek and the uplands east of the Platte River, are defined as inactive areas using no-flow model cells.

The model cell size ranges from 50 ft by 50 ft around the Site extraction wells and focused extraction wells to 100 ft by 100 ft in the plume areas, and increases to 400 ft by 400 ft in the areas near the model boundaries. The model has 442 rows and 521 columns with a total of 631,068 active model cells.

4.3 MODEL LAYERS

The vertical discretization of the model generally reflects the subsurface geometry of the principal geologic units that overlie the bedrock. 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 (loess) and the till uplands; and the Platte Valley and Wahoo Valley overbank fines (fines). Layers 2 and 3 simulate the principal aquifer, which in various portions of the model consists of the Todd Valley alluvium, the Platte Valley alluvium, the Wahoo Valley

alluvium, or the Uplands aquifer. Figure 4.2 shows three cross-sections of the vertical discretization along two model rows and one model column.

4.3.1 Layer 1

The topographic surface (Figure 2.1) is used as the top of Layer 1.

The bottom of the loess and the bottom of the overbank fines (Figure 2.3) are used to define the bottom of Layer 1. In most of the Platte Valley the overbank fines are saturated. The low permeability overbank fines act as a leaky confining unit that impedes but does not prevent upward groundwater flow from the Platte Valley aquifer to the ground surface.

In the Todd Valley and the till uplands area, the bottom of the loess/fine alluvium is much higher than the groundwater table (Figure 4.2); thus, the loess/fine alluvium is unsaturated (i.e., Layer 1 is dry in these areas). In the Wahoo Valley, the fine alluvium is relatively thick in the area south and southeast of the LL1 TCE plume; thus, Layer 1 in this area is partially to fully saturated. However, Layer 1 in the Wahoo Valley between Memphis and Ashland is partially saturated to fully unsaturated.

4.3.2 Layers 2 and 3

Layers 2 and 3 simulate the Platte Valley alluvium, Todd Valley alluvium, Wahoo Valley alluvium, and the till and fluvio-glacial deposits in the uplands. The underlying bedrock surface (Figure 2.2), which was revised based on the borings drilled during 2015 and 2016 (Section 2.2.1), is set as the bottom of Layer 3. Although gravel and medium to coarse sand are more common in the lower portion of the Todd Valley alluvium than in the upper portion, and fine sand is more common in the upper portion than in the lower portion, there is no distinct geologic characteristic that distinguishes the upper from the lower portion of the aquifers. The bottom of Layer 2 separates the shallow and intermediate monitoring intervals in the plume areas, and is approximately at the middle of the saturated thickness of the alluvial aquifer.

4.4 BOUNDARY CONDITIONS

The model boundary conditions (Figures 4.3, 4.4, and 4.5) represent the hydrologic interactions between areas inside and outside of the model domain and the interactions between surface water and groundwater.

4.4.1 Rivers

The Platte River, the Elkhorn River, Wahoo Creek, and Silver Creek (Section 2.4) are simulated in Layer 2 (Figure 4.4) using the MODFLOW River package (Harbaugh et al., 2000).

4.4.1.1 <u>Platte River</u>

A detailed description of the development of the Platte River boundary conditions is presented in the GWM08 report (USACE, 2009). The width of Platte River varies from 800 ft to3,200 ft in the study area, as shown on Figure 2.1. The river width is simulated using two to six model cells, but the total width of the river is up to eight model cells where it splits into two channels around an

island that is up to two model cells wide. Each of the river cells is approximately 400 ft wide, but the length of the cell varies from 50 to 400 feet. The riverbed of the Platte River is sandy, and is assumed to be hydraulically connected to the sand and gravel beds in the Platte Valley alluvium. Thus, the river cells are specified and simulated in Layer 2 (Figure 4.4), and Layer 1 is not relevant in the area of the Platte River.

The LWS well field, located near Ashland next to the Platte River, extracts approximately 30 to 40 MGD of groundwater (Table 2.18), most of which is derived indirectly from the Platte River. The M.U.D. Platte West well field near Venice extracts approximately 25 to 30 MGD of groundwater (Table 2.17), and indirectly derives much of its supply from the Platte River. The amount of water lost from or gained by the river because of well field pumping is only a small fraction of the total river flow (Section 2.4.1); therefore, pumping in these well fields is not expected to significantly change the stage of the Platte River.

4.4.1.2 Elkhorn River

The Elkhorn River (Section 2.4.2) has a sandy/silty riverbed, and is specified and simulated with river cells in Layer 2 (Figure 4.4). The river width is generally simulated using one or two river cells. Riverbed conductance was not revised during this 2017 model update.

4.4.1.3 Wahoo Creek

Wahoo Creek, because of its relatively high flow rate (Section 2.4.5), is simulated using the MODFLOW River package in Layer 2. Along its course, Wahoo Creek may vary between a gaining or losing stream. Using the river package allows the stream-aquifer interactions to be simulated in two directions (gaining or losing). The riverbed conductance was previously calibrated to approximately match the estimated rate of base flow along the creek used in the GWM06 report (USACE, 2007).

4.4.1.4 Silver Creek

Silver Creek is also simulated using the MODFLOW River package. Silver Creek is simulated in Layer 2, because the creek and aquifer are thought to communicate directly. The stream stage elevation and the conductance of Silver Creek remains the same as was presented in the GWM12 report (USACE, 2013e).

4.4.1.5 Open Water Bodies

Other water bodies, such as the sand pits near the LWS Ashland well field, Memphis Lake, and the LPNNRD Reservoir (Figure 1.2), are simulated using river cells in Layer 2 (Figure 4.4). The conductance and surface water stages remain the same as presented in the GWM12 report (USACE, 2013e).

4.4.2 Creeks

Clear Creek and Johnson Creek (Sections 2.4.3 and 2.4.4) are simulated using the MODFLOW Drain package. They are simulated in Layer 1 (Figure 4.3) because it was determined that the creeks directly communicate with the overbank fines, rather than the underlying aquifer. This

suggests that Johnson Creek and Clear Creek flow through the overbank fines without direct communication with the underlying sand and gravel aquifer (USACE, 2009).

The streambed conductance of the creeks was calibrated in GWM08 based on an understanding that the direct hydraulic communication between the creeks and the overbank fines is limited (USACE, 2009). The leakage rate from the clay silty loam is small because of the low permeability of the overbank fines and the small creek dimensions and was not updated in GWM17.

The bottom elevations of the drain cells of the creeks were specified using the surface water stages measured in March 2007, 2009, and 2010, which are also similar to the values measured in 2014 through 2017 (Table 2.5).

4.4.3 Drain Tiles and Seeps

The agricultural drain tiles and seeps (Section 2.9.3) in the Johnson Creek area are simulated in Layer 1 using the MODFLOW drain package (Figure 4.3).

The simulated drain and seep area remains the same as presented in the GWM12 report (USACE, 2013e). The area east of Johnson Creek, where field observations indicate that culverts connected to drain tiles on the east side of Johnson Creek discharge to the creek, is simulated as drain cells. As indicated by the field drain tile and seep flow measurements presented in the GWM08 report (USACE, 2009), most of the upward groundwater flow discharges in the area west of Johnson Creek and only minor flow discharges in the area east of Johnson Creek.

The conductance of the drain cells is assumed to be generally proportional to the size of the model cell and the vertical hydraulic conductivity of the overbank fines. The drain tile elevations are not known exactly but are generally 2 to 3 ft bgs. Both conductance and the bottom of the drain cells were calibrated as part of GWM08 to match the measured drain tile flow rates, and were not updated in GWM17.

4.4.4 General Head Boundaries

The northern and southern model boundaries for Layers 2 and 3 are simulated using general head boundaries, as shown on Figures 4.4 and 4.5. Use of general head boundaries instead of constant head boundaries provides reasonable boundary fluxes in and out of the model domain when stresses within the model domain increase or decrease. The general head values are specified using the interpreted groundwater elevation contours. Minor changes to the northern general head boundaries were implemented during the GWM17 calibration process; however, no changes to the conductance of the boundary were made. These changes were implemented because supplementary monitoring well measurements from M.U.D. and LPNNRD provided additional information on the water levels along the northern model boundary.

The external boundaries for Layer 1 are not specified (Figure 4.3), meaning they are no-flow boundaries by default. The flow in the silt/clay overbank deposits is primarily vertical, either downward in the upland groundwater recharge areas, or upward in the valley lowlands because of discharge from the Platte Valley alluvium and the Wahoo Valley alluvium.

4.4.5 No-Flow Boundaries

The loess-mantled till uplands southwest of the Wahoo Valley and east of the Platte and Elkhorn rivers are the natural boundaries of the Wahoo Valley aquifer and the Platte Valley aquifer, respectively (Figures 4.4 and 4.5). Thus, they are excluded from the active model domain. No hydraulic data is available for the loess-mantled till uplands; however, the low density of irrigation wells in the area indicate that the permeability in the uplands is much lower than the major alluvial aquifers included in the active model domain. This is consistent with GWM12.

The loess-mantled till uplands southwest of the Wahoo Valley are separated from the area of interest (i.e., the area encompassing the Site contaminant plumes) by Wahoo Creek and Silver Creek, which are largely gaining streams. The potentiometric surface in the Wahoo Valley shows that groundwater flow is primarily parallel to the axis of the valley. Flow from the loess-mantled till uplands, if any, would likely discharge to Wahoo Creek. The amount of flow is expected to be limited based on the relatively low transmissivity postulated by the CSD (2005). Consistent with previous model versions, the loess-mantled till uplands southwest of Wahoo Creek, and east of the Elkhorn and Platte Rivers are simulated as an inactive area using no-flow cells in GWM12.

The western edge of the model in the northwest corner is defined as a no-flow boundary. Flow is generally parallel to this edge of the model in this area. Furthermore, the western edge of the model is separated from the area of interest by Silver Creek, a gaining stream that parallels the western edge of the model.

In addition to the no-flow boundaries, Layer 1 contains multiple cells that start out “dry” for each simulation. These “dry” cells were converted to no-flow cells during the 2017 model simulations to enhance model convergence and processing.

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5.0 GROUNDWATER FLOW MODEL CALIBRATION

Groundwater flow model calibration is the process of adjusting model parameters (i.e., hydraulic conductivity, recharge, or boundary conditions) until simulated observations (water levels, drawdown, etc.) match measured observations as closely as possible. Sensitive and insensitive parameters have been identified and confirmed through sensitivity analyses documented in the GWM06 (USACE, 2007), GWM08 (USACE, 2009), GWM10 (USACE, 2011e), and GWM12 (USACE, 2013e) reports. The GWM06 sensitivity analysis identified hydraulic conductivity, evapotranspiration extinction depth, and recharge as sensitive parameters; and general head boundaries and riverbed conductance as insensitive parameters. The GWM08 sensitivity analysis added irrigation pumping rates, recharge, and evapotranspiration in the Platte Valley as sensitive parameters. The GWM10 sensitivity analysis confirmed that hydraulic conductivity, evapotranspiration parameters and recharge were the most sensitive parameters. The GWM12 sensitivity analysis verified the sensitivity of hydraulic conductivity, evapotranspiration, and recharge; and identified vertical anisotropy as a relatively insensitive parameter. The GWM17 calibration focused on minor modifications to these sensitive parameters in areas where new information was available. The following sections describe the 2017 flow model calibration process.

5.1 GROUNDWATER FLOW MODEL CALIBRATION APPROACH

The groundwater flow model calibration approach requires estimation of hydrologic and hydraulic parameters. The hydrologic parameters estimated include groundwater recharge, evapotranspiration rates, and hydraulic conductivity distribution.

The calibration process involved adjusting hydraulic parameters within reasonable ranges based on geologic material type and aquifer tests to match measured calibration targets. The total number of observation and monitoring wells that are used as calibration targets in GWM17 is 328 (Tables 5.2, 5.3, and 5.4).

5.2 CALIBRATION

Flow model calibration goals included:

1) A mass balance error less than 1 percent of the water budget.
2) An absolute residual mean error of less than 5 percent of the range of water level measurements.
3) No trend or spatial bias with the residuals.
4) A reasonable qualitative match of model-simulated potentiometric surface and observed potentiometric surface within the area of the plumes (evaluated by comparing contours).
5) A qualitative similarity between water level changes observed in monitoring wells and observation wells and simulated water levels over time (evaluated graphically).

5.2.1 Calibration Procedure

The GWM17 calibration focused on areas where new data was available, e.g., the EW-18 area, and reducing residuals in areas of higher residuals. Other modifications were made to parameters identified as sensitive in the GWM06, GWM08, GWM10, and GWM12 model updates, including hydraulic conductivity, recharge, and evapotranspiration. Flow model calibration results were compared to both analytically estimated hydraulic conductivity data and the water table configuration. Adjustments were made in order to achieve one or more of the calibration goals.

Recharge and ET values for each stress period were adjusted manually based upon precipitation and ET data, and changes in observed water levels.

5.2.2 Simulation Periods

The simulation time frame for the GWM17 calibration starts on August 26, 2014 and ends on May 31, 2017. The entire period includes 38 stress periods. The multiplier for the time steps is 1.2 (the time step multiplier is the ratio of the length of each time step to that of the preceding time step). The simulation periods and the dates are provided in Table 5.1.

5.2.3 Groundwater Extraction

Actual extraction well, focused extraction well, and irrigation well flow rates were averaged for each stress period. The exceptions to this are the irrigation wells without measured pumping rates. The pumping rates for non-metered irrigation wells are adjusted based on the average depth of irrigation in the ARDC metered wells. In 2015 and 2016 the average depth of irrigation in the fields irrigated by the ARDC wells was less than the long-term (2000 through 2016) average of 7.00 inches, as presented in Table 2.20. In 2015, the average irrigation depth in metered ARDC wells was 2.35 inches, and in 2016 the depth of irrigation was 2.05 inches. For non-ARDC wells, irrigation rates for 2015 and 2016 were estimated using the average ARDC depth of irrigation and the acreage associated with each well. The estimated rates are presented in Table 2.21.

5.2.4 Calibration Targets

Calibration targets primarily included water levels measured on March 30, 2015; August 31, 2015; March 28, 2016; August 25, 2016; and March 31, 2017. Measured water levels from 2014 to 2017 are shown in Table 2.5. Transient variations of groundwater elevations (including responses to the Site extraction well and focused extraction well operations) were included as flow model calibration criteria.

5.3 CALIBRATION RESULTS

GWM17 calibration results were detailed using a model water budget and comparison to hydraulic heads, as described below.

5.3.1 Model Water Budget

The first model calibration goal is to evaluate the mass balance error. A model-simulated water budget provides a “big picture” allocation of flow rates and volumes from various sources within

the simulated hydrogeologic system. Even though there is limited direct measurement of the water budget component for comparison, the simulated water budget can be evaluated as to whether it is reasonable compared to the conceptual model understanding of inflow and outflow.

Major inflows to the aquifer consist of recharge from the Platte River, precipitation recharge, and flow from the northern portion of the model (represented as the general head boundary). Major outflows from the aquifer include municipal supply well, extraction well, and irrigation well pumping (in only transient time steps); discharge from the aquifer to the rivers, creeks, and drains; evapotranspiration; and flow to the southern model boundary (also a general head boundary). The percent error in the water budget is 0.03 percent, significantly less than the standard of 1 percent that indicates a stable model solution. Therefore, the model meets the first calibration goal.

The transient water budget for the period August 2014 to May 2017 is presented on Figure 5.1. Positive values represent inflow to the water budget domain and negative values represent outflow from the water budget domain. Most water budget values presented in Figure 5.1 reflect monthly averaged water budgets.

The most significant outflow from the model domain is from wells. During the non-irrigation season, the well outflow primarily includes pumping at the M.U.D. and LWS well fields and the Site extraction and focused extraction wells. During the irrigation season, the total well outflow more than doubles as the result of irrigation pumping. The next major outflow is ET in the Wahoo Valley and the Platte Valley, especially from the phreatophyte zone along the Platte River. Other minor outflows include general head boundary cell outflow, drain cell outflow, and river cell outflow.

Groundwater recharge is the largest source of inflow to the aquifer. The GWM17 recharge rate was varied for each stress period based on changes in precipitation and subject to calibration. The other major source of water to the aquifer is river inflow, primarily from the Platte River. The rate of river cell inflow varies with time, increasing during the irrigation season and decreasing during the non-irrigation season.

On Figure 5.1, storage inflow refers to the amount of water that is released from aquifer storage into the water budget domain, while storage outflow refers to the amount of water that goes into aquifer storage from the saturated zone (water budget domain). When storage outflow exceeds storage inflow, the water table rises. There are a few large recharge episodes that result in large storage outflows, which is consistent with the increasing trends observed in many monitoring wells after 2015. The mass balance error for each of the stress periods was less than 1 percent, which satisfies the first calibration goal.

5.3.2 Comparison of Hydraulic Heads

Comparison of observed heads and simulated heads was completed in several different manners including direct measurements versus simulated values, changes over time, and an evaluation of the simulated potentiometric surface versus the measured potentiometric surface.

5.3.2.1 Residuals

Evaluation of an absolute residual mean error is the second criteria used to evaluate flow model calibration listed in Section 5.2. Water level measurements from 328 wells, including USACE monitoring and observation wells (in shallow and intermediate layers), LPNNRD, LWS, M.U.D., and USGS monitoring wells were used as the calibration targets. Well locations are shown on Figures 2.5 through 2.10.

Simulated and observed hydraulic heads for the five water level measurement events are compared in Tables 5.2 through 5.4. One of the industry standard goals for groundwater flow model calibration (the second calibration goal) is that the absolute residual mean error is less than 5 percent of the range in water level measurements. As shown in Tables 5.2, 5.3, and 5.4, the absolute value of the residual mean divided by the range of hydraulic head values within the model domain (denoted as "Scaled Mean of Absolute Residual Error" at the bottom of Table 5.2) ranged from 1.16 to 1.41 percent for the five water level measurement events. These statistics indicate that the second calibration goal is satisfied. Calibration statistics for all water level measurement events are plotted on Figures 5.2a through 5.2e.

The third calibration goal is to verify that the residuals have no apparent spatial trend or bias. The residual means of calibration targets for the five events ranged from -0.26 ft to 0.29 ft (from -0.23 percent to 0.26 percent of the aquifer water level range), indicating a small bias in overall calibration residuals of simulated and observed hydraulic heads are plotted and posted for March 2017 on Figure 5.3. The matches between the observed and simulated heads at USACE wells as shown on Figure 5.3 indicate residuals are generally within 1 ft near the active extraction wells.

Some spatial patterns in the residuals are observed. For wells located in the heavy pumping area, such as the LWS well field, the simulated groundwater elevations may not match the observed elevations because the assumed seasonal average pumping rate at individual wells used in the model may not be the same as the actual pumping rate on the day water levels were measured.

In addition, simulated and observed heads in some wells located in the northern till uplands aquifer may not match well as there are only a small number of measurements and the information on the lithology and/or hydrostratigraphy is limited. Some USGS monitoring wells have estimated measurement point elevations. Some measurements from wells that are close to each other have large differences in groundwater elevations, such as several monitoring wells in the southern end of the LWS well field. At the margins of the model the residuals are larger; therefore, the model may be less accurate at the model boundaries. However, within the Site boundary where model accuracy is most important the majority of the residuals are small indicating a reasonable calibration of the GWM17.

The fourth calibration goal is to compare the model-simulated potentiometric surface and observed potentiometric surface within the area of the plumes. The simulated and observed potentiometric surfaces of the intermediate aquifer from March 2017 are presented on Figure 5.4. The overall simulated surface is similar to the observed, with some differences due to data density, such as in the till uplands where observed water level data is sparse. This comparison also indicates an acceptable calibration of GWM17.

5.3.2.2 Comparison of Simulated Hydrographs

The fifth calibration goal is to compare observed and simulated water levels over time. For GWM17, the simulated and observed groundwater hydrographs were compared to USACE monitoring wells. Comparison at USACE monitoring wells focused on evaluating the change of regional groundwater levels in relation to the estimated seasonal groundwater recharge and changes in pumping. Comparison at USACE observation wells focused on verification of the calibrated hydraulic conductivities in the vicinity of the Site extraction wells or focused extraction wells.

USACE hydrographs for selected monitoring wells are presented on Figure 5.5a through Figure 5.5l. The simulated and observed water level changes over time have a close match in many of the wells, suggesting GWM17 accurately represents changes in recharge and extraction well pumping.

5.4 CALIBRATED HYDRAULIC PARAMETERS

Transient values for recharge and ET were varied. Hydraulic conductivity values were first updated according to new precipitation and ET data. Recharge was proportional to total precipitation.

ET values in the phreatophyte zone were varied based on PET values. ET values varied between 0.0025 ft/day and 0.0288 ft/day during calibration.

During the process of GWM17 calibration, recharge, ET and hydraulic conductivity were the focuses of the calibration due to the relative importance of these parameters according to various sensitivity analyses summarized in previous groundwater model updates. In addition, a series of informal sensitivity analyses was conducted at selected locations of river and general head boundary cells. The model was found to be insensitive to these parameters, which confirms the results of previous sensitivity analyses.

Hydraulic conductivity values were varied during calibration based on aquifer test data and observed water levels. Recharge was calibrated based on observed water level trends and varies temporally.

5.4.1 Calibrated Hydraulic Conductivity Distribution

No changes were made to the hydraulic conductivity of Layer 1 from GWM08. The hydraulic conductivity of overbank fines of Layer 1 is 1 ft/day. Layer 1 is only active in a small portion of the model domain, to represent shallow groundwater in the Platte Valley, and there are few targets. The model calibration was based on the comparison of the measured flow rates and the model simulated flow rates at the drain tiles discussed in the GWM08 report (USACE, 2009).

The GWM17 calibrated hydraulic conductivity distribution is presented with Figures 5.6 and 5.7. The estimated hydraulic conductivities vary between 10 ft/day and 600 ft/day over the entire model domain. The hydraulic conductivity in the Platte Valley is high, ranging from 240 ft/day to 600 ft/day with a majority of the area ranging between 550 and 600 ft/day. These values are

consistent with the LWS and the M.U.D. pumping results, as well as previous versions of the Site model and other modeling reports. Near the eastern boundary of the Todd Valley aquifer near the confluence of Johnson and Clear creeks (partly in the Platte Valley and partly in the Todd Valley), the hydraulic conductivity is also high, approximately 350 ft/day, and is consistent with previous pumping test results at EW-1/EW-1R and EW-2.

In the Todd Valley aquifer, the calibrated hydraulic conductivity varies from 16 ft/day to 470 ft/day. The hydraulic conductivity distribution for GWM17 was updated near EW-17 during the calibration process based upon pumping test results (USACE, 2013d), observed water levels and calibration results. In the Wahoo Valley aquifer, the calibrated hydraulic conductivity ranges between 50 ft/day and 200 ft/day. However, the pumping test drawdowns measured in the observation and monitoring wells near EW-12 (located at the boundary of the Wahoo Valley aquifer and the Todd Valley aquifer) resulted in an estimated hydraulic conductivity value as low as 20 ft/day and 10 ft/day, respectively (USACE, 2009). A constant-rate pumping test conducted in 2013 (USACE, 2013d) indicated higher conductivities in the vicinity of EW-17. The hydraulic conductivities estimated from the EW-17 constant-rate pumping test ranged from 29 to 68 ft/day. Calibration residuals improved after hydraulic conductivities in the vicinity of EW-12 and EW-17 were increased from a range of 13 to 66 ft/day to a range of 50 to 66 ft/day.

Estimates of hydraulic conductivity from the EW-18 post-installation pumping test ranged from 174 to 188 ft/day (USACE, 2017c). The test results confirmed the GWM12 hydraulic conductivity distribution near EW-18 (approximately 184 ft/day); therefore, no changes to the hydraulic conductivity distribution near EW-18 were necessary.

The estimated aquifer heterogeneity in the Wahoo Valley is not fully represented in GWM17, and the hydraulic conductivities used are considered areal averages. Uncertainty analyses in the GWM08 report (USACE, 2009) simulated heterogeneity in the EW-12/EW-17 area by increasing the K_d value. The report concluded that increasing K_d only partially simulated the effects of immobile porosity in the lenses of fine material in the area, and that the heterogeneity may result in an underestimation of clean up times in the area. The GWM08 report suggested that the residual effects of contaminant mass diffusing from immobile porosity would be more accurately simulated using a dual-domain model.

The hydraulic conductivity was adjusted in areas where residuals were initially higher during the calibration process. Adjustments included increasing the hydraulic conductivity in the area between MW-57B and MW19B north of LL1, LL2, and LL3 from approximately 80 ft/day to approximately 105 ft/day. The hydraulic conductivity in a small area northeast of MW-148B in between the LL3 and LL4 plumes was decreased form approximately 180 ft/day to approximately 80 ft/day to improve the residuals for LL3 monitoring wells downgradient of this area, including MW-143B, MW-148B, MW-149A, MW-150A, and MW-175A/B.

Anomalous water levels were identified in MW-161A and MW-161B, which were higher than in downgradient well MW-141A; and at MW-160A and MW-160B, which had higher water levels than downgradient well MW-142A. All of these wells are located within the LL1 TCE plume. Another anomaly was found at MW-180A and MW-180E, which had water elevations approximately 3 feet lower than OW-111. OW-111 is located approximately 40 feet from EW-18,

and should have a lower water level elevation than MW-180A and MW-180E, which are approximately 95 feet away. The top of casing elevations of MW-180A and MW-180E are roughly 3 ft lower than the top of casing elevations of MW-180D1, MW-180D2, and MW-180D3, which are in the same cluster. This disparity in elevations suggests a possible survey discrepancy.

The horizontal to vertical anisotropy ratio was assumed to be 10:1 for all layers in the calibrated model. Sensitivity analysis was conducted for GWM12 using a horizontal to vertical hydraulic conductivity ratio of 1:1 and 100:1 for model Layers 2 and 3. The simulated hydraulic heads and fluxes in the steady-state model are relatively insensitive to changes in the anisotropy ratio for Layers 2 and 3. The insensitivity of the groundwater flow model results to vertical anisotropy ratio is primarily because Layers 2 and 3 are one aquifer and the vertical head difference between the two layers is minor (a few percent of a foot). Relatively strong and consistent vertical hydraulic gradients in the Todd Valley Aquifer only exist in a few locations as discussed in Section 2.7.2. These areas include downward gradients south of the LPNNRD Reservoir at MW-53, MW-54, and MW-55, and downward gradients in some wells in the vicinity of the extraction wells.

5.4.2 Calibrated Recharge

The amount of precipitation that recharges the aquifer is equal to the total precipitation minus runoff, evapotranspiration in the unsaturated zone, and the amount of moisture captured and stored in the unsaturated zone. The percentage of total precipitation that results in recharge is also a function of rate of rainfall, terrain, soil parameters, vegetation type, and climatic variables (solar intensity, temperature, relative humidity, etc.). Direct measurement of the recharge to groundwater is generally not possible on a regional scale. However, published studies provide estimates for the Saunders County area ranging from 3.7 to 4.2 inches/year (Szilagyi et al., 2005). This is compared to the annual precipitation normals at the Ashland, Gretna, Ithaca, Mead, Memphis, and Valley stations that range from 29.4 to 33.6 inches/year (Section 2.5.1). This suggests that the long-term average recharge is approximately between 11 and 21 percent of precipitation. The percentage of recharge likely exceeds the mean in wet years, because although there may be more runoff, a smaller percentage of infiltration is evaporated, absorbed as soil moisture, or transpired by vegetation.

The percentage of recharge in the GWM08 calibration was 20 percent of total annual precipitation (USACE, 2009), and 20 to 27 percent in the GWM10 and GWM12 model calibrations (USACE, 2011e and 2013e). As part of the GWM17 calibration process, recharge values were varied between 20 percent and 35 percent of total precipitation. The estimated recharge rates for the 29 stress periods are presented in Table 5.8.

5.4.3 Evapotranspiration

Groundwater ET occurs in the overbank fines of the Platte Valley and the Wahoo Valley because of the shallow depth to groundwater. The low permeability of the overbank fines also enhances groundwater ET (Bouwer, 1979). The depth to groundwater in the Platte Valley and the Wahoo Valley varies from less than one foot to a few feet bgs. The depths to water in the Todd Valley are much deeper (approximately 40 to 70 ft bgs) and, therefore, ET is not a significant water budget parameter because the extinction depth (i.e., the depth at which groundwater ET is zero) is assumed to be 6 ft bgs (Bouwer, 1978). A phreatophyte zone along the Platte River and the Elkhorn River

is simulated in GMW17 and corresponds to a higher ET. The distribution of ET is similar to the regional scale ET estimation produced by Szilagyi and Jozsa (2009) and Szilagyi and Kovacs (2010). Although ET was identified as a sensitive parameter in GWM08, it was shown to only affect the portion of the LL4/AMA plume within the Platte Valley (USACE, 2009). As shown on Figure 2.13, the ET varies over the course of the year with the highest ET in the summer months. The average PET data from Ithaca (Table 2.14) and Memphis (Table 2.15) stations during each stress period is directly applied to the phreatophyte zone. The rate for the Platte Valley is assumed to be 42.5 percent of the rate in the phreatophyte zone, and the rate in the Todd and Wahoo valleys is assumed to be 10.6 percent of the rate in the phreatophyte zone, although the rate in the Todd Valley is not applicable due to the depth to groundwater being greater than the extinction depth. These are the same percentages used in the GWM08 (USACE, 2009), GWM10 (USACE, 2011e), and GWM12 (USACE, 2013e) calibrations. Groundwater ET used in the short-term transient model is presented in Table 5.6.

5.4.4 Calibrated Storage Coefficient

The estimated specific yield, specific storage, and effective porosity are summarized in Table 5.7, and the parameters remained the same as GWM12. The values of specific yield and effective porosity are within published ranges for similar materials (Freeze and Cherry, 1979). The value for specific storage is similar to the pumping test results at EW-1, EW-13, FEW-14, FEW-15, EW-16, and EW-18. Decreases in the specific storage values tend to cause more rapid increases and decreases in groundwater levels in transient simulations.

5.4.5 Calibrated River Boundary Conductance

The boundary conductance for the Platte River, Elkhorn River, and Wahoo Creek were not modified during this 2017 model update. Sensitivity analyses presented in the GWM06 report (USACE, 2007) concluded that conductance is a relatively insensitive parameter if the conductance is similar to or greater than the hydraulic conductivity in the surrounding aquifer, and that it only has an effect immediately adjacent to the river; therefore, it was not modified for GWM17.

6.0 GROUNDWATER SOLUTE TRANSPORT MODEL

There is a great deal of uncertainty associated with the historical timing and quantity of contaminant releases at the Site. A quasi-calibration of the groundwater plumes using history matching was performed in GWM06, GWM08, GWM10 and GWM12 to address some of this uncertainty; however, because of the number of unknowns this history matching is considered an estimate.

The previous model updates have used a combination of particle tracking and transport simulations for history matching of plume migration pathways and plume migration on a Site-Wide scale (e.g., GWM06 and GWM10), and in specific areas of the Site (e.g., LL1 for GWM08 and LL1 and LL2 for GWM12). The current understanding of the plume migration pathways is generally consistent with previous model updates.

6.1 COMPUTATION ALGORITHM

The hybrid method of characteristics (HMOC) was used during transport simulations. MT3DMS offers five computation algorithms and states that "no single numerical technique has been shown to be effective for all transport conditions" (Zheng and Wang, 1998). HMOC is a hybrid of the method of characteristics (which was used in GWM08) and the modified method of characteristics. The HMOC solution combines the strength of the method of characteristics for reducing numerical dispersion with the computational efficiency of the modified method of characteristics. The mass budget error for the HMOC runs was approximately one percent, which is acceptable based on industry standards. Under most algorithms, some numerical dispersion and error is expected. However, the largest source of error for predictive modeling relates to uncertainty in the conceptual model of transport (Konikow, 2011) (i.e., lack of knowledge about the timing, quantity and location releases).

6.2 TRANSPORT PARAMETERS

The fate and transport parameters include dispersivity, K_d, porosity, and biodegradation half-life. The values used for these parameters in GWM17 are consistent with GWM12 and are presented in Table 5.7 and Table 6.1.

As discussed in previous model updates, small transverse dispersivity values were required to match the plume shapes because the observed plumes, especially the high concentration zones, are very narrow in comparison to their lengths. A biodegradation half-life of 65 years was used in GWM17 for TCE, which is consistent with previous model updates and with Site data (discussed in Section 3.5.11). Field data indicates very little degradation is occurring within the TCE plumes.

As discussed in Section 3.5.10, the retardation of the plumes is significant, and variations in K_d that were made in GWM12 to match observed data were retained in GWM17. Based on f_{oc} values, the estimated K_d for TCE at the Site ranges between 0.024 L/kg and 0.4 L/kg. The TCE K_d values used in the leading edge of the plume are within this range. Yamamoto et al. (2004) reported that the estimated RDX K_d values in a sandy alluvial aquifer at the Massachusetts Military Reservation varied from 0.072 L/kg in the deep soil to 0.37 L/kg (adsorption) and 1.5 L/kg (desorption) in the surficial soil, respectively. The K_d values used for the RDX simulations are within this published

range. Local variations in K_d simulate possible remaining historical high concentration area residuals and heterogeneous geologic conditions.

6.3 GWM10 AND GWM12 HISTORY MATCHING

The advection of the plumes is dependent upon calibrated parameters of the flow field such as hydraulic conductivity, effective porosity, recharge, and boundary conditions and the operation of irrigation wells and other wells in the vicinity of the plumes. However, the simulated extents and concentrations of the plumes are highly dependent on the assumed number, locations, extents, timing, volumes, and concentrations of the assumed releases to groundwater, as well as the assumed retardation and dispersion.

In the history matching simulations conducted in GWM06, GWM08, GWM10, and GWM12, constant or decreasing concentrations were applied in the transport model at the historical high concentration areas that are discussed in Section 3.3. The simulated sources are based on the assumed release time and the K_d was adjusted at the source area to simulate retardation.

There is no unique solution when performing history matching of the plume trends. History matching results likely can be re-created using several different assumptions of specified concentration cells with different locations, levels, and timing. Thus, the specified concentration cells cannot be considered to represent the actual historical high concentration areas, but are only hypothetical starting conditions that present one of many possible non-unique solutions for approximating the observed plumes. The actual historical high concentration area conditions are complex, and the precise location, quantity, and variation over time of the historical high concentration areas cannot be known with certainty. Thus, history matching is not an attempt to identify the exact historical high concentration area conditions through modeling, but rather an attempt to quasi-calibrate the transport model via simulating the current plumes (general extent, concentrations, etc.) through a best estimate of the release(s) based on Site-specific knowledge and professional judgment.

History matching was discussed for all plumes in the GWM10 report (USACE, 2011e), and the history matching simulations for LL1 and LL2 were updated and discussed in the GWM12 report (USACE, 2013e). The history matching simulations are summarized in the following subsections.

<u>LL1 TCE</u>

As discussed in Section 3.5.1, the conceptual model for TCE transport at LL1 is that groundwater flowing past high concentration zone residuals has leached TCE and created the large-scale TCE plume downgradient of the suspected historical high concentration area. Based on the understanding of historical activities related to the use of TCE at LL1, the GWM12 history-matching simulations assumed TCE use at LL1 from 1959 to 1964. A decreasing concentration was used for history matching of the LL1 TCE plume. The potential area of historical contaminant release was assumed to be located on the southwest side of LL1 based upon direct-push results from the GMPOI (USACE, 2012a). Decreasing concentration cells were placed in Layers 2 and 3 across an area of approximately 100,000 square feet. Previous history matching simulations suggested that retardation limits the advective transport of the LL1 TCE plume as well as the other plumes, therefore a K_d is applied to account for the presence of organic carbon. A higher K_d value was used in GWM12 to simulate TCE solvent residual with a finite mass that is

slowly dissolved or desorbed in the LL1 potential area of historical contaminant release. GWM12 used K_d values of 0.2 L/kg and 1.0 L/kg at the LL1 potential area of historical contaminant release. A uniform K_d value of 0.03 L/kg was used downgradient of the LL1 potential area of historical contaminant release. No changes have been made to the conceptual model of the LL1 TCE plume for GWM17.

LL2 RDX

As discussed in Section 3.5.6 and shown in Figure 3.3, the LL2 RDX plume has not completely detached from the suspected historical high concentration area, and no strong concentration gradients exist throughout the plume (i.e., the concentrations at the suspected release area are not higher than the concentrations in the downgradient area). Based upon iterative history-matching simulations, the optimal placement of decreasing concentration cells was along the ditch near MW-65 and MW-66. This configuration of concentrations resulted in an RDX plume with a shape similar in length and approximate dimension to the current understanding of plume dimensions. The history-matching simulations were conducted in order to determine if any specified concentration cells should be used in predictive modeling as discussed in Section 7.

Although the GWM12 history-matching suggested a reasonable match using a decreasing concentration source, no source term was used for the GWM12 predictive plume simulations based on the lack of widespread vertical and horizontal RDX concentrations over 100 µg/L. No modifications have been made to the conceptual understanding of the LL2 RDX plume for GWM17.

LL2/LL3 TCE Plumes

Current LL2 and LL3 TCE plume interpretations presented in Figures 3.1 and 3.2 show that the highest concentration zones of TCE (approximately 100 µg/L) are located downgradient of LL2 and LL3, indicating that the plumes have detached from the potential release area and the plumes are generally advecting with groundwater flow. No high concentration zones exist for the LL2 and LL3 TCE plumes and little is known about historical activities using TCE at LL2 and LL3; therefore, history matching simulations were not performed for GWM12 for the LL2 or LL3 TCE plumes.

LL3 RDX

As discussed in Section 3.5.7 and shown on Figure 3.1, the areal concentration distributions of the LL3 RDX plume suggest that a high concentration area is no longer contributing to the LL3 RDX plume; the RDX plume appears to have detached from the load line area. History matching of the LL3 RDX plume in the GWM10 report (USACE, 2011e) indicated that continual mass input (i.e., specified concentration cells) was not necessary. No modifications have been made to the conceptual understanding of the LL3 RDX plume for GWM17.

LL4/AMA TCE

The current LL4/AMA TCE plume interpretation on Figure 3.1 show that the highest concentration zones (greater than 1000 µg/L) are located in the upper portion of the aquifer near the AMA, and Figure 3.2 shows that the high concentration zones migrate to the lower portion of the aquifer further downgradient. The TCE plume emanating from the Landfill area is characterized by low level concentrations (greater than 50 µg/L) throughout its extent.

As discussed in Section 3.5.3, the conceptual model for TCE transport at LL4/AMA is advection-dominated and there is no indication of residual DNAPL. Based on the understanding of historical activities related to the use of TCE at LL4/AMA, the GWM10 history-matching simulations (USACE, 2011e) assumed TCE use at LL4/AMA in the late 1950s and early 1960s. Concentrations in specified cells at the AMA and the former Landfill area were decreased over time until they were reduced to non-detect in the 1980s. No changes have been made to the conceptual model of the LL4/AMA TCE plume for GWM17.

LL4 RDX

As discussed in Section 3.5.8, the LL4 and Burning Grounds/Proving Grounds area RDX plumes are shorter and lower in concentration than the RDX plumes at the other load lines. The LL4 RDX plume appears to have detached from the LL4 area. Relatively low concentrations (slightly above the Health Action level of 2 µg/L for RDX) remain in the upper portion of the aquifer at the Burning Grounds/Proving Grounds area and downgradient in the upper and lower portion of the aquifer. Monitoring well results generally show decreasing concentrations throughout the plume.

7.0 GROUNDWATER MODEL FOR PREDICTION

The groundwater transport model was run in a predictive (forward in time) simulation, starting from June 2017 and running for 100 years.

This predictive model is used as a tool to:

- Support the annual CE;
- Design and/or modify real-time operational pumping rates for the Site operation based on results from the CE;
- Modify the Site pumping schedule, if irrigation practice changes near a plume; and
- Support the development of an optimal long-term monitoring plan.

The predictive model is developed based on the long-term average of many transient stresses to the aquifer. If some of the stresses change from the assumptions in this model update, then the predictive model will need to be modified. This predictive model is also subject to the limitations discussed in Section 8.1.

7.1 GROUNDWATER FLOW MODEL FOR PREDICTIVE SIMULATION

The model used for predictive simulations is a modification of the calibrated short-term transient model. The boundary conditions for the predictive model are the same as in the calibrated short-term transient model. The predictive model's hydrologic and groundwater extraction conditions for the next 100 years are specified as follows:

- Two stress periods for each year; a non-irrigation season of 273 days and an irrigation season of 92 days; 200 stress periods total;
- Groundwater recharge is assumed to be 20 percent of the estimated long-term normal precipitation in Todd Valley and Wahoo Valley, which is an increase from 13 percent in GWM12;
- Groundwater recharge is assumed to be 33 percent higher in the Platte Valley than in Todd Valley and Wahoo Valley, which is consistent with GWM12 (USACE, 2013e);
- ET is assumed to be the estimated long-term average;
- Irrigation pumping rates are based on the acreage associated with each well, and the average depth of irrigation in ARDC wells from 2000 to 2016 (7.00 inches);
- LWS pumping rates are increased following the projected growth in demand, as shown in Table 7.2 (City of Lincoln, 2014);
- M.U.D. pumping rates are specified at the maximum permitted annual average rate of 52 MGD (Table 7.3);
- Municipal pumping rates for Ashland are assumed to be the average seasonal rates from 2004 to 2016 (Table 7.4);

- Municipal pumping rates for Mead are assumed to be the average seasonal rates from 2005 to 2016 (Table 7.4);
- Municipal pumping rates for Ithaca and Memphis are based on a 100-gallons per day per-capita water usage rate (NNRC, 1998) and the 2014 estimated populations (NDNR, 2014) (Table 7.4);
- Site extraction well pumping rates are assumed to be the same as current pumping rates (Table 7.1); and
- The May 2017 hydraulic heads from the short-term transient model are used as the initial heads.

7.2 FATE AND TRANSPORT MODEL FOR PREDICTIVE SIMULATION

Predictive fate and transport modeling is described below including both the assumed initial Site contaminant plume conditions, and the assumptions about the high concentration areas within the contaminant plumes.

7.2.1 Initial Plume Conditions in 2017

The 2017 TCE and RDX plumes (Figures 3.1 through 3.4) were used as the initial plume conditions for the predictive transport simulation. These plumes were based on data from previous monitoring well sampling events and direct-push investigations (Section 3.2). Slight adjustments were made to the initial concentrations in the model based on 2017 monitoring well data.

7.2.2 High Concentration Area Assumptions

<u>LL1 TCE Plume</u>
As discussed in Section 6.3, the GWM12 history-matching simulation of the LL1 TCE plume from the 1960s through 2012 conservatively assumed that some high concentration areas still exist on the southwest side of LL1. For GWM17, the specified concentration cells in the area of highest concentration at LL1 decrease over the next 15 years based on the schedule developed for GWM12 (Table 7.5).

<u>LL2, LL3, LL4/AMA and Landfill TCE Plumes</u>
The original TCE solvent release in the suspected AMA historical high concentration area (Section 3.5.3) has likely been dissolved and transported downgradient. The TCE plumes emanating from LL2, LL3 and the Landfill have lower concentrations than the LL1 and LL4/AMA TCE plumes. Therefore, for the GWM17 predictive simulation, no specified concentration cells are assigned for these plumes. This is the same assumption that was assumed in GWM12.

<u>LL1 RDX Plume</u>
Consistent with GWM12, the GWM17 predictive simulations do not use specified concentration cells at the assumed release location on the southwest side of LL1.

LL2 RDX Plume

Consistent with GWM12, no specified concentration cells for RDX were used at LL2 in the GWM17 predictive simulations based on the lack of widespread vertical and horizontal RDX concentrations over 100 µg/L across the LL2 area.

LL3, LL4/AMA and Landfill RDX Plumes

RDX has not been detected recently in groundwater in the assumed LL3 and LL4 release areas, and RDX concentrations in the Landfill area are low (i.e., less than 10 µg/L). Therefore, no specified concentration cells are assumed for these RDX plumes in the predictive model.

7.3 PREDICTED FATE AND TRANSPORT OF PLUME MIGRATION

The 50-year predicted fate and transport of the TCE and RDX plumes starting at 2017 are shown on Figures 7.1 through 7.36. The TCE and RDX plumes are predicted to be contained through at least the next 30 years using the pumping rates in Table 7.1. Predictive simulation results starting at 60 years into the future are shown in Appendix C. Updates to the GWM17 predictive simulation include:

- EW-18 began operation in 2016;
- EW-16 resumed operation in late 2017; and
- An increase in the assumed recharge rate used in the GWM12 predictive simulations (13 percent of normal precipitation in the Todd Valley and 18 percent in the Platte Valley) to 20 percent in the Todd Valley and 27 percent in the Platte Valley based on the GWM08, GWM10, GWM12, and GWM17 short-term transient calibrations.

As shown in the predictive simulations on Figures 7.1 through 7.18, FEW-11 is estimated to cut off the LL1 TCE plume in Layer 2 and Layer 3 between 2027 and 2037. The portion of the plume downgradient of FEW-11 is predicted to be remediated in both layers between 2057 and 2067. The portion of the LL1 TCE plume upgradient of FEW-11 is predicted to be remediated between 2077 and 2087, as shown in Appendix C. The LL2 TCE plume is predicted to be entirely in Layer 3 in 2067, and is predicted to reach EW-18 between 2057 and 2067, as shown on Figures 7.17 and 7.18. The LL2 TCE plume is predicted to be below the Final Target Cleanup Goal (5 µg/L) by 2107, as shown in Appendix C. The LL3 TCE plume is predicted to be remediated in both layers in 5 to 10 years. FEW-15 is predicted to create a separation between the upgradient portion and downgradient portion of the LL4/AMA TCE plume in both layers in 2027. Shutdown of FEW-15 is predicted to be possible between 2042 and 2047, and shutdown of EW-1R is predicted to be possible between 2047 and 2057.

As shown on Figures 7.19 through 7.36, remediation of the LL1 RDX plume is predicted to be completed between 2057 and 2067 in Layer 2 and Layer 3. As shown on Figures 7.27 and 7.36, the LL2 RDX plume is predicted to still be present in both layers in 2067. The figures in Appendix C show the LL2 RDX plume shifting to the west, suggesting that reactivation of EW-10 may be necessary after 2067 to prevent migration to the perimeter monitoring well network. FEW-14 is predicted to cut off the LL3 RDX plume in both layers by 2022. Shutdown of EW-4 and EW-16 is predicted to be possible between 2027 and 2032, and shutdown of FEW-14 is potentially feasible between 2057 and 2067. The LL4/Landfill RDX plumes are predicted to be decrease to concentrations below the Final Target Cleanup Goal (2 µg/L) between 2042 and 2047.

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8.0 CONCLUSIONS

GWM17 compiled and evaluated a large quantity of data relevant to the natural hydrologic system and contaminant migration within the Site model boundary, including geology, hydrogeology, hydrology, water supply, irrigation, groundwater contaminant sampling results, and containment system operation. The contours, tables, and graphs summarizing the data in this report provide a scientific basis for verification and minor updates to the conceptual model and the numerical models.

The model prediction results suggest that the proposed Site pumping schedule (Table 7.1) will contain all TCE plumes and LL1, LL3 and LL4/AMA RDX plumes over at least the next 30 years. The pumping schedule should be evaluated in future model updates.

Although uncertainty increases with the length of simulations, predictive simulations shown in Appendix C suggest that the LL1 and LL2 TCE plumes, and the LL2 RDX plume will persist beyond the 50 years shown on Figures 7.1 through 7.36. After 50 years the LL1 TCE plume will be cut off by FEW-11. Adjustments to the operations of extraction wells are likely for containment of the LL2 TCE and RDX plumes during the next 50 years, e.g. it is possible reactivation of EW-10 may be necessary in the future.

The regional groundwater model simulates this hydrogeologic system at the regional scale with adequate detail for estimating containment over the long term. The model was developed through an iterative calibration process. The aquifer hydraulic conductivity distribution, which is the most critical parameter that affects groundwater flow, is considered to be well calibrated in the vicinity of the Site containment system. The groundwater fate and transport model provides an estimate of the predicted extent of the plume. The horizontal and vertical cell spacing in these simulations are reasonable for analyzing regional groundwater flow and plume migration. However, actual groundwater levels and chemical concentrations from monitoring wells provide data to verify whether the containment system is effective or not and should be used for future model refinements.

The features of GWM17 include:

- Updated plume extents for RDX and TCE at LL1, LL2, LL3, LL4, and the AMA, based on new data collected through the Spring of 2017;
- Refined hydraulic conductivity distribution based on data collected from the pumping test at EW-17 (USACE, 2013d);
- Verification of the hydraulic conductivity distribution near EW-18 based on the EW-18 pumping test (USACE, 2017c);
- Refined bedrock surface elevations based on stratigraphic data from monitoring wells and bedrock borings installed in 2016 (USACE, 2017a);
- Site extraction system operational changes including resuming operation of EW-16 in late 2017;
- Refined recharge values based on varied precipitation and observed water levels in Site wells in 2014 through 2017; and

- Updated water level measurements from August 2014, March and August 2015, March and August 2016, and March 2017.

8.1 LIMITATIONS

Groundwater models are by definition a simplified version of the aquifer system. Site conditions and hydrogeologic properties were estimated through extrapolation of measured or estimated properties, or inferences from data measured or estimated, and are based on existing site conditions and professional judgment. In addition, changes in the hydrogeologic system occur due to the passage of time, human activities, and climatic conditions. Therefore, uncertainties are inherent in this groundwater model and the simplifications built into the model will result in limitations.

GWM17 has been prepared in accordance with generally accepted hydrogeological and engineering practices for specific application to the Site. With future concentration trend data collected from the extraction wells and monitoring wells recently installed along the axes of the plumes, the understanding of plume migration behavior can be improved, and the limitations of the current model can be reduced.

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TABLES

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Table 2.1
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-01A (Abandoned)	Intermediate	G-154545BQ	2618459.72	511743.03	1176.88	1174.40	2.48	0.01	3.00	8.00	111.50	1062.90	NA	73.10	79.00	1095.40	109.00	1065.40	114.00	1060.40	109.00	1065.40	SH
MW-01B (Abandoned)	Shallow	G-154545BR	2618469.56	511743.23	1176.73	1174.21	2.51	0.01	3.00	8.00	79.50	1094.71	NA	34.60	39.00	1135.21	79.00	1095.21	81.00	1093.21	NP	NP	NP
MW-02A	Intermediate	G-154545BP	2606800.10	506250.32	1174.77	1172.62	2.14	0.01	3.00	8.00	99.20	1073.42	NA	61.00	67.70	1104.92	96.90	1075.72	101.70	1070.92	99.50	1073.12	SS
MW-02B	Shallow	G-154545BO	2606808.90	506255.48	1175.18	1172.73	2.45	0.01	3.00	8.00	64.00	1108.73	NA	29.70	34.30	1138.43	63.50	1109.23	67.00	1105.73	NP	NP	NP
MW-03A	Intermediate	G-154545BN	2607532.26	506223.42	1179.56	1177.65	1.90	0.01	3.00	8.00	148.50	1029.15	NA	91.70	97.00	1080.65	145.80	1031.85	171.50	1006.15	146.00	1031.65	SH
MW-03B	Shallow	G-154545BM	2607542.05	506225.42	1179.83	1177.60	2.23	0.01	3.00	8.00	98.90	1078.70	NA	35.00	39.90	1137.70	98.40	1079.20	99.50	1078.10	NP	NP	NP
MW-04A	Intermediate	G-154545BL	2612041.94	506256.77	1168.73	1166.51	2.22	0.01	3.00	8.00	105.80	1060.71	NA	69.20	74.20	1092.31	103.50	1063.01	109.00	1057.51	103.50	1063.01	SH
MW-04B	Shallow	G-154545BK	2612051.44	506259.36	1168.85	1166.43	2.42	0.01	3.00	8.00	71.70	1094.73	NA	26.00	32.10	1134.33	71.20	1095.23	75.00	1091.43	NP	NP	NP
MW-05A	Intermediate	G-154545FG	2613044.09	507097.63	1168.12	1166.10	2.02	0.01	3.00	8.00	103.00	1063.10	NA	56.00	61.80	1104.30	100.80	1065.30	107.20	1058.90	100.80	1065.30	SH
MW-05B	Shallow	G-154545FH	2613053.87	507097.47	1168.18	1165.88	2.29	0.01	3.00	8.00	59.80	1106.08	NA	21.00	30.00	1135.88	59.30	1106.58	65.00	1100.88	NP	NP	NP
MW-06A (Abandoned)	Intermediate	G-154545BS	2617375.69	506522.12	1165.46	1163.40	2.06	0.01	3.00	8.00	102.20	1061.20	NA	55.80	61.00	1102.40	100.00	1063.40	105.00	1058.40	100.00	1063.40	SH
MW-06B (Abandoned)	Shallow	G-154545BT	2617384.61	506525.48	1165.61	1163.55	2.06	0.01	3.00	8.00	64.50	1099.05	NA	21.00	34.80	1128.75	64.00	1099.55	68.00	1095.55	NP	NP	NP
MW-07A	Intermediate	G-154545BJ	2618267.10	507274.83	1164.85	1162.69	2.17	0.01	3.00	8.00	102.00	1060.69	NA	60.00	70.20	1092.49	99.50	1063.19	104.00	1058.69	99.50	1063.19	SH
MW-07B	Shallow	G-154545BI	2618276.53	507276.12	1164.64	1162.34	2.30	0.01	3.00	8.00	74.20	1088.14	NA	29.20	34.70	1127.64	73.70	1088.64	78.00	1084.34	NP	NP	NP
MW-08A	Intermediate	G-154545BH	2622863.97	506814.76	1165.92	1163.62	2.30	0.01	3.00	8.00	125.50	1038.12	NA	75.00	84.00	1079.62	123.00	1040.62	131.00	1032.62	123.00	1040.62	SS
MW-08B	Shallow	G-154545BG	2622872.08	506820.56	1165.92	1163.60	2.32	0.01	3.00	8.00	81.50	1082.10	NA	33.00	42.10	1121.50	81.00	1082.60	83.60	1080.00	NP	NP	NP
MW-09A	Intermediate	G-154545BF	2623570.81	507435.84	1171.46	1168.78	2.68	0.01	3.00	8.00	130.50	1038.28	NA	82.20	89.00	1079.78	128.00	1040.78	134.00	1034.78	127.70	1041.08	SS
MW-09B	Shallow	G-154545BE	2623580.33	507436.09	1171.60	1169.00	2.60	0.01	3.00	8.00	85.80	1083.20	NA	41.00	46.30	1122.70	85.30	1083.70	89.00	1080.00	NP	NP	NP
MW-09D	Deep	G-154545BD	2623593.10	507436.00	1171.28	1169.31	1.97	0.02	2.00	5.50	136.79	1032.52	10/20	127.50	131.00	1038.31	136.00	1033.31	139.00	1030.31	121.60	1047.71	SS
MW-10A	Intermediate	G-154545BB	2607883.83	496858.27	1150.35	1147.91	2.44	0.01	3.00	8.00	102.70	1045.21	NA	56.40	61.40	1086.51	100.40	1047.51	103.00	1044.91	100.00	1047.91	SS
MW-10B	Shallow	G-154545BA	2607893.74	496858.92	1150.31	1147.74	2.58	0.01	3.00	8.00	62.70	1085.04	NA	28.00	33.00	1114.74	62.20	1085.54	65.00	1082.74	NP	NP	NP
MW-11	Shallow	G-154545AZ	2626486.32	509499.80	1153.22	1150.76	2.45	0.01	3.00	8.00	50.20	1100.56	NA	14.70	18.80	1131.96	48.00	1102.76	50.50	1100.26	48.00	1102.76	SS
MW-12 (Abandoned)	Shallow	NA	2606856.25	509013.88	1178.55	1176.27	2.28	0.01	3.00	8.00	37.80	1138.47	NA	22.70	27.60	1148.67	37.30	1138.97	42.00	1134.27	NP	NP	NP
MW-13 (Abandoned)	Shallow	NA	2612231.38	509178.55	1175.20	1172.84	2.36	0.01	3.00	8.00	39.70	1133.14	NA	24.50	29.50	1143.34	39.20	1133.64	42.00	1130.84	NP	NP	NP
MW-14 (Abandoned)	Shallow	NA	2617504.71	509391.07	1178.94	1176.80	2.14	0.01	3.00	8.00	48.80	1128.00	NA	32.00	38.60	1138.20	48.30	1128.50	50.00	1126.80	NP	NP	NP
MW-15 (Abandoned)	Shallow	NA	2622745.33	509482.90	1170.06	1167.71	2.35	0.01	3.00	8.00	47.20	1120.51	NA	32.20	37.00	1130.71	46.70	1121.01	50.00	1117.71	NP	NP	NP
MW-16B	Intermediate	G-154545Q	2604911.66	514026.38	1188.68	1186.48	2.20	0.01	3.00	8.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	106.80	1079.68	SH
MW-16C	Shallow	G-154545AY	2604917.63	514034.74	1189.40	1186.74	2.66	0.01	3.00	8.00	41.90	1144.84	NA	28.70	31.50	1155.24	41.50	1145.24	45.00	1141.74	NP	NP	NP
MW-17A (Abandoned)	Deep	G-154545AX	2603293.03	499100.33	1128.60	1126.40	2.20	0.01	2.00	8.00	78.30	1048.10	NA	68.50	72.10	1054.30	77.10	1049.30	78.30	1048.10	57.00	1069.40	SH
MW-17B	Intermediate	G-154545AW	2603293.03	499101.48	1128.50	1126.20	2.30	0.01	3.00	8.00	56.20	1070.00	NA	48.00	50.40	1075.80	55.80	1070.40	59.00	1067.20	56.80	1069.40	SH

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
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ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-17C (Abandoned)	Shallow	G-154545AV	2603293.48	499090.31	1128.40	1126.20	2.20	0.01	3.00	8.00	17.60	1108.60	16/100	4.70	7.20	1119.00	17.20	1109.00	22.00	1104.20	NP	NP	NP
MW-18A	Deep	G-154545FI	2629150.33	506832.34	1145.43	1142.80	2.64	0.01	2.00	8.00	125.00	1017.80	NA	120.00	122.00	1020.80	125.00	1017.80	140.60	1002.20	100.80	1042.00	SS/SH
MW-18B	Intermediate	G-154545FJ	2629156.57	506827.46	1145.57	1142.96	2.61	0.01	3.00	8.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NP	NP	NP
MW-18C	Shallow	G-154545AU	2629148.53	506821.93	1146.05	1143.38	2.67	0.01	3.00	8.00	47.10	1096.28	16/100	34.30	36.70	1106.68	46.70	1096.68	51.00	1092.38	NP	NP	NP
MW-19A (Abandoned)	Deep	G-154545AT	2618421.42	517577.13	1158.65	1156.25	2.40	0.01	2.00	8.00	128.00	1028.25	NA	123.10	125.00	1031.25	128.00	1028.25	138.00	1018.25	115.00	1041.25	SS/SH
MW-19B	Intermediate	G-154545AS	2618429.63	517576.97	1158.59	1156.27	2.32	0.01	3.00	8.00	103.40	1052.87	16/100	98.00	98.00	1058.27	103.00	1053.27	105.00	1051.27	104.20	1052.07	SH
MW-19C (Abandoned)	Shallow	G-154545AR	2618426.14	517568.83	1159.26	1156.64	2.62	0.01	3.00	8.00	20.70	1135.94	NA	8.40	10.20	1146.44	20.25	1136.39	27.00	1129.64	NP	NP	NP
MW-20A	Deep	G-154545AQ	2616622.54	493189.94	1160.42	1157.97	2.45	0.01	2.00	8.00	150.40	1007.57	NA	141.80	145.00	1012.97	150.40	1007.57	153.30	1004.67	138.50	1019.47	SS
MW-20B	Intermediate	G-154545AP	2616633.43	493191.47	1160.29	1157.72	2.57	0.01	3.00	8.00	134.00	1023.72	NA	125.60	128.60	1029.12	133.60	1024.12	138.00	1019.72	111.60	1046.12	SS/SH
MW-20C	Shallow	G-154545AO	2616611.43	493187.61	1160.29	1157.84	2.45	0.01	3.00	8.00	60.70	1097.14	NA	45.80	50.30	1107.54	60.30	1097.54	62.00	1095.84	NP	NP	NP
MW-20D1	Deep	G-181440	2616654.10	493189.16	1160.29	1158.09	2.19	0.02	2.00	6.00	180.55	977.54	12/20	167.25	170.25	987.84	180.25	977.84	181.00	977.09	NP	NP	NP
MW-20D2	Deep	G-181594	2616660.91	493190.06	1160.33	1158.17	2.16	0.02	2.00	6.00	210.30	947.87	12/20	197.00	200.00	958.17	210.00	948.17	210.50	947.67	NP	NP	NP
MW-20D3	Deep	G-181603	2616669.39	493190.03	1160.60	1158.21	2.39	0.02	2.00	6.00	235.00	923.21	12/20	221.00	224.80	933.41	234.80	923.41	245.00	913.21	135.50	1022.71	SS
MW-21A	Intermediate	G-154545AN	2607121.37	503524.81	1165.63	1163.72	1.91	0.02	2.00	6.00	126.81	1036.91	43028.00	113.00	116.00	1047.72	126.00	1037.72	128.50	1035.22	NP	NP	NP
MW-21B	Shallow	G-154545AM	2607111.29	503524.05	1165.59	1163.67	1.92	0.01	2.00	5.63	76.53	1087.14	20/40	63.00	66.00	1097.67	76.00	1087.67	79.00	1084.67	NP	NP	NP
MW-21D	Deep	NA	2607131.41	503525.83	1165.57	1163.67	1.90	0.02	2.00	10.00	138.69	1024.98	43028.00	130.20	133.00	1030.67	138.00	1025.67	139.00	1024.67	127.30	1036.37	SH/SS
MW-22A (Abandoned)	Intermediate	G-154545AL	2606598.39	510402.07	1176.78	1174.93	1.85	0.02	2.00	8.00	99.07	1075.86	42833.00	85.00	87.80	1087.13	97.80	1077.13	106.00	1068.93	99.50	1075.43	SH
MW-22B (Abandoned)	Shallow	G-154545AK	2606604.48	510403.43	1176.67	1174.81	1.86	0.01	2.00	6.00	68.65	1106.16	20/40	55.00	58.00	1116.81	68.00	1106.81	70.00	1104.81	NP	NP	NP
MW-23A (Abandoned)	Intermediate	G-154545AJ	2606402.57	509376.37	1173.56	1171.88	1.68	0.02	2.00	5.63	100.00	1071.88	43028.00	84.00	88.50	1083.38	98.50	1073.38	105.00	1066.88	99.30	1072.58	SH
MW-23B (Abandoned)	Shallow	G-154545AI	2606393.06	509383.87	1173.93	1172.05	1.88	0.01	2.00	6.00	78.00	1094.05	43028.00	63.50	67.50	1104.55	77.50	1094.55	79.00	1093.05	NP	NP	NP
MW-24A	Intermediate	G-154545AH	2608476.90	501919.83	1163.41	1161.37	2.04	0.02	2.00	8.00	121.50	1039.87	42833.00	109.40	111.50	1049.87	121.50	1039.87	140.80	1020.57	125.00	1036.37	SH
MW-24B	Shallow	G-154545AG	2608477.73	501909.01	1163.46	1161.27	2.19	0.01	2.00	6.00	66.50	1094.77	20/40	53.00	56.00	1105.27	66.00	1095.27	67.50	1093.77	NP	NP	NP
MW-25A	Intermediate	G-154545AF	2608308.41	504875.16	1175.25	1173.23	2.02	0.02	2.00	6.00	156.06	1017.17	43028.00	143.00	145.00	1028.23	155.00	1018.23	156.60	1016.63	NP	NP	NP
MW-25B	Shallow	G-154545AE	2608308.27	504885.58	1174.71	1172.93	1.78	0.01	2.00	6.00	84.82	1088.11	43028.00	70.00	74.00	1098.93	84.00	1088.93	85.00	1087.93	NP	NP	NP
MW-25D (Abandoned)	Deep	G-154545AD	2608308.83	504864.77	1175.46	1173.54	1.92	0.02	2.00	6.00	168.84	1004.70	43028.00	161.00	163.20	1010.34	168.20	1005.34	170.00	1003.54	156.80	1016.74	SS
MW-26A (Abandoned)	Intermediate	G-154545AC	2609860.44	508825.09	1174.15	1172.44	1.71	0.02	2.00	6.00	103.59	1068.85	43028.00	89.80	92.50	1079.94	102.50	1069.94	120.00	1052.44	103.80	1068.64	SS/SH
MW-26B (Abandoned)	Shallow	G-154545AB	2609849.90	508824.87	1174.16	1172.42	1.74	0.01	2.00	5.63	76.64	1095.78	43028.00	63.00	66.00	1106.42	76.00	1096.42	77.50	1094.92	NP	NP	NP
MW-27A (Abandoned)	Intermediate	G-154545AA	2611434.64	508103.04	1176.05	1174.14	1.91	0.02	2.00	4.25	107.00	1067.14	42833.00	94.00	96.00	1078.14	106.00	1068.14	121.90	1052.24	106.80	1067.34	SH

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
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ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-27B	Shallow	G-154545Z	2611427.01	508110.55	1176.06	1174.12	1.94	0.01	2.00	8.00	72.00	1102.12	43028.00	58.00	61.50	1112.62	71.50	1102.62	73.00	1101.12	NP	NP	NP
MW-28A	Intermediate	G-154545Y	2612951.02	502242.71	1172.22	1170.29	1.93	0.02	2.00	8.00	138.10	1032.19	43028.00	124.80	127.60	1042.69	137.60	1032.69	138.60	1031.69	138.00	1032.29	SS
MW-28B	Shallow	G-154545X	2612936.01	502242.26	1172.52	1170.43	2.09	0.01	2.00	6.00	78.03	1092.40	43028.00	63.50	67.50	1102.93	77.50	1092.93	79.00	1091.43	NP	NP	NP
MW-28D	Deep	G-154545W	2612969.60	502242.92	1171.99	1169.84	2.15	0.02	2.00	5.75	149.50	1020.34	43028.00	142.00	144.00	1025.84	149.00	1020.84	149.50	1020.34	138.00	1031.84	SS
MW-29A	Intermediate	G-154545V	2614469.84	498383.11	1160.06	1158.50	1.56	0.02	2.00	10.00	134.10	1024.40	42833.00	120.00	122.60	1035.90	132.60	1025.90	143.00	1015.50	137.10	1021.40	SH
MW-29B	Shallow	G-154545FK	2614460.98	498382.37	1161.03	1158.75	2.28	0.01	2.00	8.00	75.00	1083.75	43028.00	61.00	64.50	1094.25	74.50	1084.25	76.00	1082.75	NP	NP	NP
MW-30A (Abandoned)	Intermediate	G-154545U	2616288.05	507064.55	1168.55	1166.61	1.94	0.02	2.00	8.00	99.50	1067.11	43028.00	91.00	94.00	1072.61	99.00	1067.61	110.00	1056.61	101.50	1065.11	SH/SS
MW-30B (Abandoned)	Shallow	G-154545FL	2616281.84	507065.86	1168.38	1166.45	1.93	0.01	2.00	8.00	71.00	1095.45	20/40	56.00	59.50	1106.95	69.50	1096.95	71.00	1095.45	NP	NP	NP
MW-31A	Intermediate	G-154545T	2617943.95	503233.70	1167.38	1165.35	2.03	0.02	2.00	10.00	105.00	1060.35	43028.00	91.20	94.50	1070.85	104.50	1060.85	112.00	1053.35	106.00	1059.35	SH
MW-31B	Shallow	G-154545S	2617935.17	503238.63	1166.95	1165.06	1.89	0.01	2.00	8.00	60.90	1104.16	43028.00	47.00	50.00	1115.06	60.00	1105.06	62.00	1103.06	NP	NP	NP
MW-32A	Intermediate	G-154545R	2619697.25	499062.26	1154.17	1152.35	1.82	0.02	2.00	7.75	99.37	1052.98	42833.00	82.00	88.50	1063.85	98.50	1053.85	99.50	1052.85	99.55	1052.80	SH
MW-32B	Shallow	G-154545P	2619696.91	499069.08	1154.10	1152.31	1.79	0.01	2.00	7.75	81.50	1070.81	43028.00	69.00	71.00	1081.31	81.00	1071.31	82.00	1070.31	NP	NP	NP
MW-32D	Deep	G-154545O	2619697.54	499055.63	1154.02	1152.07	1.95	0.02	2.00	5.63	112.13	1039.94	43028.00	103.50	106.50	1045.57	111.50	1040.57	113.00	1039.07	99.50	1052.57	SH
MW-33A	Intermediate	NA	2622410.84	502847.91	1160.32	1158.43	1.89	0.02	2.00	6.00	111.00	1047.43	43028.00	96.50	100.50	1057.93	110.50	1047.93	112.00	1046.43	NP	NP	NP
MW-33B	Shallow	G-154545N	2622401.05	502854.78	1160.37	1158.53	1.84	0.01	2.00	8.00	84.26	1074.27	43028.00	69.50	73.50	1085.03	83.50	1075.03	84.50	1074.03	NP	NP	NP
MW-33D	Deep	G-154545M	2622421.53	502856.97	1160.24	1158.29	1.95	0.02	2.00	6.00	125.50	1032.79	43028.00	118.00	120.00	1038.29	125.00	1033.29	127.00	1031.29	116.50	1041.79	SS
MW-34A	Intermediate	G-154545L	2624442.78	498806.30	1156.79	1155.05	1.74	0.02	2.00	8.00	112.50	1042.55	43028.00	98.00	102.00	1053.05	112.00	1043.05	113.00	1042.05	113.00	1042.05	SS
MW-34B	Shallow	G-154545K	2624443.06	498814.11	1157.00	1155.00	2.00	0.01	2.00	8.00	75.50	1079.50	20/40	61.00	65.00	1090.00	75.00	1080.00	76.00	1079.00	NP	NP	NP
MW-34D (Abandoned)	Deep	G-154545J	2624442.36	498796.40	1156.73	1154.83	1.90	0.02	2.00	5.63	126.04	1028.79	43028.00	117.30	120.00	1034.83	125.00	1029.83	127.50	1027.33	112.90	1041.93	SS
MW-35A	Intermediate	G-154545I	2629595.76	496323.64	1139.81	1137.80	2.01	0.02	2.00	8.00	92.00	1045.80	42833.00	78.50	81.50	1056.30	91.50	1046.30	92.50	1045.30	NP	NP	NP
MW-35B	Shallow	G-154545H	2629595.84	496329.37	1139.57	1137.76	1.81	0.01	2.00	8.00	67.60	1070.16	20/40	53.00	57.00	1080.76	67.00	1070.76	68.00	1069.76	NP	NP	NP
MW-35D	Deep	G-154545FM	2629595.80	496317.10	1139.67	1137.78	2.20	0.02	2.00	6.00	106.50	1031.28	43028.00	98.00	100.50	1037.28	105.50	1032.28	117.00	1020.78	93.00	1044.78	SS
MW-36A (Abandoned)	Intermediate	G-154545G	2634814.84	496694.95	1076.62	1076.84	-0.22	0.02	2.00	6.00	38.72	1038.12	43028.00	25.00	28.00	1048.84	38.00	1038.84	39.00	1037.84	NP	NP	NP
MW-36B (Abandoned)	Shallow	G-154545F	2634805.75	496692.86	1076.65	1076.80	-0.15	0.01	2.00	6.00	27.50	1049.30	20/40	14.00	17.00	1059.80	27.00	1049.80	28.50	1048.30	NP	NP	NP
MW-36D (Abandoned)	Deep	G-154545FG	2634824.46	496697.59	1076.79	1076.93	-0.14	0.02	2.00	6.00	49.00	1027.93	43028.00	41.00	43.00	1033.93	48.00	1028.93	49.00	1027.93	39.00	1037.93	SS
MW-37A (Abandoned)	Intermediate	G-154545E	2633418.32	491651.94	1085.20	1083.05	2.15	0.02	2.00	10.00	41.00	1042.05	42833.00	28.30	30.50	1052.55	40.50	1042.55	48.00	1035.05	41.40	1041.65	SS
MW-37B (Abandoned)	Shallow	G-154545D	2633416.51	491631.65	1085.19	1083.07	2.12	0.01	2.00	8.00	29.50	1053.57	20/40	21.70	24.00	1059.07	29.00	1054.07	30.00	1053.07	NP	NP	NP
MW-37D (Abandoned)	Deep	NA	2633413.67	491666.00	1085.06	1082.98	2.08	0.02	2.00	6.00	51.00	1031.98	43028.00	43.50	45.50	1037.48	50.50	1032.48	51.80	1031.18	41.50	1041.48	SS
MW-38A	Intermediate	G-154545C	2638131.88	496248.57	1082.32	1079.98	2.34	0.02	2.00	8.00	50.90	1029.08	43028.00	41.70	44.70	1035.28	49.20	1030.78	51.00	1028.98	49.20	1030.78	SS
MW-38D	Deep	G-154545B	2638138.80	496250.60	1081.92	1079.98	2.20	0.02	2.00	6.00	64.00	1015.98	43028.00	55.60	58.50	1021.48	63.50	1016.48	65.00	1014.98	49.20	1030.78	SS

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-39A (Abandoned)	Intermediate	G-154545A	2640062.25	499304.69	1082.82	1081.00	1.82	0.02	2.00	8.00	49.60	1031.40	43028.00	40.00	44.00	1037.00	48.50	1032.50	49.60	1031.40	48.50	1032.50	SS
MW-39D (Abandoned)	Deep	G-154545FF	2640059.10	499298.90	1082.95	1081.00	1.95	0.02	2.00	6.00	55.50	1025.50	43028.00	50.50	52.50	1028.50	55.30	1025.70	59.00	1022.00	48.50	1032.50	SS/SH
MW-40A	Intermediate	G-154545FE	2623018.62	511963.35	1172.09	1170.09	2.00	0.02	2.00	7.25	126.14	1043.95	42833.00	123.00	120.50	1049.59	125.50	1044.59	145.00	1025.09	127.60	1042.49	SS/SH
MW-40B	Shallow	G-154545FD	2623006.75	511962.76	1172.34	1170.38	1.96	0.01	2.00	6.00	64.75	1105.63	20/40	51.00	54.00	1116.38	64.00	1106.38	65.50	1104.88	NP	NP	NP
MW-41A (Abandoned)	Intermediate	G-154545FN	2624371.47	512001.33	1168.63	1166.32	2.31	0.02	2.00	6.00	83.30	1083.02	43028.00	68.40	71.50	1094.82	81.50	1084.82	83.30	1083.02	82.30	1084.02	SS
MW-41B (Abandoned)	Shallow	G-154545FC	2624361.83	512001.37	1168.68	1166.27	2.41	0.01	2.00	6.00	46.50	1119.77	20/40	33.00	36.00	1130.27	46.00	1120.27	47.00	1119.27	NP	NP	NP
MW-41D (Abandoned)	Deep	G-154545FB	2624353.22	512000.98	1168.61	1166.41	2.20	0.02	2.00	5.25	92.50	1073.91	43028.00	85.00	87.00	1079.41	92.00	1074.41	93.00	1073.41	82.00	1084.41	SS
MW-42A	Intermediate	G-154545FA	2629385.20	501582.56	1146.53	1144.54	1.99	0.02	2.00	6.00	96.71	1047.83	43028.00	83.00	86.00	1058.54	96.00	1048.54	97.50	1047.04	NP	NP	NP
MW-42B	Shallow	G-154545EZ	2629385.28	501592.64	1146.64	1144.51	2.13	0.01	2.00	6.00	63.50	1081.01	20/40	50.00	53.00	1091.51	63.00	1081.51	64.50	1080.01	NP	NP	NP
MW-42D	Deep	G-154545EY	2629384.99	501572.17	1146.20	1144.41	2.20	0.02	2.00	6.00	109.23	1035.18	43028.00	101.20	103.20	1041.21	108.20	1036.21	109.20	1035.21	97.80	1046.61	SS
MW-43A	Intermediate	G-154545EX	2629243.07	504317.91	1142.90	1141.02	1.88	0.02	2.00	6.00	101.51	1039.51	43028.00	87.50	90.50	1050.52	100.50	1040.52	102.00	1039.02	NP	NP	NP
MW-43B	Shallow	G-154545EW	2629244.24	504328.20	1142.74	1140.90	1.84	0.01	2.00	6.00	50.95	1089.95	43028.00	37.00	40.00	1100.90	50.00	1090.90	52.00	1088.90	NP	NP	NP
MW-43D	Deep	G-154545EV	2629242.21	504308.09	1142.95	1140.95	2.00	0.02	2.00	5.25	111.90	1029.05	43028.00	104.00	106.40	1034.55	111.40	1029.55	114.00	1026.95	101.50	1039.45	SS
MW-44A	Intermediate	G-154545EU	2632953.68	500415.12	1093.68	1091.91	1.77	0.02	2.00	6.00	40.00	1051.91	43028.00	25.00	29.50	1062.41	39.50	1052.41	42.50	1049.41	NP	NP	NP
MW-44B	Shallow	G-154545ET	2632954.90	500426.32	1092.46	1090.62	1.84	0.01	2.00	6.00	26.50	1064.12	20/40	13.00	16.00	1074.62	26.00	1064.62	30.00	1060.62	NP	NP	NP
MW-44D	Deep	G-154545ES	2632952.84	500403.76	1094.20	1092.31	1.89	0.02	2.00	5.25	56.60	1035.71	43028.00	48.80	50.80	1041.51	55.80	1036.51	57.00	1035.31	44.00	1048.31	SS
MW-45A (Abandoned)	Intermediate	G-154545ER	2635043.54	499241.12	1081.53	1079.57	1.96	0.02	2.00	6.00	38.50	1041.07	42833.00	26.10	28.00	1051.57	38.00	1041.57	39.00	1040.57	NP	NP	NP
MW-45B (Abandoned)	Shallow	G-154545EQ	2635053.92	499241.15	1081.54	1079.54	2.00	0.01	2.00	6.00	27.52	1052.02	20/40	15.00	17.00	1062.54	27.00	1052.54	28.50	1051.04	NP	NP	NP
MW-45D (Abandoned)	Deep	G-154545EP	2635032.46	499241.76	1081.44	1079.66	1.78	0.02	2.00	6.00	48.50	1031.16	43028.00	40.50	43.00	1036.66	48.00	1031.66	49.70	1029.96	39.00	1040.66	SS
MW-46A	Intermediate	G-154545EO	2637464.94	499387.37	1082.70	1080.71	1.99	0.01	2.00	6.00	44.26	1036.45	20/40	30.20	33.20	1047.51	43.20	1037.51	48.00	1032.71	47.50	1033.21	NA
MW-46B	Shallow	G-154545EN	2637464.42	499396.68	1082.81	1080.77	2.04	0.01	2.00	6.00	31.76	1049.01	20/40	18.00	21.00	1059.77	31.00	1049.77	34.00	1046.77	NP	NP	NP
MW-46D	Deep	G-154545EM	2637465.40	499375.99	1082.65	1080.71	1.94	0.02	2.00	6.00	58.00	1022.71	43028.00	50.50	52.50	1028.21	57.50	1023.21	58.50	1022.21	47.50	1033.21	SS
MW-47A (Abandoned)	Intermediate	G-154545EL	2603834.71	524480.73	1201.73	1199.76	1.97	0.02	2.00	8.00	123.30	1076.46	43028.00	105.10	112.80	1086.96	122.80	1076.96	135.30	1064.46	126.00	1073.76	SH
MW-47B (Abandoned)	Shallow	G-154545EK	2603819.42	524480.21	1201.67	1199.77	1.90	0.01	2.00	6.00	85.60	1114.17	20/40	71.90	74.80	1124.97	84.80	1114.97	86.60	1113.17	NP	NP	NP
MW-48A (Abandoned)	Intermediate	NA	2607436.75	519363.04	1193.44	1191.36	2.08	0.02	2.00	8.00	121.20	1070.16	43028.00	108.10	110.70	1080.66	120.70	1070.66	124.00	1067.36	122.00	1069.36	SS
MW-48B (Abandoned)	Shallow	NA	2607442.66	519367.88	1193.35	1191.35	2.00	0.01	2.00	6.00	83.50	1107.85	20/40	70.50	73.00	1118.35	83.00	1108.35	83.50	1107.85	NP	NP	NP

Table 2.1 (Continued)
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ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-48D (Abandoned)	Deep	NA	2607427.86	519358.29	1193.65	1191.64	2.01	0.02	2.00	6.00	131.00	1060.64	43028.00	120.80	125.50	1066.14	130.50	1061.14	133.00	1058.64	119.40	1072.24	SS
MW-52A (Abandoned)	Intermediate	G-154545EJ	2627012.55	508784.57	1155.22	1153.51	1.71	0.02	2.00	6.00	58.89	1094.62	43028.00	45.30	48.00	1105.51	58.00	1095.51	65.00	1088.51	60.00	1093.51	SH
MW-52B (Abandoned)	Shallow	G-154545EI	2627004.24	508778.94	1155.65	1153.91	1.74	0.01	2.00	8.00	53.11	1100.80	20/40	39.00	42.50	1111.41	52.50	1101.41	54.00	1099.91	NP	NP	NP
MW-53A	Intermediate	G-154545EH	2627897.77	508169.88	1136.36	1134.42	1.94	0.02	2.00	6.00	97.70	1036.72	42833.00	84.40	87.00	1047.42	97.00	1037.42	101.00	1033.42	99.90	1034.52	SS
MW-53B	Shallow	G-154545EG	2627885.40	508166.61	1136.91	1134.89	2.02	0.01	2.00	6.00	38.10	1096.79	20/40	24.50	27.50	1107.39	37.50	1097.39	39.00	1095.89	NP	NP	NP
MW-54A (Abandoned)	Intermediate	G-154545EF	2627893.82	508858.25	1121.58	1119.72	1.86	0.02	2.00	6.00	76.96	1042.76	42833.00	62.00	66.00	1053.72	76.00	1043.72	83.50	1036.22	81.50	1038.22	SS
MW-54B (Abandoned)	Shallow	G-154545FO	2627883.88	508855.98	1121.59	1119.72	1.87	0.01	2.00	8.00	31.00	1088.72	20/40	21.00	24.00	1095.72	29.00	1090.72	31.00	1088.72	NP	NP	NP
MW-55A (Abandoned)	Intermediate	G-154545EE	2628135.40	508377.66	1126.49	1124.52	1.97	0.02	2.00	6.00	84.53	1039.99	43028.00	72.00	74.00	1050.52	84.00	1040.52	87.00	1037.52	85.00	1039.52	SS
MW-55B (Abandoned)	Shallow	G-154545ED	2628125.88	508374.22	1127.27	1125.08	2.19	0.01	2.00	6.00	66.50	1058.58	43028.00	52.50	56.00	1069.08	66.00	1059.08	68.00	1057.08	NP	NP	NP
MW-56A	Intermediate	G-154545EC	2628206.01	508215.32	1125.96	1124.17	1.79	0.02	2.00	6.00	79.50	1044.67	42833.00	66.00	69.00	1055.17	79.00	1045.17	82.00	1042.17	81.00	1043.17	SS
MW-56B	Shallow	G-154545FP	2628195.32	508217.29	1126.24	1124.44	1.80	0.01	2.00	6.00	31.50	1092.94	20/40	18.00	21.00	1103.44	31.00	1093.44	32.70	1091.74	NP	NP	NP
MW-57B	Shallow	G-154545EB	2607621.51	516363.44	1196.27	1194.32	1.95	0.01	2.00	6.00	65.50	1128.82	20/40	53.00	55.00	1139.32	65.00	1129.32	67.00	1127.32	NP	NP	NP
MW-58A (Abandoned)	Intermediate	NA	2620357.49	515008.03	1175.37	1173.48	1.89	0.02	2.00	8.00	133.00	1040.48	43028.00	120.00	122.50	1050.98	132.50	1040.98	144.50	1028.98	135.00	1038.48	SS/SH
MW-58B (Abandoned)	Shallow	NA	2620346.02	515009.76	1175.39	1173.40	1.99	0.01	2.00	5.63	82.65	1090.75	20/40	68.40	70.70	1102.70	80.70	1092.70	135.00	1038.40	134.00	1039.40	SS
MW-59A (Abandoned)	Intermediate	NA	2621708.41	515882.45	1162.95	1161.06	1.89	0.02	2.00	5.25	127.80	1033.26	42833.00	111.50	113.10	1047.96	123.10	1037.96	124.00	1037.06	NP	NP	NP
MW-59B (Abandoned)	Shallow	NA	2621700.91	515887.73	1163.04	1161.29	1.75	0.02	2.00	5.25	51.79	1109.50	43028.00	36.80	38.00	1123.29	48.00	1113.29	49.00	1112.29	NP	NP	NP
MW-59D (Abandoned)	Deep	NA	2621717.33	515878.49	1162.57	1160.85	1.72	0.02	2.00	5.25	142.00	1018.85	43028.00	130.20	132.20	1028.65	137.20	1023.65	139.00	1021.85	125.00	1035.85	SS
MW-60A	Intermediate	G-154545EA	2624702.83	489585.15	1145.83	1143.95	1.88	0.02	2.00	5.50	102.50	1041.45	43028.00	88.00	92.00	1051.95	102.00	1041.95	115.00	1028.95	102.50	1041.45	SH
MW-60B (Abandoned)	Shallow	G-154545DZ	2624703.22	489598.70	1146.15	1144.12	2.03	0.01	2.00	6.00	80.50	1063.62	20/40	67.00	70.00	1074.12	80.00	1064.12	83.00	1061.12	NP	NP	NP
MW-61A	Intermediate	G-154545DY	2608656.02	492900.05	1108.96	1106.91	2.05	0.02	2.00	6.25	86.00	1020.91	43028.00	73.00	75.70	1031.21	85.70	1021.21	87.00	1019.91	NP	NP	NP
MW-61B	Shallow	G-154545DX	2608644.38	492898.60	1108.96	1106.84	2.12	0.01	2.00	6.25	35.30	1071.54	20/40	21.00	25.00	1081.84	35.00	1071.84	38.00	1068.84	NP	NP	NP
MW-61D	Deep	G-154545DW	2608667.93	492901.85	1108.96	1106.85	2.11	0.02	2.00	8.00	102.50	1004.35	43028.00	94.30	97.00	1009.85	102.00	1004.85	103.00	1003.85	87.50	1019.35	SH
MW-61D1	Deep	G-181632	2608647.29	492895.05	1109.53	1106.88	2.65	0.02	2.00	6.00	125.30	981.58	12/20	112.00	115.00	991.88	125.00	981.88	125.80	981.08	NP	NP	NP
MW-61D2	Deep	G-181637	2608642.52	492898.35	1109.53	1106.91	2.62	0.02	2.00	6.00	154.50	952.41	12/20	142.20	144.20	962.71	154.20	952.71	155.00	951.91	NP	NP	NP
MW-61D3	Deep	G-181634	2608638.09	492901.37	1109.46	1106.94	2.52	0.02	2.00	6.00	190.00	916.94	12/20	176.80	179.70	927.24	189.70	917.24	195.00	911.94	85.80	1021.14	SH
MW-62A (Abandoned)	Intermediate	G-154545DV	2635396.62	493874.24	1078.66	1076.62	2.04	0.02	2.00	6.25	37.50	1039.12	43028.00	25.00	27.00	1049.62	37.00	1039.62	37.50	1039.12	NP	NP	NP

Table 2.1 (Continued)
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ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-62B (Abandoned)	Shallow	G-154545DU	2635385.06	493871.95	1078.57	1076.52	2.05	0.01	2.00	6.25	24.50	1052.02	20/40	15.00	17.00	1059.52	24.00	1052.52	25.00	1051.52	NP	NP	NP
MW-62D (Abandoned)	Deep	G-154545DT	2635407.14	493876.96	1078.89	1076.90	1.99	0.02	2.00	8.00	49.50	1027.40	43028.00	41.00	44.00	1032.90	49.00	1027.90	50.00	1026.90	37.60	1039.30	SS
MW-63B (Abandoned)	Shallow	G-154545DS	2613167.91	519473.60	1177.45	1175.66	1.90	0.01	2.00	6.00	28.80	1146.86	43028.00	13.00	18.50	1157.16	28.50	1147.16	31.40	1144.26	NP	NP	NP
MW-64B (Abandoned)	Shallow	G-154545DR	2628038.55	510106.02	1144.20	1142.35	1.85	0.01	2.00	6.00	29.50	1112.85	20/40	16.00	19.00	1123.35	29.00	1113.35	31.00	1111.35	NP	NP	NP
MW-65A	Intermediate	G-154545DQ	2613203.05	506090.52	1163.99	1164.83	FM	0.02	2.00	6.50	103.00	1061.83	4/8	91.70	92.50	1072.33	102.50	1062.33	107.50	1057.33	NA	NA	NA
MW-65B	Shallow	G-154545DP	2613193.30	506091.23	1164.02	1164.86	FM	0.02	2.00	6.50	66.20	1098.66	10/20	31.90	35.40	1129.46	65.40	1099.46	66.50	1098.36	NA	NA	NA
MW-66A (Abandoned)	Intermediate	NA	2613278.51	506026.73	1163.09	1163.93	FM	0.02	2.00	6.50	99.50	1064.43	4/8	86.40	89.00	1074.93	99.00	1064.93	104.50	1059.43	NA	NA	NA
MW-66B	Shallow	NA	2613268.32	506027.61	1163.08	1163.92	FM	0.02	2.00	6.50	64.50	1099.42	10/20	30.20	34.00	1129.92	64.00	1099.92	98.00	1065.92	NA	NA	NA
MW-67A (Abandoned)	Intermediate	NA	2613306.23	506004.48	1162.44	1163.28	FM	0.02	2.00	6.50	98.50	1064.78	4/8	85.80	88.00	1075.28	98.00	1065.28	102.50	1060.78	NA	NA	NA
MW-67B (Abandoned)	Shallow	NA	2613314.55	505999.49	1162.68	1163.52	FM	0.02	2.00	6.50	64.50	1099.02	10/20	30.70	34.00	1129.52	64.00	1099.52	66.00	1097.52	NA	NA	NA
MW-68B (Abandoned)	Shallow	NA	2613320.78	506024.53	1164.06	1164.90	FM	0.02	2.00	6.50	66.50	1098.40	10/20	32.20	36.00	1128.90	66.00	1098.90	68.50	1096.40	NA	NA	NA
MW-69B (Abandoned)	Shallow	NA	2613341.62	506046.74	1165.08	1165.92	FM	0.02	2.00	6.50	66.50	1099.42	10/20	32.30	36.00	1129.92	66.00	1099.92	68.00	1097.92	NA	NA	NA
MW-70B (Abandoned)	Shallow	NA	2613362.30	506068.63	1165.27	1166.11	FM	0.02	2.00	6.50	66.50	1099.61	10/20	32.00	36.00	1130.11	66.00	1100.11	68.00	1098.11	NA	NA	NA
MW-71B (Abandoned)	Shallow	G-154545DO	2613382.62	506090.27	1165.38	1166.22	FM	0.02	2.00	6.50	66.50	1099.72	10/20	33.70	36.00	1130.22	66.00	1100.22	68.00	1098.22	NA	NA	NA
MW-72A	Intermediate	G-154545DN	2622930.98	512064.69	1170.37	1171.21	FM	0.02	2.00	6.50	108.50	1062.71	4/8	86.00	88.00	1083.21	108.00	1063.21	110.00	1061.21	NA	NA	NA
MW-72B	Shallow	G-154545DM	2622921.73	512064.19	1169.92	1170.76	FM	0.02	2.00	6.50	70.50	1100.26	10/20	37.00	40.00	1130.76	70.00	1100.76	71.20	1099.56	NA	NA	NA
MW-73A	Intermediate	G-154545DL	2623060.93	511909.15	1166.95	1167.79	FM	0.02	2.00	6.50	108.50	1059.29	4/8	83.00	88.00	1079.79	108.00	1059.79	109.00	1058.79	NA	NA	NA
MW-73B	Shallow	G-154545DK	2623052.30	511908.70	1166.90	1167.74	FM	0.02	2.00	6.50	70.50	1097.24	10/20	37.00	40.00	1127.74	70.00	1097.74	72.00	1095.74	NA	NA	NA
MW-74A (Abandoned	Intermediate	G-154545DJ	2623093.85	511934.84	1166.94	1167.78	FM	0.02	2.00	6.50	108.60	1059.18	4/8	85.50	88.10	1079.68	108.10	1059.68	110.00	1057.78	NA	NA	NA
MW-74B (Abandoned	Shallow	G-154545DI	2623085.26	511934.80	1167.04	1167.88	FM	0.02	2.00	6.50	70.50	1097.38	10/20	37.00	40.00	1127.88	70.00	1097.88	71.00	1096.88	NA	NA	NA
MW-75A (Abandoned	Intermediate	G-154545DH	2623130.00	511962.35	1167.13	1167.97	FM	0.02	2.00	6.50	107.60	1060.37	4/8	86.10	87.10	1080.87	107.10	1060.87	110.00	1057.97	NA	NA	NA
MW-75B (Abandoned	Shallow	G-154545DG	2623120.34	511961.81	1167.30	1168.14	FM	0.02	2.00	6.50	70.50	1097.64	10/20	38.20	40.00	1128.14	70.00	1098.14	71.00	1097.14	NA	NA	NA
MW-76A (Abandoned)	Intermediate	G-154545FQ	2623158.64	511983.32	1166.24	1167.08	FM	0.02	2.00	6.50	108.50	1058.58	4/8	86.20	88.00	1079.08	108.50	1058.58	110.00	1057.08	NA	NA	NA

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-76B (Abandoned)	Shallow	G-154545DF	2623148.91	511982.59	1166.48	1167.32	FM	0.02	2.00	6.50	71.00	1096.32	10/20	38.40	40.50	1126.82	70.50	1096.82	71.00	1096.32	NA	NA	NA
MW-77A (Abandoned)	Intermediate	G-154545DE	2623192.11	512008.01	1165.73	1166.57	FM	0.02	2.00	6.50	104.00	1062.57	4/8	81.30	83.50	1083.07	103.50	1063.07	107.00	1059.57	NA	NA	NA
MW-77B (Abandoned)	Shallow	G-154545DD	2623180.56	512007.28	1165.79	1166.63	FM	0.02	2.00	6.50	70.50	1096.13	10/20	38.70	40.00	1126.63	70.00	1096.63	71.00	1095.63	NA	NA	NA
MW-78A	Intermediate	G-154545DC	2623223.84	512032.75	1165.27	1166.11	FM	0.02	2.00	6.50	105.50	1060.61	4/8	83.60	85.00	1081.11	105.00	1061.11	106.90	1059.21	NA	NA	NA
MW-78B	Shallow	G-154545DB	2623213.77	512031.30	1165.35	1166.19	FM	0.02	2.00	6.50	70.50	1095.69	10/20	37.00	40.00	1126.19	70.00	1096.19	71.00	1095.19	NA	NA	NA
MW-79A (Abandoned)	Intermediate	G-141658A	2610432.14	492336.21	1109.34	1107.15	2.19	0.01	2.00	6.00	86.00	1021.15	natural	71.00	76.00	1031.15	86.00	1021.15	86.00	1021.15	85.70	1021.45	SH
MW-79B (Abandoned)	Shallow	G-141658B	2610428.14	492345.18	1109.39	1107.17	2.22	0.01	2.00	6.00	40.40	1066.77	20/40	27.90	30.20	1076.97	40.20	1066.97	40.40	1066.77	NP	NP	NP
MW-80A	Intermediate	G-141658C	2610925.54	492067.12	1107.43	1105.27	2.16	0.01	2.00	6.00	79.17	1026.10	natural	67.10	69.17	1036.10	79.17	1026.10	79.17	1026.10	82.50	1022.77	SS
MW-80B	Shallow	G-141658D	2610916.24	492064.59	1107.65	1105.46	2.19	0.01	2.00	6.00	40.00	1065.46	20/40	26.70	30.00	1075.46	40.00	1065.46	40.40	1065.06	NP	NP	NP
MW-80D	Deep	G-141658E	2610935.55	492068.65	1107.40	1105.22	2.18	0.02	2.00	6.00	92.70	1012.52	43028.00	86.50	87.70	1017.52	92.70	1012.52	92.80	1012.42	82.50	1022.72	SS
MW-81A (Abandoned)	Intermediate	G-141658F	2611637.99	492369.38	1108.48	1106.30	2.18	0.01	2.00	6.00	92.00	1014.30	natural	82.00	79.00	1027.30	92.00	1014.30	92.00	1014.30	94.20	1012.10	SS
MW-81B (Abandoned)	Shallow	G-141658G	2611635.91	492360.36	1108.47	1106.29	2.18	0.01	2.00	6.00	38.40	1067.89	20/40	26.10	28.20	1078.09	38.20	1068.09	38.40	1067.89	NP	NP	NP
MW-81D (Abandoned)	Deep	G-141658H	2611633.37	492349.85	1108.53	1106.40	2.13	0.02	2.00	6.00	104.60	1001.80	10/20	97.80	99.10	1007.30	104.10	1002.30	104.60	1001.80	94.20	1012.20	SS
MW-82A	Intermediate	G-141124A	2619288.65	493318.05	1149.14	1147.10	2.04	0.02	2.00	6.00	94.50	1052.60	natural	67.20	89.50	1057.60	94.50	1052.60	94.75	1052.35	NP	NP	NP
MW-82B	Shallow	G-141124B	2619284.94	493325.47	1149.12	1147.20	1.92	0.01	2.00	6.00	66.50	1080.70	12/20	58.90	61.20	1086.00	65.70	1081.50	66.40	1080.80	NP	NP	NP
MW-82D	Deep	G-141124C	2619293.00	493310.90	1149.22	1147.10	2.12	0.02	2.00	6.00	125.50	1021.60	12/20	117.50	120.00	1027.10	125.00	1022.10	125.75	1021.35	112.00	1035.10	SS
MW-82D1	Deep	G-181605	2619288.38	493312.94	1149.27	1146.81	2.46	0.02	2.00	6.00	160.30	986.51	12/20	147.25	150.00	996.81	160.00	986.81	161.00	985.81	NP	NP	NP
MW-82D2	Deep	G-181607	2619283.77	493320.27	1148.94	1146.86	2.09	0.02	2.00	6.00	193.30	953.56	12/20	181.00	183.00	963.86	193.00	953.86	194.00	952.86	NP	NP	NP
MW-82D3	Deep	G-181595	2619279.94	493326.61	1149.05	1146.96	2.09	0.02	2.00	6.00	220.75	926.21	12/20	207.50	210.60	936.36	220.60	926.36	224.00	922.96	124.00	1022.96	SS
MW-83A	Intermediate	G-141124D	2621924.08	495274.66	1152.41	1150.20	2.21	0.02	2.00	6.00	109.00	1041.20	natural	103.00	103.50	1046.70	108.50	1041.70	110.00	1040.20	NP	NP	NP
MW-83B	Shallow	G-141124E	2621921.79	495302.77	1152.28	1150.40	1.88	0.01	2.00	6.00	80.00	1070.40	12/20	72.70	75.00	1075.40	80.00	1070.40	80.00	1070.40	NP	NP	NP
MW-83D	Deep	G-141124F	2621922.97	495288.85	1152.32	1150.30	2.02	0.02	2.00	6.00	122.50	1027.80	12/20	113.70	116.00	1034.30	121.00	1029.30	122.50	1027.80	111.00	1039.30	SS
MW-83E	Intermediate	G-178045					-0.35	0.01	2.00	6.00	91.00	-91.00	20/40	77.50	80.50	-80.50	90.50	-90.50	91.30	-91.30	NP	NP	NA
MW-84A	Intermediate	G-141124G	2624277.77	495685.51	1145.34	1143.20	2.14	0.02	2.00	6.00	91.65	1051.55	natural	86.30	87.13	1056.07	91.13	1052.07	91.65	1051.55	NP	NP	NP
MW-84AR (Abandoned)	Intermediate	NA	2624273.89	495704.26	1145.26	1143.20	2.06	0.02	2.00	6.00	103.00	1040.20	natural	96.50	97.50	1045.70	102.50	1040.70	103.00	1040.20	102.50	1040.70	SS
MW-84B	Shallow	G-141124I	2624272.04	495712.90	1145.62	1143.30	2.32	0.01	2.00	6.00	72.00	1071.30	12/20	64.70	66.50	1076.80	71.50	1071.80	72.00	1071.30	NP	NP	NP
MW-84D	Deep	G-141124J	2624275.75	495695.58	1145.37	1143.20	2.17	0.02	2.00	6.00	110.00	1033.20	12/20	100.80	103.50	1039.70	108.50	1034.70	110.00	1033.20	97.50	1045.70	SS
MW-85A	Intermediate	G-141124K	2628326.53	494439.02	1132.58	1130.50	2.08	0.01	2.00	6.00	86.00	1044.50	natural	80.50	81.00	1049.50	86.00	1044.50	87.00	1043.50	86.00	1044.50	SS
MW-85B	Shallow	G-141124L	2628315.15	494449.81	1132.39	1130.40	1.99	0.02	2.00	6.00	66.30	1064.10	12/20	60.00	62.00	1068.40	67.00	1063.40	66.30	1064.10	NP	NP	NP
MW-85D	Deep	G-141124M	2628338.54	494428.03	1132.59	1130.40	2.19	0.02	2.00	6.00	96.00	1034.40	12/20	87.85	90.00	1040.40	95.00	1035.40	96.35	1034.05	84.50	1045.90	SS

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
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Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-86A	Intermediate	G-144684A	2631939.21	493759.74	1114.15	1111.78	2.37	0.01	2.00	8.50	62.50	1049.28	natural	49.75	52.50	1059.28	62.50	1049.28	63.50	1048.28	NP	NP	NP
MW-86B	Shallow	G-144684B	2631933.61	493758.65	1114.58	1112.08	2.50	0.01	2.00	8.50	54.00	1058.08	20/40	41.00	43.00	1069.08	53.00	1059.08	54.00	1058.08	NP	NP	NP
MW-86D	Deep	G-144684C	2631944.47	493760.43	1113.90	1111.48	2.42	0.02	2.00	6.00	74.50	1036.98	10/20	67.50	68.98	1042.50	74.50	1036.98	75.20	1036.28	63.00	1048.48	SS
MW-86D1	Deep	G-181608	2631943.24	493764.17	1113.84	1111.40	2.44	0.02	2.00	6.00	105.30	1006.10	12/20	92.70	95.00	1016.40	105.00	1006.40	106.00	1005.40	NP	NP	NP
MW-86D2	Deep	G-181609	2631936.60	493765.86	1114.20	1111.92	2.28	0.02	2.00	6.00	135.30	976.62	12/20	123.00	125.00	986.92	135.00	976.92	136.00	975.92	NP	NP	NP
MW-86D3	Deep	G-181610	2631930.05	493767.70	1114.77	1112.25	2.52	0.02	2.00	6.00	171.30	940.95	12/20	159.00	161.00	951.25	171.00	941.25	172.00	940.25	69.20	1043.05	SS
MW-87A (Abandoned)	Intermediate	G-144683A	2635039.81	491898.03	1078.38	1075.83	2.55	0.01	2.00	8.50	46.00	1029.83	natural	34.00	36.00	1039.83	46.00	1029.83	47.00	1028.83	NP	NP	NP
MW-87B (Abandoned)	Shallow	G-144683B	2635035.21	491900.97	1078.38	1075.83	2.55	0.01	2.00	8.50	27.00	1048.83	20/40	15.00	17.00	1058.83	27.00	1048.83	28.00	1047.83	NP	NP	NP
MW-87D (Abandoned)	Deep	G-144683C	2635044.01	491895.21	1078.39	1075.83	2.56	0.02	2.00	6.00	55.60	1020.23	10/20	49.40	50.10	1025.73	55.60	1020.23	65.00	1010.83	46.00	1029.83	SS
MW-88A	Intermediate	G-144663A	2637643.92	494045.13	1081.22	1078.71	2.51	0.01	2.00	8.50	45.00	1033.71	natural	33.00	35.00	1043.71	45.00	1033.71	46.00	1032.71	NP	NP	NP
MW-88B	Shallow	G-144663B	2637639.18	494044.21	1081.27	1078.71	2.56	0.01	2.00	8.50	30.00	1048.71	20/40	18.00	20.00	1058.71	30.00	1048.71	31.00	1047.71	NP	NP	NP
MW-88D	Deep	G-144663C	2637648.62	494046.08	1081.30	1078.71	2.59	0.02	2.00	6.00	57.50	1021.21	10/20	49.50	50.50	1028.21	55.50	1023.21	57.50	1021.21	45.00	1033.71	SS
MW-88D1	Deep	G-181618	2637650.78	494025.19	1078.42	1078.78	-0.35	0.02	2.00	6.00	75.20	1003.58	12/20	63.00	65.00	1013.78	75.00	1003.78	75.20	1003.58	NA	NA	NA
MW-88D2	Deep	G-181619	2637643.46	494024.15	1078.32	1078.70	-0.38	0.02	2.00	6.00	100.90	977.80	12/20	88.60	90.70	988.00	100.70	978.00	101.00	977.70	NA	NA	NA
MW-88D3	Deep	G-181620	2637636.08	494023.70	1078.27	1078.55	-0.28	0.02	2.00	6.00	129.30	949.25	12/20	117.00	119.10	959.45	129.10	949.45	135.00	943.55	48.00	1030.55	SS
MW-89A	Intermediate	G-141658I	2610430.84	494253.88	1160.99	1158.81	2.18	0.02	2.00	6.00	139.20	1019.61	natural	126.80	129.20	1029.61	139.20	1019.61	139.20	1019.61	NP	NP	NP
MW-89B	Shallow	G-141658J	2610408.69	494254.10	1161.37	1159.20	2.17	0.01	2.00	6.00	75.70	1083.50	20/40	63.00	65.00	1094.20	75.70	1083.50	75.70	1083.50	NP	NP	NP
MW-89D	Deep	G-141658K	2610451.41	494254.27	1160.65	1158.55	2.10	0.02	2.00	6.00	150.60	1007.95	10/20	143.10	145.00	1013.55	150.60	1007.95	150.60	1007.95	125.00	1033.55	SS
MW-89E	Intermediate	G-157027A	2610466.38	494253.06	1157.24	1161.43	-0.55	0.01	2.00	6.00	95.00	1066.43	natural	82.30	85.00	1076.43	95.00	1066.43	95.00	1066.43	NP	NP	NP
MW-90A	Intermediate	G-141658L	2611235.54	494302.04	1151.11	1148.94	2.17	0.01	2.00	8.00	123.40	1025.54	natural	123.40	112.20	1036.74	123.40	1025.54	123.40	1025.54	NP	NP	NP
MW-90B	Shallow	G-141658M	2611226.60	494297.96	1150.77	1148.60	2.17	0.01	2.00	6.00	75.45	1073.15	20/40	63.50	65.35	1083.25	75.45	1073.15	75.45	1073.15	NP	NP	NP
MW-90D	Deep	G-141658N	2611244.85	494306.05	1151.44	1149.25	2.19	0.02	2.00	6.00	135.20	1014.05	10/20	129.10	130.20	1019.05	135.20	1014.05	135.20	1014.05	125.20	1024.05	SS
MW-90D1	Deep	G-179964	2611237.39	494291.09	1150.87	1148.85	2.01	0.02	2.00	6.00	156.80	992.05	12/20	144.50	146.80	1002.05	156.60	992.25	156.80	992.05	NA	NA	NA
MW-90D2	Deep	G-179966	2611229.62	494288.22	1150.61	1148.65	1.97	0.02	2.00	6.00	177.00	971.65	12/20	164.50	166.80	981.85	176.80	971.85	177.50	971.15	NA	NA	NA
MW-90D3	Deep	G-179963	2611247.28	494295.19	1151.02	1148.97	2.05	0.02	2.00	6.00	229.50	919.47	12/20	216.50	219.30	929.67	229.30	919.67	230.00	918.97	120.50	1028.47	SS
MW-91A	Intermediate	G-141658O	2612076.97	494323.00	1152.04	1149.85	2.19	0.01	2.00	8.00	119.20	1030.65	10/20	106.70	109.20	1040.65	119.20	1030.65	119.20	1030.65	NA	NP	NA
MW-91B	Shallow	G-141658P	2612067.85	494317.53	1151.87	1149.66	2.21	0.01	2.00	6.00	77.60	1072.06	20/40	65.50	67.60	1082.06	77.60	1072.06	78.10	1071.56	NA	NP	NA
MW-91D	Deep	G-141658Q	2612085.70	494327.97	1151.95	1149.78	2.17	0.02	2.00	6.00	130.20	1019.58	10/20	124.00	125.20	1024.58	130.20	1019.58	130.60	1019.18	120.00	1029.78	SH
MW-92A (Abandoned)	Intermediate	G-141658R	2610047.26	492722.58	1108.78	1106.58	2.20	0.01	2.00	6.00	82.16	1024.42	natural	70.20	72.16	1034.42	82.16	1024.42	82.16	1024.42	82.50	1024.08	SH
MW-92B (Abandoned)	Shallow	G-141658S	2610047.80	492733.82	1108.65	1106.44	2.21	0.01	2.00	6.00	40.10	1066.34	20/40	28.00	30.10	1076.34	40.10	1066.34	40.80	1065.64	NP	NP	NP
MW-93A	Intermediate	G-141658T	2612162.89	493551.29	1124.26	1122.07	2.19	0.01	2.00	6.00	94.20	1027.87	20/40	82.20	84.20	1037.87	94.20	1027.87	94.20	1027.87	95.00	1027.07	SH
MW-93B	Shallow	G-141658U	2612154.07	493546.80	1123.90	1121.70	2.20	0.01	2.00	6.00	70.00	1051.70	10/20	56.20	60.00	1061.70	70.00	1051.70	70.30	1051.40	NP	NP	NP
MW-94A	Intermediate	G-144677A	2617023.16	496428.72	1153.06	1150.75	2.31	0.01	2.00	8.50	94.00	1056.75	natural	81.60	84.00	1066.75	94.00	1056.75	95.00	1055.75	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-94B	Shallow	G-144677B	2617023.07	496434.50	1153.09	1150.56	2.53	0.01	2.00	8.50	74.00	1076.56	20/40	62.00	64.00	1086.56	74.00	1076.56	75.00	1075.56	NP	NP	NP
MW-94D (Abandoned)	Deep	G-144677C	2617023.47	496422.56	1153.25	1150.82	2.43	0.02	2.00	6.00	121.40	1029.42	10/20	114.80	115.90	1034.92	121.40	1029.42	125.00	1025.82	110.50	1040.32	SH
MW-95A	Intermediate	G-144678A	2617552.81	494508.64	1156.81	1154.32	2.49	0.01	2.00	8.50	104.00	1050.32	natural	91.00	93.00	1061.32	103.00	1051.32	104.00	1050.32	NP	NP	NP
MW-95B	Shallow	G-144678B	2617546.97	494508.01	1156.46	1154.15	2.31	0.01	2.00	8.50	76.00	1078.15	20/40	62.50	65.00	1089.15	75.00	1079.15	76.00	1078.15	NP	NP	NP
MW-95D	Deep	G-144678C	2617558.46	494509.13	1156.82	1154.45	2.37	0.02	2.00	6.00	130.00	1024.45	10/20	123.70	124.50	1029.95	129.50	1024.95	130.00	1024.45	118.00	1036.45	SH
MW-96A	Intermediate	G-144679A	2621468.23	493387.73	1148.56	1146.00	2.56	0.01	2.00	8.50	92.50	1053.50	natural	80.10	82.50	1063.50	92.50	1053.50	93.50	1052.50	NP	NP	NP
MW-96B	Shallow	G-144679B	2621468.23	493387.80	1148.56	1146.00	2.56	0.01	2.00	8.50	81.00	1065.00	20/40	69.00	71.00	1075.00	81.00	1065.00	82.50	1063.50	NP	NP	NP
MW-96D	Deep	G-144679C	2621476.25	493387.89	1148.58	1146.00	2.58	0.02	2.00	6.00	106.50	1039.50	10/20	100.60	101.50	1044.50	106.00	1040.00	110.00	1036.00	96.50	1049.50	SS
MW-96D1	Deep	G-181611	2621487.55	493388.06	1149.57	1147.45	2.12	0.02	2.00	6.00	160.20	987.25	12/20	147.00	150.00	997.45	160.00	987.45	160.50	986.95	NP	NP	NP
MW-96D2	Deep	G-181612	2621487.27	493396.10	1149.33	1147.34	1.99	0.02	2.00	6.00	190.20	957.14	12/20	177.00	180.00	967.34	190.00	957.34	190.50	956.84	NP	NP	NP
MW-96D3	Deep	G-181613	2621460.85	493395.28	1148.77	1146.23	2.54	0.02	2.00	6.00	227.20	919.03	12/20	214.00	217.00	929.23	227.00	919.23	230.00	916.23	102.80	1043.43	SS
MW-97A	Intermediate	G-144680A	2623938.04	493492.83	1143.08	1140.60	2.48	0.01	2.00	8.50	93.00	1047.60	natural	81.00	83.00	1057.60	93.00	1047.60	94.00	1046.60	NP	NP	NP
MW-97B	Shallow	G-144680B	2623932.70	493492.45	1143.18	1140.60	2.58	0.01	2.00	8.50	73.00	1067.60	20/40	66.00	68.00	1072.60	73.00	1067.60	74.00	1066.60	NP	NP	NP
MW-97D	Deep	G-144680C	2623943.48	493493.13	1143.18	1140.60	2.58	0.02	2.00	6.00	105.50	1035.10	10/20	99.00	99.98	1040.62	105.50	1035.10	106.00	1034.60	94.00	1046.60	SS
MW-97D1	Deep	G-181614	2623959.13	493501.25	1142.74	1140.27	2.47	0.02	2.00	6.00	158.40	981.87	12/20	146.00	148.20	992.07	158.20	982.07	160.00	980.27	NP	NP	NP
MW-97D2	Deep	G-181615	2623965.85	493501.39	1142.68	1140.16	2.52	0.02	2.00	6.00	194.80	945.36	12/20	183.00	184.60	955.56	194.60	945.56	195.00	945.16	NP	NP	NP
MW-97D3	Deep	G-181596	2623972.91	493501.03	1142.48	1140.01	2.47	0.02	2.00	6.00	220.00	920.01	12/20	207.00	209.80	930.21	219.80	920.21	225.00	915.01	95.00	1045.01	SS
MW-98A	Intermediate	G-144681A	2626495.30	493604.94	1141.52	1139.00	2.52	0.01	2.00	8.50	92.00	1047.00	natural	80.00	82.00	1057.00	92.00	1047.00	94.00	1045.00	NP	NP	NP
MW-98B	Shallow	G-144681B	2626488.71	493605.28	1141.58	1139.00	2.58	0.01	2.00	8.50	69.00	1070.00	20/40	63.00	64.00	1075.00	69.00	1070.00	75.00	1064.00	NP	NP	NP
MW-98D	Deep	G-144681C	2626502.36	493605.21	1141.58	1139.00	2.58	0.02	2.00	6.00	105.00	1034.00	10/20	96.00	97.00	1042.00	102.00	1037.00	105.00	1034.00	92.00	1047.00	SS
MW-98D1	Deep	G-181593	2626488.15	493612.75	1141.69	1139.27	2.42	0.02	2.00	6.00	166.00	973.27	12/20	154.00	155.80	983.47	165.80	973.47	166.00	973.27	NP	NP	NP
MW-98D2	Deep	G-181597	2626494.77	493612.79	1141.59	1139.45	2.14	0.02	2.00	6.00	193.00	946.45	12/20	181.00	182.80	956.65	192.80	946.65	195.00	944.45	NP	NP	NP
MW-98D3	Deep	G-181598	2626503.90	493612.64	1141.82	1139.39	2.43	0.02	2.00	6.00	219.30	920.09	12/20	206.00	209.10	930.29	219.10	920.29	224.00	915.39	95.50	1043.89	SS
MW-99A	Intermediate	G-144682A	2627117.43	498780.95	1163.04	1160.69	2.35	0.01	2.00	8.50	112.00	1048.69	natural	99.50	102.00	1058.69	112.00	1048.69	112.00	1048.69	NP	NP	NP
MW-99B	Shallow	G-144682B	2627118.41	498787.93	1163.19	1160.87	2.32	0.01	2.00	8.50	86.00	1074.87	20/40	73.00	75.00	1085.87	85.00	1075.87	86.00	1074.87	NP	NP	NP
MW-99D	Deep	G-144682C	2627116.78	498773.69	1162.76	1160.38	2.38	0.02	2.00	6.00	125.00	1035.38	10/20	117.50	118.50	1041.88	123.50	1036.88	125.00	1035.38	112.00	1048.38	SS
MW-100A	Intermediate	G-144662A	2629718.84	493770.41	1141.18	1138.60	2.58	0.01	2.00	8.50	93.00	1045.60	natural	81.00	83.00	1055.60	93.00	1045.60	105.00	1033.60	94.00	1044.60	SS
MW-100B	Shallow	G-144662B	2629718.07	493777.19	1141.12	1138.60	2.52	0.01	2.00	8.50	75.00	1063.60	20/40	62.80	65.00	1073.60	75.00	1063.60	76.00	1062.60	NP	NP	NP
MW-100D	Deep	G-144662C	2629718.36	493783.73	1141.22	1138.60	2.62	0.02	2.00	6.00	104.90	1033.70	#5	97.50	99.90	1038.70	104.90	1033.70	110.00	1028.60	94.00	1044.60	SS
MW-100D1	Deep	G-181622	2629711.48	493769.53	1140.86	1138.49	2.38	0.02	2.00	6.00	135.00	1003.49	12/20	121.00	124.80	1013.69	134.80	1003.69	135.00	1003.49	NP	NP	NP
MW-100D2	Deep	G-181623	2629711.34	493776.59	1140.83	1138.49	2.33	0.02	2.00	6.00	172.00	966.49	12/20	159.75	161.80	976.69	171.80	966.69	172.40	966.09	NP	NP	NP
MW-100D3	Deep	G-181624	2629710.89	493782.88	1140.87	1138.52	2.35	0.02	2.00	6.00	206.20	932.32	12/20	193.00	196.00	942.52	206.00	932.52	210.00	928.52	95.00	1043.52	SS
MW-101A	Intermediate	G-143845A	2610929.39	491574.12	1107.43	1104.99	2.44	0.01	2.00	8.50	93.00	1011.99	natural	81.00	83.00	1021.99	93.00	1011.99	105.00	999.99	NP	NP	NP
MW-101B	Shallow	G-143845C	2610923.62	491573.82	1107.44	1104.99	2.45	0.01	2.00	8.50	40.00	1064.99	20/40	28.00	30.00	1074.99	40.00	1064.99	41.00	1063.99	NP	NP	NP
MW-101D	Deep	G-144676	2610935.30	491574.49	1107.45	1104.99	2.46	0.02	2.00	6.00	96.20	1008.79	10/20	88.00	90.00	1014.99	95.00	1009.99	96.20	1008.79	83.00	1021.99	SS
MW-101D1	Deep	G-181625	2610937.09	491565.95	1107.19	1104.97	2.22	0.02	2.00	6.00	120.30	984.67	12/20	108.00	110.10	994.87	120.10	984.87	120.00	984.97	NP	NP	NP
MW-101D2	Deep	G-181626	2610930.57	491564.79	1107.33	1104.91	2.41	0.02	2.00	6.00	146.80	958.11	12/20	135.00	136.60	970.73	146.60	958.31	147.00	957.91	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-101D3	Deep	G-181627	2610922.47	491563.87	1107.41	1105.01	2.39	0.02	2.00	6.00	188.20	916.81	12/20	176.00	178.00	929.41	188.00	917.01	191.00	914.01	83.00	1022.01	SS
MW-102A	Intermediate	G-144675A	2622929.38	514541.24	1170.90	1168.76	2.14	0.01	2.00	8.50	127.00	1041.76	natural	115.00	117.00	1051.76	127.00	1041.76	128.00	1040.76	NP	NP	NP
MW-102B	Shallow	G-144675B	2622923.37	514540.93	1171.13	1168.76	2.37	0.01	2.00	8.50	60.00	1108.76	20/40	46.00	50.00	1118.76	60.00	1108.76	61.00	1107.76	NP	NP	NP
MW-102D (Abandoned)	Deep	G-154545BC	2622935.91	514541.49	1171.08	1168.76	2.32	0.02	2.00	6.00	139.50	1029.26	10/20	133.00	134.50	1034.26	139.50	1029.26	141.50	1027.26	128.00	1040.76	SS
MW-103A	Intermediate	G-143845D	2623590.77	513115.79	1173.58	1171.11	2.47	0.01	2.00	8.50	126.50	1044.61	natural	112.00	116.00	1055.11	126.00	1045.11	126.50	1044.61	NP	NP	NP
MW-103B	Shallow	G-143845E	2623591.23	513110.25	1173.80	1171.36	2.44	0.01	2.00	8.50	60.00	1111.36	20/40	48.00	50.00	1121.36	60.00	1111.36	60.00	1111.36	NP	NP	NP
MW-103D	Deep	G-144661	2623589.45	513132.90	1173.22	1170.78	2.44	0.02	2.00	6.00	135.70	1035.08	10/20	128.50	130.00	1040.78	135.00	1035.78	135.70	1035.08	126.00	1040.76	SS
MW-104O	Shallow	G-152732A	2634073.87	499205.00	1081.69	1078.59	3.10	0.01	2.00	8.00	7.50	1071.09	20/40	5.00	5.30	1073.29	7.30	1071.29	7.50	1071.09	NP	NP	NP
MW-104B	Shallow	G-152732B	2634082.83	499205.61	1081.27	1078.38	2.89	0.01	2.00	8.00	25.10	1053.28	20/40	12.80	15.10	1063.28	24.60	1053.78	25.50	1052.88	NP	NP	NP
MW-104A	Intermediate	G-152732C	2634092.18	499205.59	1081.26	1078.50	2.76	0.01	2.00	8.00	41.20	1037.30	natural	28.80	31.10	1047.40	40.60	1037.90	41.40	1037.10	40.50	1038.00	SS
MW-104D	Deep	G-152732D	2634100.80	499205.35	1081.87	1078.81	3.07	0.02	2.00	8.00	49.60	1029.21	10/20	43.40	44.60	1034.21	49.10	1029.71	50.30	1028.51	40.50	1038.31	SS
MW-105O	Shallow	G-152732E	2635040.67	496662.29	1080.04	1076.73	3.31	0.01	2.00	8.00	6.70	1070.03	20/40	4.90	5.00	1071.73	6.60	1070.13	7.10	1069.63	NP	NP	NP
MW-105B	Shallow	G-152732F	2635042.34	496652.98	1079.77	1076.72	3.05	0.01	2.00	8.00	24.95	1051.77	20/40	12.60	14.75	1061.97	24.25	1052.47	25.10	1051.62	NP	NP	NP
MW-105A	Intermediate	G-152732G	2635041.98	496642.99	1079.60	1076.84	2.76	0.01	2.00	8.00	40.26	1036.58	natural	27.81	30.17	1046.67	39.67	1037.17	40.50	1036.34	40.30	1036.54	SS
MW-106A	Intermediate	G-144674A	2630544.55	506843.26	1118.06	1115.50	2.56	0.01	2.00	8.50	67.00	1048.50	natural	55.00	57.00	1058.50	67.00	1048.50	68.00	1047.50	NP	NP	NP
MW-106B	Shallow	G-144674B	2630539.26	506844.10	1117.98	1115.50	2.48	0.01	2.00	8.50	35.00	1080.50	20/40	23.00	25.00	1090.50	35.00	1080.50	36.00	1079.50	NP	NP	NP
MW-106D (Abandoned)	Deep	G-144674C	2630549.50	506842.72	1118.18	1115.50	2.68	0.02	2.00	6.00	79.00	1036.50	10/20	72.80	74.00	1041.50	79.00	1036.50	80.00	1035.50	68.00	1047.50	SS
MW-107A	Intermediate	G-144667A	2631375.72	506138.76	1135.79	1136.12	-0.33	0.01	2.00	8.50	88.00	1048.12	natural	75.40	78.00	1058.12	88.00	1048.12	89.00	1047.12	NP	NP	NP
MW-107B	Shallow	G-144667B	2631374.08	506125.16	1136.72	1136.95	-0.23	0.01	2.00	8.50	55.00	1081.95	20/40	43.00	45.00	1091.95	55.00	1081.95	56.00	1080.95	NP	NP	NP
MW-107D	Deep	G-144667C	2631375.03	506131.87	1136.35	1136.70	-0.35	0.02	2.00	6.00	100.50	1036.20	10/20	94.20	95.50	1041.20	100.50	1036.20	101.50	1035.20	89.20	1047.50	SS
MW-107D1	Deep	G-181623	2631373.39	506104.76	1138.33	1138.56	-0.23	0.02	2.00	6.00	120.80	1017.76	12/20	108.80	110.60	1027.96	120.60	1017.96	121.00	1017.56	NP	NP	NP
MW-107D2	Deep	G-181600	2631373.82	506110.94	1137.94	1138.21	-0.27	0.02	2.00	6.00	138.30	999.91	12/20	126.00	128.10	1010.11	138.10	1000.11	139.00	999.21	NP	NP	NP
MW-107D3	Deep	G-181621	2631374.08	506117.84	1137.49	1137.72	-0.23	0.02	2.00	6.00	153.90	983.82	12/20	140.50	143.60	994.12	153.60	984.12	155.00	982.72	89.50	1048.22	SH
MW-108A (Abandoned)	Intermediate	G-144666A	2631915.55	505912.28	1126.74	1126.95	-0.21	0.01	2.00	8.50	81.00	1045.95	natural	69.00	71.00	1055.95	81.00	1045.95	82.00	1044.95	NP	NP	NP
MW-108B (Abandoned)	Shallow	G-144666B	2631917.07	505899.47	1126.98	1127.28	-0.30	0.01	2.00	8.50	45.00	1082.28	20/40	33.00	35.00	1092.28	45.00	1082.28	46.00	1081.28	NP	NP	NP
MW-108D (Abandoned)	Deep	G-144666C	2631916.34	505906.33	1126.87	1127.11	-0.24	0.02	2.00	6.00	93.50	1033.61	10/20	87.00	88.50	1038.61	93.50	1033.61	95.50	1031.61	81.50	1045.61	SS
MW-109O	Shallow	G-152732H	2634805.17	501911.81	1085.88	1083.06	2.82	0.01	2.00	8.00	9.50	1073.56	20/40	6.50	6.70	1076.36	9.20	1073.86	9.50	1073.56	NP	NP	NP
MW-109B	Shallow	G-152732I	2634805.75	501904.25	1085.98	1083.11	2.87	0.01	2.00	8.00	29.30	1053.81	20/40	17.10	19.20	1063.91	28.70	1054.41	30.50	1052.61	NP	NP	NP
MW-109A	Intermediate	G-152732J	2634807.18	501896.06	1086.25	1083.19	3.07	0.01	2.00	8.00	46.95	1036.24	natural	34.40	36.85	1046.34	46.35	1036.84	46.95	1036.24	46.70	1036.49	SS
MW-110A	Intermediate	G-143845F	2634397.71	504432.79	1094.10	1091.71	2.39	0.01	2.00	8.50	45.00	1046.71	natural	36.50	39.50	1052.21	44.50	1047.21	45.00	1046.71	NP	NP	NP
MW-110B	Shallow	G-143845G	2634397.16	504438.89	1094.49	1092.01	2.48	0.01	2.00	8.50	28.50	1063.51	20/40	20.00	23.00	1069.01	28.00	1064.01	28.50	1063.51	NP	NP	NP
MW-110D	Deep	G-144670	2634398.64	504425.93	1094.36	1091.71	2.65	0.02	2.00	6.00	55.00	1036.71	10/20	49.00	50.00	1041.71	55.00	1036.71	57.00	1034.71	44.75	1046.96	SS
MW-111O	Shallow	G-152732K	2636152.14	499356.67	1082.48	1079.40	3.08	0.01	2.00	8.00	6.80	1072.60	20/40	4.80	5.00	1074.40	6.50	1072.90	7.00	1072.40	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-111B	Shallow	G-152732L	2636151.75	499348.24	1082.61	1079.42	3.19	0.01	2.00	8.00	24.60	1054.82	20/40	12.30	14.50	1064.92	24.00	1055.42	25.00	1054.42	NP	NP	NP
MW-111A	Intermediate	G-152732M	2636151.56	499337.97	1082.82	1079.82	3.00	0.01	2.00	8.00	41.33	1038.49	natural	29.10	31.23	1048.59	40.73	1039.09	41.33	1038.49	40.20	1039.62	SS
MW-112A	Intermediate	G-144669	2637365.72	501825.77	1082.03	1082.38	2.20	0.01	2.00	8.50	48.00	1034.38	natural	40.50	42.50	1039.88	47.50	1034.88	56.00	1026.38	48.00	1034.38	SH
MW-112B	Shallow	G-143845H	2637365.30	501832.67	1082.02	1082.38	2.20	0.01	2.00	8.50	26.00	1056.38	20/40	19.80	21.00	1061.38	26.00	1056.38	26.50	1055.88	NP	NP	NP
MW-112D1	Deep	G-181628	2637365.36	501848.01	1081.98	1082.29	-0.31	0.02	2.00	6.00	63.10	1019.19	12/20	51.00	52.80	1029.49	62.80	1019.49	63.00	1019.29	NA	NA	NA
MW-112D2	Deep	G-181630	2637365.71	501842.49	1082.03	1082.32	-0.29	0.02	2.00	6.00	82.10	1000.22	12/20	69.00	71.90	1010.42	81.90	1000.42	82.20	1000.12	NA	NA	NA
MW-112D3	Deep	G-181631	2637365.81	501836.65	1082.13	1082.36	-0.23	0.02	2.00	6.00	113.30	969.06	12/20	101.00	103.00	979.36	113.00	969.36	114.50	967.86	46.70	1035.66	SS
MW-113A	Intermediate	G-143845I	2637420.11	500472.22	1080.47	1080.82	2.20	0.01	2.00	8.50	41.00	1039.82	natural	35.00	36.00	1044.82	41.00	1039.82	42.00	1038.82	NP	NP	NP
MW-113B	Shallow	G-143845J	2637419.51	500477.68	1080.42	1080.82	2.20	0.01	2.00	8.50	31.00	1049.82	20/40	25.00	26.00	1054.82	31.00	1049.82	32.00	1048.82	NP	NP	NP
MW-113D	Deep	G-144668	2637420.34	500466.05	1080.49	1080.82	2.20	0.02	2.00	6.00	55.50	1025.32	10/20	48.00	48.70	1032.12	53.70	1027.12	55.50	1025.32	41.50	1039.32	SS
MW-114A	Intermediate	G-144665A	2637470.60	497206.93	1080.32	1077.87	2.20	0.01	2.00	8.50	47.00	1030.87	natural	32.80	37.00	1040.87	47.00	1030.87	48.00	1029.87	NP	NP	NP
MW-114B	Shallow	G-144665B	2637465.73	497204.32	1080.43	1077.87	2.20	0.01	2.00	8.50	30.00	1047.87	20/40	17.80	20.00	1057.87	30.00	1047.87	31.00	1046.87	NP	NP	NP
MW-114D	Deep	G-144665C	2637475.70	497209.79	1080.23	1077.87	2.20	0.02	2.00	6.00	58.00	1019.87	10/20	51.90	52.44	1025.43	58.00	1019.87	60.00	1017.87	48.00	1029.87	SS
MW-115A	Intermediate	G-144672A	2637702.52	495346.88	1081.67	1079.36	2.20	0.01	2.00	8.50	48.00	1031.36	natural	41.10	43.00	1036.36	48.00	1031.36	49.00	1030.36	NP	NP	NP
MW-115B	Shallow	G-144672B	2637696.42	495346.87	1081.77	1079.36	2.20	0.01	2.00	8.50	33.00	1046.36	20/40	26.00	28.00	1051.36	33.00	1046.36	34.00	1045.36	NP	NP	NP
MW-115D	Deep	G-144672C	2637708.86	495346.84	1081.66	1079.36	2.20	0.02	2.00	6.00	59.40	1019.96	10/20	53.00	53.89	1025.47	59.40	1019.96	60.00	1019.36	49.00	1030.36	SS
MW-116A	Intermediate	G-144673A	2636335.80	495297.60	1080.53	1078.07	2.20	0.01	2.00	8.50	42.50	1035.57	natural	35.75	37.50	1040.57	42.50	1035.57	43.50	1034.57	NP	NP	NP
MW-116B	Shallow	G-144673B	2636331.54	495297.24	1080.49	1078.07	2.20	0.01	2.00	8.50	32.00	1046.07	20/40	24.90	27.00	1051.07	32.00	1046.07	33.00	1045.07	NP	NP	NP
MW-116D	Deep	G-144673C	2636334.22	495293.68	1080.46	1078.07	2.20	0.02	2.00	6.00	53.50	1024.57	10/20	47.00	47.98	1030.09	53.50	1024.57	55.00	1023.07	43.00	1035.07	SS
MW-117A (Abandoned)	Intermediate	G-144664A	2631041.42	495048.00	1122.26	1122.36	2.20	0.01	2.00	8.50	76.00	1046.36	natural	63.50	66.00	1056.36	76.00	1046.36	76.00	1046.36	NP	NP	NP
MW-117B (Abandoned)	Shallow	G-144664B	2631040.50	495053.98	1122.06	1122.36	2.20	0.01	2.00	8.50	53.00	1069.36	20/40	40.90	43.00	1079.36	53.00	1069.36	54.00	1068.36	NP	NP	NP
MW-117D (Abandoned)	Deep	G-144664C	2631042.35	495042.20	1122.41	1122.36	2.20	0.02	2.00	6.00	86.50	1035.86	10/20	80.00	81.50	1040.86	86.50	1035.86	95.00	1027.36	76.00	1046.36	SS
MW-118A	Intermediate	G-144671A	2625890.45	496207.70	1143.87	1141.67	2.20	0.01	2.00	8.50	95.25	1046.42	natural	83.00	84.75	1056.92	95.25	1046.42	105.00	1036.67	97.00	1044.67	SH
MW-118B	Shallow	G-144671B	2625884.54	496207.84	1143.91	1141.81	2.10	0.01	2.00	8.50	75.00	1066.81	20/40	68.00	70.00	1071.81	75.00	1066.81	76.00	1065.81	NP	NP	NP
MW-119B	Shallow	G-152732N	2607941.55	499593.35	1159.28	1159.66	-0.38	0.01	2.00	8.00	84.10	1075.56	20/40	71.80	74.00	1085.66	83.50	1076.16	84.50	1075.16	NP	NP	NP
MW-119A	Intermediate	G-152733	2607952.61	499580.81	1159.14	1159.38	-0.24	0.01	2.00	6.00	129.60	1029.78	natural	116.50	119.70	1039.68	129.20	1030.18	137.00	1022.38	129.90	1029.48	SS
MW-120B	Shallow	G-152732O	2609372.70	499438.97	1166.33	1166.51	-0.17	0.01	2.00	8.00	75.60	1090.91	20/40	63.00	65.50	1101.01	75.00	1091.51	77.00	1089.51	NP	NP	NP
MW-120E	Intermediate	G-152732P	2609372.68	499430.79	1166.43	1166.76	-0.34	0.01	2.00	8.00	105.20	1061.56	20/40	92.90	95.30	1071.46	104.80	1061.96	105.50	1061.26	NP	NP	NP
MW-120A	Intermediate	G-152765	2609372.30	499419.07	1166.32	1166.72	-0.40	0.01	2.00	6.00	138.60	1028.12	natural	125.00	128.70	1038.02	138.20	1028.52	148.00	1018.72	138.10	1028.62	SS
MW-120D	Deep	G-152766	2609371.09	499409.47	1166.62	1166.88	-0.26	0.02	2.00	6.00	148.80	1018.08	20-Oct	142.00	144.00	1022.88	148.40	1018.48	150.00	1016.88	138.00	1028.88	SS
MW-121B	Shallow	G-152732Q	2609779.26	500071.59	1170.13	1170.48	-0.35	0.01	2.00	8.00	85.80	1084.68	20/40	73.40	75.70	1094.78	85.20	1085.28	86.60	1083.88	NP	NP	NP
MW-121E	Intermediate	G-152732R	2609763.30	500071.29	1170.07	1170.27	-0.21	0.01	2.00	8.00	115.60	1054.67	natural	103.70	105.50	1064.77	115.00	1055.27	116.00	1054.27	NP	NP	NP
MW-121A	Intermediate	G-152767	2609752.79	500071.02	1170.04	1170.27	-0.23	0.01	2.00	6.00	142.50	1027.77	natural	130.00	132.60	1037.67	142.10	1028.17	152.00	1018.27	141.80	1028.47	SS
MW-122B	Shallow	G-152732S	2609232.29	498114.61	1166.52	1166.89	-0.37	0.01	2.00	8.00	107.80	1059.09	20/40	94.30	97.60	1069.29	107.10	1059.79	108.50	1058.39	NP	NP	NP
MW-122A	Intermediate	G-152734	2609240.41	498101.34	1165.76	1166.25	-0.49	0.01	2.00	6.00	138.40	1027.85	natural	126.00	128.50	1037.75	138.00	1028.25	142.00	1024.25	138.00	1028.25	SH

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
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ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-123B	Shallow	G-152732T	2608666.00	499909.02	1168.97	1169.33	-0.35	0.01	2.00	8.00	100.20	1069.13	20/40	86.90	90.10	1079.23	99.60	1069.73	100.40	1068.93	NP	NP	NP
MW-123A	Intermediate	G-152735	2608677.91	499909.07	1168.99	1169.28	-0.30	0.01	2.00	6.00	141.70	1027.58	natural	127.50	131.80	1037.48	141.30	1027.98	147.00	1022.28	141.90	1027.38	SS
MW-124B	Shallow	G-152732U	2609107.79	501496.31	1161.59	1162.12	-0.53	0.01	2.00	8.00	79.80	1082.32	20/40	66.80	69.70	1092.42	79.20	1082.92	80.50	1081.62	NP	NP	NP
MW-124A	Intermediate	G-152732V	2609115.81	501486.16	1161.89	1162.25	-0.36	0.01	2.00	8.00	110.40	1051.85	natural	96.80	100.30	1061.95	109.80	1052.45	110.50	1051.75	NP	NP	NP
MW-124D	Deep	G-152736	2609125.65	501475.69	1161.82	1162.24	-0.42	0.02	2.00	6.00	126.10	1036.14	20-Oct	118.80	121.30	1040.94	125.70	1036.54	127.00	1035.24	115.10	1047.14	SH
MW-125B	Shallow	G-152732W	2609468.11	500661.63	1162.14	1162.54	-0.40	0.01	2.00	8.00	86.80	1075.74	20/40	74.00	76.70	1085.84	86.20	1076.34	87.30	1075.24	NP	NP	NP
MW-125A	Intermediate	G-152732X	2609457.06	500663.23	1162.05	1162.35	-0.30	0.01	2.00	8.00	128.00	1034.35	natural	115.60	117.90	1044.45	127.40	1034.95	128.50	1033.85	127.50	1034.85	SH
MW-125D	Deep	G-152737	2609446.30	500664.74	1161.52	1161.80	-0.28	0.02	2.00	6.00	139.20	1022.60	20-Oct	132.40	134.40	1027.40	138.80	1023.00	140.00	1021.80	127.50	1034.30	SH
MW-126B	Shallow	G-152732Y	2607482.56	504514.66	1171.29	1171.60	-0.31	0.01	2.00	8.00	92.50	1079.10	20/40	78.80	82.30	1089.30	91.80	1079.80	93.20	1078.40	NP	NP	NP
MW-126A	Intermediate	G-152732Z	2607483.63	504504.82	1170.87	1171.21	-0.34	0.01	2.00	8.00	122.40	1048.81	natural	109.90	112.30	1058.91	121.80	1049.41	123.10	1048.11	NP	NP	NP
MW-126D	Deep	G-152768	2607483.02	504494.77	1170.26	1170.71	-0.45	0.02	2.00	6.00	153.60	1017.11	20-Oct	146.50	148.80	1021.91	153.20	1017.51	154.00	1016.71	141.50	1029.21	SS
MW-127E	Shallow	G-152732AA	2606121.31	506941.60	1169.40	1169.84	-0.43	0.01	2.00	8.00	61.70	1108.14	20/40	48.30	51.60	1118.24	61.10	1108.74	61.90	1107.94	NP	NP	NP
MW-127B	Shallow	G-152732AB	2606121.65	506931.42	1169.37	1169.66	-0.29	0.01	2.00	8.00	82.00	1087.66	20/40	67.60	71.90	1097.76	81.40	1088.26	82.80	1086.86	NP	NP	NP
MW-127A	Intermediate	G-152738	2606121.55	506918.35	1168.95	1169.30	-0.35	0.01	2.00	6.00	128.40	1040.90	natural	117.50	118.50	1050.80	128.00	1041.30	137.00	1032.30	128.50	1040.80	SH
MW-128A	Intermediate	G-152715D	2624836.13	498190.80	1156.97	1154.26	2.71	0.01	2.00	8.00	106.20	1048.06	natural	93.00	96.20	1058.06	106.20	1048.06	106.20	1048.06	NP	NP	NP
MW-128B	Shallow	G-152715E	2624838.49	498197.84	1156.94	1154.30	2.64	0.01	2.00	8.00	90.10	1064.20	20/40	77.90	79.50	1074.80	90.10	1064.20	90.10	1064.20	NP	NP	NP
MW-128D (Abandoned)	Deep	G-152957A	2624833.49	498183.94	1156.84	1154.10	2.74	0.02	2.00	6.00	117.00	1037.10	10/20	109.50	112.00	1042.10	117.00	1037.10	117.00	1037.10	107.40	1046.70	SS
MW-129A	Intermediate	G-152715F	2627766.39	496542.43	1149.77	1146.77	3.00	0.01	2.00	8.00	99.50	1047.27	natural	86.00	89.50	1057.27	99.50	1047.27	99.50	1047.27	NP	NP	NP
MW-129B	Shallow	G-152715G	2627771.40	496545.39	1149.72	1146.79	2.93	0.01	2.00	8.00	84.10	1062.69	10/20	72.00	74.10	1072.69	84.10	1062.69	84.10	1062.69	NP	NP	NP
MW-129D	Deep	G-152957B	2627759.96	496536.62	1149.46	1146.52	2.94	0.02	2.00	6.00	112.00	1034.52	10/20	104.00	106.00	1040.52	111.00	1035.52	112.00	1034.52	101.00	1045.52	SS
MW-130A	Intermediate	G-152715H	2629053.38	496650.27	1145.47	1143.16	2.31	0.01	2.00	8.00	99.00	1044.16	natural	87.00	89.00	1054.16	99.00	1044.16	99.00	1044.16	NP	NP	NP
MW-130B	Shallow	G-152715I	2629059.01	496659.85	1145.92	1143.22	2.70	0.01	2.00	8.00	79.90	1063.32	10/20	64.00	69.90	1073.32	79.90	1063.32	79.90	1063.32	NP	NP	NP
MW-130D	Deep	G-152957C	2629047.82	496641.12	1145.15	1142.69	2.46	0.02	2.00	6.00	106.00	1036.69	10/20	100.00	101.00	1041.69	106.00	1036.69	117.00	1025.69	98.00	1044.69	SS/SH
MW-131A	Intermediate	G-152715J	2626341.54	496939.83	1148.09	1145.38	2.71	0.01	2.00	8.00	99.00	1046.38	natural	86.00	88.50	1056.88	98.50	1046.88	99.00	1046.38	NP	NP	NP
MW-131B	Shallow	G-152715K	2626348.52	496944.69	1147.94	1145.27	2.67	0.01	2.00	8.00	80.50	1064.77	20/40	68.00	70.50	1074.77	80.50	1064.77	80.50	1064.77	NP	NP	NP
MW-131D	Deep	G-152957D	2626333.42	496933.31	1148.10	1145.22	2.88	0.02	2.00	6.00	107.00	1038.22	10/20	101.00	102.00	1043.22	107.00	1038.22	107.00	1038.22	98.00	1047.22	SS
MW-132A (Abandoned)	Intermediate	G-152715L	2625254.59	497254.40	1160.09	1157.28	2.81	0.01	2.00	8.00	105.50	1051.78	natural	93.00	95.40	1061.88	105.40	1051.88	105.50	1051.78	NP	NP	NP
MW-132B (Abandoned)	Shallow	G-152715M	2625258.17	497261.76	1159.81	1157.00	2.81	0.01	2.00	6.00	91.50	1065.50	20/40	78.60	81.30	1075.70	91.30	1065.70	91.50	1065.50	NP	NP	NP
MW-132D (Abandoned)	Deep	G-152957E	2625250.89	497247.01	1160.44	1157.27	3.17	0.02	2.00	6.00	117.00	1040.27	10/20	110.00	112.00	1045.27	117.00	1040.27	117.00	1040.27	107.50	1049.77	SS
MW-133A	Intermediate	G-152715N	2622522.67	509720.93	1167.41	1167.03	0.38	0.01	2.00	8.00	106.50	1060.53	natural	93.80	96.50	1070.53	106.50	1060.53	106.50	1060.53	NP	NP	NP
MW-133B	Shallow	G-152715O	2622522.69	509729.90	1167.55	1167.03	0.52	0.01	2.00	8.00	76.00	1091.03	20/40	64.00	66.00	1101.03	76.00	1091.03	76.00	1091.03	NP	NP	NP
MW-133D	Deep	G-152957F	2622523.17	509713.15	1167.19	1167.05	0.14	0.02	2.00	6.00	117.50	1049.55	10/20	110.00	111.00	1056.05	117.00	1050.05	117.50	1049.55	106.50	1060.55	SS
MW-134A	Intermediate	G-152715P	2623417.21	509045.74	1168.44	1168.62	-0.18	0.01	2.00	8.00	113.00	1055.62	natural	101.00	103.00	1065.62	113.00	1055.62	113.00	1055.62	NP	NP	NP
MW-134B	Shallow	G-152715Q	2623413.31	509052.47	1168.55	1168.71	-0.16	0.01	2.00	8.00	78.00	1090.71	20/40	66.00	68.00	1100.71	78.00	1090.71	78.00	1090.71	NP	NP	NP

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2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-134D	Deep	G-152957G	2623421.55	509039.29	1168.68	1168.85	-0.17	0.02	2.00	6.00	127.00	1041.85	10/20	115.00	123.00	1045.85	127.00	1041.85	127.00	1041.85	114.00	1054.85	SH/SS
MW-135A	Intermediate	G-152715R	2623150.45	509762.33	1165.77	1165.62	0.15	0.01	2.00	8.00	110.00	1055.62	natural	96.00	99.70	1065.92	109.70	1055.92	110.00	1055.62	NP	NP	NP
MW-135B	Shallow	G-152715S	2623151.02	509772.44	1165.71	1165.69	0.02	0.01	2.00	8.00	70.00	1095.69	20/40	58.00	60.00	1105.69	70.00	1095.69	70.00	1095.69	NP	NP	NP
MW-135D	Deep	G-152957H	2623149.03	509752.68	1165.51	1165.67	-0.16	0.02	2.00	6.00	122.00	1043.67	10/20	115.00	117.00	1048.67	122.00	1043.67	122.00	1043.67	110.00	1055.67	SS
MW-136E	Shallow	G-152732AC	2623075.88	510559.75	1168.29	1168.69	-0.40	0.01	2.00	8.00	60.60	1108.09	20/40	38.50	40.50	1128.19	60.00	1108.69	61.00	1107.69	NP	NP	NP
MW-136B	Shallow	G-152732AD	2623064.05	510560.70	1168.14	1168.34	-0.20	0.01	2.00	8.00	75.10	1093.24	20/40	62.00	65.00	1103.34	74.50	1093.84	75.35	1092.99	NP	NP	NP
MW-136A	Intermediate	G-152732AE	2623054.23	510561.26	1167.96	1168.40	-0.44	0.01	2.00	8.00	109.60	1058.80	natural	96.20	99.50	1068.90	109.00	1059.40	110.00	1058.40	109.10	1059.30	SS
MW-136D	Deep	G-152769	2623043.85	510561.58	1167.61	1168.07	-0.46	0.02	2.00	6.00	124.80	1043.27	20-Oct	118.00	120.00	1048.07	124.40	1043.67	127.00	1041.07	109.10	1058.97	SS
MW-137E	Shallow	G-152732AF	2622857.08	511706.78	1166.17	1166.44	-0.27	0.01	2.00	8.00	62.75	1103.69	20/40	39.25	42.35	1124.09	62.05	1104.39	62.75	1103.69	NP	NP	NP
MW-137B	Shallow	G-152732AG	2622846.21	511704.35	1166.04	1166.43	-0.38	0.01	2.00	8.00	72.70	1093.73	20/40	60.30	62.60	1103.83	72.10	1094.33	75.30	1091.13	NP	NP	NP
MW-137A	Intermediate	G-152732AH	2622837.54	511702.36	1166.31	1166.48	-0.17	0.01	2.00	8.00	103.20	1063.28	natural	91.10	93.20	1073.28	102.70	1063.78	103.60	1062.88	NP	NP	NP
MW-137D (Abandoned)	Deep	G-152739	2622826.93	511700.85	1165.98	1166.54	-0.56	0.02	2.00	6.00	117.00	1049.54	20-Oct	109.00	112.20	1054.34	116.60	1049.94	117.00	1049.54	104.20	1062.34	SS
MW-138B	Shallow	G-152732AI	2622378.08	512817.20	1176.22	1173.22	3.00	0.01	2.00	8.00	74.59	1098.63	20/40	61.96	64.49	1108.73	73.99	1099.23	75.50	1097.72	NP	NP	NP
MW-138A	Intermediate	G-152740	2622366.41	512816.57	1175.83	1173.35	2.48	0.01	2.00	6.00	127.00	1046.35	20-Oct	113.50	117.10	1056.25	126.60	1046.75	137.00	1036.35	127.20	1046.15	SS
MW-139B	Shallow	G-152732AJ	2621297.04	514275.44	1180.61	1177.86	2.75	0.01	2.00	8.00	81.75	1096.11	20/40	69.30	71.33	1106.53	81.20	1096.66	82.67	1095.19	NP	NP	NP
MW-139A	Intermediate	G-152741	2621290.29	514264.29	1180.32	1177.69	2.63	0.01	2.00	6.00	141.40	1036.29	natural	130.90	131.50	1046.19	141.00	1036.69	142.00	1035.69	139.90	1037.79	SS
MW-140O	Shallow	G-152732AK	2634717.20	503393.26	1092.60	1089.93	2.67	0.01	2.00	8.00	9.30	1080.63	20/40	6.30	6.50	1083.43	9.00	1080.93	9.40	1080.53	NP	NP	NP
MW-140B	Shallow	G-152732AL	2634717.22	503383.63	1092.42	1089.89	2.53	0.01	2.00	8.00	23.10	1066.79	20/40	10.90	13.00	1076.89	22.50	1067.39	23.10	1066.79	NP	NP	NP
MW-140A	Intermediate	G-152732AM	2634717.63	503375.83	1092.50	1089.68	2.82	0.01	2.00	8.00	47.20	1042.48	natural	34.80	37.00	1052.68	46.50	1043.18	47.50	1042.18	46.70	1042.98	SS
MW-140D	Deep	G-152742	2634718.42	503365.40	1092.30	1090.06	2.23	0.02	2.00	6.00	61.90	1028.16	20-Oct	54.70	57.10	1032.96	61.50	1028.56	62.00	1028.06	46.70	1043.36	SS
MW-141A	Intermediate	G-157069	2608446.60	502590.64	1162.07	1165.96	-0.35	0.02	2.00	6.00	115.00	1050.96	12/20	101.00	105.00	1060.96	115.00	1050.96	145.00	1020.96	125.00	1040.96	SS
MW-141B	Shallow	G-157027B	2608446.50	502597.16	1162.10	1166.08	-0.32	0.02	2.00	6.00	60.00	1106.08	20/40	46.00	50.00	1116.08	60.00	1106.08	60.00	1106.08	NP	NP	NP
MW-141E	Intermediate	G-157027C	2608446.50	502604.35	1162.07	1165.94	-0.28	0.01	2.00	6.00	90.00	1075.94	natural	75.00	80.00	1085.94	90.00	1075.94	90.00	1075.94	NP	NP	NP
MW-142A	Intermediate	G-157070	2610572.95	495594.89	1154.43	1158.21	-0.38	0.02	2.00	6.00	135.00	1023.21	10/20	112.20	115.00	1043.21	125.00	1033.21	135.00	1023.21	131.00	1027.21	SS
MW-142E	Shallow	G-157027D	2610563.98	495595.06	1154.15	1157.96	-0.40	0.02	2.00	8.50	100.00	1057.96	natural	91.00	90.00	1067.96	100.00	1057.96	100.00	1057.96	NP	NP	NP
MW-143B	Shallow	157071/G-15702	2621339.98	502719.77	1155.87	1160.09	-0.57	0.02	2.00	6.00	62.00	1098.09	10/20	48.00	52.00	1108.09	62.00	1098.09	62.00	1098.09	NP	NP	NP
MW-144A	Intermediate	G-157072	2614012.25	503570.97	1164.17	1168.17	-0.34	0.02	2.00	6.00	101.00	1067.17	12/20	85.00	91.00	1077.17	101.00	1067.17	105.00	1063.17	101.00	1067.17	SH
MW-144E	Intermediate	G-157027F	2614019.84	503573.10	1164.47	1168.52	-0.31	0.02	2.00	6.00	85.00	1083.52	20/40	71.00	75.00	1093.52	85.00	1083.52	85.00	1083.52	NP	NP	NP
MW-145A	Intermediate	G-157073	2617407.83	500652.84	1160.75	1164.91	-0.33	0.02	2.00	6.00	95.70	1069.21	10/20	81.00	85.70	1079.21	95.70	1069.21	96.00	1068.91	NP	NP	NP
MW-145B	Shallow	G-166053	2617395.841	500656.14	1157.571825	1158.001825	-0.43	0.01	2.00	6.00	61.69	1096.31	20/40	49.69	51.69	1106.31	61.69	1096.31	63.00	1095.00	NP	NP	NP
MW-145E	Intermediate	G-157027G	2617414.44	500652.99	1160.89	1165.03	-0.37	0.01	2.00	8.50	82.00	1083.03	natural	69.00	72.00	1093.03	82.00	1083.03	82.00	1083.03	NP	NP	NP
MW-146A	Intermediate	NA	2618871.66	494899.38	1148.18	1152.23	-0.32	0.02	2.00	8.50	97.00	1055.23	12/20	85.00	87.00	1065.23	97.00	1055.23	125.00	1027.23	97.00	1055.23	SS
MW-146B	Shallow	G-157027H	2618871.66	494899.37	1148.01	1152.32	-0.43	0.01	2.00	8.50	77.00	1075.32	20/40	65.00	67.00	1085.32	77.00	1075.32	77.00	1075.32	NP	NP	NP
MW-147A	Intermediate	G-157027I	2620042.45	494474.75	1148.92	1153.30	-0.25	0.01	2.00	8.50	100.00	1053.30	natural	88.00	90.00	1063.30	100.00	1053.30	100.00	1053.30	NP	NP	NP
MW-147B	Shallow	G-157027J	2620045.18	494471.71	1148.74	1152.68	-0.32	0.01	2.00	8.50	77.00	1075.68	20/40	64.50	67.00	1085.68	77.00	1075.68	77.00	1075.68	NP	NP	NP
MW-147D	Deep	G-157074	2620047.88	494467.74	1148.52	1152.27	-0.35	0.01	2.00	6.00	125.00	1027.27	12/20	112.00	115.00	1037.27	125.00	1027.27	132.00	1020.27	100.00	1052.27	SS
MW-148A	Intermediate	G-166054	2620166.75	504433.591	1157.598739	1158.038739	-0.44	0.02	2.00	6.00	104.91	1053.13	12/20	92.91	94.91	1063.13	104.91	1053.13	104.91	1053.13	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-148B	Shallow	NA	2620179.92	504425.78	1160.53	1162.42	-0.48	0.02	2.00	6.00	75.00	1087.42	12/20	63.00	65.00	1097.42	75.00	1087.42	75.00	1087.42	NP	NP	NP
MW-149A	Intermediate	G-157075	2622398.38	502086.76	1152.23	1156.22	-0.41	0.02	2.00	6.00	90.00	1066.22	12/20	77.50	80.00	1076.22	90.00	1066.22	100.00	1056.22	NP	NP	NP
MW-150A	Intermediate	G-157076	2624201.15	499856.55	1147.59	1151.59	-0.34	0.02	2.00	6.00	90.00	1061.59	12/20	78.00	80.00	1071.59	90.00	1061.59	90.00	1061.59	NP	NP	NP
MW-150B	Shallow	G-157027K	2624200.78	499864.11	1147.51	1151.47	-0.37	0.01	2.00	8.50	75.00	1076.47	natural	62.80	65.00	1086.47	75.00	1076.47	75.00	1076.47	NP	NP	NP
MW-151A	Intermediate	G-157077	2624392.64	506668.08	1158.65	1162.63	-0.43	0.01	2.00	8.50	104.00	1058.63	natural	91.30	94.00	1068.63	104.00	1058.63	104.00	1058.63	NP	NP	NP
MW-151B	Shallow	G-157027L	2624386.31	506667.26	1158.72	1162.65	-0.40	0.02	2.00	6.00	80.00	1082.65	20/40	67.00	70.00	1092.65	80.00	1082.65	80.00	1082.65	NP	NP	NP
MW-152B	Shallow	G-157078/ G-157027M	2627865.21	506805.72	1148.37	1152.22	-0.34	0.02	2.00	6.00	70.00	1082.22	20/40	58.00	60.00	1092.22	70.00	1082.22	75.00	1077.22	NP	NP	NP
MW-153A	Intermediate	NA	2627200.19	504130.22	1146.17	1150.05	-0.38	0.02	2.00	6.00	99.50	1050.55	12/20	87.00	89.50	1060.55	99.50	1050.55	100.00	1050.05	97.00	1053.05	SH
MW-153B	Shallow	G-157027N	2627192.86	504129.53	1146.28	1149.96	-0.34	0.01	2.00	8.50	79.00	1070.96	natural	67.00	69.00	1080.96	79.00	1070.96	79.00	1070.96	NP	NP	NP
MW-154A	Intermediate	G-157079	2631170.17	504308.25	1141.11	1144.87	-0.32	0.02	2.00	6.00	86.00	1058.87	12/20	71.00	76.00	1068.87	86.00	1058.87	86.00	1058.87	NP	NP	NP
MW-154B	Shallow	G-157027O	2631165.22	504308.20	1141.16	1144.88	-0.32	0.02	2.00	8.50	65.00	1079.88	natural	52.80	55.00	1089.88	65.00	1079.88	65.00	1079.88	NP	NP	NP
MW-155A	Intermediate	G-157027P	2629444.96	502435.45	1141.95	1145.78	-0.44	0.01	2.00	8.50	99.00	1046.78	natural	85.40	89.00	1056.78	99.00	1046.78	99.00	1046.78	NP	NP	NP
MW-155B	Shallow	G-166055	2629441.73	502456.405	1138.287218	1138.747218	-0.46	0.01	2.00	6.00	64.65	1074.10	20/40	52.65	54.65	1084.10	64.65	1074.10	65.00	1073.75	NP	NP	NP
MW-155E	Intermediate	G-157027Q	2629444.89	502444.32	1141.78	1145.73	-0.45	0.01	2.00	8.50	79.00	1066.73	natural	65.80	69.00	1076.73	79.00	1066.73	79.00	1066.73	NP	NP	NP
MW-156A	Intermediate	G-157027R	2633019.60	501928.83	1093.89	1097.95	-0.46	0.01	2.00	8.50	46.00	1051.05	natural	33.00	36.00	1061.05	46.00	1051.05	46.00	1051.05	NP	NP	NP
MW-156B	Shallow	G-157027S	2633018.32	501922.48	1093.96	1097.94	-0.51	0.01	2.00	8.50	26.00	1068.32	20/40	14.00	16.00	1078.32	26.00	1068.32	26.00	1068.32	NP	NP	NP
MW-157A	Intermediate	G-157027T	2632549.30	499117.46	1102.64	1106.31	-0.26	0.01	2.00	8.50	55.00	1051.31	natural	43.00	45.00	1061.31	55.00	1051.31	55.00	1051.31	NP	NP	NP
MW-157B	Shallow	G-157027U	2632559.03	499118.08	1101.91	1105.77	-0.45	0.01	2.00	8.50	37.00	1068.77	20/40	25.00	27.00	1078.77	37.00	1068.77	37.00	1068.77	NP	NP	NP
MW-157D1	Deep	G-179967	2632596.51	499121.05	1099.76	1100.06	-0.30	0.02	2.00	6.00	75.00	1025.06	12/20	62.80	64.80	1035.26	74.80	1025.26	75.00	1025.06	NA	NA	NA
MW-157D2	Deep	G-179954	2632588.24	499120.93	1100.22	1100.54	-0.32	0.02	2.00	6.00	95.50	1005.04	12/20	83.00	85.00	1015.54	95.00	1005.54	95.50	1005.04	NA	NA	NA
MW-157D3	Deep	G-179951	2632579.52	499120.26	1100.75	1101.09	-0.34	0.02	2.00	6.00	130.20	970.89	12/20	117.50	120.00	981.09	130.00	971.09	134.00	967.09	54.30	1046.79	SS
MW-158A	Intermediate	G-157027V	2635279.53	493887.42	1076.69	1080.40	-0.33	0.01	2.00	8.50	37.00	1043.40	20/40	22.00	27.00	1053.40	37.00	1043.40	37.00	1043.40	NP	NP	NP
MW-158B	Shallow	G-157027W	2635272.00	493887.38	1076.36	1080.47	-0.36	0.02	2.00	8.50	24.00	1056.47	10/20	12.00	14.00	1066.47	24.00	1056.47	24.00	1056.47	NP	NP	NP
MW-158D	Deep	NA	2635266.75	493887.31	1076.63	1080.84	-0.35	0.02	2.00	6.00	49.00	1031.84	10/20	42.00	44.00	1036.84	49.00	1031.84	50.00	1030.84	34.00	1046.84	SS
MW-158D1	Deep	G-181616	2635300.13	493891.61	1076.48	1076.98	-0.50	0.02	2.00	6.00	76.30	1000.68	12/20	63.00	66.10	1010.88	76.10	1000.88	77.00	999.98	NP	NP	NP
MW-158D2	Deep	G-181617	2635293.61	493891.42	1076.65	1077.10	-0.45	0.02	2.00	6.00	105.20	971.90	12/20	92.50	95.00	982.10	105.00	972.10	106.00	971.10	NP	NP	NP
MW-158D3	Deep	G-181599	2635286.72	493891.48	1076.82	1077.11	-0.29	0.02	2.00	6.00	125.00	952.11	12/20	112.80	114.80	962.31	124.80	952.31	135.00	942.11	35.00	1042.11	SS
MW-159A	Intermediate	G-157080	2629111.80	510307.65	1163.51	1167.72	-0.52	0.02	2.00	6.00	120.00	1047.72	10/20	108.00	110.00	1057.72	120.00	1047.72	127.00	1040.72	122.00	1045.72	SH
MW-159B	Shallow	G-157027X	2629111.63	510300.52	1163.57	1167.57	-0.29	0.01	2.00	8.50	85.00	1082.57	natural	72.50	75.00	1092.57	85.00	1082.57	85.00	1082.57	NP	NP	NP
MW-160A	Intermediate	G-166056	2609501.293	496947.488	1154.351451	1154.921451	-0.57	0.02	2.00	6.00	123.01	1031.91	12/20	111.01	113.01	1041.91	123.01	1031.91	133.00	1021.92	132.40	1022.52	SS
MW-160B	Shallow	G-166057	2609505.064	496954.303	1154.176041	1154.796041	-0.62	0.01	2.00	6.00	92.92	1061.88	20/40	80.92	82.92	1071.88	92.92	1061.88	124.01	1030.79	NP	NP	NP
MW-161A	Intermediate	G-166050	2608418.557	503133.216	1166.479491	1166.979491	-0.50	0.02	2.00	6.00	115.25	1051.73	12/20	103.25	105.25	1061.73	115.25	1051.73	135.00	1031.98	133.00	1033.98	SS
MW-161B	Shallow	G-166051	2608419.67	503123.84	1167.00088	1167.46088	-0.46	0.01	2.00	6.00	84.53	1082.93	20/40	72.53	74.53	1092.93	84.53	1082.93	116.25	1051.21	NP	NP	NP
MW-162A	Intermediate	G-166052	2618293.12	498773.02	1148.895604	1149.335604	-0.44	0.02	2.00	6.00	82.15	1067.19	12/20	70.15	72.15	1077.19	82.15	1067.19	105.00	1044.34	95.00	1054.34	SS
MW-163A	Intermediate	G-166058	2618961.892	498952.862	1159.743613	1160.263613	-0.52	0.02	2.00	6.00	108.18	1052.08	12/20	96.18	98.18	1062.08	108.18	1052.08	109.18	1051.08	NP	NP	NP
MW-164A	Intermediate	G-166059	2617493.857	498294.974	1150.109067	1150.509067	-0.40	0.02	2.00	6.00	99.16	1051.35	12/20	87.16	89.16	1061.35	99.16	1051.35	103.00	1047.51	100.00	1050.51	SS
MW-165B	Shallow	G-166060	2617933.415	498609.918	1148.889982	1149.319982	-0.43	0.01	2.00	6.00	84.01	1065.31	20/40	72.01	74.01	1075.31	84.01	1065.31	85.01	1064.31	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
MW-166A	Intermediate	G-166061	2618657.286	496609.561	1150.733553	1151.213553	-0.48	0.02	2.00	6.00	101.81	1049.40	12/20	89.81	91.81	1059.40	101.81	1049.40	110.00	1041.21	104.00	1047.21	SS
MW-166B	Shallow	G-166062	2618661.424	496616.201	1150.812611	1151.352611	-0.54	0.01	2.00	6.00	61.01	1090.34	20/40	49.01	51.01	1100.34	61.01	1090.34	62.01	1089.34	NP	NP	NP
MW-167A	Intermediate	G-166063	2619420.511	497423.398	1147.655985	1148.155985	-0.50	0.02	2.00	6.00	97.33	1050.83	12/20	85.33	87.33	1060.83	97.33	1050.83	105.00	1043.16	98.00	1050.16	SS
MW-167B	Shallow	G-166064	2619428.964	497426.555	1147.615367	1147.945367	-0.33	0.01	2.00	6.00	69.78	1078.17	20/40	57.78	59.78	1088.17	69.78	1078.17	70.78	1077.17	NP	NP	NP
MW-168A	Intermediate	G-166065	2620186.362	498009.89	1152.751938	1153.061938	-0.31	0.02	2.00	6.00	101.25	1051.81	12/20	89.25	91.25	1061.81	101.25	1051.81	105.00	1048.06	102.20	1050.86	SS
MW-168B	Shallow	G-166066	2620178.267	498011.714	1152.169795	1152.629795	-0.46	0.01	2.00	6.00	81.60	1071.03	20/40	69.60	71.60	1081.03	81.60	1071.03	82.60	1070.03	NP	NP	NP
MW-169A	Intermediate	G-166067	2619932.754	495501.598	1145.608602	1146.048602	-0.44	0.02	2.00	6.00	99.27	1046.78	12/20	87.27	89.27	1056.78	99.27	1046.78	105.00	1041.05	102.00	1044.05	SS
MW-169B	Shallow	G-166068	2619942.569	495502.951	1145.516859	1146.066859	-0.55	0.01	2.00	6.00	75.07	1071.00	20/40	63.07	65.07	1081.00	75.07	1071.00	76.07	1070.00	NP	NP	NP
MW-170A	Intermediate	G-166069	2621225.191	496442.892	1145.457852	1146.017852	-0.56	0.02	2.00	6.00	90.32	1055.70	12/20	78.32	80.32	1065.70	90.32	1055.70	100.00	1046.02	98.00	1048.02	SS
MW-171A	Intermediate	G-166070	2615668.935	501881.314	1160.216844	1160.546844	-0.33	0.02	2.00	6.00	97.25	1063.30	12/20	85.25	87.25	1073.30	97.25	1063.30	100.00	1060.55	NP	NP	NP
MW-171B	Shallow	G-166071	2615662.16	501881.095	1159.790579	1160.240579	-0.45	0.01	2.00	6.00	66.87	1093.37	20/40	54.87	56.87	1103.37	66.87	1093.37	67.87	1092.37	NP	NP	NP
MW-172A	Intermediate	G-166072	2625763.501	497428.549	1146.965181	1144.325181	2.64	0.02	2.00	6.00	95.80	1048.53	12/20	83.80	85.80	1058.53	95.80	1048.53	99.00	1045.33	NP	NP	NP
MW-172B	Shallow	G-166073	2625755.506	497431.526	1146.876486	1144.316486	2.56	0.01	2.00	6.00	76.00	1068.32	20/40	64.00	66.00	1078.32	76.00	1068.32	77.00	1067.32	NP	NP	NP
MW-173A	Intermediate	G-166074	2627008.041	497957.667	1148.574607	1146.594607	1.98	0.02	2.00	6.00	90.41	1056.18	12/20	78.41	80.41	1066.18	90.41	1056.18	105.00	1041.59	NP	NP	NP
MW-174A	Intermediate	G-166075	2622869.283	497380.635	1142.129583	1142.569583	-0.44	0.02	2.00	6.00	93.01	1049.56	12/20	81.01	83.01	1059.56	93.01	1049.56	105.00	1037.57	NP	NP	NP
MW-174B	Shallow	G-166076	2622865.16	497375.022	1141.71815	1142.07815	-0.36	0.01	2.00	6.00	74.73	1067.35	20/40	62.73	64.73	1077.35	74.73	1067.35	75.73	1066.35	NP	NP	NP
MW-175A	Intermediate	G-166077	2622690.122	501101.536	1151.786244	1152.306244	-0.52	0.02	2.00	6.00	90.08	1062.23	12/20	78.08	80.08	1072.23	90.08	1062.23	112.00	1040.31	NP	NP	NP
MW-175B	Shallow	G-166078	2622680.348	501098.072	1151.031892	1151.441892	-0.41	0.01	2.00	6.00	75.73	1075.71	20/40	63.73	65.73	1085.71	75.73	1075.71	76.73	1074.71	NP	NP	NP
MW-176A	Intermediate	G-166079	2632839.137	499810.439	1090.006174	1090.356174	-0.35	0.02	2.00	6.00	53.50	1036.86	12/20	41.50	43.50	1046.86	53.50	1036.86	55.00	1035.36	NP	NP	NP
MW-176B	Shallow	G-166080	2632839.673	499818.354	1089.107931	1089.857931	-0.75	0.01	2.00	6.00	34.10	1055.76	20/40	22.10	24.10	1065.76	34.10	1055.76	35.10	1054.76	NP	NP	NP
MW-177A	Intermediate	G-166081	2609971.19	492953.374	1104.428014	1102.378014	2.05	0.02	2.00	6.00	83.30	1019.08	12/20	71.30	73.30	1029.08	83.30	1019.08	83.30	1019.08	NP	NP	NP
MW-177B	Shallow	G-166082	2609974.652	492954.438	1105.898024	1103.878024	2.02	0.01	2.00	6.00	44.68	1059.20	20/40	32.68	34.68	1069.20	44.68	1059.20	45.68	1058.20	NP	NP	NP
MW-178B	Shallow	G-166083	2628870.63	506851.746	1140.337562	1140.957562	-0.62	0.01	2.00	6.00	88.87	1052.09	20/40	76.87	78.87	1062.09	88.87	1052.09	89.87	1051.09	NP	NP	NP
MW-179A	Intermediate	G-166084	2611664.673	493135.134	1107.446745	1105.639005	1.81	0.02	2.00	6.00	84.51	1021.13	12/20	72.51	74.51	1031.13	84.51	1021.13	85.00	1020.64	NP	NP	NP
MW-179B	Shallow	G-166085	2611658.781	493134.484	1107.644159	1105.19791	2.45	0.01	2.00	6.00	44.81	1060.39	20/40	32.81	34.81	1070.39	44.81	1060.39	45.81	1059.39	NP	NP	NP
MW-180A	Intermediate	G-169168	2621006.623	495570.713	1155.12	1155.38	0.26	0.02	2.00	6.00	111.00	1044.38	12/20	99.00	101.00	1054.38	111.00	1044.38	115.00	1040.38	115.00	1040.38	SS
MW-180D1	Deep	G-179965	2621025.572	495574.552	1158.20	1158.675	-0.48	0.02	2.00	6.00	175.90	982.78	12/20	163.00	165.60	993.08	175.60	983.08	176.00	982.68	NA	NA	NA
MW-180D2	Deep	G-179952	2621035.702	495575.355	1158.31	1158.72	-0.41	0.02	2.00	6.00	215.25	943.47	12/20	202.00	204.90	953.82	214.90	943.82	215.50	943.22	NA	NA	NA
MW-180D3	Deep	G-179962	2621044.626	495576.601	1158.41	1158.757	-0.34	0.02	2.00	6.00	235.75	923.01	12/20	222.50	225.40	933.36	235.40	923.36	238.50	920.26	107.00	1051.76	SS
MW-180E	Intermediate	G-169169	2621012.997	495571.85	1155.22	1155.4	0.18	0.01	2.00	6.00	86.00	1069.40	20/40	74.00	76.00	1079.40	86.00	1069.40	86.00	1069.40	NA	NA	NA
OW-01	Intermediate	G-154545DA	2607922.86	499747.98	1161.41	1159.51	1.90	0.02	4.00	8.00	152.30	1007.21	10/20	51.80	62.00	1097.51	152.00	1007.51	152.50	1007.01	152.50	1007.01	SH
OW-02	Intermediate	G-154545CZ	2607882.80	499737.42	1161.57	1159.42	2.15	0.02	2.00	6.00	151.30	1008.12	12/25	52.10	61.00	1098.42	151.00	1008.42	151.50	1007.92	151.00	1008.42	SH
OW-03	Intermediate	G-154545CY	2607936.15	499790.42	1161.69	1159.38	2.31	0.02	2.00	6.00	152.00	1007.38	12/25	52.00	61.70	1097.68	151.70	1007.68	152.00	1007.38	152.00	1007.38	SH
OW-04	Intermediate	G-154545CX	2607936.23	499764.72	1161.75	1159.50	2.25	0.02	2.00	6.00	152.30	1007.20	12/25	50.20	62.00	1097.50	152.00	1007.50	152.60	1006.90	152.50	1007.00	SH
OW-05	Intermediate	NA	2634934.82	495184.29	1080.35	1078.11	2.24	0.01	4.00	8.00	39.00	1039.11	16/35	16.10	18.50	1059.61	38.50	1039.61	55.20	1022.91	39.00	1039.11	SS
OW-06	Intermediate	G-154545CW	2634884.33	495208.11	1079.22	1076.55	2.67	0.01	2.00	6.00	70.30	1006.25	16/35	49.90	60.00	1016.55	70.00	1006.55	122.00	954.55	39.50	1037.05	SS
OW-07	Intermediate	G-154545CV	2634884.15	495203.34	1079.06	1076.66	2.40	0.01	2.00	6.00	39.00	1037.66	16/35	16.50	18.70	1057.96	38.70	1037.96	39.50	1037.16	39.50	1037.16	SS

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
OW-08	Intermediate	G-154545FR	2634786.34	495194.19	1078.43	1075.64	2.79	0.01	2.00	6.00	39.70	1035.94	16/35	16.00	19.40	1056.24	39.40	1036.24	39.70	1035.94	39.70	1035.94	SS
OW-09	Intermediate	G-154545CU	2634937.80	495134.36	1080.96	1078.72	2.24	0.01	2.00	6.00	39.30	1039.42	16/35	16.40	19.00	1059.72	39.00	1039.72	40.00	1038.72	40.00	1038.72	SS
OW-10	Intermediate	G-154545CT	2635084.86	495206.73	1079.79	1076.84	2.95	0.01	2.00	5.63	39.50	1037.34	16/30	17.00	19.00	1057.84	39.00	1037.84	39.50	1037.34	39.00	1037.84	SS
OW-11	Intermediate	G-097847H	2635254.36	495167.81	1078.66	1075.87	2.79	0.01	2.00	7.00	43.00	1032.87	# 00	20.00	23.00	1052.87	43.00	1032.87	45.00	1030.87	44.00	1031.87	SS
OW-12	Intermediate	G-097847I	2636332.13	495279.48	1080.19	1077.53	2.66	0.01	2.00	7.00	41.00	1036.53	# 00	18.00	21.00	1056.53	41.00	1036.53	42.00	1035.53	41.00	1036.53	SS
OW-13	Intermediate	G-097847J	2634929.33	495121.80	1081.25	1078.32	2.93	0.01	2.00	7.00	38.50	1039.82	# 00	15.50	18.50	1059.82	38.50	1039.82	40.00	1038.32	39.00	1039.32	SS
OW-14	Intermediate	G-097847K	2634937.07	494987.77	1080.52	1077.67	2.85	0.01	2.00	7.00	39.00	1038.67	# 00	16.00	19.00	1058.67	39.00	1038.67	40.00	1037.67	39.00	1038.67	SS
OW-15	Intermediate	G-097847L	2634948.12	494788.06	1080.66	1078.15	2.51	0.01	2.00	7.00	41.00	1037.15	# 00	18.00	21.00	1057.15	41.00	1037.15	43.00	1035.15	42.00	1036.15	SS
OW-16	Intermediate	G-097847M	2633480.01	495159.25	1078.22	1075.13	3.09	0.01	2.00	7.00	38.00	1037.13	# 00	15.00	18.00	1057.13	38.00	1037.13	40.00	1035.13	39.00	1036.13	SS
OW-17	Shallow	G-097847A	2607999.94	499877.66	1161.58	1159.10	2.48	0.02	2.00	7.00	138.00	1021.10	# 1	45.00	48.00	1111.10	138.00	1021.10	150.50	1008.60	150.00	1009.10	SH
OW-18	Shallow	G-097847B	2608114.43	499884.02	1162.21	1159.80	2.41	0.02	2.00	7.00	138.00	1021.80	# 1	45.00	48.00	1111.80	138.00	1021.80	150.00	1009.80	149.50	1010.30	SS
OW-19	Shallow	G-097847C	2608709.98	499902.62	1172.28	1169.49	2.79	0.02	2.00	7.00	144.00	1025.49	# 1	46.00	49.00	1120.49	144.00	1025.49	150.00	1019.49	149.00	1020.49	SS
OW-20	Shallow	G-097847D	2607954.58	499696.42	1162.79	1160.12	2.67	0.02	2.00	7.00	139.00	1021.12	# 1	46.00	49.00	1111.12	139.00	1021.12	149.00	1011.12	148.00	1012.12	SS
OW-21	Shallow	G-097847E	2607936.83	499559.45	1159.81	1156.90	2.91	0.02	2.00	7.00	147.00	1009.90	# 1	44.00	47.00	1109.90	147.00	1009.90	155.00	1001.90	154.00	1002.90	SS
OW-22	Shallow	G-097847F	2608019.74	499355.14	1161.24	1158.59	2.65	0.02	2.00	7.00	140.00	1018.59	# 1	42.00	45.00	1113.59	140.00	1018.59	153.00	1005.59	152.50	1006.09	SS
OW-23	Intermediate	G-097847G	2607158.35	499656.44	1162.08	1158.88	3.20	0.02	2.00	7.00	130.00	1028.88	# 1	47.00	50.00	1108.88	130.00	1028.88	137.50	1021.38	136.50	1022.38	SS
OW-24	Shallow	G-154545CS	2629552.06	496984.50	1153.07	1149.56	3.51	0.02	2.00	7.88	100.00	1049.56	10/20	46.50	50.00	1099.56	95.00	1054.56	103.00	1046.56	101.00	1048.56	SH
OW-25	Shallow	G-154545CR	2629511.42	496932.08	1155.71	1152.33	3.38	0.02	2.00	7.88	110.00	1042.33	10/20	42.50	50.00	1102.33	105.00	1047.33	113.00	1039.33	111.00	1041.33	SH
OW-26	Shallow	G-154545CQ	2629214.17	496664.05	1148.64	1145.12	3.52	0.02	2.00	7.88	100.00	1045.12	10/20	45.50	50.00	1095.12	95.00	1050.12	103.00	1042.12	101.00	1044.12	SH
OW-27	Shallow	G-154545CP	2629582.05	496942.21	1153.30	1149.80	3.50	0.02	2.00	7.88	95.00	1054.80	10/20	45.00	50.00	1099.80	90.00	1059.80	100.00	1049.80	98.00	1051.80	SH
OW-28	Shallow	G-154545CO	2629581.52	496898.00	1153.81	1150.76	3.05	0.02	2.00	7.88	100.00	1050.76	10/20	47.00	50.00	1100.76	95.00	1055.76	103.00	1047.76	101.00	1049.76	SH
OW-30 (abandoned)	Shallow	G-154545CN	2629965.06	497303.88	1131.58	1128.69	2.89	0.02	2.00	7.88	85.00	1043.69	10/20	47.00	50.00	1078.69	80.00	1048.69	88.00	1040.69	87.00	1041.69	SH
OW-31	Shallow	G-154545CM	2624242.96	497898.99	1155.78	1152.35	3.43	0.02	2.00	7.88	105.00	1047.35	10/20	45.00	47.00	1105.35	97.00	1055.35	105.00	1047.35	104.00	1048.35	SS
OW-32	Shallow	G-154545CL	2624139.95	497845.07	1153.87	1151.31	2.56	0.02	2.00	7.88	100.00	1051.31	10/20	47.00	50.00	1101.31	95.00	1056.31	105.00	1046.31	104.00	1047.31	SH
OW-33	Shallow	G-154545FS	2623750.57	497669.79	1154.67	1152.38	2.29	0.02	2.00	7.88	113.39	1038.99	10/20	45.00	50.00	1102.38	110.00	1042.38	119.00	1033.38	118.50	1033.88	SS/SH
OW-34	Shallow	G-154545FT	2624320.18	497868.57	1154.70	1151.61	3.09	0.02	2.00	7.88	93.00	1058.61	10/20	44.00	48.00	1103.61	93.00	1058.61	102.50	1049.11	102.00	1049.61	SS/SH
OW-35	Shallow	G-154545CK	2624360.77	497738.45	1154.10	1150.66	3.44	0.02	2.00	7.88	100.00	1050.66	10/20	47.00	50.00	1100.66	95.00	1055.66	105.00	1045.66	104.00	1046.66	SS/SH
OW-36	Shallow	G-154545CJ	2624413.00	497337.59	1157.23	1153.96	3.27	0.02	2.00	7.88	110.00	1043.96	10/20	45.00	50.00	1103.96	105.00	1048.96	113.25	1040.71	113.00	1040.96	SS/SH
OW-37	Shallow	G-154545CI	2624838.27	498178.35	1157.36	1154.41	2.95	0.02	2.00	7.88	105.00	1049.41	10/20	45.00	50.00	1104.41	100.00	1054.41	109.00	1045.41	108.75	1045.66	SS/SH
OW-38	Shallow	G-154545CH	2621733.08	496294.86	1151.19	1147.66	3.53	0.02	2.00	7.88	90.00	1057.66	10/20	47.00	50.00	1097.66	90.00	1057.66	99.00	1048.66	98.00	1049.66	SS/SH
OW-39	Shallow	G-154545CG	2621620.02	496212.33	1151.39	1147.82	3.57	0.02	2.00	7.88	100.00	1047.82	10/20	46.00	50.00	1097.82	95.00	1052.82	98.00	1049.82	97.00	1050.82	SH
OW-40	Shallow	G-154545CF	2621297.36	495975.58	1157.66	1154.21	3.45	0.02	2.00	7.88	105.00	1049.21	10/20	47.00	50.00	1104.21	100.00	1054.21	105.00	1049.21	104.00	1050.21	SH
OW-41	Shallow	G-154545CE	2621816.64	496281.90	1150.22	1146.75	3.47	0.02	2.00	7.88	95.00	1051.75	10/20	47.00	50.00	1096.75	90.00	1056.75	97.00	1049.75	95.00	1051.75	SH
OW-42	Shallow	G-154545CD	2621899.70	496169.43	1151.21	1147.71	3.50	0.02	2.00	7.88	95.00	1052.71	10/20	47.00	50.00	1097.71	90.00	1057.71	97.00	1050.71	95.00	1052.71	SH
OW-43	Shallow	G-154545CC	2622135.38	495845.76	1156.74	1153.24	3.50	0.02	2.00	7.88	105.00	1048.24	10/20	47.00	50.00	1103.24	100.00	1053.24	105.00	1048.24	103.00	1050.24	SH
OW-44	Shallow	G-154545CB	2622302.63	496682.05	1147.84	1144.63	3.21	0.02	2.00	7.88	95.00	1049.63	10/20	47.00	50.00	1094.63	90.00	1054.63	95.00	1049.63	94.00	1050.63	SH
OW-45	Shallow	G-154545CA	2619203.17	494842.21	1152.47	1149.11	3.36	0.02	2.00	7.88	108.00	1041.11	10/20	41.00	44.00	1105.11	104.00	1045.11	117.00	1032.11	114.00	1035.11	SS

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
OW-46	Shallow	G-154545BZ	2619059.00	494783.36	1151.55	1148.16	3.39	0.02	2.00	7.88	100.00	1048.16	10/20	43.00	46.00	1102.16	96.00	1052.16	106.00	1042.16	105.50	1042.66	SS
OW-47	Shallow	G-154545BY	2618684.83	494630.88	1153.44	1149.85	3.59	0.02	2.00	7.88	100.00	1049.85	10/20	43.00	47.00	1102.85	97.00	1052.85	115.00	1034.85	100.00	1049.85	SH
OW-48	Shallow	G-154545BX	2619283.37	494800.47	1153.38	1150.11	3.27	0.02	2.00	7.88	114.50	1035.61	10/20	44.50	48.50	1101.61	113.50	1036.61	118.50	1031.61	118.00	1032.11	SS
OW-49	Shallow	G-154545BW	2619315.78	494671.87	1154.09	1150.81	3.28	0.02	2.00	7.88	110.50	1040.31	10/20	45.00	50.00	1100.81	110.00	1040.81	114.50	1036.31	114.00	1036.81	SS
OW-50	Shallow	G-154545BV	2619465.62	494300.16	1151.16	1147.70	3.46	0.02	2.00	7.88	97.50	1050.20	10/20	45.00	47.00	1100.70	97.00	1050.70	105.00	1042.70	104.50	1043.20	SS
OW-51	Shallow	G-154545BU	2619790.64	495096.02	1149.86	1146.50	3.36	0.02	2.00	7.88	105.00	1041.50	10/20	47.00	50.00	1096.50	100.00	1046.50	105.00	1041.50	NP	NP	NP
OW-52	Intermediate	G-141658V	2610585.60	493033.91	1107.14	1104.93	2.21	0.02	2.00	6.00	86.00	1018.93	10/20	53.65	55.65	1049.28	86.00	1018.93	86.40	1018.53	NA	NA	NA
OW-53	Intermediate	G-141658W	2610555.96	493019.67	1107.13	1104.92	2.21	0.02	2.00	6.00	82.00	1022.92	10/20	49.55	51.65	1053.27	82.00	1022.92	82.20	1022.72	NA	NA	NA
OW-54	Intermediate	G-141658X	2611356.56	493520.93	1115.39	1113.19	2.20	0.02	2.00	6.00	86.50	1026.69	10/20	54.10	56.15	1057.04	86.50	1026.69	86.70	1026.49	NA	NA	NA
OW-55	Intermediate	G-141658Y	2610821.53	492991.93	1107.05	1104.87	2.18	0.02	2.00	6.00	88.00	1016.87	10/20	55.17	57.17	1047.70	87.60	1017.27	88.00	1016.87	NA	NA	NA
OW-56	Intermediate	G-141658Z	2611642.99	493196.43	1112.15	1109.96	2.19	0.02	2.00	6.00	83.00	1026.96	10/20	50.67	52.67	1057.29	83.00	1026.96	83.50	1026.46	NA	NA	NA
OW-57	Intermediate	G-141658AA	2611768.76	493277.87	1114.84	1112.62	2.22	0.02	2.00	6.00	83.00	1029.62	10/20	50.65	52.65	1059.97	83.00	1029.62	83.40	1029.22	NA	NA	NA
OW-58	Intermediate	G-141658AB	2611366.56	493009.96	1109.00	1106.77	2.23	0.02	2.00	6.00	86.00	1020.77	10/20	53.60	55.67	1051.10	86.00	1020.77	86.50	1020.27	NA	NA	NA
OW-59	Intermediate	G-141658AC	2611579.97	493019.21	1110.50	1108.33	2.17	0.02	2.00	6.00	84.50	1023.83	10/20	52.17	54.17	1054.16	84.50	1023.83	84.90	1023.43	NA	NA	NA
OW-60	Intermediate	G-143845B	2627137.87	497440.67	1149.15	1146.66	2.49	0.01	2.00	8.50	101.00	1045.66	natural	76.00	81.00	1065.66	101.00	1045.66	101.00	1045.66	NA	NA	NA
OW-61	Intermediate	G-143845K	2627191.65	497571.53	1148.81	1146.51	2.30	0.01	2.00	8.50	101.30	1045.21	natural	75.00	81.00	1065.51	101.30	1045.21	101.30	1045.21	NA	NA	NA
OW-62	Intermediate	G-143845L	2627351.22	497954.27	1151.40	1149.12	2.28	0.01	2.00	8.50	101.30	1047.82	natural	75.80	81.00	1068.12	101.30	1047.82	101.30	1047.82	NA	NA	NA
OW-63	Intermediate	G-143845M	2627527.96	497841.89	1152.90	1150.58	2.32	0.01	2.00	8.50	101.30	1049.28	natural	75.80	81.00	1069.58	101.30	1049.28	101.30	1049.28	NA	NA	NA
OW-64	Intermediate	G-143845N	2627299.94	497308.27	1148.12	1145.62	2.50	0.01	2.00	8.50	101.30	1044.32	natural	75.00	81.00	1064.62	101.30	1044.32	101.30	1044.32	NA	NA	NA
OW-65	Intermediate	G-143845O	2627672.94	497146.26	1147.36	1144.93	2.43	0.01	2.00	8.50	101.30	1043.63	natural	76.00	81.00	1063.93	101.30	1043.63	101.30	1043.63	NA	NA	NA
OW-66	Intermediate	G-143845P	2622938.07	497314.20	1147.09	1144.70	2.39	0.01	2.00	8.50	86.00	1058.70	natural	66.00	71.00	1073.70	86.00	1058.70	86.00	1058.70	NA	NA	NA
OW-67	Intermediate	G-143845Q	2622730.72	497150.23	1149.64	1147.31	2.33	0.01	2.00	8.50	86.00	1061.31	natural	67.50	71.00	1076.31	86.00	1061.31	86.00	1061.31	NA	NA	NA
OW-68	Shallow	G-143845R	2622418.58	496526.17	1146.89	1144.49	2.40	0.01	2.00	8.50	77.20	1067.29	natural	58.00	62.20	1082.29	77.20	1067.29	77.20	1067.29	NA	NA	NA
OW-69	Intermediate	G-143845S	2623044.57	497134.81	1147.02	1144.82	2.20	0.01	2.00	8.50	86.00	1058.82	natural	66.00	71.00	1073.82	86.00	1058.82	86.00	1058.82	NA	NA	NA
OW-70	Intermediate	G-143845T	2623340.91	496845.85	1146.14	1143.72	2.42	0.01	2.00	8.50	86.00	1057.72	natural	66.00	71.00	1072.72	86.00	1057.72	86.00	1057.72	NA	NA	NA
OW-71	Intermediate	G-143845U	2623796.31	497474.10	1158.23	1155.75	2.48	0.01	2.00	8.50	109.00	1046.75	natural	73.50	78.50	1077.25	108.50	1047.25	109.00	1046.75	NA	NA	NA
OW-72	Intermediate	G-143845V	2620345.78	495292.98	1156.05	1153.61	2.44	0.01	2.00	8.50	97.00	1056.61	natural	74.00	77.00	1076.61	97.00	1056.61	97.00	1056.61	NA	NA	NA
OW-73	Intermediate	G-143845W	2620217.61	495239.66	1157.61	1154.97	2.64	0.01	2.00	8.50	97.00	1057.97	natural	73.00	77.00	1077.97	97.00	1057.97	97.00	1057.97	NA	NA	NA
OW-74	Shallow	G-143845X	2619854.18	494895.06	1148.38	1146.17	2.21	0.01	2.00	8.50	85.80	1060.37	natural	62.00	65.80	1080.37	85.80	1060.37	86.00	1060.17	NA	NA	NA
OW-75	Intermediate	G-143845Y	2620487.46	495139.42	1154.51	1152.14	2.37	0.01	2.00	8.50	97.00	1055.14	natural	74.00	77.00	1075.14	97.00	1055.14	97.00	1055.14	NA	NA	NA
OW-76	Intermediate	G-143845Z	2620657.85	494777.17	1148.68	1146.27	2.41	0.01	2.00	8.50	97.00	1049.27	natural	74.00	77.00	1069.27	97.00	1049.27	97.00	1049.27	NA	NA	NA
OW-77	Shallow	G-143845AA	2621414.78	495808.38	1157.82	1155.32	2.50	0.01	2.00	8.50	85.00	1070.32	natural	61.80	65.00	1090.32	85.00	1070.32	85.00	1070.32	NA	NA	NA
OW-78	Intermediate	G-143845AB	2609111.28	499977.47	1163.94	1161.86	2.08	0.01	2.00	8.50	137.00	1024.86	natural	87.80	97.00	1064.86	137.00	1024.86	137.00	1024.86	NA	NA	NA
OW-79	Intermediate	G-143845AC	2608989.60	499915.27	1167.29	1167.59	-0.30	0.01	2.00	8.50	135.50	1032.09	natural	89.00	95.50	1072.09	135.50	1032.09	137.00	1030.59	NA	NA	NA
OW-80	Shallow	G-143845AD	2608751.82	499731.59	1169.30	1166.93	2.37	0.01	2.00	8.50	113.00	1053.93	natural	63.60	73.00	1093.93	113.00	1053.93	113.00	1053.93	NA	NA	NA
OW-81	Intermediate	G-143845AE	2609233.49	499803.10	1164.13	1161.98	2.15	0.01	2.00	8.50	137.00	1024.98	natural	89.00	97.00	1064.98	137.00	1024.98	137.20	1024.78	NA	NA	NA
OW-82	Intermediate	G-143845AF	2609366.00	499415.33	1169.05	1166.76	2.29	0.01	2.00	8.50	137.00	1029.76	natural	87.90	97.00	1069.76	137.00	1029.76	137.00	1029.76	NA	NA	NA

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
OW-83	Intermediate	G-143845AG	2609754.89	500075.01	1173.20	1170.94	2.26	0.01	2.00	8.50	137.10	1033.84	natural	89.00	97.00	1073.94	137.10	1033.84	137.10	1033.84	NA	NA	NA
OW-89	Intermediate	G-143845AH	2632605.05	496433.60	1092.56	1092.96	-0.40	0.01	2.00	8.50	47.30	1045.66	natural	34.50	37.30	1055.66	47.30	1045.66	47.80	1045.16	NA	NA	NA
OW-90	Intermediate	G-153176	2625244.14	498690.84	1153.30	1152.00	2.72	0.01	2.00	8.50	103.00	1049.00	natural	83.00	88.00	1064.00	103.00	1049.00	103.00	1049.00	NA	NA	NA
OW-91 (Abandoned)	Intermediate	G-151349	2625889.66	497888.61	1150.12	1147.35	2.84	0.01	2.00	8.00	105.00	1042.35	natural	73.00	85.00	1062.35	105.00	1042.35	105.00	1042.35	NA	NA	NA
OW-92	Intermediate	G-152715A	2625155.78	498583.33	1154.30	1151.63	2.67	0.01	2.00	8.00	104.10	1047.53	natural	85.00	89.10	1062.53	104.10	1047.53	104.10	1047.53	NA	NA	NA
OW-93	Intermediate	G-152615I	2625291.12	498721.87	1156.87	1153.90	2.97	0.01	2.00	8.50	97.00	1056.90	natural	83.00	87.00	1066.90	97.00	1056.90	97.00	1056.90	NA	NA	NA
OW-94	Intermediate	G-152715B	2625433.51	498611.46	1153.21	1150.48	2.73	0.01	2.00	8.00	105.00	1045.48	natural	84.00	90.00	1060.48	105.00	1045.48	105.00	1045.48	NA	NA	NA
OW-95	Intermediate	G-152715C	2625755.73	498358.54	1150.04	1147.57	2.47	0.01	2.00	8.00	104.00	1043.57	natural	85.00	89.00	1058.57	104.00	1043.57	104.00	1043.57	NA	NA	NA
OW-96	Intermediate	G-151351	2628354.01	496783.72	1146.64	1143.33	3.25	0.01	2.00	8.00	94.00	1049.33	natural	66.00	74.00	1069.33	94.00	1049.33	94.00	1049.33	NA	NA	NA
OW-97	Intermediate	G-152615A	2628422.98	496909.51	1146.21	1143.71	2.50	0.01	2.00	8.50	103.00	1040.71	natural	56.00	83.00	1060.71	103.00	1040.71	103.00	1040.71	NA	NA	NA
OW-98	Intermediate	G-152615B	2628617.39	497268.67	1150.67	1148.38	2.29	0.01	2.00	8.50	104.00	1044.38	natural	80.00	84.00	1064.38	104.00	1044.38	104.00	1044.38	NA	NA	NA
OW-99	Intermediate	G-152615C	2628520.49	496667.07	1146.97	1144.12	2.85	0.01	2.00	8.50	99.50	1044.62	natural	99.50	79.50	1064.62	99.50	1044.62	99.50	1044.62	NA	NA	NA
OW-100	Intermediate	G-152615D	2628885.60	496489.50	1147.39	1144.96	2.43	0.01	2.00	8.50	98.00	1046.96	natural	74.00	78.00	1066.96	98.00	1046.96	98.00	1046.96	NA	NA	NA
OW-101	Intermediate	G-151347	2622907.33	509987.52	1168.26	1168.27	-0.01	0.01	2.00	8.00	109.00	1059.27	natural	68.00	79.00	1089.27	109.00	1059.27	109.00	1059.27	NA	NA	NA
OW-102	Intermediate	G-152615E	2623025.62	510070.30	1166.49	1166.47	0.02	0.01	2.00	8.50	109.50	1056.97	natural	73.00	79.00	1087.47	109.50	1056.97	109.50	1056.97	NA	NA	NA
OW-103	Intermediate	G-152615F	2623370.57	510291.27	1169.13	1169.11	0.02	0.01	2.00	8.50	112.00	1057.11	natural	76.00	82.00	1087.11	112.00	1057.11	112.00	1057.11	NA	NA	NA
OW-104	Intermediate	G-152615G	2622969.37	509760.45	1167.73	1167.73	0.00	0.01	2.00	8.50	109.00	1058.73	natural	73.00	79.00	1088.73	109.00	1058.73	109.00	1058.73	NA	NA	NA
OW-105	Intermediate	G-152615H	2623170.60	509450.30	1165.40	1165.34	0.06	0.01	2.00	8.50	114.00	1051.34	natural	79.00	84.00	1081.34	114.00	1051.34	114.00	1051.34	NA	NA	NA
OW-106	Intermediate	G-164392	2611437.33	493518.06	1116.108	1113.437	2.67	0.01	2.00	8.25	88.50	1024.94	natural	54.90	58.50	1054.94	88.50	1024.94	88.50	1024.94	NA	NA	NA
OW-107	Intermediate	G-164393	2611686.03	493492.60	1116.009	1113.732	2.28	0.01	2.00	8.25	89.00	1024.73	natural	44.10	59.00	1054.73	89.00	1024.73	89.00	1024.73	NA	NA	NA
OW-108	Intermediate	G-164391	2611480.69	493520.70	1115.825	1113.26	2.56	0.01	2.00	8.25	92.34	1020.92	natural	44.00	62.34	1050.92	92.34	1020.92	92.34	1020.92	NA	NA	NA
OW-109	Deep	G-169166	2634943.10	495096.30	1077.58	1075.11	2.47	0.02	2.00	6.00	115.00	960.11	10/20	102.00	105.00	970.11	115.00	960.11	115.00	960.11	115.00	960.11	SS
OW-110	Intermediate	G-169167	2634942.69	495106.01	1077.52	1075.01	2.51	0.02	2.00	6.00	75.00	1000.01	10/20	62.10	65.00	1010.01	75.00	1000.01	75.00	1000.01	NA	NA	NA
OW-111	Intermediate	G-175941	2620978.97	495642.20	1156.53	1157.245	-0.71	0.01	2.00	6.00	108.00	1048.53	natural	85.00	87.70	1068.83	107.70	1048.83	115.00	1041.53	106.00	NA	SS
OW-112	Intermediate	G-178047	2620948.75	495616.71	1157.25	1157.601	-0.36	0.01	2.00	6.00	106.00	1051.25	natural	84.00	85.75	1071.50	105.75	1051.50	115.00	1042.25	106.00	1051.25	SS
OW-113	Intermediate	G-178048	2620861.85	495545.09	1157.54	1158.10	-0.56	0.01	2.00	6.00	105.90	1052.20	natural	84.00	85.60	1072.50	105.60	1052.50	115.00	1043.10	106.00	1052.10	SS
OW-114R	Deep	G-178060	2621051.50	495691.94	1157.59	1157.724	-0.13	0.02	2.00	6.00	238.30	919.29	10/20	222.00	228.00	929.59	238.00	919.59	239.00	918.59	238.20	919.39	SH
OW-115	Deep	G-178061	2621041.01	495690.07	1157.35	1157.465	-0.12	0.02	2.00	6.00	176.60	980.75	10/20	162.00	166.30	991.05	176.30	981.05	177.50	979.85	NA	NA	NA
OW-116	Deep	G-178046	2621032.89	495685.13	1157.10	1157.257	-0.16	0.02	2.00	6.00	136.00	1021.10	10/20	123.00	125.60	1031.50	135.50	1021.60	136.00	1021.10	NA	NA	NA
OW-117	Deep	G-179955	2627120.29	497394.59	1148.70	1146.70	2.01	0.02	2.00	6.00	208.80	937.90	12/20	196.00	198.60	948.10	208.60	938.10	215.00	931.70	99.20	1047.50	SS
OW-118	Deep	G-179969	2627123.41	497402.93	1148.49	1146.66	1.83	0.02	2.00	6.00	175.00	971.66	12/20	162.80	164.70	981.96	174.70	971.96	175.00	971.66	NA	NA	NA
OW-119	Deep	G-179957	2627126.50	497411.48	1148.64	1146.67	1.97	0.02	2.00	6.00	129.00	1017.67	12/20	116.50	118.80	1027.87	128.80	1017.87	129.00	1017.67	NA	NA	NA
OW-120	Deep	G-179953	2611545.222	493538.694	1116.09	1114.10	2.00	0.02	2.00	6.00	215.20	898.90	12/20	202.50	204.90	909.20	214.90	899.20	219.00	895.10	90.00	1024.10	SS
OW-121	Deep	G-179956	2611534.357	493536.922	1115.56	1113.61	1.94	0.02	2.00	6.00	168.95	944.66	12/20	156.00	158.75	954.86	168.75	944.86	170.00	943.61	NA	NA	NA
OW-122	Deep	G-179968	2611526.069	493535.646	1116.11	1114.07	2.03	0.02	2.00	6.00	122.20	991.87	12/20	110.00	112.00	1002.07	122.00	992.07	122.20	991.87	NA	NA	NA
TH-EW-12	Intermediate	G-154545FU	2610738.32	493102.14	1107.37	1105.17	2.20	0.02	2.00	6.00	87.50	1017.67	10/20	51.50	57.17	1048.00	87.50	1017.67	93.00	1012.17	90.50	1014.67	SH
TH-EW-13	Intermediate	G-154545FV	2611511.12	493072.65	1111.04	1108.85	2.19	0.02	2.00	6.00	84.83	1024.02	10/20	52.17	53.50	1055.35	83.83	1025.02	84.50	1024.35	84.00	1024.85	SH

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
TH-EW-14R1	Intermediate	G-152958A	2625268.99	498721.42	1156.72	1154.02	0.85	0.01	3.00	8.00	103.00	1154.02	natural	82.00	88.00	1066.02	103.00	1051.02	103.00	1051.02	103.00	1051.02	SS
TH-EW-14R2	Intermediate	G-152958B	2625871.91	497850.00	1151.08	1147.74	3.15	0.01	3.00	8.00	105.00	1147.74	natural	52.00	85.00	1062.74	105.00	1042.74	105.50	1042.24	105.00	1042.74	SS
TH-EW-15	Intermediate	G-151348	2622870.43	509960.21	1172.51	1168.34	4.17	0.01	3.00	8.00	109.00	1168.34	natural	41.00	79.00	1089.34	109.00	1059.34	109.00	1059.34	109.00	1059.34	SS
TH-EW-16	Intermediate	G-151352	2628310.33	496736.54	1147.71	1144.38	3.90	0.01	3.00	8.00	99.00	1045.38	natural	53.00	74.00	1070.38	99.00	1045.38	99.00	1045.38	99.00	1059.34	SS
TH-EW-17	Intermediate	G-164390	2611500.546	493522.799	1116.449	1114.03	2.42	0.01	4.00	8.25	89.00	1114.03	natural	40.00	59.00	1055.03	89.00	1025.03	89.00	1025.03	NP	NP	NP
TH-EW-18	Intermediate	G-175940	2621024.91	495678.23	1156.55	1156.85	-0.30	0.01	4.00	8.00	108.30	1156.85	natural	82.00	88.00	1068.85	108.00	1048.85	110.50	1046.35	107.00	NA	SS
PZ-01	Intermediate	NA	2632385.13	499049.59	1116.38	1114.43	1.95	0.01	1.00	2.60	67.80	1046.63	20/40	45.00	47.80	1066.63	67.80	1046.63	69.00	1045.43	NP	NP	NP
PZ-02	Intermediate	NA	2631558.74	499022.44	1130.80	1128.98	1.82	0.01	1.00	3.13	78.90	1050.08	20/40	56.00	58.70	1070.28	78.70	1050.28	80.00	1048.98	NP	NP	NP
PZ-03 (Abandoned)	Shallow	NA	2633505.55	501788.92	1087.47	1085.73	1.74	0.01	1.00	3.13	30.10	1055.63	20/40	8.00	10.10	1075.63	30.10	1055.63	31.00	1054.73	NP	NP	NP
PZ-04 (Abandoned)	Shallow	NA	2636059.39	501690.72	1086.65	1084.66	1.99	0.01	1.00	3.13	33.70	1050.96	20/40	11.70	13.70	1070.96	33.70	1050.96	34.00	1050.66	NP	NP	NP
PZ-05 (Abandoned)	Shallow	NA	2639988.15	502024.73	1085.66	1084.19	1.47	0.01	1.00	3.13	33.90	1050.29	20/40	11.90	13.90	1070.29	33.90	1050.29	35.00	1049.19	NP	NP	NP
PZ-06 (Abandoned)	Shallow	NA	2636834.71	504539.69	1088.42	1086.41	2.01	0.01	1.00	3.13	29.70	1056.71	20/40	7.70	9.70	1076.71	29.70	1056.71	31.00	1055.41	NP	NP	NP
PZ-11	Deep	G-157081	2633021.33	501935.48	1097.61	1097.92	-0.31	0.02	2.00	6.00	60.00	1037.92	10/20	53.50	55.00	1042.92	60.00	1037.92	65.00	1032.92	NP	NP	NP
PZ-12	Deep	G-157082	2632569.72	499118.82	1105.36	1105.72	-0.36	0.02	2.00	6.00	68.00	1037.72	10/20	61.00	63.00	1042.72	68.00	1037.72	70.00	1035.72	NP	NP	SS
PZ-13	Intermediate	G-157083	2633396.43	499150.91	1085.78	1086.09	-0.31	0.02	2.00	6.00	40.00	1046.09	10/20	33.00	35.00	1051.09	40.00	1046.09	40.00	1046.09	NP	NP	NP
PZ-14	Deep	G-157084	2633403.55	499154.07	1084.94	1085.31	-0.37	0.02	2.00	6.00	54.00	1031.31	10/20	47.00	49.00	1036.31	54.00	1031.31	57.00	1028.31	NP	NP	SS
EW-1 (Abandoned)	Intermediate	G-100738	2634923.15	495188.01	1079.43	1078.08	1.35	0.04	12.00	24.00	39.00	1039.08	80/120	18.90	23.00	1055.08	39.00	1039.08	39.00	1039.08	39.00	1039.08	SS
EW-1R	Shallow	G-100738	2634925.77	495204.36	1079.38	1078.31	1.07	0.03	12.00	24.00	42.50	1035.81	80/120	20.00	24.50	1054.88	40.50	1038.88	42.50	1035.81	43.50	1034.81	SS
EW-2	Intermediate	G-127291A	2632445.94	496479.68	1104.28	1101.00	3.28	0.05	12.00	24.00	57.85	1043.15	# 1	20.25	46.85	1054.15	56.85	1044.15	58.80	1042.20	58.00	1043.00	SH
EW-3	Intermediate	G-127291B	2629583.28	497009.50	1150.01	1148.00	2.01	0.04	12.00	24.00	103.04	1044.96	NA	58.29	87.04	1060.96	102.04	1045.96	103.80	1044.20	102.80	1045.20	SS
EW-4	Intermediate	G-127291C	2627116.43	497384.83	1148.65	1147.2	1.47	0.02	12.00	24.00	102.04	1045.15	NA	51.75	82.03	1066.62	101.04	1047.62	102.30	1044.89	102.80	1044.39	SS
EW-5	Intermediate	G-127291D	2624295.95	497923.55	1153.98	1151.00	2.98	0.02	12.00	24.00	103.10	1047.90	NA	51.30	81.10	1069.90	102.10	1048.90	104.50	1046.50	103.50	1047.50	SH
EW-6	Intermediate	G-127291E	2622893.13	497269.21	1147.98	1144.00	3.98	0.04	12.00	24.00	87.30	1056.70	NA	42.90	71.30	1072.70	86.30	1057.70	89.50	1054.50	88.50	1055.50	SS
EW-7	Intermediate	G-127291F	2621782.09	496330.98	1148.35	1147.25	1.10	0.02	12.00	24.00	92.21	1055.04	NA	47.21	76.10	1072.25	91.10	1057.25	92.21	1055.04	91.50	1055.75	SS
EW-8	Intermediate	G-100739	2607941.21	499754.08	1160.39	1159.03	1.36	0.04	12.00	24.00	152.00	1007.03	80/120	59.50	72.00	1087.03	152.00	1007.03	156.00	1003.03	152.00	1007.03	SH
EW-9	Intermediate	G-127291G	2620401.74	495320.21	1154.62	1152.95	1.67	0.04	12.00	24.00	99.43	1053.52	NA	49.41	78.33	1074.62	98.33	1056.29	99.43	1053.52	103.00	1049.95	SS
EW-10	Intermediate	G-127291H	2619241.53	494857.11	1150.64	1148.00	2.64	0.02	12.00	24.00	99.77	1048.23	NA	45.00	78.77	1069.23	98.77	1049.23	104.00	1044.00	99.50	1048.50	SS
FEW-11	Intermediate	G-127291I	2609168.86	499999.37	1162.70	1161.84	0.86	0.05	12.00	24.00	138.44	1023.40	NA	42.48	93.44	1069.26	138.44	1024.26	138.44	1023.40	139.00	1022.84	SS
EW-12	Intermediate	G-140506A	2610717.96	493105.58	1113.65	1111.04	2.61	0.03	12.00	24.00	96.69	1014.35	10/20	10.00	65.89	1047.76	95.89	1017.76	98.50	1012.54	96.69	1014.35	SH
EW-13 (Abandoned)	Intermediate	G-140506B	2611520.73	493092.65	NA	1109.39		0.03	12.00	24.00	83.00	1026.39	10/20	13.00	53.00	1056.39	83.00	1026.39	85.00	1024.39	84.00	1025.39	SH
FEW-14	Intermediate	G-153001	2625285.16	498738.33	1156.17	1155.26	0.91	0.03	12.00	24.00	104.09	1051.17	#2	56.80	88.09	1068.08	104.09	1052.08	104.09	1051.17	105.00	1050.26	SS
FEW-15	Intermediate	G-153002	2622861.01	509956.02	1169.84	1168.98	0.86	0.03	12.00	24.00	110.14	1058.84	#0	40.70	80.14	1089.70	109.14	1060.70	110.14	1058.84	109.00	1059.98	SS

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
EW-16	Intermediate	G-153003	2628322.89	496730.64	1146.97	1144.95	2.02	0.03	12.00	24.00	102.00	1042.95	#0	55.60	80.00	1064.95	100.00	1044.95	102.00	1042.95	99.00	1045.95	SS
EW-17	Intermediate	G-167539	2611514.794	493535.902	1115.90	1114.46	1.44	0.03	12.00	24.00	91.40	1023.06	#0	54.02	59.56	1056.34	89.56	1026.34	91.00	1023.46	94.16	1020.30	SH
EW-18	Intermediate	G-178591	2621010.137	495666.823	1159.14	1156.93	2.21	0.03	12.00	24.00	109.00	1047.93	12/20	83.50	88.00	1071.14	108.00	1051.14	110.00	1046.93	107.00	1049.93	SS
NLF-MW01S	Shallow	NA	2627482.80	508537.55	1151.59	1148.91	2.68	0.01	2.00	8.50	44.70	1104.21	10/30	33.00	34.40	1114.51	44.40	1104.51	46.00	1102.91	NP	NP	NP
NLF-MW01I	Intermediate	NA	2627492.64	508537.67	1151.47	1148.90	2.57	0.01	2.00	8.50	64.70	1084.20	10/30	51.50	54.40	1094.50	64.40	1084.50	66.00	1082.90	63.20	1085.70	SH
NLF-MW02S	Shallow	NA	2627651.96	508654.32	1146.71	1144.07	2.64	0.01	2.00	8.50	40.30	1103.77	10/30	27.60	30.00	1114.07	40.00	1104.07	41.20	1102.87	NP	NP	NP
NLF-MW02I	Intermediate	NA	2627655.27	508651.08	1146.66	1143.97	2.69	0.01	2.00	8.50	58.50	1085.47	10/30	45.30	48.20	1095.77	58.20	1085.77	59.30	1084.67	57.20	1086.77	SH
NLF-MW03S	Shallow	NA	2627718.61	508563.28	1149.38	1146.67	2.71	0.01	2.00	8.50	43.70	1102.97	10/30	31.60	33.40	1113.27	43.40	1103.27	44.40	1102.27	NP	NP	NP
NLF-MW03I	Intermediate	NA	2627718.46	508576.40	1148.89	1146.21	2.68	0.01	2.00	8.50	62.00	1084.21	10/30	49.00	52.40	1093.81	62.40	1083.81	65.00	1081.21	62.00	1084.21	SH
NLF-MW04S	Shallow	NA	2627719.69	508471.47	1151.54	1148.83	2.71	0.01	2.00	8.50	44.90	1103.93	10/30	32.40	34.60	1114.23	44.60	1104.23	46.00	1102.83	NP	NP	NP
NLF-MW04I	Intermediate	NA	2627719.58	508481.31	1151.22	1148.63	2.59	0.01	2.00	8.50	56.80	1091.83	10/30	43.00	46.50	1102.13	56.50	1092.13	58.00	1090.63	56.00	1092.63	SH
NLF-MW05S	Shallow	NA	2627687.94	508382.55	1149.23	1146.51	2.72	0.01	2.00	8.50	44.50	1102.01	10/30	32.30	34.20	1112.31	44.20	1102.31	44.90	1101.61	NP	NP	NP
NLF-MW05I	Intermediate	NA	2627691.34	508372.75	1148.65	1146.03	2.62	0.01	2.00	8.50	54.40	1091.63	10/30	42.20	44.20	1101.83	54.20	1091.83	60.00	1086.03	59.70	1086.33	SH
NLF-MW06S	Shallow	NA	2627629.12	508365.46	1150.94	1148.24	2.70	0.01	2.00	8.50	45.50	1102.74	10/30	33.00	35.20	1113.04	42.20	1106.04	46.00	1102.24	NP	NP	NP
NLF-MW06I	Intermediate	NA	2627639.03	508359.02	1150.51	1147.88	2.63	0.01	2.00	8.50	62.70	1085.18	10/30	50.00	52.40	1095.48	62.40	1085.48	64.00	1083.88	62.10	1085.78	SH
NLF-MW07S	Shallow	NA	2627553.24	508403.93	1152.38	1149.79	2.59	0.01	2.00	8.50	48.30	1101.49	10/30	35.00	38.00	1111.79	48.00	1101.79	49.30	1100.49	NP	NP	NP
NLF-MW07I	Intermediate	NA	2627559.79	508404.00	1152.38	1149.72	2.59	0.01	2.00	8.50	65.60	1084.12	10/30	52.70	55.30	1094.42	65.30	1084.42	66.30	1083.42	64.70	1085.02	SH
NPR-MW01S	Shallow	NA	2626816.17	504709.21	1150.69	1148.19	2.51	0.01	2.00	8.50	56.30	1091.89	10/30	43.80	46.10	1102.09	56.10	1092.09	56.90	1091.29	NP	NP	NP
NPR-MW01I	Intermediate	NA	2626822.73	504709.28	1150.61	1147.90	2.71	0.01	2.00	8.50	91.40	1056.50	natural	80.00	81.10	1066.80	91.10	1056.80	91.50	1056.40	89.00	1058.90	SS
NPR-MW02S	Shallow	NA	2626883.56	504555.87	1149.23	1146.63	2.75	0.01	2.00	8.50	55.30	1091.33	10/30	43.00	45.10	1101.53	55.10	1091.53	56.30	1090.33	NP	NP	NP
NPR-MW02I	Intermediate	NA	2626890.12	504555.94	1149.17	1146.42	2.60	0.01	2.00	8.50	90.70	1055.72	natural	45.50	80.40	1066.02	90.40	1056.02	91.50	1054.92	89.80	1056.62	SS
BAZE-EW-01	Shallow	NA	2616100.05	502126.72	1163.30	NA	NA	0.02	6.00	10.00	75.50	NA	16/30	49.00	53.00	NA	73.00	NA	75.50	NA	NP	NP	NP
BAZE-IW-01	Shallow	NA	2616088.45	502117.03	1163.06	NA	NA	0.02	4.00	8.00	73.00	NA	16/30	49.00	53.00	NA	73.00	NA	75.00	NA	NP	NP	NP
BAZE-IW-02	Shallow	NA	2616111.13	502135.81	1163.49	NA	NA	0.02	4.00	8.00	73.00	NA	16/30	49.00	53.00	NA	73.00	NA	75.00	NA	NP	NP	NP
BAZE-MW-01	Shallow	NA	2616042.51	502209.13	1165.18	NA	NA	0.01	2.00	8.25	78.00	NA	20/40	48.00	55.00	NA	75.00	NA	78.00	NA	NP	NP	NP
BAZE-MW-02	Shallow	NA	2616116.85	502075.19	1163.66	NA	NA	0.01	2.00	8.25	73.00	NA	20/40	47.00	53.00	NA	73.00	NA	75.00	NA	NP	NP	NP
BAZE-MW-03	Shallow	NA	2616128.60	502084.65	1163.66	NA	NA	0.01	2.00	8.25	73.00	NA	20/40	47.00	53.00	NA	73.00	NA	75.00	NA	NP	NP	NP
BAZE-MW-04	Shallow	NA	2616140.55	502094.05	1163.65	NA	NA	0.01	2.00	8.25	73.00	NA	20/40	47.00	53.00	NA	73.00	NA	75.00	NA	NP	NP	NP
BAZE-MW-05	Shallow	NA	2616133.34	502029.81	1165.35	NA	NA	0.01	2.00	8.25	78.00	NA	20/40	52.00	58.00	NA	78.00	NA	78.00	NA	NP	NP	NP
BAZE-MW-06	Shallow	NA	2616144.84	502040.89	1165.82	NA	NA	0.01	2.00	8.25	76.00	NA	20/40	50.00	56.00	NA	76.00	NA	78.00	NA	NP	NP	NP
BAZE-MW-07	Shallow	NA	2616156.22	502050.74	1167.10	NA	NA	0.01	2.00	8.25	79.00	NA	20/40	53.00	59.00	NA	79.00	NA	79.00	NA	NP	NP	NP
BAZE-MW-08	Shallow	NA	2616190.24	501947.88	1166.37	NA	NA	0.01	2.00	8.25	76.00	NA	20/40	50.00	56.00	NA	76.00	NA	78.00	NA	NP	NP	NP
BAZE-MW-09	Shallow	NA	2616201.66	501956.91	1166.81	NA	NA	0.01	2.00	8.25	76.00	NA	20/40	50.00	56.00	NA	76.00	NA	78.00	NA	NP	NP	NP
BAZE-MW-10	Shallow	NA	2616213.33	501967.47	1166.96	NA	NA	0.01	2.00	8.25	76.00	NA	20/40	50.00	56.00	NA	76.00	NA	76.00	NA	NP	NP	NP
BAZE-MW-11	Shallow	NA	2616437.05	501626.79	1161.20	NA	NA	0.01	2.00	8.25	72.00	NA	20/40	46.00	52.00	NA	72.00	NA	75.00	NA	NP	NP	NP
GCW-2 (Abandoned)	Shallow	NA	2613252.36	506039.55	1163.17	NA	NA	0.02	6.00	16.00	60.00	NA	20/40	50.00	NA	NA	60.00	NA	62.00	NA	NP	NP	NP

Table 2.1 (Continued)
Monitoring Well and Observation Well Construction Details
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

ID	Aquifer Designation	DNR Registration Number	Easting (NAD83)	Northing (NAD 83)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Stick-Up	Slot Size	Well Diameter (inches)	Boring Diameter (inches)	Bottom of Well		Filter Pack Size	Top of Filter Pack (ft bgs)	Top of Screen		Bottom of Screen		Bottom of Boring		Top of Bedrock		Bedrock Type
											Depth (ft bgs)	Elev-ation (ft NAVD88)			Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	Depth (ft bgs)	Elev-ation (ft NAVD88)	
GCW-2 PZ N (Abandoned)	Shallow	NA	2613252.84	506040.07	1162.59	NA	NA	0.03	2.00	16.00	37.00	NA	16/30	12.00	35.00	NA	37.00	NA	62.00	NA	NP	NP	NP
GCW-2 PZ S (Abandoned)	Shallow	NA	2613252.39	506039.09	1162.56	NA	NA	0.02	2.00	16.00	56.00	NA	20/40	47.10	54.00	NA	56.00	NA	62.00	NA	NP	NP	NP
GCW-1	Intermediate	NA	2622991.70	511987.67	1167.69	NA	NA	0.02	12.00	24.00	108.00	NA	20/40	89.00	NA	NA	108.00	NA	110.30	NA	NP	NP	NP
GCW-1 PZ N	Shallow	NA	2622990.98	511987.59	1166.89	NA	NA	0.02	2.00	24.00	66.00	NA	20/40	39.00	64.00	NA	66.00	NA	110.30	NA	NP	NP	NP
GCW-1 PZ S	Intermediate	NA	2622992.24	511987.34	1166.93	NA	NA	0.02	2.00	24.00	99.50	NA	4/8	85.60	97.50	NA	99.50	NA	110.30	NA	NP	NP	NP
MW-06-30A	Intermediate	NA	2628947.80	514835.86	1199.31	1197.00	2.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-06-30B	Shallow	NA	2628942.36	514835.12	1199.37	1197.04	2.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-06-31A	Intermediate	NA	2633854.92	509717.60	1149.98	1147.74	2.24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-06-31B	Shallow	NA	2633861.66	509718.75	1150.02	1147.66	2.36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

BAZE = Biologically Active Zone Enhancement
bgs = below ground surface
NDNR - Nebraska Department of Natural Resources
EW = extraction well
FEW = focused extraction well
ft = feet
GCW = groundwater circulation well
MW = monitoring well
NA = information not available
NAD = North American Datum
NGVD = National Geodetic Vertical Datum
NLF = University of Nebraska Landfill
NP = top of bedrock was not penetrated
OW = observation well
PZ = piezometer
SH = shale
SS = sandstone
TH = test hole

Table 2.2
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
ADS-003	2604191.65	522957.92	1201.93	5	1196.9	NA	NA	NA	NA	NA
ADS-005	2604579.81	522582.63	1199.11	17.5	1181.6	NA	NA	NA	NA	NA
ADS-022	2604081.81	522345.32	1203.37	15.5	1187.9	NA	NA	NA	NA	NA
ATL-006	2621936.33	515640.34	1167.00	12	1155.0	NA	NA	NA	NA	NA
ATL-048	2621739.52	515431.35	1172.01	16	1156.0	NA	NA	NA	NA	NA
ATL-058	2619307.93	516416.41	1171.69	16	1155.7	NA	NA	NA	NA	NA
ATL-059	2619543.24	516171.11	1172.53	19.8	1152.7	NA	NA	NA	NA	NA
ATL-060	2619778.55	515925.82	1173.17	18.5	1154.7	NA	NA	NA	NA	NA
ATL-063	2620484.51	515189.89	1174.71	18	1156.7	NA	NA	NA	NA	NA
ATL-065	2620955.10	514699.21	1176.83	17	1159.8	NA	NA	NA	NA	NA
ATL-083	2621415.65	513727.92	1173.50	16	1157.5	NA	NA	NA	NA	NA
ATL-086	2618346.66	516436.42	1174.06	16	1158.1	NA	NA	NA	NA	NA
ATL-099	2618336.70	515955.84	1179.81	16	1163.8	NA	NA	NA	NA	NA
ATL-105	2619748.59	514484.00	1176.19	16	1160.2	NA	NA	NA	NA	NA
ATL-113	2618562.01	515229.98	1181.92	8	1173.9	NA	NA	NA	NA	NA
EW-2	2632445.94	496479.68	1101.00	20	1081.0	NA	NA	NA	NA	NA
EW-3	2629583.28	497009.50	1148.00	10	1138.0	NA	NA	NA	NA	NA
EW-4	2627116.15	497384.35	1146.00	19	1127.0	NA	NA	NA	NA	NA
EW-5	2624295.95	497923.55	1151.00	15	1136.0	NA	NA	NA	NA	NA
EW-6	2622893.13	497269.21	1144.00	20	1124.0	NA	NA	NA	NA	NA
EW-7	2621781.70	496331.02	1146.00	15	1131.0	NA	NA	NA	NA	NA
EW-8	2607941.21	499754.08	1159.03	20	1139.0	NA	NA	NA	NA	NA
EW-9	2620401.52	495319.73	1152.00	20	1132.0	NA	NA	NA	NA	NA
EW-10	2619241.53	494857.11	1148.00	15	1133.0	99.5	1048.5	SS	NA	NA
EW-12	2610718.18	493104.87	1110.80	9	1101.8	NA	NA	NA	NA	NA
EW-13	2611520.73	493092.65	1109.39	15	1094.4	NA	NA	NA	NA	NA
EW-16	2628322.89	496730.64	1144.95	17.4	1127.6	NA	NA	NA	NA	NA
FEW-11	2609168.88	499998.83	1161.00	20	1141.0	NA	NA	NA	NA	NA
FEW-14	2625283.55	498733.83	1154.01	17.5	1136.5	NA	NA	NA	NA	NA
FEW-15	2622859.07	509950.92	1167.62	17.5	1150.1	NA	NA	NA	NA	NA
G-000350	2599733.62	502608.44	1168.50	18	1150.5	119	1049.9	SS	NA	NA
G-000690	2655460.02	552313.11	1120.50	15	1105.5	87	1033.9	NA	NA	NA
G-004921	2601875.74	541071.31	1224.50	22	1202.5	NA	NA	NA	NA	NA
G-008876	2597949.09	520804.23	1191.50	18	1173.5	NA	NA	NA	NA	NA
G-009033	2661046.11	500312.11	1088.60	17	1071.5	50.4	1038.2	SS	NA	NA
G-010673	2587704.25	512975.76	1190.47	18	1172.5	NA	NA	NA	NA	NA
G-010674	2588887.51	509759.28	1185.44	18	1167.4	NA	NA	NA	NA	NA
G-011280	2659537.66	513492.85	1097.80	5	1092.8	60	1038.1	SS	NA	NA
G-013220	2592858.69	515723.27	1185.90	18	1167.9	NA	NA	NA	NA	NA
G-014161	2659433.21	507749.20	1094.20	27	1067.2	67	1027.6	SS	NA	NA
G-014821	2635340.52	503188.21	1088.50	17	1071.5	47.0	1041.5	NA	NA	NA
G-015211	2654848.71	519216.97	1104.40	9	1095.4	54	1050.8	SS	NA	NA
G-015507	2605366.44	536524.14	1210.49	19	1191.5	NA	NA	NA	NA	NA
G-015644	2598458.65	538277.86	1216.70	18.1	1198.6	138.0	1078.7	NA	NA	NA
G-017656	2661194.44	533428.03	1110.40	15	1095.4	NA	NA	NA	NA	NA
G-017694	2659305.65	551006.10	1128.44	22	1106.4	NA	NA	NA	NA	NA
G-018141	2660938.09	548651.40	1120.46	20	1100.5	NA	NA	NA	NA	NA
G-018285	2628140.31	485091.21	1133.30	19	1114.3	101.6	1031.7	SH/SS	NA	NA
G-018285	2628772.67	485732.47	1138.80	23	1115.8	NA	NA	NA	NA	NA
G-018747	2619687.95	474325.66	1104.50	15	1089.5	60	1044.9	SS	NA	NA
G-020313	2608603.32	531249.30	1204.60	17.5	1187.1	NA	NA	NA	NA	NA
G-021194	2648203.31	495778.62	1080.40	15	1065.4	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-022336	2651807.20	523684.22	1101.40	12	1089.4	NA	NA	NA	NA	NA
G-028138	2630732.73	501664.51	1136.40	15	1121.4	89.9	1046.5	SS	NA	NA
G-030678	2617221.28	478589.42	1094.50	18.1	1076.4	76.0	1018.5	NA	NA	NA
G-033471	2627210.21	555126.32	1152.20	22	1130.2	95.1	1057.1	SS	NA	NA
G-033607	2588112.57	524692.07	1190.88	17	1173.9	NA	NA	NA	NA	NA
G-033747	2613731.62	499751.97	1162.23	18	1144.2	NA	NA	NA	NA	NA
G-033748	2619817.35	510500.86	1173.70	19	1154.7	119.1	1054.6	SS	NA	NA
G-033749	2609160.16	510252.38	1180.40	12	1168.4	123.0	1057.4	SH/SS	NA	NA
G-033750	2619965.44	504947.20	1160.40	19	1141.4	113.6	1046.9	SH/SS	NA	NA
G-033751	2605844.55	500782.59	1160.40	18	1142.4	121.4	1039.1	SH/SS	NA	NA
G-033752	2626343.31	505454.68	1158.70	12	1146.7	95.7	1063.1	SS/SH	NA	NA
G-033753	2613379.01	506052.58	1170.40	18	1152.4	102	1068.4	SH/SS	180.0	990.40
G-033754	2627929.44	506174.88	1150.40	16	1134.4	68.0	1082.4	SS	169	981.4
G-035207	2602747.33	533823.04	1210.44	18	1192.4	NA	NA	NA	NA	NA
G-035237	2603499.16	518054.60	1190.40	19	1171.4	116.6	1073.9	SS	NA	NA
G-035273	2595860.81	509939.73	1179.40	19	1160.4	122.7	1056.7	SS	NA	NA
G-035461	2663380.18	494451.54	1119.72	14	1105.7	NA	NA	NA	NA	NA
G-035976	2608882.60	523412.00	1196.70	20	1176.7	129.2	1067.6	SS	NA	NA
G-036098	2629416.12	502905.35	1140.40	16	1124.4	94.0	1046.4	SH	NA	NA
G-036211	2615973.87	510693.52	1170.50	18	1152.5	105	1065.9	SS/SH	NA	NA
G-036213	2628061.43	502884.05	1141.70	17	1124.7	94.9	1046.8	SS/SH	NA	NA
G-036214	2618122.65	499787.71	1160.40	17	1143.4	113.2	1047.3	SS/SH	NA	NA
G-037636	2611046.64	530993.22	1206.78	18.1	1188.7	NA	NA	NA	NA	NA
G-037637	2598547.22	509986.60	1178.98	17	1162.0	NA	NA	NA	NA	NA
G-037681	2597429.90	528395.98	1205.93	17	1188.9	NA	NA	NA	NA	NA
G-037707	2600800.75	515355.34	1185.34	19	1166.3	NA	NA	NA	NA	NA
G-037707	2602156.32	514672.61	1182.00	10	1172.0	140.0	1042.0	SS	NA	NA
G-037709	2600719.09	516647.25	1187.50	17	1170.5	NA	NA	NA	NA	NA
G-037709	2600750.11	516588.35	1187.50	13	1174.5	117	1070.9	SS/SH	NA	NA
G-037984	2596927.10	504903.15	1167.40	24	1143.4	103.3	1064.1	SS	NA	NA
G-039551	2586293.51	552666.07	1232.10	18	1214.1	NA	NA	NA	NA	NA
G-040328	2590041.50	517726.29	1181.71	15	1166.7	NA	NA	NA	NA	NA
G-040351	2608787.32	518096.33	1188.80	18	1170.8	128.5	1060.3	SH/SS	NA	NA
G-041786	2658404.46	501520.11	1087.30	14	1073.3	36.7	1050.6	SS	NA	NA
G-042325	2613567.34	517457.86	1182.20	18	1164.2	119.0	1063.3	NA	NA	NA
G-042325	2614711.93	517780.36	1176.00	15	1161.0	120.0	1056.0	SS	NA	NA
G-042325X	2614743.71	517723.70	1178.10	19	1159.1	114.9	1063.2	NA	NA	NA
G-044312	2627937.48	504594.86	1146.50	15	1131.5	96.3	1050.1	SS	NA	NA
G-046472	2629998.64	504936.47	1143.40	15	1128.4	96.2	1047.2	SS	NA	NA
G-046970	2615222.83	477870.27	1102.20	15	1087.2	65.3	1036.9	SS	NA	NA
G-047016	2639785.06	523855.79	1115.10	22	1093.1	37.5	1076.3	SS/SH	NA	NA
G-047077	2597761.66	511903.41	1180.47	18	1162.5	NA	NA	NA	NA	NA
G-047358	2638305.48	499293.87	1080.40	15	1065.4	50.3	1030.1	SS	NA	NA
G-047789	2639385.80	484836.22	1070.80	18	1052.8	NA	NA	NA	NA	NA
G-048014	2593461.07	554116.10	1252.06	22	1230.1	NA	NA	NA	NA	NA
G-048035	2618596.04	476047.37	1096.60	12	1084.6	64.0	1032.6	NA	NA	NA
G-048064	2593464.85	552796.62	1244.58	22	1222.6	NA	NA	NA	NA	NA
G-048065	2593464.85	552796.62	1244.58	20	1224.6	NA	NA	NA	NA	NA
G-048297	2630379.95	510943.12	1158.50	21	1137.5	119.0	1039.5	SS	NA	NA
G-048312	2605586.17	516107.67	1187.60	23	1164.6	128.7	1058.8	SS	NA	NA
G-049353	2663534.53	475317.53	1069.40	34	1035.4	57.0	1012.4	SS	82	987.4
G-049439	2632495.39	509006.54	1154.90	25	1129.9	116.4	1038.5	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvania n (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-049891	2629190.10	537368.21	1207.70	64	1143.7	144.6	1063.1	SS	NA	NA
G-050151	2657610.02	504779.32	1090.40	5	1085.4	NA	NA	NA	NA	NA
G-050177	2641513.55	481601.55	1070.35	20	1050.3	NA	NA	NA	NA	NA
G-050878	2660583.77	530339.32	1102.40	5	1097.4	43.2	1059.2	SS	NA	NA
G-050879	2655264.24	527177.34	1106.40	6	1100.4	NA	NA	NA	NA	NA
G-050988	2661467.26	552294.47	1122.17	12	1110.2	NA	NA	NA	NA	NA
G-051683	2626817.52	545846.88	1187.90	35	1152.9	80.4	1107.5	SS	NA	NA
G-051685	2623868.37	492824.33	1140.40	16	1124.4	96.9	1043.5	SS	NA	NA
G-051762	2589200.79	528683.40	1192.50	16	1176.5	NA	NA	NA	NA	NA
G-051786	2625896.50	492252.06	1140.40	15	1125.4	94.2	1046.2	SS	NA	NA
G-051787	2624230.42	482238.13	1134.80	12	1122.8	104.8	1030.1	SH/SS	NA	NA
G-051833	2664662.60	494552.30	1141.40	40	1101.4	145.0	996.4	SS	NA	NA
G-051860	2631579.06	481916.72	1127.90	10	1117.9	98.6	1029.3	SS	NA	NA
G-051927	2611950.23	526043.14	1190.63	16	1174.6	NA	NA	NA	NA	NA
G-052189	2605250.80	539160.21	1243.99	23	1221.0	NA	NA	NA	NA	NA
G-052390	2592955.51	548170.94	1230.51	16	1214.5	NA	NA	NA	NA	NA
G-052415	2661759.52	470642.20	1061.53	14.4	1047.1	67.0	994.5	SH	NA	NA
G-052786	2651936.14	483456.38	1067.80	5	1062.8	37.6	1030.3	SH	NA	NA
G-053077	2629633.70	481169.38	1130.40	21	1109.3	100.9	1029.4	SS	NA	NA
G-053078	2618627.04	523015.74	1187.40	30	1157.4	119.0	1068.4	SS	NA	NA
G-053202	2585803.37	544519.97	1224.16	26	1198.2	NA	NA	NA	NA	NA
G-053273	2596059.83	522439.32	1196.90	16	1180.9	123.9	1073.0	SS	NA	NA
G-053429	2598336.00	541604.09	1220.50	19	1201.5	122.2	1098.3	SS	NA	NA
G-053470	2590009.34	507833.04	1147.50	19	1128.5	95.0	1052.5	SS	NA	NA
G-053471	2596781.33	509910.03	1179.82	16	1163.8	NA	NA	NA	NA	NA
G-053628	2635178.89	457916.42	1070.26	15	1055.3	NA	NA	NA	NA	NA
G-053629	2638289.83	462980.82	1085.60	19	1066.6	NA	NA	LS	95	990.6
G-053630	2635395.12	501244.47	1083.50	16	1067.5	42.1	1041.3	SH/SS	NA	NA
G-053658	2633230.51	490577.44	1116.80	17	1099.8	83.8	1033.0	SH/SS	NA	NA
G-053659	2591683.05	544010.47	1223.58	15	1208.6	NA	NA	NA	NA	NA
G-053764	2592943.73	505359.31	1171.24	15	1156.2	NA	NA	NA	NA	NA
G-053801	2633419.20	485275.89	1129.27	15	1114.3	NA	NA	NA	NA	NA
G-054293	2652941.81	549534.27	1125.50	11	1114.5	76.0	1049.5	SS	NA	NA
G-054297	2643724.79	547822.74	1130.46	13	1117.5	NA	NA	NA	NA	NA
G-054356	2588338.77	548565.36	1229.64	17	1212.6	NA	NA	NA	NA	NA
G-054568	2665058.21	546181.30	1111.76	18	1093.8	NA	NA	NA	NA	NA
G-054654	2611239.70	495610.60	1160.44	13	1147.4	NA	NA	NA	NA	NA
G-054655	2620045.68	507873.19	1170.40	12	1158.4	123.0	1047.4	SS/SH	NA	NA
G-055915	2655022.08	472990.39	1060.35	13	1047.3	NA	NA	NA	NA	NA
G-056090	2596862.15	532933.87	1210.30	16	1194.3	112.6	1097.7	SH/SS	NA	NA
G-056450	2593525.99	548747.94	1230.51	25	1205.5	NA	NA	NA	NA	NA
G-056513	2660041.17	508906.91	1097.40	12	1085.4	54.2	1043.2	SS	NA	NA
G-056514	2659904.23	511554.07	1096.60	24	1072.6	56	1040.5	SS	NA	NA
G-056690	2589817.69	510466.42	1187.40	21	1166.3	109.0	1078.4	SS	NA	NA
G-056838	2664819.91	490597.92	1127.80	13	1114.8	144.9	983.0	SS/SH	NA	NA
G-057184	2616731.87	520942.25	1173.70	12	1161.7	100.9	1072.8	SH	NA	NA
G-057314	2608488.21	520361.38	1190.40	18	1172.4	118.2	1072.2	SS	NA	NA
G-057315	2603019.79	514751.39	1187.10	17	1170.1	111.9	1075.2	SS/SH	NA	NA
G-057497	2613898.94	479132.83	1098.00	22	1076.0	66.2	1031.8	SH/SS	NA	NA
G-057498	2630731.82	486524.07	1131.70	15	1116.7	96.2	1035.4	SS	NA	NA
G-057632	2608559.24	543861.57	1312.30	10	1302.3	218.6	1093.7	SH/SS	NA	NA
G-058057	2657858.14	528629.21	1102.41	10	1092.4	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-058058	2657816.79	529947.94	1106.09	10	1096.1	NA	NA	NA	NA	NA
G-058325	2613262.11	525422.78	1188.90	20	1168.9	122.5	1066.3	SS	NA	NA
G-058543	2596691.69	507872.67	1180.43	22	1158.4	95.0	1085.4	SS	NA	NA
G-058723	2597411.16	517229.41	1190.50	17	1173.5	112.8	1077.6	SS	NA	NA
G-058774	2626998.04	481045.04	1126.00	16	1110.0	93.3	1032.7	SS/SH	NA	NA
G-058820	2620523.59	476762.06	1090.30	20	1070.3	55.3	1035.0	SS	NA	NA
G-058958	2633279.62	521723.06	1191.10	36	1155.1	140.0	1051.1	SS/SH	NA	NA
G-058997	2600817.59	533085.83	1208.00	20	1188.0	129.6	1078.4	SS	NA	NA
G-059114	2594054.02	507950.82	1151.50	18	1133.5	96.1	1055.3	SS	NA	NA
G-059115	2596796.11	506557.25	1174.50	12	1162.5	132.9	1041.6	SH/SS	NA	NA
G-059358D	2641545.01	543766.01	1125.50	10	1115.5	67.9	1057.6	SS	NA	NA
G-059681	2616593.26	476599.48	1107.00	29	1078.0	70.6	1036.4	SS	NA	NA
G-060250	2633385.86	519681.22	1165.70	37.3	1128.4	139.0	1026.7	SS	NA	NA
G-060475	2609542.66	520085.09	1190.40	18	1172.4	123.0	1067.4	SS	NA	NA
G-060476X	2608223.54	520081.64	1191.40	17	1174.4	NA	NA	NA	NA	NA
G-060916	2594626.82	536214.84	1220.50	20	1200.5	138.9	1081.6	SS/SH	NA	NA
G-060987	2596159.38	515890.76	1190.40	18	1172.4	115.0	1075.4	SS	NA	NA
G-061009	2654791.26	478245.32	1067.40	6	1061.3	NA	NA	NA	NA	NA
G-061620	2658047.14	495572.46	1080.40	10	1070.4	NA	NA	NA	NA	NA
G-062103	2664844.22	550157.70	1129.47	9	1120.5	NA	NA	NA	NA	NA
G-062411	2586796.60	522137.46	1202.47	15	1187.5	NA	NA	NA	NA	NA
G-062530B	2622002.02	474004.64	1090.90	10	1080.9	44.5	1046.4	NA	NA	NA
G-062880	2656858.38	551072.14	1121.80	23	1098.8	89.7	1032.1	SH/LS	NA	NA
G-063202	2608142.94	483511.40	1108.30	18	1090.3	46.9	1061.5	SS	NA	NA
G-063312	2662751.20	544567.71	1110.50	29	1081.5	50.5	1060.0	SS	NA	NA
G-063973	2613172.50	544570.00	1282.48	80	1202.5	180.0	1102.5	SS	NA	NA
G-063973X	2613172.50	544570.00	1282.50	80	1202.5	180.0	1102.4	SS/SH	NA	NA
G-064175	2649834.01	532236.66	1115.95	7	1109.0	NA	NA	NA	NA	NA
G-064207	2612237.29	518747.52	1180.70	15	1165.7	117.7	1063.0	NA	NA	NA
G-064243	2656633.00	525900.41	1102.61	5	1097.6	NA	NA	NA	NA	NA
G-064906	2603229.28	510775.44	1180.50	20	1160.5	129.8	1050.7	SH	NA	NA
G-065589	2606725.03	521388.79	1191.80	18	1173.8	130.0	1061.8	SH	NA	NA
G-065681	2608858.44	520742.55	1190.40	15	1175.4	120.0	1070.5	SS/SH	NA	NA
G-065682	2606137.69	518093.14	1197.60	15	1182.6	134.6	1063.0	SS/SH	NA	NA
G-065683	2606422.58	512830.86	1180.40	20	1160.4	105.2	1075.2	SH/SS	NA	NA
G-065856	2596381.58	544833.15	1228.45	18	1210.5	NA	NA	NA	NA	NA
G-065871	2610763.21	522725.01	1194.40	20	1174.4	136.2	1058.2	SH/SS	NA	NA
G-065908	2656540.59	528562.61	1105.72	4	1101.7	NA	NA	NA	NA	NA
G-065978	2644102.08	539925.32	1121.98	8	1114.0	NA	NA	NA	NA	NA
G-065987	2598695.62	525023.62	1200.48	20	1180.5	NA	NA	NA	NA	NA
G-066364	2612993.72	530713.79	1212.50	26	1186.4	130.8	1081.7	SH/SS	NA	NA
G-066614	2646091.69	467269.56	1065.10	16	1049.0	NA	NA	LS	78.3	986.8
G-067472	2599552.47	505296.16	1170.50	16	1154.5	100.0	1070.5	SH/SS	NA	NA
G-067472	2598880.87	505815.68	1170.00	20	1150.0	120.0	1050.0	SH	160	1010.0
G-067505	2589240.95	499678.05	1139.60	17	1122.6	56.0	1083.6	SH/SS	NA	NA
G-068383	2634969.59	513113.89	1142.60	19	1123.6	95.0	1047.6	SS	NA	NA
G-070210	2595398.27	517865.85	1190.50	20	1170.5	119.3	1071.1	SS	NA	NA
G-070398	2621507.69	523813.68	1221.10	30	1191.1	164.8	1056.3	SS	NA	NA
G-070581	2610561.33	479696.49	1136.50	17	1119.5	82	1054.7	NA	NA	NA
G-070615	2591394.10	517768.35	1161.60	16	1145.6	NA	NA	NA	NA	NA
G-071506	2591980.88	538754.11	1220.50	16	1204.5	NA	NA	NA	NA	NA
G-071585	2587226.93	528095.03	1207.50	15	1192.5	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-072063	2586655.53	535880.93	1212.90	15	1197.9	50.0	1162.9	SS/SH	NA	NA
G-072122	2596136.58	524212.97	1200.50	20	1180.5	125.1	1075.3	SS	NA	NA
G-072122X	2596136.58	524212.97	1200.50	20	1180.5	125.0	1075.5	SS	NA	NA
G-072123	2592558.10	528251.25	1203.50	17	1186.5	151.0	1052.5	NA	NA	NA
G-072863	2599803.25	484547.70	1227.00	65	1162.0	104.2	1122.8	NA	NA	NA
G-072920	2626205.98	461153.26	1103.20	38	1065.2	53.1	1050.1	SS/LS	90	1013.2
G-073751	2599167.17	528472.60	1209.90	15	1194.9	132.0	1077.9	SH	NA	NA
G-073793	2665408.35	552155.19	1120.46	10	1110.5	NA	NA	NA	NA	NA
G-073894	2662990.66	472648.07	1067.56	15	1052.6	NA	NA	NA	NA	NA
G-074511	2599802.48	485900.46	1207.20	68	1139.2	91.3	1116.0	SS	NA	NA
G-074621	2660763.50	558114.66	1122.46	15	1107.5	NA	NA	NA	NA	NA
G-074622	2660499.99	554063.38	1120.46	13	1107.5	NA	NA	NA	NA	NA
G-076173	2607066.68	529965.85	1200.44	19	1181.4	NA	NA	NA	NA	NA
G-076174	2607007.05	529916.40	1200.46	15	1185.5	NA	NA	NA	NA	NA
G-076181	2607005.65	529964.46	1200.44	15	1185.4	NA	NA	NA	NA	NA
G-076183	2607002.16	530009.52	1200.44	18.5	1181.9	NA	NA	NA	NA	NA
G-076184	2606853.81	530057.44	1200.44	16.5	1183.9	NA	NA	NA	NA	NA
G-076185	2607012.94	529825.86	1200.59	12	1188.6	NA	NA	NA	NA	NA
G-076186	2606953.85	529248.94	1203.11	13.5	1189.6	NA	NA	NA	NA	NA
G-076188	2607046.33	529877.53	1200.45	15	1185.5	NA	NA	NA	NA	NA
G-076189	2607156.39	529702.29	1201.13	14.5	1186.6	NA	NA	NA	NA	NA
G-076190	2607366.81	529698.09	1199.47	18.5	1181.0	NA	NA	NA	NA	NA
G-076193	2607958.54	529473.57	1198.03	18	1180.0	NA	NA	NA	NA	NA
G-076194	2607112.57	529311.53	1201.34	15	1186.3	NA	NA	NA	NA	NA
G-076195	2607345.59	529272.90	1199.58	17	1182.6	NA	NA	NA	NA	NA
G-076196	2607616.43	529264.97	1196.44	15	1181.4	NA	NA	NA	NA	NA
G-076201	2607416.66	528960.10	1197.92	15	1182.9	NA	NA	NA	NA	NA
G-076589	2648402.25	472601.68	1063.00	5	1058.0	80.0	983.0	LS	78.9	984.1
G-078377	2632967.62	516292.66	1174.60	38	1136.6	148.0	1026.6	SS	NA	NA
G-079184	2657808.45	498845.61	1081.40	6	1075.4	NA	NA	NA	NA	NA
G-079185	2659232.76	498922.62	1084.40	9	1075.4	NA	NA	NA	NA	NA
G-080536	2653251.37	495307.27	1075.40	8	1067.4	NA	NA	NA	NA	NA
G-081125	2655608.12	467993.04	1055.37	55	1000.4	NA	NA	NA	NA	NA
G-081204	2605570.17	523544.43	1193.01	21	1172.0	NA	NA	NA	NA	NA
G-081447	2662563.30	511929.66	1200.00	46	1154.0	93.0	1031.9	SS/SH	NA	NA
G-081628	2662036.13	512197.93	1140.50	14	1126.5	NA	NA	NA	NA	NA
G-081652	2658832.39	491033.57	1073.40	10	1063.4	NA	NA	NA	NA	NA
G-081653	2660838.01	489060.75	1072.35	10	1062.3	NA	NA	NA	NA	NA
G-081660	2658249.50	548650.06	1120.46	20	1100.5	NA	NA	NA	NA	NA
G-081736	2640919.83	453093.07	1107.61	20	1087.6	NA	NA	NA	NA	NA
G-081826	2667315.27	486381.58	1185.00	59	1126.0	220.0	965.0	SS	NA	NA
G-081932	2640617.30	451715.82	1157.00	4	1153.0	71.0	1086.0	SH/SS	NA	NA
G-081992	2652123.93	546198.52	1123.74	23	1100.7	NA	NA	NA	NA	NA
G-082283	2645274.37	542186.40	1126.18	12	1114.2	NA	NA	NA	NA	NA
G-082391	2658967.28	488378.32	1072.35	13	1059.3	NA	NA	NA	NA	NA
G-082411A	2606874.84	529872.01	1200.44	21	1179.4	NA	NA	NA	NA	NA
G-082411C	2606960.57	529638.54	1200.72	19	1181.7	NA	NA	NA	NA	NA
G-082635	2649679.52	537334.85	1120.42	3.1	1117.3	NA	NA	NA	NA	NA
G-082948	2667309.73	533531.24	1255.40	83	1172.4	125.0	1130.4	SH/SS	NA	NA
G-082992	2665130.91	526902.36	1230.06	8	1222.1	39.0	1191.1	SS	NA	NA
G-083027	2656430.55	521467.26	1100.40	8	1092.4	NA	NA	NA	NA	NA
G-083073	2650960.27	552623.82	1130.44	5.3	1125.1	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-083197	2662031.43	512082.88	1140.60	17	1123.6	NA	NA	NA	NA	NA
G-083550	2589448.81	544334.80	1224.52	15	1209.5	NA	NA	NA	NA	NA
G-083790	2651993.28	545863.01	1121.47	12	1109.5	NA	NA	NA	NA	NA
G-083866	2625208.56	508095.15	1161.20	20	1141.2	NA	NA	NA	NA	NA
G-084119	2667651.82	481528.97	1225.26	50	1175.3	NA	NA	NA	NA	NA
G-084290	2657840.52	518702.48	1213.30	97	1116.2	133.0	1080.3	SS/SH	275	938.3
G-084296	2667966.26	486587.23	1219.40	50	1169.3	228.0	991.4	SS/SH/LS	240	979.4
G-084434	2593795.06	476644.87	1293.70	125	1168.7	NA	NA	NA	NA	NA
G-084524	2611211.24	527288.49	1190.40	18	1172.4	NA	NA	NA	NA	NA
G-084655	2610568.00	529331.38	1199.60	25	1174.6	NA	NA	NA	NA	NA
G-084699	2626450.03	488539.42	1140.45	10	1130.5	NA	NA	NA	NA	NA
G-084775	2651211.41	547430.19	1127.06	24	1103.1	NA	NA	NA	NA	NA
G-084822	2650587.89	458357.70	1149.00	3	1146.0	125.0	1024.0	LS	125	1024.0
G-084915	2660783.81	511116.40	1099.40	24	1075.4	NA	NA	NA	NA	NA
G-084917	2634272.62	517886.01	1177.30	45	1132.3	NA	NA	NA	NA	NA
G-085604	2598696.17	475275.98	1239.70	30	1209.7	125.0	1114.7	SS	NA	NA
G-085814	2658009.04	496231.08	1080.40	11	1069.4	NA	NA	NA	NA	NA
G-085815	2657350.04	496198.16	1080.40	11	1069.4	NA	NA	NA	NA	NA
G-085835	2601523.07	476640.65	1181.00	57	1124.0	75.0	1106.0	SS	NA	NA
G-085892	2635148.02	536573.30	1212.70	42	1170.7	101.0	1111.7	SS/SH	NA	NA
G-085969	2668349.77	489614.13	1276.90	65	1211.9	320.0	956.9	SS/SH/LS	327	949.9
G-086054A	2644924.65	461963.30	1059.85	5	1055.2	NA	NA	NA	NA	NA
G-086054B	2645252.02	461426.26	1075.24	9	1066.0	NA	NA	NA	NA	NA
G-086054C	2645218.01	460609.66	1091.63	14	1078.1	NA	NA	NA	NA	NA
G-086247	2661789.72	549619.54	1120.46	20	1100.5	NA	NA	NA	NA	NA
G-086282	2650978.69	557536.54	1134.80	18.5	1116.3	NA	NA	NA	NA	NA
G-086558	2644340.34	533410.33	1112.39	5	1107.4	NA	NA	NA	NA	NA
G-087126	2616412.61	546469.99	1257.68	55	1202.7	NA	NA	NA	NA	NA
G-087127	2614927.91	546595.64	1223.25	60	1163.3	NA	NA	NA	NA	NA
G-087554	2586315.47	500924.49	1147.12	22	1125.1	NA	NA	NA	NA	NA
G-087555	2586283.70	501723.37	1148.68	14	1134.7	NA	NA	NA	NA	NA
G-087637	2619232.30	491748.86	1154.00	15	1139.0	115.0	1039.0	SS	135	1019.0
G-087787	2666145.41	474178.27	1179.99	44.3	1135.7	96.1	1083.9	SH	NA	NA
G-087839	2665323.87	519626.34	1253.50	92	1161.5	143.0	1110.5	SS/SH	NA	NA
G-087929	2614696.32	511214.57	1174.40	22	1152.4	NA	NA	NA	NA	NA
G-088058	2657776.71	485695.53	1072.40	9	1063.3	53.7	1018.6	SS/SH	NA	NA
G-088059	2660413.60	485788.72	1072.40	11	1061.3	54.5	1017.9	SS/SH	NA	NA
G-088279	2599120.15	462891.20	1264.40	35	1229.4	70.0	1194.4	SS	NA	NA
G-088299	2657561.96	517149.13	1118.40	15.7	1102.7	20.2	1098.2	SS/SH	124.6	993.8
G-088403	2666512.95	537691.34	1110.50	8	1102.5	46.9	1063.6	SS/LS	56	1054.5
G-088662	2634931.94	504630.45	1090.40	25	1065.4	52.0	1038.4	NA	NA	NA
G-088993	2661652.28	507981.86	1139.90	20	1119.9	59.0	1080.9	SS/SH	NA	NA
G-089221	2599239.57	508963.19	1180.48	22	1158.5	NA	NA	NA	NA	NA
G-089241	2590478.92	545154.29	1238.06	15	1223.1	NA	NA	NA	NA	NA
G-089253	2668713.65	497778.97	1239.80	33	1206.8	156.0	1083.8	SH/SS/LS	270	969.8
G-089306	2663120.06	483261.70	1072.35	16	1056.3	NA	NA	NA	NA	NA
G-089357	2667009.74	484706.64	1161.90	68	1093.9	163.0	998.9	SH/SS	NA	NA
G-089499	2662203.82	526832.79	1101.40	14	1087.4	48.1	1053.3	SS/SH	NA	NA
G-089690	2669007.86	489149.66	1278.50	70	1208.5	NA	NA	LS	327.8	950.7
G-089816	2663985.01	520049.15	1243.40	68	1175.4	135.7	1107.7	SS/SH	NA	NA
G-089868	2643620.41	499225.08	1084.31	11	1073.3	NA	NA	NA	NA	NA
G-089876B	2652342.38	464397.58	1060.35	7	1053.4	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-089876C	2652323.01	464385.82	1060.34	5	1055.3	NA	NA	NA	NA	NA
G-089876D	2652635.98	463333.85	1060.14	5	1055.1	NA	NA	NA	NA	NA
G-089876E	2652706.46	463279.61	1060.34	9	1051.3	NA	NA	NA	NA	NA
G-089876F	2652708.21	463283.70	1060.34	7.5	1052.8	NA	NA	NA	NA	NA
G-089876G	2652690.93	463196.92	1060.26	6	1054.3	NA	NA	NA	NA	NA
G-089876H	2652777.45	463206.80	1060.36	8.5	1051.9	NA	NA	NA	NA	NA
G-089876I	2652780.31	463210.93	1060.36	7.5	1052.9	NA	NA	NA	NA	NA
G-089876J	2652808.02	463149.77	1060.34	6	1054.3	NA	NA	NA	NA	NA
G-089876K	2652864.60	463182.43	1060.34	8	1052.3	NA	NA	NA	NA	NA
G-089876M	2652320.64	464389.73	1060.37	5	1055.4	NA	NA	NA	NA	NA
G-089876N	2652452.34	463673.85	1059.00	5.5	1053.5	NA	NA	NA	NA	NA
G-089876O	2652785.43	463044.90	1060.21	5	1055.2	NA	NA	NA	NA	NA
G-090203	2663089.08	511130.87	1212.10	35	1177.1	NA	NA	NA	NA	NA
G-090439	2647524.94	531058.05	1112.79	8	1104.8	NA	NA	NA	NA	NA
G-090524	2666311.50	537303.47	1110.40	8	1102.4	52	1058.8	SS/SH	NA	NA
G-090568	2664784.79	476811.73	1094.70	30	1064.7	NA	NA	NA	NA	NA
G-090605	2589745.45	526289.35	1193.50	17	1176.5	124.5	1069.0	SH	NA	NA
G-090605X	2589944.66	526396.87	1192.30	18	1174.3	123.7	1068.6	NA	NA	NA
G-090720	2629488.17	526884.95	1178.00	40	1138.0	NA	NA	NA	NA	NA
G-090726C	2654596.19	541733.32	1118.46	5.5	1113.0	NA	NA	NA	NA	NA
G-090726D	2656261.64	541823.84	1115.46	8	1107.5	NA	NA	NA	NA	NA
G-090726E	2656310.19	539743.82	1115.46	7.5	1108.0	NA	NA	NA	NA	NA
G-090726F	2654649.48	539513.50	1117.46	13	1104.5	NA	NA	NA	NA	NA
G-090726G	2656269.84	537851.02	1113.43	6	1107.4	NA	NA	NA	NA	NA
G-090726H	2654712.88	537816.55	1117.03	8	1109.0	NA	NA	NA	NA	NA
G-090726I	2657838.84	537932.05	1111.22	6	1105.2	NA	NA	NA	NA	NA
G-090820	2641194.13	468720.91	1061.98	28	1034.0	NA	NA	NA	NA	NA
G-091074	2663009.41	520209.12	1230.70	70	1160.7	129.9	1100.8	SS	NA	NA
G-091118	2666102.24	541937.05	1117.40	13	1104.4	43	1074.8	SS	NA	NA
G-091525	2601041.77	526743.45	1201.31	17	1184.3	NA	NA	NA	NA	NA
G-091614	2597943.59	523229.29	1200.00	16	1184.0	121	1079.0	SH	NA	NA
G-092071	2637986.69	531351.50	1170.20	15	1155.2	31.1	1139.1	SH/SS	NA	NA
G-092506	2663064.95	542699.25	1110.50	15	1095.5	NA	NA	NA	NA	NA
G-092572	2632805.98	541313.78	1241.30	72	1169.3	NA	NA	NA	NA	NA
G-092687	2668014.33	489222.30	1281.45	70	1211.4	NA	NA	NA	NA	NA
G-092765	2660445.37	549166.88	1120.46	13	1107.5	NA	NA	NA	NA	NA
G-092775	2662811.70	512757.36	1206.40	38	1168.4	89.0	1117.4	SS	NA	NA
G-093052	2644200.88	534027.48	1120.14	6	1114.1	NA	NA	NA	NA	NA
G-093177	2666351.28	537166.28	1110.40	10	1100.4	40	1070.8	SS	NA	NA
G-093301	2624905.28	467126.59	1157.20	25	1132.2	99.1	1058.1	SS	NA	NA
G-093417	2635346.50	532321.32	1205.50	58	1147.5	153.0	1052.5	SH/SS	NA	NA
G-093462	2668925.25	489995.56	1241.00	50	1191.0	316	925.4	SH	NA	NA
G-093498	2664869.98	478171.99	1108.80	49.5	1059.3	NA	NA	SH/LS	72	1036.8
G-093538	2646994.53	547135.06	1130.46	13	1117.5	NA	NA	NA	NA	NA
G-093587	2662851.73	505792.35	1179.40	25	1154.4	120	1059.8	SS/SH	175	1004.4
G-093612	2646376.44	453797.82	1233.96	10	1224.0	NA	NA	NA	NA	NA
G-093759	2663894.17	470897.55	1191.94	45	1146.9	50.0	1141.9	SH/SS	NA	NA
G-093915	2635331.68	478018.67	1117.16	19	1098.2	NA	NA	NA	NA	NA
G-093916	2635433.97	477973.36	1117.51	19	1098.5	NA	NA	NA	NA	NA
G-093944	2638121.02	533087.00	1152.50	30	1122.5	48	1104.9	SH/SS	NA	NA
G-094011	2592367.88	530855.16	1209.10	23	1186.1	145	1064.5	SH	NA	NA
G-094022	2659782.69	474253.18	1060.30	21	1039.3	44	1016.8	LS	43.9	1016.4

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-094377	2656921.99	478945.04	1060.35	15	1045.3	NA	NA	NA	NA	NA
G-094464	2634784.85	546477.52	1131.44	21	1110.4	NA	NA	NA	NA	NA
G-094500	2665854.98	468864.81	1225.40	63	1162.4	99	1126.4	SS/SH	146	1079.4
G-094585	2661238.02	497689.93	1086.37	19	1067.4	NA	NA	NA	NA	NA
G-094600	2663759.02	516613.09	1262.50	75	1187.5	160	1102.9	SH/SS	NA	NA
G-094632	2593543.44	471548.49	1241.60	45	1196.6	NA	NA	NA	NA	NA
G-094642	2654577.75	532011.46	1110.40	7	1103.4	NA	NA	NA	NA	NA
G-095065	2669095.59	489830.84	1244.50	65	1179.5	322	922.9	LS	322	922.5
G-095212	2668373.06	481695.00	1255.84	35	1220.8	NA	NA	NA	NA	NA
G-095489	2621261.07	554859.24	1293.32	45	1248.3	NA	NA	NA	NA	NA
G-095562	2634642.91	507819.57	1102.70	40	1062.7	67.0	1035.7	SS	NA	NA
G-095729	2664989.02	518617.32	1237.40	76	1161.4	76.0	1161.4	SS/SH	NA	NA
G-095825A	2652606.28	463279.36	1059.84	6.5	1053.3	NA	NA	NA	NA	NA
G-095825B	2652614.80	463247.64	1059.79	6	1053.8	NA	NA	NA	NA	NA
G-095862	2666997.85	530794.68	1273.83	89	1184.8	NA	NA	NA	NA	NA
G-096067	2662778.40	498575.66	1090.40	20	1070.4	NA	NA	NA	NA	NA
G-096225	2666723.28	491277.13	1262.43	55	1207.4	NA	NA	LS	285	977.4
G-096373	2585883.61	511097.02	1170.86	12	1158.9	NA	NA	NA	NA	NA
G-096401	2642654.75	453904.21	1170.70	6	1164.7	NA	NA	NA	NA	NA
G-096433	2599850.67	538963.63	1213.50	17	1196.5	121.4	1092.0	SH	NA	NA
G-096582	2604918.30	506540.49	1173.60	16	1157.6	133.6	1040.0	SH	NA	NA
G-096584	2609425.47	507511.90	1171.10	15	1156.1	110.0	1060.0	SH/SS	NA	NA
G-096588	2613313.38	510348.63	1178.10	25	1153.1	109.8	1068.3	NA	NA	NA
G-096590	2621694.75	501434.23	1156.80	10	1146.8	105.2	1051.7	SS	NA	NA
G-096593	2611337.35	494197.24	1142.30	16	1126.3	119.2	1023.2	SS	NA	NA
G-096904	2627303.92	521421.63	1232.20	35	1197.2	198.3	1033.9	SS	NA	NA
G-096933	2608645.02	520266.50	1190.20	13	1177.2	116.0	1074.2	SS	NA	NA
G-097059	2633958.18	506380.10	1110.00	10	1100.0	NA	NA	NA	NA	NA
G-097207	2591407.07	524631.96	1177.30	14	1163.3	NA	NA	NA	NA	NA
G-097299	2593716.08	467752.60	1270.60	18	1252.6	75	1196.0	SS	NA	NA
G-097771	2634826.26	504785.71	1090.40	25	1065.4	65.0	1025.4	SS	NA	NA
G-098488	2607359.44	522562.19	1196.44	18	1178.4	NA	NA	NA	NA	NA
G-098489	2618650.02	493174.60	1150.44	17	1133.4	NA	NA	NA	NA	NA
G-098490	2623184.88	493275.84	1143.03	12	1131.0	NA	NA	NA	NA	NA
G-098491	2626758.00	493346.43	1144.73	12	1132.7	NA	NA	NA	NA	NA
G-098592	2640901.42	483829.54	1070.88	20	1050.9	NA	NA	NA	NA	NA
G-099245	2638624.89	529151.18	1120.30	27	1093.3	NA	NA	NA	NA	NA
G-099462	2604342.44	525180.96	1200.44	15	1185.4	NA	NA	NA	NA	NA
G-099950	2667172.31	487573.05	1197.00	35	1162.0	NA	NA	LS	237	960.0
G-100078	2638605.43	529450.40	1120.70	20	1100.7	NA	NA	NA	NA	NA
G-100441	2658928.36	552947.34	1128.20	20	1108.2	NA	NA	NA	NA	NA
G-100517	2588174.56	541341.36	1214.70	15	1199.7	NA	NA	NA	NA	NA
G-100704	2639554.67	515230.35	1100.40	15	1085.4	58.6	1041.8	SH	NA	NA
G-100706	2643623.90	494234.70	1080.40	11	1069.4	87	993.8	SS	NA	NA
G-100729	2622410.03	551070.16	1301.65	40	1261.6	NA	NA	NA	NA	NA
G-100754	2656220.41	526465.36	1104.40	13	1091.4	NA	NA	NA	NA	NA
G-100841	2633769.55	515375.75	1143.16	42	1101.2	NA	NA	NA	NA	NA
G-101231	2642751.29	453322.42	1109.60	14	1095.6	26.2	1083.4	SS/SH/LS	97	1012.6
G-101457	2669123.47	481051.85	1254.30	70	1184.3	NA	NA	LS	252.3	1002.0
G-101460	2635292.29	481943.68	1098.50	25	1073.5	100	998.9	SS/SH	NA	NA
G-101556	2622307.96	509882.88	1168.66	17	1151.7	112.0	1056.7	SS/SH	NA	NA
G-101602	2629373.79	509380.67	1155.80	25	1130.8	115.0	1040.8	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-101822A	2650858.52	522395.56	1103.40	12	1091.4	98.2	1005.2	SS/SH	NA	NA
G-101822B	2650858.73	522390.47	1103.39	12	1091.4	NA	NA	NA	NA	NA
G-101822C	2650859.21	522385.75	1103.39	12	1091.4	NA	NA	NA	NA	NA
G-102451	2650941.15	484651.46	1070.40	6	1064.3	70	1000.7	SS/LS	75	995.4
G-102455	2663521.81	520114.15	1224.00	65	1159.0	118.5	1105.5	SS	NA	NA
G-102604	2658939.03	547943.92	1120.50	17	1103.5	90.2	1030.3	SH	NA	NA
G-102911	2667934.14	467058.25	1228.60	60	1168.6	104	1124.8	SH/SS/LS	NA	NA
G-103092	2664696.41	517573.31	1256.80	76	1180.8	125	1132.2	SS/SH	NA	NA
G-103207	2642471.17	502745.36	1088.40	22	1066.3	62.1	1026.3	SS	NA	NA
G-103856	2646410.76	457425.22	1194.70	28	1166.7	80.1	1114.7	SS/LS	153	1041.7
G-104085	2586001.90	512519.39	1192.30	18	1174.3	NA	NA	NA	NA	NA
G-104810	2661498.06	525608.08	1101.8	5	1096.4	37	1064.8	SS	NA	NA
G-105029	2643276.95	499181.43	1080.90	16	1064.9	64.4	1016.5	SS	NA	NA
G-105055	2632112.92	542680.00	1220.13	60	1160.1	NA	NA	NA	NA	NA
G-105056	2632061.39	542708.48	1223.38	60	1163.4	NA	NA	NA	NA	NA
G-105158	2646034.32	455132.99	1219.60	28	1191.6	50.0	1169.6	SS/SH/LS	133	1086.6
G-105159	2642968.13	453405.55	1109.69	24	1085.9	55.0	1055.0	SH/SS	NA	NA
G-105161	2631663.22	540814.72	1190.50	42	1148.5	106	1084.9	SS/SH	NA	NA
G-105269	2651134.54	547627.07	1129.40	32	1097.4	99	1030.8	SH	NA	NA
G-105544	2667361.77	510430.23	1249.50	75	1174.5	200.3	1049.2	SH/SS	NA	NA
G-105692	2635111.42	544735.45	1130.49	13	1117.5	NA	NA	NA	NA	NA
G-105776	2589912.28	484135.72	1262.42	25	1237.4	95.8	1107.4	SS	NA	NA
G-105802	2622725.02	505249.59	1162.40	14	1148.4	118.5	1043.9	SS/SH	NA	NA
G-105896	2640455.42	488890.60	1080.40	20	1060.3	86.5	993.9	SS/SH	135	945.4
G-105898	2640691.71	483550.58	1071.40	19	1052.4	NA	NA	LS	98	973.4
G-105902	2641208.48	472922.36	1063.90	22	1041.9	52	1012.3	SS/LS	54	1009.9
G-105906	2641545.34	467809.69	1062.74	28	1034.7	NA	NA	NA	NA	NA
G-105910	2653200.86	465471.63	1069.70	10	1059.7	NA	NA	LS	56	1013.7
G-105912	2655933.49	464937.59	1058.70	10	1048.7	NA	NA	LS	86	972.7
G-105923	2620367.93	531322.74	1265.00	45	1220.0	201.4	1063.6	SS	NA	NA
G-105933	2641165.39	484640.85	1070.49	20	1050.5	NA	NA	NA	NA	NA
G-105953	2637883.29	467587.13	1070.90	12	1058.9	NA	NA	LS	75	995.9
G-106148	2637011.20	532214.67	1230.00	45	1185.0	NA	NA	NA	NA	NA
G-106260	2632992.79	540635.48	1239.80	75	1164.8	197	1043.2	SS	NA	NA
G-106605	2605285.38	523629.83	1194.16	14	1180.2	NA	NA	NA	NA	NA
G-106702	2649996.78	555551.18	1131.32	25	1106.3	NA	NA	NA	NA	NA
G-106887	2668363.91	482283.77	1237.37	20	1217.4	NA	NA	NA	NA	NA
G-107100	2657444.39	496157.71	1080.40	14	1066.4	NA	NA	NA	NA	NA
G-107189	2628831.05	515020.03	1200.15	33	1167.2	NA	NA	NA	NA	NA
G-107303	2666421.01	503311.64	1197.20	50	1147.2	128	1069.6	SS/SH	NA	NA
G-107434	2645380.18	504893.65	1090.40	5	1085.4	NA	NA	NA	NA	NA
G-107795	2662912.06	518951.87	1167.80	64.7	1103.0	162.0	1005.8	NA	NA	NA
G-107804	2667270.37	514764.81	1286.60	74	1212.6	195	1092.0	SH/SS	NA	NA
G-107901	2666374.10	497295.14	1210.50	95	1115.5	203	1007.9	SS	NA	NA
G-108002	2666770.19	524507.08	1239.30	50	1189.3	132	1107.7	SS/SH	227	1012.3
G-108016	2665889.91	495924.95	1184.20	73	1111.2	182	1002.6	SS	NA	NA
G-108472	2603451.68	524381.49	1200.44	24	1176.4	NA	NA	NA	NA	NA
G-108620A	2640842.68	460420.05	1095.17	17	1078.2	NA	NA	NA	NA	NA
G-108620B	2640873.01	460401.27	1095.13	14.5	1080.6	NA	NA	NA	NA	NA
G-108620C	2640824.11	460369.32	1095.11	17	1078.1	NA	NA	NA	NA	NA
G-109003	2639439.93	494276.27	1080.40	10	1070.4	NA	NA	NA	NA	NA
G-109009	2605250.44	523439.58	1193.45	15	1178.5	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-109088	2638852.93	504527.54	1070.42	15	1055.4	NA	NA	NA	NA	NA
G-109089	2638880.97	504548.77	1070.40	15	1055.4	NA	NA	NA	NA	NA
G-109248	2643538.61	498831.91	1081.43	10	1071.4	NA	NA	NA	NA	NA
G-109287	2634768.61	518456.88	1148.10	25	1123.1	123.5	1024.6	SS	NA	NA
G-109356	2631741.13	517744.55	1215.55	40	1175.6	120.0	1095.5	SS	NA	NA
G-109448	2608890.59	525971.08	1190.40	20	1170.4	98	1092.8	NA	NA	NA
G-109464E	2659604.55	458812.45	1050.35	0.5	1049.8	NA	NA	NA	NA	NA
G-109464K	2655552.98	465071.58	1059.40	10	1049.4	NA	NA	NA	NA	NA
G-109464L	2655802.23	464481.75	1057.40	10	1047.4	NA	NA	NA	NA	NA
G-109464M	2655857.14	464359.05	1056.80	8	1048.8	NA	NA	NA	NA	NA
G-109464N	2655895.84	464635.95	1051.60	10	1041.6	NA	NA	NA	NA	NA
G-109504	2663737.18	509417.17	1262.30	78	1184.3	214.9	1047.5	SH/SS	NA	NA
G-110126	2667300.86	490459.51	1249.30	50	1199.3	294	955.7	SH	NA	NA
G-110149	2643570.92	535351.59	1120.40	10	1110.4	67.4	1053.0	SH	NA	NA
G-110225	2656443.46	492830.13	1075.56	7	1068.6	NA	NA	NA	NA	NA
G-110548	2643845.16	475800.73	1068.46	15	1053.5	NA	NA	NA	NA	NA
G-111009	2638003.89	514999.78	1111.80	28	1083.8	85.8	1026.0	SS/SH	NA	NA
G-111534	2629844.37	499439.46	1135.50	15	1120.5	91.0	1044.5	SS	NA	NA
G-111654	2662705.60	510715.17	1149.00	8	1141.0	120	1029.4	SS/SH	NA	NA
G-111826	2626287.61	555013.24	1191.69	15	1176.7	NA	NA	NA	NA	NA
G-111906	2606672.10	526507.40	1200.44	15	1185.4	NA	NA	NA	NA	NA
G-111907	2606600.60	526526.36	1200.44	15	1185.4	NA	NA	NA	NA	NA
G-111937	2646427.60	553371.47	1133.46	22	1111.5	NA	NA	NA	NA	NA
G-112045	2593197.94	486970.77	1217.00	38	1179.0	81	1136.4	SH/SS	NA	NA
G-112285A	2606623.66	512152.24	1180.44	18	1162.4	NA	NA	NA	NA	NA
G-112285B	2606583.75	512246.49	1180.44	18	1162.4	NA	NA	NA	NA	NA
G-112285C	2606584.43	512046.75	1180.44	18	1162.4	NA	NA	NA	NA	NA
G-112438	2597988.38	520526.22	1190.50	20	1170.5	120.5	1069.9	SS	NA	NA
G-112950	2643532.00	531729.13	1120.40	12	1108.4	58	1062.8	SH	NA	NA
G-113122	2666722.44	466722.73	1211.10	55	1156.1	103	1108.6	SS/SH	149.6	1061.5
G-113706	2665211.86	507275.75	1256.70	88	1168.6	191.7	1065.0	SH/SS	NA	NA
G-114279	2665985.56	474567.89	1182.90	57	1125.9	76.0	1106.9	SH/SS	118	1064.9
G-115119	2591136.14	537381.29	1219.52	18	1201.5	NA	NA	NA	NA	NA
G-115162	2638558.06	506130.54	1070.59	30	1040.6	NA	NA	NA	NA	NA
G-115212	2666131.64	496043.81	1200.90	81	1119.9	199	1002.3	SS	NA	NA
G-115367	2593796.59	530096.96	1210.47	20	1190.5	NA	NA	NA	NA	NA
G-116034	2656045.21	526215.02	1104.30	13	1091.3	56	1048.7	SH/SS	NA	NA
G-116094	2638537.62	529605.77	1120.40	26	1094.4	40	1080.8	SH	NA	NA
G-116108	2662286.84	491289.61	1076.55	25	1051.5	NA	NA	NA	NA	NA
G-116412	2663132.67	510599.09	1201.40	25	1176.4	NA	NA	NA	NA	NA
G-116437	2667193.04	506925.76	1217.50	38	1179.5	181	1036.9	SS/SH	243	974.5
G-116922B	2639748.89	491855.43	1080.39	17.5	1062.9	NA	NA	NA	NA	NA
G-116922C	2640074.04	491937.26	1080.39	16.5	1063.9	NA	NA	NA	NA	NA
G-116922D	2639856.77	491748.04	1080.38	16.5	1063.9	NA	NA	NA	NA	NA
G-116922E	2640128.71	491863.00	1080.39	20.5	1059.9	NA	NA	NA	NA	NA
G-116922F	2640105.38	491788.38	1080.39	20	1060.4	NA	NA	NA	NA	NA
G-116930	2656352.07	457850.45	1123.40	56	1067.4	62.8	1060.6	SS/SH	89	1034.4
G-117114	2665395.99	477581.66	1130.00	55	1075.0	NA	NA	LS/SH	62	1068.0
G-117225	2627639.62	548997.57	1243.14	85	1158.1	NA	NA	NA	NA	NA
G-117227	2640398.09	478401.04	1070.35	27	1043.3	NA	NA	NA	NA	NA
G-117496	2663757.11	492346.40	1132.87	51	1081.9	80.0	1052.9	SS/SH	NA	NA
G-117775	2621650.19	471889.36	1120.50	15	1105.5	59.6	1060.9	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-117776	2599646.46	470283.98	1190.60	20	1170.6	NA	NA	NA	NA	NA
G-117985	2638290.83	531822.29	1139.60	16	1123.6	45.5	1094.2	SH/SS	NA	NA
G-118081	2667219.19	506320.26	1211.70	35	1176.6	190	1022.0	SH/SS	NA	NA
G-118091	2640932.95	485724.88	1073.34	27	1046.3	NA	NA	NA	NA	NA
G-119146	2663932.80	492000.52	1133.93	52	1081.9	NA	NA	NA	NA	NA
G-119147	2661813.55	505681.34	1208.50	30	1178.4	100.0	1108.5	SS/SH	NA	NA
G-119229	2651158.48	543809.97	1130.54	10	1120.5	NA	NA	NA	NA	NA
G-119231	2667038.81	512286.55	1260.40	80	1180.4	193	1067.4	SS/SH	250	1010.4
G-120070	2650379.71	542359.04	1123.00	13	1110.0	105	1018.4	SH/SS	NA	NA
G-120168	2638125.01	479257.57	1070.24	27	1043.2	NA	NA	NA	NA	NA
G-120369	2606366.60	485947.32	1121.10	35	1086.1	NA	NA	NA	NA	NA
G-121593	2652678.91	464885.21	1060.50	10	1050.5	NA	NA	NA	NA	NA
G-121796	2632693.70	475385.99	1119.50	20	1099.5	NA	NA	NA	NA	NA
G-121798	2633590.54	490613.29	1110.87	15	1095.9	NA	NA	NA	NA	NA
G-122118	2640451.07	495365.53	1080.40	14	1066.4	59.4	1021.0	SS	NA	NA
G-122122	2649368.01	482242.93	1070.40	16	1054.3	73	997.4	SH	NA	NA
G-122338	2664700.32	523934.28	1174.14	20	1154.1	53.8	1120.4	SS/SH	NA	NA
G-122568	2637761.76	529875.97	1180.00	54	1126.0	82	1098.4	SH/SS	NA	NA
G-122717	2653365.01	470382.92	1060.35	8	1052.3	NA	NA	NA	NA	NA
G-122799	2635001.05	531886.84	1206.20	60	1146.2	115.1	1091.1	SS	NA	NA
G-122977	2602432.54	539080.12	1217.80	20	1197.8	NA	NA	NA	NA	NA
G-123375	2639807.06	472037.93	1091.20	20	1071.2	75	1016.6	SS	NA	NA
G-123715	2647051.66	546977.39	1130.46	12	1118.5	NA	NA	NA	NA	NA
G-124180	2657872.77	497613.26	1080.40	8	1072.4	NA	NA	NA	NA	NA
G-124271	2665372.23	483453.37	1121.14	40	1081.1	NA	NA	NA	NA	NA
G-124396	2648896.83	543107.18	1117.46	20	1097.5	NA	NA	NA	NA	NA
G-124398	2650075.32	542347.11	1124.05	21	1103.0	NA	NA	NA	NA	NA
G-124651	2647953.67	531116.26	1117.42	6	1111.4	NA	NA	NA	NA	NA
G-124901	2637540.70	515081.61	1137.00	15	1122.0	NA	NA	NA	NA	NA
G-125693	2648849.64	544218.14	1111.50	14	1097.5	106	1005.9	SH/SS	NA	NA
G-125697	2663173.06	504322.98	1192.00	66	1126.0	151	1041.4	SS/SH	194	998.0
G-125698	2666604.58	513483.07	1266.00	93	1173.0	213	1053.4	SH/SS	NA	NA
G-125812	2665985.97	504746.94	1236.40	53	1183.4	155	1081.8	SS/SH	NA	NA
G-125924	2637981.65	526897.03	1152.90	65	1087.9	NA	NA	NA	NA	NA
G-126119	2608131.54	533940.11	1200.40	20	1180.4	NA	NA	NA	NA	NA
G-126187A	2616150.11	499805.14	1160.40	25	1135.4	NA	NA	NA	NA	NA
G-126187B	2616067.17	502162.55	1162.10	25	1137.1	NA	NA	NA	NA	NA
G-126187C	2616076.87	502168.05	1162.10	25	1137.1	NA	NA	NA	NA	NA
G-126187D	2616086.84	502173.56	1162.10	25	1137.1	NA	NA	NA	NA	NA
G-126187E	2616083.86	502118.39	1161.50	25	1136.5	NA	NA	NA	NA	NA
G-126187F	2616103.73	502124.31	1161.50	25	1136.5	NA	NA	NA	NA	NA
G-126187G	2616113.43	502129.81	1161.60	25	1136.6	NA	NA	NA	NA	NA
G-126187H	2616142.07	502036.20	1161.40	25	1136.4	NA	NA	NA	NA	NA
G-126187I	2616152.03	502041.72	1161.50	25	1136.5	NA	NA	NA	NA	NA
G-126187J	2616161.73	502047.22	1161.50	25	1136.5	NA	NA	NA	NA	NA
G-126187K	2616278.34	501877.75	1161.30	25	1136.3	NA	NA	NA	NA	NA
G-126187L	2616040.79	502201.20	1162.60	25	1137.6	NA	NA	NA	NA	NA
G-126187M	2616060.18	502212.20	1162.80	25	1137.8	NA	NA	NA	NA	NA
G-126187N	2616050.49	502206.70	1162.70	25	1137.7	NA	NA	NA	NA	NA
G-126288	2637482.06	514674.08	1139.70	20	1119.7	NA	NA	NA	NA	NA
G-126644	2640634.88	497894.82	1081.20	16	1065.2	53.8	1027.3	/LS	70	1011.2
G-127035	2637393.53	474771.20	1104.40	22	1082.4	94.3	1010.0	SH/SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-127071	2644877.95	468099.33	1063.50	23	1040.5	75	988.9	SH	NA	NA
G-127321	2601685.09	514617.09	1182.00	15	1167.0	185.0	997.0	SS	250	932.0
G-127389	2632646.01	461814.43	1116.90	38	1078.9	99.7	1017.3	SS	NA	NA
G-127393	2636477.07	529519.28	1192.20	58	1134.2	108	1084.6	SH/SS	NA	NA
G-127394	2632950.35	540712.58	1238.09	71	1167.1	NA	NA	NA	NA	NA
G-127514	2647711.28	513383.81	1098.40	14	1084.4	93	1005.8	SH	NA	NA
G-127515	2647786.89	513387.02	1098.40	16	1082.4	94	1004.8	SH	NA	NA
G-127516	2648016.00	513396.73	1098.40	5	1093.4	93.6	1004.8	SS	NA	NA
G-127603	2664229.25	508216.77	1233.20	40	1193.2	180	1053.6	SS	NA	NA
G-127649	2647507.15	514590.39	1099.40	18	1081.4	NA	NA	LS	88	1011.4
G-127650	2647358.70	514482.83	1099.40	6	1093.4	NA	NA	LS	80	1019.4
G-127687	2638423.12	530511.36	1125.90	34	1091.9	37.6	1088.3	SH/SS	NA	NA
G-127699	2647582.75	514593.59	1099.40	17	1082.4	89	1010.8	LS/SH	89	1010.4
G-127725	2655873.25	470894.82	1060.30	10	1050.3	NA	NA	NA	NA	NA
G-127739	2646130.09	509165.85	1098.50	6	1092.4	93.7	1004.7	NA	NA	NA
G-127740	2646202.19	509270.16	1098.10	5	1093.1	93.5	1004.6	SH	NA	NA
G-127741	2647045.95	509203.59	1095.00	5	1090.0	93.6	1001.4	NA	NA	NA
G-128002	2665039.49	505415.04	1221.40	50	1171.4	171	1050.8	SS	NA	NA
G-128091	2648025.03	491524.02	1078.40	9	1069.4	99.0	979.4	SS/SH	NA	NA
G-128147	2641794.38	492172.37	1080.40	10	1070.4	NA	NA	NA	NA	NA
G-128171	2666240.19	513062.25	1262.50	92	1170.5	210	1052.9	SS/SH	NA	NA
G-128715	2664058.61	505069.99	1234.10	63	1171.1	165	1069.5	SS/SH	NA	NA
G-128779	2664289.51	496166.99	1149.30	60	1089.3	155	994.7	SH	NA	NA
G-129154	2668380.31	507787.24	1287.80	80	1207.8	248.9	1038.9	SS	NA	NA
G-129323A	2628147.84	485221.18	1136.46	15	1121.5	NA	NA	NA	NA	NA
G-129323B	2628211.72	485527.63	1138.58	14	1124.6	NA	NA	NA	NA	NA
G-129323C	2628126.87	485726.64	1133.04	14	1119.0	NA	NA	NA	NA	NA
G-129323D	2628292.37	485429.71	1140.29	14	1126.3	NA	NA	NA	NA	NA
G-129323E	2628131.06	485625.55	1135.22	14	1121.2	NA	NA	NA	NA	NA
G-129323F	2628135.26	485524.45	1136.38	12	1124.4	NA	NA	NA	NA	NA
G-129442	2623011.64	522375.20	1224.70	15	1209.7	157.4	1067.3	SS	NA	NA
G-129537D	2587908.12	462929.52	1209.94	9.4	1200.5	NA	NA	NA	NA	NA
G-129948	2653212.97	544565.93	1120.46	16	1104.5	NA	NA	NA	NA	NA
G-130357	2662456.87	503178.20	1113.50	18	1095.5	70	1043.9	SS/SH	NA	NA
G-130942E	2642392.81	460270.10	1070.50	9	1061.5	NA	NA	NA	NA	NA
G-130942H	2642524.10	460193.60	1070.40	20	1050.5	NA	NA	NA	NA	NA
G-130942I	2642502.67	460138.74	1070.30	20	1050.8	21.5	1048.8	NA	21.5	1048.8
G-131057	2619782.99	483762.59	1102.60	20	1082.6	NA	NA	NA	NA	NA
G-131161	2659674.99	514502.45	1100.40	18	1082.4	78.0	1022.0	SH	120	980.4
G-131162	2660120.21	514824.35	1100.20	8	1092.2	46	1054.2	SS/SH	102	998.2
G-131282A	2625587.68	478978.43	1124.24	21.5	1102.7	NA	NA	NA	NA	NA
G-131316	2605286.55	523876.59	1193.61	18	1175.6	NA	NA	NA	NA	NA
G-131386	2665628.85	505946.81	1230.30	63	1167.3	149	1081.3	SS/SH	244	986.3
G-131387	2662194.21	553700.80	1120.46	15	1105.5	93.0	1027.5	SH	NA	NA
G-132159	2663194.84	503816.55	1156.00	45	1111.0	150.0	1006.0	SS	161.9	994.1
G-132237	2639705.16	477241.24	1070.40	16	1054.3	NA	NA	NA	NA	NA
G-132238	2636845.72	476874.86	1109.87	20	1089.9	NA	NA	NA	NA	NA
G-132495	2668174.68	466460.27	1231.40	60	1171.4	112	1119.8	SS/SH	NA	NA
G-132687A	2659100.03	459674.59	1050.40	1	1049.3	NA	NA	LS	77.8	972.6
G-132687F	2661058.04	458657.38	1050.35	1.5	1048.8	NA	NA	NA	NA	NA
G-133109	2667940.18	507364.14	1275.76	96	1179.8	NA	NA	NA	NA	NA
G-133469	2647633.38	517027.21	1100.40	17	1083.4	91	1009.8	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-133470	2648073.66	517449.95	1100.50	19	1081.5	91	1009.9	SS	NA	NA
G-133500	2647925.23	517342.38	1100.90	17	1083.9	93	1008.3	SS	NA	NA
G-133835	2661572.34	525520.25	1100.40	10	1090.4	50	1050.8	SS/SH	NA	NA
G-133956	2664076.01	504665.65	1223.80	75	1148.8	163	1061.2	SS	218	1005.8
G-133995	2656858.35	538526.62	1114.10	27	1087.1	45	1069.5	SS/SH	NA	NA
G-134158	2662311.80	533478.27	1110.40	27	1083.4	45	1065.8	SS/SH	NA	NA
G-134247	2638709.89	472598.49	1099.80	15	1084.8	NA	NA	NA	NA	NA
G-135021	2666969.73	536893.93	1129.60	32	1097.6	58	1072.0	SS/SH	132	997.6
G-135038	2657630.60	508641.42	1090.99	10	1081.0	NA	NA	NA	NA	NA
G-135345	2584677.91	551472.04	1229.80	18	1211.8	133.0	1096.8	SS	NA	NA
G-135525	2586967.10	549679.80	1224.68	17	1207.7	NA	NA	NA	NA	NA
G-135565	2595221.66	494610.90	1156.91	14	1142.9	NA	NA	NA	NA	NA
G-135638	2659144.78	550025.15	1121.46	25	1096.5	NA	NA	NA	NA	NA
G-135639	2659149.12	549924.07	1121.46	25	1096.5	NA	NA	NA	NA	NA
G-135640	2659140.44	550126.24	1121.44	25	1096.4	NA	NA	NA	NA	NA
G-135845A	2612342.28	514007.48	1180.44	16	1164.4	NA	NA	NA	NA	NA
G-135845B	2612829.07	512579.33	1178.32	17	1161.3	NA	NA	NA	NA	NA
G-135845C	2612785.48	513083.86	1178.45	16	1162.5	NA	NA	NA	NA	NA
G-135892	2599345.20	496081.04	1119.50	15	1104.5	73.3	1046.2	SS/SH	NA	NA
G-135893	2588695.62	550650.02	1231.50	16	1215.5	NA	NA	NA	NA	NA
G-135895	2646668.35	498251.59	1081.40	20	1061.4	NA	NA	NA	NA	NA
G-135936A	2642244.57	460244.18	1071.18	8	1063.2	NA	NA	NA	NA	NA
G-135936B	2642241.72	460279.06	1071.72	11	1060.7	NA	NA	NA	NA	NA
G-135936C	2642211.07	460226.73	1071.62	11.5	1060.1	NA	NA	NA	NA	NA
G-136000	2635492.49	516515.79	1141.10	40	1101.0	123.7	1017.4	SH	NA	NA
G-136134	2585260.27	550195.04	1230.28	17	1213.3	NA	NA	NA	NA	NA
G-136275	2588800.22	516258.33	1191.40	17	1174.4	109.4	1082.0	SH	NA	NA
G-136279	2608826.59	516828.58	1189.90	18	1171.9	129.9	1059.9	SS	NA	NA
G-136373	2632852.72	539392.02	1241.10	50	1191.1	175	1066.5	SS/SH	238	1003.1
G-136409	2635905.06	495672.08	1086.60	19	1067.6	46.1	1040.5	NA	NA	NA
G-136421	2608726.64	516828.52	1190.40	20	1170.4	130.5	1059.9	SS	NA	NA
G-136422	2621505.64	497706.70	1151.60	20	1131.6	NA	NA	NA	NA	NA
G-136423	2625089.74	510731.06	1160.50	18	1142.5	86.4	1074.1	SS	NA	NA
G-136517	2631126.11	514814.38	1172.00	45	1127.0	138.5	1033.5	SS/SH	164	1008.0
G-136539	2665694.23	504430.54	1221.00	40	1181.0	157	1064.4	SS/SH	NA	NA
G-137471	2664804.36	469959.83	1164.80	25	1139.8	54	1111.2	SS/SH	NA	NA
G-137569	2660472.66	554213.15	1120.46	5	1115.5	NA	NA	NA	NA	NA
G-137827	2664791.31	470263.08	1152.30	20	1132.3	49	1103.7	SS/SH	NA	NA
G-137968	2664713.56	541353.80	1120.45	29	1091.4	NA	NA	NA	NA	NA
G-138258	2636235.21	529810.99	1193.10	55	1138.1	106.9	1086.3	SS	NA	NA
G-138415	2665895.18	506869.74	1267.5	80	1187.1	179	1088.5	SH/SS	NA	NA
G-138488A	2642382.87	460230.68	1070.42	7	1063.4	NA	NA	NA	NA	NA
G-138488D	2642253.02	460266.41	1071.52	10	1061.5	NA	NA	NA	NA	NA
G-138924	2639972.44	502152.41	1076.40	23	1053.4	NA	NA	NA	NA	NA
G-138925	2595275.57	544636.66	1221.90	15	1206.9	133.2	1088.7	NA	NA	NA
G-139010	2666597.95	508318.89	1296.40	55	1241.4	234	1062.8	SH/SS	281.0	1015.40
G-139125	2654872.13	537385.74	1116.30	28	1088.3	105.0	1011.3	SS/SH	128.0	988.30
G-139162	2665772.15	506155.53	1238.40	73	1165.4	174	1064.8	SS/SH	244	994.4
G-139351	2669593.65	467330.71	1221.60	48	1173.6	NA	NA	NA	134	1087.6
G-139424	2636331.60	482136.61	1070.20	20	1050.2	60	1010.6	SS	NA	NA
G-139448	2633061.26	518134.64	1200.00	60	1140.0	NA	NA	NA	NA	NA
G-139933	2610561.33	479696.49	1136.00	17	1119.0	56	1080.0	SS/SH	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-140287A	2627539.30	508547.69	1149.00	8.5	1140.5	NA	NA	NA	NA	NA
G-140287O	2626786.33	504749.37	1148.00	15	1133.0	89	1059.0	SS	NA	NA
G-140758	2664483.95	495385.44	1115.00	35	1080.0	50	1065.0	SS	NA	NA
G-140862	2611211.15	530657.63	1210.00	15	1195.0	NA	NA	NA	NA	NA
G-140863	2619388.19	521051.53	1180.00	30	1150.0	150	1030.0	SS	NA	NA
G-140920	2637695.61	530177.00	1191.00	20	1171.0	NA	NA	NA	NA	NA
G-141331	2641216.62	505008.04	1085.00	5	1080.0	NA	NA	NA	NA	NA
G-141399	2663097.76	495214.41	1110.00	15	1095.0	NA	NA	NA	NA	NA
G-141403	2642303.33	478278.62	1070.00	17	1053.0	NA	NA	NA	NA	NA
G-143075	2640211.20	480661.57	1072.00	20	1052.0	NA	NA	NA	NA	NA
G-143417	2638143.22	531714.82	1155.00	15	1140.0	120	1035.0	SS	NA	NA
G-143517	2629921.74	507046.73	1120.00	10	1110.0	64	1056.0	SS/SH	NA	NA
G-144398	2634798.64	482591.81	1120.00	15	1105.0	NA	NA	NA	NA	NA
G-145118	2631356.88	520342.01	1210.00	52	1158.0	175	1035.0	SS	NA	NA
G-145119	2635720.32	504493.79	1089.00	13	1076.0	47	1042.0	SS	NA	NA
G-145120	2634218.39	514972.84	1140.00	45	1095.0	NA	NA	LS	113	1027.0
G-145121	2628523.08	525368.32	1208.00	20	1188.0	118	1090.0	SH	NA	NA
G-145122	2638506.71	507213.16	1070.00	12	1058.0	NA	NA	LS	51.0	1019.0
G-145123	2638426.50	510035.15	1085.00	11	1074.0	65	1020.0	SS/SH	NA	NA
G-145552	2637664.22	530378.22	1202.00	54	1148.0	84	1118.0	SH/SS	NA	NA
G-145553	2637668.47	530277.13	1195.00	56	1139.0	110	1085.0	SH/SS	NA	NA
G-146158	2610637.67	520347.78	1180.00	20	1160.0	120	1060.0	SS	NA	NA
G-146248C	2633848.36	509732.01	1140.00	40	1100.0	115	1025.0	SS	NA	NA
G-146931	2651208.82	485075.56	1070.00	4	1066.0	68	1002.0	SH/L	NA	NA
G-146939	2617133.75	479700.97	1090.00	15	1075.0	105	985.0	SS	NA	NA
G-148185P	2611861.75	507608.28	1174.00	19	1155.0	NA	NA	NA	NA	NA
G-148398	2663917.65	490216.47	1087.00	30	1057.0	110	977.0	SH/L	NA	NA
G-148410	2657599.34	495950.86	1080.00	9	1071.0	51	1029.0	SH	NA	NA
G-148966	2623960.66	524923.82	1285.00	35	1250.0	210	1075.0	SS	NA	NA
G-149002	2624395.18	520265.38	1210.00	65	1145.0	170	1040.0	SS	NA	NA
G-149398	2657160.89	478969.34	1060.00	14	1046.0	NA	NA	LS	42.5	1017.5
G-149733	2638782.60	519407.24	1150.00	35	1115.0	100	1050.0	SH/SS	NA	NA
G-149922	2661647.84	522535.97	1215.00		1215.0	140	1075.0	SS/SH	NA	NA
G-150702	2630077.52	507863.34	1142.00	15	1127.0	130	1012.0	SS/SH	NA	NA
G-150823	2636767.54	529520.32	1180.00	60	1120.0	120	1060.0	SS	NA	NA
G-151041	2649273.44	489965.73	1080.00	0	1080.0	74	1006.0	SH/SS	NA	NA
G-152358	2632668.27	475444.68	1120.00	20	1100.0	NA	NA	NA	NA	NA
G-152423	2642253.40	495524.74	1080.00	20	1060.0	NA	NA	NA	NA	NA
G-153602	2634671.20	504875.22	1091.00	20	1071.0	50	1041.0	SS	NA	NA
G-153713	2605596.74	511717.50	1180.00	17	1163.0	114	1066.0	SH/SS	NA	NA
G-153902	2638302.19	528105.90	1152.00	17	1135.0	70	1082.0	SH/SS	NA	NA
G-154606	2649739.57	492264.05	1078.00	0	1078.0	104	974.0	SS	NA	NA
G-155268	2637442.41	528960.27	1175.00	55	1120.0	85	1090.0	SH/SS	NA	NA
G-155443	2660010.85	513806.95	1100.00	8	1092.0	66	1034.0	SH/SS	110.0	990.0
G-155951	2648713.27	493389.18	1079.00	0	1079.0	101	978.0	SS	NA	NA
G-156989	2658409.46	517434.71	1208.00	60	1148.0	120	1088.0	SH	235.0	973.0
G-157016	2638628.54	527806.01	1142.00	18	1124.0	58	1084.0	SH	NA	NA
G-157943	2656897.83	488355.98	1074.00	8	1066.0	53	1021.0	SS	NA	NA
G-158324	2652739.87	481494.94	1072.00	6	1066.0	59	1013.0	SS	NA	NA
G-159342	2649678.98	484484.03	1070.00	2	1068.0	60	1010.0	SS	78	992.0
G-159651	2637273.35	529490.91	1180.00	50	1130.0	98	1082.0	SH	NA	NA
G-159854	2614652.77	507651.59	1169.00	20	1149.0	117	1052.0	SH/SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G-159905A	2607251.09	504331.85	1070.00	37	1033.0	NA	NA	NA	NA	NA
G-159905R	2607394.19	504388.30	1070.00	37	1033.0	NA	NA	NA	NA	NA
G-160012	2637634.28	470852.14	1080.00	2	1078.0	75	1005.0	SS	NA	NA
G-160055	2649383.90	490719.81	1080.00	0	1080.0	65	1015.0	SH/SS	NA	NA
G-160651	2656158.16	505366.16	1090.00	3	1087.0	52	1038.0	SS	NA	NA
G-160679	2636988.43	529721.99	1190.00	65	1125.0	106	1084.0	SS/SH	NA	NA
G-161181	2608083.60	491426.47	1110.00	12	1098.0	46	1064.0	SS/SH	NA	NA
G-162095	2631823.15	508025.18	1145.00	19	1126.0	101	1044.0	SS	138	1007.0
G-163267	2619295.69	512520.86	1176.00	17	1159.0	135	1041.0	SS	210	966.0
G-172955	2607995.32	523075.39	1201.00	14	1187.0	134.0	1067.0	SH	NA	NA
G-173725	2658254.35	469699.21	1055.00	6	1049.0	NP	NP	NP	56	999.0
G-177249	2629922.13	492282.20	1128.00	18	1110.0	87.0	1041.0	SS	195	933.0
G-177837	2621869.58	492076.24	1153.00	4	1149.0	121.0	1032.0	SS	215	938.0
G1-14	2604789.88	522888.56	1197.06	17.5	1179.6	NA	NA	NA	NA	NA
G1-15	2605212.50	522700.67	1196.13	17	1179.1	NA	NA	NA	NA	NA
G1-24	2604191.65	522957.92	1201.93	4	1197.9	NA	NA	NA	NA	NA
G1-27	2605356.11	521831.92	1196.09	15	1181.1	NA	NA	NA	NA	NA
G1-35	2603907.67	522663.73	1202.78	23.5	1179.3	NA	NA	NA	NA	NA
G1-37	2604372.91	522022.90	1204.63	16.5	1188.1	NA	NA	NA	NA	NA
G1-47	2604073.83	522023.30	1200.44	14.5	1185.9	NA	NA	NA	NA	NA
G2-02	2617342.65	516195.96	1188.31	15	1173.3	NA	NA	NA	NA	NA
G2-03	2618199.46	517875.80	1163.49	11	1152.5	NA	NA	NA	NA	NA
G2-04	2617482.72	512662.81	1174.96	19	1156.0	NA	NA	NA	NA	NA
G2-08	2624880.84	514649.89	1161.32	16	1145.3	NA	NA	NA	NA	NA
G2-12	2624516.94	512019.68	1164.05	25	1139.0	NA	NA	NA	NA	NA
G2-14	2619251.33	509115.56	1166.84	18	1148.8	NA	NA	NA	NA	NA
G2-18	2628776.47	509528.26	1151.51	30	1121.5	NA	NA	NA	NA	NA
G2-20	2624861.48	504537.13	1147.84	15	1132.8	NA	NA	NA	NA	NA
G2-21	2626613.71	505871.77	1155.34	17	1138.3	NA	NA	NA	NA	NA
G2-22	2628300.09	508223.79	1115.03	14	1101.0	NA	NA	NA	NA	NA
G2-25	2626906.41	501541.52	1143.81	20	1123.8	NA	NA	NA	NA	NA
G2-26	2629241.84	504303.36	1140.78	15	1125.8	NA	NA	NA	NA	NA
G2-27	2631610.92	505688.40	1143.95	17	1127.0	NA	NA	NA	NA	NA
G2-30	2629407.58	500378.92	1139.44	15	1124.4	NA	NA	NA	NA	NA
G2-31	2632100.02	501708.76	1122.72	7	1115.7	NA	NA	NA	NA	NA
G2-32	2633343.39	504358.43	1105.31	12	1093.3	NA	NA	NA	NA	NA
G2-34	2632709.15	496465.34	1088.57	25	1063.6	NA	NA	NA	NA	NA
G2-35	2632814.94	498254.30	1090.30	20	1070.3	NA	NA	NA	NA	NA
G2-36	2634931.90	499248.41	1075.10	10	1065.1	NA	NA	NA	NA	NA
G2-37	2634854.10	501835.47	1084.68	15.5	1069.2	NA	NA	NA	NA	NA
G2-38	2634612.13	504462.41	1091.20	15	1076.2	NA	NA	NA	NA	NA
G2-39	2634873.46	497422.92	1070.77	25	1045.8	NA	NA	NA	NA	NA
G3-01	2605859.44	512043.57	1178.12	16	1162.1	NA	NA	NA	NA	NA
G3-02	2607701.02	512271.24	1176.68	18.5	1158.2	NA	NA	NA	NA	NA
G3-04	2605425.21	508782.15	1173.08	13	1160.1	NA	NA	NA	NA	NA
G3-05	2607191.85	508980.59	1174.98	18	1157.0	NA	NA	NA	NA	NA
G3-07	2610433.32	508885.07	1175.70	16	1159.7	NA	NA	NA	NA	NA
G3-08	2605044.23	505615.49	1167.62	21	1146.6	NA	NA	NA	NA	NA
G3-12	2611896.15	506279.04	1166.25	14	1152.2	NA	NA	NA	NA	NA
G3-13	2605706.80	501382.46	1157.58	20	1137.6	NA	NA	NA	NA	NA
G3-15	2610482.55	501762.47	1165.86	17	1148.9	NA	NA	NA	NA	NA
G3-16	2612511.58	501810.77	1161.50	22	1139.5	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
G3-19	2608510.23	498292.41	1159.93	19.5	1140.4	NA	NA	NA	NA	NA
GCW-1	2622991.70	511987.67	1169.50	15	1154.5	NA	NA	NA	NA	NA
GCW-2	2613252.36	506039.55	1170.40	11.5	1158.9	NA	NA	NA	NA	NA
GP-T100-001	2610718.84	493494.12	1122.56	3.3	1119.3	99.0	1023.6	SH	NA	NA
GP-T100-002	2611504.09	493526.16	1118.90	3.5	1115.4	95.0	1023.9	SH	NA	NA
GP-T65-001	2614874.89	504899.82	1171.76	10.5	1161.3	NA	NA	NA	NA	NA
GP-T65-005	2614716.29	504905.79	1171.67	12	1159.7	NA	NA	NA	NA	NA
GP-T65-012	2615110.37	504078.27	1171.64	13	1158.6	NA	NA	NA	NA	NA
GP-T65-013	2614728.74	504123.44	1166.46	17	1149.5	NA	NA	NA	NA	NA
GP-T65-018	2615767.56	503143.65	1168.75	18	1150.7	NA	NA	NA	NA	NA
GP-T66-008	2616151.65	502035.65	1168.77	16	1152.8	NA	NA	NA	NA	NA
GP-T74-007	2612603.42	493182.22	1139.33	1.5	1137.8	NA	NA	NA	NA	NA
H-01	2629721.25	493738.95	1138.29	26	1112.3	NA	NA	NA	NA	NA
H-02	2638383.56	499425.65	1081.15	13	1068.1	NA	NA	NA	NA	NA
H-03	2637359.79	501924.85	1082.50	13	1069.5	NA	NA	NA	NA	NA
H-04	2631087.41	488498.28	1143.28	7	1136.3	NA	NA	NA	NA	NA
H-05	2638133.05	496237.51	1079.55	19	1060.6	NA	NA	NA	NA	NA
H-06	2640063.71	499294.15	1081.61	13	1068.6	NA	NA	NA	NA	NA
H-07	2640042.56	500739.32	1082.91	15	1067.9	NA	NA	NA	NA	NA
H2-01	2603683.70	522077.52	1200.44	14	1186.4	NA	NA	NA	NA	NA
H2-02	2604184.32	522045.36	1201.03	16	1185.0	NA	NA	NA	NA	NA
H2-03	2605033.15	521570.05	1201.43	15	1186.4	NA	NA	NA	NA	NA
H2-04	2604469.42	522502.36	1201.13	12	1189.1	NA	NA	NA	NA	NA
LL1-002	2605362.62	510372.94	1179.90	13	1166.9	NA	NA	NA	NA	NA
LL1-039	2606129.33	509640.37	1178.07	16	1162.1	NA	NA	NA	NA	NA
LL1-047	2606341.82	509594.76	1173.00	2	1171.0	NA	NA	NA	NA	NA
LL1-048	2606436.15	509735.37	1174.21	12	1162.2	NA	NA	NA	NA	NA
LL1-055	2606432.60	509497.27	1170.59	11	1159.6	NA	NA	NA	NA	NA
LL1-068	2606079.17	509217.02	1178.81	15	1163.8	NA	NA	NA	NA	NA
LL1-069	2606174.50	509102.13	1180.32	14	1166.3	NA	NA	NA	NA	NA
LL1-075	2606242.94	508772.14	1175.79	15	1160.8	NA	NA	NA	NA	NA
LL1-080	2606619.37	508779.48	1171.54	14	1157.5	NA	NA	NA	NA	NA
LL1-094	2606323.60	507699.06	1171.23	13	1158.2	NA	NA	NA	NA	NA
MW-01A	2618459.72	511743.03	1174.40	8	1166.4	NA	NA	NA	NA	NA
MW-01B	2618469.56	511743.23	1174.21	8	1166.2	NA	NA	NA	NA	NA
MW-02A	2606800.10	506250.32	1172.62	7	1165.6	99.5	1073.1	SS	NA	NA
MW-02B	2606808.90	506255.48	1172.73	7	1165.7	NA	NA	NA	NA	NA
MW-03A	2607532.26	506223.42	1177.65	8	1169.7	146.0	1031.7	SH	NA	NA
MW-03B	2607542.05	506225.42	1177.60	9	1168.6	NA	NA	NA	NA	NA
MW-04A	2612041.94	506256.77	1166.51	8	1158.5	103.5	1063.0	SH	NA	NA
MW-04B	2612051.44	506259.36	1166.43	15	1151.4	NA	NA	NA	NA	NA
MW-05A	2613044.09	507097.63	1166.10	14	1152.1	100.8	1065.3	SH	NA	NA
MW-05B	2613053.87	507097.47	1165.88	14	1151.9	NA	NA	NA	NA	NA
MW-06A	2617375.69	506522.12	1163.40	16	1147.4	100.0	1063.4	SH	NA	NA
MW-06B	2617384.60	506525.48	1163.55	16	1147.6	NA	NA	NA	NA	NA
MW-07A	2618267.09	507274.82	1162.68	18	1144.7	99.5	1063.2	SH	NA	NA
MW-07B	2618276.52	507276.11	1162.33	18	1144.3	NA	NA	NA	NA	NA
MW-08A	2622863.97	506814.76	1163.62	16	1147.6	123.0	1040.6	SS	NA	NA
MW-08B	2622872.08	506820.56	1163.60	16	1147.6	NA	NA	NA	NA	NA
MW-09A	2623570.81	507435.84	1168.78	16.4	1152.4	127.7	1041.1	SS	NA	NA
MW-09B	2623580.33	507436.09	1169.00	18	1151.0	NA	NA	NA	NA	NA
MW-09D	2623593.10	507436.00	1169.31	16.5	1152.8	121.6	1047.7	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
MW-11	2626486.32	509499.80	1150.76	16	1134.8	48.0	1102.8	SS	NA	NA
MW-12	2606856.25	509013.88	1176.27	11	1165.3	NA	NA	NA	NA	NA
MW-13	2612231.38	509178.55	1172.84	16.6	1156.2	NA	NA	NA	NA	NA
MW-14	2617504.71	509391.07	1176.80	8	1168.8	NA	NA	NA	NA	NA
MW-15	2622745.33	509482.90	1167.71	12.5	1155.2	NA	NA	NA	NA	NA
MW-16C	2604917.63	514034.74	1186.74	13.7	1173.0	NA	NA	NA	NA	NA
MW-17A	2603293.03	499100.33	1126.40	24.3	1102.1	57.0	1069.4	SH	NA	NA
MW-17B	2603293.03	499101.48	1126.20	24.3	1101.9	56.8	1069.4	SH	NA	NA
MW-18A	2629150.33	506832.34	1142.80	8	1134.8	100.8	1042.0	SS	NA	NA
MW-18C	2629148.53	506821.93	1143.38	15.5	1127.9	NA	NA	NA	NA	NA
MW-19C	2618426.14	517568.83	1156.64	5.5	1151.1	NA	NA	NA	NA	NA
MW-20B	2616633.43	493191.47	1157.72	10	1147.7	111.6	1046.1	SS	NA	NA
MW-20C	2616611.43	493187.61	1157.84	6.2	1151.6	NA	NA	NA	NA	NA
MW-20D3	2616669.39	493190.03	1158.21	NA	NA	135.5	1022.7	SS	235	923.2
MW-21A	2607121.37	503524.81	1163.72	20	1143.7	NA	NA	NA	NA	NA
MW-21B	2607111.29	503524.05	1163.67	20	1143.7	NA	NA	NA	NA	NA
MW-21D	2607131.41	503525.83	1163.67	19.9	1143.8	127.3	1036.4	SS	NA	NA
MW-22A	2606598.39	510402.07	1174.93	14.8	1160.1	99.5	1075.4	SH	NA	NA
MW-22B	2606604.48	510403.43	1174.81	15	1159.8	NA	NA	NA	NA	NA
MW-23A	2606402.57	509376.37	1171.88	14	1157.9	99.3	1072.6	SH	NA	NA
MW-23B	2606393.06	509383.87	1172.05	14	1158.1	NA	NA	NA	NA	NA
MW-24A	2608476.90	501919.83	1161.37	15.8	1145.6	125.0	1036.4	SH	NA	NA
MW-24B	2608477.73	501909.01	1161.27	16	1145.3	NA	NA	NA	NA	NA
MW-25A	2608308.41	504875.16	1173.23	14	1159.2	NA	NA	NA	NA	NA
MW-25B	2608308.27	504885.58	1172.93	13	1159.9	NA	NA	NA	NA	NA
MW-25D	2608308.83	504864.77	1173.54	13.5	1160.0	145.0	1028.5	SS	NA	NA
MW-26A	2609860.44	508825.09	1172.44	14.5	1157.9	103.8	1068.6	SS	NA	NA
MW-26B	2609849.90	508824.87	1172.42	16	1156.4	NA	NA	NA	NA	NA
MW-27A	2611434.64	508103.04	1174.14	8.9	1165.2	106.8	1067.3	SH	NA	NA
MW-27B	2611427.01	508110.55	1174.12	9	1165.1	NA	NA	NA	NA	NA
MW-28A	2612951.02	502242.71	1170.29	10	1160.3	138.0	1032.3	SS	NA	NA
MW-28D	2612969.60	502242.92	1169.84	11	1158.8	138.0	1031.8	SS	NA	NA
MW-29A	2614469.84	498383.11	1158.50	14.3	1144.2	137.1	1021.4	SH	NA	NA
MW-29B	2614460.98	498382.37	1158.75	14.5	1144.3	NA	NA	NA	NA	NA
MW-30A	2616288.05	507064.54	1166.60	19.8	1146.8	101.5	1065.1	SH	NA	NA
MW-30B	2616281.83	507065.86	1166.44	19.8	1146.6	NA	NA	NA	NA	NA
MW-31A	2617943.95	503233.70	1165.35	8	1157.4	106.0	1059.4	SH	NA	NA
MW-31B	2617935.17	503238.63	1165.06	8	1157.1	NA	NA	NA	NA	NA
MW-32A	2619697.25	499062.26	1152.35	17	1135.4	NA	NA	NA	NA	NA
MW-32B	2619696.91	499069.08	1152.31	17	1135.3	NA	NA	NA	NA	NA
MW-32D	2619697.54	499055.63	1152.07	17	1135.1	99.5	1052.6	SH	NA	NA
MW-33A	2622410.84	502847.90	1158.43	7.5	1150.9	NA	NA	NA	NA	NA
MW-33B	2622401.05	502854.78	1158.53	7.5	1151.0	NA	NA	NA	NA	NA
MW-33D	2622421.53	502856.96	1158.29	7.5	1150.8	116.5	1041.8	SS	NA	NA
MW-34A	2624442.78	498806.30	1155.05	20	1135.1	113.0	1042.1	SS	NA	NA
MW-34B	2624443.06	498814.11	1155.00	20	1135.0	NA	NA	NA	NA	NA
MW-34D	2624442.36	498796.40	1154.83	19.9	1134.9	112.9	1041.9	SS	NA	NA
MW-35A	2629595.75	496323.63	1137.80	17.5	1120.3	92.5	1045.3	SS	NA	NA
MW-35B	2629595.84	496329.36	1137.76	17.5	1120.3	NA	NA	NA	NA	NA
MW-35D	2629595.79	496317.09	1137.78	17.5	1120.3	93.0	1044.8	SS	NA	NA
MW-36A	2634814.84	496694.95	1076.84	15	1061.8	NA	NA	NA	NA	NA
MW-36B	2634805.75	496692.86	1076.80	15	1061.8	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
MW-36D	2634824.46	496697.59	1076.93	15.5	1061.4	39.0	1037.9	SS	NA	NA
MW-37A	2633418.32	491651.94	1083.05	10.5	1072.6	41.4	1041.7	SS	NA	NA
MW-37B	2633416.51	491631.65	1083.07	10.5	1072.6	NA	NA	NA	NA	NA
MW-37D	2633413.67	491666.00	1082.98	10.5	1072.5	41.5	1041.5	SS	NA	NA
MW-38A	2638131.88	496248.57	1079.98	13.1	1066.9	49.2	1030.8	SS	NA	NA
MW-38D	2638138.80	496250.60	1079.98	13.1	1066.9	49.2	1030.8	SS	NA	NA
MW-39A	2640062.25	499304.69	1081.00	10.7	1070.3	48.5	1032.5	SS	NA	NA
MW-39D	2640059.10	499298.90	1081.00	10.7	1070.3	48.5	1032.5	SS	NA	NA
MW-40A	2623018.62	511963.35	1170.09	15.7	1154.4	127.6	1042.5	SS	NA	NA
MW-40B	2623006.75	511962.76	1170.38	16	1154.4	NA	NA	NA	NA	NA
MW-41A	2624371.47	512001.33	1166.32	19	1147.3	82.3	1084.0	SS	NA	NA
MW-41B	2624361.83	512001.37	1166.27	19	1147.3	NA	NA	NA	NA	NA
MW-41D	2624353.22	512000.98	1166.41	19	1147.4	82.0	1084.4	SS	NA	NA
MW-42A	2629385.20	501582.56	1144.54	16	1128.5	NA	NA	NA	NA	NA
MW-42B	2629385.28	501592.64	1144.51	16	1128.5	NA	NA	NA	NA	NA
MW-42D	2629384.99	501572.17	1144.41	16	1128.4	97.7	1046.7	SS	NA	NA
MW-43A	2629243.07	504317.91	1141.02	17	1124.0	NA	NA	NA	NA	NA
MW-43B	2629244.24	504328.20	1140.90	17	1123.9	NA	NA	NA	NA	NA
MW-43D	2629242.21	504308.09	1140.95	16.3	1124.7	101.5	1039.5	SS	NA	NA
MW-44A	2632953.68	500415.12	1091.91	16	1075.9	NA	NA	NA	NA	NA
MW-44B	2632954.90	500426.32	1090.62	15.5	1075.1	NA	NA	NA	NA	NA
MW-44D	2632952.84	500403.76	1092.31	17	1075.3	44.0	1048.3	SS	NA	NA
MW-45A	2635043.54	499241.12	1079.57	11.7	1067.9	NA	NA	NA	NA	NA
MW-45B	2635053.92	499241.15	1079.54	11.7	1067.8	NA	NA	NA	NA	NA
MW-45D	2635032.46	499241.76	1079.66	11.7	1068.0	39.0	1040.7	SS	NA	NA
MW-46A	2637464.94	499387.37	1080.71	12	1068.7	47.5	1033.2	SS	NA	NA
MW-46D	2637465.40	499375.99	1080.71	11.5	1069.2	47.5	1033.2	SS	NA	NA
MW-47A	2603834.71	524480.73	1199.76	20	1179.8	126.0	1073.8	SH	NA	NA
MW-47B	2603819.42	524480.21	1199.77	20	1179.8	NA	NA	NA	NA	NA
MW-48A	2607436.75	519363.04	1191.36	18	1173.4	122.0	1069.4	SS	NA	NA
MW-48B	2607442.66	519367.88	1191.35	18	1173.4	NA	NA	NA	NA	NA
MW-48D	2607427.86	519358.29	1191.64	18	1173.6	119.4	1072.2	SS	NA	NA
MW-52A	2627012.55	508784.57	1153.51	18.8	1134.7	60.0	1093.5	SH	NA	NA
MW-52B	2627004.24	508778.94	1153.91	19	1134.9	NA	NA	NA	NA	NA
MW-53A	2627897.77	508169.88	1134.42	10.9	1123.5	99.9	1034.5	SS	NA	NA
MW-53B	2627885.40	508166.61	1134.89	11	1123.9	NA	NA	NA	NA	NA
MW-54A	2627893.82	508858.25	1119.72	23	1096.7	81.5	1038.2	SS	NA	NA
MW-54B	2627883.88	508855.98	1119.72	23.1	1096.6	NA	NA	NA	NA	NA
MW-55A	2628135.40	508377.66	1124.52	5	1119.5	85.0	1039.5	SS	NA	NA
MW-55B	2628125.88	508374.22	1125.08	3	1122.1	NA	NA	NA	NA	NA
MW-56A	2628206.01	508215.32	1124.17	4	1120.2	81.0	1043.2	SS	NA	NA
MW-56B	2628195.32	508217.29	1124.44	3.5	1120.9	NA	NA	NA	NA	NA
MW-57B	2607621.51	516363.44	1194.32	13	1181.3	NA	NA	NA	NA	NA
MW-58A	2620357.49	515008.03	1173.48	26	1147.5	135.0	1038.5	SS	NA	NA
MW-58B	2620346.02	515009.76	1173.40	26	1147.4	134.0	1039.4	SS	NA	NA
MW-59A	2621708.41	515882.45	1161.06	10.5	1150.6	NA	NA	NA	NA	NA
MW-59B	2621700.91	515887.73	1161.29	10	1151.3	NA	NA	NA	NA	NA
MW-59D	2621717.33	515878.49	1160.85	9.5	1151.4	125.0	1035.9	SS	NA	NA
MW-60A	2624702.83	489585.15	1143.95	7.7	1136.3	102.5	1041.5	SH	NA	NA
MW-60B	2624703.22	489598.70	1144.12	7.7	1136.4	NA	NA	NA	NA	NA
MW-61A	2608656.02	492900.05	1106.91	9	1097.9	NA	NA	NA	NA	NA
MW-61B	2608644.38	492898.60	1106.84	9	1097.8	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
MW-61D	2608667.93	492901.85	1106.85	8.9	1098.0	87.5	1019.4	SH	NA	NA
MW-61D3	2608638.09	492901.37	1106.94	NA	NA	85.8	1021.1	SH	189.7	917.2
MW-62A	2635396.62	493874.24	1076.62	17	1059.6	NA	NA	NA	NA	NA
MW-62B	2635385.06	493871.95	1076.52	17	1059.5	NA	NA	NA	NA	NA
MW-62D	2635407.14	493876.96	1076.90	17.1	1059.8	37.6	1039.3	SS	NA	NA
MW-63B	2613167.91	519473.60	1175.66	13	1162.7	NA	NA	NA	NA	NA
MW-64B	2628038.55	510106.02	1142.35	8	1134.4	NA	NA	NA	NA	NA
MW-72A	2622930.98	512064.69	1171.21	17.5	1153.7	NA	NA	NA	NA	NA
MW-73A	2623060.93	511909.15	1167.79	17	1150.8	NA	NA	NA	NA	NA
MW-74A	2623093.85	511934.84	1167.78	17.5	1150.3	NA	NA	NA	NA	NA
MW-79A	2610432.14	492336.21	1107.15	20	1087.2	85.7	1021.5	SH	NA	NA
MW-80D	2610935.55	492068.65	1105.22	20	1085.2	82.5	1022.7	SS	NA	NA
MW-81D	2611633.37	492349.85	1106.40	11	1095.4	94.2	1012.2	SS	NA	NA
MW-82D	2619293.00	493310.90	1147.10	16.1	1131.0	112.0	1035.1	SS	NA	NA
MW-82D3	2619279.94	493326.61	1146.96	NA	NA	124.0	1023.0	SS	220.7	926.3
MW-83D	2621922.97	495288.85	1150.30	13	1137.3	111.0	1039.3	SS	NA	NA
MW-84D	2624275.75	495695.58	1143.20	16.5	1126.7	97.5	1045.7	SS	NA	NA
MW-85D	2628338.54	494428.03	1130.40	12.5	1117.9	84.5	1045.9	SS	NA	NA
MW-86D	2631944.47	493760.43	1111.48	3.5	1108.0	63.0	1048.5	SS	NA	NA
MW-86D3	2631930.05	493767.70	1112.25	NA	NA	69.2	1043.0	SS	171	941.2
MW-87D	2635044.01	491895.21	1075.83	17.3	1058.5	46.0	1029.8	SS	NA	NA
MW-88D	2637648.62	494046.08	1078.71	2	1076.7	45.0	1033.7	SS	NA	NA
MW-88D3	2637636.08	494023.70	1078.55	13.4	1065.2	48.0	1030.6	SS	129	949.6
MW-89D	2610451.41	494254.27	1158.55	15	1143.6	NA	NA	NA	NA	NA
MW-90D	2611244.85	494306.05	1149.25	15	1134.3	125.2	1024.1	SS	NA	NA
MW-90D3	2611247.28	494295.19	1148.97	13.6	1135.4	120.5	1028.5	SS	230	919.0
MW-91D	2612085.70	494327.97	1149.78	11.7	1138.1	120.0	1029.8	SH	NA	NA
MW-92A	2610047.26	492722.58	1106.58	15	1091.6	82.5	1024.1	SH	NA	NA
MW-93A	2612162.89	493551.29	1122.07	15.8	1106.3	95.0	1027.1	SH	NA	NA
MW-94D	2617023.47	496422.56	1150.82	13	1137.8	110.5	1040.3	SH	NA	NA
MW-95D	2617558.46	494509.13	1154.45	15.5	1139.0	118.0	1036.5	SH	NA	NA
MW-96D	2621476.25	493387.89	1146.00	16.8	1129.2	96.5	1049.5	SS	NA	NA
MW-96D3	2621460.85	493395.28	1146.23	NA	NA	102.8	1043.4	SS	227	919.2
MW-97D	2623943.48	493493.13	1140.60	16	1124.6	94.0	1046.6	SS	NA	NA
MW-97D3	2623972.91	493501.03	1140.01	NA	NA	95.0	1045.0	SS	220.3	919.7
MW-98D	2626502.36	493605.21	1139.00	15	1124.0	92.0	1047.0	SS	NA	NA
MW-98D3	2626503.90	493612.64	1139.39	NA	NA	95.5	1043.9	SS	218.8	920.6
MW-99D	2627116.77	498773.68	1160.38	18.1	1142.3	112.0	1048.4	SS	NA	NA
MW-100A	2629718.84	493770.41	1138.60	14	1124.6	94.0	1044.6	SS	NA	NA
MW-100D3	2629710.89	493782.88	1138.52	NA	NA	95.0	1043.5	SS	206	932.5
MW-101D	2610935.30	491574.49	1104.99	30	1075.0	83.0	1022.0	SS	NA	NA
MW-101D3	2610922.47	491563.87	1105.01	NA	NA	83.0	1022.0	SS	188	917.0
MW-102D	2622935.91	514541.49	1168.76	15.2	1153.6	128.0	1040.8	SS	NA	NA
MW-103D	2623589.45	513132.90	1170.78	21	1149.8	126.0	1044.8	SS	NA	NA
MW-104D	2634100.80	499205.35	1078.81	8.8	1070.0	40.5	1038.3	SS	NA	NA
MW-105A	2635041.98	496642.99	1076.84	8.1	1068.7	40.3	1036.5	SS	NA	NA
MW-106D	2630549.50	506842.72	1115.50	7.6	1107.9	68.0	1047.5	SS	NA	NA
MW-107D	2631375.03	506131.87	1136.70	15.3	1121.4	89.2	1047.5	SS	NA	NA
MW-107D3	2631374.08	506117.84	1137.72	NA	NA	89.5	1048.2	SH	153	984.7
MW-108D	2631916.34	505906.33	1127.11	15	1112.1	81.5	1045.6	SS	NA	NA
MW-109A	2634807.18	501896.06	1083.19	11.3	1071.9	46.7	1036.5	SS	NA	NA
MW-10A	2607883.83	496858.27	1147.91	10	1137.9	100.0	1047.9	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
MW-10B	2607893.74	496858.92	1147.74	10	1137.7	NA	NA	NA	NA	NA
MW-110D	2634398.64	504425.93	1091.71	23	1068.7	44.8	1047.0	SS	NA	NA
MW-111A	2636151.56	499337.97	1079.82	7.8	1072.0	40.2	1039.6	SS	NA	NA
MW-112A	2637365.72	501825.77	1082.38	20	1062.4	48.0	1034.4	SH	NA	NA
MW-112D3	2637365.81	501836.65	1082.36	NA	NA	46.7	1035.7	SS	113.5	968.9
MW-113D	2637420.34	500466.05	1080.82	25	1055.8	41.5	1039.3	SS	NA	NA
MW-114D	2637475.70	497209.79	1077.87	14.5	1063.4	48.0	1029.9	SS	NA	NA
MW-115D	2637708.86	495346.84	1079.36	13	1066.4	49.0	1030.4	SS	NA	NA
MW-116D	2636334.22	495293.68	1078.07	24	1054.1	43.0	1035.1	SS	NA	NA
MW-117D	2631042.35	495042.20	1122.36	11.5	1110.9	76.0	1046.4	SS	NA	NA
MW-118A	2625890.44	496207.69	1141.67	20.5	1121.2	97.0	1044.7	SH	NA	NA
MW-119A	2607952.61	499580.81	1159.38	14.2	1145.2	129.9	1029.5	SS	NA	NA
MW-120A	2609372.30	499419.07	1166.72	12.3	1154.4	138.1	1028.6	SS	NA	NA
MW-120D	2609371.09	499409.47	1166.88	12.3	1154.6	138.0	1028.9	SS	NA	NA
MW-121A	2609752.79	500071.02	1170.27	11.3	1159.0	141.8	1028.5	SS	NA	NA
MW-122A	2609240.41	498101.34	1166.25	23.5	1142.8	138.0	1028.3	SH	NA	NA
MW-123A	2608677.91	499909.07	1169.28	12	1157.3	141.9	1027.4	SS	NA	NA
MW-124D	2609125.65	501475.69	1162.24	15.7	1146.5	115.1	1047.1	SS	NA	NA
MW-125A	2609457.06	500663.23	1162.35	15.6	1146.8	NA	NA	NA	NA	NA
MW-125D	2609446.30	500664.74	1161.80	15.6	1146.2	127.5	1034.3	SH	NA	NA
MW-126D	2607483.02	504494.77	1170.71	12.8	1157.9	141.5	1029.2	SS	NA	NA
MW-127A	2606121.55	506918.35	1169.30	15.8	1153.5	128.5	1040.8	SH	NA	NA
MW-128D	2624833.49	498183.94	1154.10	7	1147.1	107.4	1046.7	SS	NA	NA
MW-129D	2627759.96	496536.62	1146.52	16	1130.5	101.0	1045.5	SS	NA	NA
MW-130D	2629047.82	496641.12	1142.69	18.5	1124.2	98.0	1044.7	SS	NA	NA
MW-131D	2626333.42	496933.31	1145.22	15	1130.2	98.0	1047.2	SS	NA	NA
MW-132D	2625250.89	497247.01	1157.27	18.8	1138.5	107.5	1049.8	SS	NA	NA
MW-133D	2622523.17	509713.15	1167.05	12	1155.1	106.5	1060.6	SS	NA	NA
MW-134D	2623421.55	509039.29	1168.85	14.5	1154.4	114.0	1054.9	SH	NA	NA
MW-135D	2623149.03	509752.68	1165.67	13	1152.7	110.0	1055.7	SS	NA	NA
MW-136D	2623043.85	510561.58	1168.06	15.2	1152.9	109.1	1059.0	SS	NA	NA
MW-137D	2622826.93	511700.85	1166.53	16.9	1149.6	104.2	1062.3	SS	NA	NA
MW-138A	2622366.41	512816.57	1173.34	18.1	1155.2	127.2	1046.1	SS	NA	NA
MW-139A	2621290.29	514264.29	1177.69	16.5	1161.2	140.9	1036.8	SS	NA	NA
MW-140D	2634718.42	503365.40	1090.06	10.5	1079.6	46.7	1043.4	SS	NA	NA
MW-141A	2608446.60	502590.64	1162.42	19	1143.4	126.0	1036.4	SS	NA	NA
MW-141B	2608446.50	502597.16	1162.42	19	1143.4	NA	NA	NA	NA	NA
MW-141E	2608446.50	502604.35	1162.35	19	1143.4	NA	NA	NA	NA	NA
MW-142A	2610572.95	495594.89	1154.81	15.3	1139.5	131.0	1023.8	SS	NA	NA
MW-142E	2610563.98	495595.06	1154.55	15.3	1139.3	NA	NA	NA	NA	NA
MW-143B	2621339.98	502719.77	1156.44	16	1140.4	NA	NA	NA	NA	NA
MW-144A	2614012.25	503570.97	1164.51	20	1144.5	101.0	1063.5	SH	NA	NA
MW-145A	2617407.83	500652.84	1161.08	17.5	1143.6	NA	NA	NA	NA	NA
MW-145E	2617414.44	500652.99	1161.26	17.5	1143.8	NA	NA	NA	NA	NA
MW-146A	2618871.66	494899.38	1148.50	13	1135.5	97.0	1051.5	SS	NA	NA
MW-146B	2618871.66	494899.37	1148.44	13	1135.4	NA	NA	NA	NA	NA
MW-147A	2620042.45	494474.75	1149.17	10	1139.2	NA	NA	NA	NA	NA
MW-147B	2620045.18	494471.71	1149.06	10	1139.1	NA	NA	NA	NA	NA
MW-147D	2620047.88	494467.74	1148.87	10	1138.9	NA	NA	NA	NA	NA
MW-148A	2620166.75	504433.59	1158.04	15.5	1142.5	102.0	1056.0	SH	NA	NA
MW-148A	2620166.75	504433.59	1158.04	15.5	1142.5	102.0	NP	SH	NA	NA
MW-148B	2620179.92	504425.78	1161.01	15	1146.0	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
MW-149A	2622398.38	502086.76	1152.64	20	1132.6	NA	NA	NA	NA	NA
MW-150A	2624201.15	499856.55	1147.93	18	1129.9	NA	NA	NA	NA	NA
MW-150B	2624200.78	499864.11	1147.88	18	1129.9	NA	NA	NA	NA	NA
MW-151A	2624392.64	506668.08	1159.08	18	1141.1	NA	NA	NA	NA	NA
MW-151B	2624386.31	506667.26	1159.12	18	1141.1	NA	NA	NA	NA	NA
MW-152B	2627865.21	506805.72	1148.71	21	1127.7	NA	NA	NA	NA	NA
MW-153A	2627200.19	504130.22	1146.55	19	1127.6	99.0	1047.6	SH	NA	NA
MW-154A	2631170.17	504308.25	1141.43	15	1126.4	NA	NA	NA	NA	NA
MW-157D3	2632579.52	499120.26	1101.09	6.7	1094.4	54.3	1046.8	SS	130	971.1
MW-158D	2635266.75	493887.31	1076.98	21	1056.0	34.0	1043.0	SS	NA	NA
MW-158D3	2635286.72	493891.48	1077.11	19.5	1057.6	35.0	1042.1	SS	127	950.1
MW-159A	2629111.80	510307.65	1164.03	22	1142.0	122.0	1042.0	SH	NA	NA
MW-160A	2609501.29	496947.49	1154.92	18	1136.9	132.4	1022.5	SS	NA	NA
MW-160A	2609501.29	496947.49	1154.92	18	1136.9	132.4	1022.5	SS	NA	NA
MW-161A	2608418.56	503133.22	1166.98	13	1154.0	133.0	1034.0	SS	NA	NA
MW-161A	2608418.56	503133.22	1166.98	13	1154.0	133.0	1034.0	SS	NA	NA
MW-162A	2618293.12	498773.02	1149.34	15	1134.3	95.0	1054.3	SS	NA	NA
MW-162A	2618293.12	498773.02	1149.34	15	1134.3	95.0	1054.3	SS	NA	NA
MW-164A	2617493.86	498294.97	1150.51	10.3	1140.2	100.0	1050.5	SS	NA	NA
MW-164A	2617493.86	498294.97	1150.51	10.3	1140.2	100.0	1050.5	SS	NA	NA
MW-166A	2618657.29	496609.56	1151.21	17	1134.2	104.0	1047.2	SS	NA	NA
MW-166A	2618657.29	496609.56	1151.21	17	1134.2	104.0	1047.2	SS	NA	NA
MW-167A	2619420.51	497423.40	1148.16	18	1130.2	98.0	1050.2	SS	NA	NA
MW-167A	2619420.51	497423.40	1148.16	18	1130.2	98.0	1050.2	SS	NA	NA
MW-168A	2620186.36	498009.89	1153.06	12.2	1140.9	102.2	1050.9	SS	NA	NA
MW-168A	2620186.36	498009.89	1153.06	12.1	1141.0	102.2	1050.9	SS	NA	NA
MW-169A	2619932.75	495501.60	1146.05	18	1128.0	102.0	1044.0	SS	NA	NA
MW-169A	2619932.75	495501.60	1146.05	18	1128.0	102.0	1044.0	SS	NA	NA
MW-170A	2621225.19	496442.89	1146.02	14	1132.0	98.0	1048.0	SS	NA	NA
MW-170A	2621225.19	496442.89	1146.02	14	1132.0	98.0	1048.0	SS	NA	NA
MW-171A	2615668.94	501881.31	1160.55	18	1142.5	NA	NA	NA	NA	NA
MW-171A	2615668.94	501881.31	1160.55	18	1142.5	NA	NA	NA	NA	NA
MW-180A	2621006.62	495570.71	1155.38	13	1142.4	111.0	1044.4	SS	NA	NA
MW-180D3	2621044.63	495576.60	1158.76	NA	NA	107.0	1051.8	SS	235.5	923.3
OW-01	2607922.86	499747.98	1159.51	20	1139.5	152.5	1007.0	SH	NA	NA
OW-02	2607882.80	499737.42	1159.42	20	1139.4	151.0	1008.4	SH	NA	NA
OW-03	2607936.15	499790.42	1159.38	20	1139.4	152.0	1007.4	SH	NA	NA
OW-04	2607936.23	499764.72	1159.50	20	1139.5	152.5	1007.0	SH	NA	NA
OW-05	2634934.82	495184.29	1078.11	16.5	1061.6	39.0	1039.1	SS	NA	NA
OW-06	2634884.33	495208.11	1076.55	17	1059.6	39.5	1037.1	SS	NA	NA
OW-07	2634884.15	495203.34	1076.66	16.5	1060.2	39.5	1037.2	SS	NA	NA
OW-08	2634786.34	495194.19	1075.64	17	1058.6	39.7	1035.9	SS	NA	NA
OW-09	2634937.80	495134.36	1078.72	16.5	1062.2	40.0	1038.7	SS	NA	NA
OW-10	2635084.86	495206.73	1076.84	16	1060.8	39.0	1037.8	SS	NA	NA
OW-11	2635254.36	495167.81	1075.87	21	1054.9	44.0	1031.9	SS	NA	NA
OW-12	2636332.13	495279.48	1077.53	15.8	1061.7	41.0	1036.5	SS	NA	NA
OW-13	2634929.33	495121.80	1078.32	20	1058.3	39.0	1039.3	SS	NA	NA
OW-14	2634937.07	494987.77	1077.67	19.5	1058.2	39.0	1038.7	SS	NA	NA
OW-15	2634948.12	494788.06	1078.15	22	1056.2	42.0	1036.2	SS	NA	NA
OW-16	2633480.01	495159.25	1075.13	22.8	1052.3	39.0	1036.1	SS	NA	NA
OW-17	2607999.94	499877.66	1159.10	37	1122.1	150.0	1009.1	SS	NA	NA
OW-18	2608114.43	499884.02	1159.80	46	1113.8	149.5	1010.3	SS	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
OW-19	2608709.98	499902.62	1169.49	14.8	1154.7	149.0	1020.5	SS	NA	NA
OW-20	2607954.58	499696.42	1160.12	34	1126.1	148.0	1012.1	SS	NA	NA
OW-21	2607936.83	499559.45	1156.90	17	1139.9	154.0	1002.9	SS	NA	NA
OW-22	2608019.74	499355.14	1158.59	24	1134.6	152.5	1006.1	SS	NA	NA
OW-23	2607158.35	499656.44	1158.88	43	1115.9	136.5	1022.4	SS	NA	NA
OW-24	2629552.06	496984.50	1149.56	15	1134.6	101.0	1048.6	SS	NA	NA
OW-25	2629511.42	496932.08	1152.33	2	1150.3	111.0	1041.3	SH	NA	NA
OW-26	2629214.17	496664.05	1145.12	10	1135.1	101.0	1044.1	SH	NA	NA
OW-27	2629582.05	496942.21	1149.80	16	1133.8	98.0	1051.8	SH	NA	NA
OW-28	2629581.52	496898.00	1150.76	9	1141.8	101.0	1049.8	SH	NA	NA
OW-30	2629965.06	497303.88	1128.69	16	1112.7	87.0	1041.7	SH	NA	NA
OW-31	2624242.96	497898.99	1152.35	37	1115.4	104.0	1048.4	SS	NA	NA
OW-32	2624139.95	497845.07	1151.31	15	1136.3	104.0	1047.3	SS	NA	NA
OW-33	2623750.57	497669.79	1152.38	16	1136.4	NA	NA	NA	NA	NA
OW-34	2624320.18	497868.57	1151.61	12	1139.6	102.0	1049.6	SS	NA	NA
OW-35	2624360.77	497738.45	1150.66	17	1133.7	104.0	1046.7	SS	NA	NA
OW-36	2624413.00	497337.59	1153.96	19	1135.0	113.0	1041.0	SS	NA	NA
OW-37	2624838.27	498178.35	1154.41	13	1141.4	108.8	1045.7	SS	NA	NA
OW-38	2621733.08	496294.86	1147.66	18	1129.7	98.0	1049.7	SH	NA	NA
OW-39	2621620.02	496212.33	1147.82	19	1128.8	97.0	1050.8	SH	NA	NA
OW-40	2621297.36	495975.58	1154.21	28	1126.2	104.0	1050.2	SS	NA	NA
OW-41	2621816.64	496281.90	1146.75	18	1128.8	95.0	1051.8	SH	NA	NA
OW-42	2621899.70	496169.43	1147.71	17	1130.7	95.0	1052.7	SH	NA	NA
OW-43	2622135.38	495845.76	1153.24	15	1138.2	103.0	1050.2	SH	NA	NA
OW-44	2622302.63	496682.05	1144.63	18	1126.6	94.0	1050.6	SH	NA	NA
OW-45	2619203.17	494842.21	1149.11	19	1130.1	114.0	1035.1	SS	NA	NA
OW-46	2619059.00	494783.36	1148.16	18	1130.2	105.5	1042.7	SS	NA	NA
OW-47	2618684.83	494630.88	1149.85	16	1133.9	100.0	1049.9	SH	NA	NA
OW-48	2619283.37	494800.47	1150.11	14.5	1135.6	118.0	1032.1	SS	NA	NA
OW-49	2619315.78	494671.87	1150.81	19	1131.8	114.0	1036.8	SS	NA	NA
OW-50	2619465.62	494300.16	1147.70	19.5	1128.2	104.5	1043.2	SS	NA	NA
OW-51	2619790.64	495096.02	1146.50	10	1136.5	NA	NA	NA	NA	NA
OW-109	2634943.10	495096.30	1075.11	14	1061.1	39.0	1036.1	SS	115	960.1
OW-114R	2621051.50	495691.94	1157.72	16	1141.7	105.0	1052.7	SS	238.2	919.5
OW-117	2627120.29	497394.59	1146.70	NA	NA	99.2	1047.5	SS	209	937.7
OW-120	2611545.22	493538.69	1114.10	NA	NA	90.0	1024.1	SS	215	899.1
PTMW-01I	2607249.86	504308.26	1164.80	18	1146.8	NA	NA	NA	NA	NA
PTMW-01S	2607249.07	504314.26	1164.80	18	1146.8	NA	NA	NA	NA	NA
PTMW-02I	2607285.87	504442.69	1166.30	17	1149.3	NA	NA	NA	NA	NA
PTMW-02S	2607288.04	504436.69	1166.30	17	1149.3	NA	NA	NA	NA	NA
PTMW-03D	2607319.02	504391.70	1165.70	14	1151.7	NA	NA	NA	NA	NA
PTMW-03I	2607324.72	504381.50	1165.70	17	1148.7	NA	NA	NA	NA	NA
PTMW-03S	2607322.22	504386.60	1165.60	17	1148.6	NA	NA	NA	NA	NA
PTMW-04D	2607353.76	504348.75	1165.70	27	1138.7	NA	NA	NA	NA	NA
PTMW-04I	2607346.69	504357.00	1165.50	18	1147.5	NA	NA	NA	NA	NA
PTMW-04S	2607349.97	504353.21	1165.60	18	1147.6	NA	NA	NA	NA	NA
PTMW-05I	2607357.16	504324.38	1165.90	18	1147.9	NA	NA	NA	NA	NA
PTMW-05S	2607361.67	504324.01	1165.90	18	1147.9	NA	NA	NA	NA	NA
PTMW-06D	2607361.81	504381.76	1166.10	20	1146.1	NA	NA	NA	NA	NA
PTMW-06I	2607366.44	504374.81	1166.10	18	1148.1	NA	NA	NA	NA	NA
PTMW-06S	2607363.93	504378.35	1166.20	18	1148.2	NA	NA	NA	NA	NA
PTMW-07I	2607384.66	504386.78	1166.60	18	1148.6	NA	NA	NA	NA	NA

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
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Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvanian (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
PTMW-07S	2607380.85	504389.56	1166.60	18	1148.6	NA	NA	NA	NA	NA
PZ-11	2633021.33	501935.48	1097.61	21.5	1076.1	NA	NA	NA	NA	NA
PZ-12	2632569.72	499118.82	1105.36	15	1090.4	NA	NA	NA	NA	NA
PZ-13	2633396.43	499150.91	1085.78	19	1066.8	NA	NA	NA	NA	NA
PZ-14	2633403.55	499154.07	1084.94	19	1065.9	NA	NA	NA	NA	NA
S64-1	2622147.92	501338.92	1158.40	15	1143.4	105.0	1053.4	SS	NA	NA
S67-1	2610710.31	499819.17	1166.40	20	1146.4	125.0	1041.4	SS	NA	NA
SB-T59-07	2611706.60	497243.01	1175.00	15.1	1159.9	134.8	1040.2	SH/SS	NA	NA
SB-T60-02	2609527.00	495561.00	1156.00	11	1145.0	137.0	1019.0	SS	NA	NA
SB-T61-05	2619654.48	496031.17	1149.70	17.7	1132.0	96.1	1053.6	SS	NA	NA
SB-T62-01	2618413.40	494621.64	1152.70	13.5	1139.2	101.0	1051.7	SS	NA	NA
SB-T63-03	2619609.67	494392.92	1148.50	16.3	1132.2	101.0	1047.5	SS	NA	NA
T42-1	2606071.96	514287.87	1181.44	16	1165.4	106.0	1075.4	SH	NA	NA
T42-10	2609088.88	519505.26	1191.45	25	1166.4	124.0	1067.4	SH	NA	NA
T42-20A	2603800.79	509724.91	1175.43	15	1160.4	125.0	1050.4	SH	NA	NA
T42-4A	2606933.15	512443.52	1178.43	16	1162.4	108.0	1070.4	SH	NA	NA
T42-6A	2605273.13	514133.02	1182.44	15	1167.4	107.0	1075.4	SH	NA	NA
T42-7	2618672.65	505566.78	1159.41	16.5	1142.9	99.0	1060.4	SH	NA	NA
T42-7A	2609949.14	510867.74	1178.00	30	1148.0	108.0	1070.0	SH	NA	NA
T42-8	2613525.74	505285.32	1169.41	17	1152.4	111.0	1058.4	SH	NA	NA
T42-9	2608523.46	505864.58	1170.42	45	1125.4	134.0	1036.4	SH	NA	NA
T42-9A	2624097.82	509349.23	1168.41	30	1138.4	85.0	1083.4	SH	NA	NA
T62-2B	2603590.15	503374.89	1173.42	8.8	1164.6	108.9	1064.5	SH	NA	NA
T62-3	2609250.35	493411.50	1163.00	10.5	1152.5	94.0	1069.0	SS	NA	NA
T62-3B	2618953.27	498700.15	1173.00	12.5	1160.5	111.0	1062.0	SS	196.2	976.8
T62-7	2624203.07	498619.97	1105.00	20	1085.0	98.0	1007.0	SS	NA	NA
T62-8	2624007.26	504166.57	1153.00	16	1137.0	115.0	1038.0	SS	NA	NA
T63-1	2614138.48	499970.13	1162.00	18	1144.0	135.0	1027.0	SH	186	976.0
T63-2	2619861.04	510623.02	1173.00	18	1155.0	119.0	1054.0	SH	198	975.0
T64-1	2621732.02	501252.03	1158.00	15	1143.0	105.0	1053.0	SS	NA	NA
T64-1A	2609303.79	509008.72	1172.00	15	1157.0	110.0	1062.0	SH	NA	NA
T64-2A	2609410.57	507909.60	1175.00	20	1155.0	114.0	1061.0	SH	NA	NA
T64-8-A	2611878.54	505977.74	1170.00	13	1157.0	123.5	1046.5	SH	NA	NA
T65-1	2609193.24	510344.78	1181.00	20	1161.0	118.0	1063.0	SH	NA	NA
T65-3	2617814.91	506744.52	1176.00	20	1156.0	115.0	1061.0	SH	175	1001.0
T65-4	2616840.22	502806.11	1166.41	20	1146.4	103.0	1063.4	SH	177	989.4
T65-5	2621071.94	505581.47	1165.00	20	1145.0	115.0	1050.0	SH	178	987.0
T65-6	2620205.80	508225.62	1172.00	20	1152.0	117.0	1055.0	SS	218	954.0
T65-7	2615509.47	506517.16	1170.00	20	1150.0	112.0	1058.0	SH	190	980.0
T65-8	2613969.03	502655.46	1165.00	20	1145.0	101.0	1064.0	SH	155	1010.0
T65-9	2609443.86	505760.23	1174.00	20	1154.0	145.0	1029.0	SH	NA	NA
T66-1	2628038.62	505824.10	1143.00	15	1128.0	106.0	1037.0	SS	NA	NA
T66-2	2619471.49	505721.64	1155.00	10	1145.0	100.0	1055.0	SS	NA	NA
T66-3	2625686.96	502960.28	1150.40	15	1135.4	100.0	1050.4	SS	NA	NA
T66-4	2628170.10	500247.72	1140.00	15	1125.0	95.0	1045.0	SS	170	970.0
T66-5	2626925.48	505506.53	1152.00	20	1132.0	75.0	1077.0	SS	166.5	985.5
T66-6	2626916.79	506167.16	1156.00	15	1141.0	70.0	1086.0	SS	169	987.0
T66-7	2626912.58	506846.99	1159.00	10	1149.0	70.0	1089.0	SS	175	984.0
T66-8	2627973.64	506821.98	1149.00	20	1129.0	100.0	1049.0	SS	155	994.0
T66-9	2628116.46	504554.84	1144.00	15	1129.0	95.0	1049.0	SS	166	978.0
T67-2	2609377.72	497061.56	1179.00	20	1159.0	148.0	1031.0	SS	NA	NA
T68-1	2612322.08	505927.82	1170.00	20	1150.0	120.0	1050.0	SS	166	1004.0

Table 2.2 (Continued)
Elevation of Top of Bedrock and Base of Loess/Overbank Fines
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Boring Name	Easting (NAD 83)	Northing (NAD 83)	Ground Surface Elev. (ft NAVD 88)	Thickness of Loess or Overbank Fines (ft)	Bottom Elev. of Loess or Overbank Fines (ft NAVD 88)	Top of Omadi Depth (ft bgs)	Top of Omadi Elevation (ft NAVD 88)	First Encountered Bedrock Type	Top of Pennsylvania n (ft bgs)	Pennsylvanian Bedrock Elevation (ft NAVD 88)
T70-2	2616474.34	498924.65	1160.00	15	1145.0	100.0	1060.0	SS	173.5	986.5
T70-3	2616190.90	510800.51	1170.00	18	1152.0	105.0	1065.0	SS	192	978.0
T70-4	2607864.27	510157.24	1175.00	20	1155.0	103.0	1072.0	SH	212	963.0
T70-5	2603321.25	509671.98	1175.00	15	1160.0	132.0	1043.0	SH	200	975.0
TH-BR-01	2612574.97	493138.34	1131.55	4	1127.6	104.5	1027.1	SS	221	910.6
TH-BR-02	2610308.27	500802.68	1165.47	18.9	1146.6	140.0	1025.5	SS	162	1003.5
TH-BR-03	2621689.73	507226.21	1161.32	12.5	1148.8	103.5	1057.8	SS	173	988.3
TH-BR-04	2624291.27	497783.61	1148.43	14	1134.4	104.0	1044.4	SS	182	966.4
TH-BR-05	2634898.40	494037.75	1072.01	28.8	1043.2	38.5	1033.5	SS	121	951.0
TH-EW-12	2610738.32	493102.14	1105.17	15	1090.2	90.5	1014.7	SH	NA	NA
TH-EW-13	2611511.12	493072.65	1108.85	10	1098.9	84.0	1024.9	SH	NA	NA
TH-EW-14R1	2625268.99	498721.42	1154.02	20	1134.0	103.0	1051.0	SS	NA	NA
TH-EW-14R2	2625871.91	497850.00	1147.74	17	1130.7	105.0	1042.7	SS	NA	NA
TH-EW-15	2622870.43	509960.21	1168.34	17.5	1150.8	NA	NA	NA	NA	NA
TH-EW-16	2628310.33	496736.54	1144.38	17	1127.4	99.0	1045.4	SS	NA	NA
TH-EW-17	2611500.55	493522.80	1114.03	8	1106.0	90.5	1023.5	SS	NA	NA
WS-10A	2606789.63	503324.48	1164.00	12	1152.0	122.0	1042.0	SH	NA	NA
WS-1A	2603874.66	522022.85	1201.00	16	1185.0	126.0	1075.0	SH	NA	NA
WS-4A	2607619.39	522715.60	1197.00	20	1177.0	123.0	1074.0	SS	NA	NA
WS51-1A	2626926.07	504667.52	1149.00	16.6	1132.4	95.0	1054.0	SS	NA	NA
WS-9A	2613493.88	510434.08	1176.00	18	1158.0	108.0	1068.0	SH	NA	NA

Notes:

ADS = Administration Area
ATL = Atlas Missile Area
bgs = below ground surface
EW = extraction well
FEW = focused extraction well
ft = feet
LL = load line
LS = limestone
MW = monitoring well
NA = information not available
NAD 83 = North American Datum of 1983
NAVD 88 = North American Vertical Datum of 1988
OW = observation well
PTMW = pilot test monitoring well
PZ = piezometer well
SB = soil boring
SH = shale
SS = sandstone
TH-BR = bedrock test hole
TH-EW = extraction well test hole
WS = water supply

Table 2.3
Groundwater Elevations, August 2014 through March 2017
2017 Groundwater Model Update
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
EW-1R	NA	2,634,925.77	495,204.36	1079.32	20.98	1058.40
EW-4	NA	2,627,116.43	497,384.83	1148.69	84.85	1063.80
EW-7	NA	2,621,782.09	496,330.98	1148.38	62.25	1086.10
EW-9	NA	2,620,401.74	495,320.21	1154.64	69.62	1085.00
FEW-11	NA	2,609,168.86	499,999.37	1163.08	66.40	1096.30
EW-12	NA	2,610,717.96	493,105.58	1113.72	67.85	1045.80
FEW-14	NA	2,625,285.16	498,738.33	1155.99	74.17	1082.00
FEW-15	NA	2,622,861.01	509,956.02	1169.64	66.94	1102.90
EW-17	NA	2,611,514.79	493,535.90	1113.62	58.30	1057.60
EW-18	NA	2,621,010.14	495,666.82	1159.14	70.14	1089.00
MW-02A	Intermed.	2,606,800.10	506,250.32	1174.77	37.97	1136.80
MW-03A	Intermed.	2,607,532.26	506,223.42	1179.56	41.13	1135.93
MW-04A	Intermed.	2,612,041.94	506,256.77	1168.73	35.21	1133.52
MW-05A	Intermed.	2,613,044.09	507,097.63	1168.12	33.41	1134.71
MW-07A	Intermed.	2,618,267.10	507,274.83	1164.85	37.43	1127.42
MW-08A	Intermed.	2,622,863.97	506,814.76	1165.92	47.07	1118.85
MW-09A	Intermed.	2,623,570.81	507,435.84	1171.46	52.33	1119.13
MW-10A	Intermed.	2,607,883.83	496,858.27	1150.35	39.46	1110.89
MW-11	Intermed.	2,626,486.32	509,499.80	1153.22	30.14	1123.08
MW-17B	Intermed.	2,603,293.03	499,101.48	1128.50	6.83	1121.67
MW-18A	Deep	2,629,150.33	506,832.34	1145.43	41.28	1104.15
MW-18B	Intermed.	2,629,156.57	506,827.46	1145.57	41.72	1103.85
MW-18C	Shallow	2,629,148.53	506,821.93	1146.05	39.34	1106.71
MW-19B	Intermed.	2,618,429.63	517,576.97	1158.59	9.99	1148.60
MW-20B	Intermed.	2,616,633.43	493,191.47	1160.29	57.86	1102.43
MW-20D1	Deep	2,616,654.10	493,189.16	1160.29	57.96	1102.33
MW-20D2	Deep	2,616,660.91	493,190.06	1160.33	57.99	1102.34
MW-20D3	Deep	2,616,669.39	493,190.03	1160.60	58.36	1102.24
MW-21A	Intermed.	2,607,121.37	503,524.81	1165.63	34.70	1130.93
MW-24A	Intermed.	2,608,476.90	501,919.83	1163.41	39.86	1123.55
MW-25A	Intermed.	2,608,308.41	504,875.16	1175.25	43.00	1132.25
MW-27B	Shallow	2,611,427.01	508,110.55	1176.06	36.84	1139.22
MW-28A	Intermed.	2,612,951.02	502,242.71	1172.22	49.90	1122.32
MW-29A	Intermed.	2,614,469.84	498,383.11	1160.06	48.71	1111.35
MW-29B	Shallow	2,614,460.98	498,382.37	1161.03	49.84	1111.19
MW-31A	Intermed.	2,617,943.95	503,233.70	1167.38	47.59	1119.79
MW-32A	Intermed.	2,619,697.25	499,062.26	1154.17	47.22	1106.95
MW-33A	Intermed.	2,622,410.84	502,847.91	1160.32	50.78	1109.54
MW-34A	Intermed.	2,624,442.78	498,806.30	1156.79	57.99	1098.80
MW-35A	Intermed.	2,629,595.76	496,323.64	1139.81	50.39	1089.42
MW-38A	Intermed.	2,638,131.88	496,248.57	1082.32	5.02	1077.30
MW-40A	Intermed.	2,623,018.62	511,963.35	1172.09	41.66	1130.43
MW-42A	Intermed.	2,629,385.20	501,582.56	1146.53	50.53	1096.00

Table 2.3 (Continued)
Groundwater Elevations, August 2014 through March 2017
2017 Groundwater Model Update
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
MW-43A	Intermed.	2,629,243.07	504,317.91	1142.90	43.35	1099.55
MW-44A	Intermed.	2,632,953.68	500,415.12	1093.68	8.26	1085.40
MW-44B	Shallow	2,632,954.90	500,426.32	1092.46	7.81	1086.33
MW-44D	Deep	2,632,952.84	500,403.76	1094.20	7.05	1085.38
MW-46A	Intermed.	2,637,464.94	499,387.37	1082.70	2.82	1079.88
MW-46B	Shallow	2,637,464.42	499,396.68	1082.81	2.91	1079.90
MW-46D	Deep	2,637,465.40	499,375.99	1082.65	2.74	1079.91
MW-53B	Shallow	2,627,885.40	508,166.61	1136.91	24.92	1111.99
MW-56A	Intermed.	2,628,206.01	508,215.32	1125.96	16.11	1109.85
MW-56B	Shallow	2,628,195.32	508,217.29	1126.24	14.87	1111.37
MW-57B	Shallow	2,607,621.51	516,363.44	1196.27	36.91	1159.36
MW-60A	Intermed.	2,624,702.83	489,585.15	1145.83	51.09	1094.74
MW-61A	Intermed.	2,608,656.02	492,900.05	1108.96	5.15	1103.81
MW-61D1	Deep	2,608,647.29	492,895.05	1109.53	5.69	1103.84
MW-61D2	Deep	2,608,642.52	492,898.35	1109.53	6.16	1103.37
MW-61D3	Deep	2,608,638.09	492,901.37	1109.46	5.59	1103.87
MW-65A	Intermed.	2,613,203.05	506,090.52	1165.02	32.62	1132.40
MW-66B	Shallow	2,613,268.32	506,027.61	1165.02	31.87	1131.21
MW-72A	Intermed.	2,622,930.98	512,064.69	1170.37	37.42	1132.95
MW-73A	Intermed.	2,623,060.93	511,909.15	1166.95	40.33	1126.62
MW-73B	Shallow	2,623,052.30	511,908.70	1166.90	39.87	1127.03
MW-78A	Intermed.	2,623,223.84	512,032.75	1165.27	35.57	1129.70
MW-80A	Intermed.	2,610,925.54	492,067.12	1107.43	6.30	1101.13
MW-80B	Shallow	2,610,916.24	492,064.59	1107.65	6.57	1101.08
MW-80D	Deep	2,610,935.55	492,068.65	1107.40	6.24	1101.16
MW-82A	Intermed.	2,619,288.65	493,318.05	1149.14	47.81	1101.33
MW-82D1	Deep	2,619,288.38	493,312.94	1149.27	48.57	1100.70
MW-82D2	Deep	2,619,283.77	493,320.27	1148.94	48.33	1100.61
MW-82D3	Deep	2,619,279.94	493,326.61	1149.05	48.30	1100.75
MW-83A	Intermed.	2,621,924.08	495,274.66	1152.41	54.17	1098.24
MW-83B	Shallow	2,621,921.79	495,302.77	1152.28	53.95	1098.33
MW-83D	Deep	2,621,922.97	495,288.85	1152.32	54.14	1098.18
MW-84A	Intermed.	2,624,277.77	495,685.51	1145.34	48.18	1097.16
MW-84B	Shallow	2,624,272.04	495,712.90	1145.62	48.35	1097.27
MW-84D	Deep	2,624,275.75	495,695.58	1145.37	48.18	1097.19
MW-85A	Intermed.	2,628,326.53	494,439.02	1132.58	41.68	1090.90
MW-86A	Intermed.	2,631,939.21	493,759.74	1114.15	30.91	1083.24
MW-86D1	Deep	2,631,943.24	493,764.17	1113.84	30.52	1083.32
MW-86D2	Deep	2,631,936.60	493,765.86	1114.20	30.97	1083.23
MW-86D3	Deep	2,631,930.05	493,767.70	1114.77	31.82	1082.95
MW-88A	Intermed.	2,637,643.92	494,045.13	1081.22	4.91	1076.31
MW-88D1	Deep	2,637,650.78	494,025.19	1078.42	2.27	1076.15
MW-88D2	Deep	2,637,643.46	494,024.15	1078.32	2.19	1076.13

Table 2.3 (Continued)
Groundwater Elevations, August 2014 through March 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
MW-88D3	Deep	2,637,636.08	494,023.70	1078.27	2.17	1076.10
MW-89A	Intermed.	2,610,430.84	494,253.88	1160.99	56.14	1104.85
MW-90A	Intermed.	2,611,235.54	494,302.04	1151.11	45.57	1105.54
MW-90D1	Deep	2,611,237.39	494,291.09	1150.87	45.59	1105.28
MW-90D2	Deep	2,611,229.62	494,288.22	1150.61	45.32	1105.29
MW-90D3	Deep	2,611,247.28	494,295.19	1151.02	45.76	1105.26
MW-91A	Intermed.	2,612,076.97	494,323.00	1152.04	46.81	1105.23
MW-93A	Intermed.	2,612,162.89	493,551.29	1124.26	21.05	1103.21
MW-94A	Intermed.	2,617,023.16	496,428.72	1153.06	47.30	1105.76
MW-95A	Intermed.	2,617,552.81	494,508.64	1156.81	52.75	1104.06
MW-95B	Shallow	2,617,546.97	494,508.01	1156.46	52.38	1104.08
MW-95D	Deep	2,617,558.46	494,509.13	1156.82	53.85	1102.97
MW-96A	Intermed.	2,621,468.23	493,387.73	1148.56	50.76	1097.80
MW-96D1	Deep	2,621,487.55	493,388.06	1149.57	50.74	1098.83
MW-96D2	Deep	2,621,487.27	493,396.10	1149.33	50.55	1098.78
MW-96D3	Deep	2,621,460.85	493,395.28	1148.77	50.03	1098.74
MW-97A	Intermed.	2,623,938.04	493,492.83	1143.08	46.40	1096.68
MW-97B	Shallow	2,623,932.70	493,492.45	1143.18	46.48	1096.70
MW-97D	Deep	2,623,943.48	493,493.13	1143.18	46.54	1096.64
MW-97D1	Deep	2,623,959.13	493,501.25	1142.74	46.11	1096.63
MW-97D2	Deep	2,623,965.85	493,501.39	1142.68	46.69	1095.99
MW-97D3	Deep	2,623,972.91	493,501.03	1142.48	45.62	1096.86
MW-98A	Intermed.	2,626,495.30	493,604.94	1141.52	47.40	1094.12
MW-98D1	Deep	2,626,488.15	493,612.75	1141.69	47.67	1094.02
MW-98D2	Deep	2,626,494.77	493,612.79	1141.59	47.64	1093.95
MW-98D3	Deep	2,626,503.90	493,612.64	1141.82	47.89	1093.93
MW-99A	Intermed.	2,627,117.43	498,780.95	1163.04	67.85	1095.19
MW-99B	Shallow	2,627,118.41	498,787.93	1163.19	68.00	1095.19
MW-99D	Deep	2,627,116.78	498,773.69	1162.76	67.62	1095.14
MW-100A	Intermed.	2,629,718.84	493,770.41	1141.18	52.73	1088.45
MW-100D1	Deep	2,629,711.48	493,769.53	1140.86	52.49	1088.37
MW-100D2	Deep	2,629,711.34	493,776.59	1140.83	52.46	1088.37
MW-100D3	Deep	2,629,710.89	493,782.88	1140.87	52.44	1088.43
MW-101A	Intermed.	2,610,929.39	491,574.12	1107.43	6.53	1100.90
MW-101D1	Deep	2,610,937.09	491,565.95	1107.19	6.36	1100.83
MW-101D2	Deep	2,610,930.57	491,564.79	1107.33	6.51	1100.82
MW-101D3	Deep	2,610,922.47	491,563.87	1107.41	6.59	1100.82
MW-102A	Intermed.	2,622,929.38	514,541.24	1170.90	34.91	1135.99
MW-103A	Intermed.	2,623,590.77	513,115.79	1173.58	41.71	1131.87
MW-104A	Intermed.	2,634,092.18	499,205.59	1081.26	1.87	1079.39
MW-104O	Overburden	2,634,073.87	499,205.00	1081.69	3.01	1078.68
MW-106A	Intermed.	2,630,544.55	506,843.26	1118.06	16.64	1101.42
MW-106B	Shallow	2,630,539.26	506,844.10	1117.98	16.53	1101.45

Table 2.3 (Continued)
Groundwater Elevations, August 2014 through March 2017
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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
MW-107A	Intermed.	2,631,375.72	506,138.76	1135.79	38.06	1097.73
MW-107B	Shallow	2,631,374.08	506,125.16	1136.72	38.81	1097.91
MW-107D	Deep	2,631,375.03	506,131.87	1136.35	38.63	1097.72
MW-107D1	Deep	2,631,373.39	506,104.76	1138.33	40.48	1097.85
MW-107D2	Deep	2,631,373.82	506,110.94	1137.94	40.10	1097.84
MW-107D3	Deep	2,631,374.08	506,117.84	1137.49	39.62	1097.87
MW-109A	Intermed.	2,634,807.18	501,896.06	1086.25	0.25	1086.00
MW-109O	Overburden	2,634,805.17	501,911.81	1085.88	4.17	1081.71
MW-110A	Intermed.	2,634,397.71	504,432.79	1094.10	4.73	1089.37
MW-111A	Intermed.	2,636,151.56	499,337.97	1082.82	3.08	1079.74
MW-111B	Shallow	2,636,151.75	499,348.24	1082.61	2.81	1079.80
MW-111O	Overburden	2,636,152.14	499,356.67	1082.48	3.98	1078.50
MW-112A	Intermed.	2,637,365.72	501,825.77	1082.03	-0.10	1082.13
MW-112B	Shallow	2,637,365.30	501,832.67	1082.02	-0.15	1082.17
MW-112D1	Deep	2,637,365.36	501,848.01	1081.98	-1.00	1082.98
MW-112D2	Deep	2,637,365.71	501,842.49	1082.03	-0.95	1082.98
MW-112D3	Deep	2,637,365.81	501,836.65	1082.13	-0.90	1083.03
MW-113A	Intermed.	2,637,420.11	500,472.22	1080.47	-0.11	1080.58
MW-113B	Shallow	2,637,419.51	500,477.68	1080.42	-0.11	1080.53
MW-113D	Deep	2,637,420.34	500,466.05	1080.49	-0.10	1080.59
MW-114A	Intermed.	2,637,470.60	497,206.93	1080.32	2.56	1077.76
MW-115A	Intermed.	2,637,702.52	495,346.88	1081.67	4.85	1076.82
MW-116A	Intermed.	2,636,335.80	495,297.60	1080.53	4.46	1076.07
MW-116B	Shallow	2,636,331.54	495,297.24	1080.49	4.40	1076.09
MW-116D	Deep	2,636,334.22	495,293.68	1080.46	4.49	1075.97
MW-118A	Intermed.	2,625,890.45	496,207.70	1143.87	48.50	1095.37
MW-119A	Intermed.	2,607,952.61	499,580.81	1159.14	42.93	1116.21
MW-120A	Intermed.	2,609,372.30	499,419.07	1166.32	51.73	1114.59
MW-120E	Intermed.	2,609,372.68	499,430.79	1166.43	51.84	1114.59
MW-121A	Intermed.	2,609,752.79	500,071.02	1170.04	54.09	1115.95
MW-122A	Intermed.	2,609,240.41	498,101.34	1165.76	53.21	1112.55
MW-123A	Intermed.	2,608,677.91	499,909.07	1168.99	53.61	1115.38
MW-124A	Intermed.	2,609,115.81	501,486.16	1161.89	41.33	1120.56
MW-124B	Shallow	2,609,107.79	501,496.31	1161.59	41.01	1120.58
MW-124D	Deep	2,609,125.65	501,475.69	1161.82	41.67	1120.15
MW-125A	Intermed.	2,609,457.06	500,663.23	1162.05	44.64	1117.41
MW-126A	Intermed.	2,607,483.63	504,504.82	1170.87	38.54	1132.33
MW-126D	Deep	2,607,483.02	504,494.77	1170.26	37.86	1132.40
MW-127A	Intermed.	2,606,121.55	506,918.35	1168.95	30.46	1138.49
MW-128A	Intermed.	2,624,836.13	498,190.80	1156.97	59.15	1097.82
MW-129A	Intermed.	2,627,766.39	496,542.43	1149.77	57.96	1091.81
MW-130A	Intermed.	2,629,053.38	496,650.27	1145.47	55.28	1090.19
MW-131A	Intermed.	2,626,341.54	496,939.83	1148.09	53.48	1094.61

Table 2.3 (Continued)
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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
MW-131B	Shallow	2,626,348.52	496,944.69	1147.94	53.31	1094.63
MW-131D	Deep	2,626,333.42	496,933.31	1148.10	53.46	1094.64
MW-133A	Intermed.	2,622,522.67	509,720.93	1167.41	44.39	1123.02
MW-133B	Shallow	2,622,522.69	509,729.90	1167.55	44.37	1123.18
MW-133D	Deep	2,622,523.17	509,713.15	1167.19	44.42	1122.77
MW-134A	Intermed.	2,623,417.21	509,045.74	1168.44	46.68	1121.76
MW-134B	Shallow	2,623,413.31	509,052.47	1168.55	46.71	1121.84
MW-134D	Deep	2,623,421.55	509,039.29	1168.68	46.55	1122.13
MW-135A	Intermed.	2,623,150.45	509,762.33	1165.77	43.61	1122.16
MW-135B	Shallow	2,623,151.02	509,772.44	1165.71	43.55	1122.16
MW-135D	Deep	2,623,149.03	509,752.68	1165.51	42.74	1122.77
MW-136A	Intermed.	2,623,054.23	510,561.26	1167.96	43.37	1124.59
MW-137A	Intermed.	2,622,837.54	511,702.36	1166.31	36.25	1130.06
MW-138A	Intermed.	2,622,366.41	512,816.57	1175.83	42.63	1133.20
MW-139A	Intermed.	2,621,290.29	514,264.29	1180.32	43.85	1136.47
MW-140A	Intermed.	2,634,717.63	503,375.83	1092.50	4.86	1087.64
MW-140O	Overburden	2,634,717.20	503,393.26	1092.60	8.46	1084.14
MW-141A	Intermed.	2,608,446.60	502,590.64	1162.07	36.12	1125.95
MW-142A	Intermed.	2,610,572.95	495,594.89	1154.43	46.63	1107.80
MW-143B	Shallow	2,621,339.98	502,719.77	1155.87	44.66	1111.21
MW-144A	Intermed.	2,614,012.25	503,570.97	1164.17	39.28	1124.89
MW-145A	Intermed.	2,617,407.83	500,652.84	1160.75	47.08	1113.67
MW-146A	Intermed.	2,618,871.66	494,899.38	1148.18	46.03	1102.15
MW-147A	Intermed.	2,620,042.45	494,474.75	1148.92	48.49	1100.43
MW-148B	Shallow	2,620,179.92	504,425.78	1160.53	42.33	1118.20
MW-149A	Intermed.	2,622,398.38	502,086.76	1152.23	43.99	1108.24
MW-150A	Intermed.	2,624,201.15	499,856.55	1147.59	46.58	1101.01
MW-151A	Intermed.	2,624,392.64	506,668.08	1158.65	42.92	1115.73
MW-152B	Shallow	2,627,865.21	506,805.72	1148.37	39.72	1108.65
MW-153A	Intermed.	2,627,200.19	504,130.22	1146.17	43.32	1102.85
MW-154A	Intermed.	2,631,170.17	504,308.25	1141.11	45.69	1095.42
MW-154B	Shallow	2,631,165.22	504,308.20	1141.16	45.11	1096.05
MW-155A	Intermed.	2,629,444.96	502,435.45	1141.95	45.27	1096.68
MW-156A	Intermed.	2,633,019.60	501,928.83	1093.89	4.51	1089.38
MW-156B	Shallow	2,633,018.32	501,922.48	1093.96	4.26	1089.70
MW-157A	Intermed.	2,632,549.30	499,117.46	1102.64	17.79	1084.85
MW-157D1	Deep	2,632,596.51	499,121.05	1099.76	15.58	1084.18
MW-157D2	Deep	2,632,588.24	499,120.93	1100.22	16.12	1084.10
MW-157D3	Deep	2,632,579.52	499,120.26	1100.75	16.63	1084.12
MW-158A	Intermed.	2,635,279.53	493,887.42	1076.69	1.81	1074.88
MW-158B	Shallow	2,635,272.00	493,887.38	1076.36	1.53	1074.83
MW-158D	Deep	2,635,266.75	493,887.31	1076.63	1.91	1074.72
MW-158D1	Deep	2,635,300.13	493,891.61	1076.48	1.02	1075.46

Table 2.3 (Continued)
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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
MW-158D2	Deep	2,635,293.61	493,891.42	1076.65	1.18	1075.47
MW-158D3	Deep	2,635,286.72	493,891.48	1076.82	1.38	1075.44
MW-159A	Intermed.	2,629,111.80	510,307.65	1163.51	47.53	1115.98
MW-160A	Intermed.	2,609,501.29	496,947.49	1154.35	47.77	1106.58
MW-160B	Shallow	2,609,505.06	496,954.30	1154.18	47.76	1106.42
MW-161A	Intermed.	2,608,418.56	503,133.22	1166.48	42.00	1124.48
MW-161B	Shallow	2,608,419.67	503,123.84	1167.00	42.19	1124.81
MW-162A	Deep	2,618,293.12	498,773.02	1148.90	44.11	1104.79
MW-163A	Deep	2,618,961.89	498,952.86	1159.74	55.04	1104.70
MW-164A	Deep	2,617,493.86	498,294.97	1150.11	45.31	1104.80
MW-165B	Deep	2,617,933.42	498,609.92	1148.89	44.11	1104.78
MW-166A	Intermed.	2,618,657.29	496,609.56	1150.73	48.94	1101.79
MW-166B	Shallow	2,618,661.42	496,616.20	1150.81	48.86	1101.95
MW-167A	Intermed.	2,619,420.51	497,423.40	1147.66	45.72	1101.94
MW-167B	Shallow	2,619,428.96	497,426.56	1147.62	45.90	1101.72
MW-168A	Intermed.	2,620,186.36	498,009.89	1152.75	51.58	1101.17
MW-168B	Shallow	2,620,178.27	498,011.71	1152.17	51.45	1100.72
MW-169A	Intermed.	2,619,932.75	495,501.60	1145.61	47.81	1097.80
MW-169B	Shallow	2,619,942.57	495,502.95	1145.52	47.80	1097.72
MW-170A	Intermed.	2,621,225.19	496,442.89	1145.46	48.81	1096.65
MW-171A	Intermed.	2,615,668.94	501,881.31	1160.22	43.63	1116.59
MW-171B	Shallow	2,615,662.16	501,881.10	1159.79	43.49	1116.30
MW-172A	Intermed.	2,625,763.50	497,428.55	1146.97	54.76	1092.21
MW-172B	Shallow	2,625,755.51	497,431.53	1146.88	54.31	1092.57
MW-173A	Intermed.	2,627,008.04	497,957.67	1148.57	57.21	1091.36
MW-174A	Intermed.	2,622,869.28	497,380.64	1142.13	45.91	1096.22
MW-174B	Shallow	2,622,865.16	497,375.02	1141.72	46.03	1095.69
MW-175A	Intermed.	2,622,690.12	501,101.54	1151.79	49.02	1102.77
MW-175B	Shallow	2,622,680.35	501,098.07	1151.03	49.25	1101.78
MW-176A	Intermed.	2,632,839.14	499,810.44	1090.01	7.69	1082.32
MW-176B	Shallow	2,632,839.67	499,818.35	1089.11	8.19	1080.92
MW-177A	Intermed.	2,609,971.19	492,953.37	1104.43	5.73	1098.70
MW-177B	Shallow	2,609,974.65	492,954.44	1105.90	5.48	1100.42
MW-178B	Shallow	2,628,870.63	506,851.75	1140.34	40.44	1099.90
MW-179A	Intermed.	2,611,664.67	493,135.13	1107.45	10.52	1096.93
MW-179B	Shallow	2,611,658.78	493,134.48	1107.64	11.17	1096.47
MW-180A	Intermed.	2,621,006.62	495,570.71	1155.12	60.70	1094.42
MW-180D1	Deep	2,621,025.57	495,574.55	1158.20	58.77	1099.43
MW-180D2	Deep	2,621,035.70	495,575.36	1158.31	58.83	1099.48
MW-180D3	Deep	2,621,044.63	495,576.60	1158.41	58.97	1099.44
MW-180E	Intermed.	2,621,013.00	495,571.85	1155.22	60.95	1094.27
OW-05	Intermed.	2,634,934.82	495,184.29	1080.35	9.05	1071.30
OW-06	Intermed.	2,634,884.33	495,208.11	1079.22	6.54	1072.68

Table 2.3 (Continued)
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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
OW-07	Intermed.	2,634,884.15	495,203.34	1079.06	5.72	1073.34
OW-08	Intermed.	2,634,786.34	495,194.19	1078.43	4.57	1073.86
OW-09	Intermed.	2,634,937.80	495,134.36	1080.96	7.92	1073.04
OW-12	Intermed.	2,636,332.13	495,279.48	1080.19	4.11	1076.08
OW-13	Intermed.	2,634,929.33	495,121.80	1081.25	8.13	1073.12
OW-14	Intermed.	2,634,937.07	494,987.77	1080.52	6.52	1074.00
OW-15	Intermed.	2,634,948.12	494,788.06	1080.66	6.45	1074.21
OW-16	Intermed.	2,633,480.01	495,159.25	1078.22	0.60	1077.62
OW-18	Intermed.	2,608,114.43	499,884.02	1162.21	45.65	1116.56
OW-22	Intermed.	2,608,019.74	499,355.14	1161.24	45.25	1115.99
OW-23	Intermed.	2,607,158.35	499,656.44	1162.08	44.76	1117.32
OW-24	Intermed.	2,629,552.06	496,984.50	1153.07	63.02	1090.05
OW-25	Intermed.	2,629,511.42	496,932.08	1155.71	65.64	1090.07
OW-26	Intermed.	2,629,214.17	496,664.05	1148.64	58.04	1090.60
OW-27	Intermed.	2,629,582.05	496,942.21	1153.30	63.44	1089.86
OW-28	Intermed.	2,629,581.52	496,898.00	1153.81	64.08	1089.73
OW-31	Intermed.	2,624,242.96	497,898.99	1155.78	56.74	1099.04
OW-32	Intermed.	2,624,139.95	497,845.07	1153.87	54.80	1099.07
OW-33	Intermed.	2,623,750.57	497,669.79	1154.67	55.52	1099.15
OW-34	Intermed.	2,624,320.18	497,868.57	1154.70	56.14	1098.56
OW-35	Intermed.	2,624,360.77	497,738.45	1154.10	55.41	1098.69
OW-36	Intermed.	2,624,413.00	497,337.59	1157.23	58.91	1098.32
OW-37	Intermed.	2,624,838.27	498,178.35	1157.36	59.61	1097.75
OW-38	Intermed.	2,621,733.08	496,294.86	1151.19	54.54	1096.65
OW-39	Intermed.	2,621,620.02	496,212.33	1151.39	53.52	1097.87
OW-40	Intermed.	2,621,297.36	495,975.58	1157.66	58.88	1098.78
OW-41	Intermed.	2,621,816.64	496,281.90	1150.22	54.10	1096.12
OW-42	Intermed.	2,621,899.70	496,169.43	1151.21	53.90	1097.31
OW-43	Intermed.	2,622,135.38	495,845.76	1156.74	58.48	1098.26
OW-44	Intermed.	2,622,302.63	496,682.05	1147.84	48.58	1099.26
OW-45	Intermed.	2,619,203.17	494,842.21	1152.47	50.70	1101.77
OW-46	Intermed.	2,619,059.00	494,783.36	1151.55	49.58	1101.97
OW-47	Intermed.	2,618,684.83	494,630.88	1153.44	50.80	1102.64
OW-48	Intermed.	2,619,283.37	494,800.47	1153.38	51.60	1101.78
OW-49	Intermed.	2,619,315.78	494,671.87	1154.09	52.54	1101.55
OW-50	Intermed.	2,619,465.62	494,300.16	1151.16	49.65	1101.51
OW-51	Intermed.	2,619,790.64	495,096.02	1149.86	48.93	1100.93
OW-52	Intermed.	2,610,585.60	493,033.91	1107.14	9.56	1097.58
OW-53	Intermed.	2,610,555.96	493,019.67	1107.13	8.50	1098.63
OW-54	Intermed.	2,611,356.56	493,520.93	1115.39	17.93	1097.46
OW-55	Intermed.	2,610,821.53	492,991.93	1107.05	11.41	1095.64
OW-56	Intermed.	2,611,642.99	493,196.43	1112.15	12.40	1099.75
OW-57	Intermed.	2,611,768.76	493,277.87	1114.84	14.30	1100.54

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OW-58	Intermed.	2,611,366.56	493,009.96	1109.00	8.48	1100.52
OW-59	Intermed.	2,611,579.97	493,019.21	1110.50	9.95	1100.55
OW-60	Intermed.	2,627,137.87	497,440.67	1149.15	56.15	1093.00
OW-61	Intermed.	2,627,191.65	497,571.53	1148.81	55.17	1093.64
OW-62	Intermed.	2,627,351.22	497,954.27	1151.40	56.95	1094.45
OW-63	Intermed.	2,627,527.96	497,841.89	1152.90	58.75	1094.15
OW-64	Intermed.	2,627,299.94	497,308.27	1148.12	55.10	1093.02
OW-65	Intermed.	2,627,672.94	497,146.26	1147.36	54.97	1092.39
OW-66	Intermed.	2,622,938.07	497,314.20	1147.09	47.68	1099.41
OW-67	Intermed.	2,622,730.72	497,150.23	1149.64	50.36	1099.28
OW-68	Intermed.	2,622,418.58	496,526.17	1146.89	48.20	1098.69
OW-69	Intermed.	2,623,044.57	497,134.81	1147.02	47.96	1099.06
OW-70	Intermed.	2,623,340.91	496,845.85	1146.14	47.41	1098.73
OW-71	Intermed.	2,623,796.31	497,474.10	1158.23	59.41	1098.82
OW-72	Intermed.	2,620,345.78	495,292.98	1156.05	57.50	1098.55
OW-73	Intermed.	2,620,217.61	495,239.66	1157.61	58.11	1099.50
OW-74	Intermed.	2,619,854.18	494,895.06	1148.38	47.40	1100.98
OW-75	Intermed.	2,620,487.46	495,139.42	1154.51	55.43	1099.08
OW-76	Intermed.	2,620,657.85	494,777.17	1148.68	49.40	1099.28
OW-77	Intermed.	2,621,414.78	495,808.38	1157.82	59.26	1098.56
OW-78	Intermed.	2,609,111.28	499,977.47	1163.94	52.48	1111.46
OW-79	Intermed.	2,608,989.60	499,915.27	1167.29	53.49	1113.80
OW-80	Intermed.	2,608,751.82	499,731.59	1169.30	54.06	1115.24
OW-81	Intermed.	2,609,233.49	499,803.10	1164.13	49.65	1114.48
OW-82	Intermed.	2,609,366.00	499,415.33	1169.05	54.36	1114.69
OW-83	Intermed.	2,609,754.89	500,075.01	1173.20	57.02	1116.18
OW-89	Intermed.	2,632,605.05	496,433.60	1092.56	11.31	1081.25
OW-90	Intermed.	2,625,244.14	498,690.84	1153.30	58.38	1094.92
OW-92	Intermed.	2,625,155.78	498,583.33	1154.30	57.57	1096.73
OW-93	Intermed.	2,625,291.12	498,721.87	1156.87	63.24	1093.63
OW-94	Intermed.	2,625,433.51	498,611.46	1153.21	56.60	1096.61
OW-95	Intermed.	2,625,755.73	498,358.54	1150.04	53.48	1096.56
OW-96	Intermed.	2,628,354.01	496,783.72	1146.64	54.62	1092.02
OW-97	Intermed.	2,628,422.98	496,909.51	1146.21	54.81	1091.40
OW-98	Intermed.	2,628,617.39	497,268.67	1150.67	59.08	1091.59
OW-99	Intermed.	2,628,520.49	496,667.07	1146.97	55.98	1090.99
OW-100	Intermed.	2,628,885.60	496,489.50	1147.39	56.99	1090.40
OW-101	Intermed.	2,622,907.33	509,987.52	1168.26	47.28	1120.98
OW-102	Intermed.	2,623,025.62	510,070.30	1166.49	43.99	1122.50
OW-103	Intermed.	2,623,370.57	510,291.27	1169.13	44.48	1124.65
OW-104	Intermed.	2,622,969.37	509,760.45	1167.73	45.94	1121.79
OW-105	Intermed.	2,623,170.60	509,450.30	1165.40	43.26	1122.14
OW-106	Intermed.	2,611,437.33	493,518.06	1116.11	19.27	1096.84

Table 2.3 (Continued)
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OW-107	Intermed.	2,611,686.03	493,492.60	1116.01	15.37	1100.64
OW-108	Intermed.	2,611,480.69	493,520.70	1115.83	21.09	1094.74
OW-109	Deep	2,634,943.10	495,096.30	1077.58	6.92	1070.66
OW-110	Intermed.	2,634,942.69	495,106.01	1077.52	7.45	1070.07
OW-111	Intermed.	2,620,978.97	495,642.20	1156.53	56.47	1100.06
OW-112	Intermed.	2,620,948.75	495,616.71	1157.25	56.81	1100.44
OW-113	Intermed.	2,620,861.85	495,545.09	1157.54	56.48	1101.06
OW-114R	Deep	2,621,051.50	495,691.94	1157.59	56.12	1101.47
OW-115	Deep	2,621,041.01	495,690.07	1157.35	55.83	1101.52
OW-116	Deep	2,621,032.89	495,685.13	1157.10	56.53	1100.57
OW-117	Deep	2,627,120.29	497,394.59	1148.70	54.92	1093.78
OW-118	Deep	2,627,123.41	497,402.93	1148.49	54.70	1093.79
OW-119	Deep	2,627,126.50	497,411.48	1148.64	55.53	1093.11
OW-120	Deep	2,611,545.22	493,538.69	1116.09	12.59	1103.50
OW-121	Deep	2,611,534.36	493,536.92	1115.56	11.91	1103.65
OW-122	Deep	2,611,526.07	493,535.65	1116.11	12.41	1103.70
PZ-01	Intermed.	2,632,385.13	499,049.59	1116.38	31.09	1085.29
PZ-02	Intermed.	2,631,558.74	499,022.44	1130.80	42.22	1088.58
PZ-11	Deep	2,633,021.33	501,935.48	1097.61	4.73	1089.45
PZ-12	Deep	2,632,569.72	499,118.82	1105.36	15.92	1089.44
PZ-13	Intermed.	2,633,396.43	499,150.91	1085.78	0.05	1081.18
PZ-14	Intermed.	2,633,403.55	499,154.07	1084.94	-0.05	1080.57
TH-EW-12	Intermed.	2,610,738.32	493,102.14	1107.37	20.63	1086.74
TH-EW-13	Intermed.	2,611,511.12	493,072.65	1111.04	10.82	1100.22
TH-EW-14R1	Intermed.	2,625,268.99	498,721.42	1156.72	64.10	1092.62
TH-EW-14R2	Intermed.	2,625,871.91	497,850.00	1151.08	54.33	1096.75
TH-EW-15	Intermed.	2,622,870.43	509,960.21	1172.51	50.39	1122.12
TH-EW-16	Intermed.	2,628,310.33	496,736.54	1147.71	56.20	1091.51
TH-EW-17	Intermed.	2,611,500.55	493,522.80	1116.45	28.07	1088.38
Brabec	NA	2,618,637.53	493,130.49	1149.97	47.69	1102.31
D.Starns	NA	2,647,807.25	467,164.01	1064.47	11.97	1052.53
Frahm	NA	2,626,738.84	493,304.52	1146.04	52.05	1093.95
Hanson	NA	2,623,180.17	493,348.86	1144.38	46.92	1097.48
Heldt	NA	2,641,871.40	488,866.68	1078.68	4.86	1073.82
LPN 06-01	NA	2,642,292.17	478,302.11	1066.68	3.13	1063.55
LPN 06-18	NA	2,635,721.74	504,500.62	1088.45	0.85	1087.60
LPN 06-19	NA	2,634,208.23	514,979.75	1140.81	34.86	1105.95
LPN 06-20	NA	2,631,355.09	520,347.13	1208.77	59.20	1149.57
LPN 06-21	NA	2,628,536.27	525,369.84	1204.53	49.34	1155.19
M90-01	NA	2,640,590.79	488,958.80	1074.38	1.74	1072.64
M90-02	NA	2,645,833.34	489,117.85	1075.70	4.75	1070.95
M90-04	NA	2,640,807.93	484,163.23	1071.08	2.87	1068.21
M90-05R	NA	2,645,266.37	482,393.07	1076.50	14.62	1061.88

Table 2.3 (Continued)
Groundwater Elevations, August 2014 through March 2017
2017 Groundwater Model Update
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
M90-09	NA	2,640,866.61	478,557.35	1067.97	1.89	1066.08
M90-12R	NA	2,647,999.03	479,369.24	1070.00	6.30	1063.70
M90-15	NA	2,641,258.12	472,881.56	1065.39	3.80	1061.59
M90-16R	NA	2,645,344.89	473,282.19	1063.57	3.31	1060.26
M90-17R	NA	2,648,791.50	473,326.64	1067.54	8.47	1059.07
M90-20R	NA	2,651,427.57	470,805.41	1066.45	8.04	1058.41
M90-21	NA	2,642,068.72	468,390.33	1064.09	4.05	1060.04
M90-22R	NA	2,645,116.45	467,804.04	1063.17	6.64	1056.53
M90-23R	NA	2,649,222.45	468,585.23	1056.70	8.87	1047.83
M90-24R	NA	2,650,175.62	465,992.63	1059.05	12.84	1046.21
M90-26R	NA	2,652,730.86	465,392.21	1057.07	6.56	1050.51
M90-36R	NA	2,653,436.76	465,017.15	1059.30	6.73	1052.57
M90-37	NA	2,652,867.09	463,331.64	1054.19	2.87	1051.32
MUD 06-28	NA	2,638,860.99	509,627.35	1087.13	0.12	1087.01
MUD 90-10	NA	2,645,430.50	516,093.59	1099.56	7.45	1092.11
MUD 94-3	NA	2,646,191.75	498,899.86	1085.52	4.64	1080.88
MUD 94-4	NA	2,645,711.85	509,564.70	1094.81	9.58	1085.23
MUD 94-5	NA	2,640,274.41	514,549.30	1097.79	3.22	1094.57
MUD 94-6	NA	2,639,186.28	503,954.84	1085.55	1.32	1084.23
MUD 94-7	NA	2,643,737.28	493,588.88	1083.07	5.78	1077.29
N.Keiser	NA	2,632,144.97	495,084.13	1104.21	21.53	1082.67
N.Wann	NA	2,642,527.93	520,660.55	1107.29	2.33	1104.97
PV-37	NA	2,644,077.01	514,703.40	1100.86	9.46	1091.44
PV-38	NA	2,642,740.13	516,679.62	1099.98	4.12	1095.88
PV-39	NA	2,635,348.70	501,827.54	1084.02	-0.01	1084.01
PV-40	NA	2,645,297.73	502,916.41	1088.88	6.41	1082.49
PV-41	NA	2,642,173.78	514,040.50	1096.17	3.94	1092.26
S.Keiser	NA	2,632,579.63	493,968.08	1114.21	32.75	1081.45
TV-16	NA	2,623,841.69	492,107.27	1140.28	43.78	1096.52
TV-17A	NA	2,627,487.94	482,977.99	1137.75	48.16	1089.59
UNL-CSD	NA	2,641,218.70	473,036.06	1065.78	2.98	1062.80
13N_10E32ADDD1 _M90-30R	NA	2,657,224.00	466,089.97	1055.83(1)	3.19	1052.64
13N_10E32DBBA1_ M28R_ ISLAND_NORTH_ WELL	NA	2,655,098.69	465,594.25	1057.81(1)	3.38	1054.43
13N_10E32DCAA1_ M91-58R	NA	2,655,932.93	464,009.48	1056.35(3)	NM	NM

Table 2.3 (Continued)
Groundwater Elevations, August 2014 through March 2017
2017 Groundwater Model Update
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
13N_10E32DCAC1_ M90-29R	NA	2,655,788.51	463,800.77	1054.43(3)	NM	NM
13N_10E32DCAD1_ M91-50R	NA	2,656,085.99	464,016.01	1055.84(1)	4.22	1051.62
13N_10E32DDBC1_ M91-54R	NA	2,656,171.15	463,817.09	1055.34(1)	NM	NM
14N_8E2ADDA1	NA	2,607,322.38	522,542.09	1194.22(5)	25.22	1179.78
14N_8E3AACC1	NA	2,600,711.92(4)	523,098.18(4)	1194.51(4)	18.07	1176.44
14N_8E14CC1	NA	2,602,677.44(4)	508,724.58(4)	1175.85(4)	NM	NM
14N_8E24ACD2_ MEAD	NA	2,611,823.40(4)	506,654.30(4)	1175.09(4)	30.78	1144.31
14N_8E27BAAB1	NA	2,599,758.53(4)	503,210.55(4)	1167.67(4)	33.8	1133.87
14N_8E36DD1	NA	2,613,895.26(4)	493,065.13(4)	1151.80(4)	49.12	1102.68
14N_9E20DD1	NA	2,624,003.87(4)	504,150.95(4)	1160.64(4)	50.3	1110.34
14N_9E26CBAB1	NA	2,635,353.74	501,420.02	1082.21(5)	NM	NM
14N_9E32DD1	NA	2,624,278.44(4)	493,503.18(4)	1137.03(4)	40.81	1096.22

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

btoc = below top of casing

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 2.4
USGS Stream Gage Statistics
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stream	USGS Gage Location	Period of Record	Exceedance Frequency (percent)	Flow (cfs)	Flow (MGD)
Platte River	Leshara	1994 to 2016	10	8,690	5,616
			50	4,500	2,908
			90	1,770	1,144
	Ashland	1989 to 2016	10	11,600	7,497
			50	5,790	3,742
			90	2,280	1,474
Elkhorn River	Waterloo	1929 to 2016	10	2,970	1,920
			50	824	533
			90	320	207
Johnson Creek	Memphis	1990-2009*	10	3.5	2.3
			50	1.7	1.1
			90	0.9	0.6
Wahoo Creek	Ithaca	1950 to 2016	10	127	82
			50	38	25
			90	18	12
	Ashland	1990 to 2016	10	221	143
			50	75	48
			90	36	24

Notes:

*This site has been discontinued.

cfs = cubic feet per second

MGD = million gallons per day

NOP = Nebraska Ordnance Plant

USGS = U.S. Geological Survey

Table 2.5
Surface Water Elevation Measurements, August 2014 through March 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Description	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Monitoring Point (ft amsl, NAVD 88)*	8/27/14 Gage Height (ft)	8/27/14 Stream Elevation (ft amsl, NAVD 88)	3/30/15 Gage Height (ft)	3/30/15 Stream Elevation (ft amsl, NAVD 88)
Platte River							
USGS 6796500 Platte River near Leshara*	2,627,630.67	562,060.65	1,144.47	NM	NM	NM	NM
USGS 06796550 Platte River near Venice*	2,647,109.18	518,421.66	1,090.00	12.02	1,102.02	11.76	1,101.76
USGS 06801000 Platte River near Ashland*	2,653,340.91	469,165.64	1,040.34	NM	NM	NM	NM
Elkhorn River							
USGS 06800500 Elkhorn River at Waterloo*	2,660,970.08	553,789.85	1,105.13	3.20	1,108.33	3.44	1,108.57
M.U.D. Elk Horn River-1	2,658,801.15	521,384.22	1,117.50	-26.38	1,091.12	-26.50	1,091.00
Wahoo Creek							
MUD Wahoo Creek-5-Bridge-Rail-N	2,561,971.29	554,785.08	1,248.50	-18.83	1,229.67	-20.33	1,228.17
USGS 06804000 Wahoo Creek at Ithaca*	2,593,410.59	497,778.58	1,110.90	13.11	1,124.01	4.14	1,115.04
M.U.D. Wahoo Creek-2	2,603,461.18	492,183.23	1,122.52	-19.33	1,103.19	-22.96	1,099.56
M.U.D. Wahoo Creek-1	2,621,893.97	477,485.72	1,097.78	-19.75	1,078.03	-22.17	1,075.61
USGS 06804700 Wahoo Creek at Ashland*	2,641,613.33	465,530.43	1,049.11	8.79	1,057.90	4.49	1,053.60
Silver Creek							
M.U.D. Silver Creek-5	2,584,075.71	555,659.62	1,224.91	-10.87	1,214.04	-10.50	1,214.41
Gauge-4 Silver Creek Guard-Rail-S	2,590,016.26	529,380.83	1,187.27	-10.50	1,176.77	-12.08	1,175.19
Gauge-3 Silver Creek Bridge-Deck-N	2,593,062.03	508,611.85	1,153.30	-17.42	1,135.88	-18.46	1,134.84
M.U.D. Silver Creek-2	2,599,185.42	497,967.86	1,125.99	-5.50	1,120.49	-7.90	1,118.09
Gauge-1 Silver Creek	2,609,218.05	492,882.27	1,103.88	-9.05	1,094.83	-10.87	1,093.01
Clear Creek							
CC-2-Bridge-Rail-N	2,641,598.79	520,655.68	1,108.00	-5.33	1,102.67	-5.52	1,102.48
CC-1-Bridge-Deck-N	2,638,802.49	504,656.44	1,088.80	-9.88	1,078.92	-9.96	1,078.84
M.U.D. Clear Creek-1	2,637,598.46	499,320.48	1,084.68	-11.75	1,072.93	-11.63	1,073.05
CC-3-Bridge-Deck-N	2,635,065.12	493,906.86	1,082.90	-14.55	1,068.35	-14.50	1,068.40
CC-4-Bridge-Deck-N	2,637,618.41	478,158.50	1,078.50	-15.08	1,063.42	-14.92	1,063.58
Johnson Creek							
JC-2 Bridge Deck below BM#1	2,634,263.82	504,476.59	1,098.35	-14.45	1,083.90	-14.38	1,083.97

Table 2.5 (Continued)
Surface Water Elevation Measurements, August 2014 through March 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Description	8/31/15 Gage Height (ft)	8/31/15 Stream Elevation (ft amsl, NAVD 88)	3/28/16 Gage Height (ft)	3/28/16 Stream Elevation (ft amsl, NAVD 88)	8/25/16 Gage Height (ft)	8/25/16 Stream Elevation (ft amsl, NAVD 88)	3/31/17 Gage Height (ft)	3/31/17 Stream Elevation (ft amsl, NAVD 88)
Platte River								
USGS 6796500 Platte River near Leshara*	NM	NM	NM	NM	3.73	1,148.20	4.93	1,149.40
USGS 06796550 Platte River near Venice*	10.94	1,100.94	12.29	1,102.29	11.11	1,101.11	12.36	1,102.36
USGS 06801000 Platte River near Ashland*	NM	NM	NM	NM	NM	NM	16.57	1,056.91
Elkhorn River								
USGS 06800500 Elkhorn River at Waterloo*	5.14	1,110.27	5.04	1,110.17	4.48	1,109.61	NM	NM
M.U.D. Elk Horn River-1	-24.67	1,092.83	-25.22	1,092.28	-25.66	1,091.84	-25.44	1,092.06
Wahoo Creek								
MUD Wahoo Creek-5-Bridge-Rail-N	-19.70	1,228.80	-19.60	1,228.90	-18.79	1,229.71	-19.19	1,229.31
USGS 06804000 Wahoo Creek at Ithaca*	5.51	1,116.41	5.31	1,116.21	6.76	1,117.66	5.33	1,116.23
M.U.D. Wahoo Creek-2	-21.83	1,100.69	-22.10	1,100.42	-20.08	1,102.44	-21.58	1,100.94
M.U.D. Wahoo Creek-1	-21.38	1,076.40	-21.45	1,076.33	-17.50	1,080.28	-21.25	1,076.53
USGS 06804700 Wahoo Creek at Ashland*	NM	NM	6.32	1,055.43	9.83	1,058.94	6.57	1,055.68
Silver Creek								
M.U.D. Silver Creek-5	-10.21	1,214.70	-10.21	1,214.70	-9.88	1,215.03	NM	NM
Gauge-4 Silver Creek Guard-Rail-S	-12.00	1,175.27	-12.10	1,175.17	-11.80	1,175.47	-12.04	1,175.23
Gauge-3 Silver Creek Bridge-Deck-N	-18.27	1,135.03	-18.08	1,135.22	-16.75	1,136.55	-17.92	1,135.38
M.U.D. Silver Creek-2	-7.54	1,118.45	-7.30	1,118.69	-5.70	1,120.29	-7.12	1,118.87
Gauge-1 Silver Creek	-10.55	1,093.33	-10.58	1,093.30	-6.92	1,096.96	-10.92	1,092.96
Clear Creek								
CC-2-Bridge-Rail-N	-5.54	1,102.46	-5.36	1,102.64	-4.33	1,103.67	NM	NM
CC-1-Bridge-Deck-N	-9.80	1,079.00	-9.37	1,079.43	-9.50	1,079.30	-9.81	1,078.99
M.U.D. Clear Creek-1	-11.29	1,073.39	-11.50	1,073.18	-11.02	1,073.66	-11.40	1,073.28
CC-3-Bridge-Deck-N	-14.42	1,068.48	-14.84	1,068.06	-13.71	1,069.19	-14.35	1,068.55
CC-4-Bridge-Deck-N	-14.58	1,063.92	-15.08	1,063.42	-13.14	1,065.36	-13.66	1,064.84
Johnson Creek								
JC-2 Bridge Deck below BM#1	-13.87	1,084.48	-14.19	1,084.16	-13.12	1,085.23	-13.73	1,084.62

Notes:

Gage datums taken from 2012 GWM Update Report Table 2.5
USGS Stream gage data is measured above the Gage Height
Manual measurements are below bridge deck or other datum.
amsl = above mean sea level
ft = feet
CC = Clear Creek
JC = Johnson Creek

M.U.D. = Omaha Metropolitan Utilities District
NAD 83 = North American Datum of 1983
NAVD 88 = North American Vertical Datum of 1988
NM = not measured
USGS = U.S. Geological Survey
*USGS Gaging data from http://waterdata.usgs.gov/ne/nwis/sw
(Accessed September 2017)

Table 2.6
Platte River Flow Statistics
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

	Elkhorn River Discharge at Waterloo, Station Number 06800500 (cfs)	Platte River Discharge at Leshara, Station Number 06796500 (cfs)	Platte River Discharge at Ashland, Station Number 06801000 (cfs)	Sum of Discharge at Leshara and Waterloo (cfs)
2010 Annual Average Flow	3,992	7,303	11,150	11,295
2011 Annual Average Flow	2,517	8,189	10,620	10,706
2012 Annual Average Flow	1,010	3,407	4,204	4,417
2013 Annual Average Flow	1,019	3,995	4,950	5,014
2014 Annual Average Flow	1,861	4,667	6,592	6,528
2015 Annual Average Flow	1,950	6,280	8,290	8,230
2016 Annual Average Flow	3,643	7,435	10,590	11,078
Annual Seven Day Minimum Flow for Period of Record	66	245	308	311

Notes:

cfs = cubic feet per second

Ashland Station Number 06801000 Period of Record = 1989-2016

Leshara Station Number 06796500 Period of Record = 1994-2016

Waterloo Station Number 06800500 Period of Record = 1929-2016

Source: U.S. Geological Survey, 2017, Current Conditions for Nebraska: Streamflow, https://waterdata.usgs.gov/ne/nwis/current/?type=flow (accessed September 26, 2017).

Table 2.7
Monthly Precipitation at MEAD_6S (Station USC00255362)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1968	M	M	M	M	M	M	M	M	M	M	0.95	1.88	29.89	11.77
1969	0.55	1.01	0.67	3.21	3.29	4.37	2.37	2.71	0.83	2.34	0.15	1.19	22.69	9.45
1970	0.07	0.10	0.58	2.23	2.68	4.48	1.53	4.06	4.22	4.22	1.33	0.19	25.69	10.07
1971	0.01	1.22	0.31	0.97	7.78	2.83	1.50	1.00	0.71	4.41	2.40	0.59	23.73	5.33
1972	0.04	0.18	0.76	4.85	8.56	1.95	2.43	3.06	2.65	3.07	3.51	1.34	32.40	7.44
1973	1.05	0.35	5.09	2.34	4.96	1.95	5.72	0.53	6.30	4.15	1.90	1.36	35.70	8.20
1974	0.26	0.07	0.67	2.37	4.07	1.10	0.11	5.81	1.76	3.15	0.84	0.65	20.86	7.02
1975	0.61	0.97	1.38	2.71	2.73	3.45	0.93	2.13	1.21	0.00	2.51	0.76	19.39	6.51
1976	0.21	1.31	2.14	3.02	3.00	2.46	2.43	1.66	2.93	0.35	0.00	0.04	19.55	6.55
1977	0.33	0.27	2.60	2.20	4.54	1.69	1.54	6.84	3.54	5.30	1.84	0.31	31.00	10.07
1978	0.15	0.45	0.81	6.54	3.48	3.48	3.96	1.56	5.52	0.82	1.32	0.28	28.37	9.00
1979	0.90	0.27	3.40	3.12	3.04	2.46	2.82	2.73	0.74	5.02	1.20	M	26.55	8.01
1980	0.53	0.37	0.76	1.54	1.78	3.58	1.73	6.83	0.16	2.05	0.04	0.29	19.66	12.14
1981	0.07	0.09	0.66	2.02	4.33	1.57	3.29	7.51	2.31	1.25	3.31	0.31	26.72	12.37
1982	0.80	0.13	2.80	1.79	8.80	5.43	3.22	7.58	4.56	1.79	1.39	1.50	39.79	16.23
1983	1.09	0.41	3.75	0.87	4.87	7.03	0.78	2.42	2.83	1.62	3.47	0.18	29.32	10.23
1984	0.33	0.67	1.97	5.95	4.90	6.55	1.64	0.97	1.71	5.54	0.52	3.48	34.23	9.16
1985	0.12	0.55	0.91	2.96	M	2.29	3.65	3.01	3.35	2.35	0.86	0.19	24.51	8.95
1986	0.00	0.43	2.97	5.29	2.74	3.19	4.40	5.60	7.60	4.65	0.50	0.73	38.10	13.19
1987	0.00	0.09	4.13	1.41	6.22	1.67	3.84	8.68	1.86	0.68	1.23	0.58	30.39	14.19
1988	0.46	0.09	0.05	1.43	3.28	1.02	3.57	0.72	4.80	0.07	1.60	0.48	17.57	5.31
1989	0.80	0.60	0.06	0.99	0.85	4.14	4.16	1.62	4.48	0.85	0.05	0.66	19.26	9.92
1990	0.52	0.26	3.24	0.34	4.55	4.42	7.09	0.80	0.71	1.50	0.88	0.93	25.24	12.31
1991	0.85	0.28	3.49	2.65	2.89	9.94	3.05	1.80	2.52	1.03	2.59	2.01	33.10	14.79
1992	0.76	1.08	2.57	1.43	1.69	1.82	7.18	1.78	2.24	2.07	2.06	0.51	25.19	10.78
1993	0.84	0.56	1.70	3.41	4.02	7.94	9.85	7.14	3.70	1.34	0.70	0.21	41.41	24.93
1994	0.49	0.23	0.01	1.27	1.43	9.07	4.23	1.68	3.73	1.32	2.43	0.64	26.53	14.98
1995	0.77	0.41	2.44	4.29	5.70	1.31	1.03	1.34	2.49	1.36	0.48	0.35	21.97	3.68
1996	0.51	0.06	0.90	3.22	7.30	5.50	1.46	3.01	1.99	0.67	2.32	0.38	27.32	9.97
1997	0.24	0.95	0.72	2.45	1.12	2.53	3.03	2.03	4.24	3.46	2.44	0.42	23.63	7.59
1998	0.65	1.29	2.31	2.87	5.03	7.65	3.94	6.16	0.87	2.45	2.44	0.14	35.80	17.75
1999	0.32	0.84	1.31	5.61	6.16	5.06	2.84	3.64	3.17	0.00	0.98	0.68	30.61	11.54
2000	0.07	0.79	1.60	2.28	2.29	5.63	3.83	1.17	0.80	2.13	1.78	0.75	23.12	10.63
2001	1.13	1.25	1.04	2.15	8.84	1.82	0.87	2.50	2.90	2.40	2.21	0.24	27.35	5.19
2002	0.37	0.66	0.88	3.31	3.29	0.50	2.52	8.26	1.33	4.06	0.26	0.00	25.44	11.28

Table 2.7 (Continued)
Monthly Precipitation at MEAD_6S (Station USC00255362)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
2003	0.42	1.00	0.75	2.87	5.17	4.05	0.95	1.70	3.58	1.72	2.83	0.59	25.63	6.70
2004	0.98	0.64	3.32	0.99	4.77	3.09	3.00	1.94	4.03	0.86	3.15	0.31	27.08	8.03
2005	0.95	2.85	0.66	3.61	2.74	3.47	3.97	0.77	0.99	1.69	1.15	1.02	23.87	8.21
2006	1.59	0.11	3.52	4.20	1.38	0.97	3.03	6.14	6.26	0.77	0.20	2.17	30.34	10.14
2007	0.53	1.83	2.45	4.65	6.87	2.45	1.65	10.15	2.99	4.75	0.00	2.08	40.40	14.25
2008	0.23	0.39	0.65	4.64	5.96	9.89	3.73	1.01	4.33	5.06	1.78	1.19	38.86	14.63
2009	0.27	0.47	0.32	1.63	1.20	6.49	2.62	7.27	1.55	4.34	0.00	2.65	28.81	16.38
2010	0.90	0.68	1.63	4.03	2.66	9.82	7.22	2.51	5.84	0.23	1.93	0.33	37.78	19.55
2011	0.91	0.30	0.59	3.22	7.61	5.57	3.32	5.47	0.89	0.84	1.43	1.33	31.48	14.36
2012	0.16	1.84	0.62	2.81	3.80	4.24	0.26	0.91	1.18	1.36	0.25	1.06	18.49	5.41
2013	0.44	0.42	1.31	3.62	6.42	4.68	0.62	1.80	3.79	3.86	1.27	0.15	28.38	7.10
2014	0.07	0.46	0.21	3.22	6.48	8.33	0.55	6.97	3.12	3.30	0.22	1.51	34.44	15.85
2015	0.07	1.29	0.80	3.61	7.80	6.04	3.54	7.69	4.00	0.51	1.68	5.23	42.26	17.27
2016	0.84	0.57	0.98	4.92	7.38	4.06	3.74	5.62	2.95	1.54	0.86	2.26	35.72	13.42
2017	0.76	0.42	2.28	2.45	7.87	2.91	3.28	4.42	M	M	M	M	31.93	10.61
1981-2010 Normals	0.57	0.66	1.76	2.82	4.27	4.55	3.52	3.70	3.13	2.08	1.48	0.85	29.39	11.77

Notes:

Station: (USC00255362) MEAD 6S, Nebraska

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: Midwestern Regional Climate Center (MRCC), 2017, cli-MATE: MRCC Application Tools Environment, http://climod.unl.edu/, accessed September 21, 2017.

Table 2.8
Monthly Precipitation at ASHLAND_2 (Station USC00250375)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1894	0.26	0.72	0.62	2.01	0.92	5.03	M	0.12	0.52	2.52	0.25	M	17.76	8.88
1895	0.14	0.38	0.48	2.31	2.62	M	2.00	6.36	0.97	0.00	0.82	0.26	20.61	12.63
1896	0.21	0.30	0.98	2.97	10.57	1.80	5.56	2.85	5.45	3.28	1.88	0.35	36.20	10.21
1897	0.32	0.43	1.23	7.29	2.12	2.31	1.66	1.44	M	3.39	0.25	M	24.27	5.41
1898	0.31	M	1.51	2.26	5.16	2.21	1.18	2.95	2.90	1.53	0.44	0.16	21.45	6.34
1899	0.03	9.28	0.45	M	4.34	10.65	3.54	M	0.58	2.47	0.96	1.74	40.96	18.13
1900	0.10	0.62	0.44	3.37	2.27	3.15	6.52	6.07	2.76	4.27	0.00	0.68	30.25	15.74
1901	0.13	0.42	M	M	M	3.20	5.63	1.12	5.29	2.16	0.71	0.28	28.63	9.95
1902	1.31	0.02	0.40	0.94	3.22	8.72	13.86	5.41	2.70	2.67	1.49	1.79	42.53	27.99
1903	0.00	1.16	0.50	3.88	10.57	2.30	5.92	5.77	2.84	M	0.50	0.00	35.68	13.99
1904	0.50	0.05	0.74	4.46	5.96	2.74	3.40	3.71	2.36	1.44	0.27	0.30	25.93	9.85
1905	0.95	0.70	0.56	5.04	3.77	2.54	2.73	5.54	5.62	1.75	2.52	0.14	31.86	10.81
1906	0.48	1.05	2.00	3.74	1.90	5.93	4.68	3.09	5.74	2.05	0.40	1.94	33.00	13.70
1907	0.50	1.46	0.39	1.35	5.13	6.96	7.11	2.73	3.03	1.42	0.79	0.21	31.08	16.80
1908	0.35	2.00	0.69	1.13	5.20	11.86	6.80	3.59	0.31	2.61	0.63	0.16	35.33	22.25
1909	0.67	0.86	0.35	1.54	3.76	4.99	3.33	0.96	5.09	0.98	7.66	2.53	32.72	9.28
1910	0.87	0.23	0.09	0.11	2.74	1.42	0.67	5.55	2.69	0.88	0.02	0.39	15.66	7.64
1911	0.21	2.30	0.44	2.04	4.68	0.54	1.90	1.76	1.84	0.93	0.16	2.18	18.98	4.20
1912	0.17	1.14	2.07	1.46	0.40	3.65	2.00	3.43	5.31	3.04	0.68	0.09	23.44	9.08
1913	0.72	0.96	1.93	2.62	8.06	2.31	3.45	0.25	3.67	0.71	1.65	3.06	29.39	6.01
1914	0.30	0.54	2.21	2.64	4.35	7.72	2.02	1.00	3.72	2.58	0.05	0.88	28.01	10.74
1915	1.72	2.45	1.68	1.15	5.08	4.30	7.41	4.01	3.11	1.06	1.49	0.68	34.14	15.72
1916	1.26	0.40	0.64	1.13	3.25	3.15	1.66	4.45	0.76	0.98	0.86	0.37	18.91	9.26
1917	0.59	0.04	1.42	4.31	3.81	7.53	0.71	3.26	0.92	0.41	0.13	0.76	23.89	11.50
1918	0.62	0.86	0.23	0.66	3.39	1.94	3.83	1.06	1.09	4.49	2.61	0.77	21.55	6.83
1919	0.11	1.90	1.05	2.24	2.00	6.49	1.47	3.15	5.40	1.78	2.94	0.72	29.25	11.11
1920	0.24	0.71	0.59	3.00	3.11	3.21	3.64	2.74	0.78	3.56	1.43	1.00	24.01	9.59
1921	0.33	0.42	0.64	2.09	4.40	3.43	3.43	2.88	4.21	1.04	0.14	0.06	23.07	9.74
1922	0.80	0.32	1.38	1.81	2.25	2.44	4.48	1.73	1.95	1.23	2.81	0.08	21.28	8.65
1923	0.56	0.02	1.22	2.83	3.96	5.04	2.93	4.07	4.67	0.53	0.01	0.50	26.34	12.04
1924	0.38	0.96	1.20	0.33	1.84	5.48	5.78	1.17	2.18	0.79	0.31	1.36	21.78	12.43
1925	0.67	0.83	0.57	1.73	1.15	4.61	1.85	5.69	2.62	1.71	0.04	0.78	22.25	12.15
1926	0.82	0.60	0.85	0.46	2.31	2.74	2.05	5.17	8.34	1.20	2.11	1.09	27.74	9.96

Table 2.8 (Continued)
Monthly Precipitation at ASHLAND_2 (Station USC00250375)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1927	0.10	1.05	1.18	5.15	1.41	2.05	2.50	2.63	4.06	0.52	0.00	0.43	21.08	7.18
1928	0.05	0.81	0.48	1.25	2.09	5.46	4.51	4.76	3.29	2.44	3.56	0.08	28.78	14.73
1929	0.80	1.66	0.17	3.00	2.33	2.84	3.87	1.70	1.80	4.01	1.44	0.12	23.74	8.41
1930	0.84	0.35	0.47	2.51	2.57	3.32	1.96	5.50	1.32	0.47	1.78	0.23	21.32	10.78
1931	0.20	0.05	0.75	1.72	5.13	5.62	2.89	2.80	4.85	2.37	4.67	2.04	33.09	11.31
1932	2.93	0.64	0.59	1.11	3.06	6.26	1.67	7.29	2.14	1.61	0.05	0.52	27.87	15.22
1933	0.10	0.19	1.52	1.28	1.26	1.32	4.12	2.05	6.63	0.14	0.88	1.50	20.99	7.49
1934	0.98	0.43	0.62	0.00	0.38	2.34	0.47	1.46	2.43	1.71	2.84	0.77	14.43	4.27
1935	0.08	M	M	1.64	4.69	5.57	3.44	2.03	3.56	2.70	1.88	0.40	28.72	11.04
1936	2.87	0.89	0.10	0.90	1.69	M	0.05	1.74	5.48	0.23	0.15	0.73	19.10	6.06
1937	0.79	0.09	1.95	M	3.93	3.51	4.46	4.73	1.17	2.21	0.35	0.09	26.26	12.70
1938	0.18	0.77	1.32	2.94	5.20	3.86	4.52	4.65	3.58	1.84	1.13	0.15	30.14	13.03
1939	0.28	1.07	0.60	1.08	1.71	4.61	M	2.08	0.61	2.61	0.00	2.12	20.50	10.42
1940	0.94	1.12	1.16	1.95	0.78	5.43	0.93	5.21	1.27	1.99	1.67	1.25	23.70	11.57
1941	1.11	0.78	0.40	4.13	2.18	5.01	1.22	2.11	M	1.25	1.28	2.49	24.73	8.34
1942	0.27	0.88	2.72	0.39	3.56	3.20	1.94	2.60	4.81	0.95	0.18	1.08	22.58	7.74
1943	M	0.63	0.89	1.69	3.66	6.37	5.36	2.61	1.83	1.25	0.55	0.00	25.62	14.34
1944	0.75	1.08	1.63	9.76	4.58	5.45	M	M	M	1.39	1.97	M	38.11	13.12
1945	0.52	2.52	1.83	4.73	6.55	6.56	6.18	1.63	M	M	M	M	38.15	14.37
1946	M	0.03	2.77	0.78	4.97	9.76	M	M	M	3.81	2.13	0.06	35.53	17.43
1947	M	0.12	1.00	6.35	3.31	11.71	2.00	0.91	1.30	1.61	1.04	1.46	31.59	14.62
1948	0.38	1.88	1.93	2.07	2.08	2.58	9.41	5.85	3.82	1.77	2.16	0.83	34.76	17.84
1949	2.94	0.89	1.13	0.96	4.70	7.13	2.65	2.56	3.51	1.68	0.03	0.21	28.39	12.34
1950	0.73	1.46	0.56	1.18	3.54	1.00	5.20	4.06	0.60	2.64	0.50	0.13	21.60	10.26
1951	0.58	2.03	3.21	5.19	4.90	7.92	3.56	7.24	2.06	1.97	0.28	0.95	39.89	18.72
1952	0.48	0.83	2.83	3.75	3.48	5.08	1.65	6.48	0.81	0.00	3.95	1.16	30.50	13.21
1953	0.63	1.08	2.14	3.63	2.12	3.43	3.05	1.92	0.70	0.32	2.12	1.30	22.44	8.40
1954	0.11	2.38	0.80	2.24	4.84	M	0.45	9.18	1.47	3.04	0.00	M	29.84	13.90
1955	1.20	0.62	0.62	2.28	1.02	4.72	0.63	1.02	4.69	0.51	0.11	0.19	17.61	6.37
1956	M	M	0.12	1.22	1.12	4.36	2.93	3.10	2.93	1.32	1.36	0.11	20.19	10.39
1957	0.31	0.15	3.02	1.85	3.24	6.21	3.86	5.71	1.26	3.56	2.27	0.52	31.96	15.78
1958	0.96	1.51	1.05	2.96	1.60	0.99	11.20	5.29	6.06	0.10	0.83	0.00	32.55	17.48
1959	0.45	0.58	3.79	2.68	10.70	2.10	5.64	5.24	3.06	2.31	0.34	0.60	37.49	12.98

Table 2.8 (Continued)
Monthly Precipitation at ASHLAND_2 (Station USC00250375)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1960	1.57	1.30	0.85	2.58	3.93	5.73	4.23	6.55	4.15	0.86	0.27	0.24	32.26	16.51
1961	0.23	0.55	2.89	2.00	3.11	1.57	2.88	4.41	5.04	2.50	1.71	0.71	27.60	8.86
1962	0.38	1.51	0.97	0.85	4.72	3.18	7.60	3.93	2.95	2.53	0.74	0.53	29.89	14.71
1963	0.65	0.28	2.20	1.71	2.71	6.73	2.14	3.18	5.19	0.39	0.28	0.38	25.84	12.05
1964	0.20	0.30	1.29	5.54	4.16	10.38	5.01	3.85	4.37	0.36	1.06	0.65	37.17	19.24
1965	0.29	2.05	2.95	3.61	9.18	8.11	6.02	2.49	11.63	0.50	1.07	1.08	48.98	16.62
1966	0.65	0.49	0.70	1.08	2.66	M	4.96	3.46	2.04	0.59	0.24	0.53	21.67	12.69
1967	0.42	0.13	1.36	2.19	2.62	13.29	1.72	1.32	3.34	3.23	M	0.77	31.95	16.33
1968	M	M	0.31	3.10	3.89	2.34	3.63	5.51	5.33	4.01	0.79	1.44	31.97	11.48
1969	0.71	0.94	0.84	4.74	4.60	3.57	2.78	2.26	1.30	2.00	0.22	1.46	25.42	8.61
1970	0.13	0.10	0.68	2.39	2.39	2.66	2.56	2.85	5.59	3.42	1.14	0.17	24.08	8.07
1971	0.64	2.57	0.46	0.46	9.79	2.56	1.22	2.75	0.75	4.61	2.91	0.96	29.68	6.53
1972	0.03	0.23	0.91	5.45	7.68	2.01	2.25	3.51	2.70	3.41	3.59	1.40	33.17	7.77
1973	1.86	0.65	5.66	2.74	5.76	1.68	5.24	0.28	7.78	3.62	2.10	1.75	39.12	7.20
1974	0.55	0.28	0.80	2.52	3.83	1.34	0.27	5.42	0.75	2.24	1.25	0.54	19.79	7.03
1975	1.18	1.01	1.62	2.60	2.68	4.34	1.05	5.36	1.53	0.08	3.40	0.52	25.37	10.75
1976	0.40	1.36	2.46	4.08	3.71	1.02	2.32	0.96	3.09	0.71	0.00	0.07	20.18	4.30
1977	0.51	0.22	2.18	2.34	5.77	2.13	1.84	10.41	1.80	3.16	1.72	0.24	32.32	14.38
1978	0.29	0.94	1.15	7.25	4.43	2.18	6.62	2.10	4.17	1.18	1.41	0.30	32.02	10.90
1979	1.31	0.37	3.53	2.68	1.93	3.54	3.14	2.33	1.01	4.63	1.27	0.37	26.11	9.01
1980	M	0.42	1.46	1.78	0.97	5.70	2.07	8.13	0.39	2.11	0.07	0.81	24.69	15.90
1981	0.00	0.45	0.96	1.99	3.56	2.13	2.63	8.59	1.35	2.38	2.77	1.39	28.20	13.35
1982	0.79	0.23	2.34	1.83	9.68	3.11	3.30	7.60	3.61	3.64	1.96	1.90	39.99	14.01
1983	0.94	0.69	3.96	1.42	3.73	8.22	0.28	2.89	2.79	1.78	2.56	0.93	30.19	11.39
1984	0.47	0.78	2.74	5.43	4.87	6.62	1.69	1.01	1.22	4.34	1.12	4.03	34.32	9.32
1985	0.29	0.68	1.60	2.63	6.08	1.89	4.37	3.28	3.98	1.91	0.57	0.36	27.64	9.54
1986	0.00	0.76	2.75	6.17	3.11	3.54	4.95	6.96	7.13	5.64	0.83	1.09	42.93	15.45
1987	0.03	0.19	5.05	1.86	7.96	3.15	2.08	11.86	1.45	0.75	1.88	0.72	36.98	17.09
1988	0.49	0.19	0.02	2.08	3.43	2.06	3.04	1.60	4.03	0.00	1.82	M	19.82	6.70
1989	0.98	0.85	0.16	1.07	0.56	5.08	2.78	2.47	5.11	1.47	0.00	0.41	20.94	10.33
1990	0.58	0.24	2.54	0.52	4.79	3.41	7.10	1.98	0.61	1.65	1.28	1.17	25.87	12.49
1991	1.35	0.25	2.65	3.98	3.78	4.84	3.20	2.61	1.13	1.61	3.01	1.70	30.11	10.65
1992	1.52	0.81	2.68	2.98	1.81	1.62	7.66	2.58	2.93	2.39	2.17	1.20	30.35	11.86

Table 2.8 (Continued)
Monthly Precipitation at ASHLAND_2 (Station USC00250375)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1993	1.66	0.94	2.36	2.93	12.42	6.54	15.81	8.81	3.21	1.82	1.01	0.50	58.01	31.16
1994	0.58	0.79	0.00	1.23	2.10	8.66	4.68	1.07	2.90	1.63	1.90	1.41	26.95	14.41
1995	1.16	0.52	2.90	4.27	7.70	1.73	1.16	1.08	2.80	1.13	1.00	0.35	25.80	3.97
1996	1.21	0.05	0.99	3.65	7.85	3.56	2.97	3.08	2.70	1.04	2.48	0.53	30.11	9.61
1997	0.48	0.85	0.55	2.91	1.67	3.84	3.82	1.90	2.43	5.32	2.54	0.55	26.86	9.56
1998	0.89	1.09	3.40	2.83	7.91	6.76	2.78	4.83	0.75	2.71	2.38	0.30	36.63	14.37
1999	0.55	1.25	1.40	6.08	7.40	3.72	4.91	4.16	2.45	0.00	0.90	0.70	33.52	12.79
2000	0.10	1.39	1.33	1.36	2.24	5.09	3.61	1.12	0.88	2.53	2.83	1.25	23.73	9.82
2001	1.32	2.58	0.88	1.72	10.07	1.25	0.60	1.62	2.88	2.85	1.86	0.50	28.13	3.47
2002	0.61	0.68	1.20	2.44	4.60	1.43	0.78	9.06	1.14	3.66	0.33	0.00	25.93	11.27
2003	0.51	1.45	0.83	2.59	3.56	3.42	0.98	1.46	2.57	1.47	2.68	1.09	22.61	5.86
2004	1.70	0.94	3.74	1.20	3.45	3.35	3.72	1.55	4.30	0.43	2.71	0.28	27.37	8.62
2005	1.28	2.65	0.65	4.46	2.21	3.51	6.15	0.55	0.35	1.79	1.14	0.86	25.60	10.21
2006	1.05	0.17	1.92	3.93	1.26	0.88	1.77	8.41	4.14	0.68	0.02	2.25	26.48	11.06
2007	1.08	1.73	3.27	5.06	5.24	2.23	1.51	8.37	2.66	4.96	0.08	2.05	38.24	12.11
2008	0.35	0.69	1.05	3.18	6.30	8.62	4.36	0.68	3.92	4.97	1.08	0.80	36.00	13.66
2009	0.35	0.68	0.53	1.98	1.95	8.78	2.46	5.56	1.60	3.83	0.04	2.36	30.12	16.80
2010	0.94	0.76	1.65	M	3.21	8.94	6.83	2.45	6.00	M	2.09	0.32	38.41	18.22
2011	1.08	0.35	0.60	4.10	4.02	4.69	4.33	6.23	0.83	0.84	1.33	1.22	29.62	15.25
2012	0.12	2.19	1.04	4.07	4.15	4.17	0.24	0.50	1.65	1.84	0.26	1.57	21.80	4.91
2013	0.36	0.64	1.87	M	M	M	1.25	1.15	5.66	3.40	1.44	0.18	28.02	6.67
2014	0.16	0.71	0.13	3.46	6.46	9.07	0.97	9.34	3.22	5.69	0.43	1.24	40.88	19.38
2015	0.14	1.45	0.83	3.30	9.94	4.82	6.44	7.36	7.41	0.53	2.07	6.23	50.52	18.62
2016	0.88	1.06	1.38	4.51	6.46	3.79	4.23	12.33	1.22	1.43	0.95	2.15	40.39	20.35
2017	1.19	0.86	2.83	2.82	7.67	M	2.14	4.47	0.59	M	M	M	31.70	10.88
1981-2010 Normals	0.78	0.84	1.89	2.98	4.82	4.27	3.73	3.94	2.77	2.24	1.56	1.06	30.88	11.94

Notes:

Station: (USC00250375) ASHLAND 2, Nebraska

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: Midwestern Regional Climate Center (MRCC), 2017, cli-MATE: MRCC Application Tools Environment, http://climod.unl.edu/, accessed September 20, 2017.

Table 2.9
Monthly Precipitation at WAHOO_1.7N (Station NESN0001)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
2013	M	M	0.78	3.23	7.04	3.66	0.58	2.80	2.68	3.84	1.34	M	29.79	7.04
2014	M	0.61	0.20	2.37	5.75	8.45	0.63	9.37	3.25	2.39	0.23	1.33	35.30	18.45
2015	0.16	1.16	0.59	4.13	7.56	5.40	3.55	6.54	3.11	0.57	1.94	4.52	39.23	15.49
2016	0.93	0.89	1.06	6.90	7.67	2.22	3.65	4.90	3.71	1.52	0.89	1.08	35.42	10.77
2017	1.08	0.56	1.82	3.44	7.17	2.79	2.73	4.17	M	M	M	M	32.44	9.69
Average	0.72	0.81	0.89	4.01	7.04	4.50	2.23	5.56	3.19	2.08	1.10	2.31	34.44	12.29

Notes:

Station: (NESN0001) WAHOO_1.7N, Nebraska

Missing monthly data are replaced with monthly averages to estimate annual and June-August totals.

M = missing monthly data

Source: Midwestern Regional Climate Center (MRCC), 2017, cli-MATE: MRCC Application Tools Environment, http://climod.unl.edu/, accessed September 21, 2017.

Table 2.10
Monthly Precipitation at GRETNA_4NE (Station USC00253467)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1997	M	M	M	M	1.46	5.02	6.32	2.79	4.39	6.35	2.85	0.71	37.13	14.13
1998	1.10	1.89	3.64	3.48	5.77	7.81	6.44	4.93	1.77	2.83	2.07	0.32	42.05	19.18
1999	0.66	1.85	1.30	6.39	5.77	3.37	2.85	5.24	1.54	0.03	0.82	0.69	30.51	11.46
2000	0.19	1.36	1.36	1.81	2.19	6.20	5.39	1.76	0.87	2.54	2.27	1.29	27.23	13.35
2001	1.45	2.06	0.96	1.96	10.11	1.84	2.23	1.76	2.41	3.49	1.72	0.81	30.80	5.83
2002	0.41	0.94	1.45	2.42	4.85	1.69	1.30	8.72	1.20	3.12	0.21	0.02	26.33	11.71
2003	0.54	1.85	0.99	3.30	4.61	2.73	1.37	1.79	2.58	1.42	2.81	1.19	25.18	5.89
2004	1.79	1.11	3.44	1.36	3.89	4.41	4.34	1.44	4.30	0.58	2.37	0.29	29.32	10.19
2005	1.14	3.48	0.80	4.79	2.31	5.03	3.17	2.09	0.62	1.11	1.46	1.08	27.08	10.29
2006	0.87	0.12	2.83	3.24	1.55	1.98	2.64	8.76	4.30	0.95	0.11	2.13	29.48	13.38
2007	1.32	1.43	4.68	5.00	6.44	1.60	1.25	8.03	2.86	5.25	0.06	2.14	40.06	10.88
2008	0.38	0.70	0.86	5.12	6.75	9.60	5.18	0.95	4.48	6.96	1.35	0.99	43.32	15.73
2009	0.35	1.01	1.06	2.21	1.74	7.27	2.51	5.65	2.68	3.88	0.16	3.08	31.60	15.43
2010	1.04	0.91	1.95	3.97	3.04	10.82	6.23	2.83	3.94	0.26	2.22	0.37	37.58	19.88
2011	1.43	0.54	0.85	3.89	5.57	4.84	2.68	4.35	1.20	0.82	1.49	1.50	29.16	11.87
2012	0.21	2.56	0.99	4.39	4.13	4.40	0.07	1.16	1.51	2.00	0.43	1.84	23.69	5.63
2013	0.68	0.71	1.87	4.91	6.89	5.45	0.70	1.31	3.74	3.74	1.25	0.19	31.44	7.46
2014	0.10	0.68	0.25	3.49	6.19	10.67	0.63	8.24	2.90	4.70	0.31	1.65	39.81	19.54
2015	0.12	1.58	0.75	3.73	7.52	4.88	3.25	6.55	3.73	0.65	1.85	5.65	40.26	14.68
2016	1.05	0.94	1.89	5.26	6.48	4.16	4.87	10.73	3.20	1.50	1.02	1.64	42.74	19.76
2017	1.06	0.82	2.84	2.59	7.90	3.98	2.96	2.43	M	M	M	M	32.57	9.37
Normals	0.77	1.14	2.13	3.20	4.62	4.98	4.68	4.13	3.06	2.26	1.61	1.06	33.64	13.79

Notes:

Station: (USC00253467) GRETNA_4NE, Nebraska

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: Midwestern Regional Climate Center (MRCC), 2017, cli-MATE: MRCC Application Tools Environment, http://climod.unl.edu/, accessed September 21, 2017.

Table 2.11
Monthly Precipitation at VALLEY_1_WNW (Station USC00258795)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1994	M	M	M	M	M	M	4.57	2.89	2.80	1.45	1.68	1.36	31.16	12.55
1995	0.66	0.50	2.37	4.53	6.21	1.25	1.32	1.81	2.22	1.51	0.84	0.36	23.58	4.38
1996	1.06	0.13	1.20	2.81	7.30	4.84	1.52	3.08	3.41	0.69	2.56	0.42	29.02	9.44
1997	0.33	0.83	0.59	3.55	0.95	3.07	M	3.93	5.10	4.90	1.97	0.41	30.08	11.45
1998	0.88	0.65	2.98	3.93	4.72	9.14	6.25	5.94	0.73	2.56	1.74	0.15	39.67	21.33
1999	0.42	1.28	1.11	5.20	4.30	6.64	2.12	3.92	2.69	0.04	0.93	0.85	29.50	12.68
2000	0.18	1.02	1.36	2.23	2.69	6.85	8.03	2.54	0.95	1.40	1.93	1.02	30.20	17.42
2001	1.10	1.58	1.07	2.15	9.32	1.88	2.66	2.40	2.87	2.33	1.82	0.58	29.76	6.94
2002	0.36	1.28	1.09	2.64	4.83	1.21	2.20	6.02	0.91	4.32	0.19	0.01	25.06	9.43
2003	0.56	1.63	0.97	3.18	5.74	2.82	1.64	1.23	3.02	1.47	1.72	0.97	24.95	5.69
2004	1.68	0.81	3.33	1.28	4.20	3.07	5.04	2.42	3.90	0.96	3.13	0.31	30.13	10.53
2005	1.25	3.71	0.69	4.04	4.89	4.42	5.37	3.04	1.55	1.45	1.28	0.94	32.63	12.83
2006	1.03	0.24	5.04	3.42	1.38	1.37	3.35	7.27	5.47	0.79	0.53	2.46	32.35	11.99
2007	1.19	1.57	2.91	5.58	6.73	2.73	4.27	8.38	1.90	5.57	0.04	2.21	43.08	15.38
2008	0.53	0.66	0.91	4.69	6.54	8.43	3.79	1.64	4.36	5.61	1.50	0.82	39.48	13.86
2009	0.30	0.93	0.63	1.99	1.37	6.10	1.98	6.36	2.99	3.93	0.04	3.29	29.91	14.44
2010	1.08	0.92	1.88	3.98	2.55	10.75	7.05	4.23	3.21	0.38	1.60	0.32	37.95	22.03
2011	1.49	0.73	1.66	3.38	6.40	4.93	4.21	5.08	1.23	0.50	1.09	1.61	32.31	14.22
2012	0.14	2.06	1.05	2.48	4.11	3.74	0.00	2.48	0.76	1.99	0.33	1.89	21.03	6.22
2013	0.58	0.78	1.97	4.03	6.80	3.94	0.33	2.13	1.54	4.82	1.51	0.18	28.61	6.40
2014	0.17	0.87	0.35	2.66	4.85	11.67	0.90	8.57	4.60	1.50	0.33	1.90	38.37	21.14
2015	0.72	0.85	0.66	3.52	6.10	5.30	2.77	5.73	5.31	0.59	3.28	5.11	39.94	13.80
2016	0.75	0.99	1.18	6.60	6.97	7.69	5.51	7.74	2.60	1.71	0.98	1.31	44.03	20.94
2017	0.95	0.76	2.48	3.86	7.25	2.75	2.84	4.28	M	M	M	M	32.89	9.87
Normals	0.79	0.92	2.00	3.03	4.58	5.09	4.45	4.06	2.85	2.29	1.47	1.11	32.64	13.60

Notes:

Station: (USC00258795) VALLEY_1_WNW, Nebraska

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: Midwestern Regional Climate Center (MRCC), 2017, cli-MATE: MRCC Application Tools Environment, http://climod.unl.edu/, accessed September 21, 2017.

Table 2.12
Monthly Precipitation at ITHACA_3E (Station AWDN255369)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1981	M	M	M	M	M	0.43	1.85	2.64	2.64	1.69	1.06	0.42	21.55	4.92
1982	M	M	M	M	5.20	1.85	2.17	6.77	4.53	3.50	M	M	32.70	10.79
1983	M	M	M	M	3.86	4.61	1.50	2.13	3.07	1.38	1.11	M	24.84	8.23
1984	M	M	M	2.68	4.76	7.42	1.10	1.30	1.97	5.55	M	M	30.58	9.82
1985	M	M	M	3.78	4.53	2.72	5.21	2.28	4.49	2.05	0.08	M	29.41	10.20
1986	M	M	M	3.54	4.65	3.98	5.75	6.02	8.31	5.12	0.04	M	41.70	15.75
1987	M	M	M	1.69	3.43	1.73	3.07	10.04	1.73	1.62	M	M	29.10	14.84
1988	M	M	M	0.00	4.36	0.75	3.94	0.43	4.96	0.24	1.77	M	20.73	5.12
1989	M	M	M	0.20	1.59	5.39	2.87	1.69	4.61	1.14	M	M	23.28	9.96
1990	M	M	0.35	0.00	1.22	4.14	7.48	0.63	0.59	1.69	M	M	19.93	12.24
1991	M	M	1.22	2.44	2.87	7.60	2.78	1.38	5.18	0.55	M	M	27.86	11.76
1992	M	M	0.00	1.10	1.89	2.89	7.28	1.69	2.16	2.09	M	M	22.94	11.86
1993	M	M	1.22	1.97	2.64	7.72	6.81	6.09	3.44	1.30	M	M	35.01	20.62
1994	M	M	M	1.26	1.38	6.33	3.50	1.61	3.70	1.06	0.08	M	23.22	11.44
1995	M	M	1.71	4.22	5.31	0.87	1.10	1.42	2.28	1.07	0.18	M	20.50	3.38
1996	M	M	0.71	3.47	6.81	2.31	3.35	2.98	1.85	0.67	M	M	25.97	8.64
1997	M	M	M	1.89	1.18	2.01	3.92	2.08	4.61	3.43	M	M	24.90	8.01
1998	M	M	0.43	1.78	5.08	6.81	3.79	3.33	1.02	2.20	1.34	M	28.11	13.92
1999	M	M	M	4.90	5.62	5.00	1.77	2.70	3.70	0.00	0.87	M	28.85	9.47
2000	M	M	0.95	2.13	2.20	5.75	3.98	1.10	0.59	2.48	1.02	M	22.53	10.83
2001	M	M	M	2.32	8.35	1.61	0.79	2.20	2.16	2.09	M	M	25.31	4.60
2002	M	M	M	2.79	2.95	0.51	1.42	7.36	1.14	3.27	0.10	M	23.84	9.29
2003	M	M	M	1.81	4.92	4.32	0.90	1.30	2.91	1.61	1.77	M	23.84	6.51
2004	M	M	M	0.90	4.29	3.27	2.47	1.57	3.98	0.67	0.95	M	22.39	7.31
2005	M	M	0.09	3.17	3.21	2.56	3.95	0.97	1.21	1.55	0.01	M	19.05	7.48
2006	M	M	M	4.15	1.19	0.91	3.25	5.63	5.43	0.74	0.18	M	25.78	9.79
2007	0.26	1.19	2.15	3.90	6.28	1.58	1.35	9.11	2.51	4.22	M	M	34.97	12.04
2008	M	M	M	3.89	5.38	9.21	4.41	0.75	3.86	4.65	0.37	M	36.82	14.37
2009	M	M	0.12	1.31	1.00	3.68	2.80	5.46	1.12	M	M	M	21.43	11.94
2010	M	M	M	2.69	2.24	8.35	6.51	3.00	4.04	M	M	M	34.74	17.86

Table 2.12 (Continued)
Monthly Precipitation at ITHACA_3E (Station AWDN255369)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
2011	0.26	0.16	0.67	3.14	7.59	5.21	3.12	4.28	1.17	0.79	1.20	M	28.52	12.61
2012	M	1.29	0.70	3.70	3.41	3.88	0.10	0.89	0.99	1.29	0.08	M	17.89	4.87
2013	0.34	0.22	1.04	3.48	5.76	4.01	0.62	1.67	2.91	3.59	1.14	M	25.71	6.30
2014	M	M	M	2.62	4.39	7.70	1.34	6.60	3.41	1.49	0.02	M	31.87	15.64
2015	0.25	0.26	0.68	3.14	6.33	5.66	2.92	5.70	5.04	0.39	0.61	M	31.89	14.28
2016	M	M	0.01	5.06	6.06	3.60	3.85	5.13	2.39	1.52	M	M	31.45	12.58
2017	M	M	M	2.79	5.52	2.96	2.89	4.13	M	M	M	M	29.22	9.98
1981-2010 Normals	0.64	0.77	1.96	2.89	4.55	4.47	3.63	3.74	3.03	2.11	1.50	0.93	30.22	11.84

Notes:

ITHACA_3E was formerly known as "MEAD."

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: High Plains Regional Climate Center, 2017, Web Data Access, http://awdn.unl.edu/classic/home.cgi, accessed September 21, 2017.

Table 2.13
Monthly Precipitation at MEMPHIS_5N (Station AWDN255367)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1994	M	M	M	3.43	1.69	11.30	1.71	2.12	7.79	1.12	0.12	M	33.54	15.13
1995	M	M	1.68	3.96	5.66	1.31	0.81	1.34	2.25	1.30	0.21	M	20.84	3.46
1996	M	M	0.85	3.04	7.00	2.71	3.34	2.84	2.05	0.80	M	M	26.45	8.89
1997	M	M	M	2.25	0.81	2.88	5.52	2.27	4.01	3.76	M	M	27.26	10.67
1998	M	M	0.43	1.95	4.01	6.31	3.87	6.16	0.89	2.43	1.10	M	29.47	16.34
1999	M	M	M	5.56	5.86	5.03	2.19	3.16	2.76	M	0.85	M	31.78	10.38
2000	M	M	0.86	2.01	2.77	5.99	3.47	1.18	0.61	2.55	1.08	M	22.84	10.64
2001	M	M	M	1.80	9.04	1.58	0.98	3.11	2.63	2.10	M	M	27.00	5.67
2002	M	M	M	2.72	2.96	0.80	1.24	6.59	1.41	3.65	0.10	M	23.73	8.63
2003	M	M	M	2.13	4.62	2.60	1.26	1.14	2.09	1.54	1.92	M	21.56	5.00
2004	M	M	M	1.13	3.94	2.67	2.33	1.00	3.51	0.71	1.10	M	20.65	6.00
2005	M	M	0.13	3.25	3.54	3.45	4.12	1.20	1.25	1.78	0.03	M	21.07	8.77
2006	M	M	M	3.76	0.89	1.17	3.11	5.91	5.29	0.76	0.11	M	25.26	10.19
2007	M	M	1.54	3.76	5.68	1.44	1.91	8.43	3.34	4.58	M	M	34.49	11.78
2008	M	M	1.15	3.99	5.61	11.31	4.33	0.56	3.78	4.51	0.12	M	37.68	16.20
2009	M	M	0.18	1.43	1.61	5.48	2.80	6.09	1.42	M	M	M	24.93	14.37
2010	M	M	M	3.08	2.48	8.75	6.87	3.81	3.90	M	M	M	36.76	19.43
2011	0.22	0.17	0.58	3.24	6.33	5.05	2.89	4.11	0.77	0.62	1.36	M	26.26	12.05
2012	M	1.29	0.70	3.69	3.15	3.64	0.08	0.56	1.33	1.37	0.08	M	17.45	4.28
2013	0.33	0.13	0.86	3.33	5.13	3.66	0.61	1.70	3.28	3.30	1.15	M	24.40	5.97
2014	M	M	M	2.46	3.99	8.63	0.93	5.09	4.15	2.22	0.05	M	31.78	14.65
2015	0.23	0.32	0.79	3.55	6.78	6.11	3.15	5.92	4.40	0.40	0.50	M	33.07	15.18
2016	M	M	M	5.03	7.00	3.99	4.04	6.47	2.43	1.38	M	M	36.10	14.50
2017	M	M	M	2.89	6.54	3.34	2.70	4.27	M	M	M	M	30.64	10.31
Normals	0.64	0.76	1.94	2.90	4.52	4.48	3.63	3.76	3.04	2.11	1.50	0.92	30.18	11.86

Notes:

MEMPHIS_5N was formerly known as "MEADAGROFARM."

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: High Plains Regional Climate Center, 2017, Web Data Access, http://awdn.unl.edu/classic/home.cgi, accessed September 21, 2017.

Table 2.14
Total Potential Evapotranspiration at ITHACA_3E (Station AWDN255369)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1982	0.84	1.38	3.12	6.76	6.40	8.44	7.62	4.70	3.45	3.34	1.41	0.93	48.39	20.76
1983	0.79	1.24	2.34	4.02	6.35	6.10	8.98	6.51	6.00	2.36	0.68	0.38	45.75	21.59
1984	0.66	1.24	1.59	3.97	5.64	7.24	9.08	8.33	5.84	2.92	2.43	1.46	50.40	24.66
1985	1.41	1.63	4.10	5.66	7.09	7.99	8.24	5.42	3.75	2.91	1.20	1.09	50.47	21.65
1986	2.50	1.16	4.84	5.18	6.53	8.14	8.66	5.35	4.07	2.74	1.90	0.81	51.87	22.15
1987	2.10	2.55	3.50	7.19	8.18	8.89	8.66	5.71	4.99	4.41	2.35	1.51	60.05	23.27
1988	1.51	2.58	6.31	7.42	10.57	11.02	7.54	8.70	6.11	4.54	2.26	1.83	70.40	27.26
1989	2.49	1.21	3.82	7.92	7.91	7.54	7.05	6.31	4.75	3.97	3.08	1.35	57.41	20.90
1990	2.47	2.54	3.73	6.45	6.33	9.08	7.82	6.61	5.74	5.00	2.26	0.99	59.02	23.51
1991	0.90	1.91	3.98	5.18	6.23	7.30	7.40	6.07	5.82	4.89	1.02	0.99	51.68	20.77
1992	1.41	1.96	3.81	5.36	8.26	7.32	5.22	5.12	4.79	3.48	0.78	1.10	48.60	17.66
1993	0.79	0.68	1.91	4.17	5.76	6.21	5.25	5.27	4.04	3.21	1.97	1.58	40.84	16.73
1994	1.24	1.66	5.03	7.20	9.57	7.32	7.20	5.85	5.87	3.45	2.31	0.70	57.41	20.37
1995	0.84	2.32	3.16	4.49	4.78	7.92	8.67	7.30	5.40	5.00	2.26	1.19	53.33	23.89
1996	1.33	2.94	4.32	7.19	4.03	7.97	6.63	4.70	3.90	4.55	1.27	0.92	49.74	19.29
1997	1.39	1.38	5.07	4.20	8.15	7.74	7.51	5.42	4.90	3.90	1.58	0.59	51.84	20.67
1998	0.72	1.19	1.75	5.36	7.13	6.50	5.93	5.12	5.69	3.24	2.06	2.01	46.71	17.55
1999	1.19	2.43	4.14	4.15	6.34	5.78	7.80	5.26	4.98	5.54	3.55	1.50	52.68	18.85
2000	1.82	2.52	3.88	6.15	8.17	8.79	6.54	6.09	7.53	4.23	1.51	1.06	58.26	21.42
2001	1.17	1.10	2.67	6.55	7.55	8.63	6.97	7.06	4.78	4.50	2.81	1.69	55.47	22.66
2002	2.40	2.16	3.25	6.14	7.76	10.24	8.86	6.90	5.70	2.99	2.26	1.92	60.57	26.00
2003	1.75	1.44	4.33	6.15	6.49	6.69	7.98	6.85	5.59	4.66	2.39	1.42	55.73	21.51
2004	1.41	1.70	4.09	7.10	7.68	6.68	5.74	6.06	7.18	4.08	1.82	1.76	55.29	18.48
2005	0.82	1.77	4.72	6.00	8.20	8.18	8.38	5.68	6.18	4.32	2.88	0.87	57.99	22.24
2006	2.32	2.73	3.37	6.23	8.81	9.09	7.97	5.30	4.45	3.90	2.52	1.85	58.54	22.36
2007	1.29	1.30	3.75	5.79	7.10	7.20	7.24	5.47	5.38	3.64	2.88	0.71	51.73	19.92
2008	1.07	1.34	3.50	5.23	7.09	7.38	7.15	6.37	4.36	4.01	2.27	1.61	51.37	20.90
2009	1.65	2.38	4.23	5.84	8.35	6.05	5.77	5.66	4.09	2.02	2.27	0.71	49.01	17.48
2010	0.48	0.88	3.04	5.96	6.97	7.15	6.48	6.54	4.89	5.21	2.73	1.17	51.50	20.17
2011	0.93	1.70	3.04	5.73	7.11	7.15	6.11	4.86	4.31	5.18	2.73	1.26	50.11	18.13
2012	2.53	1.73	5.57	6.49	8.78	8.73	8.96	7.54	6.38	4.56	3.03	1.55	65.85	25.23

Table 2.14 (Continued)
Total Potential Evapotranspiration at ITHACA_3E (Station AWDN255369)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
2013	1.21	1.69	3.14	5.01	6.36	7.17	7.59	6.07	5.83	3.98	2.69	1.57	52.30	20.83
2014	2.63	1.97	5.03	6.39	7.54	6.36	6.44	4.73	3.81	3.90	2.39	0.74	51.92	17.53
2015	1.77	1.43	5.43	5.69	4.83	6.29	6.19	4.84	4.49	4.34	2.59	1.06	48.97	17.33
2016	0.91	2.21	4.82	6.31	6.44	8.65	5.92	5.03	4.39	3.12	2.37	1.39	51.54	19.60
2017	0.94	2.57	4.07	4.34	7.12	8.87	6.46	5.03	M	M	M	M	52.11	20.35
Normals	1.39	1.77	3.70	5.80	7.19	7.57	7.15	5.87	5.04	4.05	2.23	1.26	53.01	20.59

Notes:

ITHACA_3E was formerly known as "MEAD."

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: High Plains Regional Climate Center, 2017, Web Data Access, http://awdn.unl.edu/classic/home.cgi, accessed September 21, 2017.

Table 2.15
Total Potential Evapotranspiration at MEMPHIS_5N (Station AWDN255367)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Year	Jan (inches)	Feb (inches)	Mar (inches)	Apr (inches)	May (inches)	Jun (inches)	Jul (inches)	Aug (inches)	Sep (inches)	Oct (inches)	Nov (inches)	Dec (inches)	Annual (inches)	Jun-Aug (inches)
1994	1.37	2.00	5.68	7.58	9.07	7.30	7.60	6.49	6.29	3.63	2.43	0.78	60.21	21.39
1995	0.94	2.47	2.99	4.41	4.46	7.40	9.33	7.43	5.03	4.73	2.03	1.03	52.23	24.15
1996	1.19	2.77	4.42	7.53	4.26	7.78	7.28	5.18	4.68	5.34	1.35	0.90	52.68	20.24
1997	1.34	1.40	5.29	4.38	8.42	8.90	7.93	5.65	5.13	4.13	1.73	0.75	55.05	22.48
1998	0.85	1.41	1.97	5.49	7.25	7.44	6.77	5.64	6.27	3.41	2.21	2.09	50.79	19.84
1999	1.33	2.70	4.80	4.68	6.42	6.21	7.74	5.65	5.57	5.88	3.74	1.55	56.25	19.59
2000	1.91	2.55	4.27	6.46	8.14	8.47	6.40	6.38	8.26	4.44	1.73	1.18	60.18	21.26
2001	1.22	1.14	2.81	6.72	7.72	8.57	7.53	7.63	5.12	4.98	3.12	1.87	58.43	23.73
2002	2.74	2.29	3.55	6.32	7.95	9.94	9.25	7.05	5.97	2.96	2.16	1.89	62.06	26.24
2003	1.74	1.41	4.28	6.12	6.28	7.00	9.08	7.39	6.02	4.87	2.28	1.33	57.78	23.46
2004	1.40	1.58	3.98	7.13	7.67	6.63	5.47	6.09	6.94	4.11	1.90	1.78	54.67	18.20
2005	0.86	1.78	4.80	6.01	8.22	8.70	9.25	6.05	6.98	4.48	3.10	0.95	61.17	24.00
2006	2.47	3.00	3.48	6.49	8.96	9.24	8.33	5.53	4.50	3.70	2.53	1.87	60.09	23.09
2007	1.26	1.28	3.80	5.84	7.24	7.99	8.05	5.60	5.74	3.93	3.07	0.71	54.49	21.64
2008	1.08	1.33	3.50	5.22	6.84	6.83	6.97	6.74	4.58	4.03	2.29	1.64	51.04	20.54
2009	1.62	2.39	4.18	5.79	8.36	6.09	5.95	5.92	4.30	2.09	2.24	0.81	49.71	17.96
2010	0.52	0.98	3.21	6.30	7.36	7.53	7.27	7.56	4.95	5.27	2.88	1.22	55.03	22.36
2011	0.96	1.76	3.33	6.18	7.58	7.69	7.07	5.73	4.96	5.52	2.95	1.37	55.09	20.49
2012	2.63	1.86	5.99	7.03	9.40	9.01	9.70	8.34	7.29	4.55	3.13	1.61	70.52	27.04
2013	1.24	1.75	3.12	5.04	6.83	7.19	7.99	6.64	6.19	4.14	2.70	1.57	54.39	21.82
2014	2.64	2.08	5.16	6.59	7.96	6.60	7.03	5.18	4.15	4.17	2.52	0.80	54.89	18.81
2015	1.87	1.52	5.74	5.85	5.00	6.15	6.45	5.39	5.17	4.53	2.62	1.09	51.37	17.99
2016	0.90	2.31	5.11	6.45	6.77	9.20	6.72	5.57	4.82	3.61	2.51	1.45	55.41	21.49
2017	0.97	2.66	4.27	4.47	7.38	8.79	6.76	4.74	M	M	M	M	53.43	20.29
Normals	1.46	1.82	3.91	6.13	7.41	7.81	7.62	6.27	5.40	4.34	2.36	1.31	55.83	21.70

Notes:

MEMPHIS_5N was formerly known as "MEADAGROFARM."

Missing monthly data are replaced with normals to estimate annual and June-August totals.

M = missing monthly data

Source: High Plains Regional Climate Center, 2017, Web Data Access, http://awdn.unl.edu/classic/home.cgi, accessed September 21, 2017.

Table 2.16
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

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

Table 2.16 (Continued)
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

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

Table 2.16 (Continued)
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

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

Table 2.16 (Continued)
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

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

Table 2.16 (Continued)
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-02 (gpm)	EW-03 (gpm)	EW-04 (gpm)	EW-05 (gpm)	EW-06 (gpm)	EW-07 (gpm)	EW-08 (gpm)	EW-09 (gpm)	EW-10 (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-14	195	0	0	89	0	0	256	0	166	0	474	233	241	443	0	315	0	2,413
Aug-14	197	0	0	95	0	0	277	0	164	0	334	235	233	446	0	311	0	2,293
Sep-14	198	0	0	94	0	0	285	0	167	0	485	237	238	456	0	322	0	2,483
Oct-14	198	0	0	93	0	0	287	0	162	0	520	228	228	453	0	320	0	2,487
Nov-14	201	0	0	95	0	0	291	0	168	0	528	218	236	457	0	293	0	2,487
Dec-14	193	0	0	72	0	0	285	0	165	0	519	224	233	437	0	303	0	2,430
Jan-15	200	0	0	96	0	0	285	0	164	0	518	220	232	448	0	295	0	2,458
Feb-15	192	0	0	93	0	0	275	0	160	0	443	214	219	427	0	306	0	2,328
Mar-15	89	0	0	35	0	0	263	0	74	0	58	100	215	404	0	309	0	1,548
Apr-15	189	0	0	91	0	0	263	0	153	0	441	154	218	412	0	304	0	2,225
May-15	192	0	0	91	0	0	267	0	163	0	348	177	222	423	0	303	0	2,186
Jun-15	184	0	0	91	0	0	261	0	165	0	468	227	230	426	0	306	0	2,358
Jul-15	52	0	0	90	0	0	258	0	149	0	494	208	228	412	0	296	0	2,187
Aug-15	190	0	0	86	0	0	259	0	163	0	493	155	227	422	0	279	0	2,273
Sep-15	193	0	0	87	0	0	268	0	167	0	468	192	231	428	0	288	0	2,321
Oct-15	167	0	0	87	0	0	269	0	169	0	444	174	232	429	0	242	0	2,213
Nov-15	187	0	0	86	0	0	218	0	133	0	437	208	238	415	0	289	0	2,212
Dec-15	188	0	0	84	0	0	264	0	164	0	501	126	235	420	0	166	0	2,147
Jan-16	195	0	0	88	0	0	277	0	174	0	523	200	249	443	0	324	0	2,473
Feb-16	184	0	0	87	0	0	261	0	163	0	447	206	233	416	0	281	0	2,278
Mar-16	194	0	0	89	0	0	278	0	176	0	486	209	248	438	0	319	0	2,437
Apr-16	195	0	0	55	0	0	280	0	175	0	289	207	240	442	0	296	0	2,179
May-16	176	0	0	54	0	0	269	0	170	0	489	173	227	407	0	215	0	2,180
Jun-16	197	0	0	66	0	0	209	0	133	0	511	207	246	451	0	322	0	2,342
Jul-16	198	0	0	70	0	0	277	0	181	0	522	204	223	460	0	324	0	2,459
Aug-16	197	0	0	66	0	0	278	0	183	0	516	187	250	458	0	323	0	2,458
Sep-16	198	0	0	68	0	0	186	0	92	0	362	185	196	368	0	325	58	2,038
Oct-16	193	0	0	67	0	0	204	0	107	0	482	179	209	379	0	321	147	2,288
Nov-16	194	0	0	67	0	0	118	0	118	0	342	175	167	325	0	315	191	2,012
Dec-16	200	0	0	69	0	0	178	0	110	0	533	180	210	494	0	314	180	2,468

Table 2.16 (Continued)
Former Nebraska Ordnance Plant Extraction Well Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	EW-01/ EW-01R (gpm)	EW-02 (gpm)	EW-03 (gpm)	EW-04 (gpm)	EW-05 (gpm)	EW-06 (gpm)	EW-07 (gpm)	EW-08 (gpm)	EW-09 (gpm)	EW-10 (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-17	194	0	0	68	0	0	175	0	111	0	466	180	247	478	0	325	180	2,424
Feb-17	200	0	0	67	0	0	175	0	111	0	529	180	251	493	0	325	181	2,512
Mar-17	187	0	0	67	0	0	172	0	111	0	512	180	243	460	0	314	183	2,429
Apr-17	180	0	0	65	0	0	162	0	108	0	477	174	234	458	0	271	185	2,314
May-17	194	0	0	64	0	0	177	0	112	0	518	174	250	474	0	281	171	2,415

Notes:

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.

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

Table 2.17
M.U.D. Platte West Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

DNR Registration Code (M.U.D. Well Name)	2014												2015		
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March
G-075360 (91-30)	0	0	0	26,130,000	25,920,000	7,550,000	11,600,000	11,780,000	0	0	0	0	0	11,050,000	60,740,000
G-075361 (91-03)	18,220,000	121,800,000	24,550,000	2,370,000	22,930,000	18,360,000	1,150,000	7,300,000	0	0	0	0	19,460,000	7,610,000	1,640,000
G-100692 (94-02)	0	0	0	690,000	63,670,000	72,190,000	75,030,000	40,620,000	2,130,000	0	610,000	610,000	21,510,000	230,000	21,220,000
G-100693 (94-31)	53,770,000	35,360,000	16,430,000	15,290,000	32,550,000	25,790,000	11,600,000	22,650,000	12,070,000	29,480,000	40,320,000	40,320,000	1,690,000	46,380,000	64,320,000
G-100694 (94-32)	0	0	19,390,000	0	0	30,520,000	38,930,000	0	4,820,000	5,330,000	2,640,000	2,640,000	33,730,000	0	0
G-100695 (94-33)	0	92,000,000	52,360,000	41,790,000	55,090,000	11,280,000	28,590,000	5,790,000	51,640,000	0	0	0	16,260,000	15,050,000	20,230,000
G-100696 (94-34)	0	0	0	0	24,220,000	70,910,000	77,110,000	76,910,000	7,950,000	3,730,000	0	0	16,020,000	41,780,000	100,670,000
G-100697 (94-35)	71,310,000	19,890,000	68,470,000	55,930,000	36,230,000	44,970,000	23,030,000	29,490,000	36,030,000	0	24,080,000	24,080,000	0	16,470,000	2,140,000
G-100698 (94-36)	20,180,000	55,210,000	93,170,000	15,700,000	41,300,000	63,140,000	57,430,000	37,080,000	50,920,000	0	0	0	0	0	0
G-100699 (94-37)	35,070,000	115,810,000	14,810,000	12,450,000	45,260,000	43,970,000	0	0	0	0	0	0	0	0	0
G-130653 (04-55)	6,050,000	0	20,000	7,200,000	9,710,000	11,690,000	13,330,000	6,490,000	15,730,000	0	0	0	1,020,000	0	750,000
G-130654 (04-54)	35,370,000	100,000	5,980,000	10,080,000	9,010,000	8,770,000	2,660,000	0	21,910,000	0	23,250,000	23,250,000	18,320,000	5,540,000	2,880,000
G-130655 (04-38)	95,350,000	15,760,000	44,540,000	37,960,000	18,090,000	56,770,000	11,580,000	35,850,000	13,490,000	98,260,000	37,330,000	37,330,000	29,890,000	0	59,010,000
G-130656 (04-39)	6,970,000	30,540,000	39,510,000	60,790,000	44,460,000	20,040,000	95,480,000	26,240,000	71,160,000	0	11,220,000	11,220,000	36,520,000	90,110,000	31,910,000
G-130657 (04-40)	3,140,000	24,640,000	17,990,000	26,710,000	48,990,000	28,050,000	56,990,000	59,170,000	39,570,000	54,860,000	3,860,000	3,860,000	47,430,000	38,530,000	43,750,000
G-130658 (04-41)	50,000	59,090,000	54,570,000	10,460,000	6,490,000	5,960,000	16,860,000	0	2,650,000	24,630,000	2,520,000	2,520,000	0	0	0
G-130659 (04-45)	60,230,000	74,340,000	41,400,000	39,140,000	52,340,000	90,940,000	50,740,000	16,210,000	4,150,000	0	97,120,000	97,120,000	33,730,000	45,660,000	89,190,000
G-130660 (04-46)	39,830,000	50,940,000	40,050,000	16,080,000	32,710,000	83,350,000	35,920,000	39,360,000	33,580,000	72,330,000	30,510,000	30,510,000	48,520,000	0	7,030,000
G-130661 (04-47)	2,330,000	5,220,000	32,030,000	1,080,000	3,620,000	12,990,000	18,800,000	12,110,000	1,830,000	35,600,000	0	0	930,000	60,000	10,000
G-130662 (04-48)	48,360,000	62,160,000	4,790,000	13,450,000	7,590,000	36,560,000	8,390,000	19,940,000	10,160,000	3,900,000	36,110,000	36,110,000	0	190,000	0
G-130663 (04-42)	89,120,000	24,740,000	0	0	14,580,000	37,810,000	6,890,000	6,190,000	48,350,000	0	0	0	0	0	0
G-130696 (04-43)	0	4,340,000	5,210,000	15,330,000	120,000	25,130,000	21,450,000	0	6,330,000	3,490,000	58,540,000	58,540,000	0	0	0
G-130697 (04-44)	9,800,000	58,340,000	81,880,000	68,170,000	67,320,000	21,810,000	48,520,000	76,780,000	47,820,000	63,140,000	0	0	53,380,000	44,910,000	47,830,000
G-130698 (04-49)	47,510,000	58,260,000	30,000	29,960,000	10,980,000	30,070,000	35,520,000	11,780,000	0	32,560,000	45,870,000	45,870,000	22,990,000	58,210,000	49,870,000
G-130752 (04-52)	27,290,000	48,770,000	16,750,000	29,460,000	15,650,000	14,640,000	37,050,000	20,810,000	4,440,000	19,290,000	15,660,000	15,660,000	10,180,000	31,640,000	4,400,000
G-130753 (04-53)	0	0	0	0	19,970,000	70,220,000	25,040,000	32,910,000	60,340,000	23,100,000	63,010,000	63,010,000	46,650,000	0	1,220,000
G-130821 (04-51)	39,360,000	0	22,690,000	8,360,000	4,550,000	17,520,000	2,190,000	14,910,000	8,170,000	14,850,000	18,230,000	18,230,000	0	16,270,000	3,040,000
G-130822 (04-50)	22,900,000	24,300,000	22,010,000	3,610,000	15,730,000	26,210,000	20,420,000	24,730,000	0	29,500,000	24,810,000	24,810,000	22,460,000	7,360,000	20,350,000
G-130839 (04-04)	1,440,000	0	0	790,000	1,460,000	0	0	0	0	0	0	0	1,460,000	0	0
G-130840 (04-05)	1,170,000	0	0	140,000	1,230,000	0	0	0	0	0	0	0	15,130,000	2,220,000	90,000
G-130841 (04-06)	15,010,000	0	0	1,020,000	9,420,000	16,150,000	27,120,000	3,630,000	10,410,000	2,200,000	0	0	33,860,000	3,200,000	4,490,000
G-130842 (04-07)	0	0	0	550,000	0	0	0	0	0	0	0	0	0	0	0
G-130843 (04-08)	57,330,000	13,900,000	31,330,000	20,000	0	35,470,000	9,520,000	3,280,000	650,000	40,360,000	40,770,000	40,770,000	49,110,000	1,310,000	0
G-130844 (04-09)	0	2,060,000	0	390,000	4,150,000	10,980,000	0	0	3,360,000	0	60,000	60,000	0	0	42,740,000
G-130845 (04-12)	110,150,000	118,670,000	102,820,000	6,090,000	0	52,070,000	3,670,000	11,480,000	2,840,000	0	620,000	620,000	0	0	44,010,000
G-130846 (04-13)	0	0	0	370,000	0	0	0	0	30,000	0	0	0	0	0	0
G-130898 (04-16)	0	0	0	3,880,000	10,740,000	54,640,000	50,580,000	34,480,000	64,600,000	47,380,000	0	0	0	0	0
G-130899 (04-17)	26,450,000	78,180,000	48,580,000	16,780,000	69,940,000	59,510,000	76,760,000	82,960,000	14,820,000	0	470,000	470,000	0	33,800,000	92,970,000
G-130928 (04-10)	840,000	87,010,000	84,730,000	11,500,000	63,660,000	47,780,000	310,000	0	25,530,000	0	540,000	540,000	32,520,000	5,400,000	1,520,000
G-130929 (04-11)	25,070,000	27,010,000	1,970,000	73,620,000	28,800,000	29,550,000	61,240,000	60,690,000	12,750,000	3,580,000	22,980,000	22,980,000	40,820,000	17,690,000	52,520,000
G-130930 (04-14)	0	0	0	500,000	620,000	0	0	0	0	0	0	0	0	0	0
G-130968 (04-15)	38,690,000	0	29,890,000	108,630,000	26,410,000	35,490,000	23,320,000	6,280,000	3,530,000	0	0	0	0	340,000	0
Total	1,008,360,000	1,308,440,000	1,017,950,000	772,470,000	945,510,000	1,328,850,000	1,084,820,000	837,900,000	693,760,000	607,570,000	601,130,000	601,130,000	653,590,000	541,010,000	870,540,000
Total Saunders County	32,527,742	46,730,000	32,837,097	25,749,000	30,500,323	44,295,000	34,994,194	27,029,032	23,125,333	19,599,032	20,037,667	19,391,290	21,083,548	19,321,786	28,081,935
Total Dodge County	294,370,000	448,630,000	323,870,000	227,340,000	303,030,000	432,190,000	328,700,000	250,720,000	140,650,000	93,520,000	66,050,000	66,050,000	213,870,000	71,800,000	261,200,000

Table 2.17 (Continued)
M.U.D. Platte West Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

DNR Registration Code (M.U.D. Well Name)	2015 (Continued)									2016					
	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
G-075360 (91-30)	17,240,000	9,350,000	3,870,000	51,890,000	33,470,000	0	0	0	0	0	0	0	0	29,310,000	39,270,000
G-075361 (91-03)	80,000	10,730,000	27,370,000	67,700,000	59,450,000	62,940,000	13,700,000	3,630,000	0	0	0	0	0	19,040,000	60,320,000
G-100692 (94-02)	49,120,000	51,050,000	26,490,000	63,760,000	82,850,000	18,440,000	20,060,000	22,930,000	34,340,000	0	25,230,000	33,690,000	6,370,000	6,580,000	0
G-100693 (94-31)	64,850,000	18,970,000	61,230,000	30,080,000	43,720,000	60,270,000	56,970,000	0	45,250,000	22,320,000	67,410,000	11,770,000	5,660,000	31,950,000	64,960,000
G-100694 (94-32)	0	0	2,680,000	23,470,000	3,860,000	23,060,000	8,350,000	0	0	420,000	0	0	0	0	0
G-100695 (94-33)	10,260,000	31,050,000	2,660,000	94,850,000	51,790,000	15,910,000	15,080,000	38,630,000	1,070,000	0	34,220,000	89,590,000	0	20,320,000	38,890,000
G-100696 (94-34)	44,030,000	24,570,000	0	1,760,000	92,760,000	34,000,000	2,620,000	0	54,980,000	28,670,000	1,590,000	0	7,990,000	10,000	56,660,000
G-100697 (94-35)	42,060,000	69,380,000	105,040,000	81,250,000	9,700,000	56,280,000	25,710,000	0	40,280,000	0	14,320,000	13,050,000	25,020,000	56,100,000	46,960,000
G-100698 (94-36)	0	28,140,000	9,500,000	0	0	26,420,000	59,820,000	31,290,000	42,650,000	10,710,000	30,290,000	30,120,000	41,040,000	29,850,000	41,150,000
G-100699 (94-37)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-130653 (04-55)	490,000	1,730,000	940,000	30,800,000	11,580,000	15,420,000	21,020,000	0	13,480,000	22,770,000	0	0	2,720,000	0	10,540,000
G-130654 (04-54)	3,850,000	0	2,610,000	300,000	8,010,000	0	2,500,000	440,000	4,680,000	12,990,000	23,560,000	19,690,000	0	7,820,000	27,820,000
G-130655 (04-38)	59,410,000	59,070,000	51,840,000	0	18,420,000	39,070,000	78,660,000	27,080,000	25,920,000	40,270,000	0	330,000	3,860,000	27,300,000	66,690,000
G-130656 (04-39)	49,740,000	84,090,000	70,330,000	90,330,000	97,050,000	89,850,000	67,030,000	66,510,000	3,340,000	33,400,000	63,920,000	68,600,000	76,830,000	64,630,000	45,380,000
G-130657 (04-40)	68,890,000	27,760,000	81,410,000	0	106,110,000	81,910,000	51,020,000	39,880,000	55,770,000	106,780,000	36,760,000	0	0	3,680,000	56,970,000
G-130658 (04-41)	540,000	25,110,000	61,270,000	88,080,000	21,950,000	2,720,000	14,680,000	9,120,000	37,080,000	3,470,000	680,000	8,490,000	0	10,530,000	24,370,000
G-130659 (04-45)	24,270,000	28,210,000	22,540,000	96,130,000	31,760,000	0	0	23,340,000	71,200,000	10,000	21,450,000	50,050,000	76,310,000	48,890,000	99,810,000
G-130660 (04-46)	510,000	9,190,000	0	0	39,460,000	28,990,000	97,720,000	62,330,000	18,430,000	88,180,000	50,300,000	20,560,000	78,030,000	44,360,000	34,750,000
G-130661 (04-47)	10,870,000	9,020,000	24,420,000	43,710,000	29,670,000	19,900,000	810,000	0	210,000	1,200,000	0	0	0	19,110,000	21,220,000
G-130662 (04-48)	270,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-130663 (04-42)	0	61,230,000	0	0	8,380,000	3,700,000	42,230,000	0	0	9,560,000	530,000	9,400,000	60,200,000	54,940,000	63,880,000
G-130696 (04-43)	10,850,000	18,930,000	0	67,470,000	25,250,000	32,010,000	10,420,000	34,220,000	34,210,000	0	0	0	0	0	0
G-130697 (04-44)	35,740,000	3,400,000	54,370,000	38,550,000	46,130,000	300,000	1,660,000	63,600,000	19,010,000	27,320,000	28,860,000	57,270,000	0	740,000	23,520,000
G-130698 (04-49)	98,460,000	60,850,000	97,050,000	68,000,000	46,780,000	68,140,000	57,180,000	27,860,000	0	0	570,000	0	41,060,000	48,620,000	70,830,000
G-130752 (04-52)	3,390,000	18,140,000	9,710,000	26,240,000	0	0	38,130,000	39,070,000	27,690,000	56,340,000	24,670,000	50,340,000	17,410,000	39,270,000	28,630,000
G-130753 (04-53)	19,080,000	0	2,740,000	30,100,000	30,450,000	31,580,000	9,990,000	0	340,000	0	0	0	31,810,000	16,850,000	24,830,000
G-130821 (04-51)	10,000	22,860,000	0	17,370,000	7,970,000	37,700,000	5,700,000	0	7,520,000	0	0	5,540,000	28,440,000	3,390,000	12,820,000
G-130822 (04-50)	10,000	0	0	3,020,000	1,130,000	1,100,000	0	13,010,000	2,650,000	0	14,780,000	14,080,000	6,690,000	10,000	23,960,000
G-130839 (04-04)	340,000	1,460,000	0	0	0	1,420,000	0	0	1,490,000	0	0	0	1,440,000	10,000	0
G-130840 (04-05)	10,000	1,190,000	0	0	0	1,210,000	0	0	1,220,000	0	0	0	1,240,000	0	0
G-130841 (04-06)	3,910,000	0	3,520,000	0	0	0	21,370,000	0	0	0	0	34,700,000	48,980,000	400,000	13,720,000
G-130842 (04-07)	10,000	0	0	0	1,890,000	0	0	0	0	0	0	0	0	0	0
G-130843 (04-08)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-130844 (04-09)	15,940,000	0	1,100,000	1,710,000	13,430,000	0	0	0	0	0	0	0	0	0	24,520,000
G-130845 (04-12)	15,740,000	2,940,000	42,380,000	10,760,000	26,420,000	32,900,000	37,990,000	66,850,000	23,610,000	0	25,290,000	10,000	13,330,000	12,210,000	37,180,000
G-130846 (04-13)	420,000	0	0	0	0	0	0	0	0	0	0	0	0	10,000	0
G-130898 (04-16)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G-130899 (04-17)	47,080,000	53,440,000	42,570,000	44,340,000	45,300,000	62,870,000	80,940,000	20,210,000	45,910,000	39,340,000	26,510,000	37,240,000	41,480,000	31,570,000	55,930,000
G-130928 (04-10)	35,730,000	0	20,700,000	38,070,000	65,670,000	4,220,000	0	13,450,000	0	0	0	0	46,920,000	27,760,000	45,780,000
G-130929 (04-11)	46,630,000	97,950,000	83,140,000	81,190,000	25,890,000	72,740,000	76,830,000	59,800,000	5,970,000	46,150,000	78,350,000	3,380,000	1,850,000	58,740,000	68,370,000
G-130930 (04-14)	230,000	22,020,000	0	25,260,000	13,210,000	19,300,000	16,350,000	0	0	0	0	2,070,000	12,440,000	60,520,000	18,060,000
G-130968 (04-15)	6,960,000	20,570,000	57,740,000	59,360,000	18,580,000	16,230,000	17,910,000	2,750,000	25,020,000	70,610,000	19,570,000	33,520,000	35,160,000	5,180,000	85,660,000
Total	787,020,000	872,400,000	969,220,000	1,275,550,000	1,118,090,000	960,600,000	952,450,000	666,000,000	643,320,000	620,510,000	588,860,000	593,490,000	712,280,000	779,700,000	1,333,450,000
Total Saunders County	26,234,000	28,141,935	32,307,333	41,146,774	36,067,419	32,020,000	30,724,194	22,200,000	20,752,258	464,410,000	413,910,000	448,880,000	503,070,000	557,680,000	923,910,000
Total Dodge County	222,200,000	261,350,000	305,010,000	392,150,000	352,690,000	292,270,000	285,150,000	189,620,000	137,560,000	156,100,000	174,950,000	144,610,000	209,210,000	222,020,000	409,540,000

Table 2.17 (Continued)
M.U.D. Platte West Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

DNR Registration Code (M.U.D. Well Name)	2016 (Continued)						2017					
	July	August	September	October	November	December	January	February	March	April	May	June
G-075360 (91-30)	47,910,000	28,150,000	23,610,000	12,890,000	9,600,000	3,180,000	54,500,000	78,630,000	6,660,000	12,190,000	19,740,000	23,520,000
G-075361 (91-03)	44,340,000	31,990,000	37,340,000	3,010,000	27,920,000	2,270,000	48,660,000	28,090,000	0	0	48,890,000	52,250,000
G-100692 (94-02)	0	49,990,000	7,050,000	4,200,000	61,670,000	27,720,000	7,940,000	32,180,000	57,360,000	58,460,000	61,380,000	79,770,000
G-100693 (94-31)	27,090,000	30,340,000	11,810,000	73,270,000	25,900,000	39,880,000	28,700,000	46,730,000	0	20,920,000	45,070,000	52,380,000
G-100694 (94-32)	0	0	0	0	30,000	0	0	54,590,000	15,800,000	26,330,000	28,760,000	56,110,000
G-100695 (94-33)	96,370,000	15,220,000	3,470,000	13,980,000	34,580,000	36,620,000	0	68,220,000	74,910,000	45,850,000	220,000	54,410,000
G-100696 (94-34)	33,110,000	71,960,000	47,180,000	40,330,000	1,240,000	1,050,000	0	24,500,000	7,670,000	2,820,000	56,490,000	66,530,000
G-100697 (94-35)	38,720,000	70,130,000	85,620,000	37,360,000	68,510,000	80,010,000	109,690,000	98,340,000	94,750,000	40,290,000	3,400,000	32,860,000
G-100698 (94-36)	40,410,000	57,930,000	54,230,000	31,350,000	72,770,000	34,850,000	45,410,000	38,840,000	29,940,000	0	19,100,000	49,880,000
G-100699 (94-37)	0	0	38,030,000	48,870,000	119,920,000	89,260,000	74,280,000	5,930,000	22,760,000	51,750,000	5,690,000	68,360,000
G-130653 (04-55)	18,710,000	2,950,000	3,620,000	0	3,940,000	300,000	0	11,120,000	70,000	2,760,000	3,290,000	37,240,000
G-130654 (04-54)	22,170,000	15,760,000	3,300,000	4,930,000	29,480,000	9,130,000	5,180,000	14,270,000	4,190,000	0	35,920,000	11,470,000
G-130655 (04-38)	67,120,000	31,260,000	30,940,000	67,350,000	0	0	120,000	59,980,000	10,110,000	0	27,260,000	91,150,000
G-130656 (04-39)	38,230,000	23,740,000	27,000,000	0	38,850,000	33,620,000	84,330,000	5,870,000	87,840,000	13,170,000	21,350,000	14,760,000
G-130657 (04-40)	104,330,000	90,920,000	35,540,000	0	1,590,000	17,930,000	80,620,000	32,600,000	0	0	0	13,380,000
G-130658 (04-41)	19,590,000	570,000	29,470,000	0	0	1,470,000	0	0	7,030,000	24,040,000	32,630,000	21,280,000
G-130659 (04-45)	78,990,000	78,950,000	61,040,000	79,580,000	51,690,000	40,440,000	8,610,000	62,220,000	86,390,000	66,040,000	48,000,000	68,000,000
G-130660 (04-46)	2,500,000	17,760,000	22,660,000	62,250,000	12,820,000	30,590,000	96,270,000	2,410,000	7,610,000	0	54,790,000	42,910,000
G-130661 (04-47)	16,820,000	18,040,000	17,000,000	3,080,000	0	0	0	0	6,120,000	14,490,000	6,400,000	9,250,000
G-130662 (04-48)	18,030,000	17,400,000	21,110,000	5,590,000	2,970,000	0	39,500,000	28,210,000	5,760,000	16,690,000	39,650,000	30,930,000
G-130663 (04-42)	40,020,000	71,410,000	44,770,000	19,730,000	87,280,000	30,740,000	12,510,000	0	88,060,000	103,630,000	53,660,000	22,030,000
G-130696 (04-43)	0	0	17,460,000	2,890,000	13,360,000	0	0	0	0	0	0	30,000
G-130697 (04-44)	86,000,000	36,750,000	42,870,000	0	1,480,000	24,820,000	66,480,000	0	0	0	46,600,000	30,370,000
G-130698 (04-49)	74,640,000	49,790,000	24,580,000	2,790,000	67,480,000	20,940,000	0	0	0	0	10,000	47,680,000
G-130752 (04-52)	27,880,000	47,530,000	11,460,000	28,390,000	15,220,000	9,850,000	14,650,000	15,370,000	18,440,000	40,180,000	0	22,600,000
G-130753 (04-53)	22,520,000	17,840,000	13,570,000	1,610,000	8,060,000	0	0	0	11,270,000	0	76,350,000	11,040,000
G-130821 (04-51)	2,010,000	4,390,000	10,430,000	10,000	20,460,000	14,560,000	22,950,000	0	33,660,000	1,310,000	27,220,000	42,210,000
G-130822 (04-50)	5,550,000	13,000,000	6,270,000	0	0	0	22,810,000	13,290,000	840,000	22,560,000	18,700,000	4,350,000
G-130839 (04-04)	1,320,000	0	720,000	0	1,380,000	0	0	0	1,470,000	0	0	1,640,000
G-130840 (04-05)	1,070,000	40,000	0	0	0	0	0	0	0	0	0	0
G-130841 (04-06)	32,920,000	13,350,000	4,900,000	40,000	5,910,000	0	1,850,000	18,710,000	0	0	2,000,000	36,400,000
G-130842 (04-07)	0	2,990,000	650,000	0	0	0	0	10,810,000	0	0	0	3,160,000
G-130843 (04-08)	0	10,570,000	7,170,000	0	2,220,000	0	1,460,000	0	0	0	1,310,000	5,670,000
G-130844 (04-09)	27,450,000	10,740,000	520,000	0	0	0	0	0	0	0	0	360,000
G-130845 (04-12)	63,200,000	62,850,000	49,390,000	550,000	0	16,930,000	83,330,000	61,700,000	37,500,000	51,090,000	78,500,000	49,190,000
G-130846 (04-13)	5,950,000	1,620,000	8,070,000	0	0	0	0	4,410,000	0	0	10,000	11,410,000
G-130898 (04-16)	0	38,930,000	54,990,000	28,260,000	29,410,000	79,430,000	60,390,000	16,850,000	85,450,000	98,550,000	62,860,000	61,670,000
G-130899 (04-17)	79,630,000	17,300,000	31,900,000	63,460,000	0	18,720,000	61,110,000	74,770,000	42,090,000	3,500,000	15,070,000	35,110,000
G-130928 (04-10)	28,110,000	30,090,000	9,790,000	41,050,000	60,150,000	0	0	31,700,000	0	0	37,620,000	45,170,000
G-130929 (04-11)	80,630,000	40,050,000	24,150,000	730,000	0	0	42,710,000	36,640,000	7,680,000	0	10,000	27,930,000
G-130930 (04-14)	29,900,000	26,560,000	11,560,000	1,160,000	43,560,000	0	0	0	0	0	550,000	24,870,000
G-130968 (04-15)	41,510,000	43,420,000	63,070,000	37,550,000	57,310,000	58,410,000	26,190,000	6,770,000	49,230,000	0	19,860,000	45,580,000
Total	1,364,750,000	1,192,280,000	998,310,000	716,260,000	976,760,000	722,720,000	1,100,250,000	983,750,000	900,660,000	716,620,000	998,360,000	1,404,910,000
Total Saunders County	928,720,000	811,790,000	687,040,000	536,250,000	687,230,000	519,240,000	766,610,000	661,120,000	619,880,000	505,020,000	670,300,000	924,730,000
Total Dodge County	436,030,000	380,490,000	311,270,000	180,010,000	289,530,000	203,480,000	333,640,000	322,630,000	280,780,000	211,600,000	328,060,000	480,180,000

Notes:

Shading indicates that well is located on Saunders County side of Platte River

DNR = Nebraska Department of Natural Resources

Source: Metropolitan Utilities District (M.U.D.), 2017. Platte West Water Production Facilities 2015 Ground Water Well Report. Excel© spreadsheet transmitted via email from Kevin P. Tobin, M.U.D., to Bradley Brink, CENWK. July 24.

Table 2.18
LWS Ashland Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	2014												2015		
	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March
A-10367Q(1R)	7,912,000	0	11,000	35,415,000	50,686,000	72,125,000	46,292,000	34,428,000	7,464,000	8,282,000	0	0	0	0	8,713,000
A-10367L	0	0	10,000	5,065,000	25,702,000	34,933,000	35,666,000	30,295,000	12,806,000	3,018,000	0	0	0	0	0
A-10367K	0	0	4,611,000	4,765,000	22,812,000	27,641,000	34,821,000	44,474,000	31,241,000	164,000	0	0	0	0	896,000
A-10367H	0	0	3,000	0	0	0	0	0	0	0	0	0	0	0	0
A-10367E(1R)	0	0	8,811,000	61,081,000	44,983,000	52,315,000	54,999,000	73,549,000	0	0	0	0	0	0	20,852,000
A-10367P	0	0	15,000	29,243,000	73,040,000	11,187,000	11,592,000	26,572,000	491,000	0	0	0	0	0	0
A-10367N	0	0	200,000	48,120,000	54,713,000	20,130,000	32,428,000	14,127,000	388,000	6,000	0	0	0	0	0
A-10367J	15,140,000	30,026,000	19,633,000	16,845,000	24,119,000	21,748,000	28,778,000	37,251,000	10,244,000	2,000	10,075,000	36,061,000	26,562,000	10,231,000	14,613,000
A-10367I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-10367T	61,526,000	35,668,000	39,058,000	34,452,000	34,436,000	52,848,000	40,016,000	15,943,000	5,362,000	0	15,455,000	43,445,000	59,623,000	49,999,000	22,025,000
A-10367R	28,308,000	41,804,000	34,519,000	18,943,000	41,145,000	30,284,000	24,020,000	16,749,000	11,884,000	204,000	8,361,000	181,000	34,622,000	27,700,000	29,541,000
A-10367S(1R)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-10367X(1R)	0	0	23,000	16,906,000	60,960,000	76,723,000	0	0	0	16,647,000	0	0	0	0	19,717,000
A-10367Y	65,717,000	49,447,000	47,227,000	12,786,000	25,681,000	43,946,000	29,756,000	11,398,000	4,380,000	9,932,000	25,482,000	36,994,000	33,557,000	41,584,000	28,247,000
A-10367CC	45,792,000	35,547,000	33,738,000	26,317,000	21,615,000	37,398,000	23,347,000	14,178,000	6,320,000	7,514,000	26,869,000	58,228,000	59,031,000	55,856,000	24,425,000
G-070412	38,608,000	28,330,000	42,587,000	5,555,000	11,560,000	35,622,000	36,098,000	18,470,000	18,042,000	13,810,000	23,163,000	57,399,000	59,723,000	54,679,000	31,604,000
A-10367DD	16,078,000	37,063,000	31,303,000	11,257,000	19,683,000	31,607,000	21,070,000	15,026,000	3,713,000	8,236,000	27,205,000	41,907,000	33,675,000	20,325,000	27,656,000
A-10367JJ	54,857,000	36,037,000	28,555,000	10,915,000	2,560,000	386,000	10,197,000	0	1,254,000	18,310,000	18,454,000	0	0	0	14,427,000
A-10367EE	45,193,000	46,681,000	9,272,000	5,063,000	5,646,000	34,423,000	6,455,000	0	8,275,000	16,755,000	13,614,000	9,894,000	30,646,000	17,444,000	21,593,000
A-10367KK	7,824,000	45,269,000	27,133,000	11,768,000	3,880,000	0	21,123,000	0	4,669,000	26,371,000	19,193,000	36,850,000	50,526,000	7,071,000	18,047,000
A-10367HH	29,734,000	29,742,000	12,230,000	16,090,000	25,809,000	16,251,000	33,636,000	56,595,000	57,165,000	51,212,000	19,959,000	47,106,000	49,355,000	24,000	41,220,000
A-10367MM	84,986,000	5,862,000	26,799,000	32,583,000	1,331,000	40,848,000	62,181,000	97,138,000	0	0	0	0	15,621,000	0	9,362,000
A-10367QQ	42,396,000	41,612,000	14,228,000	25,077,000	3,226,000	1,587,000	36,615,000	48,401,000	26,382,000	20,791,000	15,187,000	2,236,000	38,348,000	7,993,000	19,565,000
A-10367C	38,471,000	39,190,000	42,731,000	26,012,000	36,048,000	48,998,000	28,512,000	9,927,000	4,139,000	0	7,304,000	58,728,000	55,449,000	48,215,000	45,407,000
A-10367D	15,173,000	26,739,000	24,572,000	18,395,000	14,529,000	28,050,000	21,111,000	37,376,000	16,860,000	7,221,000	17,012,000	19,193,000	19,101,000	28,633,000	20,014,000
A-10367A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-10367B	48,419,000	56,782,000	38,127,000	38,492,000	41,172,000	47,211,000	41,829,000	61,147,000	33,050,000	0	19,058,000	47,344,000	54,823,000	49,937,000	38,023,000
G-070300	0	0	10,000	5,261,000	8,127,000	28,189,000	14,981,000	16,546,000	2,695,000	0	0	0	0	0	24,759,000
G-070304	0	0	3,274,000	6,551,000	25,587,000	39,430,000	38,481,000	36,620,000	16,141,000	186,000	0	0	0	0	33,815,000
G-070306	0	0	464,000	6,416,000	13,107,000	29,756,000	544,000	0	0	186,000	0	0	0	0	8,231,000
G-070307	0	0	493,000	15,596,000	34,583,000	26,656,000	8,748,000	13,723,000	0	0	0	0	0	0	0
G-070310(1R)	0	0	10,538,000	59,194,000	37,144,000	41,430,000	46,616,000	0	5,405,000	50,455,000	4,445,000	0	0	0	0
G-070303	0	0	0	10,585,000	25,274,000	47,747,000	72,526,000	38,339,000	43,958,000	16,659,000	0	0	0	0	0
G-070305	0	0	0	37,486,000	48,462,000	79,738,000	74,294,000	34,456,000	0	0	341,000	0	12,947,000	82,211,000	50,492,000
G-070308	0	0	0	16,890,000	22,462,000	31,570,000	25,380,000	0	0	47,322,000	15,132,000	0	0	0	0
G-070309	0	0	0	29,543,000	35,610,000	2,445,000	12,272,000	0	5,135,000	39,328,000	19,911,000	0	0	0	42,778,000
G-070311	57,836,000	0	0	487,000	7,146,000	1,162,000	28,442,000	29,685,000	44,635,000	77,690,000	15,057,000	0	66,837,000	0	8,121,000
G-070312	76,000	4,436,000	0	0	0	0	0	0	0	0	0	0	0	0	66,348,000
G-072911	0	29,527,000	5,299,000	8,000	13,760,000	65,646,000	49,053,000	9,945,000	1,751,000	372,000	0	0	0	877,000	236,000
G-072912	0	0	0	25,000,000	398,000	30,450,000	47,708,000	12,277,000	4,687,000	96,120,000	22,301,000	0	3,084,000	27,906,000	19,828,000
G-076884	4,104,000	4,420,000	0	7,453,000	137,083,000	1,423,000	360,255,000	314,116,000	236,044,000	99,606,000	4,764,000	773,000	4,441,000	0	0
G-077983	4,102,000	4,086,000	1,671,000	9,177,000	135,420,000	0	0	0	1,000	27,000	4,000	0	0	0	148,000
G-0175675	0	0	0	0	0	0	339,410,000	379,670,000	277,523,000	136,225,000	3,000	0	5,427,000	0	155,000
Total	712,252,000	628,268,000	507,145,000	740,792,000	1,189,499,000	1,191,903,000	1,799,252,000	1,548,421,000	902,104,000	772,651,000	348,349,000	496,339,000	713,398,000	530,685,000	710,858,000

Table 2.18 (Continued)
LWS Ashland Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	2015 (Continued)									2016					
	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June
A-10367Q(1R)	4,581,000	59,992,000	32,685,000	50,793,000	37,677,000	31,285,000	0	12,103,000	58,159,000	59,508,000	56,847,000	31,338,000	0	51,739,000	63,684,000
A-10367L	5,087,000	42,792,000	30,699,000	45,547,000	47,261,000	27,135,000	184,000	0	0	0	0	22,144,000	1,013,000	48,362,000	39,606,000
A-10367K	8,642,000	0	0	0	0	0	0	0	0	0	0	417,000	0	0	0
A-10367H	1,090,000	25,090,000	12,293,000	10,290,000	15,442,000	9,091,000	74,000	145,000	0	0	0	0	0	0	29,491,000
A-10367E(1R)	31,310,000	53,271,000	14,775,000	47,000,000	55,184,000	3,846,000	0	0	0	0	0	1,261,000	10,686,000	39,115,000	64,819,000
A-10367P	0	23,885,000	670,000	17,858,000	24,619,000	0	370,000	116,000	0	0	0	191,000	0	19,202,000	29,193,000
A-10367N	0	88,995,000	17,069,000	25,487,000	0	0	393,000	0	0	0	0	0	0	81,491,000	27,730,000
A-10367J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A-10367I	14,350,000	54,852,000	15,865,000	0	42,659,000	16,097,000	198,000	0	0	0	0	20,447,000	16,097,000	0	45,499,000
A-10367T	29,259,000	42,669,000	28,723,000	32,169,000	14,069,000	15,048,000	197,000	4,120,000	48,969,000	58,888,000	56,333,000	41,803,000	0	1,977,000	36,504,000
A-10367R	9,238,000	12,202,000	25,227,000	20,441,000	31,433,000	15,616,000	184,000	2,686,000	59,846,000	59,311,000	38,209,000	29,949,000	0	52,594,000	32,950,000
A-10367S(1R)	0	36,010,000	15,144,000	11,091,000	7,515,000	12,841,000	174,000	0	0	0	0	0	816,000	46,975,000	29,016,000
A-10367X(1R)	17,694,000	68,484,000	12,704,000	0	2,117,000	77,406,000	330,000	229,000	0	0	0	508,000	87,000	28,883,000	67,936,000
A-10367Y	24,842,000	14,219,000	39,837,000	29,457,000	45,718,000	0	194,000	737,000	11,586,000	51,076,000	33,881,000	26,635,000	0	0	37,042,000
A-10367CC	47,752,000	15,565,000	8,274,000	21,420,000	39,297,000	4,373,000	189,000	2,879,000	6,658,000	63,763,000	58,919,000	43,846,000	1,119,000	38,340,000	31,836,000
G-070412	19,564,000	0	7,670,000	10,840,000	52,443,000	2,065,000	196,000	13,286,000	50,013,000	0	0	0	0	0	0
A-10367DD	8,684,000	0	17,872,000	16,035,000	50,212,000	0	207,000	0	17,069,000	36,921,000	30,403,000	29,020,000	0	34,269,000	39,688,000
A-10367JJ	0	0	2,721,000	27,482,000	40,459,000	5,313,000	159,000	402,000	0	42,385,000	57,297,000	18,996,000	0	0	24,046,000
A-10367EE	0	0	9,109,000	13,677,000	43,532,000	2,655,000	208,000	13,916,000	35,289,000	44,287,000	56,491,000	15,114,000	0	0	18,926,000
A-10367KK	2,545,000	13,357,000	4,265,000	15,237,000	0	0	162,000	0	1,785,000	29,543,000	32,428,000	22,869,000	690,000	0	28,670,000
A-10367HH	15,726,000	2,326,000	21,626,000	18,977,000	26,715,000	3,649,000	194,000	258,000	0	81,000	0	78,000	0	24,346,000	34,683,000
A-10367MM	38,900,000	27,263,000	17,124,000	73,470,000	562,000	6,000,000	0	17,574,000	75,594,000	112,850,000	95,874,000	1,335,000	0	182,000	53,323,000
A-10367QQ	19,749,000	0	123,000	8,400,000	20,529,000	38,365,000	200,000	818,000	17,309,000	1,665,000	30,332,000	25,654,000	6,134,000	0	12,320,000
A-10367C	30,319,000	56,786,000	32,861,000	18,590,000	16,486,000	29,888,000	168,000	13,103,000	48,484,000	50,376,000	36,113,000	42,966,000	7,652,000	33,211,000	42,889,000
A-10367D	6,786,000	35,985,000	7,042,000	32,378,000	661,000	0	265,000	319,000	16,024,000	33,013,000	39,344,000	25,975,000	0	4,533,000	43,525,000
A-10367A	0	0	4,000	0	9,000	177,000	0	0	0	0	0	979,000	0	0	0
A-10367B	28,448,000	42,641,000	28,661,000	31,849,000	61,722,000	17,016,000	0	13,060,000	61,146,000	61,273,000	28,950,000	42,832,000	7,641,000	34,975,000	26,766,000
G-070300	36,942,000	196,000	0	0	10,851,000	0	187,000	812,000	0	0	0	3,084,000	223,000	0	15,930,000
G-070304	32,901,000	33,268,000	13,215,000	8,811,000	1,000	0	185,000	0	0	0	0	0	0	0	18,414,000
G-070306	5,754,000	2,760,000	7,431,000	575,000	0	0	208,000	520,000	0	0	0	162,000	1,046,000	26,268,000	19,955,000
G-070307	0	0	0	0	0	20,000	211,000	0	0	0	0	0	0	0	0
G-070310(1R)	18,744,000	9,993,000	14,887,000	30,845,000	8,678,000	2,996,000	284,000	0	0	0	0	365,000	6,735,000	682,000	39,214,000
G-070303	0	76,000	10,122,000	21,603,000	1,214,000	78,640,000	460,000	0	0	0	0	42,812,000	1,157,000	3,643,000	3,000
G-070305	26,379,000	1,234,000	108,000	12,143,000	27,904,000	0	379,000	25,732,000	115,549,000	82,919,000	115,973,000	48,776,000	0	55,288,000	98,008,000
G-070308	0	0	0	8,457,000	26,589,000	3,000	418,000	588,000	0	0	0	190,000	1,322,000	0	36,158,000
G-070309	26,629,000	205,000	15,294,000	58,279,000	18,385,000	68,394,000	354,000	0	8,595,000	0	1,809,000	0	3,648,000	0	3,833,000
G-070311	79,568,000	14,945,000	4,136,000	14,190,000	12,946,000	8,878,000	403,000	17,898,000	61,123,000	0	0	0	6,899,000	104,000	5,612,000
G-070312	10,325,000	20,768,000	125,000	3,833,000	3,639,000	6,739,000	298,000	1,335,000	0	0	0	1,506,000	146,000	0	4,679,000
G-072911	0	8,523,000	953,000	0	0	0	0	0	0	0	0	0	3,220,000	40,617,000	16,814,000
G-072912	4,700,000	78,357,000	24,226,000	38,870,000	0	3,525,000	400,000	20,856,000	81,809,000	61,901,000	0	0	8,897,000	68,674,000	34,595,000
G-076884	77,056,000	50,083,000	321,284,000	244,349,000	60,255,000	153,350,000	404,099,000	187,228,000	5,969,000	0	0	51,089,000	320,251,000	97,660,000	197,196,000
G-077983	920,000	3,000	5,000	171,409,000	306,143,000	275,373,000	406,160,000	308,456,000	2,214,000	77,000	0	128,673,000	243,734,000	381,000	94,061,000
G-0175675	92,470,000	62,909,000	354,169,000	391,585,000	374,318,000	349,044,000	359,592,000	221,096,000	1,949,000	1,606,000	0	188,250,000	355,190,000	107,654,000	302,608,000
Total	776,954,000	999,704,000	1,168,998,000	1,583,437,000	1,527,244,000	1,264,828,000	1,177,884,000	880,272,000	785,139,000	851,443,000	769,203,000	909,264,000	1,004,403,000	941,165,000	1,747,222,000

Table 2.18 (Continued)
LWS Ashland Well Field - Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	2016 (Continued)						2017					
	July	August	September	October	November	December	January	February	March	April	May	June
A-10367Q(1R)	43,688,000	0	269,000	16,000	16,031,000	73,534,000	77,891,000	71,465,000	80,285,000	32,998,000	15,193,000	47,024,000
A-10367L	38,215,000	0	230,000	4,000	0	0	0	0	0	0	5,237,000	7,864,000
A-10367K	0	0	0	179,000	0	0	0	0	0	0	383,000	0
A-10367H	24,102,000	0	9,531,000	100,000	0	0	0	0	0	8,383,200	399,000	0
A-10367E(1R)	19,742,000	0	0	0	11,555,000	0	0	0	0	0	9,270,000	55,014,000
A-10367P	16,749,000	0	335,000	10,000	0	0	0	0	0	0	21,863,000	0
A-10367N	18,063,000	0	396,000	16,000	0	0	0	0	0	0	24,940,000	8,728,000
A-10367J	0	0	0	74,000	9,015,000	41,150,000	9,601,000	0	3,395,000	3,422,000	356,000	14,959,000
A-10367I	34,271,000	0	34,320,000	264,000	2,225,000	0	0	0	0	22,802,000	562,000	0
A-10367T	26,419,000	59,963,000	24,055,000	29,156,000	2,456,000	992,000	26,437,000	48,197,000	42,009,000	46,178,200	2,814,000	33,707,000
A-10367R	11,475,000	1,000	172,000	8,000	5,060,000	11,535,000	0	31,038,000	56,380,000	47,169,400	8,397,000	2,717,000
A-10367S(1R)	12,189,000	0	182,000	27,061,000	0	0	0	0	0	0	3,046,000	37,673,000
A-10367X(1R)	0	0	275,000	22,000	0	0	0	0	0	54,259,000	545,000	0
A-10367Y	43,152,000	60,462,000	24,246,000	4,000	1,240,000	23,088,000	42,839,000	40,659,000	46,696,000	43,361,000	2,877,000	4,707,000
A-10367CC	0	0	166,000	3,000	626,000	0	0	0	13,351,000	17,162,800	16,207,000	6,613,000
G-070412	0	0	176,000	1,000	5,342,000	2,349,000	3,263,000	1,690,000	0	1,338,000	0	3,478,000
A-10367DD	769,000	0	167,000	4,000	0	0	0	18,658,000	34,253,000	1,269,000	378,000	1,147,000
A-10367JJ	0	0	14,746,000	6,851,000	24,546,000	46,187,000	45,190,000	39,192,000	39,315,000	39,764,000	175,000	6,723,000
A-10367EE	0	0	0	135,000	0	0	0	0	0	0	0	3,694,000
A-10367KK	7,147,000	53,744,000	52,635,000	6,255,000	4,610,000	26,544,000	28,191,000	17,946,000	28,059,000	41,755,400	197,000	3,241,000
A-10367HH	0	825,000	0	174,000	0	29,835,000	26,995,000	32,096,000	42,055,000	40,115,000	154,000	6,272,000
A-10367MM	41,262,000	111,196,000	109,163,000	12,788,000	0	65,656,000	112,152,000	25,152,000	91,000	26,153,080	7,100,000	107,555,000
A-10367QQ	542,000	0	0	20,831,000	52,914,000	25,004,000	11,311,000	20,633,000	37,513,000	0	362,000	26,732,000
A-10367C	39,692,000	0	31,940,000	14,183,000	33,033,000	62,507,000	63,216,000	57,097,000	64,397,000	58,671,000	543,000	22,692,000
A-10367D	31,610,000	1,006,000	20,008,000	3,635,000	1,227,000	6,668,000	13,956,000	7,000	6,734,000	27,300,000	440,000	10,066,000
A-10367A	0	0	203,000	0	0	0	0	0	0	0	732,000	0
A-10367B	49,504,000	60,683,000	16,097,000	31,955,000	1,224,000	7,232,000	5,107,000	8,000	0	1,148,000	5,965,000	4,683,000
G-070300	0	0	188,000	11,000	0	0	0	0	0	0	494,000	2,881,000
G-070304	0	0	3,084,000	22,178,000	0	0	0	0	0	0	237,000	0
G-070306	0	0	0	200,000	0	0	0	0	0	0	776,000	0
G-070307	0	0	0	180,000	0	0	0	0	0	0	236,000	0
G-070310(1R)	0	0	0	311,000	0	0	0	0	0	0	413,000	2,142,000
G-070303	25,275,000	0	371,000	10,000	0	0	10,010,000	64,526,000	111,342,000	57,515,000	54,219,000	82,144,000
G-070305	0	0	384,000	16,000	0	0	0	44,649,000	0	37,013,800	22,232,000	2,081,000
G-070308	23,796,000	0	4,311,000	9,582,000	0	0	0	59,033,000	78,631,000	43,578,000	13,867,000	47,300,000
G-070309	0	0	0	54,111,000	54,603,000	16,522,000	0	0	6,151,000	32,528,200	853,000	15,330,000
G-070311	0	2,000	0	42,734,000	50,304,000	29,149,000	0	0	14,626,000	0	18,323,000	6,369,000
G-070312	229,000	1,305,000	0	3,327,000	0	0	15,550,000	68,209,000	0	1,999,400	547,000	2,822,000
G-072911	3,000	0	0	388,000	0	0	0	0	0	0	8,164,000	0
G-072912	26,386,000	107,056,000	46,879,000	438,000	0	0	39,564,000	124,559,000	137,053,000	78,838,600	21,324,000	81,327,000
G-076884	309,165,000	285,881,000	186,821,000	189,017,000	13,998,000	0	64,000	0	0	40,622,000	238,135,000	186,955,000
G-077983	295,926,000	290,195,000	330,719,000	389,595,000	346,301,000	349,031,000	203,792,000	0	0	3,762,000	328,664,000	249,470,000
G-0175675	553,282,000	378,052,000	313,706,000	202,190,000	141,732,000	0	53,997,000	1,836,000	0	103,414,000	219,096,000	449,943,000
Total	1,692,653,000	1,410,371,000	1,225,775,000	1,068,017,000	778,042,000	816,983,000	789,126,000	766,650,000	842,336,000	912,520,080	1,055,715,000	1,544,053,000

Notes:

NDNR = Nebraska Department of Natural Resources

Source: Lincoln Water System (LWS), 2017. Group Well Report. Excel© spreadsheet transmitted via email from Julie M. Vales, LWS, to Bradley Brink, CENWK. July 31.

Table 2.19
Ashland, Ithaca, Mead, and Memphis - Measured and Estimated Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	Ashland (2006-1)	Ashland (#4)	Ashland (#5)	Ashland (82-1)	Ithaca (1)	Ithaca (2)	Mead (1)	Mead (2)	Mead (3)	Mead (4)	Memphis (73-1)	Memphis (94-1)
January 2014	2,597,000	1,019,000	2,503,000	1,620,000	233,983	233,983	521,250	521,250	521,250	521,250	176,705	176,705
February 2014	2,443,000	452,000	2,358,000	1,621,000	211,340	211,340	443,250	443,250	443,250	443,250	159,604	159,604
March 2014	2,901,000	69,000	2,795,000	1,950,000	233,983	233,983	459,000	459,000	459,000	459,000	176,705	176,705
April 2014	2,928,000	0	2,876,000	2,007,000	226,435	226,435	489,750	489,750	489,750	489,750	171,005	171,005
May 2014	3,995,000	0	4,132,000	2,900,000	233,983	233,983	591,750	591,750	591,750	591,750	176,705	176,705
June 2014	4,424,000	0	4,509,000	3,178,000	226,435	226,435	448,250	448,250	448,250	448,250	171,005	171,005
July 2014	6,183,000	0	6,070,000	4,304,000	233,983	233,983	558,500	558,500	558,500	558,500	176,705	176,705
August 2014	4,355,000	0	5,444,000	3,632,000	233,983	233,983	547,000	547,000	547,000	547,000	176,705	176,705
September 2014	4,300,000	0	3,458,000	2,593,000	226,435	226,435	388,750	388,750	388,750	388,750	171,005	171,005
October 2014	3,799,000	0	3,060,000	2,129,000	233,983	233,983	453,500	453,500	453,500	453,500	176,705	176,705
November 2014	3,148,000	0	2,531,000	1,769,000	226,435	226,435	448,750	448,750	448,750	448,750	171,005	171,005
December 2014	3,114,000	0	2,504,000	1,732,000	233,983	233,983	447,750	447,750	447,750	447,750	176,705	176,705
January 2015	3,526,000	0	2,789,000	1,986,000	233,983	233,983	477,250	477,250	477,250	477,250	176,705	176,705
February 2015	3,196,000	0	2,668,000	1,880,000	211,340	211,340	401,000	401,000	401,000	401,000	159,604	159,604
March 2015	3,785,000	0	2,994,000	2,078,000	233,983	233,983	506,750	506,750	506,750	506,750	176,705	176,705
April 2015	3,943,000	0	3,123,000	2,170,000	226,435	226,435	452,000	452,000	452,000	452,000	171,005	171,005
May 2015	3,397,000	0	2,688,000	827,000	233,983	233,983	479,000	479,000	479,000	479,000	176,705	176,705
June 2015	4,048,000	0	3,202,000	2,150,000	226,435	226,435	487,500	487,500	487,500	487,500	171,005	171,005
July 2015	5,400,000	0	4,314,000	2,895,000	233,983	233,983	529,000	529,000	529,000	529,000	176,705	176,705
August 2015	4,800,000	0	3,916,000	2,641,000	233,983	233,983	568,750	568,750	568,750	568,750	176,705	176,705
September 2015	3,841,000	0	3,567,000	1,575,000	226,435	226,435	571,500	571,500	571,500	571,500	171,005	171,005
October 2015	4,028,000	0	3,174,000	2,160,000	233,983	233,983	551,750	551,750	551,750	551,750	176,705	176,705
November 2015	3,387,000	0	2,701,000	1,914,000	226,435	226,435	437,250	437,250	437,250	437,250	171,005	171,005
December 2015	2,475,000	0	1,658,000	3,104,000	233,983	233,983	451,750	451,750	451,750	451,750	176,705	176,705
January 2016	2,421,000	0	2,738,000	1,865,000	233,983	233,983	466,500	466,500	466,500	466,500	176,705	176,705
February 2016	2,831,000	0	2,182,000	1,444,000	211,340	211,340	407,250	407,250	407,250	407,250	159,604	159,604
March 2016	3,314,000	0	2,633,000	1,757,000	233,983	233,983	437,500	437,500	437,500	437,500	176,705	176,705

Table 2.19 (Continued)
Ashland, Ithaca, Mead, and Memphis - Measured and Estimated Gallons Pumped per Month, 2014-2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Month	Ashland (2006-1)	Ashland (#4)	Ashland (#5)	Ashland (82-1)	Ithaca (1)	Ithaca (2)	Mead (1)	Mead (2)	Mead (3)	Mead (4)	Memphis (73-1)	Memphis (94-1)
April 2016	3,736,000	0	2,969,000	1,968,000	226,435	226,435	416,500	416,500	416,500	416,500	171,005	171,005
May 2016	4,248,000	0	3,337,000	2,207,000	233,983	233,983	432,250	432,250	432,250	432,250	176,705	176,705
June 2016	7,186,000	0	5,776,000	3,836,000	226,435	226,435	599,250	599,250	599,250	599,250	171,005	171,005
July 2016	7,233,000	0	5,837,000	3,816,000	233,983	233,983	497,500	497,500	497,500	497,500	176,705	176,705
August 2016	5,917,000	0	4,693,000	3,006,000	233,983	233,983	496,250	496,250	496,250	496,250	176,705	176,705
September 2016	4,571,000	0	3,798,000	2,400,000	226,435	226,435	426,750	426,750	426,750	426,750	171,005	171,005
October 2016	4,158,000	0	3,405,000	2,151,000	233,983	233,983	429,750	429,750	429,750	429,750	176,705	176,705
November 2016	3,889,000	0	3,161,000	1,933,000	226,435	226,435	429,000	429,000	429,000	429,000	171,005	171,005
December 2016	3,317,000	0	2,616,000	1,646,000	233,983	233,983	392,250	392,250	392,250	392,250	176,705	176,705
January 2017	3,439,000	0	2,723,000	1,702,000	233,983	233,983	392,500	392,500	392,500	392,500	176,705	176,705
February 2017	3,102,000	0	2,451,000	1,519,000	211,340	211,340	338,000	338,000	338,000	338,000	159,604	159,604
March 2017	3,628,000	0	2,790,000	1,732,000	233,983	233,983	386,750	386,750	386,750	386,750	176,705	176,705
April 2017	3,413,000	0	2,366,000	1,691,000	226,435	226,435	375,500	375,500	375,500	375,500	171,005	171,005
May 2017	4,429,000	0	3,504,000	2,083,000	233,983	233,983	442,500	442,500	442,500	442,500	176,705	176,705
June 2017	6,201,000	0(3)	6,436,000	3,730,000	226,435	226,435	669,250	669,250	669,250	669,250	171,005	171,005

Notes:

(1) Volumes for Ithaca are divided equally between two wells, and are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2014 population of 151 ("2014 Sub-County Population Estimates", NDNR, 2014).

(2) Volumes for Memphis are divided equally between two wells, and are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2014 population of 114 ("2014 Sub-County Population Estimates", NDNR, 2014).

(3) Ashland well #4 was decommissioned in June 2017.

Sources:

City of Ashland, 2017. Ashland Well Production Since 2004. Excel© spreadsheet transmitted via email from Bill Torpy, City of Ashland, to Bradley Brink, CENWK. August 2, 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. July 24, 2017.

Table 2.20
Average Depth of Irrigation for ARDC Wells, 2000-2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Acres on Regis-tration	Photo Estimated Acres*	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)	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)	Average Pumping Rate While in Use (gpm)	Average Depth of Irrigation (inches)	Notes
G-033747	500	64	IR1	1200	62	342	89	110	146	0	0	0	0	0	0	0	0	0	0	0	0	150	11.41	Not used in average (data from drought period)
G-033749	90	89	3R	430	61	430	133	159	154	153	139	90	110	86	53	50	87	182	150	46	55	126	6.90	
G-033750	500	100	IR 4	1100	0	0	0	0	0	0	0	0	74	84	81	94	201	189	121	43	39	103	5.02	
G-033752	400	97	6	750	0	0	0	0	0	0	133	93	100	90	62	0	11	0	0	0	0	82	4.10	Agronomy (not used in average)
G-033753	130	130	25	725	144	331	209	364	189	165	128	272	230	206	146	137	299	271	174	68	53	199	7.47	Center pivot
G-033754	200	0	7	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA	Not used for irrigation (not used in average)
G-033755	300	99	IR9	400	0	0	0	0	0	26	26	18	20	18	12	0	13	0	7	1	0	16	0.77	Agronomy (not used in average)
G-036212	100	0	IR12		151	183	59	73	80	0	70	10	0	0	0	0	0	0	0	0	0	89	NA	Non-irrigation, no longer used (assume 0 gpm)
G-036213	75	110	13	800	0	0	0	0	0	0	151	105	113	102	70	4	14	0	11	3	0	64	2.82	Agronomy (not used in average)
G-036214	200	0	14	400	0	0	0	0	0	0	0	0	0	0	0	14	38	0	21	5	0	20	NA	Decommissioned in 2015 (not used in average)
G-044312	75	58	16	1000	0	0	0	0	0	136	136	95	102	92	63	21	78	0	30	9	0	76	6.41	Agronomy (not used in average)
G-054654	200	158	IR19	800	162	314	382	389	226	283	294	154	157	166	78	95	398	314	135	30	69	214	6.62	Center pivot
G-054655	130	121	17R	787	0	0	224	264	215	229	206	148	164	145	108	60	172	121	188	68	80	159	6.43	Center pivot
G-054656	0	0	10A		151	183	59	73	80	0	80	74	47	41	41	20	52	39	39	27	0	67	NA	Year-round, non-irrigation, not used in average
G-068060	110	57	IR22	1000	107	142	127	169	132	112	178	64	76	47	52	40	167	132	73	8	28	97	8.32	
G-087929	150	124	IR24	720	161	303	293	285	267	269	210	204	201	161	153	151	288	294	210	82	81	213	8.36	
G-091546	0	0	27		0	0	0	0	0	0	0	0	5	4	4	66	57	34	42	35	0	31	NA	Year-round, non-irrigation, not used in average
G-096581	65	30	IR21	900	73	110	112	156	0	0	53	0	0	0	0	0	0	0	0	0	0	101	16.40	Not used in average (data from drought period)
G-096582	55	53/104	IRR18	671	96	127	130	135	72	199	144	137	134	128	73	58	149	328	152	51	66	112/135	8.13	Acres increased to 104 in 2005
G-096584	130	132	IR20	850	167	276	322	278	239	283	166	118	191	125	108	133	333	291	218	61	72	199	7.35	Center pivot
G-096587	0	0	23		0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	NA	Non-irrigation, no longer used (assume 0 gpm)
G-096588	0	0	9A		0	0	0	0	0	0	0	62	59	57	57	4	50	48	39	42	0	46	NA	Year-round, non-irrigation, not used in average
G-096589	100	150	15	800	0	0	0	0	0	103	103	72	77	69	48	8	30	0	57	12	0	58	1.88	Agronomy (not used in average)
G-105800	130	125	26	810	0	336	303	349	244	320	284	293	222	207	113	112	323	265	210	83	89	235	9.16	Center pivot
G-105801	130	142	28	850	0	294	210	241	227	288	242	140	146	176	102	106	350	178	187	71	88	190	6.54	Center pivot
G-105802	NA	120	29	740	0	700	322	289	239	261	195	150	209	145	103	93	247	261	156	57	37	184	7.49	Center pivot, first year of 2001 not used (high volume likely from testing)
G-135522	75	75	30	450	0	0	0	0	0	0	120	86	45	99	38	30	137	184	78	0	37	85	5.55	
G-159854	123	123	32	675	0	0	0	0	0	0	0	0	0	0	0	64	178	126	233	33	79	119	4.71	
G-163023	24	24	31	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	4	0.71	Not used in average (small test plots)
																						Average Depth of Irrigation 2000-2016 (inches)[3,4]	**7.00**	

Notes:
*Aerial photos, NDNR 2005 land use irrigation map, or ARDC estimates were used instead of acreage on registration.
The estimated rates assume a 92-day (June, July, and August) irrigation season, 365 days of pumping is assumed for non-irrigation wells.
The average net irrigation requirement is 6.68 inches for fully irrigated corn based on temperature and precipitation data for Wahoo for the period 1949-2004 (NDNR, 2005).
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

Table 2.21
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-000350	2,599,734	502,608	160	229.6	67.2	86.9	
G-000377	2,661,697	501,034	186	266.9	77.4	101.0	
G-000744	2,662,132	491,793	160	0.0	0.0	0.0	Made redundant by G-116108
G-000745	2,662,357	486,519	80	114.8	33.3	43.5	
G-000961	2,659,212	498,273	154	221.0	64.1	83.6	
G-002172	2,641,811	490,245	160	229.6	66.6	86.9	
G-002341	2,631,364	503,696	85	0.0	0.0	0.0	Not used
G-003848	2,642,547	488,271	80	114.8	33.3	43.5	
G-004004	2,637,438	484,094	50	71.7	20.8	27.2	
G-004168	2,644,277	479,087	35	50.2	14.6	19.0	
G-004169	2,644,458	476,812	43	61.7	17.9	23.4	
G-004183	2,657,610	504,779	240	0.0	0.0	0.0	Made redundant by G-081565
G-008876	2,597,949	520,804	120	0.0	0.0	0.0	Made redundant by G-112438
G-009033	2,661,046	500,312	160	229.6	66.6	86.9	
G-009205	2,631,136	497,962	80	114.8	33.3	43.5	
G-011280	2,659,538	513,493	70	100.4	29.1	38.0	
G-013220	2,593,059	515,758	127	182.2	52.8	69.0	
G-014161	2,659,433	507,749	225	0.0	0.0	0.0	Made redundant by G-073294
G-014821	2,635,341	503,188	280	0.0	0.0	0.0	Made redundant by G-105797
G-014822	2,636,659	503,244	280	0.0	0.0	0.0	Same quarter section as G-105797
G-014865	2,654,509	514,556	126	180.8	52.4	68.4	
G-014866	2,654,612	511,906	105	150.7	43.7	57.0	
G-015211	2,654,849	519,217	320	459.1	133.1	173.8	
G-016190	2,643,489	470,452	200	0.0	0.0	0.0	Abandoned in 2005, notified DNR in 2017
G-017199	2,650,680	527,623	160	229.6	66.6	86.9	

Table 2.21 (Continued)
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NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-017200	2,652,071	525,766	200	0.0	0.0	0.0	Made redundant by G-173267
G-017201	2,661,214	526,813	220	315.7	91.5	119.5	
G-018285	2,628,140	485,091	100	143.5	41.6	54.3	
G-018747	2,619,688	474,326	100	0.0	0.0	0.0	Made redundant by G-059231
G-019020	2,661,844	484,444	40	0.0	0.0	0.0	Made redundant by G-155359
G-020313	2,608,725	531,142	175	251.1	72.8	95.1	
G-020550	2,655,955	511,295	0	0.0	0.0	0.0	
G-020551	2,656,019	509,988	40	0.0	0.0	0.0	Made redundant by G-101198
G-020552	2,656,090	508,671	40	0.0	0.0	0.0	Made redundant by G-101198
G-021194	2,648,203	495,779	160	229.6	66.6	86.9	
G-021492	2,661,154	528,096	134	192.3	55.8	72.8	
G-022336	2,651,807	523,684	60	86.1	25.0	32.6	
G-022506	2,658,289	489,014	160	0.0	0.0	0.0	Made redundant by G-082391
G-023385	2,600,716	524,444	80	114.8	33.3	43.5	
G-028138	2,630,733	501,665	160	0.0	0.0	0.0	Made redundant by G-087283
G-030654	2,644,712	483,745	220	315.7	91.5	119.5	
G-030678	2,617,221	478,589	180	258.3	74.9	97.8	
G-031913	2,662,677	489,787	160	229.6	66.6	86.9	
G-033472	2,629,665	478,469	120	172.2	49.9	65.2	
G-033505	2,590,159	523,975	145	208.0	60.3	78.8	
G-033747	2,613,776	499,678	64	0.0	0.0	0.0	ARDC Well #IR1, not used since 2004
G-033749	2,609,163	510,257	89	125.9	36.5	47.6	ARDC Well #3R (avg. 2000-2016)
G-033750	2,619,957	506,332	100	102.9	29.8	39.0	ARDC Well #IR4 (avg. 2008-2016)
G-033751	2,605,997	500,166	80	0.0	0.0	0.0	ARDC Well #IR5, not in use

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G-033752	2,625,321	506,092	97	0.0	0.0	0.0	ARDC Agronomy Well #IR6 (infrequently used)
G-033753	2,612,200	504,918	130	199.1	57.7	75.4	ARDC Well #25 (avg. 2000-2016)
G-033754	2,626,694	506,075	0	0.0	0.0	0.0	ARDC Well #7, no longer used
G-033755	2,624,963	505,301	99	15.7	4.6	5.9	ARDC Agronomy Well #IR9 (avg. 2005-2016)
G-035213	2,622,915	484,106	173	248.2	72.0	94.0	
G-035237	2,603,422	518,003	139	199.4	57.8	75.5	
G-035273	2,595,864	509,889	146	209.5	60.7	79.3	
G-035300	2,611,791	528,788	28	40.2	11.7	15.2	
G-035461	2,663,380	494,452	85	122.0	35.4	46.2	
G-035862	2,652,217	527,684	130	186.5	54.1	70.6	
G-035976	2,608,945	523,383	150	215.2	62.4	81.5	
G-036098	2,629,416	502,905	80	114.8	33.3	43.5	
G-036212 (#12)	2,603,182	506,566	0	0.0	0.0	0.0	ARDC "Municipal" Well #12, not in use
G-036213	2,627,623	503,066	75	63.7	18.5	24.1	ARDC Agronomy Well #IR13 (avg. 2006-2016)
G-036214	2,618,137	499,804	200	0.0	0.0	0.0	ARDC Well #IR14, Decommissioned 2015
G-037636	2,611,047	530,993	145	0.0	0.0	0.0	Made redundant by G-140862
G-037637	2,598,554	510,222	130	186.5	54.1	70.6	
G-037677	2,608,495	529,211	42	60.3	17.5	22.8	
G-037681	2,597,430	528,396	80	114.8	33.3	43.5	Acreage photo revised
G-037707	2,600,801	515,355	160	229.6	66.6	86.9	Replacement well inactive
G-037709	2,600,719	516,647	120	172.2	49.9	65.2	Replacement well inactive
G-037726	2,594,339	525,422	0	0.0	0.0	0.0	
G-037984	2,596,927	504,903	145	208.0	60.3	78.8	

Table 2.21 (Continued)
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G-040328	2,590,562	517,798	85	122.0	35.4	46.2	Replacement well (new location, new acreage)
G-040351	2,608,787	518,096	240	344.3	99.9	130.4	
G-041584	2,660,659	480,472	154	221.0	64.1	83.6	
G-041786	2,658,404	501,520	140	200.9	58.2	76.0	
G-042325	2,613,567	517,458	160	229.6	66.6	86.9	Replacement well inactive
G-042956	2,598,646	525,682	80	0.0	0.0	0.0	Made redundant by G-065987
G-044173	2,590,323	520,169	106	152.1	44.1	57.6	
G-044312	2,628,012	504,591	75	76.2	22.1	28.8	ARDC Well #IR16 (avg. 2005-2014)
G-046472	2,630,061	504,956	68	97.6	28.3	36.9	
G-046552	2,603,347	531,039	115	165.0	47.8	62.5	
G-046657	2,603,413	520,874	135	193.7	56.2	73.3	Replaced in 2011, acreage changed to 135
G-046970	2,615,835	477,283	105	150.7	43.7	57.0	
G-047016	2,639,785	523,856	40	57.4	16.6	21.7	
G-047077	2,598,380	511,943	130	0.0	0.0	0.0	Made redundant by G-060988
G-047089	2,596,030	525,508	136	195.1	56.6	73.9	
G-047357	2,643,288	479,715	132	189.4	54.9	71.7	
G-047789	2,639,386	484,836	80	114.8	33.3	43.5	
G-047830	2,642,739	516,681	114	163.6	47.4	61.9	
G-048035	2,618,596	476,047	120	172.2	49.9	65.2	Registered inactive, but likely active.
G-048312	2,605,586	516,108	0	0.0	0.0	0.0	Made redundant by G-182259
G-048425A	2,614,063	522,186	220	315.7	91.5	119.5	
G-048425B	2,614,005	523,453	220	315.7	91.5	119.5	
G-049256	2,601,202	510,018	133	190.8	55.3	72.2	
G-049353	2,663,535	475,318	137	196.6	57.0	74.4	
G-049439	2,632,720	508,371	100	143.5	41.6	54.3	

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G-050151	2,657,610	504,779	140	0.0	0.0	0.0	Made redundant by G-081565
G-050176	2,645,404	483,101	160	229.6	66.6	86.9	
G-050177	2,642,070	482,287	132	189.4	54.9	71.7	
G-050878	2,660,932	530,075	20	28.7	8.3	10.9	
G-050879	2,655,264	527,177	75	107.6	31.2	40.7	
G-050995	2,647,382	511,582	80	114.8	33.3	43.5	
G-051424	2,645,796	502,965	120	0.0	0.0	0.0	Made redundant by G-113392
G-051685	2,623,839	492,105	66	94.7	27.5	35.8	
G-051686	2,602,245	531,726	38	54.5	15.8	20.6	
G-051786	2,625,861	492,206	143	205.2	59.5	77.7	
G-051787	2,623,940	482,798	117	167.9	48.7	63.6	
G-051860	2,631,530	481,930	121	173.6	50.3	65.7	
G-051879	2,647,399	467,328	160	229.6	66.6	86.9	
G-051927	2,611,903	525,979	125	179.3	52.0	67.9	
G-052170	2,629,967	497,652	63	90.4	26.2	34.2	
G-052354	2,632,586	493,813	34	49.4	14.3	18.7	
G-052414	2,660,606	497,022	160	229.6	66.6	86.9	
G-052415	2,661,760	470,642	110	157.8	45.8	59.8	
G-052563	2,658,142	477,739	160	229.6	66.6	86.9	
G-052785	2,655,259	482,919	160	229.6	66.6	86.9	
G-053077	2,629,122	480,696	158	226.7	65.7	85.8	
G-053078	2,618,627	523,016	130	186.5	54.1	70.6	
G-053273	2,596,060	522,439	160	0.0	0.0	0.0	Abandoned in 2005, but notified in 2015
G-053428	2,642,173	514,036	118	169.3	49.1	64.1	

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G-053470	2,590,772	507,217	96	137.7	39.9	52.1	
G-053629	2,638,290	462,981	80	114.8	33.3	43.5	
G-053630	2,635,395	501,244	76	109.0	31.6	41.3	
G-053656	2,657,971	496,890	160	229.6	66.6	86.9	
G-053658	2,633,231	490,577	100	143.5	41.6	54.3	
G-053764	2,592,944	505,359	100	143.5	41.6	54.3	
G-053801	2,632,762	484,562	129	185.1	53.7	70.1	
G-053963	2,630,363	518,856	66	94.7	27.5	35.8	
G-054654	2,611,474	495,720	200	214.4	62.2	81.2	ARDC Well #IR19 (avg. 2000-2016)
G-054655	2,620,043	507,869	130	159.4	46.2	60.4	ARDC Well #17R (avg. 2002-2016)
G-054656 (#10)	2,606,504	503,377	0	65.1	27.0	36.0	ARDC "Municipal" Well #10A (avg. 2000-16)
G-055912	2,655,527	480,289	135	193.7	56.2	73.3	
G-055913	2,652,897	480,192	140	0.0	0.0	0.0	Made redundant by G-061703 and G-161915
G-055914	2,658,246	471,309	200	287.0	83.2	108.6	
G-055915	2,655,022	472,990	150	215.2	62.4	81.5	
G-056278	2,660,875	490,422	40	57.4	16.6	21.7	
G-056513	2,660,041	508,907	30	43.0	12.5	16.3	
G-056514	2,659,904	511,554	40	57.4	16.6	21.7	
G-056515	2,656,971	488,967	130	0.0	0.0	0.0	Made redundant by G-157943
G-056729	2,635,152	507,801	120	172.2	49.9	65.2	
G-056849	2,644,633	529,305	95	0.0	0.0	0.0	Made redundant by G-108647
G-057184	2,616,731	520,965	135	193.7	56.2	73.3	
G-057314	2,608,488	520,361	144	0.0	0.0	0.0	Same field as G-057315
G-057315	2,607,556	519,536	100	143.5	41.6	54.3	

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G-057497	2,613,899	479,133	160	229.6	66.6	86.9	
G-057498	2,631,329	487,127	136	195.1	56.6	73.9	
G-057634	2,633,858	476,476	152	218.1	63.2	82.6	
G-058057	2,657,858	528,629	40	57.4	16.6	21.7	
G-058058	2,657,817	529,948	60	86.1	25.0	32.6	
G-058325	2,612,714	525,999	34	48.8	14.1	18.5	
G-058437	2,660,354	472,541	60	86.1	25.0	32.6	
G-058543	2,596,692	507,873	130	186.5	54.1	70.6	
G-058723	2,597,504	516,538	59	84.7	24.6	32.0	
G-058774	2,626,897	481,718	80	0.0	0.0	0.0	Made redundant by G-078376
G-058820	2,620,524	476,762	175	251.1	72.8	95.1	
G-058958	2,633,245	521,894	117	167.9	48.7	63.6	
G-059114	2,594,054	507,951	40	57.4	16.6	21.7	
G-059115	2,596,796	506,557	160	229.6	66.6	86.9	
G-059231	2,619,338	474,071	100	143.5	41.6	54.3	
G-059549	2,630,445	462,658	80	114.8	33.3	43.5	
G-059681	2,617,235	476,859	35	50.2	14.6	19.0	
G-060250	2,633,386	519,681	5	7.2	2.1	2.7	
G-060417	2,607,816	527,955	51	73.2	21.2	27.7	
G-060900	2,655,831	484,957	65	93.3	27.0	35.3	
G-060987	2,596,159	515,891	104	149.2	43.3	56.5	Acreage change recommended by NDNR in 2015
G-060988	2,597,672	513,220	100	143.5	41.6	54.3	Same field as G-047077
G-061009	2,654,791	478,245	240	344.3	99.9	130.4	
G-061620	2,658,047	495,572	40	57.4	16.6	21.7	

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G-061703	2,653,362	480,869	105	150.7	43.7	57.0	Same field as G-055913 and G-161915
G-062082	2,605,049	530,098	72	103.3	30.0	39.1	
G-062094	2,627,612	513,468	136	0.0	0.0	0.0	Replaced by G-127133
G-062375	2,596,171	527,476	60	86.1	25.0	32.6	
G-062530A	2,622,684	474,757	0	0.0	0.0	0.0	Replaced by G-085344
G-062530B	2,622,002	474,005	137	0.0	0.0	0.0	Replaced by G-085344
G-063187	2,595,536	515,215	67	96.1	27.9	36.4	
G-063202	2,608,143	483,511	133	190.8	55.3	72.2	
G-064065	2,631,227	476,705	29	41.6	12.1	15.8	
G-064207	2,612,237	518,748	160	229.6	66.6	86.9	
G-064243	2,656,633	525,900	101	144.9	42.0	54.9	
G-064703	2,654,149	523,139	50	71.7	20.8	27.2	
G-064906	2,603,229	510,775	150	215.2	62.4	81.5	
G-065584	2,624,550	523,903	128	183.7	53.3	69.5	Replaced in 2011
G-065589	2,605,990	520,913	130	186.5	54.1	70.6	
G-065682	2,606,138	518,093	130	186.5	54.1	70.6	
G-065683	2,606,423	512,831	85	122.0	35.4	46.2	Replaced by G-118340, but new well inactive
G-065684	2,614,308	515,515	170	243.9	70.7	92.3	
G-065871	2,611,277	523,177	153	219.5	63.7	83.1	
G-065908	2,656,541	528,563	60	86.1	25.0	32.6	
G-065987	2,598,129	524,350	136	195.1	56.6	73.9	Same field as G-042956
G-066246	2,592,067	526,121	121	173.6	50.3	65.7	
G-066364	2,612,905	530,112	112	160.7	46.6	60.8	
G-066531	2,644,045	514,693	115	165.0	47.8	62.5	

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G-066614	2,644,909	466,814	122	0.0	0.0	0.0	Replaced by G-146380
G-067290	2,619,945	523,080	65	93.3	27.0	35.3	
G-067472	2,599,552	505,296	160	229.6	66.6	86.9	Replacement well inactive
G-067620	2,647,861	487,194	220	315.7	91.5	119.5	
G-068060	2,606,303	497,012	110	97.2	28.2	36.8	ARDC Well #IR22 (avg. 2000-2016)
G-068383	2,635,987	513,109	62	89.0	25.8	33.7	
G-069184	2,629,953	506,255	80	114.8	33.3	43.5	
G-069208	2,624,493	526,481	202	289.8	84.1	109.7	
G-069511	2,659,608	489,061	80	0.0	0.0	0.0	Replaced by G-082391
G-070210	2,595,398	517,866	153	219.5	63.7	83.1	
G-070398	2,621,508	523,814	160	229.6	66.6	86.9	
G-070615	2,591,443	517,752	135	193.7	56.2	73.3	
G-071170	2,618,518	525,598	98	140.6	40.8	53.2	
G-071362	2,601,277	508,786	89	127.7	37.0	48.3	
G-071363	2,603,169	528,470	126	180.8	52.4	68.4	
G-072122	2,595,295	523,635	108	155.0	44.9	58.7	Replaced in 2011, new acreage, new location
G-072123	2,592,616	528,138	235	337.2	97.8	127.6	
G-072139	2,600,710	523,102	122	175.0	50.8	66.3	
G-072751	2,628,698	487,102	306	439.0	127.3	166.2	
G-072842	2,616,353	518,282	60	86.1	25.0	32.6	
G-073294	2,659,468	506,910	80	114.8	33.3	43.5	Same field as G-014161
G-073449	2,658,523	504,371	160	229.6	66.6	86.9	
G-073545	2,620,667	489,385	65	93.3	27.0	35.3	
G-073751	2,599,167	528,473	130	186.5	54.1	70.6	Replacement well inactive

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-073894	2,663,276	472,486	147	210.9	61.2	79.8	
G-074349	2,635,906	505,866	69	99.0	28.7	37.5	
G-074351	2,638,924	496,009	80	114.8	33.3	43.5	
G-076374	2,597,691	530,939	138	198.0	57.4	75.0	
G-076735	2,611,203	527,276	152	0.0	0.0	0.0	Decommissioned 2015, replaced with G-084524
G-077970	2,622,973	489,486	201	288.4	83.6	109.2	
G-078375	2,628,551	492,400	200	287.0	83.2	108.6	
G-078376	2,627,455	483,026	80	114.8	33.3	43.5	Same field as G-058774
G-078377	2,632,968	516,293	80	0.0	0.0	0.0	Made redundant by G-139140
G-081565	2,657,101	504,927	125	179.3	52.0	67.9	Same field as G-050151 and G-004183
G-081652	2,658,832	491,034	135	193.7	56.2	73.3	
G-081653	2,660,838	489,061	78	111.9	32.5	42.4	
G-082391	2,658,967	488,378	157	225.3	65.3	85.3	Same field as G-022506 and G-069511
G-084655	2,610,568	529,331	39	56.0	16.2	21.2	
G-085344	2,621,370	473,533	132	189.4	54.9	71.7	
G-085522	2,620,412	527,732	254	364.4	105.7	138.0	
G-087076	2,600,016	518,519	100	143.5	41.6	54.3	
G-087283	2,630,817	500,294	135	193.7	56.2	73.3	Same field as G-028138
G-087637	2,619,232	491,749	108	155.0	44.9	58.7	Replaced with same registration code (new location, acreage)
G-087929	2,614,733	511,212	150	212.5	61.6	80.5	ARDC Well #IR24 (avg. 2000-2016)
G-088331	2,626,135	484,313	136	195.1	56.6	73.9	
G-089306	2,663,120	483,262	65	93.3	27.0	35.3	

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-090720	2,629,536	526,555	138	198.0	57.4	75.0	
G-091546 (#27)	2,618,510	511,668	0	31.9	35.0	40.0	ARDC "Municipal" Well #27, avg. 2008-16
G-091614	2,598,034	523,137	140	200.9	58.2	76.0	
G-093865	2,643,757	492,948	70	100.4	29.1	38.0	
G-094011	2,592,368	530,855	139	199.4	57.8	75.5	
G-094585	2,661,238	497,690	80	114.8	33.3	43.5	
G-096581	2,610,644	508,919	65	0.0	0.0	0.0	ARDC Well #IR21, no longer in use
G-096582	2,604,932	506,494	55	135.0	39.1	51.1	ARDC Well #IR18 (avg. 2005-2016), acres increased
G-096584	2,609,434	507,530	130	198.8	57.6	75.3	ARDC Well #IR20 (avg. 2000-2016)
G-096587 (#23)	2,608,701	496,990	0	0.0	0.0	0.0	ARDC "Municipal" Well #23, no longer in use
G-096588 (#9)	2,613,352	510,409	0	46.4	42.0	47.0	ARDC "Municipal" Well #9, avg. 2007-16
G-096589	2,625,333	502,770	100	57.9	16.8	21.9	ARDC Well #IR15 (avg. 2005-2016)
G-096627	2,656,449	521,093	60	86.1	25.0	32.6	
G-096904	2,627,279	521,405	121	173.6	50.3	65.7	
G-096933	2,608,645	520,267	180	258.3	74.9	97.8	
G-097207	2,590,160	524,592	35	50.2	14.6	19.0	
G-098758	2,655,591	474,984	135	193.7	56.2	73.3	
G-101198	2,656,877	509,493	100	143.5	41.6	54.3	
G-104278	2,645,496	529,372	139	199.4	57.8	75.5	
G-105704	2,657,890	475,255	50	71.7	20.8	27.2	
G-105753	2,635,263	521,766	240	344.3	99.9	130.4	
G-105797	2,635,926	503,312	130	186.5	54.1	70.6	Same field as G-014821

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-105800	2,609,646	504,886	130	234.6	68.0	88.8	ARDC Well #26 (avg. 2001-2016)
G-105801	2,617,260	504,910	130	190.3	55.2	72.0	ARDC Well #28 (avg. 2001-2016)
G-105802	2,622,698	505,266	0	184.3	53.4	69.8	ARDC Well #29 (avg. 2001-2016)
G-107321	2,653,492	525,227	110	157.8	45.8	59.8	
G-108180	2,644,478	531,589	10	14.3	4.2	5.4	
G-108647	2,644,241	530,762	85	122.0	35.4	46.2	Same field as G-056849
G-109287	2,634,769	518,457	40	57.4	16.6	21.7	
G-109425	2,657,086	488,362	65	93.3	27.0	35.3	Inactive well G-157943 installed in same field
G-109448	2,608,896	525,846	235	0.0	0.0	0.0	Replaced by G-176297 in 2013, decommissioned 2015
G-109619	2,644,164	481,003	26	37.3	10.8	14.1	
G-110360	2,647,294	485,182	100	143.5	41.6	54.3	
G-112438	2,598,034	520,501	134	192.3	55.8	72.8	Same field as G-008876
G-113392	2,646,506	503,668	86	123.4	35.8	46.7	Same field as G-051424
G-113882	2,646,412	469,263	85	122.0	35.4	46.2	
G-114521	2,633,117	511,057	133	190.8	55.3	72.2	
G-116108	2,662,287	491,290	90	129.1	37.4	48.9	Same field as G-000744
G-116504	2,645,742	483,954	90	129.1	37.4	48.9	
G-118340	2,606,423	512,824	85	0.0	0.0	0.0	Replacement for G-065683, but inactive
G-127035	2,637,377	474,791	87	124.8	36.2	47.3	
G-127071	2,644,837	468,167	128	183.7	53.3	69.5	
G-127133	2,627,701	513,550	160	229.6	66.6	86.9	Replacement for G-062094
G-127250	2,598,198	528,264	119	170.7	49.5	64.6	Replacement registered inactive, but assumed active

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
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Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-127321	2,600,659	518,630	280	401.7	116.5	152.1	Replacement well inactive
G-127545	2,629,647	465,911	65	93.3	27.0	35.3	
G-128997	2,598,240	514,883	75	107.6	31.2	40.7	
G-129063	2,625,217	508,043	207	297.0	86.1	112.4	
G-130797	2,637,989	519,189	91	130.6	37.9	49.4	
G-131085	2,611,774	512,551	177	254.0	73.6	96.1	
G-132237	2,639,705	477,241	100	143.5	41.6	54.3	
G-133366	2,630,281	512,176	110	157.8	45.8	59.8	
G-134121	2,636,514	489,934	150	215.2	62.4	81.5	
G-134176	2,633,256	487,186	88	126.3	36.6	47.8	
G-135522	2,611,295	500,037	75	85.4	24.8	32.3	ARDC Well #30 (avg. 2006-2016)
G-135542	2,630,749	515,071	80	114.8	33.3	43.5	
G-135543	2,629,812	516,267	8	11.5	3.3	4.3	
G-135895	2,646,658	498,321	65	93.3	27.0	35.3	
G-136000	2,635,451	516,594	68	97.6	28.3	36.9	
G-136149	2,618,921	481,253	89	127.7	37.0	48.3	
G-136150	2,626,510	473,638	260	373.0	108.2	141.2	
G-136318	2,618,041	489,262	140	200.9	58.2	76.0	
G-136326	2,594,335	492,568	53	76.0	22.1	28.8	
G-136327	2,595,684	493,756	52	74.6	21.6	28.2	
G-136409	2,636,620	495,063	90	129.1	37.4	48.9	
G-136423	2,624,914	510,699	108	155.0	44.9	58.7	
G-136517	2,631,078	514,892	80	114.8	33.3	43.5	

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-136617	2,635,063	511,788	49	70.3	20.4	26.6	
G-137529	2,633,043	512,445	140	200.9	58.2	76.0	
G-137912	2,653,212	530,397	78	111.9	32.5	42.4	
G-138821	2,614,144	520,835	100	143.5	41.6	54.3	
G-138924	2,639,999	502,121	205	294.1	85.3	111.4	
G-139140	2,632,728	517,635	132	189.4	54.9	71.7	Same field as G-078377
G-139933	2,610,561	479,696	155	222.4	64.5	84.2	
G-140041	2,627,158	524,011	122	175.0	50.8	66.3	
G-140862	2,611,211	530,658	3	4.3	1.2	1.6	Same field as G-037636
G-140863	2,619,403	521,056	52	74.6	21.6	28.2	
G-144326	2,638,335	499,295	67	96.1	27.9	36.4	
G-146158	2,610,638	520,348	140	200.9	58.2	76.0	
G-146379	2,646,753	466,648	104	149.2	43.3	56.5	
G-146939	2,617,134	479,701	110	157.8	45.8	59.8	
G-149433	2,599,937	519,265	81	116.2	33.7	44.0	
G-151522	2,594,698	519,844	40	57.4	16.6	21.7	
G-152097	2,606,749	529,647	3	4.3	1.2	1.6	
G-152423	2,642,253	495,525	35	50.2	14.6	19.0	
G-152424	2,640,887	498,215	80	114.8	33.3	43.5	
G-152458	2,641,518	486,272	44	63.1	18.3	23.9	
G-155221	2,635,229	531,920	3	3.6	1.0	1.4	
G-156154	2,592,818	521,510	180	258.3	74.9	97.8	
G-157943	2,656,898	488,356	65	0.0	0.0	0.0	Same field as G-056515 and G-109425, but inactive

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-158669	2,594,609	530,204	64	91.4	26.5	34.6	
G-158706	2,665,518	488,233	153	219.5	63.7	83.1	
G-158991	2,658,583	484,225	134	192.3	55.8	72.8	
G-159854	2,614,653	507,652	123	118.8	34.5	45.0	ARDC Well #32 (avg. 2011-2016)
G-161181	2,608,084	491,426	77	110.5	32.0	41.8	
G-161182	2,607,451	491,498	77	110.5	32.0	41.8	
G-161915	2,653,688	481,545	70	100.4	29.1	38.0	Same field as G-055913 and G-061703
G-162095	2,631,823	508,025	68	97.6	28.3	36.9	
G-163023	2,621,624	497,756	24	3.5	1.0	1.3	ARDC Well #31 (avg. 2015-2016)
G-165856	2,660,063	493,707	65	93.3	27.0	35.3	
G-166421	2,658,656	525,425	49	70.6	20.5	26.7	
G-166429	2,641,953	501,772	40	57.4	16.6	21.7	
G-166430	2,641,886	500,782	40	57.4	16.6	21.7	
G-166653	2,623,376	476,517	100	143.5	41.6	54.3	
G-168354	2,645,942	514,180	110	157.8	45.8	59.8	
G-168439	2,645,744	516,936	93	133.4	38.7	50.5	
G-168513	2,656,084	524,556	60	86.1	25.0	32.6	
G-172243	2,649,393	527,670	65	93.3	27.0	35.3	
G-172828	2,643,685	506,560	144	206.6	59.9	78.2	
G-172955	2,607,995	523,075	40	57.4	16.6	21.7	Near G-035976, but different field
G-173266	2,656,016	525,265	65	93.3	27.0	35.3	Near G-168513, but different field
G-173267	2,651,743	526,301	45	64.6	18.7	24.4	Made G-017200 redundant
G-173724	2,663,909	475,977	80	114.8	33.3	43.5	

Table 2.21 (Continued)
Irrigation Well Estimated Pumping Rates
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Former Nebraska Ordnance Plant, Mead, Nebraska

NDNR Registration Code	Easting (ft NAD 83)	Northing (ft NAD 83)	Estimated Irrigated Area (acres)	Irrigation Rate Based on 2000-2016 ARDC Average of 7.00 Inches (gpm)	2015 Irrigation Rate Based on 2015 ARDC Rate of 2.05 Inches (gpm)	2016 Irrigation Rate Based on 2016 ARDC Rate of 2.65 Inches (gpm)	Comments
G-173725	2,658,254	469,699	50	71.3	20.7	27.0	
G-173727	2,643,662	508,821	115	165.0	47.8	62.5	
G-175926	2,638,025	517,852	200	287.0	83.2	108.6	
G-176297	2,608,953	525,848	173	248.2	72.0	94.0	Installed to replace G-109448, activated 2015
G-177249	2,629,922	492,282	130	194.5	56.4	73.6	Well installed 2015, activated in 2016
G-177837	2,621,870	492,076	130	186.5	54.1	70.6	
G-178486	2,657,637	496,196	70	104.7	30.4	39.7	Well installed 2015, activated in 2016
G-181885	2,624,350	529,140	126	181.0	52.5	68.5	Registerd in 2017
G-182259	2,606,242	515,409	140	201.0	58.3	76.1	Registered in 2017, made G-048312 redundant

Notes:

Refer to Table 2-20 for details regarding the estimation of irrigation rates.

Shading indicates ARDC water supply wells with non-irrigation season pumping rates.

Irrigation rates are based on the ratio of ARDC irrigation rates in 2015 (2.05 inches) and 2016 (2.65 inches) compared to the average from 2000-2016 (7.00 inches).

ARDC - Agricultural Research and Development Center

Avg. - average

NDNR = Department of Natural Resources

ft - feet

gpm - gallons per minute

NAD 83 - North American Datum of 1983

Table 2.22
Groundwater Use Statistics, Saunders County
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

	Public Supply	Domestic	Irrigation	Aquaculture	Industrial	Livestock	Total
Average Volume	43.52	1.29	96.86	0.6	0.09	0.87	143.23
Percent of Total	30.40%	0.90%	67.60%	0.40%	0.06%	0.60%	

Notes:

MGD = million gallons per day

Source: *Water Use in Nebraska, 2005* (USGS, 2005)

Table 3.1a
TCE and/or RDX in Monitoring Wells, 2014
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-20A	Deep	ND	ND	Second Quarter
MW-20B	Intermediate	ND	ND	Second Quarter
MW-20C	Shallow	ND	ND	Second Quarter
MW-35A	Intermediate	--	0.83	First Quarter
		ND	1.2	Third Quarter
MW-35B	Shallow	--	ND	First Quarter
		ND	0.13 J	Third Quarter
MW-35D	Deep	--	ND	First Quarter
		ND	ND	Third Quarter
MW-38A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-38D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-61A	Intermediate	ND	ND	Second Quarter
MW-61B	Shallow	ND	ND	Second Quarter
MW-61D	Deep	ND	ND	Second Quarter
MW-80A	Intermediate	ND	--	First Quarter
		ND	ND	Third Quarter
MW-80B	Shallow	ND	--	First Quarter
		ND	ND	Third Quarter
MW-80D	Deep	ND	--	First Quarter
		ND	ND	Third Quarter
MW-82A	Intermediate	ND	ND	Second Quarter
MW-82B	Shallow	ND	ND	Second Quarter
MW-82D	Deep	ND	ND	Second Quarter
MW-83A	Intermediate	ND	0.25 J	First Quarter
		--	0.20 J	Third Quarter
MW-83B	Shallow	ND	0.12 J	Second Quarter
		--	ND	Third Quarter
MW-83D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-84A	Intermediate	ND	0.27 J	First Quarter
		--	0.41	Third Quarter
MW-84B	Shallow	ND	ND	First Quarter
		--	ND	Third Quarter

Table 3.1a (Continued)
TCE and/or RDX in Monitoring Wells, 2014
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Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-84D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-85A	Intermediate	ND	0.69	First Quarter
		--	0.73	Third Quarter
MW-85B	Shallow	ND	1.2	First Quarter
		--	1.1	Third Quarter
MW-85D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-86A	Intermediate	ND	ND	Second Quarter
MW-86B	Shallow	ND	ND	Second Quarter
MW-86D	Deep	ND	0.94	Second Quarter
MW-88A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-89A	Intermediate	2.9	-	Second Quarter
MW-89B	Shallow	**47**	-	Second Quarter
MW-89D	Deep	1.6	-	Second Quarter
MW-89E	Intermediate	**1140**	0.63	Second Quarter
MW-90A	Intermediate	**520**	0.49	Second Quarter
		562	0.51	Fourth Quarter
MW-90B	Shallow	**111**	0.12 J	Second Quarter
		74	ND	Fourth Quarter
MW-90D	Deep	**305**	0.39	Second Quarter
		279	0.33 J	Fourth Quarter
MW-91A	Intermediate	ND	-	Second Quarter
		ND	-	Fourth Quarter
MW-91B	Shallow	ND	-	Second Quarter
		ND	-	Fourth Quarter
MW-91D	Deep	ND	-	Second Quarter
		ND	-	Fourth Quarter
MW-93A	Intermediate	ND	-	Second Quarter
MW-93B	Shallow	ND	-	Second Quarter
MW-95A	Intermediate	ND	ND	First Quarter
		--	0.25 J	Third Quarter
MW-95B	Shallow	ND	ND	First Quarter
		--	ND	Third Quarter
MW-95D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter

Table 3.1a (Continued)
TCE and/or RDX in Monitoring Wells, 2014
2017 Groundwater Model Update
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Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-96A	Intermediate	ND	ND	Second Quarter
MW-96B	Shallow	ND	ND	Second Quarter
MW-96D	Deep	ND	ND	Second Quarter
MW-97A	Intermediate	ND	ND	Second Quarter
MW-97B	Shallow	ND	ND	Second Quarter
MW-97D	Deep	ND	ND	Second Quarter
MW-98A	Intermediate	ND	ND	Second Quarter
MW-98B	Shallow	ND	ND	Second Quarter
MW-98D	Deep	ND	ND	Second Quarter
MW-99A	Intermediate	-	0.31 J	Second Quarter
MW-99B	Shallow	ND	1.4	Second Quarter
MW-99D	Deep	-	**3.1**	Second Quarter
MW-100A	Intermediate	ND	ND	Second Quarter
MW-100B	Shallow	ND	0.35	Second Quarter
MW-100D	Deep	ND	ND	Second Quarter
MW-101A	Intermediate	ND	ND	Second Quarter
MW-101B	Shallow	ND	ND	Second Quarter
MW-101D	Deep	ND	ND	Second Quarter
MW-102A	Intermediate	ND	--	Second Quarter
MW-102B	Shallow	ND	--	Second Quarter
MW-103A	Intermediate	ND	--	Second Quarter
MW-103B	Shallow	ND	--	Second Quarter
MW-103D	Deep	ND	--	Second Quarter
MW-105A	Intermediate	**24.2**	ND	Second Quarter
		24.9	ND	Fourth Quarter
MW-105B	Shallow	**23.5**	ND	Second Quarter
		22.2	ND	Fourth Quarter
MW-105O	Overburden	ND	ND	Second Quarter
		ND	ND	Fourth Quarter
MW-106A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-106B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter

Table 3.1a (Continued)
TCE and/or RDX in Monitoring Wells, 2014
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-110B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-112A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-112B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114B	Shallow	ND	0.15 J	First Quarter
		ND	ND	Third Quarter
MW-114D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115A	Intermediate	ND	0.39 J	First Quarter
		ND	ND	Third Quarter
MW-115B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-118A	Intermediate	ND	0.27 J	First Quarter
		--	0.40	Third Quarter
MW-118B	Shallow	ND	0.59	First Quarter
		--	0.70	Third Quarter
MW-129A	Intermediate	-	0.22 J	Second Quarter
MW-129B	Shallow	-	ND	Second Quarter
MW-129D	Deep	-	ND	Second Quarter

Table 3.1a (Continued)
TCE and/or RDX in Monitoring Wells, 2014
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-130A	Intermediate	-	1.3	Second Quarter
MW-130B	Shallow	-	0.66	Second Quarter
MW-130D	Deep	-	0.12 J	Second Quarter
MW-131A	Intermediate	-	**2.1**	Second Quarter
		-	**2.6**	Fourth Quarter
MW-131B	Shallow	-	0.58	Second Quarter
		-	0.87	Fourth Quarter
MW-131D	Deep	-	0.42	Second Quarter
		-	0.66	Fourth Quarter
MW-147A	Intermediate	ND	ND	First Quarter
		--	ND	Third Quarter
MW-147B	Shallow	ND	ND	First Quarter
		--	ND	Third Quarter
MW-147D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-158A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-158B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-158D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-172A	Intermediate	-	**2.3**	First Quarter
		-	**3.7**	Third Quarter
MW-172B	Shallow	-	1.5	First Quarter
		-	1.1	Third Quarter
MW-173A	Intermediate	-	**5.3**	First Quarter
		-	**6.0**	Third Quarter
MW-177A	Intermediate	ND	-	First Quarter
		ND	-	Third Quarter
MW-177B	Shallow	ND	-	First Quarter
		ND	-	Third Quarter
MW-179A	Intermediate	ND	-	First Quarter
		ND	-	Third Quarter
MW-179B	Shallow	ND	-	First Quarter
		ND	-	Third Quarter

Table 3.1a (Continued)
TCE and/or RDX in Monitoring Wells, 2014
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-180A	Intermediate	-	**46.6**	First Quarter
		-	**49.3**	Second Quarter
		-	**34.4**	Third Quarter
MW-180E	Intermediate	-	**29.6**	First Quarter
		-	**28.2**	Second Quarter
		-	**35.1**	Third Quarter

Notes:

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

-- Sample not taken

J = estimated

MW = monitoring well

ND = sample result below detection limit

Bold indicates concentration above Final Target Groundwater Cleanup Goal

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

TCE = trichloroethene

VOC = volatile organic compound

Table 3.1b
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-20A	Deep	--	ND	Second Quarter
MW-20B	Intermediate	--	ND	Second Quarter
MW-20C	Shallow	--	ND	Second Quarter
MW-35A	Intermediate	--	1.8 J	First Quarter
		--	1.6	Second Quarter
		--	1.6	Third Quarter
		--	1.8	Fourth Quarter
MW-35B	Shallow	--	ND	First Quarter
		--	ND	Third Quarter
MW-35D	Deep	--	ND	First Quarter
		--	ND	Third Quarter
MW-38A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-38D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-61A	Intermediate	ND	--	Second Quarter
MW-61B	Shallow	ND	--	Second Quarter
MW-61D	Deep	ND	--	Second Quarter
MW-80A	Intermediate	ND	--	First Quarter
		ND	--	Third Quarter
MW-80B	Shallow	ND	--	First Quarter
		ND	--	Third Quarter
MW-80D	Deep	ND	--	First Quarter
		ND	--	Third Quarter
MW-82A	Intermediate	--	ND	Second Quarter
MW-82B	Shallow	--	ND	Second Quarter
MW-82D	Deep	--	ND	Second Quarter
MW-83A	Intermediate	--	0.16J	First Quarter
		--	ND	Third Quarter
MW-83B	Shallow	--	0.16 J	First Quarter
		--	0.17 J	Third Quarter
MW-83D	Deep	--	ND	First Quarter
		--	ND	Third Quarter

Table 3.1b (Continued)
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-84A	Intermediate	--	0.45	First Quarter
		--	0.36 J	Third Quarter
MW-84B	Shallow	--	ND	First Quarter
		--	ND	Third Quarter
MW-84D	Deep	--	ND	First Quarter
		--	ND	Third Quarter
MW-85A	Intermediate	--	0.79	First Quarter
		--	0.70	Third Quarter
MW-85B	Shallow	--	0.90	First Quarter
		--	0.82	Third Quarter
MW-85D	Deep	--	ND	First Quarter
		--	ND	Third Quarter
MW-86A	Intermediate	--	ND	Second Quarter
MW-86B	Shallow	--	ND	Second Quarter
MW-86D	Deep	--	0.90	Second Quarter
MW-88A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-89A	Intermediate	**6.2**	--	Second Quarter
MW-89B	Shallow	**118**	--	Second Quarter
MW-89D	Deep	**5.5**	--	Second Quarter
MW-89E	Intermediate	**1110**	--	Second Quarter
MW-90A	Intermediate	**564**	0.69	Second Quarter
		622	0.67	Fourth Quarter
MW-90B	Shallow	**80**	0.14 J	Second Quarter
		60	ND	Fourth Quarter
MW-90D	Deep	**285**	0.25 J	Second Quarter
		257	0.33 J	Fourth Quarter
MW-91A	Intermediate	ND	--	Second Quarter
		ND	--	Fourth Quarter
MW-91B	Shallow	ND	--	Second Quarter
		ND	--	Fourth Quarter
MW-91D	Deep	ND	--	Second Quarter
		ND	--	Fourth Quarter
MW-93A	Intermediate	ND	--	Second Quarter
MW-93B	Shallow	ND	--	Second Quarter

Table 3.1b (Continued)
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-95A	Intermediate	--	0.27 J	First Quarter
		--	0.15 J	Third Quarter
MW-95B	Shallow	--	ND	First Quarter
		--	ND	Third Quarter
MW-95D	Deep	--	ND	First Quarter
		--	ND	Third Quarter
MW-96A	Intermediate	--	ND	Second Quarter
MW-96B	Shallow	--	ND	Second Quarter
MW-96D	Deep	--	ND	Second Quarter
MW-97A	Intermediate	--	ND	Second Quarter
MW-97B	Shallow	--	ND	Second Quarter
MW-97D	Deep	--	ND	Second Quarter
MW-98A	Intermediate	--	ND	Second Quarter
MW-98B	Shallow	--	ND	Second Quarter
MW-98D	Deep	--	ND	Second Quarter
MW-99A	Intermediate	--	0.36 J	Second Quarter
MW-99B	Shallow	--	0.88	Second Quarter
MW-99D	Deep	--	**3.0**	Second Quarter
MW-100A	Intermediate	--	ND	Second Quarter
MW-100B	Shallow	--	0.29J	Second Quarter
MW-100D	Deep	--	ND	Second Quarter
MW-101A	Intermediate	ND	--	Second Quarter
		ND	--	Second Quarter
MW-101B	Shallow	ND	--	Second Quarter
		ND	--	Second Quarter
MW-101D	Deep	ND	--	Second Quarter
		ND	--	Second Quarter
MW-102A	Intermediate	ND	--	Second Quarter
MW-102B	Shallow	ND	--	Second Quarter
MW-103A	Intermediate	ND	--	Second Quarter
MW-103B	Shallow	ND	--	Second Quarter
MW-103D	Deep	ND	--	Second Quarter
MW-105A	Intermediate	**22**	ND	Fourth Quarter
		26	ND	Second Quarter
MW-105B	Shallow	**22**	ND	Fourth Quarter
		23	ND	Second Quarter
MW-105O	Overburden	ND	ND	Fourth Quarter
		ND	ND	Second Quarter

Table 3.1b (Continued)
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-106A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-106B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-112A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-112B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter

Table 3.1b (Continued)
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-116A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-118A	Intermediate	--	0.34 J	First Quarter
		--	0.30 J	Third Quarter
MW-118B	Shallow	--	0.65 J	First Quarter
		--	0.61	Third Quarter
MW-129A	Intermediate	--	0.25 J	Second Quarter
MW-129B	Shallow	--	ND	Second Quarter
MW-129D	Deep	--	ND	Second Quarter
MW-130A	Intermediate	--	1.4 J	Second Quarter
MW-130B	Shallow	--	1.2	Second Quarter
MW-130D	Deep	--	0.15 J	Second Quarter
MW-131A	Intermediate	--	1.7	Second Quarter
		--	1.8	Fourth Quarter
MW-131B	Shallow	--	0.69	Second Quarter
		--	0.69 J	Fourth Quarter
MW-131D	Deep	--	0.69	Second Quarter
		--	0.71 J	Fourth Quarter
MW-147A	Intermediate	--	ND	First Quarter
		--	ND	Third Quarter
MW-147B	Shallow	--	ND	First Quarter
		--	ND	Third Quarter
MW-147D	Deep	--	ND	First Quarter
		--	ND	Third Quarter
MW-158A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-158B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-158D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter

Table 3.1b (Continued)
TCE and/or RDX in Monitoring Wells, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-172A	Intermediate	--	**2.9J**	First Quarter
		--	**3.0**	Third Quarter
MW-172B	Shallow	--	1.3 J	First Quarter
		--	1.4	Third Quarter
MW-173A	Intermediate	--	**5.8 J**	First Quarter
		--	**4.8 J**	Third Quarter
MW-177A	Intermediate	ND	--	First Quarter
		ND	--	Third Quarter
MW-177B	Shallow	ND	--	First Quarter
		ND	--	Third Quarter
MW-179A	Intermediate	ND	--	First Quarter
		ND	--	Third Quarter
MW-179B	Shallow	ND	--	First Quarter
		ND	--	Third Quarter
MW-180A	Intermediate	--	**3.6 J**	First Quarter
		--	**4.5**	Third Quarter
MW-180E	Intermediate	--	**36 J**	First Quarter
		--	**31**	Third Quarter

Notes:

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

Bold indicates concentration above Final Target Groundwater Cleanup Goal

-- 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 3.1c
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-20A	Deep	ND	ND	Second Quarter
MW-20B	Intermediate	ND	ND	Second Quarter
MW-20C	Shallow	ND	ND	Second Quarter
MW-35A	Intermediate	--	1.3	First Quarter
		--	1.3	Second Quarter
		ND	1.3	Third Quarter
		--	1.3	Fourth Quarter
MW-35B	Shallow	--	ND	First Quarter
		ND	ND	Third Quarter
MW-35D	Deep	--	0.28J	First Quarter
		ND	0.52	Third Quarter
MW-38A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-38D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-46D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-61A	Intermediate	ND	ND	Second Quarter
MW-61B	Shallow	ND	ND	Second Quarter
MW-61D	Deep	ND	ND	Second Quarter
MW-80A	Intermediate	ND	--	First Quarter
		ND	ND	Third Quarter
MW-80B	Shallow	ND	--	First Quarter
		ND	0.25J	Third Quarter
MW-80D	Deep	ND	--	First Quarter
		ND	ND	Third Quarter
MW-82A	Intermediate	ND	ND	Second Quarter
MW-82B	Shallow	ND	ND	Second Quarter
MW-82D	Deep	ND	ND	Second Quarter
MW-83A	Intermediate	ND	ND	First Quarter
		--	ND	Third Quarter
MW-83B	Shallow	ND	0.22J	First Quarter
		--	ND	Third Quarter
MW-83D	Deep	ND	ND	First Quarter
		--	0.30J	Third Quarter

Table 3.1c (Continued)
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-83E	Intermediate	ND	0.46	First Quarter
		--	0.40J	Second Quarter
		--	ND	Third Quarter
		--	0.42	Fourth Quarter
MW-84A	Intermediate	ND	0.43	First Quarter
		--	ND	Third Quarter
MW-84B	Shallow	ND	ND	First Quarter
		--	ND	Third Quarter
MW-84D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-85A	Intermediate	ND	0.70	First Quarter
		--	0.63	Third Quarter
MW-85B	Shallow	ND	0.68	First Quarter
		--	0.75	Third Quarter
MW-85D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-86A	Intermediate	ND	ND	Second Quarter
MW-86B	Shallow	ND	ND	Second Quarter
MW-86D	Deep	ND	0.89	Second Quarter
MW-88A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-88D	Deep	ND	ND	First Quarter
		ND	0.56	Third Quarter
MW-89A	Intermediate	**5.6**	--	Second Quarter
MW-89B	Shallow	**445**	--	Second Quarter
MW-89D	Deep	**7.0**	--	Second Quarter
MW-89E	Intermediate	**953**	0.62	Second Quarter
MW-90A	Intermediate	**782**	0.68	Second Quarter
		559	0.62	Fourth Quarter
MW-90B	Shallow	**32.5**	ND	Second Quarter
		31.9	ND	Fourth Quarter
MW-90D	Deep	**483**	0.41	Second Quarter
		464	0.57	Fourth Quarter
MW-91A	Intermediate	ND	--	Second Quarter
		ND	--	Fourth Quarter
MW-91B	Shallow	ND	--	Second Quarter
		ND	--	Fourth Quarter
MW-91D	Deep	ND	--	Second Quarter
		ND	--	Fourth Quarter

Table 3.1c (Continued)
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-93A	Intermediate	ND	--	Second Quarter
MW-93B	Shallow	ND	--	Second Quarter
MW-95A	Intermediate	ND	0.27J	First Quarter
		--	0.22J	Third Quarter
MW-95B	Shallow	ND	ND	First Quarter
		--	0.30J	Third Quarter
MW-95D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-96A	Intermediate	ND	ND	Second Quarter
MW-96B	Shallow	ND	ND	Second Quarter
MW-96D	Deep	ND	ND	Second Quarter
MW-97A	Intermediate	ND	ND	Second Quarter
MW-97B	Shallow	ND	ND	Second Quarter
MW-97D	Deep	ND	ND	Second Quarter
MW-98A	Intermediate	ND	ND	Second Quarter
MW-98B	Shallow	ND	ND	Second Quarter
MW-98D	Deep	ND	ND	Second Quarter
MW-99A	Intermediate	--	0.23J	Second Quarter
MW-99B	Shallow	--	0.61	Second Quarter
MW-99D	Deep	--	**2.0**	Second Quarter
MW-100A	Intermediate	ND	ND	Second Quarter
MW-100B	Shallow	0.67J	ND	Second Quarter
MW-100D	Deep	ND	ND	Second Quarter
MW-101A	Intermediate	ND	ND	Second Quarter
MW-101B	Shallow	ND	ND	Second Quarter
MW-101D	Deep	ND	ND	Second Quarter
MW-102A	Intermediate	ND	--	Second Quarter
MW-102B	Shallow	ND	--	Second Quarter
MW-103A	Intermediate	ND	--	Second Quarter
MW-103B	Shallow	ND	--	Second Quarter
MW-103D	Deep	ND	--	Second Quarter
MW-105A	Intermediate	**19.0**	ND	Fourth Quarter
		17.7	ND	Second Quarter
MW-105B	Shallow	**21.3**	ND	Fourth Quarter
		19.6	ND	Second Quarter
MW-105O	Overburden	0.65J	ND	Fourth Quarter
		ND	ND	Second Quarter
MW-106A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-106B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter

Table 3.1c (Continued)
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-107A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-107D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-110D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-112A	Intermediate	ND	ND	First Quarter
		ND	0.16J	Third Quarter
MW-112B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-113B	Shallow	ND	ND	First Quarter
		ND	0.90	Third Quarter
MW-113D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-114D	Deep	ND	ND	First Quarter
		ND	0.72	Third Quarter
MW-115A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-115D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-116D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter

Table 3.1c (Continued)
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-118A	Intermediate	ND	0.33J	First Quarter
		--	0.28J	Third Quarter
MW-118B	Shallow	ND	0.60	First Quarter
		--	0.58	Third Quarter
MW-129A	Intermediate	--	0.29J	Second Quarter
MW-129B	Shallow	--	0.15J	Second Quarter
MW-129D	Deep	--	ND	Second Quarter
MW-130A	Intermediate	--	1.3J	Second Quarter
MW-130B	Shallow	--	1.5	Second Quarter
MW-130D	Deep	--	0.14J	Second Quarter
MW-131A	Intermediate	--	**3.3**	Second Quarter
		--	1.1	Fourth Quarter
MW-131B	Shallow	--	0.97	Second Quarter
		--	0.65	Fourth Quarter
MW-131D	Deep	--	0.62	Second Quarter
		--	0.59	Fourth Quarter
MW-147A	Intermediate	ND	ND	First Quarter
		--	ND	Third Quarter
MW-147B	Shallow	ND	ND	First Quarter
		--	ND	Third Quarter
MW-147D	Deep	ND	ND	First Quarter
		--	ND	Third Quarter
MW-158A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-158B	Shallow	ND	ND	First Quarter
		ND	0.25J	Third Quarter
MW-158D	Deep	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159A	Intermediate	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-159B	Shallow	ND	ND	First Quarter
		ND	ND	Third Quarter
MW-172A	Intermediate	--	**2.9**	First Quarter
		--	**3.4**	Third Quarter
MW-172B	Shallow	--	1.5	First Quarter
		--	1.1	Third Quarter
MW-173A	Intermediate	--	**4.9**	First Quarter
		--	**4.4**	Third Quarter
MW-177A	Intermediate	ND	--	First Quarter
		ND	--	Third Quarter

Table 3.1c (Continued)
TCE and/or RDX in Monitoring Wells, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-177B	Shallow	ND	--	First Quarter
		ND	--	Third Quarter
MW-179A	Intermediate	ND	--	First Quarter
		ND	--	Third Quarter
MW-179B	Shallow	ND	--	First Quarter
		ND	--	Third Quarter
MW-180A	Intermediate	--	0.64	First Quarter
		--	**10.5**	Third Quarter
MW-180E	Intermediate	--	**32.8**	First Quarter
		--	**30.7**	Third Quarter

Notes:

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

Bold indicates concentration above Final Target Groundwater Cleanup Goal

-- 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 3.1d
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-02A	Intermediate	**72 J**	ND	Second Quarter
MW-02B	Shallow	**99**	**6.5**	Second Quarter
MW-03A	Intermediate	ND	0.8	Second Quarter
MW-03B	Shallow	ND	ND	Second Quarter
MW-04A	Intermediate	-	ND	First Quarter
MW-04B	Shallow	-	**2.07**	First Quarter
MW-08A	Intermediate	ND	ND	Second Quarter
MW-08B	Shallow	ND	0.37 J	Second Quarter
MW-09A	Intermediate	**20**	-	Second Quarter
MW-09B	Shallow	3.5	-	Second Quarter
MW-09D	Deep	**194**	-	Second Quarter
MW-18B	Intermediate	ND	ND	Second Quarter
MW-18C	Shallow	**5.4**	**5.5**	Second Quarter
MW-20A	Deep	-	ND	Second Quarter
MW-20B	Intermediate	-	ND	Second Quarter
MW-20C	Shallow	-	ND	Second Quarter
MW-20D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-20D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-20D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-21A	Intermediate	**23**	ND	Second Quarter
MW-21B	Shallow	**49**	**6.7 J**	Second Quarter
MW-21D	Deep	**73**	ND	Second Quarter
MW-24A	Intermediate	**716**	ND	Second Quarter
MW-24B	Shallow	**70**	**9.3**	Second Quarter
MW-25A	Intermediate	ND	ND	Second Quarter
MW-25B	Shallow	**4.6**	ND	Second Quarter
MW-28A	Intermediate	-	ND	Second Quarter
MW-28B	Shallow	-	0.40 J	Second Quarter
MW-28D	Deep	-	ND	Second Quarter
MW-29A	Intermediate	-	1.6	Second Quarter
MW-29B	Shallow	-	ND	Second Quarter
MW-32A	Intermediate	ND	**3.5 J**	Second Quarter
MW-32B	Shallow	ND	**2.1 J**	Second Quarter
MW-32D	Deep	ND	**6.3 J**	Second Quarter
MW-33A	Intermediate	ND	0.42 J	Second Quarter
MW-33B	Shallow	2.4	ND	Second Quarter
MW-33D	Deep	-	ND	Second Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-34A	Intermediate	-	ND	Second Quarter
MW-34B	Shallow	-	0.98	Second Quarter
MW-35A	Intermediate	-	1.07	First Quarter
		-	0.94	Second Quarter
MW-35B	Shallow	-	0.152J	First Quarter
MW-35D	Deep	-	0.889	First Quarter
MW-38A	Intermediate	ND	ND	First Quarter
MW-38D	Deep	ND	ND	First Quarter
MW-40A	Intermediate	1.5 J	-	Second Quarter
MW-40B	Shallow	**14**	-	Second Quarter
MW-42A	Intermediate	**35**	1.8	Second Quarter
MW-42B	Shallow	ND	ND	Second Quarter
MW-42D	Deep	**75**	**2.7**	Second Quarter
MW-43A	Intermediate	**18**	ND	Second Quarter
MW-43B	Shallow	1.2	1.6	Second Quarter
MW-43D	Deep	**9.5**	ND	Second Quarter
MW-44A	Intermediate	**410**	ND	Second Quarter
MW-44B	Shallow	2.9	ND	Second Quarter
MW-44D	Deep	**11**	ND	Second Quarter
MW-46A	Intermediate	ND	ND	First Quarter
MW-46B	Shallow	ND	ND	First Quarter
MW-46D	Deep	ND	ND	First Quarter
MW-61A	Intermediate	ND	-	Second Quarter
MW-61B	Shallow	ND	-	Second Quarter
MW-61D	Deep	ND	-	Second Quarter
MW-61D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-61D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-61D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-65A	Intermediate	ND	ND	Second Quarter
MW-65B	Shallow	-	1.4 J	Second Quarter
MW-72A	Intermediate	1.8	-	Second Quarter
MW-72B	Shallow	**766 J**	-	Second Quarter
MW-78A	Intermediate	ND	-	Second Quarter
MW-78B	Shallow	**22**	-	Second Quarter
MW-80A	Intermediate	ND	-	First Quarter
MW-80B	Shallow	ND	-	First Quarter
MW-80D	Deep	ND	-	First Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-82A	Intermediate	-	ND	Second Quarter
MW-82B	Shallow	-	ND	Second Quarter
MW-82D	Deep	-	ND	Second Quarter
MW-82D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-82D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-82D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-83A	Intermediate	-	ND	First Quarter
MW-83B	Shallow	-	ND	First Quarter
MW-83D	Deep	-	ND	First Quarter
MW-83E	Intermediate	-	0.33J	First Quarter
MW-84A	Intermediate	-	ND	First Quarter
MW-84B	Shallow	-	ND	First Quarter
MW-84D	Deep	-	ND	First Quarter
MW-85A	Intermediate	-	ND	First Quarter
MW-85B	Shallow	-	ND	First Quarter
MW-85D	Deep	-	ND	First Quarter
MW-86A	Intermediate	-	ND	Second Quarter
MW-86B	Shallow	-	ND	Second Quarter
MW-86D	Deep	-	0.61	Second Quarter
MW-86D1	Deep	ND	0.689	First Quarter
		ND	0.66	Second Quarter
MW-86D2	Deep	ND	0.308J	First Quarter
		ND	0.29 J	Second Quarter
MW-86D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-88A	Intermediate	ND	ND	First Quarter
MW-88B	Shallow	ND	ND	First Quarter
MW-88D	Deep	ND	ND	First Quarter
MW-88D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-88D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-88D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-89A	Intermediate	**7.7**	-	Second Quarter
MW-89B	Shallow	**305**	-	Second Quarter
MW-89D	Deep	**7.1**	-	Second Quarter
MW-89E	Intermediate	**1,050**	-	Second Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-90A	Intermediate	**559**	0.67 J	Second Quarter
MW-90B	Shallow	**35**	ND	Second Quarter
MW-90D	Deep	**502**	0.49 J	Second Quarter
MW-90D1	Deep	**762**	0.282J	First Quarter
MW-90D2	Deep	**35**	ND	First Quarter
MW-90D3	Deep	ND	ND	First Quarter
MW-91A	Intermediate	ND	-	Second Quarter
MW-91B	Shallow	ND	-	Second Quarter
MW-91D	Deep	ND	-	Second Quarter
MW-93A	Intermediate	ND	-	Second Quarter
MW-93B	Shallow	ND	-	Second Quarter
MW-95A	Intermediate	-	0.148J	First Quarter
MW-95B	Shallow	-	0.227J	First Quarter
MW-95D	Deep	-	ND	First Quarter
MW-96A	Intermediate	-	ND	Second Quarter
MW-96B	Shallow	-	ND	Second Quarter
MW-96D	Deep	-	ND	Second Quarter
MW-96D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-96D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-96D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-97A	Intermediate	-	ND	Second Quarter
MW-97B	Shallow	-	ND	Second Quarter
MW-97D	Deep	-	ND	Second Quarter
MW-97D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-97D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-97D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-98A	Intermediate	-	ND	Second Quarter
MW-98B	Shallow	-	ND	Second Quarter
MW-98D	Deep	-	ND	Second Quarter
MW-98D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-98D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-98D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-99A	Intermediate	-	0.27 J	Second Quarter
MW-99B	Shallow	-	0.43 J	Second Quarter
MW-99D	Deep	-	1.7	Second Quarter
MW-100A	Intermediate	ND	ND	Second Quarter
MW-100B	Shallow	ND	ND	Second Quarter
MW-100D	Deep	ND	ND	Second Quarter
MW-100D1	Deep	ND	0.221J	First Quarter
		ND	0.21 J	Second Quarter
MW-100D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-100D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-101A	Intermediate	ND	-	Second Quarter
MW-101B	Shallow	ND	-	Second Quarter
MW-101D	Deep	ND	-	Second Quarter
MW-101D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-101D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-101D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-102A	Intermediate	ND	-	Second Quarter
MW-102B	Shallow	ND	-	Second Quarter
MW-103A	Intermediate	ND	-	Second Quarter
MW-103B	Shallow	ND	-	Second Quarter
MW-103D	Deep	0.67 UJ	-	Second Quarter
MW-104A	Intermediate	**676**	0.35 J	Second Quarter
MW-104B	Shallow	**621**	0.17 J	Second Quarter
MW-104D	Deep	ND	ND	Second Quarter
MW-104O	Shallow	0.49 J	ND	Second Quarter
MW-105A	Intermediate	**12**	ND	Second Quarter
MW-105B	Shallow	**12**	ND	Second Quarter
MW-105O	Overburnden	ND	ND	Second Quarter
MW-106A	Intermediate	ND	ND	First Quarter
MW-106B	Shallow	ND	ND	First Quarter
MW-107A	Intermediate	ND	ND	First Quarter
MW-107B	Shallow	ND	ND	First Quarter
MW-107D	Deep	ND	ND	First Quarter
MW-107D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-107D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-107D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-109A	Intermediate	**12**	**2.9**	Second Quarter
MW-109B	Shallow	**12**	**2.4 J**	Second Quarter
MW-11	Intermediate	-	**2.9**	Second Quarter
MW-110A	Intermediate	ND	ND	First Quarter
MW-110B	Shallow	ND	ND	First Quarter
MW-110D	Deep	ND	ND	First Quarter
MW-111A	Intermediate	**8.8**	0.14 J	Second Quarter
MW-111B	Shallow	**10**	ND	Second Quarter
MW-112A	Intermediate	ND	ND	First Quarter
MW-112B	Shallow	ND	ND	First Quarter
MW-112D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-112D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-112D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-113A	Intermediate	ND	ND	First Quarter
MW-113B	Shallow	ND	ND	First Quarter
MW-113D	Deep	ND	ND	First Quarter
MW-114A	Intermediate	ND	ND	First Quarter
MW-114B	Shallow	ND	ND	First Quarter
MW-114D	Deep	ND	ND	First Quarter
MW-115A	Intermediate	ND	ND	First Quarter
MW-115B	Shallow	ND	ND	First Quarter
MW-115D	Deep	ND	ND	First Quarter
MW-116A	Intermediate	ND	ND	First Quarter
MW-116B	Shallow	ND	ND	First Quarter
MW-116D	Deep	ND	ND	First Quarter
MW-118A	Intermediate	-	ND	First Quarter
MW-118B	Shallow	-	ND	First Quarter
MW-119A	Intermediate	ND	ND	First Quarter
MW-119B	Shallow	ND	ND	First Quarter
MW-120A	Intermediate	**57**	ND	First Quarter
MW-120B	Shallow	**2,180**	**6.06**	First Quarter
MW-120D	Deep	ND	ND	First Quarter
MW-120E	Intermediate	**9,870**	**6.3**	First Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-121A	Intermediate	1.66	ND	First Quarter
MW-121B	Shallow	ND	ND	First Quarter
MW-121E	Intermediate	2.4	ND	First Quarter
MW-122A	Intermediate	**184**	ND	First Quarter
MW-122B	Shallow	**155**	0.198J	First Quarter
MW-123A	Intermediate	1.04	ND	First Quarter
MW-123B	Shallow	0.97J	ND	First Quarter
MW-124A	Intermediate	**6,210**	**2.7 J**	Second Quarter
MW-124B	Shallow	**5,240**	**11.7 J**	Second Quarter
MW-124D	Deep	**90**	ND	Second Quarter
MW-125A	Intermediate	**5.8**	ND	Second Quarter
MW-125B	Shallow	**44.9 J**	ND	Second Quarter
MW-125D	Deep	**4,120 J**	**12.2 J**	Second Quarter
MW-126A	Intermediate	**2,040**	ND	Second Quarter
MW-126B	Shallow	**8,330**	**18 J**	Second Quarter
MW-126D	Deep	**130**	ND	Second Quarter
MW-127A	Intermediate	1.2 J	ND	Second Quarter
MW-127B	Shallow	**44.0 J**	0.17 J	Second Quarter
MW-127E	Intermediate	**22.1 J**	0.40 J	Second Quarter
MW-128A	Intermediate	-	ND	Second Quarter
MW-128B	Shallow	-	0	Second Quarter
MW-129A	Intermediate	-	0.25 J	Second Quarter
MW-129B	Shallow	-	0.17 J	Second Quarter
MW-129D	Deep	-	ND	Second Quarter
MW-130A	Intermediate	-	1.2	Second Quarter
MW-130B	Shallow	-	**2.4**	Second Quarter
MW-130D	Deep	-	ND	Second Quarter
MW-131A	Intermediate	-	1.1	Second Quarter
MW-131B	Shallow	-	0.87	Second Quarter
MW-131D	Deep	-	0.50	Second Quarter
MW-133A	Intermediate	**10**	-	First Quarter
MW-133B	Shallow	**83**	-	First Quarter
MW-133D	Deep	**18**	-	First Quarter
MW-134A	Intermediate	**19**	-	First Quarter
MW-134B	Shallow	**149**	-	First Quarter
MW-134D	Deep	**107**	-	First Quarter
MW-135A	Intermediate	**65**	-	First Quarter
MW-135B	Shallow	**91**	-	First Quarter
MW-135D	Deep	**312**	-	First Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-136A	Intermediate	2	-	Second Quarter
MW-136B	Shallow	**6**	-	Second Quarter
MW-136D	Deep	**93**	-	Second Quarter
MW-136E	Shallow	**9**	-	Second Quarter
MW-137A	Intermediate	0.97 J	-	Second Quarter
MW-137B	Shallow	**693**	-	Second Quarter
MW-137E	Intermediate	45	-	Second Quarter
MW-138A	Intermediate	0.69 J	-	Second Quarter
MW-138B	Shallow	**528 J**	-	Second Quarter
MW-139A	Intermediate	0.67 UJ	-	Second Quarter
MW-139B	Shallow	**51 J**	-	Second Quarter
MW-140A	Intermediate	1	-	Second Quarter
MW-140B	Shallow	0.59 J	-	Second Quarter
MW-140D	Deep	ND	-	Second Quarter
MW-140O	Shallow	ND	-	Second Quarter
MW-141A	Intermediate	**5,780 J**	ND	Second Quarter
MW-141B	Shallow	**784 J**	**87.2 J**	Second Quarter
MW-141E	Intermediate	**3,280 J**	**13.8 J**	Second Quarter
MW-142A	Intermediate	**1,310**	1	Second Quarter
MW-142E	Shallow	**88**	0.38 J	Second Quarter
MW-143B	Shallow	-	**16**	Second Quarter
MW-144A	Intermediate	-	**43**	Second Quarter
MW-144E	Intermediate	-	**75**	Second Quarter
MW-145A	Intermediate	-	0.58 J	Second Quarter
MW-145B	Shallow	-	**49.4 J**	Second Quarter
MW-145E	Intermediate	-	**66.1 J**	Second Quarter
MW-146A	Intermediate	-	ND	Second Quarter
MW-146B	Shallow	-	ND	Second Quarter
MW-147A	Intermediate	-	ND	First Quarter
MW-147B	Shallow	-	ND	First Quarter
MW-147D	Deep	-	ND	First Quarter
MW-148A	Intermediate	-	**2.83**	First Quarter
MW-148B	Shallow	ND	**10.3**	First Quarter
MW-149A	Intermediate	ND	**19.7**	Second Quarter
MW-150A	Intermediate	ND	**2.3**	Second Quarter
MW-150B	Shallow	0.67 UJ	**6.4**	Second Quarter
MW-151A	Intermediate	**36**	ND	Second Quarter
MW-151B	Shallow	**528**	ND	Second Quarter
MW-152B	Shallow	**24**	**4.3**	Second Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-153A	Intermediate	**434**	ND	Second Quarter
MW-153B	Shallow	**390**	ND	Second Quarter
MW-154A	Intermediate	**22**	**2.4 J**	Second Quarter
MW-154B	Shallow	**6.7**	0.89 J	Second Quarter
MW-155A	Intermediate	**393**	ND	Second Quarter
MW-155B	Shallow	**48**	ND	Second Quarter
MW-155E	Intermediate	**116**	0.20 J	Second Quarter
MW-156A	Intermediate	ND	ND	Second Quarter
MW-156B	Shallow	ND	ND	Second Quarter
MW-157A	Intermediate	**15**	1.0	Second Quarter
MW-157B	Shallow	3.1	ND	Second Quarter
MW-157D1	Deep	**117**	ND	First Quarter
MW-157D2	Deep	**44**	ND	First Quarter
MW-157D3	Deep	ND	ND	First Quarter
MW-158A	Intermediate	ND	ND	First Quarter
MW-158B	Shallow	ND	ND	First Quarter
MW-158D	Deep	ND	ND	First Quarter
MW-158D1	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-158D2	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-158D3	Deep	ND	ND	First Quarter
		ND	ND	Second Quarter
MW-159A	Intermediate	ND	ND	First Quarter
MW-159B	Shallow	ND	ND	First Quarter
MW-160A	Intermediate	**24**	0.32J	First Quarter
MW-160B	Shallow	**21**	0.167J	First Quarter
MW-161A	Intermediate	**5,160**	ND	First Quarter
MW-161B	Shallow	**4,550**	**6.04**	First Quarter
MW-162A	Intermediate	-	**52.4**	First Quarter
MW-163A	Intermediate	-	**9.17**	First Quarter
MW-164A	Intermediate	-	**82**	First Quarter
MW-165B	Shallow	-	**104**	First Quarter
MW-166A	Intermediate	-	**65.1**	First Quarter
MW-166B	Shallow	-	**10.2**	First Quarter
MW-167A	Intermediate	-	**23.8**	First Quarter
MW-167B	Shallow	-	**9.79**	First Quarter
MW-168A	Intermediate	-	**3.17**	First Quarter
MW-168B	Shallow	-	0.551	First Quarter
MW-169A	Intermediate	-	0.811	First Quarter
MW-169B	Shallow	-	1.84	First Quarter

Table 3.1d (Continued)
TCE and/or RDX in Monitoring Wells, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Location	Aquifer Designation	TCE Result	RDX Result	Quarter VOCs/ Explosives Sampled
MW-170A	Intermediate	-	**4.15**	First Quarter
MW-171A	Intermediate	-	**22.1**	First Quarter
MW-171B	Shallow	-	**59.9**	First Quarter
MW-172A	Intermediate	-	ND	First Quarter
MW-172B	Shallow	-	ND	First Quarter
MW-173A	Intermediate	-	**3.71**	First Quarter
MW-174A	Intermediate	-	0.715	First Quarter
MW-174B	Shallow	-	0.875	First Quarter
MW-175A	Intermediate	ND	**5.53**	First Quarter
MW-175B	Shallow	ND	1.24	First Quarter
MW-176A	Intermediate	**365**	ND	First Quarter
MW-176B	Shallow	**120**	ND	First Quarter
MW-177A	Intermediate	ND	-	First Quarter
MW-177B	Shallow	ND	-	First Quarter
MW-178B	Shallow	**22**	0.796	First Quarter
MW-179A	Intermediate	ND	-	First Quarter
MW-179B	Shallow	ND	-	First Quarter
MW-180A	Intermediate	-	0.741	First Quarter
MW-180D1	Deep	ND	ND	First Quarter
MW-180D2	Deep	ND	**98.8**	First Quarter
MW-180D3	Deep	ND	ND	First Quarter
MW-180E	Intermediate	-	**24.8**	First Quarter

Notes:

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

Bold indicates concentration above Final Target Groundwater Cleanup Goal

-- 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 5.1
Stress Periods
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	Elapsed Time (days)	Start	End
1	36	8/26/2014	9/30/2014
2	30	10/1/2014	10/30/2014
3	31	10/31/2014	11/30/2014
4	31	12/1/2014	12/31/2014
5	31	1/1/2015	1/31/2015
6	28	2/1/2015	2/28/2015
7	3	3/1/2015	3/3/2015
8	16	3/4/2015	3/19/2015
9	11	3/20/2015	3/30/2015
10	31	3/31/2015	4/30/2015
11	31	5/1/2015	5/31/2015
12	30	6/1/2015	6/30/2015
13	31	7/1/2015	7/31/2015
14	31	8/1/2015	8/31/2015
15	30	9/1/2015	9/30/2015
16	26	10/1/2015	10/26/2015
17	3	10/27/2015	10/29/2015
18	32	10/30/2015	11/30/2015
19	31	12/1/2015	12/31/2015
20	31	1/1/2016	1/31/2016
21	29	2/1/2016	2/29/2016
22	28	3/1/2016	3/28/2016
23	33	3/29/2016	4/30/2016
24	31	5/1/2016	5/31/2016
25	30	6/1/2016	6/30/2016
26	31	7/1/2016	7/31/2016
27	25	8/1/2016	8/25/2016
28	18	8/26/2016	9/12/2016
29	24	9/13/2016	10/6/2016
30	25	10/7/2016	10/31/2016
31	10	11/1/2016	11/10/2016
32	20	11/11/2016	11/30/2016
33	31	12/1/2016	12/31/2016
34	31	1/1/2017	1/31/2017
35	28	2/1/2017	2/28/2017
36	31	3/1/2017	3/31/2017
37	30	4/1/2017	4/30/2017
38	31	5/1/2017	5/31/2017

Table 5.2
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
MW-02A	2,606,800.10	506,250.32	1133.29	1133.77	1132.44	1133.39	0.85	0.38
MW-03A	2,607,532.26	506,223.42	1132.39	1132.76	1131.81	1132.75	0.58	0.01
MW-04A	2,612,041.94	506,256.77	1130.27	1130.88	1129.28	1130.48	0.99	0.40
MW-05A	2,613,044.09	507,097.63	1131.20	1132.10	1130.57	1131.89	0.63	0.21
MW-07A	2,618,267.10	507,274.83	NM	NM	NA	NA	NA	NA
MW-08A	2,622,863.97	506,814.76	1114.89	1115.16	1116.46	1118.25	-1.57	-3.09
MW-09A	2,623,570.81	507,435.84	1115.10	1113.43	1116.68	1118.45	-1.58	-5.02
MW-10A	2,607,883.83	496,858.27	1108.74	1109.89	1109.06	1110.35	-0.32	-0.46
MW-11	2,626,486.32	509,499.80	1119.01	1120.81	1122.10	1122.71	-3.09	-1.90
MW-17B	2,603,293.03	499,101.48	1119.53	1120.43	1121.34	1122.52	-1.81	-2.09
MW-18B	2,629,156.57	506,827.46	1099.92	1100.78	1099.86	1101.39	0.06	-0.61
MW-19B	2,618,429.63	517,576.97	1144.86	1145.05	1143.34	1144.02	1.52	1.03
MW-20B	2,616,633.43	493,191.47	1098.90	1099.69	1098.88	1099.86	0.02	-0.17
MW-21A	2,607,121.37	503,524.81	1127.57	1128.14	1126.83	1128.10	0.74	0.04
MW-24A	2,608,476.90	501,919.83	1120.73	1120.94	1120.58	1122.06	0.15	-1.12
MW-25A	2,608,308.41	504,875.16	1129.00	1129.31	1128.57	1129.60	0.43	-0.29
MW-27B	2,611,427.01	508,110.55	1135.90	NM	1134.75	NA	1.15	NA
MW-28A	2,612,951.02	502,242.71	1119.00	NM	1119.03	NA	-0.03	NA
MW-29A	2,614,469.84	498,383.11	1108.05	1108.60	1107.96	1109.12	0.09	-0.52
MW-29B	2,614,460.98	498,382.37	1108.11	1108.63	1107.96	1109.13	0.15	-0.50
MW-31A	2,617,943.95	503,233.70	1116.25	1116.67	1116.57	1118.11	-0.32	-1.44
MW-32A	2,619,697.25	499,062.26	1103.35	1103.81	1101.54	1102.88	1.81	0.93
MW-33A	2,622,410.84	502,847.91	1105.77	1106.17	1106.03	1107.59	-0.26	-1.42
MW-34A	2,624,442.78	498,806.30	1095.15	1095.46	1093.93	1095.13	1.22	0.33
MW-35A	2,629,595.76	496,323.64	1086.02	1086.69	1085.43	1086.38	0.59	0.31
MW-38A	2,638,131.88	496,248.57	1075.95	1076.64	1074.95	1075.58	1.00	1.06
MW-40A	2,623,018.62	511,963.35	1126.59	1127.32	1126.79	1128.04	-0.20	-0.72
MW-42A	2,629,385.20	501,582.56	1092.41	1093.32	1089.69	1090.57	2.72	2.75
MW-43A	2,629,243.07	504,317.91	1095.66	1096.57	1092.85	1093.86	2.81	2.71
MW-44A	2,632,953.68	500,415.12	1083.75	1084.29	1081.48	1081.80	2.27	2.49
MW-44B	2,632,954.90	500,426.32	1083.76	1085.09	1081.47	1081.79	2.29	3.30
MW-46A	2,637,464.94	499,387.37	1078.51	1078.91	1077.23	1077.59	1.28	1.32
MW-46B	2,637,464.42	499,396.68	1078.54	1078.94	1077.23	1077.59	1.31	1.35
MW-53B	2,627,885.40	508,166.61	1107.54	1108.93	1109.97	1111.64	-2.43	-2.71
MW-56A	2,628,206.01	508,215.32	1105.73	1106.74	1108.88	1110.52	-3.15	-3.78
MW-56B	2,628,195.32	508,217.29	1107.01	1108.53	1108.87	1110.52	-1.86	-1.99
MW-57B	2,607,621.51	516,363.44	1156.16	1155.64	1150.58	1151.33	5.58	4.31
MW-60A	2,624,702.83	489,585.15	1089.31	1090.18	1089.36	1090.51	-0.05	-0.33

Table 5.2 (Continued)
March and August 2015 Calibration Residuals
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Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
MW-61A	2,608,656.02	492,900.05	1101.51	1103.22	1101.55	1102.10	-0.04	1.12
MW-65A	2,613,203.05	506,090.52	1128.91	1129.67	1128.02	1129.40	0.89	0.27
MW-66B	2,613,268.32	506,027.61	1127.75	1124.59	1127.79	1129.18	-0.04	-4.59
MW-72A	2,622,930.98	512,064.69	1126.11	1126.91	1127.14	1128.40	-1.03	-1.49
MW-73A	2,623,060.93	511,909.15	1125.75	1126.43	1126.49	1127.75	-0.74	-1.32
MW-73B	2,623,052.30	511,908.70	1125.72	1126.41	1126.50	1127.75	-0.78	-1.34
MW-78A	2,623,223.84	512,032.75	1125.89	1126.60	1126.62	1127.84	-0.73	-1.24
MW-80A	2,610,925.54	492,067.12	1098.70	1100.37	1098.22	1098.59	0.48	1.78
MW-80B	2,610,916.24	492,064.59	1098.71	1100.32	1098.22	1098.59	0.49	1.73
MW-82A	2,619,288.65	493,318.05	1097.04	1097.83	1096.25	1097.34	0.79	0.49
MW-83A	2,621,924.08	495,274.66	1094.49	1095.00	1093.60	1094.95	0.89	0.05
MW-83B	2,621,921.79	495,302.77	1094.55	1095.10	1093.59	1094.94	0.96	0.16
MW-84A	2,624,277.77	495,685.51	1092.83	1093.54	1092.38	1093.71	0.45	-0.17
MW-84B	2,624,272.04	495,712.90	1093.12	1094.02	1092.41	1093.74	0.71	0.28
MW-85A	2,628,326.53	494,439.02	1086.93	1087.63	1086.15	1087.21	0.78	0.42
MW-86A	2,631,939.21	493,759.74	1081.02	1081.53	1079.71	1080.62	1.31	0.91
MW-88A	2,637,643.92	494,045.13	1075.97	1075.81	1073.68	1074.55	2.29	1.26
MW-89A	2,610,430.84	494,253.88	1102.56	1103.87	1101.49	1102.36	1.07	1.51
MW-90A	2,611,235.54	494,302.04	1103.06	1104.16	1100.74	1101.57	2.32	2.59
MW-91A	2,612,076.97	494,323.00	1102.65	1103.65	1101.24	1102.06	1.41	1.59
MW-93A	2,612,162.89	493,551.29	1100.45	1101.94	1099.21	1099.98	1.24	1.96
MW-94A	2,617,023.16	496,428.72	1102.75	1102.88	1102.06	1103.24	0.69	-0.36
MW-95A	2,617,552.81	494,508.64	1100.34	1100.89	1099.25	1100.34	1.09	0.55
MW-95B	2,617,546.97	494,508.01	1100.36	1100.91	1099.25	1100.35	1.11	0.56
MW-96A	2,621,468.23	493,387.73	1094.49	1095.15	1094.03	1095.20	0.46	-0.05
MW-97A	2,623,938.04	493,492.83	1092.04	1092.91	1091.71	1092.94	0.33	-0.03
MW-97B	2,623,932.70	493,492.45	1092.07	1092.98	1091.71	1092.94	0.36	0.04
MW-98A	2,626,495.30	493,604.94	1089.50	1090.41	1088.80	1089.93	0.70	0.48
MW-99A	2,627,117.43	498,780.95	1091.44	1091.92	1090.22	1091.23	1.22	0.69
MW-99B	2,627,118.41	498,787.93	1091.43	1091.88	1090.22	1091.23	1.21	0.65
MW-100A	2,629,718.84	493,770.41	1084.87	1085.66	1083.69	1084.63	1.18	1.03
MW-101A	2,610,929.39	491,574.12	1098.49	1100.16	1098.39	1098.77	0.10	1.39
MW-102A	2,622,929.38	514,541.24	1132.19	1132.68	1132.92	1133.97	-0.73	-1.29
MW-103A	2,623,590.77	513,115.79	1127.92	1128.75	1128.76	1129.80	-0.84	-1.05
MW-104A	2,634,092.18	499,205.59	1079.16	1078.57	1078.34	1078.48	0.82	0.09
MW-104O	2,634,073.87	499,205.00	NM	1077.83	NA	1078.40	NA	-0.57
MW-106A	2,630,544.55	506,843.26	1097.82	1098.62	1094.60	1095.83	3.22	2.79
MW-106B	2,630,539.26	506,844.10	1097.95	1099.01	1094.61	1095.84	3.34	3.17

Table 5.2 (Continued)
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
MW-107A	2,631,375.72	506,138.76	1094.34	1095.11	1091.16	1092.27	3.18	2.84
MW-107B	2,631,374.08	506,125.16	1093.66	1094.63	1091.16	1092.27	2.50	2.36
MW-109A	2,634,807.18	501,896.06	1083.29	1083.60	1081.52	1081.72	1.77	1.88
MW-109O	2,634,805.17	501,911.81	1080.07	1080.26	1080.96	1080.98	-0.89	-0.72
MW-110A	2,634,397.71	504,432.79	1087.19	1087.65	1085.57	1086.16	1.62	1.49
MW-111A	2,636,151.56	499,337.97	1078.48	1078.79	1077.48	1077.81	1.00	0.98
MW-111B	2,636,151.75	499,348.24	1078.52	NM	1077.48	NA	1.04	NA
MW-111O	2,636,152.14	499,356.67	1077.21	1076.95	1077.42	1077.90	-0.21	-0.95
MW-112A	2,637,365.72	501,825.77	1081.39	1081.72	1079.39	1079.64	2.00	2.08
MW-112B	2,637,365.30	501,832.67	1081.40	1081.73	1079.39	1079.64	2.01	2.09
MW-113A	2,637,420.11	500,472.22	1079.97	1080.16	1078.12	1078.42	1.85	1.74
MW-113B	2,637,419.51	500,477.68	1079.92	1080.16	1078.12	1078.42	1.80	1.74
MW-114A	2,637,470.60	497,206.93	1076.52	1077.05	1075.37	1075.92	1.15	1.13
MW-115A	2,637,702.52	495,346.88	1075.57	1076.30	1074.41	1075.13	1.16	1.17
MW-116A	2,636,335.80	495,297.60	1075.09	1075.66	1074.32	1074.89	0.77	0.77
MW-116B	2,636,331.54	495,297.24	1075.09	1075.67	1074.32	1074.89	0.77	0.78
MW-118A	2,625,890.45	496,207.70	1091.29	1091.79	1090.93	1092.14	0.36	-0.35
MW-119A	2,607,952.61	499,580.81	1114.02	1114.08	1114.48	1115.74	-0.46	-1.66
MW-120A	2,609,372.30	499,419.07	1112.85	1112.38	1113.13	1113.31	-0.28	-0.93
MW-120E	2,609,372.68	499,430.79	1112.87	1112.28	1113.13	1113.31	-0.26	-1.03
MW-121A	2,609,752.79	500,071.02	1114.86	1113.35	1114.24	1114.44	0.62	-1.09
MW-122A	2,609,240.41	498,101.34	1110.15	1110.75	1110.47	1111.94	-0.32	-1.19
MW-123A	2,608,677.91	499,909.07	1114.84	1112.84	1114.52	1114.59	0.32	-1.75
MW-124A	2,609,115.81	501,486.16	1118.23	1117.96	1118.62	1119.97	-0.39	-2.01
MW-124B	2,609,107.79	501,496.31	1118.20	1117.97	1118.62	1119.97	-0.42	-2.00
MW-125A	2,609,457.06	500,663.23	1116.07	1114.80	1115.86	1116.50	0.21	-1.70
MW-126A	2,607,483.63	504,504.82	1128.96	1123.35	1128.56	1129.69	0.40	-6.34
MW-127A	2,606,121.55	506,918.35	1134.88	NM	1134.07	NA	0.81	NA
MW-128A	2,624,836.13	498,190.80	1093.81	1094.39	1092.97	1094.16	0.84	0.23
MW-129A	2,627,766.39	496,542.43	1088.47	1088.94	1087.64	1088.63	0.83	0.31
MW-130A	2,629,053.38	496,650.27	1086.84	1087.43	1086.36	1087.30	0.48	0.13
MW-131A	2,626,341.54	496,939.83	1090.63	1091.19	1090.14	1091.20	0.49	-0.01
MW-131B	2,626,348.52	496,944.69	1090.57	1091.24	1090.14	1091.20	0.43	0.04
MW-133A	2,622,522.67	509,720.93	1119.21	1119.62	1120.86	1122.45	-1.65	-2.83
MW-133B	2,622,522.69	509,729.90	1119.32	1119.78	1120.86	1122.45	-1.54	-2.67
MW-134A	2,623,417.21	509,045.74	1117.86	1118.24	1119.43	1121.06	-1.57	-2.82
MW-134B	2,623,413.31	509,052.47	1117.88	1118.31	1119.57	1121.19	-1.69	-2.88
MW-135A	2,623,150.45	509,762.33	1118.41	1118.76	1120.28	1121.82	-1.87	-3.06
MW-135B	2,623,151.02	509,772.44	1118.28	1118.74	1120.29	1121.82	-2.01	-3.08

Table 5.2 (Continued)
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
MW-136A	2,623,054.23	510,561.26	1120.69	1121.28	1122.60	1124.04	-1.91	-2.76
MW-137A	2,622,837.54	511,702.36	1126.18	1126.95	1126.17	1127.50	0.01	-0.55
MW-138A	2,622,366.41	512,816.57	1129.49	1130.01	1129.61	1130.84	-0.12	-0.83
MW-139A	2,621,290.29	514,264.29	1132.87	1133.28	1134.35	1135.44	-1.48	-2.16
MW-140A	2,634,717.63	503,375.83	1085.63	NM	1083.88	NA	1.75	NA
MW-140O	2,634,717.20	503,393.26	1083.21	NM	1083.82	NA	-0.61	NA
MW-141A	2,608,446.60	502,590.64	1122.91	1123.21	1122.95	1124.37	-0.04	-1.16
MW-142A	2,610,572.95	495,594.89	1105.39	1106.20	1105.41	1106.39	-0.02	-0.19
MW-143B	2,621,339.98	502,719.77	1107.64	1108.01	1108.79	1110.37	-1.15	-2.36
MW-144A	2,614,012.25	503,570.97	1121.40	1121.90	1122.91	1124.53	-1.51	-2.63
MW-145A	2,617,407.83	500,652.84	1110.26	1110.70	1109.91	1111.20	0.35	-0.50
MW-146A	2,618,871.66	494,899.38	1098.18	1098.69	1097.56	1098.75	0.62	-0.06
MW-147A	2,620,042.45	494,474.75	1096.37	1096.86	1095.64	1096.77	0.73	0.09
MW-148B	2,620,179.92	504,425.78	1114.70	1115.09	1115.59	1117.32	-0.89	-2.23
MW-149A	2,622,398.38	502,086.76	1104.27	NM	1104.07	NA	0.20	NA
MW-150A	2,624,201.15	499,856.55	1097.11	1097.67	1095.53	1096.75	1.58	0.92
MW-151A	2,624,392.64	506,668.08	1111.47	1111.91	1113.86	1115.64	-2.39	-3.73
MW-152B	2,627,865.21	506,805.72	1103.98	1106.06	1104.03	1105.91	-0.05	0.15
MW-153A	2,627,200.19	504,130.22	1098.54	1099.41	1098.21	1099.57	0.33	-0.16
MW-154A	2,631,170.17	504,308.25	1092.11	1092.92	1089.67	1090.62	2.44	2.30
MW-154B	2,631,165.22	504,308.20	1092.57	1093.32	1089.67	1090.62	2.90	2.70
MW-155A	2,629,444.96	502,435.45	1093.00	1093.96	1090.71	1091.58	2.29	2.38
MW-156A	2,633,019.60	501,928.83	1086.94	1087.62	1084.08	1084.59	2.86	3.03
MW-156B	2,633,018.32	501,922.48	1087.38	1088.31	1084.08	1084.59	3.30	3.72
MW-157A	2,632,549.30	499,117.46	1082.93	1083.49	1081.56	1082.00	1.37	1.49
MW-158A	2,635,279.53	493,887.42	1074.28	1074.78	1073.84	1074.53	0.44	0.25
MW-158B	2,635,272.00	493,887.38	1074.28	1074.79	1073.84	1074.53	0.44	0.26
MW-159A	2,629,111.80	510,307.65	1111.48	1112.62	1110.50	1111.93	0.98	0.69
MW-160A	2,609,501.29	496,947.49	1104.19	1105.00	1107.96	1109.30	-3.77	-4.30
MW-160B	2,609,505.06	496,954.30	1104.13	1104.91	1108.06	1109.42	-3.93	-4.51
MW-161A	2,608,418.56	503,133.22	1121.32	1121.66	1124.41	1125.75	-3.09	-4.09
MW-161B	2,608,419.67	503,123.84	1121.69	1121.98	1124.41	1125.76	-2.72	-3.78
MW-166A	2,618,657.29	496,609.56	1098.16	1098.66	1099.44	1100.73	-1.28	-2.07
MW-166B	2,618,661.42	496,616.20	1098.36	1098.83	1099.44	1100.74	-1.08	-1.91
MW-167A	2,619,420.51	497,423.40	1098.38	1098.85	1099.05	1100.39	-0.67	-1.54
MW-167B	2,619,428.96	497,426.56	1098.17	1098.62	1099.05	1100.40	-0.88	-1.78
MW-168A	2,620,186.36	498,009.89	1097.50	1097.97	1098.76	1100.13	-1.26	-2.16
MW-168B	2,620,178.27	498,011.71	1097.10	1097.57	1098.76	1100.13	-1.66	-2.56

Table 5.2 (Continued)
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
MW-169A	2,619,932.75	495,501.60	1094.07	1094.49	1095.99	1097.13	-1.92	-2.64
MW-169B	2,619,942.57	495,502.95	1093.98	1094.42	1095.99	1097.13	-2.01	-2.71
MW-170A	2,621,225.19	496,442.89	1093.15	1093.33	1094.48	1095.86	-1.33	-2.53
MW-171A	2,615,668.94	501,881.31	1113.01	1113.31	1114.87	1116.36	-1.86	-3.05
MW-171B	2,615,662.16	501,881.10	1112.76	1113.07	1114.88	1116.39	-2.12	-3.32
MW-172A	2,625,763.50	497,428.55	1088.35	1088.67	1091.51	1092.65	-3.16	-3.98
MW-172B	2,625,755.51	497,431.53	1088.67	1089.00	1091.51	1092.65	-2.84	-3.65
MW-173A	2,627,008.04	497,957.67	1087.37	1087.88	1089.53	1090.49	-2.16	-2.61
MW-174A	2,622,869.28	497,380.64	1092.12	1092.88	1094.45	1095.80	-2.33	-2.92
MW-174B	2,622,865.16	497,375.02	1091.54	1092.32	1094.45	1095.81	-2.91	-3.49
MW-175A	2,622,690.12	501,101.54	1098.96	NM	1100.27	NA	-1.31	NA
MW-175B	2,622,680.35	501,098.07	1098.01	NM	1100.28	NA	-2.27	NA
MW-176A	2,632,839.14	499,810.44	1080.53	1081.02	1081.15	1081.48	-0.62	-0.46
MW-176B	2,632,839.67	499,818.35	1079.12	1079.67	1081.15	1081.48	-2.03	-1.81
MW-177A	2,609,971.19	492,953.37	1096.21	1097.98	1099.33	1099.84	-3.12	-1.86
MW-177B	2,609,974.65	492,954.44	1098.00	1099.73	1099.33	1099.86	-1.33	-0.13
MW-178B	2,628,870.63	506,851.75	1095.93	1096.82	1101.33	1102.97	-5.40	-6.15
MW-179A	2,611,664.67	493,135.13	1094.39	1096.36	1096.86	1097.47	-2.47	-1.11
MW-179B	2,611,658.78	493,134.48	1093.84	1096.11	1096.88	1097.51	-3.04	-1.40
MW-180A	2,621,006.62	495,570.71	1091.67	1092.08	1094.42	1095.66	-2.75	-3.58
MW-180E	2,621,013.00	495,571.85	1091.61	1092.04	1094.42	1095.66	-2.81	-3.62
OW-05	2,634,934.82	495,184.29	1070.74	1070.91	1072.28	1072.38	-1.54	-1.47
OW-06	2,634,884.33	495,208.11	1072.13	1072.36	1072.39	1072.48	-0.26	-0.12
OW-07	2,634,884.15	495,203.34	1072.80	1073.02	1072.39	1072.48	0.41	0.54
OW-08	2,634,786.34	495,194.19	1073.34	1073.57	1073.48	1073.62	-0.14	-0.05
OW-09	2,634,937.80	495,134.36	1072.48	1072.72	1072.87	1073.02	-0.39	-0.30
OW-12	2,636,332.13	495,279.48	1075.07	1075.60	1074.32	1074.89	0.75	0.71
OW-13	2,634,929.33	495,121.80	1072.59	1072.85	1072.87	1073.02	-0.28	-0.17
OW-14	2,634,937.07	494,987.77	1073.51	1073.52	1073.54	1073.76	-0.03	-0.24
OW-15	2,634,948.12	494,788.06	1073.81	1074.19	1073.87	1074.16	-0.06	0.03
OW-16	2,633,480.01	495,159.25	1076.42	1076.66	1076.37	1076.63	0.05	0.03
OW-18	2,608,114.43	499,884.02	1114.65	1114.31	1114.85	1115.85	-0.20	-1.54
OW-22	2,608,019.74	499,355.14	1113.77	1113.93	1114.09	1115.34	-0.32	-1.41
OW-23	2,607,158.35	499,656.44	1114.80	NM	1115.35	NA	-0.55	NA
OW-24	2,629,552.06	496,984.50	1086.75	1087.42	1085.86	1086.74	0.89	0.68
OW-25	2,629,511.42	496,932.08	1086.75	1087.61	1085.89	1086.78	0.86	0.83
OW-26	2,629,214.17	496,664.05	1087.17	1087.84	1086.10	1087.04	1.07	0.80
OW-27	2,629,582.05	496,942.21	1086.48	1087.22	1085.83	1086.71	0.65	0.51
OW-28	2,629,581.52	496,898.00	1086.37	1087.13	1085.79	1086.68	0.58	0.45

Table 5.2 (Continued)
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
OW-31	2,624,242.96	497,898.99	1095.03	1095.68	1093.58	1094.83	1.45	0.85
OW-32	2,624,139.95	497,845.07	1095.16	1095.69	1093.67	1094.93	1.49	0.76
OW-33	2,623,750.57	497,669.79	1095.12	1095.91	1093.94	1095.22	1.18	0.69
OW-34	2,624,320.18	497,868.57	1094.49	1095.19	1093.47	1094.71	1.02	0.48
OW-35	2,624,360.77	497,738.45	1094.72	1095.38	1093.35	1094.59	1.37	0.79
OW-36	2,624,413.00	497,337.59	1094.18	1094.95	1093.13	1094.39	1.05	0.56
OW-37	2,624,838.27	498,178.35	NM	1094.43	NA	1094.16	NA	0.27
OW-38	2,621,733.08	496,294.86	1091.43	1091.75	1091.61	1093.05	-0.18	-1.30
OW-39	2,621,620.02	496,212.33	1093.43	1093.95	1092.79	1094.22	0.64	-0.27
OW-40	2,621,297.36	495,975.58	1094.96	1095.40	1094.21	1095.54	0.75	-0.14
OW-41	2,621,816.64	496,281.90	1090.51	1090.82	1091.49	1092.94	-0.98	-2.12
OW-42	2,621,899.70	496,169.43	1092.35	1093.02	1092.48	1093.93	-0.13	-0.91
OW-43	2,622,135.38	495,845.76	1094.05	1094.75	1093.25	1094.67	0.80	0.08
OW-44	2,622,302.63	496,682.05	1095.05	1095.92	1093.73	1095.16	1.32	0.76
OW-45	2,619,203.17	494,842.21	1098.02	1098.57	1096.94	1098.11	1.08	0.46
OW-46	2,619,059.00	494,783.36	1098.21	1098.77	1097.14	1098.31	1.07	0.46
OW-47	2,618,684.83	494,630.88	1099.06	1099.44	1097.75	1098.93	1.31	0.51
OW-48	2,619,283.37	494,800.47	1098.07	1098.54	1096.87	1098.04	1.20	0.50
OW-49	2,619,315.78	494,671.87	NM	1098.33	NA	1097.91	NA	0.42
OW-50	2,619,465.62	494,300.16	1097.68	1098.15	1096.39	1097.54	1.29	0.61
OW-51	2,619,790.64	495,096.02	1097.19	1097.65	1096.20	1097.32	0.99	0.33
OW-52	2,610,585.60	493,033.91	1094.11	1096.52	1096.32	1096.87	-2.21	-0.35
OW-53	2,610,555.96	493,019.67	1095.28	1097.53	1096.32	1096.87	-1.04	0.66
OW-54	2,611,356.56	493,520.93	1094.46	1096.77	1093.92	1094.79	0.54	1.98
OW-55	2,610,821.53	492,991.93	1092.35	1094.77	1095.82	1096.35	-3.47	-1.58
OW-56	2,611,642.99	493,196.43	1097.02	1099.33	1096.37	1097.01	0.65	2.32
OW-57	2,611,768.76	493,277.87	1097.90	1099.95	1096.69	1097.40	1.21	2.55
OW-58	2,611,366.56	493,009.96	1097.80	1099.85	1096.63	1097.07	1.17	2.78
OW-59	2,611,579.97	493,019.21	1096.86	1100.10	1096.90	1097.43	-0.04	2.67
OW-60	2,627,137.87	497,440.67	1088.72	1089.24	1088.01	1088.90	0.71	0.34
OW-61	2,627,191.65	497,571.53	1089.48	1089.87	1088.67	1089.60	0.81	0.27
OW-62	2,627,351.22	497,954.27	1090.26	1090.66	1089.00	1089.94	1.26	0.72
OW-63	2,627,527.96	497,841.89	1089.89	1090.35	1088.64	1089.57	1.25	0.78
OW-64	2,627,299.94	497,308.27	1089.00	1088.90	1088.25	1089.18	0.75	-0.28
OW-65	2,627,672.94	497,146.26	1088.82	1089.28	1088.00	1088.94	0.82	0.34
OW-66	2,622,938.07	497,314.20	1095.21	1096.09	1094.32	1095.67	0.89	0.42
OW-67	2,622,730.72	497,150.23	1095.17	1096.03	1094.30	1095.68	0.87	0.35
OW-68	2,622,418.58	496,526.17	1094.49	1095.38	1093.56	1094.99	0.93	0.39
OW-69	2,623,044.57	497,134.81	1084.94	1095.84	1094.05	1095.41	-9.11	0.43

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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
OW-70	2,623,340.91	496,845.85	1094.45	1095.46	1093.62	1094.97	0.83	0.49
OW-71	2,623,796.31	497,474.10	1094.65	1095.38	1093.80	1095.09	0.85	0.29
OW-72	2,620,345.78	495,292.98	1094.44	1094.80	1094.46	1095.55	-0.02	-0.75
OW-73	2,620,217.61	495,239.66	1095.36	1095.72	1095.05	1096.14	0.31	-0.42
OW-74	2,619,854.18	494,895.06	1096.67	1097.00	1095.98	1097.10	0.69	-0.10
OW-75	2,620,487.46	495,139.42	1095.23	1095.53	1094.54	1095.63	0.69	-0.10
OW-76	2,620,657.85	494,777.17	1095.54	1096.06	1094.75	1095.89	0.79	0.17
OW-77	2,621,414.78	495,808.38	1094.42	1094.95	1093.85	1095.20	0.57	-0.25
OW-78	2,609,111.28	499,977.47	1115.04	1108.83	1114.30	1110.21	0.74	-1.38
OW-79	2,608,989.60	499,915.27	1114.85	1111.10	1114.29	1112.98	0.56	-1.88
OW-80	2,608,751.82	499,731.59	1114.24	1112.79	1114.10	1114.05	0.14	-1.26
OW-81	2,609,233.49	499,803.10	1113.99	1111.91	1113.98	1112.24	0.01	-0.33
OW-82	2,609,366.00	499,415.33	1112.95	NM	1113.13	NA	-0.18	NA
OW-83	2,609,754.89	500,075.01	1115.10	1113.58	1114.24	1114.44	0.86	-0.86
OW-89	2,632,605.05	496,433.60	1079.76	1080.12	1079.27	1079.73	0.49	0.39
OW-90	2,625,244.14	498,690.84	1091.08	1091.60	1090.96	1091.97	0.12	-0.37
OW-92	2,625,155.78	498,583.33	1092.91	1093.36	1091.84	1092.93	1.07	0.43
OW-93	2,625,291.12	498,721.87	1089.59	1089.68	1088.11	1088.83	1.48	0.85
OW-94	2,625,433.51	498,611.46	1092.71	1093.21	1091.47	1092.53	1.24	0.68
OW-95	2,625,755.73	498,358.54	1092.85	1093.14	1091.59	1092.69	1.26	0.45
OW-96	2,628,354.01	496,783.72	1088.57	1089.09	1087.16	1088.12	1.41	0.97
OW-97	2,628,422.98	496,909.51	1087.93	1088.48	1087.20	1088.15	0.73	0.33
OW-98	2,628,617.39	497,268.67	1087.97	1088.56	1087.18	1088.10	0.79	0.46
OW-99	2,628,520.49	496,667.07	1087.56	1088.18	1086.99	1087.96	0.57	0.22
OW-100	2,628,885.60	496,489.50	1087.02	1087.66	1086.50	1087.47	0.52	0.19
OW-101	2,622,907.33	509,987.52	1117.28	1117.73	1119.12	1120.56	-1.84	-2.83
OW-102	2,623,025.62	510,070.30	1118.69	1119.18	1120.44	1121.93	-1.75	-2.75
OW-103	2,623,370.57	510,291.27	1120.77	1121.35	1121.53	1122.97	-0.76	-1.62
OW-104	2,622,969.37	509,760.45	1118.58	1118.42	1120.10	1121.63	-1.52	-3.21
OW-105	2,623,170.60	509,450.30	1118.26	1118.69	1120.07	1121.66	-1.81	-2.97
OW-106	2,611,437.33	493,518.06	1093.77	1096.19	1092.50	1093.50	1.27	2.69
OW-107	2,611,500.55	493,522.80	1097.88	1099.99	1094.90	1095.80	2.98	4.19
OW-108	2,611,480.69	493,520.70	1091.60	1094.11	1089.97	1091.18	1.63	2.93
OW-110	2,634,942.69	495,106.01	1069.56	1069.85	1072.87	1073.02	-3.31	-3.17
PZ-01	2,632,385.13	499,049.59	1083.29	1083.78	1081.90	1082.38	1.39	1.40
PZ-02	2,631,558.74	499,022.44	1088.74	1087.63	1083.73	1084.33	5.01	3.30
PZ-13	2,633,396.43	499,150.91	1079.58	1080.42	1079.42	1079.63	0.16	0.79
PZ-14	2,633,403.55	499,154.07	1079.55	1079.19	1079.23	1079.42	0.32	-0.23

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			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
TH-EW-13	2,611,511.12	493,072.65	1097.52	1099.73	1096.60	1097.13	0.92	2.60
TH-EW-14R1	2,625,268.99	498,721.42	1090.01	1090.37	1088.11	1088.83	1.90	1.54
TH-EW-14R2	2,625,871.91	497,850.00	1092.75	1093.26	1091.36	1092.46	1.39	0.80
TH-EW-15	2,622,870.43	509,960.21	1118.76	1119.15	1117.42	1118.76	1.34	0.39
TH-EW-16	2,628,310.33	496,736.54	1087.85	1088.40	1087.17	1088.14	0.68	0.26
TH-EW-17	2,611,500.55	493,522.80	1087.55	1089.80	1084.12	1085.81	3.43	3.99
Brabec	2,618,637.53	493,130.49	1097.93	1098.85	1096.91	1097.95	1.02	0.90
D.Starns	2,647,807.25	467,164.01	1050.63	1054.65	1054.30	1054.76	-3.67	-0.11
Frahm	2,626,738.84	493,304.52	1089.38	1090.35	1088.26	1089.34	1.12	1.01
Hanson	2,623,180.17	493,348.86	1092.94	1093.71	1092.42	1093.64	0.52	0.07
LPN 06-01	2,642,292.17	478,302.11	1062.39	1063.06	1062.82	1063.40	-0.43	-0.34
LPN 06-18	2,635,721.74	504,500.62	1085.81	1086.10	1083.79	1084.16	2.02	1.94
LPN 06-19	2,634,208.23	514,979.75	1102.85	1104.02	1102.97	1105.35	-0.12	-1.33
LPN 06-21	2,628,536.27	525,369.84	1148.19	1148.01	1147.84	1149.39	0.35	-1.38
M90-01	2,640,590.79	488,958.80	1071.47	1072.31	1069.24	1070.20	2.23	2.11
M90-02	2,645,833.34	489,117.85	1071.06	1070.62	1069.89	1070.95	1.17	-0.33
M90-04	2,640,807.93	484,163.23	1066.76	1067.45	1066.23	1067.06	0.53	0.39
M90-05R	2,645,266.37	482,393.07	1061.88	1062.03	1062.73	1062.85	-0.85	-0.82
M90-09	2,640,866.61	478,557.35	1062.79	1063.58	1063.48	1064.17	-0.69	-0.59
M90-12R	2,647,999.03	479,369.24	1062.07	1061.81	1063.77	1062.62	-1.70	-0.81
M90-15	2,641,258.12	472,881.56	1060.17	1061.34	1060.67	1061.29	-0.50	0.05
M90-16R	2,645,344.89	473,282.19	1059.69	1060.84	1060.76	1060.80	-1.07	0.04
M90-17R	2,648,791.50	473,326.64	1058.16	1058.82	1060.68	1060.40	-2.52	-1.58
M90-20R	2,651,427.57	470,805.41	1057.62	1057.93	1059.30	1059.30	-1.68	-1.37
M90-21	2,642,068.72	468,390.33	1058.57	1061.18	1056.66	1057.30	1.91	3.88
M90-22R	2,645,116.45	467,804.04	1054.44	1059.23	1055.45	1055.95	-1.01	3.28
M90-23R	2,649,222.45	468,585.23	1043.04	1049.38	1053.67	1054.95	-10.63	-5.57
M90-24R	2,650,175.62	465,992.63	1044.79	1048.02	1052.64	1052.69	-7.85	-4.67
M90-26R	2,652,730.86	465,392.21	1049.92	1051.62	1053.16	1053.39	-3.24	-1.77
M90-36R	2,653,436.76	465,017.15	1051.55	1052.45	1053.89	1053.92	-2.34	-1.47
M90-37	2,652,867.09	463,331.64	1051.41	1050.06	1052.88	1052.91	-1.47	-2.85
MUD 06-28	2,638,860.99	509,627.35	1085.86	1085.68	1085.65	1086.58	0.21	-0.90
MUD 90-10	2,645,430.50	516,093.59	1091.79	1091.04	1090.79	1090.41	1.00	0.63
MUD 94-3	2,646,191.75	498,899.86	1079.52	1080.33	1078.47	1079.10	1.05	1.23
MUD 94-4	2,645,711.85	509,564.70	1085.43	1084.68	1084.47	1084.77	0.96	-0.09
MUD 94-5	2,640,274.41	514,549.30	1093.20	1093.01	1090.10	1091.04	3.10	1.97
MUD 94-6	2,639,186.28	503,954.84	1082.77	1083.02	1080.64	1081.17	2.13	1.85
MUD 94-7	2,643,737.28	493,588.88	1075.88	1076.58	1073.69	1074.41	2.19	2.17

Table 5.2 (Continued)
March and August 2015 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/30/2015	8/31/2015	3/30/2015	8/31/2015	3/30/2015	8/31/2015
N.Keiser	2,632,144.97	495,084.13	1080.70	1081.28	1079.60	1080.35	1.10	0.93
N.Wann	2,642,527.93	520,660.55	1103.88	1103.60	1102.78	1102.91	1.10	0.69
PV-37	2,644,077.01	514,703.40	1091.15	1090.37	1089.48	1089.47	1.67	0.90
PV-38	2,642,740.13	516,679.62	1096.00	1094.65	1092.42	1092.64	3.58	2.01
PV-39	2,635,348.70	501,827.54	1082.38	1082.70	1080.87	1081.02	1.51	1.68
PV-40	2,645,297.73	502,916.41	1080.39	1082.07	1081.06	1082.10	-0.67	-0.03
PV-41	2,642,173.78	514,040.50	1091.59	1090.82	1088.86	1089.37	2.73	1.45
S.Keiser	2,632,579.63	493,968.08	1079.64	1080.13	1078.30	1079.04	1.34	1.09
TV-16	2,623,841.69	492,107.27	1091.76	1092.60	1091.34	1092.07	0.42	0.53
TV-17A	2,627,487.94	482,977.99	1083.74	1084.88	1082.20	1082.59	1.54	2.29
UNL-CSD	2,641,218.70	473,036.06	1061.65	1062.91	1060.67	1061.29	0.98	1.62
13N_10E32AD DD1 M90-30R	2,657,224.00	466,089.97	NM	1052.28	NA	1053.43	NA	-1.15
14N_8E36DD1	2,613,895.26	493,065.13	1099.72	NM	1100.04	NA	-0.32	NA
14N_9E20DD1	2,624,003.87	504,150.95	1105.58	NM	1107.04	NA	-1.46	NA
14N_9E32DD1	2,624,278.44	493,503.18	1091.50	NM	1091.40	NA	0.10	NA

Notes:

amsl = above mean sea level

ft = feet

LPN = Lower Platte North Natural Resources District

M.U.D. = Metropolitan Utilities District

MW = Monitoring Well

NA = Not applicable

NAD 83 = North American Datum of 1983

NAVD 88 = North American Vertical Datum of 1988

NM = Not measured

OW = Observation Well

PV = Platte Valley

PZ = Piezometer

TH = Test Hole

TV = Todd Valley

UNL-CSD = University of Nebraska, Conservation & Survey Division

Mean of Residual Error	0.11	-0.19
Mean of Absoluate Residual Error	1.31	1.40
Residual Error Standard Deviation	1.80	1.85
Sum of Squares	1028	1062
Root-Mean-Square Error	1.80	1.86
Minimum Residual Error	-10.63	-6.34
Maximum Residual Error	5.58	4.31
Number of Observations	317	307
Range in Observations	113.12	107.62
Scaled Residual Error Standard Deviation	1.59%	1.72%
Scaled Mean of Absolute Residual Error with respect to Range of Observations	1.16%	1.30%
Scaled Root-Mean-Square Error	1.59%	1.73%
Residual Mean of Scaled Residual Error	0.098%	-0.175%

Table 5.3
March and August 2016 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
MW-02A	2,606,800.10	506,250.32	1134.89	1135.93	1133.74	1135.51	1.15	0.42
MW-03A	2,607,532.26	506,223.42	1133.89	1134.85	1133.14	1134.88	0.75	-0.03
MW-04A	2,612,041.94	506,256.77	1131.74	1133.27	1131.08	1132.95	0.66	0.32
MW-05A	2,613,044.09	507,097.63	1132.79	1134.10	1132.39	1134.40	0.40	-0.30
MW-07A	2,618,267.10	507,274.83	1125.26	NM	1126.15	NA	-0.89	NA
MW-08A	2,622,863.97	506,814.76	1116.38	1117.39	1119.20	1121.16	-2.82	-3.77
MW-09A	2,623,570.81	507,435.84	1116.63	1117.71	1119.32	1121.22	-2.69	-3.51
MW-10A	2,607,883.83	496,858.27	1110.16	1110.79	1110.71	1112.45	-0.55	-1.66
MW-11	2,626,486.32	509,499.80	1121.79	1123.23	1122.76	1123.48	-0.97	-0.25
MW-17B	2,603,293.03	499,101.48	1121.06	1121.39	1122.60	1124.65	-1.54	-3.26
MW-18B	2,629,156.57	506,827.46	1102.12	1103.66	1101.96	1103.93	0.16	-0.27
MW-19B	2,618,429.63	517,576.97	1146.24	1147.57	1144.13	1145.74	2.11	1.83
MW-20B	2,616,633.43	493,191.47	1100.58	1101.71	1100.02	1101.86	0.56	-0.15
MW-21A	2,607,121.37	503,524.81	1129.05	1130.18	1128.52	1130.41	0.53	-0.23
MW-24A	2,608,476.90	501,919.83	1121.72	1122.73	1122.53	1124.57	-0.81	-1.84
MW-25A	2,608,308.41	504,875.16	1130.33	1131.37	1130.16	1131.85	0.17	-0.48
MW-27B	2,611,427.01	508,110.55	1137.57	NM	1135.93	NA	1.64	NA
MW-28A	2,612,951.02	502,242.71	1120.18	1121.25	1121.20	1123.31	-1.02	-2.06
MW-29A	2,614,469.84	498,383.11	1109.21	1110.51	1109.52	1111.54	-0.31	-1.03
MW-29B	2,614,460.98	498,382.37	1109.49	1110.55	1109.53	1111.55	-0.04	-1.00
MW-31A	2,617,943.95	503,233.70	1116.69	1118.86	1118.98	1121.32	-2.29	-2.46
MW-32A	2,619,697.25	499,062.26	1104.68	1105.86	1103.28	1105.52	1.40	0.34
MW-33A	2,622,410.84	502,847.91	1107.05	1108.19	1108.34	1110.63	-1.29	-2.44
MW-34A	2,624,442.78	498,806.30	1096.15	1097.78	1095.36	1097.67	0.79	0.11
MW-35A	2,629,595.76	496,323.64	1087.56	1088.52	1086.32	1088.19	1.24	0.33
MW-38A	2,638,131.88	496,248.57	1076.73	1077.38	1075.94	1076.52	0.79	0.86
MW-40A	2,623,018.62	511,963.35	1128.09	1129.63	1128.24	1129.86	-0.15	-0.23
MW-42A	2,629,385.20	501,582.56	1094.62	1095.93	1090.77	1092.55	3.85	3.38
MW-43A	2,629,243.07	504,317.91	1097.96	1099.44	1094.35	1096.13	3.61	3.31
MW-44A	2,632,953.68	500,415.12	1084.85	1085.57	1081.83	1082.46	3.02	3.11
MW-44B	2,632,954.90	500,426.32	1085.00	1086.12	1081.82	1082.44	3.18	3.68
MW-46A	2,637,464.94	499,387.37	1079.12	1079.92	1078.07	1078.39	1.05	1.53
MW-46B	2,637,464.42	499,396.68	1079.13	1079.94	1078.07	1078.39	1.06	1.55
MW-53B	2,627,885.40	508,166.61	1109.79	1111.65	1111.91	1113.82	-2.12	-2.17
MW-56A	2,628,206.01	508,215.32	1108.09	1109.58	1110.80	1112.71	-2.71	-3.13
MW-56B	2,628,195.32	508,217.29	1109.25	1111.04	1110.80	1112.72	-1.55	-1.68
MW-57B	2,607,621.51	516,363.44	1157.31	1157.66	1151.76	1153.36	5.55	4.30
MW-60A	2,624,702.83	489,585.15	1092.12	1093.68	1090.79	1092.71	1.33	0.97
MW-61A	2,608,656.02	492,900.05	1102.80	1103.82	1102.37	1103.17	0.43	0.65
MW-65A	2,613,203.05	506,090.52	1130.41	NM	1130.06	NA	0.35	NA
MW-66B	2,613,268.32	506,027.61	1129.61	NM	1129.85	NA	-0.24	NA
MW-72A	2,622,930.98	512,064.69	1127.63	1129.20	1128.59	1130.23	-0.96	-1.03
MW-73A	2,623,060.93	511,909.15	1127.21	1128.72	1127.95	1129.56	-0.74	-0.84
MW-73B	2,623,052.30	511,908.70	1127.15	1128.72	1127.95	1129.57	-0.80	-0.85

Table 5.3 (Continued)
March and August 2016 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
MW-78A	2,623,223.84	512,032.75	1127.39	1128.92	1128.01	1129.58	-0.62	-0.66
MW-80A	2,610,925.54	492,067.12	1100.02	1101.32	1098.93	1099.66	1.09	1.66
MW-80B	2,610,916.24	492,064.59	1099.90	1101.31	1098.92	1099.66	0.98	1.65
MW-82A	2,619,288.65	493,318.05	1099.03	1100.33	1097.67	1099.54	1.36	0.79
MW-83A	2,621,924.08	495,274.66	1096.05	1097.75	1095.24	1097.47	0.81	0.28
MW-83B	2,621,921.79	495,302.77	1096.13	1097.83	1095.23	1097.47	0.90	0.36
MW-84A	2,624,277.77	495,685.51	1094.43	1096.41	1093.96	1096.17	0.47	0.24
MW-84B	2,624,272.04	495,712.90	1095.02	1096.94	1093.98	1096.20	1.04	0.74
MW-85A	2,628,326.53	494,439.02	1088.73	1090.07	1087.31	1089.22	1.42	0.85
MW-86A	2,631,939.21	493,759.74	1082.25	1082.51	1080.57	1082.10	1.68	0.41
MW-88A	2,637,643.92	494,045.13	1075.89	1076.36	1074.88	1075.75	1.01	0.61
MW-89A	2,610,430.84	494,253.88	1104.02	1104.62	1102.78	1104.19	1.24	0.43
MW-90A	2,611,235.54	494,302.04	1104.53	1105.13	1102.05	1103.49	2.48	1.64
MW-91A	2,612,076.97	494,323.00	1104.13	1104.86	1102.46	1104.02	1.67	0.84
MW-93A	2,612,162.89	493,551.29	1102.29	1103.01	1100.30	1101.77	1.99	1.24
MW-94A	2,617,023.16	496,428.72	1103.75	1105.25	1103.48	1105.55	0.27	-0.30
MW-95A	2,617,552.81	494,508.64	1101.86	1103.28	1100.54	1102.51	1.32	0.77
MW-95B	2,617,546.97	494,508.01	1101.91	1103.29	1100.55	1102.52	1.36	0.77
MW-96A	2,621,468.23	493,387.73	1096.35	1097.83	1095.62	1097.54	0.73	0.29
MW-97A	2,623,938.04	493,492.83	1094.17	1095.83	1093.33	1095.30	0.84	0.53
MW-97B	2,623,932.70	493,492.45	1094.30	1095.88	1093.33	1095.30	0.97	0.58
MW-98A	2,626,495.30	493,604.94	1091.64	1093.35	1090.24	1092.15	1.40	1.20
MW-99A	2,627,117.43	498,780.95	1092.82	1094.08	1091.31	1093.47	1.51	0.61
MW-99B	2,627,118.41	498,787.93	1092.80	1094.17	1091.31	1093.47	1.49	0.70
MW-100A	2,629,718.84	493,770.41	1086.68	1087.86	1084.74	1086.46	1.94	1.40
MW-101A	2,610,929.39	491,574.12	1099.73	1100.99	1099.04	1099.76	0.69	1.23
MW-102A	2,622,929.38	514,541.24	1133.45	1134.96	1134.08	1135.70	-0.63	-0.74
MW-103A	2,623,590.77	513,115.79	1129.54	1131.10	1129.85	1131.33	-0.31	-0.23
MW-104A	2,634,092.18	499,205.59	1078.76	1079.45	1078.52	1078.72	0.24	0.73
MW-104O	2,634,073.87	499,205.00	1078.01	1077.77	1078.26	1078.76	-0.25	-0.99
MW-106A	2,630,544.55	506,843.26	1100.01	1101.31	1096.48	1098.27	3.53	3.04
MW-106B	2,630,539.26	506,844.10	1100.15	1101.42	1096.48	1098.28	3.67	3.14
MW-107A	2,631,375.72	506,138.76	1096.46	1097.65	1092.83	1094.55	3.63	3.10
MW-107B	2,631,374.08	506,125.16	1096.27	1098.29	1092.83	1094.55	3.44	3.74
MW-109A	2,634,807.18	501,896.06	1084.18	1081.41	1082.09	1082.41	2.09	-1.00
MW-109O	2,634,805.17	501,911.81	1080.29	1080.92	1081.00	1081.05	-0.71	-0.13
MW-110A	2,634,397.71	504,432.79	1088.43	1089.10	1086.79	1087.72	1.64	1.38
MW-111A	2,636,151.56	499,337.97	1079.01	1079.73	1078.06	1078.31	0.95	1.42
MW-111B	2,636,151.75	499,348.24	1079.06	1079.80	1078.06	1078.31	1.00	1.49
MW-111O	2,636,152.14	499,356.67	1076.73	1078.24	1078.01	1078.33	-1.28	-0.09
MW-112A	2,637,365.72	501,825.77	1082.02	NM	1080.39	NA	1.63	NA
MW-112B	2,637,365.30	501,832.67	1082.01	NM	1080.39	NA	1.62	NA
MW-113A	2,637,420.11	500,472.22	1080.46	NM	1079.02	NA	1.44	NA
MW-113B	2,637,419.51	500,477.68	1080.41	NM	1079.02	NA	1.39	NA

Table 5.3 (Continued)
March and August 2016 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
MW-114A	2,637,470.60	497,206.93	1077.32	NM	1076.19	NA	1.13	NA
MW-115A	2,637,702.52	495,346.88	1076.38	1076.93	1075.45	1076.10	0.93	0.83
MW-116A	2,636,335.80	495,297.60	1075.63	NM	1075.13	NA	0.50	NA
MW-116B	2,636,331.54	495,297.24	1075.65	NM	1075.13	NA	0.52	NA
MW-118A	2,625,890.45	496,207.70	1092.69	1094.19	1092.29	1094.51	0.40	-0.32
MW-119A	2,607,952.61	499,580.81	1114.75	1115.63	1116.16	1118.26	-1.41	-2.63
MW-120A	2,609,372.30	499,419.07	1113.01	1113.83	1113.78	1115.88	-0.77	-2.05
MW-120E	2,609,372.68	499,430.79	1112.99	1113.80	1113.78	1115.88	-0.79	-2.08
MW-121A	2,609,752.79	500,071.02	1114.10	1114.96	1114.93	1117.02	-0.83	-2.06
MW-122A	2,609,240.41	498,101.34	1111.31	1111.35	1112.34	1114.34	-1.03	-2.99
MW-123A	2,608,677.91	499,909.07	1113.54	1114.56	1115.03	1117.17	-1.49	-2.61
MW-124A	2,609,115.81	501,486.16	1118.73	1119.58	1120.46	1122.52	-1.73	-2.94
MW-124B	2,609,107.79	501,496.31	1118.73	1119.61	1120.46	1122.53	-1.73	-2.92
MW-125A	2,609,457.06	500,663.23	1115.57	1116.53	1117.00	1119.09	-1.43	-2.56
MW-126A	2,607,483.63	504,504.82	1130.33	1131.46	1130.14	1131.95	0.19	-0.49
MW-127A	2,606,121.55	506,918.35	1136.62	1137.68	1135.29	1137.04	1.33	0.64
MW-128A	2,624,836.13	498,190.80	1095.13	1096.75	1094.37	1096.68	0.76	0.07
MW-129A	2,627,766.39	496,542.43	1089.87	1091.06	1088.62	1090.74	1.25	0.32
MW-130A	2,629,053.38	496,650.27	1088.33	1089.26	1087.27	1089.21	1.06	0.05
MW-131A	2,626,341.54	496,939.83	1092.07	1093.38	1091.29	1093.56	0.78	-0.18
MW-131B	2,626,348.52	496,944.69	1092.08	1093.54	1091.29	1093.57	0.79	-0.03
MW-133A	2,622,522.67	509,720.93	1120.60	1121.88	1123.01	1124.85	-2.41	-2.97
MW-133B	2,622,522.69	509,729.90	1120.75	1122.04	1123.01	1124.86	-2.26	-2.82
MW-134A	2,623,417.21	509,045.74	1119.33	1120.85	1121.71	1123.49	-2.38	-2.64
MW-134B	2,623,413.31	509,052.47	1119.40	1120.93	1121.83	1123.60	-2.43	-2.67
MW-135A	2,623,150.45	509,762.33	1119.72	1121.04	1122.34	1124.10	-2.62	-3.06
MW-135B	2,623,151.02	509,772.44	1119.72	1121.03	1122.35	1124.11	-2.63	-3.08
MW-136A	2,623,054.23	510,561.26	1122.17	1123.57	1124.44	1126.14	-2.27	-2.57
MW-137A	2,622,837.54	511,702.36	1127.69	1129.21	1127.75	1129.42	-0.06	-0.21
MW-138A	2,622,366.41	512,816.57	1130.72	1132.26	1131.04	1132.73	-0.32	-0.47
MW-139A	2,621,290.29	514,264.29	1134.98	1135.41	1135.64	1137.35	-0.66	-1.94
MW-141A	2,608,446.60	502,590.64	1124.06	1125.08	1124.86	1126.83	-0.80	-1.75
MW-142A	2,610,572.95	495,594.89	1106.75	1107.37	1106.93	1108.47	-0.18	-1.10
MW-143B	2,621,339.98	502,719.77	1106.13	1109.92	1111.11	1113.49	-4.98	-3.57
MW-144A	2,614,012.25	503,570.97	1122.71	1124.27	1125.26	1127.52	-2.55	-3.25
MW-145A	2,617,407.83	500,652.84	1111.39	1112.55	1111.71	1113.98	-0.32	-1.43
MW-146A	2,618,871.66	494,899.38	1099.74	1101.19	1099.00	1101.08	0.74	0.11
MW-147A	2,620,042.45	494,474.75	1097.98	1099.45	1097.05	1099.14	0.93	0.31
MW-148B	2,620,179.92	504,425.78	1115.85	1117.07	1118.26	1120.60	-2.41	-3.53
MW-149A	2,622,398.38	502,086.76	1105.53	1106.66	1106.15	1108.44	-0.62	-1.78
MW-150A	2,624,201.15	499,856.55	1095.13	1099.82	1097.05	1099.32	-1.92	0.50
MW-151A	2,624,392.64	506,668.08	1113.16	1114.33	1116.57	1118.48	-3.41	-4.15
MW-152B	2,627,865.21	506,805.72	1106.30	1108.18	1106.44	1108.62	-0.14	-0.44
MW-153A	2,627,200.19	504,130.22	1100.76	1102.33	1100.19	1102.22	0.57	0.11

Table 5.3 (Continued)
March and August 2016 Calibration Residuals
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
MW-154A	2,631,170.17	504,308.25	1094.18	1095.51	1091.00	1092.67	3.18	2.84
MW-154B	2,631,165.22	504,308.20	1094.80	1096.27	1091.00	1092.67	3.80	3.60
MW-155A	2,629,444.96	502,435.45	1095.29	1096.65	1091.93	1093.65	3.36	3.00
MW-156A	2,633,019.60	501,928.83	1088.48	1089.38	1084.75	1085.69	3.73	3.69
MW-156B	2,633,018.32	501,922.48	1088.77	1089.75	1084.75	1085.69	4.02	4.06
MW-157A	2,632,549.30	499,117.46	1084.11	1084.90	1081.97	1082.86	2.14	2.04
MW-158A	2,635,279.53	493,887.42	1074.78	1076.39	1074.58	1075.33	0.20	1.06
MW-158B	2,635,272.00	493,887.38	1074.75	1075.76	1074.58	1075.33	0.17	0.43
MW-159A	2,629,111.80	510,307.65	1114.17	1115.76	1112.21	1113.95	1.96	1.81
MW-160A	2,609,501.29	496,947.49	1105.58	1107.57	1109.68	1111.51	-4.10	-3.94
MW-160B	2,609,505.06	496,954.30	1105.49	1106.18	1109.79	1111.65	-4.30	-5.47
MW-161A	2,608,418.56	503,133.22	1122.54	1123.57	1126.27	1128.17	-3.73	-4.60
MW-161B	2,608,419.67	503,123.84	1122.91	1123.95	1126.27	1128.18	-3.36	-4.23
MW-166A	2,618,657.29	496,609.56	1099.70	1101.21	1101.01	1103.18	-1.31	-1.97
MW-166B	2,618,661.42	496,616.20	1099.83	1101.18	1101.02	1103.18	-1.19	-2.00
MW-167A	2,619,420.51	497,423.40	1099.87	NM	1100.71	NA	-0.84	NA
MW-167B	2,619,428.96	497,426.56	1099.63	NM	1100.72	NA	-1.09	NA
MW-168A	2,620,186.36	498,009.89	1098.94	1100.19	1100.48	1102.72	-1.54	-2.53
MW-168B	2,620,178.27	498,011.71	1098.51	1099.79	1100.48	1102.72	-1.97	-2.93
MW-169A	2,619,932.75	495,501.60	1095.58	1097.00	1097.38	1099.57	-1.80	-2.57
MW-169B	2,619,942.57	495,502.95	1095.44	1096.86	1097.37	1099.57	-1.93	-2.71
MW-170A	2,621,225.19	496,442.89	1094.26	1096.28	1096.11	1098.44	-1.85	-2.16
MW-171A	2,615,668.94	501,881.31	1114.19	1115.52	1117.03	1119.30	-2.84	-3.78
MW-171B	2,615,662.16	501,881.10	1113.99	1115.26	1117.05	1119.36	-3.06	-4.10
MW-172A	2,625,763.50	497,428.55	1089.47	1090.94	1092.80	1095.08	-3.33	-4.14
MW-172B	2,625,755.51	497,431.53	1089.78	1091.20	1092.80	1095.09	-3.02	-3.89
MW-173A	2,627,008.04	497,957.67	1088.78	1090.24	1090.54	1092.78	-1.76	-2.54
MW-174A	2,622,869.28	497,380.64	1093.72	1095.61	1096.09	1098.37	-2.37	-2.76
MW-174B	2,622,865.16	497,375.02	1093.12	1094.98	1096.09	1098.37	-2.97	-3.39
MW-176A	2,632,839.14	499,810.44	1081.68	1082.42	1081.48	1082.14	0.20	0.28
MW-176B	2,632,839.67	499,818.35	1080.27	1081.08	1081.48	1082.14	-1.21	-1.06
MW-177A	2,609,971.19	492,953.37	1097.85	1098.60	1100.26	1101.13	-2.41	-2.53
MW-177B	2,609,974.65	492,954.44	1099.02	1100.33	1100.26	1101.15	-1.24	-0.82
MW-178B	2,628,870.63	506,851.75	1098.18	1099.64	1103.50	1105.55	-5.32	-5.91
MW-179A	2,611,664.67	493,135.13	1096.08	1096.84	1097.88	1099.00	-1.80	-2.16
MW-179B	2,611,658.78	493,134.48	1095.54	1096.38	1097.90	1099.05	-2.36	-2.67
MW-180A	2,621,006.62	495,570.71	1093.10	1094.64	1095.91	1098.16	-2.81	-3.52
MW-180E	2,621,013.00	495,571.85	1093.04	1094.57	1095.91	1098.16	-2.87	-3.59
OW-05	2,634,934.82	495,184.29	1071.07	1071.24	1072.36	1072.69	-1.29	-1.45
OW-06	2,634,884.33	495,208.11	1072.43	1072.68	1072.46	1072.78	-0.03	-0.10
OW-07	2,634,884.15	495,203.34	1073.12	1073.42	1072.46	1072.78	0.66	0.64
OW-08	2,634,786.34	495,194.19	1073.59	NM	1073.60	NA	-0.01	NA
OW-09	2,634,937.80	495,134.36	1072.82	1073.12	1073.00	1073.33	-0.18	-0.21
OW-12	2,636,332.13	495,279.48	1075.65	NM	1075.13	NA	0.52	NA

Table 5.3 (Continued)
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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
OW-13	2,634,929.33	495,121.80	1072.96	1073.26	1073.00	1073.33	-0.04	-0.07
OW-14	2,634,937.07	494,987.77	1073.87	1074.30	1073.75	1074.10	0.12	0.20
OW-15	2,634,948.12	494,788.06	1074.18	1074.70	1074.16	1074.54	0.02	0.16
OW-16	2,633,480.01	495,159.25	1077.23	NM	1076.60	NA	0.63	NA
OW-18	2,608,114.43	499,884.02	1114.96	1113.90	1116.28	1118.39	-1.32	-4.49
OW-22	2,608,019.74	499,355.14	1114.53	1115.42	1115.76	1117.85	-1.23	-2.43
OW-23	2,607,158.35	499,656.44	1115.85	NM	1117.33	NA	-1.48	NA
OW-24	2,629,552.06	496,984.50	1088.29	1089.37	1086.72	1088.54	1.57	0.83
OW-25	2,629,511.42	496,932.08	1088.30	1089.31	1086.77	1088.60	1.53	0.71
OW-26	2,629,214.17	496,664.05	1088.72	1089.79	1087.00	1088.91	1.72	0.88
OW-27	2,629,582.05	496,942.21	1088.08	1089.00	1086.69	1088.52	1.39	0.48
OW-28	2,629,581.52	496,898.00	1087.98	1089.08	1086.66	1088.49	1.32	0.59
OW-31	2,624,242.96	497,898.99	1096.43	1098.25	1095.07	1097.35	1.36	0.90
OW-32	2,624,139.95	497,845.07	1096.56	1098.32	1095.17	1097.46	1.39	0.86
OW-33	2,623,750.57	497,669.79	1096.69	1098.55	1095.48	1097.76	1.21	0.79
OW-34	2,624,320.18	497,868.57	1095.90	1097.72	1094.95	1097.24	0.95	0.48
OW-35	2,624,360.77	497,738.45	1096.06	1097.79	1094.82	1097.11	1.24	0.68
OW-36	2,624,413.00	497,337.59	1095.75	1097.50	1094.62	1096.89	1.13	0.61
OW-37	2,624,838.27	498,178.35	1095.08	1096.63	1094.37	1096.68	0.71	-0.05
OW-38	2,621,733.08	496,294.86	1092.69	1094.59	1093.13	1095.69	-0.44	-1.10
OW-39	2,621,620.02	496,212.33	1095.02	1096.57	1094.38	1096.84	0.64	-0.27
OW-40	2,621,297.36	495,975.58	1096.32	1098.29	1095.79	1098.10	0.53	0.19
OW-41	2,621,816.64	496,281.90	1091.77	1093.74	1093.01	1095.58	-1.24	-1.84
OW-42	2,621,899.70	496,169.43	1093.60	1095.61	1094.09	1096.55	-0.49	-0.94
OW-43	2,622,135.38	495,845.76	1095.70	1102.34	1094.92	1097.23	0.78	5.11
OW-44	2,622,302.63	496,682.05	1096.72	1098.74	1095.42	1097.75	1.30	0.99
OW-45	2,619,203.17	494,842.21	1099.64	1101.10	1098.37	1100.46	1.27	0.64
OW-46	2,619,059.00	494,783.36	1099.83	1101.23	1098.57	1100.65	1.26	0.58
OW-47	2,618,684.83	494,630.88	1100.49	1101.88	1099.17	1101.21	1.32	0.67
OW-48	2,619,283.37	494,800.47	1099.66	1100.96	1098.30	1100.39	1.36	0.57
OW-49	2,619,315.78	494,671.87	1099.41	1101.01	1098.17	1100.25	1.24	0.76
OW-50	2,619,465.62	494,300.16	1099.29	1100.80	1097.82	1099.86	1.47	0.94
OW-51	2,619,790.64	495,096.02	1098.73	1100.15	1097.58	1099.72	1.15	0.43
OW-52	2,610,585.60	493,033.91	1095.69	1097.22	1096.91	1098.04	-1.22	-0.82
OW-53	2,610,555.96	493,019.67	1096.84	1098.34	1096.91	1098.04	-0.07	0.30
OW-54	2,611,356.56	493,520.93	1096.25	1096.74	1095.07	1096.22	1.18	0.52
OW-55	2,610,821.53	492,991.93	1093.81	1095.57	1096.39	1097.53	-2.58	-1.96
OW-56	2,611,642.99	493,196.43	1098.79	1099.55	1097.41	1098.52	1.38	1.03
OW-57	2,611,768.76	493,277.87	1099.64	1100.34	1097.77	1098.97	1.87	1.37
OW-58	2,611,366.56	493,009.96	1099.33	1100.45	1097.52	1098.52	1.81	1.93
OW-59	2,611,579.97	493,019.21	1099.57	1100.53	1097.87	1098.92	1.70	1.61
OW-60	2,627,137.87	497,440.67	1090.16	1091.91	1088.90	1091.47	1.26	0.44
OW-61	2,627,191.65	497,571.53	1090.79	1092.35	1089.62	1091.96	1.17	0.39
OW-62	2,627,351.22	497,954.27	1091.55	1093.06	1089.98	1092.17	1.57	0.89

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Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
OW-63	2,627,527.96	497,841.89	1091.29	1092.90	1089.59	1091.77	1.70	1.13
OW-64	2,627,299.94	497,308.27	1090.40	1091.99	1089.18	1091.54	1.22	0.45
OW-65	2,627,672.94	497,146.26	1090.24	1091.64	1088.94	1091.11	1.30	0.53
OW-66	2,622,938.07	497,314.20	1096.92	1098.81	1095.95	1098.24	0.97	0.57
OW-67	2,622,730.72	497,150.23	1096.84	1098.90	1095.96	1098.25	0.88	0.65
OW-68	2,622,418.58	496,526.17	1096.17	1097.94	1095.25	1097.57	0.92	0.37
OW-69	2,623,044.57	497,134.81	1096.71	1098.50	1095.69	1097.97	1.02	0.53
OW-70	2,623,340.91	496,845.85	1096.34	1098.27	1095.24	1097.51	1.10	0.76
OW-71	2,623,796.31	497,474.10	1096.21	1096.85	1095.35	1097.63	0.86	-0.78
OW-72	2,620,345.78	495,292.98	1095.80	1097.29	1095.73	1097.95	0.07	-0.66
OW-73	2,620,217.61	495,239.66	1096.76	1098.28	1096.36	1098.55	0.40	-0.27
OW-74	2,619,854.18	494,895.06	1098.23	1098.75	1097.36	1099.48	0.87	-0.73
OW-75	2,620,487.46	495,139.42	1096.61	1098.12	1095.84	1098.05	0.77	0.07
OW-76	2,620,657.85	494,777.17	1097.13	1098.68	1096.16	1098.31	0.97	0.37
OW-77	2,621,414.78	495,808.38	1095.92	1097.83	1095.44	1097.75	0.48	0.08
OW-78	2,609,111.28	499,977.47	1109.52	1110.47	1110.56	1112.80	-1.04	-2.33
OW-79	2,608,989.60	499,915.27	1111.86	1114.14	1113.40	1115.58	-1.54	-1.44
OW-80	2,608,751.82	499,731.59	1113.51	1114.48	1114.49	1116.62	-0.98	-2.14
OW-81	2,609,233.49	499,803.10	1112.66	1113.64	1112.66	1114.84	0.00	-1.20
OW-82	2,609,366.00	499,415.33	1113.13	1113.92	1113.78	1115.88	-0.65	-1.96
OW-83	2,609,754.89	500,075.01	1114.36	1115.22	1114.93	1117.02	-0.57	-1.80
OW-89	2,632,605.05	496,433.60	1080.54	1081.11	1079.63	1080.46	0.91	0.65
OW-90	2,625,244.14	498,690.84	1092.32	1093.86	1092.01	1094.52	0.31	-0.66
OW-92	2,625,155.78	498,583.33	1094.16	1095.65	1093.05	1095.47	1.11	0.18
OW-93	2,625,291.12	498,721.87	1091.02	1091.27	1088.63	1091.36	2.39	-0.09
OW-94	2,625,433.51	498,611.46	1093.93	1095.41	1092.63	1095.05	1.30	0.36
OW-95	2,625,755.73	498,358.54	1093.86	1095.39	1092.82	1095.14	1.04	0.25
OW-96	2,628,354.01	496,783.72	1090.02	1090.97	1088.10	1090.14	1.92	0.83
OW-97	2,628,422.98	496,909.51	1089.41	1090.36	1088.13	1090.16	1.28	0.20
OW-98	2,628,617.39	497,268.67	1089.49	1090.51	1088.10	1090.09	1.39	0.42
OW-99	2,628,520.49	496,667.07	1089.15	1090.14	1087.94	1089.96	1.21	0.18
OW-100	2,628,885.60	496,489.50	1088.55	1089.63	1087.44	1089.42	1.11	0.21
OW-101	2,622,907.33	509,987.52	1118.64	1119.93	1121.05	1122.79	-2.41	-2.86
OW-102	2,623,025.62	510,070.30	1120.13	1121.46	1122.41	1124.17	-2.28	-2.71
OW-103	2,623,370.57	510,291.27	1122.28	1123.69	1123.41	1125.08	-1.13	-1.39
OW-104	2,622,969.37	509,760.45	1119.38	1120.68	1122.16	1123.95	-2.78	-3.27
OW-105	2,623,170.60	509,450.30	1119.69	1120.96	1122.23	1124.01	-2.54	-3.05
OW-106	2,611,437.33	493,518.06	1095.52	1096.03	1093.68	1094.83	1.84	1.20
OW-107	2,611,500.55	493,522.80	1099.65	1100.25	1096.08	1097.30	3.57	2.95
OW-108	2,611,480.69	493,520.70	1093.76	1093.90	1091.19	1092.32	2.57	1.58
OW-110	2,634,942.69	495,106.01	1069.90	1070.23	1073.00	1073.33	-3.10	-3.10
PZ-01	2,632,385.13	499,049.59	1084.53	1085.31	1082.35	1083.33	2.18	1.98
PZ-02	2,631,558.74	499,022.44	1087.72	1088.21	1084.33	1085.61	3.39	2.60
PZ-13	2,633,396.43	499,150.91	1080.24	1080.93	1079.63	1080.00	0.61	0.93

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			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
PZ-14	2,633,403.55	499,154.07	1080.22	NM	1079.43	NA	0.79	NA
TH-EW-13	2,611,511.12	493,072.65	1099.14	1100.16	1097.57	1098.62	1.57	1.54
TH-EW-14R1	2,625,268.99	498,721.42	1089.98	1092.06	1088.63	1091.36	1.35	0.70
TH-EW-14R2	2,625,871.91	497,850.00	1094.01	1095.68	1092.59	1094.88	1.42	0.80
TH-EW-15	2,622,870.43	509,960.21	1119.95	1121.15	1119.23	1120.92	0.72	0.23
TH-EW-16	2,628,310.33	496,736.54	1089.35	1090.56	1088.12	1090.17	1.23	0.39
TH-EW-17	2,611,500.55	493,522.80	1088.92	1088.01	1085.40	1086.49	3.52	1.52
Brabec	2,618,637.53	493,130.49	1100.10	1101.42	1098.25	1100.08	1.85	1.34
D.Starns	2,647,807.25	467,164.01	1051.55	1053.58	1054.74	1055.07	-3.19	-1.49
Frahm	2,626,738.84	493,304.52	1091.59	1093.24	1089.67	1091.51	1.92	1.73
Hanson	2,623,180.17	493,348.86	1094.98	1096.63	1094.06	1096.00	0.92	0.63
LPN 06-01	2,642,292.17	478,302.11	1062.63	1063.62	1063.52	1064.02	-0.89	-0.40
LPN 06-18	2,635,721.74	504,500.62	1086.77	1087.35	1085.05	1085.60	1.72	1.75
LPN 06-19	2,634,208.23	514,979.75	1104.72	1105.55	1106.23	1108.31	-1.51	-2.76
LPN 06-21	2,628,536.27	525,369.84	1151.28	1152.57	1150.01	1152.04	1.27	0.53
M90-01	2,640,590.79	488,958.80	1072.41	1072.89	1071.00	1071.93	1.41	0.96
M90-02	2,645,833.34	489,117.85	1070.98	1070.73	1071.62	1072.45	-0.64	-1.72
M90-04	2,640,807.93	484,163.23	1067.33	1068.78	1067.71	1068.31	-0.38	0.47
M90-05R	2,645,266.37	482,393.07	1061.86	1062.27	1063.03	1063.07	-1.17	-0.80
M90-09	2,640,866.61	478,557.35	1063.21	NM	1064.39	NA	-1.18	NA
M90-12R	2,647,999.03	479,369.24	1063.81	1063.86	1064.46	1064.77	-0.65	-0.91
M90-15	2,641,258.12	472,881.56	1060.16	1061.30	1061.38	1062.01	-1.22	-0.71
M90-16R	2,645,344.89	473,282.19	1059.69	1061.14	1060.82	1060.92	-1.13	0.22
M90-17R	2,648,791.50	473,326.64	1059.00	1060.27	1060.41	1060.62	-1.41	-0.35
M90-20R	2,651,427.57	470,805.41	1058.32	1058.24	1059.25	1059.32	-0.93	-1.08
M90-21	2,642,068.72	468,390.33	1058.59	NM	1057.42	NA	1.17	NA
M90-22R	2,645,116.45	467,804.04	1054.87	1058.68	1056.17	1056.48	-1.30	2.20
M90-23R	2,649,222.45	468,585.23	1047.52	1052.13	1054.16	1055.64	-6.64	-3.51
M90-24R	2,650,175.62	465,992.63	1048.14	1049.85	1053.35	1053.51	-5.21	-3.66
M90-26R	2,652,730.86	465,392.21	1053.03	1051.69	1053.63	1053.45	-0.60	-1.76
M90-36R	2,653,436.76	465,017.15	1053.25	1052.81	1053.92	1053.95	-0.67	-1.14
M90-37	2,652,867.09	463,331.64	1051.79	1051.86	1052.90	1052.94	-1.11	-1.08
MUD 06-28	2,638,860.99	509,627.35	1086.32	1086.66	1087.68	1088.47	-1.36	-1.81
MUD 90-10	2,645,430.50	516,093.59	1093.27	1090.93	1091.95	1091.46	1.32	-0.53
MUD 94-3	2,646,191.75	498,899.86	1081.12	1081.70	1079.72	1080.23	1.40	1.47
MUD 94-4	2,645,711.85	509,564.70	1087.03	1084.54	1085.69	1085.91	1.34	-1.37
MUD 94-5	2,640,274.41	514,549.30	1093.86	1093.73	1091.64	1092.70	2.22	1.03
MUD 94-6	2,639,186.28	503,954.84	1083.64	1084.26	1082.19	1082.67	1.45	1.59
MUD 94-7	2,643,737.28	493,588.88	1077.00	1078.33	1075.08	1075.80	1.92	2.53
N.Keiser	2,632,144.97	495,084.13	1081.79	1082.43	1080.21	1081.50	1.58	0.93
N.Wann	2,642,527.93	520,660.55	1104.58	1104.06	1102.94	1103.16	1.64	0.90
PV-37	2,644,077.01	514,703.40	1092.43	1090.27	1090.59	1090.78	1.84	-0.51
PV-38	2,642,740.13	516,679.62	1095.47	1094.84	1093.26	1093.73	2.21	1.11
PV-39	2,635,348.70	501,827.54	1083.19	1083.88	1081.49	1081.70	1.70	2.18

Table 5.3 (Continued)
March and August 2016 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft amsl, NAVD 88)		Simulated (ft amsl, NAVD 88)		Residual Errors (ft)	
			3/28/2016	8/25/2016	3/28/2016	8/25/2016	3/28/2016	8/25/2016
PV-40	2,645,297.73	502,916.41	1083.30	1083.18	1082.72	1083.49	0.58	-0.31
PV-41	2,642,173.78	514,040.50	1092.15	1091.23	1090.12	1090.80	2.03	0.43
S.Keiser	2,632,579.63	493,968.08	1080.70	1081.24	1079.04	1080.24	1.66	1.00
TV-16	2,623,841.69	492,107.27	1094.06	1095.55	1092.95	1094.25	1.11	1.30
TV-17A	2,627,487.94	482,977.99	1086.96	1088.16	1083.19	1084.31	3.77	3.85
UNL-CSD	2,641,218.70	473,036.06	1061.74	NM	1061.38	NA	0.36	NA
13N_10E32AD DD1_M90-30R	2,657,224.00	466,089.97	1052.32	1052.95	1053.67	1053.79	-1.35	-0.84
13N_10E32D BBA1_M28R_ ISLAND_NORTH_WELL			NM	1053.95	NA	1050.01	NA	3.94
13N_10E32DC AD1_M91-50R			NM	1044.43	NA	1035.46	NA	8.97
14N_9E20DD1	2,624,003.87	504,150.95	1105.58	NM	1107.04	NA	-1.46	NA
14N_9E32DD1	2,624,278.44	493,503.18	1091.50	NM	1091.40	NA	0.10	NA

Notes:

amsl = above mean sea level

ft = feet

LPN = Lower Platte North Natural Resources District

M.U.D. = Metropolitan Utilities District

MW = Monitoring Well

NA = Not applicable

NAD 83 = North American Datum of 1983

NAVD 88 = North American Vertical Datum of 1988

NM = Not measured

OW = Observation Well

PV = Platte Valley

PZ = Piezometer

TH = Test Hole

TV = Todd Valley

UNL-CSD = University of Nebraska, Conservation & Survey Division

Mean of Residual Error	0.16	-0.26
Mean of Absoluate Residual Error	1.48	1.51
Residual Error Standard Deviation	1.80	1.98
Sum of Squares	1037	1171
Root-Mean-Square Error	1.81	1.99
Minimum Residual Error	-6.64	-5.91
Maximum Residual Error	5.55	8.97
Number of Observations	317	296
Range in Observations	109.79	113.23
Scaled Residual Error Standard Deviation	1.64%	1.75%
Scaled Mean of Absolute Residual Error with respect to Range of Observations	1.34%	1.33%
Scaled Root-Mean-Square Error	1.65%	1.76%
Residual Mean of Scaled Residual Error	0.15%	-0.23%

Table 5.4
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
MW-02A	2,606,800.10	506,250.32	1136.80	1135.70	1.10
MW-03A	2,607,532.26	506,223.42	1135.93	1135.12	0.81
MW-04A	2,612,041.94	506,256.77	1133.52	1133.30	0.22
MW-05A	2,613,044.09	507,097.63	1134.71	1134.60	0.11
MW-07A	2,618,267.10	507,274.83	1127.42	1128.64	-1.22
MW-08A	2,622,863.97	506,814.76	1118.85	1121.39	-2.54
MW-09A	2,623,570.81	507,435.84	1119.13	1121.37	-2.24
MW-10A	2,607,883.83	496,858.27	1110.89	1112.45	-1.56
MW-11	2,626,486.32	509,499.80	1123.08	1123.27	-0.19
MW-17B	2,603,293.03	499,101.48	1121.67	1124.19	-2.52
MW-18B	2,629,156.57	506,827.46	1103.85	1103.76	0.09
MW-19B	2,618,429.63	517,576.97	1148.60	1145.82	2.78
MW-20B	2,616,633.43	493,191.47	1102.43	1101.77	0.66
MW-21A	2,607,121.37	503,524.81	1130.93	1130.52	0.41
MW-24A	2,608,476.90	501,919.83	1123.55	1124.75	-1.20
MW-25A	2,608,308.41	504,875.16	1132.25	1132.23	0.02
MW-27B	2,611,427.01	508,110.55	1139.22	1137.86	1.36
MW-28A	2,612,951.02	502,242.71	1122.32	1123.66	-1.34
MW-29A	2,614,469.84	498,383.11	1111.35	1111.72	-0.37
MW-29B	2,614,460.98	498,382.37	1111.19	1111.72	-0.53
MW-31A	2,617,943.95	503,233.70	1119.79	1121.79	-2.00
MW-32A	2,619,697.25	499,062.26	1106.95	1105.66	1.29
MW-33A	2,622,410.84	502,847.91	1109.54	1110.92	-1.38
MW-34A	2,624,442.78	498,806.30	1098.80	1097.65	1.15
MW-35A	2,629,595.76	496,323.64	1089.42	1087.76	1.66
MW-38A	2,638,131.88	496,248.57	1077.30	1076.65	0.65
MW-40A	2,623,018.62	511,963.35	1130.43	1129.56	0.87
MW-42A	2,629,385.20	501,582.56	1096.00	1092.37	3.63
MW-43A	2,629,243.07	504,317.91	1099.55	1096.13	3.42
MW-44A	2,632,953.68	500,415.12	1085.40	1082.34	3.06
MW-44B	2,632,954.90	500,426.32	1086.33	1082.32	4.01
MW-46A	2,637,464.94	499,387.37	1079.88	1078.69	1.19
MW-46B	2,637,464.42	499,396.68	1079.90	1078.69	1.21
MW-53B	2,627,885.40	508,166.61	1111.99	1113.34	-1.35
MW-56A	2,628,206.01	508,215.32	1109.85	1112.25	-2.40
MW-56B	2,628,195.32	508,217.29	1111.37	1112.25	-0.88

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
MW-57B	2,607,621.51	516,363.44	1159.36	1153.75	5.61
MW-60A	2,624,702.83	489,585.15	1094.74	1092.60	2.14
MW-61A	2,608,656.02	492,900.05	1103.81	1103.23	0.58
MW-65A	2,613,203.05	506,090.52	1132.40	1132.42	-0.02
MW-66B	2,613,268.32	506,027.61	1131.21	1132.22	-1.01
MW-72A	2,622,930.98	512,064.69	1132.95	1129.94	3.01
MW-73A	2,623,060.93	511,909.15	1126.62	1129.26	-2.64
MW-73B	2,623,052.30	511,908.70	1127.03	1129.27	-2.24
MW-78A	2,623,223.84	512,032.75	1129.70	1129.27	0.43
MW-80A	2,610,925.54	492,067.12	1101.13	1099.85	1.28
MW-80B	2,610,916.24	492,064.59	1101.08	1099.83	1.25
MW-82A	2,619,288.65	493,318.05	1101.33	1099.56	1.77
MW-83A	2,621,924.08	495,274.66	1098.24	1097.20	1.04
MW-83B	2,621,921.79	495,302.77	1098.33	1097.19	1.14
MW-84A	2,624,277.77	495,685.51	1097.16	1096.11	1.05
MW-84B	2,624,272.04	495,712.90	1097.27	1096.15	1.12
MW-85A	2,628,326.53	494,439.02	1090.90	1088.93	1.97
MW-86A	2,631,939.21	493,759.74	1083.24	1081.64	1.60
MW-88A	2,637,643.92	494,045.13	1076.31	1075.74	0.57
MW-89A	2,610,430.84	494,253.88	1104.85	1104.17	0.68
MW-90A	2,611,235.54	494,302.04	1105.54	1103.52	2.02
MW-91A	2,612,076.97	494,323.00	1105.23	1104.03	1.20
MW-93A	2,612,162.89	493,551.29	1103.21	1101.73	1.48
MW-94A	2,617,023.16	496,428.72	1105.76	1105.55	0.21
MW-95A	2,617,552.81	494,508.64	1104.06	1102.45	1.61
MW-95B	2,617,546.97	494,508.01	1104.08	1102.46	1.62
MW-96A	2,621,468.23	493,387.73	1097.80	1097.55	0.25
MW-97A	2,623,938.04	493,492.83	1096.68	1095.33	1.35
MW-97B	2,623,932.70	493,492.45	1096.70	1095.34	1.36
MW-98A	2,626,495.30	493,604.94	1094.12	1092.10	2.02
MW-99A	2,627,117.43	498,780.95	1095.19	1093.21	1.98
MW-99B	2,627,118.41	498,787.93	1095.19	1093.21	1.98
MW-100A	2,629,718.84	493,770.41	1088.45	1086.16	2.29
MW-101A	2,610,929.39	491,574.12	1100.90	1099.93	0.97
MW-102A	2,622,929.38	514,541.24	1135.99	1135.46	0.53
MW-103A	2,623,590.77	513,115.79	1131.87	1130.98	0.89

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
MW-104A	2,634,092.18	499,205.59	1079.39	1078.70	0.69
MW-104O	2,634,073.87	499,205.00	1078.68	1078.51	0.17
MW-106A	2,630,544.55	506,843.26	1101.42	1098.28	3.14
MW-106B	2,630,539.26	506,844.10	1101.45	1098.29	3.16
MW-107A	2,631,375.72	506,138.76	1097.73	1094.56	3.17
MW-107B	2,631,374.08	506,125.16	1097.91	1094.56	3.35
MW-109A	2,634,807.18	501,896.06	1086.00	1082.65	3.35
MW-109O	2,634,805.17	501,911.81	1081.71	1081.04	0.67
MW-110A	2,634,397.71	504,432.79	1089.37	1088.08	1.29
MW-111A	2,636,151.56	499,337.97	1079.74	1078.43	1.31
MW-111B	2,636,151.75	499,348.24	1079.80	1078.43	1.37
MW-111O	2,636,152.14	499,356.67	1078.50	1078.32	0.18
MW-112A	2,637,365.72	501,825.77	1082.13	1081.23	0.90
MW-112B	2,637,365.30	501,832.67	1082.17	1081.23	0.94
MW-113A	2,637,420.11	500,472.22	1080.58	1079.71	0.87
MW-113B	2,637,419.51	500,477.68	1080.53	1079.71	0.82
MW-114A	2,637,470.60	497,206.93	1077.76	1076.76	1.00
MW-115A	2,637,702.52	495,346.88	1076.82	1076.17	0.65
MW-116A	2,636,335.80	495,297.60	1076.07	1075.62	0.45
MW-116B	2,636,331.54	495,297.24	1076.09	1075.62	0.47
MW-118A	2,625,890.45	496,207.70	1095.37	1094.36	1.01
MW-119A	2,607,952.61	499,580.81	1116.21	1118.32	-2.11
MW-120A	2,609,372.30	499,419.07	1114.59	1116.01	-1.42
MW-120E	2,609,372.68	499,430.79	1114.59	1116.01	-1.42
MW-121A	2,609,752.79	500,071.02	1115.95	1117.21	-1.26
MW-122A	2,609,240.41	498,101.34	1112.55	1114.42	-1.87
MW-123A	2,608,677.91	499,909.07	1115.38	1117.27	-1.89
MW-124A	2,609,115.81	501,486.16	1120.56	1122.72	-2.16
MW-124B	2,609,107.79	501,496.31	1120.58	1122.73	-2.15
MW-125A	2,609,457.06	500,663.23	1117.41	1119.28	-1.87
MW-126A	2,607,483.63	504,504.82	1132.33	1132.17	0.16
MW-127A	2,606,121.55	506,918.35	1138.49	1137.21	1.28
MW-128A	2,624,836.13	498,190.80	1097.82	1096.63	1.19
MW-129A	2,627,766.39	496,542.43	1091.81	1090.37	1.44
MW-130A	2,629,053.38	496,650.27	1090.19	1088.81	1.38

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
MW-131A	2,626,341.54	496,939.83	1094.61	1093.33	1.28
MW-131B	2,626,348.52	496,944.69	1094.63	1093.34	1.29
MW-133A	2,622,522.67	509,720.93	1123.02	1124.71	-1.69
MW-133B	2,622,522.69	509,729.90	1123.18	1124.72	-1.54
MW-134A	2,623,417.21	509,045.74	1121.76	1123.45	-1.69
MW-134B	2,623,413.31	509,052.47	1121.84	1123.54	-1.70
MW-135A	2,623,150.45	509,762.33	1122.16	1123.93	-1.77
MW-135B	2,623,151.02	509,772.44	1122.16	1123.94	-1.78
MW-136A	2,623,054.23	510,561.26	1124.59	1125.91	-1.32
MW-137A	2,622,837.54	511,702.36	1130.06	1129.15	0.91
MW-138A	2,622,366.41	512,816.57	1133.20	1132.49	0.71
MW-139A	2,621,290.29	514,264.29	1136.47	1137.23	-0.76
MW-140A	2,634,717.63	503,375.83	1087.64	1085.92	1.72
MW-140O	2,634,717.20	503,393.26	1084.14	1085.90	-1.76
MW-141A	2,608,446.60	502,590.64	1125.95	1127.05	-1.10
MW-142A	2,610,572.95	495,594.89	1107.80	1108.67	-0.87
MW-143B	2,621,339.98	502,719.77	1111.21	1113.80	-2.59
MW-144A	2,614,012.25	503,570.97	1124.89	1127.83	-2.94
MW-145A	2,617,407.83	500,652.84	1113.67	1114.28	-0.61
MW-146A	2,618,871.66	494,899.38	1102.15	1101.00	1.15
MW-147A	2,620,042.45	494,474.75	1100.43	1099.04	1.39
MW-148B	2,620,179.92	504,425.78	1118.20	1120.98	-2.78
MW-149A	2,622,398.38	502,086.76	1108.24	1108.71	-0.47
MW-150A	2,624,201.15	499,856.55	1101.01	1099.36	1.65
MW-151A	2,624,392.64	506,668.08	1115.73	1118.67	-2.94
MW-152B	2,627,865.21	506,805.72	1108.65	1108.33	0.32
MW-153A	2,627,200.19	504,130.22	1102.85	1102.27	0.58
MW-154A	2,631,170.17	504,308.25	1095.42	1092.58	2.84
MW-154B	2,631,165.22	504,308.20	1096.05	1092.58	3.47
MW-155A	2,629,444.96	502,435.45	1096.68	1093.58	3.10
MW-156A	2,633,019.60	501,928.83	1089.38	1085.60	3.78
MW-156B	2,633,018.32	501,922.48	1089.70	1085.59	4.11
MW-157A	2,632,549.30	499,117.46	1084.85	1082.62	2.23
MW-158A	2,635,279.53	493,887.42	1074.88	1075.14	-0.26
MW-158B	2,635,272.00	493,887.38	1074.83	1075.14	-0.31
MW-159A	2,629,111.80	510,307.65	1115.98	1113.54	2.44

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
MW-160A	2,609,501.29	496,947.49	1106.58	1111.56	-4.98
MW-160B	2,609,505.06	496,954.30	1106.42	1111.68	-5.26
MW-161A	2,608,418.56	503,133.22	1124.48	1128.43	-3.95
MW-161B	2,608,419.67	503,123.84	1124.81	1128.43	-3.62
MW-166A	2,618,657.29	496,609.56	1101.79	1103.13	-1.34
MW-166B	2,618,661.42	496,616.20	1101.95	1103.13	-1.18
MW-167A	2,619,420.51	497,423.40	1101.94	1102.91	-0.97
MW-167B	2,619,428.96	497,426.56	1101.72	1102.91	-1.19
MW-168A	2,620,186.36	498,009.89	1101.17	1102.76	-1.59
MW-168B	2,620,178.27	498,011.71	1100.72	1102.76	-2.04
MW-169A	2,619,932.75	495,501.60	1097.80	1099.44	-1.64
MW-169B	2,619,942.57	495,502.95	1097.72	1099.44	-1.72
MW-170A	2,621,225.19	496,442.89	1096.65	1098.29	-1.64
MW-171A	2,615,668.94	501,881.31	1116.59	1119.70	-3.11
MW-171B	2,615,662.16	501,881.10	1116.30	1119.72	-3.42
MW-172A	2,625,763.50	497,428.55	1092.21	1094.94	-2.73
MW-172B	2,625,755.51	497,431.53	1092.57	1094.95	-2.38
MW-173A	2,627,008.04	497,957.67	1091.36	1092.49	-1.13
MW-174A	2,622,869.28	497,380.64	1096.22	1098.43	-2.21
MW-174B	2,622,865.16	497,375.02	1095.69	1098.43	-2.74
MW-175A	2,622,690.12	501,101.54	1102.77	1104.53	-1.76
MW-175B	2,622,680.35	501,098.07	1101.78	1104.53	-2.75
MW-176A	2,632,839.14	499,810.44	1082.32	1081.98	0.34
MW-176B	2,632,839.67	499,818.35	1080.92	1081.98	-1.06
MW-177A	2,609,971.19	492,953.37	1098.70	1101.30	-2.60
MW-177B	2,609,974.65	492,954.44	1100.42	1101.30	-0.88
MW-178B	2,628,870.63	506,851.75	1099.90	1105.30	-5.40
MW-179A	2,611,664.67	493,135.13	1096.93	1099.12	-2.19
MW-179B	2,611,658.78	493,134.48	1096.47	1099.15	-2.68
MW-180A	2,621,006.62	495,570.71	1094.42	1096.44	-2.02
MW-180E	2,621,013.00	495,571.85	1094.27	1096.44	-2.17
OW-05	2,634,934.82	495,184.29	1071.30	1072.69	-1.39
OW-06	2,634,884.33	495,208.11	1072.68	1072.77	-0.09
OW-07	2,634,884.15	495,203.34	1073.34	1072.77	0.57
OW-08	2,634,786.34	495,194.19	1073.86	1073.87	-0.01
OW-09	2,634,937.80	495,134.36	1073.04	1073.31	-0.27

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
OW-12	2,636,332.13	495,279.48	1076.08	1075.62	0.46
OW-13	2,634,929.33	495,121.80	1073.12	1073.31	-0.19
OW-14	2,634,937.07	494,987.77	1074.00	1074.05	-0.05
OW-15	2,634,948.12	494,788.06	1074.21	1074.47	-0.26
OW-16	2,633,480.01	495,159.25	1077.62	1076.89	0.73
OW-18	2,608,114.43	499,884.02	1116.56	1118.47	-1.91
OW-22	2,608,019.74	499,355.14	1115.99	1117.91	-1.92
OW-23	2,607,158.35	499,656.44	1117.32	1119.46	-2.14
OW-24	2,629,552.06	496,984.50	1090.05	1088.17	1.88
OW-25	2,629,511.42	496,932.08	1090.07	1088.22	1.85
OW-26	2,629,214.17	496,664.05	1090.60	1088.50	2.10
OW-27	2,629,582.05	496,942.21	1089.86	1088.14	1.72
OW-28	2,629,581.52	496,898.00	1089.73	1088.11	1.62
OW-31	2,624,242.96	497,898.99	1099.04	1097.34	1.70
OW-32	2,624,139.95	497,845.07	1099.07	1097.45	1.62
OW-33	2,623,750.57	497,669.79	1099.15	1097.78	1.37
OW-34	2,624,320.18	497,868.57	1098.56	1097.22	1.34
OW-35	2,624,360.77	497,738.45	1098.69	1097.09	1.60
OW-36	2,624,413.00	497,337.59	1098.32	1096.87	1.45
OW-37	2,624,838.27	498,178.35	1097.75	1096.63	1.12
OW-38	2,621,733.08	496,294.86	1096.65	1096.33	0.32
OW-39	2,621,620.02	496,212.33	1097.87	1097.04	0.83
OW-40	2,621,297.36	495,975.58	1098.78	1097.53	1.25
OW-41	2,621,816.64	496,281.90	1096.12	1096.27	-0.15
OW-42	2,621,899.70	496,169.43	1097.31	1096.85	0.46
OW-43	2,622,135.38	495,845.76	1098.26	1097.17	1.09
OW-44	2,622,302.63	496,682.05	1099.26	1097.88	1.38
OW-45	2,619,203.17	494,842.21	1101.77	1100.37	1.40
OW-46	2,619,059.00	494,783.36	1101.97	1100.57	1.40
OW-47	2,618,684.83	494,630.88	1102.64	1101.14	1.50
OW-48	2,619,283.37	494,800.47	1101.78	1100.30	1.48
OW-49	2,619,315.78	494,671.87	1101.55	1100.17	1.38
OW-50	2,619,465.62	494,300.16	1101.51	1099.79	1.72
OW-51	2,619,790.64	495,096.02	1100.93	1099.62	1.31
OW-52	2,610,585.60	493,033.91	1097.58	1098.27	-0.69
OW-53	2,610,555.96	493,019.67	1098.63	1098.27	0.36

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
OW-54	2,611,356.56	493,520.93	1097.46	1096.43	1.03
OW-55	2,610,821.53	492,991.93	1095.64	1097.76	-2.12
OW-56	2,611,642.99	493,196.43	1099.75	1098.66	1.09
OW-57	2,611,768.76	493,277.87	1100.54	1099.07	1.47
OW-58	2,611,366.56	493,009.96	1100.52	1098.69	1.83
OW-59	2,611,579.97	493,019.21	1100.55	1099.06	1.49
OW-60	2,627,137.87	497,440.67	1093.00	1091.09	1.91
OW-61	2,627,191.65	497,571.53	1093.64	1091.62	2.02
OW-62	2,627,351.22	497,954.27	1094.45	1091.85	2.60
OW-63	2,627,527.96	497,841.89	1094.15	1091.44	2.71
OW-64	2,627,299.94	497,308.27	1093.02	1091.18	1.84
OW-65	2,627,672.94	497,146.26	1092.39	1090.75	1.64
OW-66	2,622,938.07	497,314.20	1099.41	1098.30	1.11
OW-67	2,622,730.72	497,150.23	1099.28	1098.33	0.95
OW-68	2,622,418.58	496,526.17	1098.69	1097.68	1.01
OW-69	2,623,044.57	497,134.81	1099.06	1098.02	1.04
OW-70	2,623,340.91	496,845.85	1098.73	1097.54	1.19
OW-71	2,623,796.31	497,474.10	1098.82	1097.64	1.18
OW-72	2,620,345.78	495,292.98	1098.55	1098.05	0.50
OW-73	2,620,217.61	495,239.66	1099.50	1098.53	0.97
OW-74	2,619,854.18	494,895.06	1100.98	1099.39	1.59
OW-75	2,620,487.46	495,139.42	1099.08	1097.98	1.10
OW-76	2,620,657.85	494,777.17	1099.28	1098.08	1.20
OW-77	2,621,414.78	495,808.38	1098.56	1097.19	1.37
OW-78	2,609,111.28	499,977.47	1111.46	1112.85	-1.39
OW-79	2,608,989.60	499,915.27	1113.80	1115.67	-1.87
OW-80	2,608,751.82	499,731.59	1115.24	1116.72	-1.48
OW-81	2,609,233.49	499,803.10	1114.48	1114.94	-0.46
OW-82	2,609,366.00	499,415.33	1114.69	1116.01	-1.32
OW-83	2,609,754.89	500,075.01	1116.18	1117.21	-1.03
OW-89	2,632,605.05	496,433.60	1081.25	1080.16	1.09
OW-90	2,625,244.14	498,690.84	1094.92	1094.35	0.57
OW-92	2,625,155.78	498,583.33	1096.73	1095.35	1.38
OW-93	2,625,291.12	498,721.87	1093.63	1091.05	2.58
OW-94	2,625,433.51	498,611.46	1096.61	1094.90	1.71
OW-95	2,625,755.73	498,358.54	1096.56	1094.98	1.58

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
OW-96	2,628,354.01	496,783.72	1092.02	1089.75	2.27
OW-97	2,628,422.98	496,909.51	1091.40	1089.78	1.62
OW-98	2,628,617.39	497,268.67	1091.59	1089.72	1.87
OW-99	2,628,520.49	496,667.07	1090.99	1089.57	1.42
OW-100	2,628,885.60	496,489.50	1090.40	1089.01	1.39
OW-101	2,622,907.33	509,987.52	1120.98	1122.56	-1.58
OW-102	2,623,025.62	510,070.30	1122.50	1123.96	-1.46
OW-103	2,623,370.57	510,291.27	1124.65	1124.88	-0.23
OW-104	2,622,969.37	509,760.45	1121.79	1123.77	-1.98
OW-105	2,623,170.60	509,450.30	1122.14	1123.90	-1.76
OW-106	2,611,437.33	493,518.06	1096.84	1095.09	1.75
OW-107	2,611,500.55	493,522.80	1100.64	1097.45	3.19
OW-108	2,611,480.69	493,520.70	1094.74	1092.66	2.08
OW-110	2,634,942.69	495,106.01	1070.07	1073.31	-3.24
OW-111	2,620,978.97	495,642.20	1100.06	1096.78	3.28
OW-112	2,620,948.75	495,616.71	1100.44	1096.78	3.66
OW-113	2,620,861.85	495,545.09	1101.06	1097.34	3.72
PZ-01	2,632,385.13	499,049.59	1085.29	1083.06	2.23
PZ-02	2,631,558.74	499,022.44	1088.58	1085.33	3.25
PZ-13	2,633,396.43	499,150.91	1081.18	1079.91	1.27
PZ-14	2,633,403.55	499,154.07	1080.57	1079.69	0.88
TH-EW-13	2,611,511.12	493,072.65	1100.22	1098.77	1.45
TH-EW-14R1	2,625,268.99	498,721.42	1092.62	1091.05	1.57
TH-EW-14R2	2,625,871.91	497,850.00	1096.75	1094.72	2.03
TH-EW-15	2,622,870.43	509,960.21	1122.12	1120.63	1.49
TH-EW-16	2,628,310.33	496,736.54	1091.51	1089.78	1.73
TH-EW-17	2,611,500.55	493,522.80	1088.38	1087.02	1.36
Brabec	2,618,637.53	493,130.49	1102.31	1100.10	2.21
D.Starns	2,647,807.25	467,164.01	1052.53	1055.07	-2.54
Frahm	2,626,738.84	493,304.52	1093.95	1091.50	2.45
Hanson	2,623,180.17	493,348.86	1097.48	1096.05	1.43
LPN 06-01	2,642,292.17	478,302.11	1063.55	1063.89	-0.34
LPN 06-18	2,635,721.74	504,500.62	1087.60	1086.31	1.29
LPN 06-19	2,634,208.23	514,979.75	1105.95	1108.16	-2.21
LPN 06-21	2,628,536.27	525,369.84	1155.19	1152.05	3.14
M90-01	2,640,590.79	488,958.80	1072.64	1072.30	0.34

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
M90-02	2,645,833.34	489,117.85	1070.95	1072.62	-1.67
M90-04	2,640,807.93	484,163.23	1068.21	1068.66	-0.45
M90-05R	2,645,266.37	482,393.07	1061.88	1063.39	-1.51
M90-09	2,640,866.61	478,557.35	1066.08	1064.90	1.18
M90-12R	2,647,999.03	479,369.24	1063.70	1064.76	-1.06
M90-15	2,641,258.12	472,881.56	1061.59	1061.77	-0.18
M90-16R	2,645,344.89	473,282.19	1060.26	1060.87	-0.61
M90-17R	2,648,791.50	473,326.64	1059.07	1060.39	-1.32
M90-20R	2,651,427.57	470,805.41	1058.41	1059.27	-0.86
M90-21	2,642,068.72	468,390.33	1060.04	1057.74	2.30
M90-22R	2,645,116.45	467,804.04	1056.53	1056.56	-0.03
M90-23R	2,649,222.45	468,585.23	1047.83	1053.44	-5.61
M90-24R	2,650,175.62	465,992.63	1046.21	1053.02	-6.81
M90-26R	2,652,730.86	465,392.21	1050.51	1053.21	-2.70
M90-36R	2,653,436.76	465,017.15	1052.57	1053.88	-1.31
M90-37	2,652,867.09	463,331.64	1051.32	1052.90	-1.58
MUD 06-28	2,638,860.99	509,627.35	1087.01	1089.28	-2.27
MUD 90-10	2,645,430.50	516,093.59	1092.11	1091.54	0.57
MUD 94-3	2,646,191.75	498,899.86	1080.88	1080.55	0.33
MUD 94-4	2,645,711.85	509,564.70	1085.23	1086.21	-0.98
MUD 94-5	2,640,274.41	514,549.30	1094.57	1092.87	1.70
MUD 94-6	2,639,186.28	503,954.84	1084.23	1083.40	0.83
MUD 94-7	2,643,737.28	493,588.88	1077.29	1076.17	1.12
N.Keiser	2,632,144.97	495,084.13	1082.67	1081.03	1.64
N.Wann	2,642,527.93	520,660.55	1104.97	1103.11	1.86
PV-37	2,644,077.01	514,703.40	1091.44	1090.71	0.73
PV-38	2,642,740.13	516,679.62	1095.88	1093.74	2.14
PV-39	2,635,348.70	501,827.54	1084.01	1082.05	1.96
PV-40	2,645,297.73	502,916.41	1082.49	1083.57	-1.08
PV-41	2,642,173.78	514,040.50	1092.26	1090.91	1.35
S.Keiser	2,632,579.63	493,968.08	1081.45	1079.90	1.55
TV-16	2,623,841.69	492,107.27	1096.52	1094.89	1.63
TV-17A	2,627,487.94	482,977.99	1089.59	1084.66	4.93
UNL-CSD	2,641,218.70	473,036.06	1062.80	1061.77	1.03
13N_10E32AD DD1_M90-30R	2,657,224.00	466,089.97	1052.64	1053.83	-1.19

Table 5.4 (Continued)
March 2017 Calibration Residuals
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Name	Easting (ft, NAD 83)	Northing (ft, NAD 83)	Observed (ft AMSL, NAVD 88) 3/31/2017	Simulated (ft AMSL, NAVD 88) 3/31/2017	Residual Errors (ft) 3/31/2017
13N_10E32DBBA1_M28R_ ISLAND_NORTH_WELL	2,655,098.69	465,594.25	1054.43	1053.21	1.22
13N_10E32DC AD1_M91-50R	2,656,085.99	464,016.01	1051.62	1053.19	-1.57
14N_8E27BAAB1	2,599,758.53	503,210.55	1133.87	1131.64	2.23
14N_8E36DD1	2,613,895.26	493,065.13	1102.68	1102.53	0.15
14N_9E20DD1	2,624,003.87	504,150.95	1110.34	1112.00	-1.66
14N_9E32DD1	2,624,278.44	493,503.18	1096.22	1095.01	1.21

Notes:

amsl = above mean sea level
ft = feet
LPN = Lower Platte North Natural Resources District
M.U.D. = Metropolitan Utilities District
MW = Monitoring Well
NA = Not applicable
NAD 83 = North American Datum of 1983
NAVD 88 = North American Vertical Datum of 1988
NM = Not measured
OW = Observation Well
PV = Platte Valley
PZ = Piezometer
TH = Test Hole
TV = Todd Valley
UNL-CSD = University of Nebraska, Conservation & Survey Division

Mean of Residual Error	0.29
Mean of Absoluate Residual Error	1.59
Residual Error Standard Deviation	1.88
Sum of Squares	1183
Root-Mean-Square Error	1.90
Minimum Residual Error	-6.81
Maximum Residual Error	5.61
Number of Observations	328
Range in Observations	113.15
Scaled Residual Error Standard Deviation	1.66%
Scaled Mean of Absolute Residual Error with respect to Range of Observations	1.41%
Scaled Root-Mean-Square Error	1.68%
Residual Mean of Scaled Residual Error	0.26%

Table 5.5
Recharge by Stress Period
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period and Location	Stress Periods	Recharge Rate (feet/day)	Recharge Rate (inches/day)
Short-Term Transient Model			
September 2014 (All Regions)	1	1.95E-03	2.34E-02
October 2014 (All Regions)	2	2.09E-03	2.51E-02
November 2014 (All Regions)	3	2.63E-04	3.16E-03
December 2014 (All Regions)	4	1.32E-03	1.59E-02
January 2015 (All Regions)	5	2.40E-04	2.88E-03
February 2015 (All Regions)	6	1.11E-03	1.33E-02
March 2015 (All Regions)	7, 8, 9	7.54E-04	9.05E-03
April 2015 (All Regions)	10	2.41E-03	2.89E-02
May 2015 (All Regions)	11	4.00E-03	4.80E-02
June 2015 (All Regions)	12	3.63E-03	4.36E-02
July 2015 (All Regions)	13	3.31E-03	3.97E-02
August 2015 (All Regions)	14	4.18E-03	5.01E-02
September 2015 (All Regions)	15	3.27E-03	3.92E-02
October 2015 (All Regions)	16, 17	4.87E-04	5.85E-03
November 2015 (All Regions)	18	1.85E-03	2.22E-02
December 2015 (All Regions)	19	2.88E-03	3.45E-02
January 2016 (All Regions)	20	8.37E-04	1.00E-02
February 2016 (All Regions)	21	8.86E-04	1.06E-02
March 2016 (All Regions)	22	1.21E-03	1.45E-02
April 2016 (All Regions)	23	5.33E-03	6.40E-02
May 2016 (All Regions)	24	6.46E-03	7.75E-02
June 2016 (All Regions)	25	4.09E-03	4.91E-02
July 2016 (All Regions)	26	4.01E-03	4.81E-02
August 2016 (All Regions)	27	7.11E-03	8.53E-02
September 2016 (All Regions)	28	2.72E-03	3.26E-02
October 2016 (All Regions)	29	1.42E-03	1.71E-02
November 2016 (All Regions)	30, 31, 32	9.13E-04	1.10E-02
December 2016 (All Regions)	33	1.59E-03	1.91E-02
January 2017 (All Regions)	34	9.48E-04	1.14E-02
February 2017 (All Regions)	35	7.13E-04	8.56E-03
March 2017 (All Regions)	36	2.32E-03	2.78E-02
April 2017 (All Regions)	37	2.88E-03	3.46E-02
May 2017 (All Regions)	38	6.70E-03	8.04E-02

Table 5.5 (Continued)
Recharge by Stress Period
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period and Location	Stress Periods	Recharge Rate (feet/day)	Recharge Rate (inches/day)
Predictive Model			
Irrigation Season, June 2017 – May 2067 (Todd Valley, Wahoo Valley)	1, 3, 5…199	2.29E-03	2.75E-02
Irrigation Season, June 2017 – May 2067 (Platte Valley)	1, 3, 5…199	3.05E-03	3.66E-02
Non-Irrigation Season, June 2017 – May 2067 (Todd Valley, Wahoo Valley)	2, 4, 6…200	1.19E-03	1.43E-02
Non-Irrigation Season, June 2017 – May 2067 (Platte Valley)	2, 4, 6…200	1.58E-03	1.90E-02

Notes:

Recharge through May 2017 estimated at 20 percent of precipitation based on short-term transient model calibration.

Long term recharge rates after May 2017 are based on predicted rates from 2012 Groundwater Model Update (USACE, 2013).

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 April-October data from stations A255367 MEMPHIS 5 N, and 255369 ITHACA 3 E.Automated Weather Data Network

Table 5.6
Evapotranspiration by Stress Period
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period	Stess Periods	Evapotranspiration Rate (feet/day)			Evapotranspiration Rate (inches/day)		
		Phreatophyte Zone	Platte Valley	Todd Valley, Wahoo Valley	Phreatophyte Zone	Platte Valley	Todd Valley, Wahoo Valley
Short-Term Transient Model							
September 2014	1	1.13E-02	4.79E-03	1.20E-03	1.33E-01	5.64E-02	1.41E-02
October 2014	2	1.13E-02	4.71E-03	1.18E-03	1.30E-01	5.53E-02	1.38E-02
November 2014	3	7.01E-03	2.98E-03	7.50E-04	8.18E-02	3.48E-02	8.67E-03
December 2014	4	2.10E-03	8.90E-04	2.20E-04	2.49E-02	1.06E-02	2.64E-03
January 2015	5	4.90E-03	2.08E-03	5.19E-04	5.87E-02	2.50E-02	6.23E-03
February 2015	6	4.40E-03	1.87E-03	4.66E-04	5.28E-02	2.24E-02	5.59E-03
March 2015	7, 8, 9	1.50E-02	6.38E-03	1.59E-03	1.80E-01	7.66E-02	1.91E-02
April 2015	10	1.60E-02	6.81E-03	1.70E-03	1.92E-01	8.17E-02	2.04E-02
May 2015	11	1.32E-02	5.61E-03	1.40E-03	1.58E-01	6.74E-02	1.68E-02
June 2015	12	1.73E-02	7.35E-03	1.83E-03	2.07E-01	8.82E-02	2.20E-02
July 2015	13	1.70E-02	7.22E-03	1.80E-03	2.04E-01	8.66E-02	2.16E-02
August 2015	14	1.37E-02	5.84E-03	1.46E-03	1.65E-01	7.01E-02	1.75E-02
September 2015	15	1.34E-02	5.70E-03	6.06E-04	1.61E-01	6.84E-02	1.71E-02
October 2015	16, 17	1.19E-02	5.07E-03	5.39E-04	1.43E-01	6.08E-02	1.52E-02
November 2015	18	7.23E-03	3.08E-03	3.27E-04	8.68E-02	3.69E-02	9.20E-03
December 2015	19	2.89E-03	1.23E-03	1.31E-04	3.47E-02	1.48E-02	3.68E-03
January 2016	20	2.43E-03	1.03E-03	2.58E-04	2.92E-02	1.24E-02	3.09E-03
February 2016	21	6.50E-03	2.76E-03	6.89E-04	7.80E-02	3.31E-02	8.27E-03
March 2016	22	1.33E-02	5.67E-03	1.41E-03	1.60E-01	6.80E-02	1.70E-02
April 2016	23	1.77E-02	7.53E-03	1.88E-03	2.13E-01	9.03E-02	2.25E-02
May 2016	24	1.77E-02	7.54E-03	1.88E-03	2.13E-01	9.05E-02	2.26E-02
June 2016	25	2.48E-02	1.05E-02	2.63E-03	2.97E-01	1.26E-01	3.15E-02
July 2016	26	1.70E-02	7.22E-03	1.80E-03	2.04E-01	8.66E-02	2.16E-02
August 2016	27	1.43E-02	6.06E-03	1.51E-03	1.71E-01	7.27E-02	1.81E-02
September 2016	28	1.28E-02	5.45E-03	1.36E-03	1.54E-01	6.55E-02	1.63E-02
October 2016	29	9.08E-03	3.86E-03	9.63E-04	1.09E-01	4.63E-02	1.16E-02
November 2016	30, 31, 32	6.78E-03	2.88E-03	7.18E-04	8.13E-02	3.46E-02	8.62E-03
December 2016	33	3.81E-03	1.62E-03	4.04E-04	4.57E-02	1.94E-02	4.84E-03
January 2017	34	2.56E-03	1.09E-03	2.72E-04	3.08E-02	1.31E-02	3.26E-03
February 2017	35	7.77E-03	3.30E-03	8.24E-04	9.33E-02	3.96E-02	9.88E-03
March 2017	36	1.12E-02	4.76E-03	1.19E-03	1.34E-01	5.71E-02	1.43E-02
April 2017	37	1.22E-02	5.20E-03	1.30E-03	1.47E-01	6.24E-02	1.56E-02
May 2017	38	1.95E-02	8.29E-03	2.07E-03	2.34E-01	9.94E-02	2.48E-02

Table 5.6 (Continued)
Evapotranspiration by Stress Period
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Time Period	Stess Periods	Evapotranspiration Rate (feet/day)			Evapotranspiration Rate (inches/day)		
		Phreatophyte Zone	Platte Valley	Todd Valley, Wahoo Valley	Phreatophyte Zone	Platte Valley	Todd Valley, Wahoo Valley
Predictive Model							
Irrigation Season, June 1, 2017 - August 31, 2067	1, 3, 5…99	0.0188	0.0080	0.0018	2.26E-01	9.60E-02	2.16E-02
Non-Irrigation Season, June 1, 2017 - August 31, 2067	2, 4, 6…100	0.0094	0.0040	0.0010	1.13E-01	4.80E-02	1.20E-02

Notes:

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

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 in the future prediction in the 2012 Groundwater Model Update.

Table 5.7
Storativity, Specific Yield, and Effective Porosity
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Hydrostratigraphic Unit	Storativity/ Specific Storage	Specific Yield	Effective Porosity
Platte Valley Aquifer	0.01	0.25	0.30
Todd Valley Aquifer	0.003	0.20	0.25
Wahoo Valley Aquifer	0.01	0.25	0.25
Overbank Fines	0.00001	0.10	0.20

Table 6.1
Fate and Transport Model Parameters
2017 Groundwater Model Update
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 Koc	107 cm^3/g
Distribution coefficient (Kd) of TCE for shallow/intermediate layers*	0.03 cm^3/g
Distribution coefficient (Kd) 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

f_{oc} = fraction of total organic carbon

ft = feet

g/cm^3 = grams per cubic centimeter

Kd = soil-water distribution coefficient

Koc = organic carbon partition coefficient

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

TCE = trichloroethene

Table 7.1
Proposed Pumping Rates for Next 30 Years
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Periods	1-2	3-60	1-2	3-60
Start Date	6/1/2017	6/1/2018	6/1/2017	6/1/2018
End Date	5/31/2018	5/31/2047	5/31/2018	5/31/2047
Well Name	ft^3/day	ft^3/day	gpm	gpm
EW-1R	36,575	36,575	190	190
EW-4	13,090	0	68	0
EW-7	33,687	33,687	175	175
EW-9	20,212	20,212	105	105
FEW-11	82,775	82,775	430	430
EW-12	35,805	35,805	186	186
FEW-14	44,275	44,275	230	230
FEW-15	78,925	78,925	410	410
EW-16	0	28,875	0	150
EW-17	57,750	57,750	300	300
EW-18	33,687	33,687	175	175

Notes:

gpm = gallons per minute

EW = extraction well

FEW = focused extraction well

ft^3/day = cubic feet per day

Table 7.2
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	1	2	3	4	5	6	7	8
Start Date:	**6/1/17**	**9/1/17**	**6/1/18**	**9/1/18**	**6/1/19**	**9/1/19**	**6/1/20**	**9/1/20**
End Date:	**8/31/17**	**5/31/18**	**8/31/18**	**5/31/19**	**8/31/19**	**5/31/20**	**8/31/20**	**5/31/21**
A-010367A	0	0	0	0	0	0	0	0
A-010367B	164,883	265,016	166,789	268,377	168,944	271,832	171,099	275,288
A-010367C	164,883	265,016	166,789	268,377	168,944	271,832	171,099	275,288
A-010367CC	111,695	179,527	112,986	181,804	114,446	184,144	115,906	186,485
A-010367D	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367DD	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367E(1R)	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367EE	69,144	111,136	69,944	112,545	70,847	113,994	71,751	115,443
A-010367H	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
A-010367HH	58,507	94,038	59,183	95,230	59,948	96,457	60,712	97,683
A-010367I	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
A-010367J	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
A-010367JJ	69,144	111,136	69,944	112,545	70,847	113,994	71,751	115,443
A-010367K	0	0	0	0	0	0	0	0
A-010367KK	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
A-010367L	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367MM	186,158	299,212	188,310	303,006	190,743	306,907	193,176	310,809
A-010367N	53,188	85,489	53,803	86,573	54,498	87,688	55,193	88,802
A-010367P	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
A-010367Q(1R)	143,608	230,821	145,268	233,747	147,145	236,757	149,022	239,767
A-010367QQ	74,463	119,685	75,324	121,202	76,297	122,763	77,270	124,323
A-010367R	106,376	170,978	107,606	173,146	108,996	175,376	110,386	177,605
A-010367S(1R)	42,550	68,391	43,042	69,258	43,598	70,150	44,155	71,042
A-010367T	143,608	230,821	145,268	233,747	147,145	236,757	149,022	239,767
A-010367X(1R)	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
A-010367Y	122,333	196,625	123,747	199,118	125,346	201,682	126,944	204,246
G-070300	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
G-070303	37,232	59,842	37,662	60,601	38,149	61,381	38,635	62,162
G-070304	37,232	59,842	37,662	60,601	38,149	61,381	38,635	62,162
G-070305	159,564	256,467	161,409	259,719	163,494	263,063	165,579	266,407
G-070306	15,956	25,647	16,141	25,972	16,349	26,306	16,558	26,641
G-070307	0	0	0	0	0	0	0	0
G-070308	21,275	34,196	21,521	34,629	21,799	35,075	22,077	35,521
G-070309	79,782	128,234	80,704	129,860	81,747	131,532	82,790	133,204
G-070310(1R)	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
G-070311	90,420	145,332	91,465	147,174	92,647	149,069	93,828	150,964
G-070312	26,594	42,745	26,901	43,287	27,249	43,844	27,597	44,401
G-070412	63,826	102,587	64,564	103,888	65,398	105,225	66,232	106,563
G-072911	15,956	25,647	16,141	25,972	16,349	26,306	16,558	26,641
G-072912	138,289	222,272	139,888	225,090	141,695	227,988	143,502	230,886
G-076884	664,851	1,068,614	672,537	1,082,164	681,226	1,096,097	689,914	1,110,031
G-077983	829,734	1,333,630	839,326	1,350,541	850,170	1,367,930	861,013	1,385,319
G-175675	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)	**62.06**	**39.00**	**62.68**	**39.39**	**63.31**	**39.79**	**63.95**	**40.25**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	9	10	11	12	13	14	15
Start Date:	6/1/21	9/1/21	6/1/22	9/1/22	6/1/23	9/1/23	6/1/24
End Date:	8/31/21	5/31/22	8/31/22	5/31/23	8/31/23	5/31/24	8/31/24
A-010367A	0	0	0	0	0	0	0
A-010367B	173,295	278,843	175,450	282,199	177,563	285,654	179,718
A-010367C	173,295	278,843	175,450	282,199	177,563	285,654	179,718
A-010367CC	117,393	188,894	118,853	191,167	120,285	193,508	121,744
A-010367D	83,852	134,924	84,895	136,548	85,918	138,220	86,960
A-010367DD	78,262	125,929	79,235	127,445	80,190	129,005	81,163
A-010367E(1R)	83,852	134,924	84,895	136,548	85,918	138,220	86,960
A-010367EE	72,672	116,934	73,576	118,341	74,462	119,790	75,366
A-010367H	27,951	44,975	28,298	45,516	28,639	46,073	28,987
A-010367HH	61,492	98,944	62,256	100,135	63,006	101,361	63,771
A-010367I	67,082	107,939	67,916	109,238	68,734	110,576	69,568
A-010367J	22,361	35,980	22,639	36,413	22,911	36,859	23,189
A-010367JJ	72,672	116,934	73,576	118,341	74,462	119,790	75,366
A-010367K	0	0	0	0	0	0	0
A-010367KK	83,852	134,924	84,895	136,548	85,918	138,220	86,960
A-010367L	78,262	125,929	79,235	127,445	80,190	129,005	81,163
A-010367MM	195,656	314,823	198,088	318,611	200,475	322,513	202,907
A-010367N	55,902	89,949	56,597	91,032	57,278	92,146	57,974
A-010367P	27,951	44,975	28,298	45,516	28,639	46,073	28,987
A-010367Q(1R)	150,934	242,863	152,811	245,786	154,652	248,796	156,529
A-010367QQ	78,262	125,929	79,235	127,445	80,190	129,005	81,163
A-010367R	111,803	179,899	113,193	182,064	114,557	184,293	115,947
A-010367S(1R)	44,721	71,960	45,277	72,825	45,823	73,717	46,379
A-010367T	150,934	242,863	152,811	245,786	154,652	248,796	156,529
A-010367X(1R)	67,082	107,939	67,916	109,238	68,734	110,576	69,568
A-010367Y	128,574	206,884	130,172	209,373	131,740	211,937	133,339
G-070300	22,361	35,980	22,639	36,413	22,911	36,859	23,189
G-070303	39,131	62,965	39,618	63,722	40,095	64,503	40,581
G-070304	39,131	62,965	39,618	63,722	40,095	64,503	40,581
G-070305	167,705	269,848	169,790	273,095	171,835	276,439	173,921
G-070306	16,770	26,985	16,979	27,310	17,184	27,644	17,392
G-070307	0	0	0	0	0	0	0
G-070308	22,361	35,980	22,639	36,413	22,911	36,859	23,189
G-070309	83,852	134,924	84,895	136,548	85,918	138,220	86,960
G-070310(1R)	27,951	44,975	28,298	45,516	28,639	46,073	28,987
G-070311	95,033	152,914	96,214	154,754	97,373	156,649	98,555
G-070312	27,951	44,975	28,298	45,516	28,639	46,073	28,987
G-070412	67,082	107,939	67,916	109,238	68,734	110,576	69,568
G-072911	16,770	26,985	16,979	27,310	17,184	27,644	17,392
G-072912	145,344	233,869	147,151	236,683	148,924	239,581	150,731
G-076884	698,770	1,124,368	707,459	1,137,898	715,980	1,151,831	724,669
G-077983	872,065	1,403,211	882,909	1,420,096	893,544	1,437,485	904,387
G-175675	1,050,950	1,691,049	1,064,018	1,711,398	1,076,835	1,732,354	1,089,902
Total (MGD)	**64.77**	**40.77**	**65.60**	**41.29**	**66.43**	**41.82**	**67.29**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	16	17	18	19	20	21	22	23
Start Date:	9/1/24	6/1/25	9/1/25	6/1/26	9/1/26	6/1/27	9/1/27	6/1/28
End Date:	5/31/25	8/31/25	5/31/26	8/31/26	5/31/27	8/31/27	5/31/28	8/31/28
A-010367A	0	0	0	0	0	0	0	0
A-010367B	289,110	181,914	292,670	184,069	296,021	186,224	299,476	188,586
A-010367C	289,110	181,914	292,670	184,069	296,021	186,224	299,476	188,586
A-010367CC	195,848	123,232	198,260	124,692	200,530	126,152	202,871	127,752
A-010367D	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251
A-010367DD	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168
A-010367E(1R)	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251
A-010367EE	121,240	76,287	122,733	77,190	124,138	78,094	125,587	79,084
A-010367H	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417
A-010367HH	102,587	64,550	103,851	65,315	105,040	66,079	106,266	66,918
A-010367I	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001
A-010367J	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334
A-010367JJ	121,240	76,287	122,733	77,190	124,138	78,094	125,587	79,084
A-010367K	0	0	0	0	0	0	0	0
A-010367KK	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251
A-010367L	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168
A-010367MM	326,414	205,387	330,434	207,820	334,217	210,253	338,118	212,919
A-010367N	93,261	58,682	94,410	59,377	95,491	60,072	96,605	60,834
A-010367P	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417
A-010367Q(1R)	251,805	158,441	254,906	160,318	257,824	162,195	260,834	164,252
A-010367QQ	130,566	82,155	132,174	83,128	133,687	84,101	135,247	85,168
A-010367R	186,522	117,364	188,819	118,754	190,981	120,144	193,210	121,668
A-010367S(1R)	74,609	46,946	75,528	47,502	76,392	48,058	77,284	48,667
A-010367T	251,805	158,441	254,906	160,318	257,824	162,195	260,834	164,252
A-010367X(1R)	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001
A-010367Y	214,501	134,969	217,142	136,567	219,628	138,166	222,192	139,918
G-070300	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334
G-070303	65,283	41,077	66,087	41,564	66,843	42,051	67,624	42,584
G-070304	65,283	41,077	66,087	41,564	66,843	42,051	67,624	42,584
G-070305	279,784	176,046	283,229	178,131	286,472	180,217	289,816	182,502
G-070306	27,978	17,605	28,323	17,813	28,647	18,022	28,982	18,250
G-070307	0	0	0	0	0	0	0	0
G-070308	37,304	23,473	37,764	23,751	38,196	24,029	38,642	24,334
G-070309	139,892	88,023	141,615	89,066	143,236	90,108	144,908	91,251
G-070310(1R)	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417
G-070311	158,544	99,759	160,497	100,941	162,334	102,123	164,229	103,418
G-070312	46,631	29,341	47,205	29,689	47,745	30,036	48,303	30,417
G-070412	111,913	70,418	113,292	71,253	114,589	72,087	115,926	73,001
G-072911	27,978	17,605	28,323	17,813	28,647	18,022	28,982	18,250
G-072912	242,479	152,573	245,465	154,380	248,275	156,188	251,174	158,169
G-076884	1,165,765	733,525	1,180,122	742,214	1,193,632	750,902	1,207,565	760,426
G-077983	1,454,874	915,439	1,472,792	926,283	1,489,652	937,126	1,507,041	949,012
G-175675	1,753,310	1,103,221	1,774,903	1,116,289	1,795,222	1,129,357	1,816,178	1,143,681
Total (MGD)	**42.34**	**68.10**	**42.85**	**68.93**	**43.37**	**69.77**	**43.90**	**70.63**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	24	25	26	27	28	29	30	31	32
Start Date:	9/1/28	6/1/29	9/1/29	6/1/30	9/1/30	6/1/31	9/1/31	6/1/32	9/1/32
End Date:	5/31/29	8/31/29	5/31/30	8/31/30	5/31/31	8/31/31	5/31/32	8/31/32	5/31/33
A-010367A	0	0	0	0	0	0	0	0	0
A-010367B	303,508	191,113	307,649	193,641	311,570	196,128	315,602	198,655	319,633
A-010367C	303,508	191,113	307,649	193,641	311,570	196,128	315,602	198,655	319,633
A-010367CC	205,602	129,464	208,408	131,176	211,064	132,861	213,795	134,573	216,526
A-010367D	146,858	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661
A-010367DD	137,068	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350
A-010367E(1R)	146,858	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661
A-010367EE	127,277	80,144	129,014	81,204	130,659	82,247	132,349	83,307	134,040
A-010367H	48,953	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554
A-010367HH	107,696	67,814	109,166	68,711	110,557	69,594	111,988	70,491	113,418
A-010367I	117,487	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729
A-010367J	39,162	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243
A-010367JJ	127,277	80,144	129,014	81,204	130,659	82,247	132,349	83,307	134,040
A-010367K	0	0	0	0	0	0	0	0	0
A-010367KK	146,858	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661
A-010367L	137,068	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350
A-010367MM	342,670	215,773	347,346	218,627	351,773	221,434	356,325	224,288	360,876
A-010367N	97,906	61,650	99,242	62,465	100,507	63,267	101,807	64,082	103,107
A-010367P	48,953	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554
A-010367Q(1R)	264,345	166,454	267,953	168,655	271,368	170,821	274,879	173,022	278,390
A-010367QQ	137,068	86,309	138,938	87,451	140,709	88,574	142,530	89,715	144,350
A-010367R	195,811	123,299	198,483	124,930	201,013	126,534	203,614	128,165	206,215
A-010367S(1R)	78,325	49,320	79,393	49,972	80,405	50,614	81,446	51,266	82,486
A-010367T	264,345	166,454	267,953	168,655	271,368	170,821	274,879	173,022	278,390
A-010367X(1R)	117,487	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729
A-010367Y	225,183	141,794	228,256	143,669	231,165	145,514	234,156	147,389	237,147
G-070300	39,162	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243
G-070303	68,534	43,155	69,469	43,725	70,355	44,287	71,265	44,858	72,175
G-070304	68,534	43,155	69,469	43,725	70,355	44,287	71,265	44,858	72,175
G-070305	293,717	184,949	297,725	187,395	301,520	189,801	305,421	192,247	309,322
G-070306	29,372	18,495	29,773	18,739	30,152	18,980	30,542	19,225	30,932
G-070307	0	0	0	0	0	0	0	0	0
G-070308	39,162	24,660	39,697	24,986	40,203	25,307	40,723	25,633	41,243
G-070309	146,858	92,474	148,863	93,697	150,760	94,900	152,711	96,124	154,661
G-070310(1R)	48,953	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554
G-070311	166,440	104,804	168,711	106,190	170,861	107,554	173,072	108,940	175,283
G-070312	48,953	30,825	49,621	31,232	50,253	31,633	50,904	32,041	51,554
G-070412	117,487	73,979	119,090	74,958	120,608	75,920	122,168	76,899	123,729
G-072911	29,372	18,495	29,773	18,739	30,152	18,980	30,542	19,225	30,932
G-072912	254,555	160,289	258,028	162,409	261,317	164,494	264,698	166,614	268,079
G-076884	1,223,821	770,619	1,240,522	780,811	1,256,332	790,837	1,272,588	801,029	1,288,843
G-077983	1,527,328	961,732	1,548,171	974,453	1,567,902	986,964	1,588,189	999,685	1,608,477
G-175675	1,840,626	1,159,011	1,865,744	1,174,340	1,889,523	1,189,419	1,913,972	1,204,748	1,938,420
Total (MGD)	**44.42**	**71.44**	**44.94**	**72.27**	**45.51**	**73.24**	**46.12**	**74.24**	**46.73**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	33	34	35	36	37	38	39	40	41
Start Date:	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
End Date:	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
A-010367A	0	0	0	0	0	0	0	0	0
A-010367B	201,224	323,781	203,711	327,696	206,197	331,727	208,725	335,759	211,294
A-010367C	201,224	323,781	203,711	327,696	206,197	331,727	208,725	335,759	211,294
A-010367CC	136,313	219,335	137,998	221,988	139,682	224,719	141,394	227,450	143,135
A-010367D	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464	102,239
A-010367DD	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633	95,423
A-010367E(1R)	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464	102,239
A-010367EE	84,384	135,779	85,427	137,421	86,470	139,111	87,530	140,802	88,607
A-010367H	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155	34,080
A-010367HH	71,402	114,890	72,284	116,279	73,167	117,710	74,064	119,140	74,975
A-010367I	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971	81,791
A-010367J	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324	27,264
A-010367JJ	84,384	135,779	85,427	137,421	86,470	139,111	87,530	140,802	88,607
A-010367K	0	0	0	0	0	0	0	0	0
A-010367KK	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464	102,239
A-010367L	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633	95,423
A-010367MM	227,189	365,559	229,996	369,979	232,803	374,531	235,657	379,083	238,558
A-010367N	64,911	104,445	65,713	105,708	66,515	107,009	67,331	108,309	68,159
A-010367P	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155	34,080
A-010367Q(1R)	175,260	282,003	177,425	285,413	179,591	288,924	181,793	292,435	184,030
A-010367QQ	90,876	146,224	91,998	147,992	93,121	149,812	94,263	151,633	95,423
A-010367R	129,822	208,891	131,426	211,417	133,030	214,018	134,661	216,619	136,319
A-010367S(1R)	51,929	83,556	52,571	84,567	53,212	85,607	53,864	86,647	54,527
A-010367T	175,260	282,003	177,425	285,413	179,591	288,924	181,793	292,435	184,030
A-010367X(1R)	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971	81,791
A-010367Y	149,296	240,224	151,140	243,129	152,985	246,120	154,860	249,111	156,766
G-070300	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324	27,264
G-070303	45,438	73,112	45,999	73,996	46,561	74,906	47,131	75,817	47,712
G-070304	45,438	73,112	45,999	73,996	46,561	74,906	47,131	75,817	47,712
G-070305	194,733	313,336	197,139	317,125	199,546	321,026	201,992	324,928	204,478
G-070306	19,473	31,334	19,714	31,713	19,955	32,103	20,199	32,493	20,448
G-070307	0	0	0	0	0	0	0	0	0
G-070308	25,964	41,778	26,285	42,283	26,606	42,804	26,932	43,324	27,264
G-070309	97,367	156,668	98,570	158,563	99,773	160,513	100,996	162,464	102,239
G-070310(1R)	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155	34,080
G-070311	110,349	177,557	111,712	179,704	113,076	181,915	114,462	184,126	115,871
G-070312	32,456	52,223	32,857	52,854	33,258	53,504	33,665	54,155	34,080
G-070412	77,893	125,334	78,856	126,850	79,818	128,411	80,797	129,971	81,791
G-072911	19,473	31,334	19,714	31,713	19,955	32,103	20,199	32,493	20,448
G-072912	168,769	271,558	170,854	274,842	172,939	278,223	175,059	281,604	177,214
G-076884	811,389	1,305,568	821,414	1,321,355	831,440	1,337,610	841,632	1,353,866	851,992
G-077983	1,012,613	1,629,348	1,025,125	1,649,051	1,037,637	1,669,338	1,050,357	1,689,625	1,063,286
G-175675	1,220,329	1,963,574	1,235,407	1,987,318	1,250,485	2,011,766	1,265,815	2,036,215	1,281,396
Total (MGD)	**75.19**	**47.33**	**76.16**	**47.94**	**77.13**	**48.56**	**78.14**	**49.16**	**79.08**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	42	43	44	45	46	47	48	49	50
Start Date:	9/1/37	6/1/38	9/1/38	6/1/39	9/1/39	6/1/40	9/1/40	6/1/41	9/1/41
End Date:	5/31/38	8/31/38	5/31/39	8/31/39	5/31/40	8/31/40	5/31/41	8/31/41	5/31/42
A-010367A	0	0	0	0	0	0	0	0	0
A-010367B	339,912	213,780	343,822	216,267	347,853	218,794	351,884	221,363	356,044
A-010367C	339,912	213,780	343,822	216,267	347,853	218,794	351,884	221,363	356,044
A-010367CC	230,263	144,819	232,911	146,503	235,642	148,215	238,373	149,956	241,191
A-010367D	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279
A-010367DD	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794
A-010367E(1R)	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279
A-010367EE	142,544	89,650	144,183	90,692	145,874	91,752	147,564	92,830	149,309
A-010367H	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426
A-010367HH	120,614	75,858	122,001	76,740	123,432	77,637	124,862	78,548	126,338
A-010367I	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823
A-010367J	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941
A-010367JJ	142,544	89,650	144,183	90,692	145,874	91,752	147,564	92,830	149,309
A-010367K	0	0	0	0	0	0	0	0	0
A-010367KK	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279
A-010367L	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794
A-010367MM	383,772	241,365	388,186	244,172	392,737	247,026	397,289	249,926	401,985
A-010367N	109,649	68,961	110,910	69,763	112,211	70,579	113,511	71,408	114,853
A-010367P	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426
A-010367Q(1R)	296,053	186,196	299,458	188,361	302,969	190,563	306,480	192,800	310,103
A-010367QQ	153,509	96,546	155,274	97,669	157,095	98,810	158,916	99,971	160,794
A-010367R	219,298	137,923	221,820	139,527	224,421	141,158	227,022	142,815	229,706
A-010367S(1R)	87,719	55,169	88,728	55,811	89,769	56,463	90,809	57,126	91,882
A-010367T	296,053	186,196	299,458	188,361	302,969	190,563	306,480	192,800	310,103
A-010367X(1R)	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823
A-010367Y	252,193	158,611	255,093	160,456	258,084	162,331	261,076	164,237	264,161
G-070300	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941
G-070303	76,754	48,273	77,637	48,834	78,547	49,405	79,458	49,985	80,397
G-070304	76,754	48,273	77,637	48,834	78,547	49,405	79,458	49,985	80,397
G-070305	328,947	206,884	332,731	209,290	336,632	211,736	340,533	214,223	344,558
G-070306	32,895	20,688	33,273	20,929	33,663	21,174	34,053	21,422	34,456
G-070307	0	0	0	0	0	0	0	0	0
G-070308	43,860	27,585	44,364	27,905	44,884	28,232	45,404	28,563	45,941
G-070309	164,474	103,442	166,365	104,645	168,316	105,868	170,267	107,111	172,279
G-070310(1R)	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426
G-070311	186,403	117,234	188,547	118,598	190,758	119,984	192,969	121,393	195,250
G-070312	54,825	34,481	55,455	34,882	56,105	35,289	56,756	35,704	57,426
G-070412	131,579	82,754	133,092	83,716	134,653	84,695	136,213	85,689	137,823
G-072911	32,895	20,688	33,273	20,929	33,663	21,174	34,053	21,422	34,456
G-072912	285,088	179,300	288,367	181,385	291,748	183,505	295,129	185,660	298,617
G-076884	1,370,614	862,017	1,386,377	872,043	1,402,633	882,235	1,418,889	892,595	1,435,660
G-077983	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
G-175675	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
Total (MGD)	**49.76**	**80.05**	**50.37**	**81.03**	**50.99**	**82.03**	**51.59**	**82.97**	**52.19**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	51	52	53	54	55	56	57	58	59
Start Date:	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
End Date:	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
A-010367A	0	0	0	0	0	0	0	0	0
A-010367B	223,891	359,947	226,377	363,979	228,864	368,010	231,433	372,175	233,961
A-010367C	223,891	359,947	226,377	363,979	228,864	368,010	231,433	372,175	233,961
A-010367CC	151,668	243,835	153,352	246,566	155,037	249,297	156,777	252,119	158,490
A-010367D	108,334	174,168	109,537	176,119	110,741	178,069	111,984	180,085	113,207
A-010367DD	101,112	162,557	102,235	164,377	103,358	166,198	104,518	168,079	105,660
A-010367E(1R)	108,334	174,168	109,537	176,119	110,741	178,069	111,984	180,085	113,207
A-010367EE	93,890	150,946	94,932	152,636	95,975	154,327	97,053	156,073	98,113
A-010367H	36,111	58,056	36,512	58,706	36,914	59,356	37,328	60,028	37,736
A-010367HH	79,445	127,723	80,327	129,154	81,210	130,584	82,121	132,062	83,018
A-010367I	86,668	139,334	87,630	140,895	88,592	142,456	89,587	144,068	90,565
A-010367J	28,889	46,445	29,210	46,965	29,531	47,485	29,862	48,023	30,188
A-010367JJ	93,890	150,946	94,932	152,636	95,975	154,327	97,053	156,073	98,113
A-010367K	0	0	0	0	0	0	0	0	0
A-010367KK	108,334	174,168	109,537	176,119	110,741	178,069	111,984	180,085	113,207
A-010367L	101,112	162,557	102,235	164,377	103,358	166,198	104,518	168,079	105,660
A-010367MM	252,780	406,392	255,587	410,944	258,395	415,495	261,295	420,198	264,149
A-010367N	72,223	116,112	73,025	117,412	73,827	118,713	74,656	120,056	75,471
A-010367P	36,111	58,056	36,512	58,706	36,914	59,356	37,328	60,028	37,736
A-010367Q(1R)	195,002	313,502	197,167	317,014	199,333	320,525	201,571	324,152	203,772
A-010367QQ	101,112	162,557	102,235	164,377	103,358	166,198	104,518	168,079	105,660
A-010367R	144,446	232,224	146,050	234,825	147,654	237,426	149,312	240,113	150,942
A-010367S(1R)	57,778	92,890	58,420	93,930	59,062	94,970	59,725	96,045	60,377
A-010367T	195,002	313,502	197,167	317,014	199,333	320,525	201,571	324,152	203,772
A-010367X(1R)	86,668	139,334	87,630	140,895	88,592	142,456	89,587	144,068	90,565
A-010367Y	166,113	267,058	167,957	270,049	169,802	273,040	171,708	276,130	173,584
G-070300	28,889	46,445	29,210	46,965	29,531	47,485	29,862	48,023	30,188
G-070303	50,556	81,278	51,117	82,189	51,679	83,099	52,259	84,040	52,830
G-070304	50,556	81,278	51,117	82,189	51,679	83,099	52,259	84,040	52,830
G-070305	216,669	348,336	219,075	352,237	221,481	356,139	223,967	360,169	226,414
G-070306	21,667	34,834	21,907	35,224	22,148	35,614	22,397	36,017	22,641
G-070307	0	0	0	0	0	0	0	0	0
G-070308	28,889	46,445	29,210	46,965	29,531	47,485	29,862	48,023	30,188
G-070309	108,334	174,168	109,537	176,119	110,741	178,069	111,984	180,085	113,207
G-070310(1R)	36,111	58,056	36,512	58,706	36,914	59,356	37,328	60,028	37,736
G-070311	122,779	197,390	124,142	199,601	125,506	201,812	126,915	204,096	128,301
G-070312	36,111	58,056	36,512	58,706	36,914	59,356	37,328	60,028	37,736
G-070412	86,668	139,334	87,630	140,895	88,592	142,456	89,587	144,068	90,565
G-072911	21,667	34,834	21,907	35,224	22,148	35,614	22,397	36,017	22,641
G-072912	187,780	301,891	189,865	305,272	191,950	308,654	194,105	312,147	196,225
G-076884	902,787	1,451,400	912,812	1,467,656	922,838	1,483,912	933,197	1,500,706	943,390
G-077983	1,126,678	1,811,347	1,139,190	1,831,635	1,151,702	1,851,922	1,164,630	1,872,881	1,177,351
G-175675	1,357,792	2,182,906	1,372,870	2,207,354	1,387,948	2,231,803	1,403,529	2,257,062	1,418,858
Total (MGD)	**83.94**	**52.80**	**84.92**	**53.42**	**85.92**	**54.03**	**86.86**	**54.63**	**87.84**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	60	61	62	63	64	65	66	67	68
Start Date:	9/1/46	6/1/47	9/1/47	6/1/48	9/1/48	6/1/49	9/1/49	6/1/50	9/1/50
End Date:	5/31/47	8/31/47	5/31/48	8/31/48	5/31/49	8/31/49	5/31/50	8/31/50	5/31/51
A-010367A	0	0	0	0	0	0	0	0	0
A-010367B	376,073	236,447	380,104	238,975	384,136	241,544	388,306	244,030	392,199
A-010367C	376,073	236,447	380,104	238,975	384,136	241,544	388,306	244,030	392,199
A-010367CC	254,759	160,174	257,490	161,886	260,221	163,627	263,046	165,311	265,683
A-010367D	181,971	114,410	183,921	115,633	185,872	116,876	187,890	118,079	189,773
A-010367DD	169,839	106,783	171,660	107,924	173,481	109,084	175,364	110,207	177,122
A-010367E(1R)	181,971	114,410	183,921	115,633	185,872	116,876	187,890	118,079	189,773
A-010367EE	157,708	99,155	159,399	100,215	161,089	101,293	162,838	102,335	164,470
A-010367H	60,657	38,137	61,307	38,544	61,957	38,959	62,630	39,360	63,258
A-010367HH	133,445	83,901	134,876	84,797	136,306	85,709	137,786	86,591	139,167
A-010367I	145,577	91,528	147,137	92,506	148,698	93,501	150,312	94,463	151,819
A-010367J	48,526	30,509	49,046	30,835	49,566	31,167	50,104	31,488	50,606
A-010367JJ	157,708	99,155	159,399	100,215	161,089	101,293	162,838	102,335	164,470
A-010367K	0	0	0	0	0	0	0	0	0
A-010367KK	181,971	114,410	183,921	115,633	185,872	116,876	187,890	118,079	189,773
A-010367L	169,839	106,783	171,660	107,924	173,481	109,084	175,364	110,207	177,122
A-010367MM	424,598	266,956	429,150	269,810	433,702	272,711	438,411	275,518	442,805
A-010367N	121,314	76,273	122,614	77,089	123,915	77,917	125,260	78,719	126,516
A-010367P	60,657	38,137	61,307	38,544	61,957	38,959	62,630	39,360	63,258
A-010367Q(1R)	327,547	205,938	331,059	208,139	334,570	210,377	338,202	212,542	341,592
A-010367QQ	169,839	106,783	171,660	107,924	173,481	109,084	175,364	110,207	177,122
A-010367R	242,628	152,546	245,229	154,177	247,829	155,835	250,520	157,439	253,031
A-010367S(1R)	97,051	61,019	98,091	61,671	99,132	62,334	100,208	62,976	101,213
A-010367T	327,547	205,938	331,059	208,139	334,570	210,377	338,202	212,542	341,592
A-010367X(1R)	145,577	91,528	147,137	92,506	148,698	93,501	150,312	94,463	151,819
A-010367Y	279,022	175,428	282,013	177,304	285,004	179,210	288,098	181,055	290,986
G-070300	48,526	30,509	49,046	30,835	49,566	31,167	50,104	31,488	50,606
G-070303	84,920	53,391	85,830	53,962	86,740	54,542	87,682	55,104	88,561
G-070304	84,920	53,391	85,830	53,962	86,740	54,542	87,682	55,104	88,561
G-070305	363,941	228,820	367,843	231,266	371,744	233,752	375,780	236,158	379,547
G-070306	36,394	22,882	36,784	23,127	37,174	23,375	37,578	23,616	37,955
G-070307	0	0	0	0	0	0	0	0	0
G-070308	48,526	30,509	49,046	30,835	49,566	31,167	50,104	31,488	50,606
G-070309	181,971	114,410	183,921	115,633	185,872	116,876	187,890	118,079	189,773
G-070310(1R)	60,657	38,137	61,307	38,544	61,957	38,959	62,630	39,360	63,258
G-070311	206,234	129,664	208,444	131,051	210,655	132,460	212,942	133,823	215,077
G-070312	60,657	38,137	61,307	38,544	61,957	38,959	62,630	39,360	63,258
G-070412	145,577	91,528	147,137	92,506	148,698	93,501	150,312	94,463	151,819
G-072911	36,394	22,882	36,784	23,127	37,174	23,375	37,578	23,616	37,955
G-072912	315,416	198,310	318,797	200,430	322,178	202,585	325,676	204,670	328,941
G-076884	1,516,423	953,415	1,532,679	963,608	1,548,934	973,967	1,565,752	983,993	1,581,446
G-077983	1,892,496	1,189,862	1,912,783	1,202,583	1,933,070	1,215,511	1,954,058	1,228,023	1,973,644
G-175675	2,280,700	1,433,937	2,305,149	1,449,266	2,329,597	1,464,847	2,354,891	1,479,925	2,378,494
Total (MGD)	**55.23**	**88.81**	**55.85**	**89.81**	**56.46**	**90.75**	**57.06**	**91.73**	**57.67**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	69	70	71	72	73	74	75	76
Start Date:	6/1/51	9/1/51	6/1/52	9/1/52	6/1/53	9/1/53	6/1/54	9/1/54
End Date:	8/31/51	5/31/52	8/31/52	5/31/53	8/31/53	5/31/54	8/31/54	5/31/55
A-010367A	0	0	0	0	0	0	0	0
A-010367B	246,517	396,230	249,044	400,261	251,613	404,438	254,100	408,324
A-010367C	246,517	396,230	249,044	400,261	251,613	404,438	254,100	408,324
A-010367CC	166,995	268,414	168,707	271,145	170,448	273,974	172,132	276,607
A-010367D	119,282	191,724	120,505	193,675	121,748	195,696	122,951	197,576
A-010367DD	111,330	178,943	112,472	180,763	113,632	182,649	114,755	184,404
A-010367E(1R)	119,282	191,724	120,505	193,675	121,748	195,696	122,951	197,576
A-010367EE	103,378	166,161	104,438	167,852	105,515	169,603	106,558	171,233
A-010367H	39,761	63,908	40,168	64,558	40,583	65,232	40,984	65,859
A-010367HH	87,474	140,598	88,371	142,028	89,282	143,510	90,164	144,889
A-010367I	95,426	153,379	96,404	154,940	97,399	156,557	98,361	158,061
A-010367J	31,809	51,126	32,135	51,647	32,466	52,186	32,787	52,687
A-010367JJ	103,378	166,161	104,438	167,852	105,515	169,603	106,558	171,233
A-010367K	0	0	0	0	0	0	0	0
A-010367KK	119,282	191,724	120,505	193,675	121,748	195,696	122,951	197,576
A-010367L	111,330	178,943	112,472	180,763	113,632	182,649	114,755	184,404
A-010367MM	278,325	447,356	281,179	451,908	284,080	456,623	286,887	461,011
A-010367N	79,521	127,816	80,337	129,117	81,166	130,464	81,968	131,717
A-010367P	39,761	63,908	40,168	64,558	40,583	65,232	40,984	65,859
A-010367Q(1R)	214,708	345,103	216,910	348,615	219,147	352,252	221,313	355,637
A-010367QQ	111,330	178,943	112,472	180,763	113,632	182,649	114,755	184,404
A-010367R	159,043	255,632	160,674	258,233	162,331	260,928	163,935	263,435
A-010367S(1R)	63,617	102,253	64,269	103,293	64,932	104,371	65,574	105,374
A-010367T	214,708	345,103	216,910	348,615	219,147	352,252	221,313	355,637
A-010367X(1R)	95,426	153,379	96,404	154,940	97,399	156,557	98,361	158,061
A-010367Y	182,899	293,977	184,775	296,968	186,681	300,067	188,526	302,950
G-070300	31,809	51,126	32,135	51,647	32,466	52,186	32,787	52,687
G-070303	55,665	89,471	56,236	90,382	56,816	91,325	57,377	92,202
G-070304	55,665	89,471	56,236	90,382	56,816	91,325	57,377	92,202
G-070305	238,564	383,448	241,011	387,350	243,497	391,392	245,903	395,152
G-070306	23,856	38,345	24,101	38,735	24,350	39,139	24,590	39,515
G-070307	0	0	0	0	0	0	0	0
G-070308	31,809	51,126	32,135	51,647	32,466	52,186	32,787	52,687
G-070309	119,282	191,724	120,505	193,675	121,748	195,696	122,951	197,576
G-070310(1R)	39,761	63,908	40,168	64,558	40,583	65,232	40,984	65,859
G-070311	135,186	217,287	136,573	219,498	137,982	221,789	139,345	223,920
G-070312	39,761	63,908	40,168	64,558	40,583	65,232	40,984	65,859
G-070412	95,426	153,379	96,404	154,940	97,399	156,557	98,361	158,061
G-072911	23,856	38,345	24,101	38,735	24,350	39,139	24,590	39,515
G-072912	206,756	332,322	208,876	335,703	211,031	339,206	213,116	342,465
G-076884	994,018	1,597,701	1,004,211	1,613,957	1,014,570	1,630,798	1,024,596	1,646,468
G-077983	1,240,535	1,993,931	1,253,255	2,014,218	1,266,184	2,035,236	1,278,695	2,054,793
G-175675	1,495,003	2,402,943	1,510,333	2,427,391	1,525,914	2,452,720	1,540,992	2,476,288
Total (MGD)	**92.70**	**58.29**	**93.71**	**58.89**	**94.65**	**59.49**	**95.62**	**60.10**

Table 7.2 (Continued)
Lincoln Water System Ashland Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period:	77	78	79	80	81	82	83, 85…199	84, 92…200
Start Date:	6/1/55	9/1/55	6/1/56	9/1/56	6/1/57	9/1/57	6/1/2058	9/1/2058
End Date:	8/31/55	5/31/56	8/31/56	5/31/57	8/31/57	5/31/58	8/31/2117	5/31/2117
A-010367A	0	0	0	0	0	0	0	0
A-010367B	256,586	412,356	259,114	416,387	261,683	420,569	264,252	424,752
A-010367C	256,586	412,356	259,114	416,387	261,683	420,569	264,252	424,752
A-010367CC	173,816	279,338	175,529	282,069	177,269	284,902	179,009	287,735
A-010367D	124,155	199,527	125,378	201,478	126,621	203,501	127,864	205,525
A-010367DD	115,878	186,225	117,019	188,046	118,179	189,935	119,340	191,823
A-010367E(1R)	124,155	199,527	125,378	201,478	126,621	203,501	127,864	205,525
A-010367EE	107,601	172,923	108,661	174,614	109,738	176,368	110,815	178,122
A-010367H	41,385	66,509	41,793	67,159	42,207	67,834	42,621	68,508
A-010367HH	91,047	146,320	91,944	147,750	92,855	149,234	93,767	150,718
A-010367I	99,324	159,622	100,302	161,182	101,297	162,801	102,291	164,420
A-010367J	33,108	53,207	33,434	53,727	33,766	54,267	34,097	54,807
A-010367JJ	107,601	172,923	108,661	174,614	109,738	176,368	110,815	178,122
A-010367K	0	0	0	0	0	0	0	0
A-010367KK	124,155	199,527	125,378	201,478	126,621	203,501	127,864	205,525
A-010367L	115,878	186,225	117,019	188,046	118,179	189,935	119,340	191,823
A-010367MM	289,694	465,563	292,548	470,114	295,448	474,836	298,349	479,558
A-010367N	82,770	133,018	83,585	134,318	84,414	135,668	85,243	137,017
A-010367P	41,385	66,509	41,793	67,159	42,207	67,834	42,621	68,508
A-010367Q(1R)	223,478	359,148	225,680	362,660	227,917	366,302	230,155	369,945
A-010367QQ	115,878	186,225	117,019	188,046	118,179	189,935	119,340	191,823
A-010367R	165,539	266,036	167,170	268,637	168,828	271,335	170,485	274,033
A-010367S(1R)	66,216	106,414	66,868	107,455	67,531	108,534	68,194	109,613
A-010367T	223,478	359,148	225,680	362,660	227,917	366,302	230,155	369,945
A-010367X(1R)	99,324	159,622	100,302	161,182	101,297	162,801	102,291	164,420
A-010367Y	190,370	305,941	192,246	308,932	194,152	312,035	196,058	315,138
G-070300	33,108	53,207	33,434	53,727	33,766	54,267	34,097	54,807
G-070303	57,939	93,113	58,510	94,023	59,090	94,967	59,670	95,912
G-070304	57,939	93,113	58,510	94,023	59,090	94,967	59,670	95,912
G-070305	248,309	399,054	250,755	402,955	253,242	407,003	255,728	411,050
G-070306	24,831	39,905	25,076	40,296	25,324	40,700	25,573	41,105
G-070307	0	0	0	0	0	0	0	0
G-070308	33,108	53,207	33,434	53,727	33,766	54,267	34,097	54,807
G-070309	124,155	199,527	125,378	201,478	126,621	203,501	127,864	205,525
G-070310(1R)	41,385	66,509	41,793	67,159	42,207	67,834	42,621	68,508
G-070311	140,708	226,130	142,095	228,341	143,504	230,635	144,912	232,928
G-070312	41,385	66,509	41,793	67,159	42,207	67,834	42,621	68,508
G-070412	99,324	159,622	100,302	161,182	101,297	162,801	102,291	164,420
G-072911	24,831	39,905	25,076	40,296	25,324	40,700	25,573	41,105
G-072912	215,201	345,847	217,321	349,228	219,476	352,736	221,631	356,243
G-076884	1,034,621	1,662,724	1,044,814	1,678,980	1,055,173	1,695,844	1,065,533	1,712,708
G-077983	1,291,207	2,075,080	1,303,927	2,095,367	1,316,856	2,116,413	1,329,785	2,137,460
G-175675	1,556,070	2,500,737	1,571,400	2,525,186	1,586,980	2,550,550	1,602,561	2,575,914
Total (MGD)	**96.59**	**60.72**	**97.60**	**61.32**	**98.54**	**61.92**	**99.51**	**62.53**

Notes:

ft^3/day = cubic feet per day

MGD = million gallons per day

Table 7.3
M.U.D. Platte West Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1, 3…199	2, 4…200
Start Date	6/1/2017	9/1/2017
End Date	8/31/2116	5/31/2117
Well Name	ft^3/day	ft^3/day
PW04-04	0	0
PW04-05	0	0
PW04-06	184,479	122,986
PW04-07	0	0
PW04-08	92,240	61,493
PW04-09	0	0
PW04-10	276,719	184,479
PW04-11	461,198	307,465
PW04-12	276,719	184,479
PW04-13	0	0
PW04-14	92,240	61,493
PW04-15	184,479	122,986
PW04-16	92,240	61,493
PW04-17	276,719	184,479
PW04-38	368,958	245,972
PW04-39	461,198	307,465
PW04-40	368,958	245,972
PW04-41	92,240	61,493
PW04-42	276,719	184,479
PW04-43	184,479	122,986
PW04-44	368,958	245,972
PW04-45	461,198	307,465
PW04-46	368,958	245,972
PW04-47	92,240	61,493
PW04-48	92,240	61,493
PW04-49	368,958	245,972
PW04-50	92,240	61,493
PW04-51	184,479	122,986
PW04-52	276,719	184,479
PW04-53	184,479	122,986
PW04-54	92,240	61,493
PW04-55	92,240	61,493
PW91-03	184,479	122,986
PW91-30	184,479	122,986
PW94-02	368,958	245,972
PW94-31	368,958	245,972

Table 7.3 (Continued)
M.U.D. Platte West Well Field Estimated Pumping Rates (ft^3/day)
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Period	1, 3…199	2, 4…200
Start Date	**6/1/2017**	**9/1/2017**
End Date	**8/31/2116**	**5/31/2117**
PW94-32	92,240	61,493
PW94-33	368,958	245,972
PW94-34	276,719	184,479
PW94-35	368,958	245,972
PW94-36	368,958	245,972
PW94-37	276,719	184,479
Total (ft^3/day)	9,223,958	6,149,305
Total (MGD)	69.0	46.0

Notes:

The total pumping rate for Omaha 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.

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 feet per day

MGD = million gallons per day

Table 7.4
Ashland, Ithaca, Mead, and Memphis Estimated Pumping Rates
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

	feet^3/day		gallons per minute	
Stress Period	**1, 3…199**	**2, 4…200**	**1, 3…199**	**2, 4…200**
Start Date	**6/1**	**9/1**	**6/1**	**9/1**
End Date	**8/31**	**5/31**	**8/31**	**5/31**
Ashland(82-1)	15,422	9,042	80	47.0
Ashland(#4)	0	0	0	0
Ashland(#5)	22,798	13,366	118	69.4
Ashland(2006-1)	28,833	16,905	150	87.8
Ashland Total	**67,054**	**39,313**	**348**	**204**
Ithaca(1)	1,009	1,009	5.24	5.24
Ithaca(2)	1,009	1,009	5.24	5.24
Ithaca Total	**2,019**	**2,019**	**10.5**	**10.5**
Mead(1)	2,788	1,999	14.5	10.4
Mead(2)	2,788	1,999	14.5	10.4
Mead(3)	2,788	1,999	14.5	10.4
Mead(4)	2,788	1,999	14.5	10.4
Mead Total	**11,150**	**7,996**	**57.9**	**41.5**
Memphis(73-1)	762	762	3.96	3.96
Memphis(94-1)	762	762	3.96	3.96
Memphis Total	**1,524**	**1,524**	**7.92**	**7.92**

Notes:

Ashland pumping rates are based on seasonal average pumping rates from 2004 to 2016. Ashland Well "#4" (A-010589C) has been out of service since March 2014. The fraction of the total pumping volume of the system pumped by each well is based on the average ratio from 2015 to 2016. The distribution in summer is similar to the distribution in the rest of the year.

Rates for Ithaca are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2014 population of 151 ("2014 Sub-County Population Estimates", NDNR, 2014).

Mead pumping rates are based on seasonal average pumping rates from 2005 to 2016. The fraction of the total pumping volume of the system pumped by each well is based on the average ratio from 2005 to 2016.

Rates for Memphis are population based, assuming a 100 gallons per day per capita water use ("Estimated Water Use in Nebraska, 1995", NNRC, 1998), and a 2014 population of 114 ("2014 Sub-County Population Estimates", NDNR, 2014).

Sources:

City of Ashland, 2017. Ashland Well Production Since 2004. Excel© spreadsheet transmitted via email from Bill Torpy, City of Ashland, to Bradley Brink, CENWK. August 2, 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. July 24, 2017.

Table 7.5
Specified Concentration Assumptions
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

Stress Periods	Start Date	End Date	Load Line 1 TCE (µg/L)
1-2	6/1/2017	5/31/2018	6,500
3-8	6/1/2018	5/31/2021	5,000
9-14	6/1/2021	5/31/2024	3,500
15-20	6/1/2024	5/31/2027	2,000
21-26	6/1/2027	5/31/2030	500
27-32	6/1/2030	5/31/2033	50
33-200	6/1/2033	5/31/2117	0

Notes:

(1) These concentrations were estimated based on existing site data and history matching simulations discussed in Section 6 of the GWM12. There is a significant amount of uncertainty in the concentrations and the rate of decline. Additional long term monitoring well data can provide trends to verify these assumptions.

µg/L = micrograms per liter

TCE = trichloroethene

FIGURES

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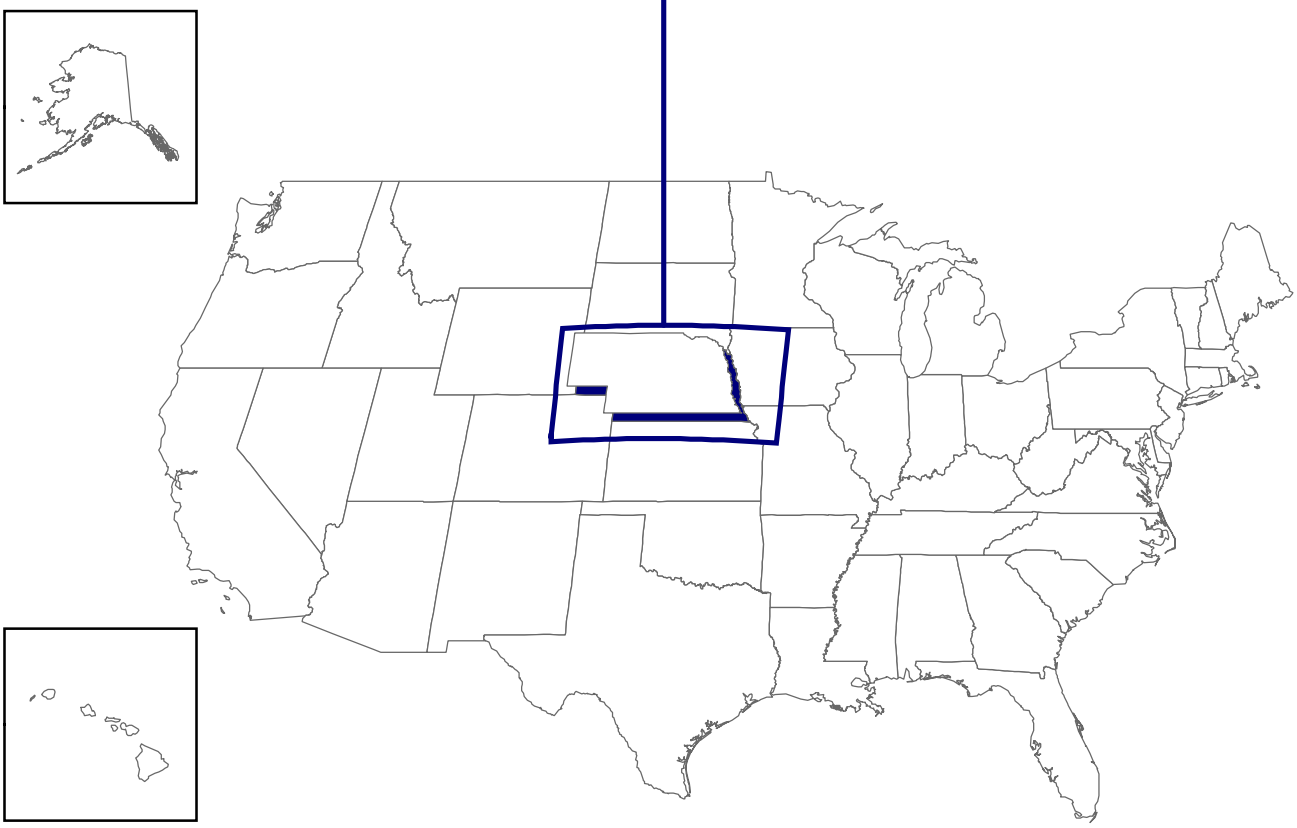

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

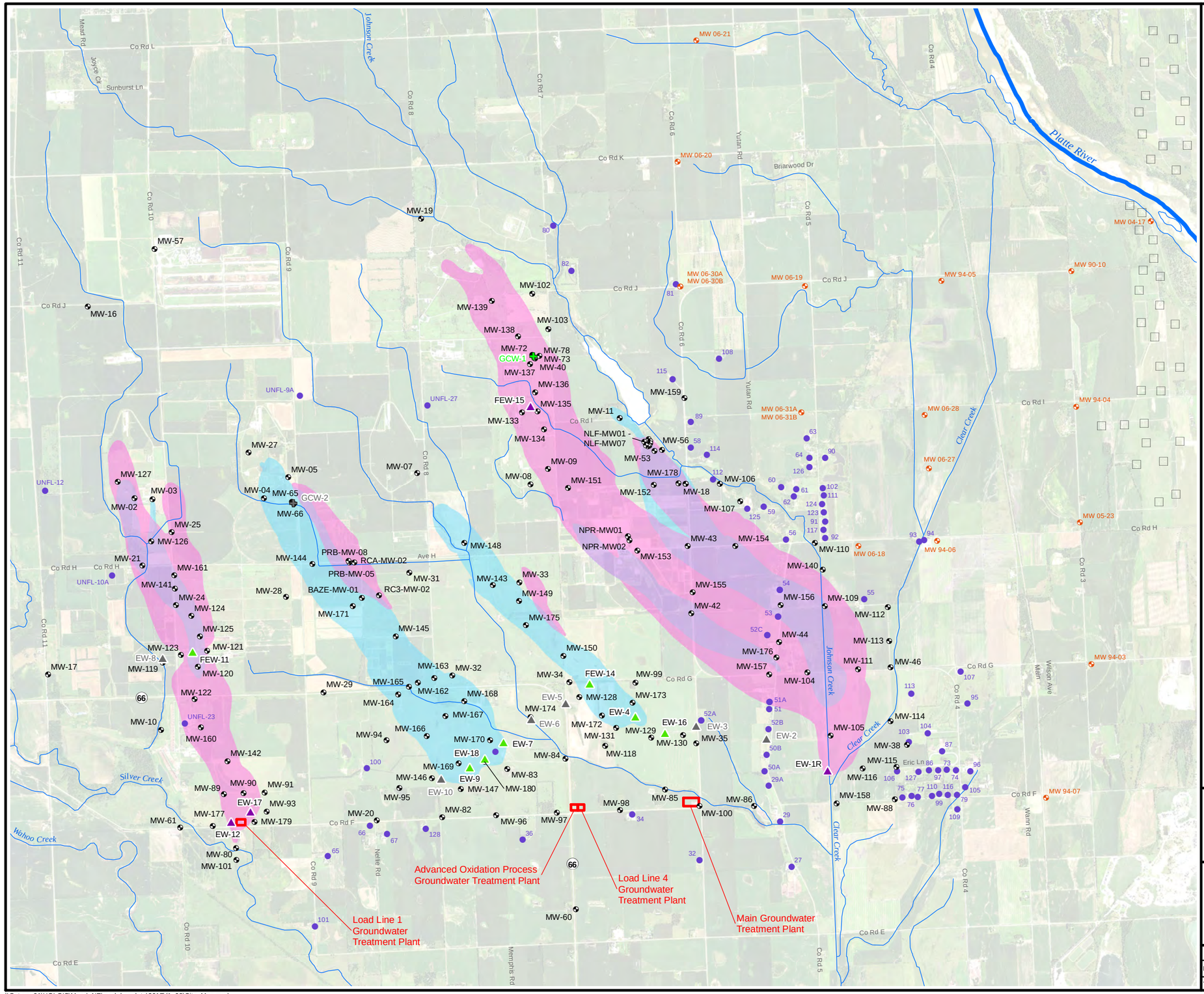
Legend

- Former Nebraska Ordnance Plant
- County
- State

Figure 1.1
Site Location

Drawn by: RR	Reviewed by: TH	Source: HGL Projection: NAD 1983 Nebraska State Plane (Nebraska inset map) Units: Feet
Date: 09/18/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(1_01)Site_Location.mxd



Legend

- Groundwater Monitoring Well/Well Cluster
- Water Supply Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Circulation Well
- Groundwater Circulation Well (Abandoned)
- 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 through Second Quarter 2017, 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

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 1.2
Site Map

Drawn by: RR	Reviewed by: TH, DG, MW	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/18/2017	Date: 01/12/2018	
Version: 7	Revision Date / Initials: 01/12/2018 RR	

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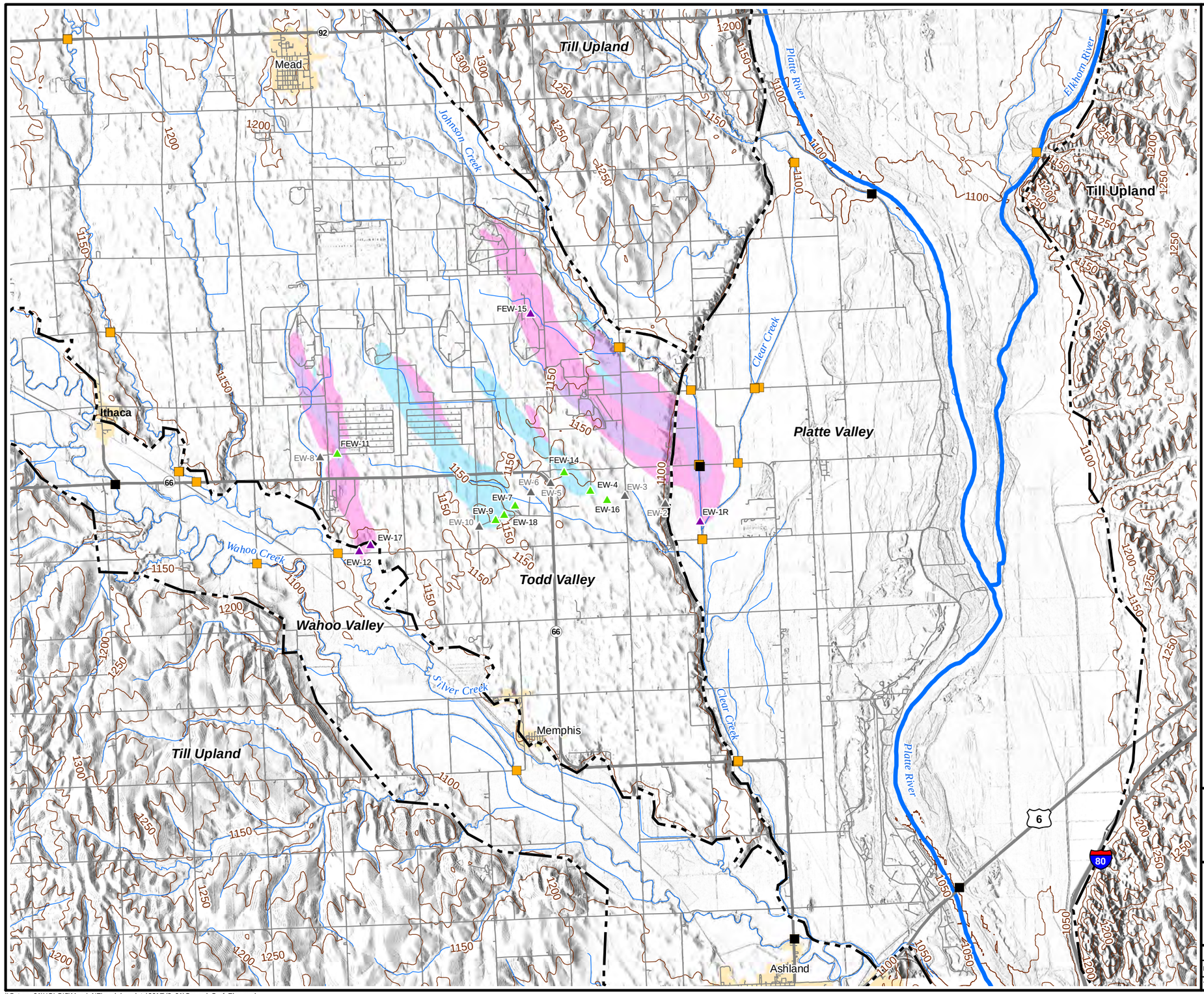

Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- USGS Staff Gauge
- Staff Gauge
- —1100— Ground Surface Elevation Contour (feet above mean sea level)
- Basin Boundary
- Town

Contaminant Plume

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

NOTES:

TCE and RDX plume delineations are based on Groundwater Monitoring Program data through Second Quarter 2017, 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
LPNNRD = Lower Platte North Natural Resource District
NDNR = Nebraska Department of Natural Resources
RDX = hexahydro-1,3,5-trinitro-1,3,5-triazine
TCE = trichloroethene
USGS = United States Geologic Survey
µg/L = micrograms per liter

N

0 3,500 7,000 14,000
Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.1
Ground Surface Elevations

Drawn by: RR	Reviewed by: TH, MW	Source: HGL, ECC, NDNR, USGS Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/19/2017	Date: 01/12/2018	
Version: 6	Revision Date / Initials: 01/12/2018 RR	

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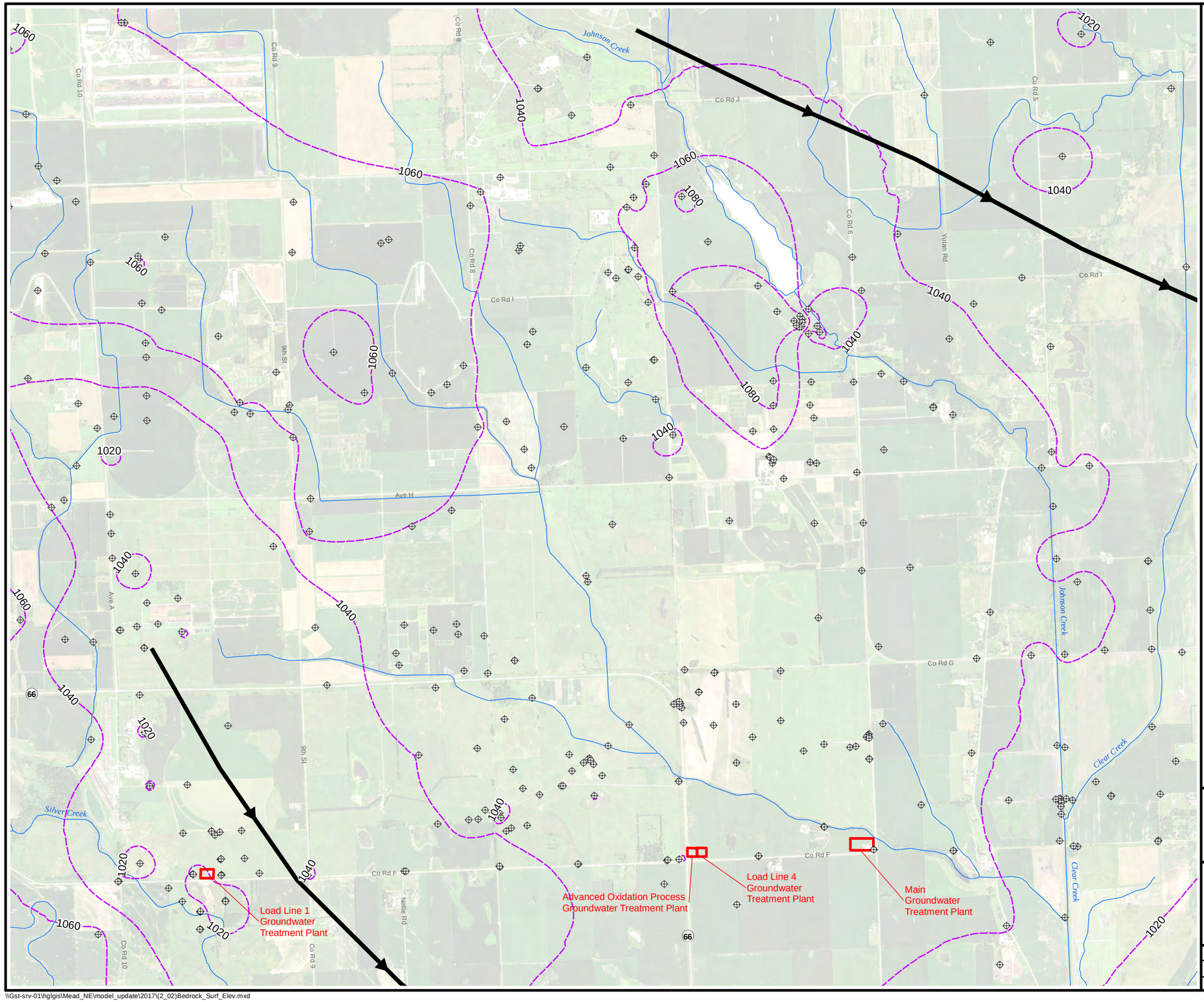

Legend

- Borehole
- Top of Omadi Formation Elevation Contour
- Paleovalley on Bedrock Surface [after Divine (2015)]
- Groundwater Treatment Plant

NOTES:

Although this contour is generated from data points, it is an interpretation using kriging. Discrepancies and variation in data quality required selective editing of data. The contour was generated by compiling data from boring logs presented in Piskin (1972), USACE boring logs, and irrigation well boring logs. Data points were also compared to each other, and outliers were removed. Where nearby data points conflicted, preference was given to data from borings sampled with discrete samplers such as the TH-BR borings. Among borings sampled from cuttings, preference was given to the Piskin (1972) test holes over irrigation well logs.

Elevations are in feet above mean sea level.

N

0 1,375 2,750 5,500

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.2
Bedrock Surface Elevations

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/20/2017	Date: 09/28/2017	
Version: 2	Revision Date / Initials: 09/29/2017 RR	

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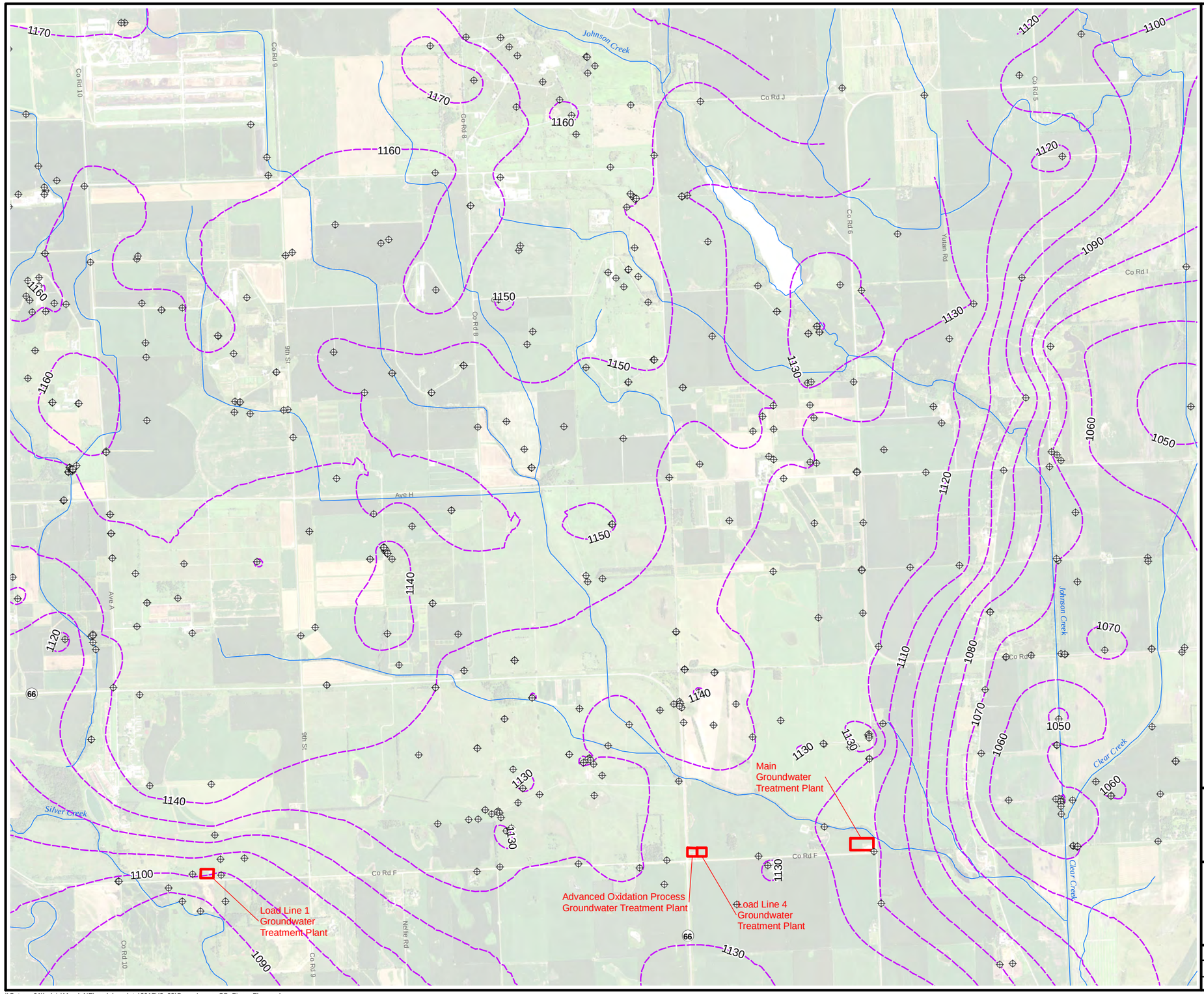

Legend

- 2017 Data Locations for Loess and Overbank Fines Elevation Contour
- Base of Loess and Overbank Fines Elevation Contour
- Groundwater Treatment Plant

NOTES:

Although this contour is generated from data points, it is an interpretation using kriging. Discrepancies and variation in data quality required selective editing of data. The contour was generated by compiling data from boring logs presented in Piskin (1972), USACE boring logs, and irrigation well boring logs. Data points were also compared to each other, and outliers were removed. Where nearby data points conflicted, preference was given to data from borings sampled with discrete samplers such as the TH-BR borings. Among borings sampled from cuttings, preference was given to the Piskin (1972) test holes over irrigation well logs.

Elevations are in feet above mean sea level.

N

0 1,375 2,750 5,500

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.3
2017 Elevation of Base of Loess and Overbank Fines

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/20/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

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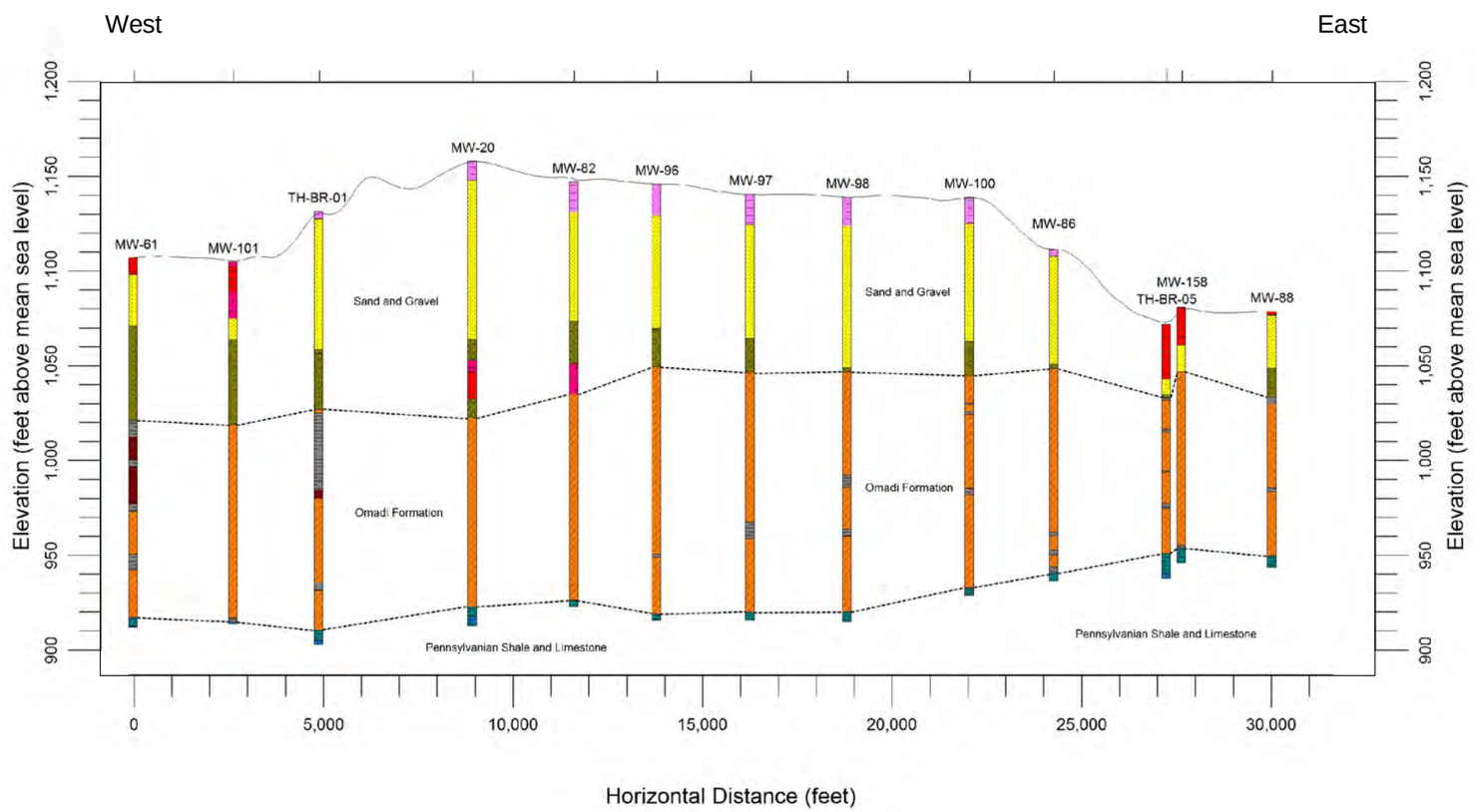

Legend

Lithology

- Loess (Todd Valley) and Overbank Fines (Platte Valley and Wahoo Valley)
- Fine Sand Unit [after Piskin] (Todd Valley) and Fine Sand (Platte Valley and Wahoo Valley)
- Sand and Gravel Unit [after Piskin] (Todd Valley) and Sand and Gravel (Platte Valley and Wahoo Valley)
- Clay Lenses in Either the Fine Sand or Sand and Gravel Units
- Silt Lenses in Either the Fine Sand or Sand and Gravel units
- Omadi Shale Facies
- Omadi Sandstone Facies
- Omadi Siltstone Facies
- Shale of Pennsylvanian Age
- Limestone of Pennsylvanian Age
- Inferred Lithologic Contact

0 40 80 Feet vertical scale

0 2,000 4,000 8,000 Feet

horizontal scale
vertical exaggeration = 50

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.4
East-West Cross Section

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

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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 2014 Potentiometric Contour
- Basin Boundary
- MW-107A - 1091.95 — Well ID - Water Level Elevation
- 1097.82 — Water Level Elevation (private well - ID omitted)

NOTES:

Water level elevations in feet above mean sea level.

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

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

August 2014 data collected on August 26, 2014.

N

0 3,500 7,000 14,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.5
Interpreted Potentiometric Surface
Intermediate Zone - August 2014

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 2	Revision Date / Initials: 09/29/2017 RR	

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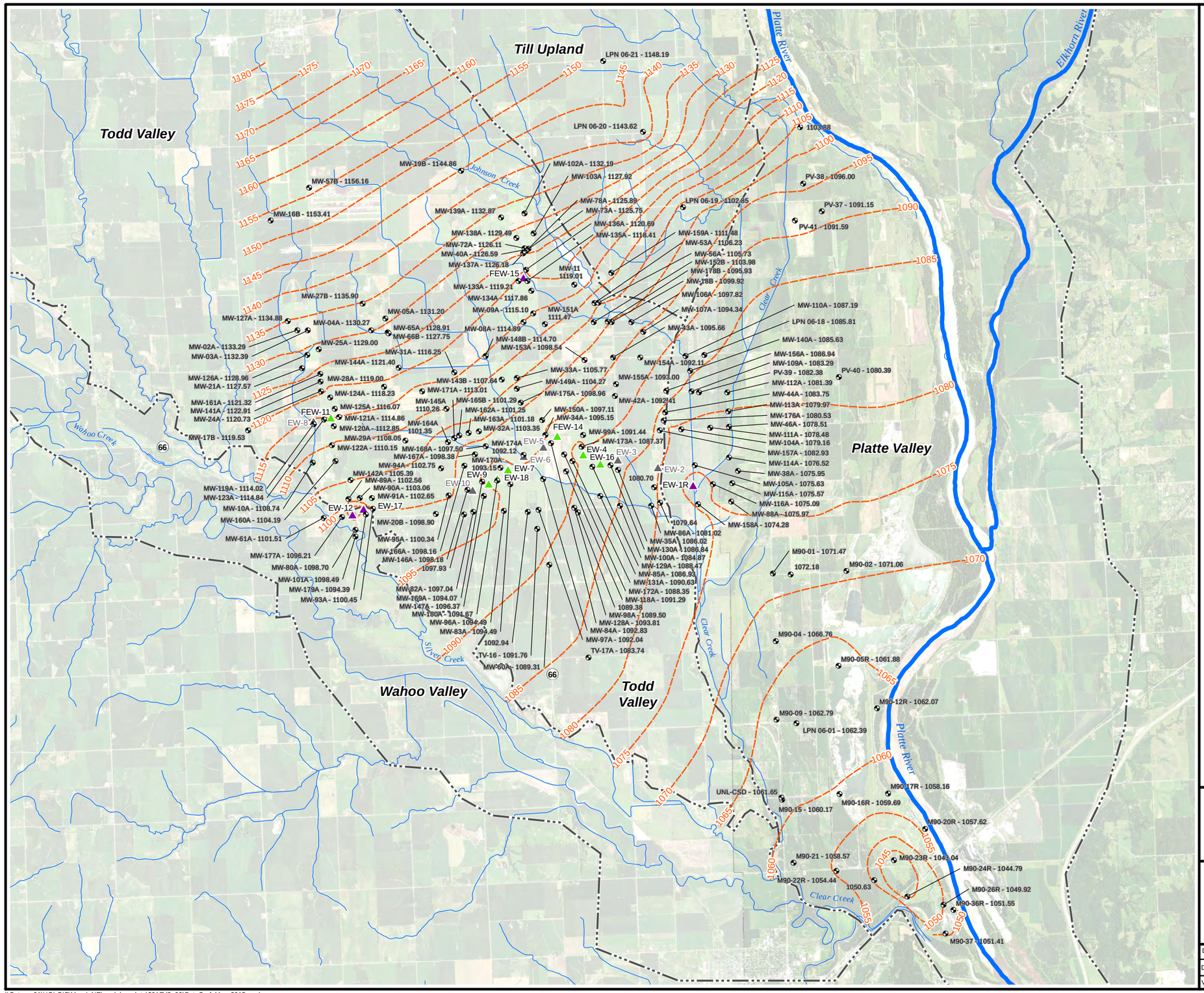

Legend

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 1100 — March 2015 Potentiometric Contour
- Basin Boundary
- MW-107A - 1094.34 — Well ID - Water Level Elevation
- 1072.18 — 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 2015 data collected on March 30, 2015.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,500 7,000 14,000

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.6
Interpreted Potentiometric Surface Intermediate Zone - March 2015

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

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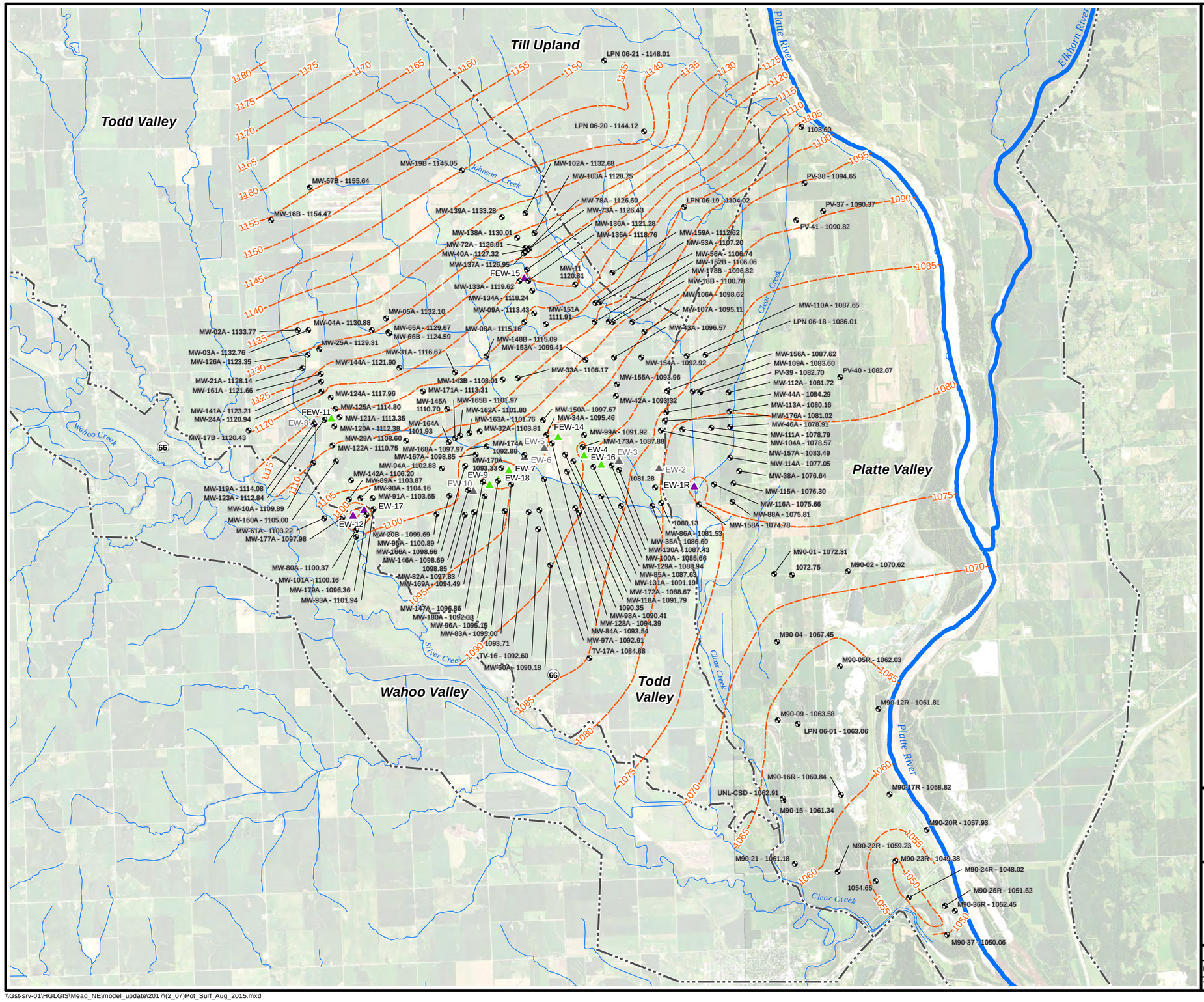

Legend

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 1100 — August 2015 Potentiometric Contour
- Basin Boundary
- MW-107A - 1095.11 — Well ID - Water Level Elevation
- 1103.60 — 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 2015 data collected on August 31, 2015.

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 Groundwater Model Update

Figure 2.7
Interpreted Potentiometric Surface
Intermediate Zone - August 2015

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

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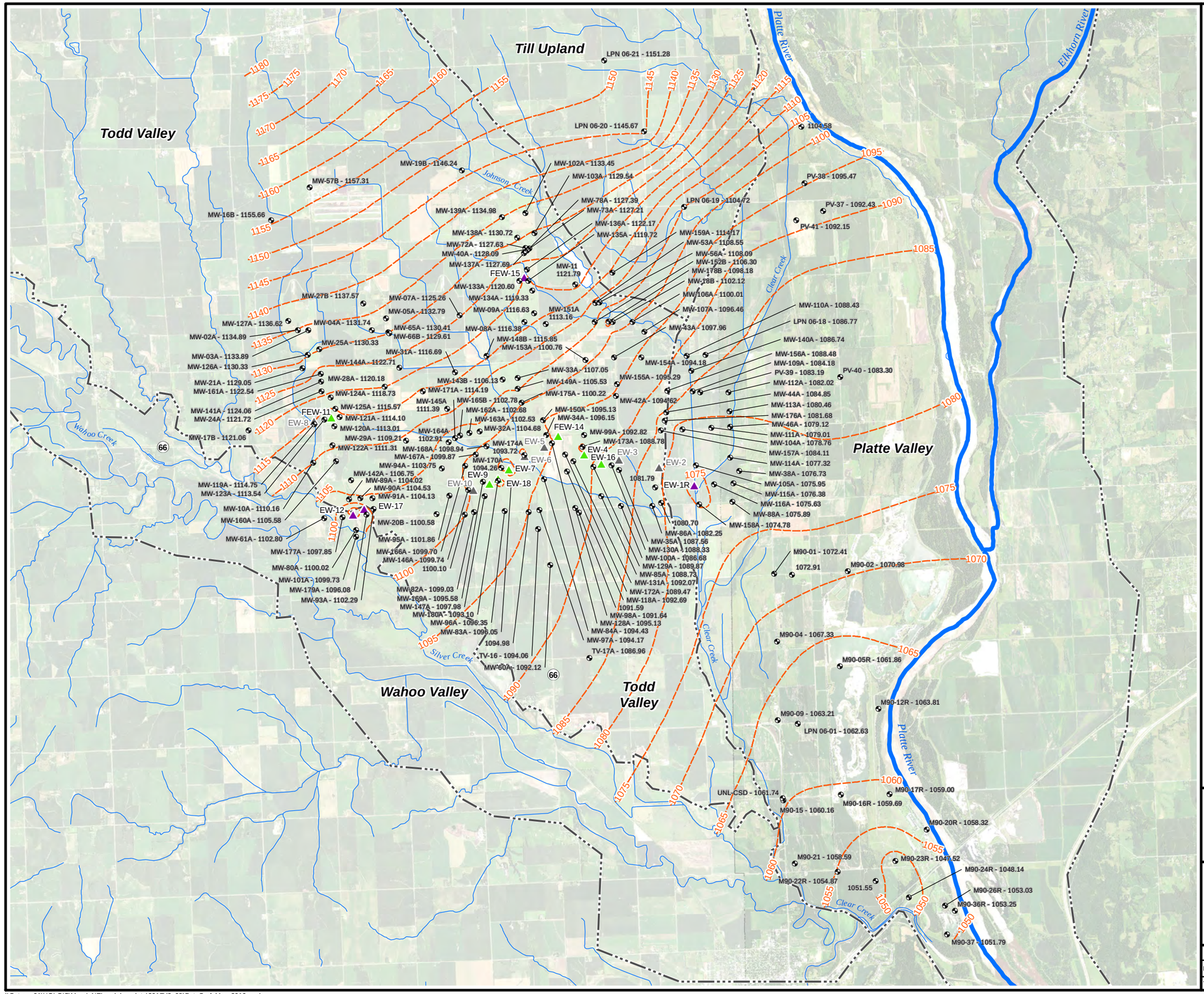

Legend

- Groundwater Monitoring Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- 1100 March 2016 Potentiometric Contour
- Basin Boundary
- MW-107A - 1096.46 — Well ID - Water Level Elevation
- 1072.91 — 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 2016 data collected on March 28, 2016.

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 Groundwater Model Update

Figure 2.8
Interpreted Potentiometric Surface
Intermediate Zone - March 2016

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

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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 2016 Potentiometric Contour
- Basin Boundary
- MW-107A - 1097.65 — Well ID - Water Level Elevation
- 1073.37 — 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 2016 data collected on August 25, 2016.

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 Groundwater Model Update

Figure 2.9
Interpreted Potentiometric Surface
Intermediate Zone - August 2016

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 2	Revision Date / Initials: 09/29/2017	

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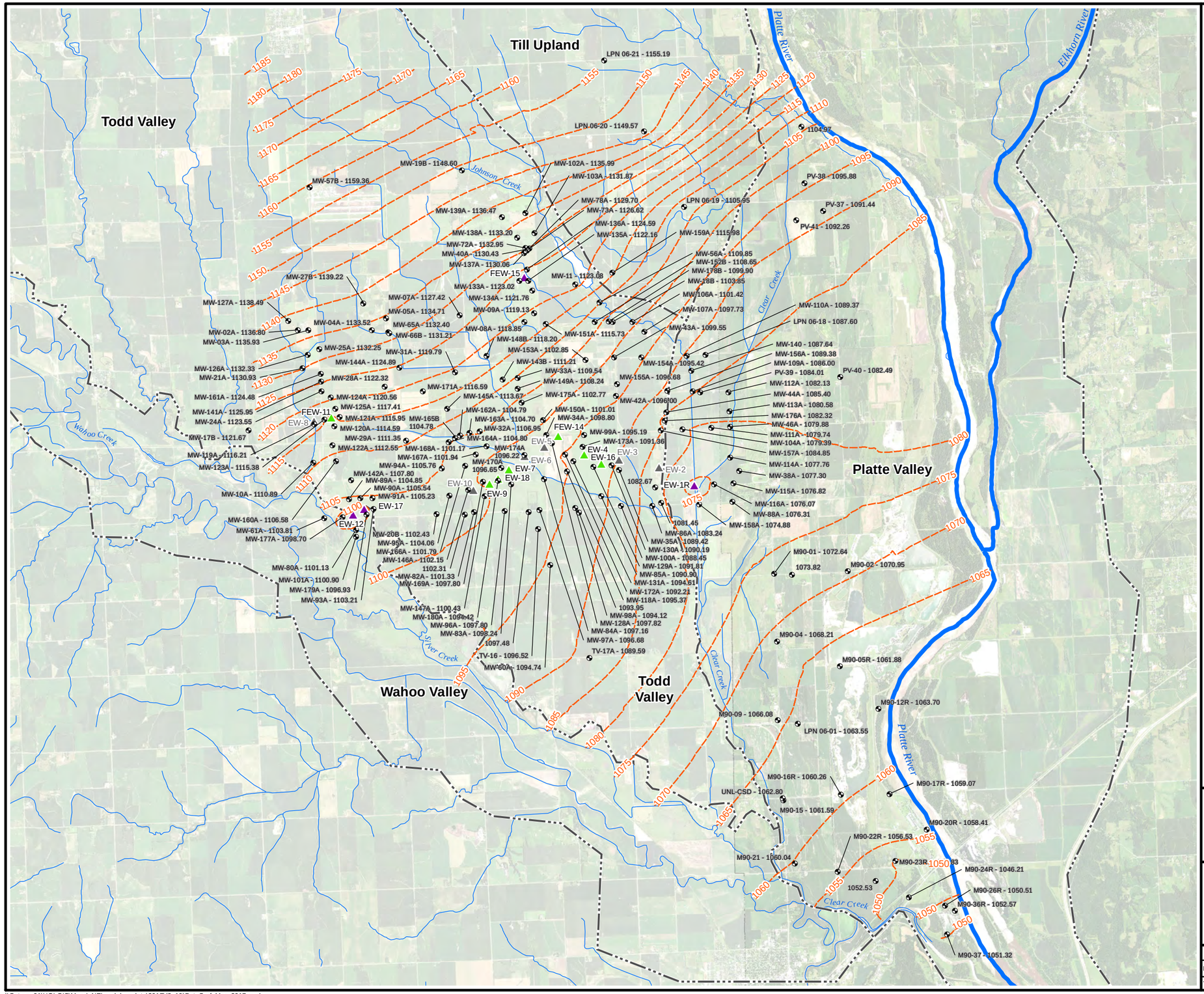

Legend

- 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

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.10
Interpreted Potentiometric Surface Intermediate Zone - March 2017

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/21/2017	Date: 09/28/2017	
Version: 2	Revision Date / Initials: 10/01/2017 RR	

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Figure 2.11
Platte River at Venice Stage versus Time
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

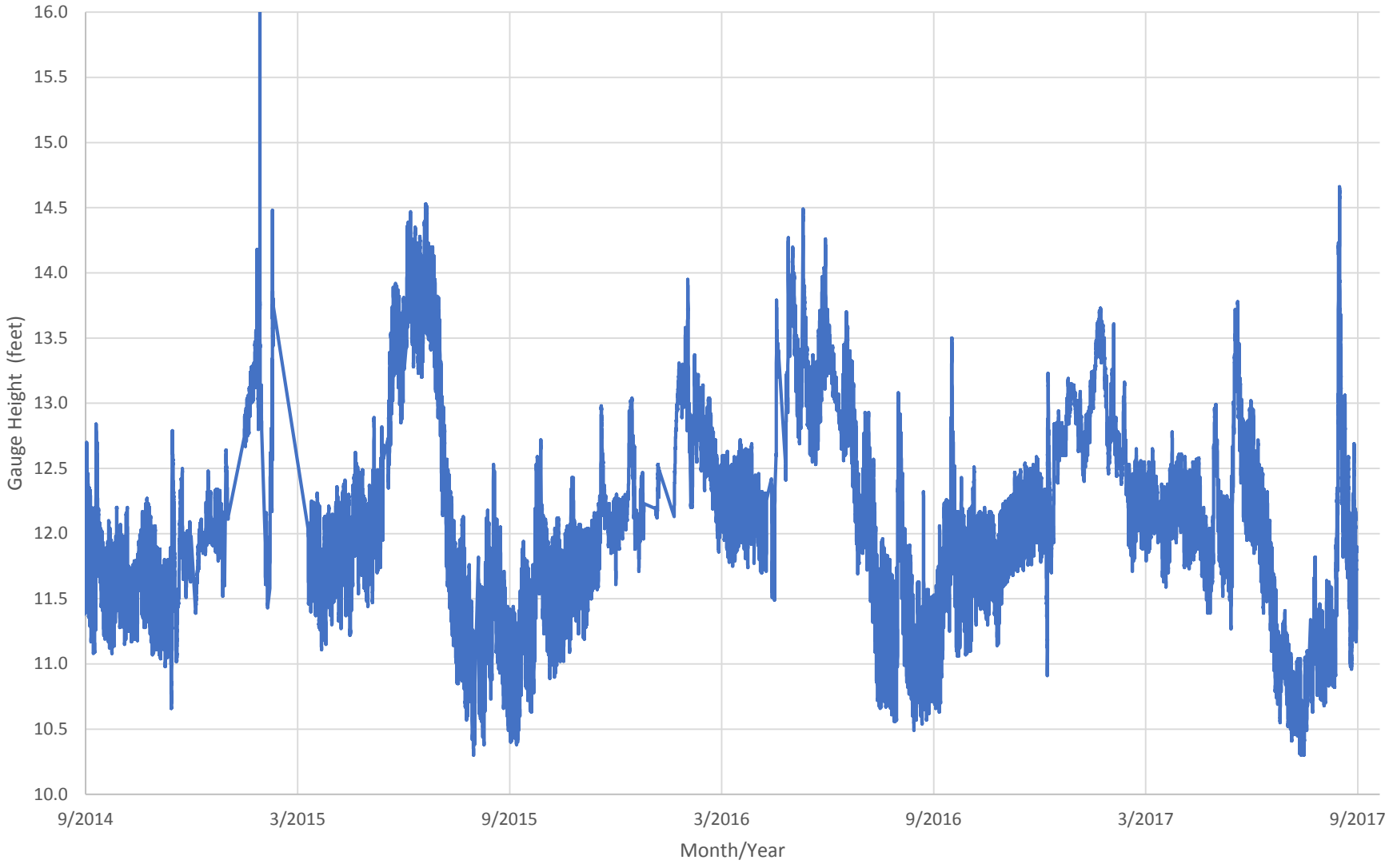


Figure 2.12
Monthly Precipitation, August 2014 - May 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

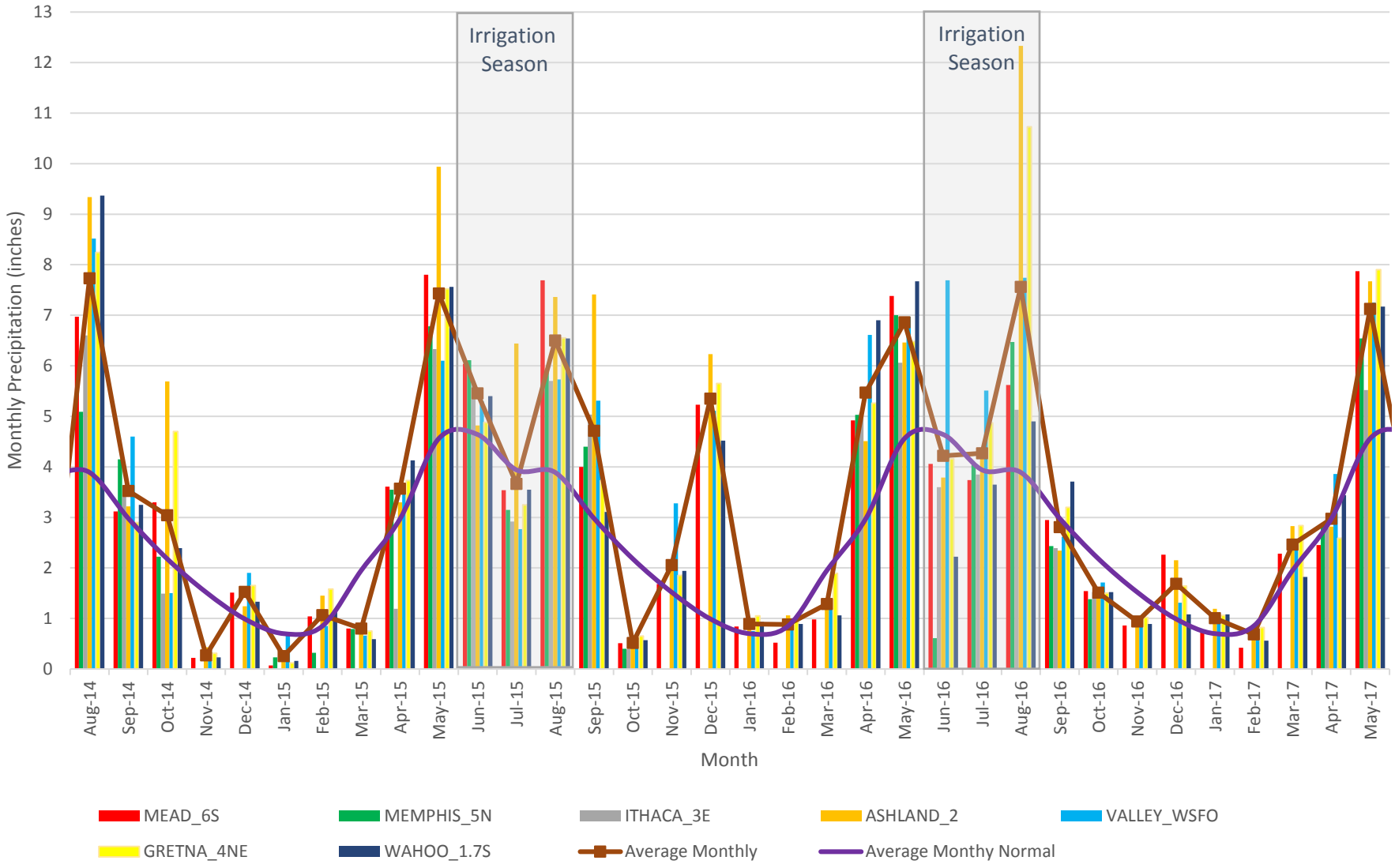
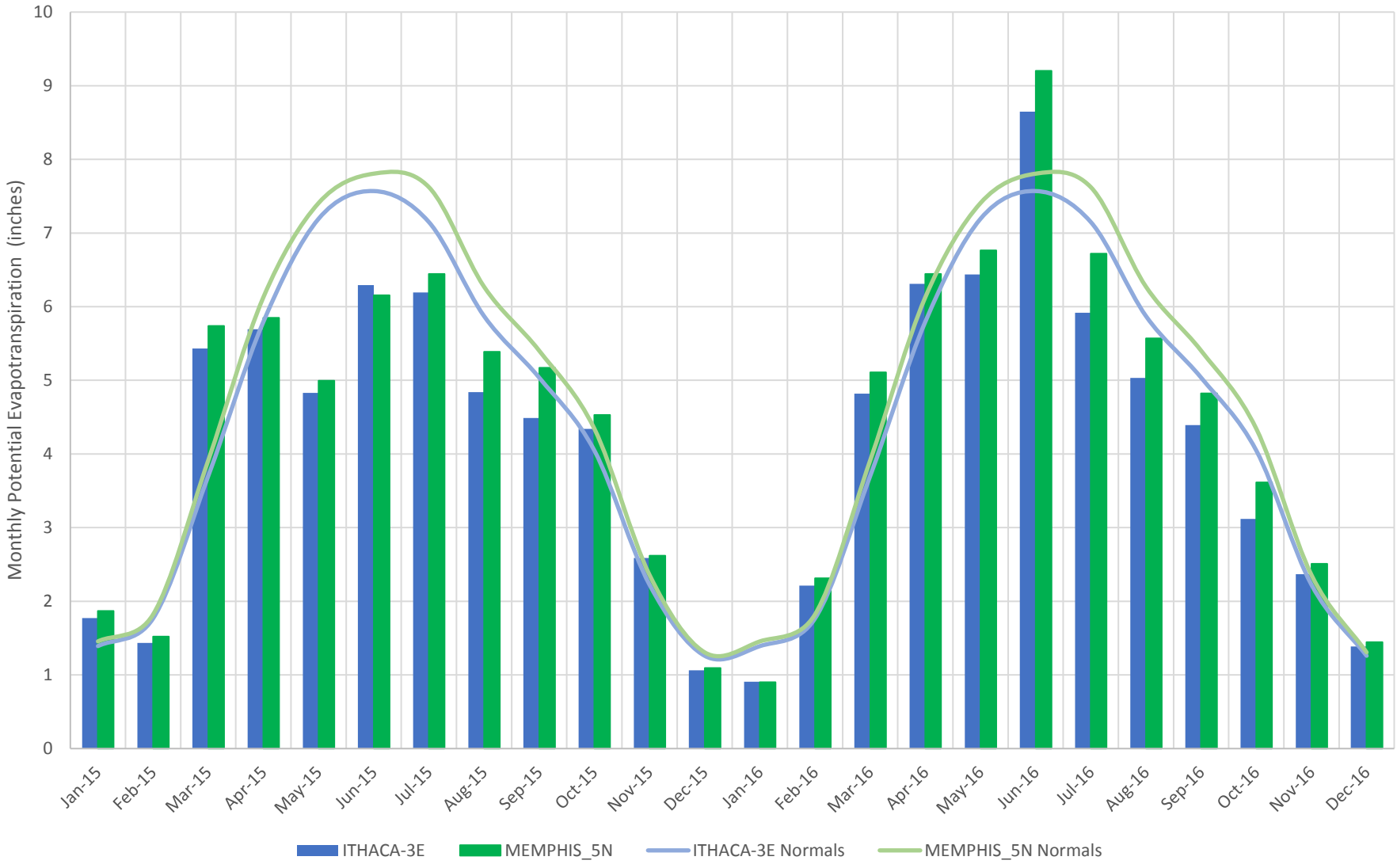
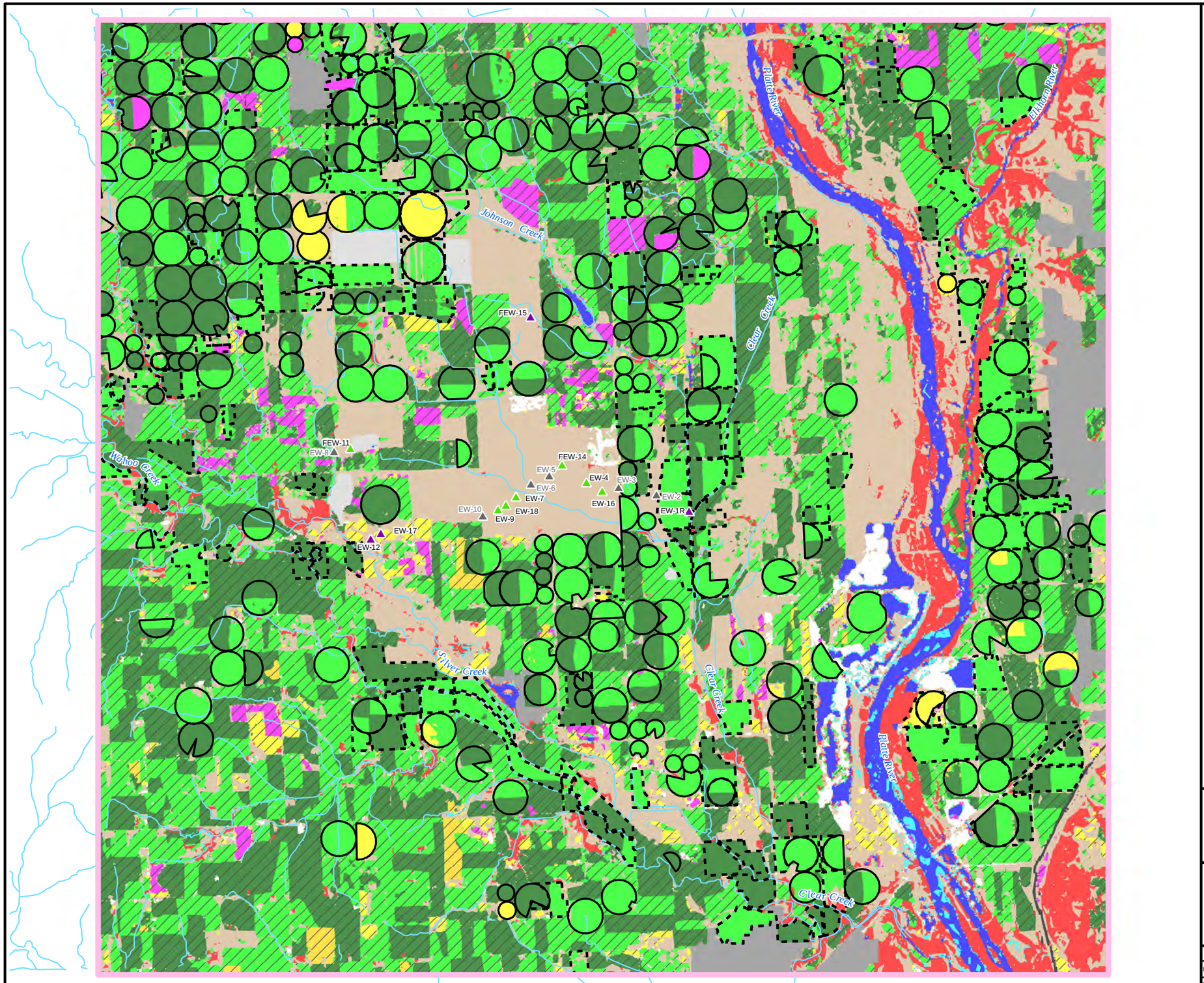


Figure 2.13
Monthly Potential Evapotranspiration, 2015-2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska





Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Model Extent
- Center Pivot Irrigation (CALMIT, 2005)
- Other irrigation (CALMIT, 2005)

Land Use (CALMIT, 2005)

- Irrigated Corn
- Irrigated Soybeans
- Irrigated Sorghum (Milo, Sudan)
- Irrigated Alfalfa
- Irrigated Small Grains
- Range, Pasture, Grass
- Urban Land
- Open Water
- Riparian Forest and Woodlands
- Wetlands
- Other Agricultural Land
- Summer Fallow
- Roads
- Dryland Corn
- Dryland Soybeans
- Dryland Sorghum
- Dryland Alfalfa
- Dryland Small Grains
- Barren

NOTES:
Land use and irrigation data from the Center for Advanced Land Management Information Technologies (CALMIT), 2005.

AOP UV = Advanced Oxidation Process ultraviolet

0 3,750 7,500 15,000
Feet

N

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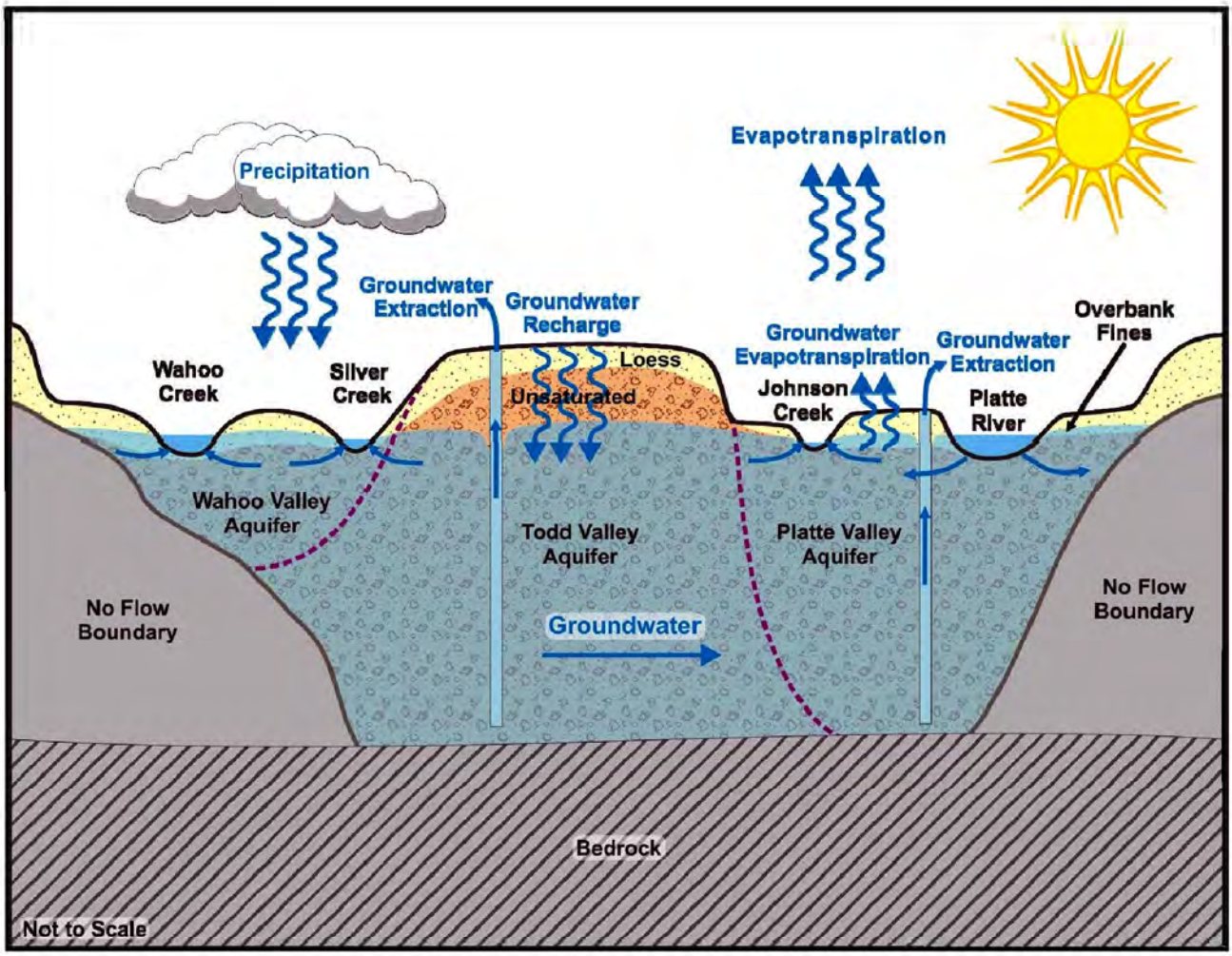
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 2.14
Land Use
(CALMIT 2005)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, CALMIT (2005) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/27/2017	Date: 09/28/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(2_12)Landuse.mxd



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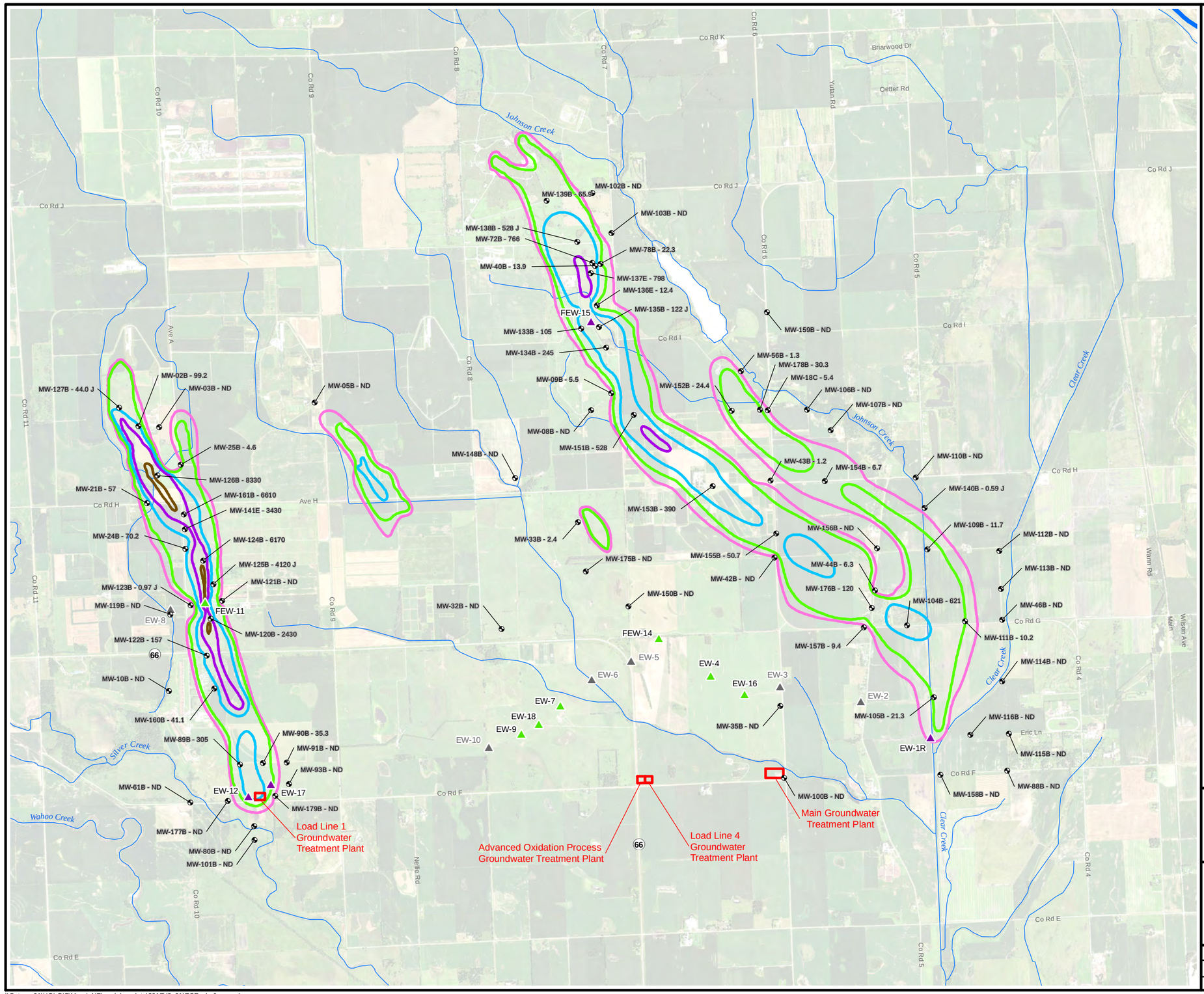
Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Drawn by: RR	Reviewed by: MW	Source: 2012 Groundwater Model Update (USACE, 2013)
Date: 10/02/2017	Date: 10/18/2017	
Version: 2	Revision Date / Initials: 10/18/2017 RR	

Figure 2.15
Groundwater Flow Conceptual Model

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(2_15)Conceptual_Site_Model.mxd



Legend

- Groundwater Monitoring Well
- 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:

Label represents maximum TCE concentration detected in the shallow zone at each monitoring well nest from Third Quarter 2016 through Second Quarter 2017.

AOP UV = Advanced Oxidation Process ultraviolet
J = estimated
ND = not detected
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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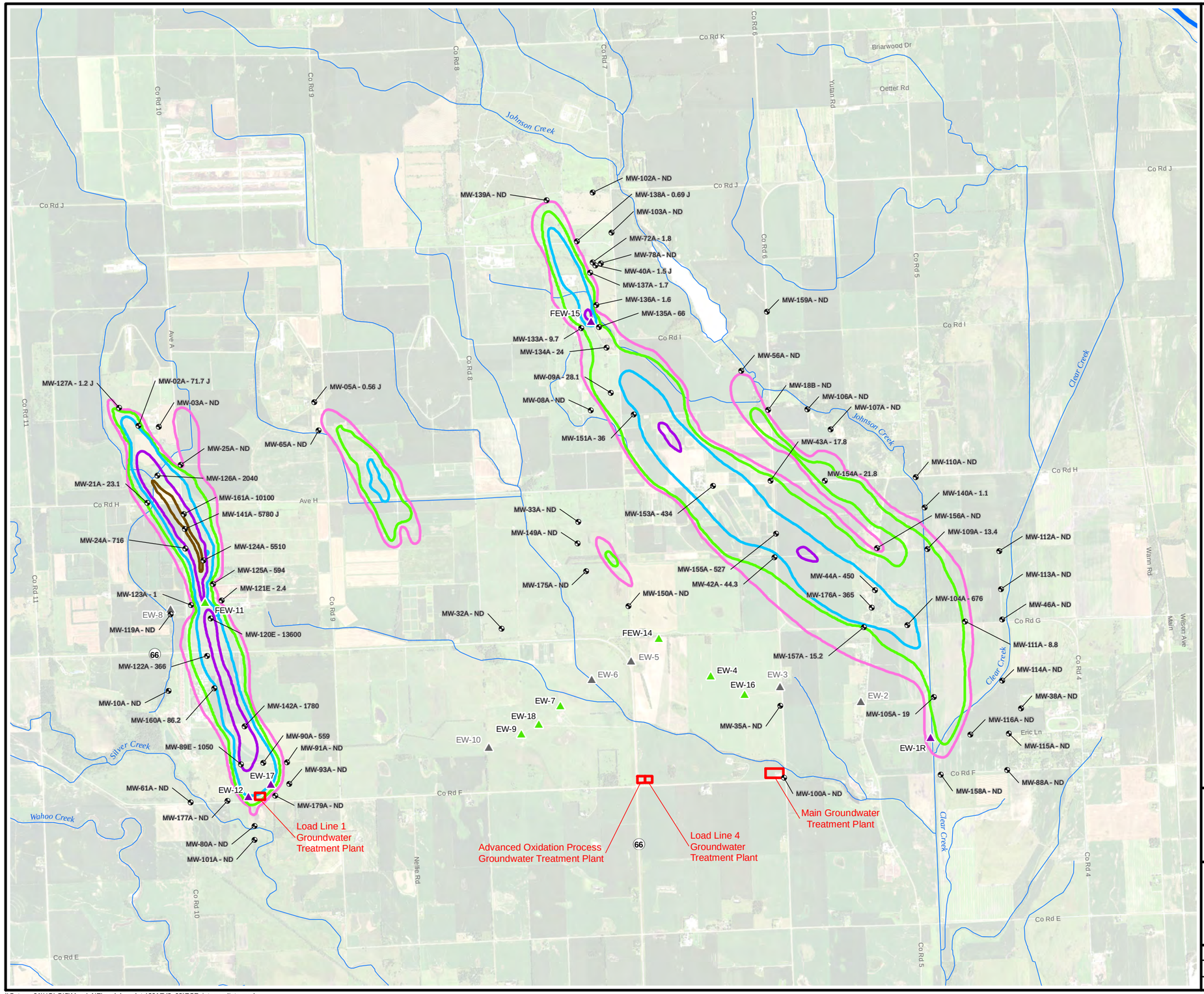
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 3.1
TCE Contaminant Distribution
Shallow Zone

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/02/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(3_01)TCE_shallow.mxd



Legend

- Groundwater Monitoring Well
- 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:

Label represents maximum TCE concentration detected in the intermediate zone at each monitoring well nest from Third Quarter 2016 through Second Quarter 2017.

AOP UV = Advanced Oxidation Process ultraviolet
J = estimated
ND = not detected
TCE = trichloroethene
µg/L = micrograms per liter

N

0 1,750 3,500 7,000

Feet

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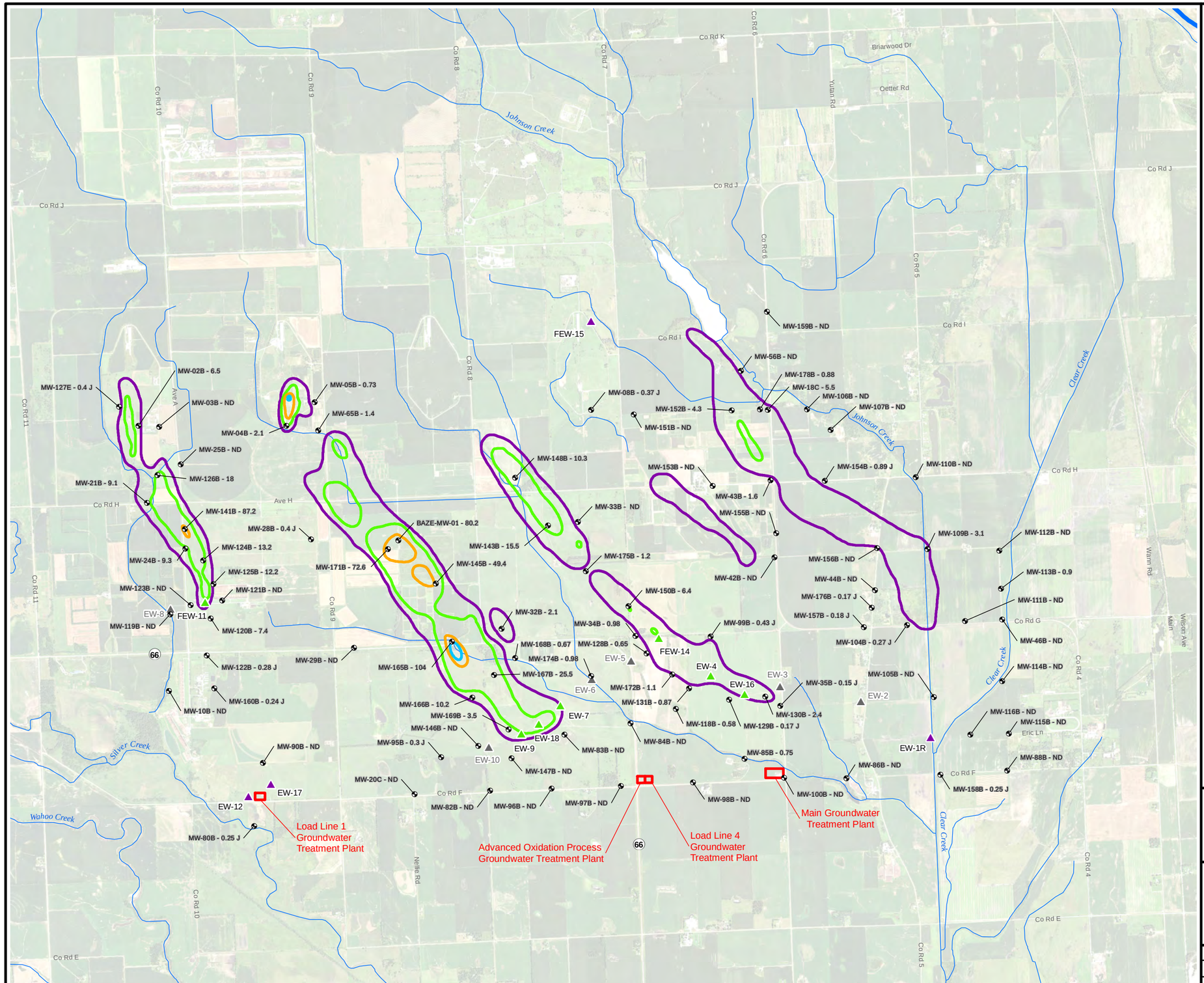
Mead, Nebraska
2017 Groundwater Model Update

Figure 3.2
TCE Contaminant Distribution
Intermediate Zone

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/28/2017	Date: 10/02/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(3_02)TCE_intermediate.mxd



Legend

- Groundwater Monitoring Well
- 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:

Label represents maximum TCE concentration detected in the shallow zone at each monitoring well nest from Third Quarter 2016 through Second Quarter 2017.

AOP UV = Advanced Oxidation Process ultraviolet
J = estimated
ND = not detected
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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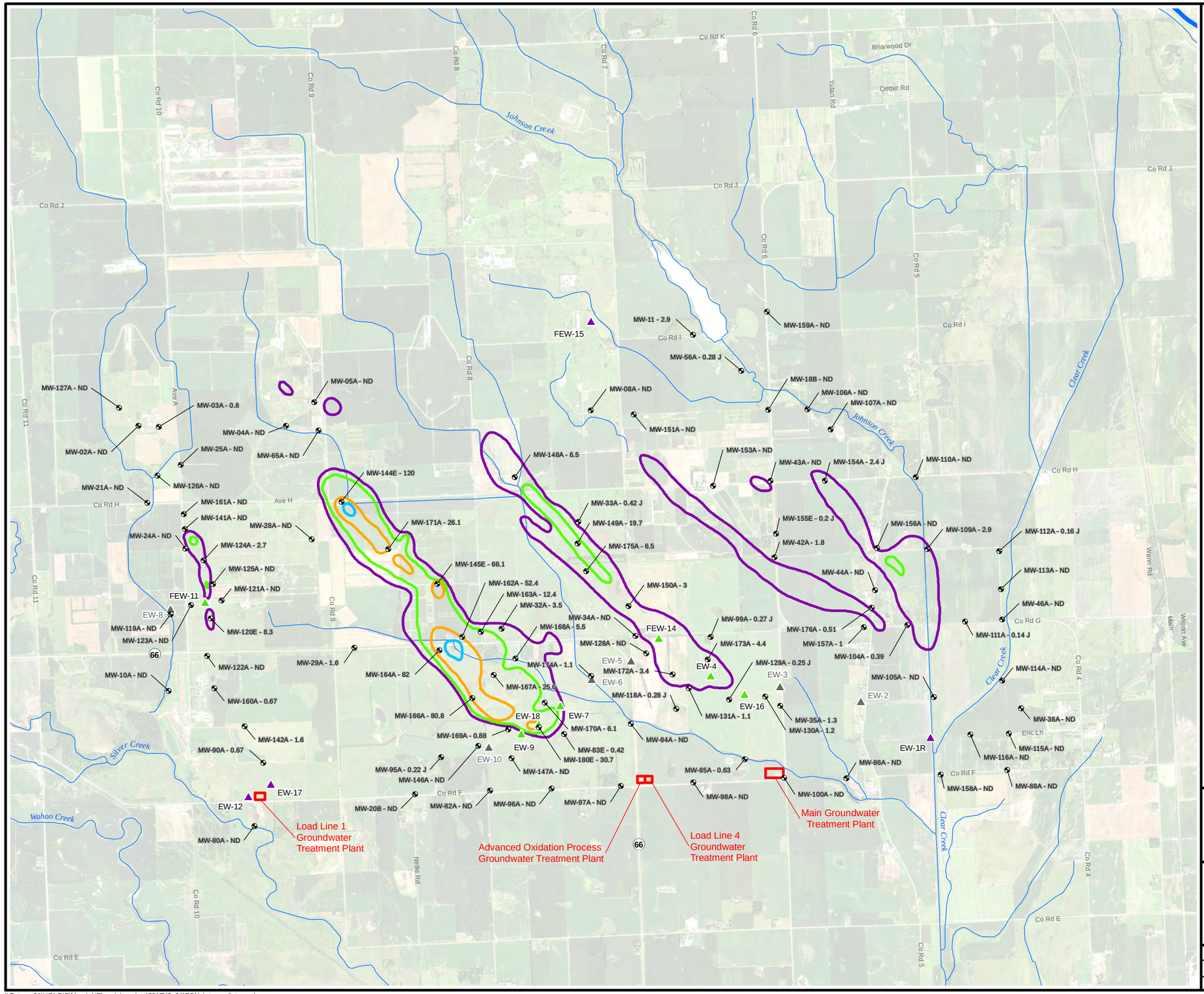
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 3.3
RDX Contaminant Distribution
Shallow Zone

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/02/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(3_03)RDX_shallow.mxd



Legend

- Groundwater Monitoring Well
- 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:

Label represents maximum RDX concentration detected in the intermediate zone at each monitoring well nest from Third Quarter 2016 through Second Quarter 2017.

AOP UV = Advanced Oxidation Process ultraviolet
J = estimated
ND = not detected
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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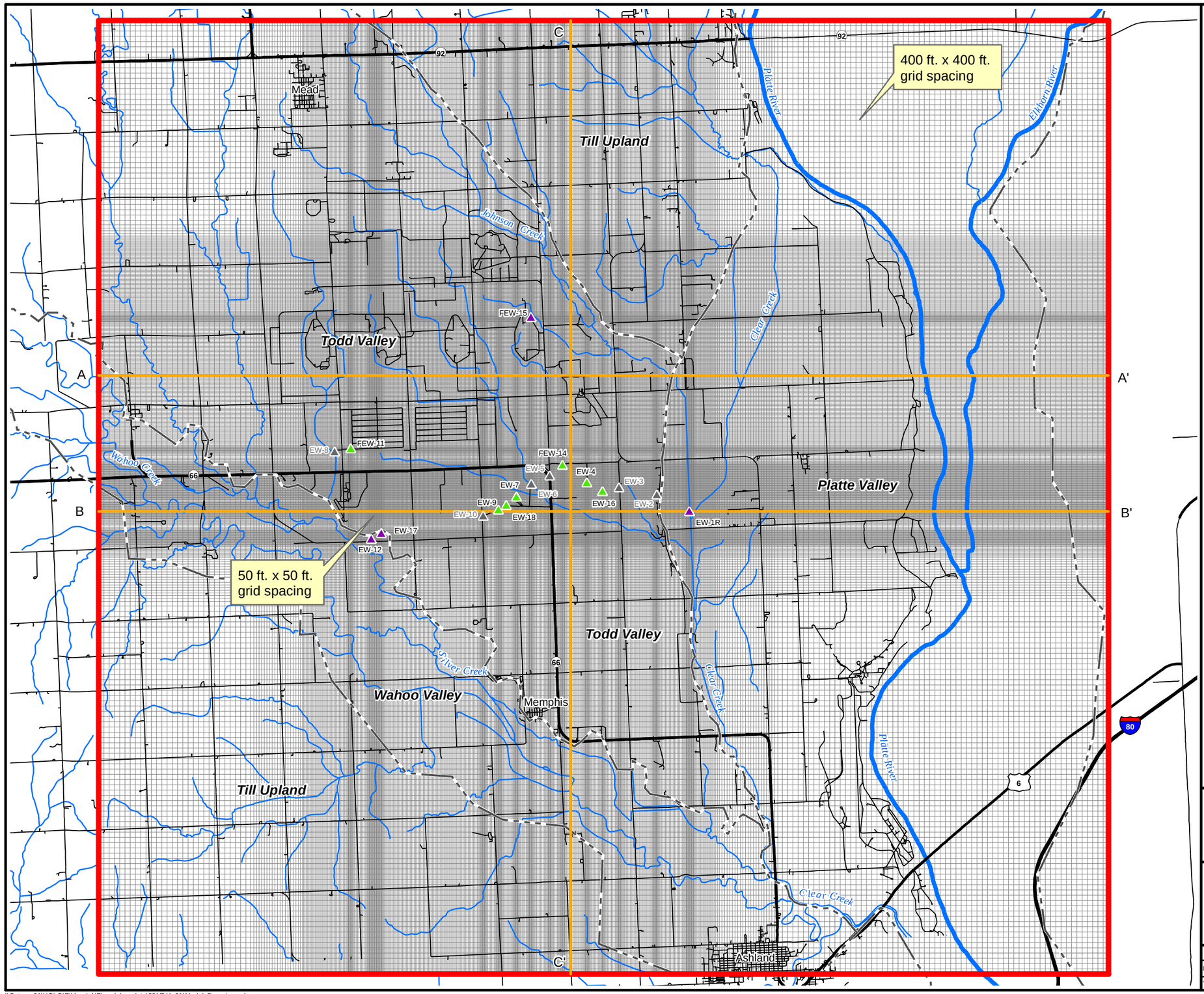
Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 3.4
RDX Contaminant Distribution
Intermediate Zone

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/02/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(3_04)RDX_intermediate.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Groundwater Model Cross Section Location
- Groundwater Model Grid
- Groundwater Model Extent
- Basin Boundary

NOTES:
Model contains 442 rows, 521 columns, and 3 layers.
There are 631,038 active cells.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000
Feet

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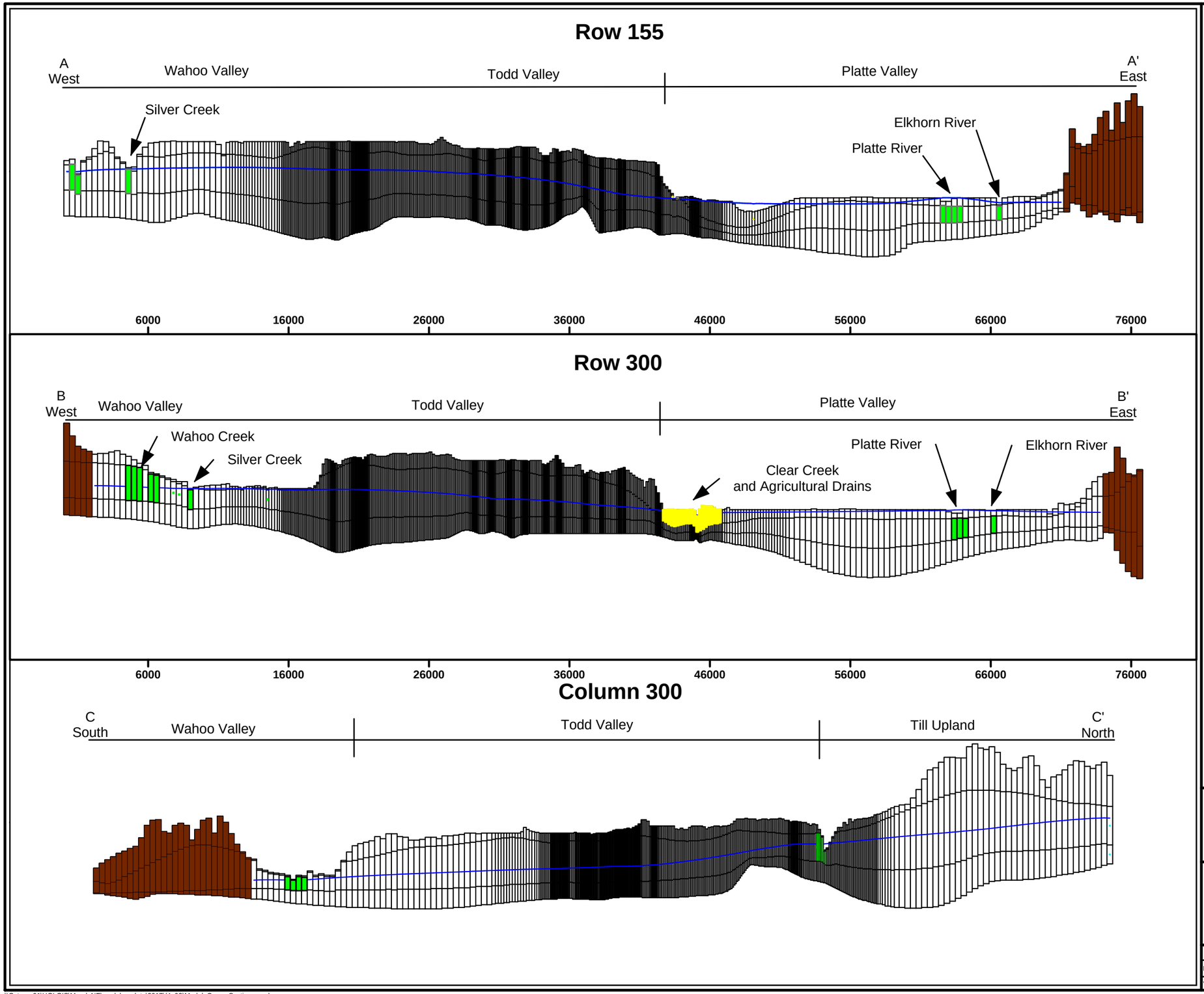
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 4.1
Model Domain

Drawn by: RR	Reviewed by:	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/29/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(4_01)Model_Domain.mxd



Legend

- Water Table
- Drain Cell for Agricultural Drain
- No Flow Boundary
- River Cross Section

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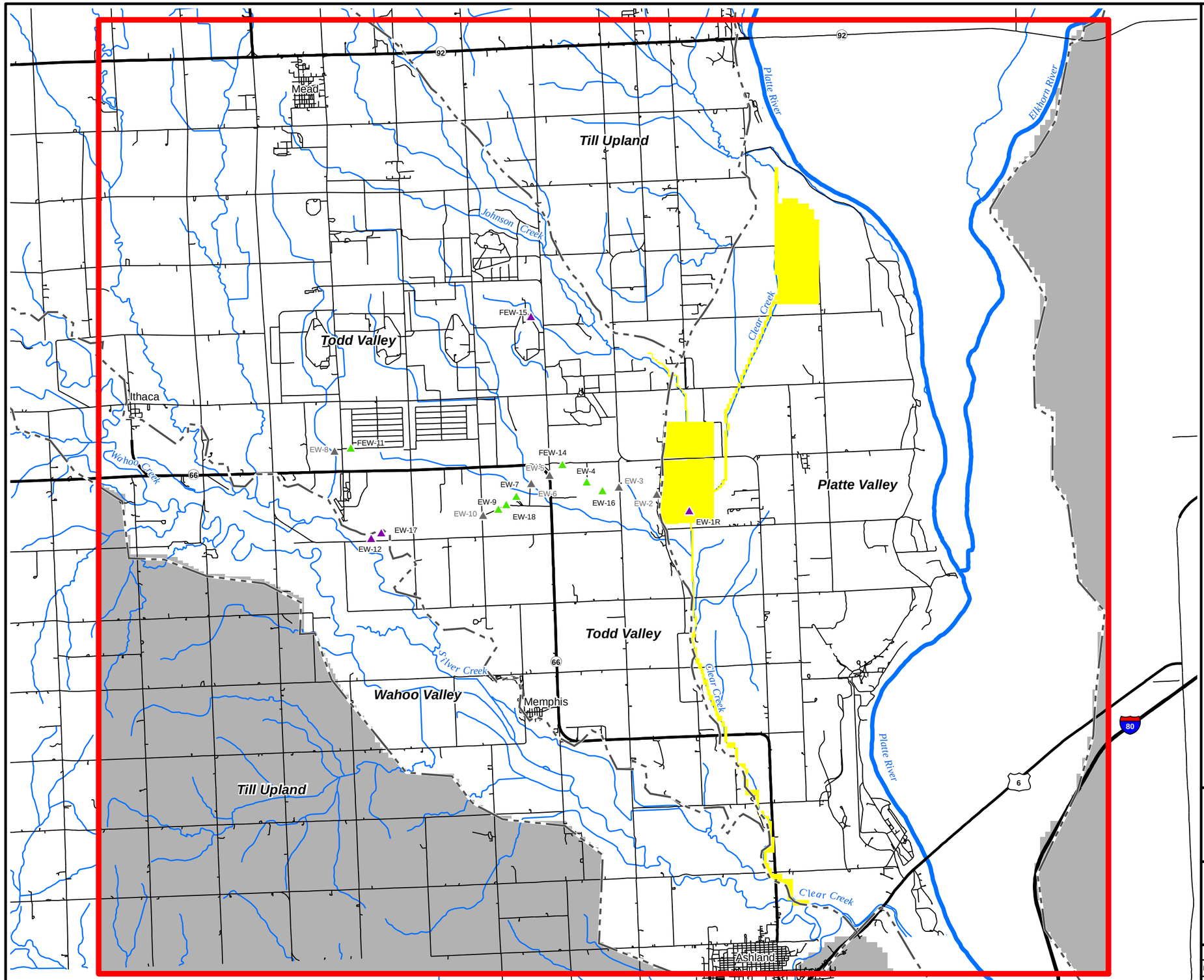
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 4.2
Model Cross Sections

Drawn by: RR	Reviewed by:	Source: 2012 Groundwater Model Update (USACE, 2013)
Date: 10/02/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(4_02)Model_Cross_Sections.mxd



Legend

- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Basin Boundary
- Groundwater Model Extent
- Simulated Drain Cells for Agricultural Drains
- No Flow

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000

Feet

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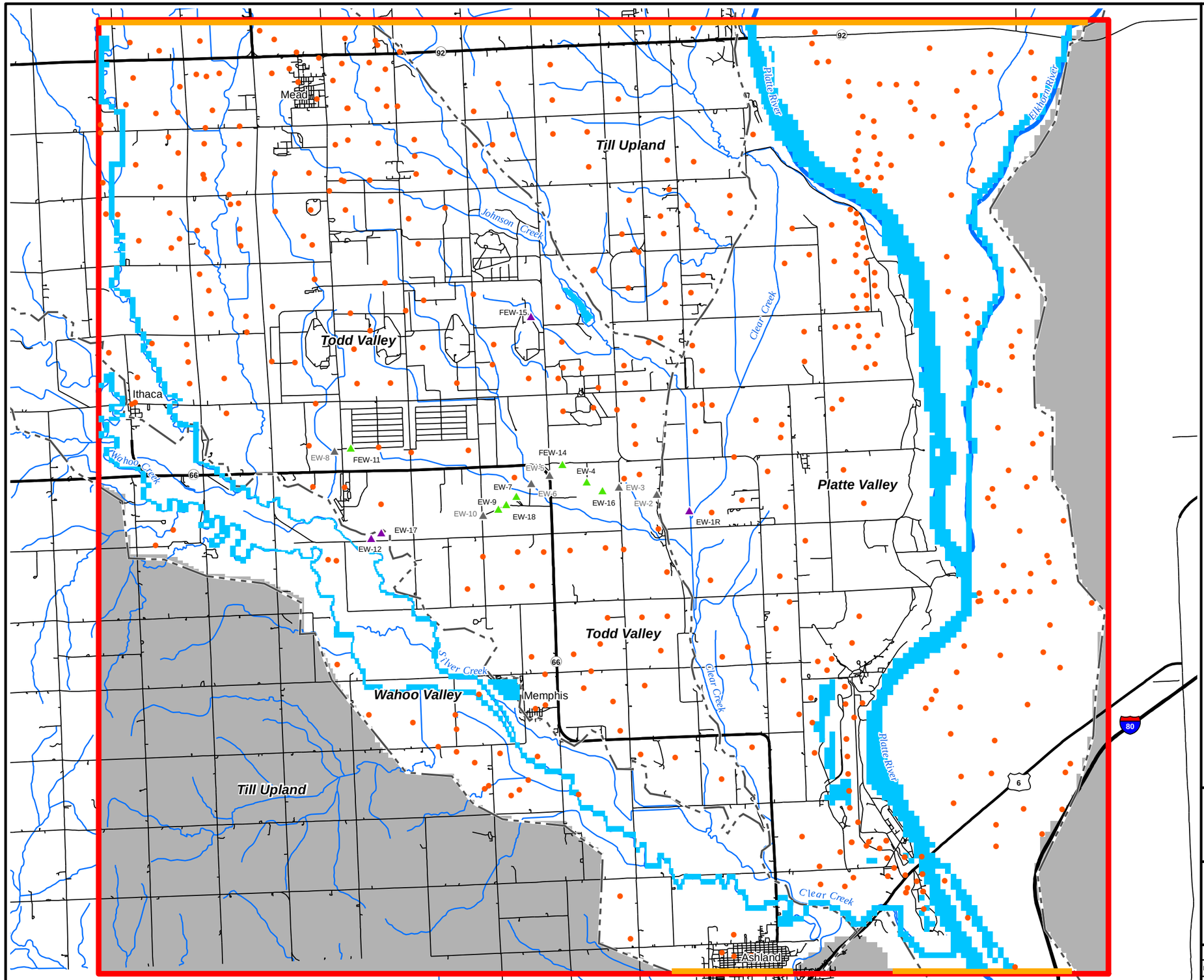
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 4.3
Model Boundary Conditions
Layer 1

Drawn by: RR	Reviewed by:	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 10/01/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(4_03)Model_Boundary_Cond_L1.mxd



Legend

- Layer 2 Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Basin Boundary
- Groundwater Model Extent
- General Head Boundary
- River
- No Flow

NOTES:

Layer 2 wells shown on this map include irrigation wells, municipal water supply wells, and former NOP extraction wells.

Irrigation wells are screened in both Layer 2 and Layer 3.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000

Feet

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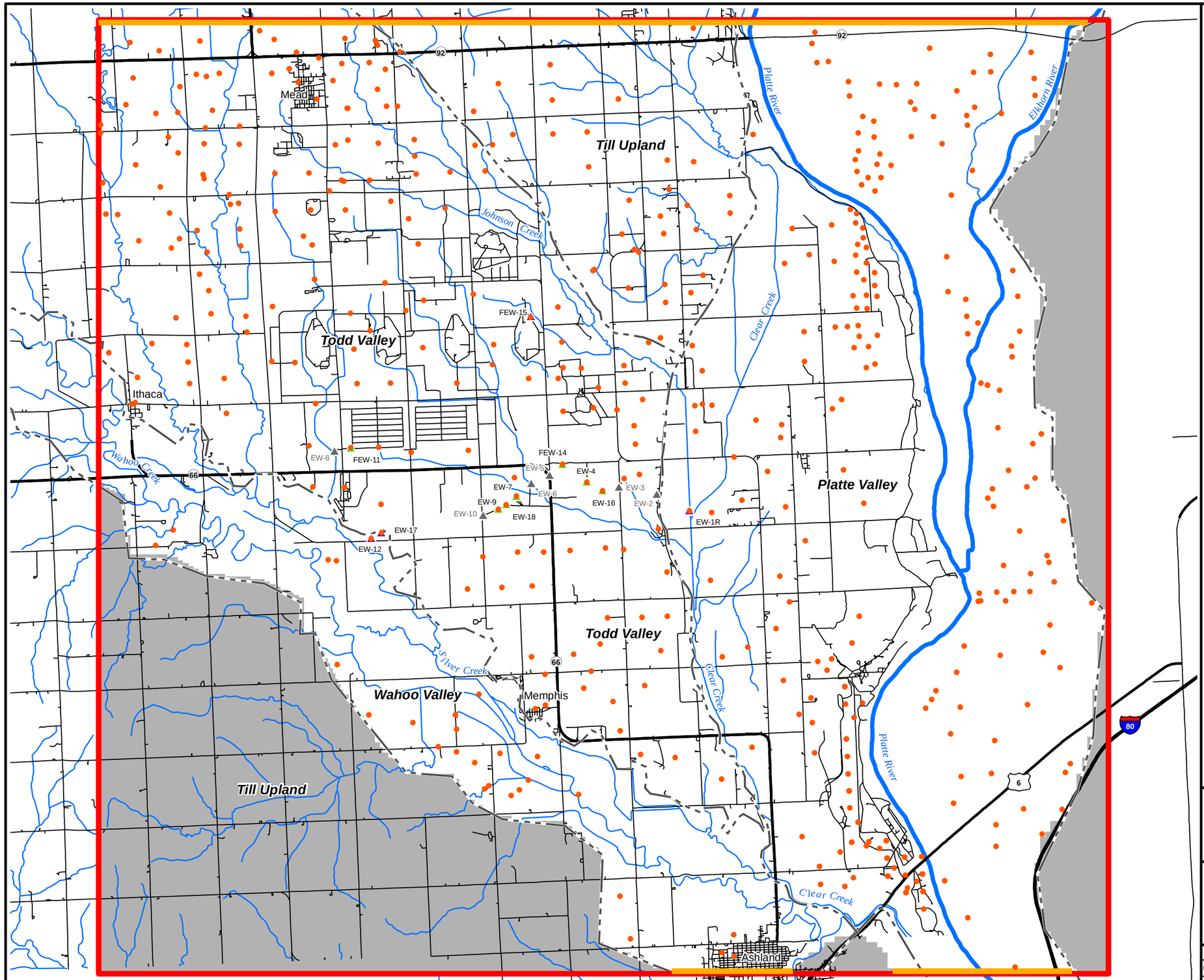
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 4.4
Model Boundary Conditions
Layer 2

Drawn by: RR	Reviewed by:	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 10/01/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(4_04)Model_Boundary_Cond_L2.mxd



Legend

- Layer 3 Well
- Groundwater Extraction Well
- Groundwater Extraction Well with AOP UV Treatment Unit
- Groundwater Extraction Well (Inactive)
- Basin Boundary
- Groundwater Model Extent
- General Head Boundary
- No Flow

NOTES:

Layer 3 wells shown on this map include irrigation wells, municipal water supply wells, and former NOP extraction wells.

Irrigation wells are screened in both Layer 2 and Layer 3.

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000

Feet

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Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 4.5
Model Boundary Conditions
Layer 3

Drawn by: RR	Reviewed by:	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 10/01/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(4_05)Model_Boundary_Cond_L3.mxd

Figure 5.1
Simulated Transient Model Water Budget August 26, 2014 - May 31, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

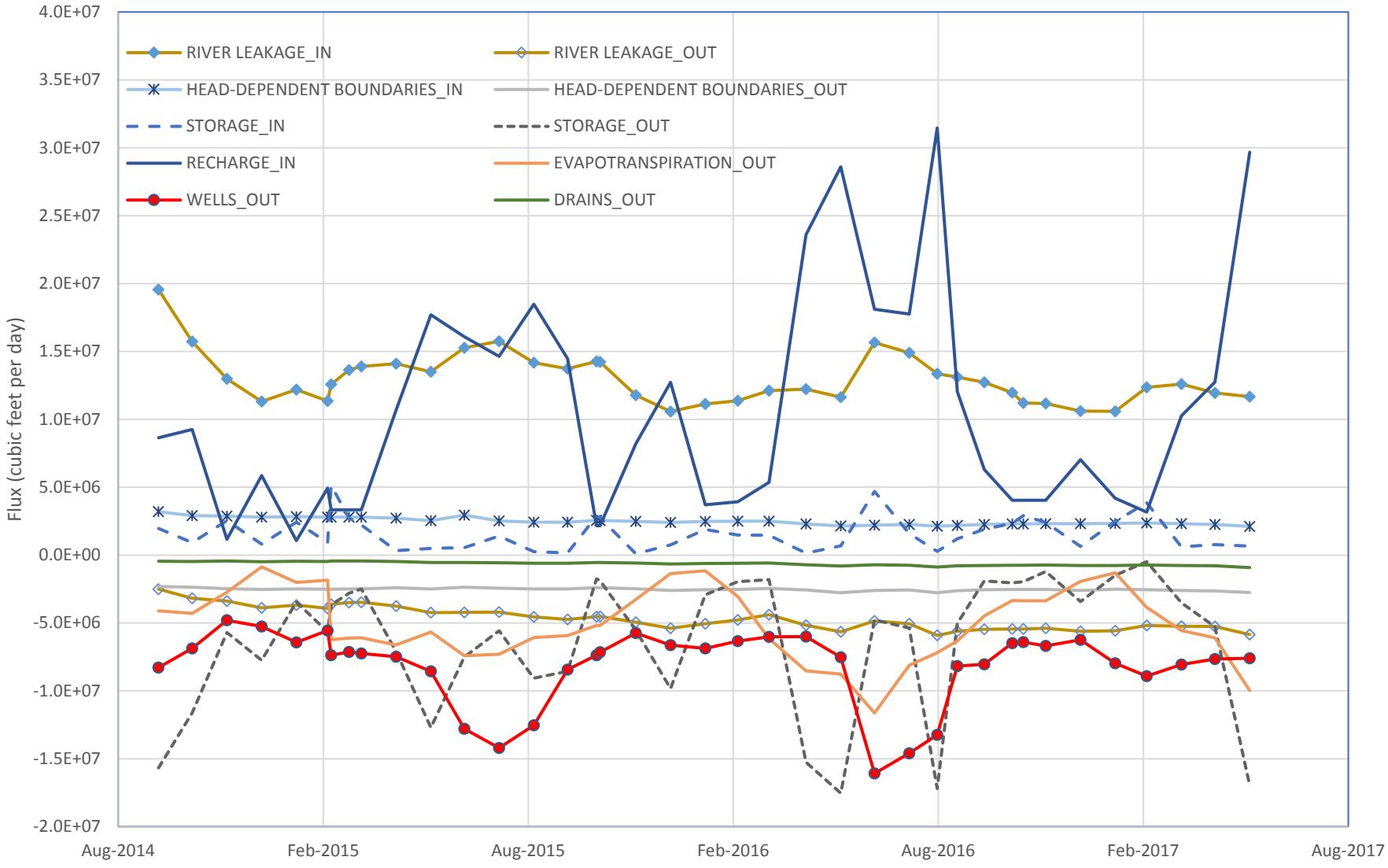


Figure 5.2a
Simulated vs. Observed Hydraulic Heads, Transient Calibration Results, March 30, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

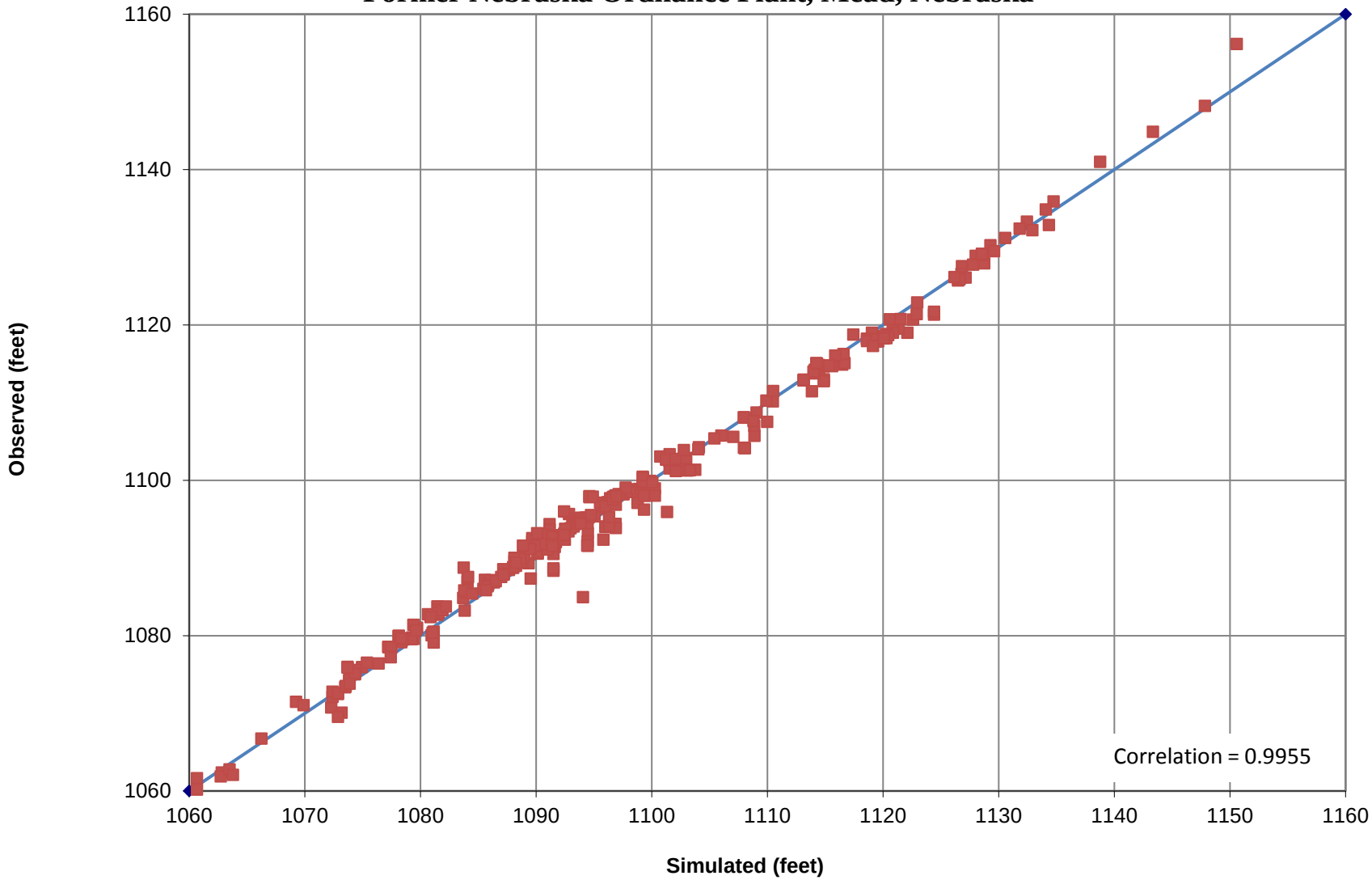


Figure 5.2b
Simulated vs. Observed Hydraulic Heads, Transient Calibration Results, August 31, 2015
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

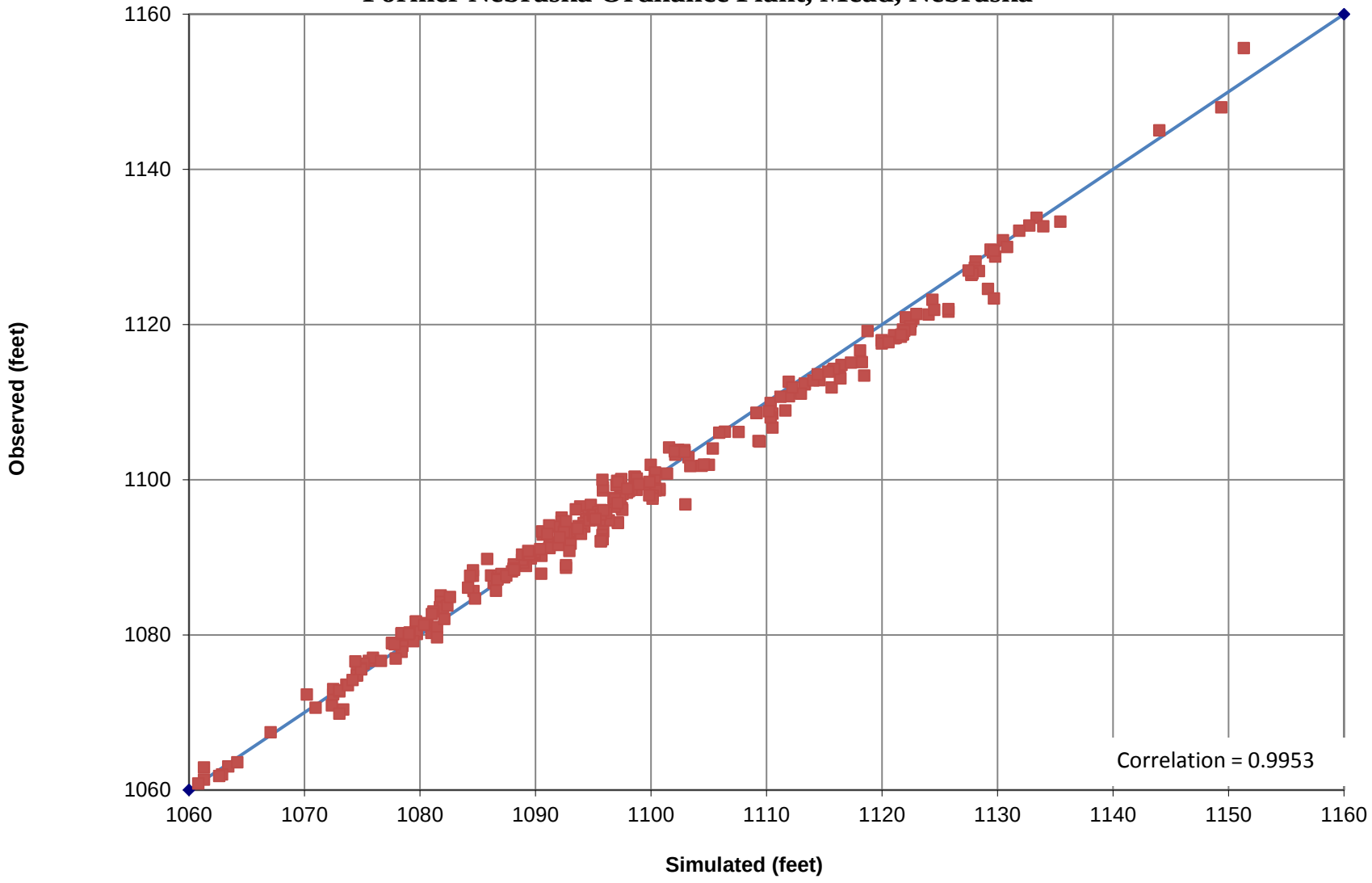


Figure 5.2c
Simulated vs. Observed Hydraulic Heads, Transient Calibration Results, March 28, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

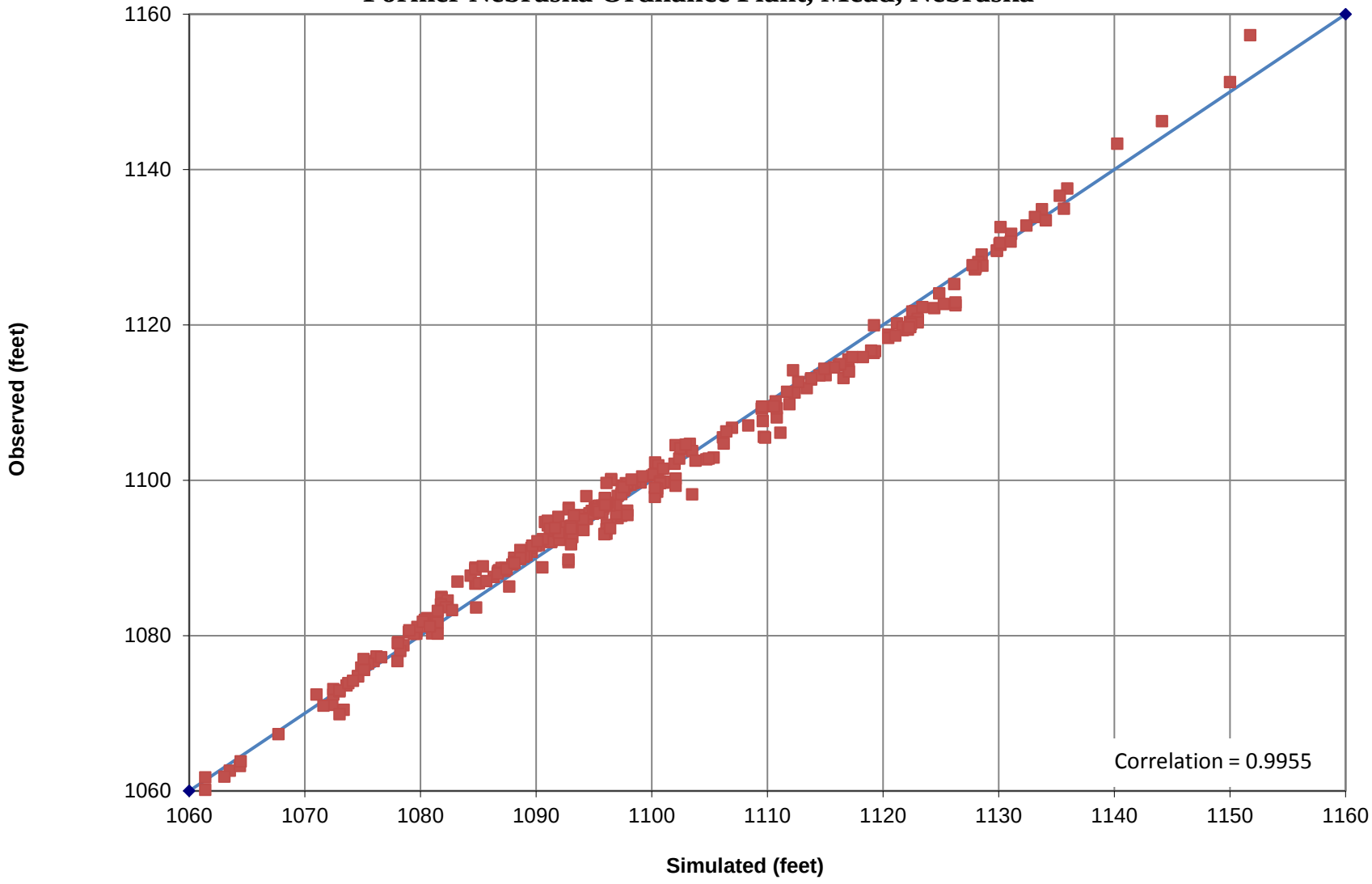


Figure 5.2d
Simulated vs. Observed Hydraulic Heads, Transient Calibration Results, August 25, 2016
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

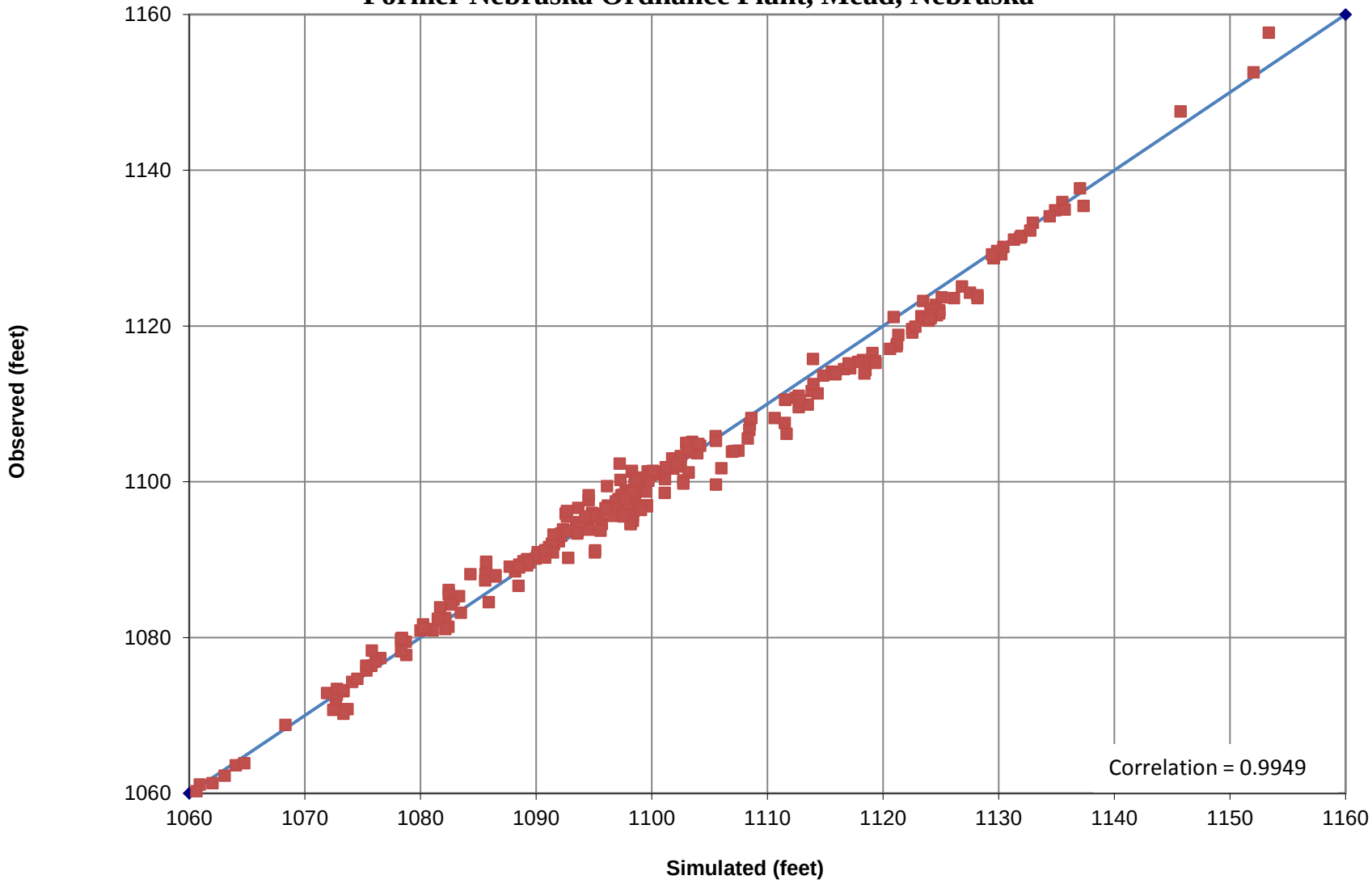
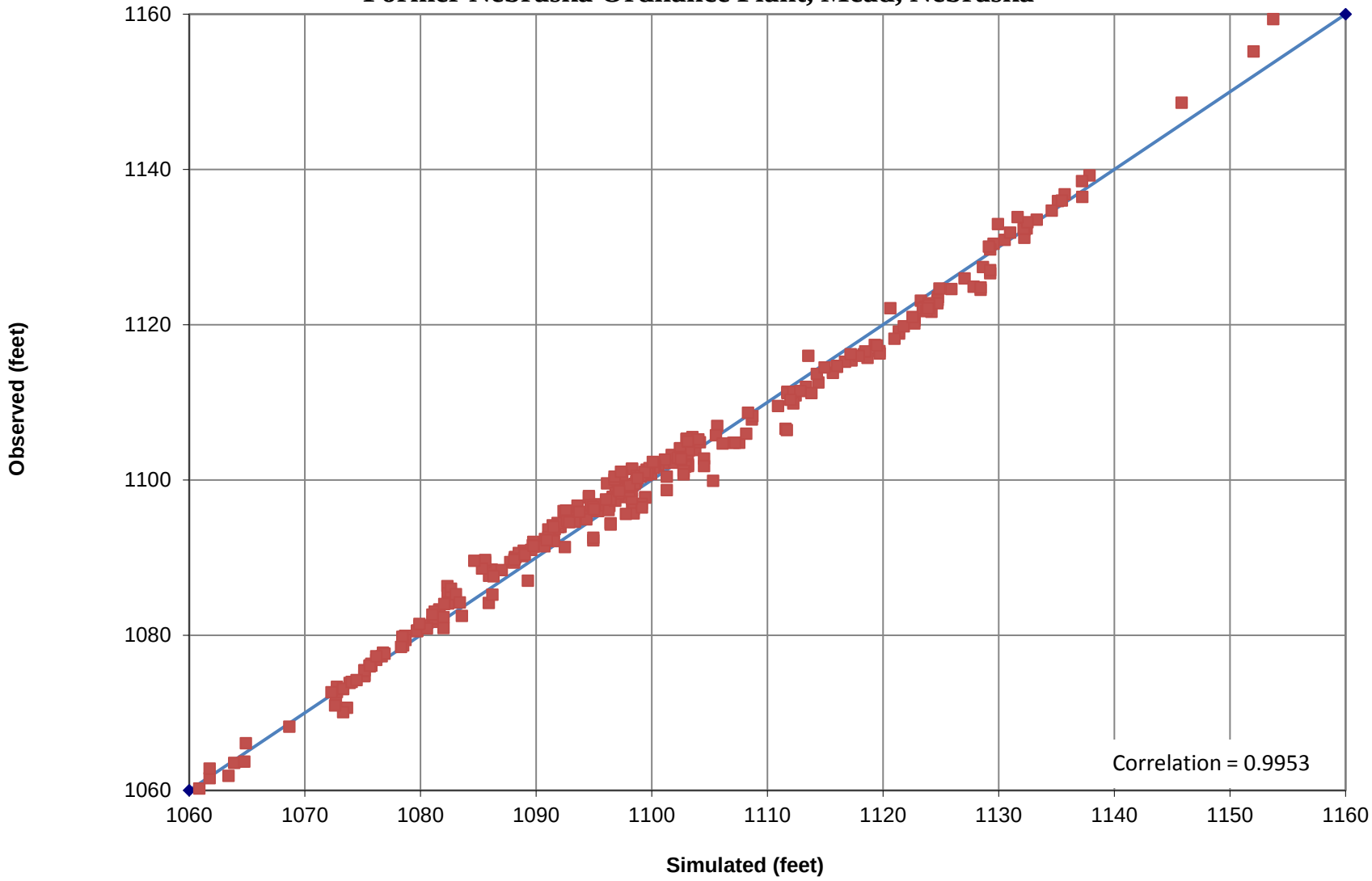
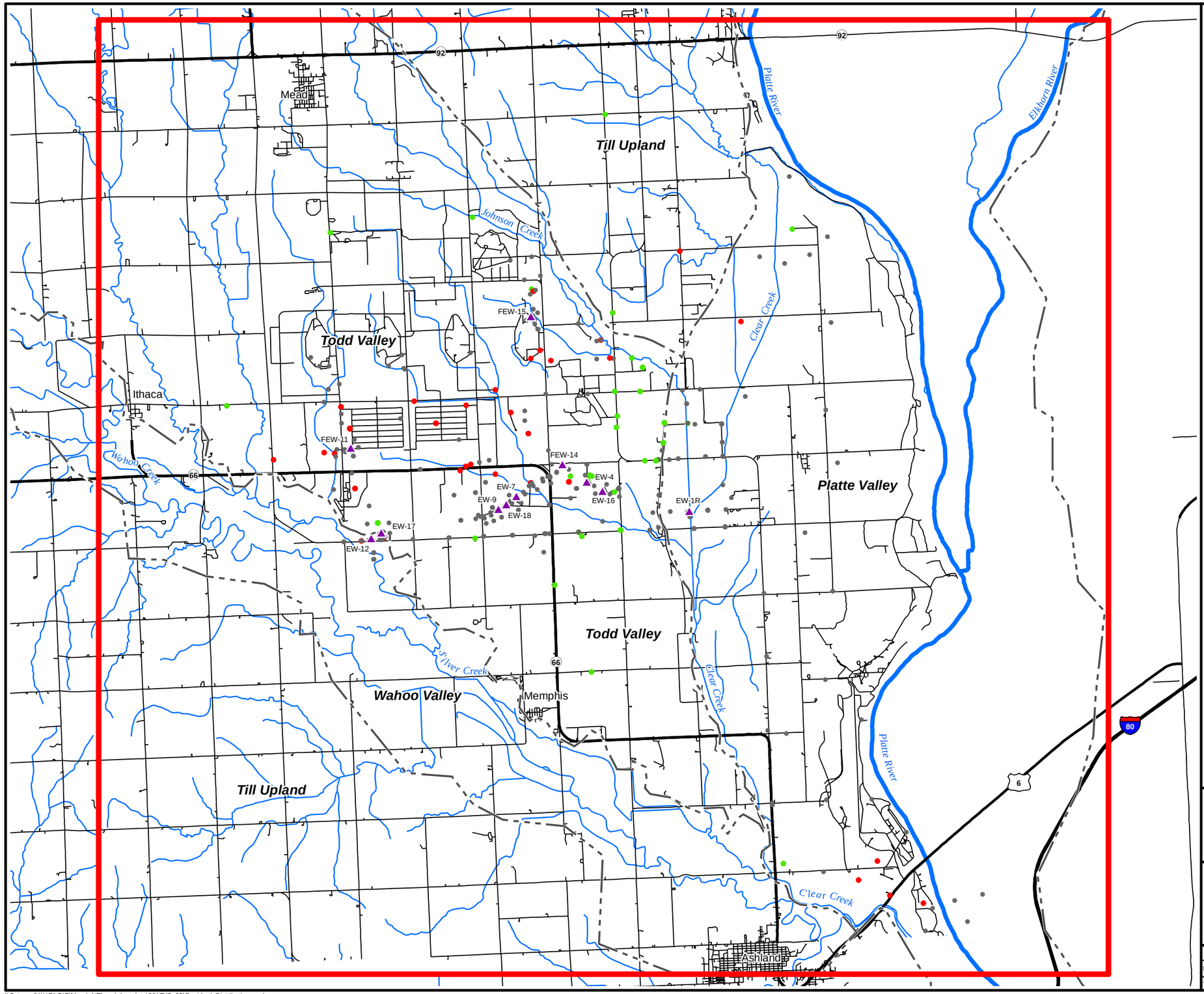


Figure 5.2e
Simulated vs. Observed Hydraulic Heads, Transient Calibration Results, March 31, 2017
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska





Legend

- Negative Residual (simulated water level >2 feet higher than observed water level)
- Residual Between -2 and 2 feet
- Positive Residual (simulated water level >2 feet lower than observed water level)
- Groundwater Extraction Well
- Basin Boundary
- Groundwater Model Extent

N

0 3,750 7,500 15,000

Feet

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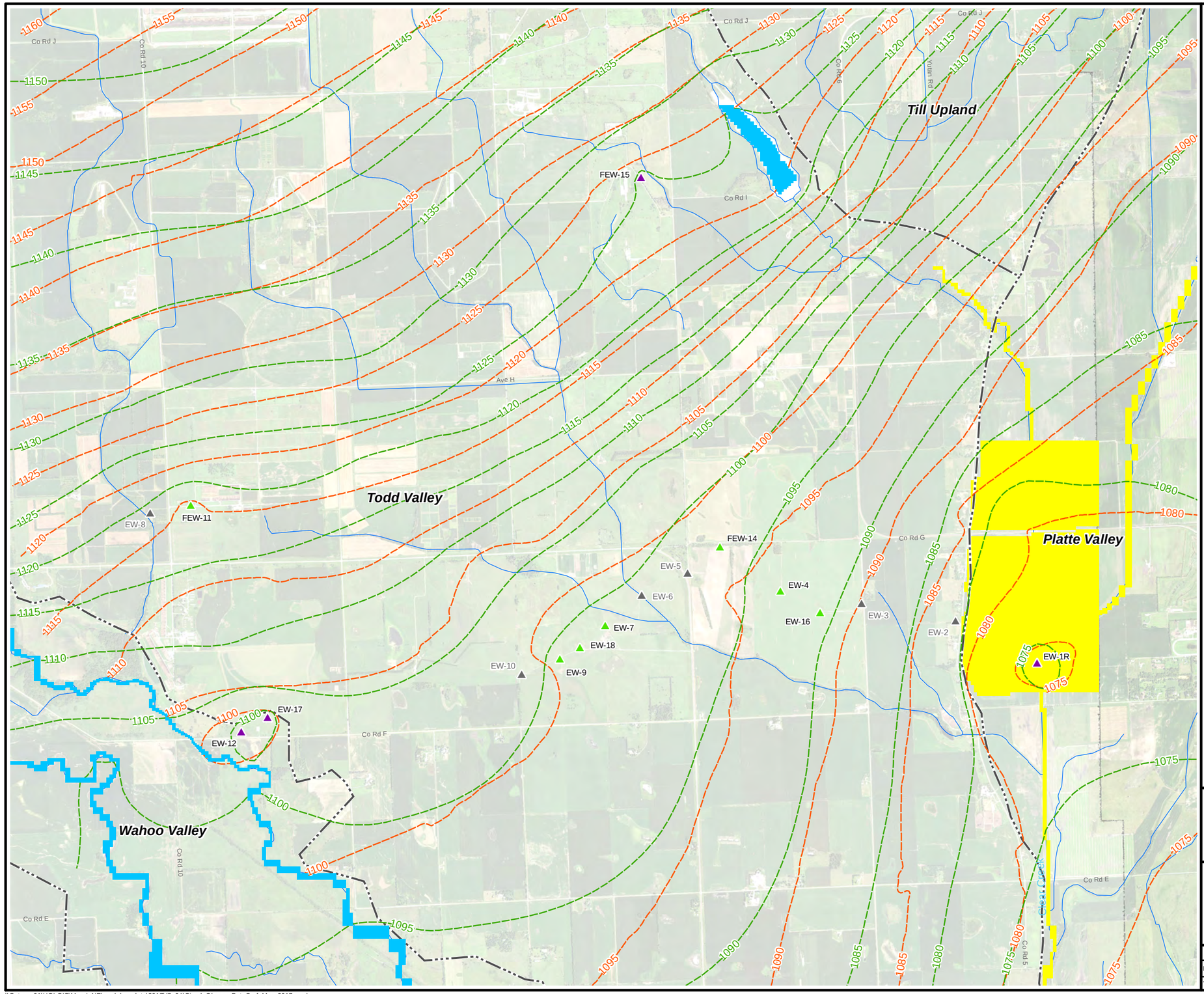
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 5.3
Residual Distribution
March 2017

Drawn by: RR	Reviewed by: TH, XW, MW	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 10/01/2017	Date: 03/20/2018	
Version: 3	Revision Date / Initials: 03/21/2018 RR	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(5_03)Residual_Distribution.mxd



Legend

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

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 1,500 3,000 6,000

Feet

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Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 5.4
Simulated versus Observed Potentiometric Surface Intermediate Zone - March 2017

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 10/01/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(5_04)Simul_Observ_Pot_Surf_Mar_2017.mxd

Figure 5.5a
Observed Hydrographs at USACE Monitoring Wells
Elevations 1132-1139 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

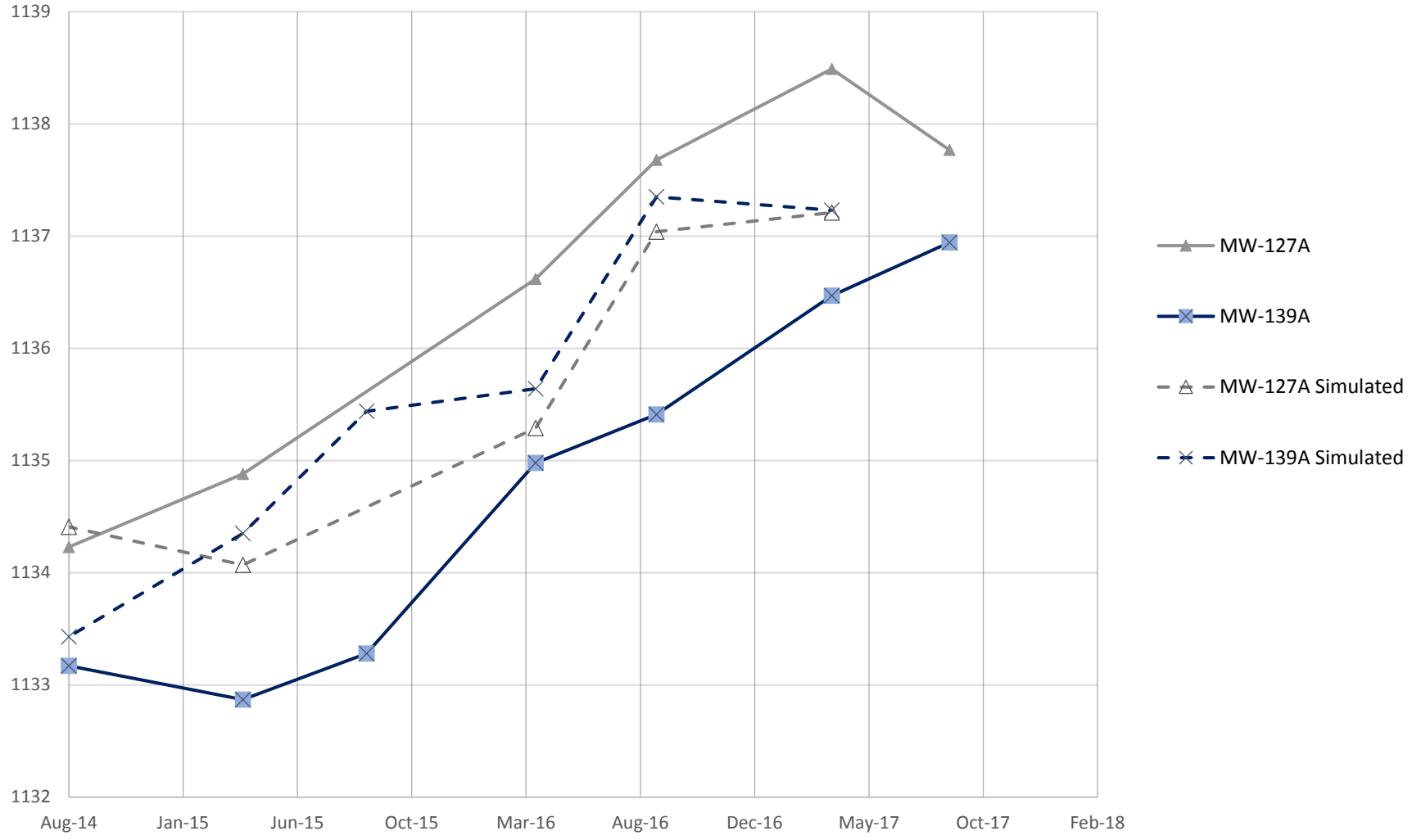


Figure 5.5b
Observed Hydrographs at USACE Monitoring Wells
Elevations 1126-1137 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

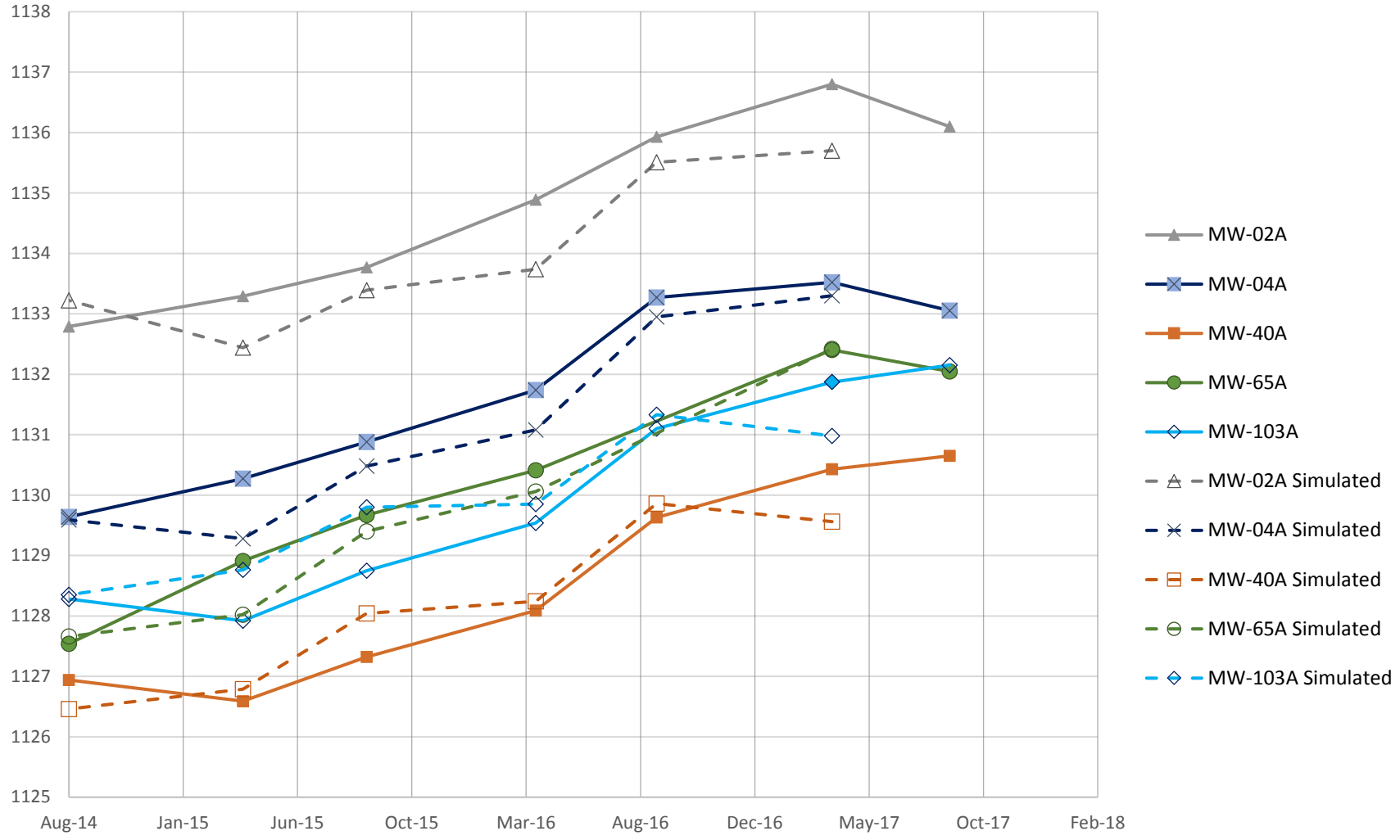


Figure 5.5c
Observed Hydrographs at USACE Monitoring Wells
Elevations 1123-1133 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

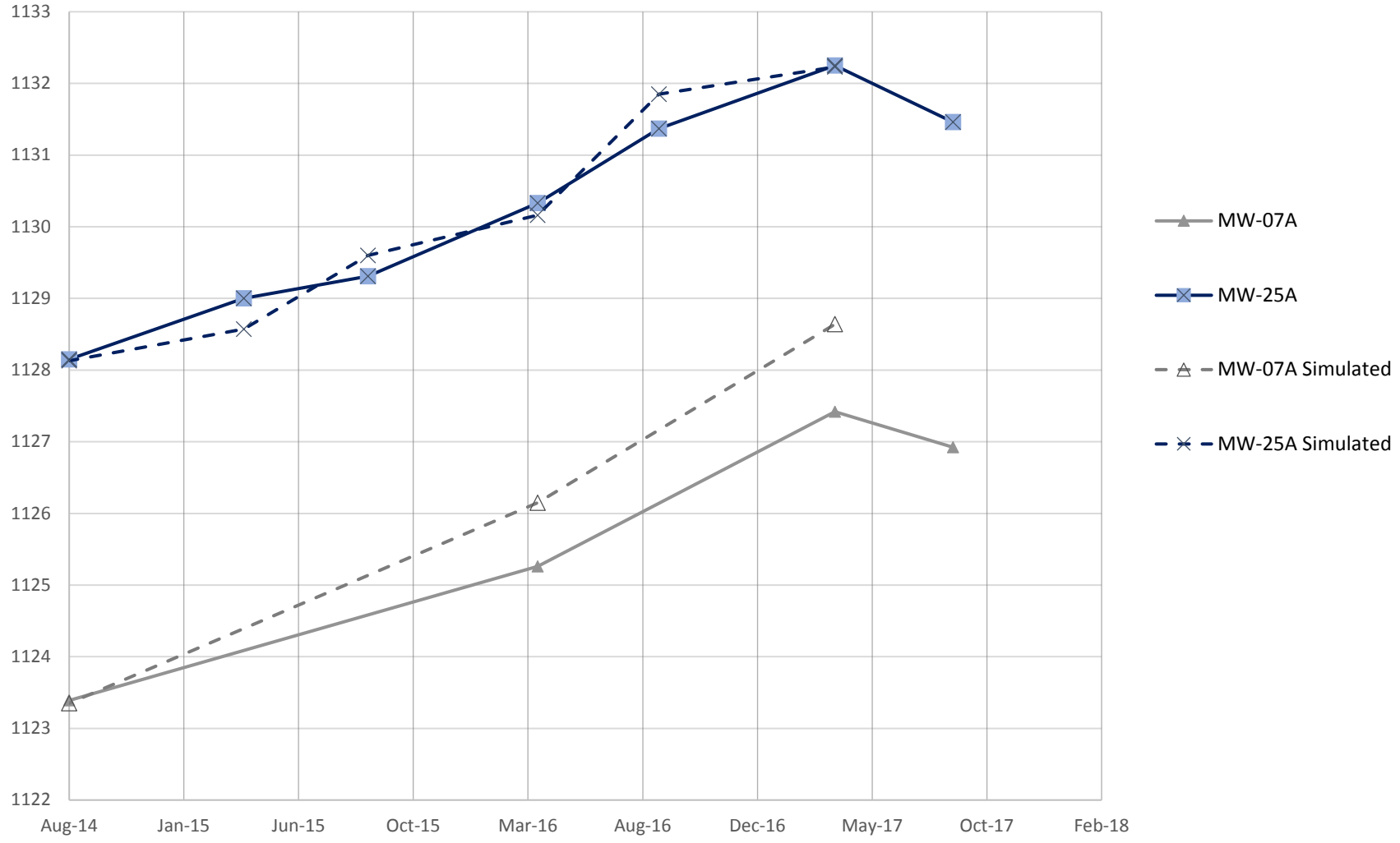


Figure 5.5d
Observed Hydrographs at USACE Monitoring Wells
Elevations 1119-1125 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

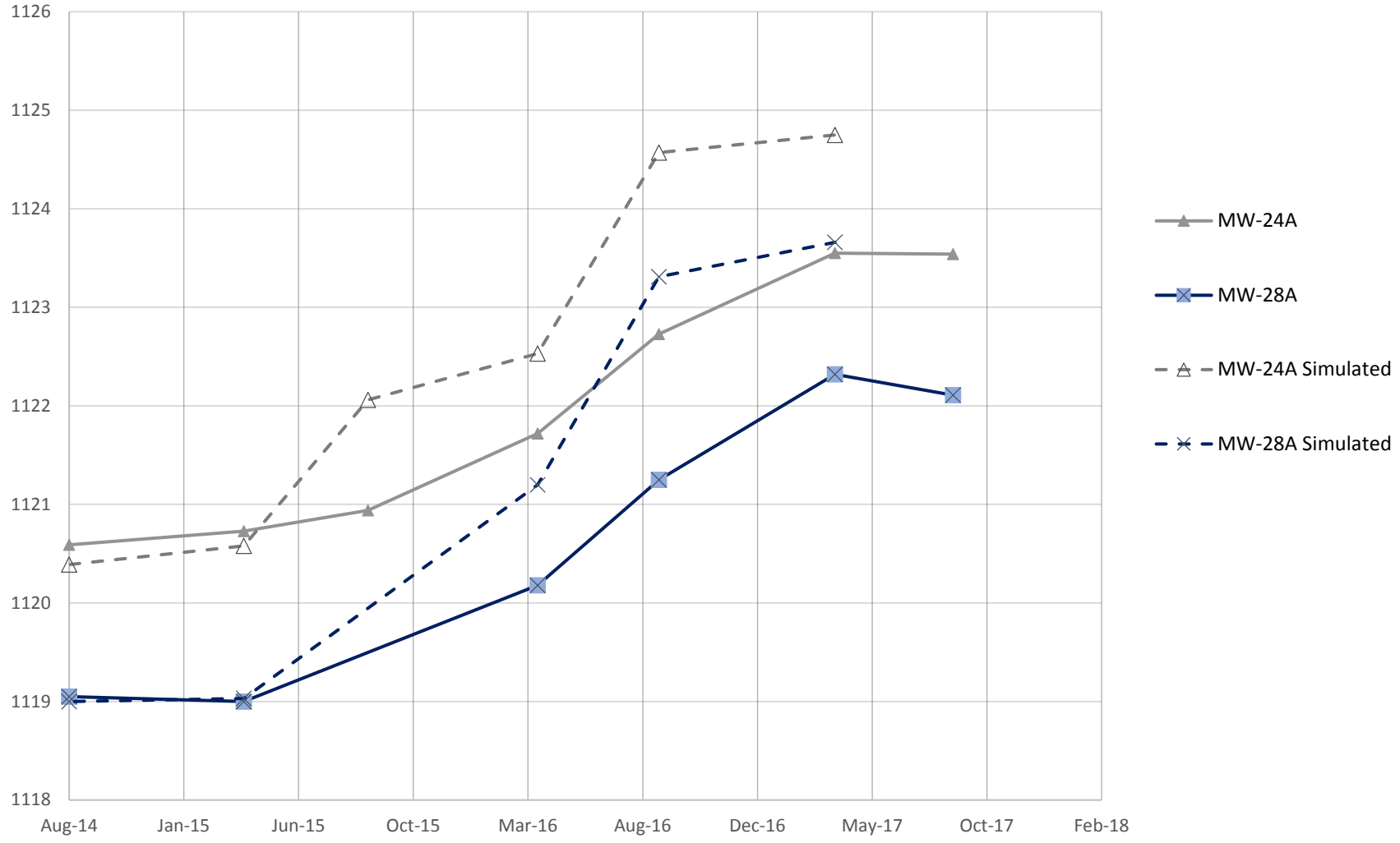


Figure 5.5e
Observed Hydrographs at USACE Monitoring Wells
Elevations 1113-1123 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

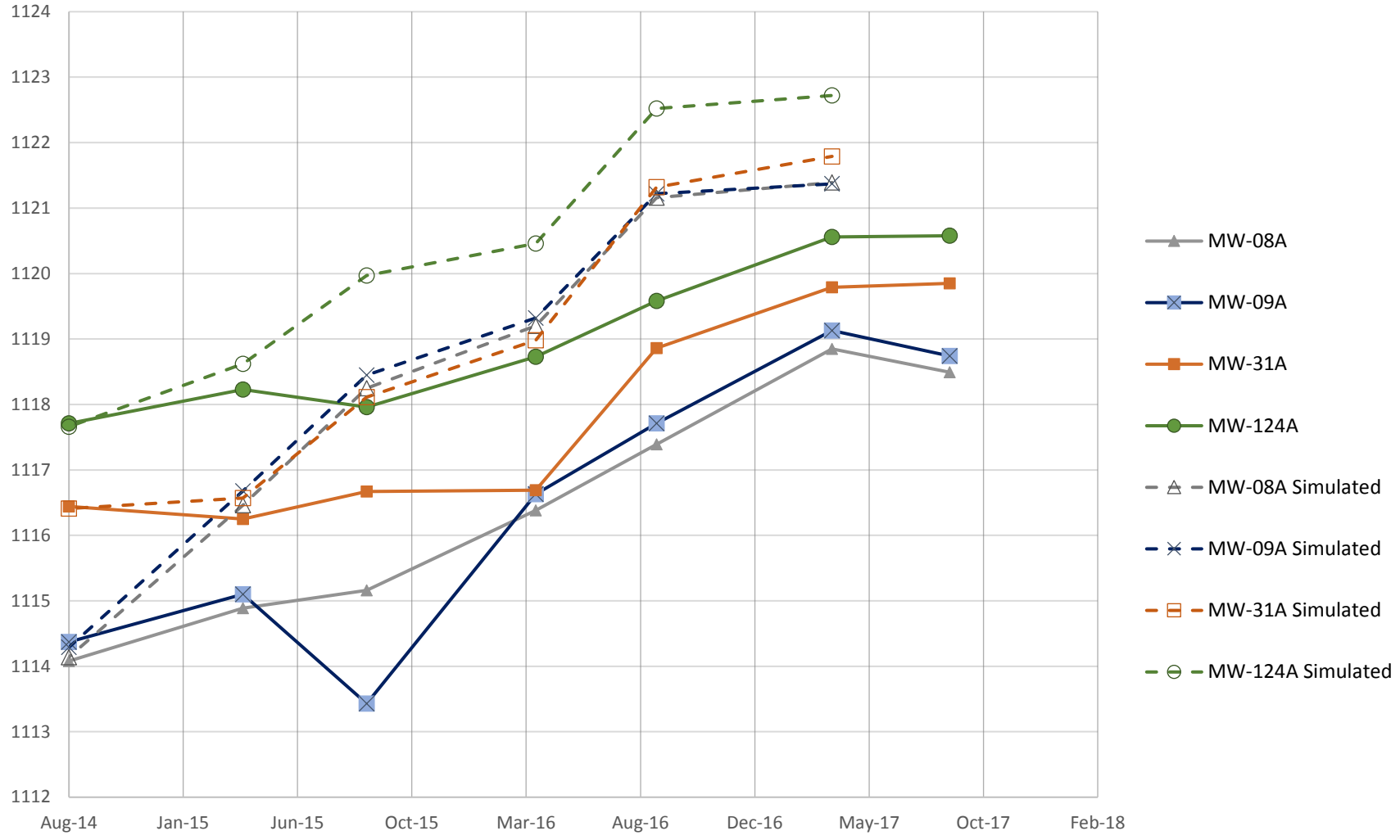


Figure 5.5f
Observed Hydrographs at USACE Monitoring Wells
Elevations 1107-1115 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

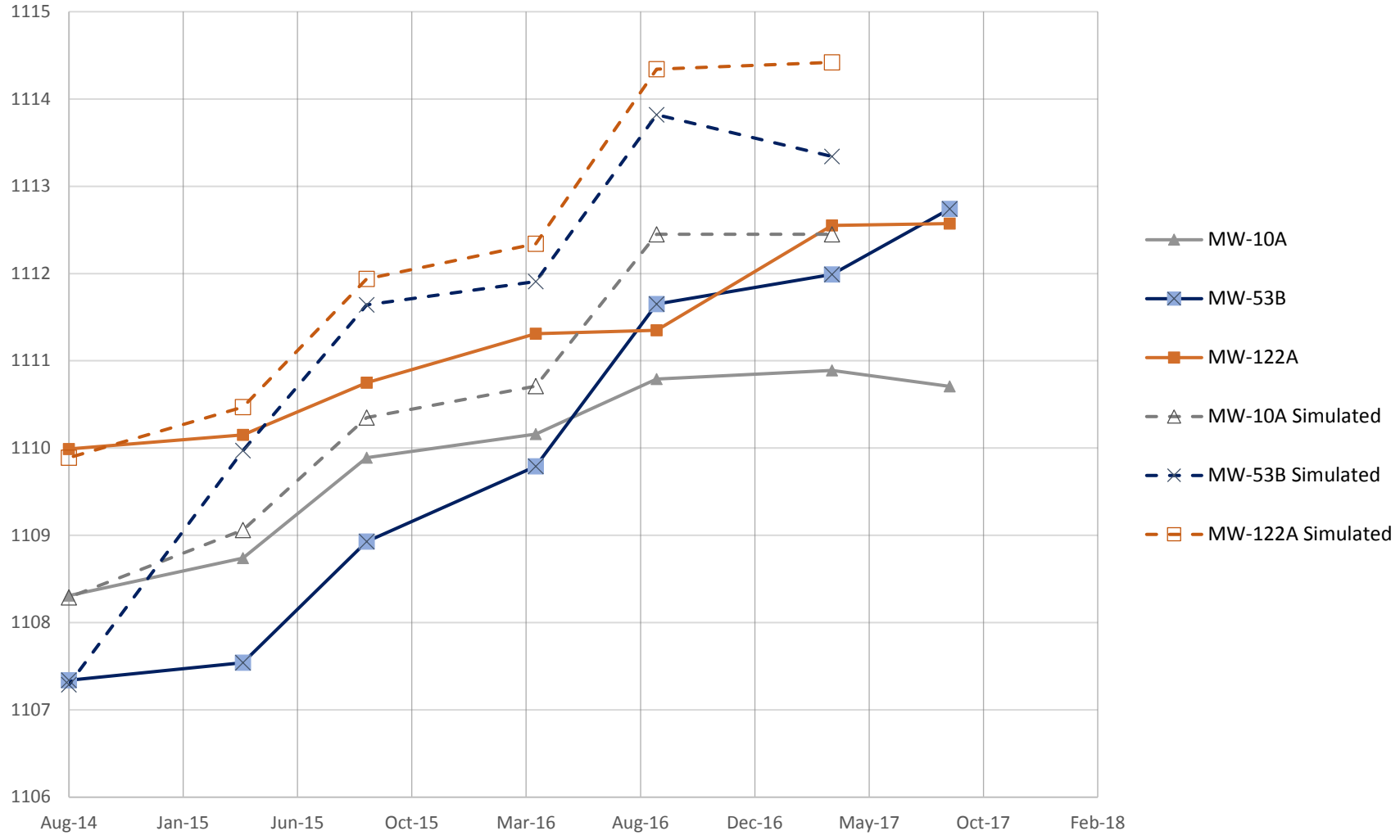


Figure 5.5g
Observed Hydrographs at USACE Monitoring Wells
Elevations 1100-1112 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

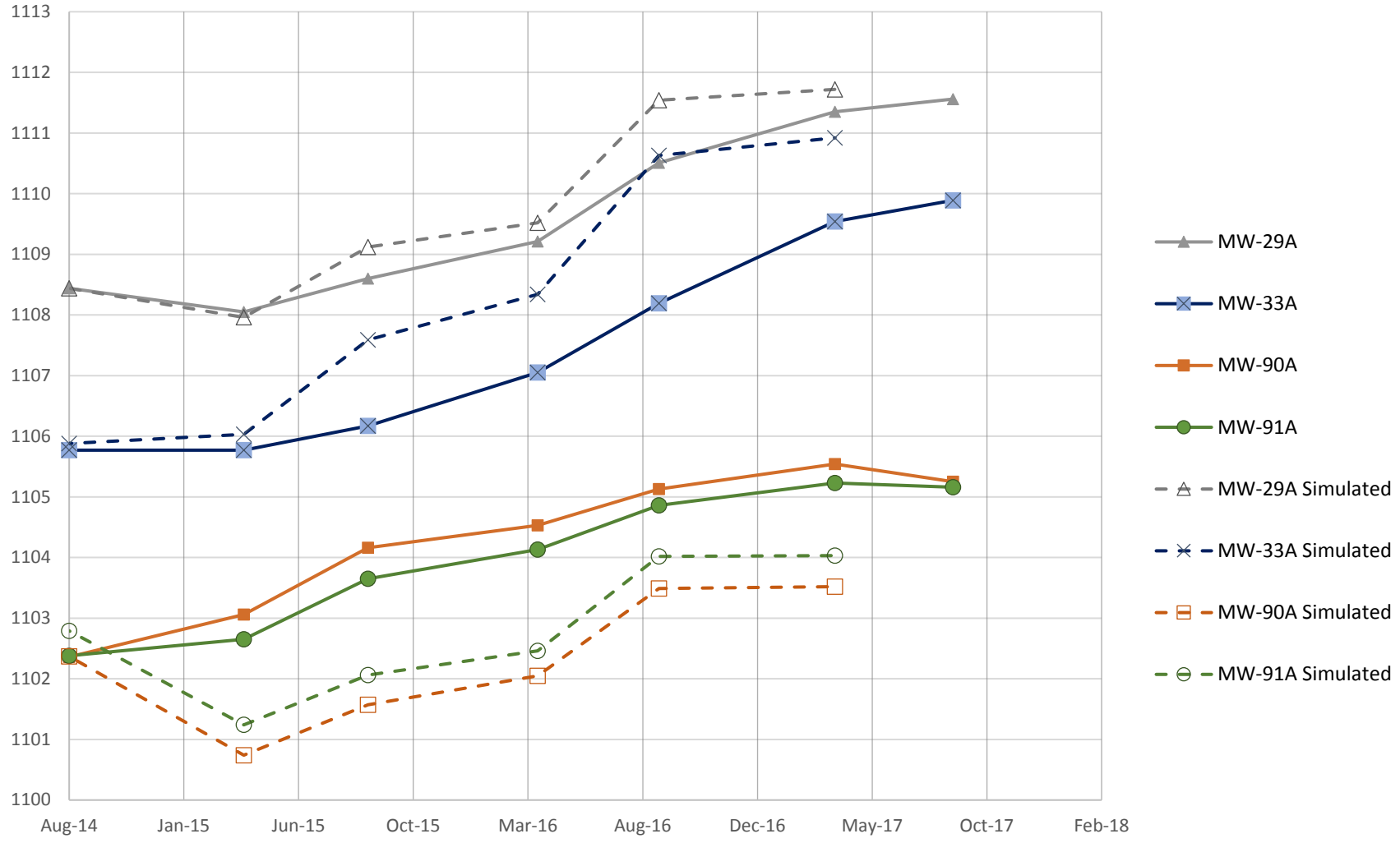


Figure 5.5h
Observed Hydrographs at USACE Monitoring Wells
Elevations 1094-1108 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

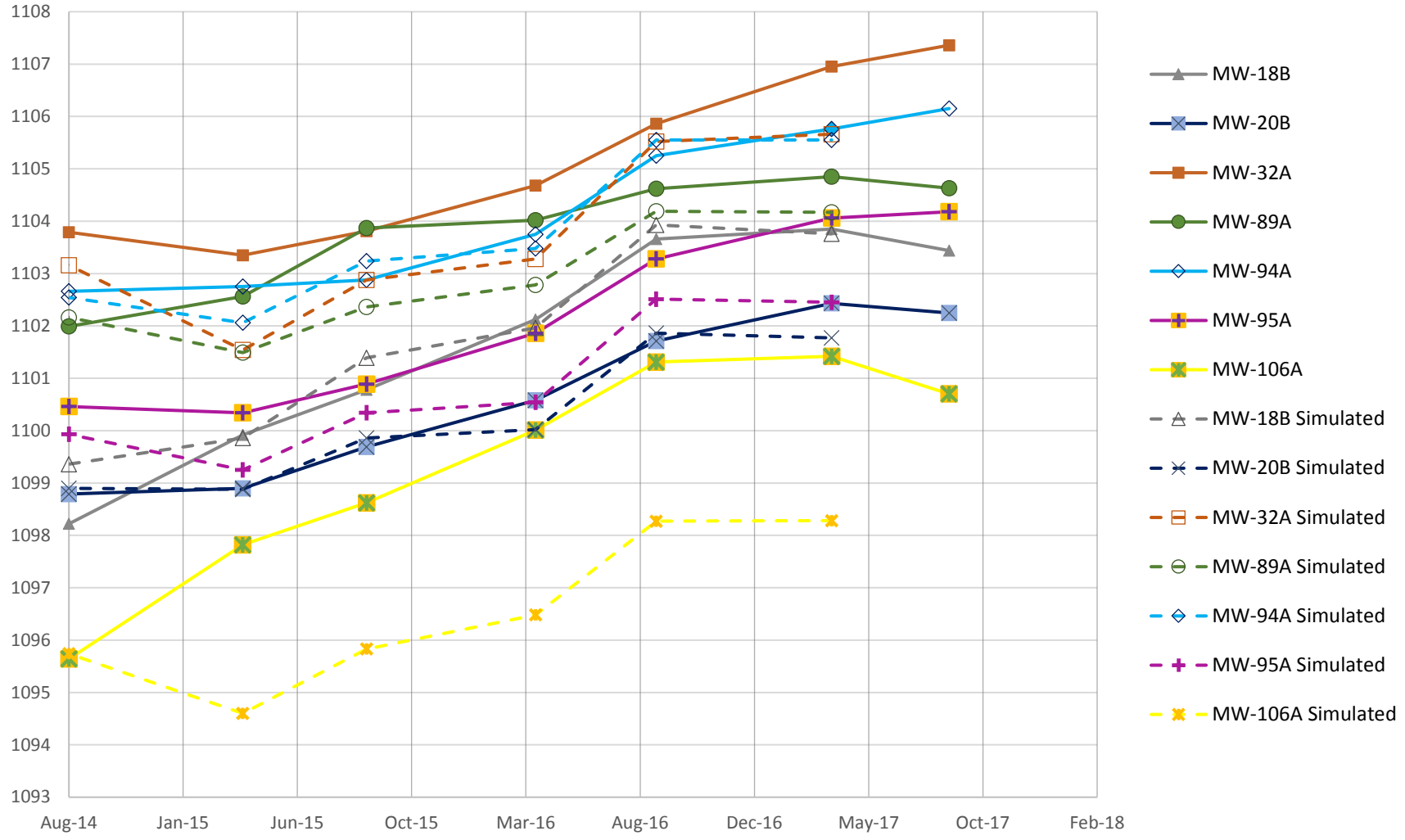


Figure 5.5i
Observed Hydrographs at USACE Monitoring Wells
Elevations 1089-1102 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

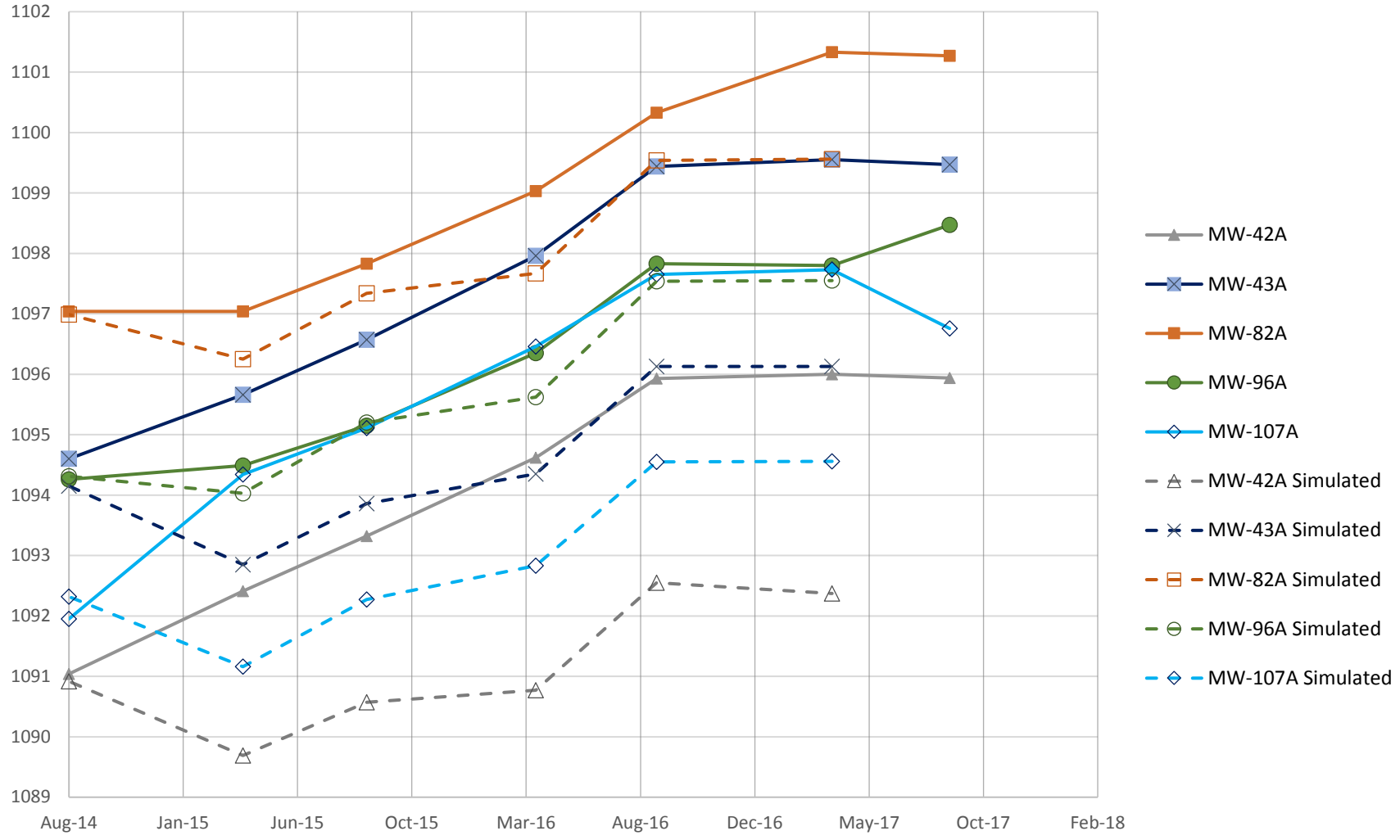


Figure 5.5j
Observed Hydrographs at USACE Monitoring Wells
Elevations 1088-1099 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

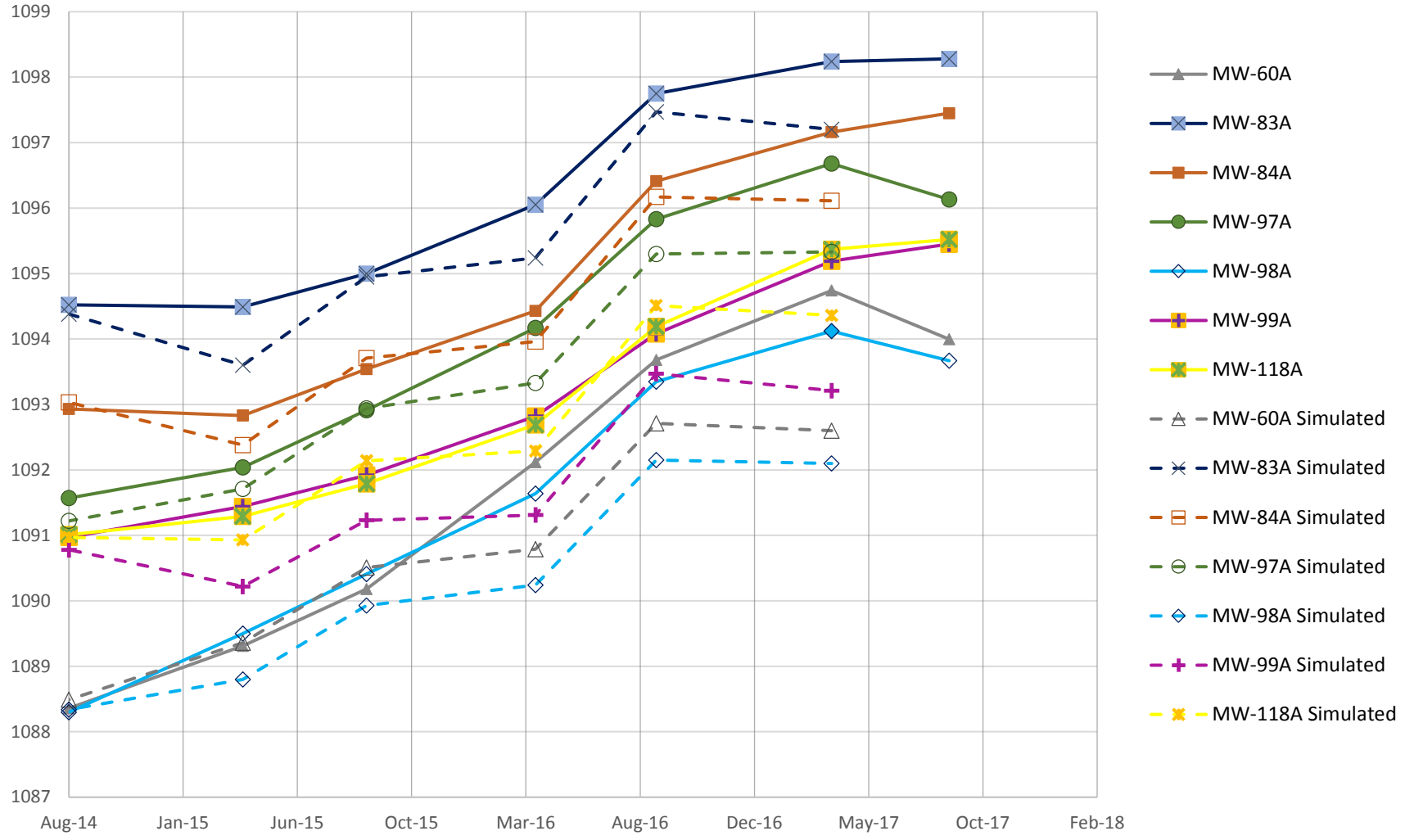


Figure 5.5k
Observed Hydrographs at USACE Monitoring Wells
Elevations 1083-1091 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska

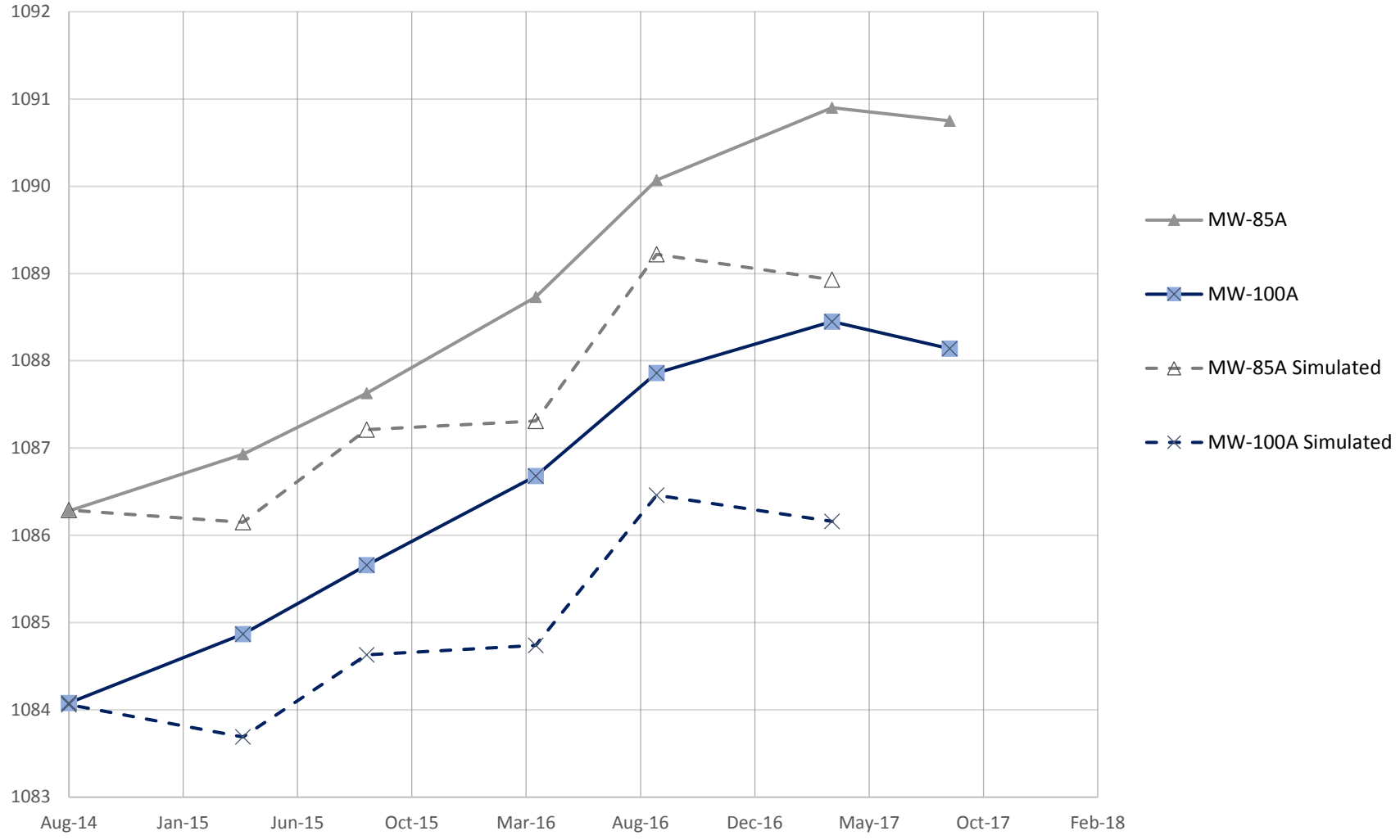
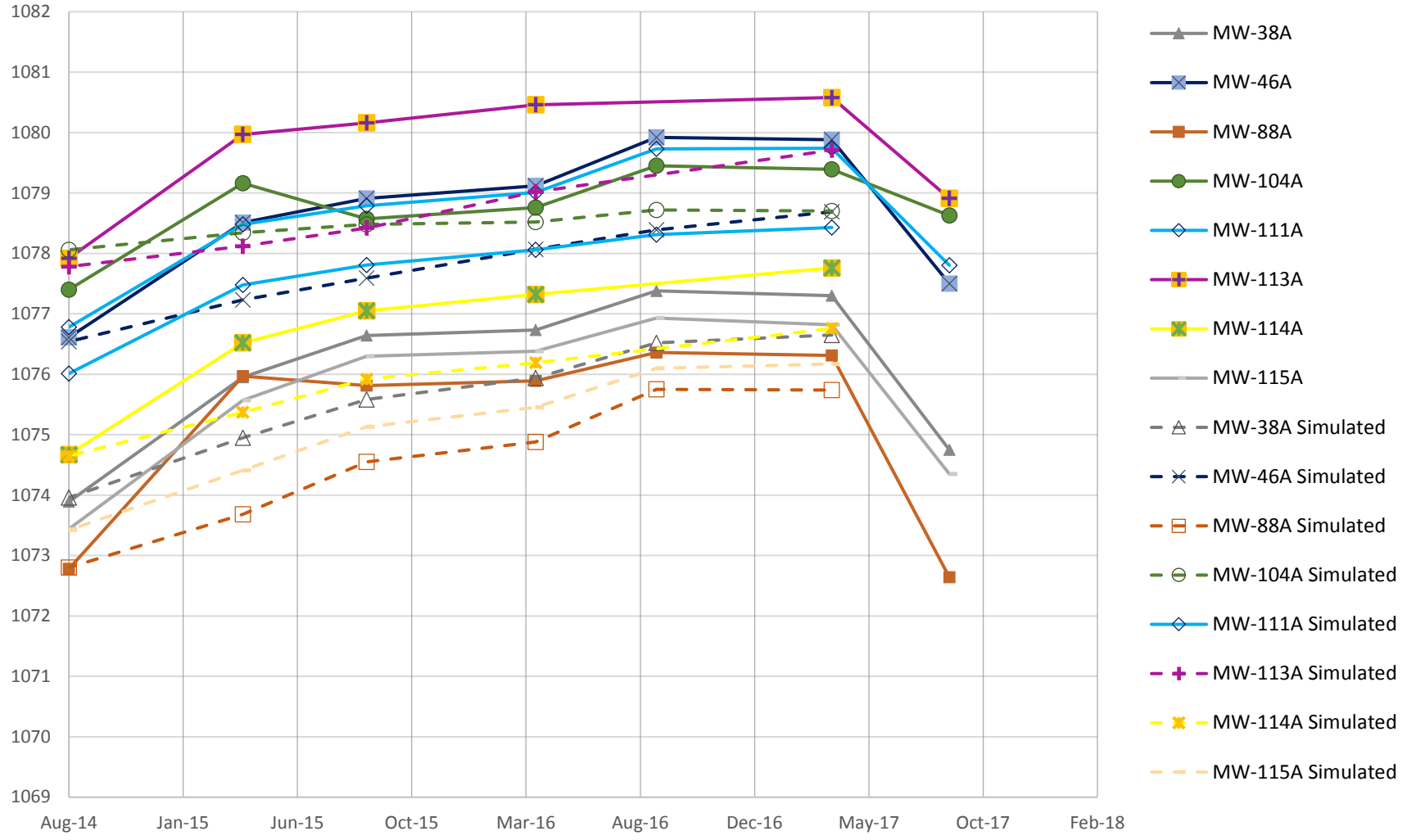
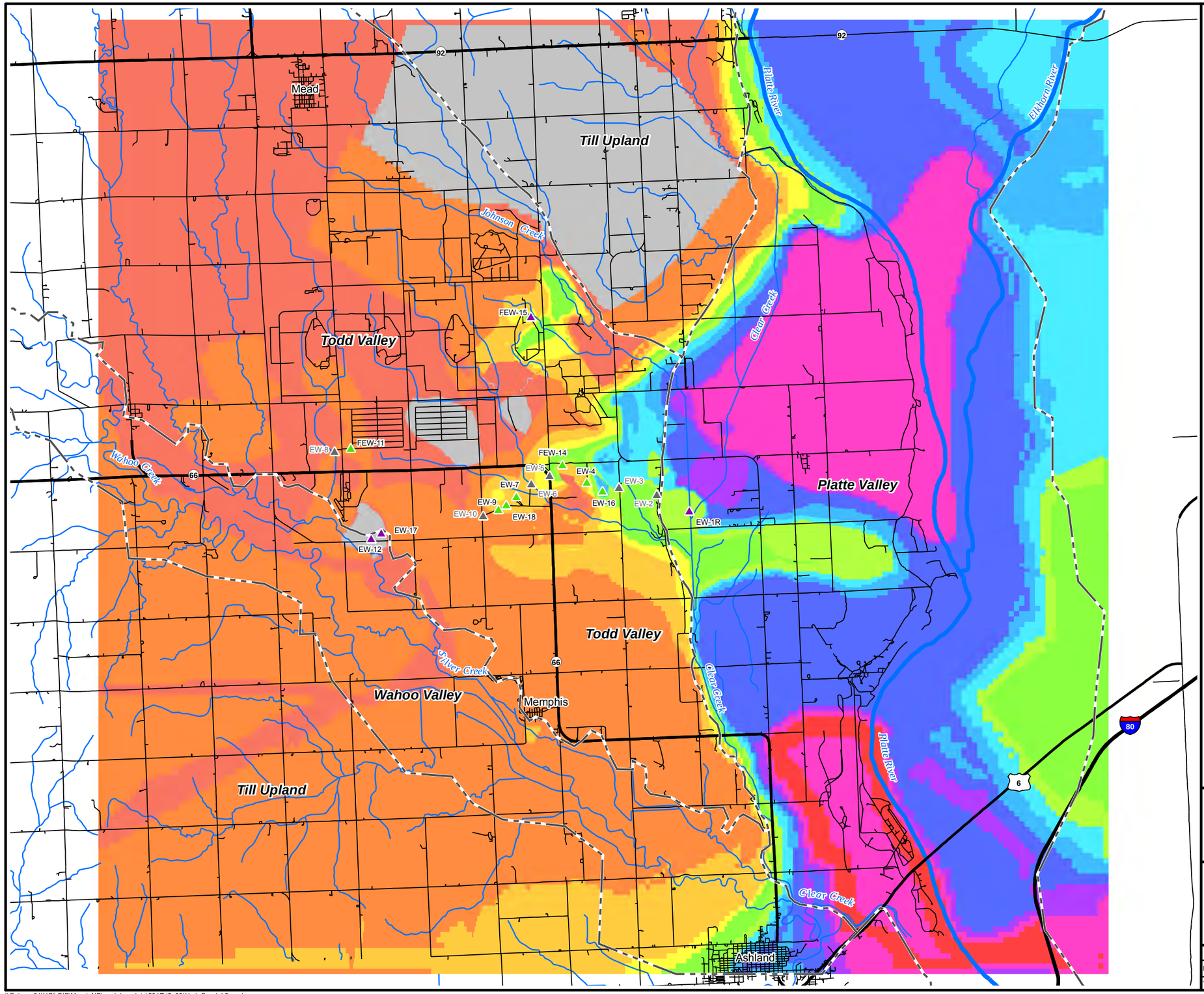


Figure 5.5l
Observed Hydrographs at USACE Monitoring Wells
Elevations 1072-1081 Feet above Mean Sea Level
2017 Groundwater Model Update
Former Nebraska Ordnance Plant, Mead, Nebraska





Legend

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

Hydraulic Conductivity (ft/day)

- ≤50
- >50–100
- >100–150
- >150–200
- >200–250
- >250–300
- >300–350
- >350–400
- >400–450
- >450–500
- >500–550
- >550–600
- >600

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000

Feet

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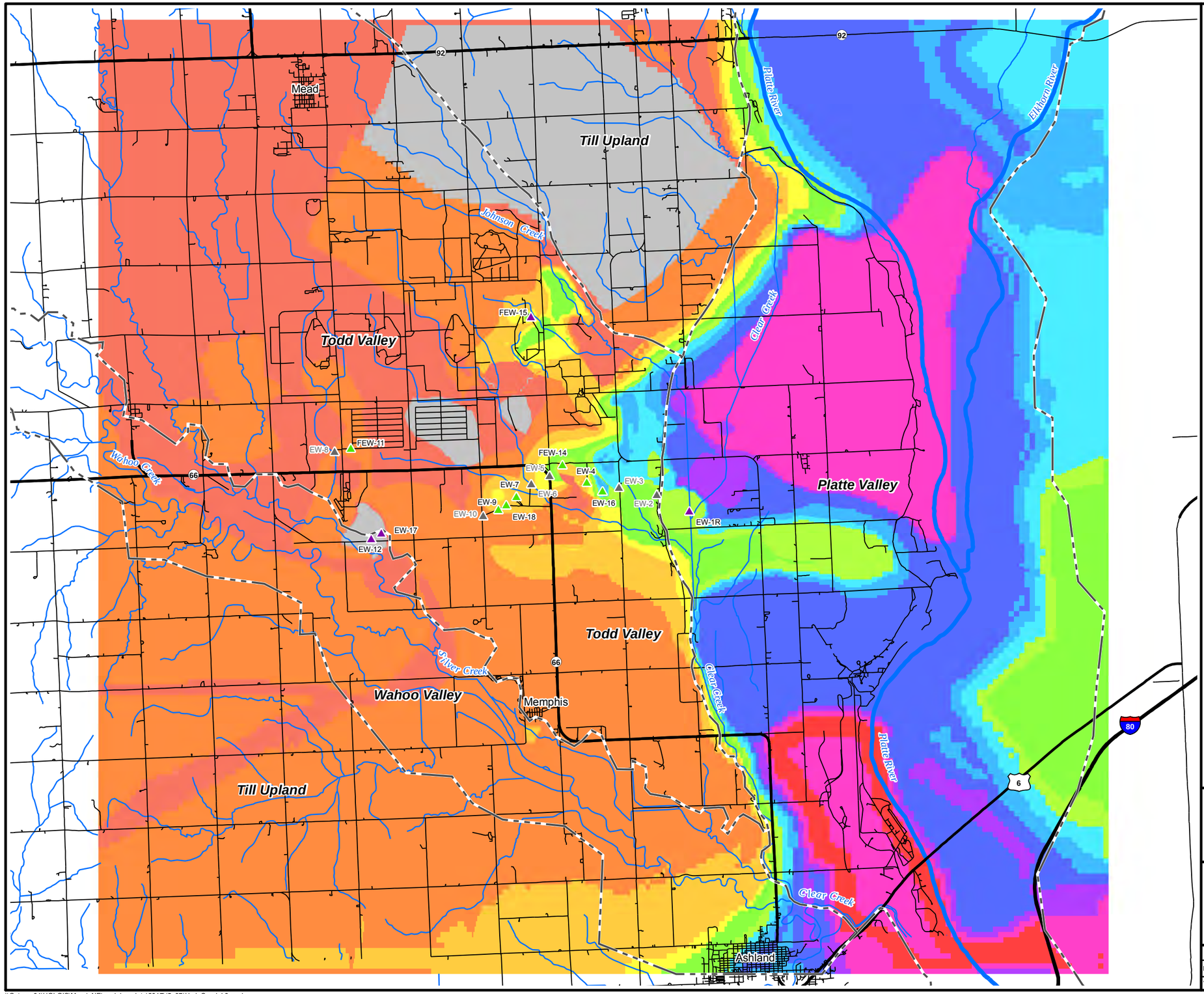
Mead, Nebraska
2017 Groundwater Model Update

Figure 5.6
Layer 2 Hydraulic Conductivity Distribution

Drawn by: RR	Reviewed by: TH, XW	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/29/2017	Date: 10/10/2017	
Version: 2	Revision Date / Initials: 10/11/2017 RR	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\(5_06)Hyd_Cond_L2.mxd



Legend

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

Hydraulic Conductivity (ft/day)

- ≤50
- >50–100
- >100–150
- >150–200
- >200–250
- >250–300
- >300–350
- >350–400
- >400–450
- >450–500
- >500–550
- >550–600
- >600

NOTES:

AOP UV = Advanced Oxidation Process ultraviolet

N

0 3,750 7,500 15,000

Feet

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Mead, Nebraska
2017 Groundwater Model Update

Figure 5.7
Layer 3 Hydraulic Conductivity Distribution

Drawn by: RR	Reviewed by: TH, XW	Source: HGL, ECC Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/29/2017	Date: 10/10/2017	
Version: 2	Revision Date / Initials: 10/11/2017 RR	

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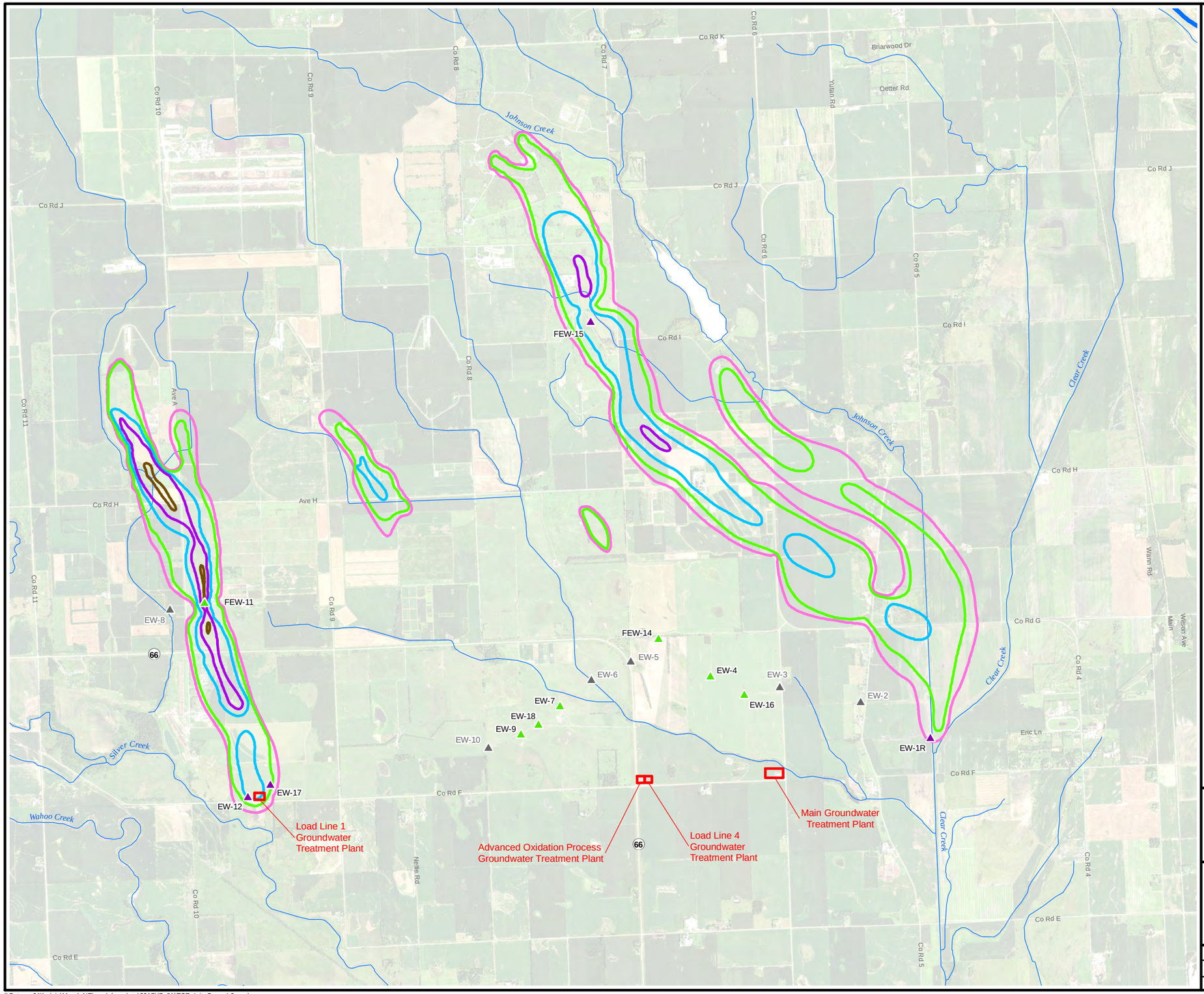

Legend

- 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 Groundwater Model Update

Figure 7.1
TCE Initial Concentrations
Layer 2 (2017)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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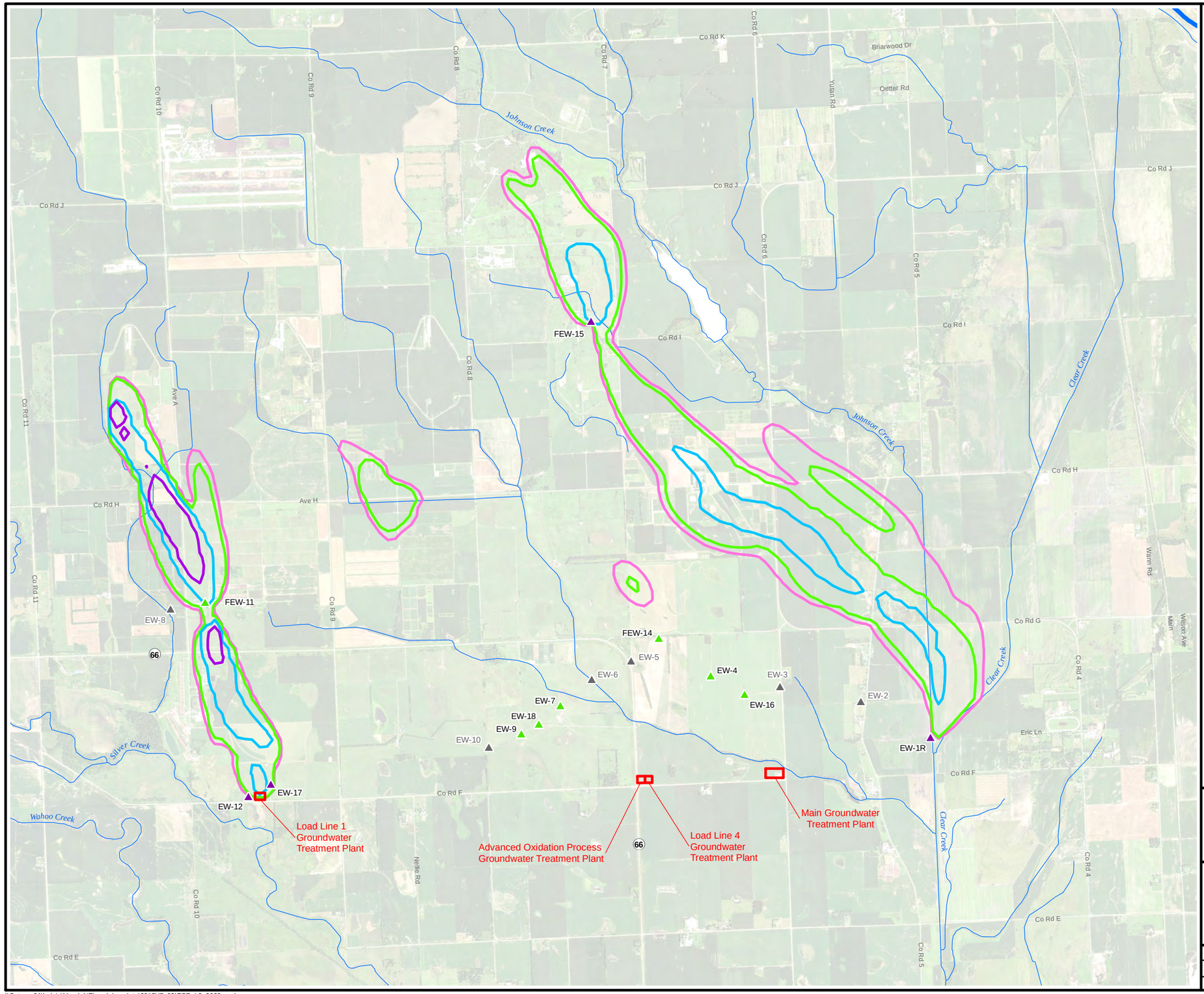

Legend

- 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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2017 Groundwater Model Update

Figure 7.2
Predicted TCE Concentrations
Layer 2 (2022)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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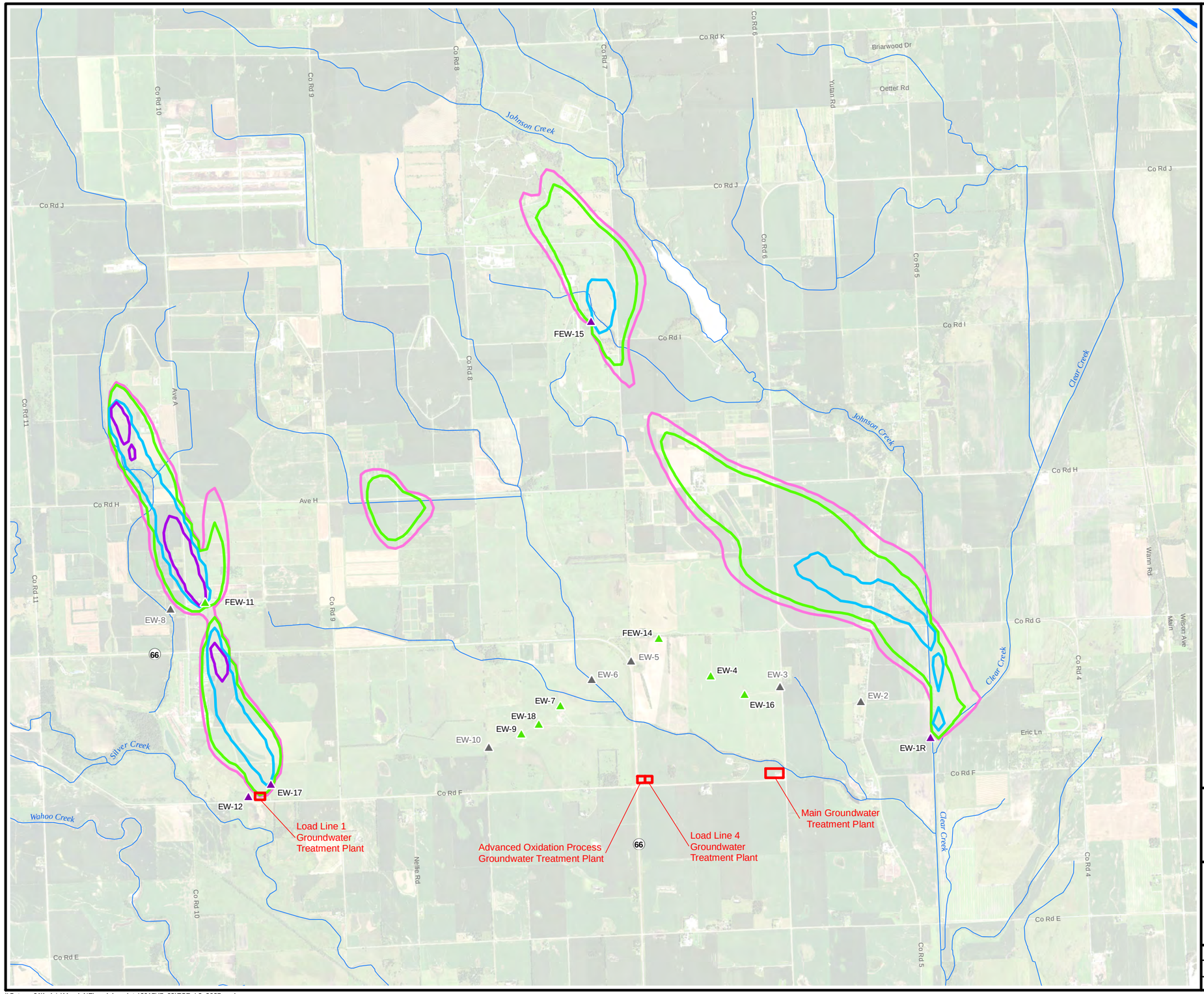

Legend

- 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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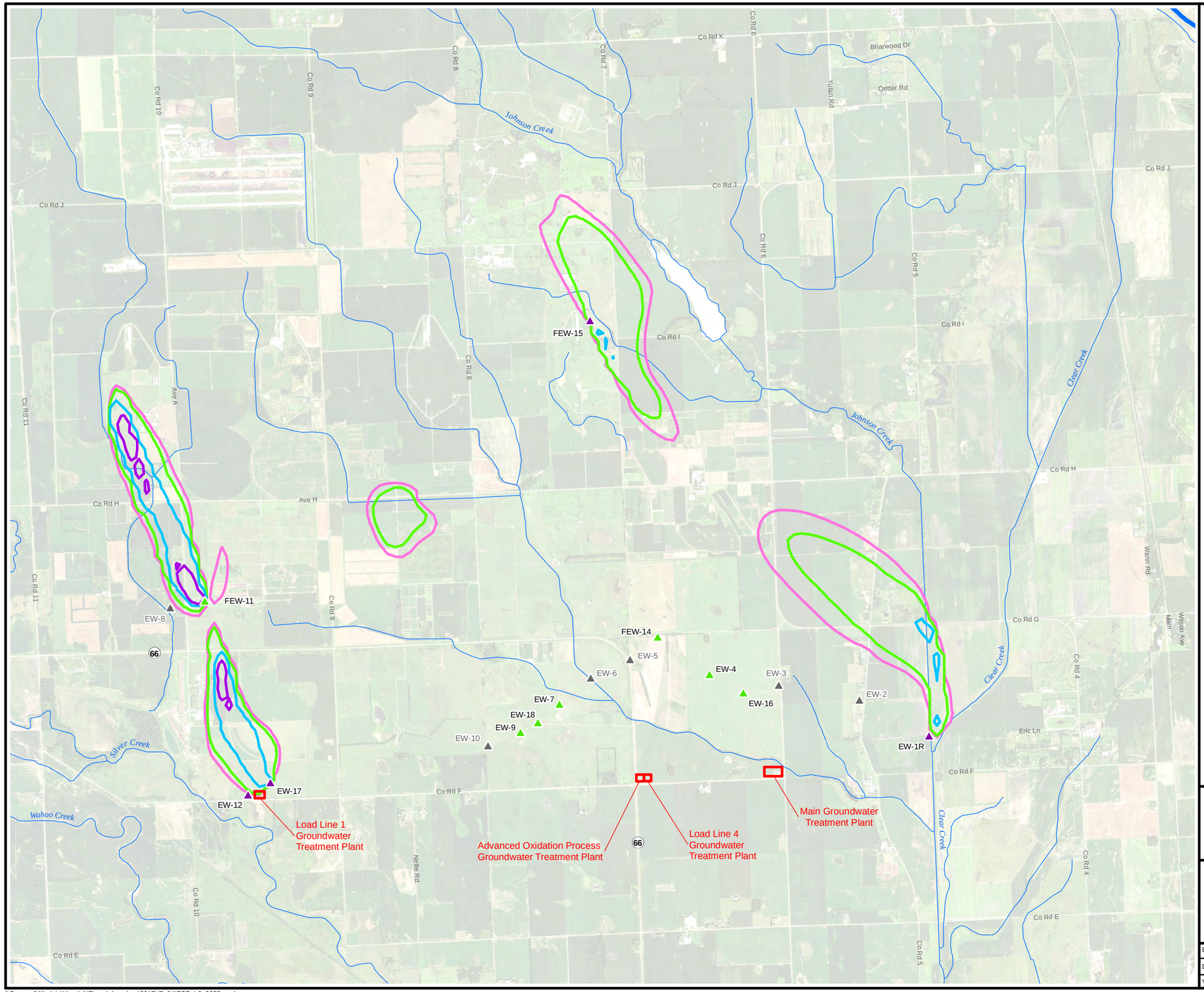
2017 Groundwater Model Update

Figure 7.3
Predicted TCE Concentrations
Layer 2 (2027)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_03)TCE_L2_2027.mxd



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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2017 Groundwater Model Update

Figure 7.4
Predicted TCE Concentrations
Layer 2 (2032)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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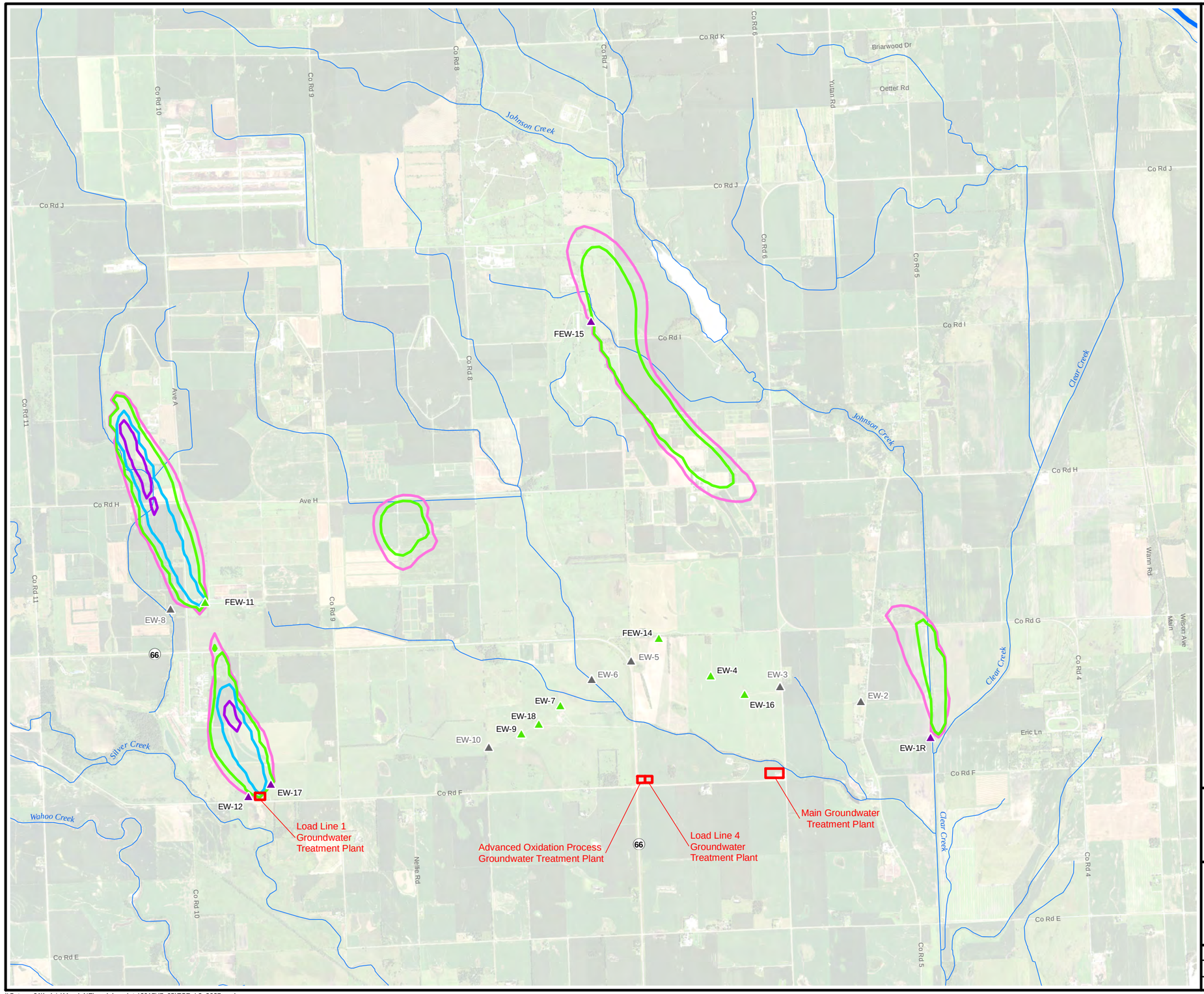

Legend

- 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 Groundwater Model Update

Figure 7.5
Predicted TCE Concentrations
Layer 2 (2037)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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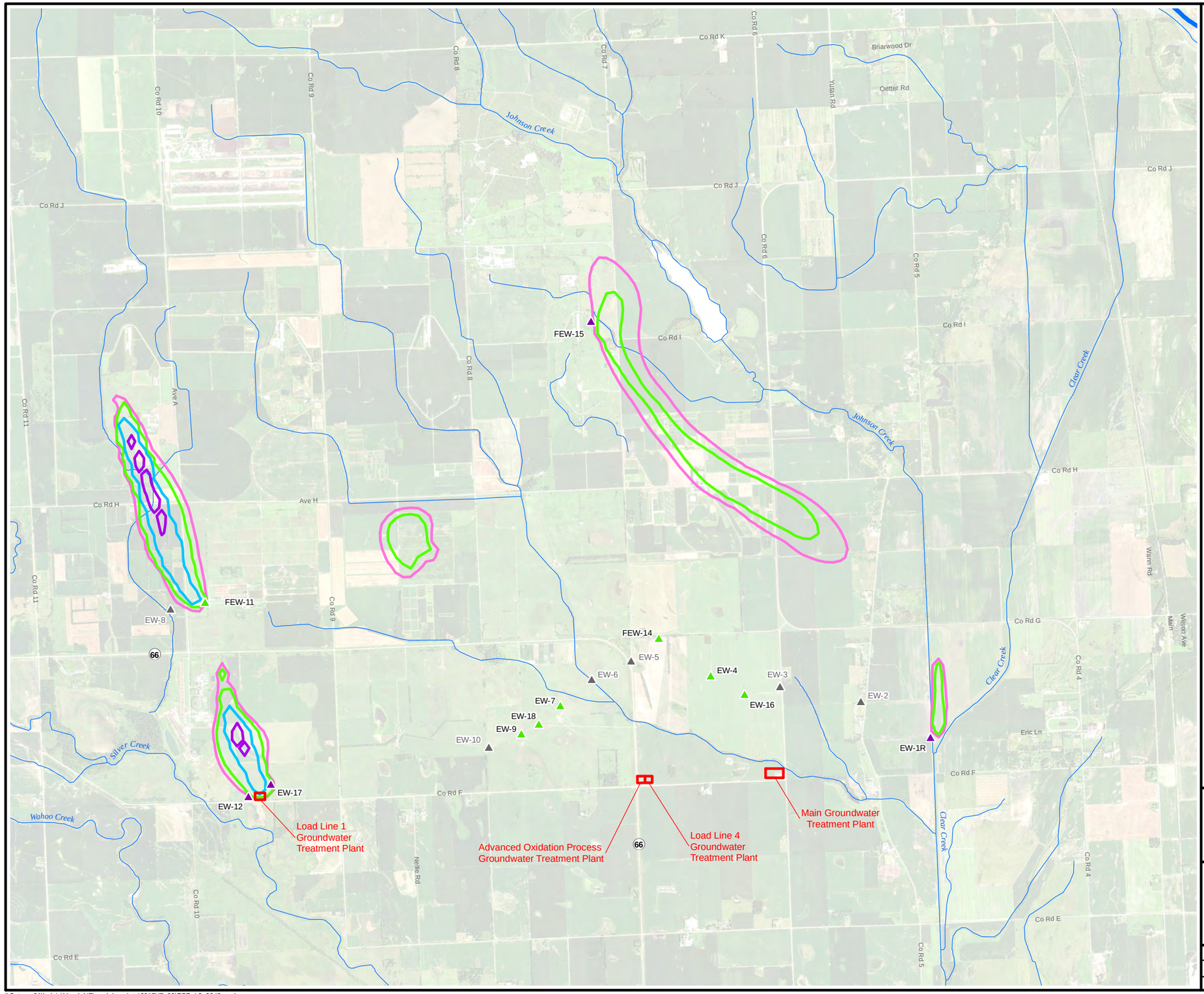

Legend

- 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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Figure 7.6
Predicted TCE Concentrations
Layer 2 (2042)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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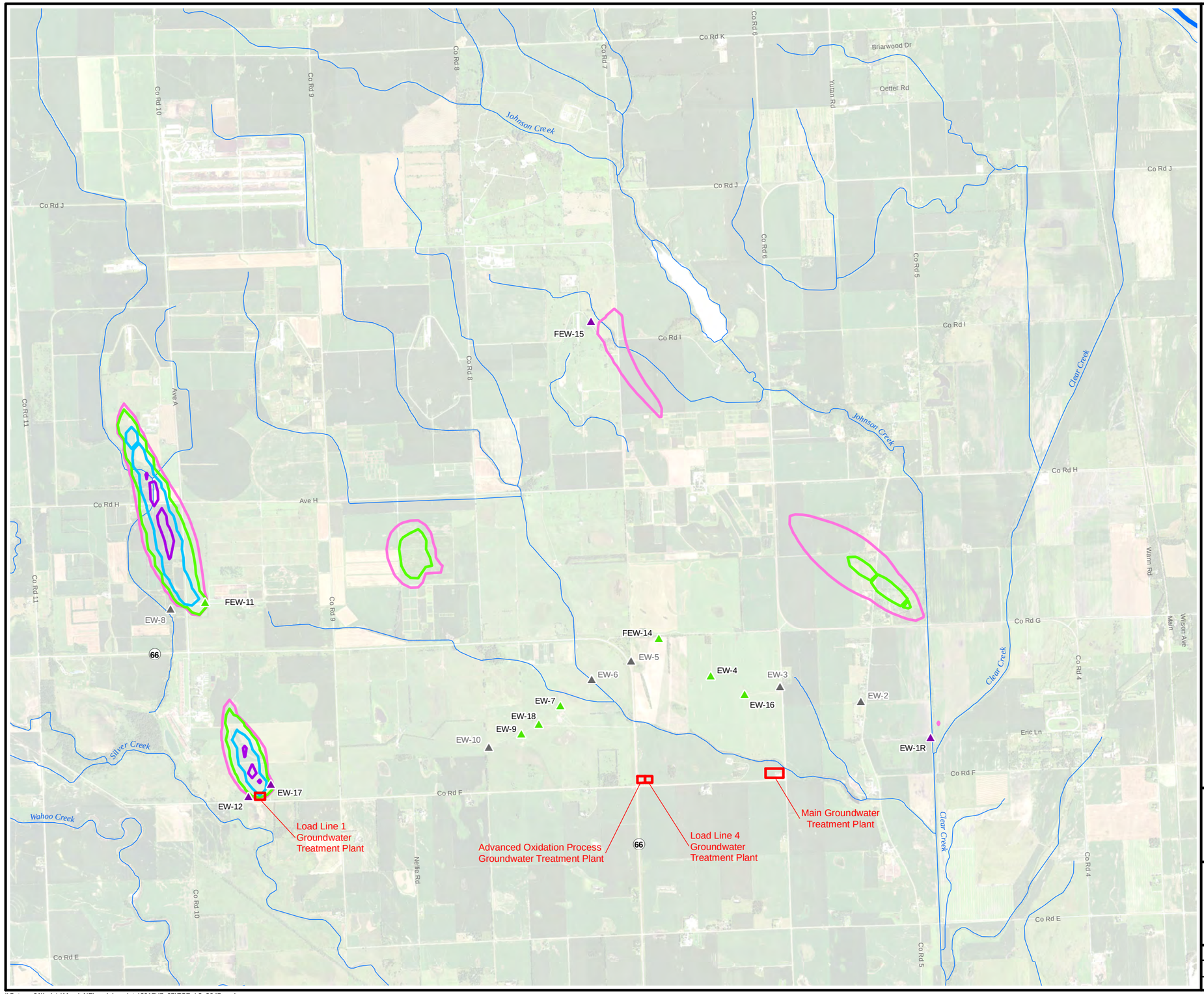

Legend

- 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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2017 Groundwater Model Update

Figure 7.7
Predicted TCE Concentrations
Layer 2 (2047)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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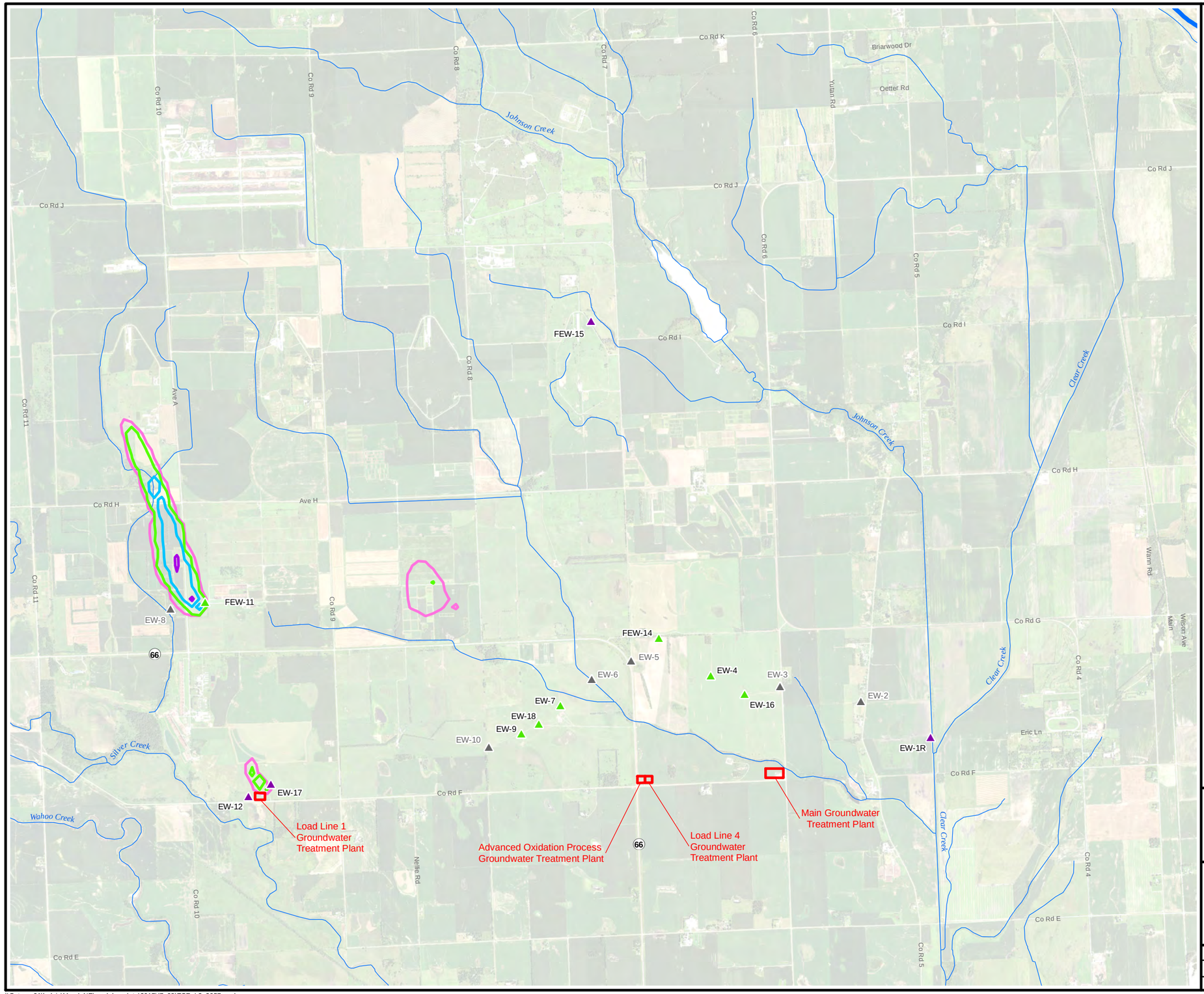

Legend

- 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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2017 Groundwater Model Update

Figure 7.8
Predicted TCE Concentrations
Layer 2 (2057)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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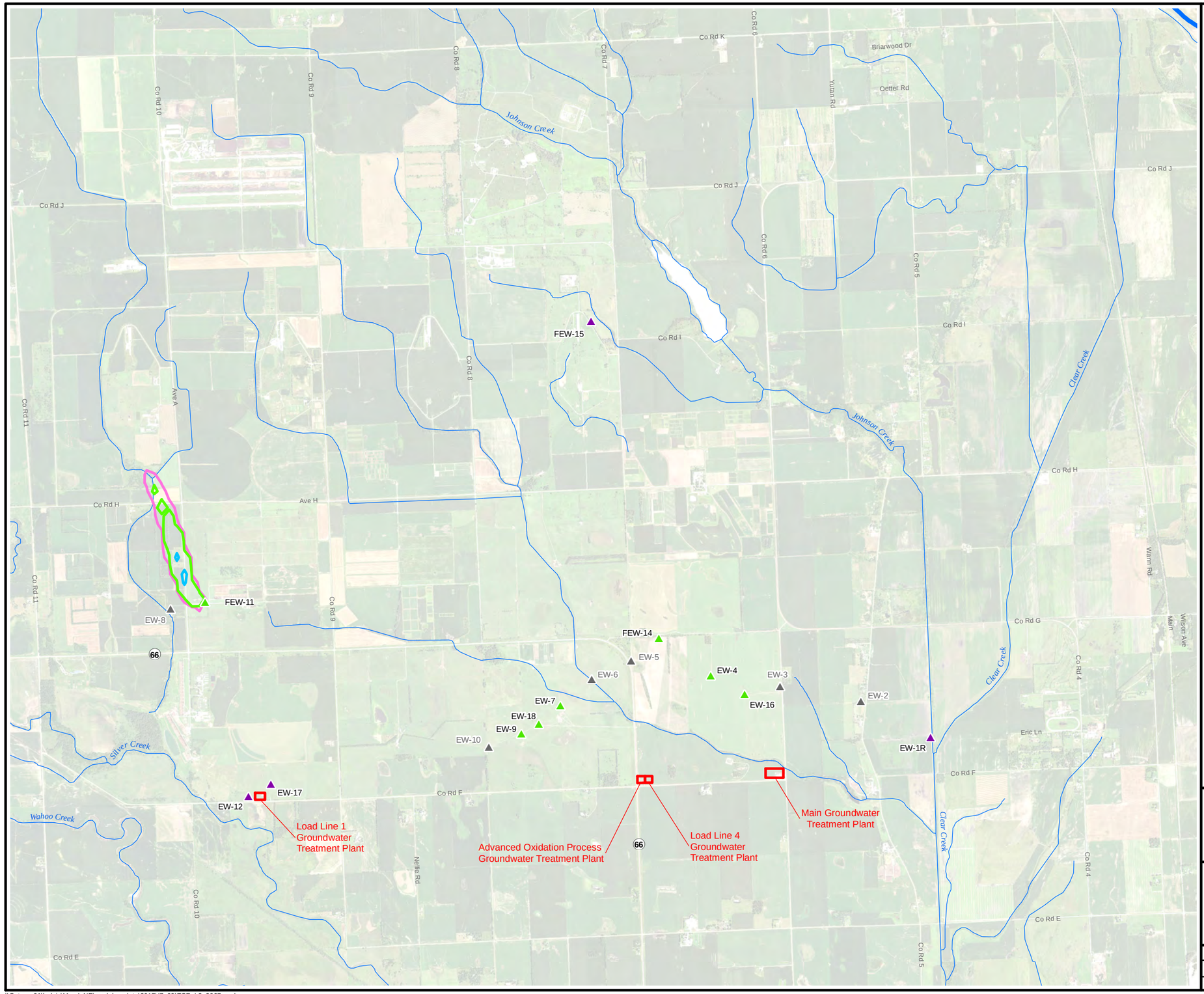

Legend

- 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 Groundwater Model Update

Figure 7.9
Predicted TCE Concentrations
Layer 2 (2067)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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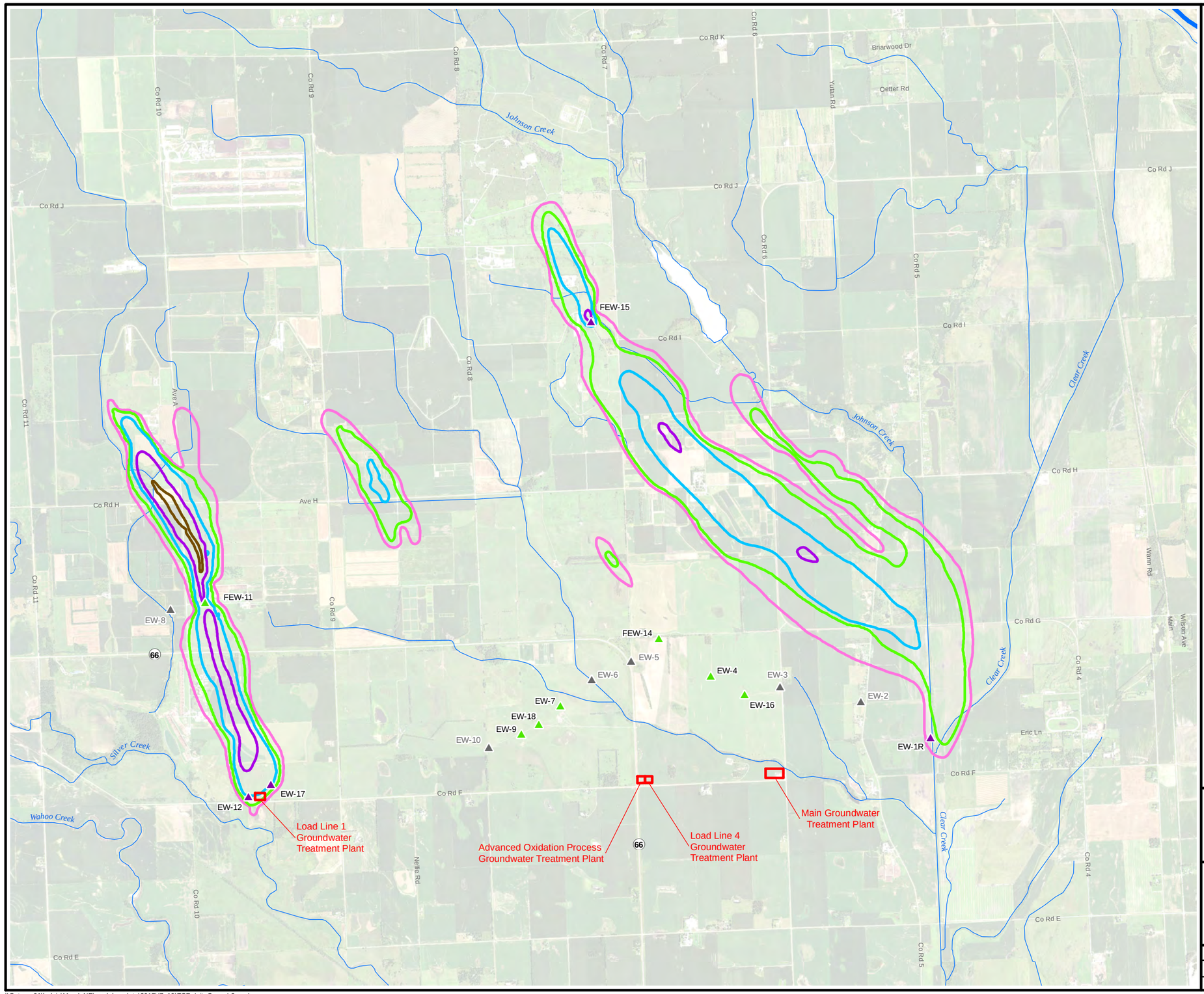

Legend

- 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 Groundwater Model Update

Figure 7.10
TCE Initial Concentrations
Layer 3 (2017)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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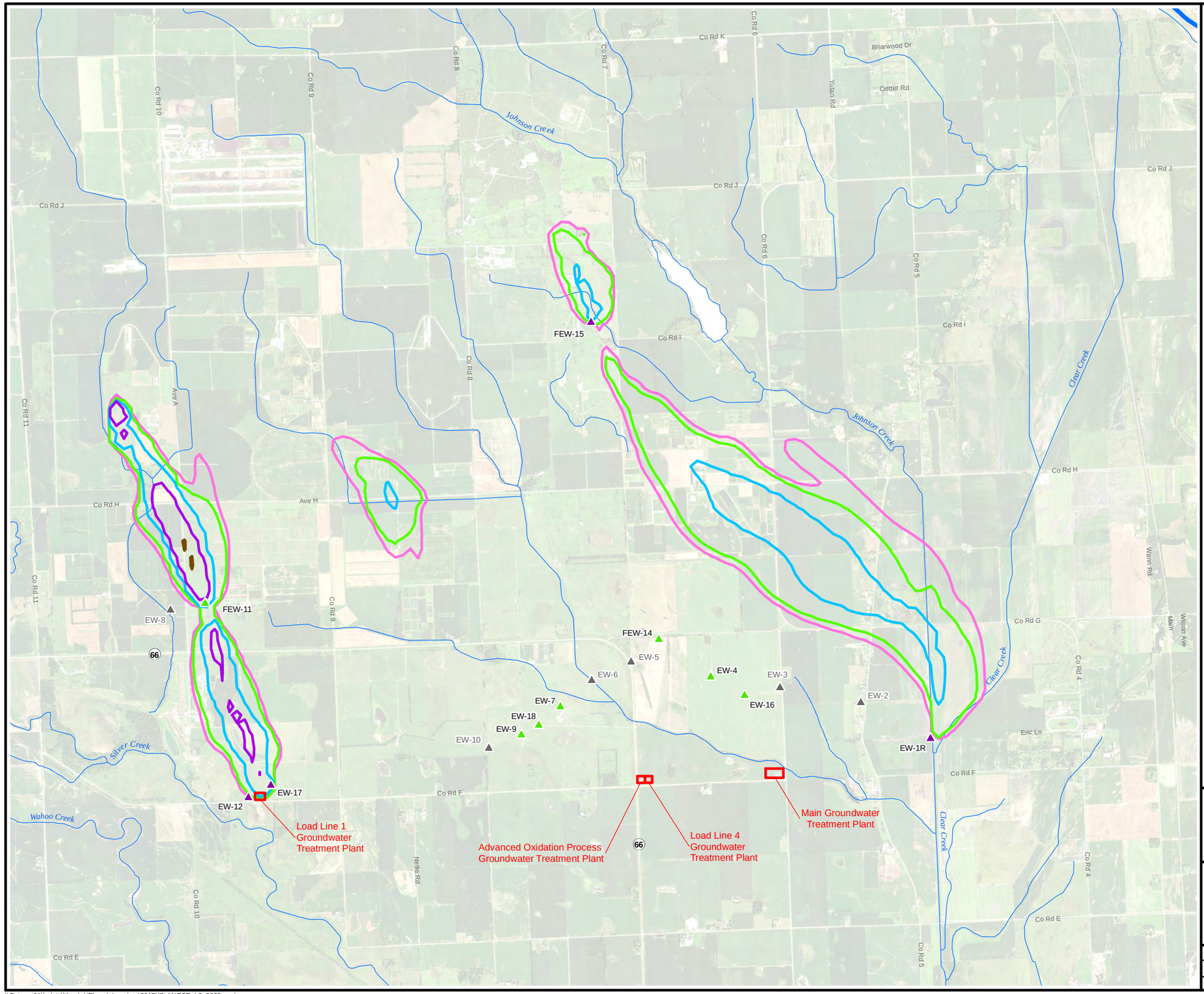

Legend

- 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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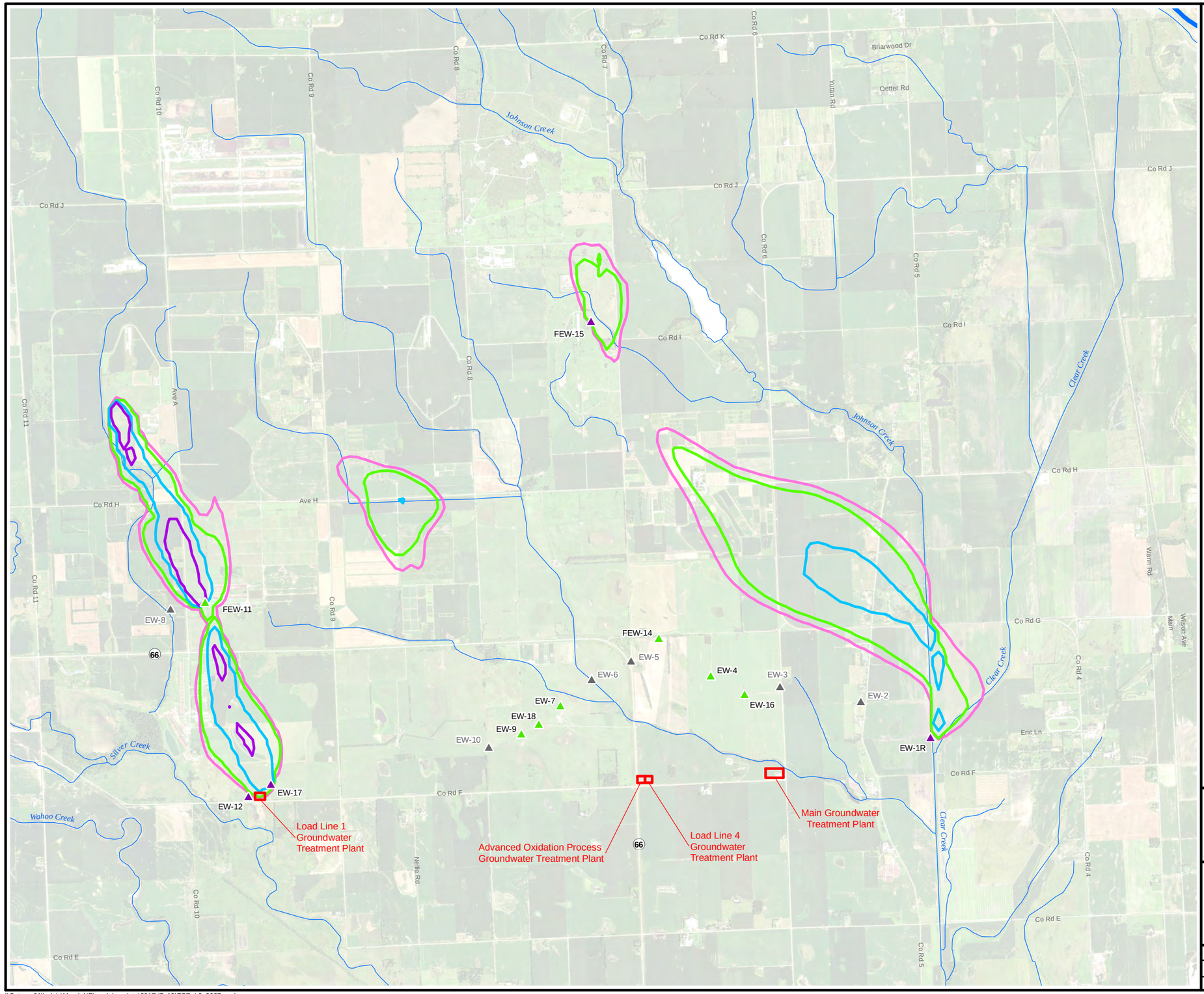
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.11
Predicted TCE Concentrations
Layer 3 (2022)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_11)TCE_L3_2022.mxd



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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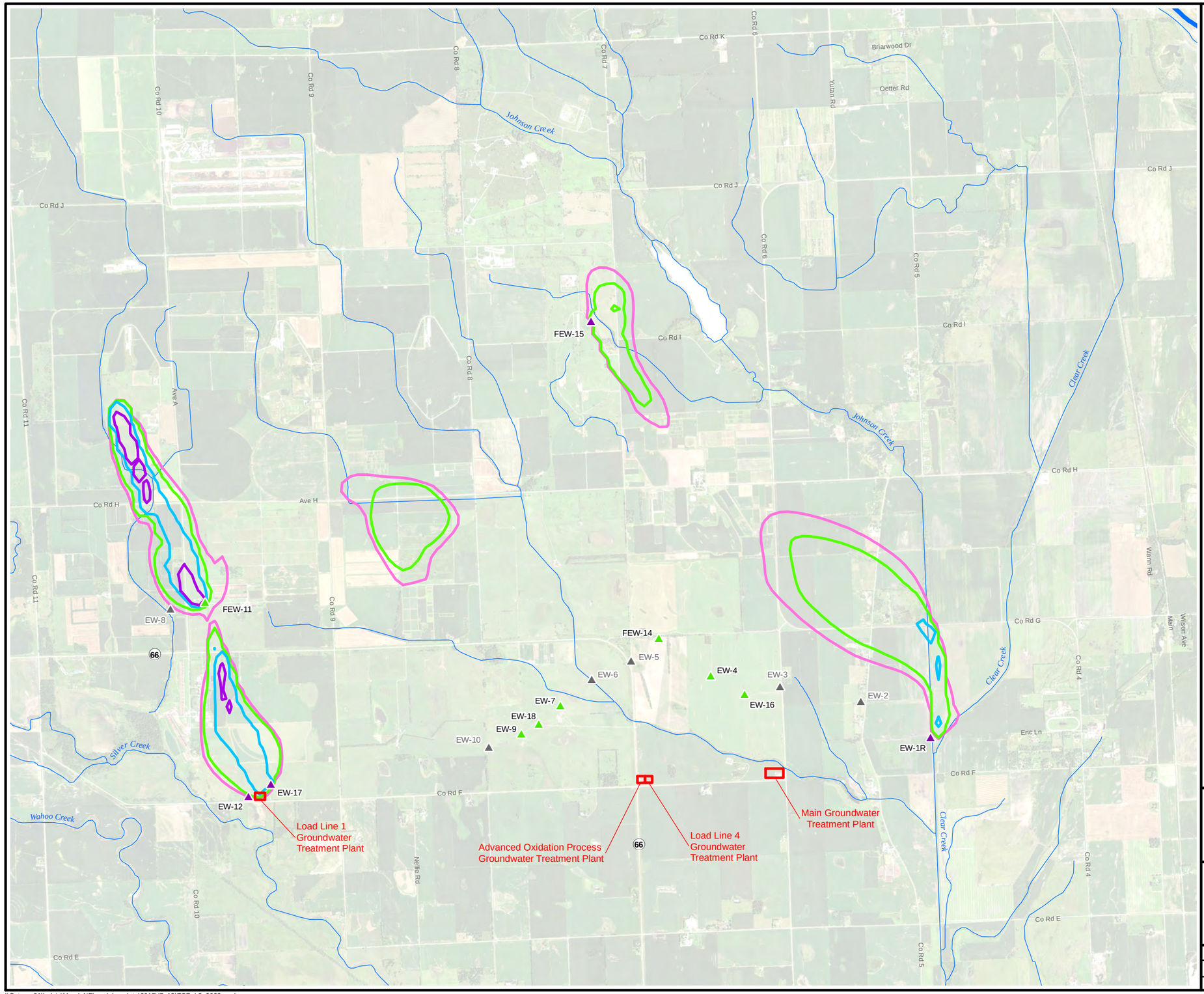
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.12
Predicted TCE Concentrations
Layer 3 (2027)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_12)TCE_L3_2027.mxd



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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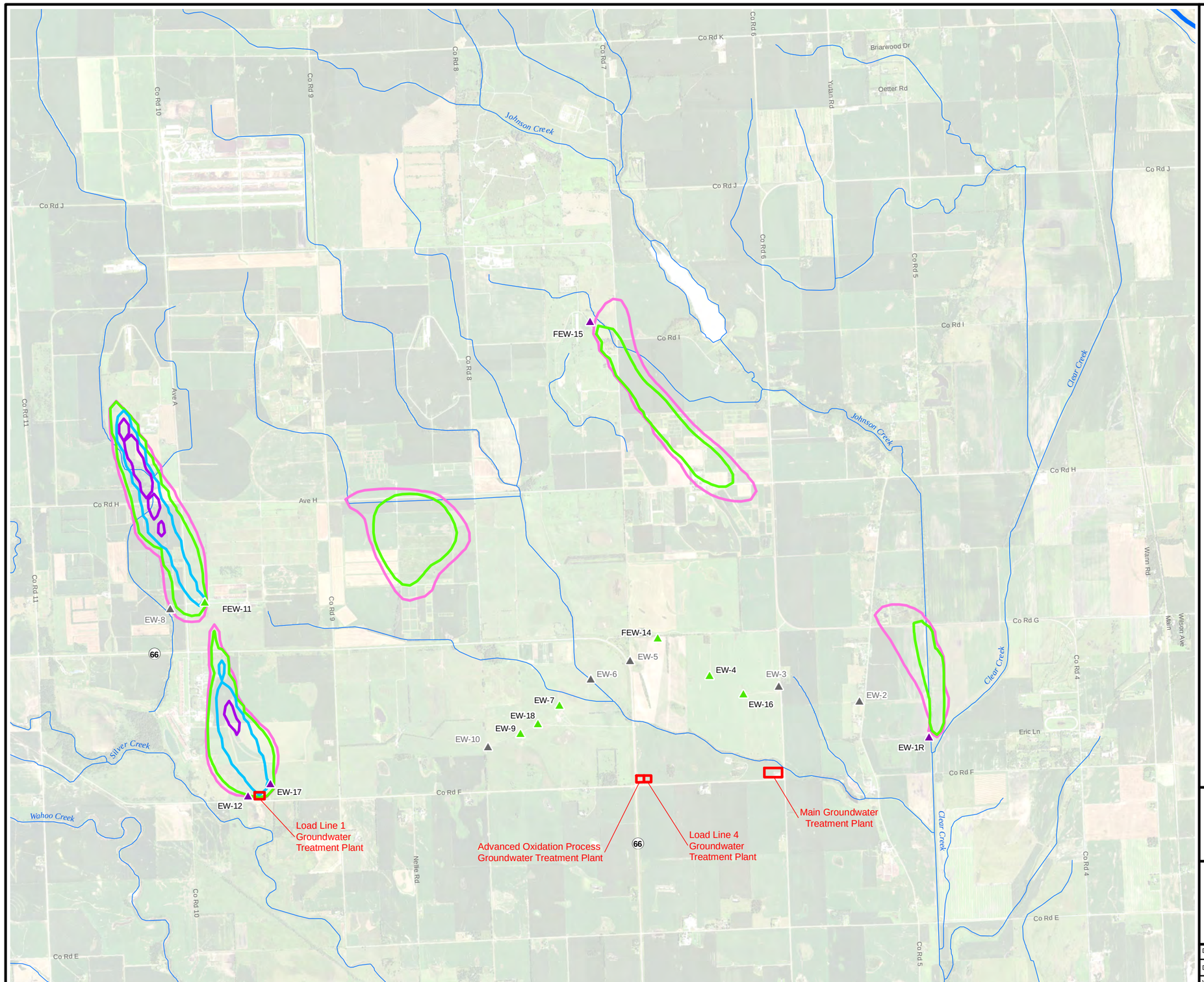
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.13
Predicted TCE Concentrations
Layer 3 (2032)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_13)TCE_L3_2032.mxd



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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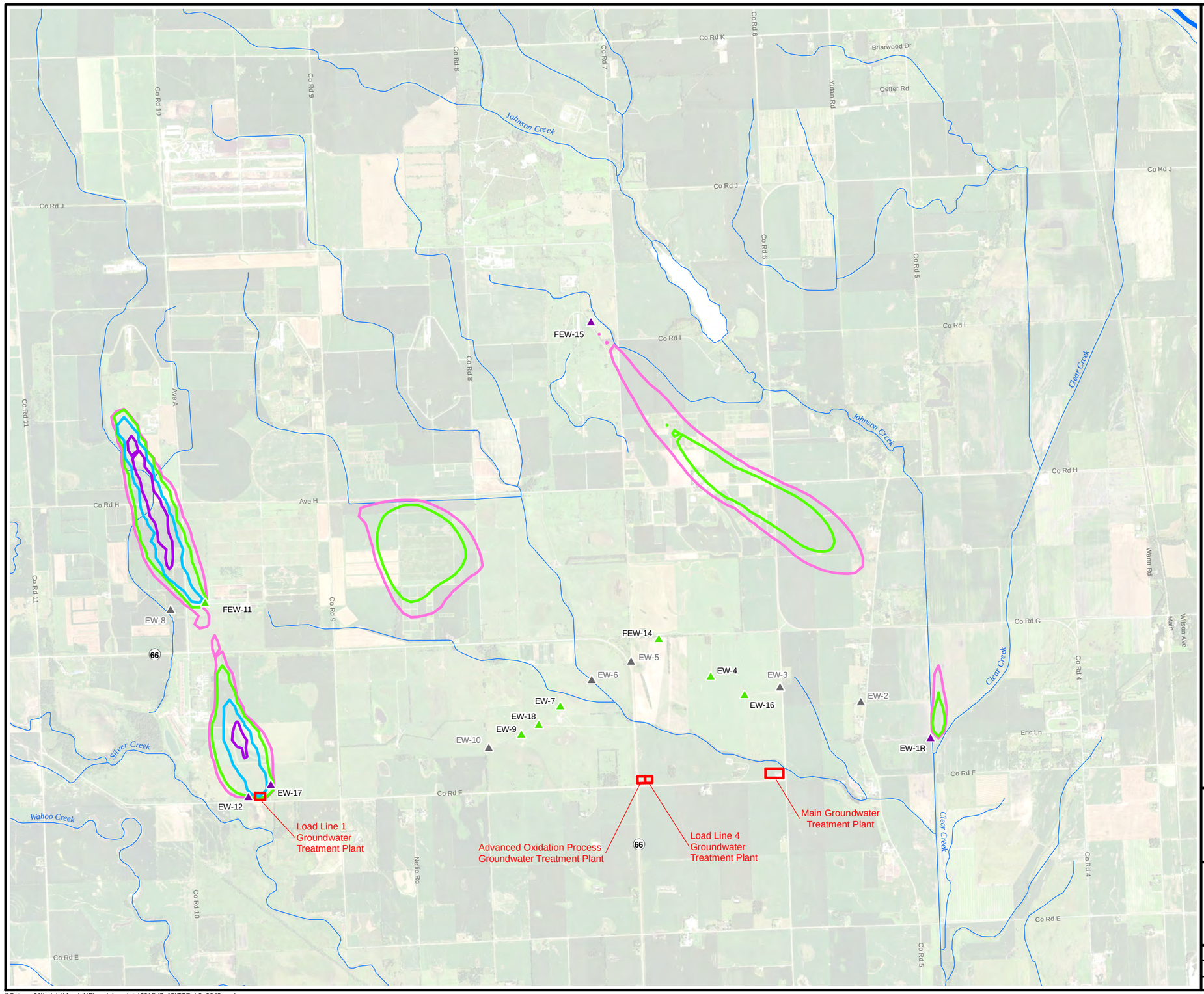
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.14
Predicted TCE Concentrations
Layer 3 (2037)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_14)TCE_L3_2037.mxd



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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2017 Groundwater Model Update

Figure 7.15
Predicted TCE Concentrations
Layer 3 (2042)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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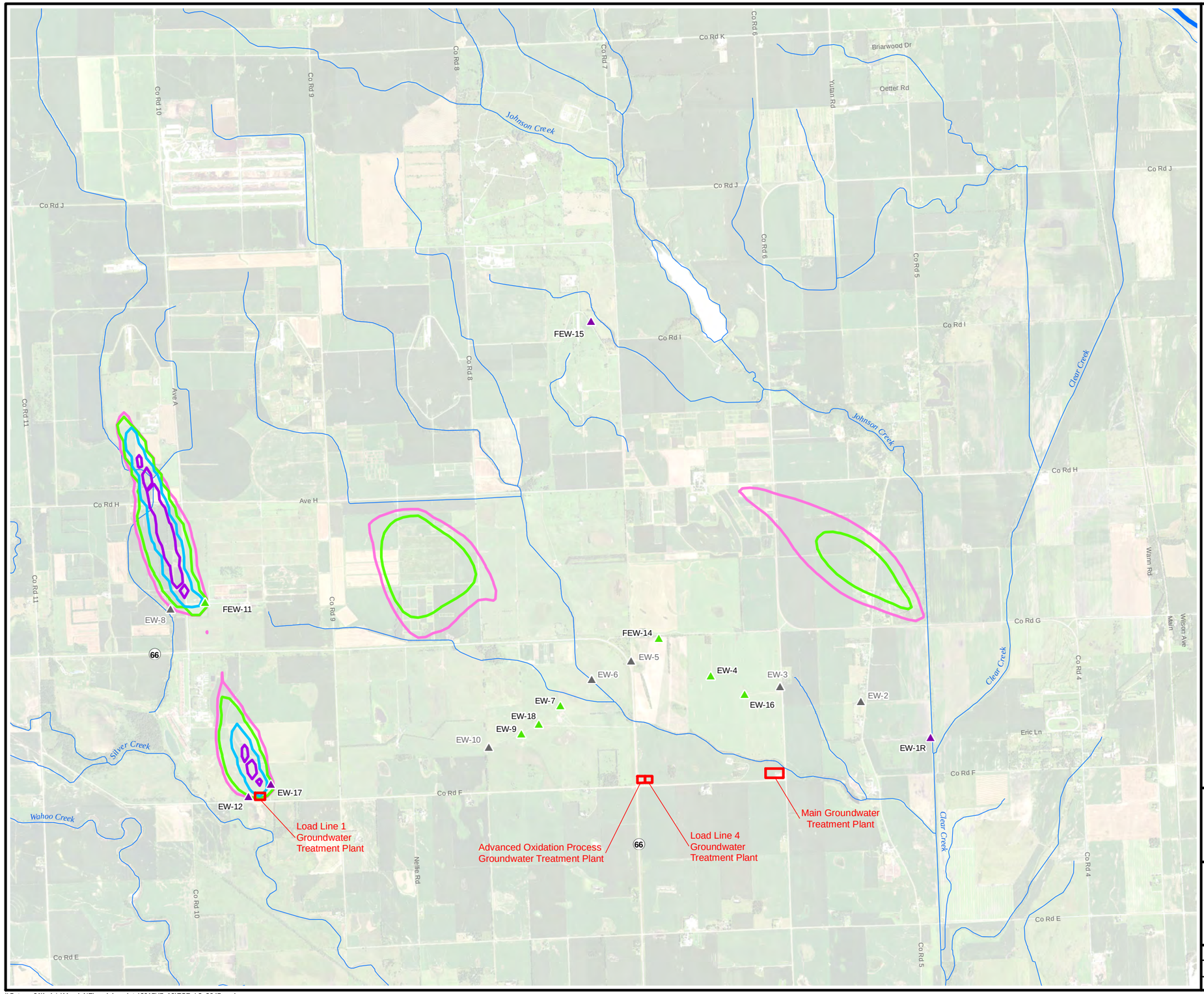

Legend

- 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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Figure 7.16
Predicted TCE Concentrations
Layer 3 (2047)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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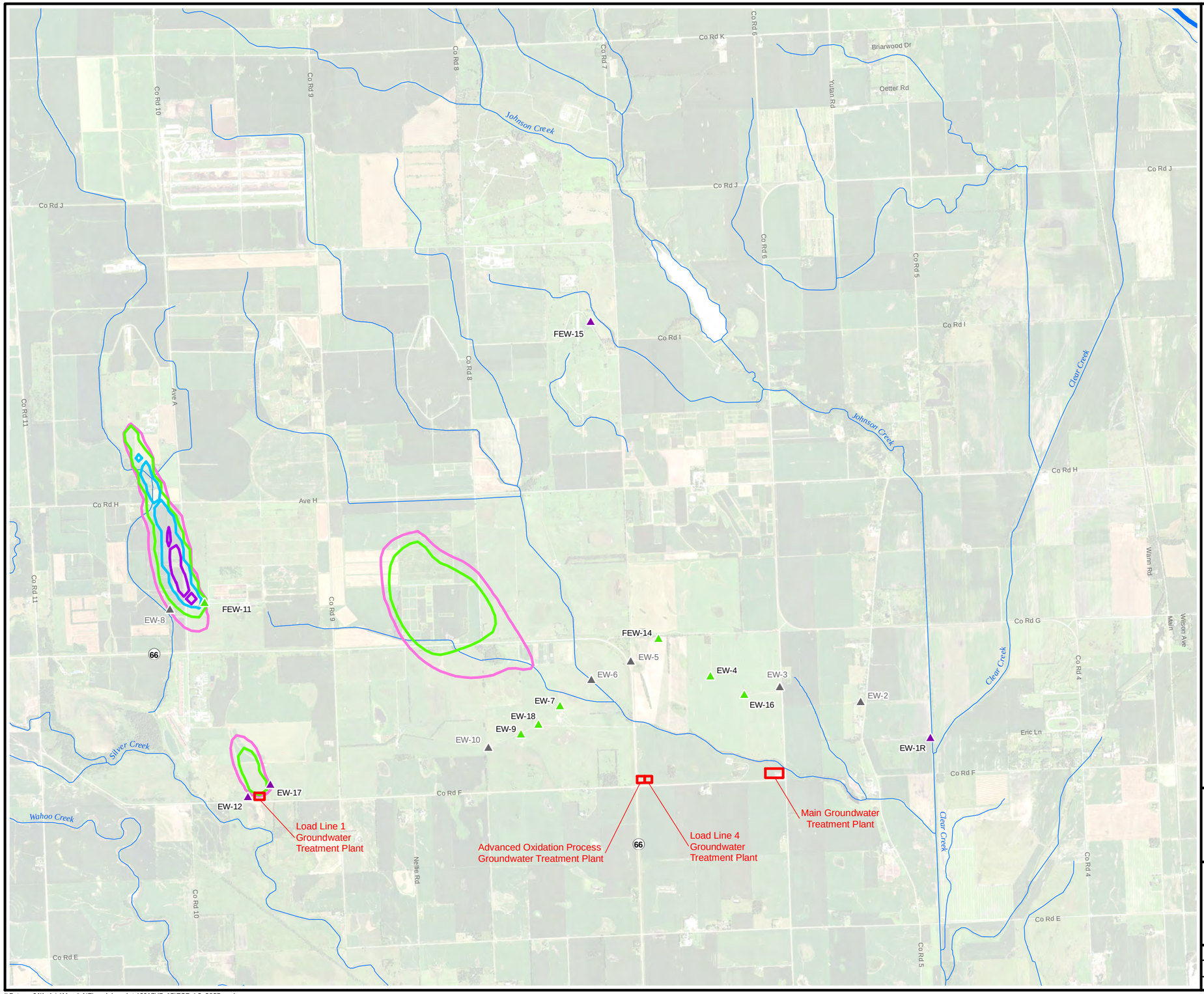

Legend

- 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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Figure 7.17
Predicted TCE Concentrations
Layer 3 (2057)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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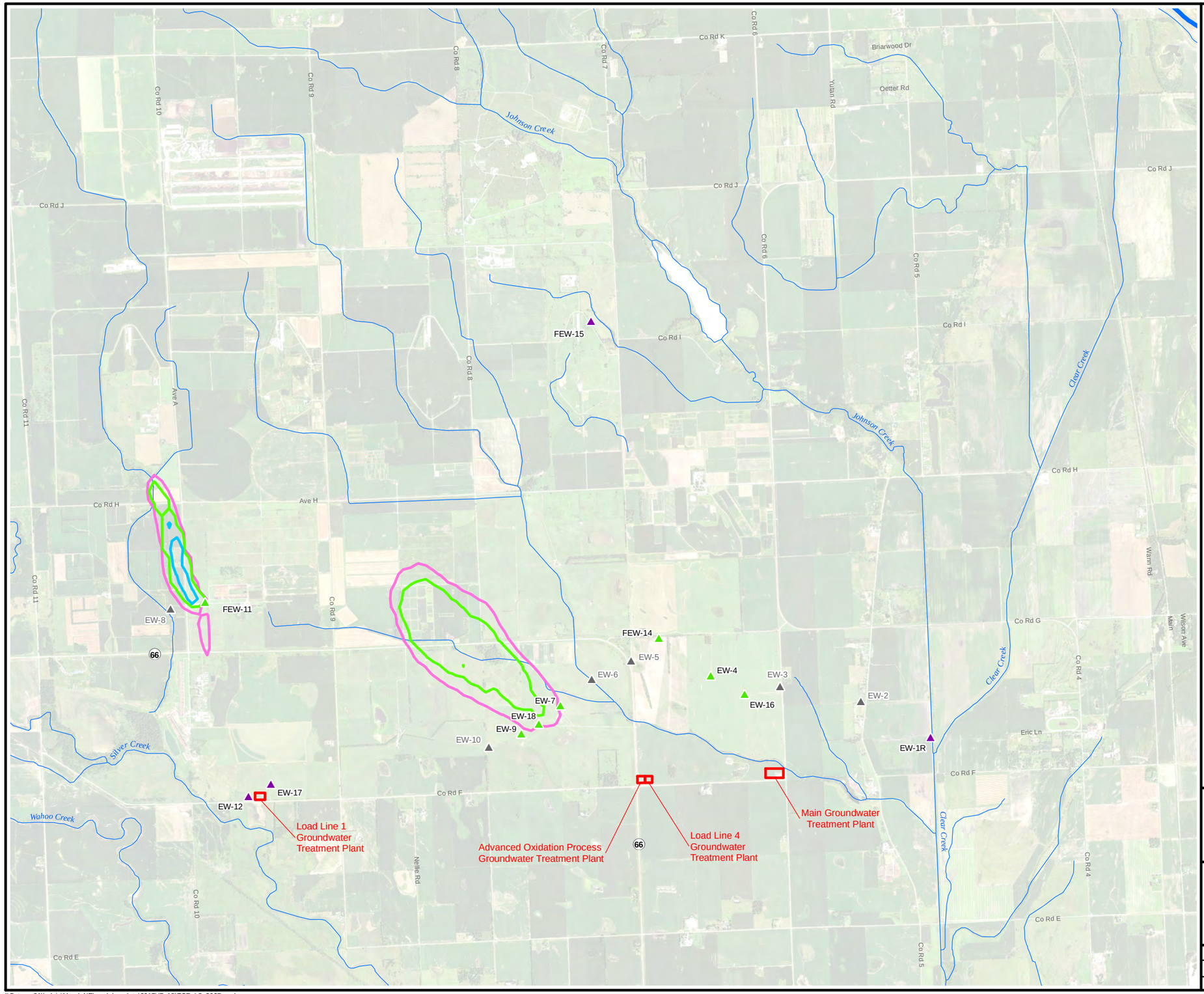

Legend

- 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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Figure 7.18
Predicted TCE Concentrations
Layer 3 (2067)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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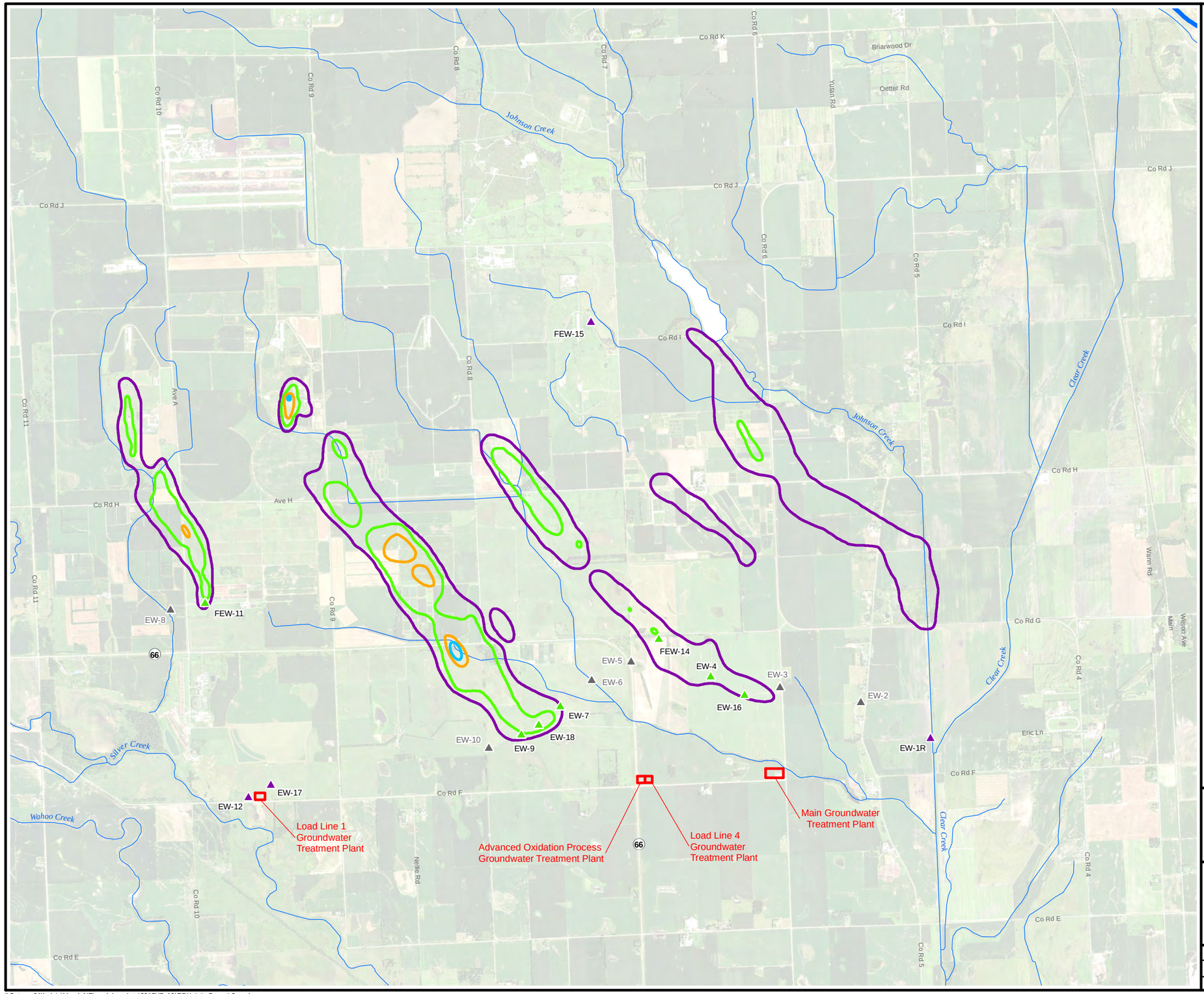

Legend

- 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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Figure 7.19
RDX Initial Concentrations
Layer 2 (2017)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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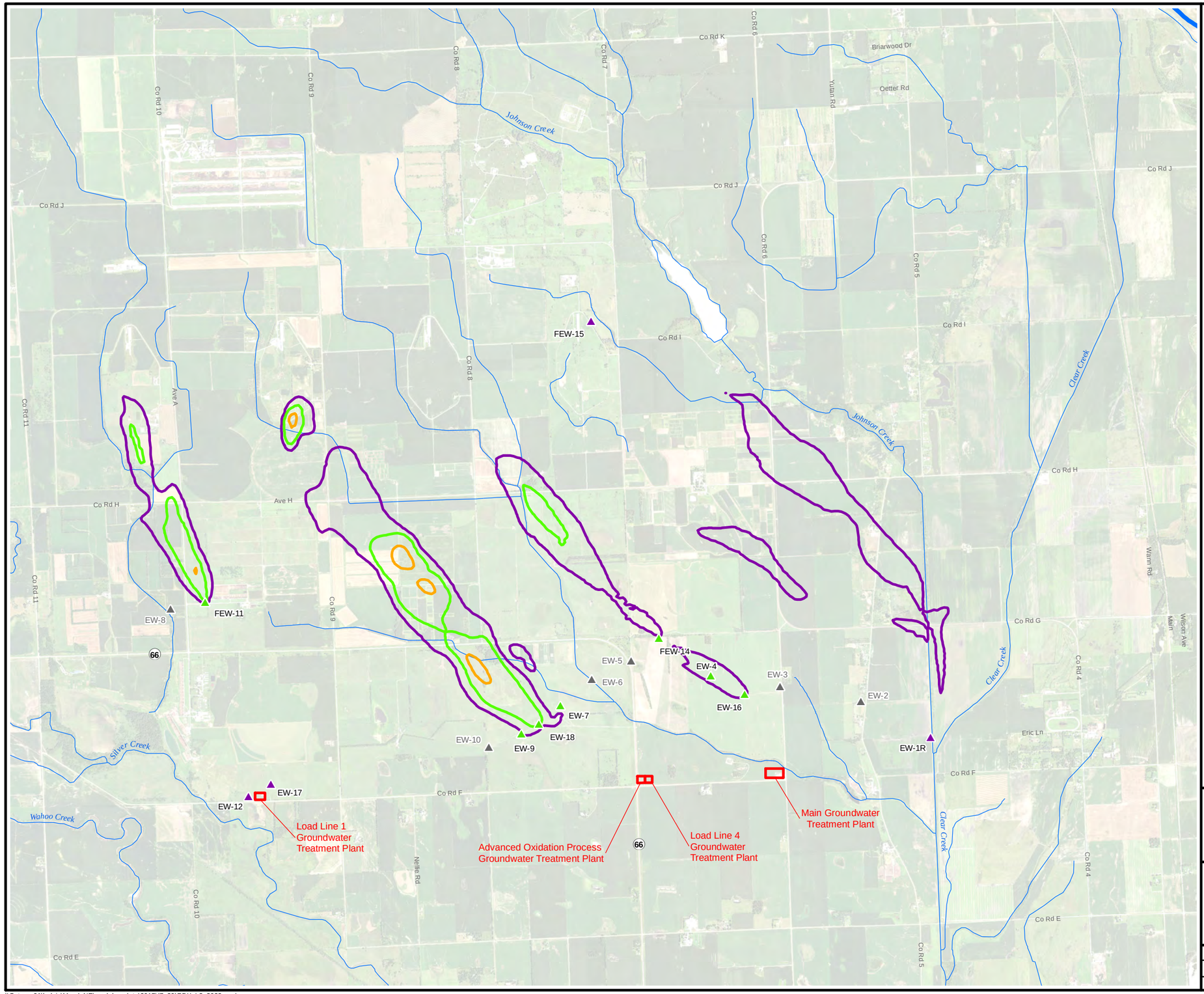

Legend

- 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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Figure 7.20
Predicted RDX Concentrations
Layer 2 (2022)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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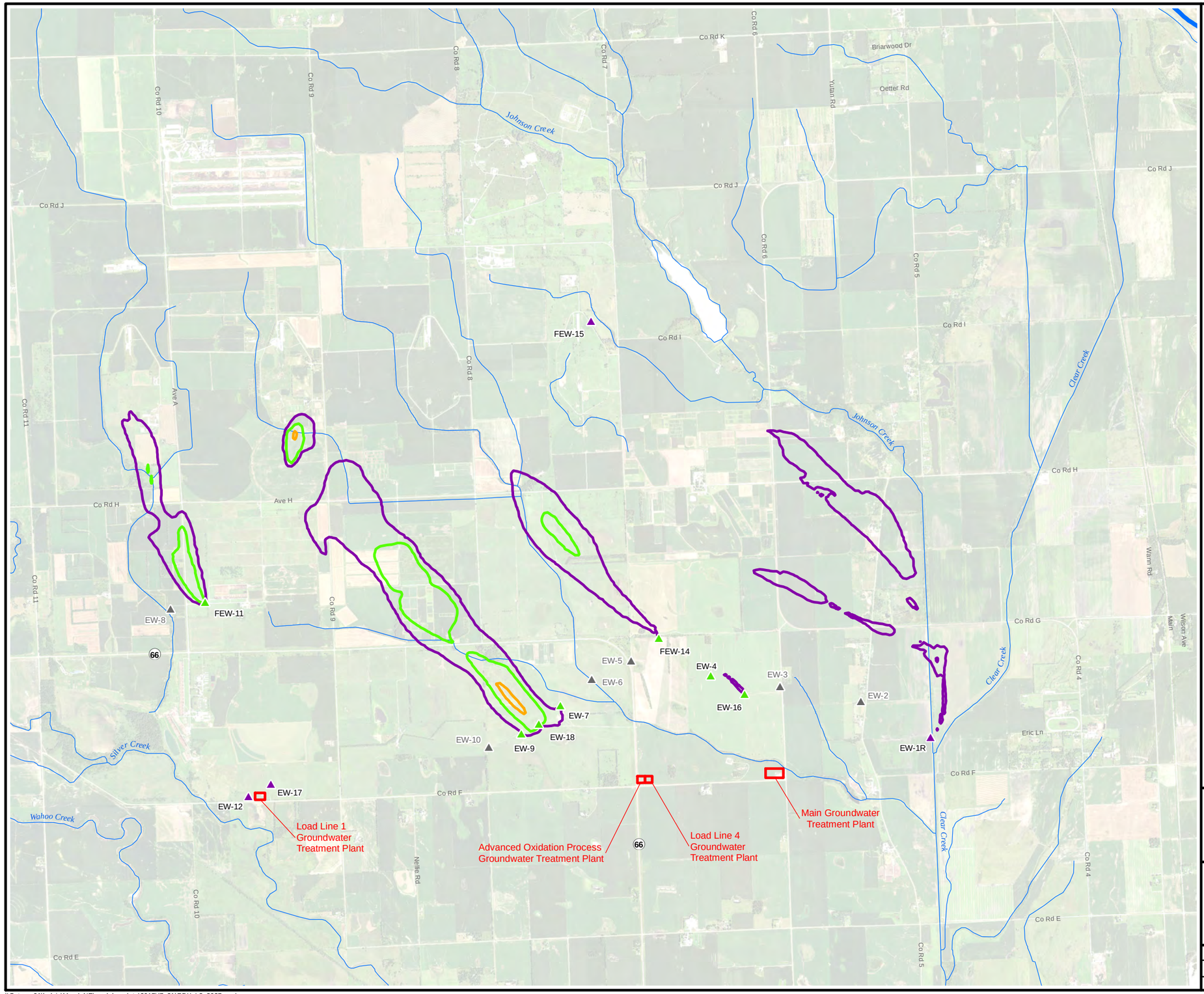

Legend

- 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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Figure 7.21
Predicted RDX Concentrations
Layer 2 (2027)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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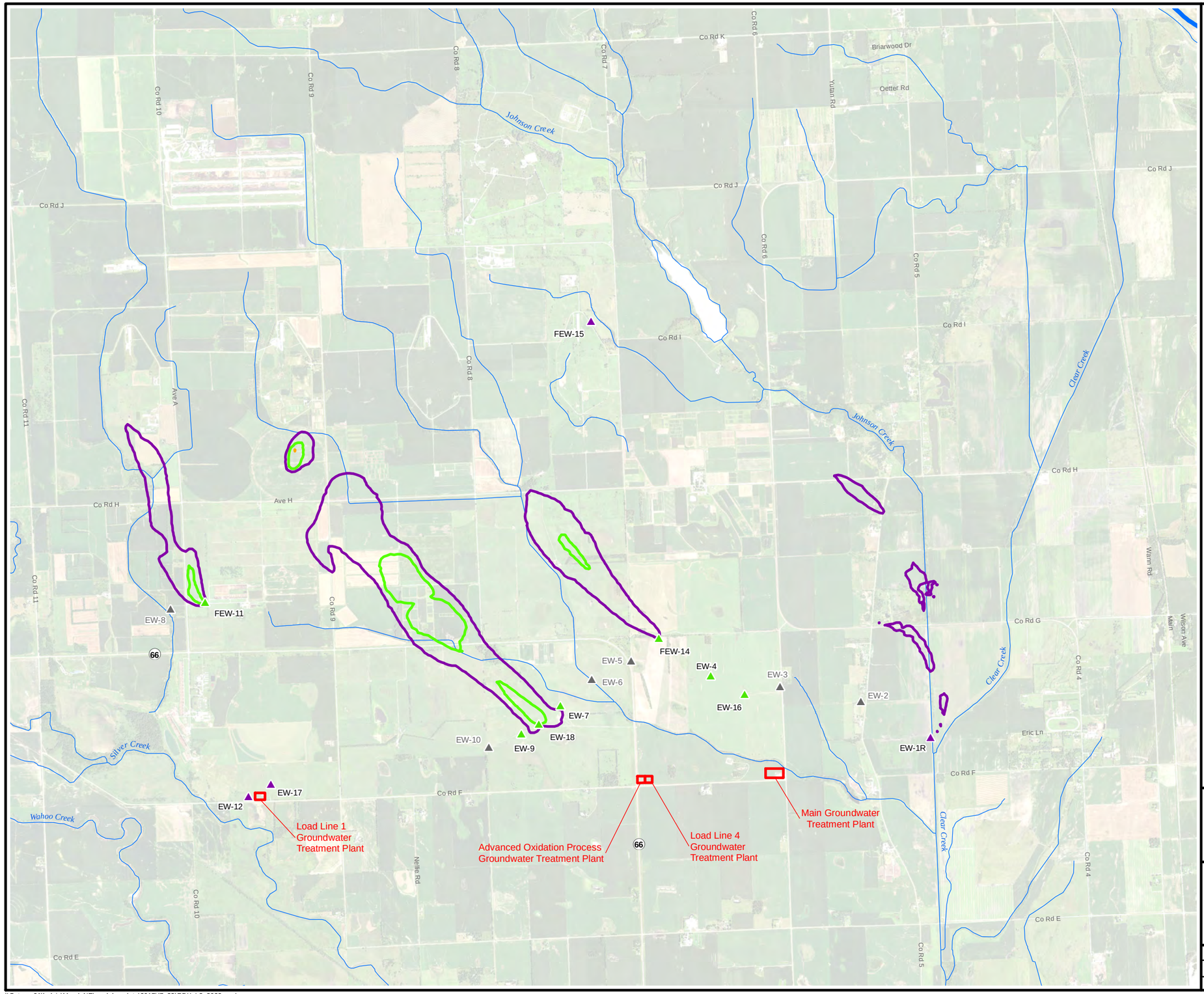

Legend

- 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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Figure 7.22
Predicted RDX Concentrations
Layer 2 (2032)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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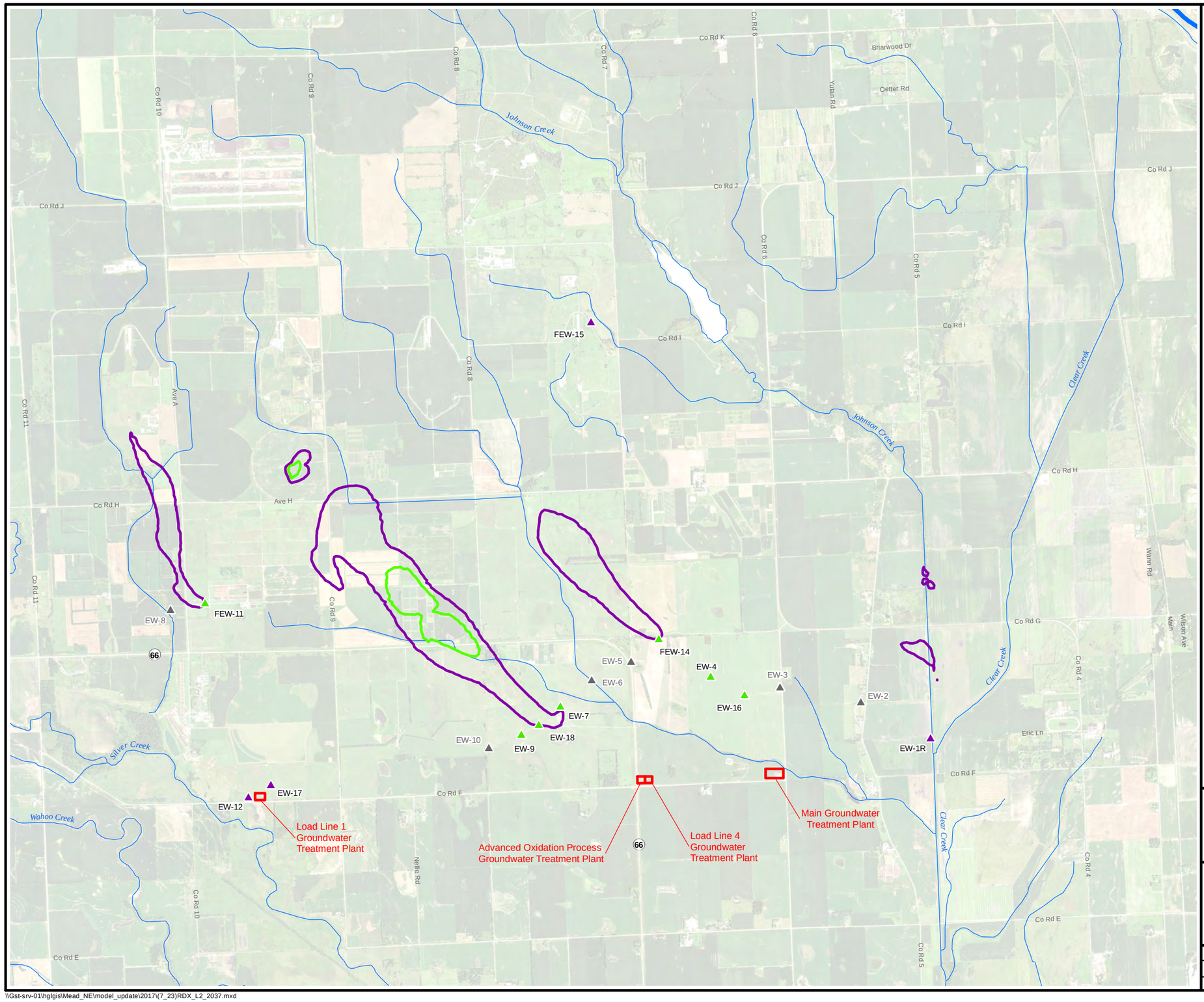

Legend

- 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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Figure 7.23
Predicted RDX Concentrations
Layer 2 (2037)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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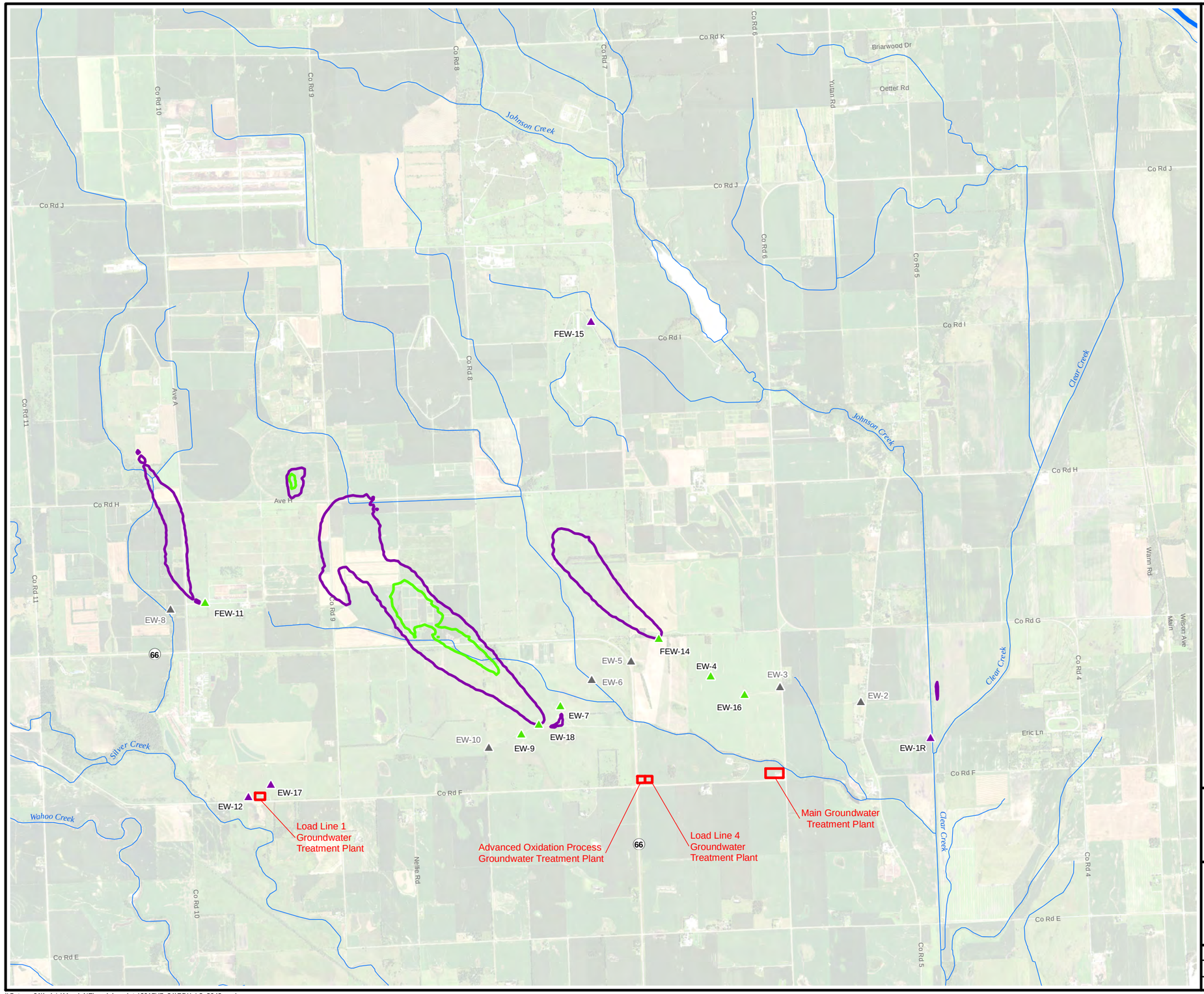

Legend

- 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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Figure 7.24
Predicted RDX Concentrations
Layer 2 (2042)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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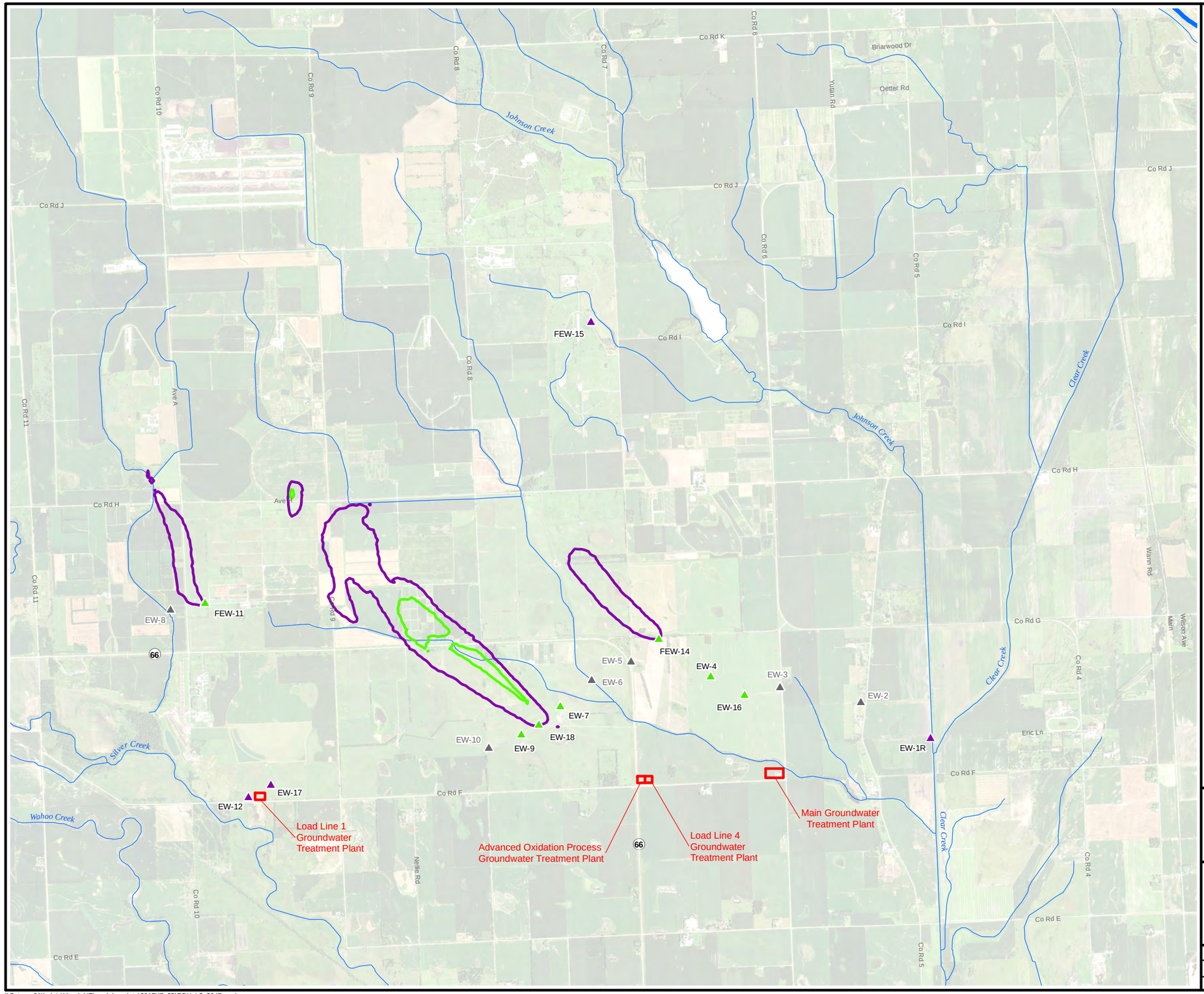

Legend

- 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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Figure 7.25
Predicted RDX Concentrations
Layer 2 (2047)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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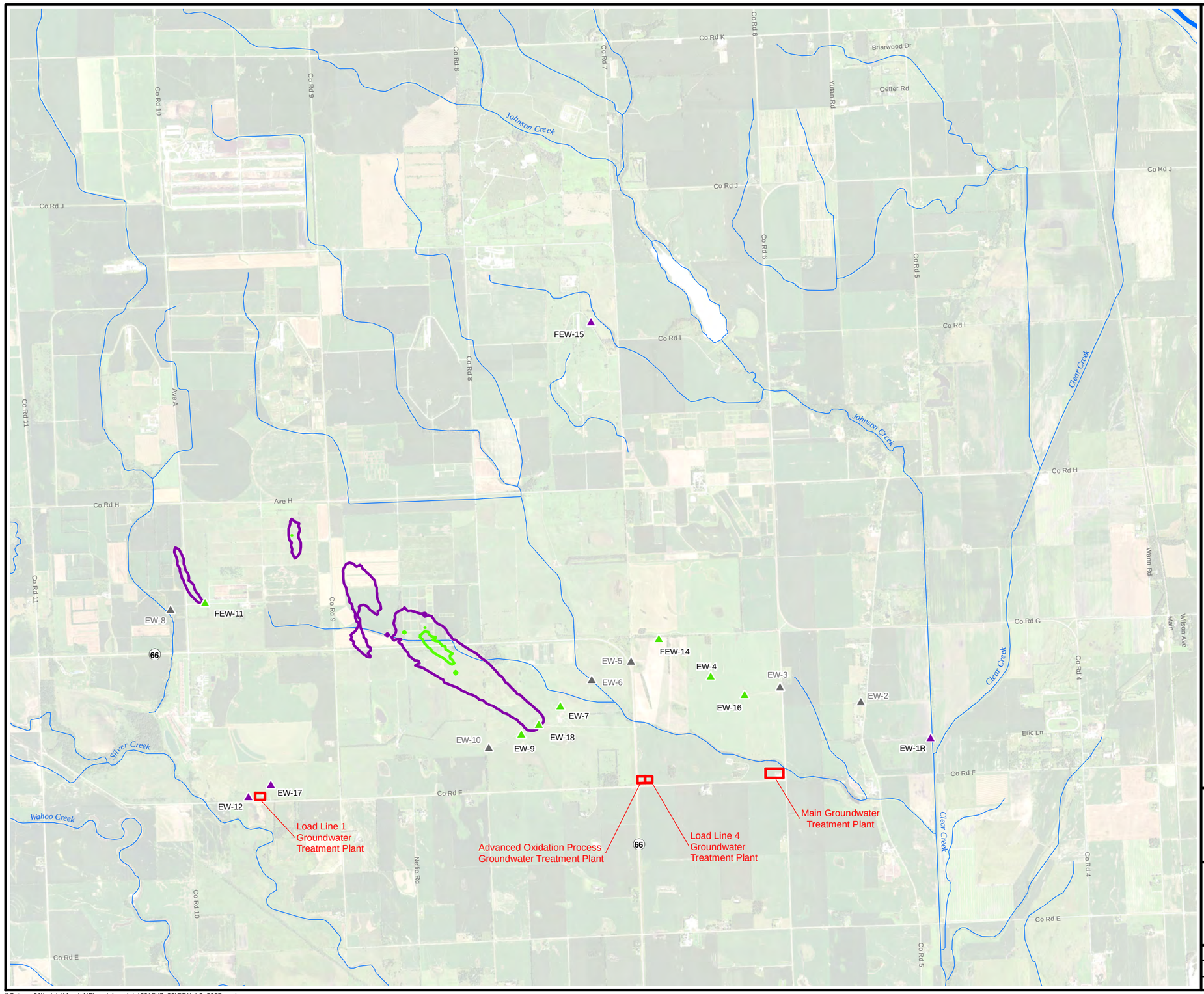

Legend

- 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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Figure 7.26
Predicted RDX Concentrations
Layer 2 (2057)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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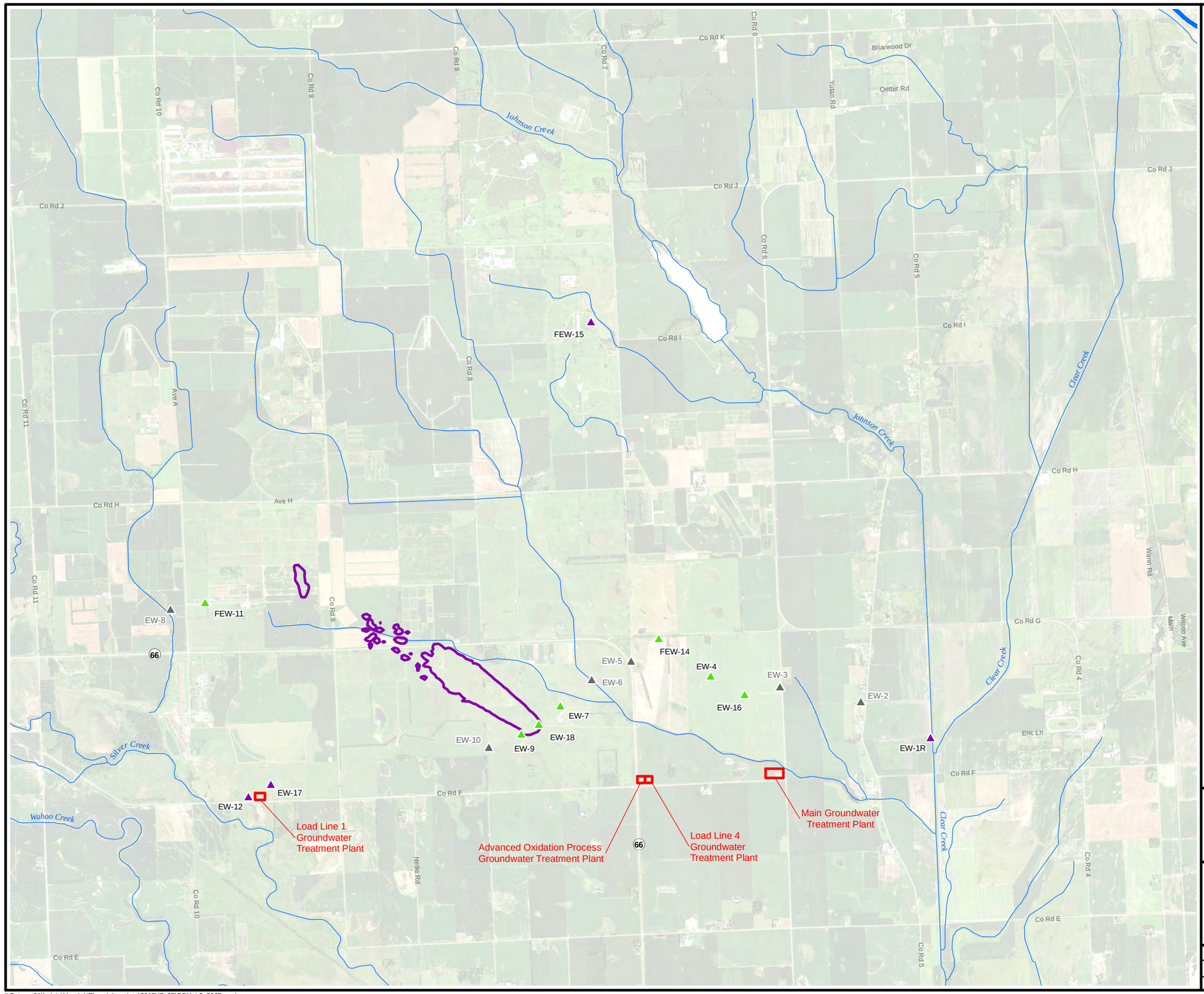

Legend

- 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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Figure 7.27
Predicted RDX Concentrations
Layer 2 (2067)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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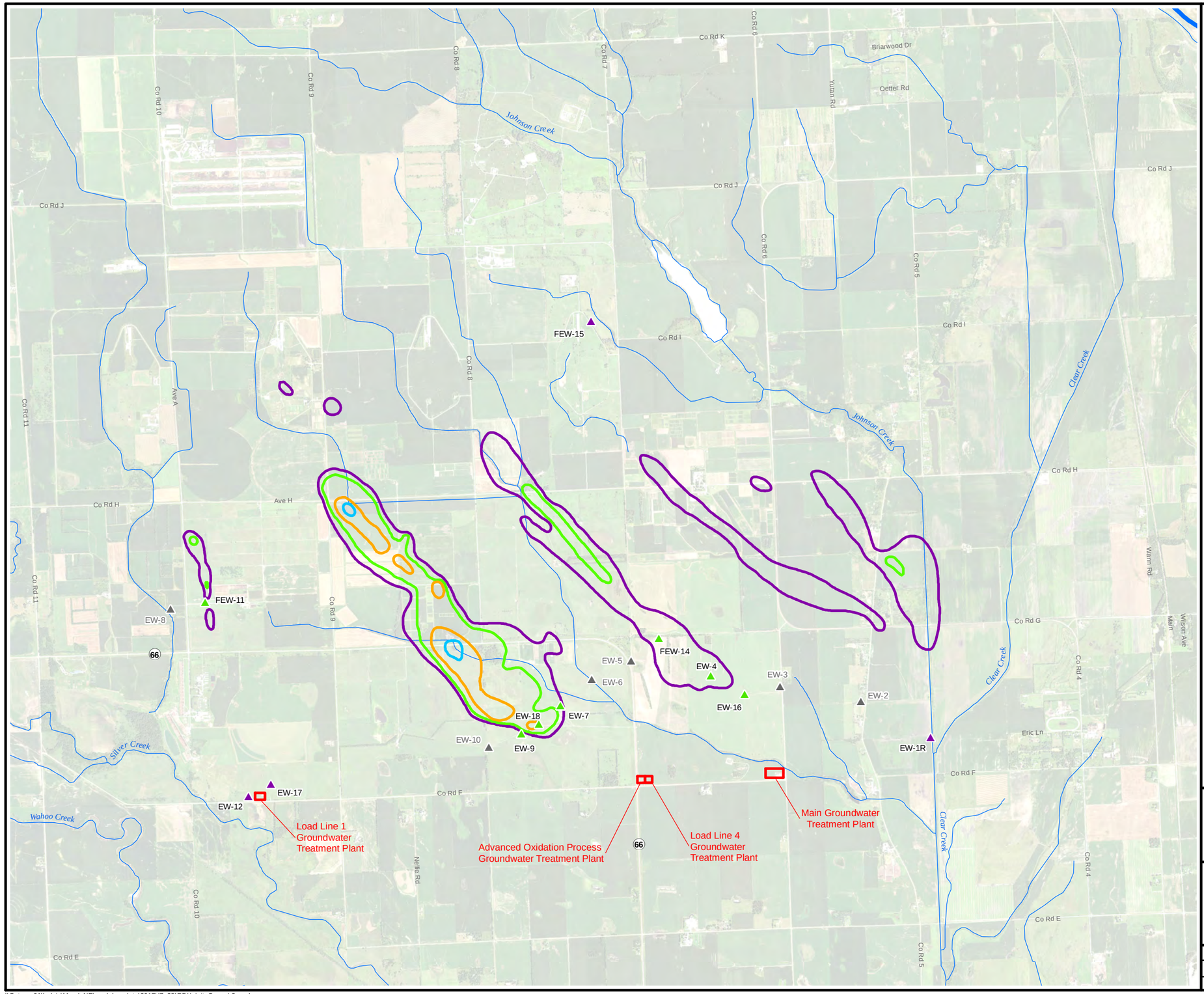

Legend

- 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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Figure 7.28
RDX Initial Concentrations
Layer 3 (2017)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date:	
Version: 1	Revision Date / Initials:	

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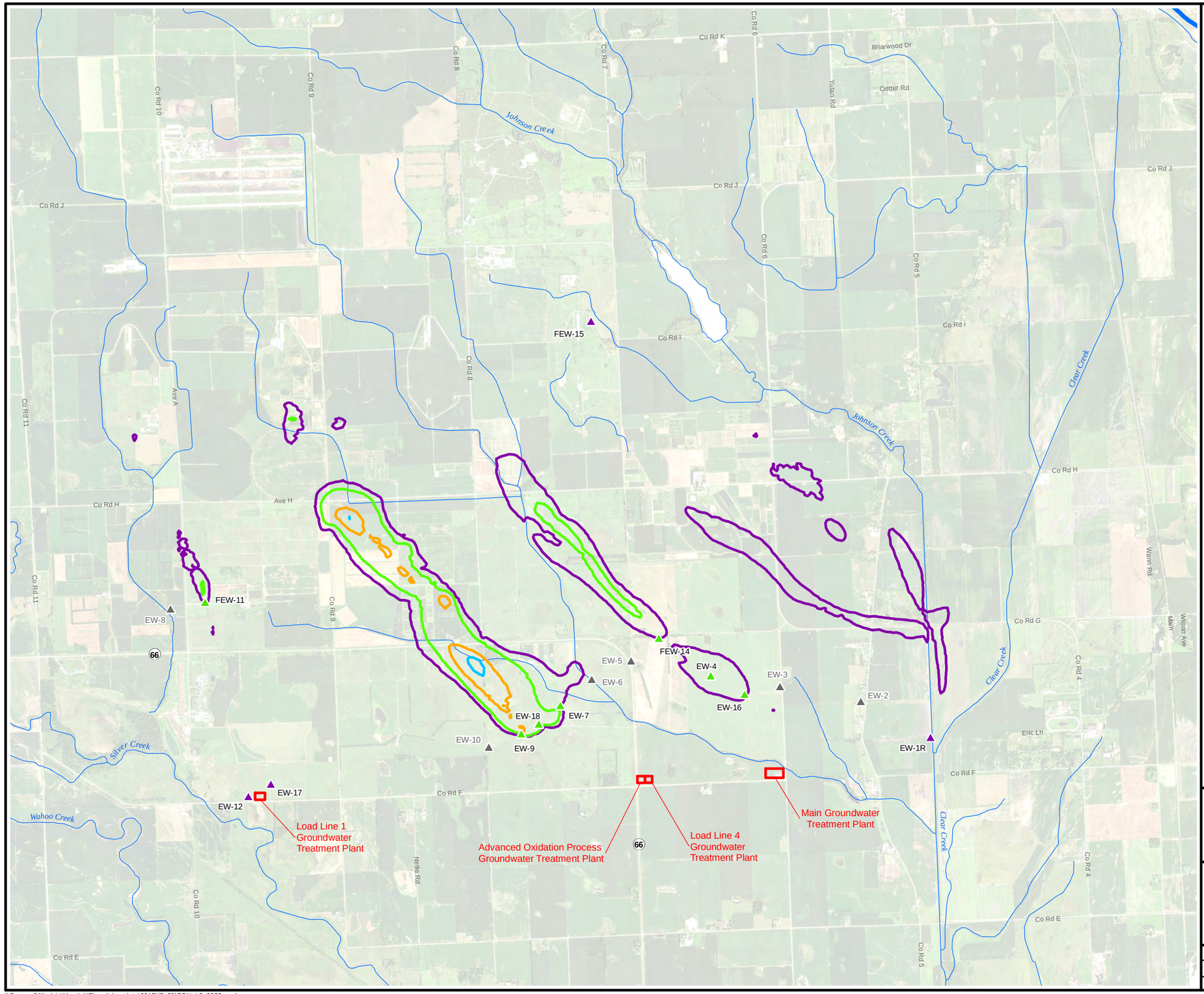

Legend

- 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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Figure 7.29
Predicted RDX Concentrations
Layer 3 (2022)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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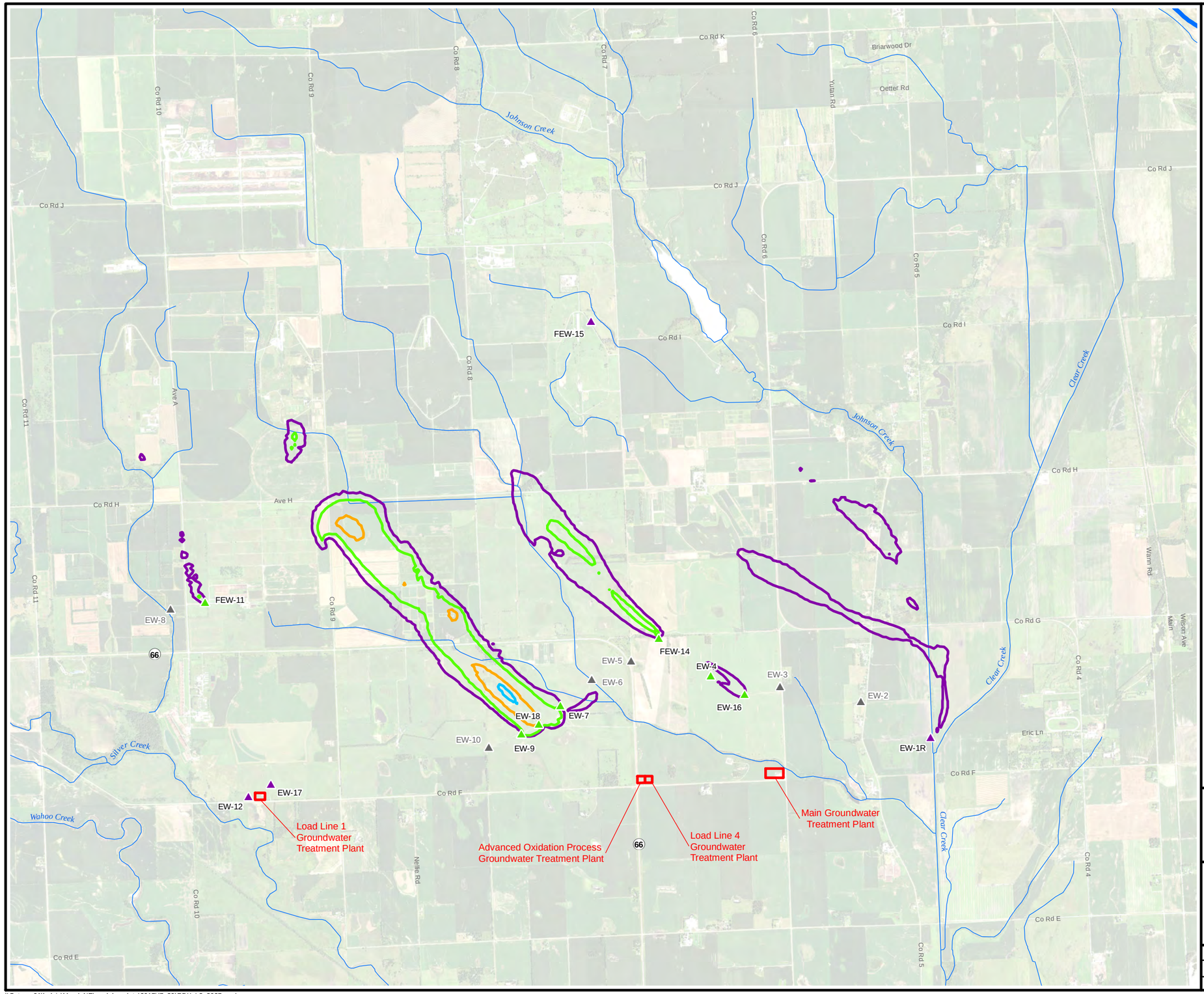

Legend

- 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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Figure 7.30
Predicted RDX Concentrations
Layer 3 (2027)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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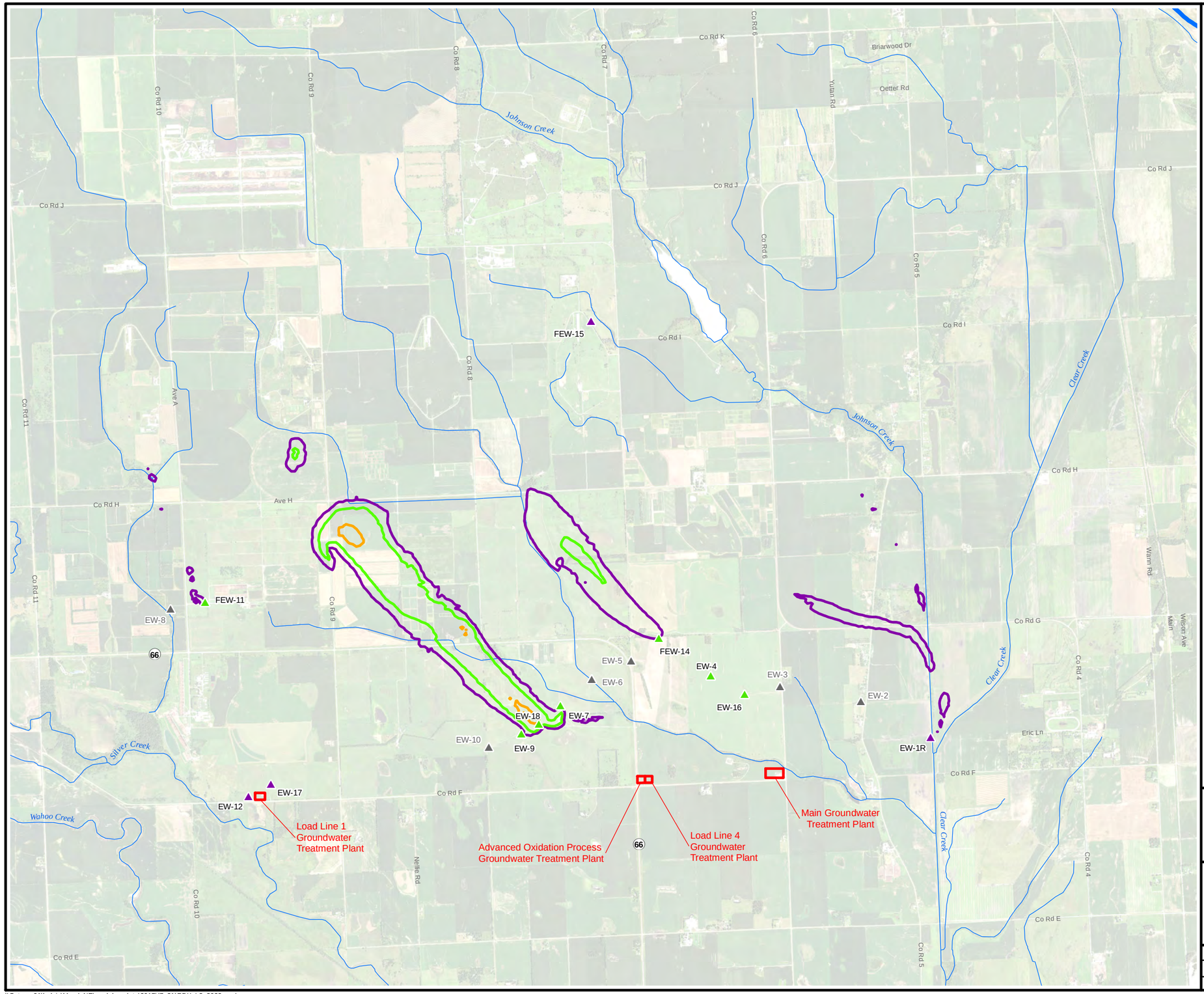

Legend

- 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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Figure 7.31
Predicted RDX Concentrations
Layer 3 (2032)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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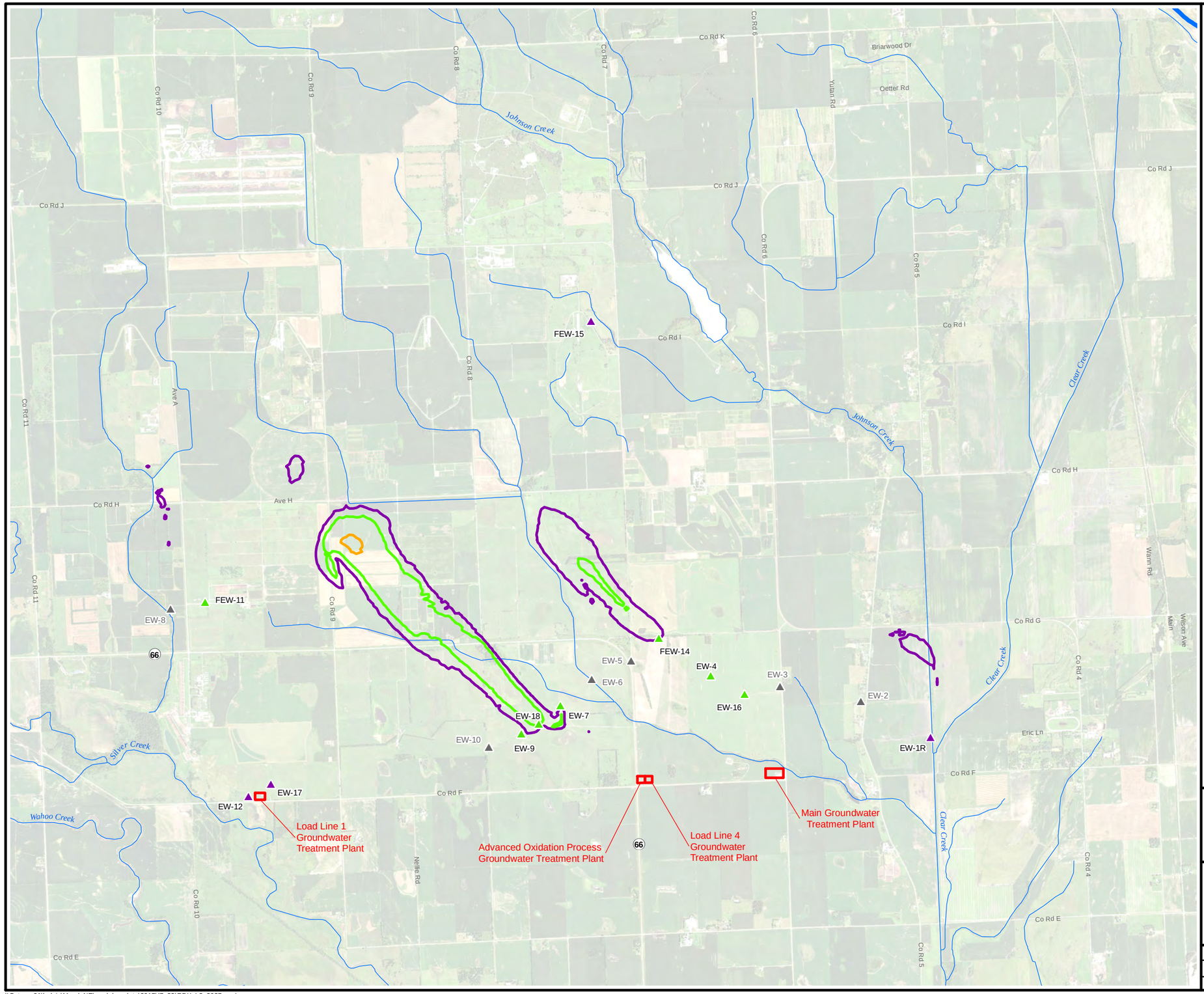

Legend

- 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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Figure 7.32
Predicted RDX Concentrations
Layer 3 (2037)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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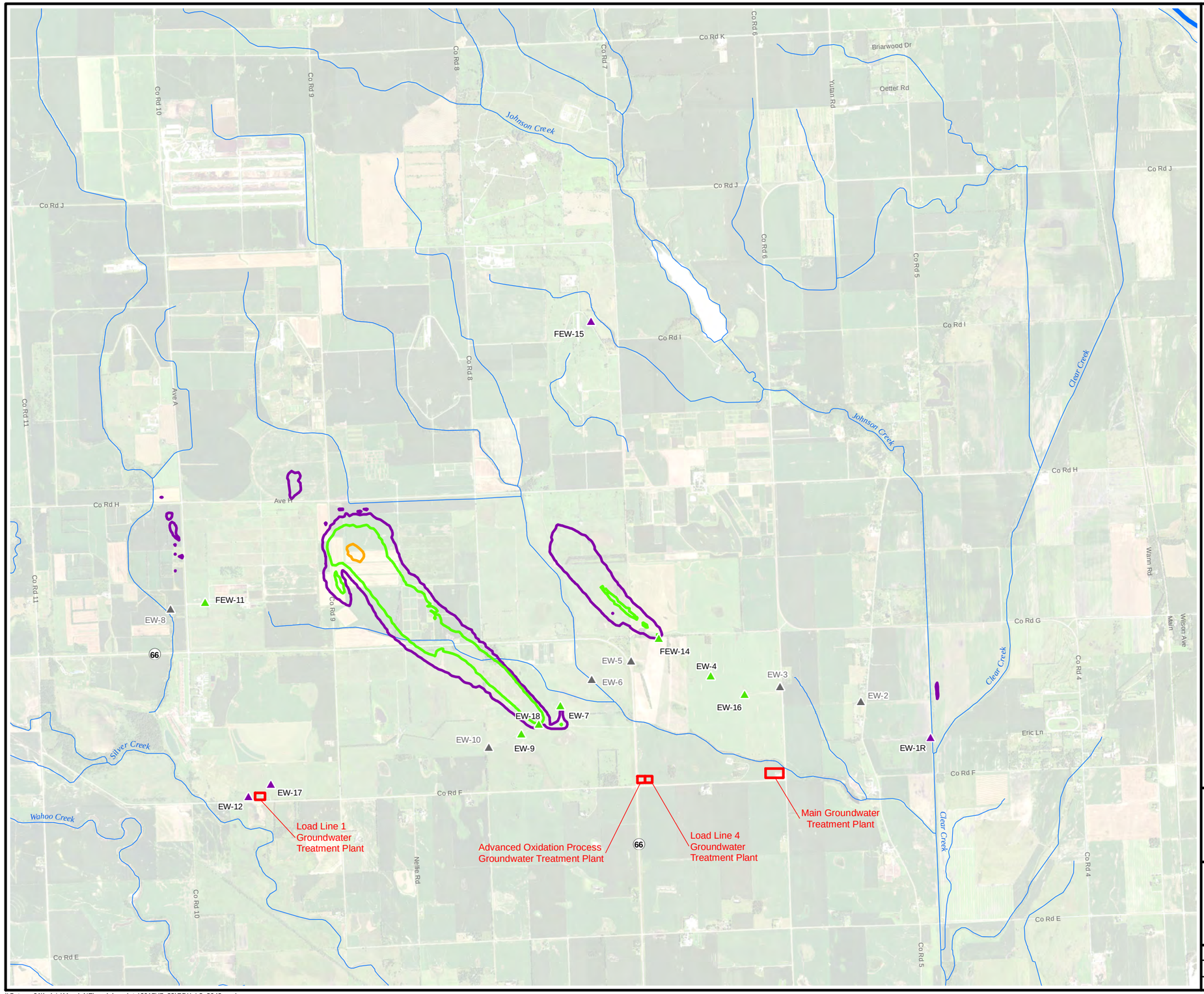

Legend

- 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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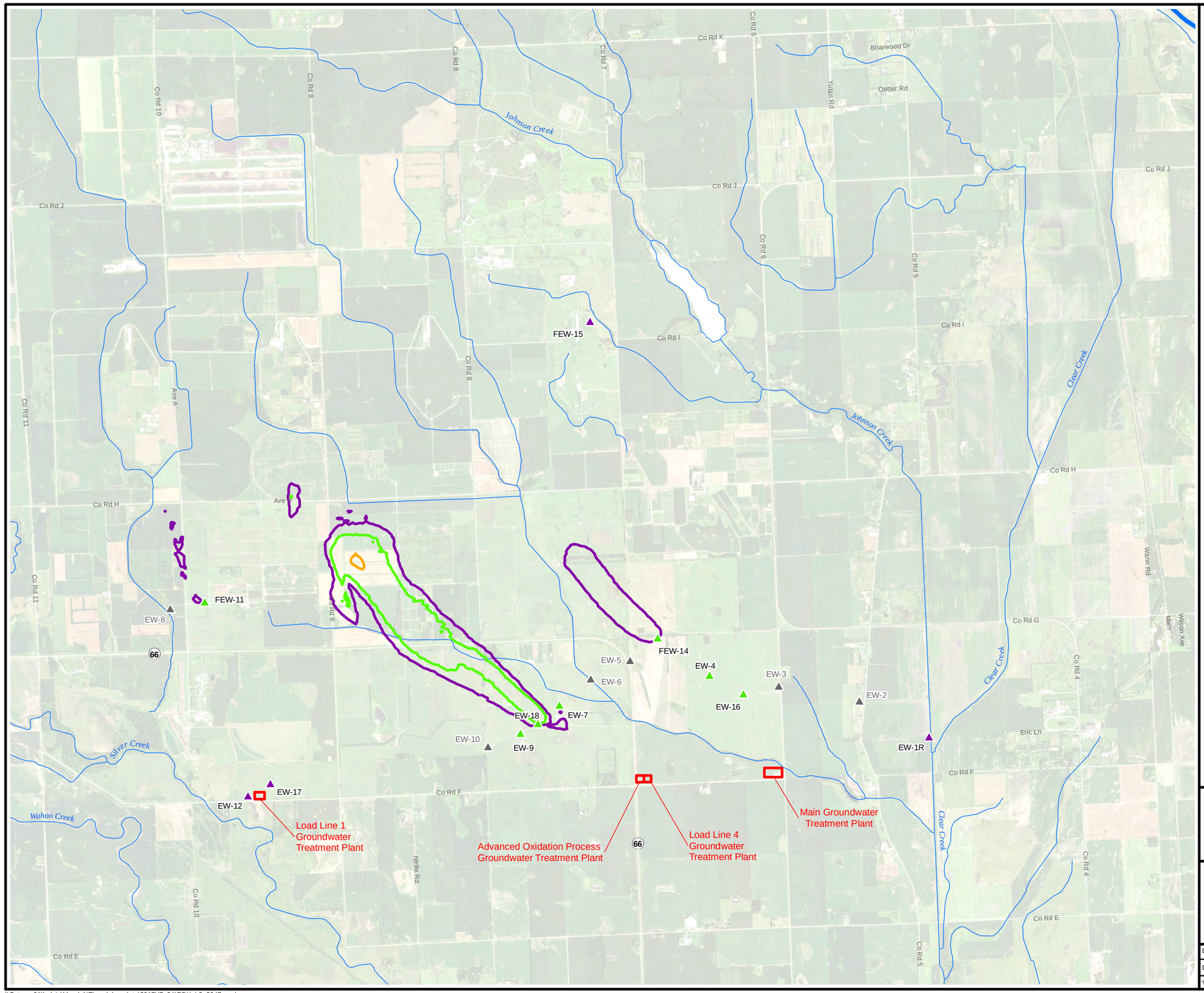
Figure 7.33
Predicted RDX Concentrations
Layer 3 (2042)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\hglgis\Mead_NE\model_update\2017\(7_33)RDX_L3_2042.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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Mead, Nebraska
2017 Groundwater Model Update

Figure 7.34
Predicted RDX Concentrations
Layer 3 (2047)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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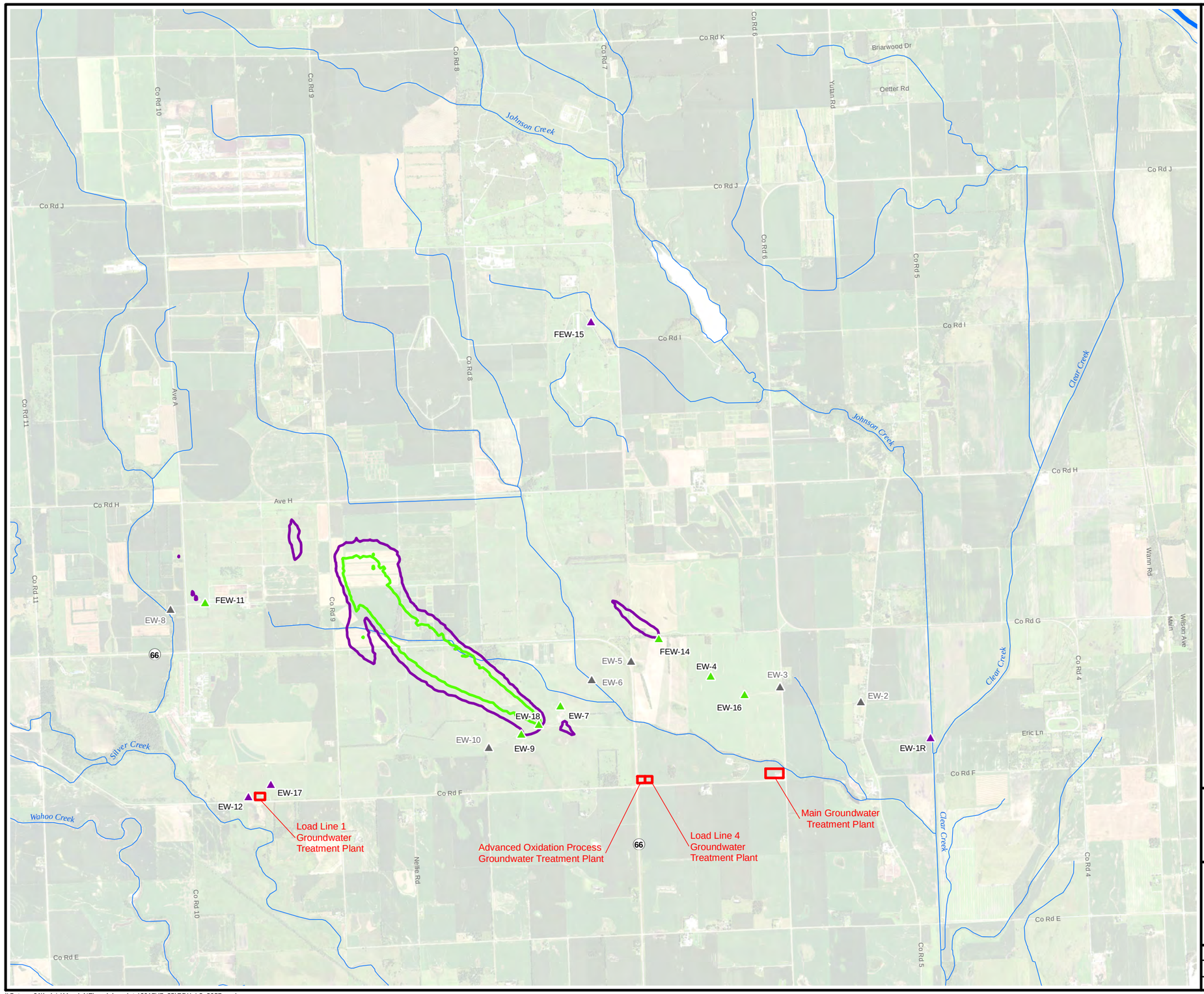

Legend

- 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

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.35
Predicted RDX Concentrations
Layer 3 (2057)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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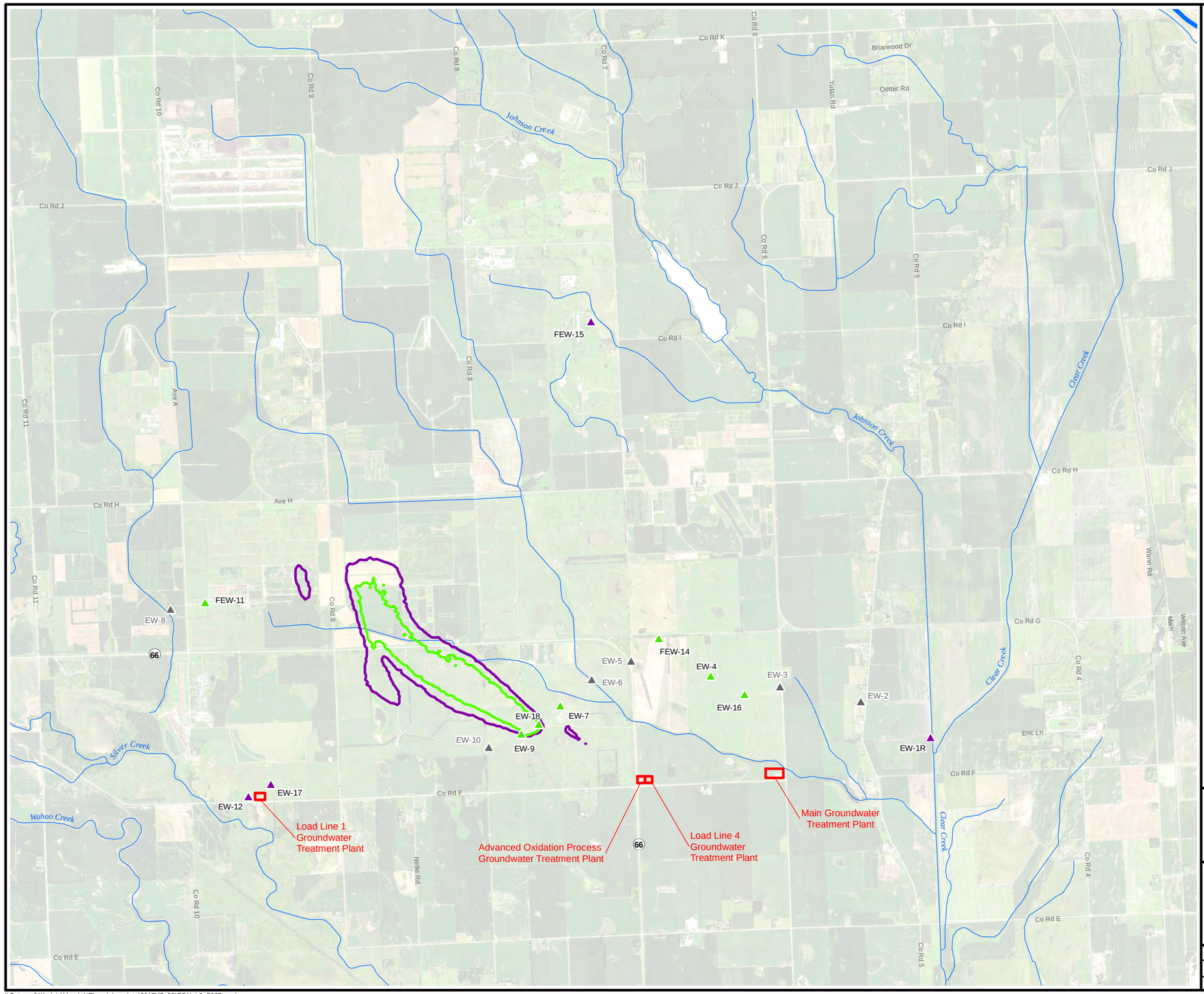

Legend

- 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

US Army Corps of Engineers ®
Kansas City District

Former Nebraska Ordnance Plant
Mead, Nebraska
2017 Groundwater Model Update

Figure 7.36
Predicted RDX Concentrations
Layer 3 (2067)

Drawn by: RR	Reviewed by:	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date:	
Version: 1	Revision Date / Initials:	

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APPENDIX A

USGS WATER DATA REPORTS - 2016

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USGS Water-Year Summary 2016

06800500 Elkhorn River at Waterloo, Nebr.

LOCATION - Lat 41°17'36", long 96°17'02" referenced to North American Datum of 1983, in SE 1/4 SW 1/4 sec.03, T.15 N., R.10 E., Douglas County, NE, Hydrologic Unit 10220003, on right bank downstream of Nebraska Highway 64 bridge at north edge of Waterloo, 3.5 mi downstream from Rawhide Creek, and at mile 13.8.

DRAINAGE AREA - 6,900 mi² of which 1,030 mi² probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD - April 1899 to November 1903, May 1911 to September 1915, August 1928 to current year. Published as "at Arlington" 1899-1903, July 1913 to September 1915. Monthly discharge only for some periods, published in WSP 1310.

REVISED RECORDS - WSP 1390: 1914 (M), 1915, 1936, 1943(M). WDR NE-94-1: Drainage area.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,104.73 ft above sea level. See WSP 1918 for history of changes prior to Oct. 1, 1960. Oct. 1, 1960 to July 27, 1978, at datum 2.00 ft higher. July 28, 1978 to Nov. 17, 1993, at site 800 ft downstream at present datum.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records fair except for estimated daily discharges, which are poor, unless otherwise noted. Some small diversions above station for irrigation.

EXTREMES OUTSIDE PERIOD OF RECORD - Stage and discharge of the flood of June 12, 1944, are the greatest known since at least 1880.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 100,000 ft³/s, June 12, 1944, from rating curve extended above 22,000 ft³/s, gage height, 16.60 ft, from floodmark, site and datum then in use. Maximum peak stage, 19.12 ft, March 29, 1962, at present datum, discharge, 50,200 ft³/s.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [September 24, 2017], at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93492&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06800500&agency_cd=USGS

Water-Data Report 2016

06800500 Elkhorn River at Waterloo, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
1	2,590	1,330	2,140	1,980	2,730	4,290	5,220	14,100	7,480	2,900	1,400	2,000
2	2,220	1,340	2,130	1,930	3,300	4,130	4,420	14,900	6,570	2,960	1,530	1,430
3	2,030	1,340	2,100	1,950	2,370	3,960	4,050	14,200	5,720	3,290	4,500	1,380
4	1,890	1,330	2,010	1,980	1,630	3,870	3,800	13,200	5,430	3,300	2,540	1,270
5	1,780	1,320	2,010	2,050	1,550	3,670	3,710	11,600	4,630	2,960	1,990	1,230
6	1,710	1,310	2,220	2,160	1,790	3,650	3,640	9,440	4,080	3,000	1,850	1,220
7	1,670	1,290	2,380	2,220	2,100	3,720	3,550	7,760	3,710	3,700	1,660	1,440
8	1,630	1,260	2,420	2,280	2,410	3,800	3,320	6,420	3,540	4,000	1,540	1,250
9	1,580	1,260	2,410	e2,030	2,220	3,790	3,040	6,210	3,430	3,610	1,480	1,230
10	1,530	1,270	2,420	e1,660	2,320	3,650	2,820	6,200	3,350	3,060	1,420	1,460
11	1,490	1,330	2,380	e1,070	2,390	3,450	2,700	9,940	3,240	2,920	1,380	1,920
12	1,450	1,870	2,330	e1,290	2,320	3,310	2,560	12,700	3,140	4,560	1,500	1,630
13	1,390	1,900	2,430	1,670	2,210	3,270	2,400	11,500	3,070	5,220	1,750	1,460
14	1,330	1,630	7,790	1,860	2,060	3,240	2,310	10,400	3,060	3,280	2,030	1,590
15	1,270	1,540	8,060	2,050	2,210	e3,270	2,260	8,680	3,950	2,720	1,590	1,670
16	1,230	1,540	3,810	e1,930	2,200	3,270	2,220	6,890	6,340	2,470	1,450	13,500
17	1,200	1,700	3,160	e1,880	2,730	3,180	2,180	6,300	3,970	2,390	1,480	20,700
18	1,160	2,130	2,870	e1,540	3,990	3,050	2,250	5,630	15,200	5,860	1,680	7,120
19	1,180	2,650	2,630	1,580	6,210	2,960	2,530	5,470	21,300	5,720	1,480	3,890
20	1,210	2,520	2,450	1,620	11,600	2,880	3,680	5,450	9,690	3,680	1,520	2,830
21	1,220	2,390	2,400	1,790	8,380	2,830	11,100	5,230	8,090	e2,920	1,320	2,140
22	1,230	2,450	2,440	1,880	6,480	2,810	11,200	4,900	5,700	e2,510	1,250	1,890
23	1,270	2,490	2,550	1,810	6,230	2,860	9,030	4,670	4,880	e2,230	1,220	1,840
24	1,310	2,370	2,730	1,870	5,500	2,930	7,300	6,030	4,270	e2,030	4,390	1,820
25	1,420	2,280	2,640	1,910	5,070	3,050	6,700	5,820	3,820	e1,910	3,230	4,310
26	1,410	2,260	2,600	1,860	4,760	3,040	5,680	5,020	3,590	1,810	2,380	4,840
27	1,370	2,280	2,520	1,870	4,560	3,570	7,660	5,170	3,370	1,690	1,780	2,590
28	1,370	2,180	e2,230	1,900	4,440	4,130	12,000	5,470	3,190	1,610	1,540	2,120
29	1,300	2,080	e1,660	1,970	4,460	4,170	8,930	7,500	3,070	1,540	1,390	1,860
30	1,260	2,100	1,660	2,040		4,670	10,400	8,050	2,970	1,450	2,190	1,700
31	1,280		1,900	2,290		6,380		8,080		1,420	2,180	
Total	45,980	54,740	85,480	57,920	110,200	110,900	152,700	252,900	163,800	92,720	58,640	95,330
Mean	1,482	1,825	2,757	1,868	3,801	3,575	5,089	8,159	5,462	2,990	1,892	3,178
Max	2590	2650	8060	2290	11600	6380	12000	14900	21300	5860	4500	20700
Min	1160	1260	1660	1070	1550	2810	2180	4670	2970	1420	1220	1220
Ac-ft	91,200	108,600	169,500	114,900	218,600	219,900	302,800	501,700	325,000	183,900	116,300	189,100

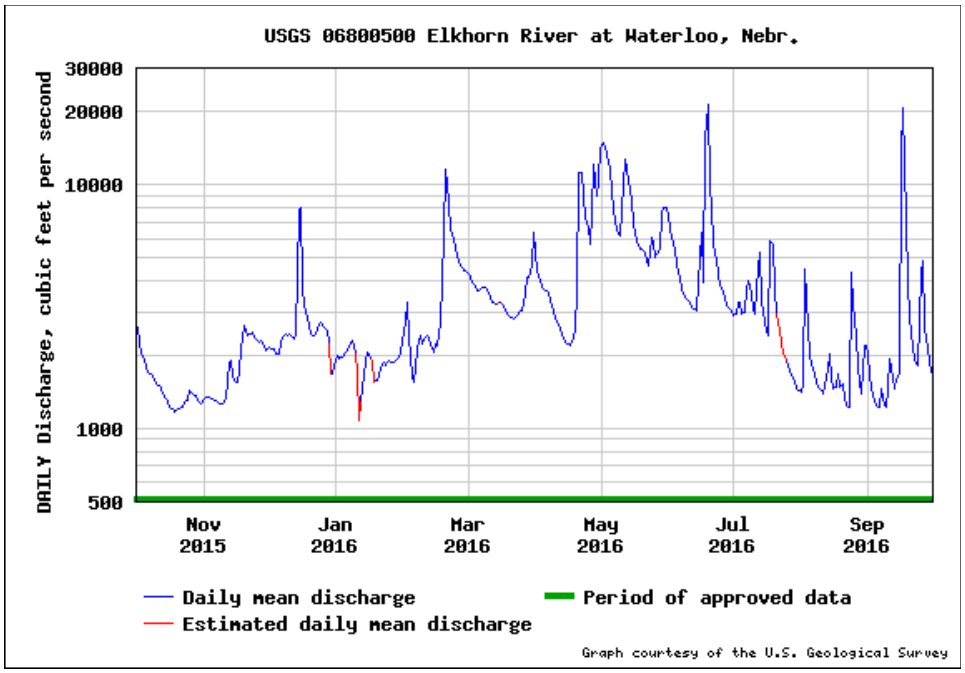
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	816	841	742	695	1,268	2,282	2,156	2,239	3,130	1,525	1,024	807
Max	3,765	2,792	2,757	1,868	6,439	8,082	10,450	8,159	19,680	11,470	4,755	3,178
(WY)	(2008)	(1999)	(2016)	(2016)	(1971)	(1993)	(1984)	(2016)	(2010)	(1993)	(1951)	(2016)
Min	150	240	150	180	257	489	512	327	405	173	117	87.8
(WY)	(1940)	(1940)	(1930)	(1977)	(1940)	(1981)	(1981)	(1934)	(1933)	(1936)	(1976)	(1939)

Water-Data Report 2016
06800500 Elkhorn River at Waterloo, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 1929 - 2016	
Annual total	1,281,000			
Annual mean	3,501		1,459	
Highest annual mean			4,085	2010
Lowest annual mean			416.7	1939
Highest daily mean	21,300	Jun 19	93,800	Jun 12, 1944
Lowest daily mean	1,070	Jan 11	64.0	Sep 16, 1939
Annual 7-day minimum	1,204	Oct 16	66.0	Sep 15, 1939
Maximum peak flow			100,000	Jun 12, 1944
Maximum peak stage			19.12	Mar 29, 1962
Annual runoff (cfsm)	0.507		0.211	
Annual runoff (inches)	6.91		2.87	
10 percent exceeds	6,757		2,970	
50 percent exceeds	2,425		824.0	
90 percent exceeds	1,370		320.0	



USGS Water-Year Summary 2016

06796500 Platte River near Leshara, Nebr.

LOCATION - Lat 41°19'12", long 96°24'14" referenced to North American Datum of 1983, in sec.34, T.16 N., R.9 E., Douglas County, NE, Hydrologic Unit 10200202, on left bank 25 ft downstream from bridge on Nebraska Highway 64, 1.5 mi southeast of Leshara.

DRAINAGE AREA - Not determined.

SURFACE-WATER RECORDS

PERIOD OF RECORD - June 1994 to current year.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,144.47 ft above North American Vertical Datum of 1988. Prior to September 26, 2016, datum of gage was 1,143.86 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 2002, about 200 ft downstream at same datum.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 46,200 ft^3/s, June 11, 2010, gage height, 7.95 ft. Maximum peak stage, 11.84 ft, February 9, 1996, backwater from ice.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [September 24, 2017], at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93455&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06796500&agency_cd=USGS

Water-Data Report 2016

06796500 Platte River near Leshara, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
1	4,880	5,260	5,880	4,560	e8,990	7,930	7,060	15,800	15,100	5,020	4,940	2,800
2	5,150	5,450	5,200	5,540	e9,260	8,330	7,100	17,400	15,400	5,610	e8,500	2,770
3	5,180	5,370	6,000	5,810	e7,440	8,370	6,840	16,700	14,800	7,770	7,800	2,590
4	4,560	4,940	5,770	e5,900	e5,930	8,110	5,990	16,000	13,900	8,200	7,390	3,150
5	4,400	4,960	5,700	e5,640	e5,260	7,690	5,760	14,600	13,400	7,830	6,010	3,110
6	4,080	4,870	5,970	5,250	e5,800	7,910	5,750	13,300	12,300	7,680	4,930	3,080
7	4,550	4,790	5,790	6,050	e6,570	7,680	5,910	12,800	11,700	8,760	4,160	2,980
8	4,560	4,950	5,730	6,570	8,460	7,260	5,710	12,000	11,200	7,540	4,360	3,480
9	4,430	5,270	5,800	6,250	8,580	7,070	5,930	12,400	11,200	6,460	3,700	3,660
10	4,500	5,110	5,620	e5,650	7,790	7,400	5,730	12,500	10,500	6,700	3,550	4,960
11	4,310	5,060	5,210	e4,890	8,620	7,130	5,330	16,500	10,400	6,330	3,420	5,270
12	4,650	5,100	5,290	e4,330	7,870	6,880	5,140	19,800	9,820	6,280	3,610	5,560
13	4,620	5,190	5,900	e4,100	8,580	7,270	5,240	15,900	9,690	5,190	3,100	5,830
14	4,660	5,880	7,340	e4,610	6,940	6,880	5,460	14,200	9,380	4,420	2,540	5,350
15	4,270	5,590	8,150	e5,010	7,550	6,970	5,310	13,100	10,200	3,860	2,110	5,090
16	4,370	5,080	8,120	e5,450	7,330	6,970	4,860	12,800	10,700	3,680	2,150	6,620
17	4,200	5,350	7,030	e6,020	8,690	7,010	5,280	e12,300	9,870	3,610	2,060	10,200
18	4,170	5,930	6,460	e6,020	9,320	7,180	5,900	12,100	12,200	3,850	2,540	8,400
19	4,500	7,720	5,070	e5,480	10,100	7,220	15,100	12,600	11,600	4,440	2,520	6,130
20	4,450	9,120	5,440	e4,270	10,300	6,580	13,100	12,400	10,200	4,260	2,570	5,240
21	4,500	7,260	5,620	e4,040	9,880	6,840	12,400	12,300	10,200	3,970	2,290	4,670
22	4,420	6,360	4,830	e4,840	9,290	6,800	11,600	12,100	9,680	3,610	2,250	4,780
23	4,170	6,030	5,710	e5,820	8,690	6,420	10,800	12,300	e9,310	3,670	2,610	4,840
24	4,680	5,910	6,360	e6,890	8,420	6,290	10,100	12,100	e8,790	3,710	2,970	4,790
25	5,040	5,700	6,410	e7,530	8,250	5,800	8,900	13,300	8,030	3,660	2,450	6,100
26	5,020	5,550	5,510	e8,280	8,580	7,450	7,630	14,100	7,650	3,460	2,630	5,630
27	4,950	5,490	6,090	e8,650	8,520	7,360	9,180	13,600	7,020	3,360	2,670	5,170
28	5,220	5,170	5,290	e9,280	8,290	7,380	11,000	15,800	6,440	3,300	2,590	4,790
29	4,800	5,480	4,360	e9,250	7,500	7,040	15,600	16,000	6,190	3,170	2,430	4,220
30	5,450	5,760	4,300	e9,740		6,130	14,100	16,400	5,530	3,130	2,620	4,170
31	4,990		3,640	e10,100		6,610		17,700		3,180	2,750	
Total	143,700	169,700	179,600	191,800	236,800	222,000	243,800	440,900	312,400	155,700	110,200	145,400
Mean	4,636	5,657	5,793	6,188	8,166	7,160	8,127	14,220	10,410	5,023	3,555	4,848
Max	5450	9120	8150	10100	10300	8370	15600	19800	15400	8760	8500	10200
Min	4080	4790	3640	4040	5260	5800	4860	12000	5530	3130	2060	2590
Ac-ft	285,100	336,600	356,200	380,500	469,700	440,300	483,600	874,500	619,600	308,800	218,600	288,500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2016, BY WATER YEAR (WY)

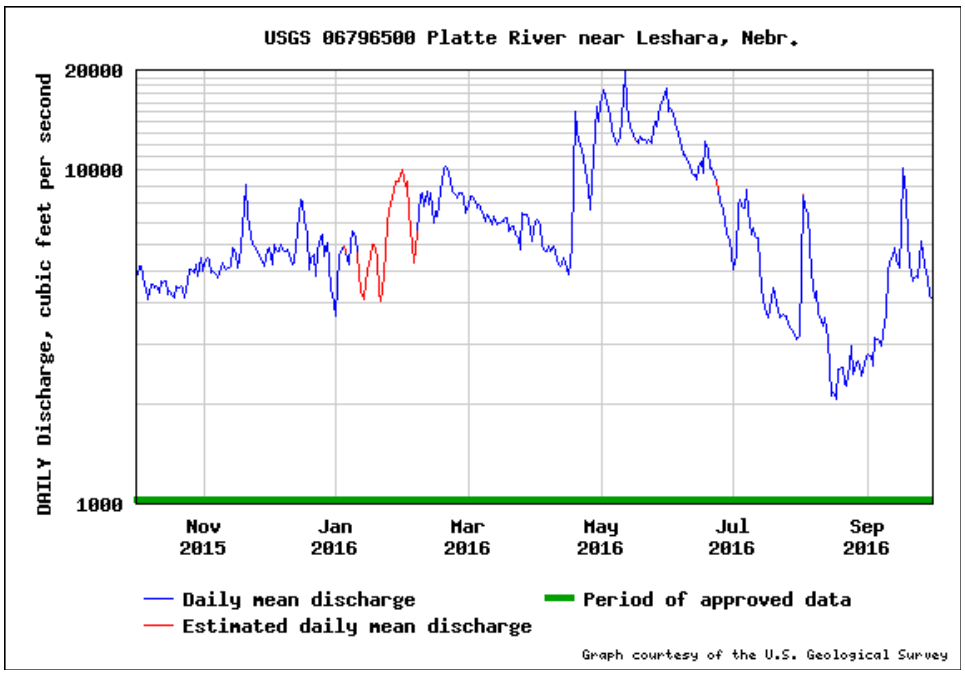
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	4,568	4,617	4,223	4,106	5,793	6,062	6,230	6,615	8,792	4,200	3,304	3,464
Max	8,176	7,784	6,762	7,552	10,040	9,325	11,300	14,220	24,560	10,810	7,163	6,793
(WY)	(2014)	(1998)	(1998)	(1998)	(1997)	(2010)	(1998)	(2016)	(2010)	(2011)	(1996)	(1996)
Min	1,816	2,324	1,984	1,276	2,984	4,079	3,054	1,820	1,212	461	328	802
(WY)	(2013)	(2004)	(2004)	(2004)	(2002)	(2002)	(2004)	(2006)	(2006)	(2012)	(2012)	(2012)

Water-Data Report 2016
06796500 Platte River near Leshara, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 1994 - 2016	
Annual total	2,552,000			
Annual mean	6,973		5,150	
Highest annual mean			7,784	2011
Lowest annual mean			2,703	2004
Highest daily mean	19,800	May 12	41,400	Jun 15, 2010
Lowest daily mean	2,060	Aug 17	199.0	Aug 03, 2006
Annual 7-day minimum	2,320	Aug 15	244.6	Jul 30, 2012
Maximum peak flow	23,400[a]	May 12	46,200[a]	Jun 11, 2010
Maximum peak stage	7.23	May 12	11.84[b]	Feb 09, 1996
Annual runoff (cfsm)				
Annual runoff (inches)				
10 percent exceeds	12,300		8,690	
50 percent exceeds	5,910		4,500	
90 percent exceeds	3,610		1,770	

[a] Discharge affected by Regulation or Diversion
[b] Gage height affected by backwater



USGS Water-Year Summary 2016

06796550 Platte River near Venice, Nebr.

LOCATION - Lat 41°11'53", long 96°20'22" referenced to North American Datum of 1927, in SE 1/4 NW 1/4 sec.7, T.14 N., R.10 E., Saunders County, NE, Hydrologic Unit 10200202, on the right bank, 2.8 mi downstream from Nebraska Highway 92, 5 mi upstream from Elkhorn River, and 2.6 mi southeast of Venice.

DRAINAGE AREA - Not determined.

SURFACE-WATER RECORDS

PERIOD OF RECORD - June 2004 to February 2010, stage record only; March 2010 to September 2016, stage and discharge record; October 2016 to current year, stage record only.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1090.00 ft above North American Vertical Datum of 1988.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records fair except for estimated daily discharges, which are poor, unless otherwise noted. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, groundwater withdrawals, diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 54,400 ft^3/s, June 13, 2010, gage height, 15.72 ft. Maximum peak stage, 18.18 ft, March 11, 2010, backwater from ice.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [September 26, 2017],
at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93459&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06796550&agency_cd=USGS

Water-Data Report 2016

06796550 Platte River near Venice, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES

[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
1	5,000	5,630	6,270	e4,910	e9,590	6,960	7,170	17,300	14,800	e5,210	4,630	2,690
2	5,370	5,650	5,280	e6,060	e9,820	7,470	6,930	e19,100	15,400	6,570	10,500	2,650
3	5,640	5,660	6,960	e6,320	e8,340	7,530	6,740	18,400	14,800	8,560	8,100	2,380
4	4,660	5,030	6,150	e6,320	e6,420	7,420	6,260	17,100	14,300	8,420	8,220	2,970
5	4,420	5,080	6,210	e6,090	e5,700	7,050	5,960	15,400	13,900	8,110	6,450	3,060
6	3,960	5,200	6,620	e5,750	e6,070	7,380	5,980	13,500	13,500	7,700	5,230	2,930
7	4,510	5,230	6,390	e6,670	e7,050	7,120	6,050	12,900	13,000	9,760	4,140	3,480
8	4,440	5,480	6,470	e7,220	e8,720	6,850	e6,080	12,100	12,600	7,970	4,500	3,130
9	4,460	5,960	7,150	e6,920	e8,860	6,480	6,040	12,300	12,500	6,400	3,670	3,650
10	4,200	5,670	7,010	e5,970	e8,230	7,100	5,870	12,600	11,800	6,630	3,550	4,910
11	4,260	5,740	6,650	e5,000	e8,940	6,730	e5,560	e17,100	11,700	6,000	3,490	5,400
12	4,540	5,820	6,830	e4,460	e8,300	6,520	e5,290	e21,900	11,100	6,740	3,860	5,580
13	4,790	5,880	7,890	e4,400	e9,150	7,270	e5,420	16,400	11,000	4,910	3,270	5,860
14	4,970	7,120	10,800	e4,880	e7,380	6,690	e5,820	14,500	10,700	3,940	2,830	5,240
15	4,290	6,640	11,200	e5,170	e7,880	7,040	5,880	13,100	11,800	3,280	2,470	4,880
16	4,390	5,960	10,300	e5,650	e8,180	7,070	e5,570	12,400	12,200	3,130	2,150	6,860
17	4,240	6,200	8,950	e6,270	e9,050	7,280	5,780	11,900	11,400	3,190	2,220	12,300
18	4,100	6,710	7,920	e6,220	9,130	7,580	e6,690	11,400	14,700	3,360	2,150	10,300
19	4,840	8,040	5,740	e5,670	10,100	7,930	14,300	11,600	13,800	4,470	2,890	6,660
20	4,890	10,800	6,450	e4,780	10,600	7,100	14,200	11,400	11,800	4,160	2,910	5,560
21	5,080	8,990	6,280	e4,290	10,500	7,430	e14,400	12,000	12,100	3,790	2,370	4,460
22	5,030	7,580	5,170	e4,810	9,730	7,370	e13,300	11,500	11,900	3,420	2,210	4,460
23	4,540	7,020	6,100	e5,900	9,080	6,940	e12,100	11,500	11,500	3,330	2,430	4,630
24	5,310	e6,710	7,640	e6,940	8,560	7,040	e10,800	12,000	10,400	3,580	4,090	4,670
25	6,260	e6,380	7,470	e7,740	8,260	6,030	e9,820	12,700	9,200	3,530	2,720	6,040
26	6,200	6,150	6,310	e8,370	8,460	8,380	e8,410	13,800	8,560	3,430	2,320	5,760
27	5,930	6,270	e6,710	e8,920	7,650	7,940	10,100	13,500	7,540	3,160	2,680	5,000
28	5,980	5,450	e5,880	e9,490	7,240	7,430	12,600	15,800	6,550	3,160	2,700	4,740
29	5,110	5,800	e4,930	e9,390	6,500	7,660	16,600	16,600	6,310	3,030	2,550	4,180
30	6,220	6,040	e4,720	e9,860		6,820	16,000	16,600	e5,770	2,930	2,590	4,240
31	5,020		e4,160	e10,300		e6,500		17,200		3,000	2,630	
Total	152,700	189,900	212,600	200,700	243,500	222,100	261,700	445,600	346,600	154,900	116,500	148,700
Mean	4,924	6,330	6,858	6,475	8,396	7,165	8,724	14,370	11,550	4,996	3,759	4,956
Max	6260	10800	11200	10300	10600	8380	16600	21900	15400	9760	10500	12300
Min	3960	5030	4160	4290	5700	6030	5290	11400	5770	2930	2150	2380
Ac-ft	302,800	376,600	421,700	398,200	483,000	440,500	519,100	883,800	687,500	307,200	231,100	294,900

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2010 - 2016, BY WATER YEAR (WY)

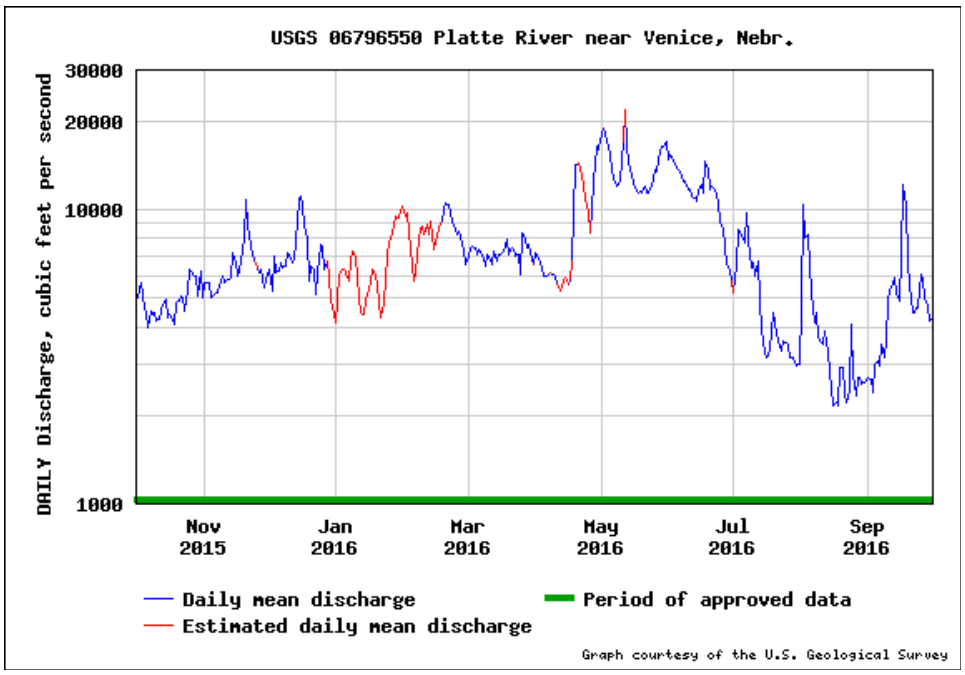
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5,623	5,336	4,987	5,068	6,566	6,471	6,818	7,959	12,190	5,728	3,991	4,199
Max	8,243	6,858	6,858	6,990	9,798	9,367	10,460	14,370	24,300	11,470	7,936	6,945
(WY)	(2014)	(2012)	(2016)	(2011)	(2011)	(2011)	(2011)	(2016)	(2010)	(2011)	(2011)	(2011)
Min	1,812	3,219	2,518	2,943	4,024	4,996	5,086	3,865	2,839	528	388	921
(WY)	(2013)	(2013)	(2013)	(2013)	(2013)	(2014)	(2014)	(2014)	(2012)	(2012)	(2012)	(2012)

Water-Data Report 2016
06796550 Platte River near Venice, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 2010 - 2016	
Annual total	2,696,000			
Annual mean	7,365		5,998	
Highest annual mean			8,884	2011
Lowest annual mean			3,389	2013
Highest daily mean	21,900	May 12	44,900	Jun 13, 2010
Lowest daily mean	2,150	Aug 16	71.0	Jul 31, 2012
Annual 7-day minimum	2,414	Aug 16	203.9	Jul 27, 2012
Maximum peak flow	24,200[a]	May 12	54,400[a]	Jun 13, 2010
Maximum peak stage	14.49	May 12	18.18[b]	Mar 11, 2010
Annual runoff (cfsm)				
Annual runoff (inches)				
10 percent exceeds	12,600		11,100	
50 percent exceeds	6,460		5,590	
90 percent exceeds	3,427		2,038	

[a] Discharge affected by Regulation or Diversion
[b] Gage height affected by backwater



USGS Water-Year Summary 2016

06801000 Platte River near Ashland, Nebr.

LOCATION - Lat 41°03'44", long 96°19'29" referenced to North American Datum of 1983, in SE 1/4 SW 1/4 sec.29, T.13 N., R.10 E., Sarpy County, NE, Hydrologic Unit 10200202, on left bank, 35 ft northeast of upstream side of Highway 6 bridge, 3 mi northeast of Ashland, 2 mi upstream from Salt Creek, and at mile 27.9.

DRAINAGE AREA - 83,600 mi² of which 14,300 mi² probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD - August 1928 to May 1953, July 1988 to current year.

REVISED RECORDS - WDR NE-94-1: 1993 (M). WDR-US-2010: Drainage area.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,040.00 ft above sea level. Prior to Oct. 1, 1929, chain gage at former highway bridge 0.5 mi upstream at datum 15.83 ft higher. Oct. 1, 1929 to Oct. 7, 1933, staff or chain gage at former highway bridge 0.5 mi upstream at datum 14.79 ft higher. Oct. 14, 1933 to Dec. 10, 1938, water-stage recorder at site 950 ft upstream from former bridge at datum 14.79 ft higher. Dec. 11, 1938 to June 16, 1948, water-stage recorder at former highway bridge 0.5 mi upstream at datum 14.79 ft higher. June 17, 1948 to May 11, 1953, 0.5 mi downstream of Highway 6 bridge at datum 12.51 ft higher.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records fair except for estimated daily discharges, which are poor, unless otherwise noted. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, groundwater withdrawals, diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 130,000 ft³/s, March 10, 1993, estimated, includes overbank flow, gage height, 19.23 ft, backwater from ice. Maximum peak stage, 23.05 ft, February 20, 1997, backwater from ice.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [September 24, 2017],
at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93506&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06801000&agency_cd=USGS

Water-Data Report 2016

06801000 Platte River near Ashland, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016
1	7,760	6,530	7,490	6,710	e12,000	10,800	10,200	30,200	22,400	7,480	4,060
2	7,340	6,610	7,140	7,810	e12,400	10,800	9,450	36,000	21,100	8,560	9,380
3	7,320	6,590	7,680	e8,080	e10,100	10,300	8,990	34,300	19,500	9,940	9,820
4	6,650	5,880	7,360	e7,980	e7,890	9,930	8,410	29,100	18,900	10,500	9,960
5	6,220	5,720	7,400	e7,770	e7,360	9,460	7,940	25,500	17,500	10,200	7,980
6	5,860	5,780	7,750	e7,770	e7,310	9,580	8,010	22,300	16,500	9,440	6,690
7	5,570	5,630	7,910	e7,770	e8,110	9,250	8,160	19,900	15,400	11,900	5,540
8	5,690	5,740	8,000	e7,770	e9,740	9,290	7,920	17,700	14,500	11,000	5,030
9	5,560	6,080	8,360	e7,570	e10,300	8,830	8,190	17,400	13,900	9,470	4,810
10	5,390	6,050	8,260	e7,050	e9,700	9,190	8,050	17,800	13,200	8,880	4,420
11	5,420	6,200	8,220	e6,160	e10,400	8,940	7,780	24,400	12,600	8,350	4,430
12	5,250	6,650	8,760	e6,060	e10,300	8,670	7,540	36,000	11,900	9,680	5,290
13	5,520	7,030	9,890	e5,250	e9,960	8,970	7,340	29,800	11,200	10,000	4,680
14	5,510	7,950	15,200	e5,150	e8,880	8,640	7,310	24,800	10,800	7,540	4,560
15	5,130	7,440	18,300	e5,000	e8,560	8,780	7,150	21,900	11,900	6,210	3,930
16	4,880	6,740	15,000	e5,810	e9,420	8,660	6,720	19,400	14,800	5,680	3,280
17	4,890	6,850	13,100	e7,260	11,000	8,710	6,730	17,900	13,000	5,410	3,330
18	4,580	7,570	11,900	e7,340	11,800	8,640	6,970	16,400	24,600	6,220	3,210
19	4,710	8,530	10,100	e7,340	e13,500	8,800	14,200	16,200	36,200	11,000	4,050
20	5,070	11,100	9,720	e6,450	e15,500	8,160	16,000	15,500	21,300	7,500	4,170
21	5,170	9,440	9,340	e5,680	e16,400	8,020	20,600	16,600	19,400	6,360	3,540
22	5,300	8,320	8,920	e5,280	15,500	7,840	20,200	15,900	17,600	5,690	3,210
23	5,140	7,970	9,040	e5,930	14,300	7,520	18,600	15,600	16,200	5,120	3,250
24	5,150	7,810	10,500	e7,150	13,500	7,670	16,700	17,400	14,700	5,110	6,660
25	6,010	7,640	10,300	e7,990	13,000	7,160	15,300	17,900	13,300	4,900	6,310
26	6,180	7,310	9,440	e8,850	12,800	8,440	12,900	18,500	12,200	4,770	4,980
27	6,390	7,430	9,940	e9,700	12,100	8,790	14,500	18,000	11,100	4,410	4,510
28	6,370	7,100	9,450	e9,920	11,600	8,460	21,000	19,900	9,710	4,270	4,240
29	6,080	7,050	8,470	e10,300	10,800	9,250	22,500	23,300	9,430	4,080	3,840
30	6,680	7,120	7,300	e10,700		8,600	24,300	23,200	8,360	3,870	4,270
31	5,980		6,620	e11,500		8,550		24,800		3,930	4,350
Total	178,800	213,900	296,900	231,100	324,200	274,700	359,700	683,600	473,200	227,500	157,800
Mean	5,767	7,129	9,576	7,455	11,180	8,861	11,990	22,050	15,770	7,338	5,090
Max	7760	11100	18300	11500	16400	10800	24300	36000	36200	11900	9960
Min	4580	5630	6620	5000	7310	7160	6720	15500	8360	3870	3210
Ac-ft	354,600	424,200	588,800	458,400	643,100	544,900	713,400	1,356,000	938,600	451,200	313,000

Day	Sep 2016
1	4,630
2	3,980
3	3,590
4	3,820
5	3,960
6	3,920
7	4,290
8	3,860
9	4,430
10	4,790
11	6,340
12	6,660
13	7,100
14	6,720
15	6,360
16	13,800
17	28,400
18	16,800
19	10,400
20	8,400
21	7,010
22	6,380
23	6,390
24	6,380
25	7,590
26	11,300
27	7,940
28	7,010
29	6,290
30	5,800
--	
Total	224,300
Mean	7,478
Max	28400
Min	3590
Ac-ft	445,000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2016, BY WATER YEAR (WY)

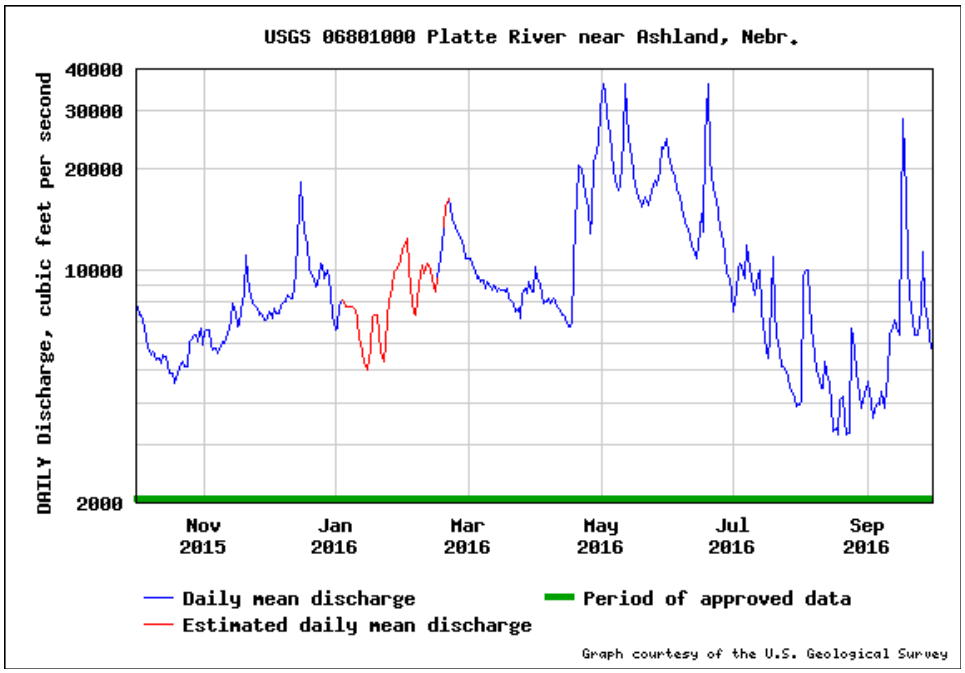
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5,616	5,719	5,272	4,897	7,148	8,722	8,403	9,009	12,390	6,714	4,616	4,565
Max	11,290	9,403	9,576	9,022	12,480	23,190	15,470	22,050	43,630	31,979	10,730	9,825
(WY)	(2008)	(1999)	(2016)	(1998)	(2007)	(1993)	(1998)	(2016)	(2010)	(1993)	(1996)	(1993)
Min	2,122	3,148	2,879	1,896	3,621	4,833	4,081	2,969	2,064	872	398	979
(WY)	(2013)	(2004)	(1990)	(2004)	(2003)	(2006)	(2004)	(1989)	(2006)	(2012)	(2012)	(2012)

Water-Data Report 2016
06801000 Platte River near Ashland, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 1989 - 2016	
Annual total	3,646,000			
Annual mean	9,961		6,913	
Highest annual mean			11,820	1993
Lowest annual mean			3,604	2006
Highest daily mean	36,200	Jun 19	110,000	Mar 10, 1993
Lowest daily mean	3,210	Aug 18	237.0	Aug 17, 2012
Annual 7-day minimum	3,537	Aug 17	308.1	Aug 01, 2012
Maximum peak flow	43,900[a]	Jun 19	130,000[b,a,c]	Mar 10, 1993
Maximum peak stage	19.35	Jun 19	23.05[d]	Feb 20, 1997
Annual runoff (cfsm)	0.119		0.083	
Annual runoff (inches)	1.62		1.12	
10 percent exceeds	17,900		11,600	
50 percent exceeds	8,135		5,790	
90 percent exceeds	4,784		2,280	

[a] Discharge affected by Regulation or Diversion
[b] Discharge is an Estimate
[c] Discharge due to Snowmelt, Hurricane, Ice-Jam or Debris Dam breakup
[d] Gage height affected by backwater



USGS Water-Year Summary 2016

06804700 Wahoo Creek at Ashland, Nebr.

LOCATION - Lat 41°03'13", long 96°22'04" referenced to North American Datum of 1983, in SW 1/4 NW 1/4 sec.36, T.13 N., R.9 E., Saunders County, NE, Hydrologic Unit 10200203, at right downstream side of bridge on State Highway 63, 1 mi north of Ashland, and at mile 2.6.

DRAINAGE AREA - 416 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - September 1990 to current year.

REVISED RECORDS - WDR NE-99-1: Datum.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,048.77 ft above sea level.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records fair to good except for estimated daily discharges, which are poor, unless otherwise noted.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 7,000 ft³/s, July 29, 2006, maximum peak flow was a maximum daily average, gage height, 20.50 ft.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [September 24, 2017],
at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93557&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06804700&agency_cd=USGS

Water-Data Report 2016

06804700 Wahoo Creek at Ashland, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
1	130	110	126	188	392	215	170	1,670	466	224	189	171
2	119	107	122	176	299	194	157	872	438	264	235	154
3	110	102	117	172	e203	198	152	570	344	2,300	363	146
4	106	101	113	167	e156	197	147	470	463	1,100	227	149
5	105	105	117	163	e173	191	143	413	297	484	201	157
6	104	107	130	167	e174	189	142	379	276	529	173	149
7	105	99.5	124	175	e168	183	155	357	271	913	165	167
8	105	97.0	119	200	e166	190	157	342	270	582	161	168
9	105	96.9	120	e191	e152	186	137	445	268	351	160	154
10	98.1	100	117	e170	e136	171	134	938	260	319	160	292
11	97.3	107	116	e176	e124	170	137	2,160	249	e303	166	235
12	98.9	192	114	e188	e109	168	134	2,730	241	e334	571	159
13	100	177	349	e207	e123	175	131	1,210	236	383	553	612
14	87.8	120	3,550	e190	e127	179	132	713	345	272	210	589
15	89.1	113	2,650	e145	e147	195	132	536	812	245	174	229
16	94.1	112	621	e152	e220	209	132	479	449	241	166	479
17	88.3	141	374	e151	356	175	133	483	e409	239	219	1,240
18	88.4	291	281	e151	530	166	155	446	e1,970	232	173	408
19	91.2	202	236	e151	979	159	226	406	e1,450	218	157	273
20	91.7	140	224	e151	851	159	739	385	e551	222	172	225
21	96.2	139	229	e151	491	152	2,450	373	618	208	158	200
22	102	115	204	e146	362	159	759	362	762	196	143	190
23	98.5	117	310	e137	320	164	457	352	425	184	140	184
24	110	117	537	e138	290	193	398	1,130	343	e180	e1,050	174
25	105	115	304	e140	269	150	571	701	380	e173	e708	206
26	93.0	124	249	e139	252	138	382	435	371	169	260	264
27	92.6	136	245	e130	242	184	796	646	353	164	198	180
28	97.2	113	202	e133	239	176	1,120	e1,940	245	163	179	164
29	106	101	e201	e157	242	168	603	e1,540	222	161	167	156
30	89.6	111	187	e177		166	730	604	298	156	177	147
31	97.8		188	256		169		507		158	248	
Total	3,101	3,808	12,580	5,135	8,292	5,488	11,810	24,590	14,080	11,670	8,023	8,021
Mean	100	127	406	166	286	177	394	793	469	376	259	267
Max	130	291	3550	256	979	215	2450	2730	1970	2300	1050	1240
Min	87.8	96.9	113	130	109	138	131	342	222	156	140	146
Ac-ft	6,152	7,554	24,940	10,180	16,450	10,890	23,430	48,780	27,930	23,140	15,910	15,910

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2016, BY WATER YEAR (WY)

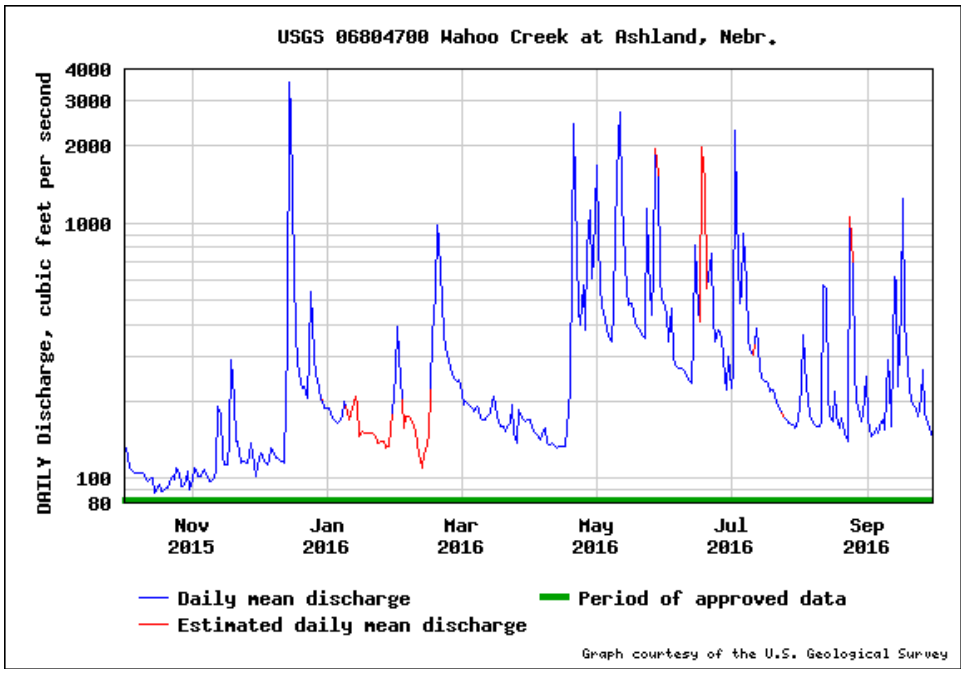
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	78.8	69.2	75.7	67.6	105	135	130	247	336	182	136	96.5
Max	285	127	406	166	286	581	394	793	1,031	1,032	481	321
(WY)	(2009)	(2016)	(2016)	(2016)	(2016)	(1993)	(2016)	(2016)	(1991)	(1993)	(2007)	(2006)
Min	28.7	33.9	36.6	36.3	36.3	46.9	47.3	60.3	34.6	26.1	22.6	28.0
(WY)	(2005)	(2006)	(2003)	(2005)	(2003)	(2003)	(2004)	(2006)	(2006)	(2006)	(2003)	(1990)

Water-Data Report 2016
06804700 Wahoo Creek at Ashland, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 1990 - 2016	
Annual total	116,600			
Annual mean	318.6		138.5	
Highest annual mean			319.0	2016
Lowest annual mean			49.9	2003
Highest daily mean	3,550	Dec 14	7,000	Jun 15, 1991
Lowest daily mean	87.8	Oct 14	16.6	Jul 29, 2006
Annual 7-day minimum	90.1	Oct 14	17.9	Jul 29, 2006
Maximum peak flow			7,000[a]	Jun 15, 1991
Maximum peak stage			20.48	May 08, 2015
Annual runoff (cfsm)	0.766		0.332	
Annual runoff (inches)	10.4		4.51	
10 percent exceeds	603.3		221.0	
50 percent exceeds	183.5		75.0	
90 percent exceeds	107.0		36.4	

[a] Discharge is a Maximum Daily Average



USGS Water-Year Summary 2016

06804000 Wahoo Creek at Ithaca, Nebr.

LOCATION - Lat 41°08'51", long 96°32'16" referenced to North American Datum of 1983, in NW 1/4 NW 1/4 sec.33, T.14 N., R.8 E., Saunders County, NE, Hydrologic Unit 10200203, on right bank downstream from bridge on State Highway 63, 0.8 mi south of Ithaca, and at mile 20.3.

DRAINAGE AREA - 273 mi² of which 5 mi² probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD - October 1949 to current year.

REVISED RECORDS - WDR NE-78-1: 1977(P). WDR NE-94-1: Drainage area.

GAGE - Water-stage recorder with satellite telemetry. Datum of gage is 1,110.48 ft above sea level. Prior to Oct. 27, 1959, non-recording gages at same site and datum. Oct. 28, 1959 to Feb. 22, 1961, non-recording gage at site 1.5 mi upstream at datum 8.21 ft higher.

REMARKS - Accuracy of records for water years prior to 2014 are noted in the individual Annual Data Reports for those water years. For water years 2014 onward, records good except for estimated daily discharges, which are poor, unless otherwise noted.

EXTREMES FOR PERIOD OF RECORD - Maximum peak flow, 77,400 ft³/s, June 24, 1963, from rating curve extended above 13,000 ft³/s on basis of indirect measurement of peak flow, gage height, 22.93 ft.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2017, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [September 24, 2017], at URL //nwis.waterdata.usgs.gov/nwis/wys_rpt?dv_ts_ids=&93555&adr_begin_date=2015-10-01&adr_end_date=2016-09-30&site_no=06804000&agency_cd=USGS

Water-Data Report 2016

06804000 Wahoo Creek at Ithaca, Nebr. -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES

[e, Value has been estimated.]

Day	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
1	81.2	70.0	92.0	130	332	150	122	1,210	432	145	141	86.9
2	e72.5	65.8	87.6	130	211	130	113	673	380	616	233	76.6
3	e69.7	63.7	81.8	128	126	144	105	461	257	2,050	264	72.1
4	e66.9	62.1	79.2	125	e102	135	104	387	244	591	140	81.3
5	e66.9	65.2	90.5	123	e98.5	137	96.1	334	228	373	118	86.5
6	66.7	64.9	95.0	126	e91.8	132	109	309	223	741	100	75.4
7	68.2	60.2	85.9	131	e98.5	137	118	291	223	611	95.3	82.3
8	67.6	58.5	85.0	147	e91.8	137	101	278	223	422	95.1	76.1
9	66.9	e53.0	83.6	127	e81.7	127	90.9	443	220	273	94.2	76.7
10	61.0	e63.0	82.7	e115	e96.2	121	93.8	437	211	261	91.8	280
11	61.8	77.7	78.5	e110	e89.5	119	93.9	4,510	202	219	86.7	103
12	66.3	155	80.4	e111	e86.1	118	90.0	2,600	195	240	733	78.7
13	58.3	92.1	223	116	e79.3	127	90.1	875	189	202	239	931
14	55.1	76.0	2,660	121	e93.2	130	90.7	604	539	182	114	269
15	56.5	72.6	880	124	124	155	89.6	497	771	166	96.2	150
16	58.3	71.5	325	e111	156	147	88.8	452	387	169	117	868
17	54.2	135	227	e101	281	123	89.3	463	341	167	134	891
18	55.6	186	189	e108	394	118	125	412	2,250	160	92.4	290
19	55.0	120	165	e111	779	112	173	382	926	155	87.9	197
20	57.3	89.3	172	111	607	110	1,270	359	444	159	102	154
21	63.2	91.0	166	111	335	108	1,590	345	578	146	80.8	136
22	59.0	76.6	148	110	261	116	533	328	547	137	74.1	128
23	62.5	79.8	243	110	230	131	365	323	321	129	72.2	124
24	75.0	79.0	323	111	207	142	333	1,070	292	126	481	111
25	59.7	78.9	190	113	192	83.8	495	421	338	117	262	185
26	58.1	92.8	172	112	177	108	308	345	322	112	119	164
27	60.0	91.6	163	104	172	143	1,000	450	265	108	100	116
28	68.3	69.5	131	113	190	128	810	2,080	161	107	92.3	e112
29	60.6	70.5	132	117	146	123	442	769	153	102	85.7	e110
30	55.6	83.0	144	137		122	973	541	158	97.5	144	e97.7
31	65.7		134	189		130		469		107	117	
Total	1,954	2,514	7,809	3,733	5,929	3,943	10,100	23,120	12,020	9,191	4,803	6,209
Mean	63.0	83.8	252	120	204	127	337	746	401	296	155	207
Max	81.2	186	2660	189	779	155	1590	4510	2250	2050	733	931
Min	54.2	53.0	78.5	101	79.3	83.8	88.8	278	153	97.5	72.2	72.1
Ac-ft	3,875	4,987	15,490	7,403	11,760	7,822	20,040	45,850	23,840	18,230	9,526	12,320

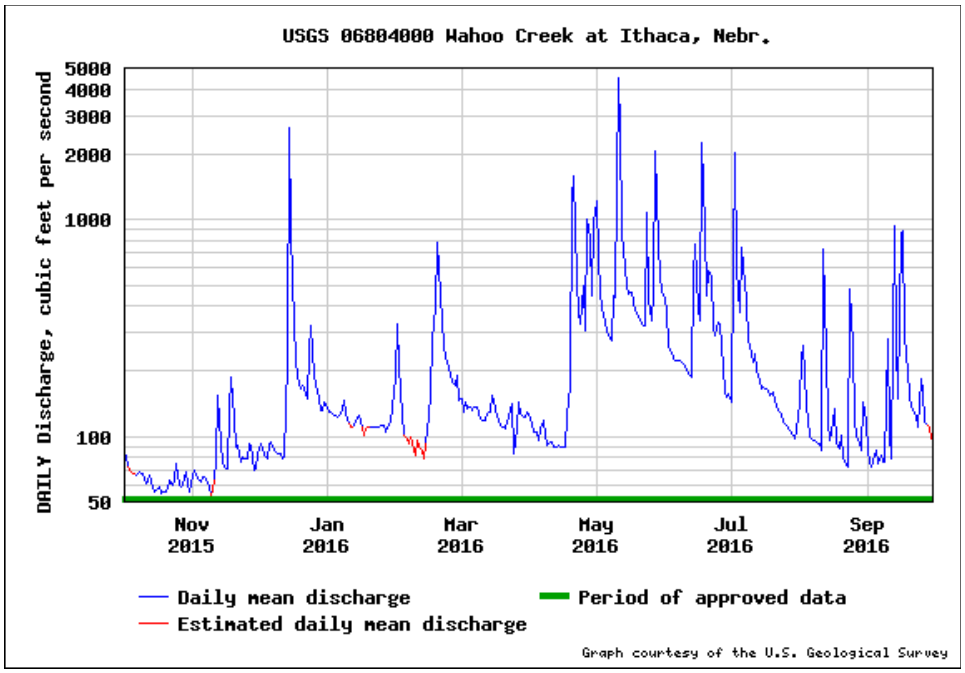
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	52.9	41.5	40.1	41.3	73.7	112	90.7	142	223	91.1	104	74.2
Max	343	110	252	125	276	518	430	746	1,051	728	640	663
(WY)	(1987)	(1987)	(2016)	(1983)	(1983)	(1979)	(1978)	(2016)	(1963)	(1993)	(1959)	(1965)
Min	8.39	11.3	10.1	10.7	13.2	16.6	19.6	16.3	18.6	10.6	9.27	6.95
(WY)	(1956)	(1956)	(1977)	(1957)	(1957)	(1957)	(1956)	(1955)	(1976)	(1956)	(1956)	(1956)

Water-Data Report 2016
06804000 Wahoo Creek at Ithaca, Nebr. -- Continued

SUMMARY STATISTICS

	Water Year 2016		Water Years 1950 - 2016	
Annual total	91,330			
Annual mean	249.5		90.4	
Highest annual mean			249.9	2016
Lowest annual mean			15.3	1956
Highest daily mean	4,510	May 11	22,100	Jun 24, 1963
Lowest daily mean	53.0	Nov 09	3.30	Jun 11, 1955
Annual 7-day minimum	56.0	Oct 14	4.39	Oct 12, 1955
Maximum peak flow			77,400	Jun 24, 1963
Maximum peak stage			23.22	Aug 02, 1959
Annual runoff (cfsm)	0.914		0.331	
Annual runoff (inches)	12.4		4.50	
10 percent exceeds	495.6		127.0	
50 percent exceeds	126.5		38.0	
90 percent exceeds	69.1		18.0	



APPENDIX B

MONITORING WELL TREND GRAPHS

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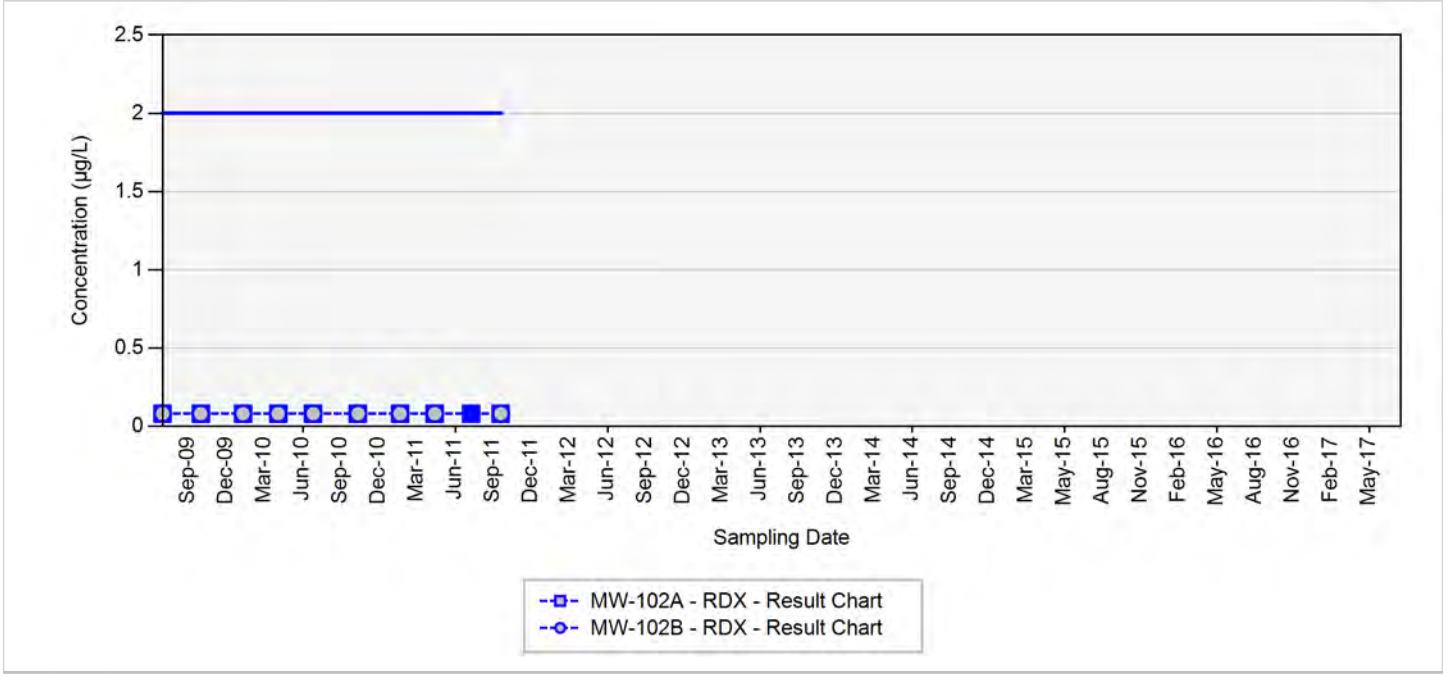
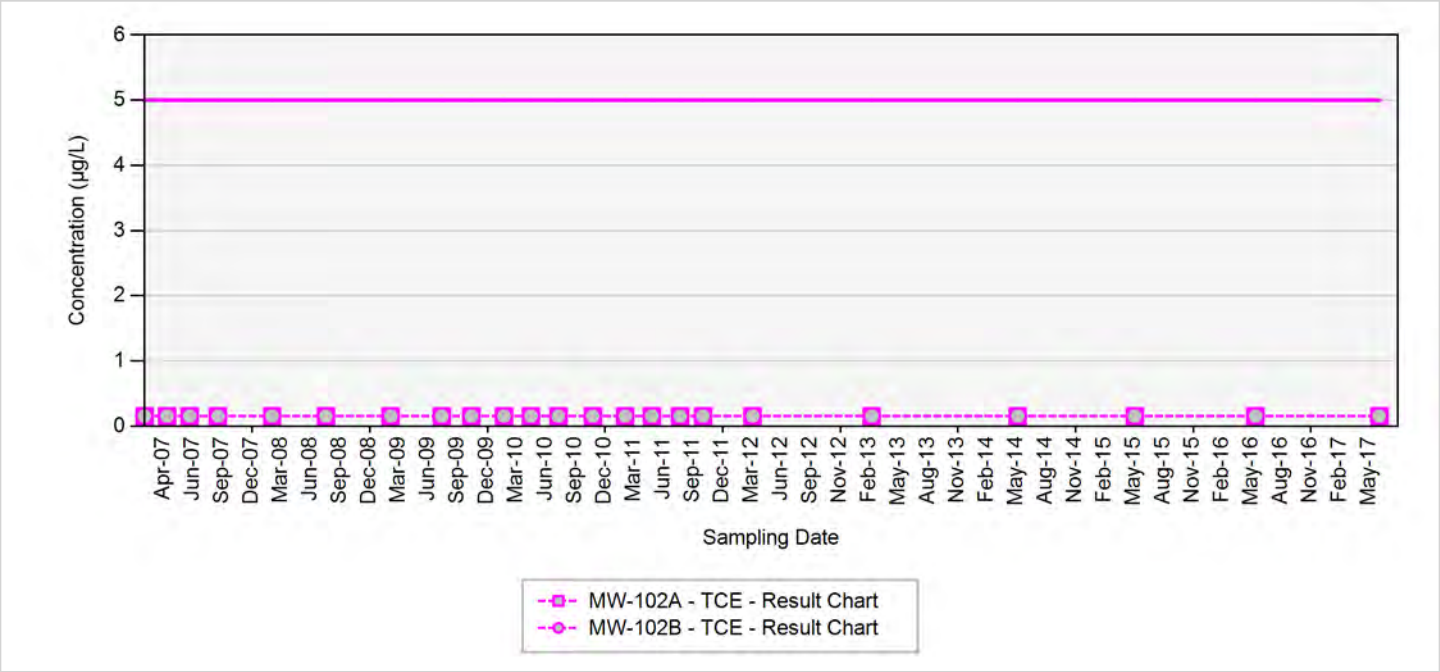
Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-102





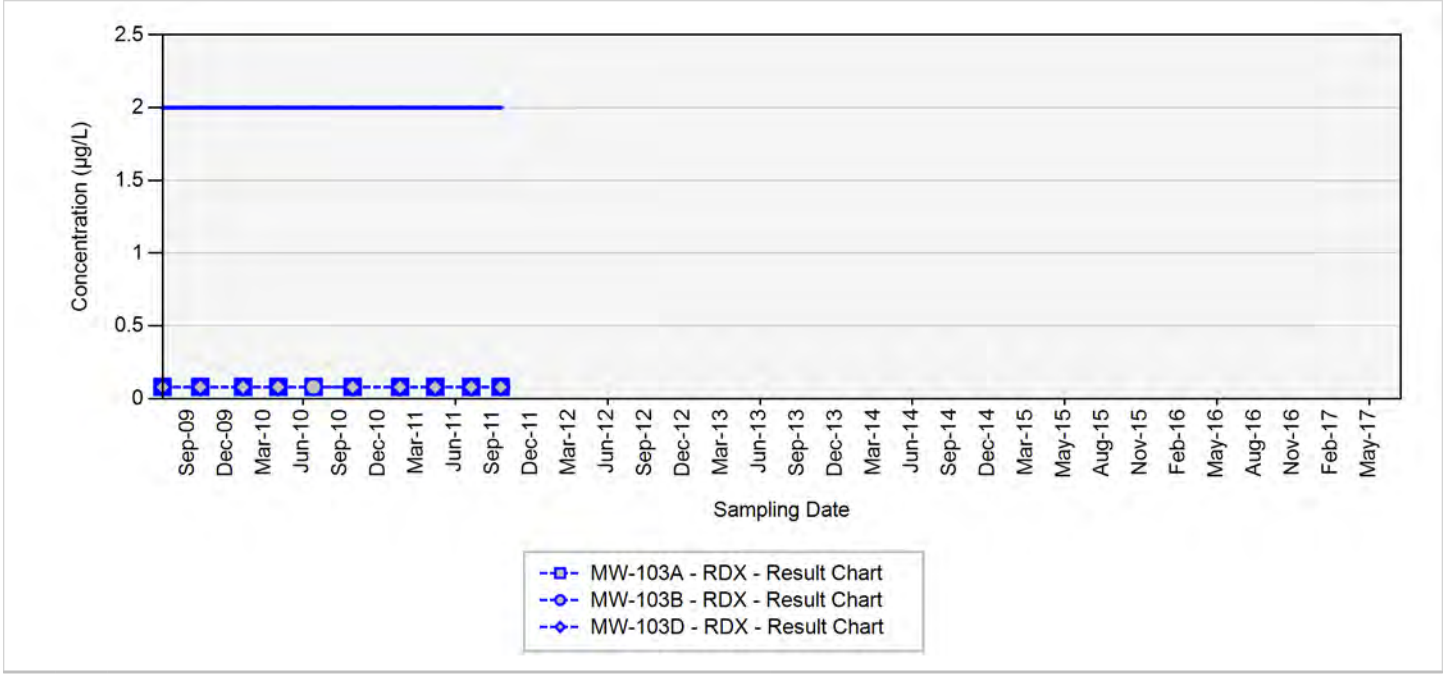
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

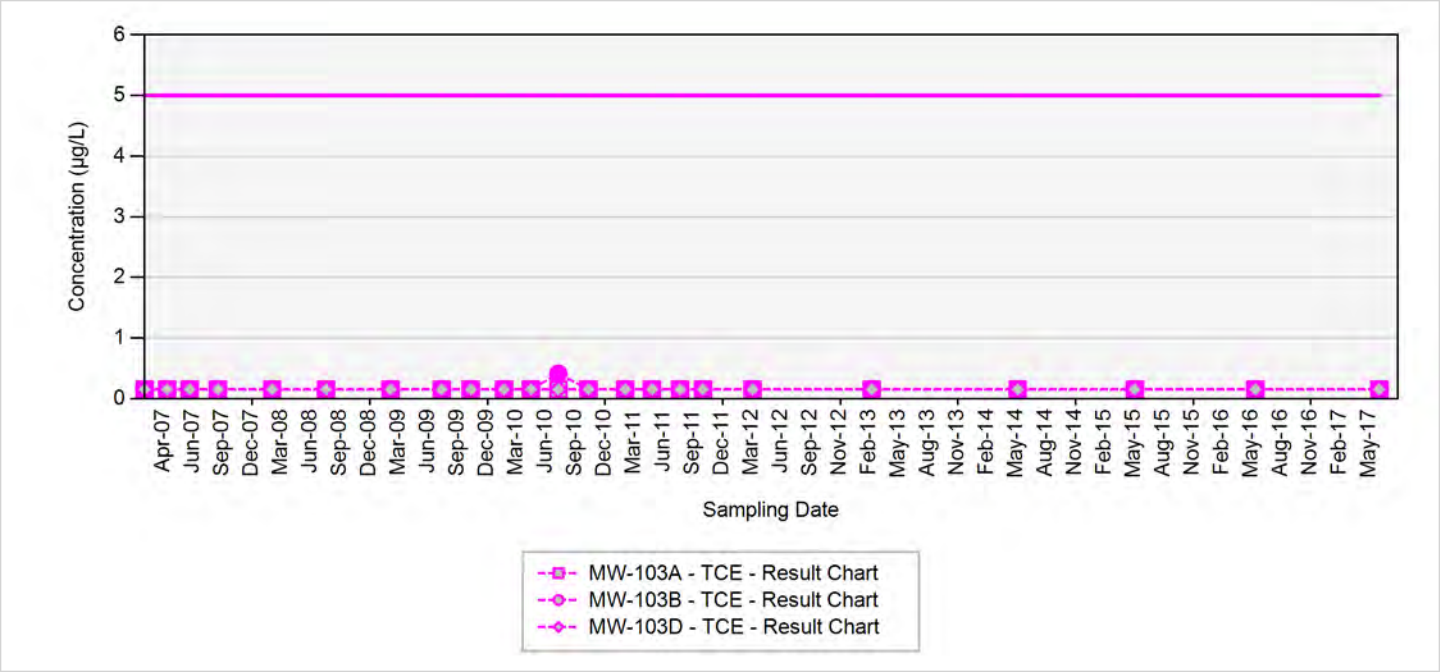
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
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
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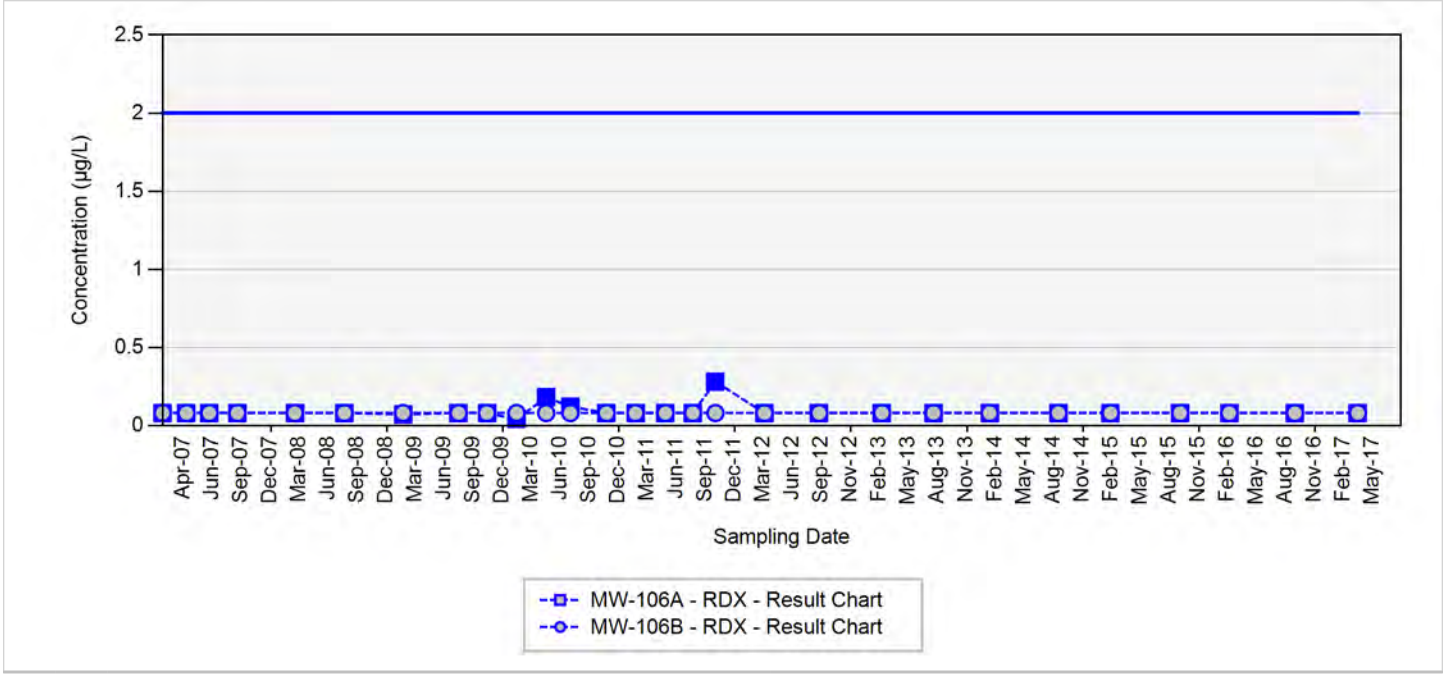
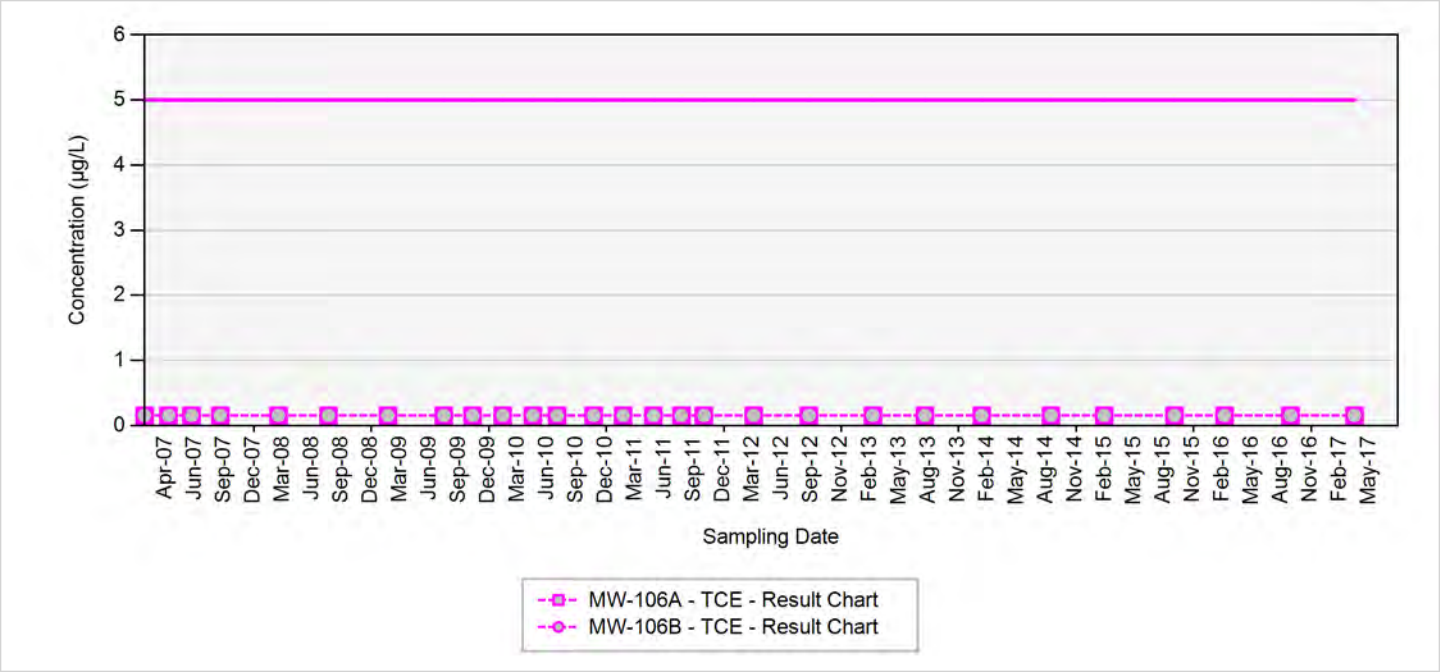
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-106





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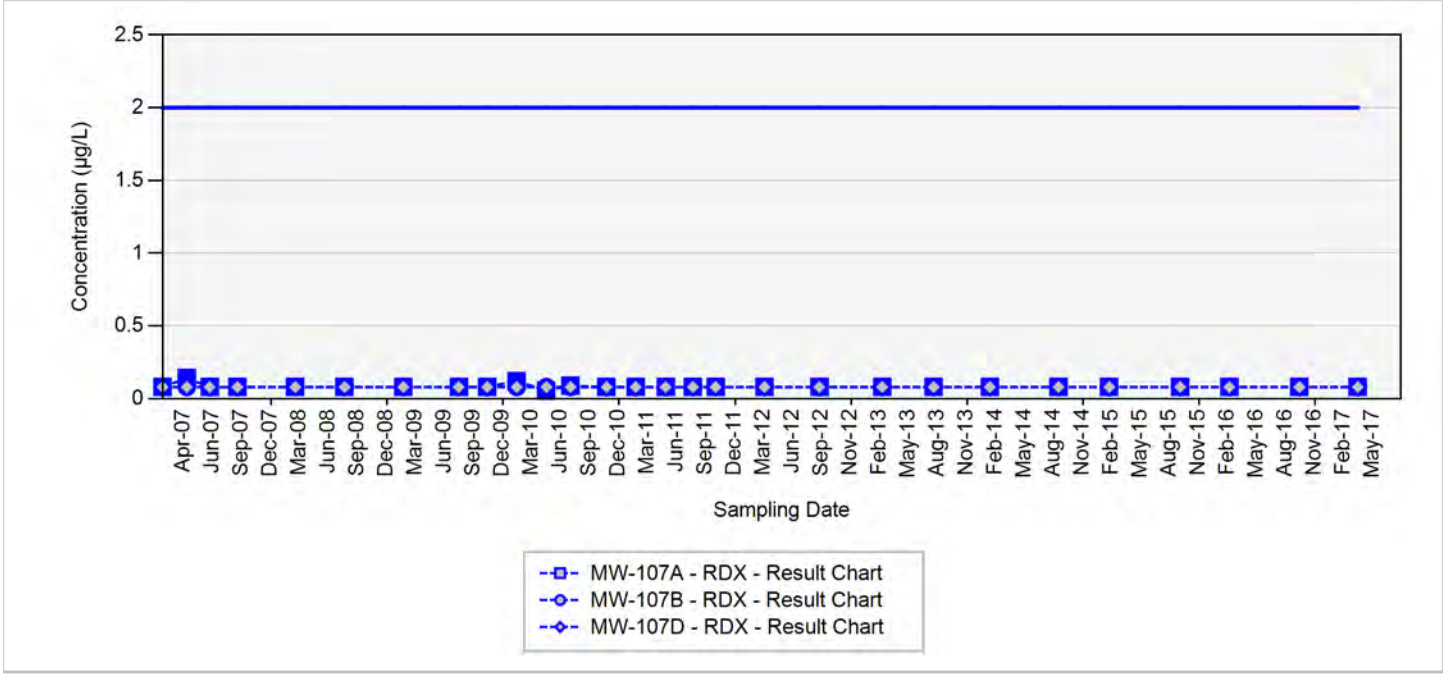
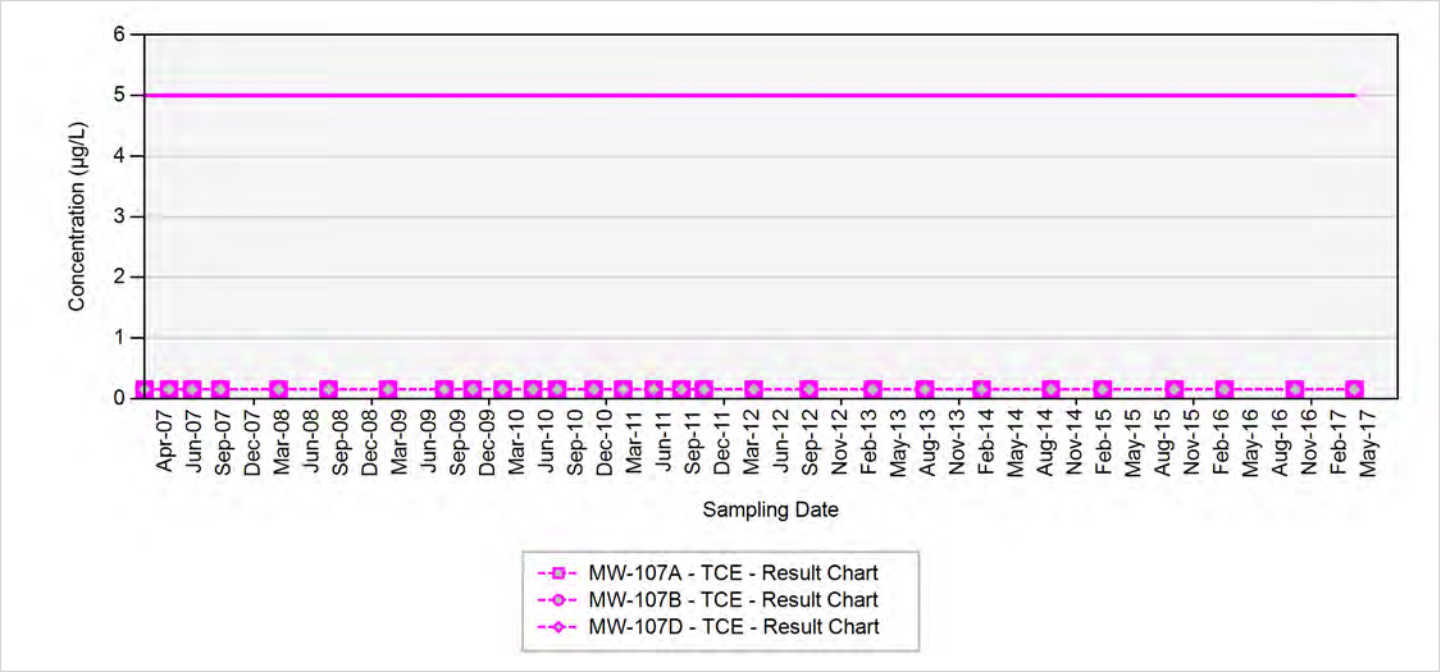
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-107





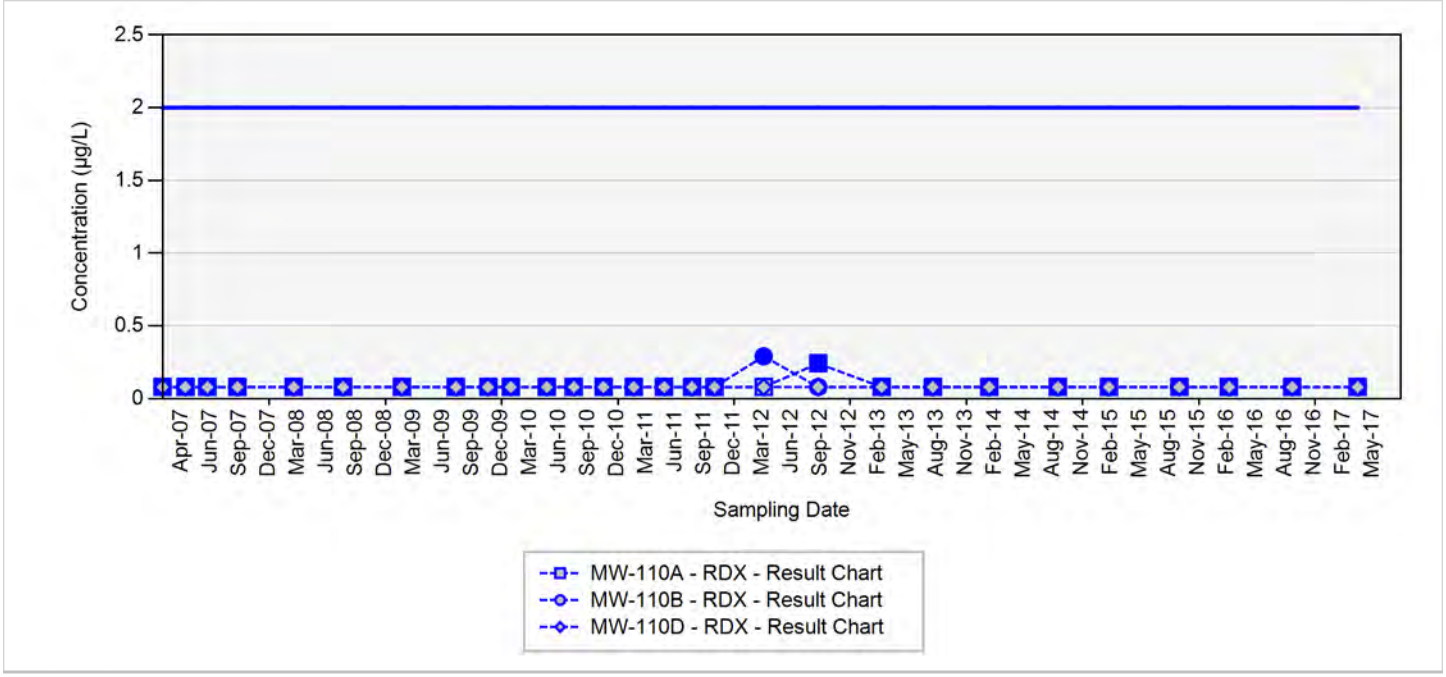
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

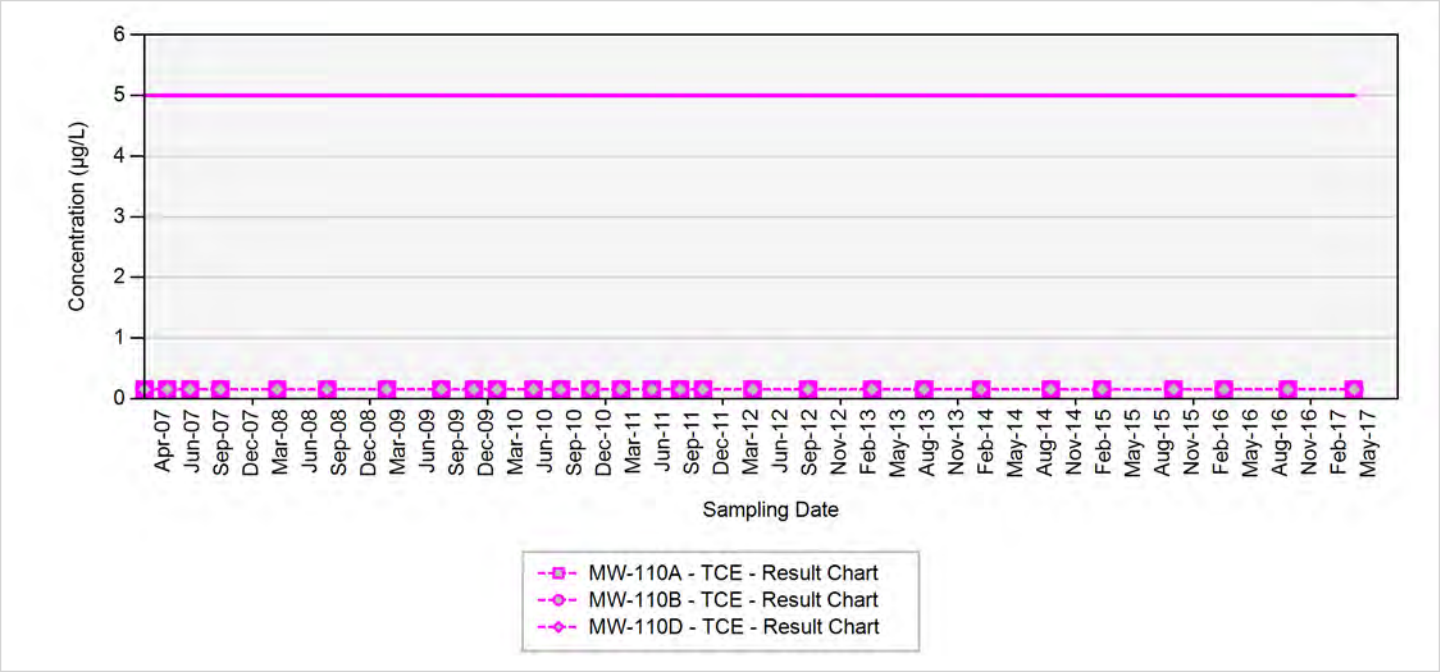
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-110





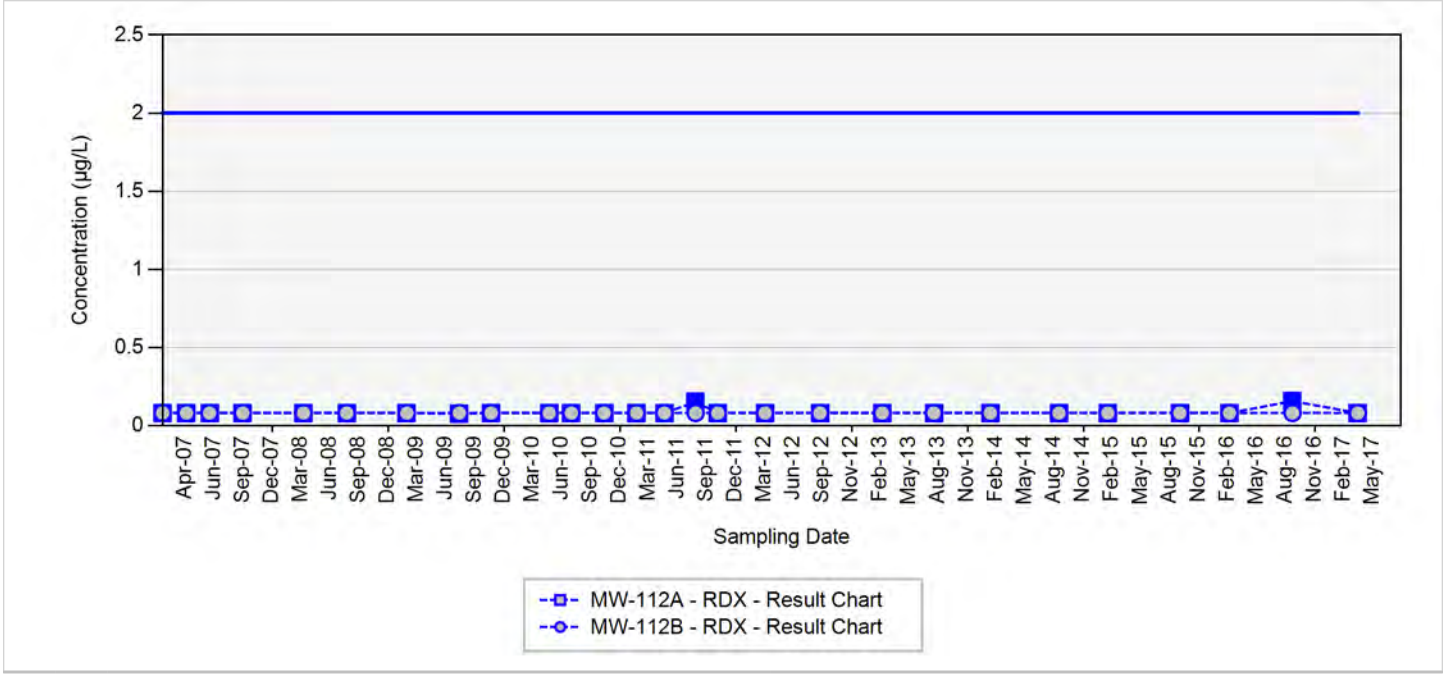
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

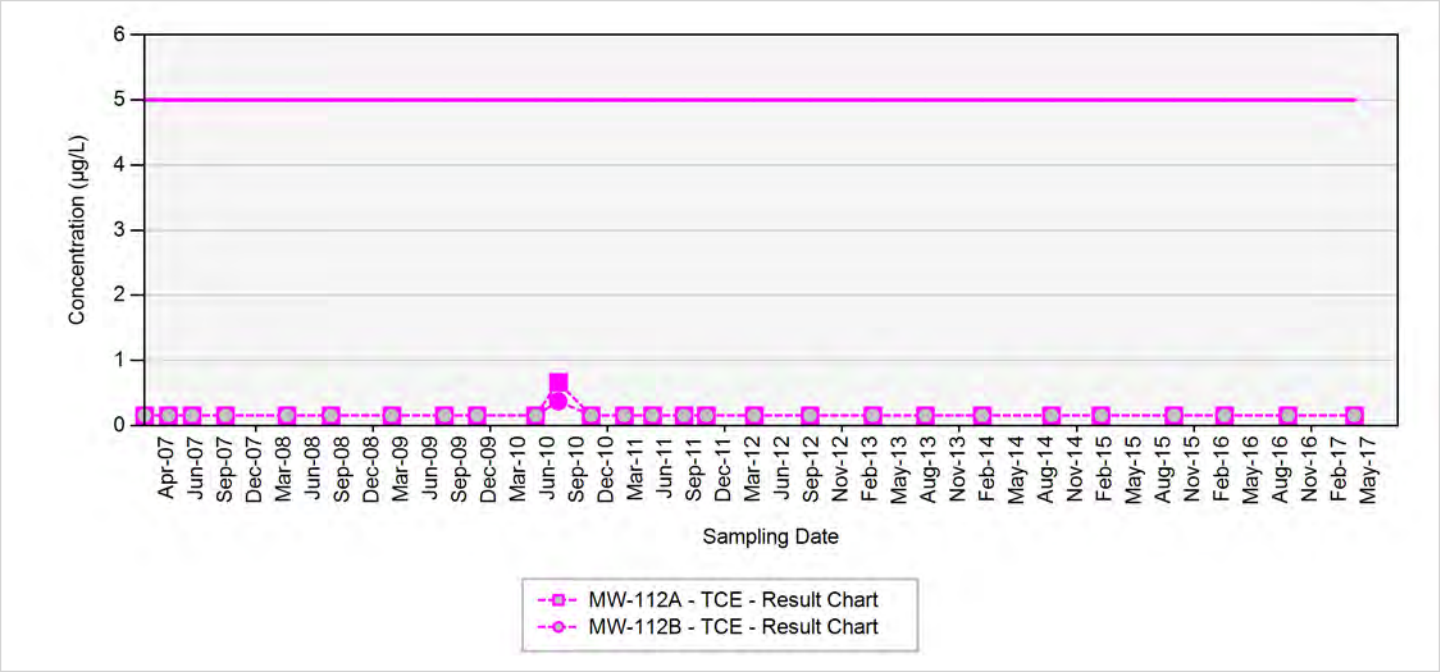
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-112





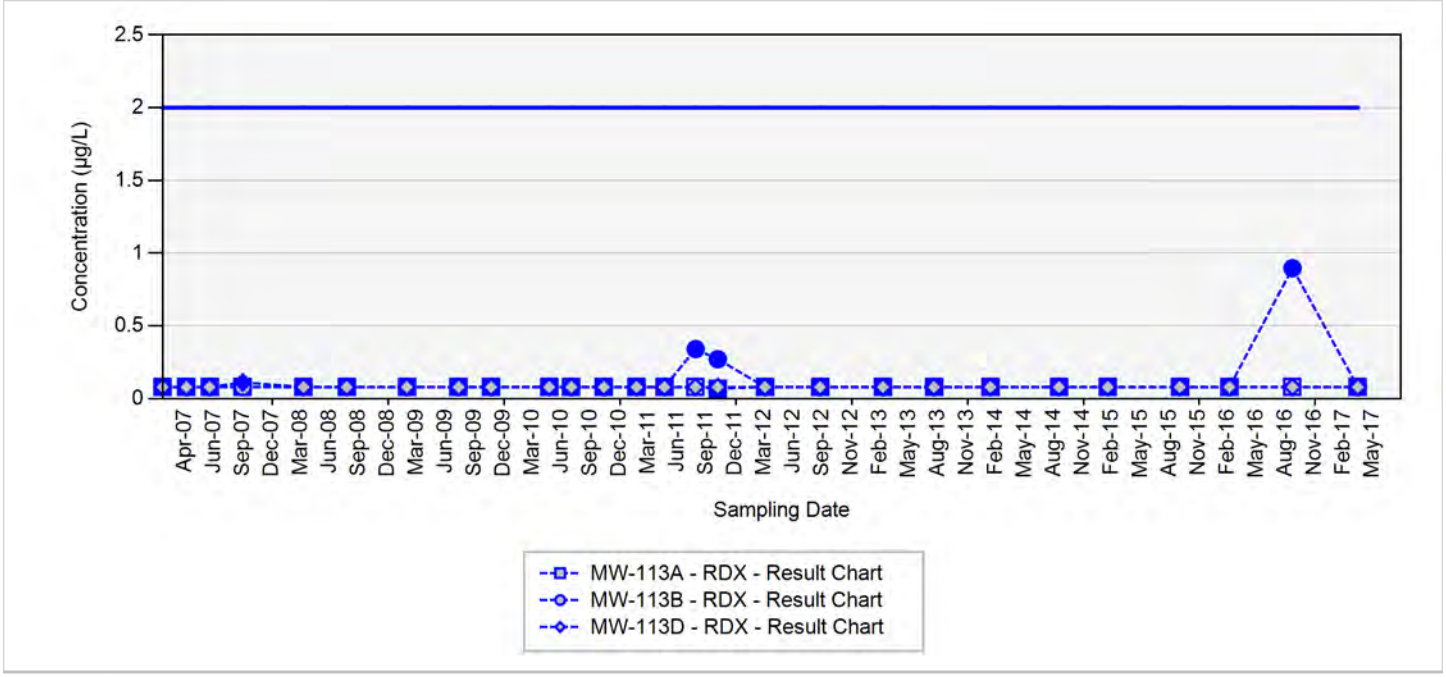
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

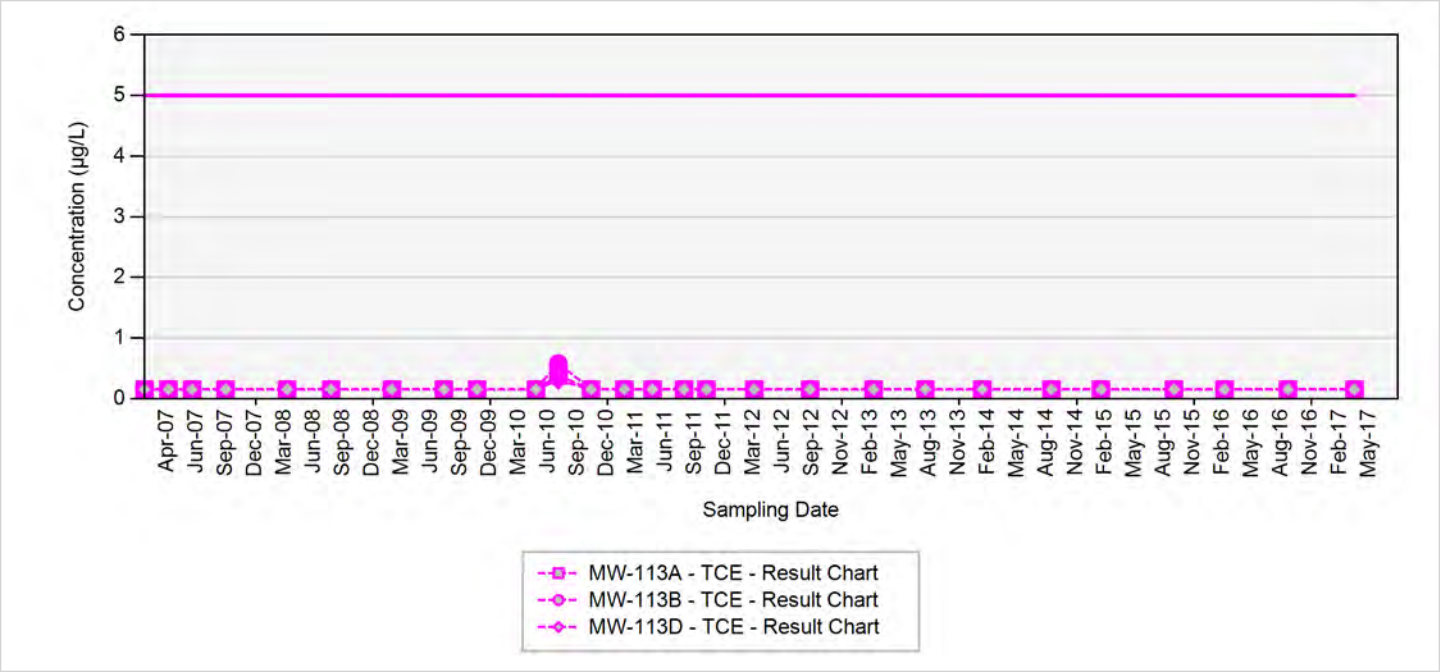
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-113





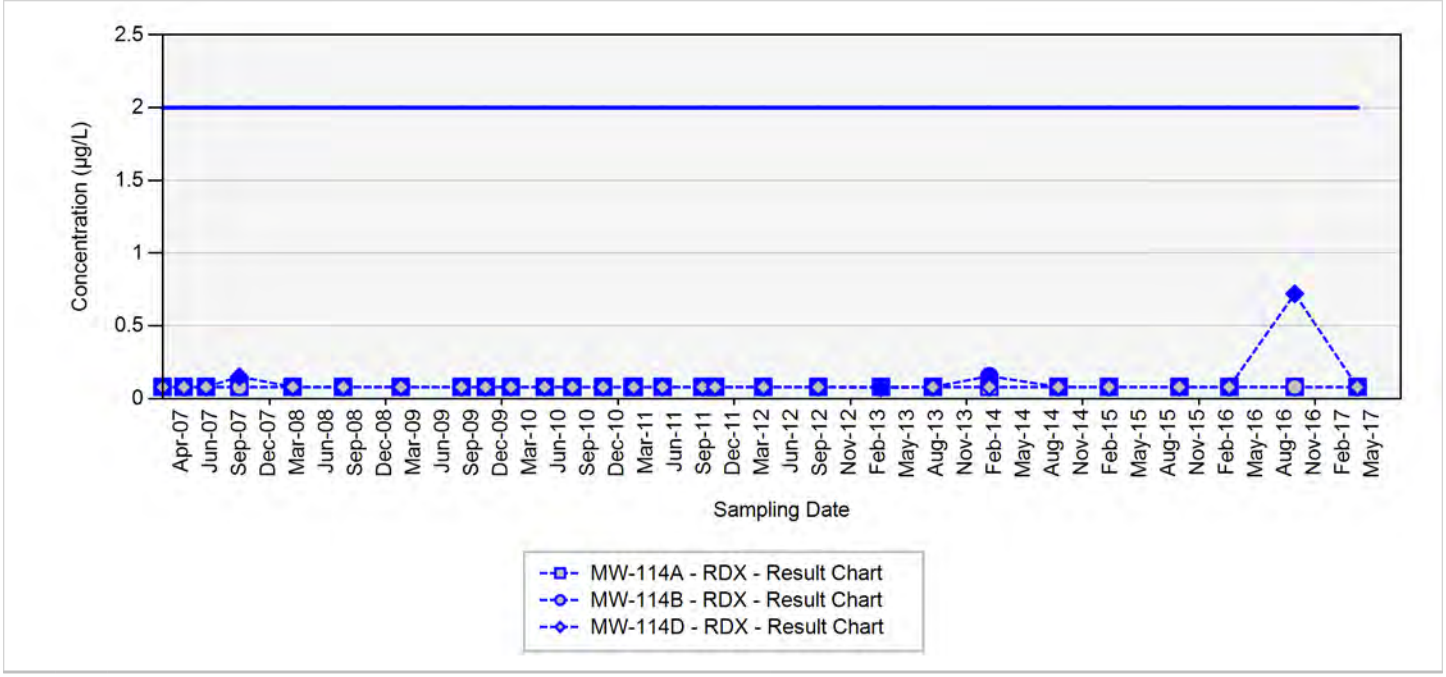
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

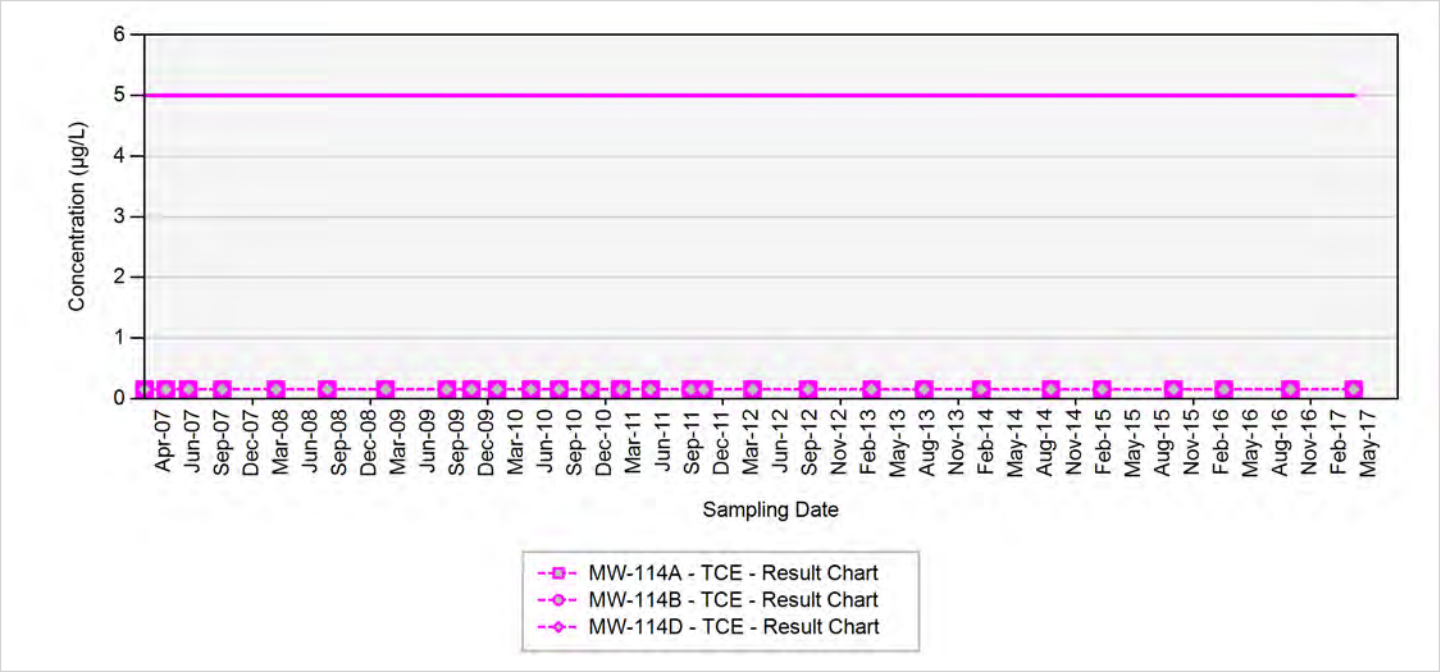
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-114





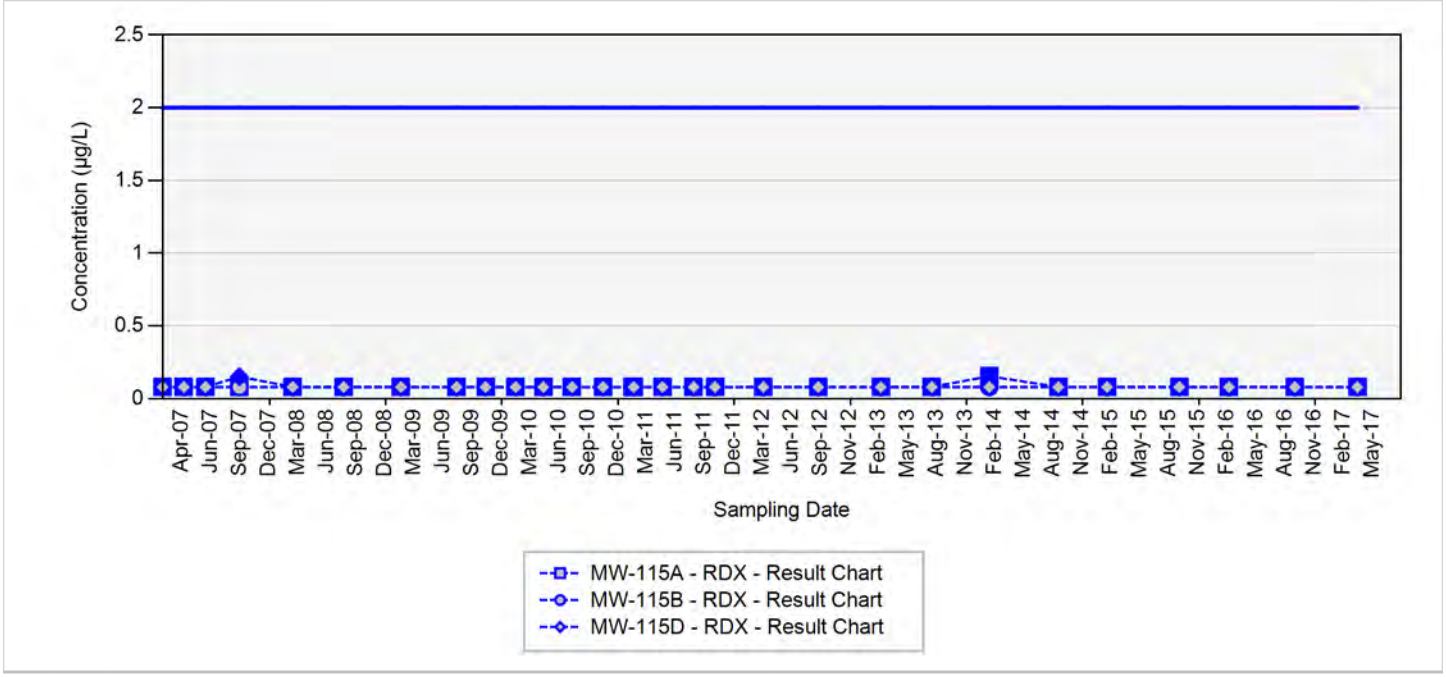
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

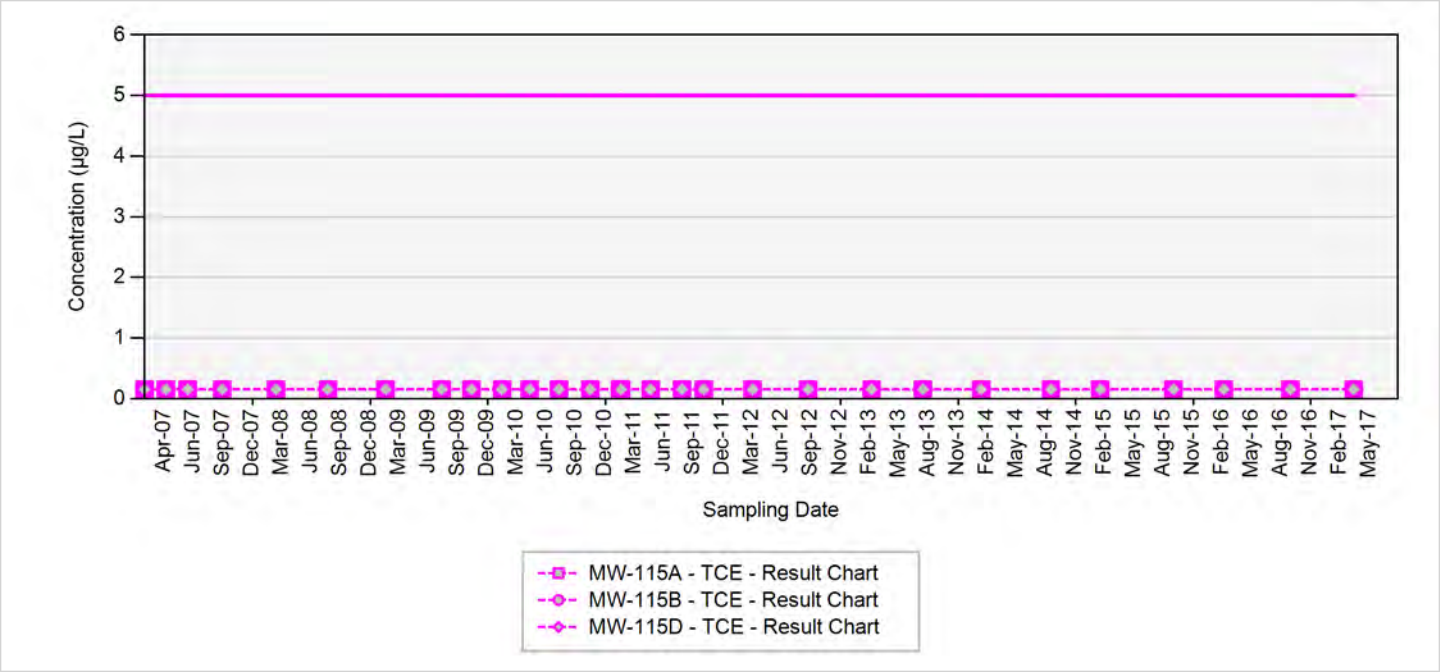
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-115





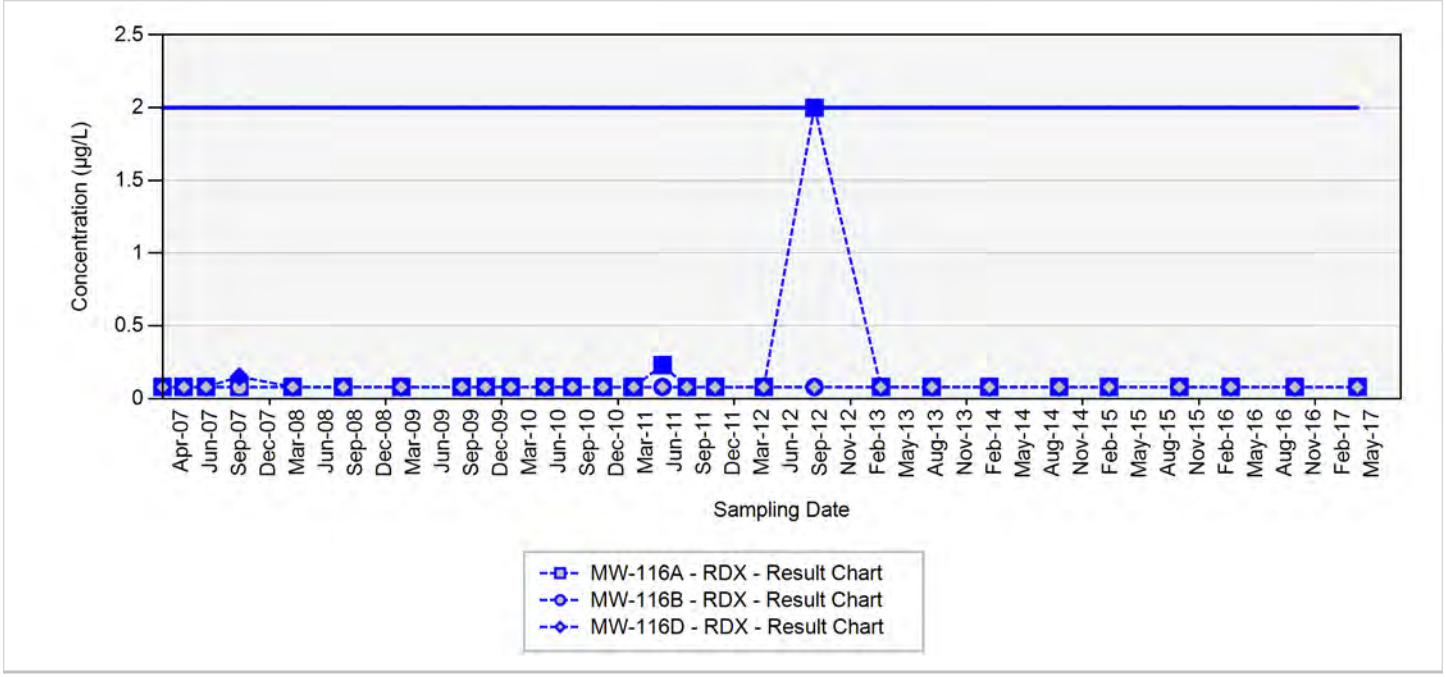
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

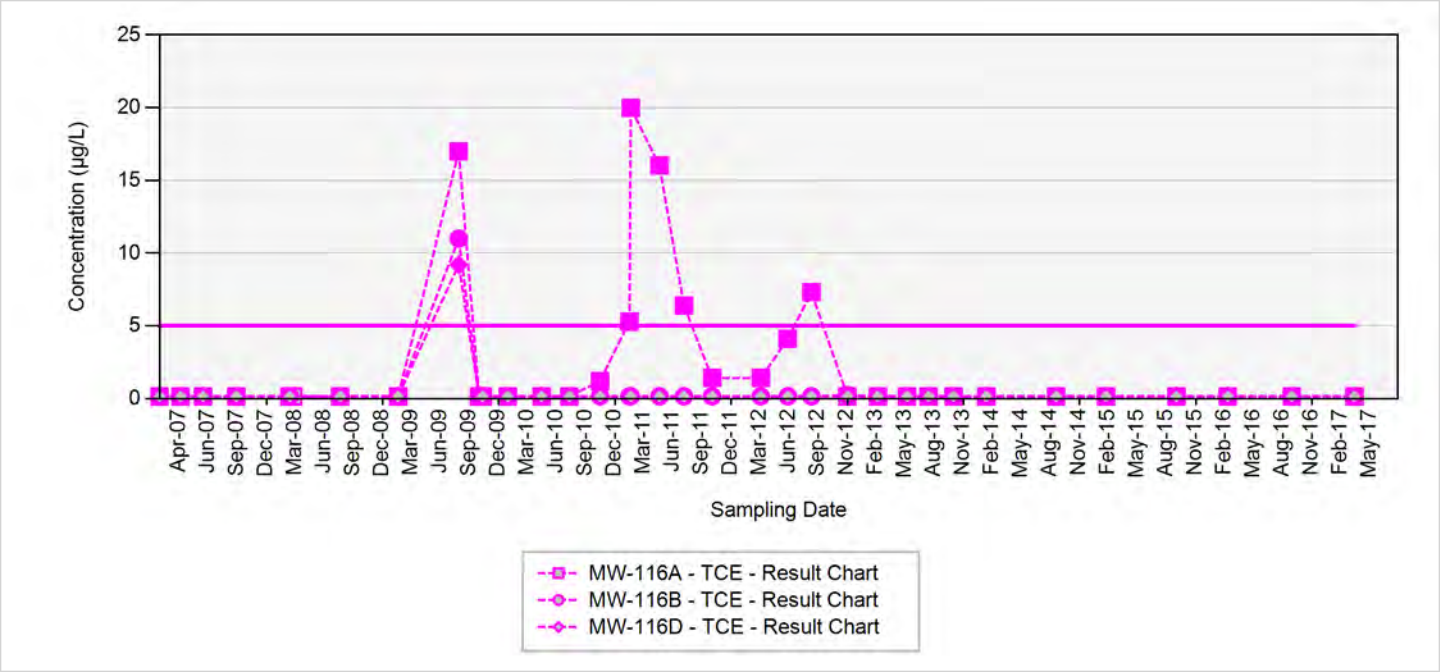
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-116





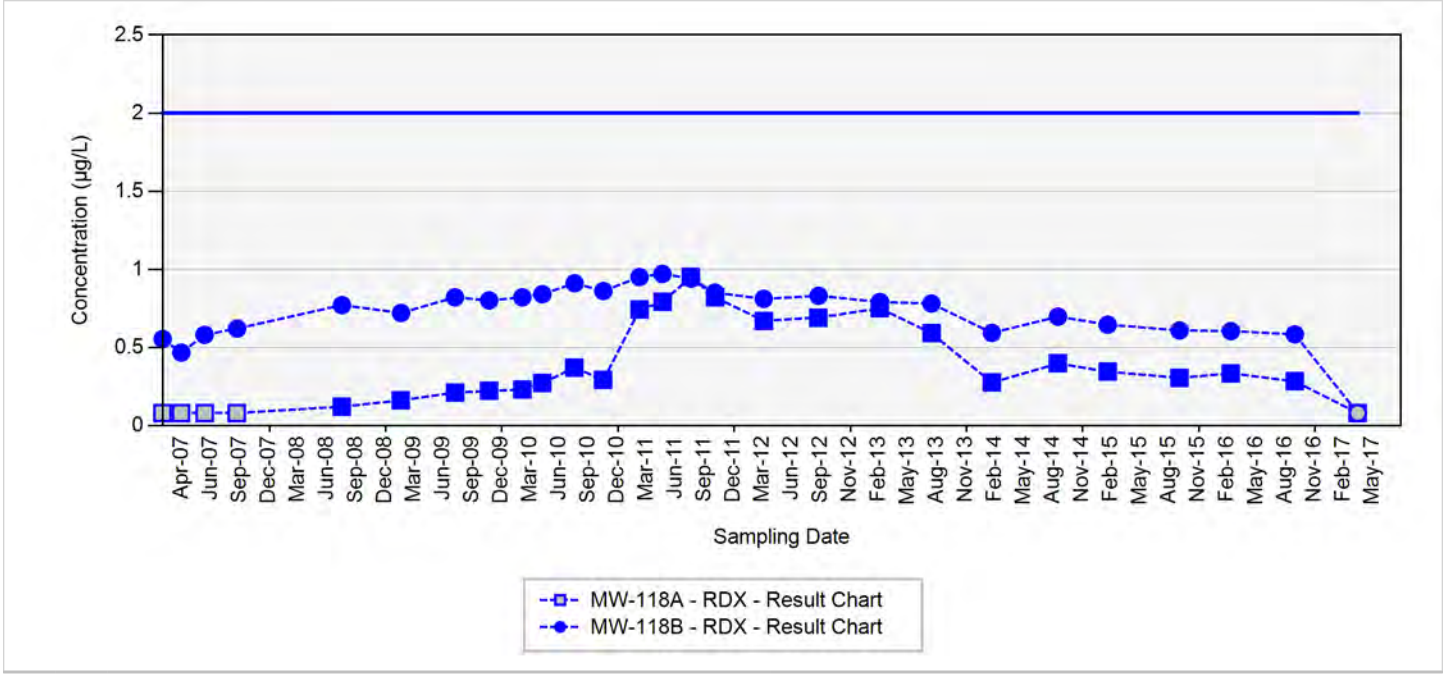
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

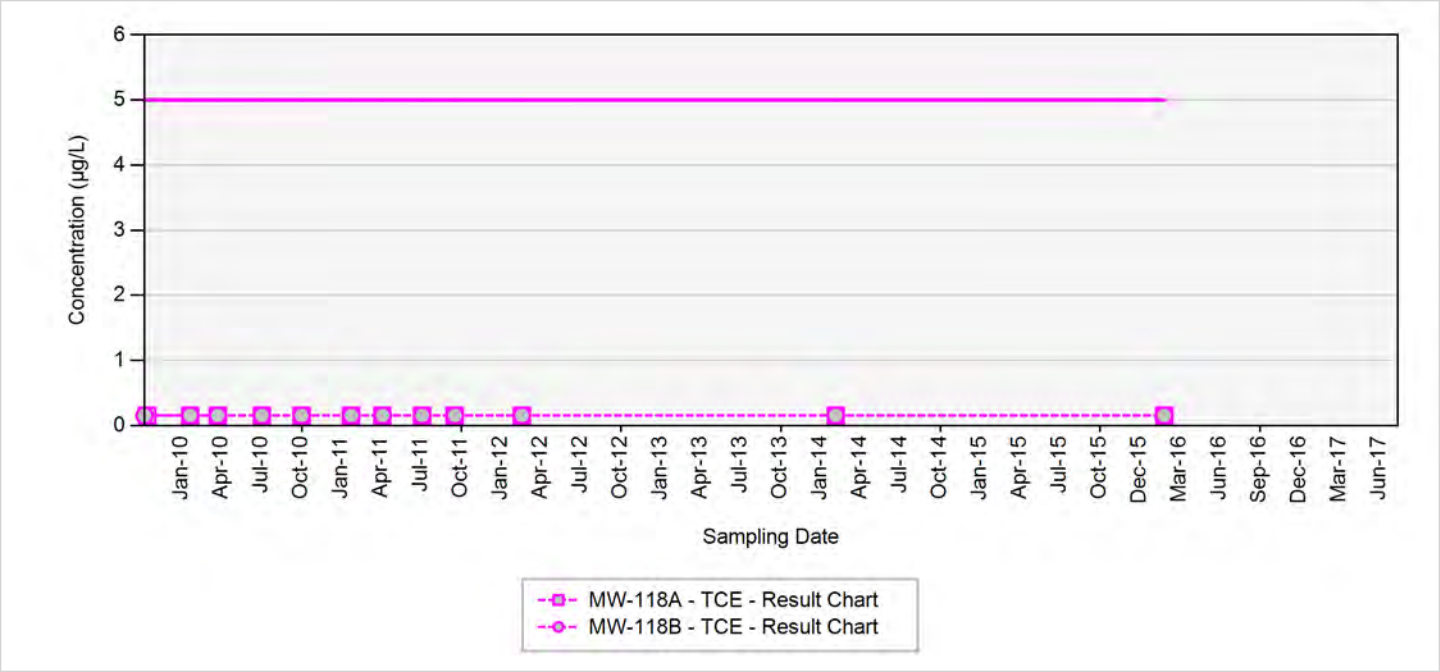
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-118





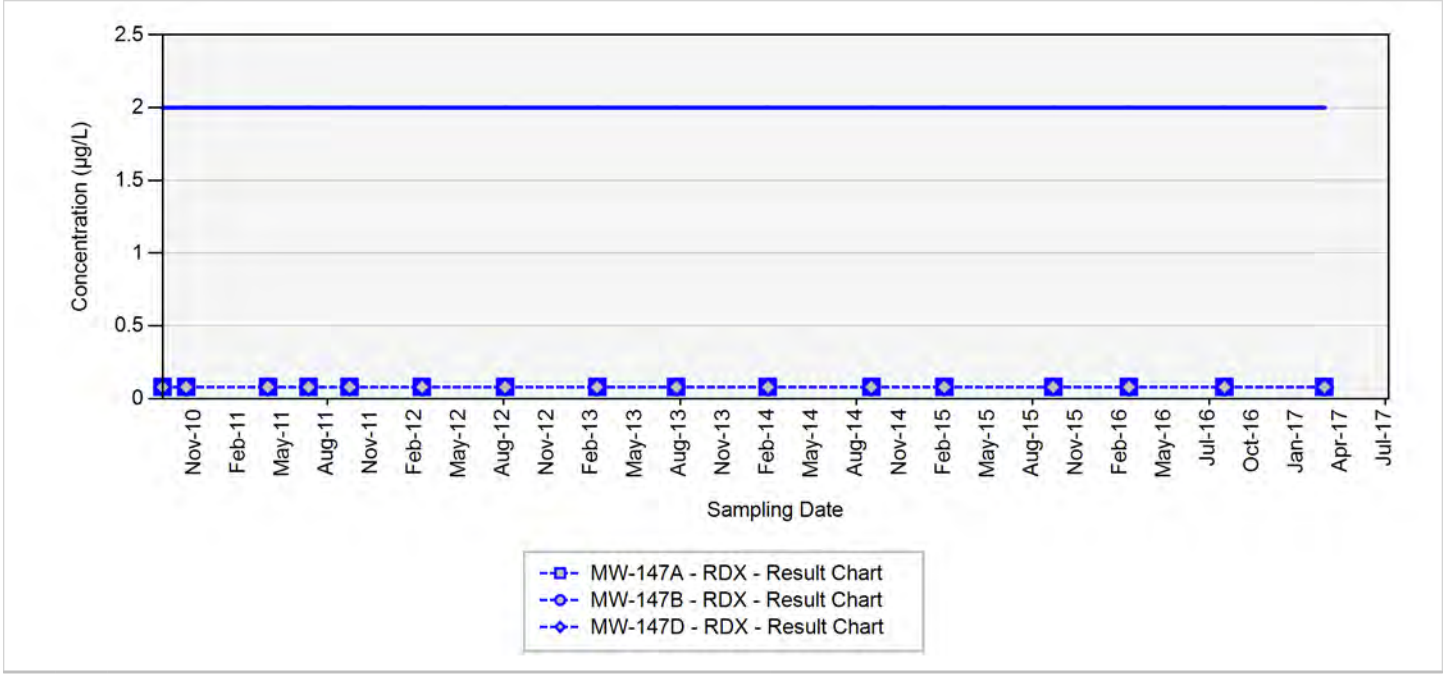
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

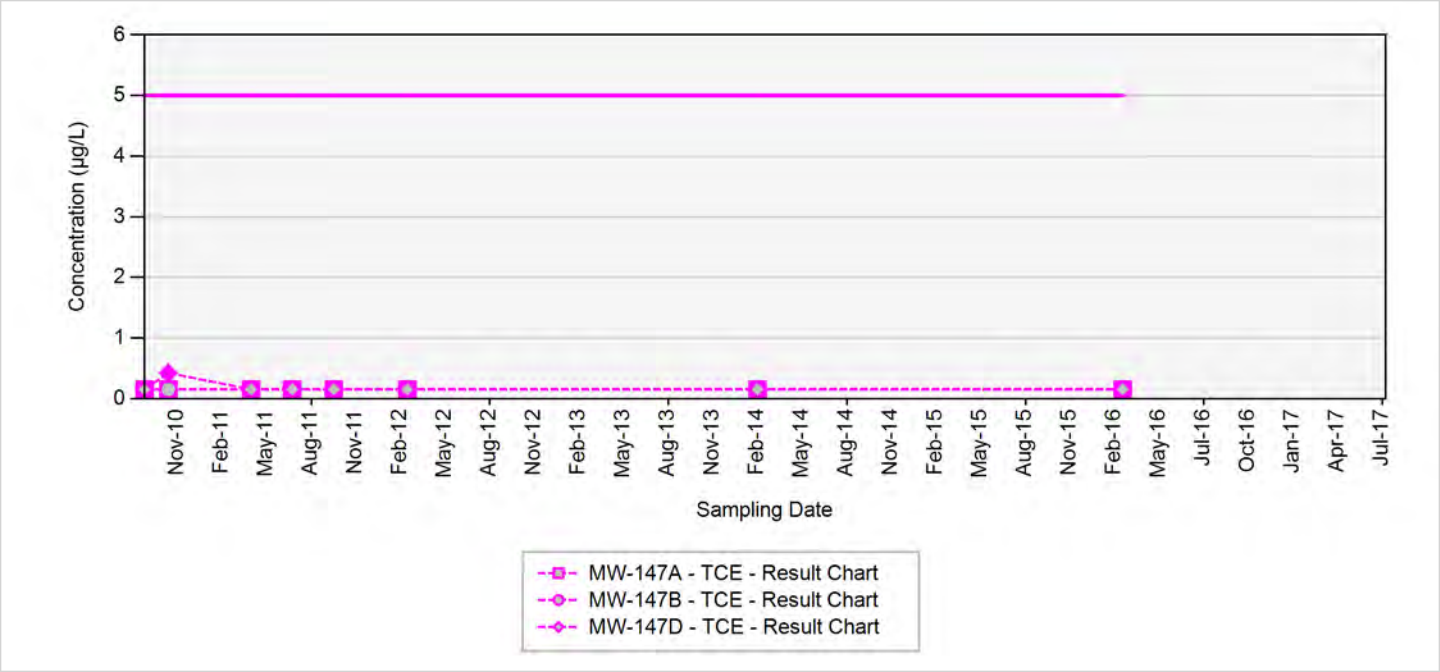
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-147





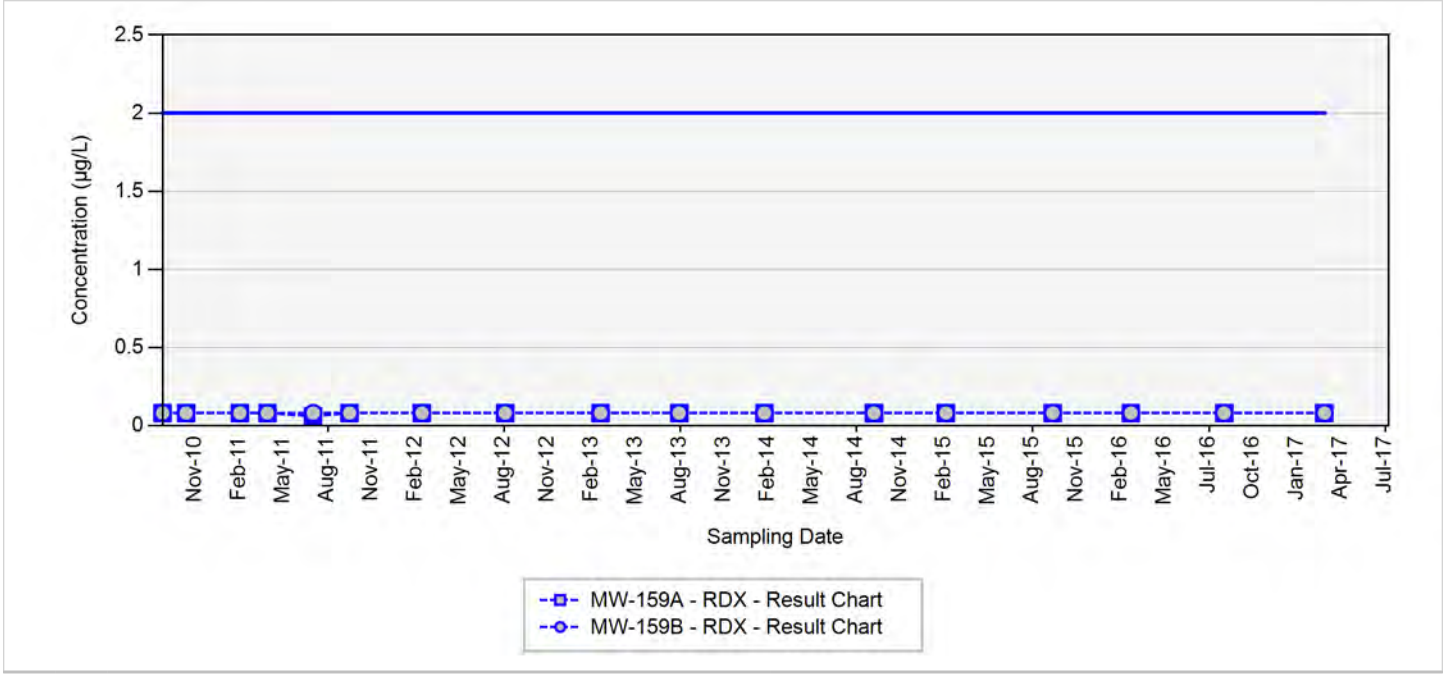
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

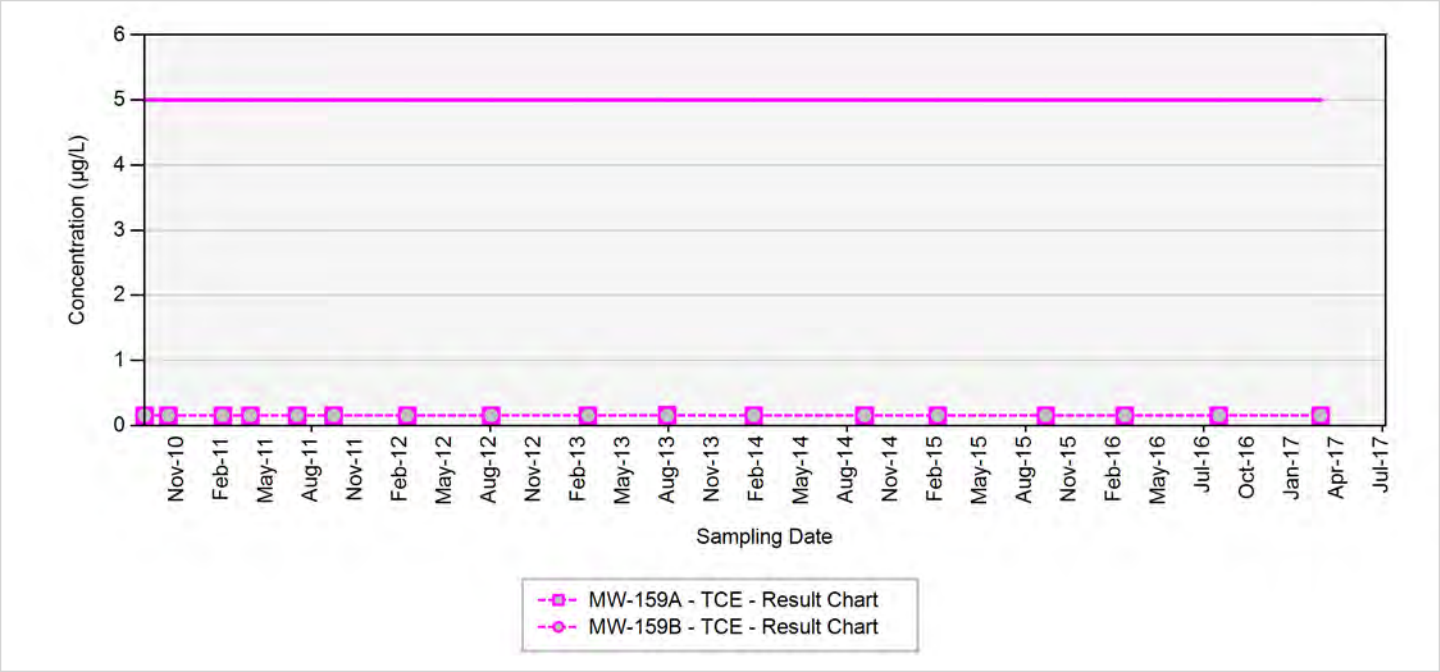
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-159





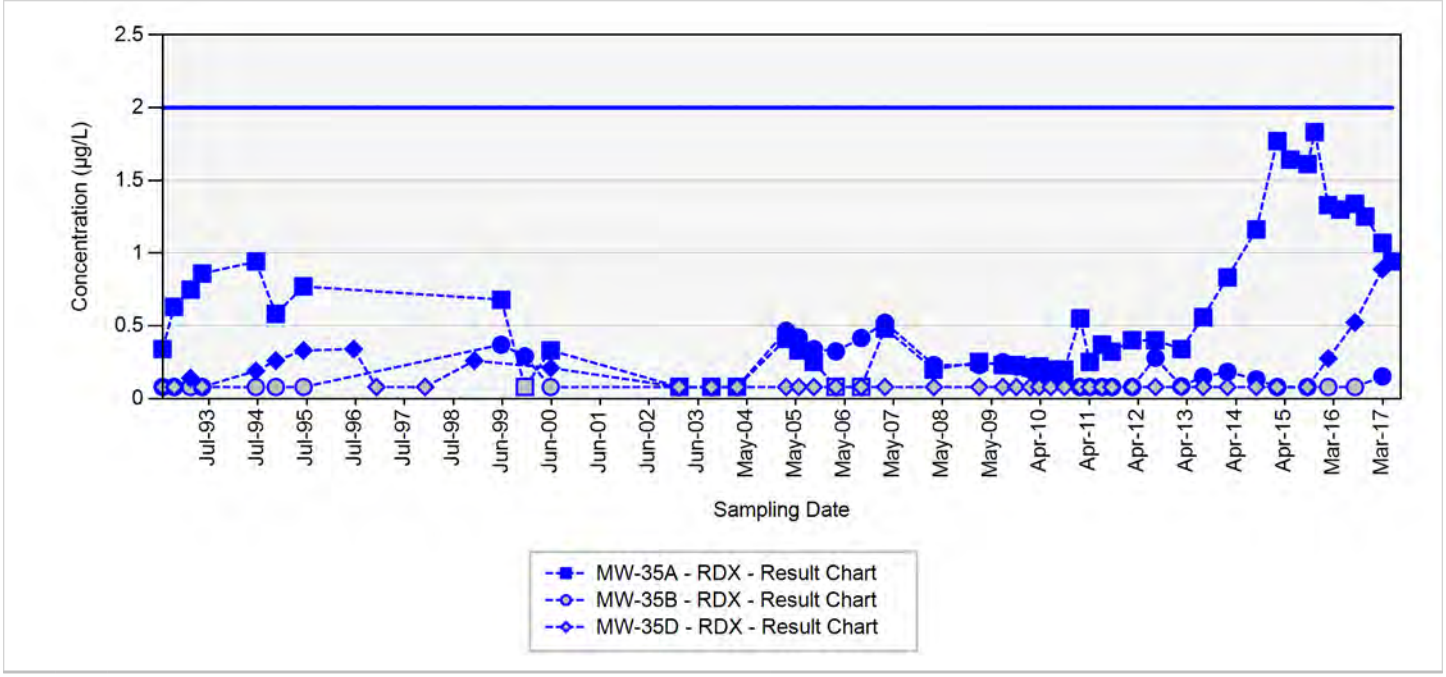
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

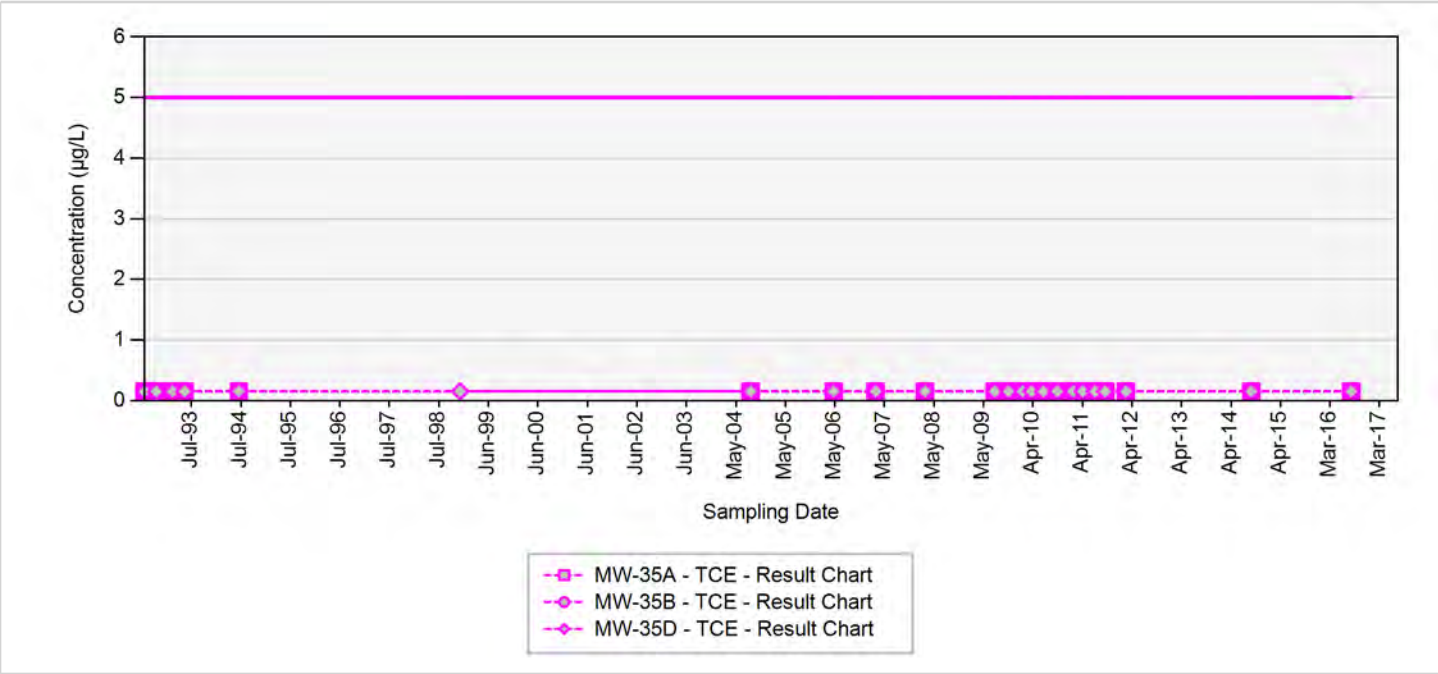
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-35





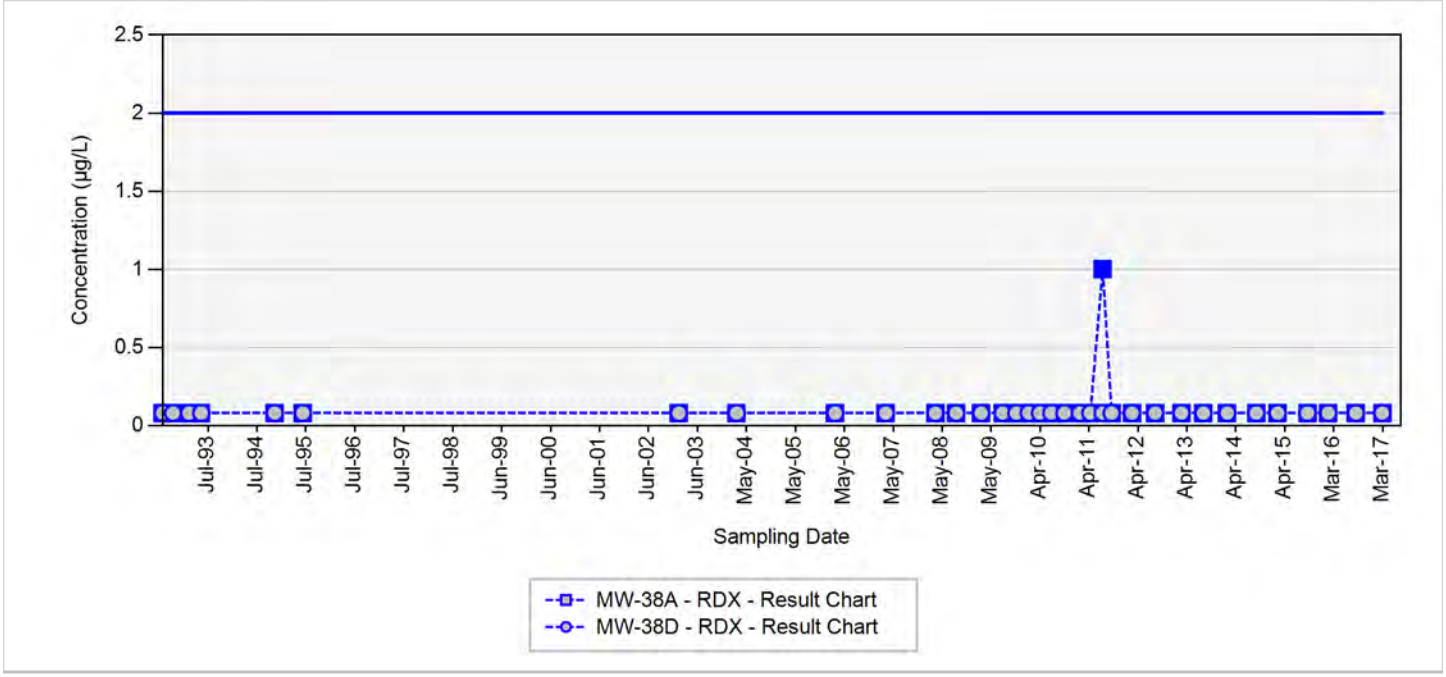
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

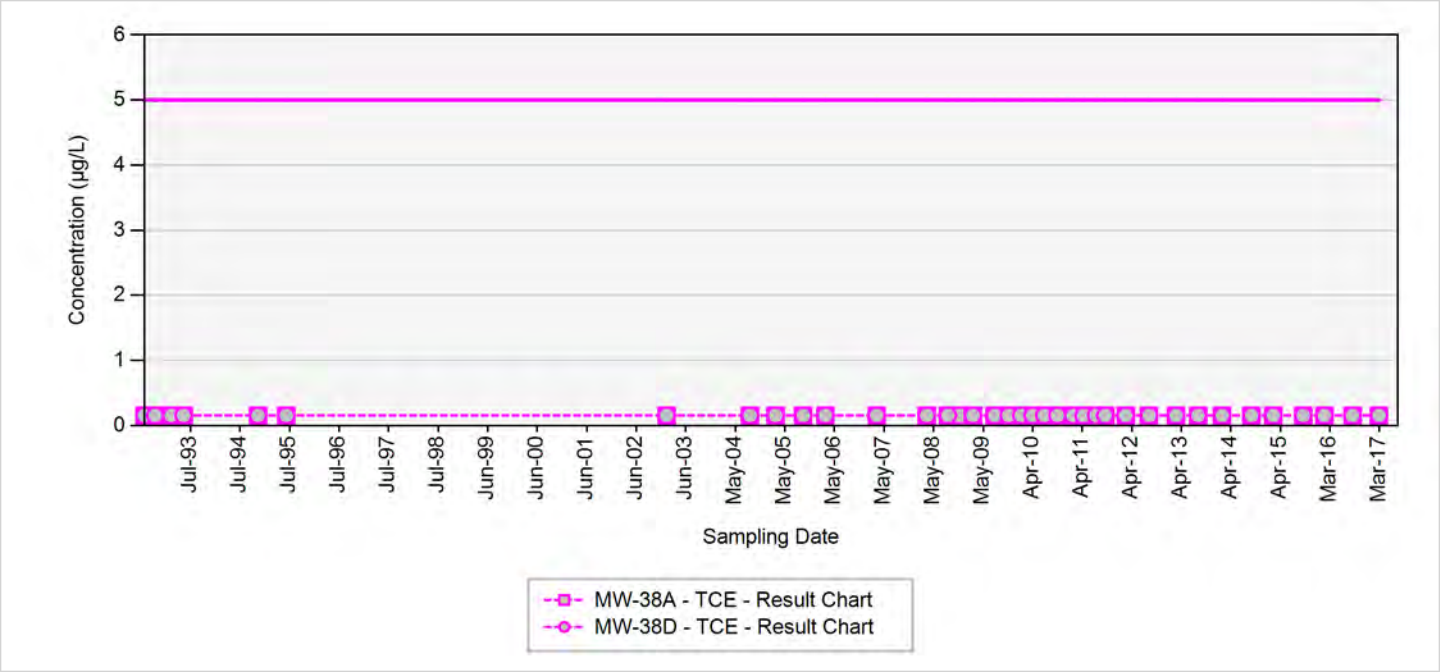
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-38





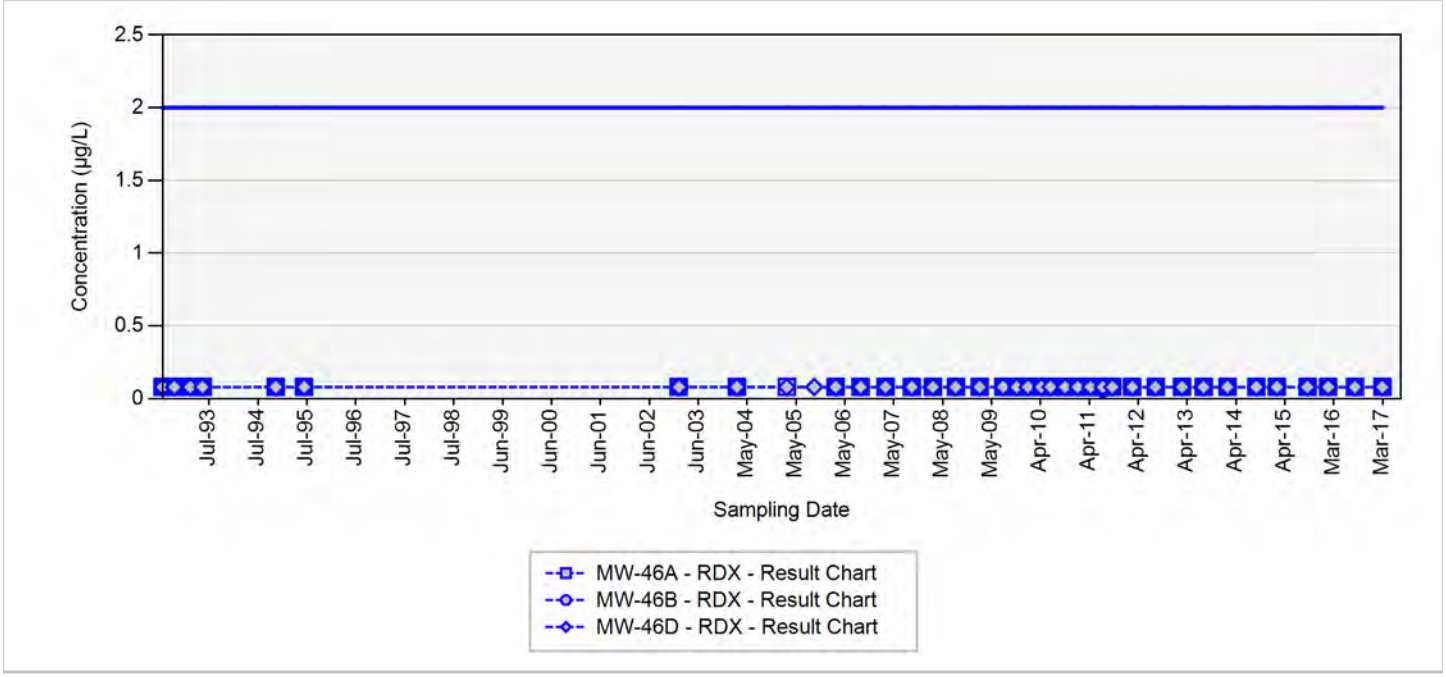
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

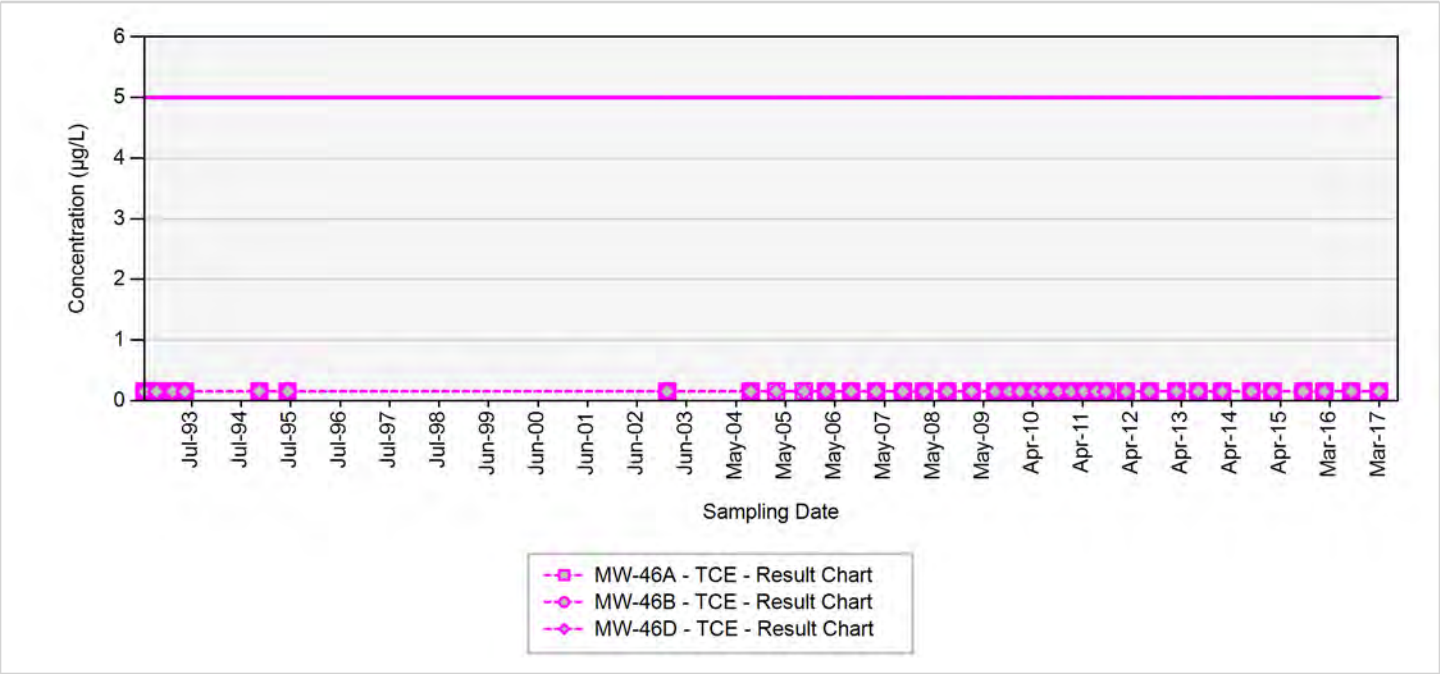
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-46





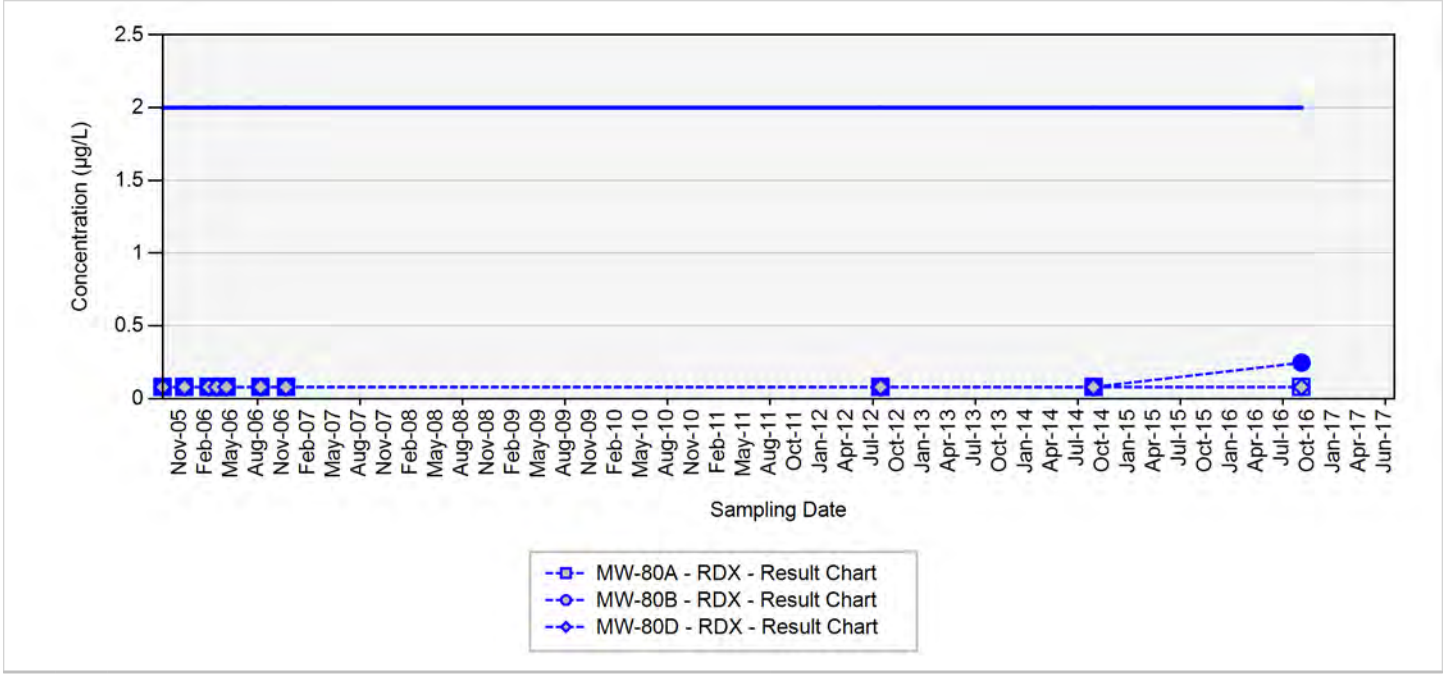
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

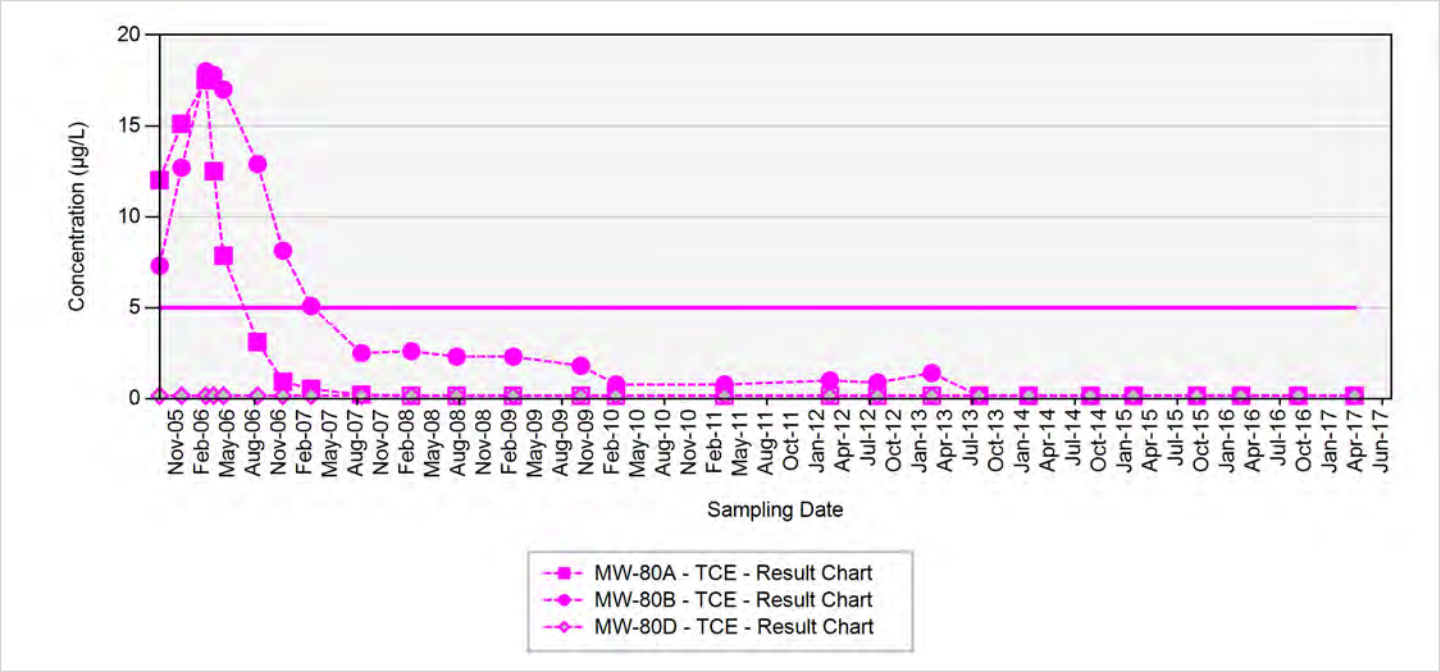
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-80





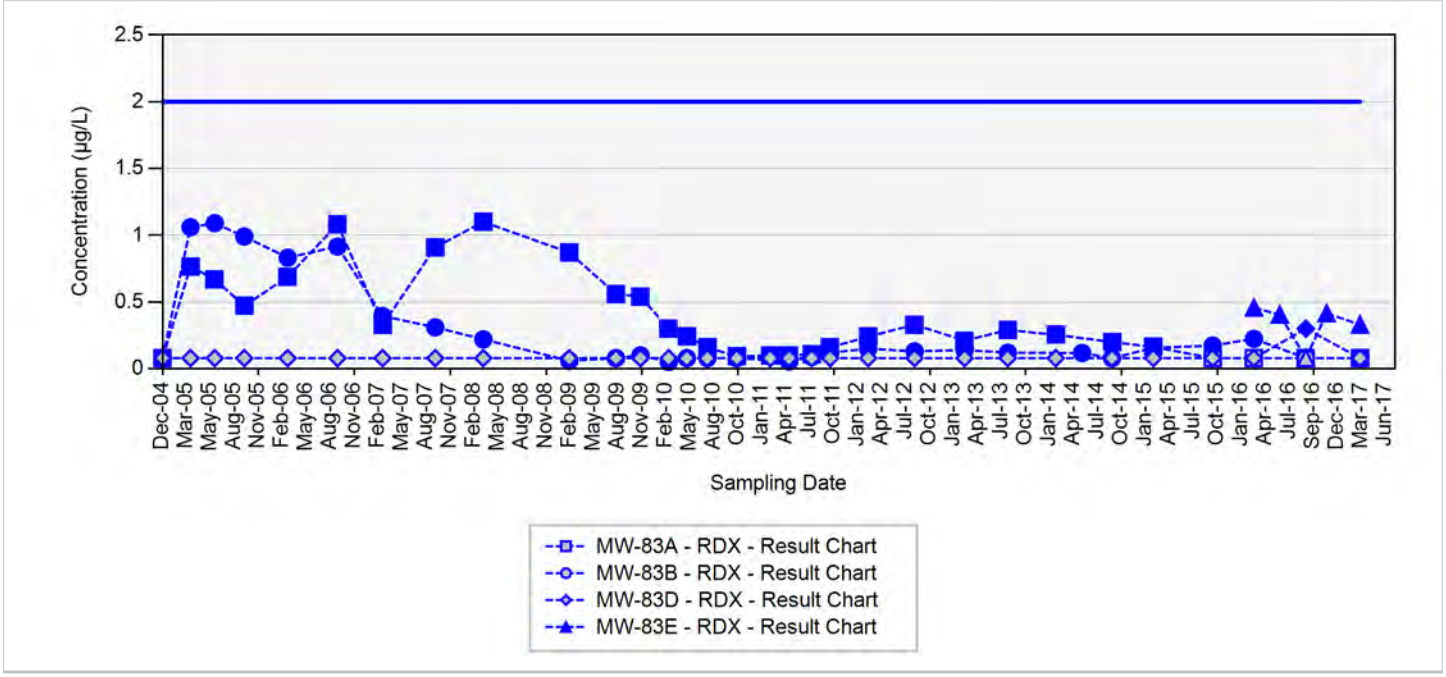
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

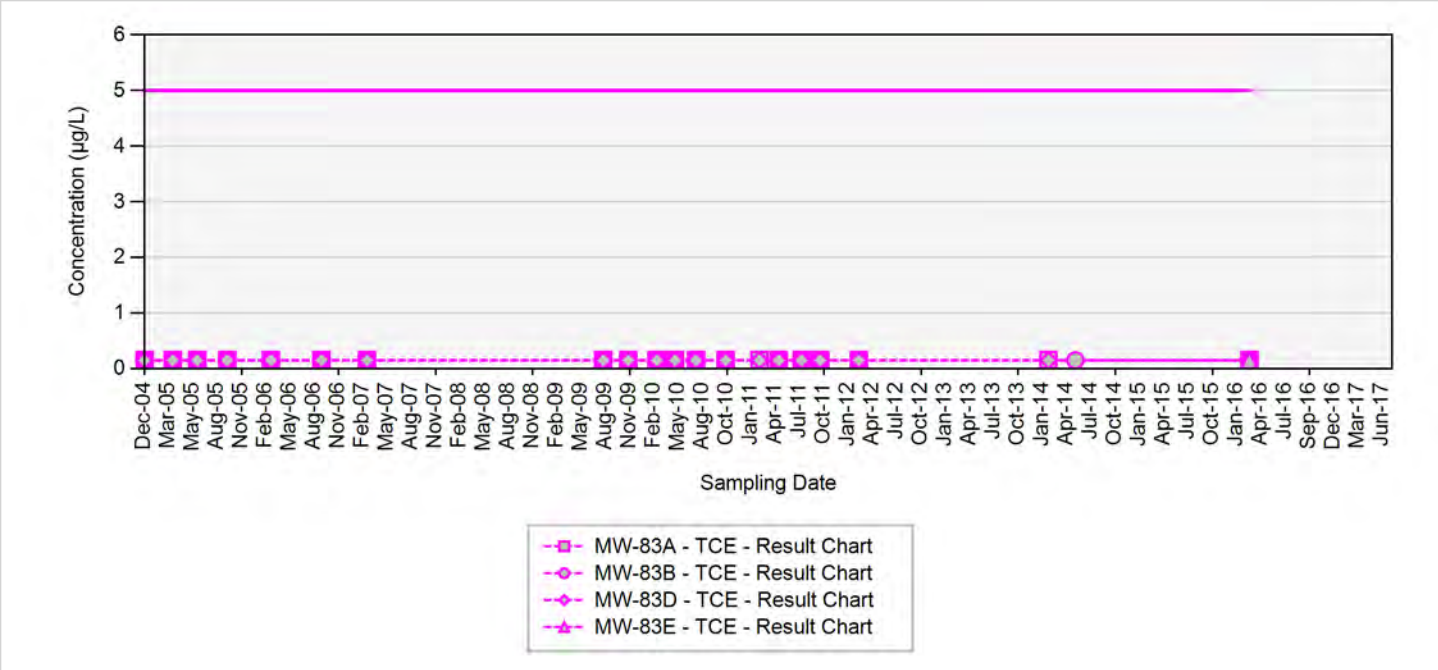
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-83





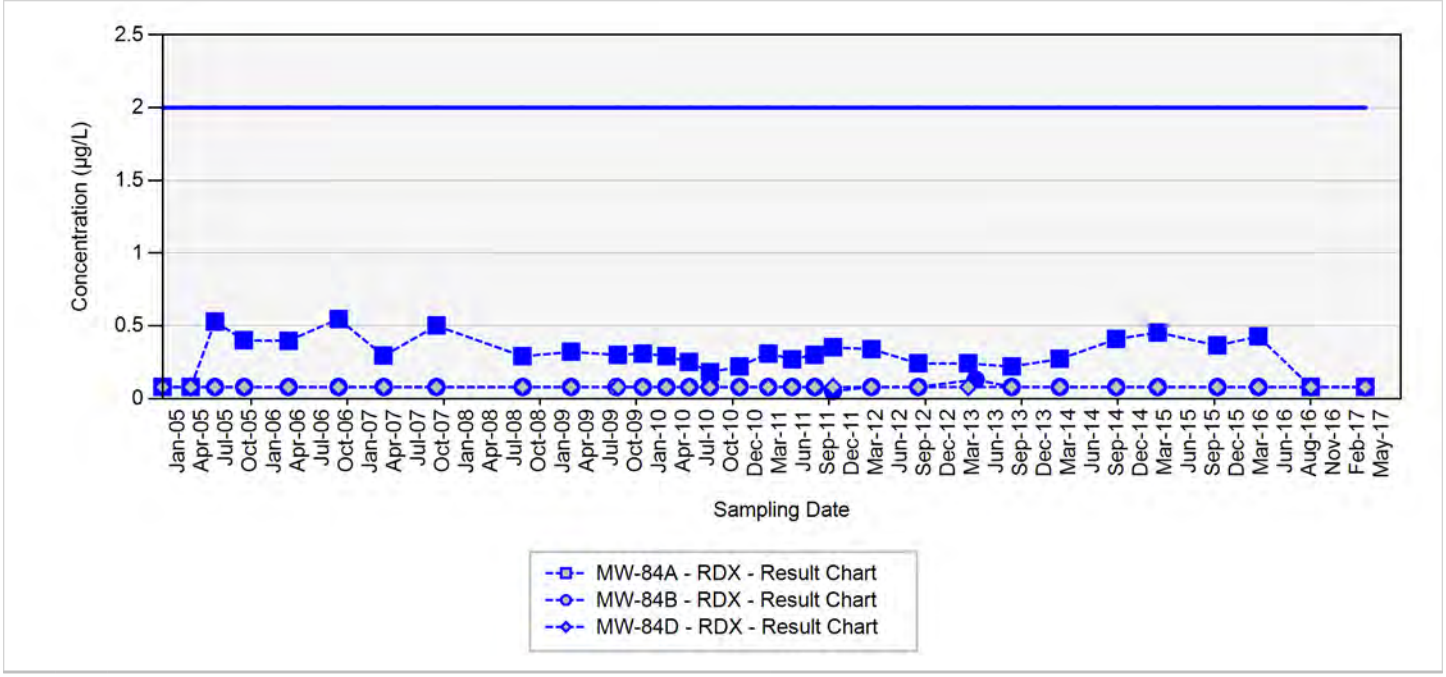
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

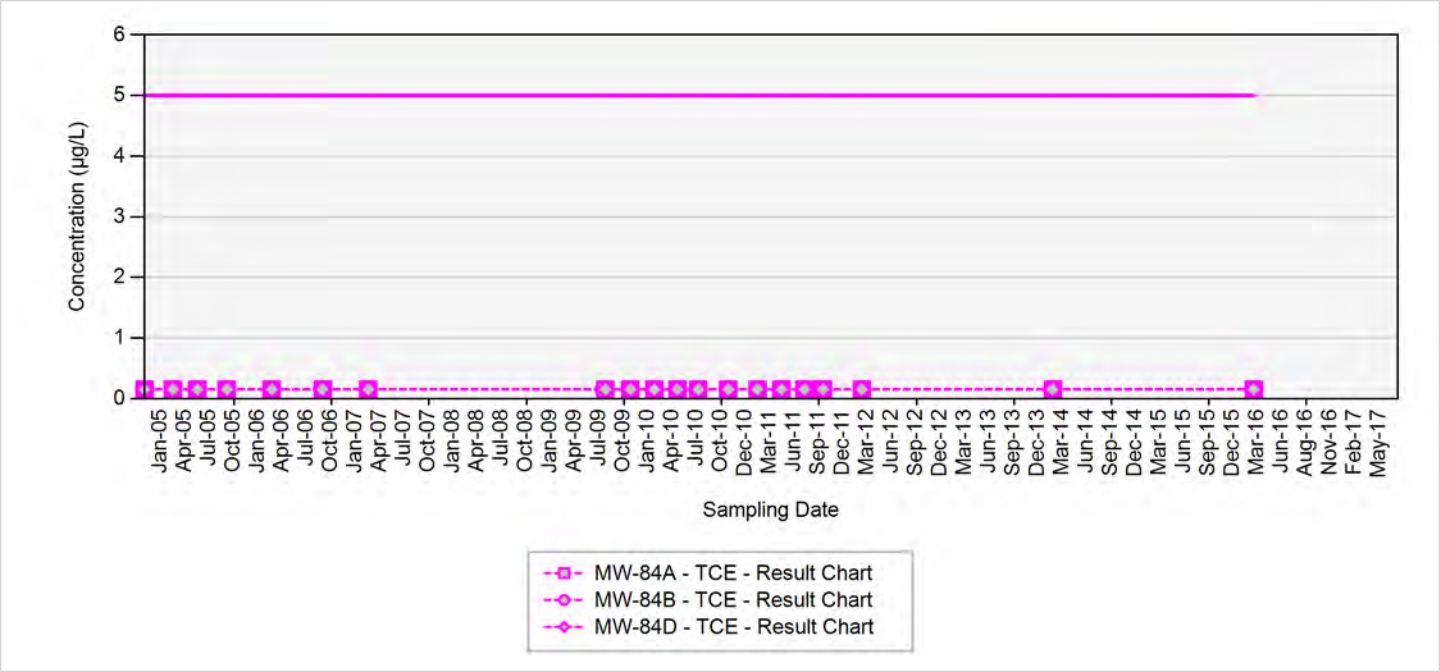
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-84





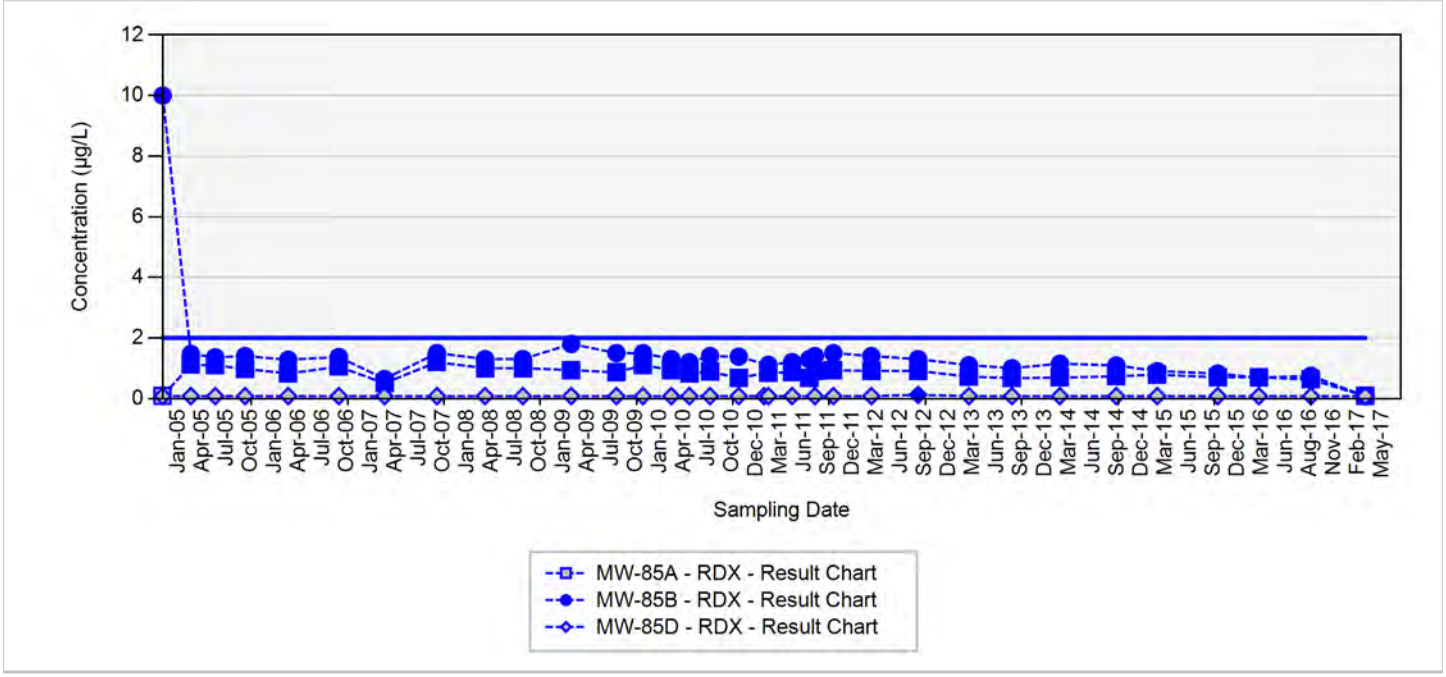
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

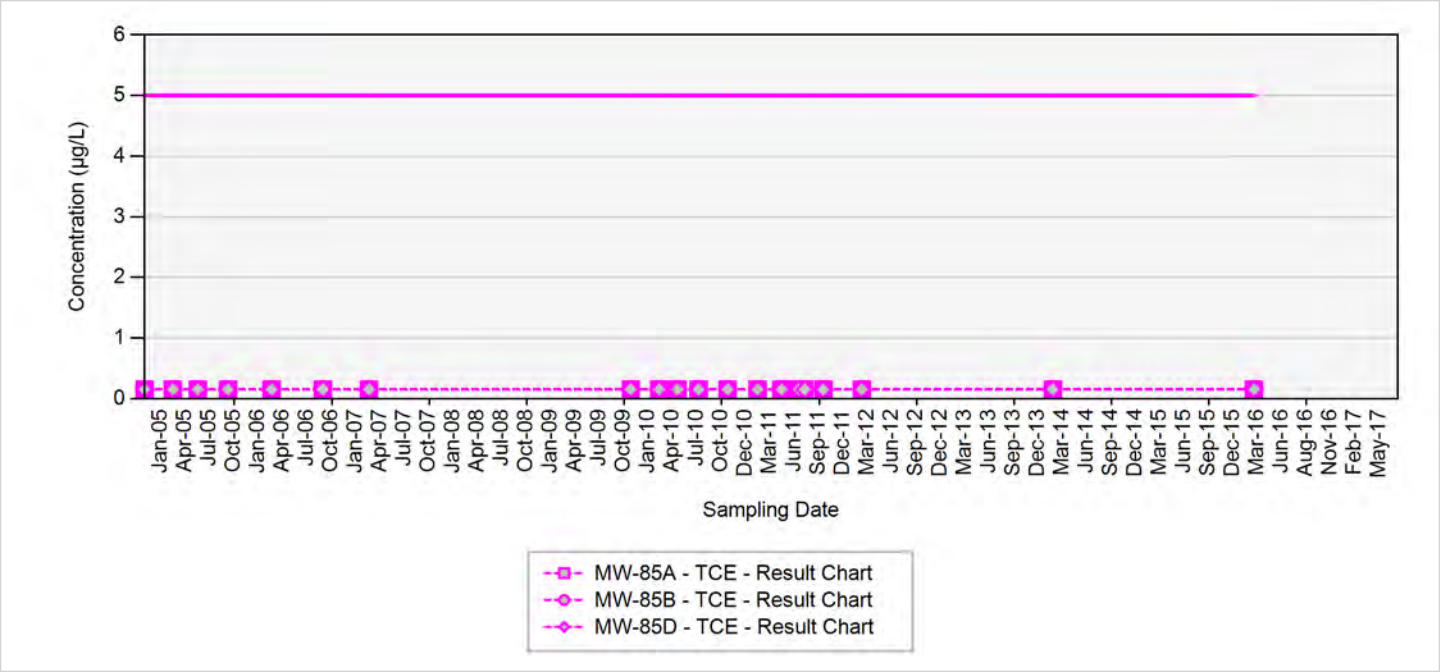
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-85





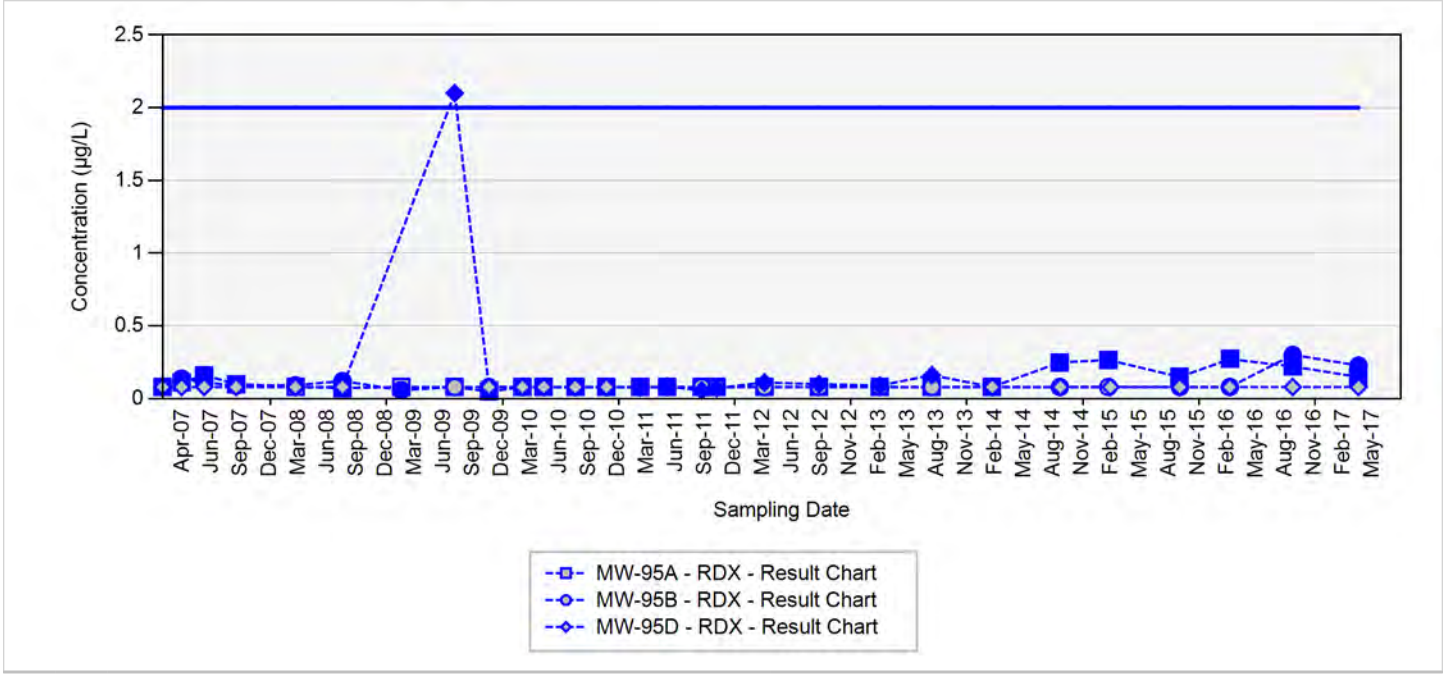
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

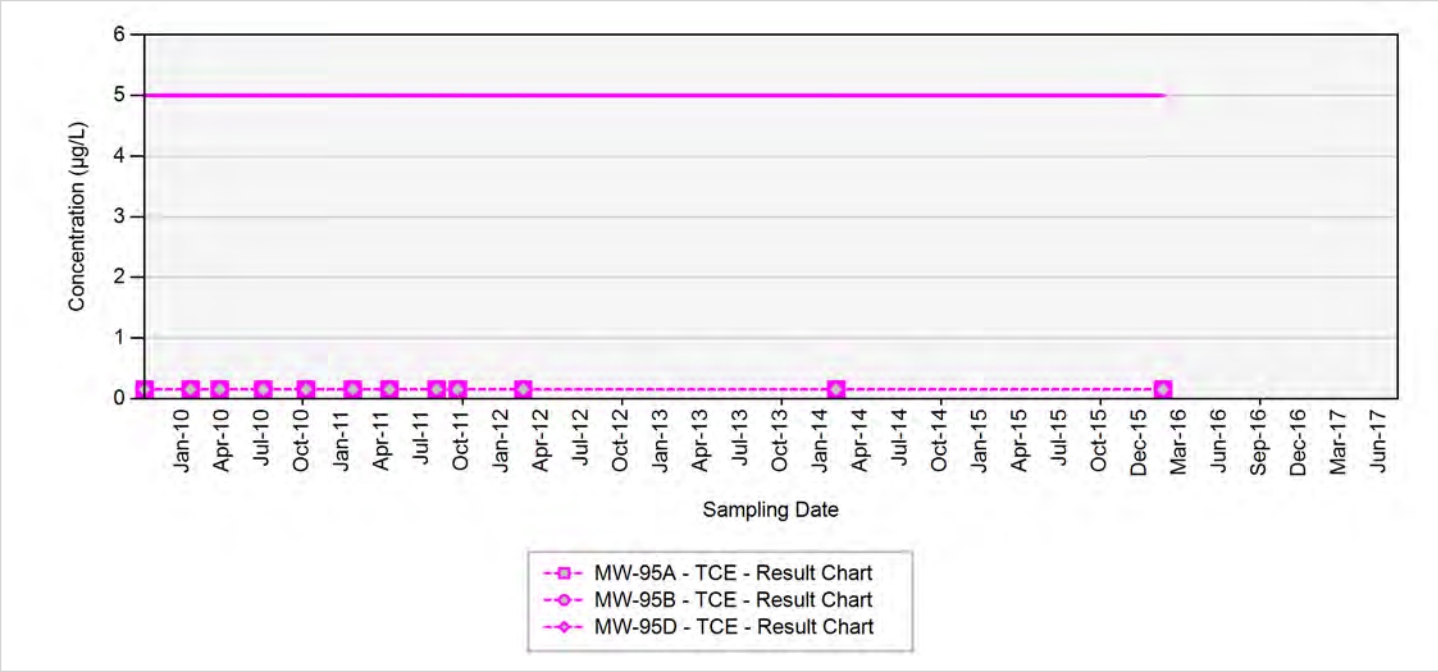
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.1
Concentration Trend Charts for Perimeter Monitoring Wells

MW-95





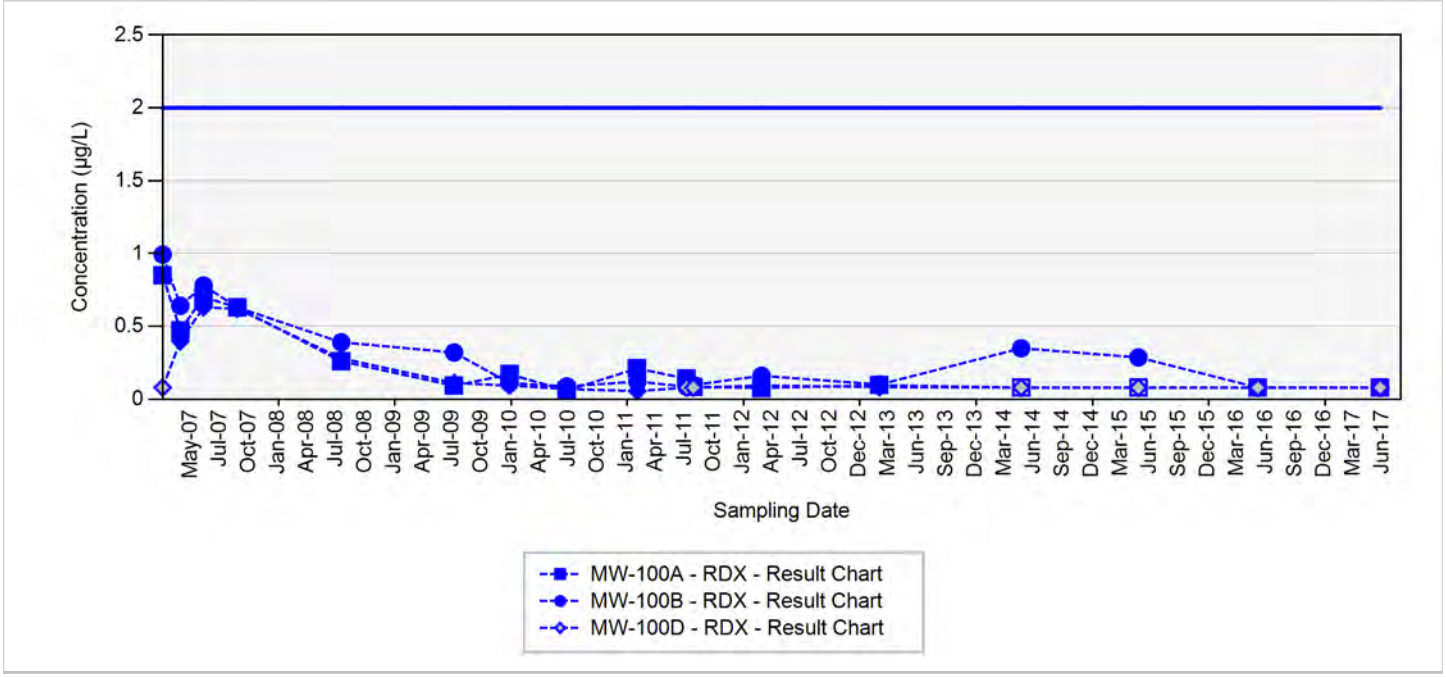
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

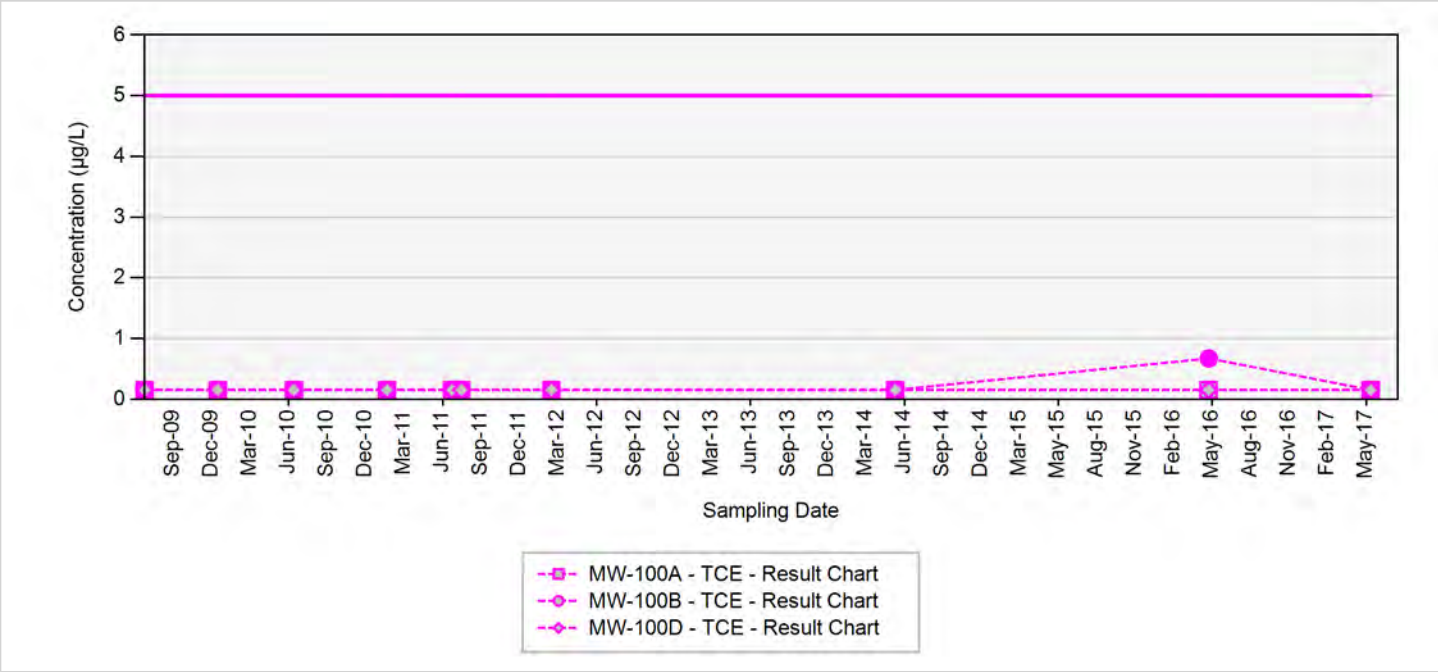
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-100





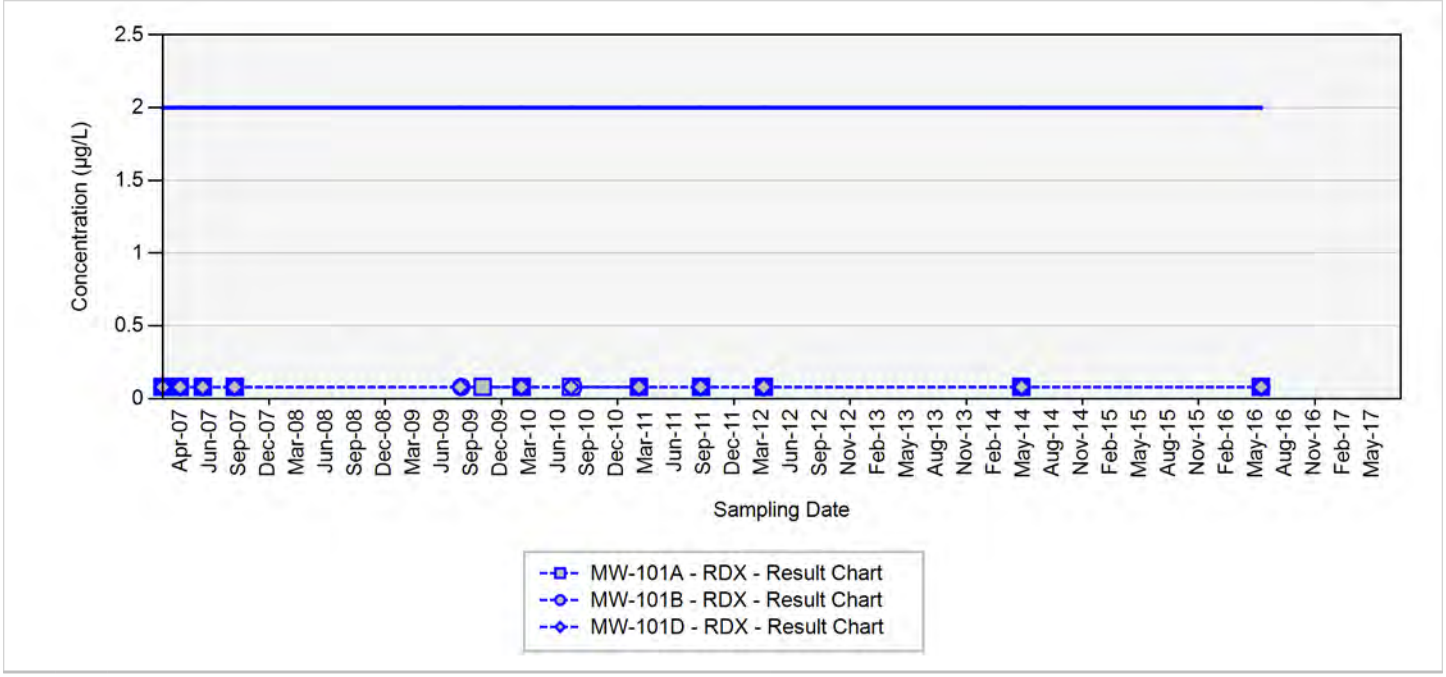
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

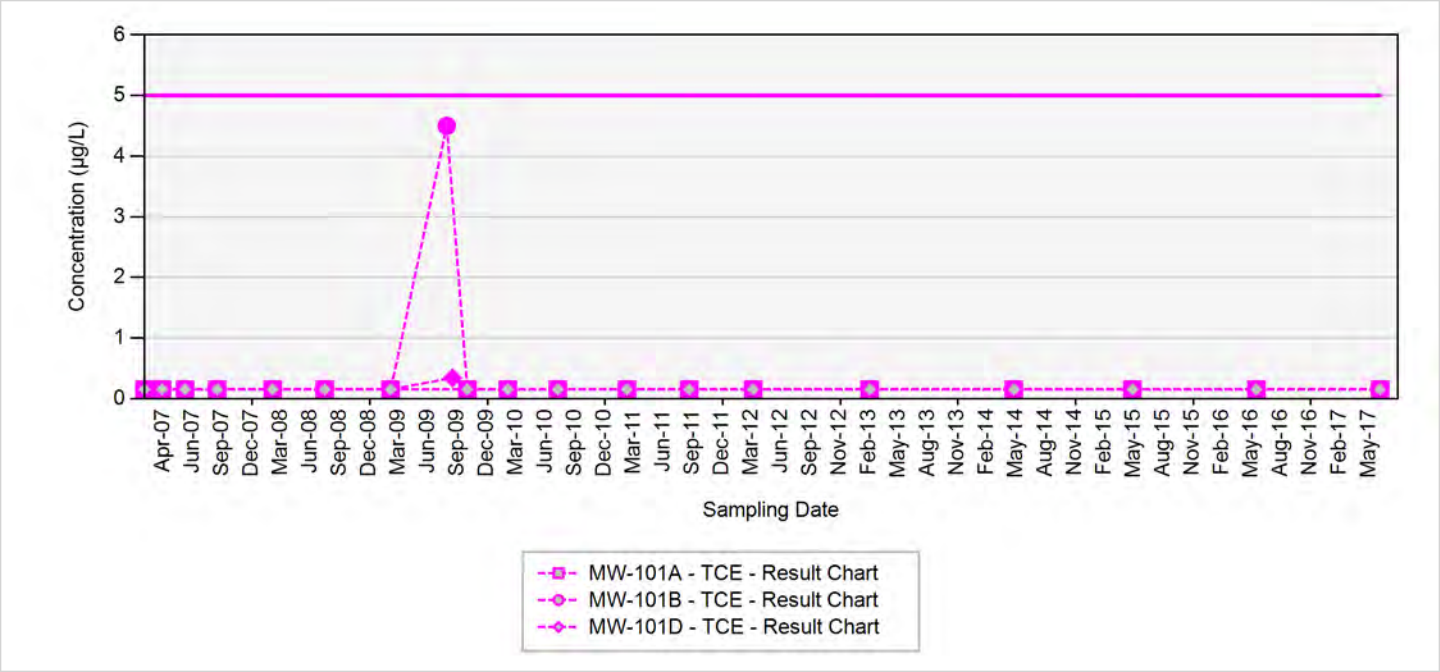
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-101





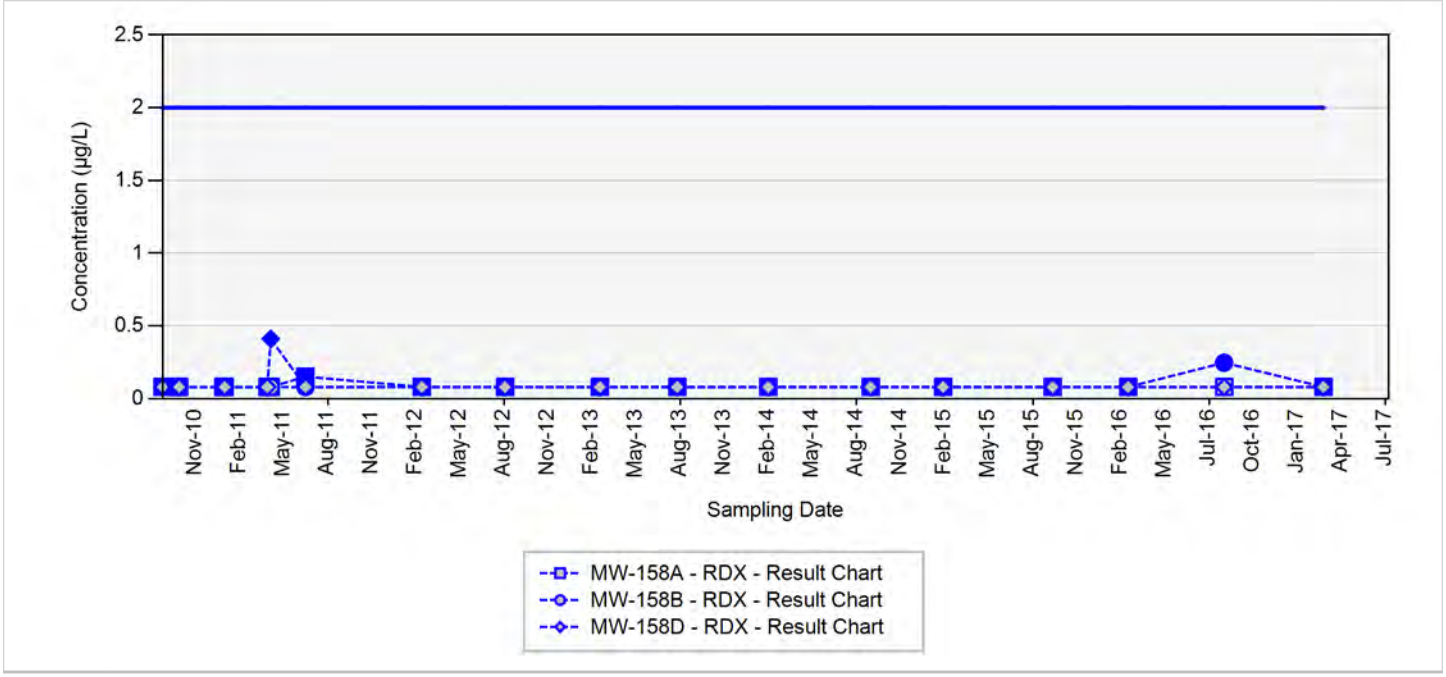
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

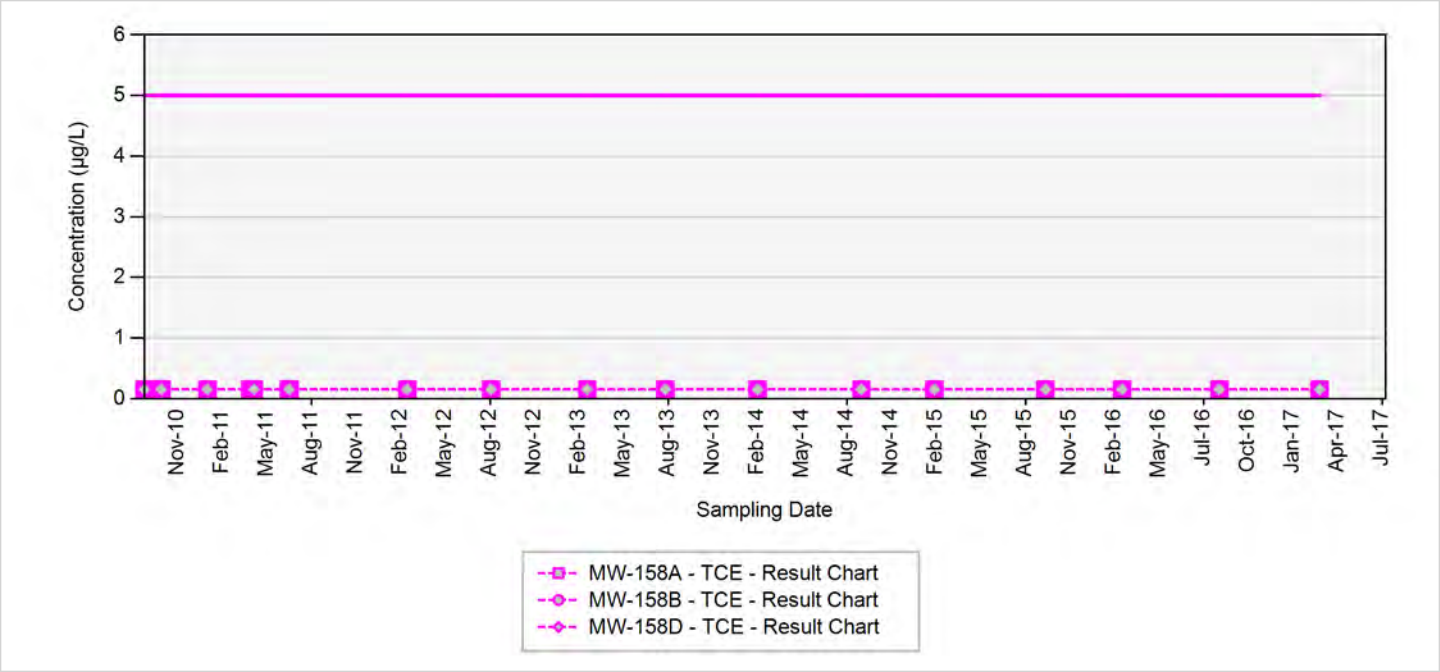
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-158





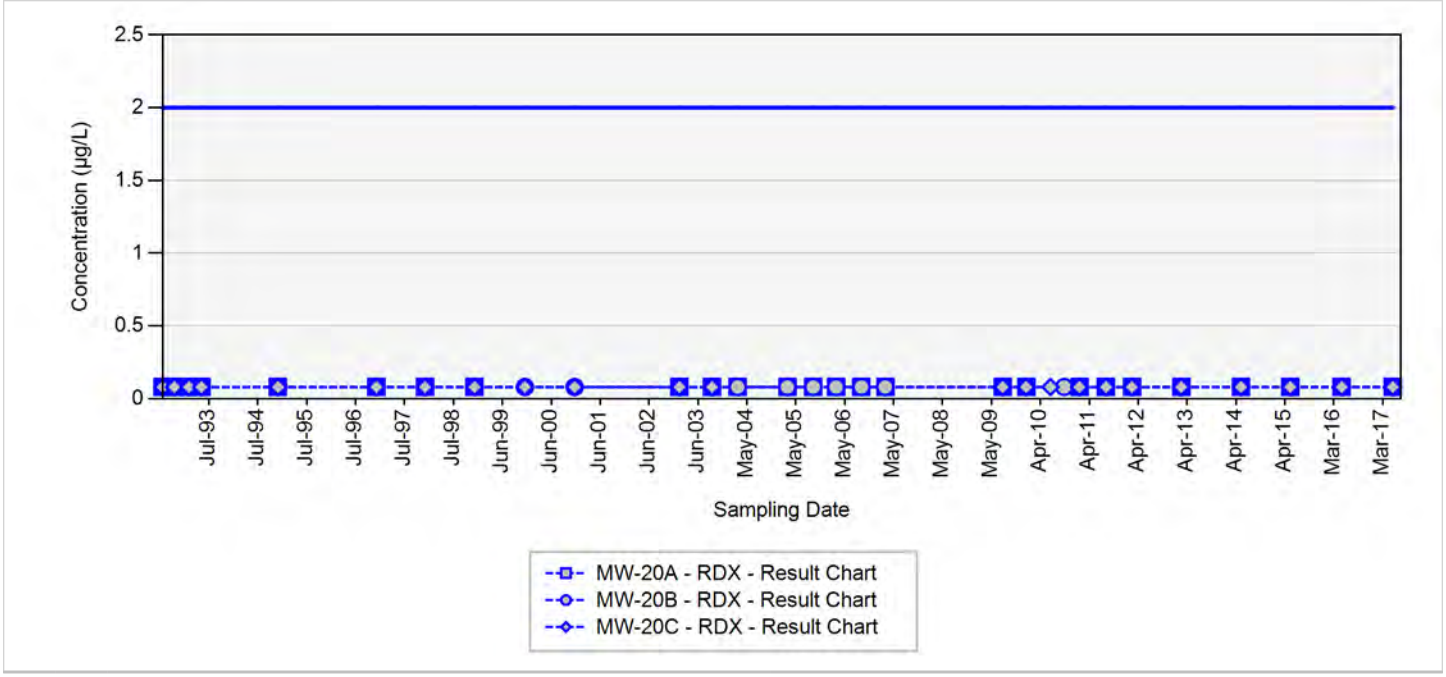
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

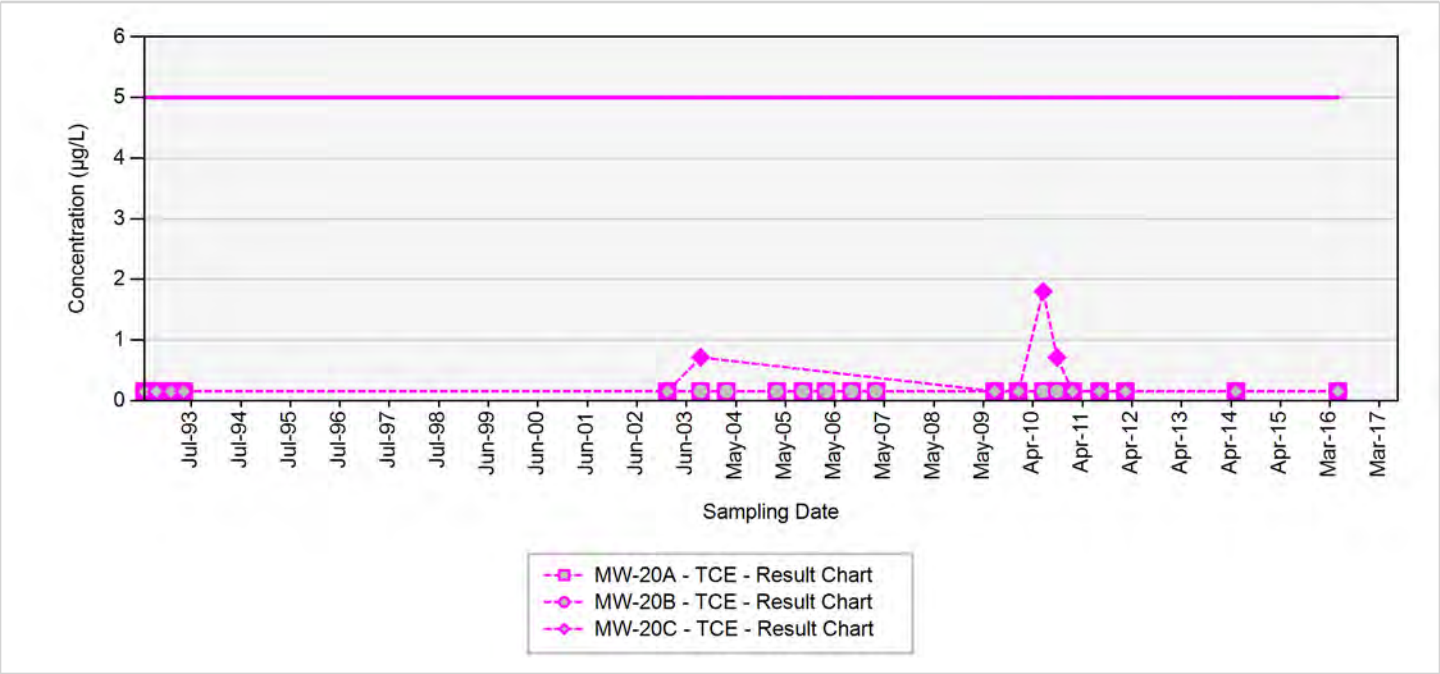
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-20





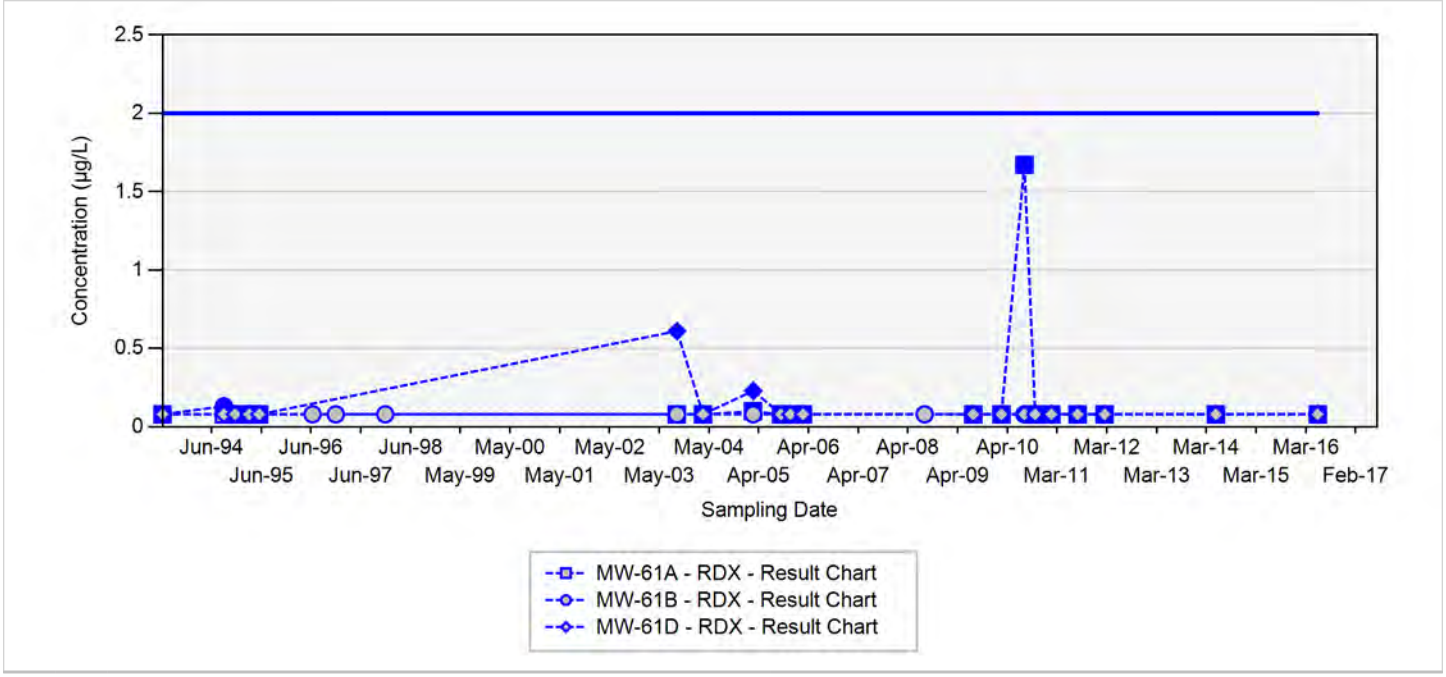
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

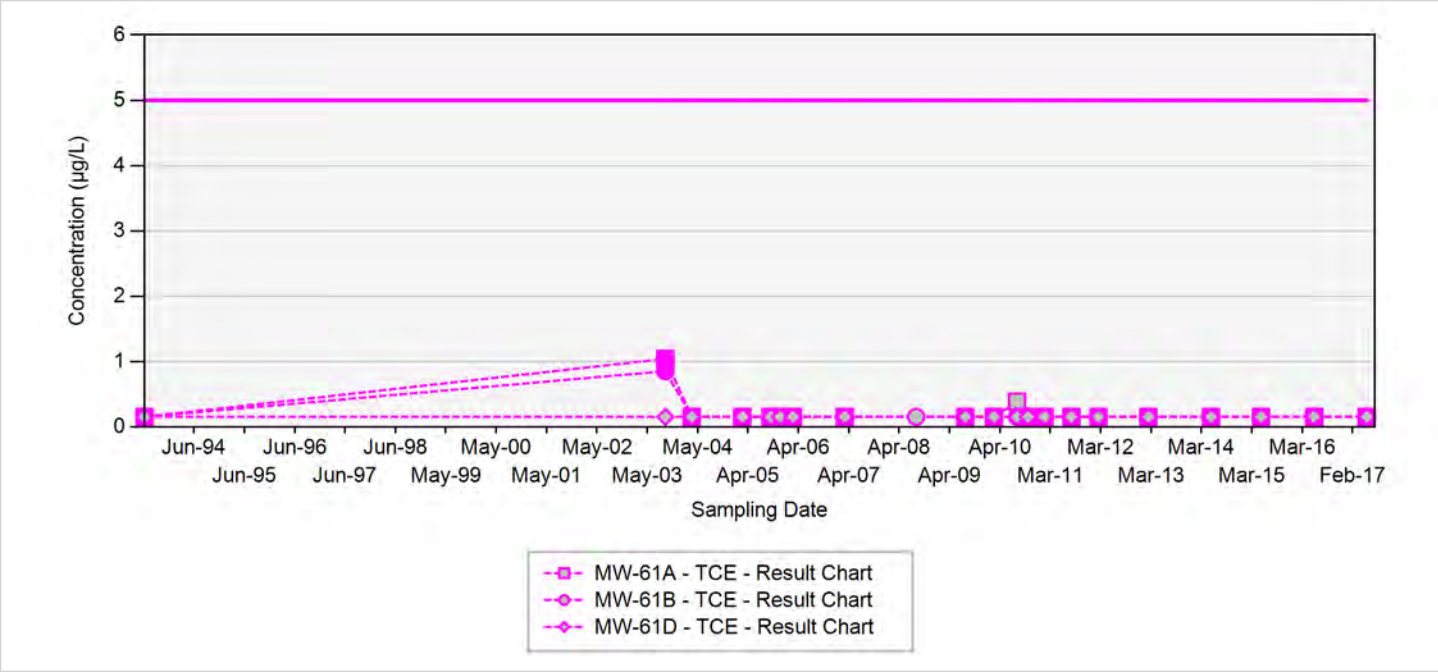
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-61





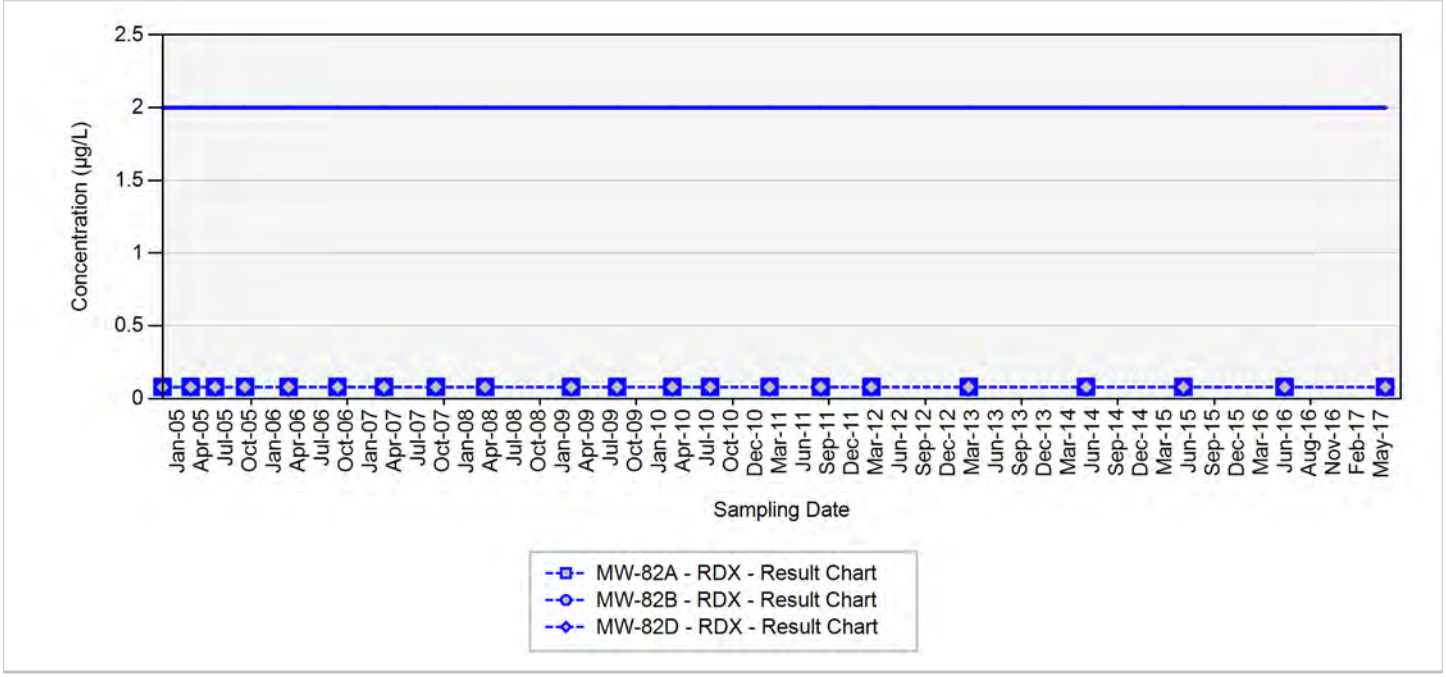
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

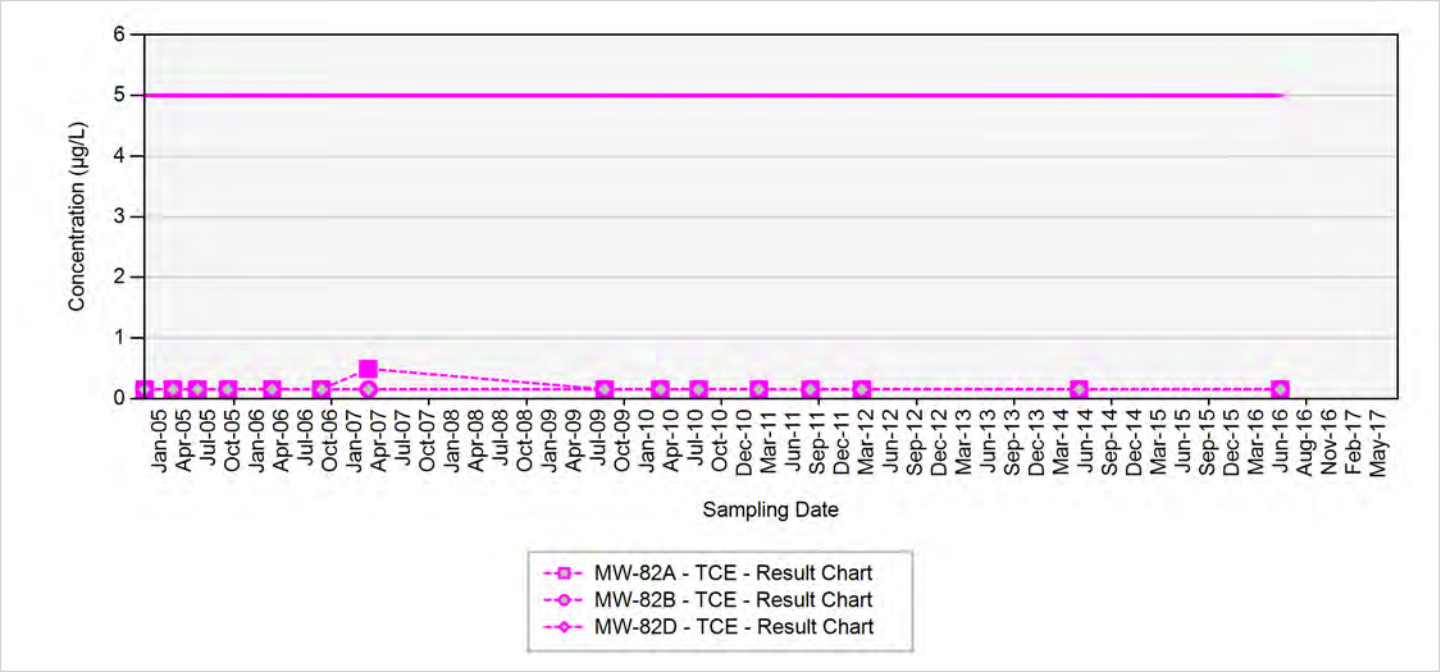
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-82





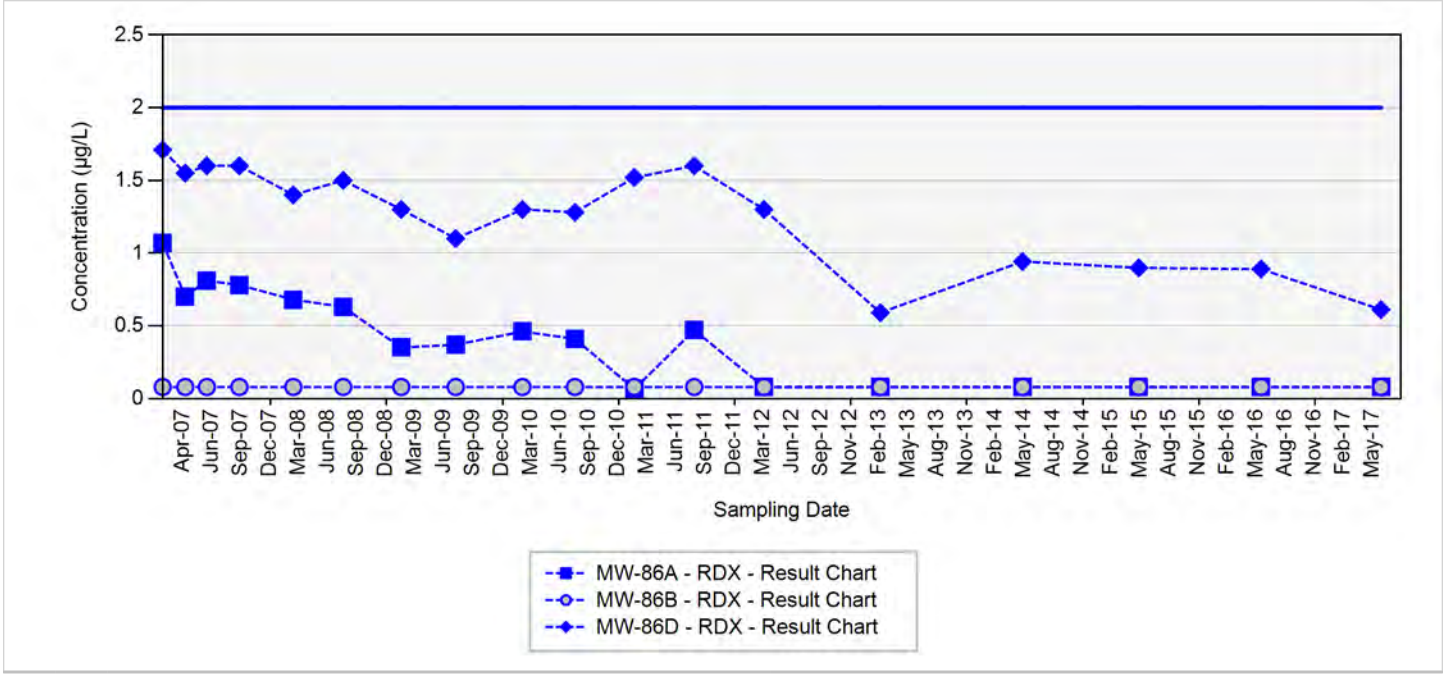
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

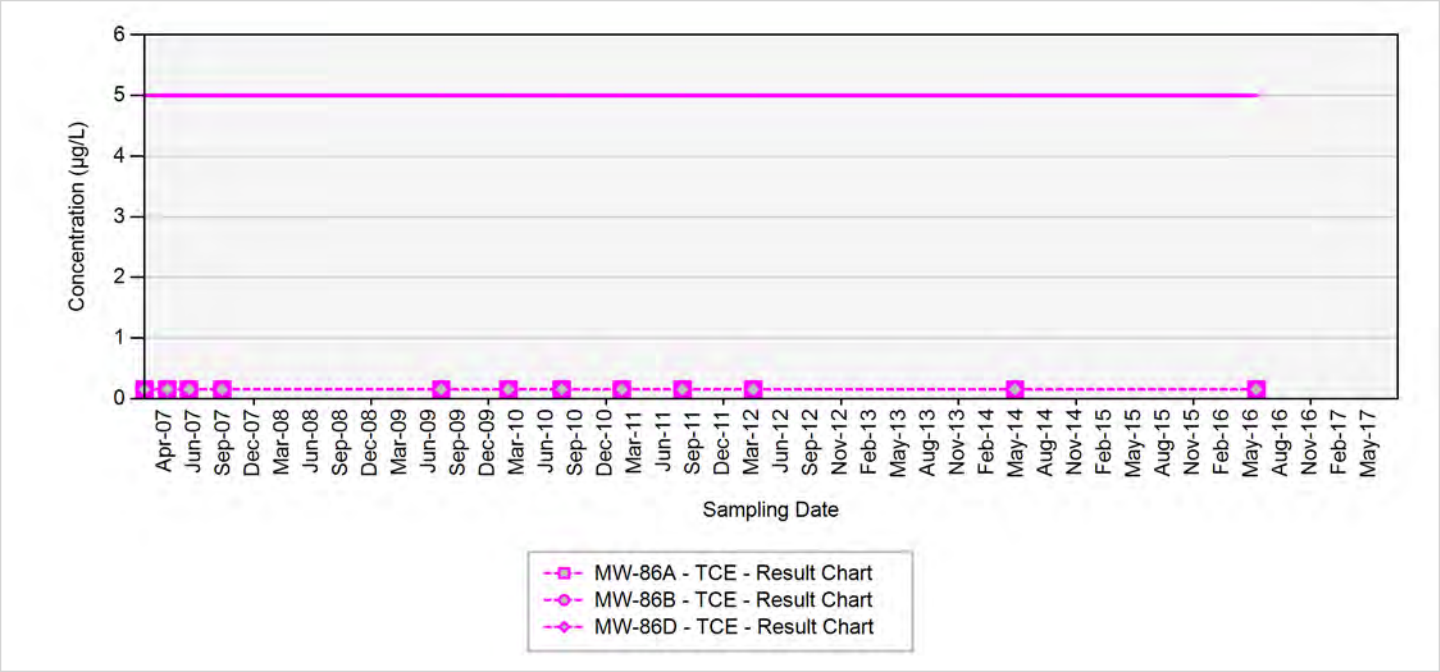
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-86





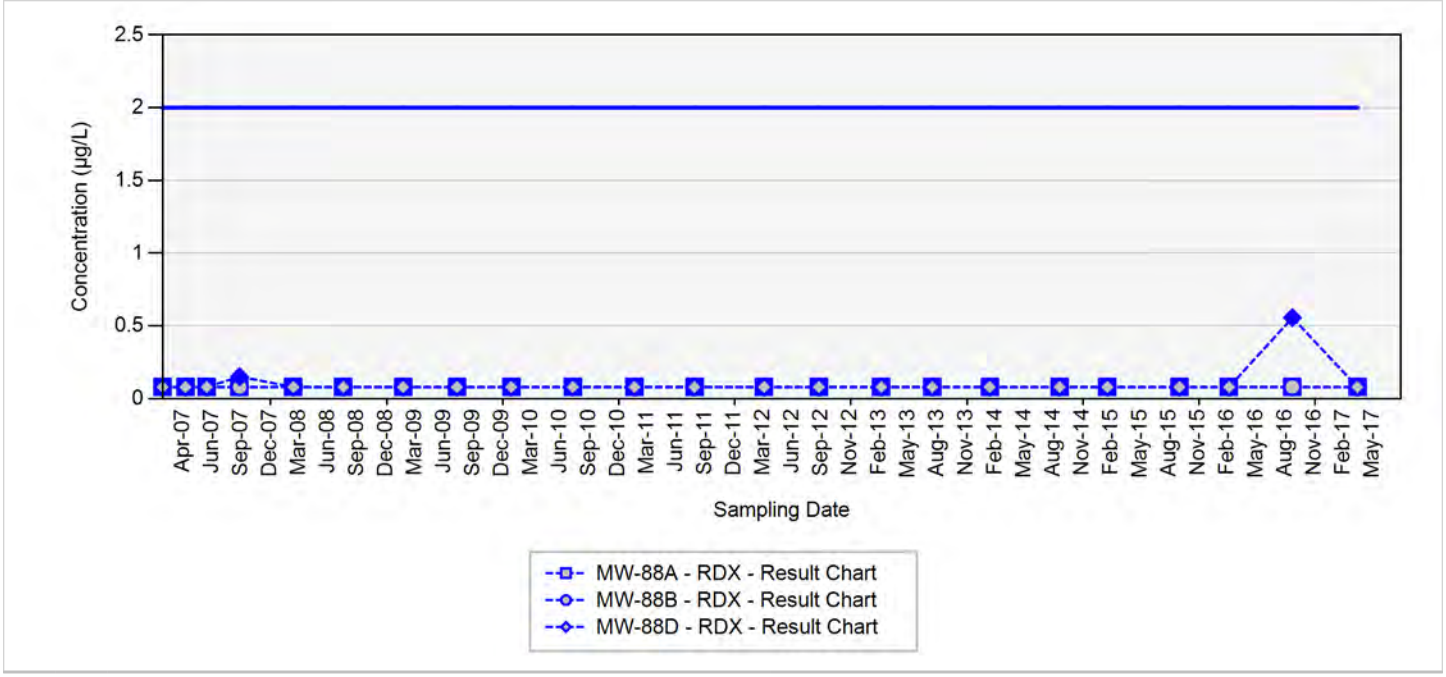
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

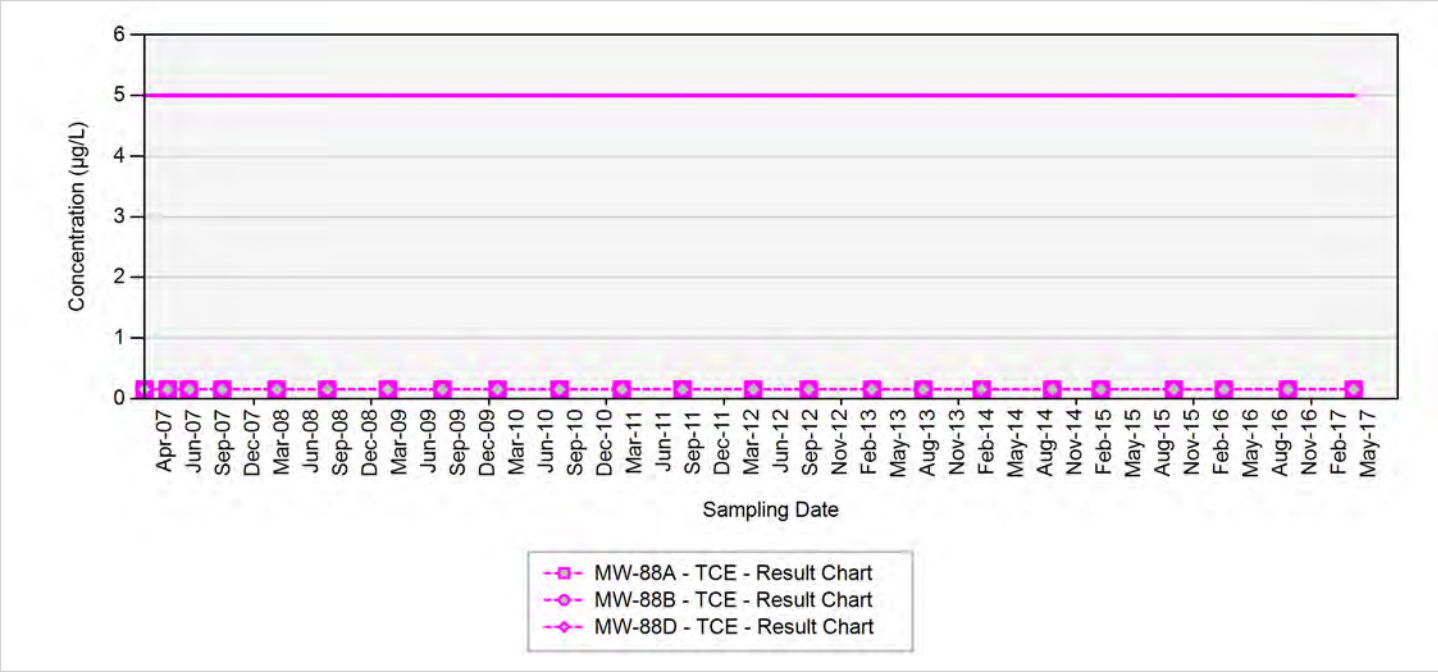
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-88





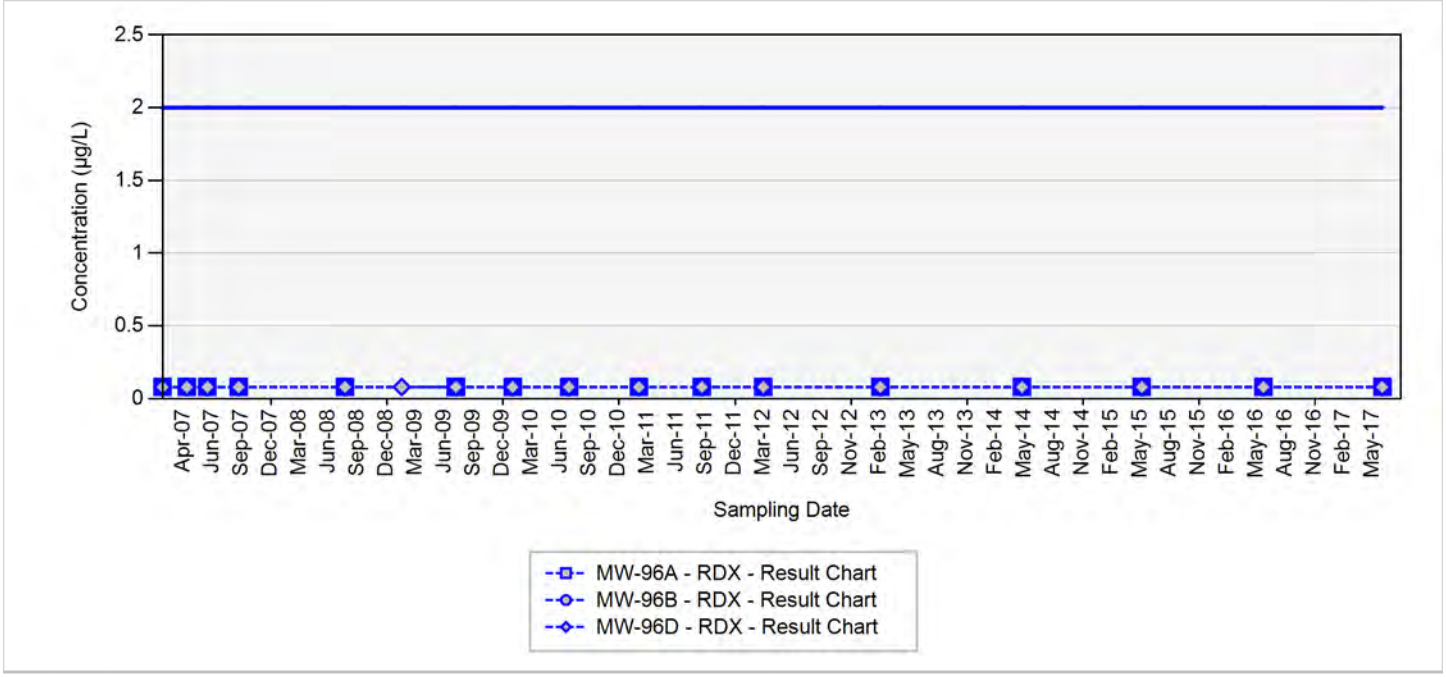
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

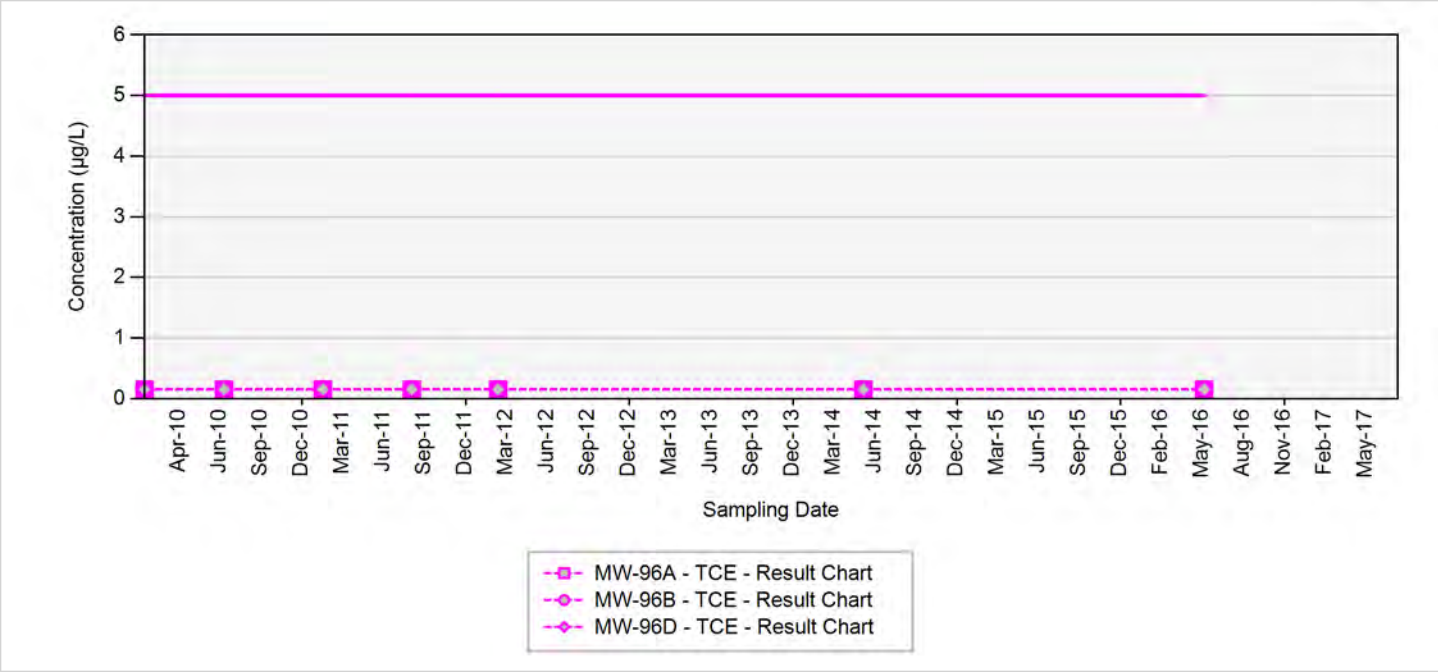
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-96





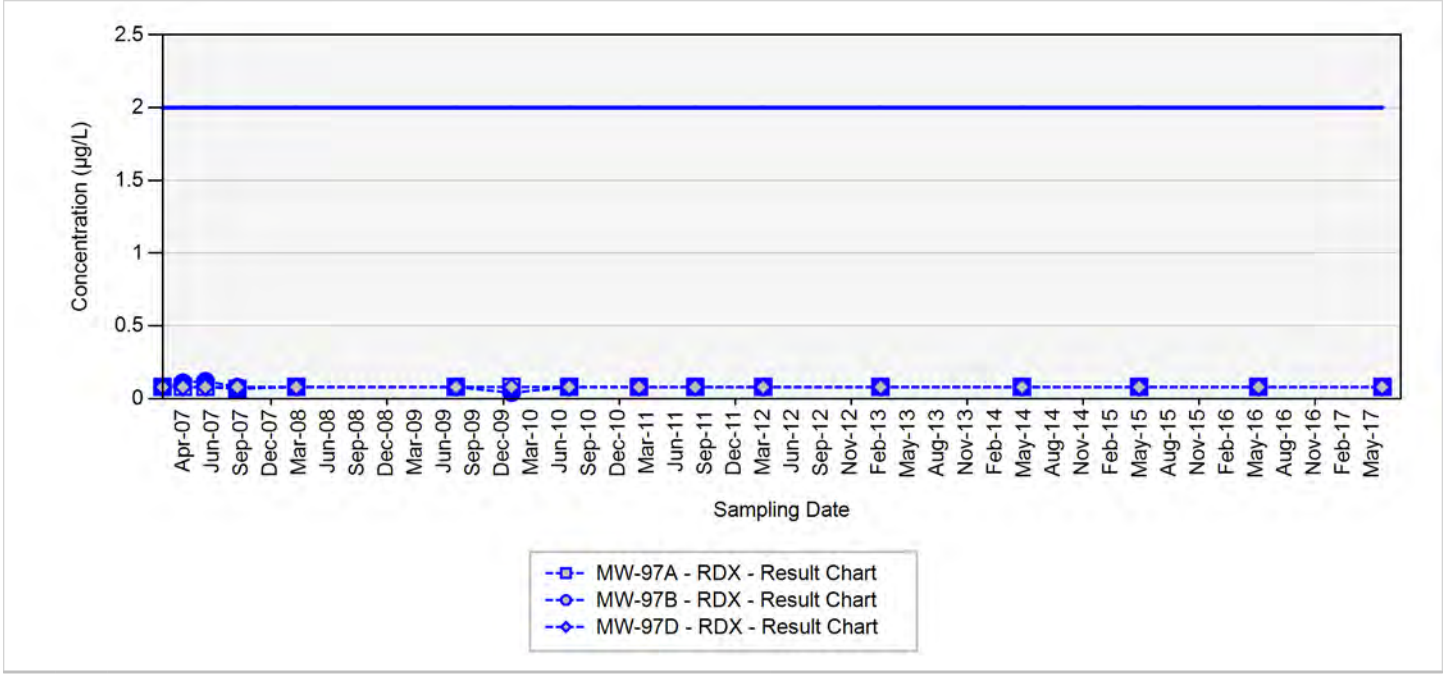
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

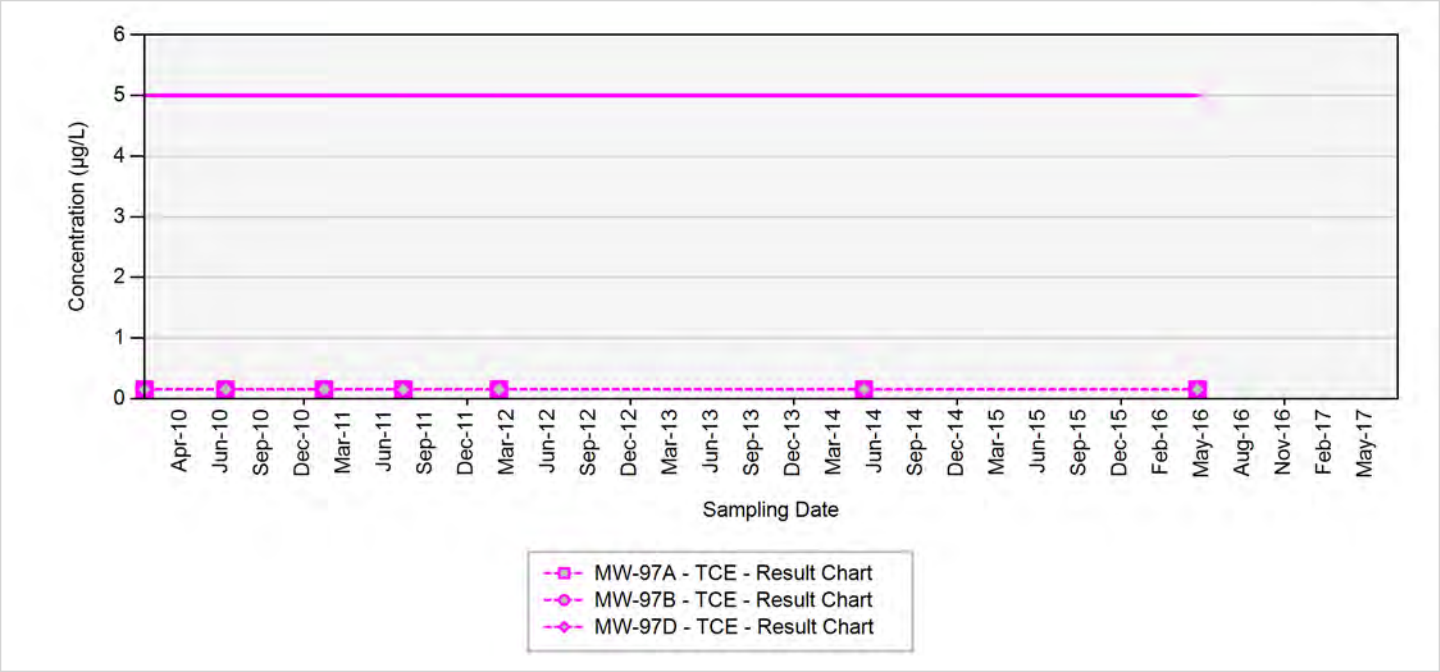
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-97





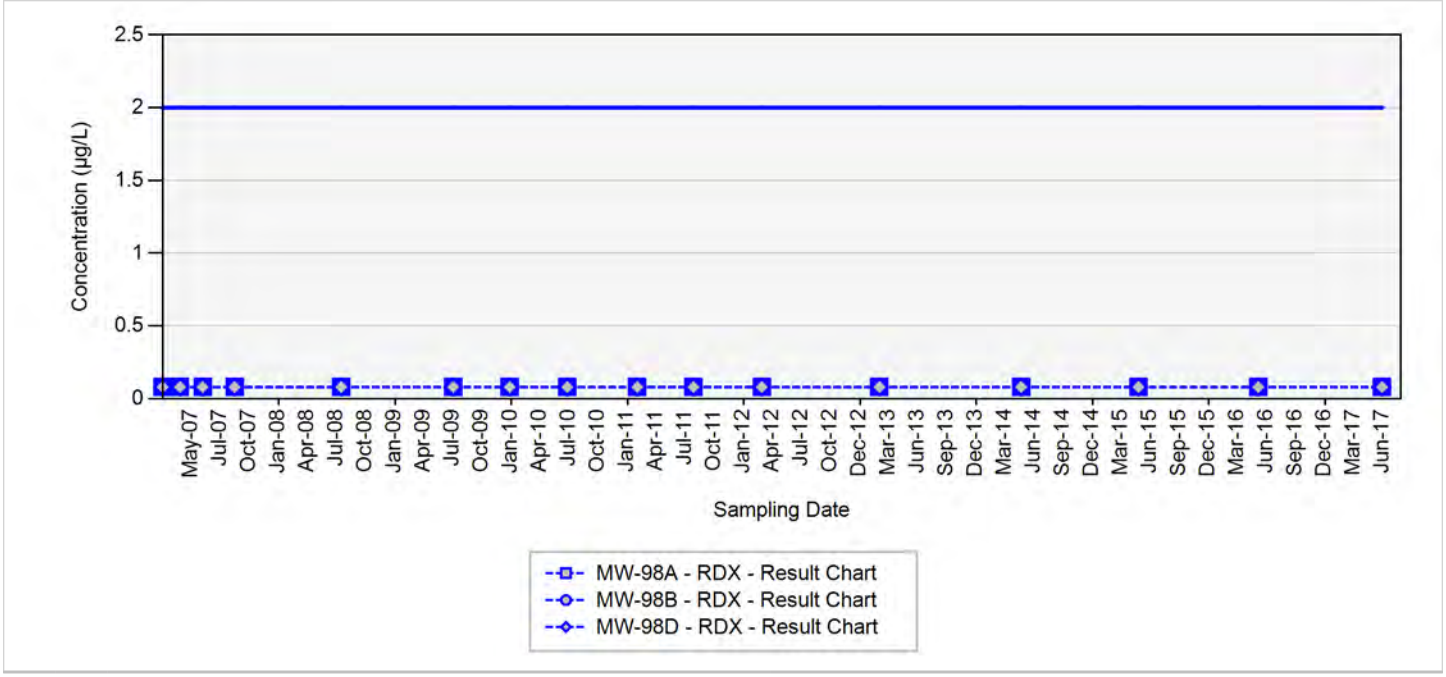
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

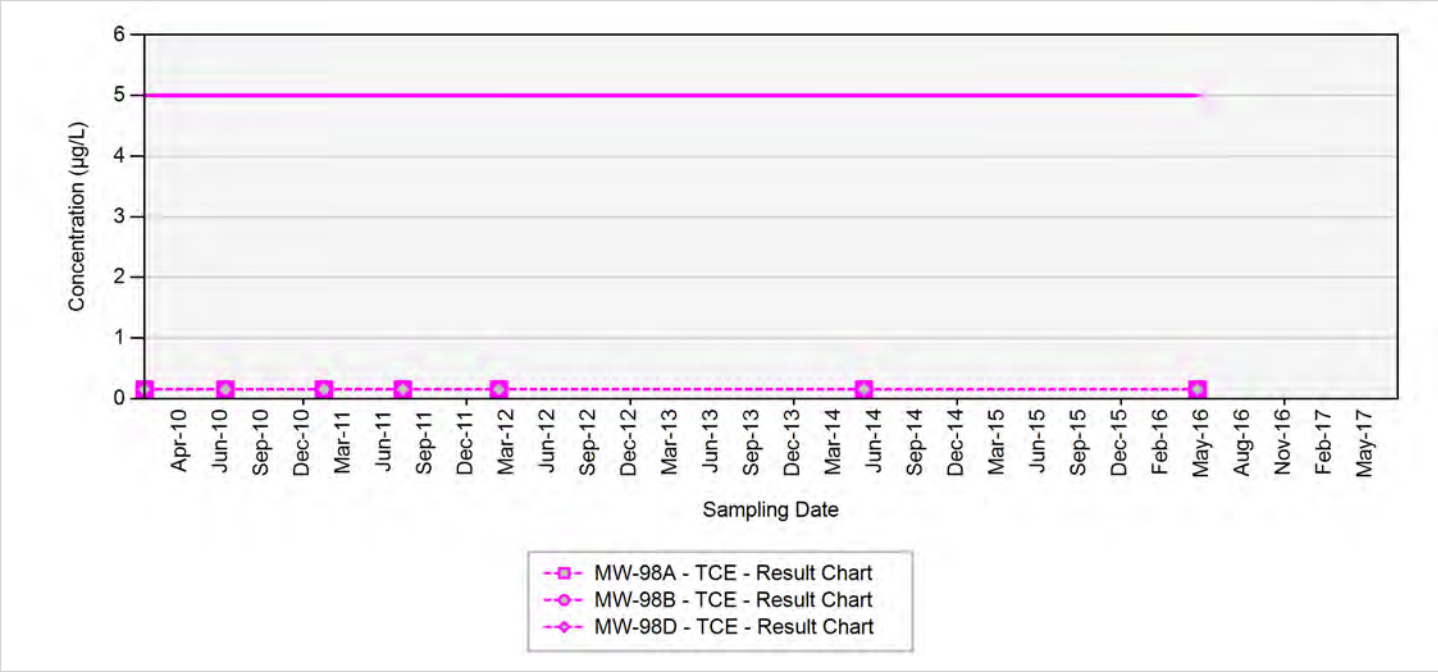
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.2
Concentration Trend Charts for Compliance Monitoring Wells

MW-98





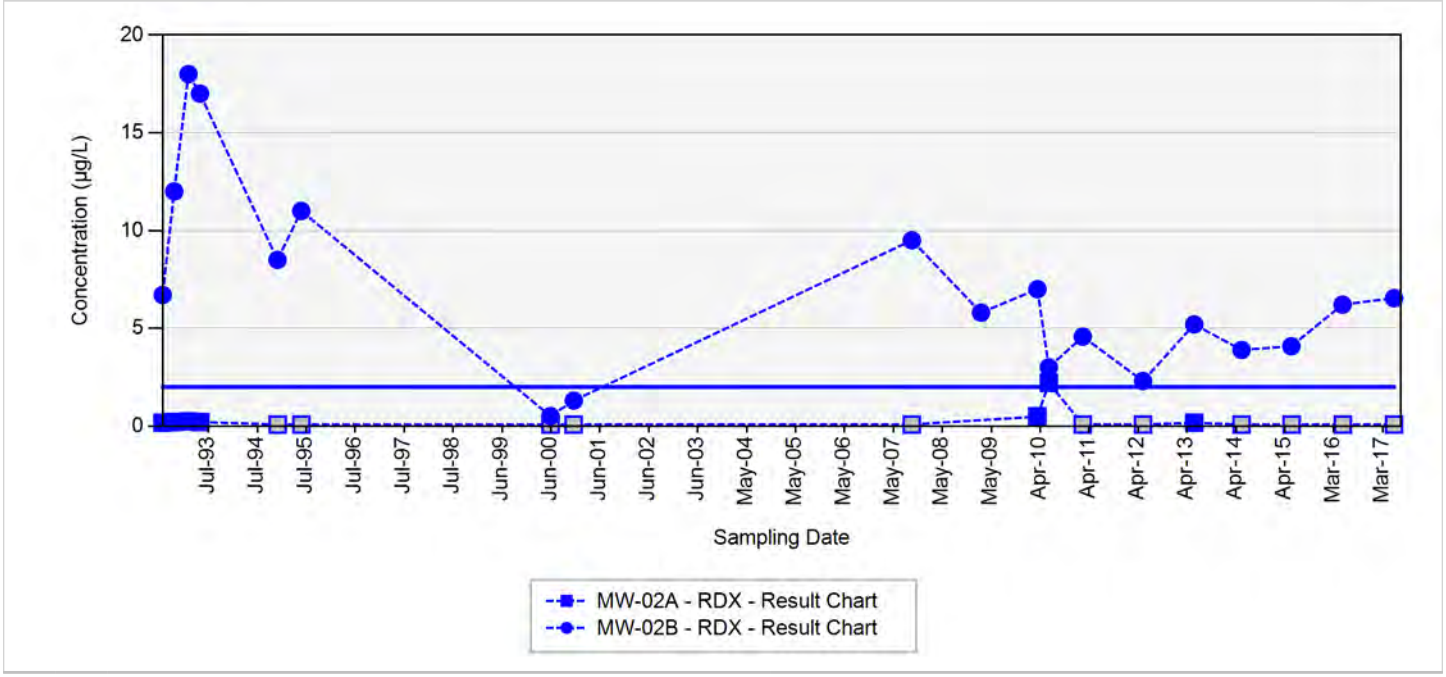
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

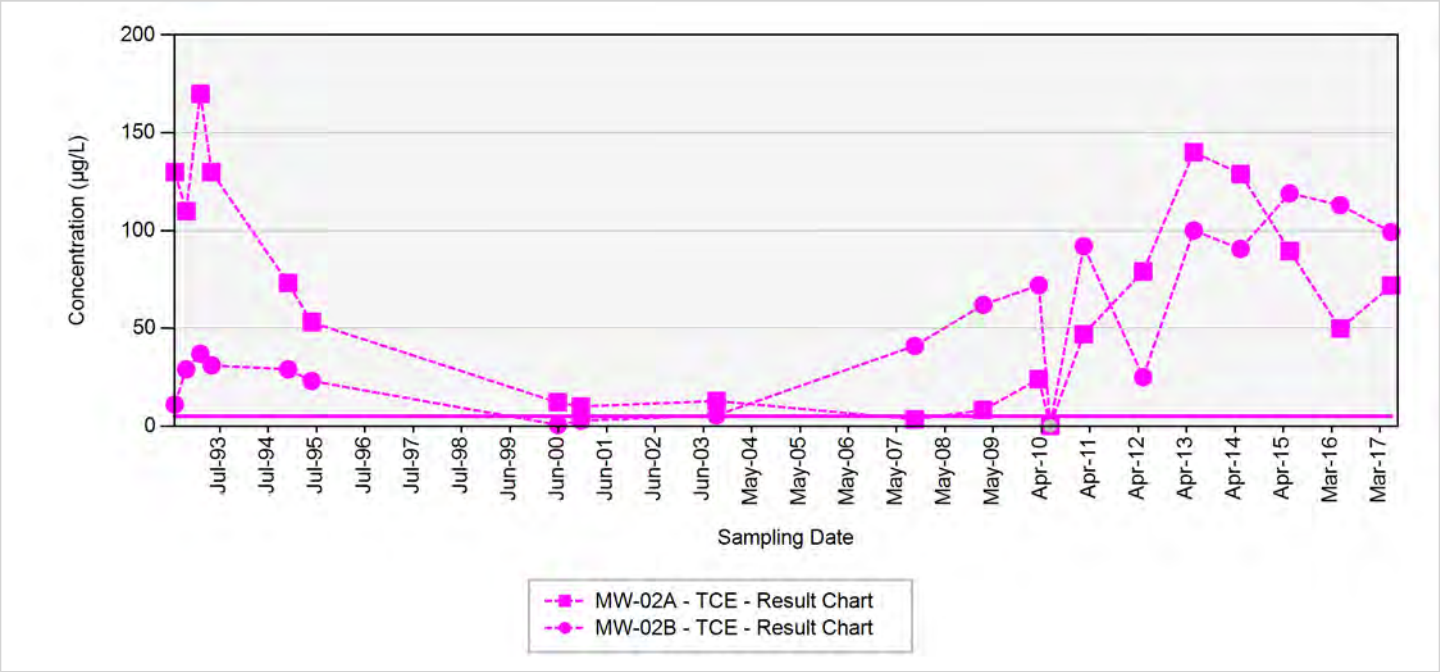
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-02





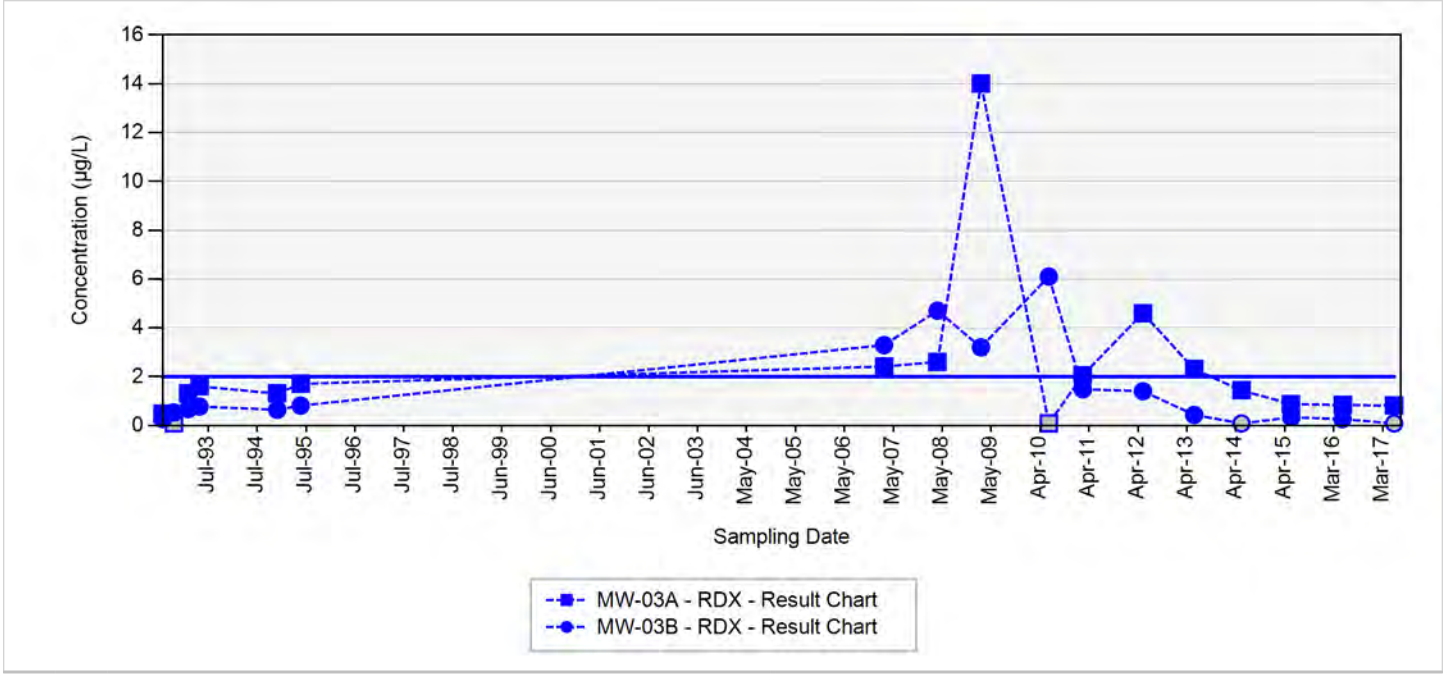
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

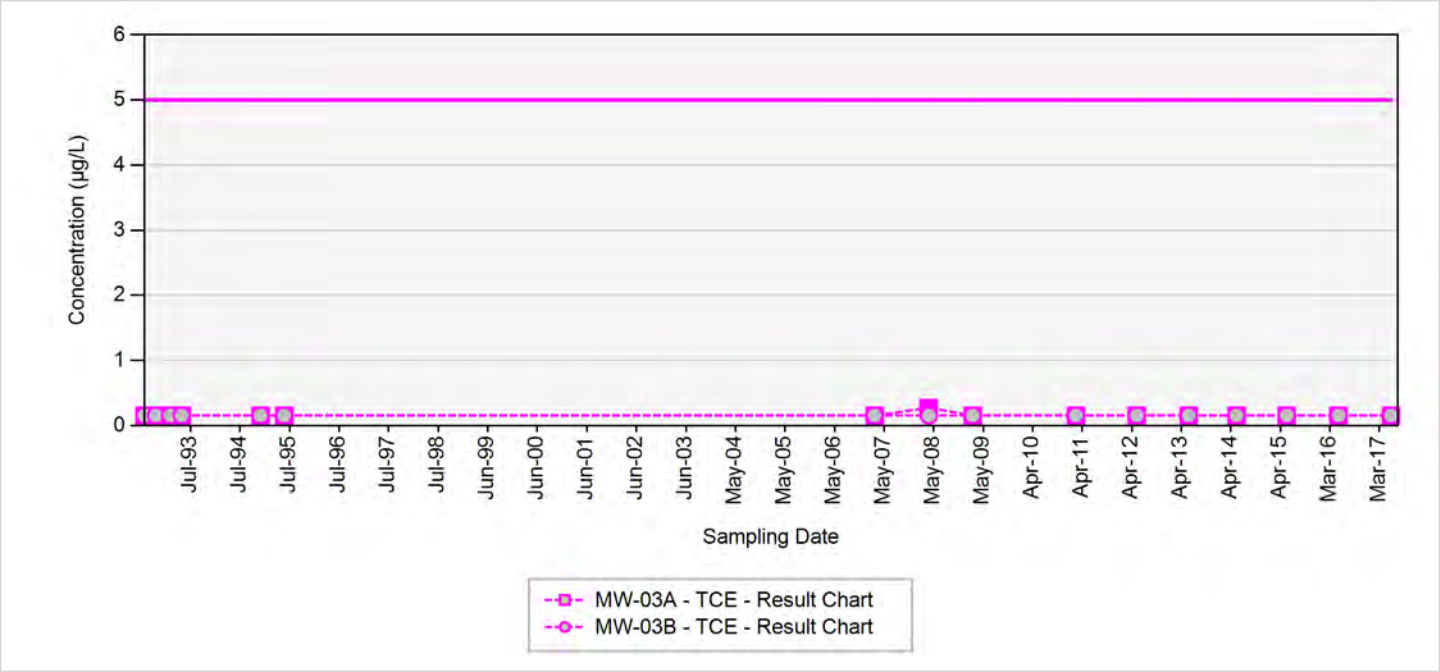
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-03





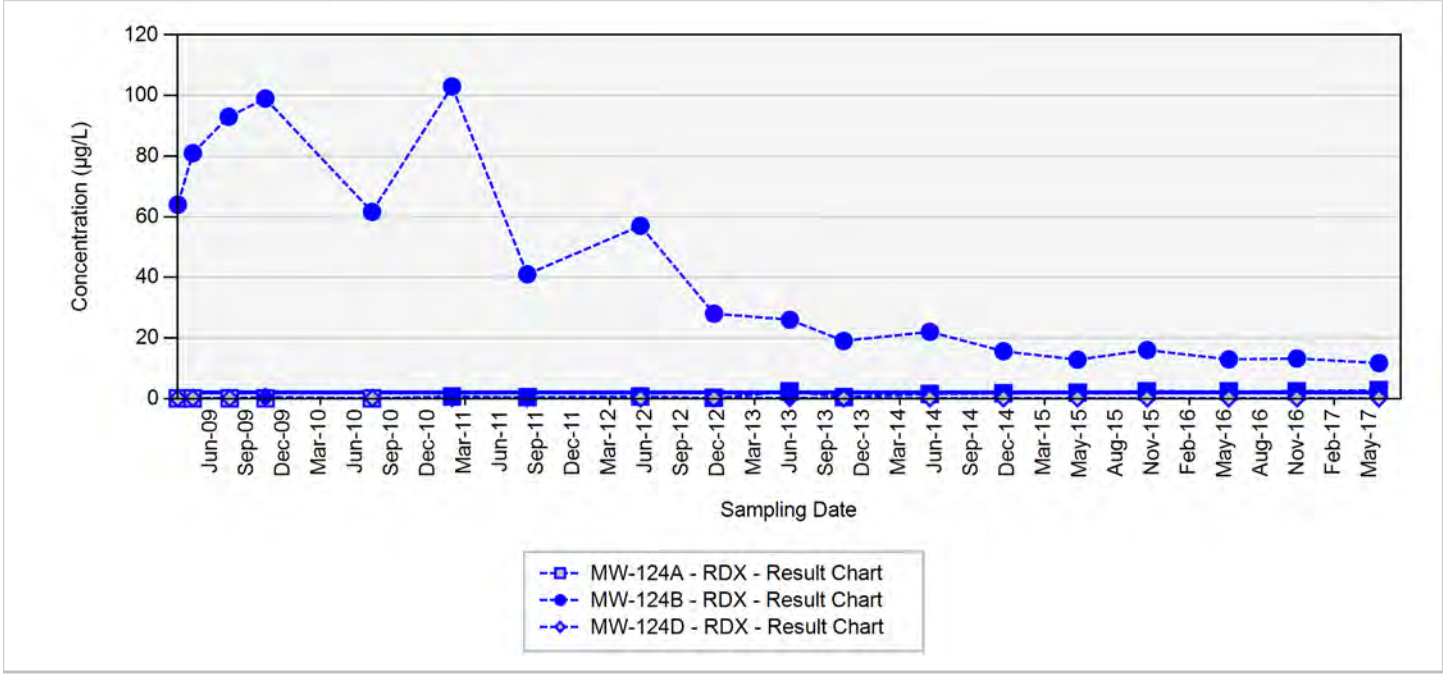
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

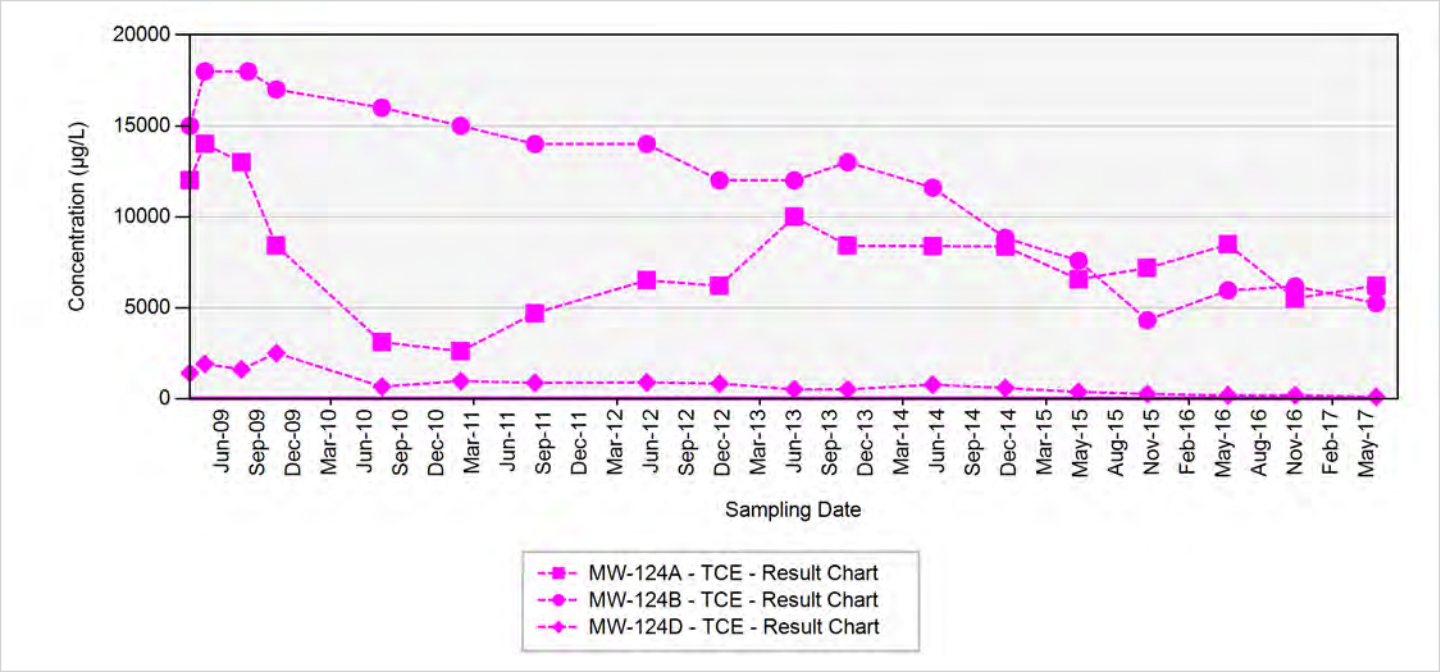
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-124





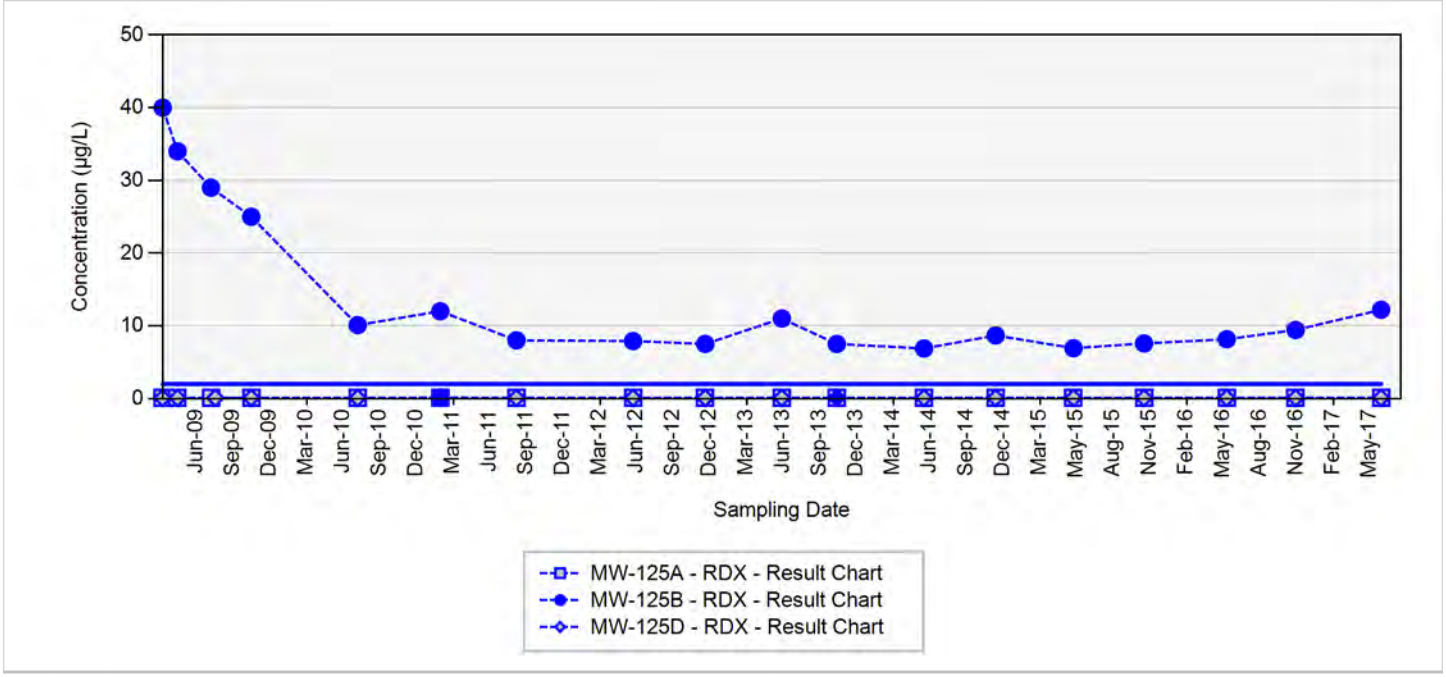
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

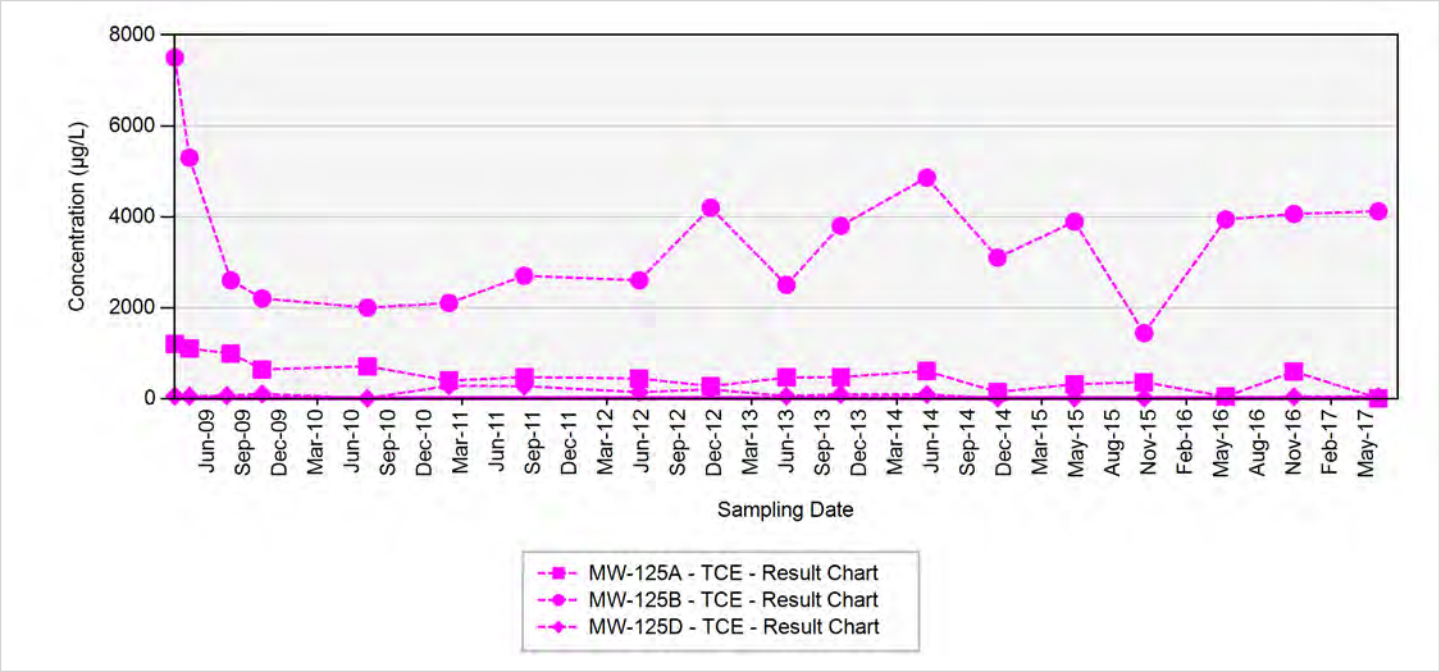
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-125





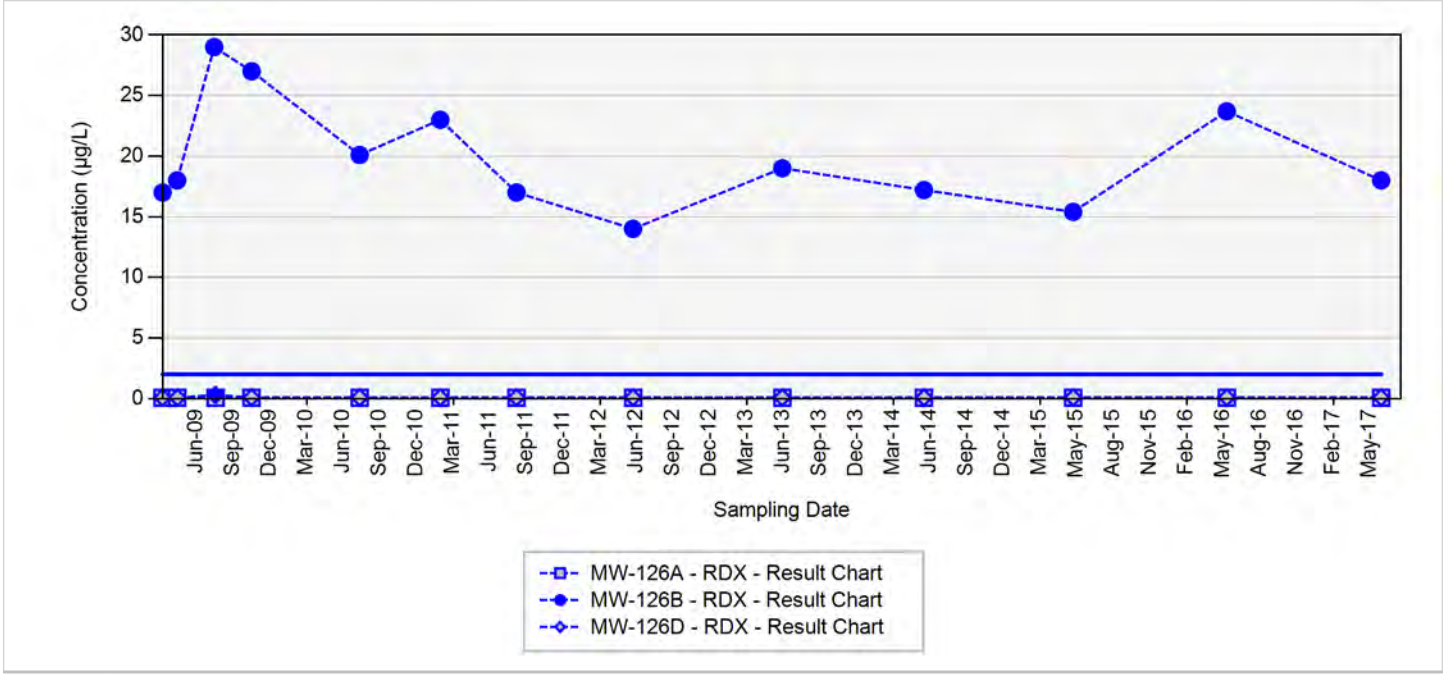
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

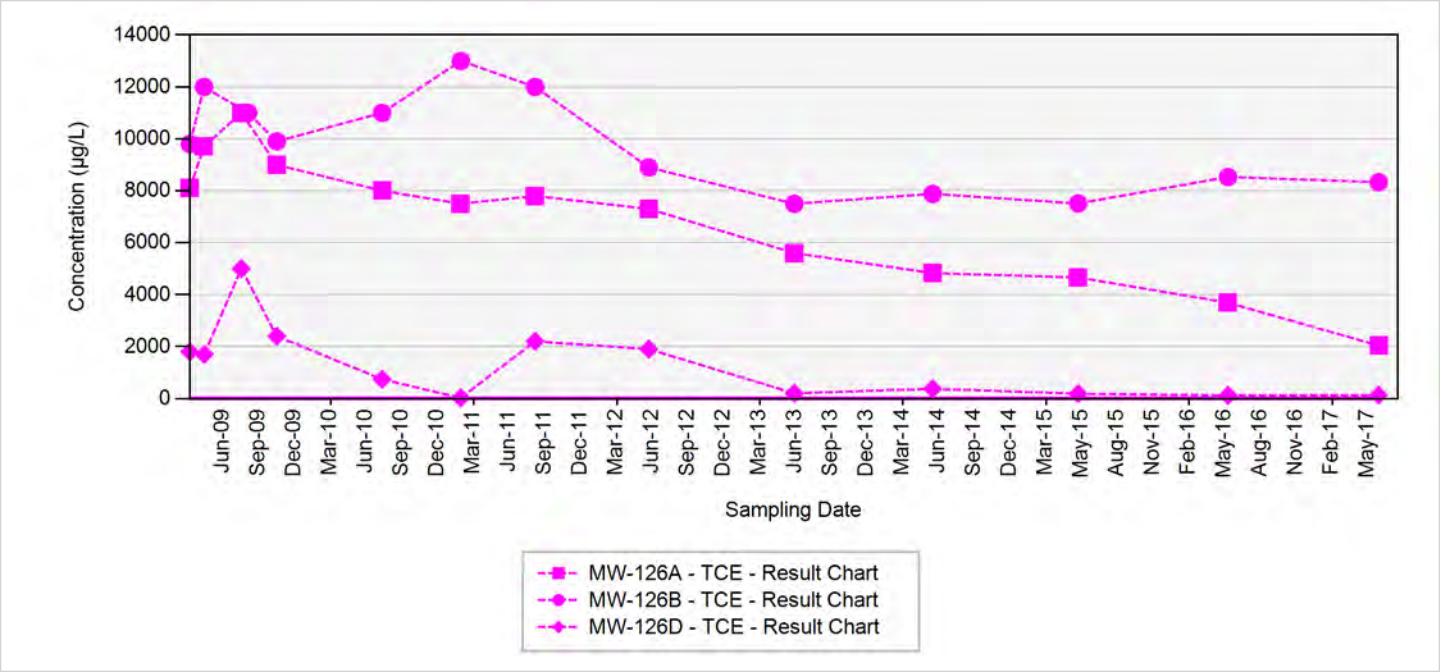
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-126





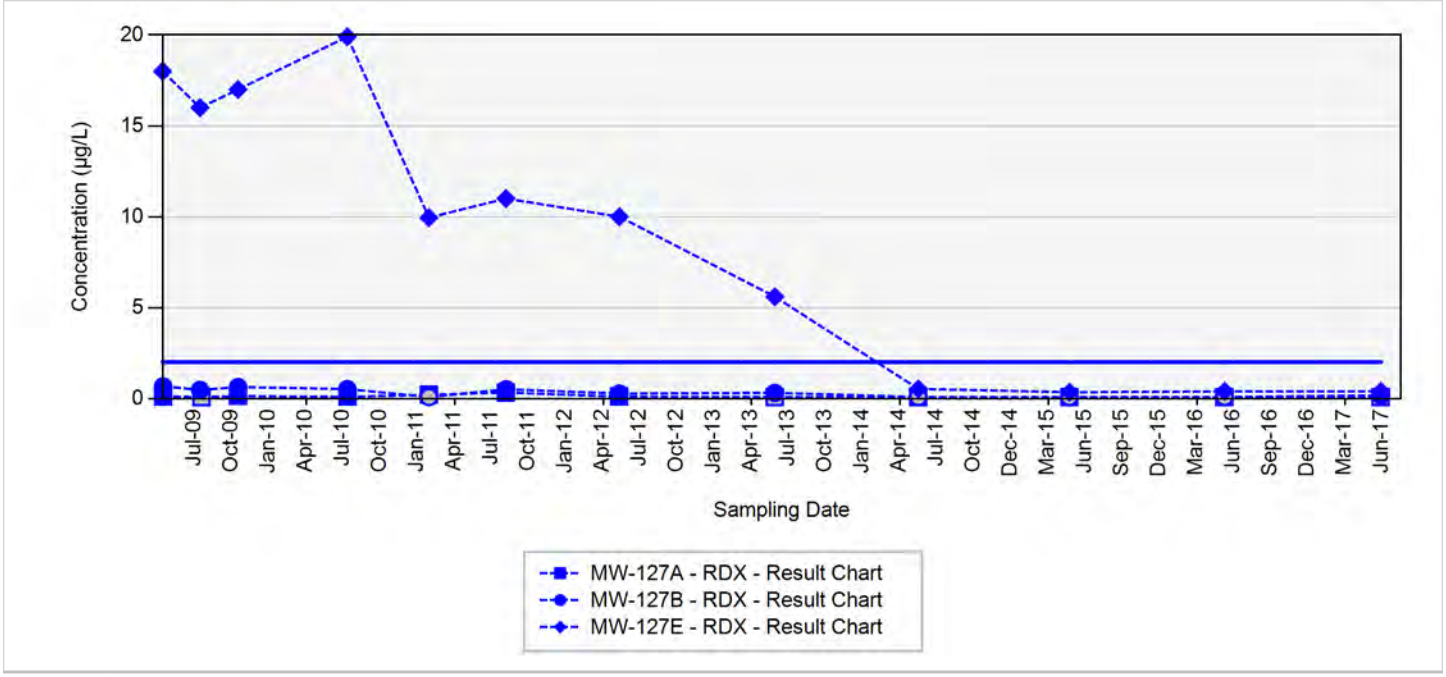
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

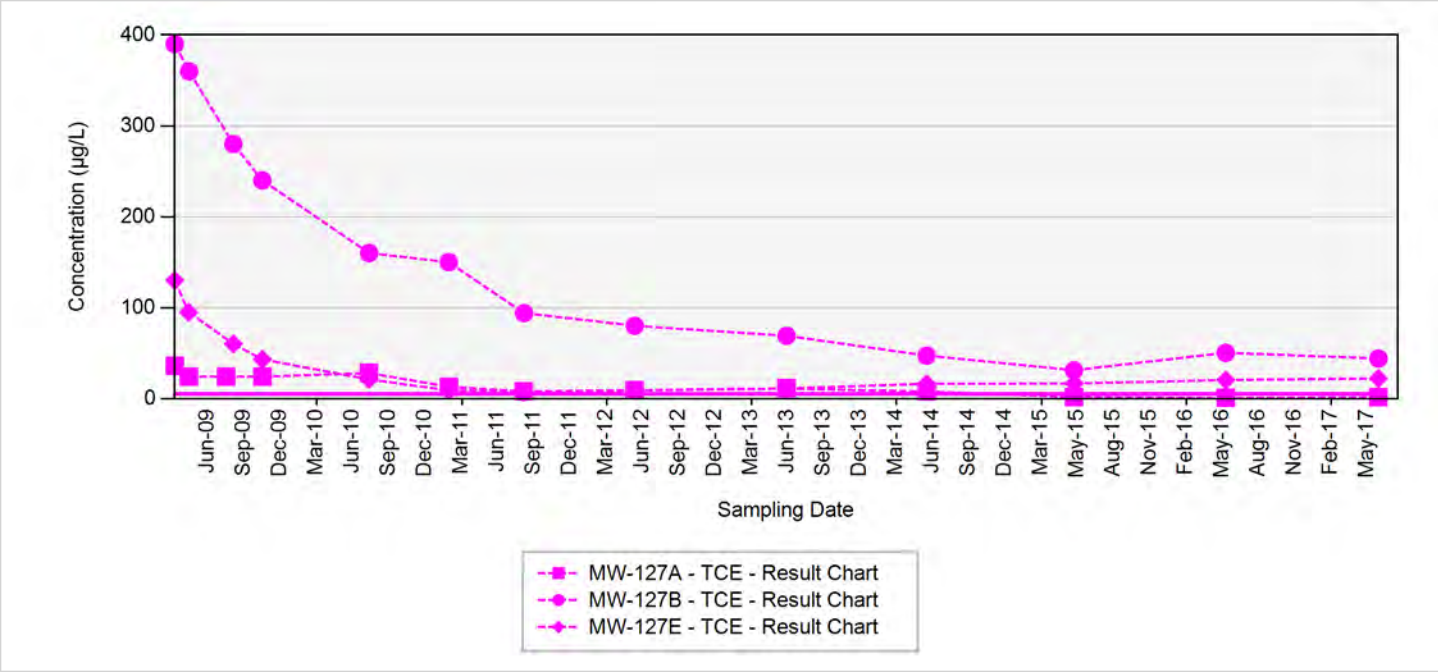
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-127





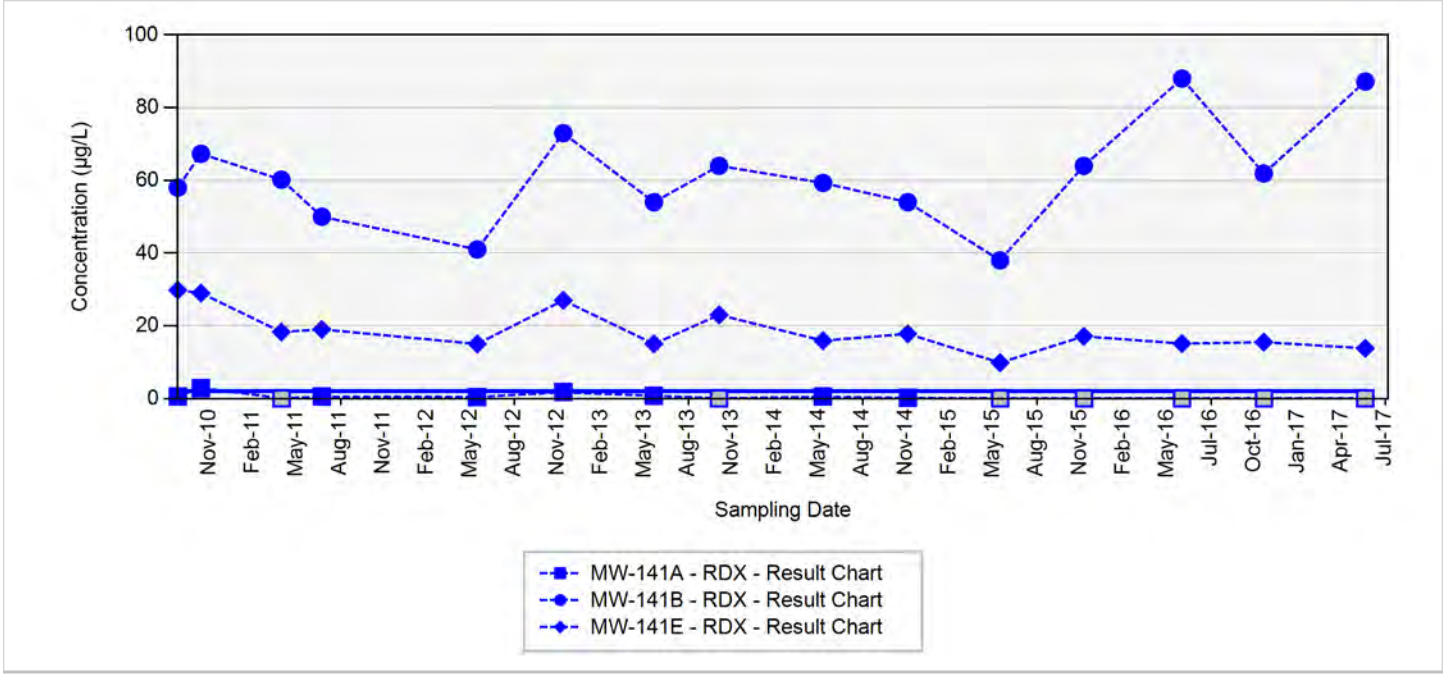
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

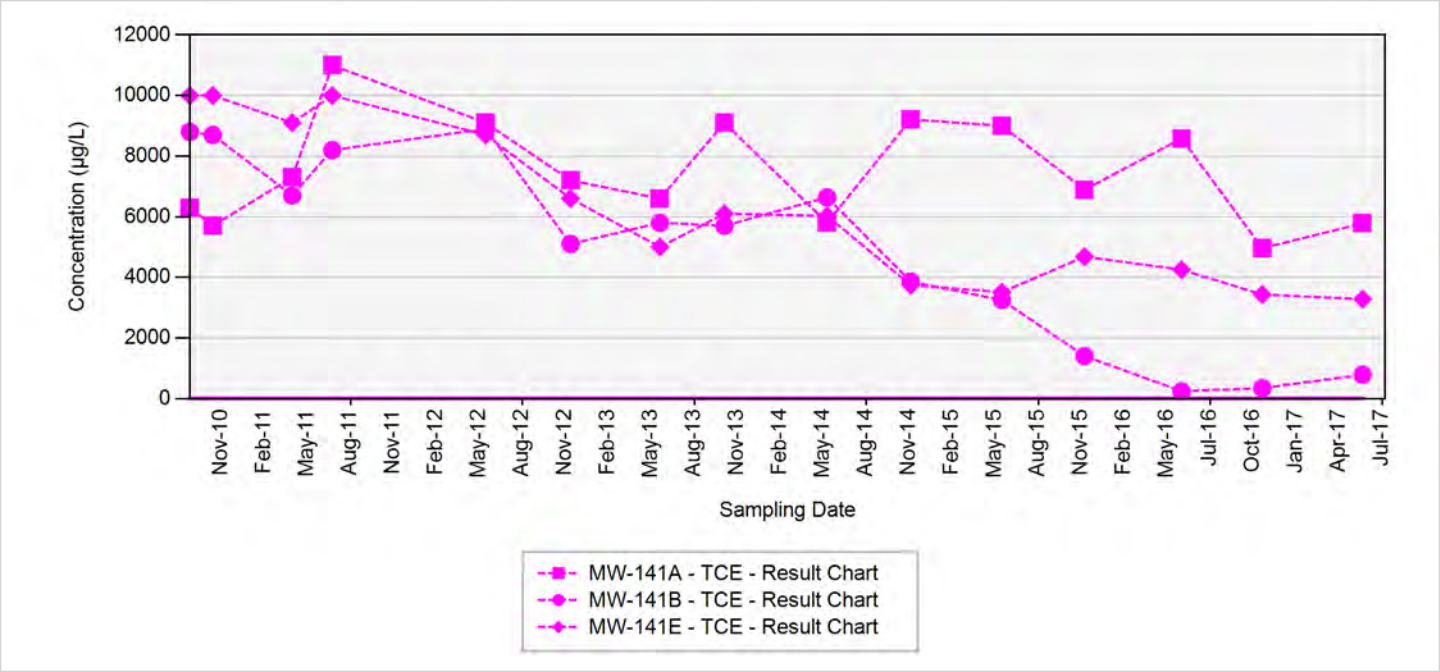
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-141





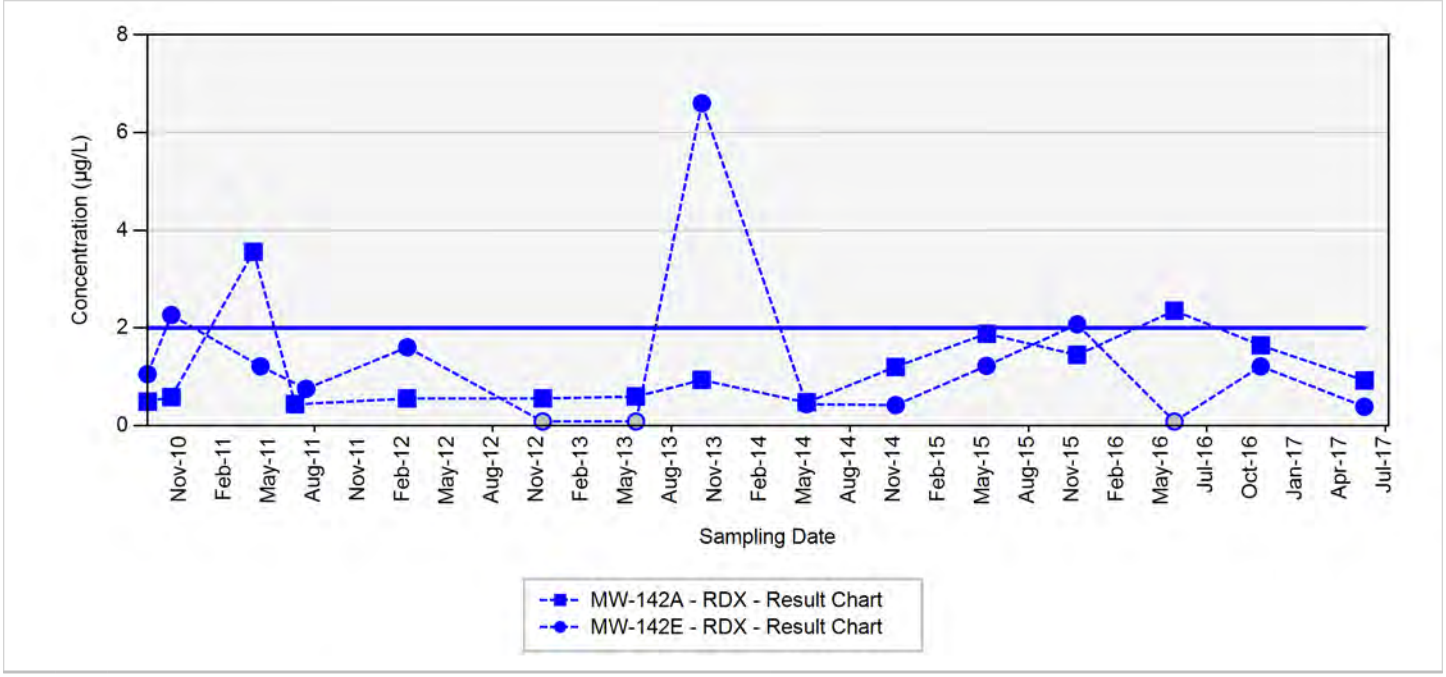
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

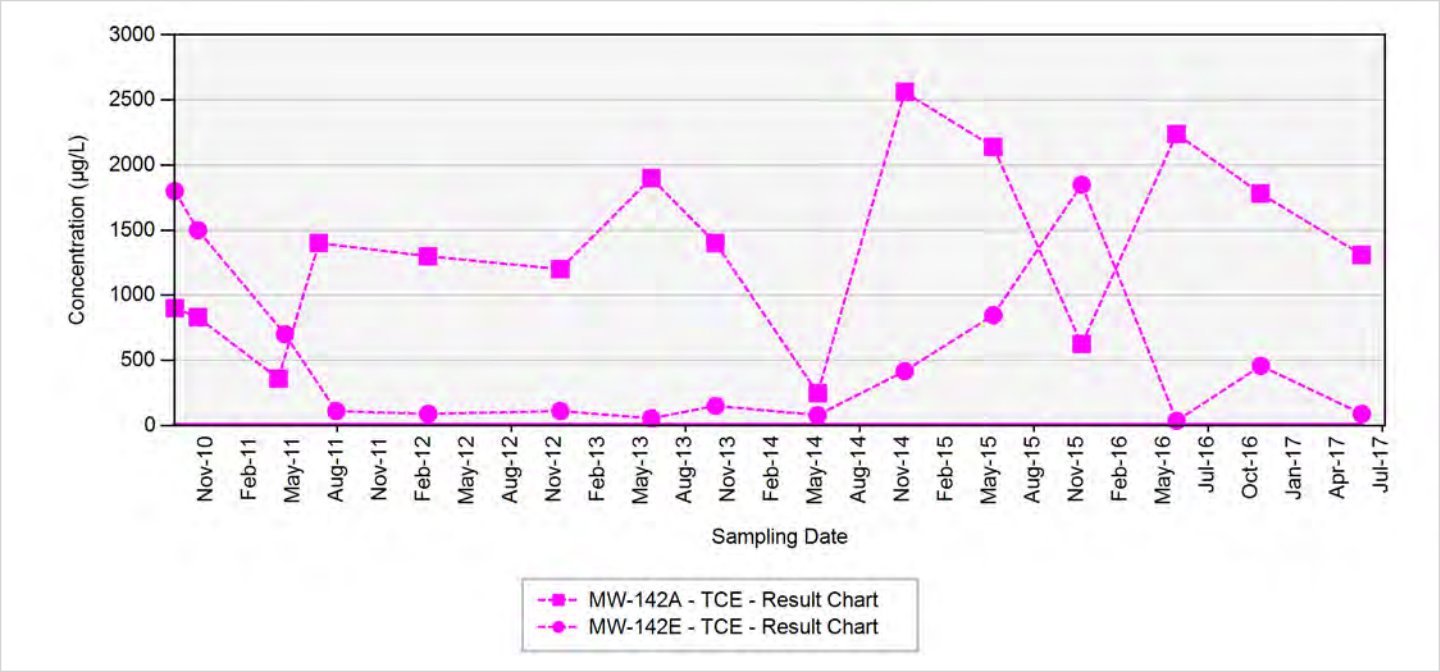
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-142





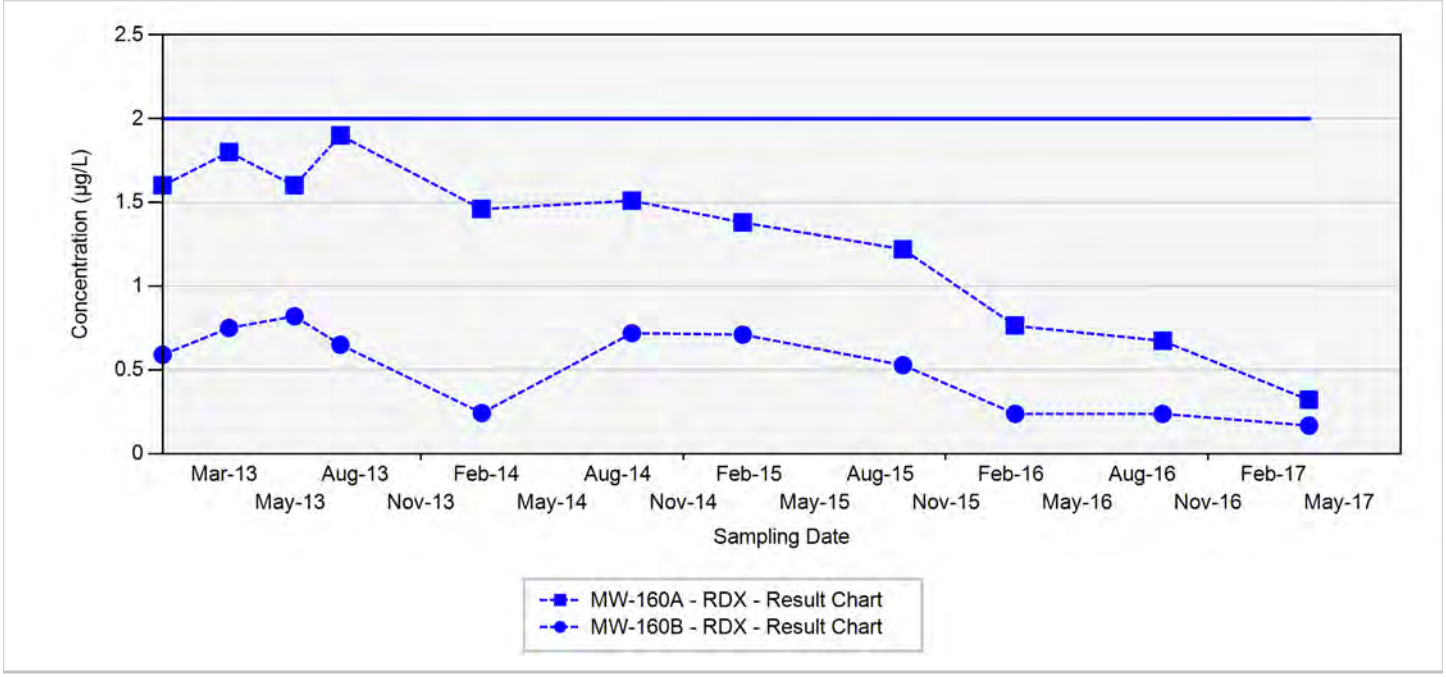
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

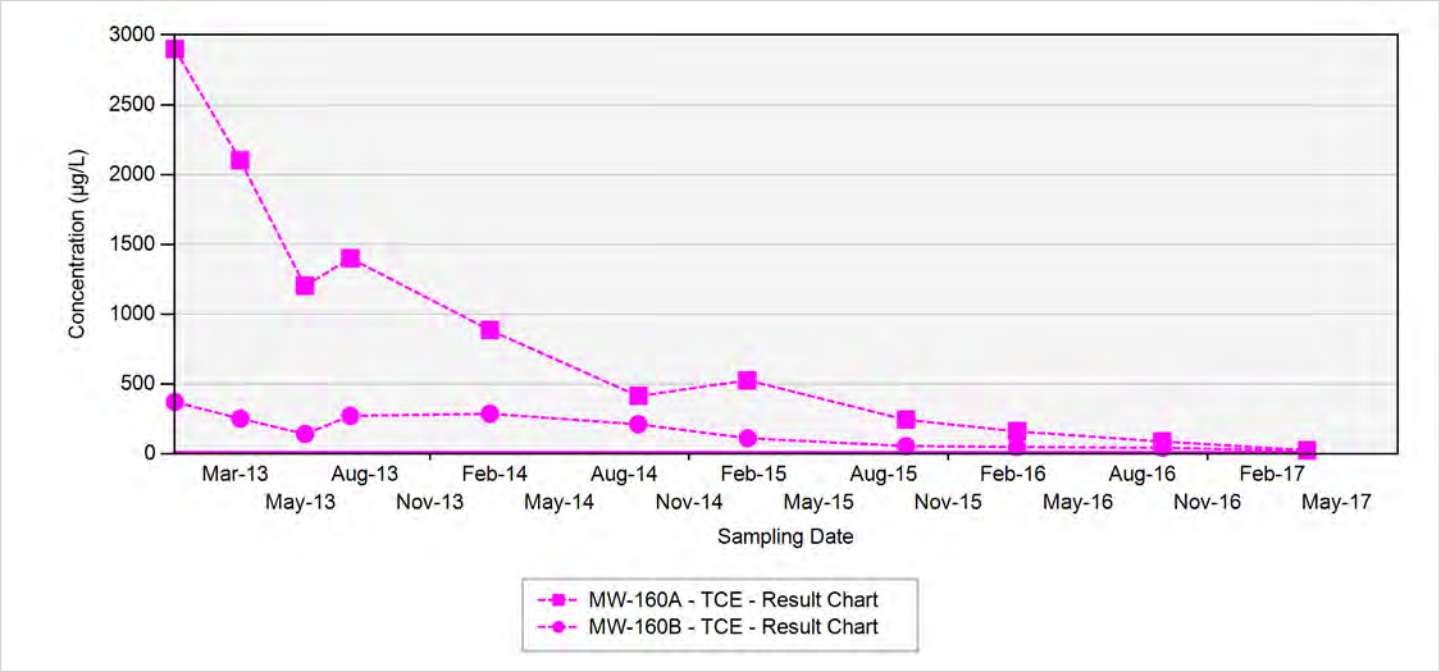
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-160





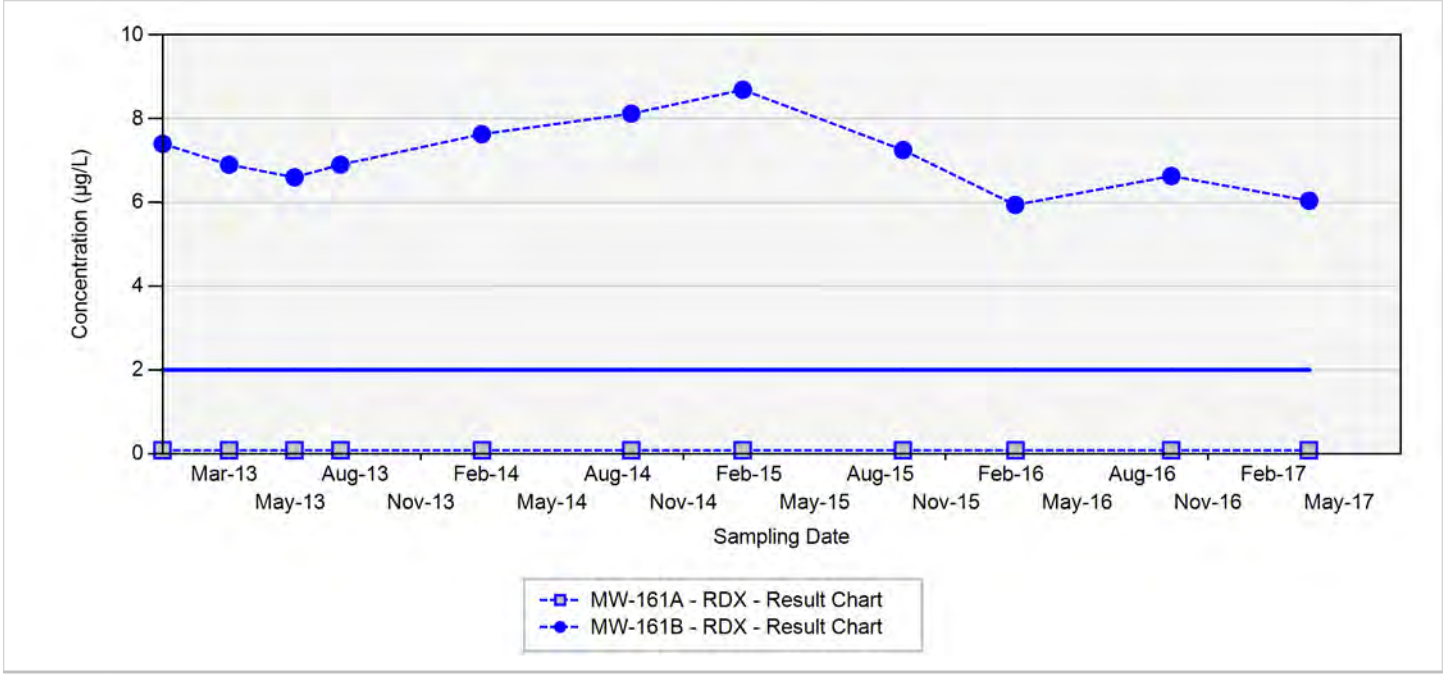
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

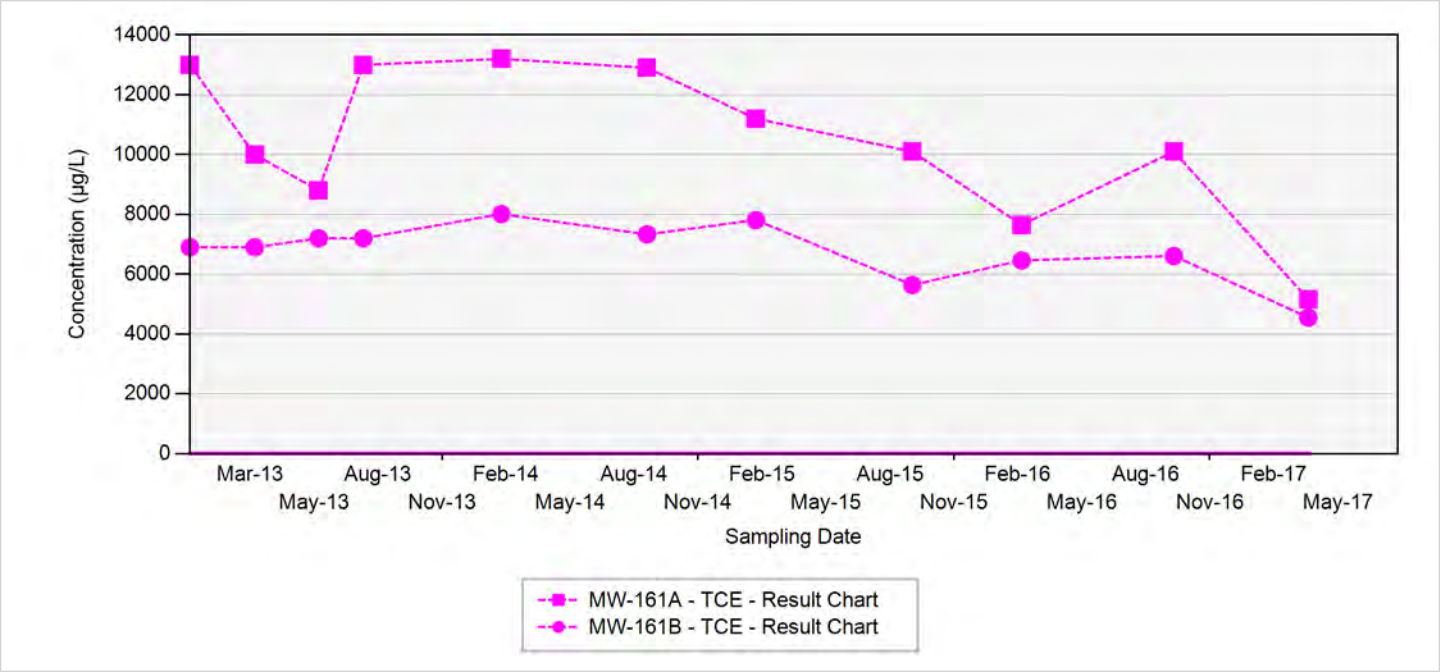
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-161





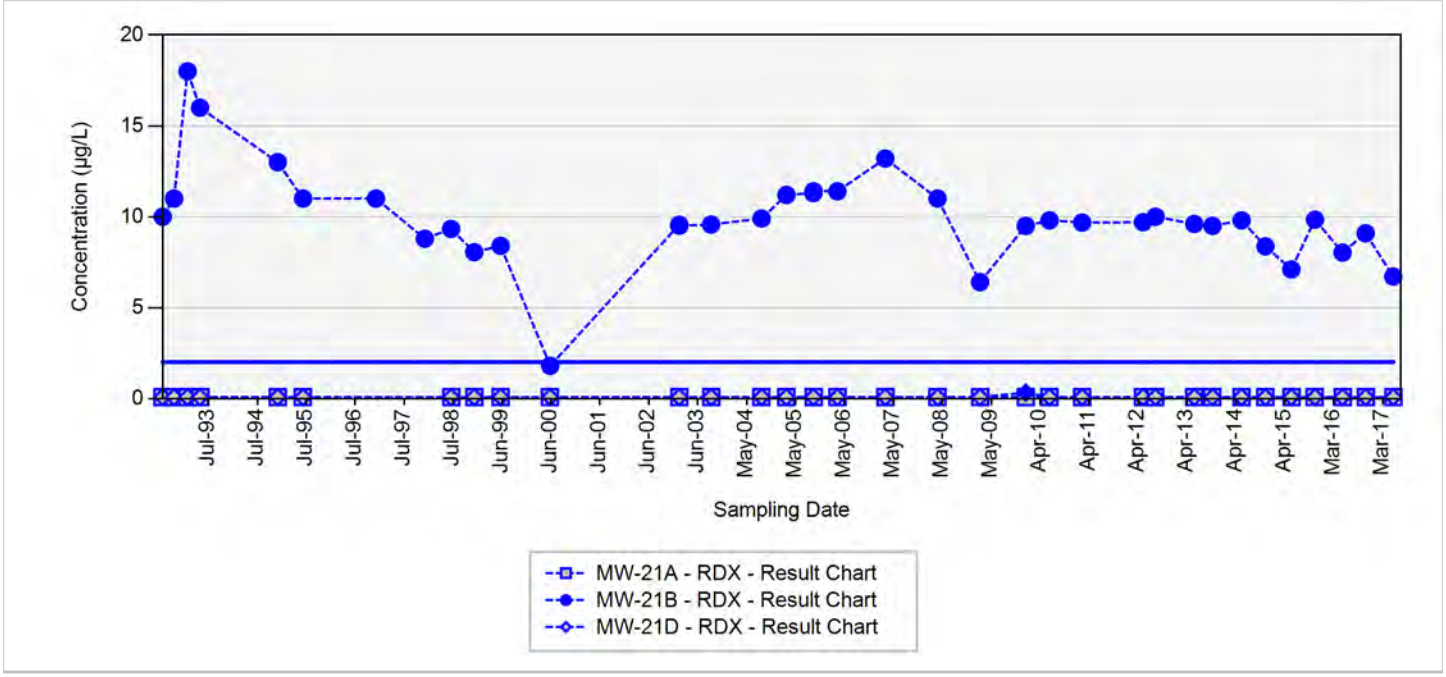
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

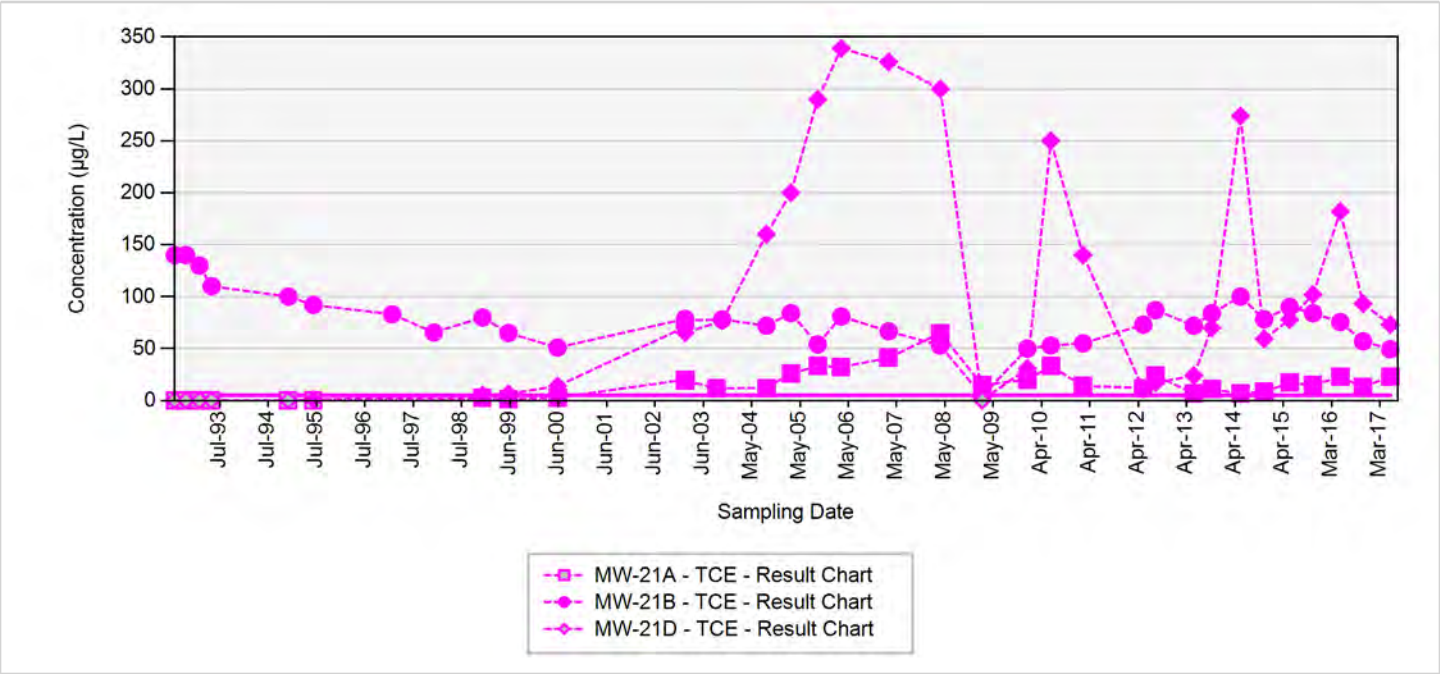
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-21





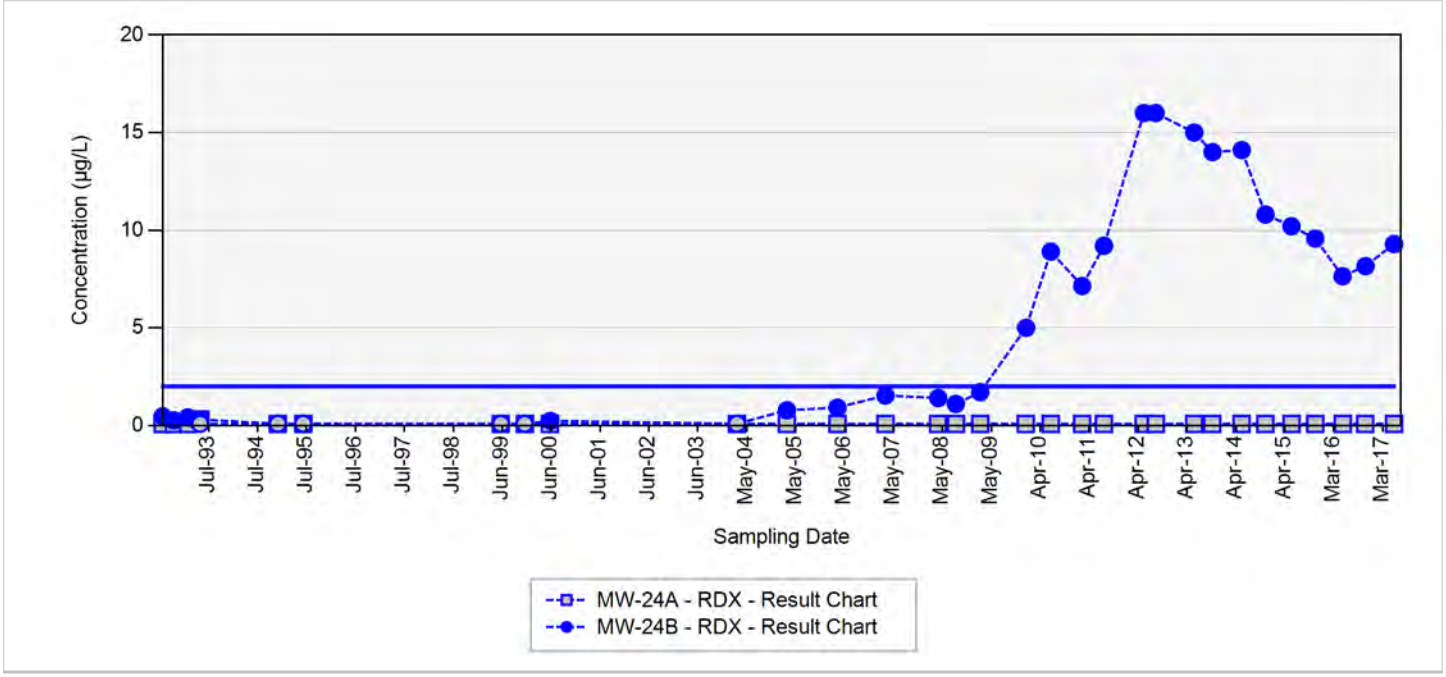
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

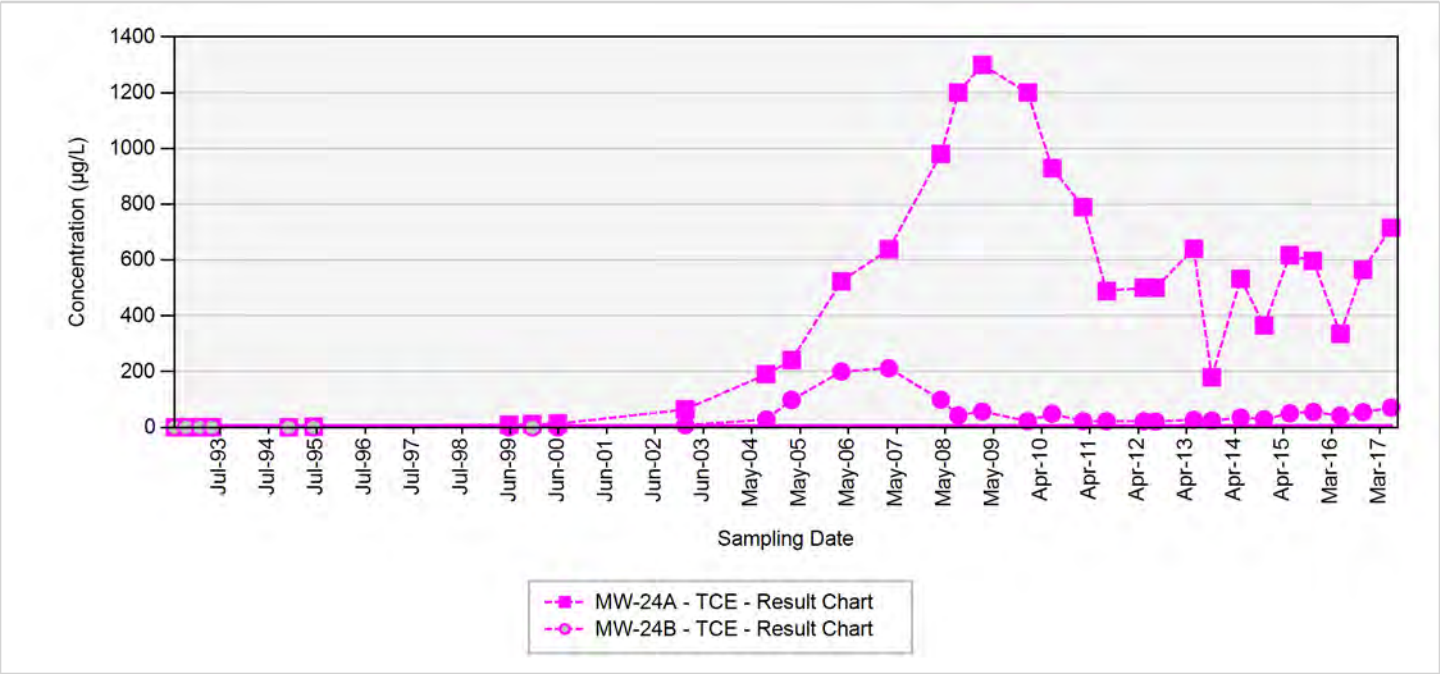
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-24





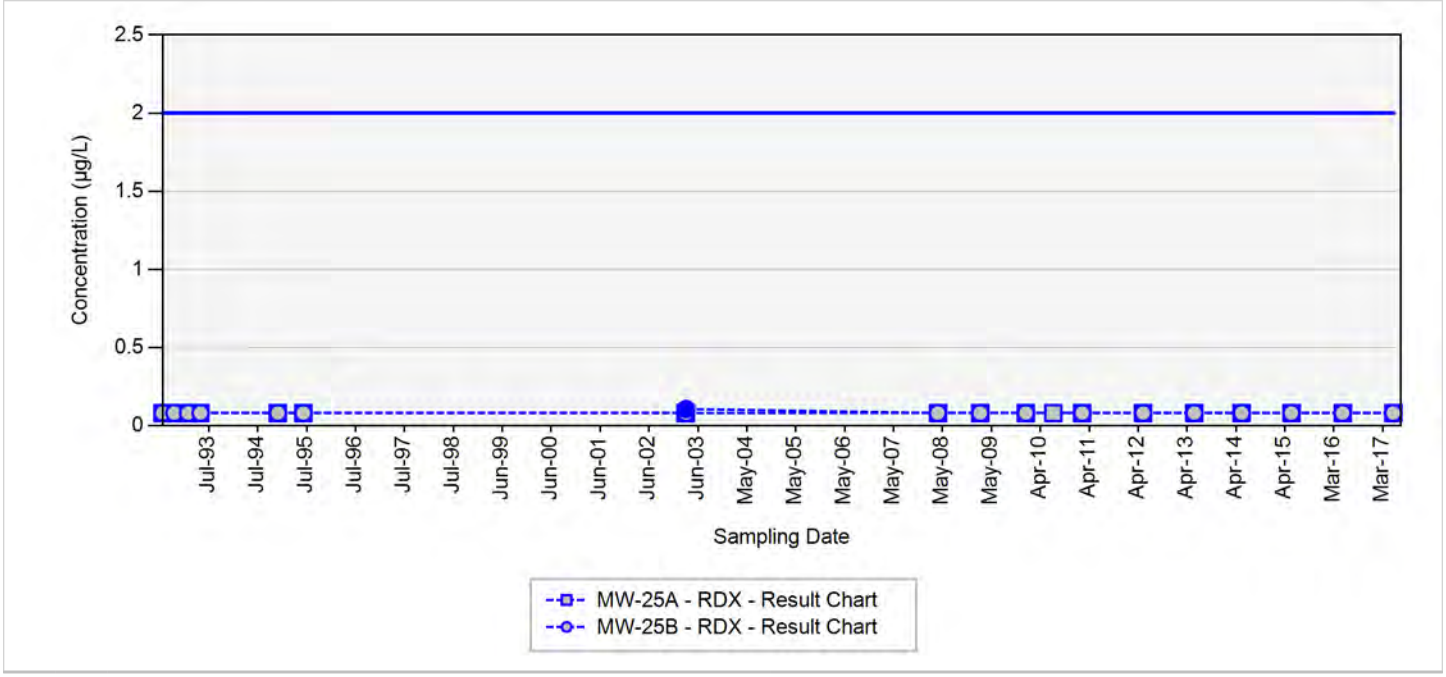
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

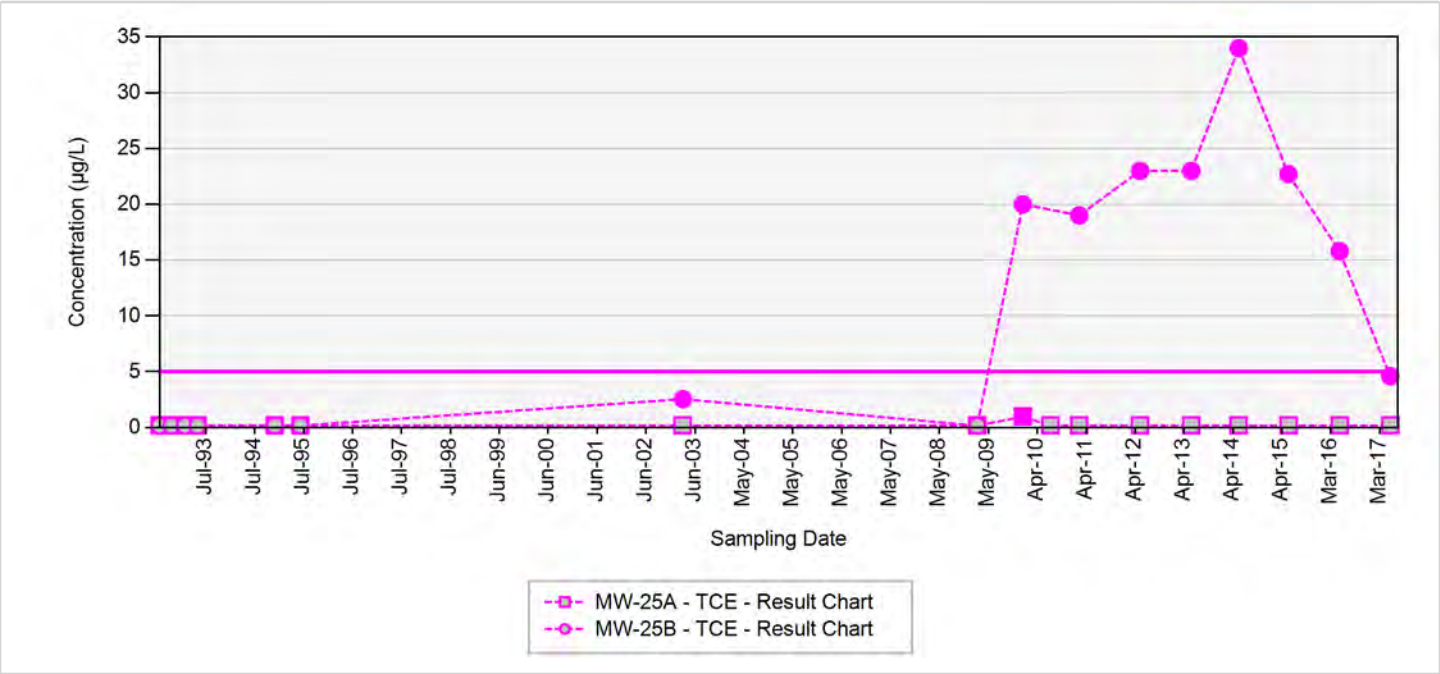
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-25





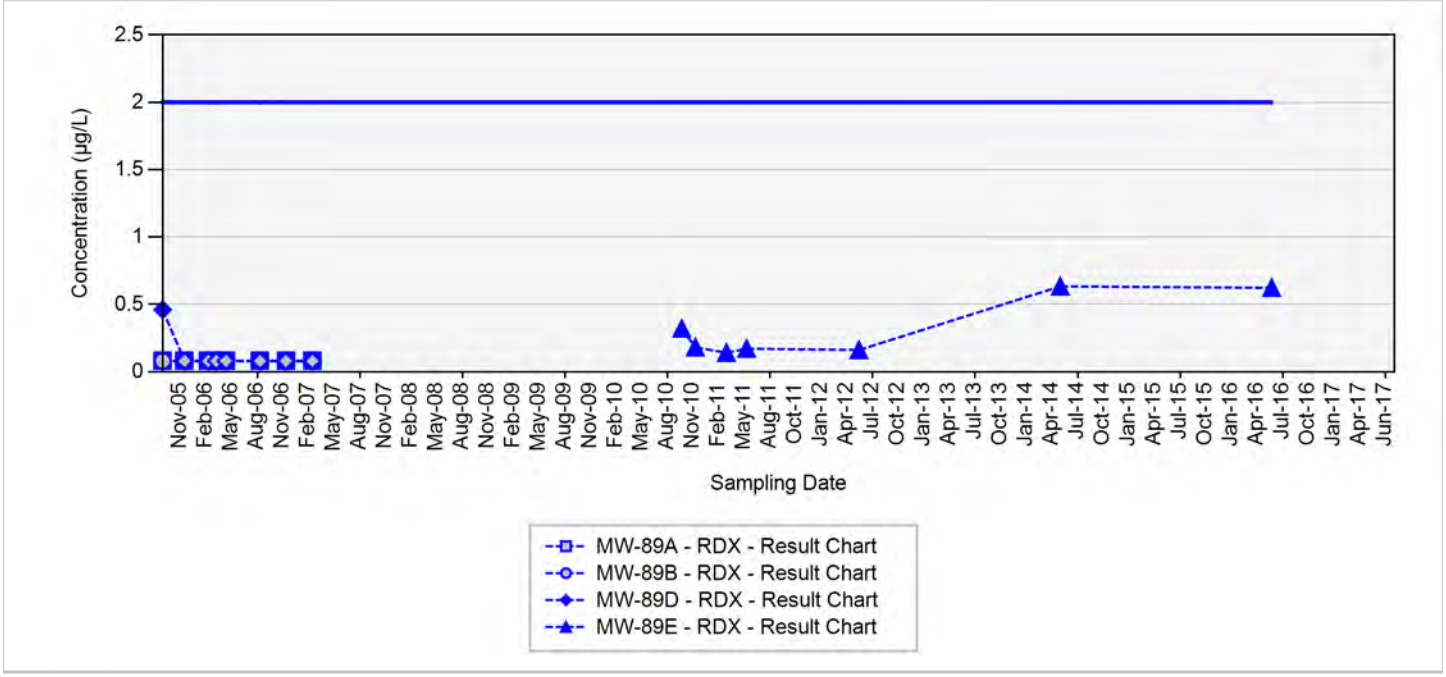
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

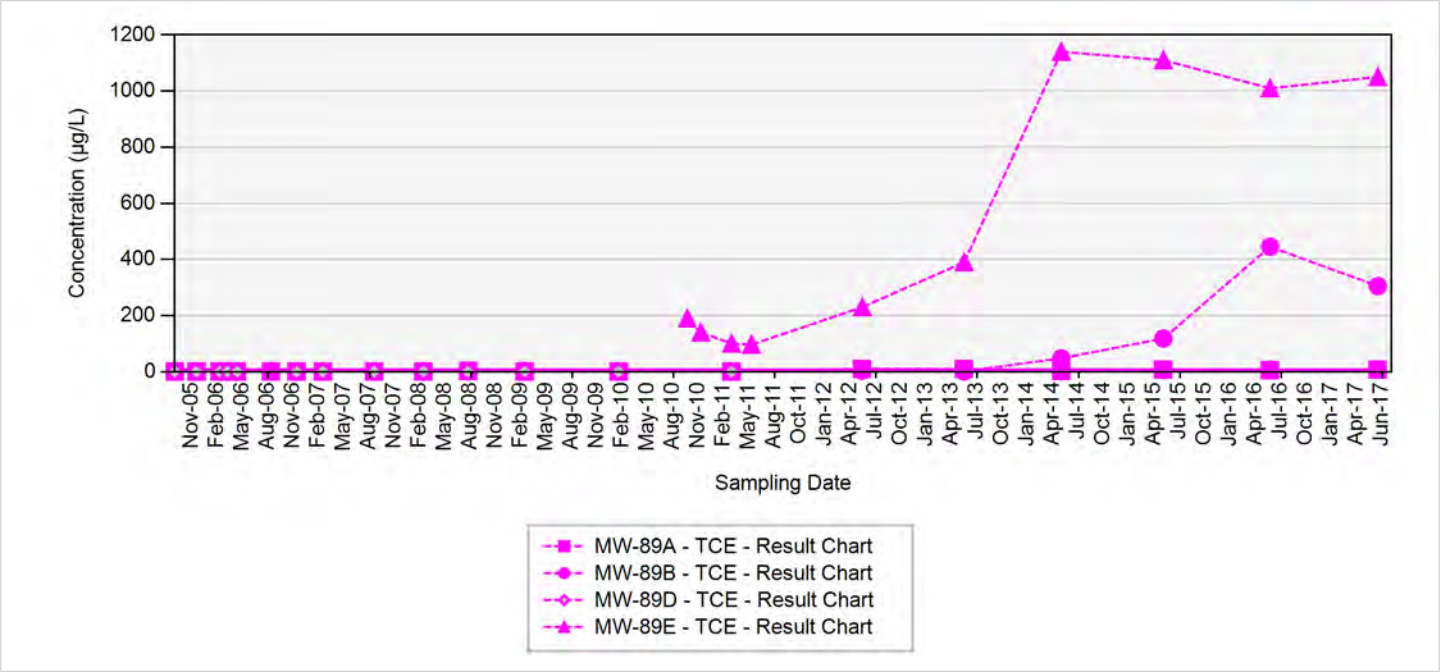
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-89





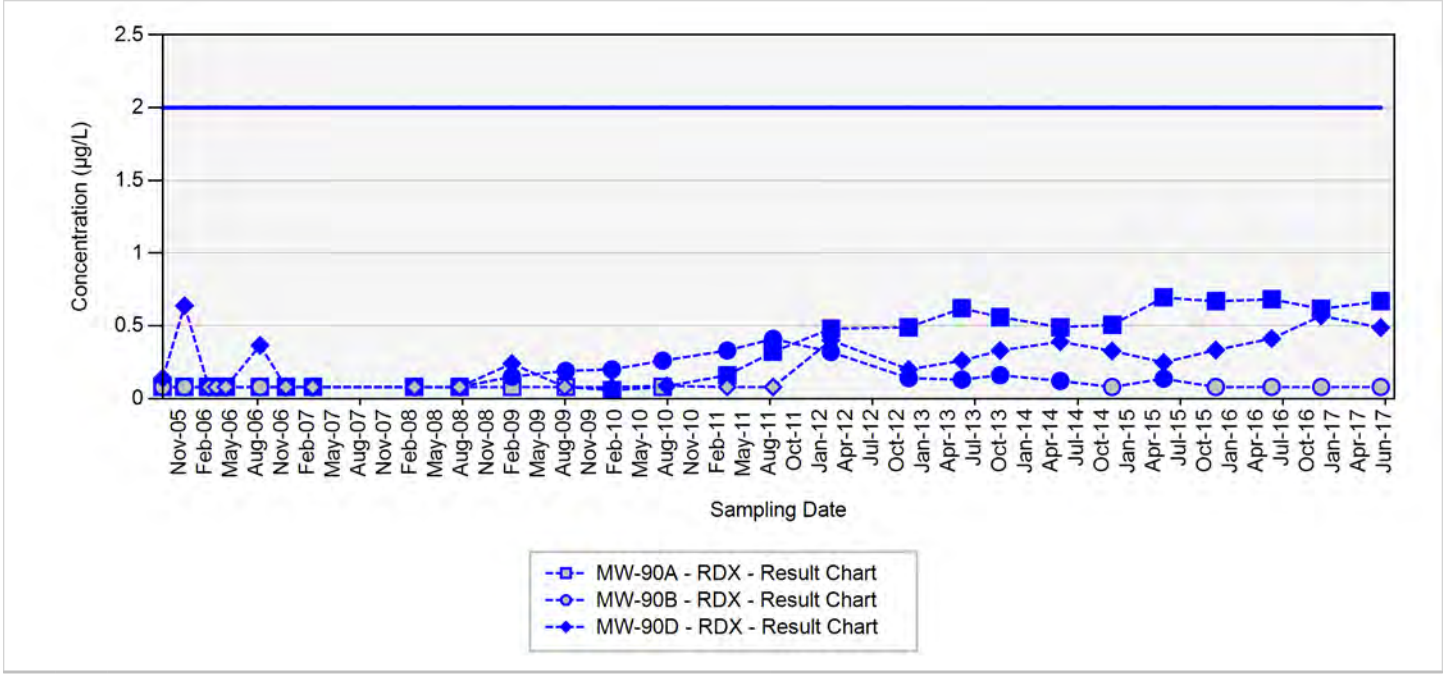
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

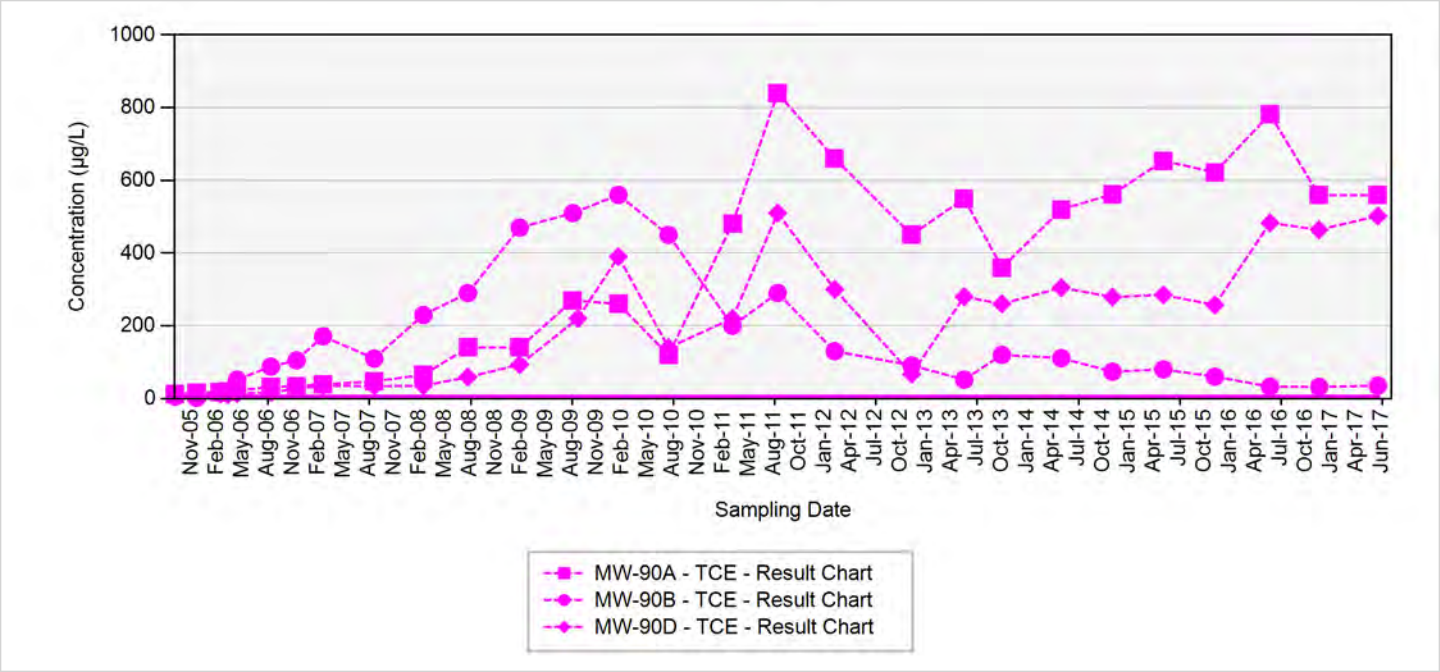
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.3
Concentration Trend Charts for Load Line 1 Interior Plume Monitoring

MW-90





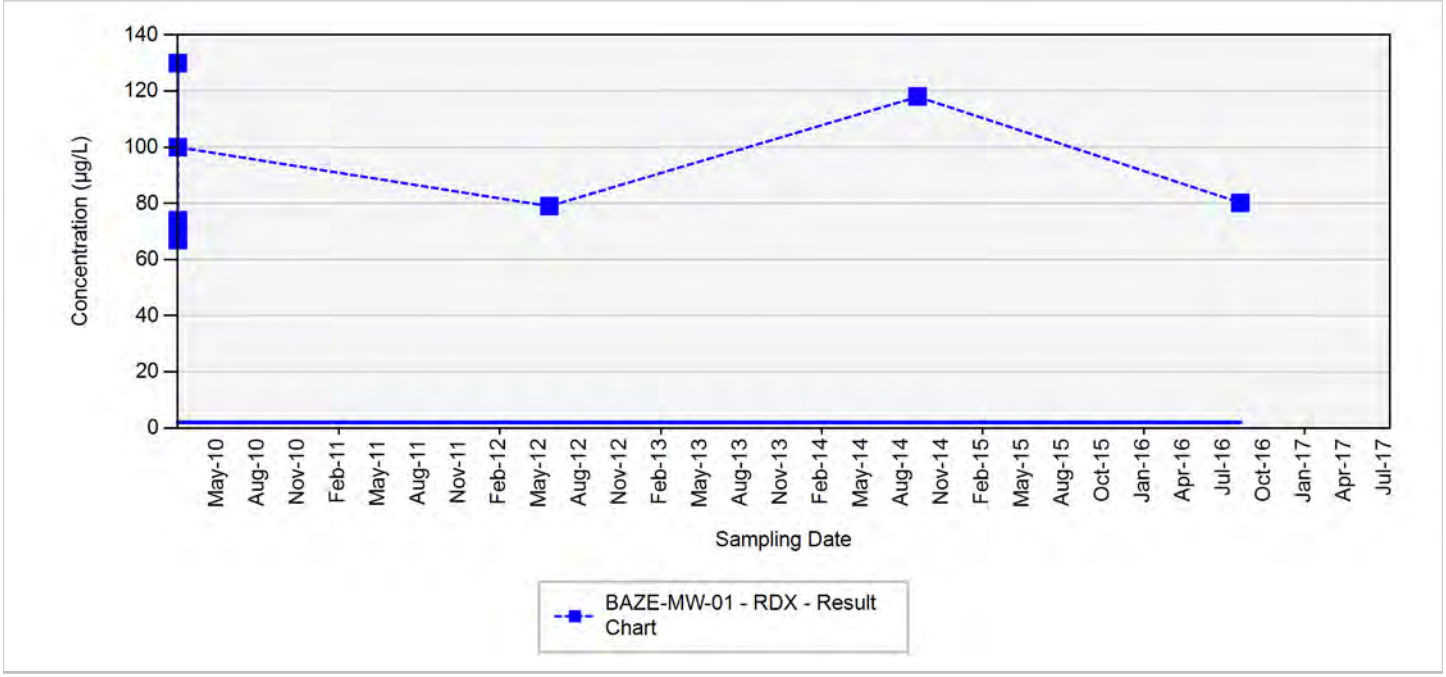
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-BAZE-01



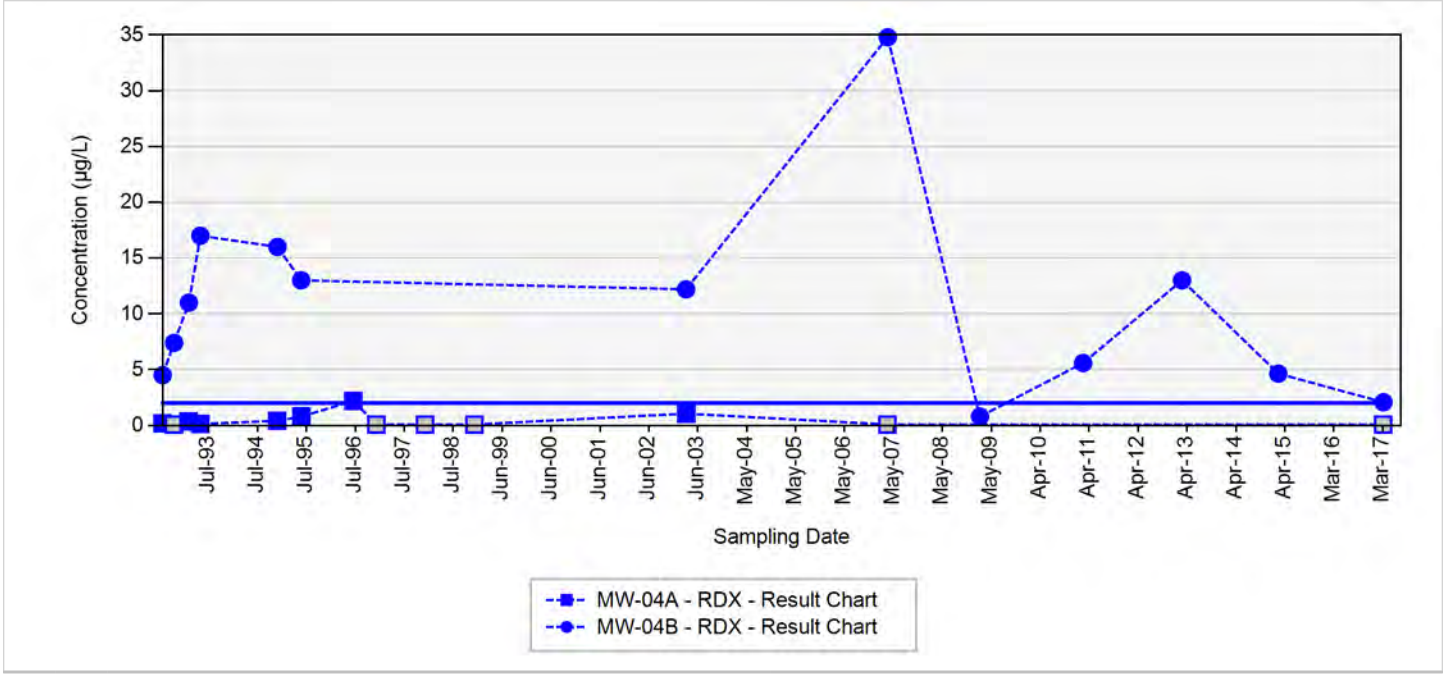
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

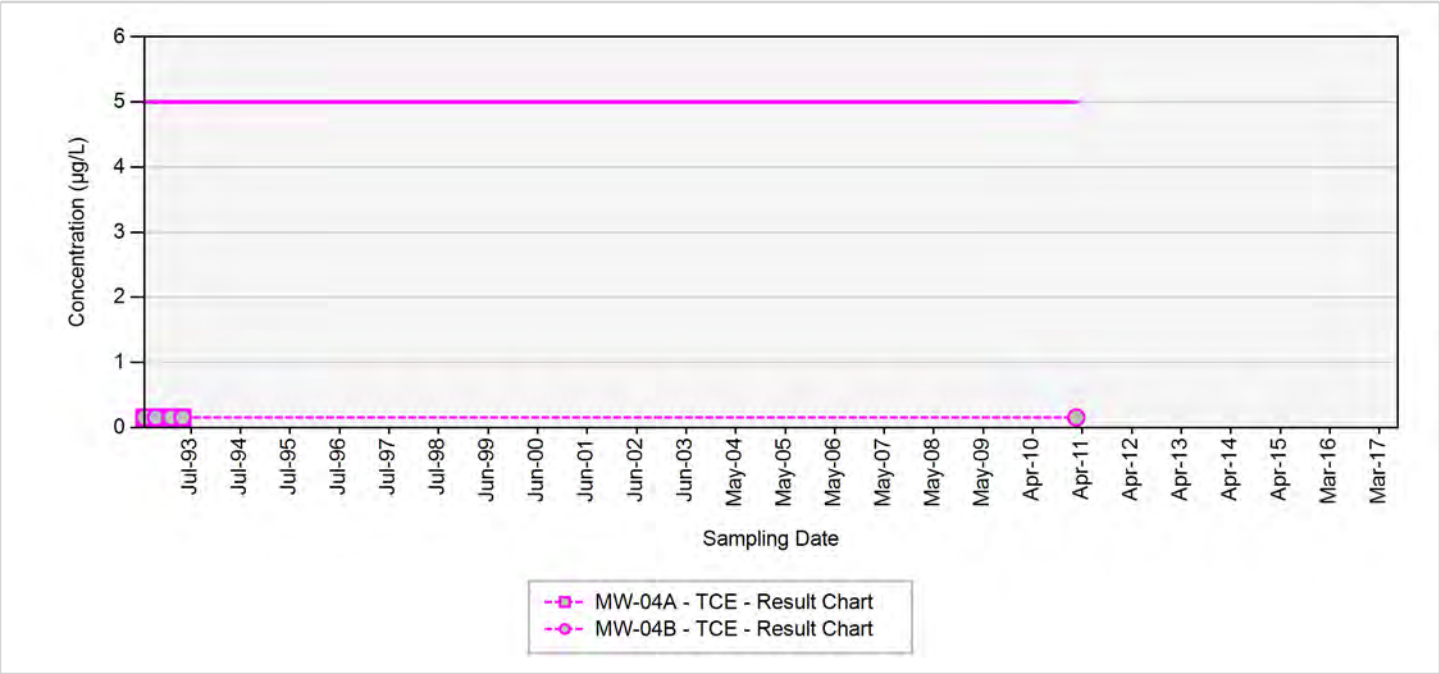
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-04





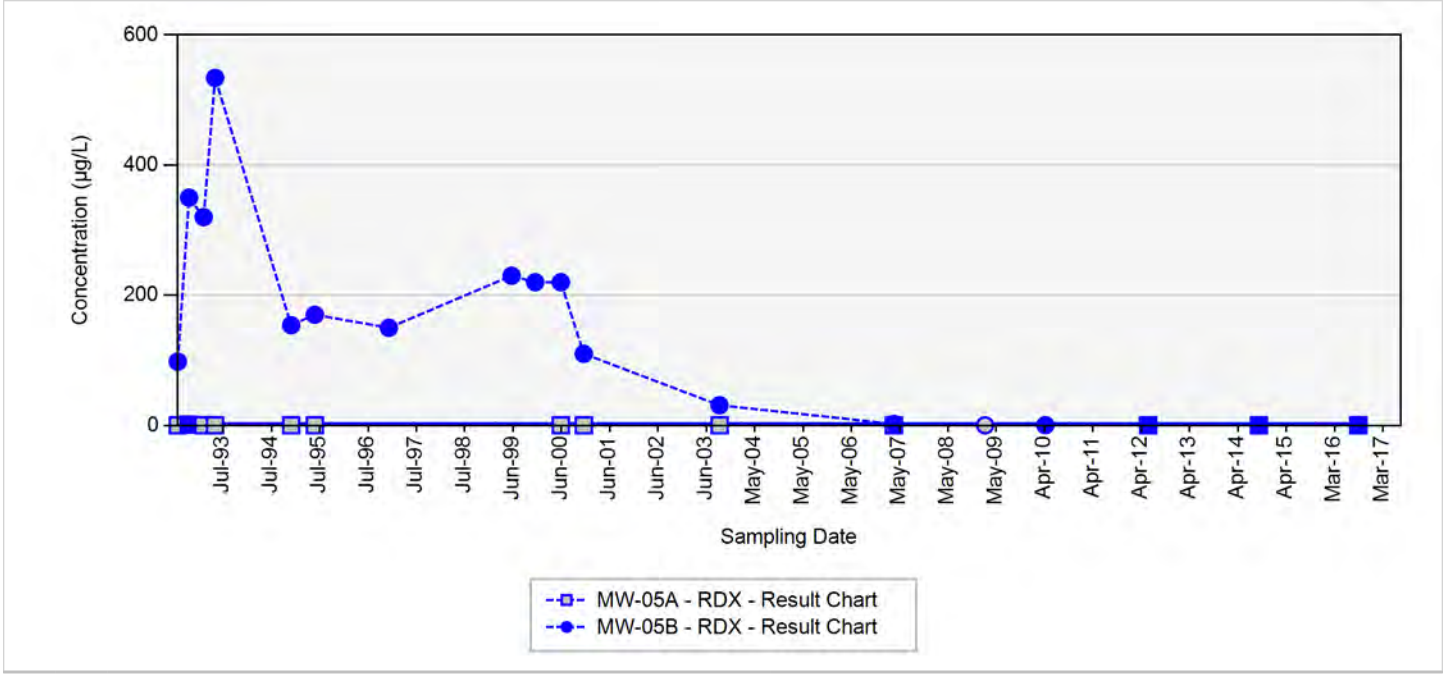
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

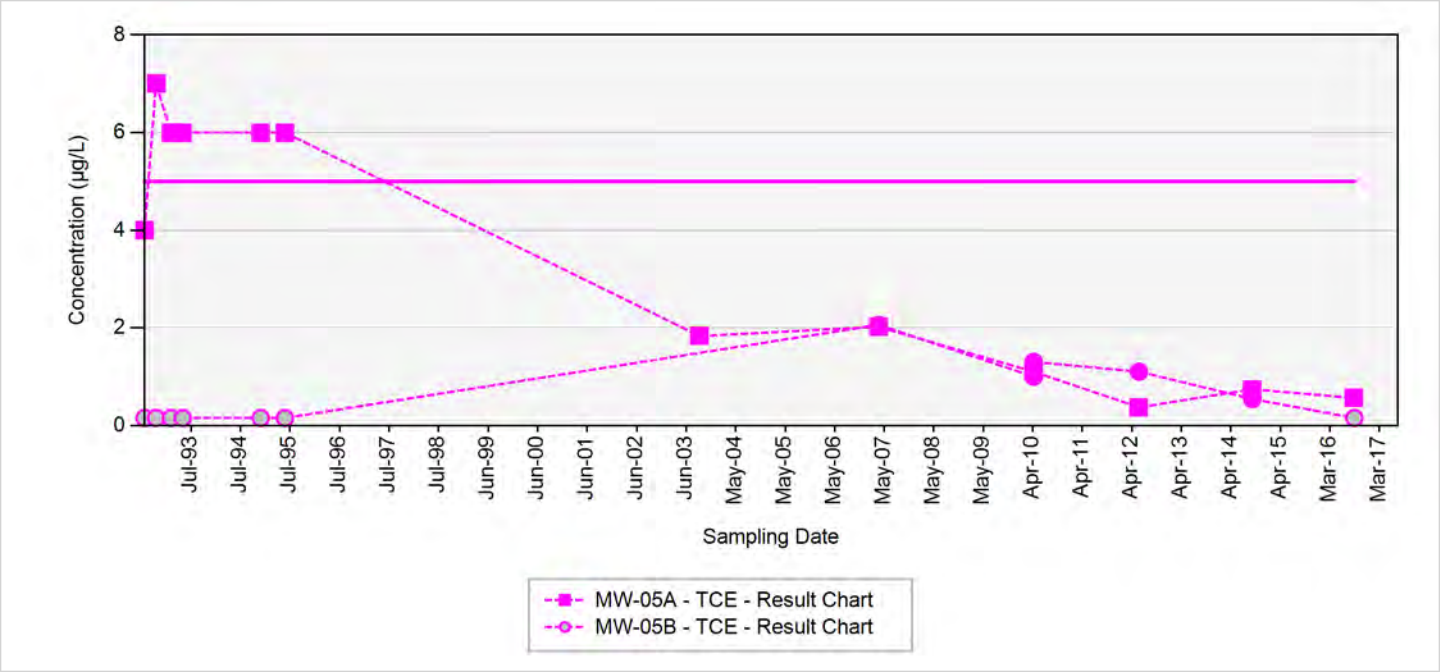
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-05





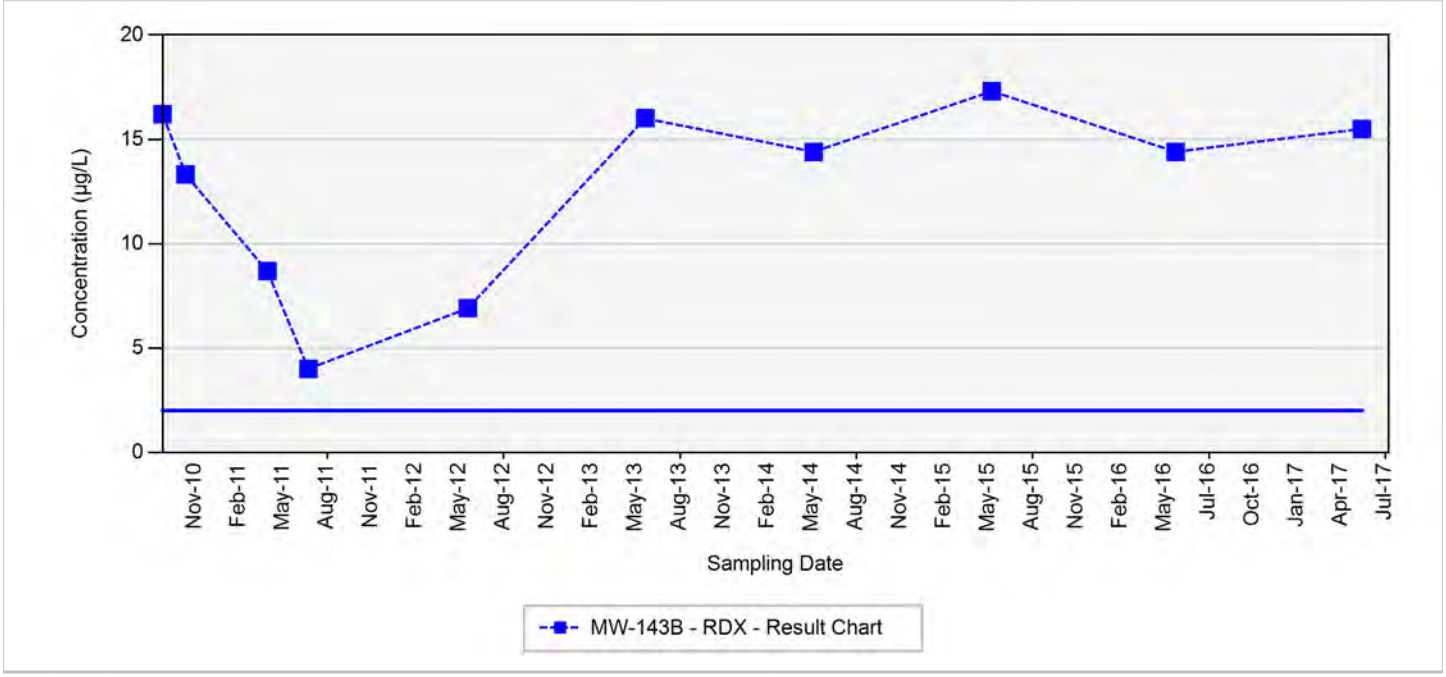
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

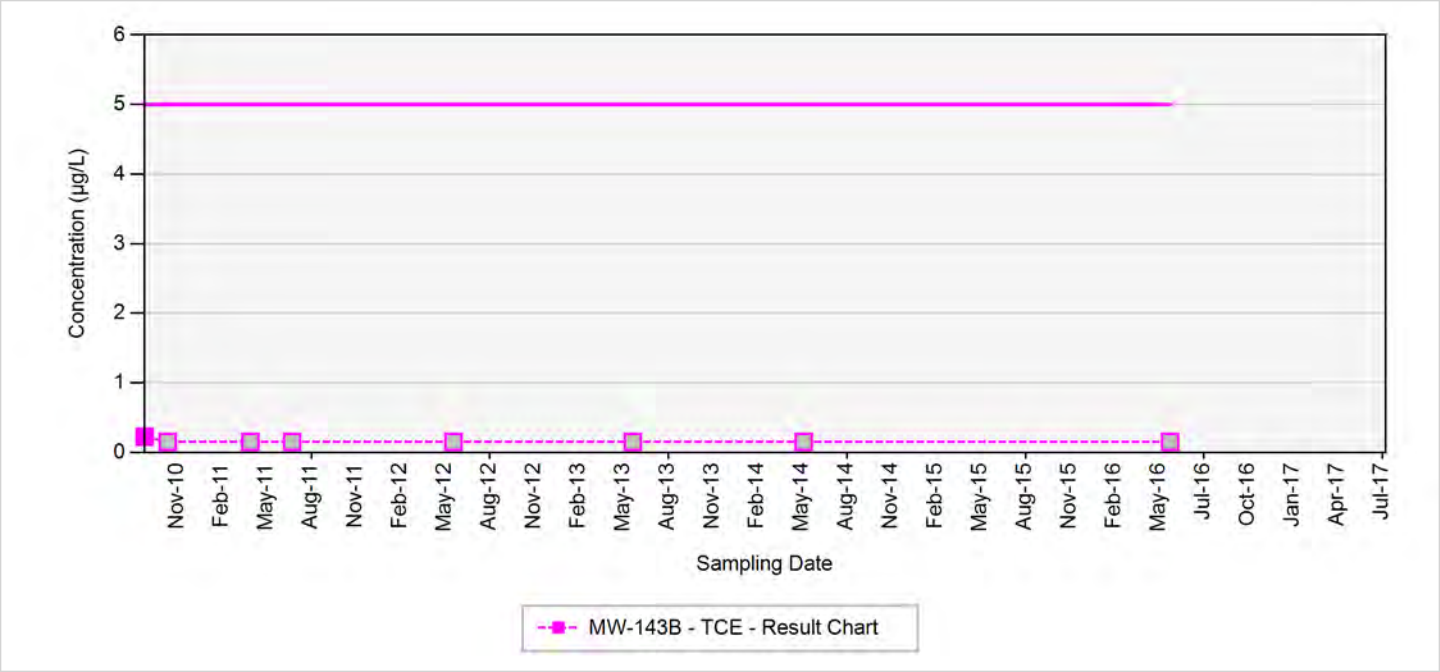
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-143





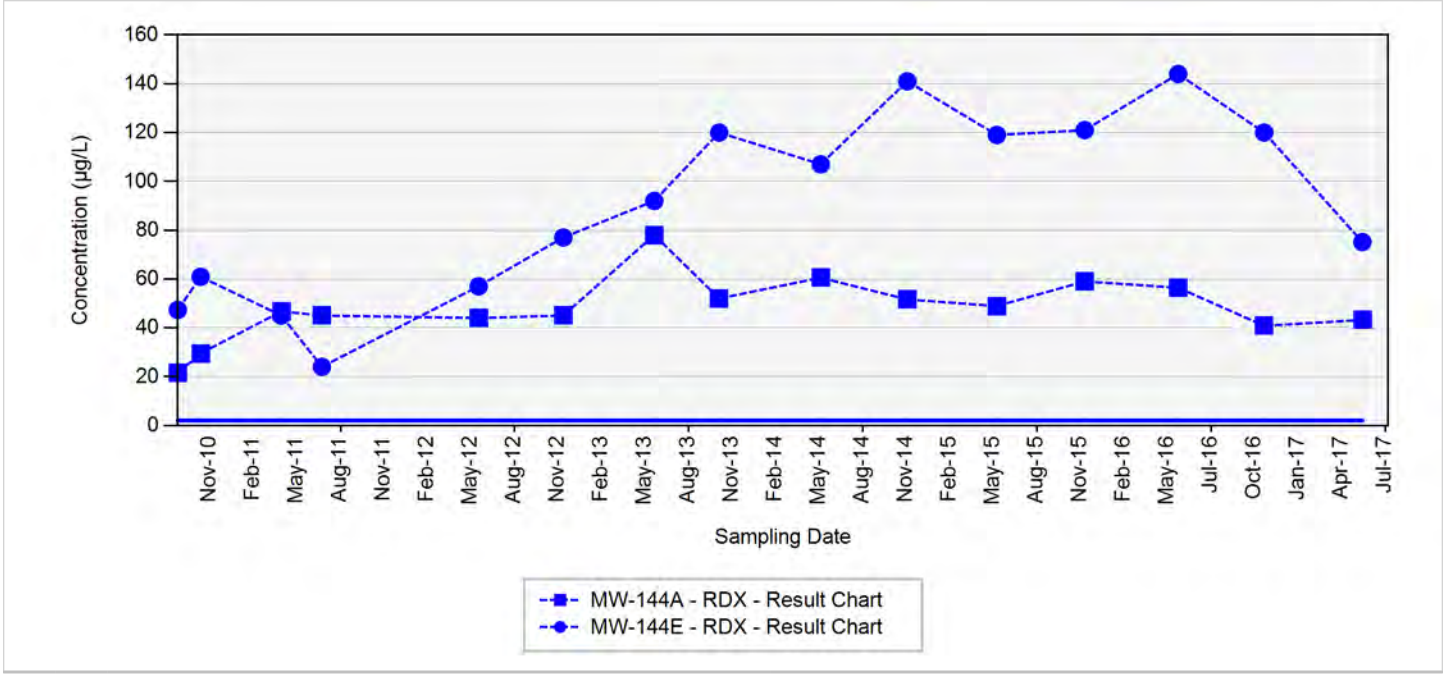
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

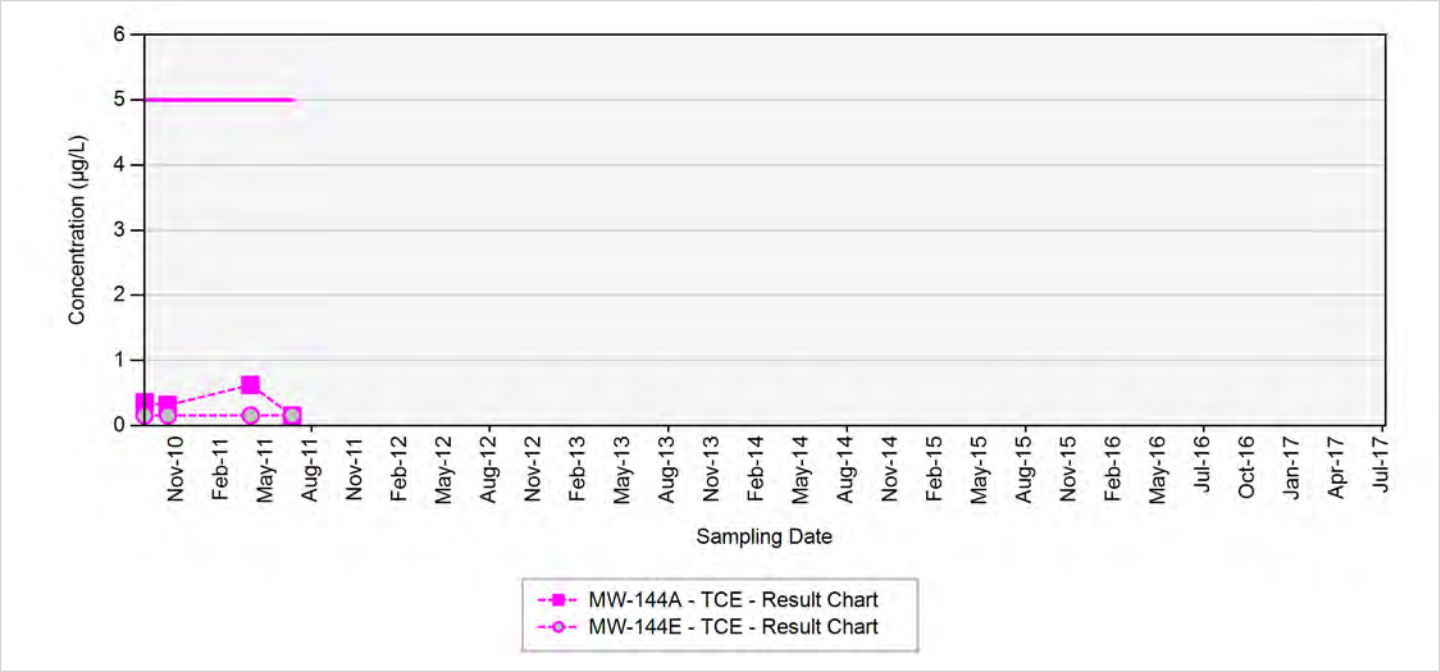
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-144





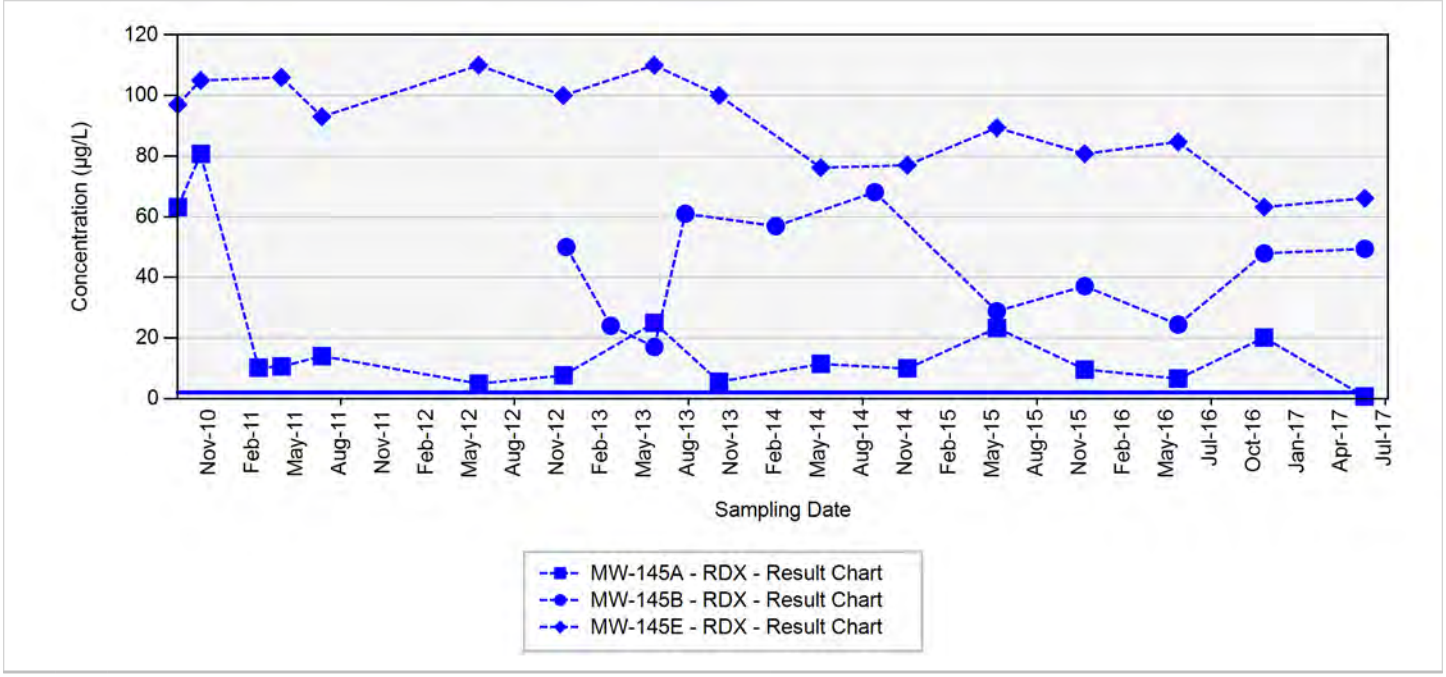
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

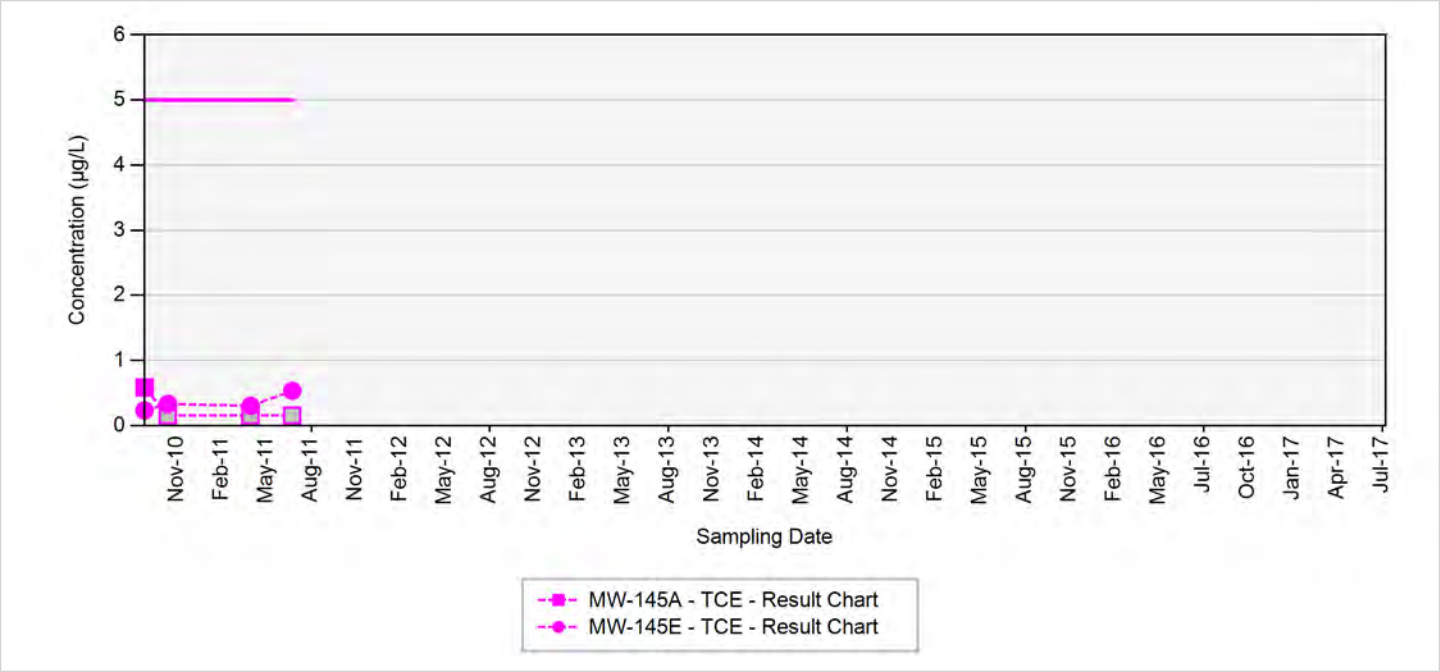
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-145





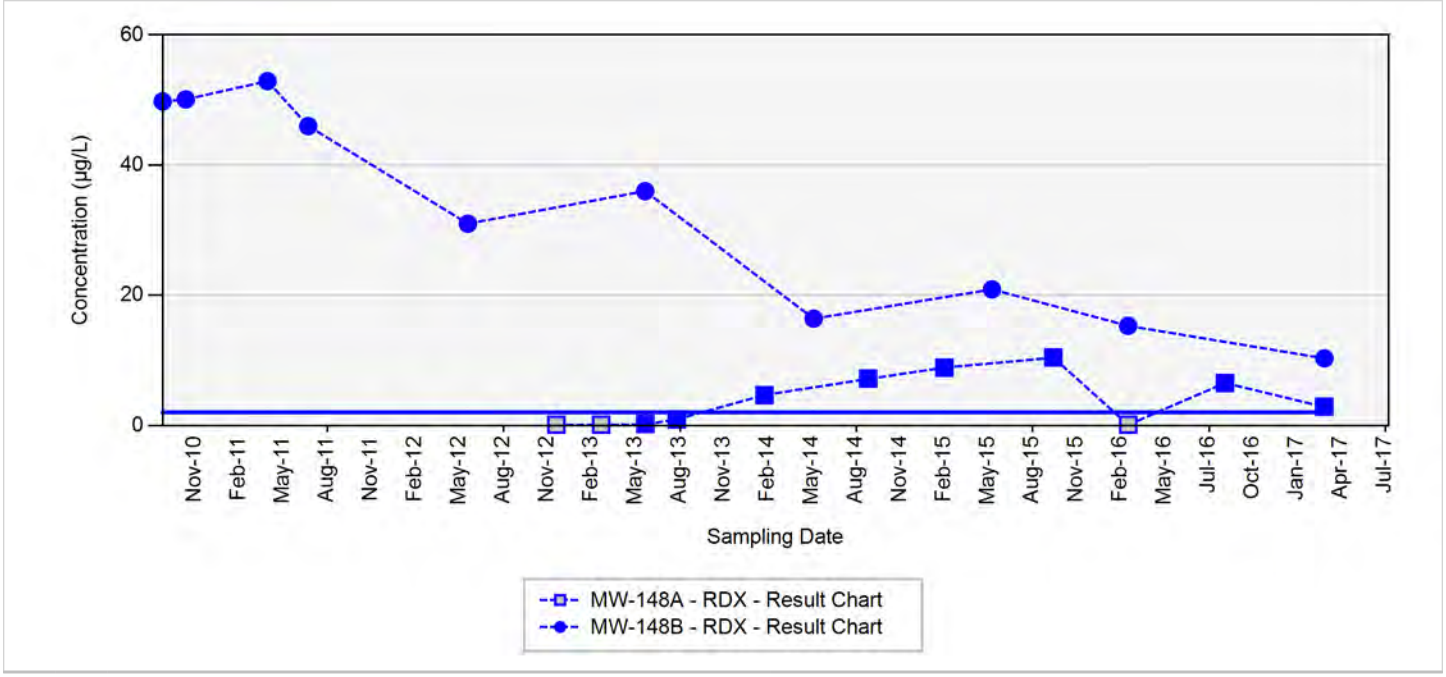
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

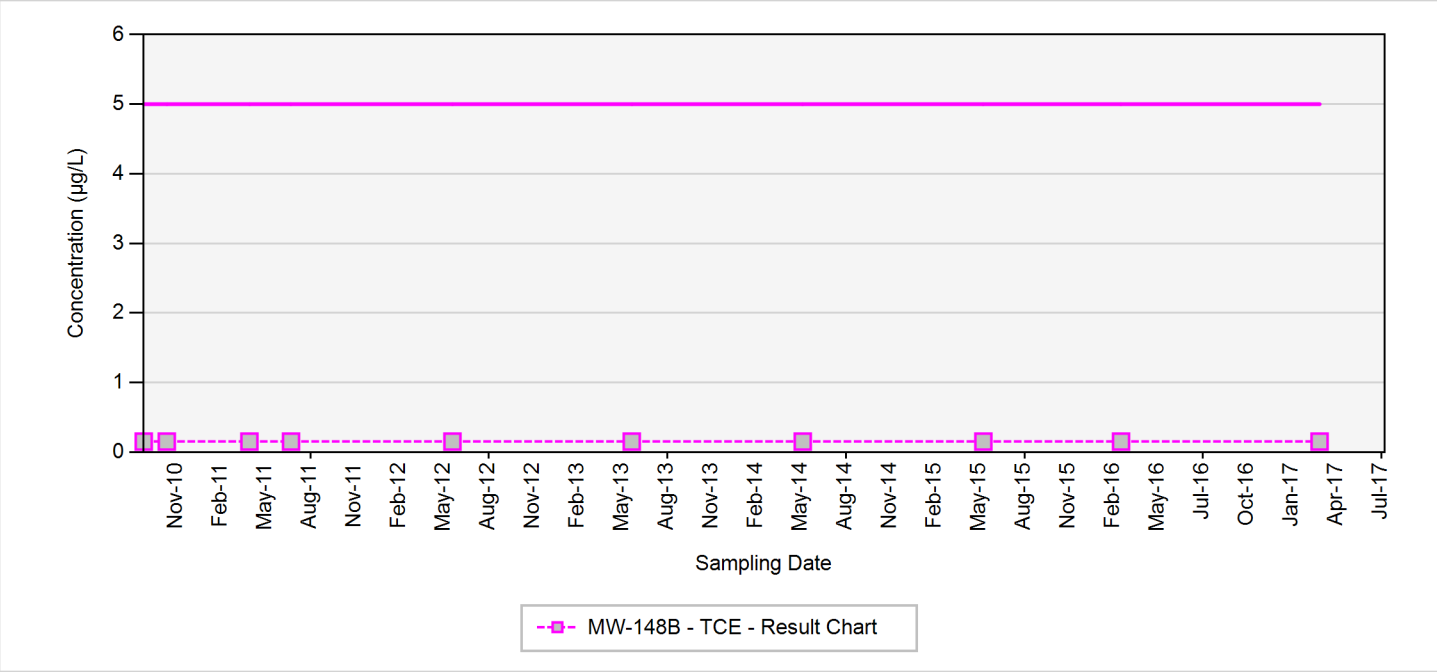
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-148





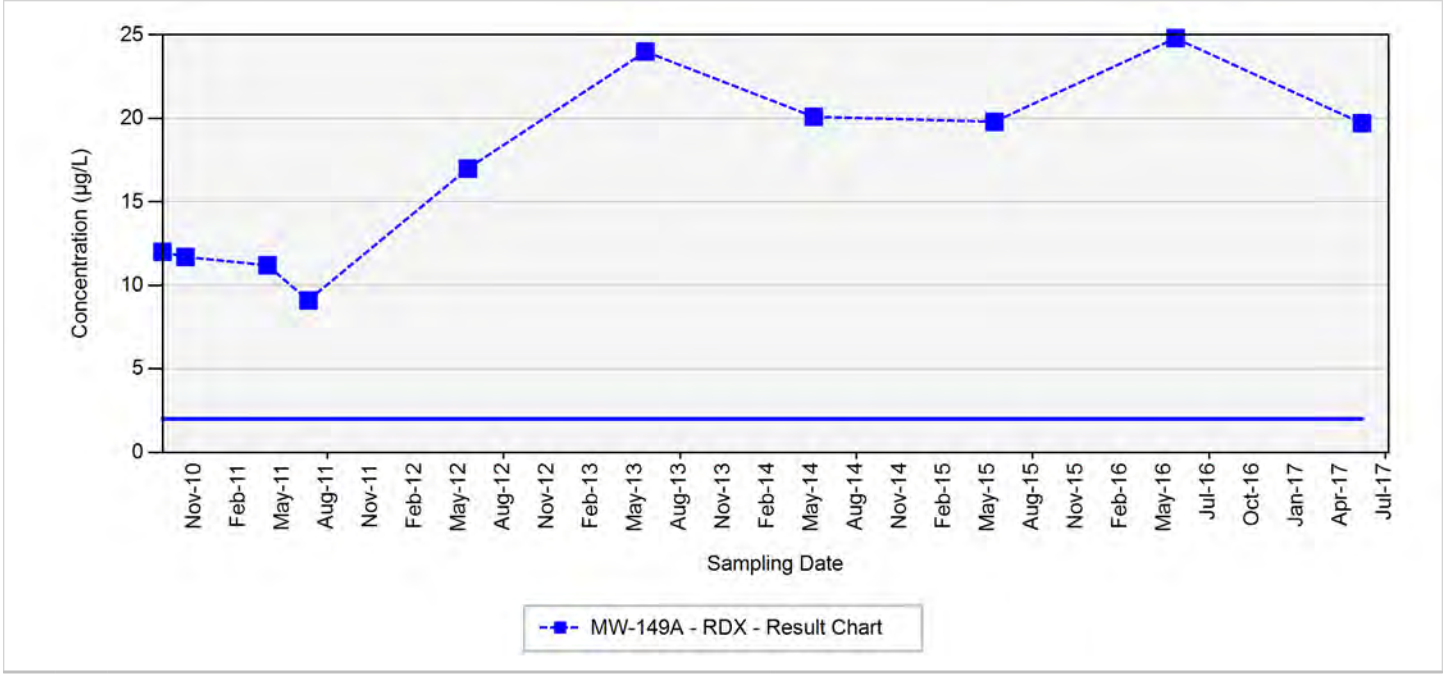
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

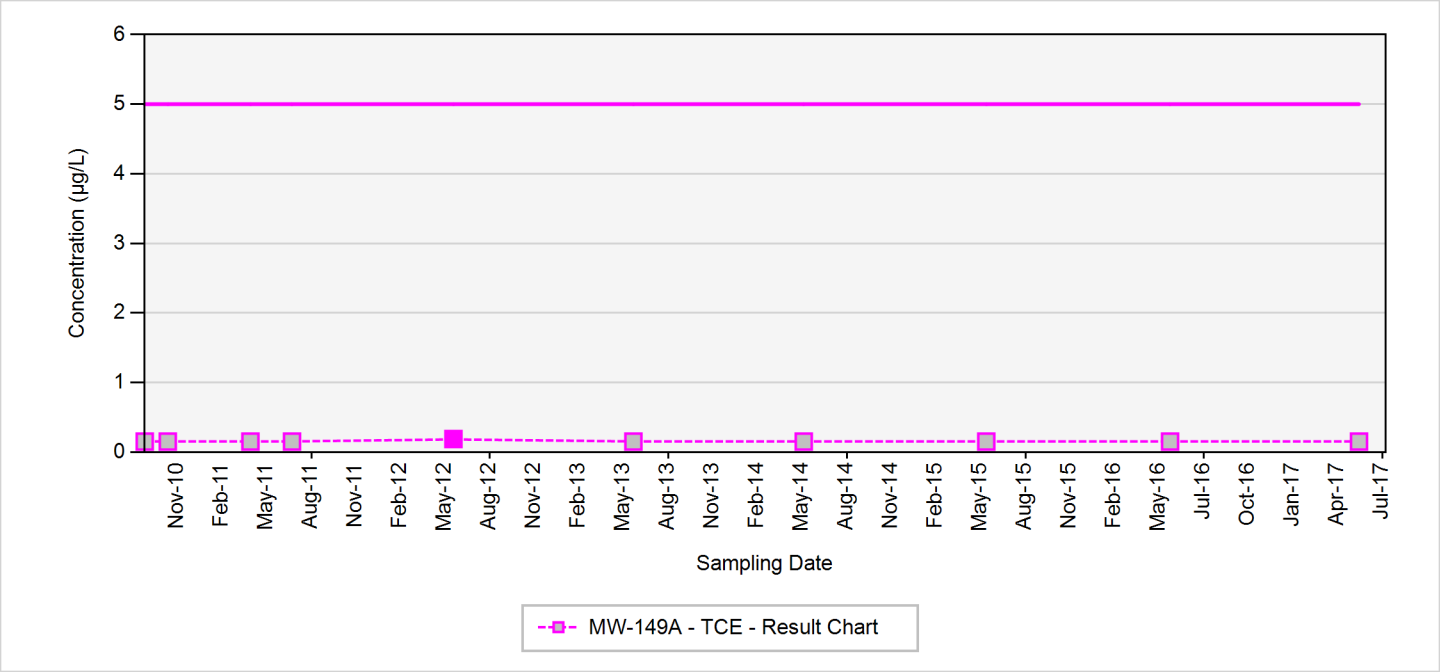
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-149





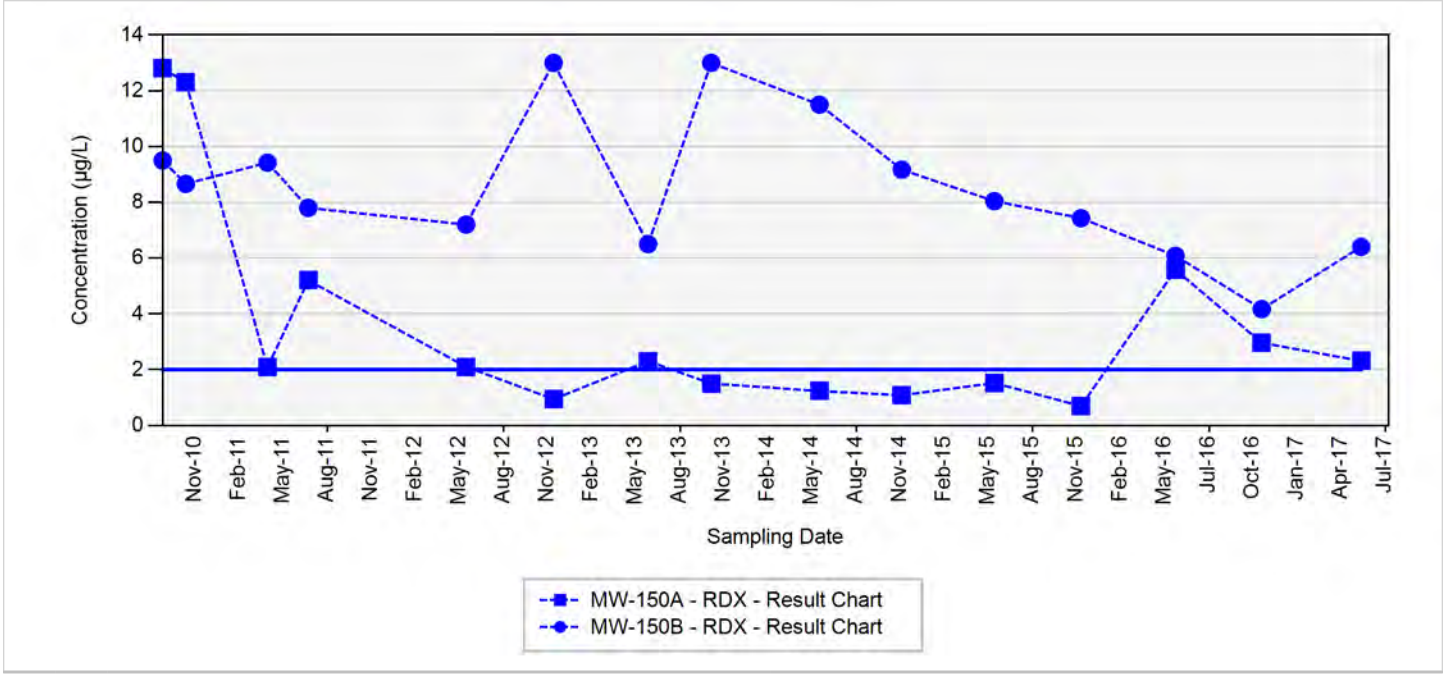
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

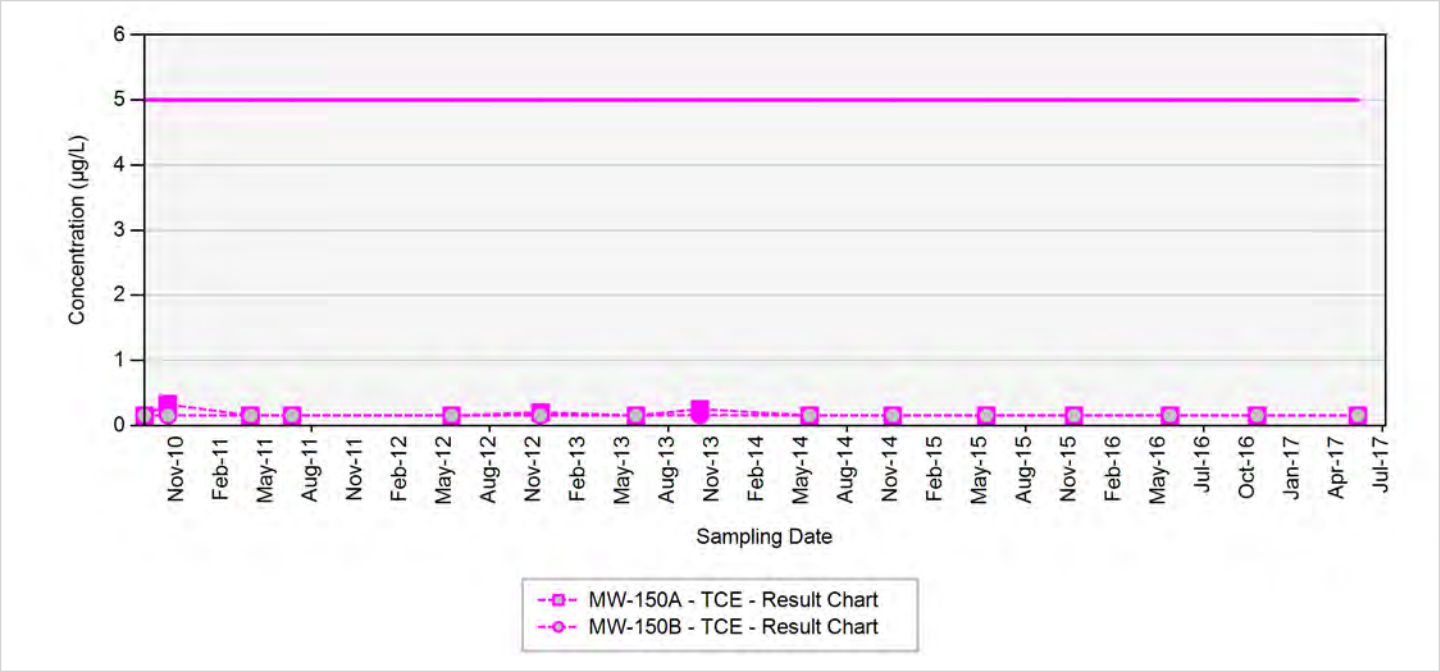
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-150





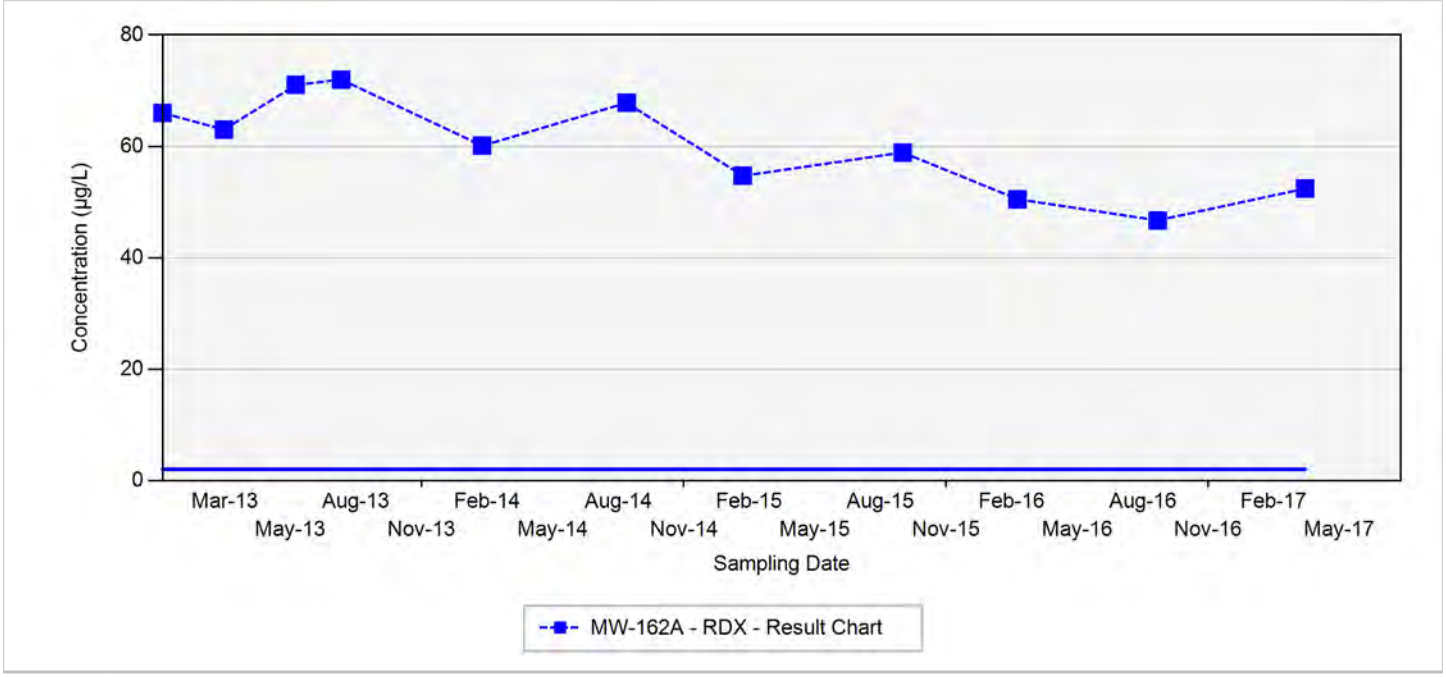
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-162



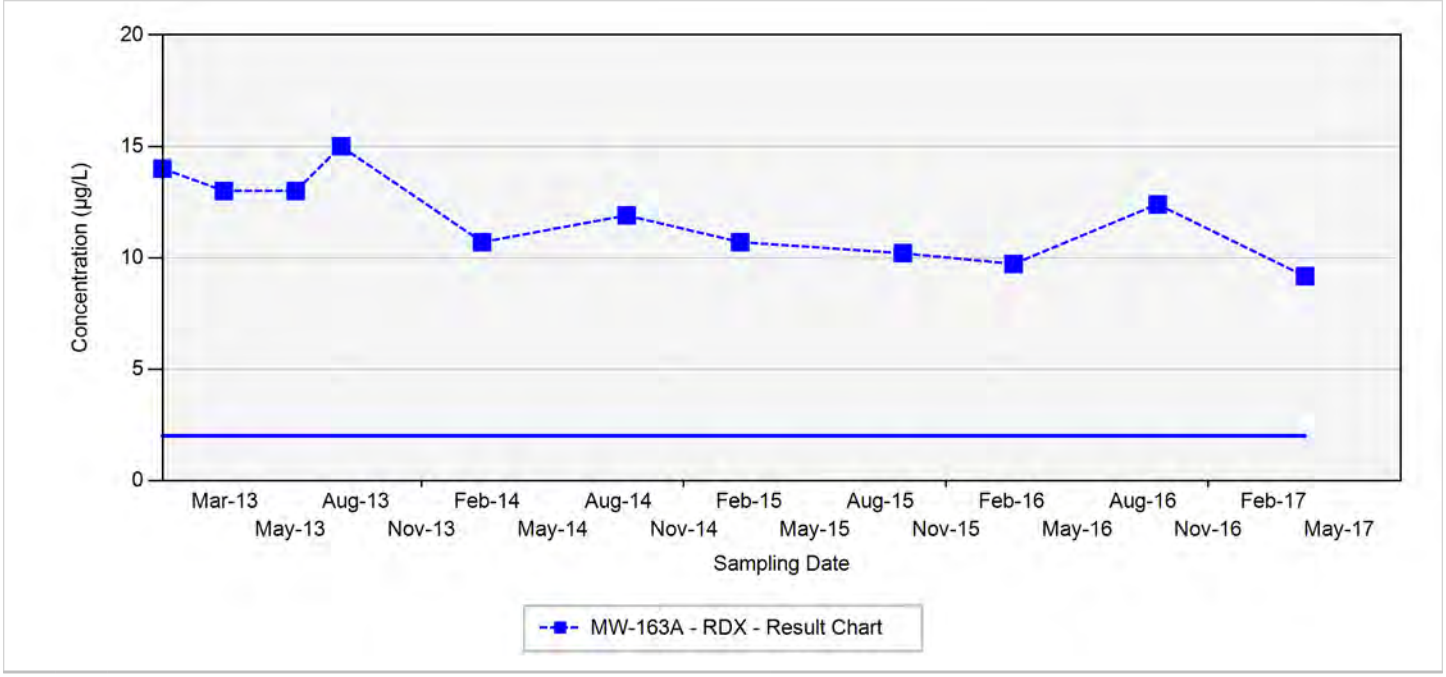
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-163



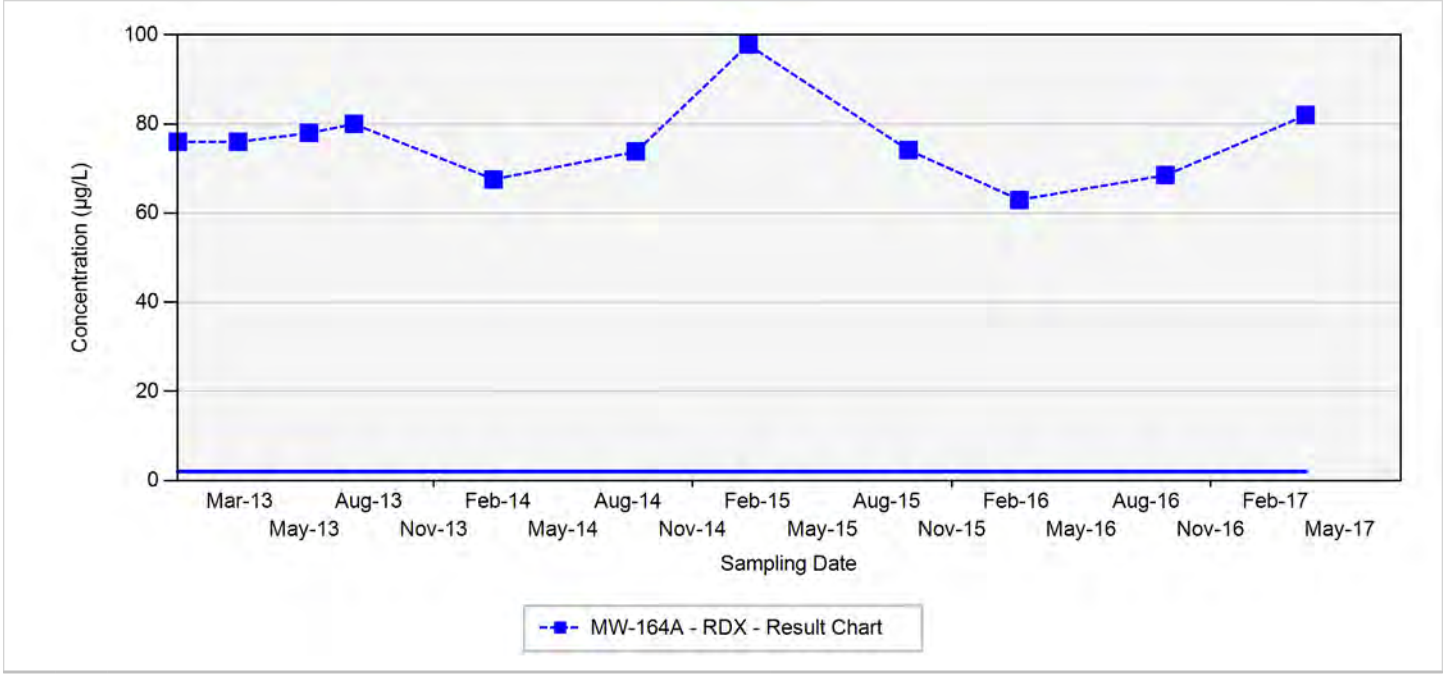
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-164



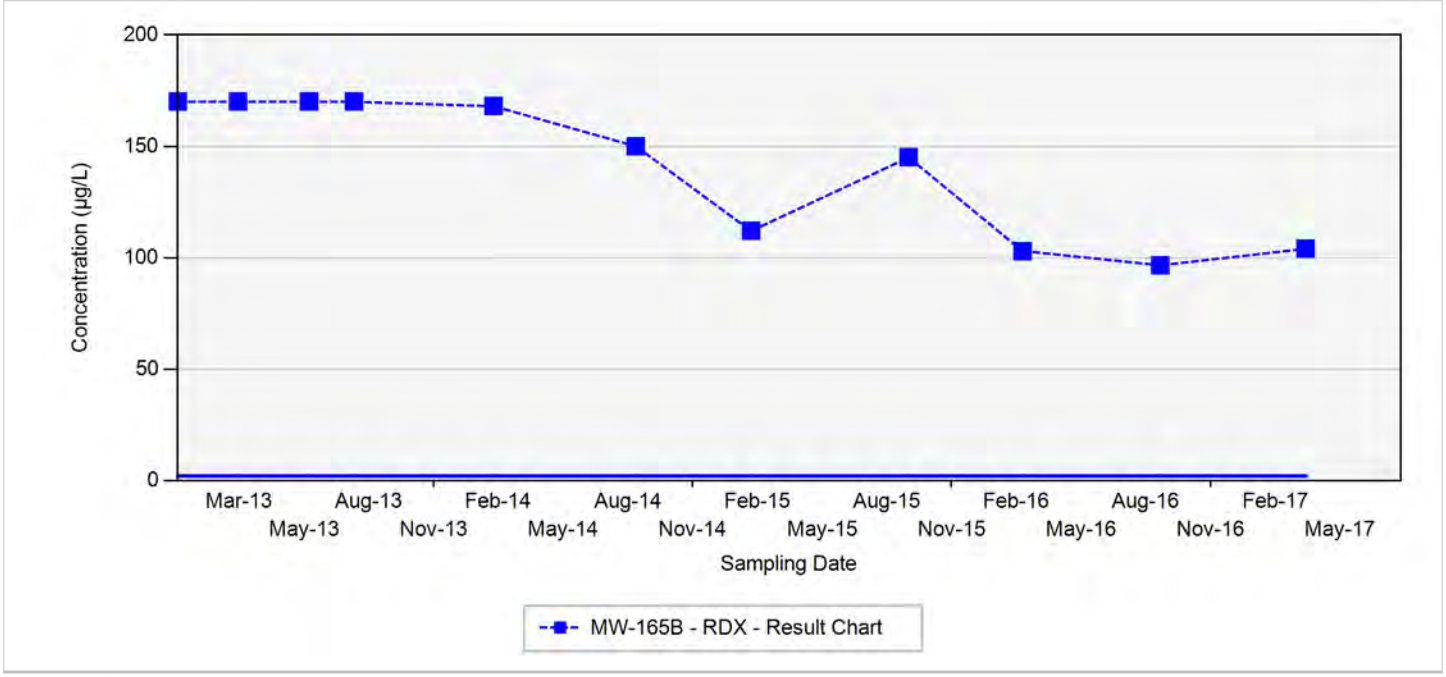
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-165



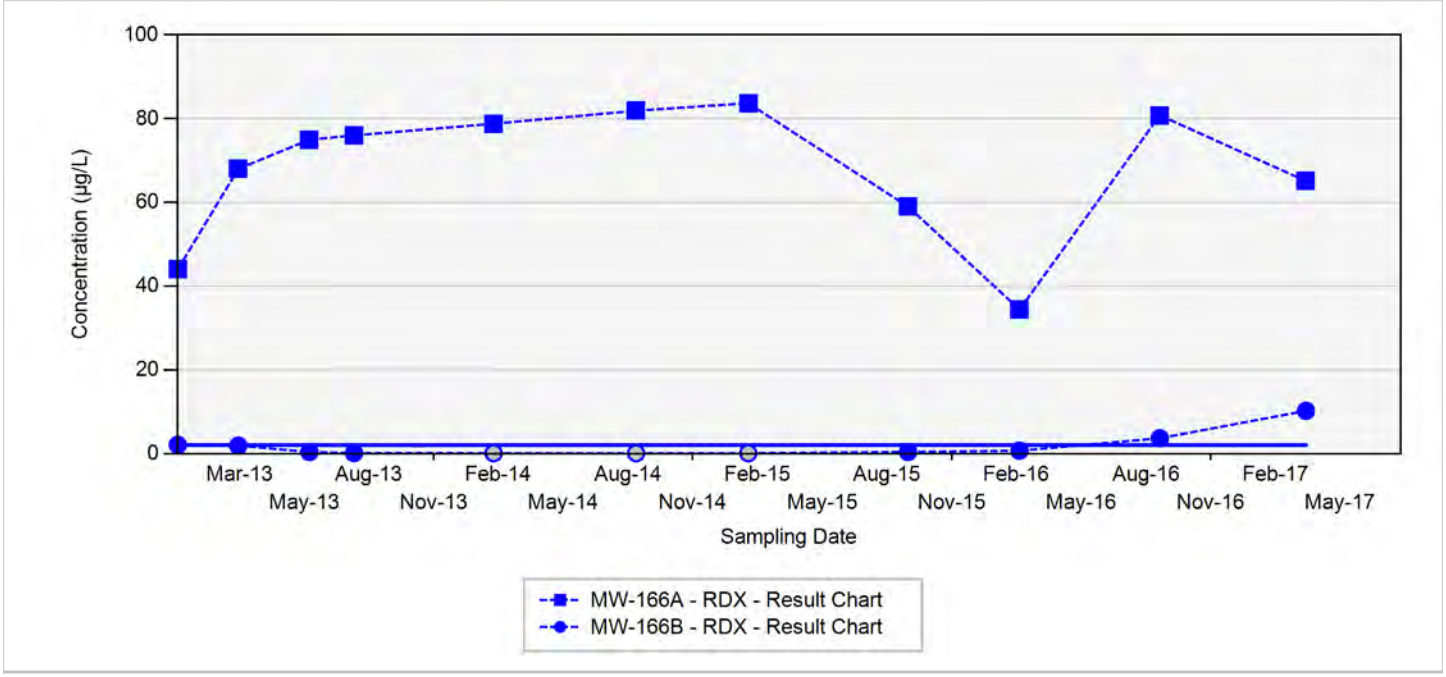
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-166



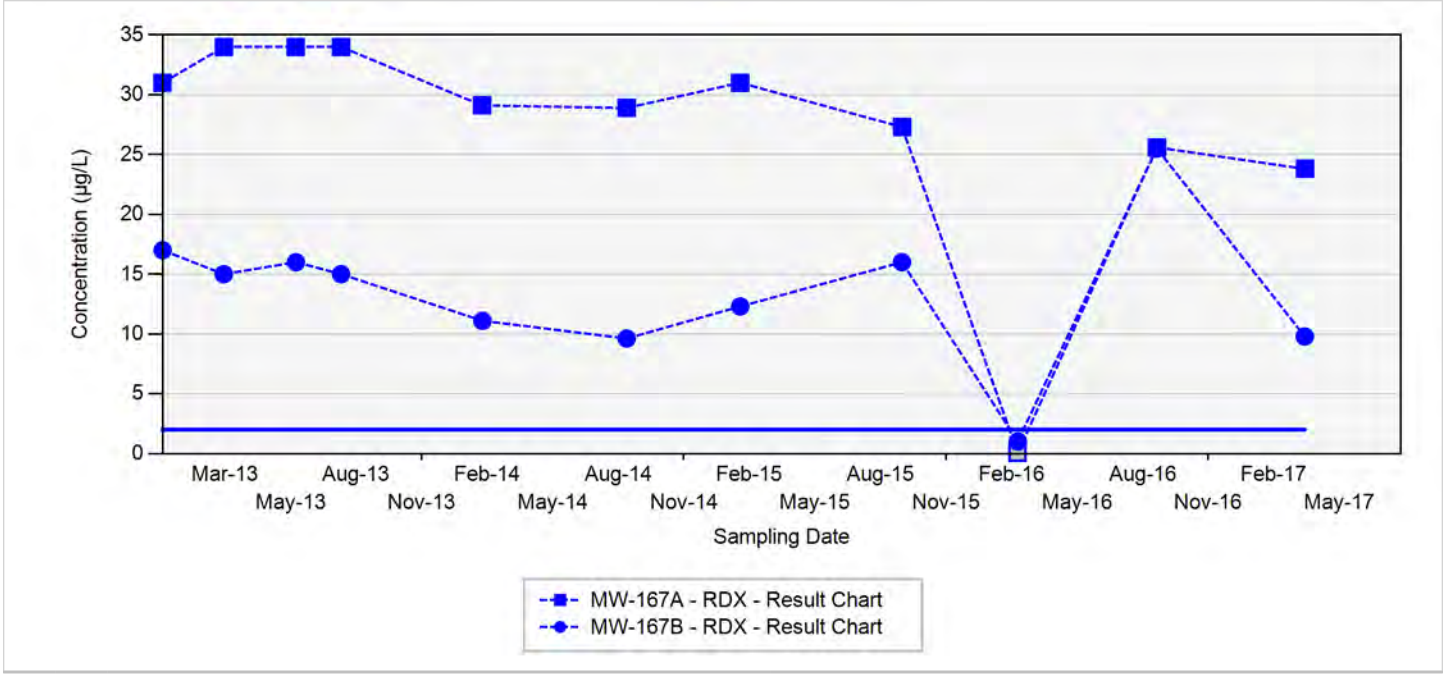
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-167



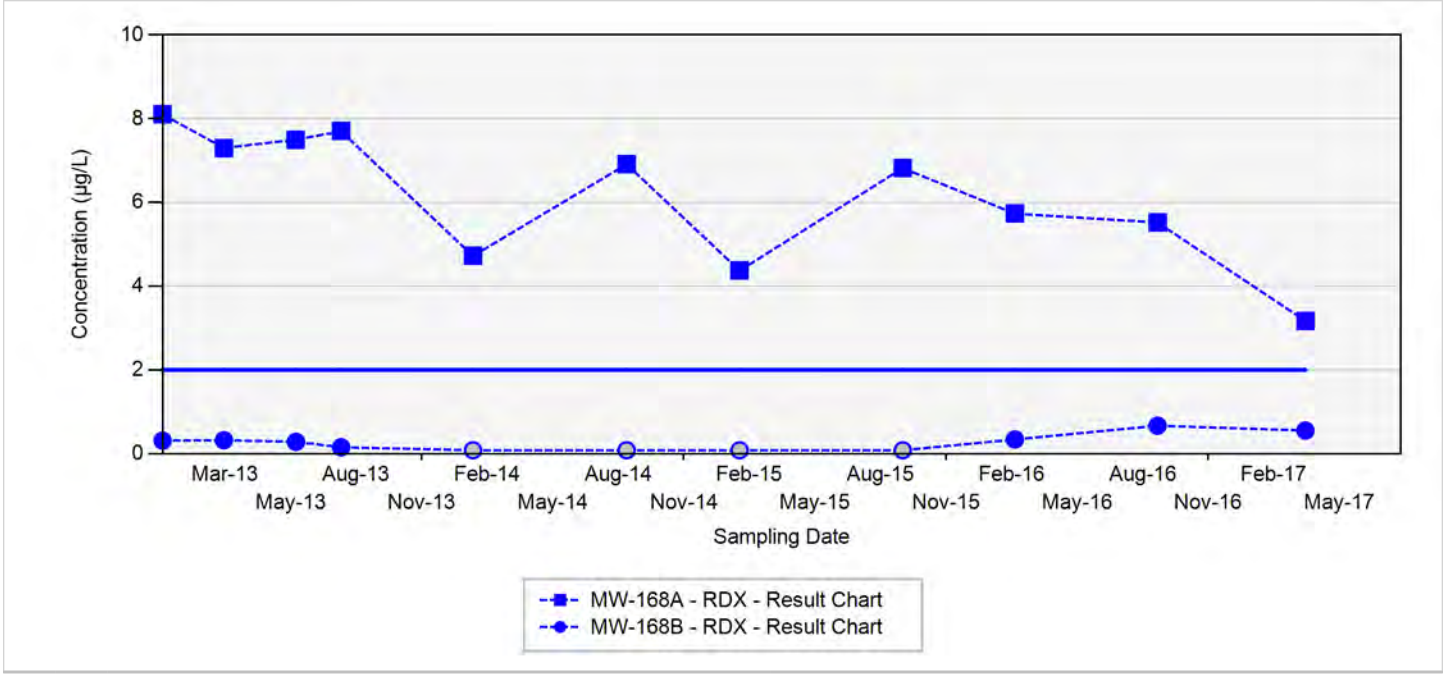
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-168



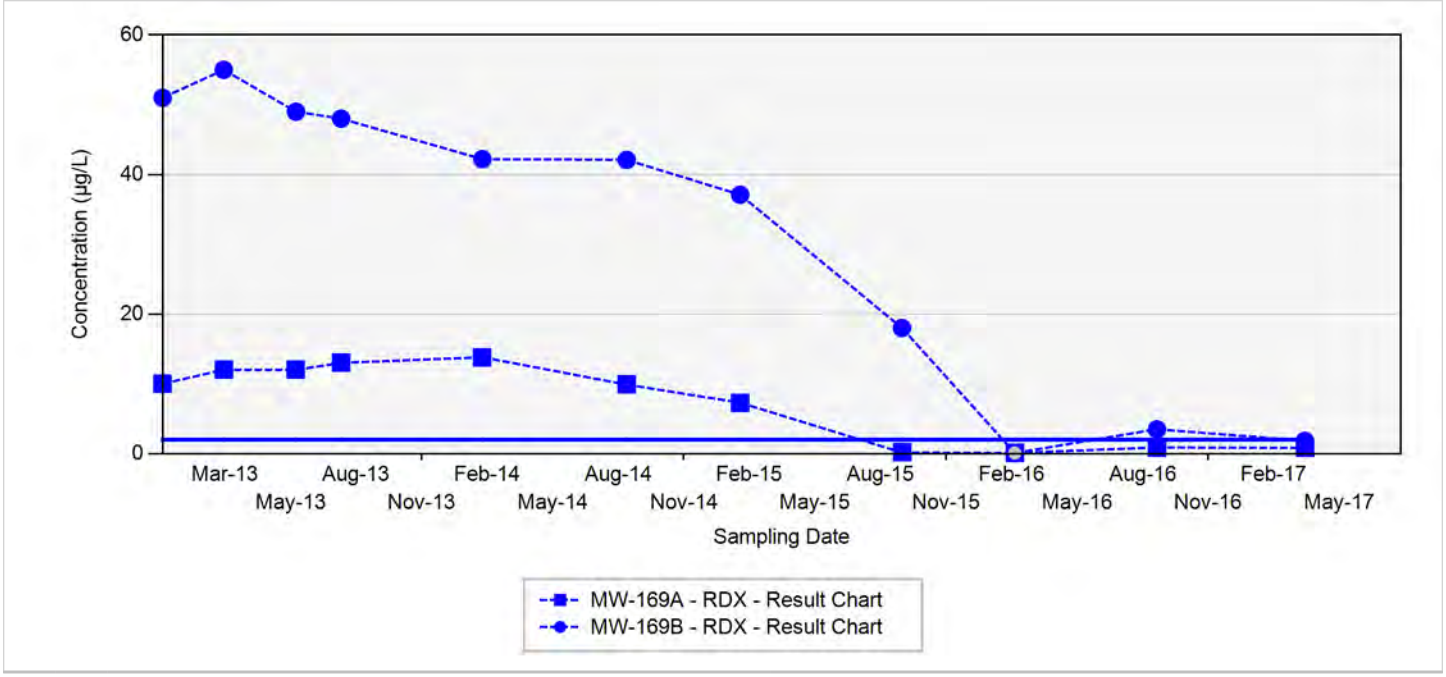
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-169



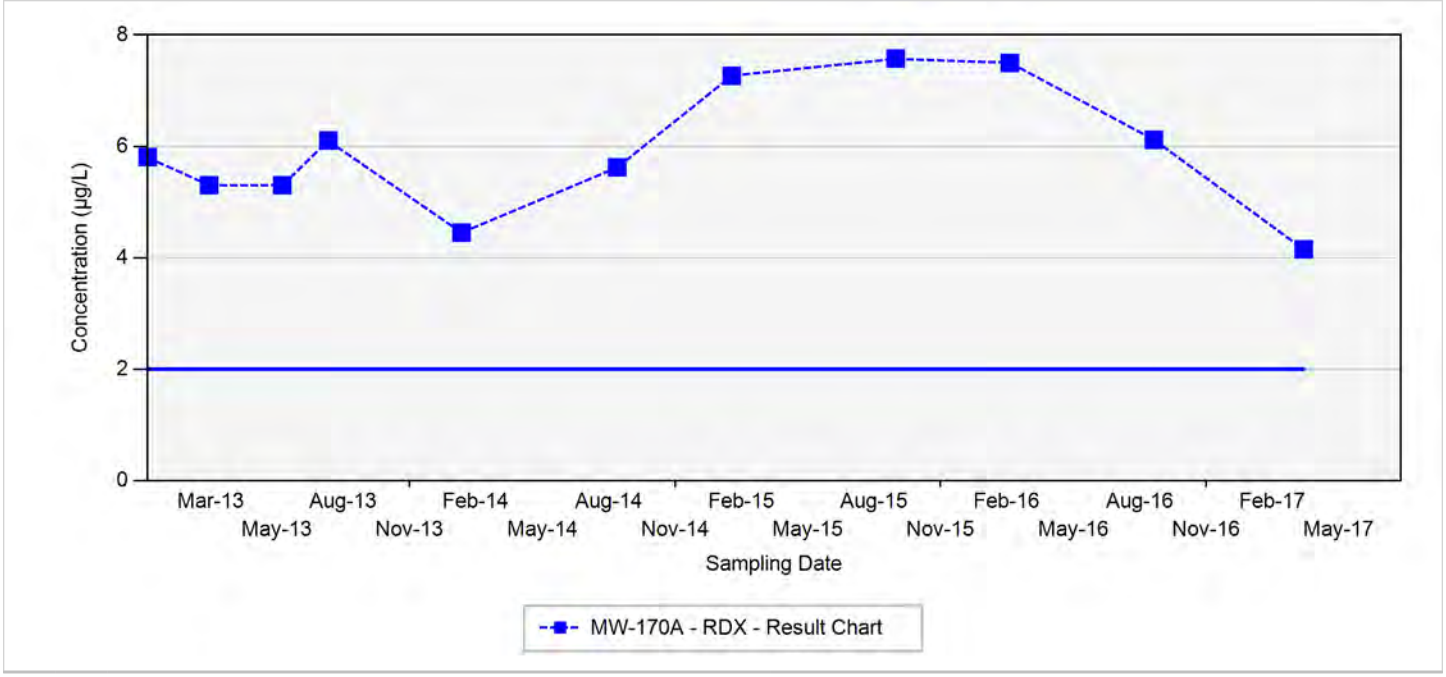
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-170



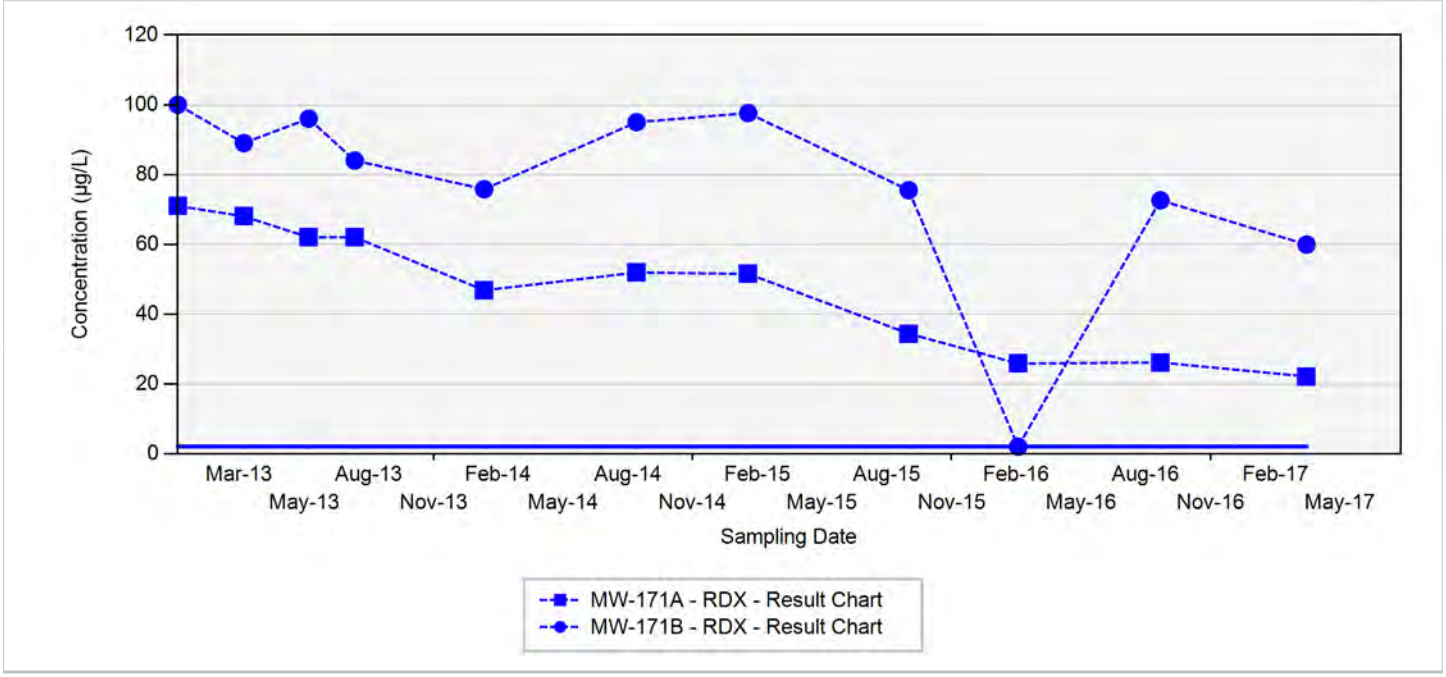
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-171



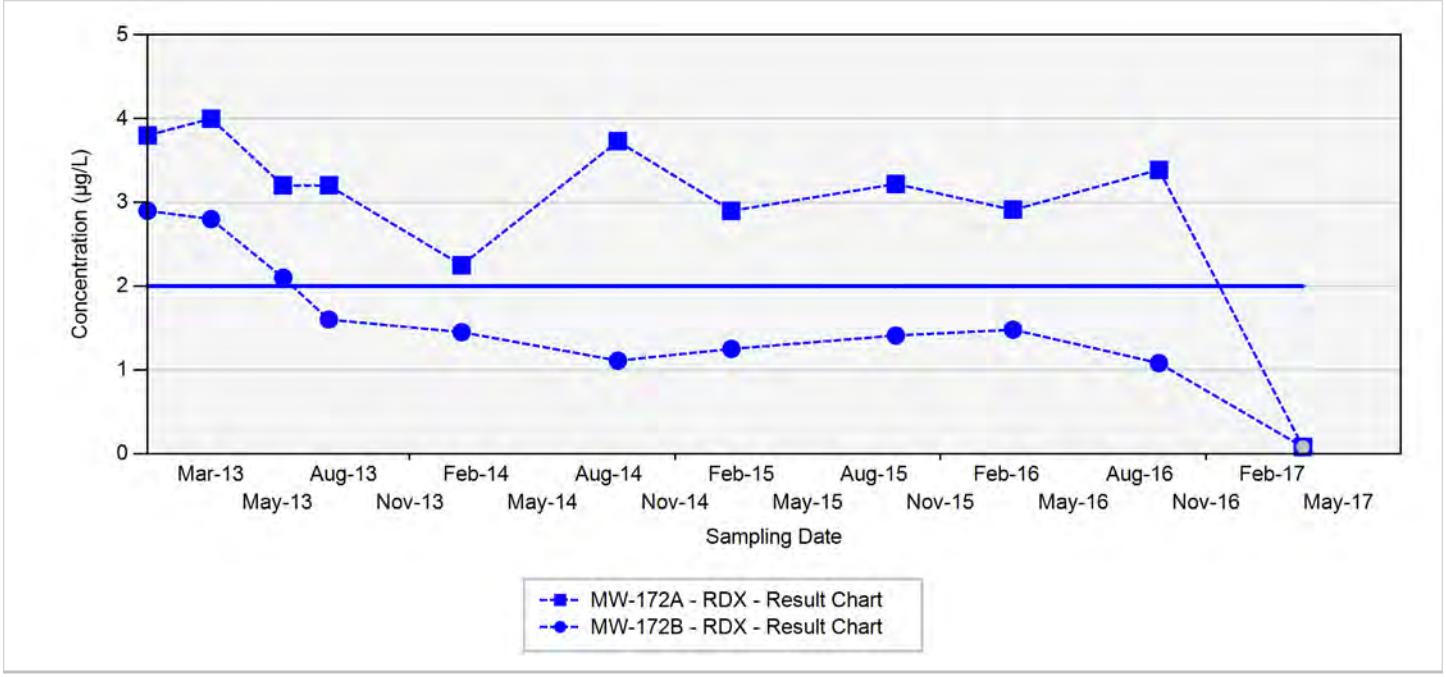
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-172



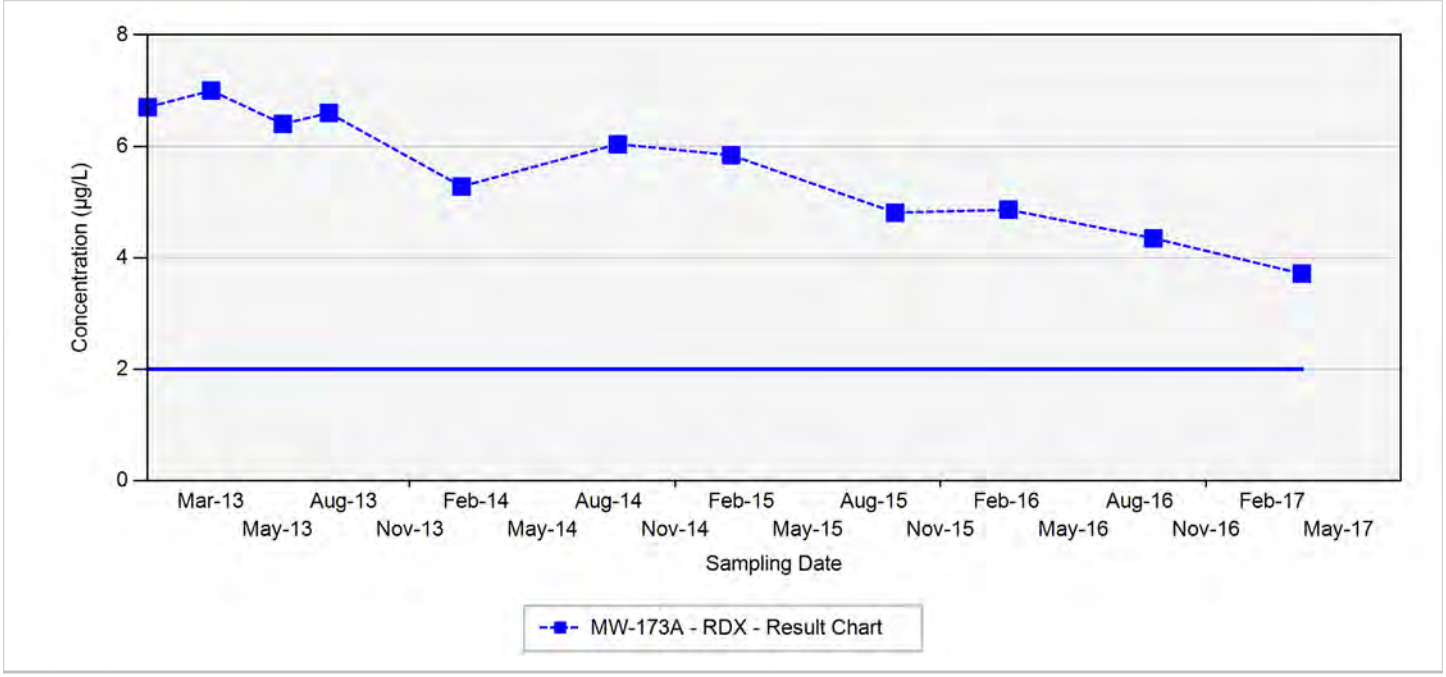
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-173



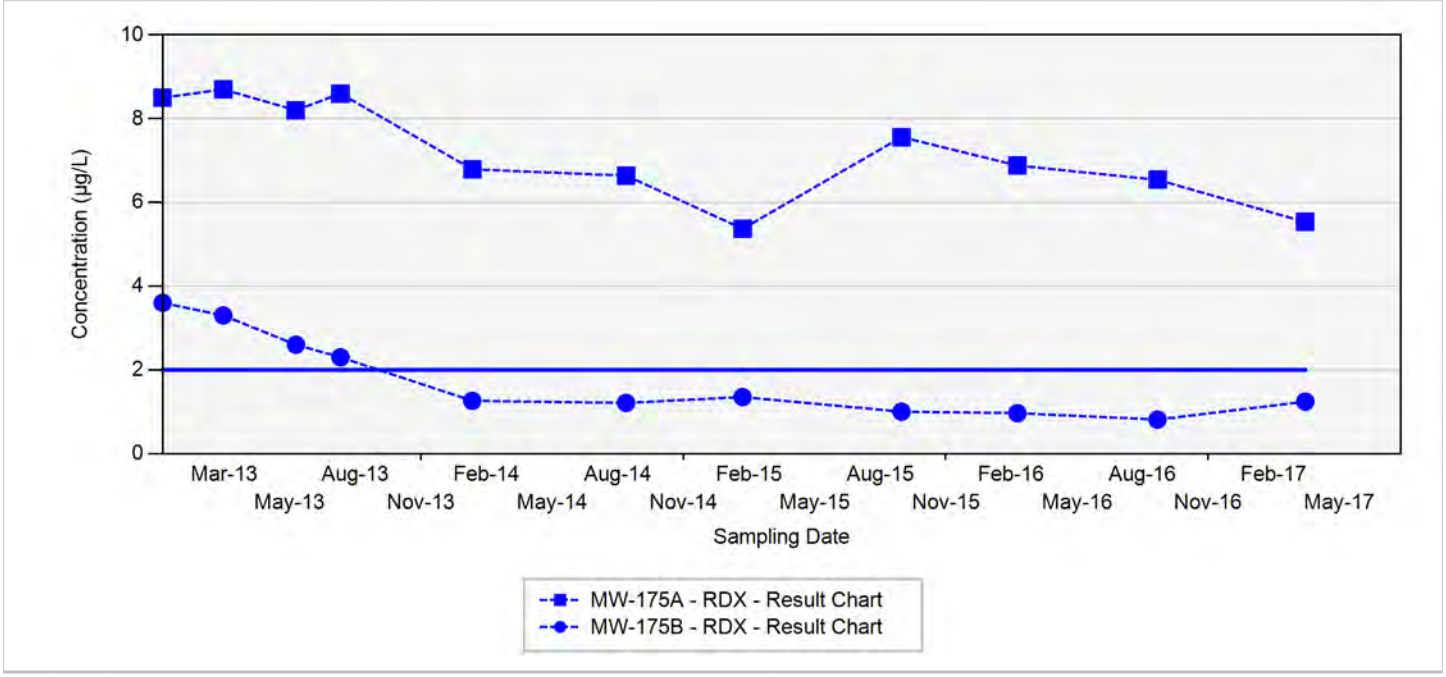
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

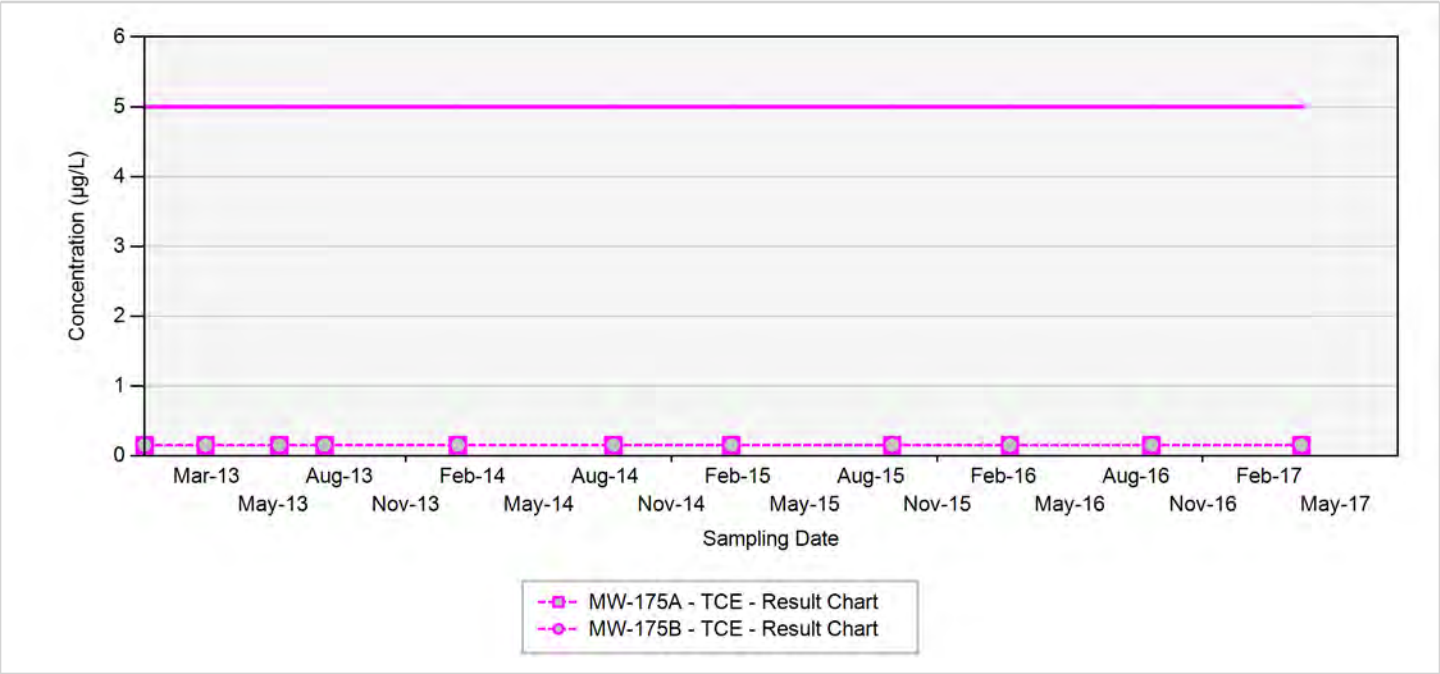
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-175





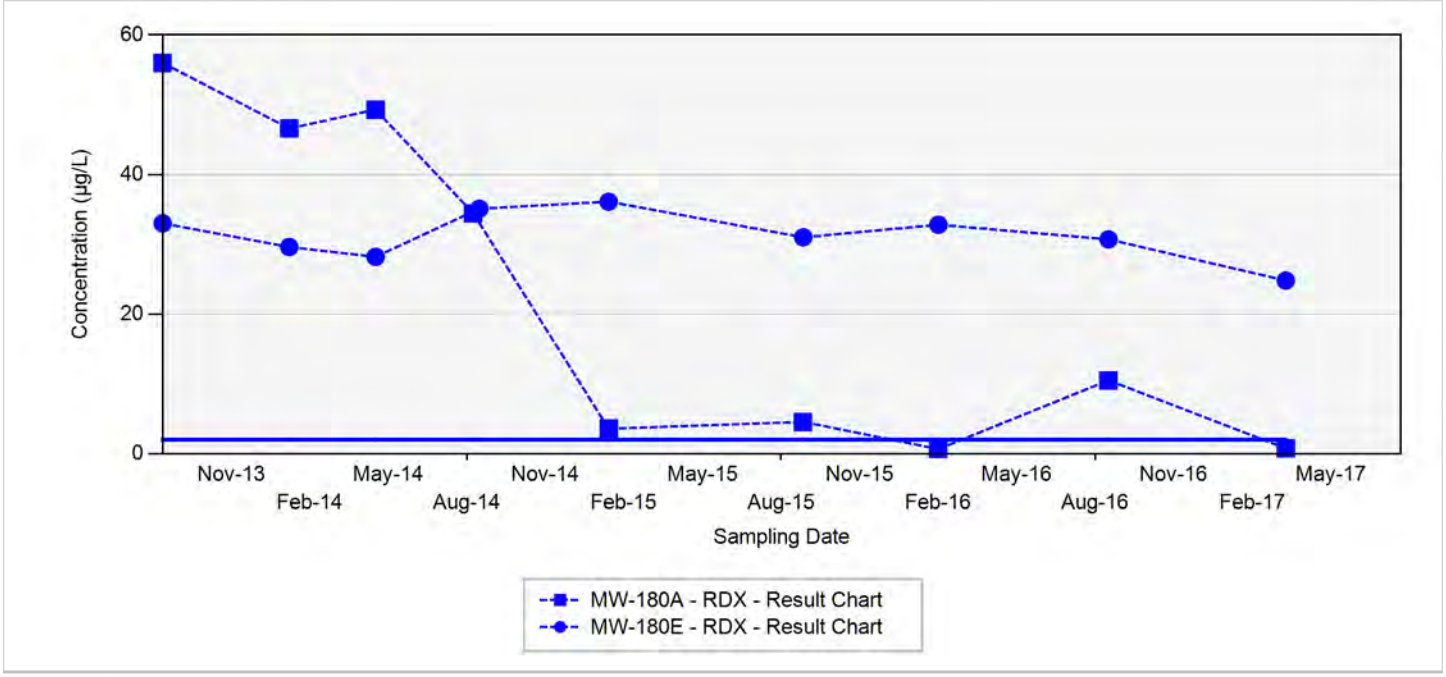
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-180



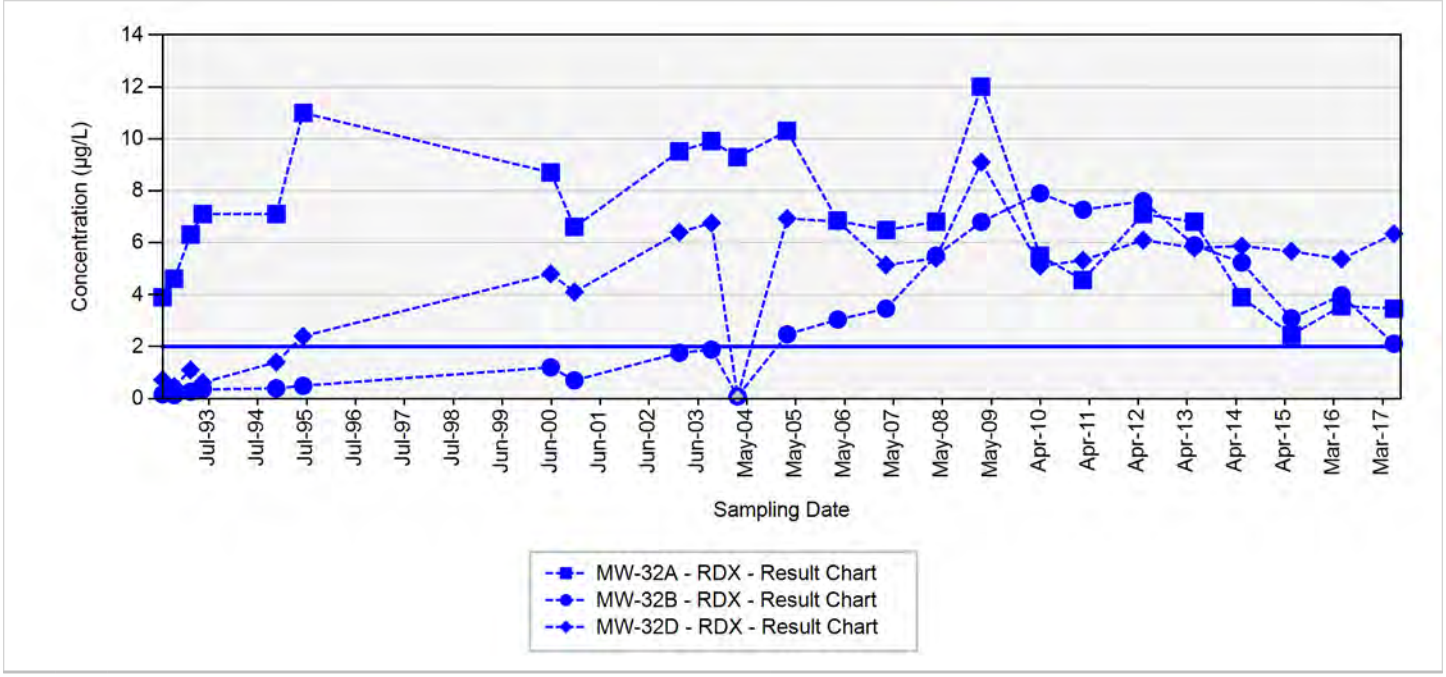
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

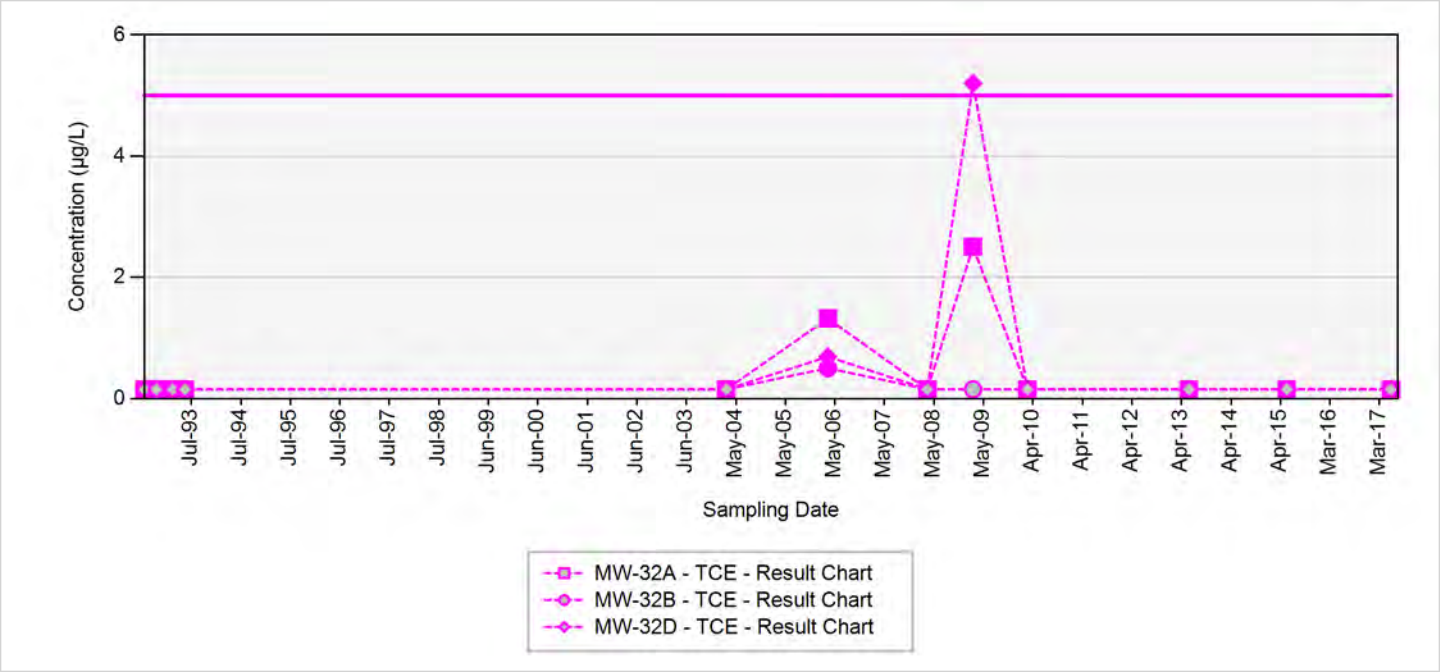
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-32





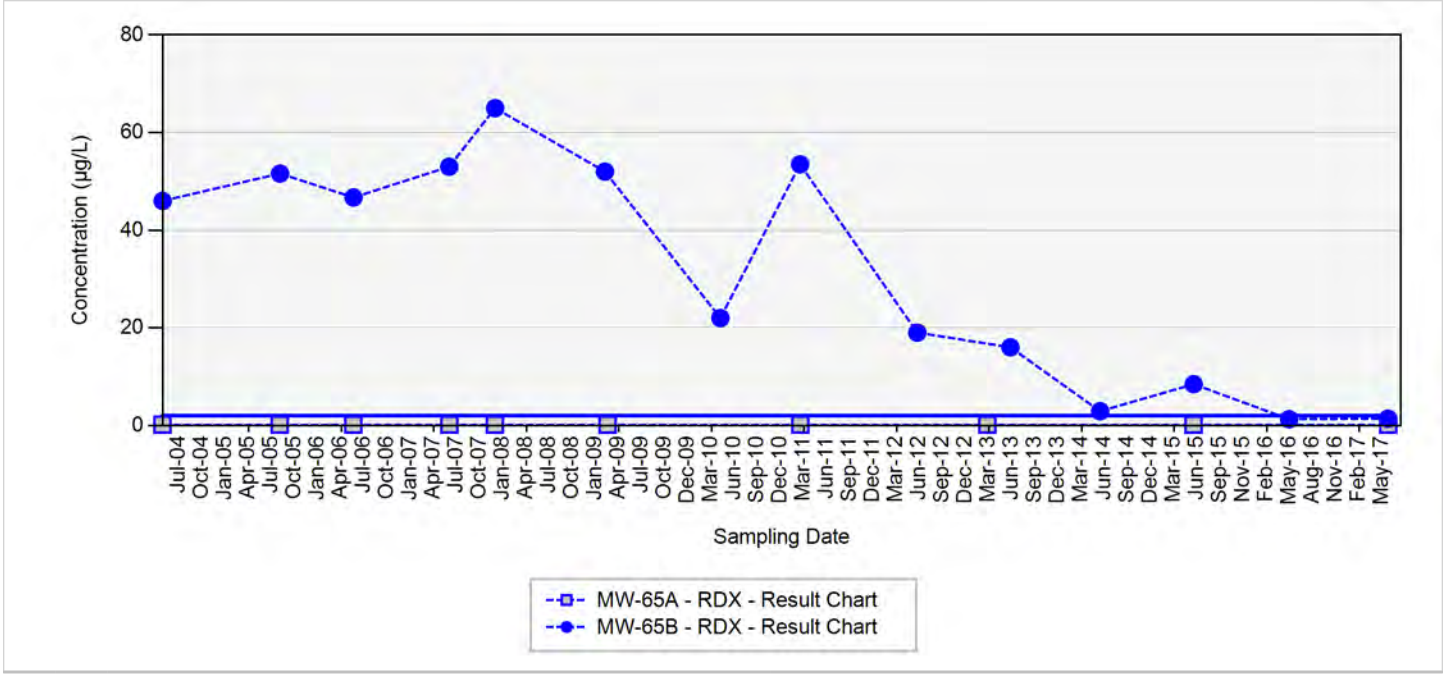
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

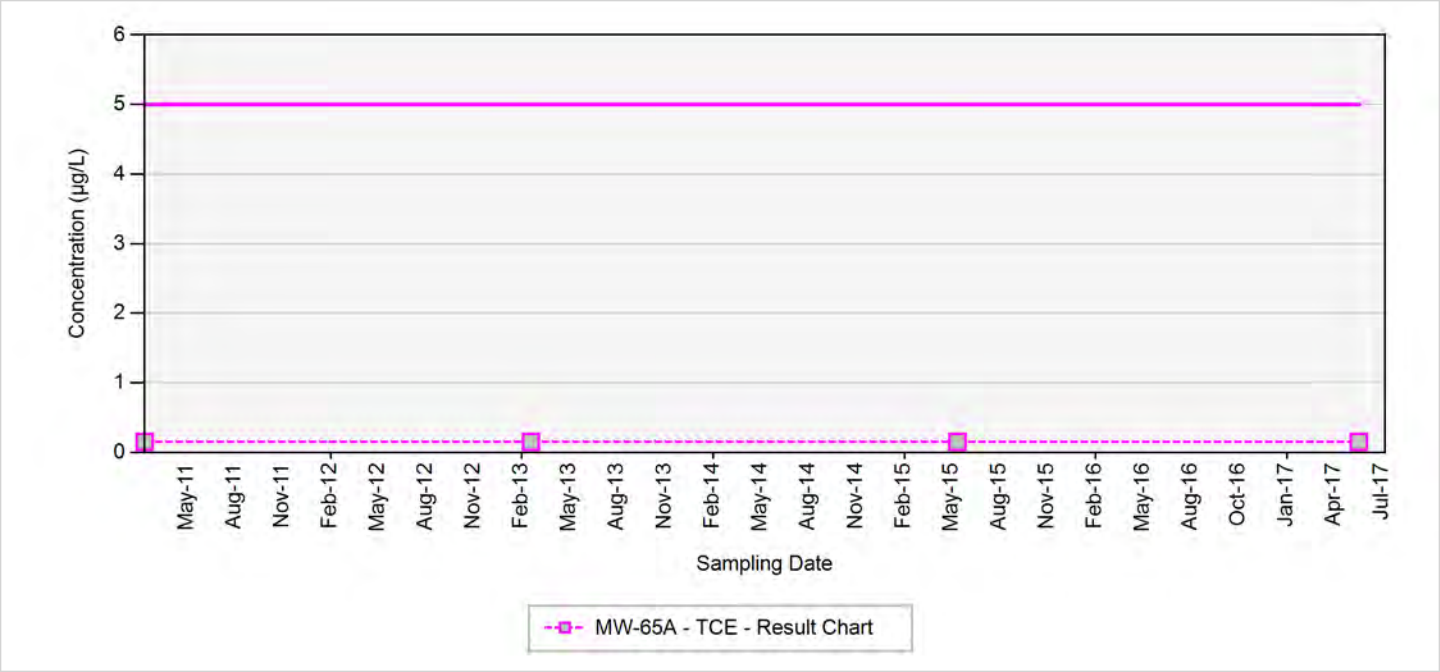
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-65





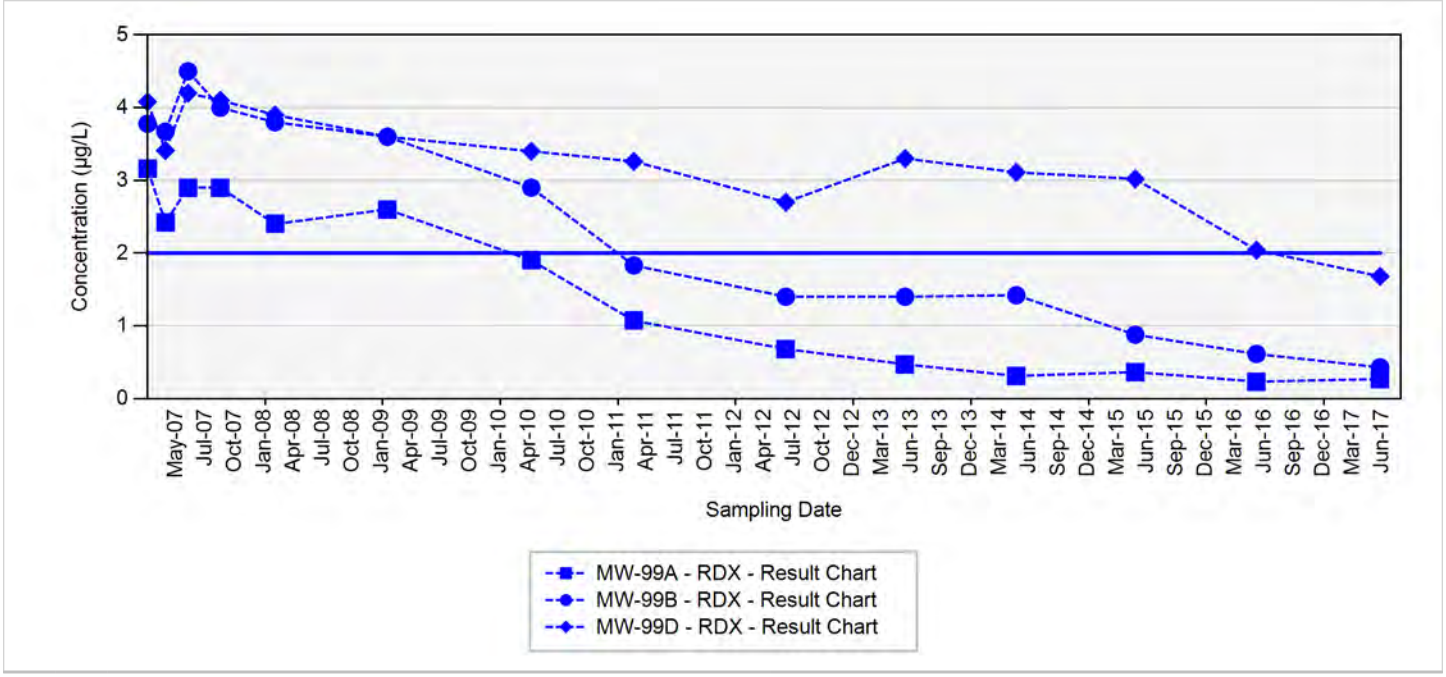
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

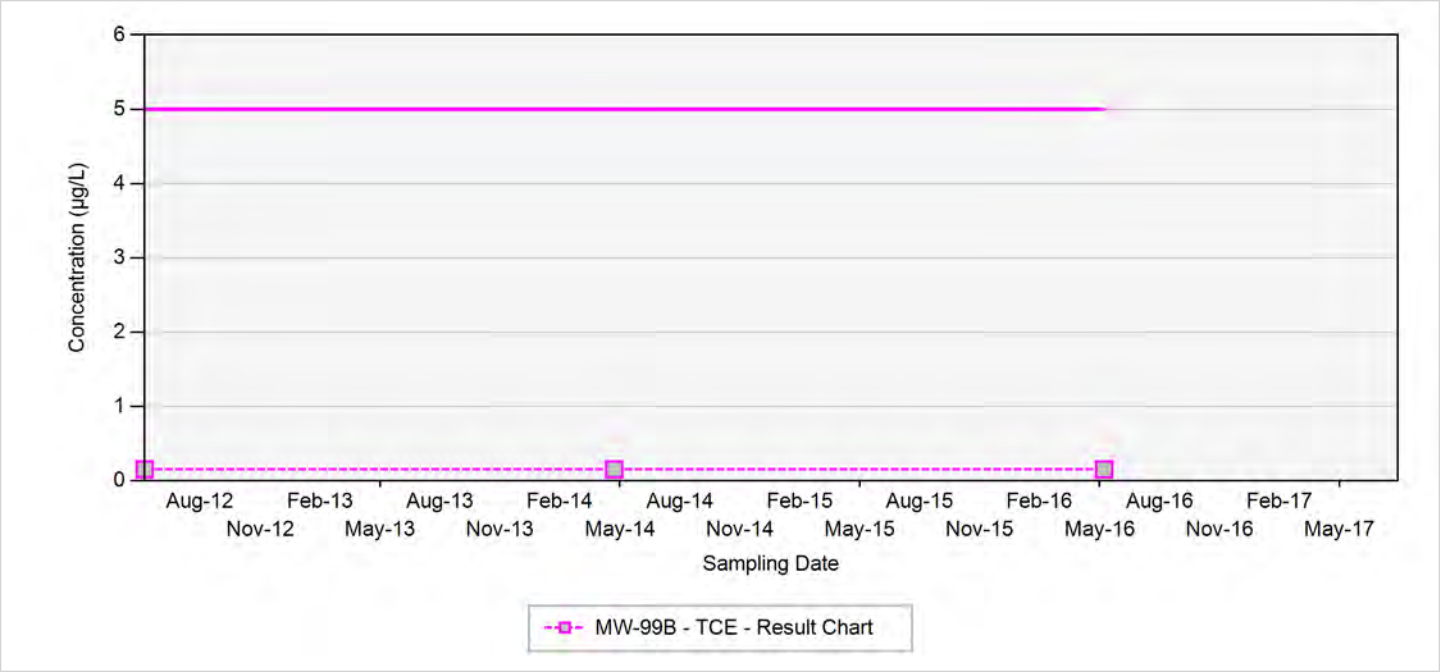
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.4
Concentration Trend Charts for Load Lines 2 and 3 Interior Plume

MW-99





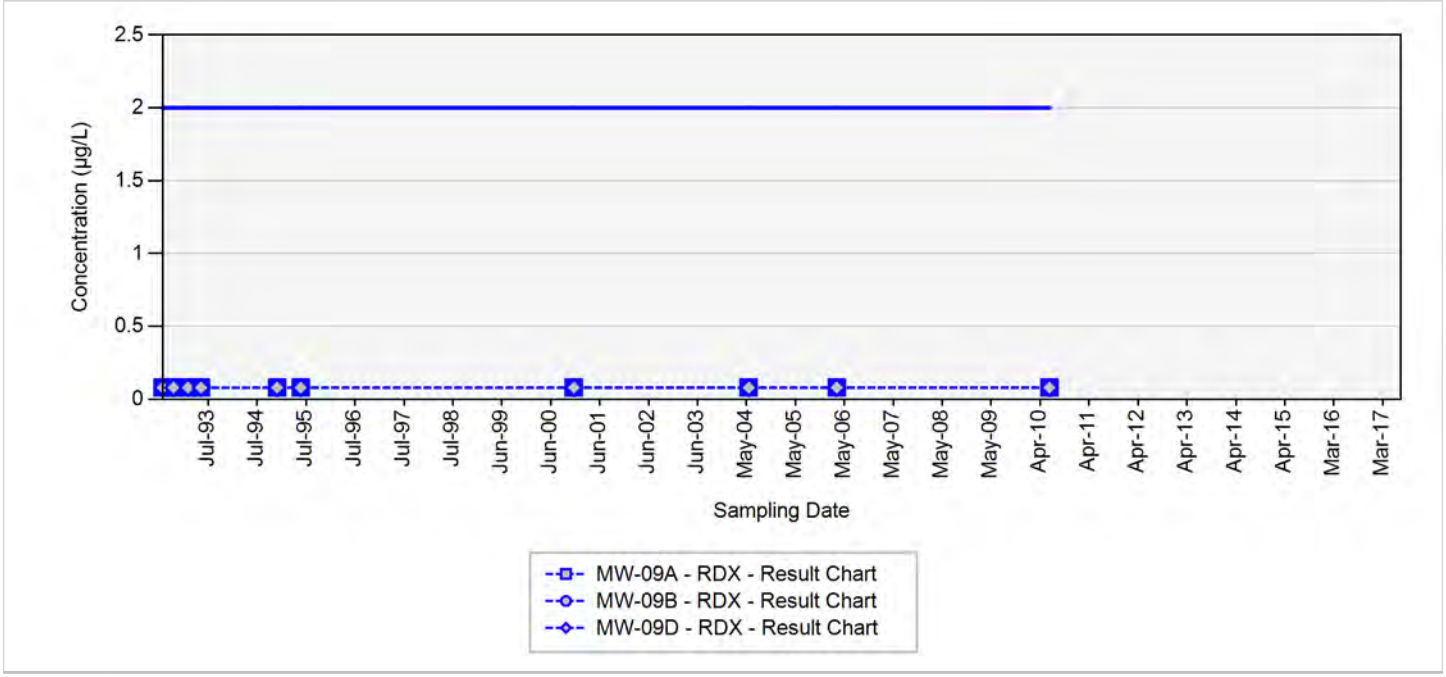
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

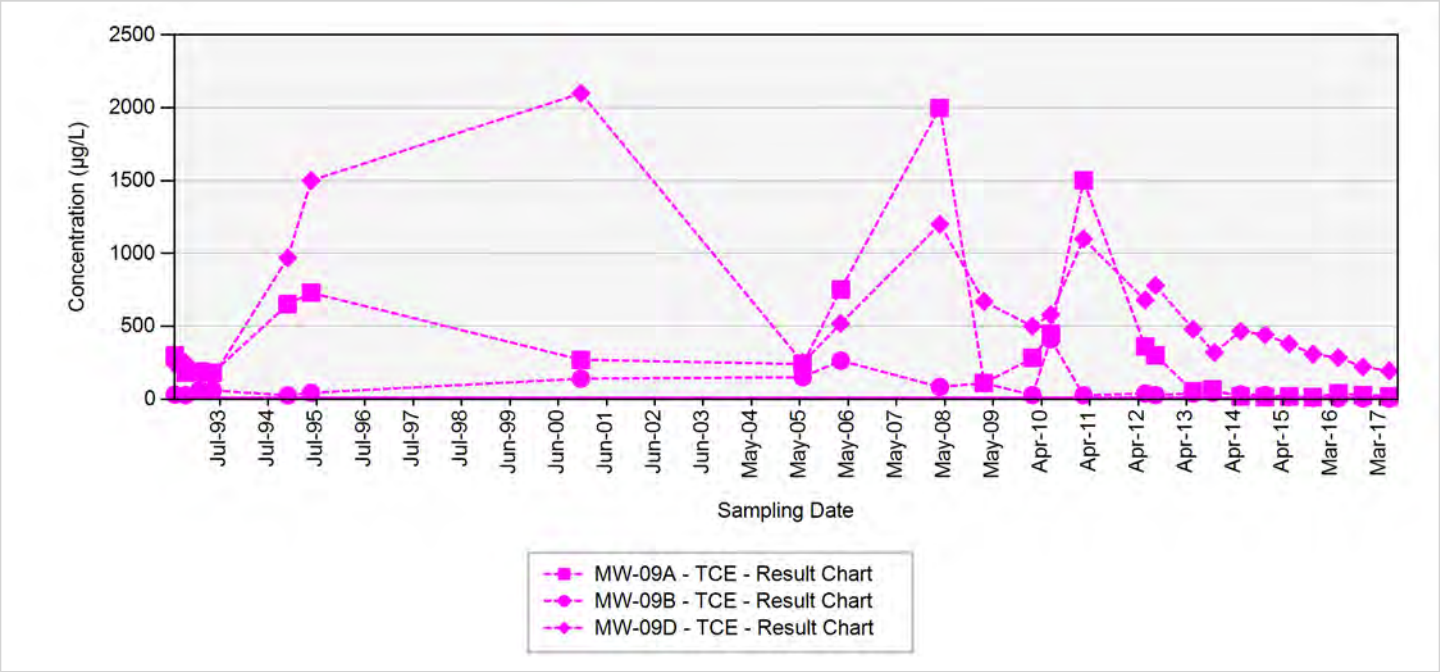
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-09





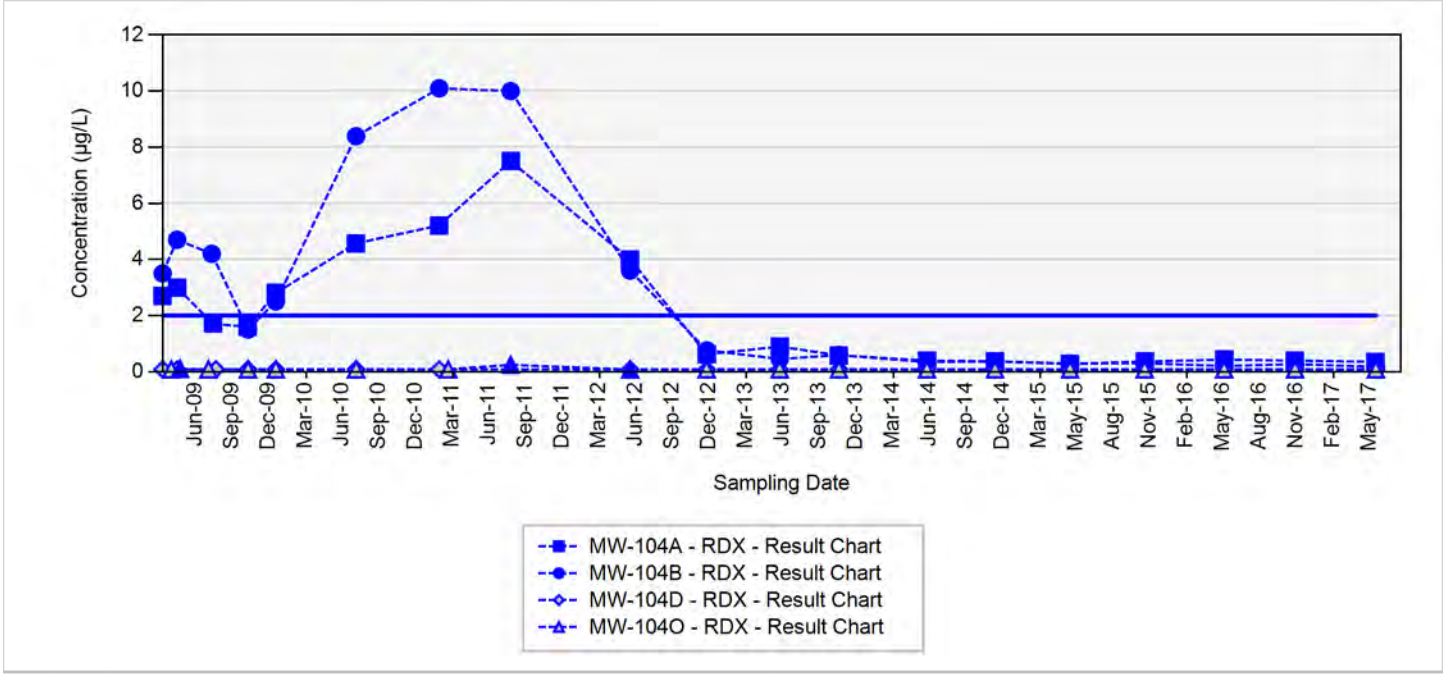
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

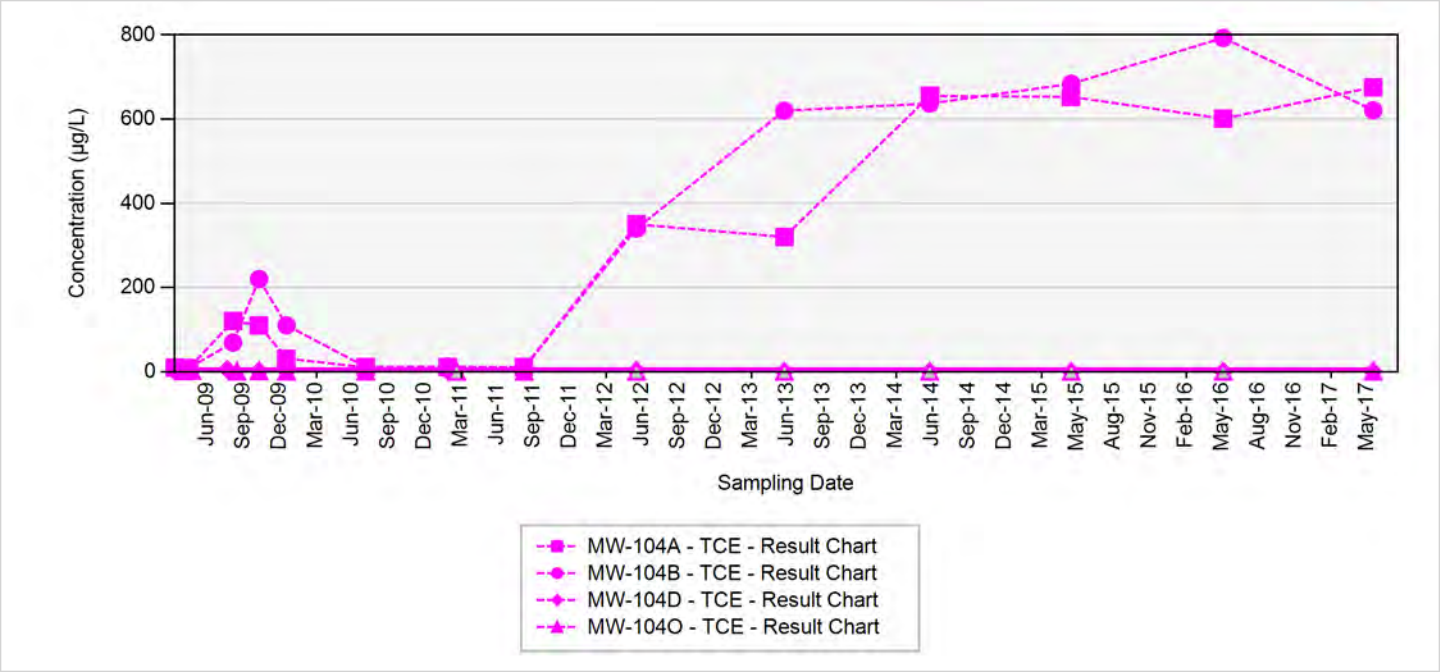
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-104





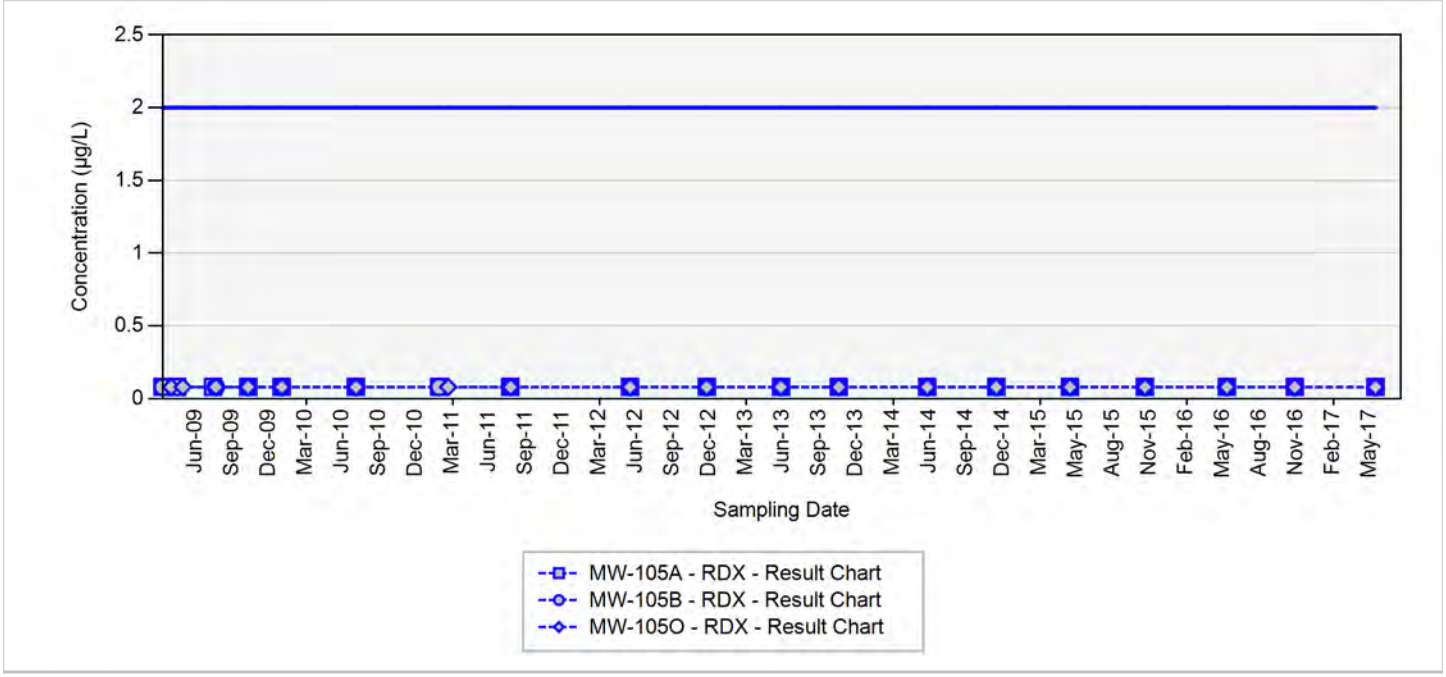
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

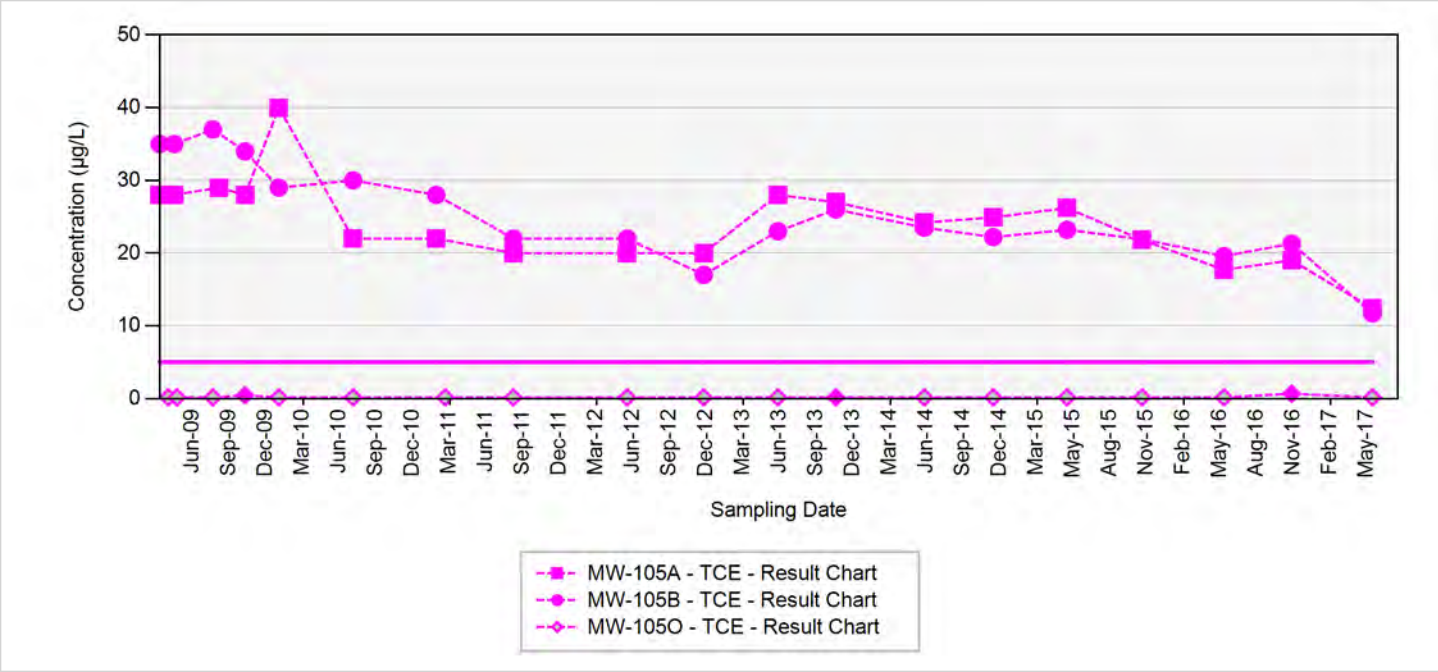
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-105





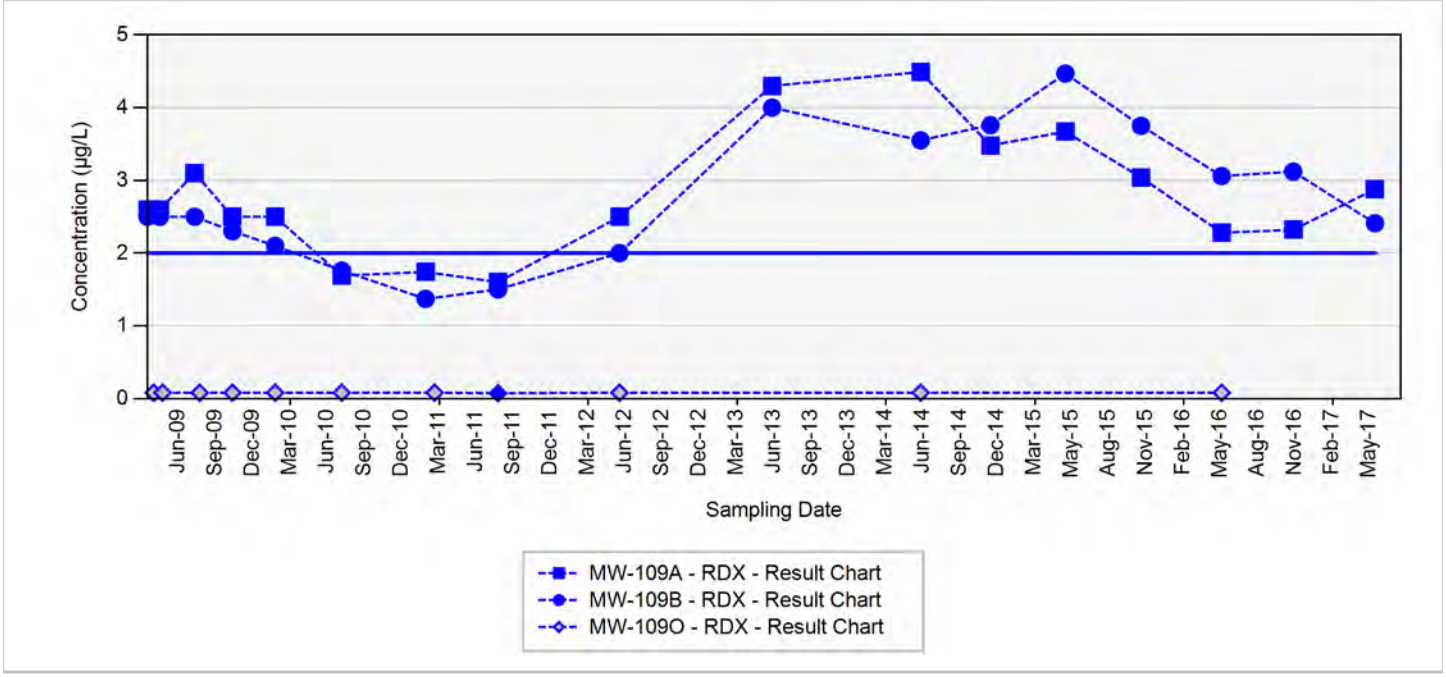
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

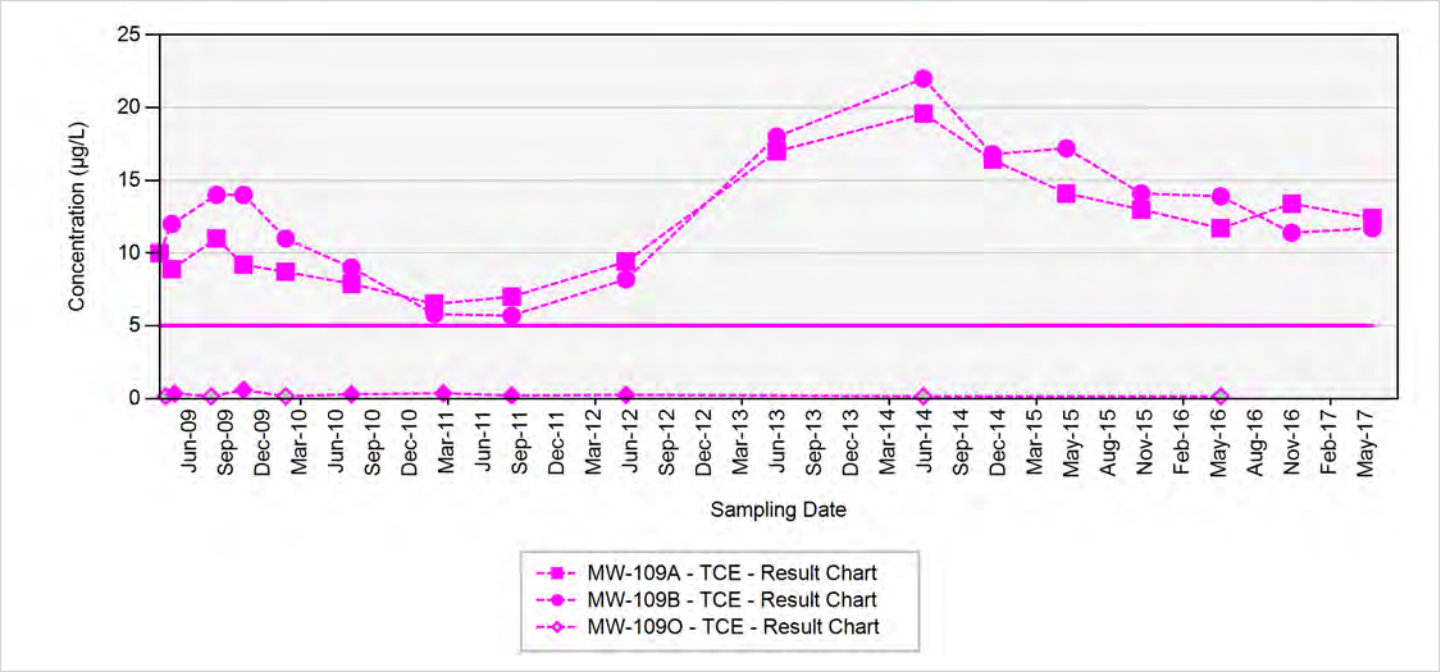
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-109





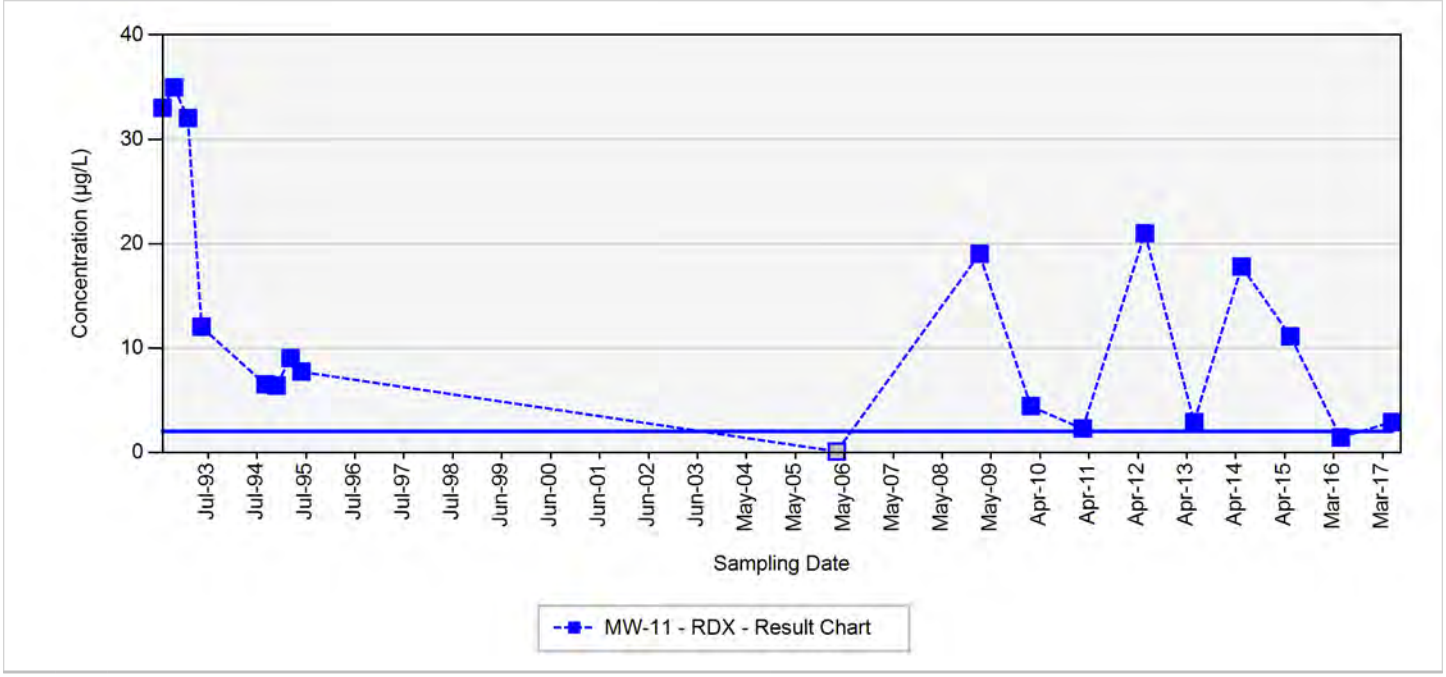
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

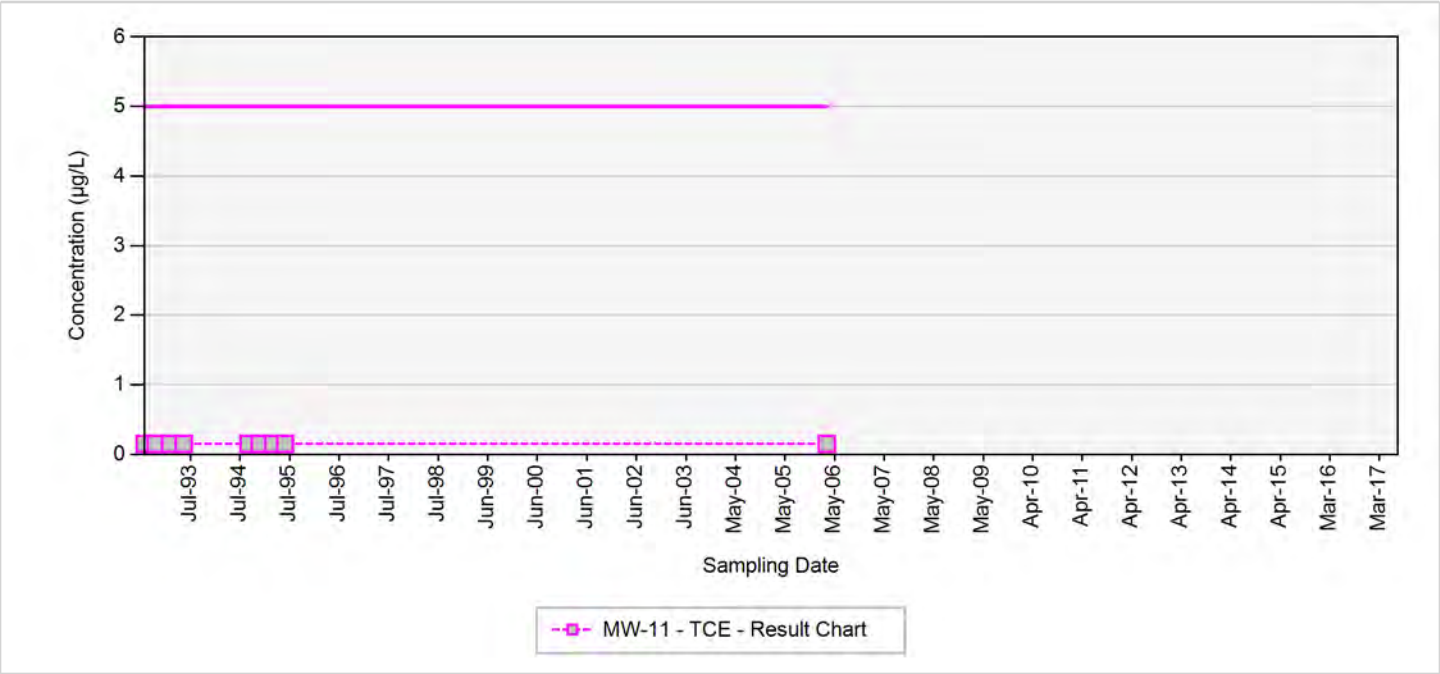
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-11





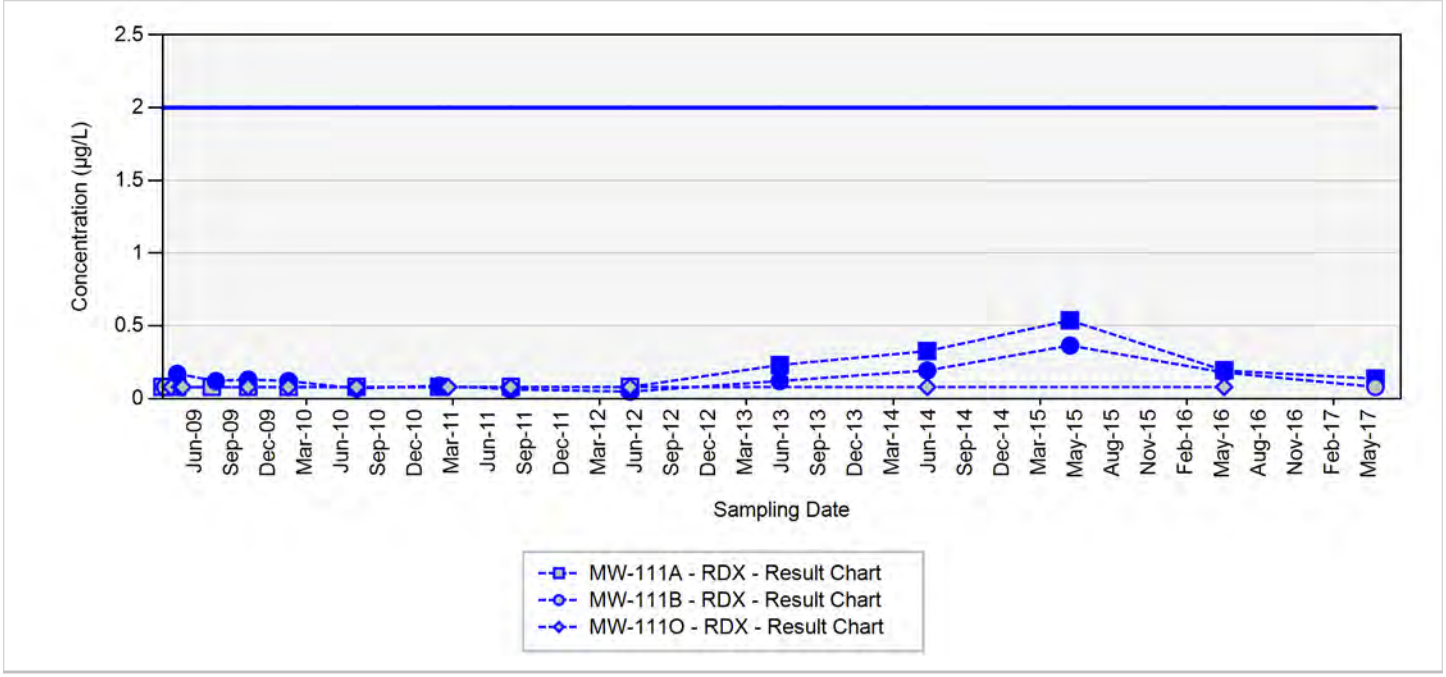
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

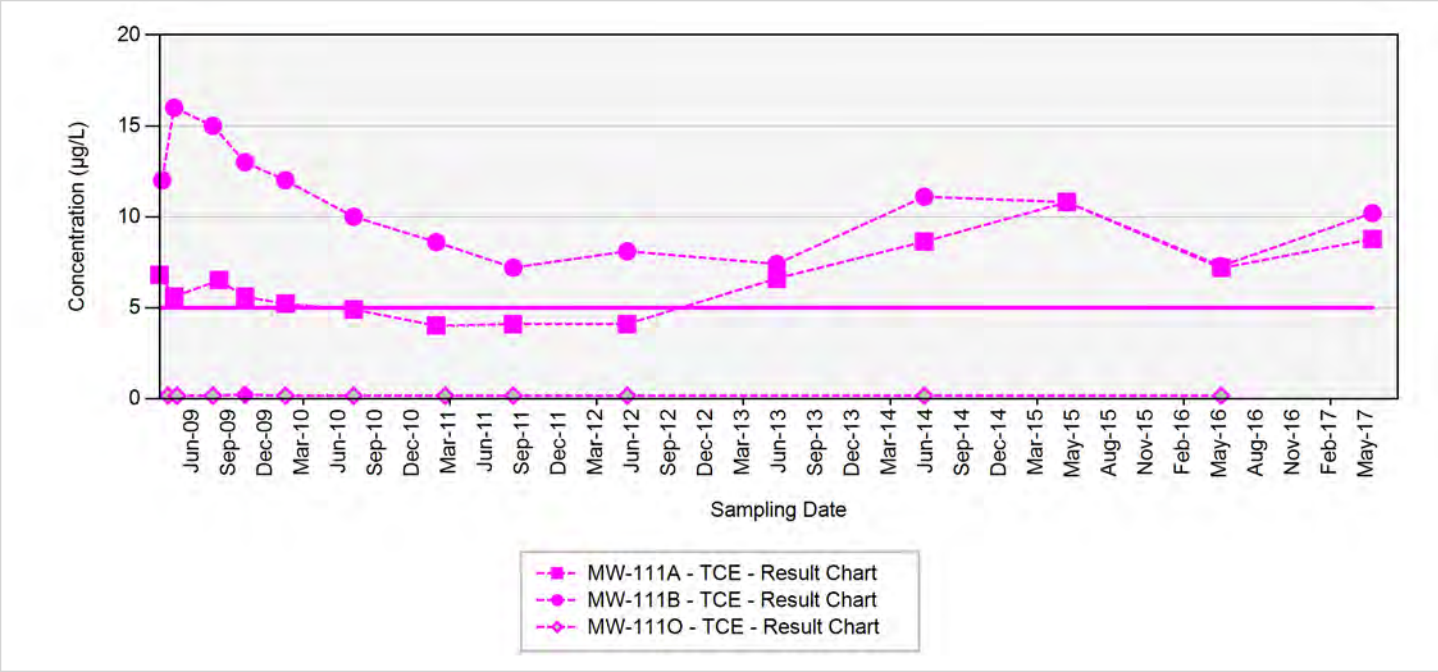
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-111





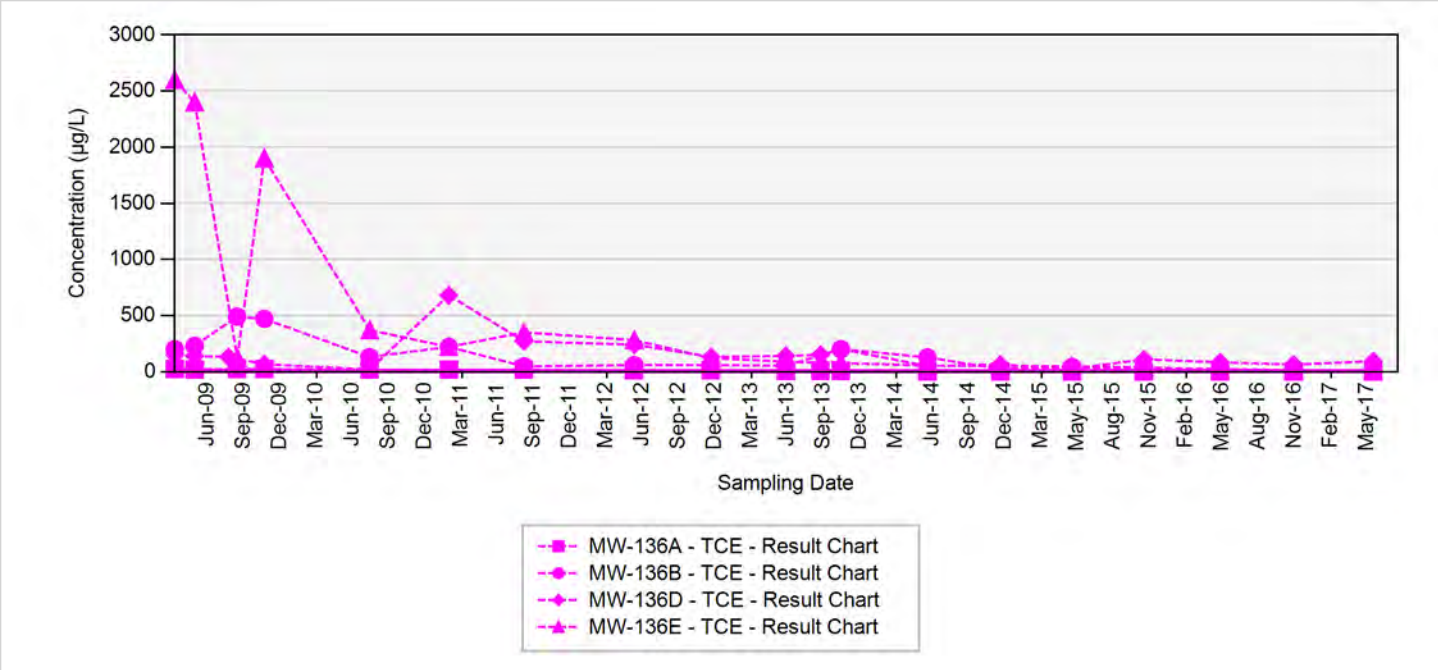
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-136



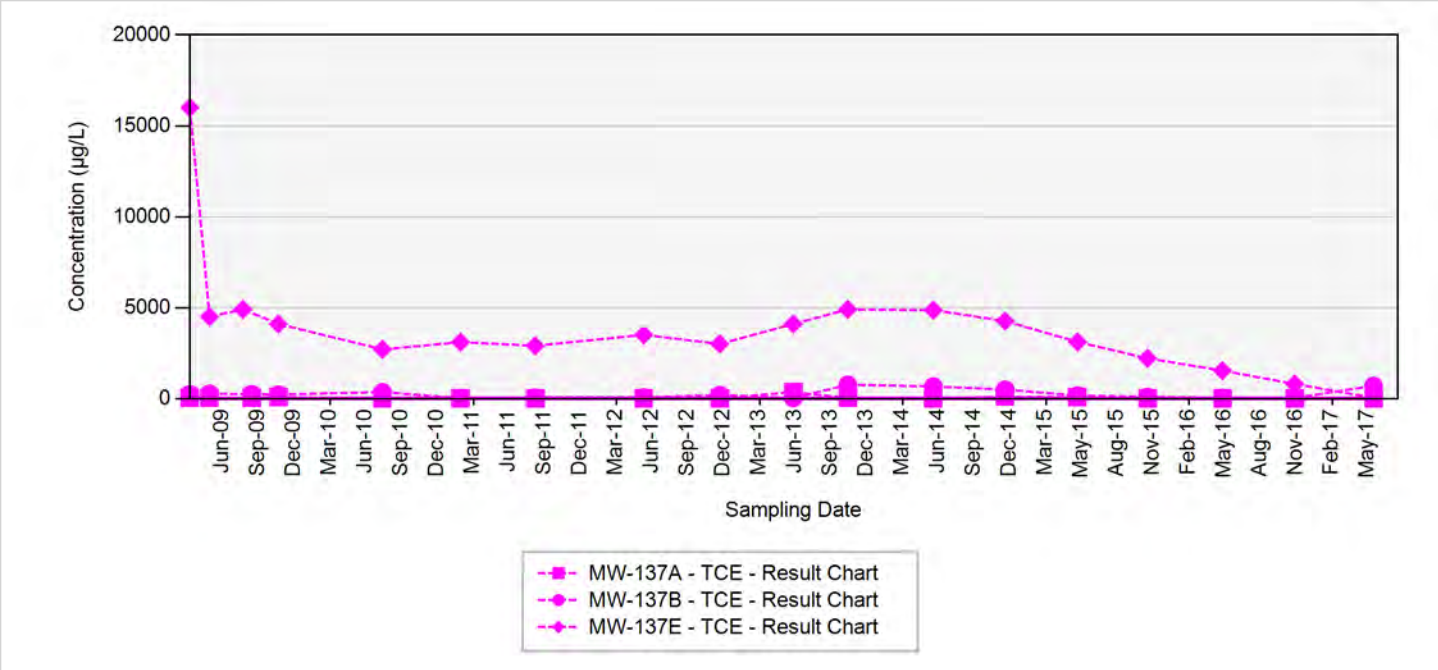
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-137



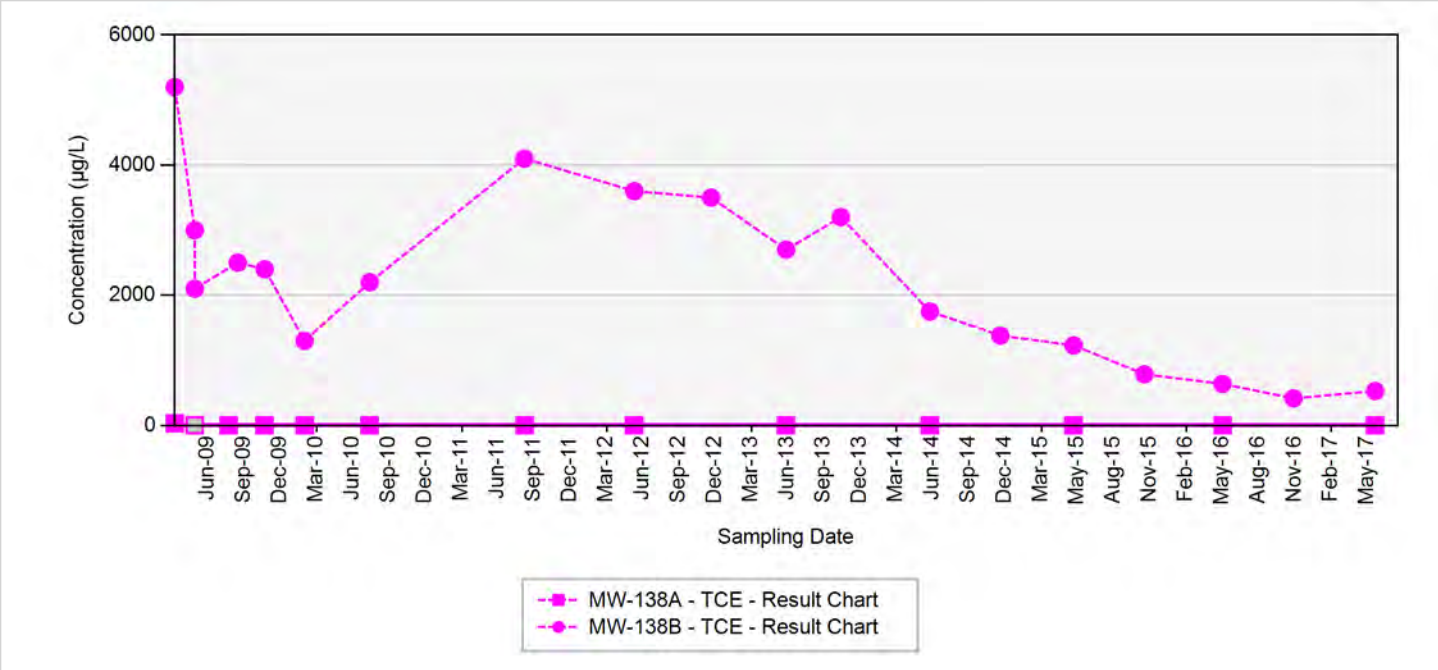
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-138



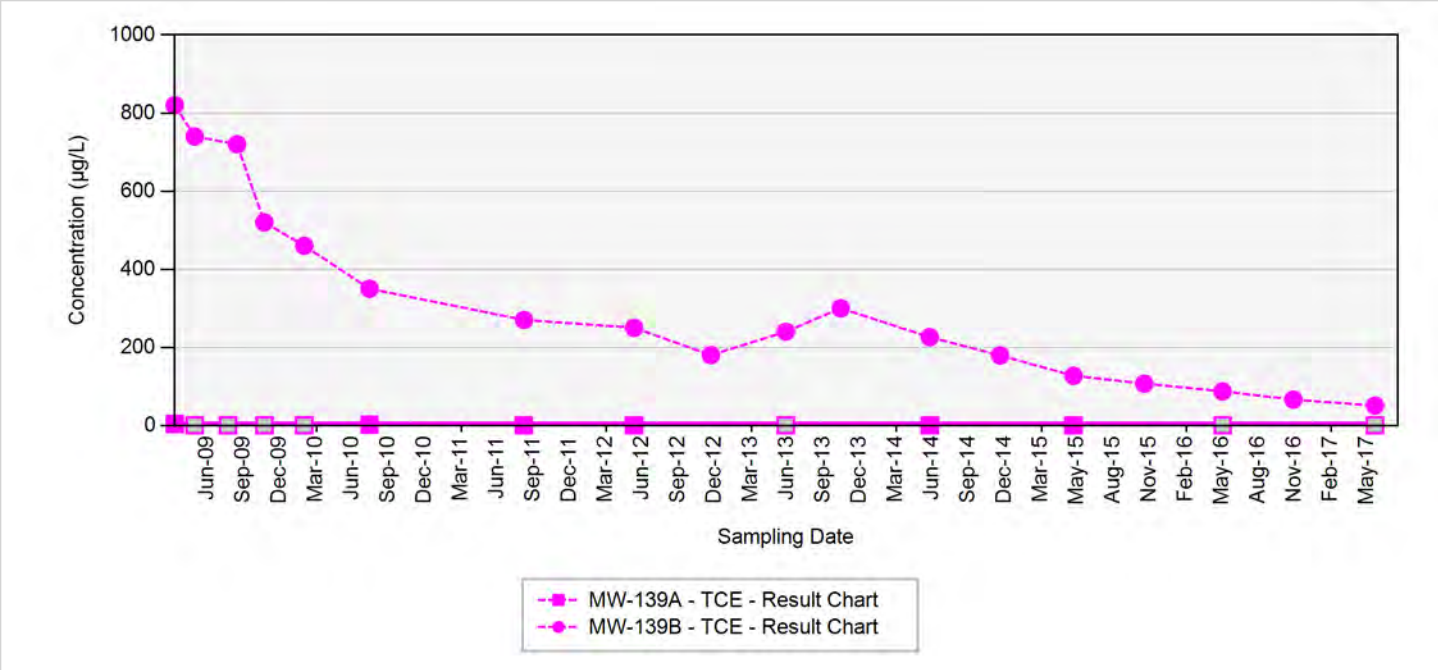
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-139



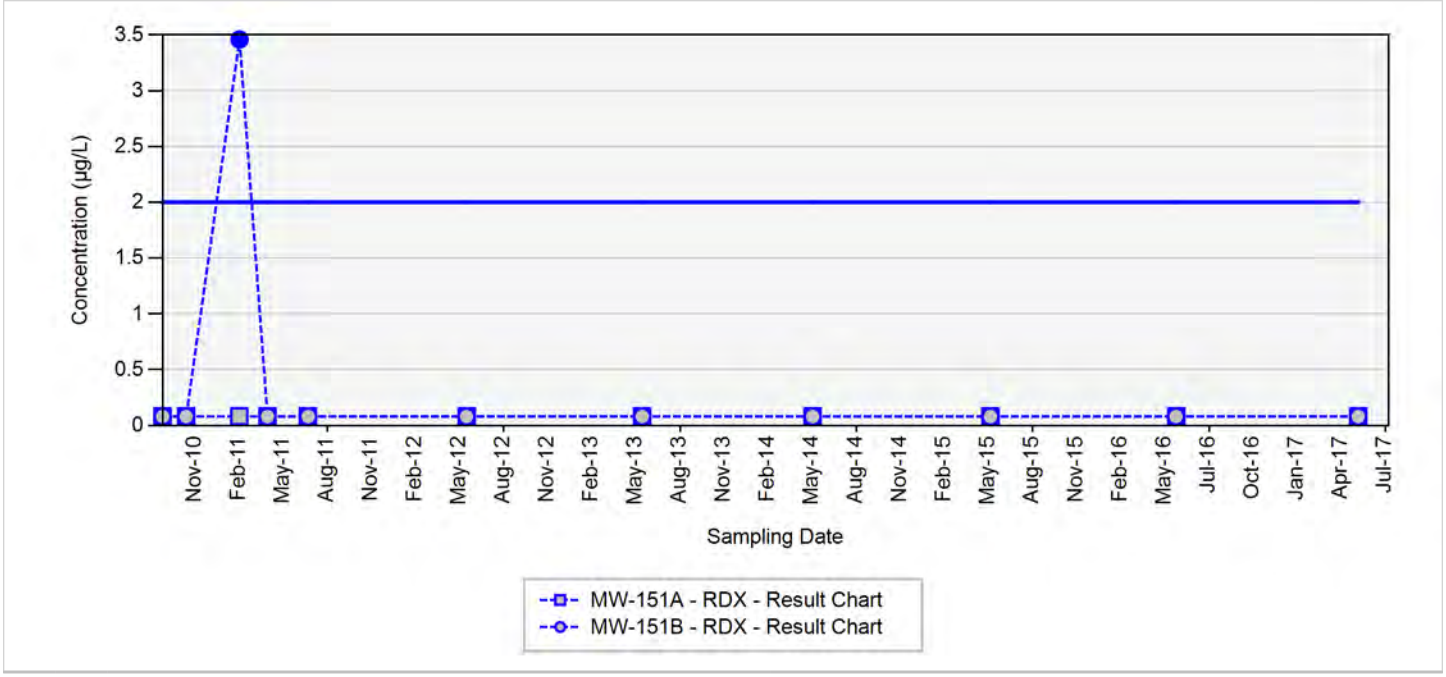
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

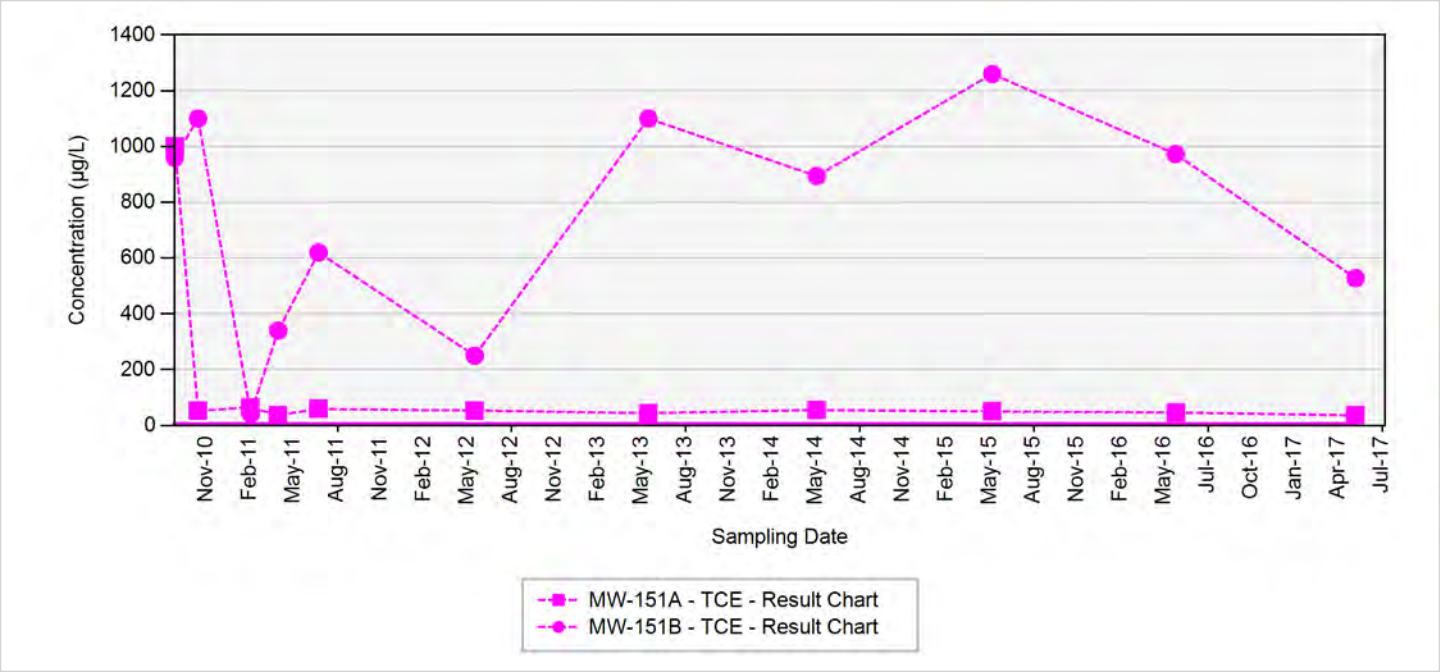
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-151





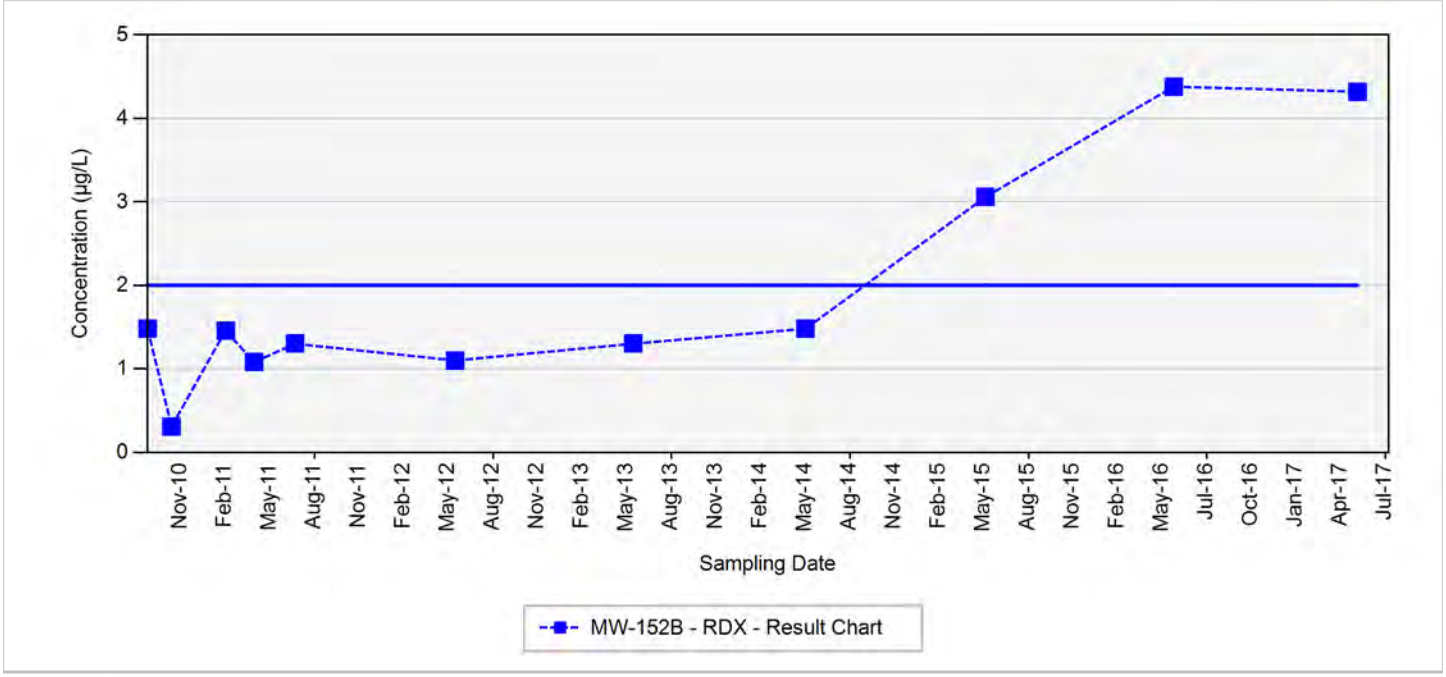
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

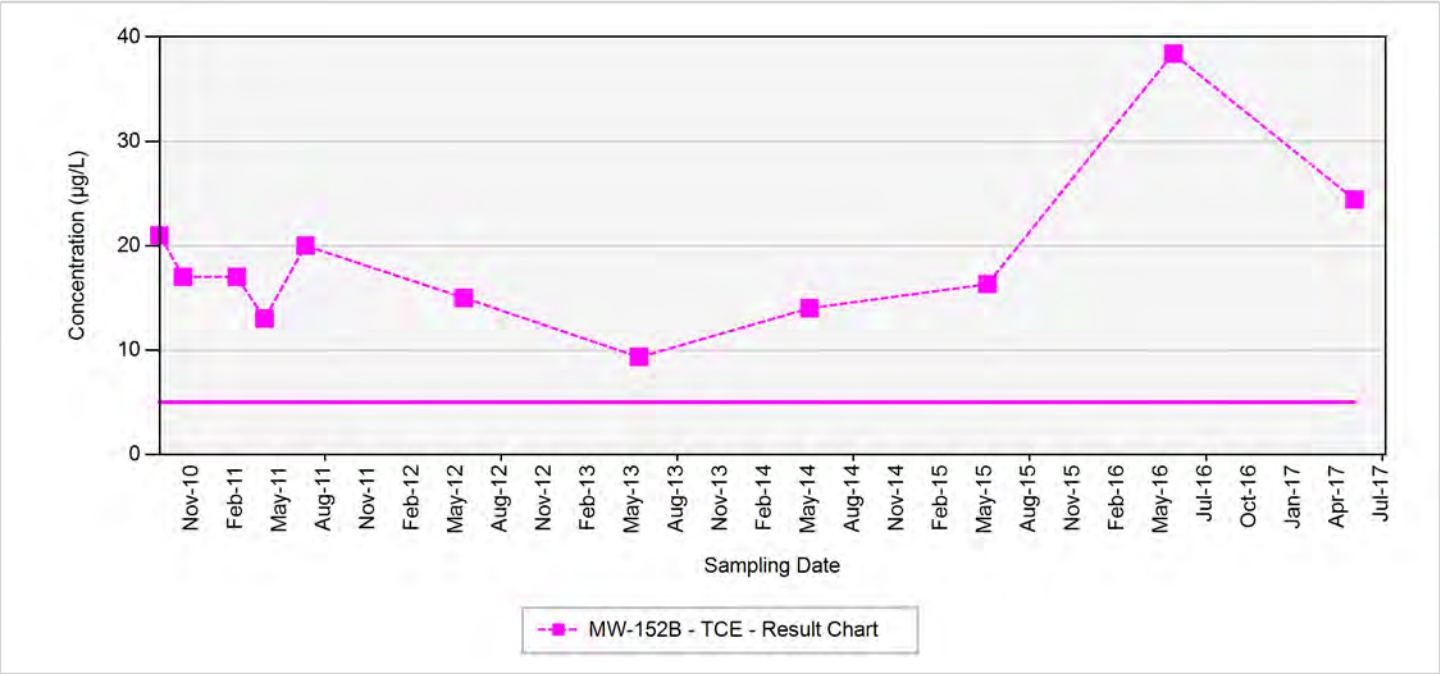
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-152





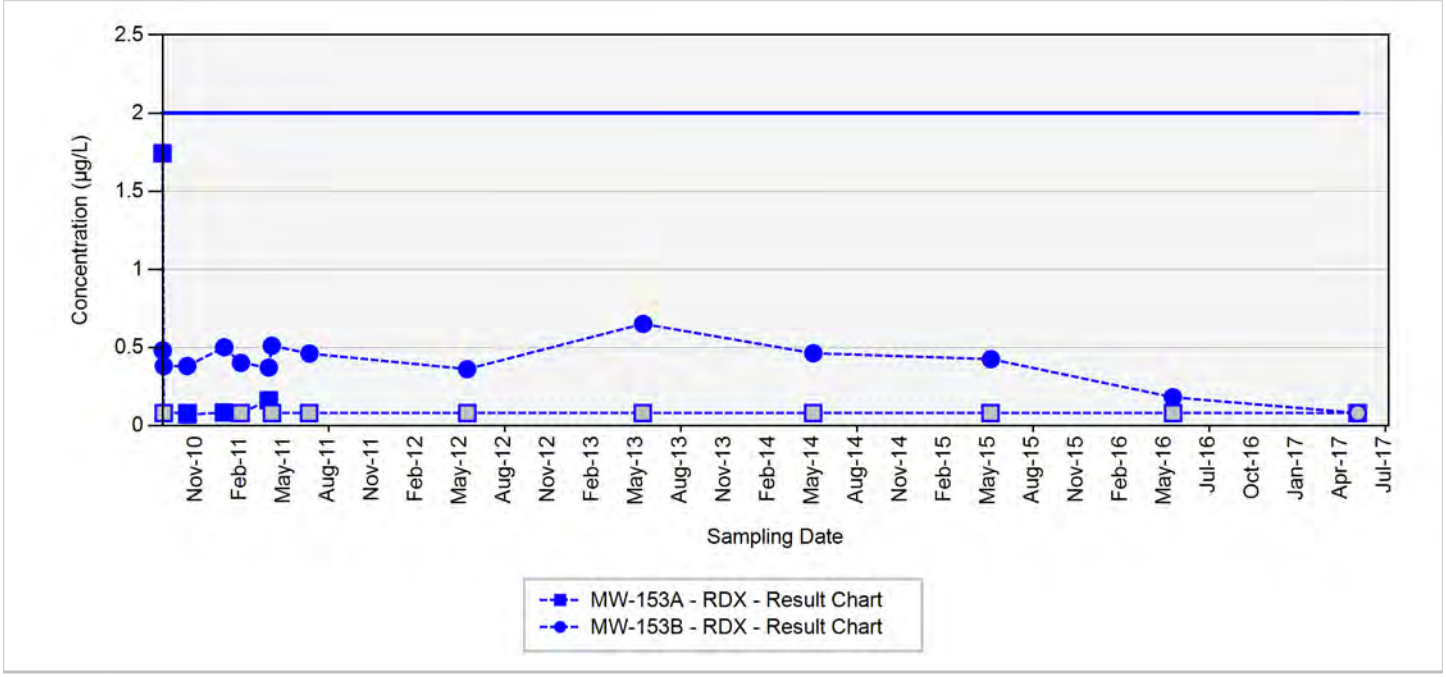
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

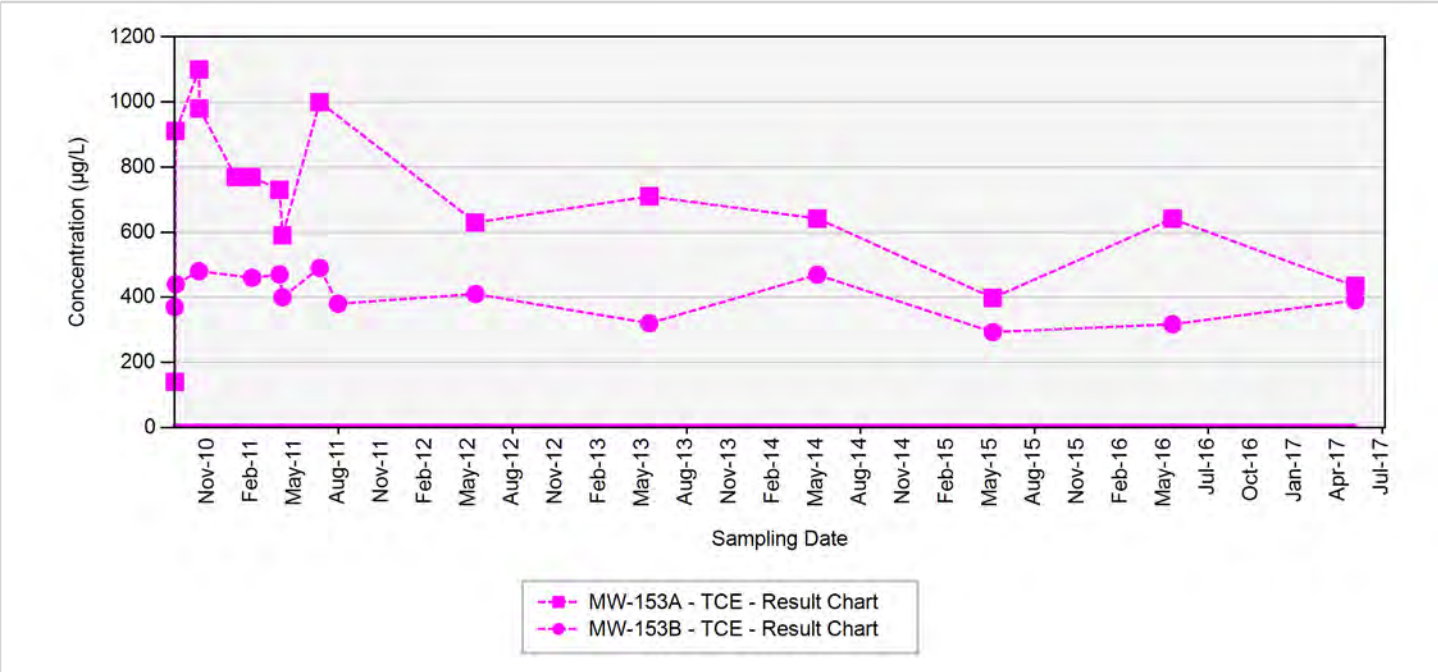
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-153





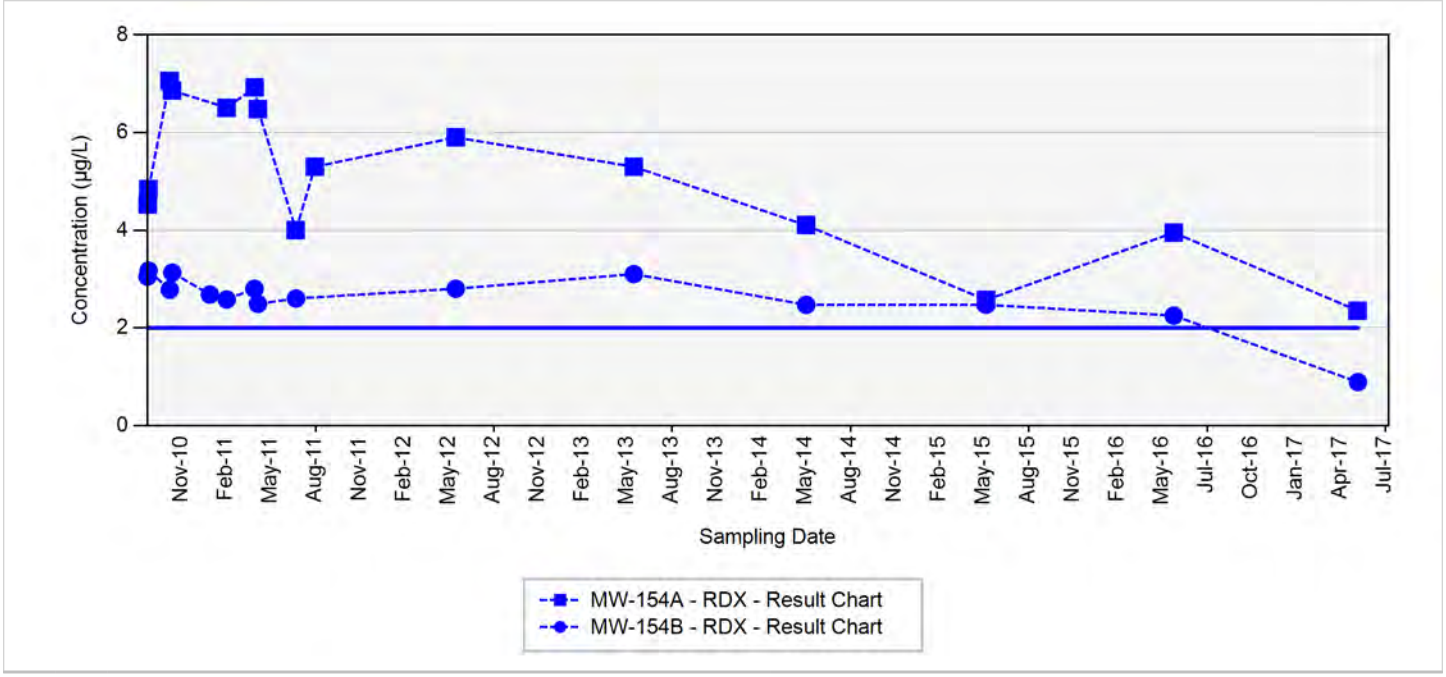
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

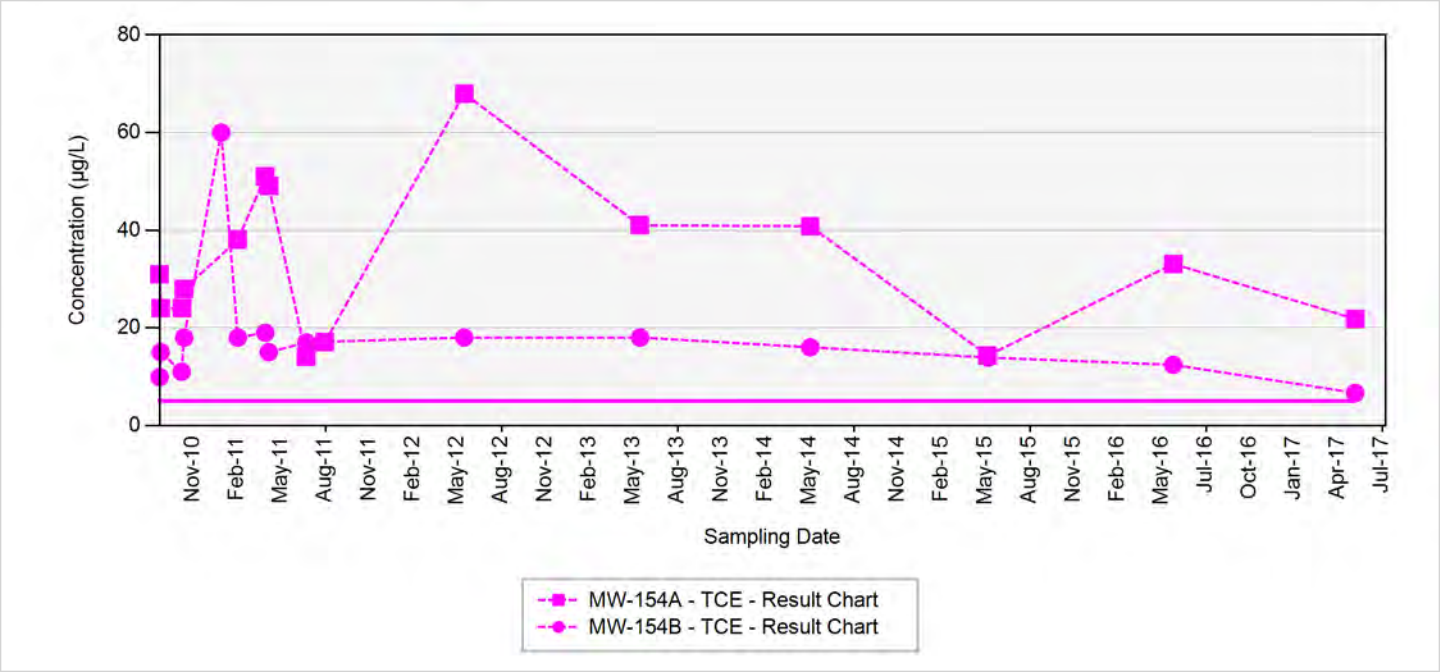
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-154





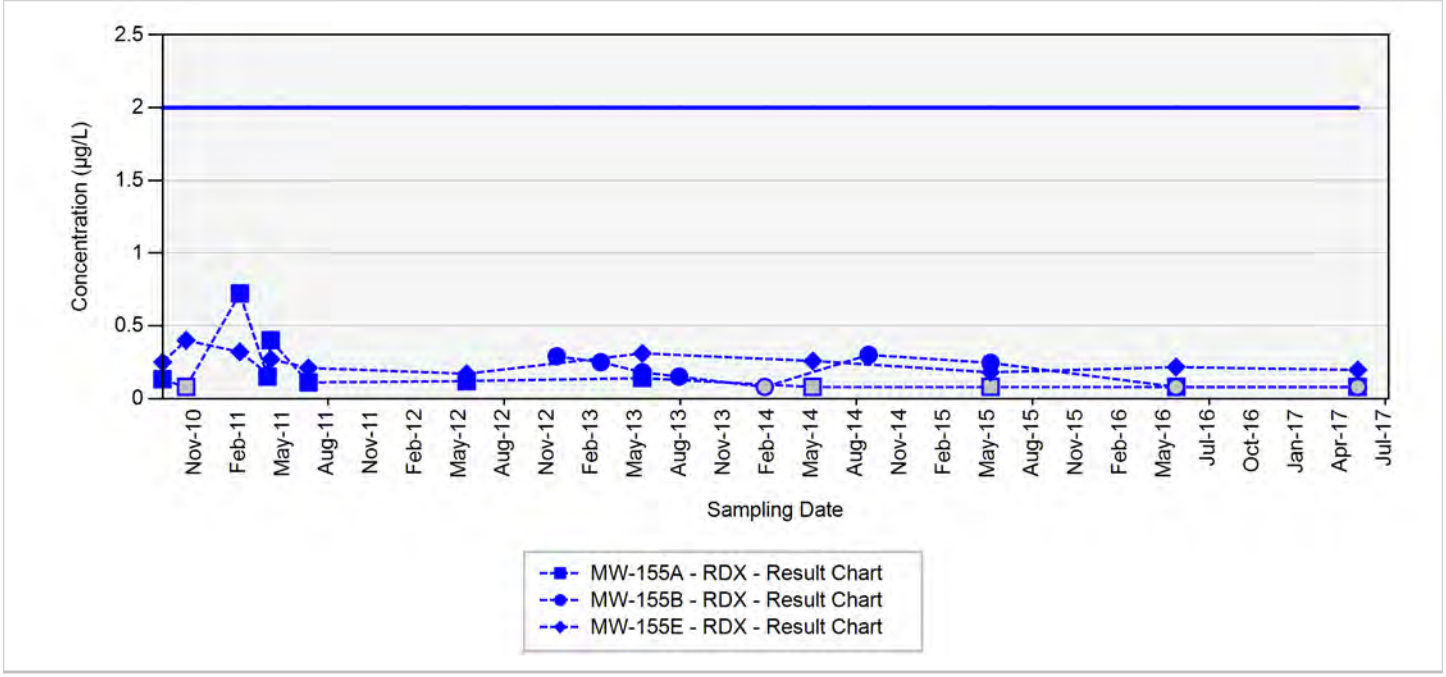
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

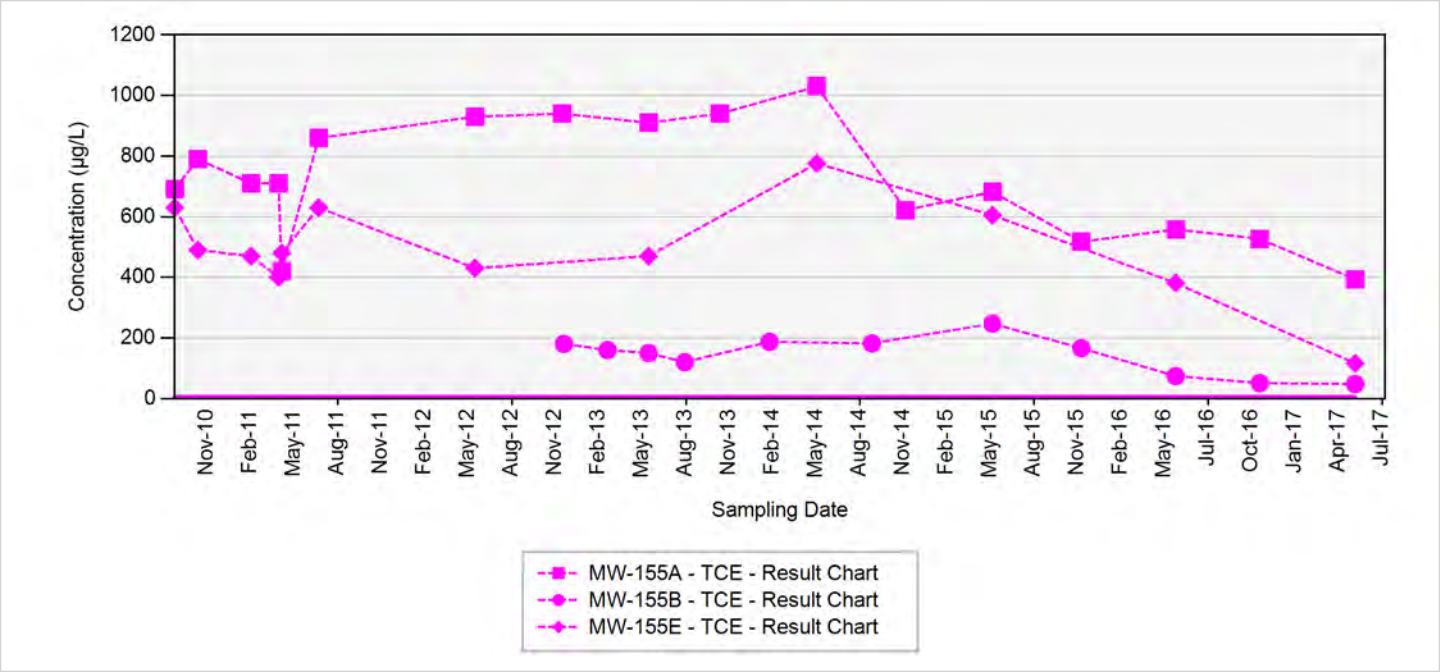
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-155





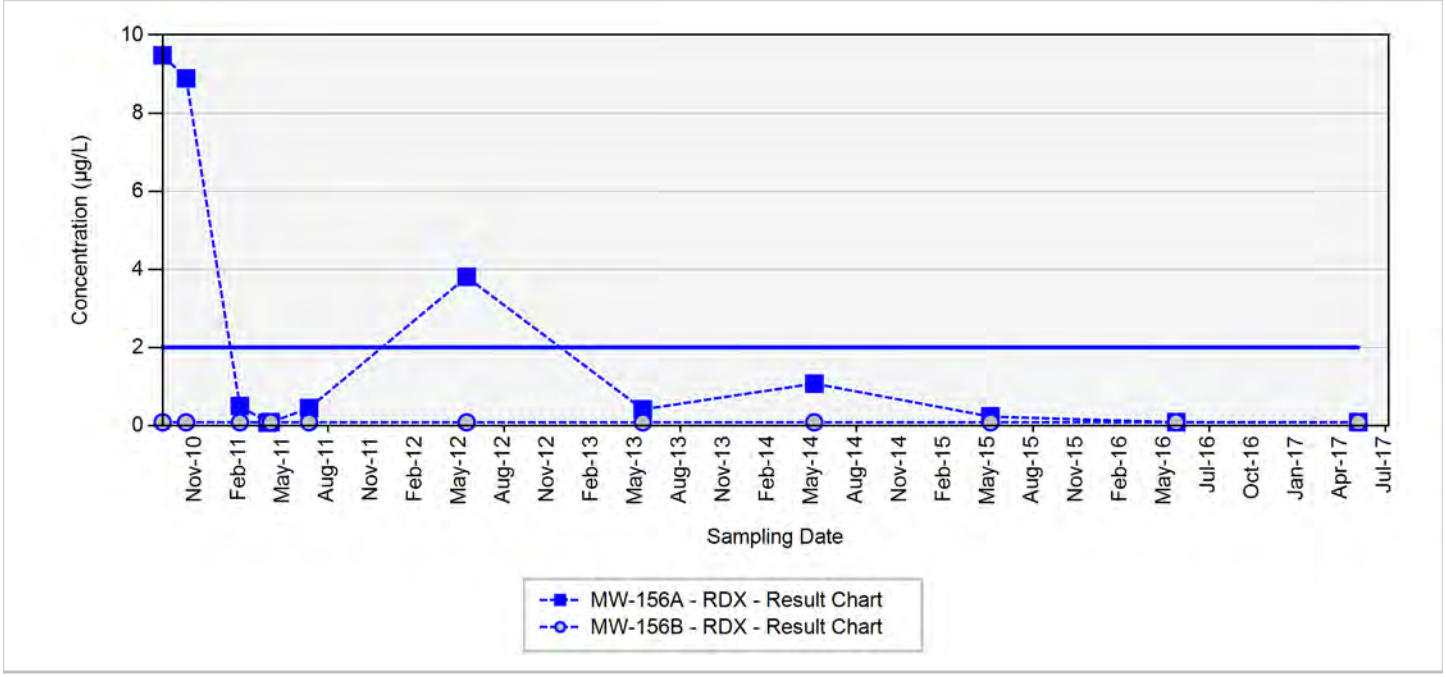
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

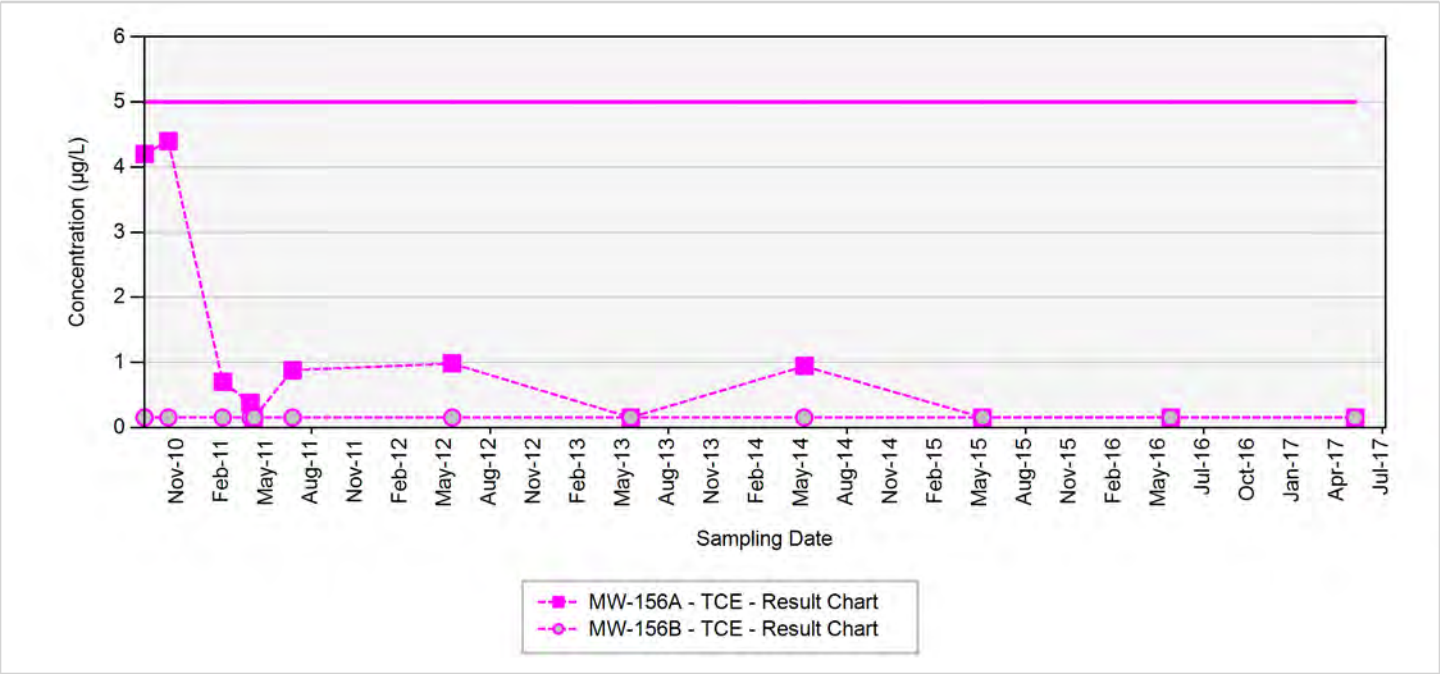
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-156





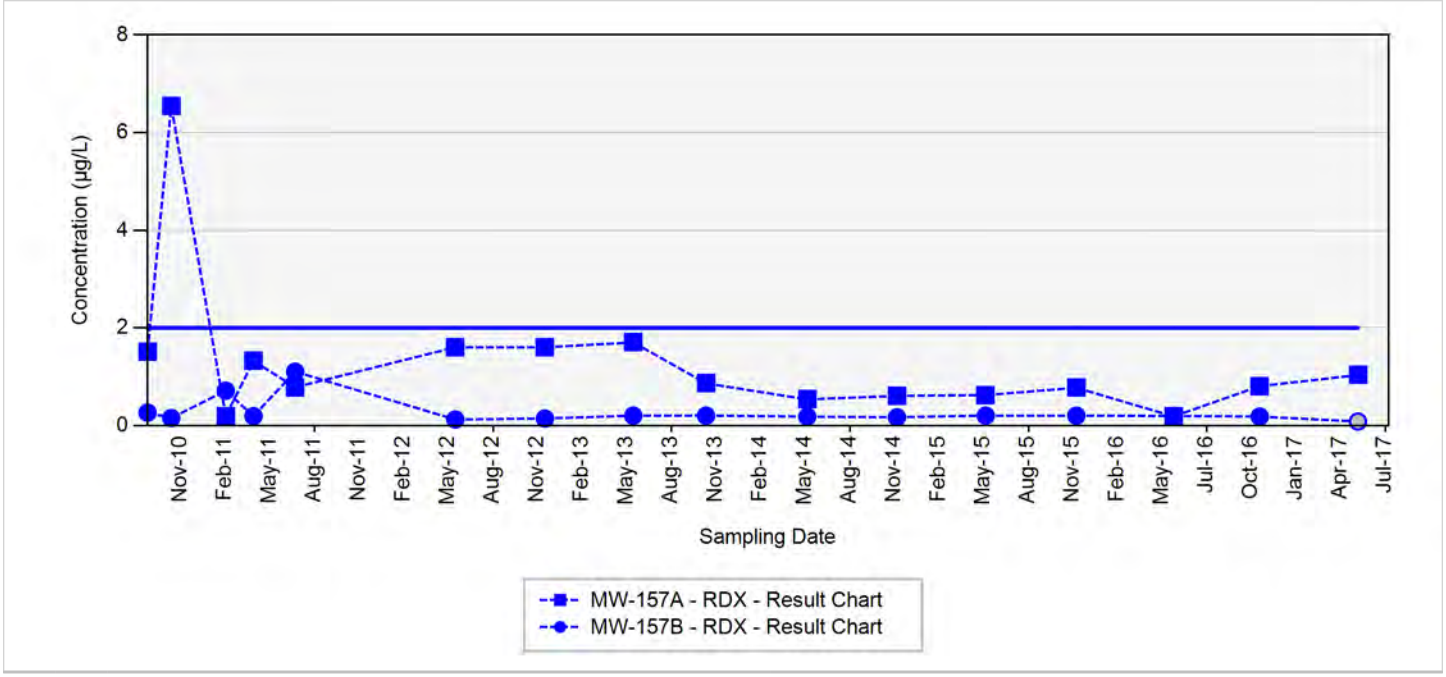
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

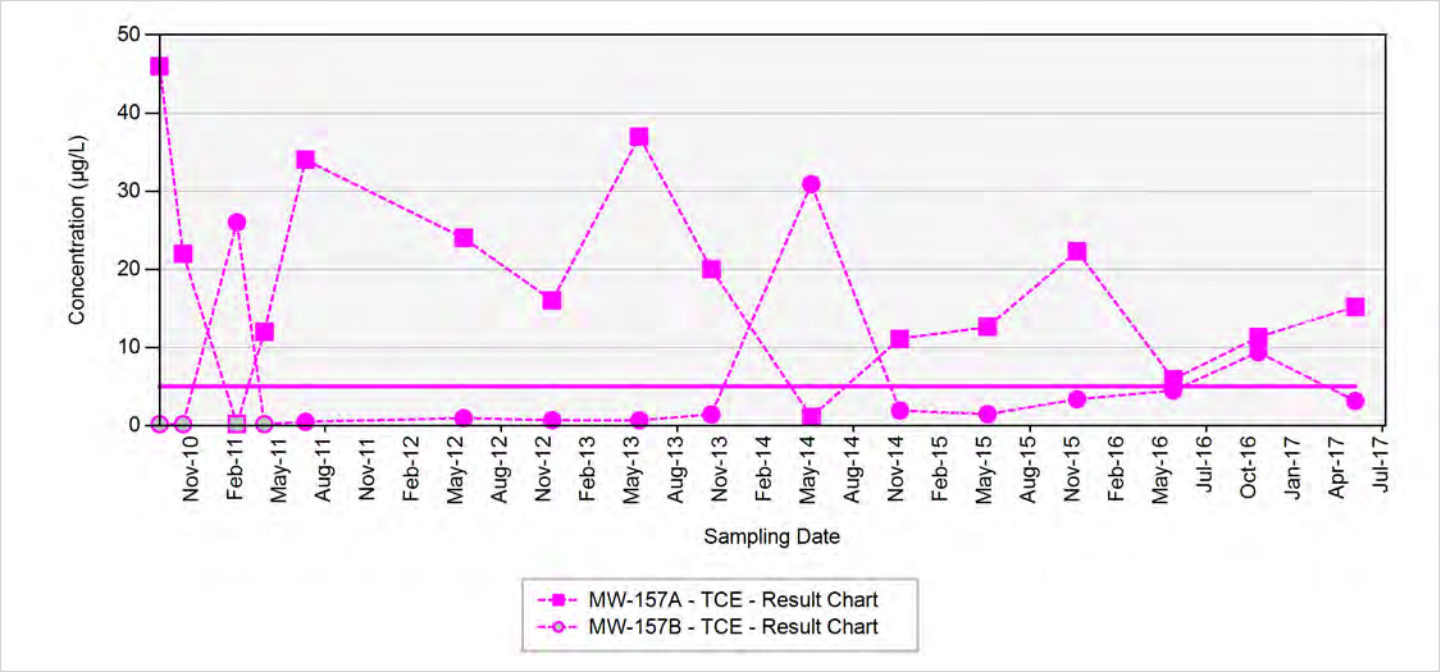
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-157





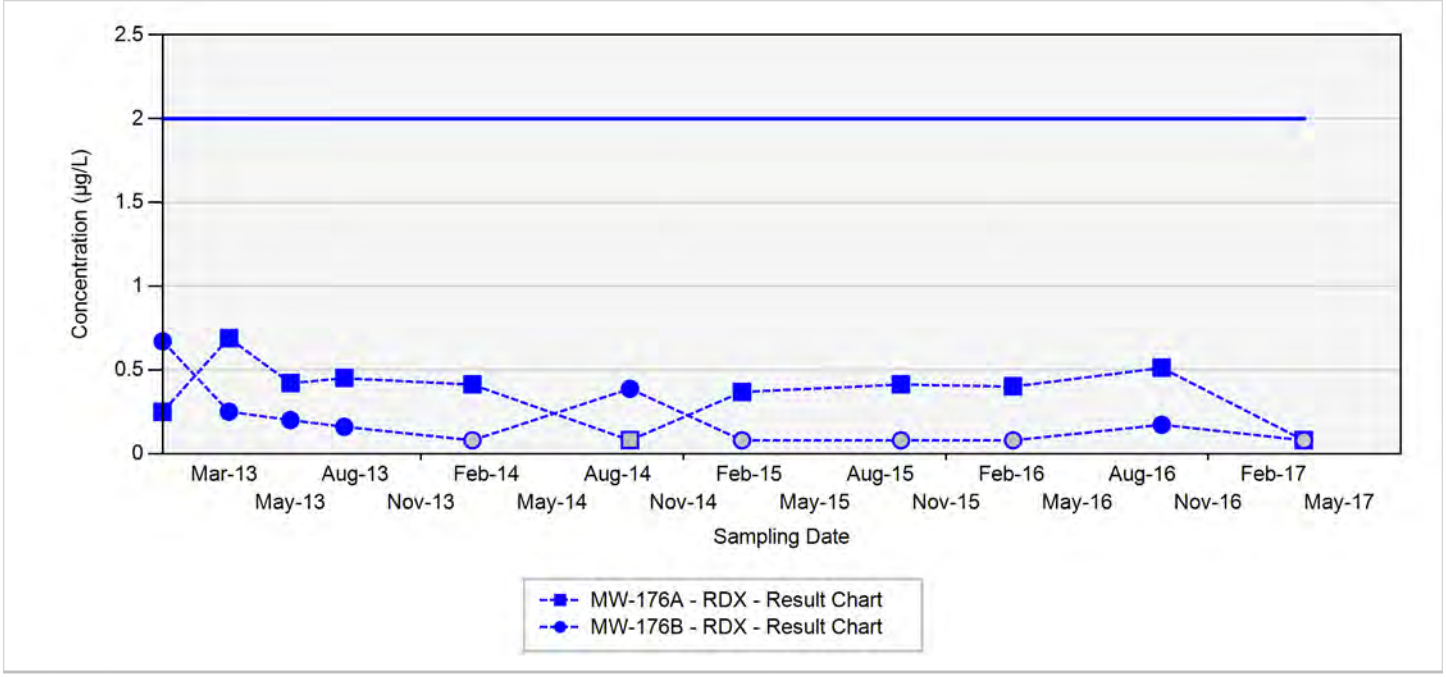
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

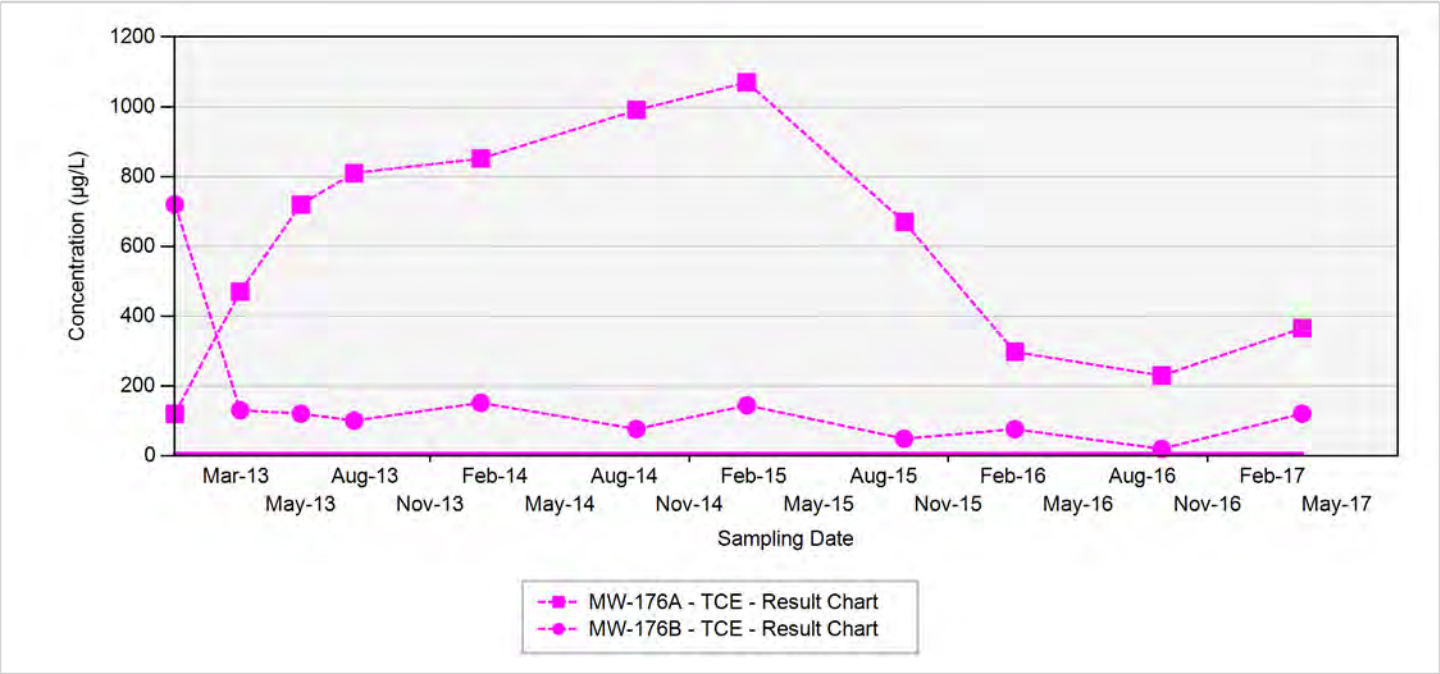
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-176





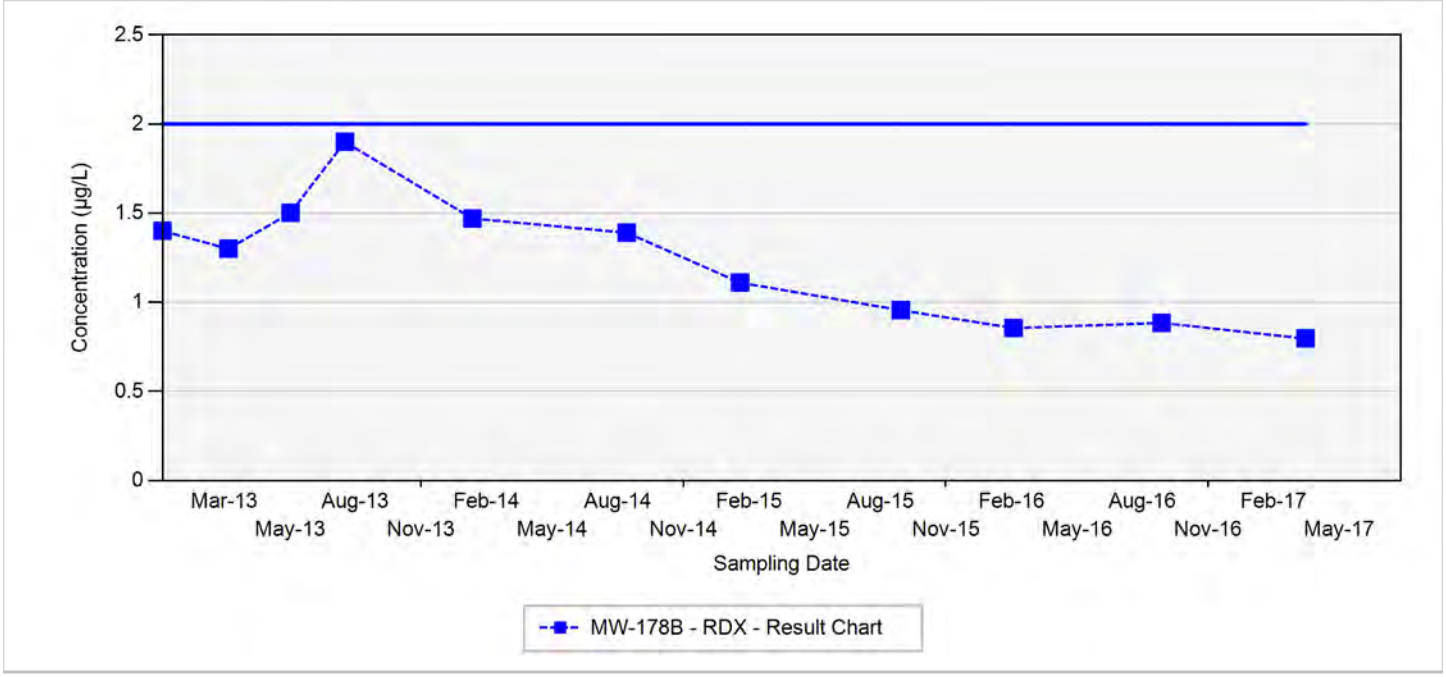
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

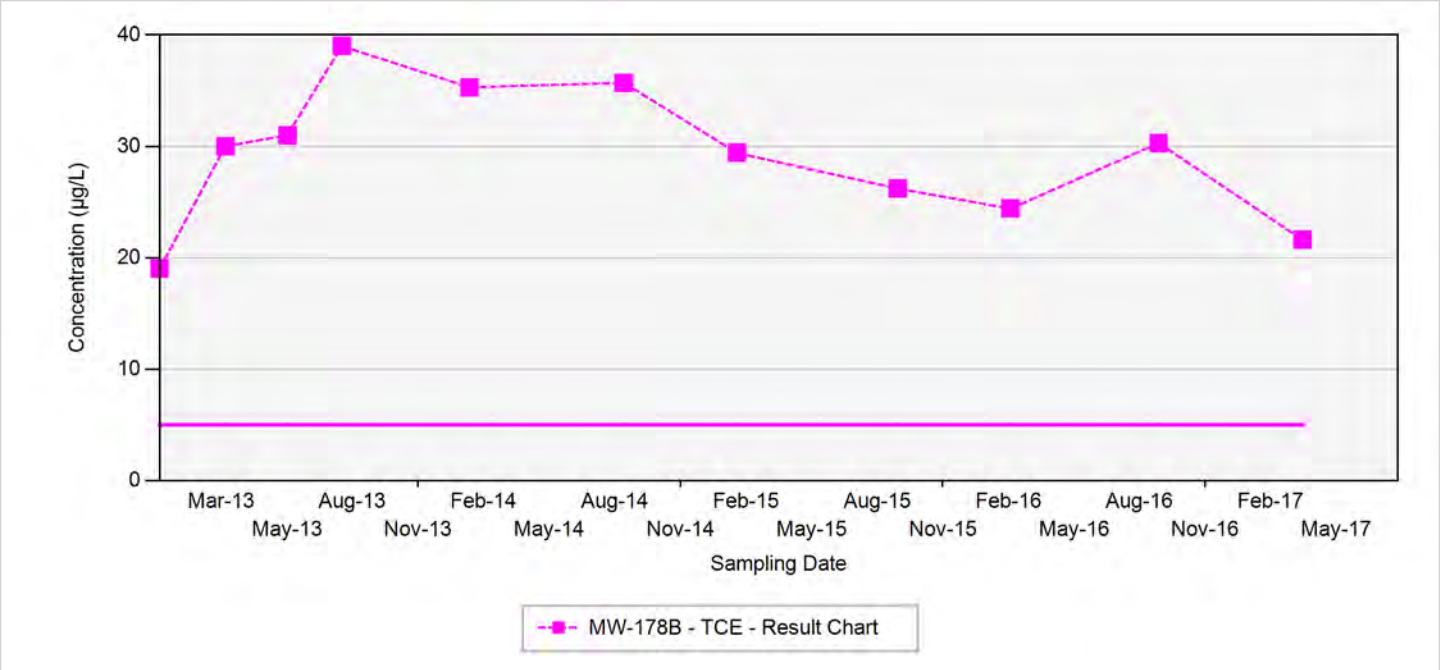
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-178





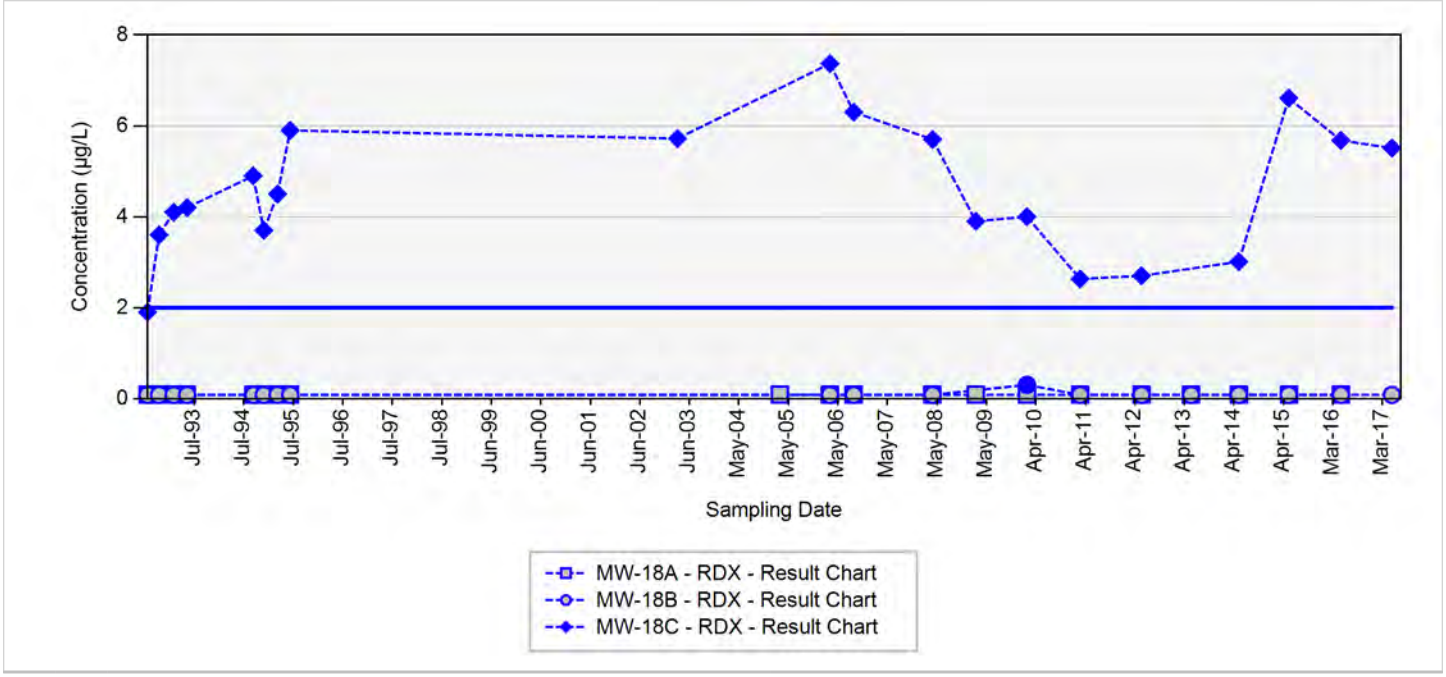
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

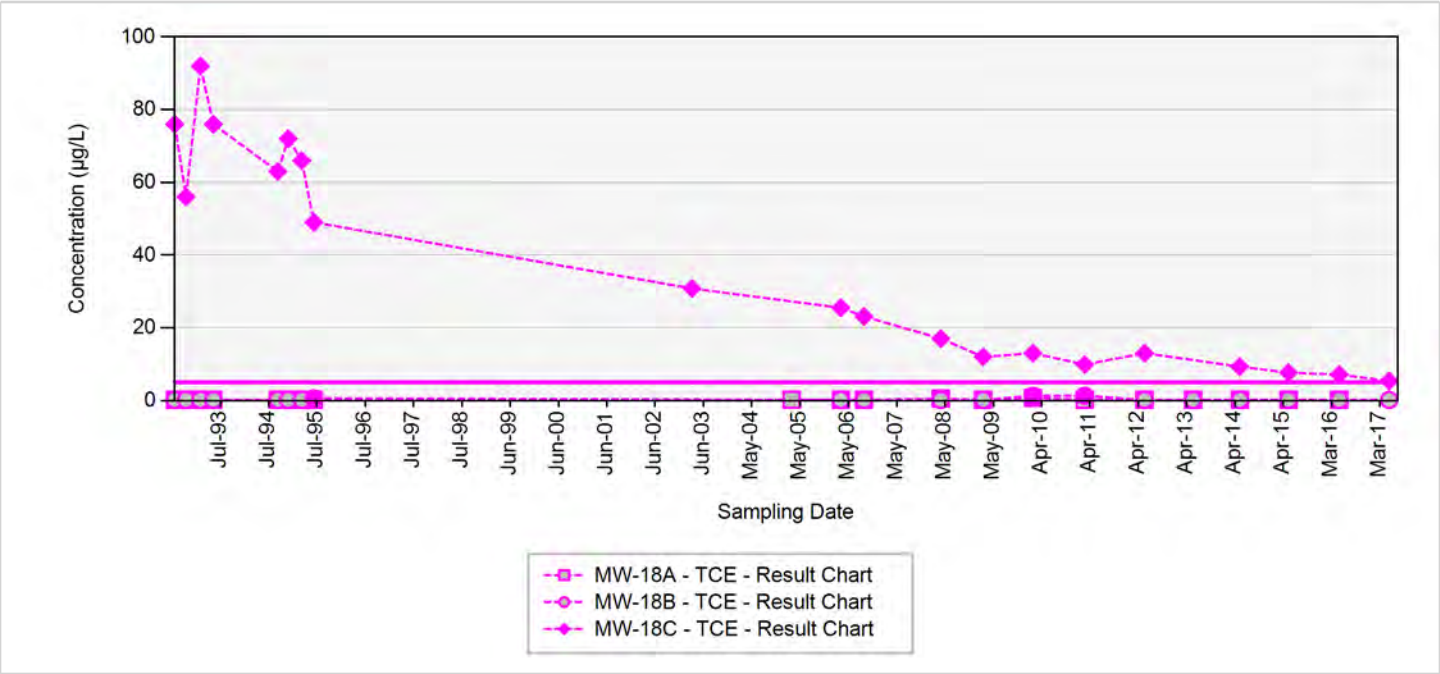
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-18





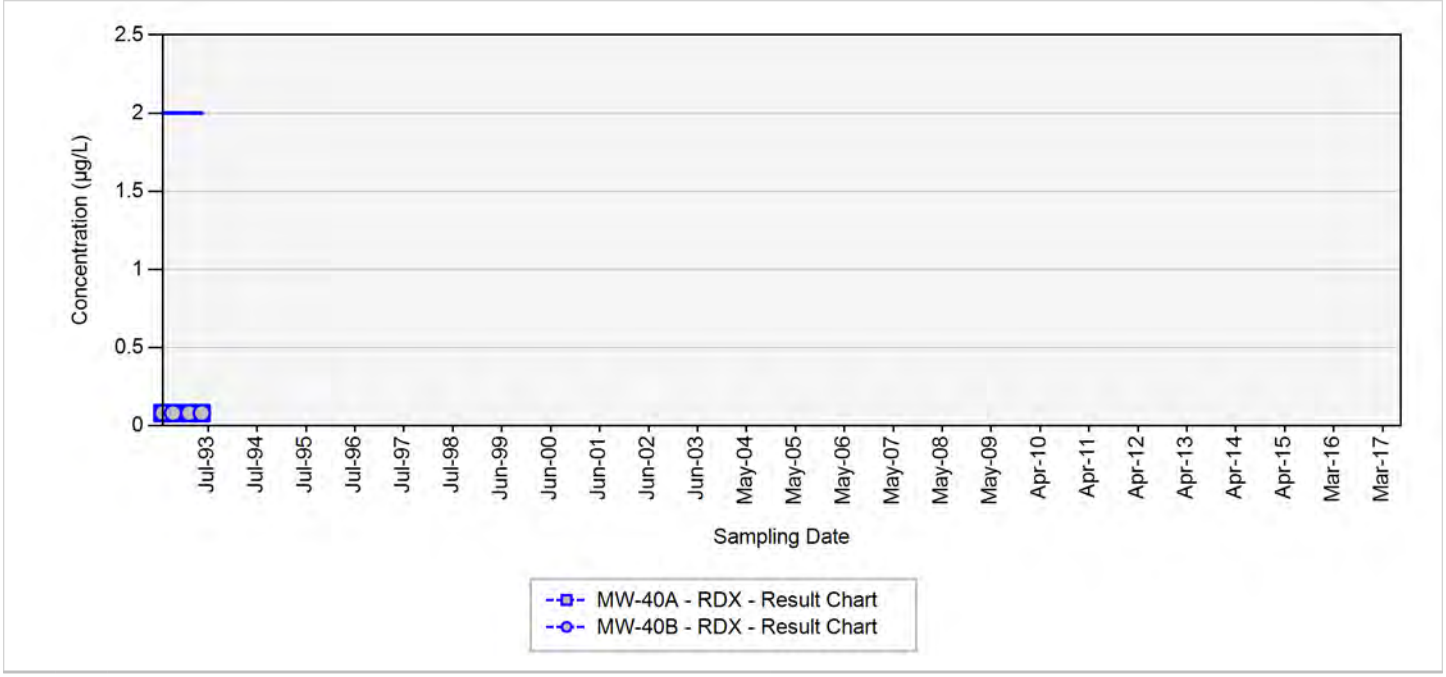
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

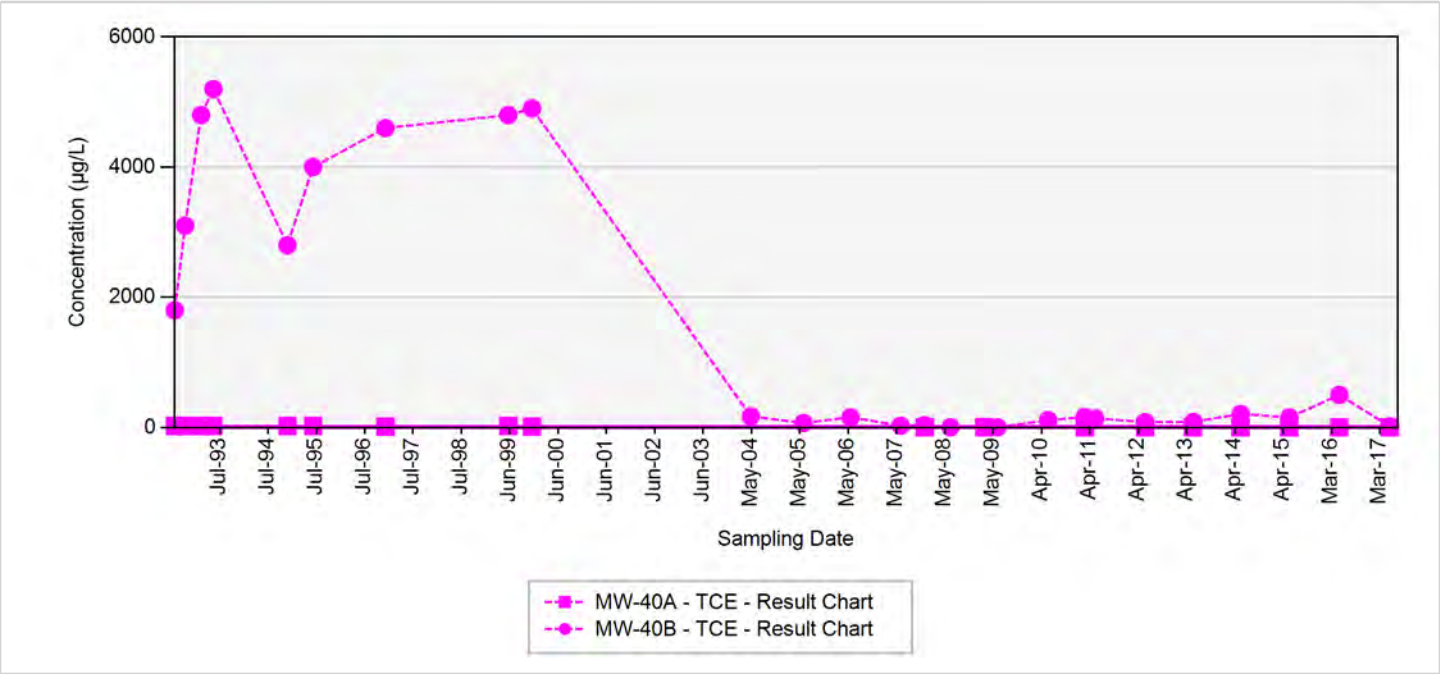
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-40





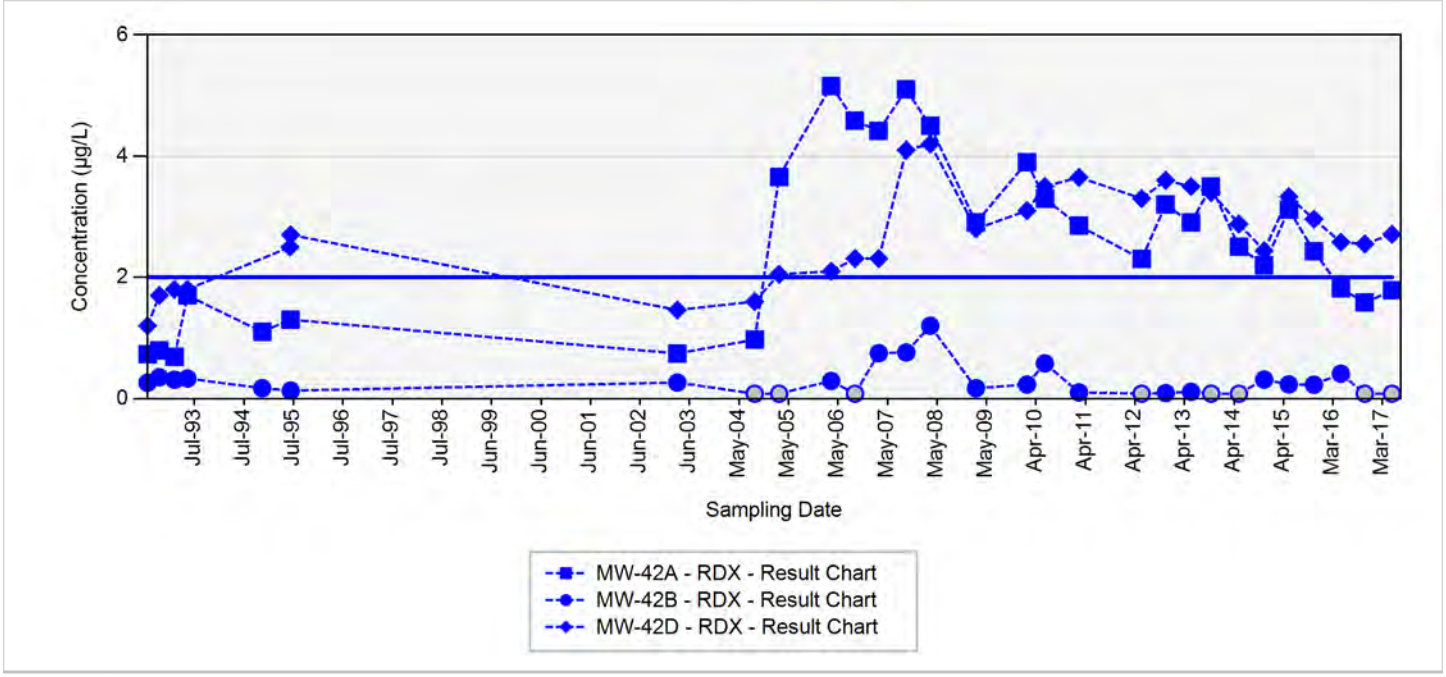
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

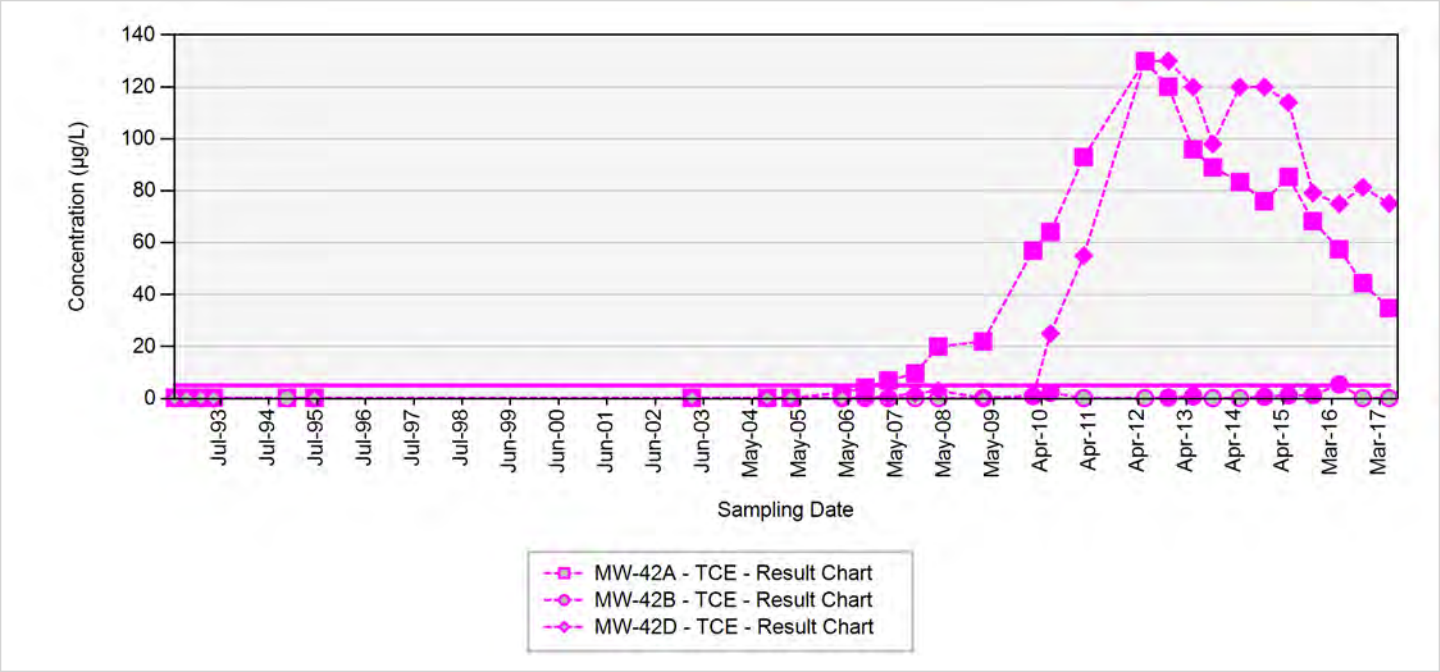
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-42





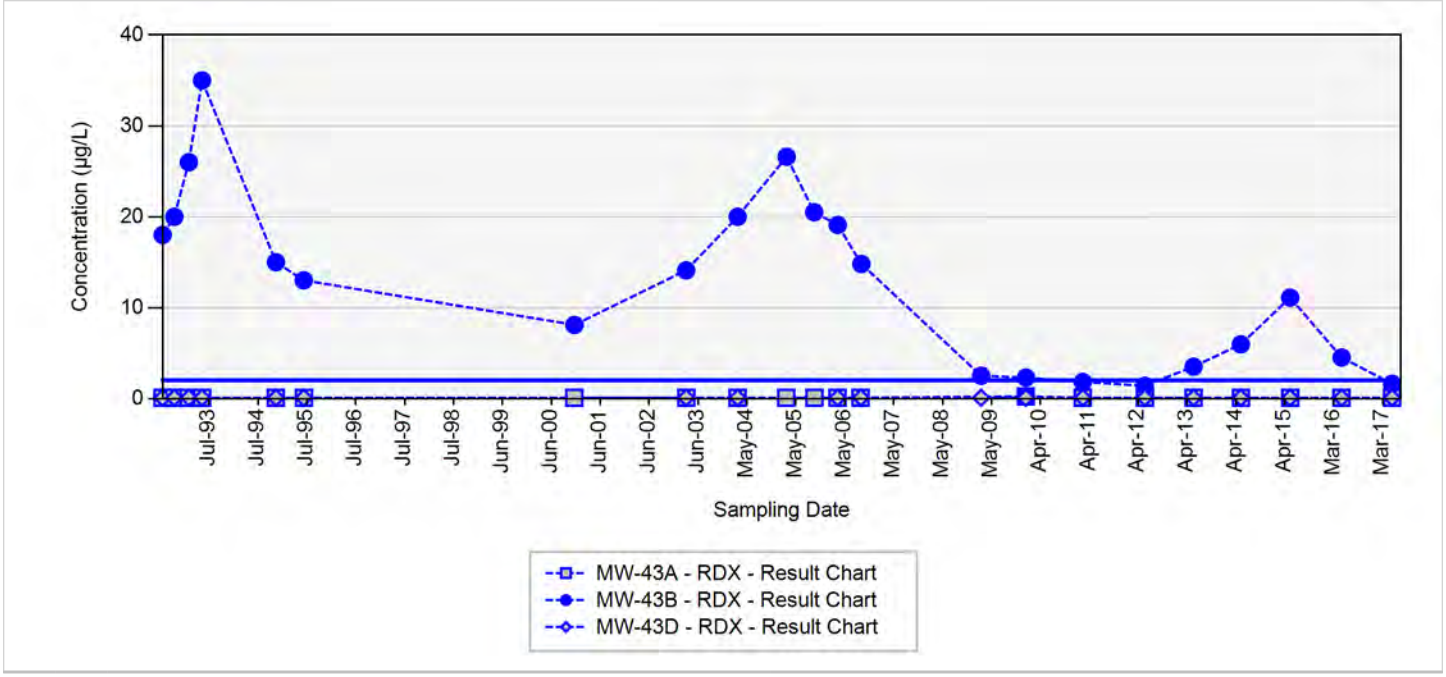
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

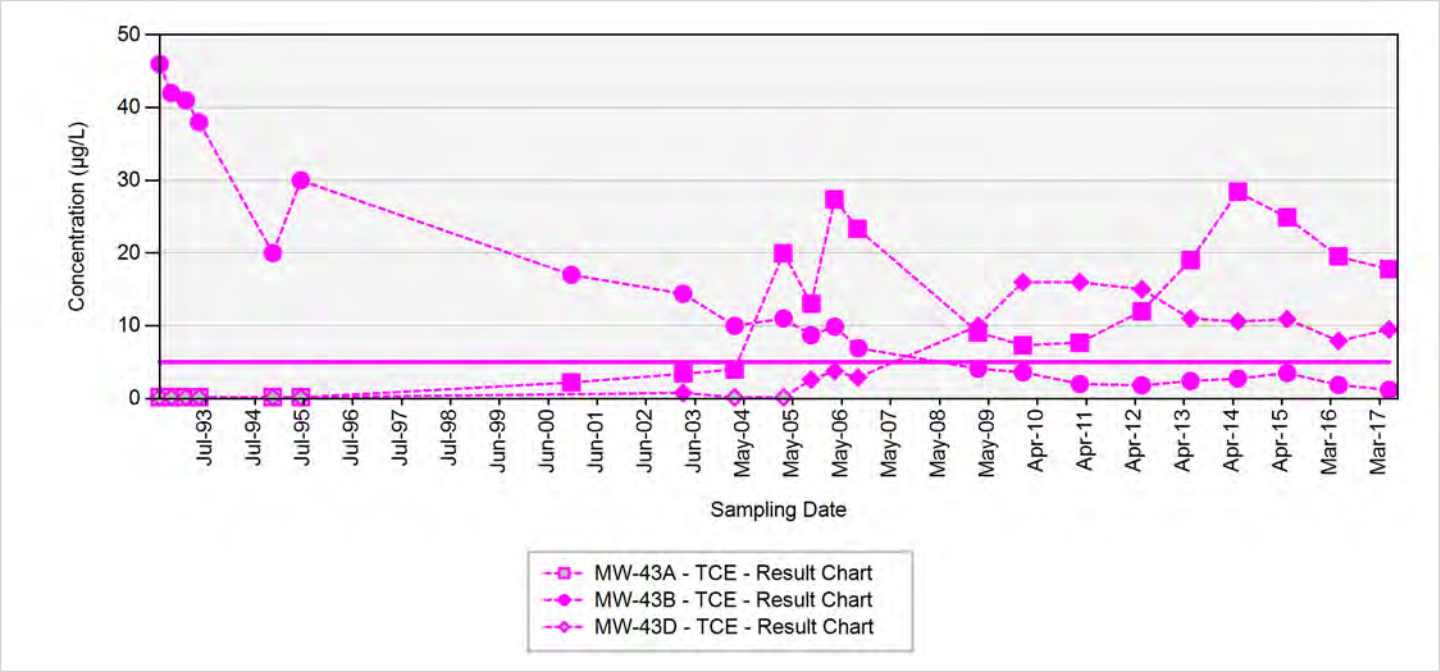
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-43





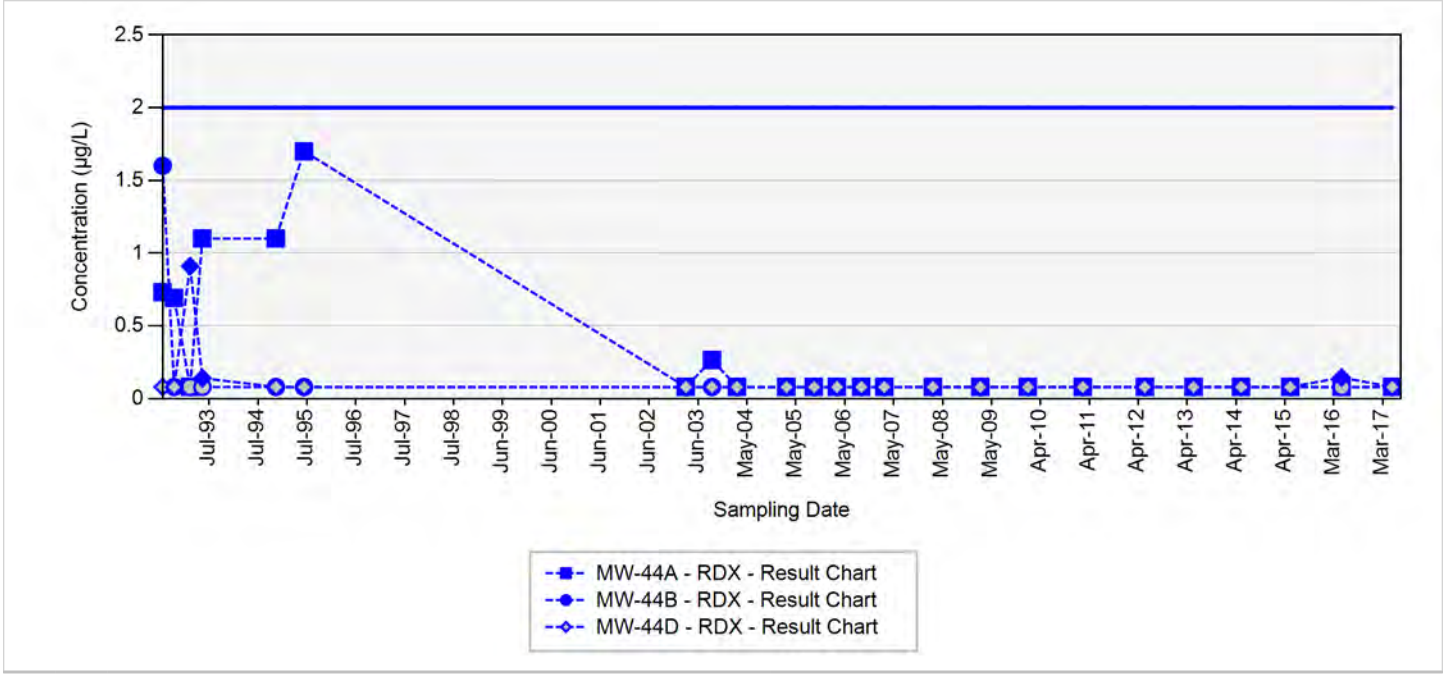
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

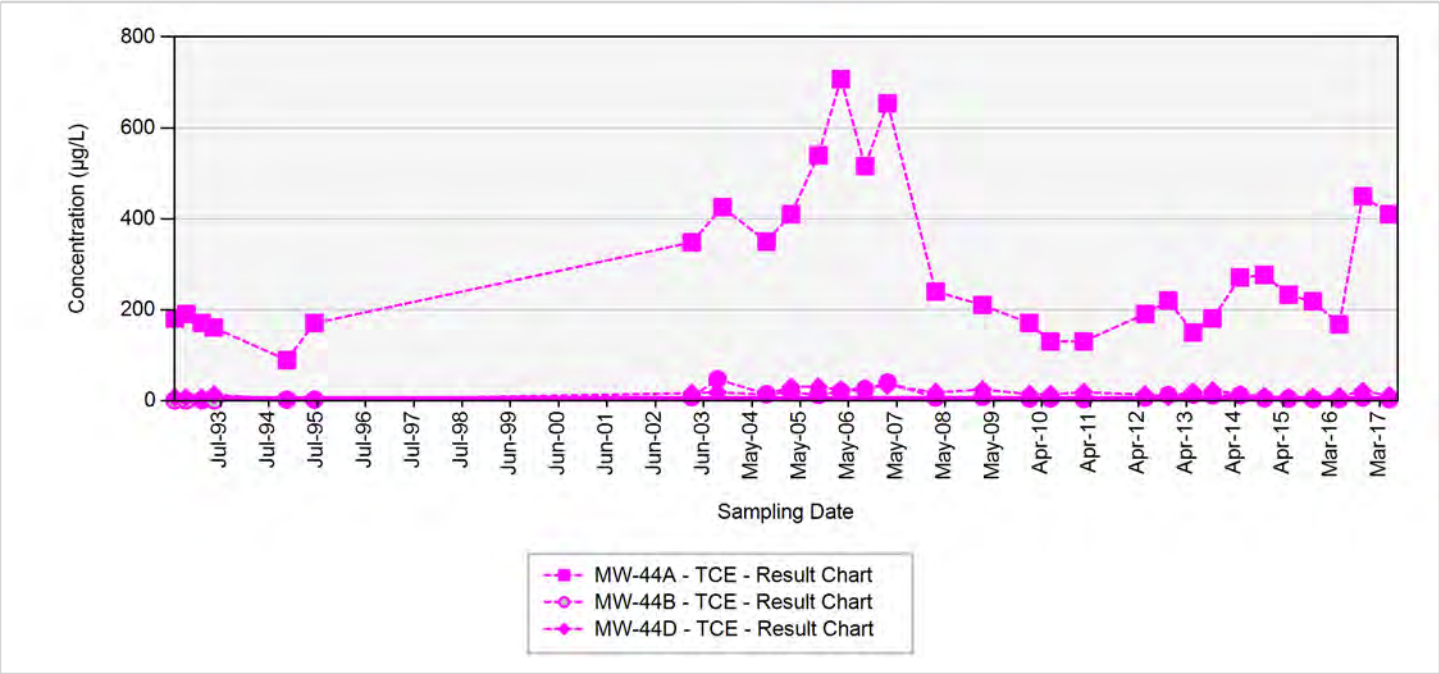
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-44





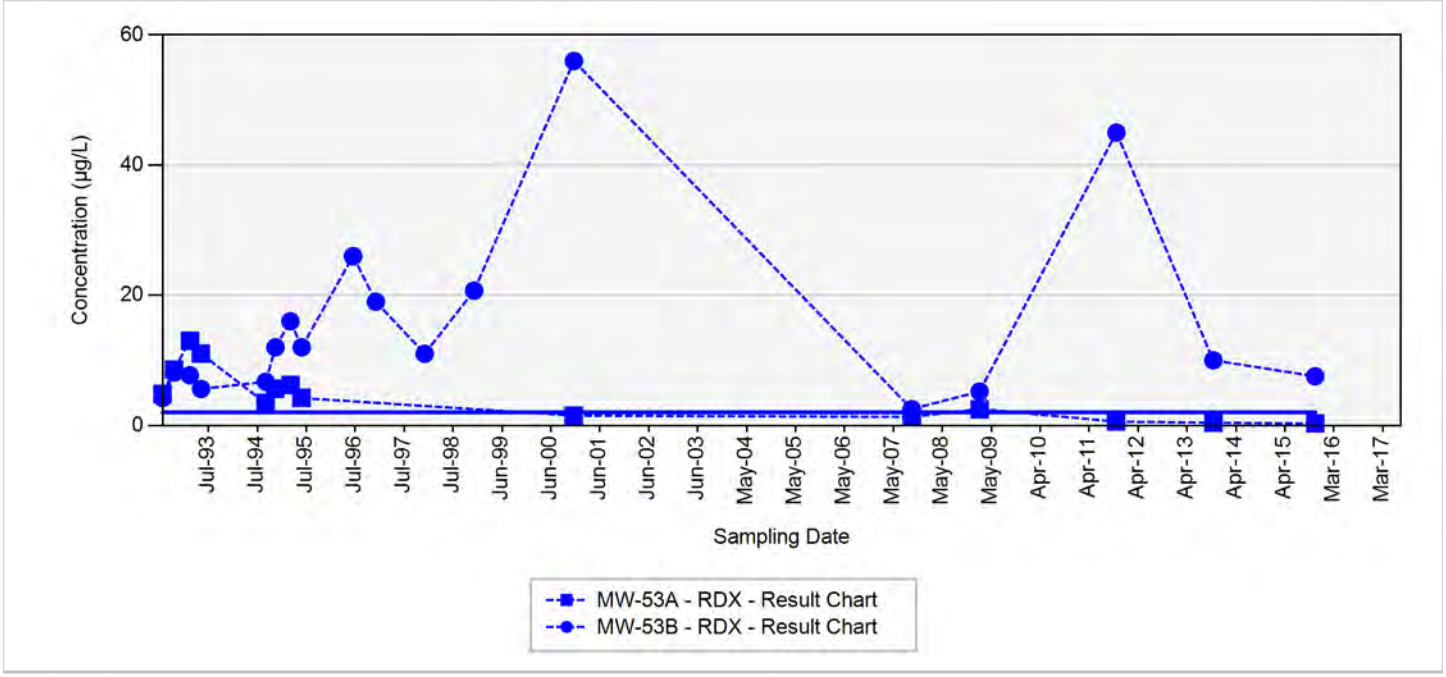
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

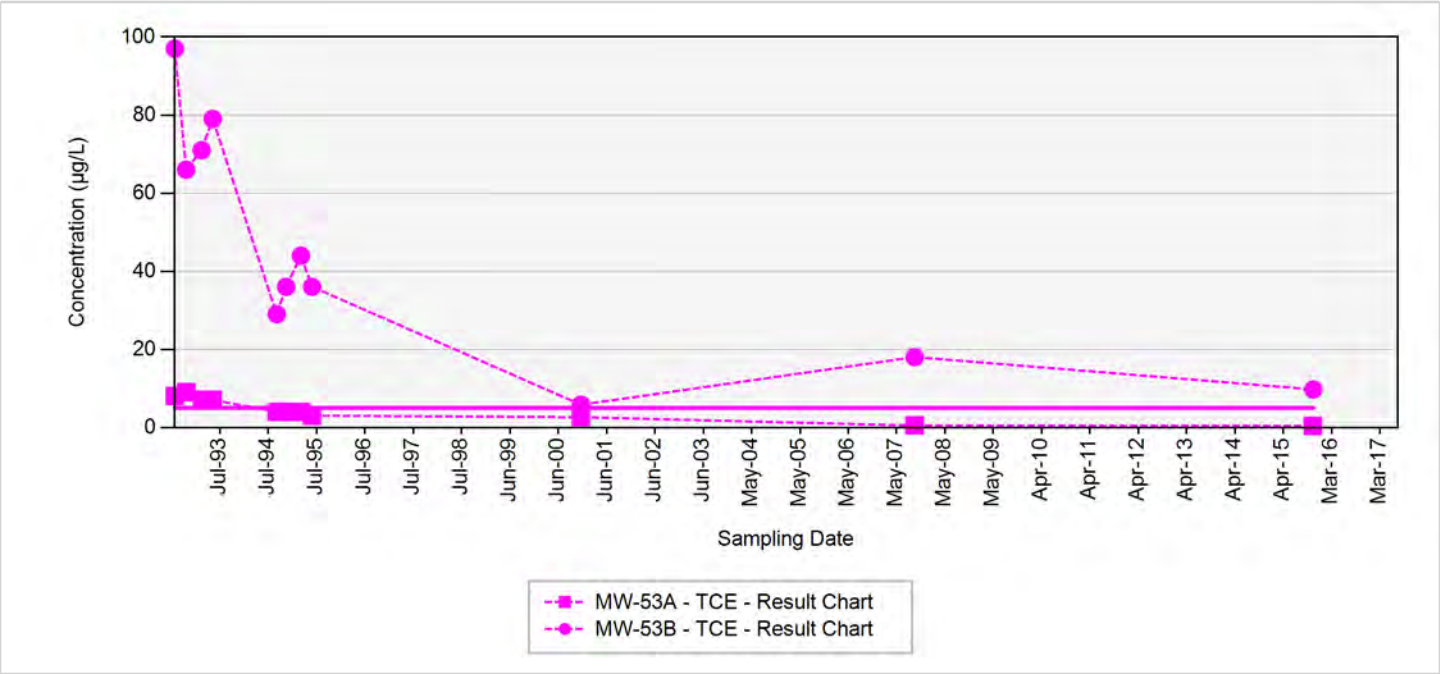
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-53





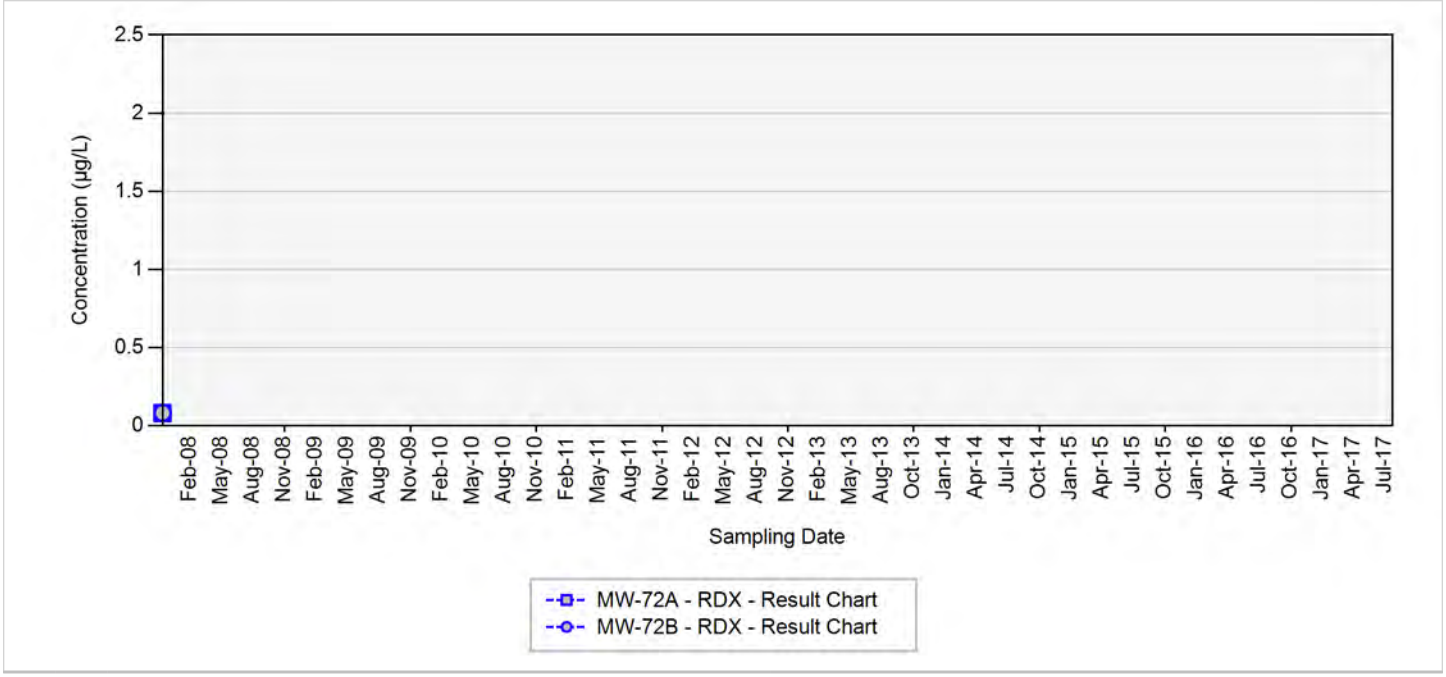
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

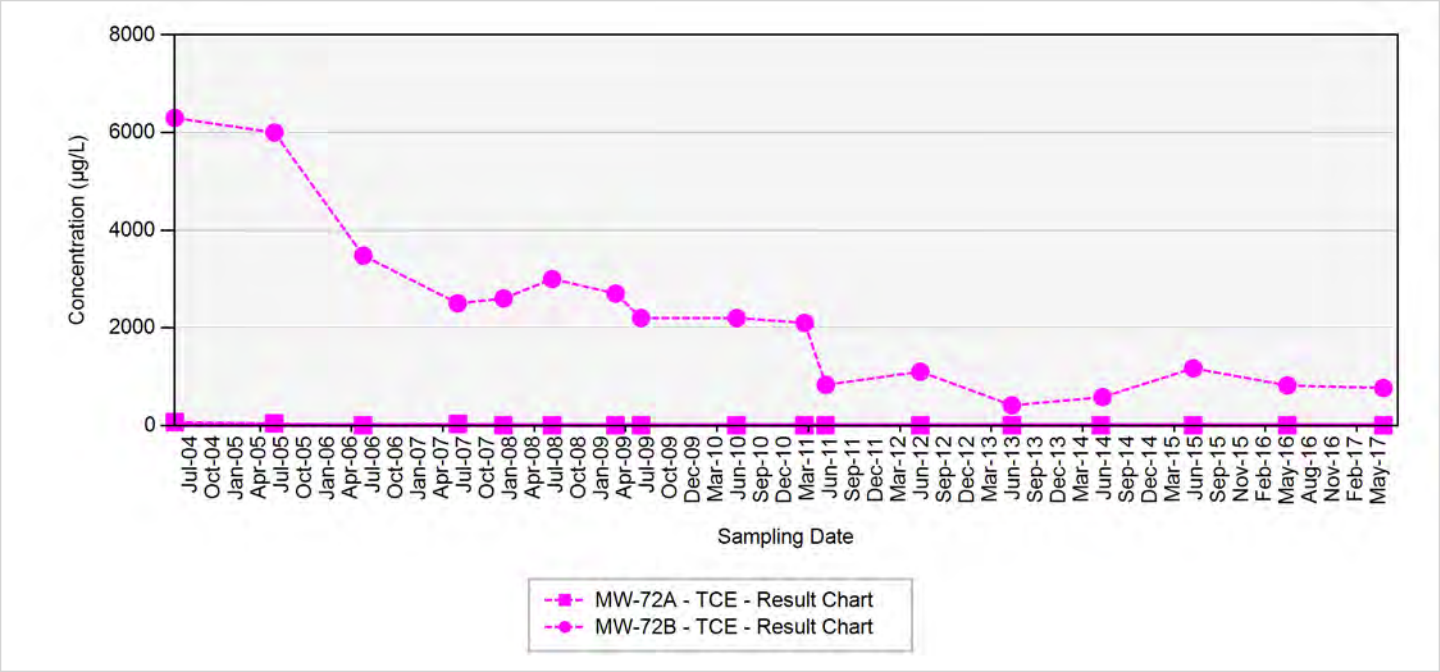
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-72





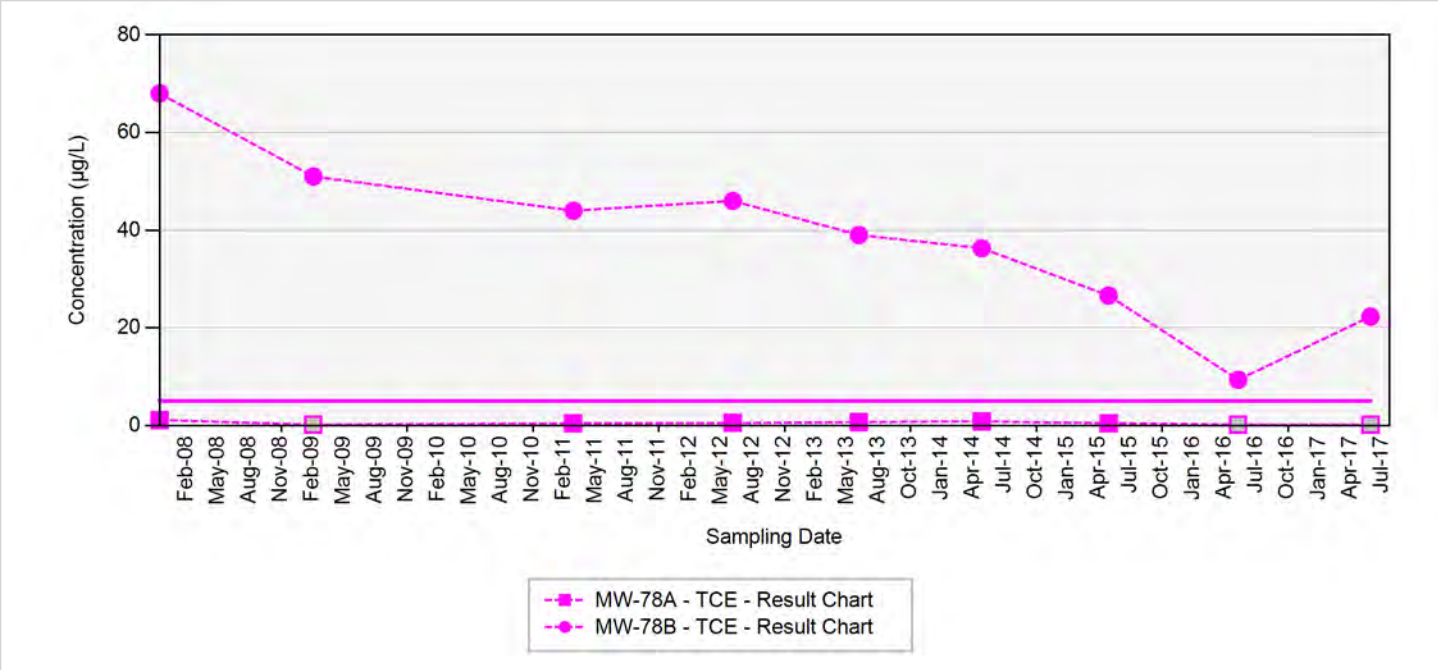
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.5
Concentration Trend Charts for Load Line 4/Atlas Missile Area Interior

MW-78



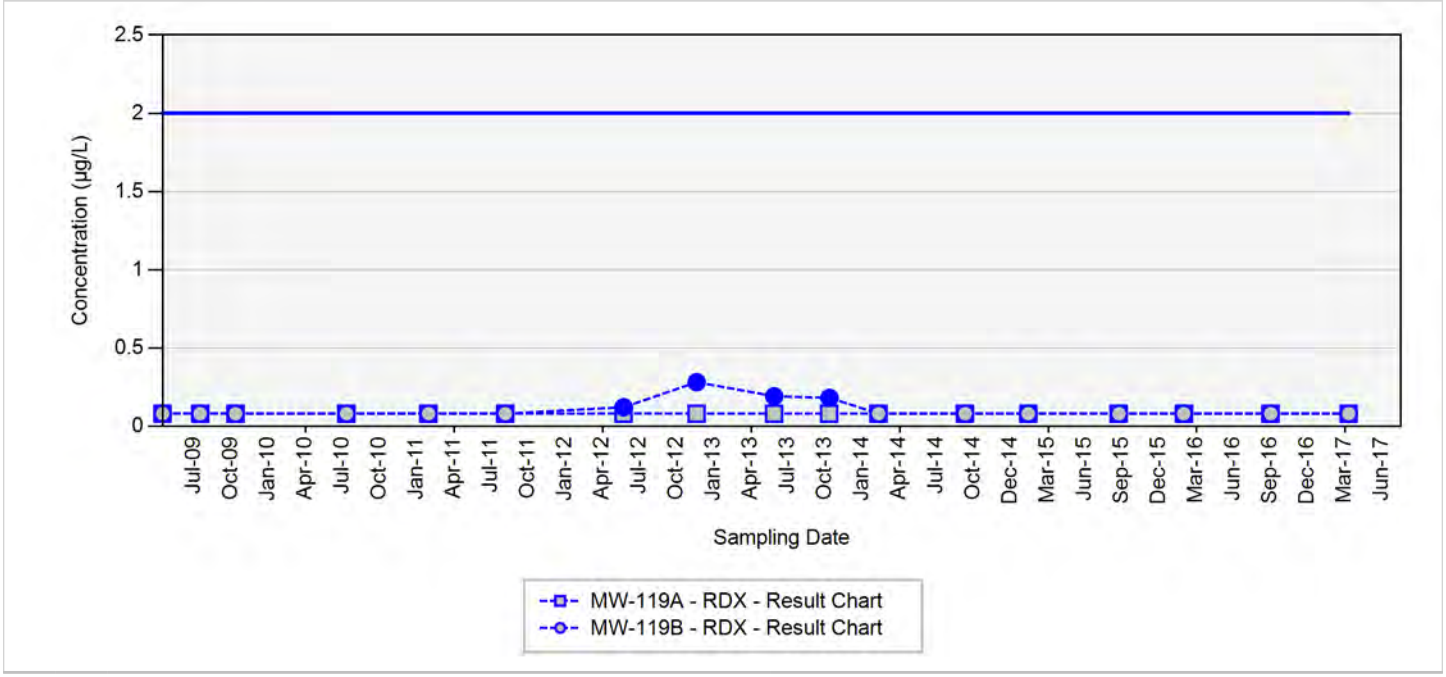
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

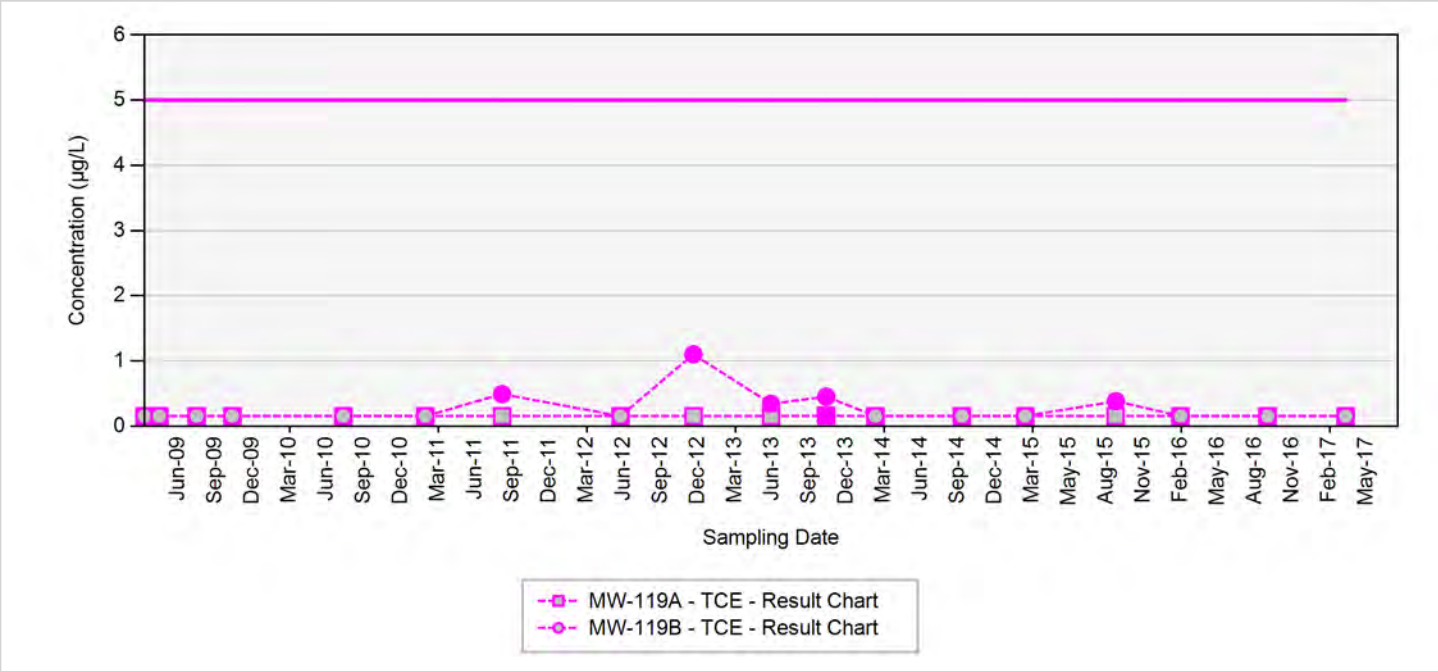
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-119





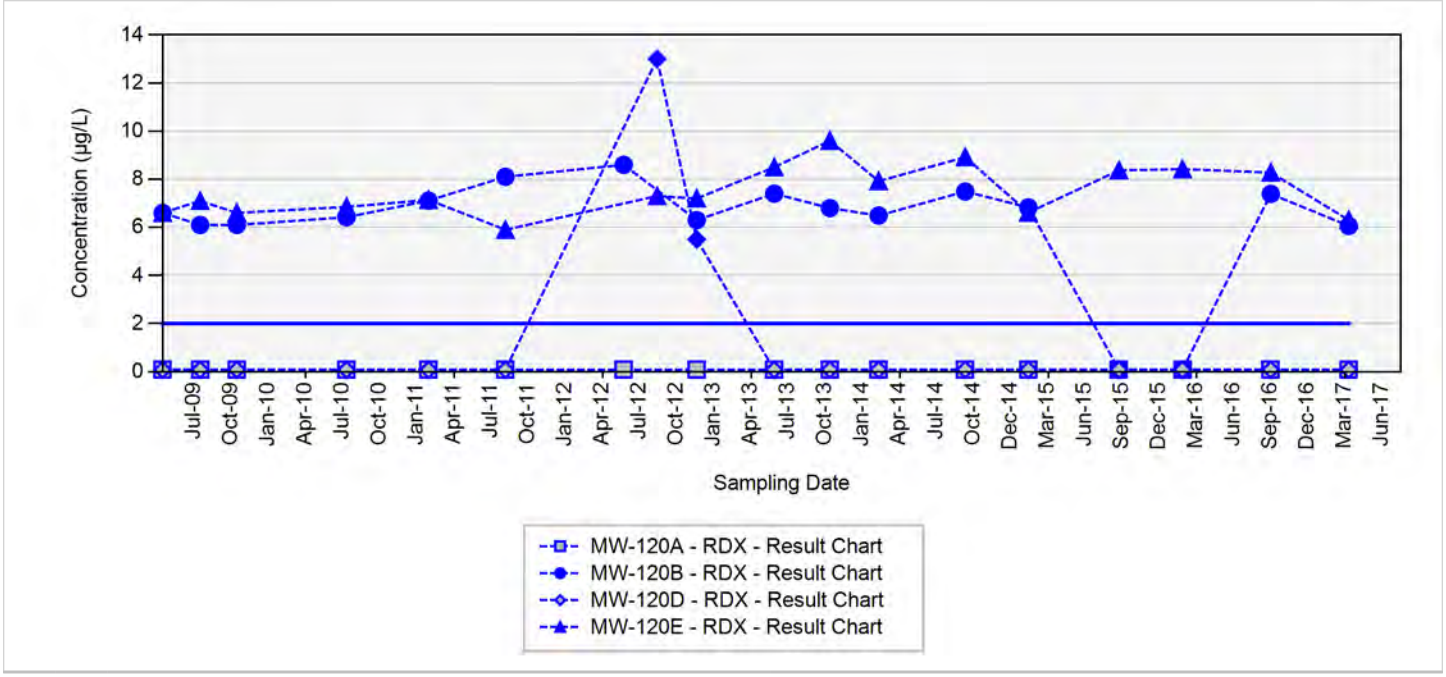
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

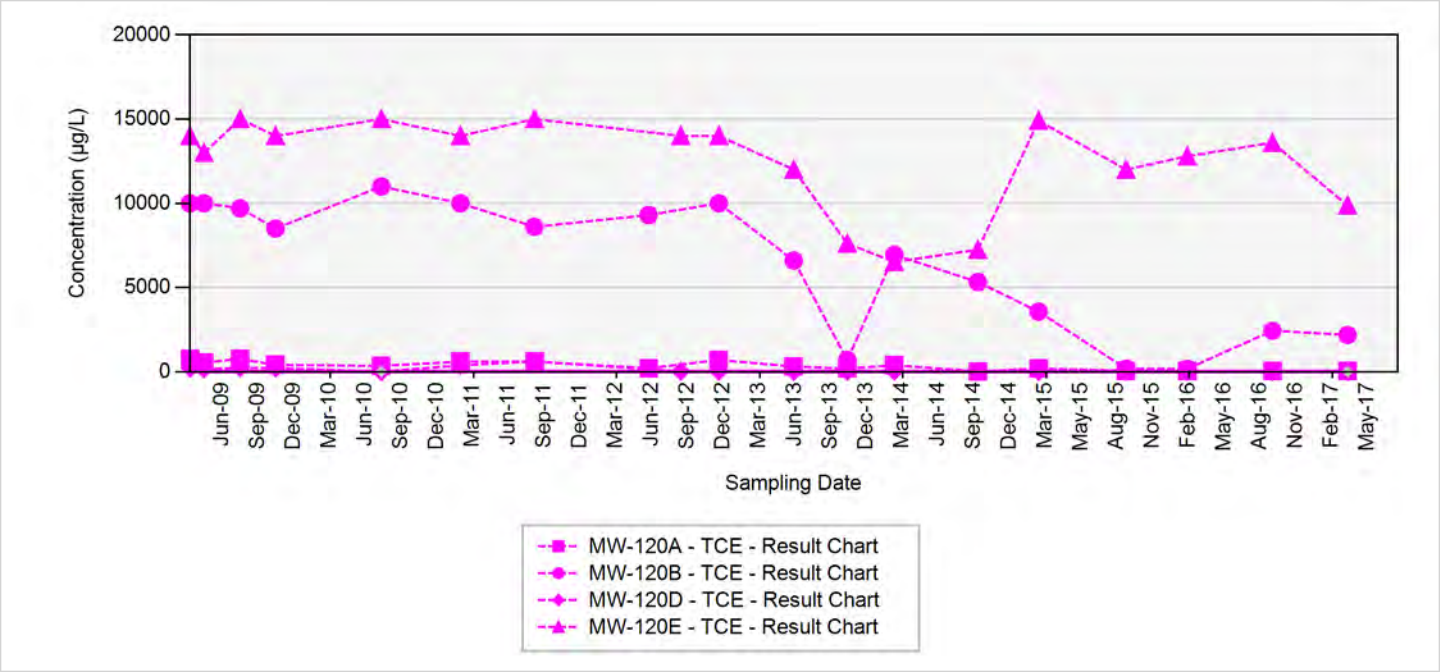
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-120





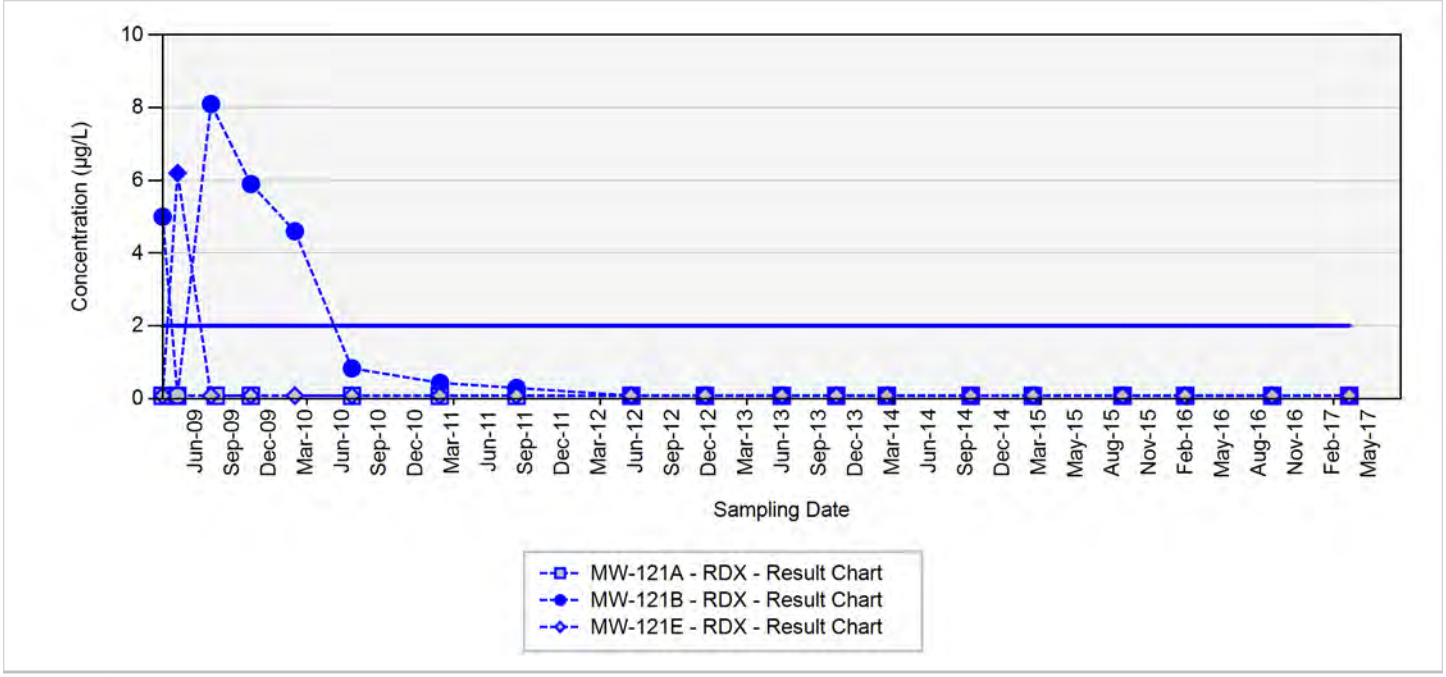
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

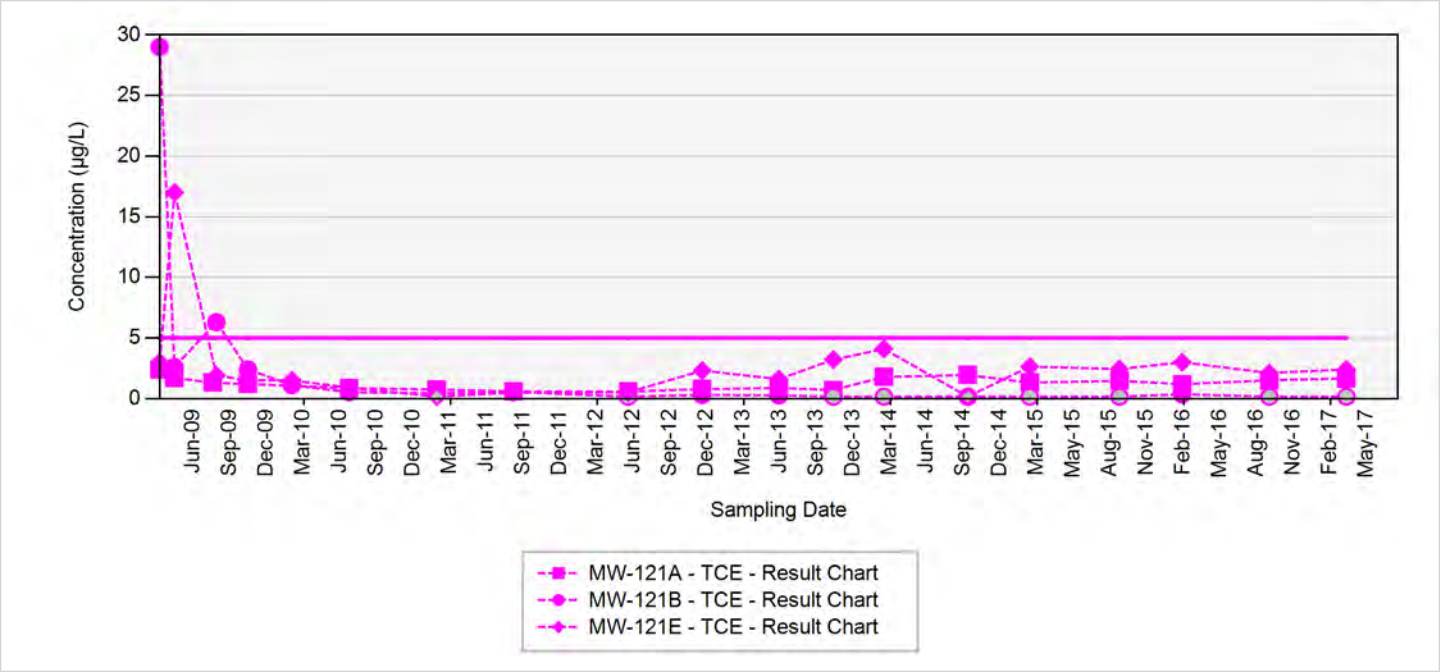
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-121





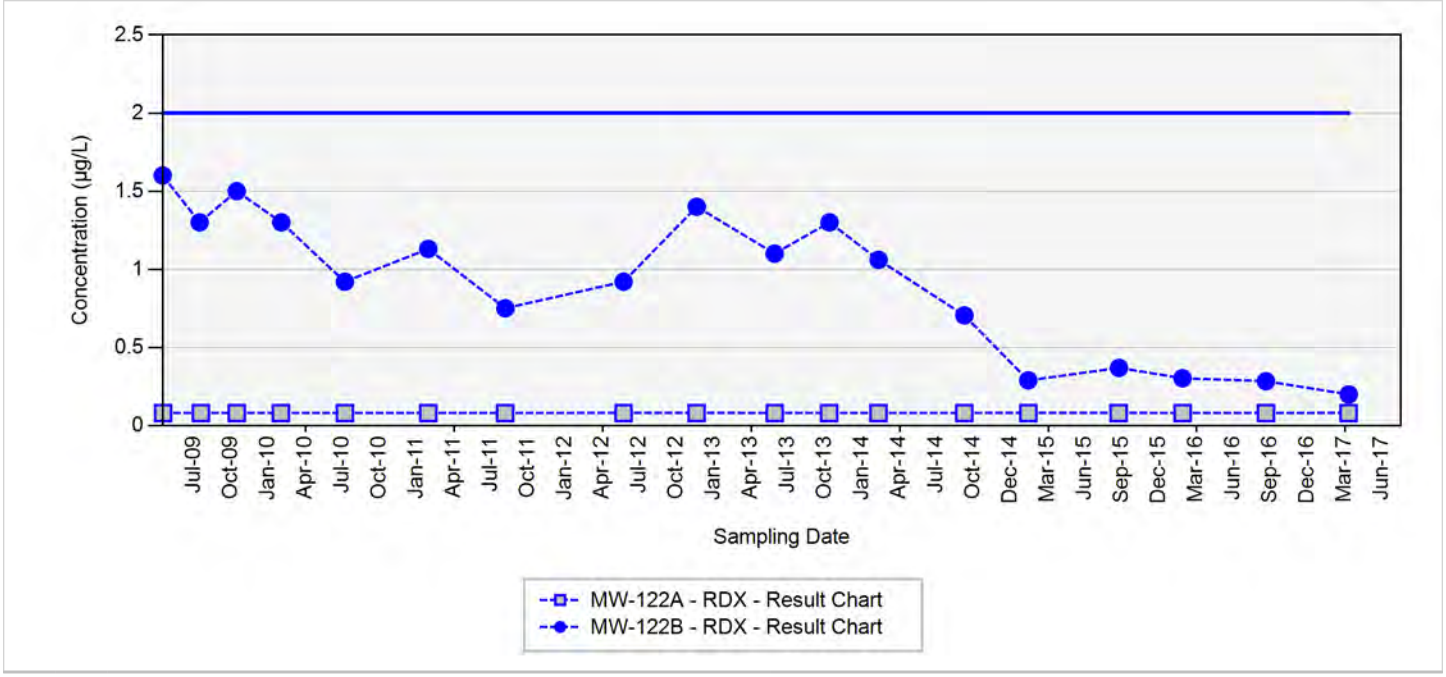
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

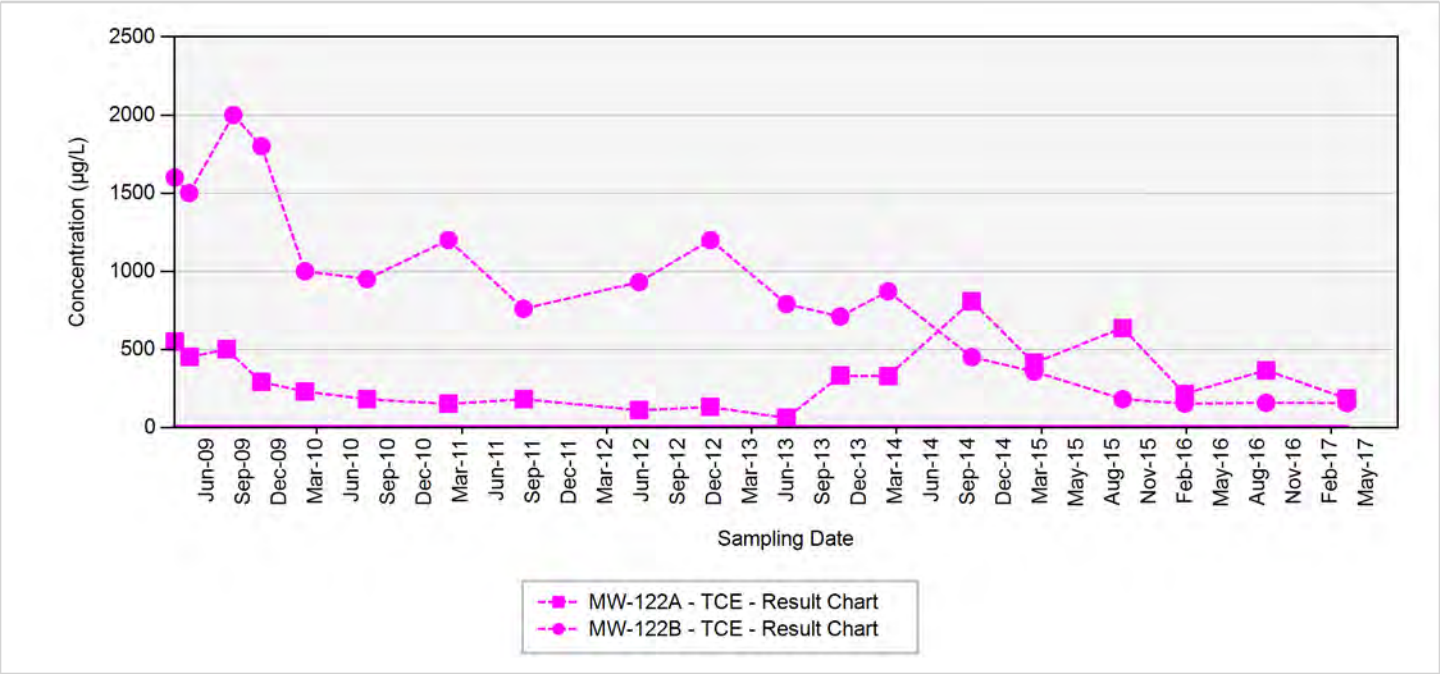
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-122





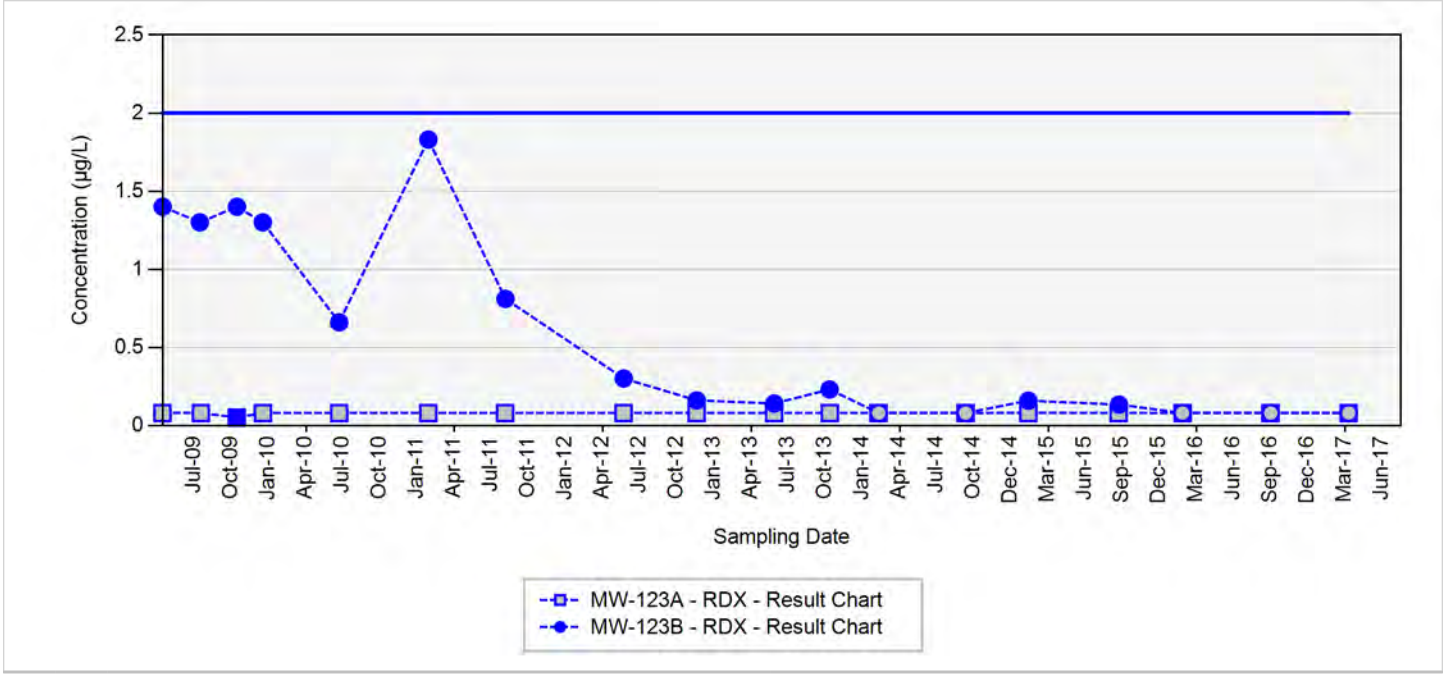
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

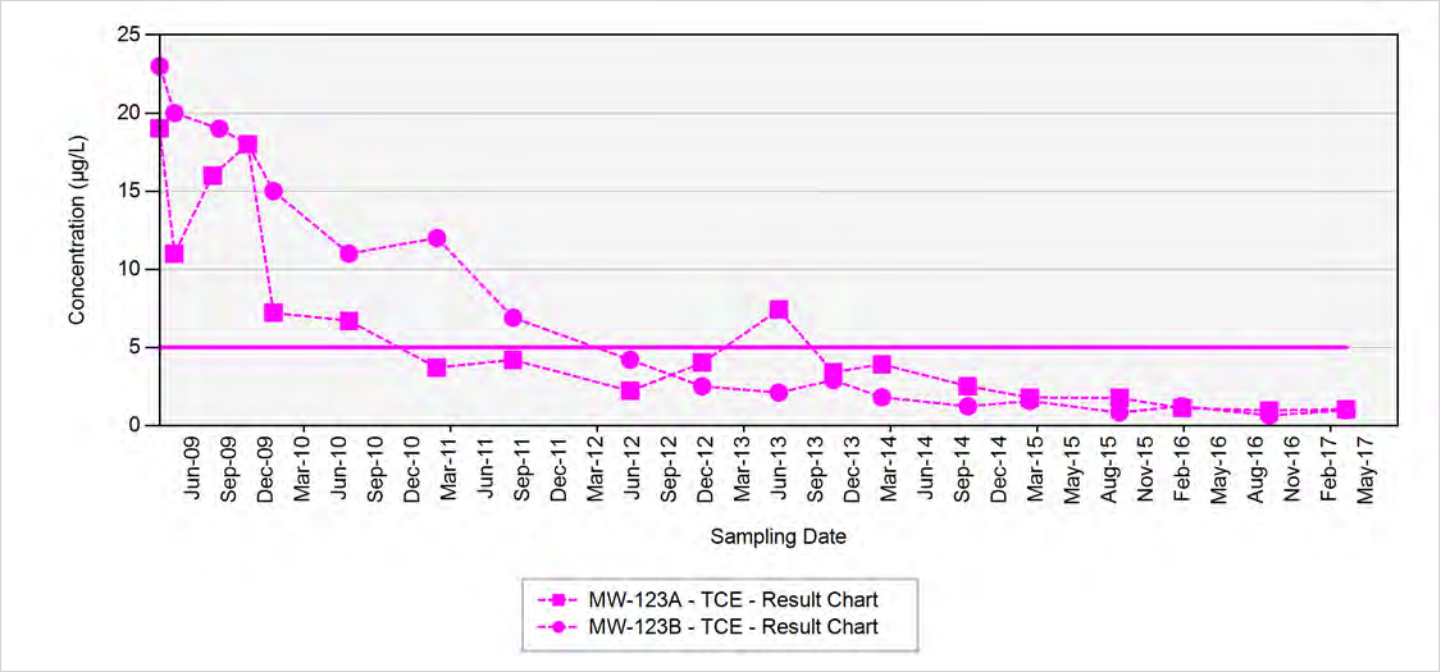
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-123





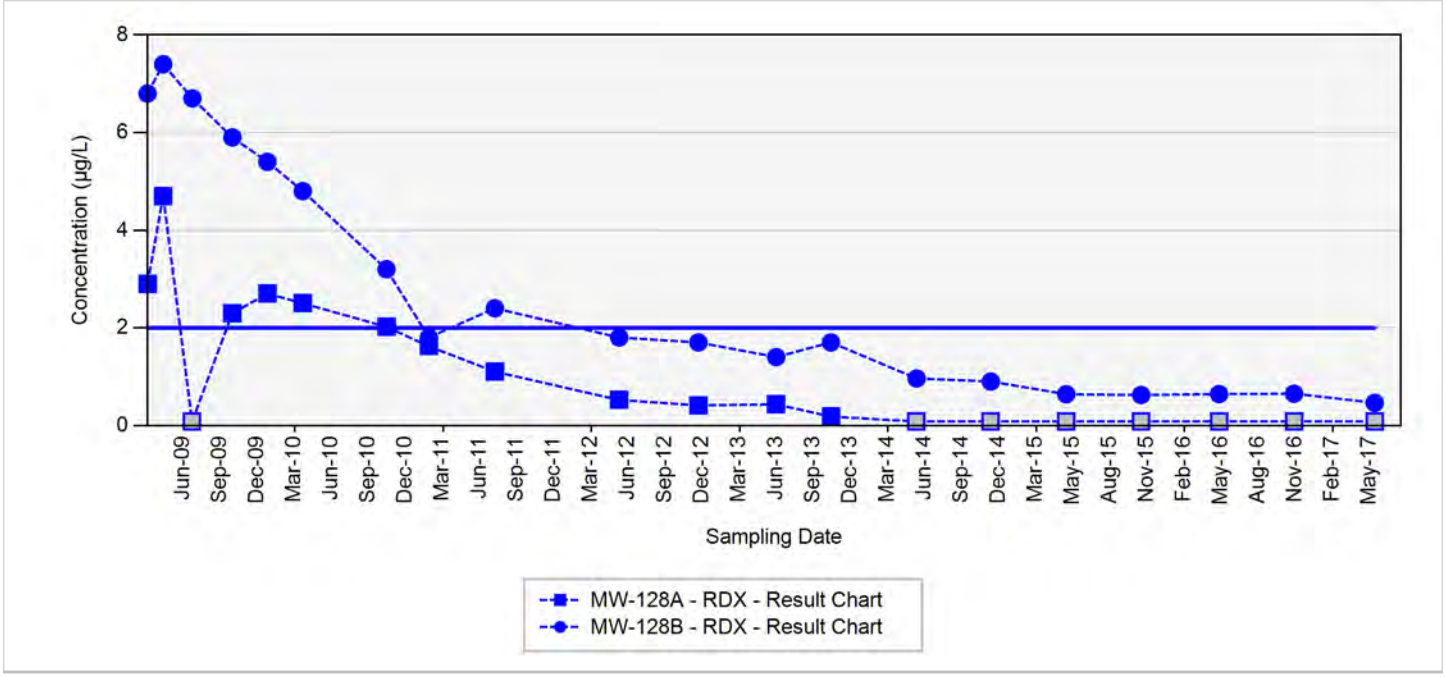
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

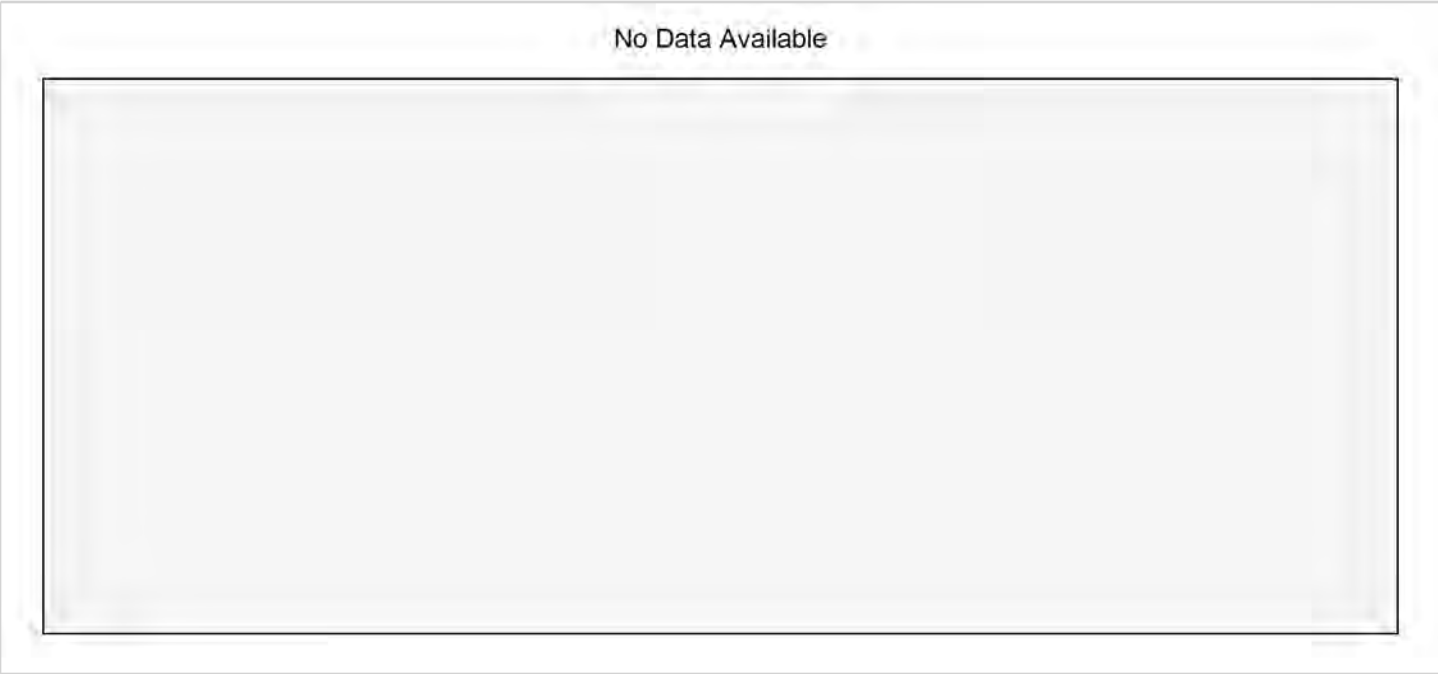
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-128





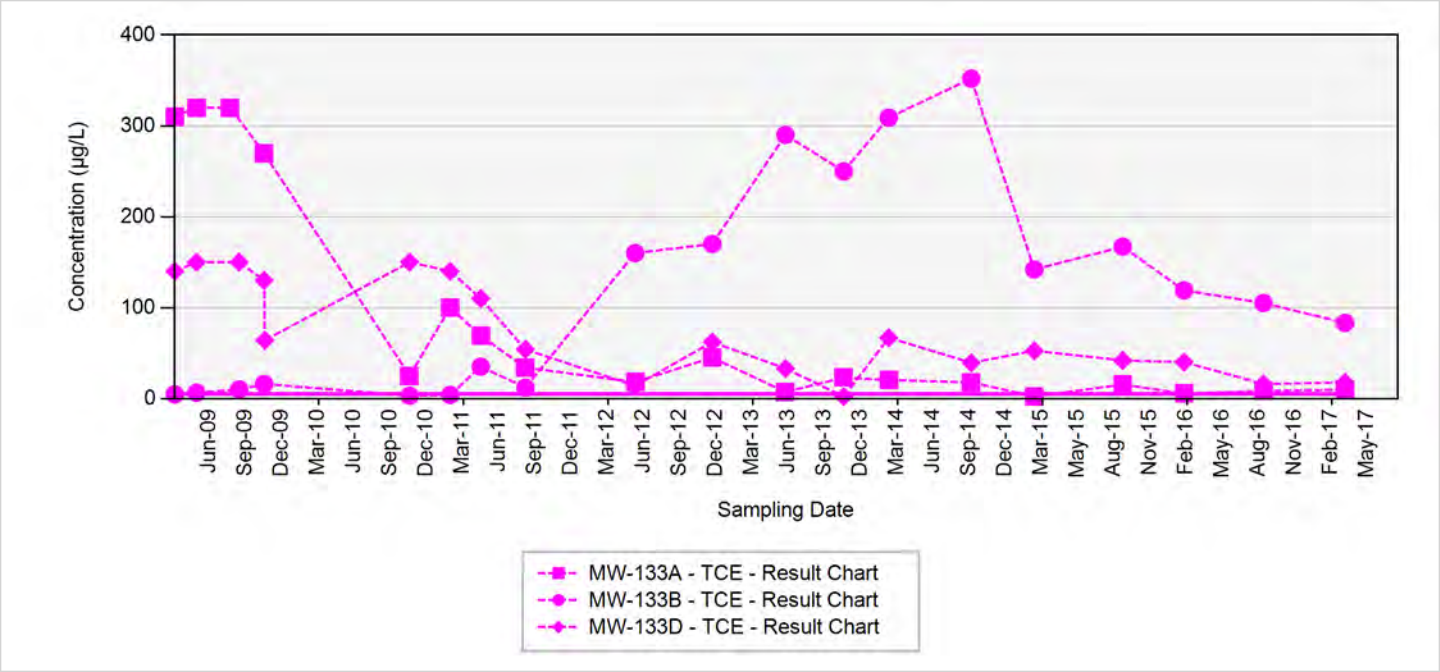
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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

Appendix B.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-133



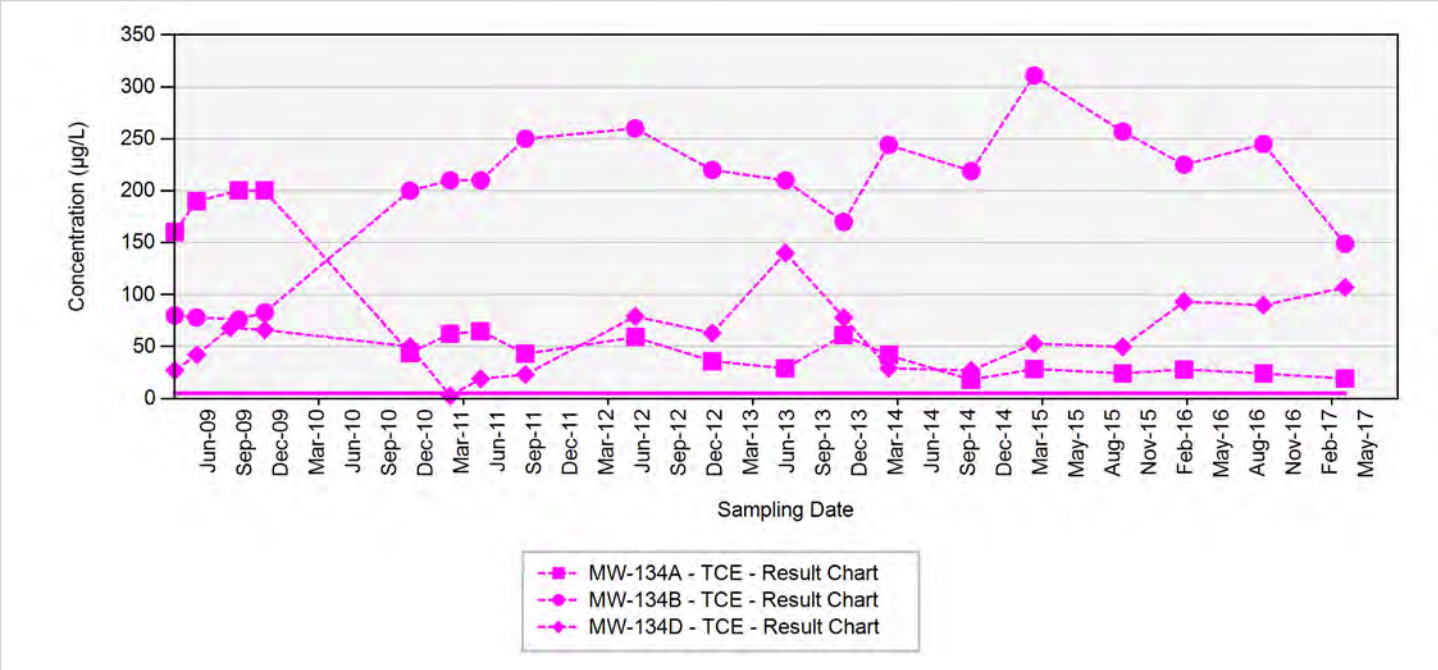
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-134



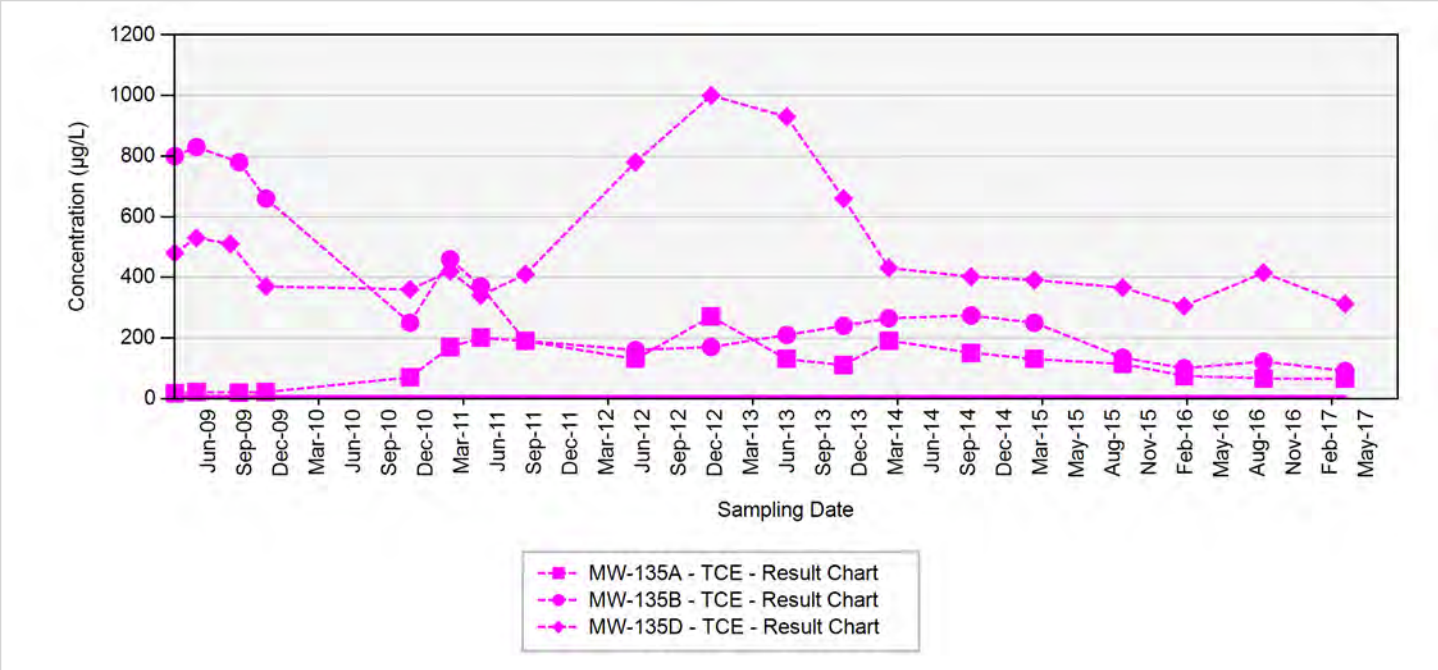
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.6
Concentration Trend Charts for Monitoring Wells associated with Focused Extraction Wells

MW-135



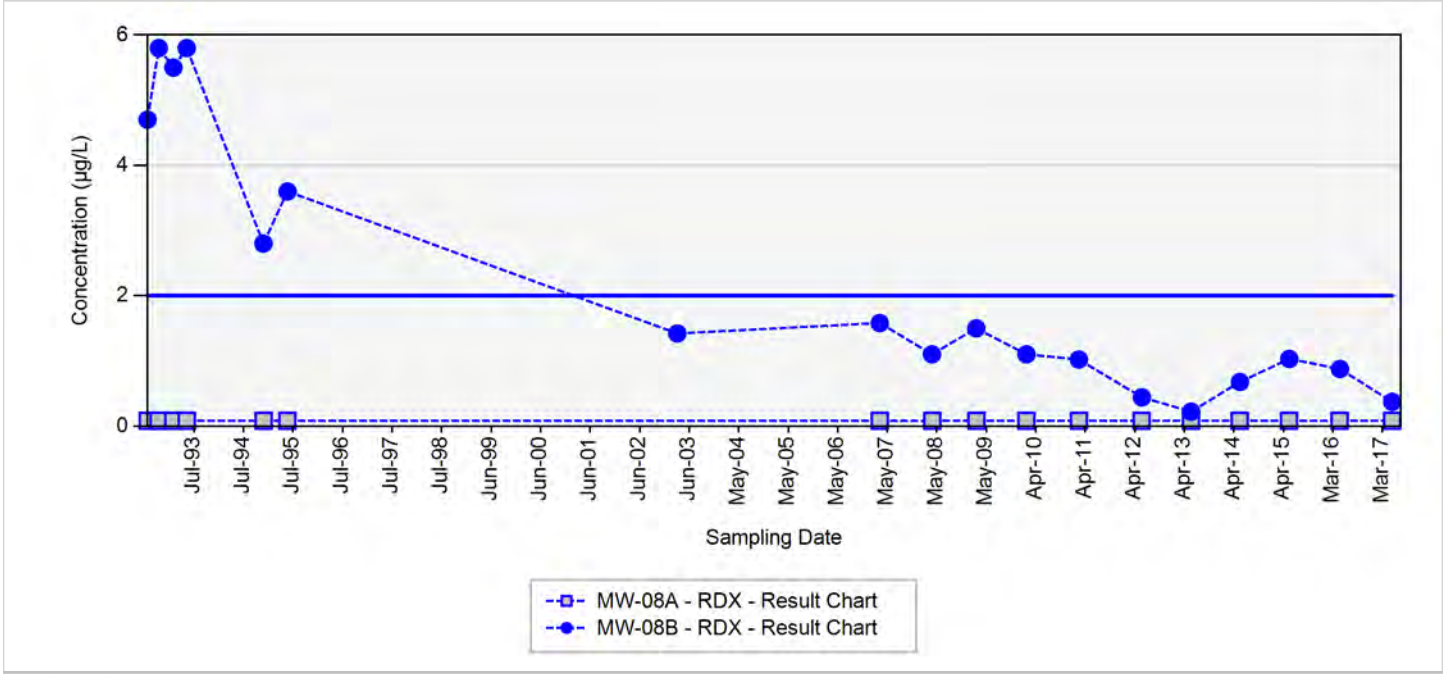
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

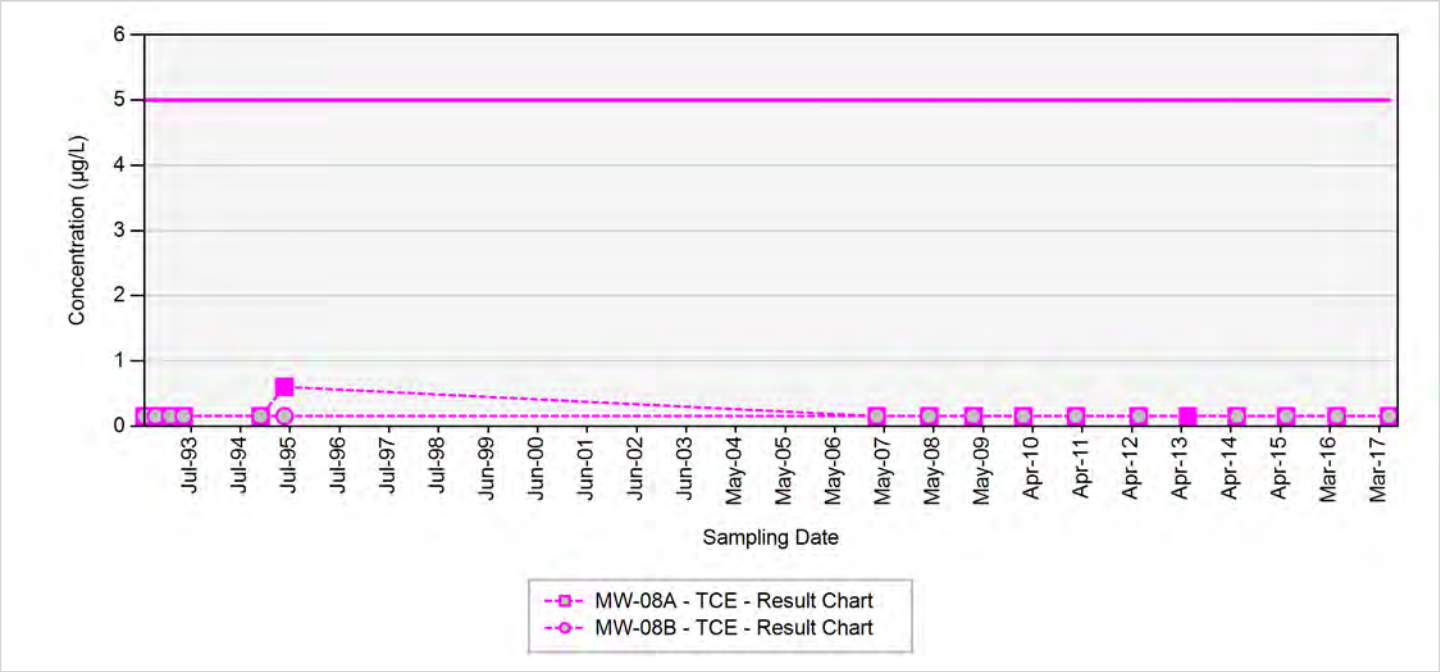
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-08





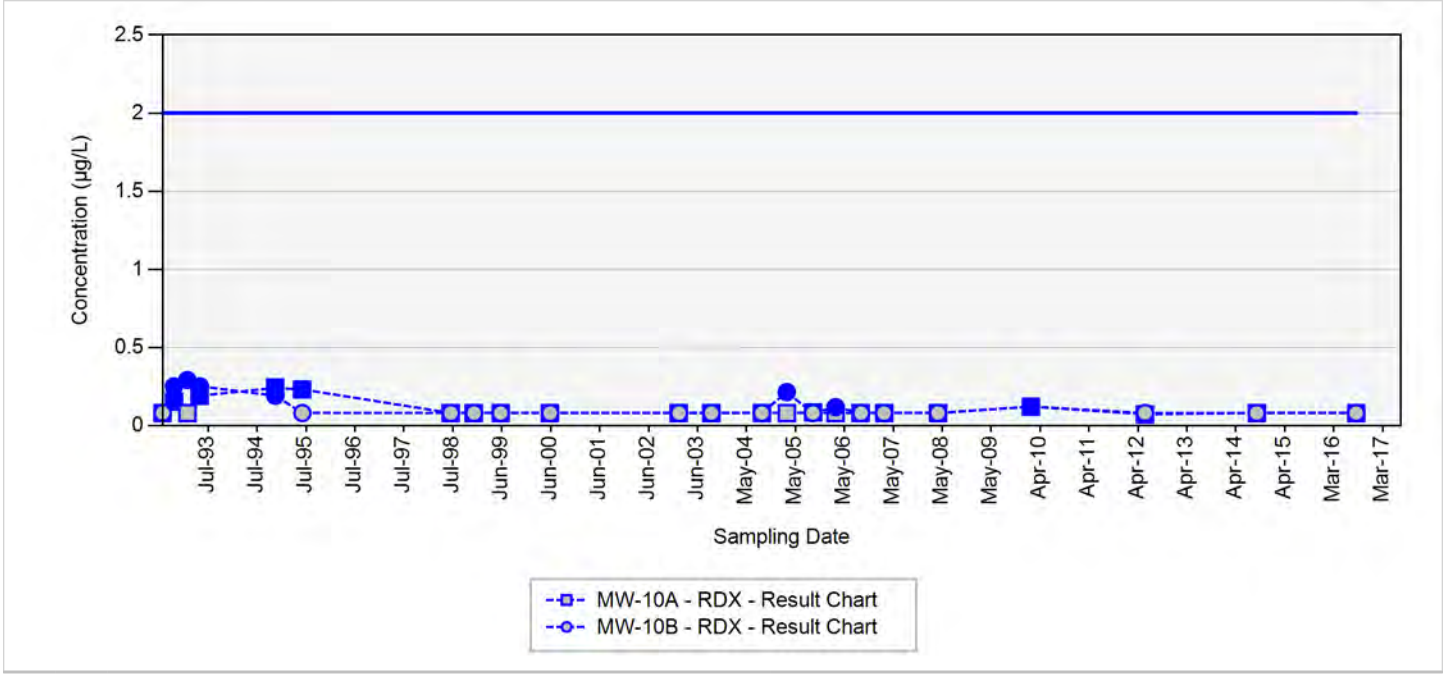
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

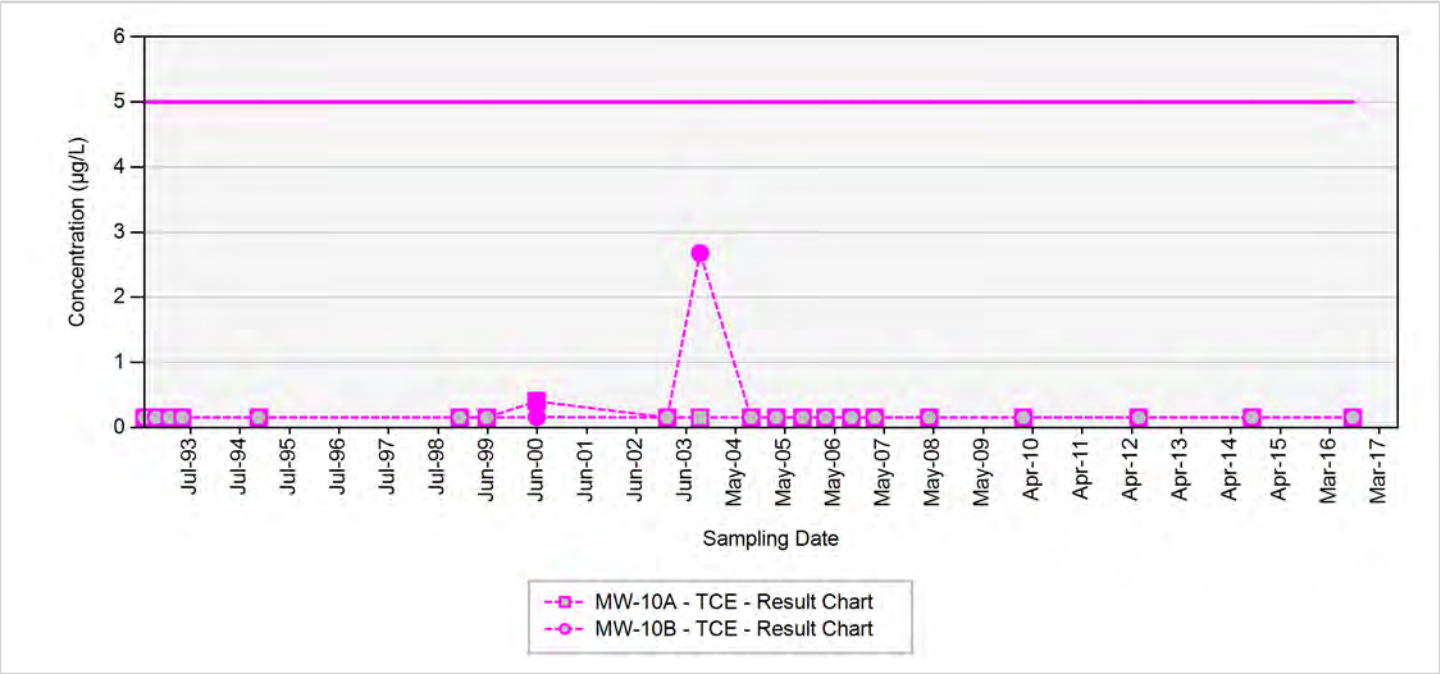
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-10





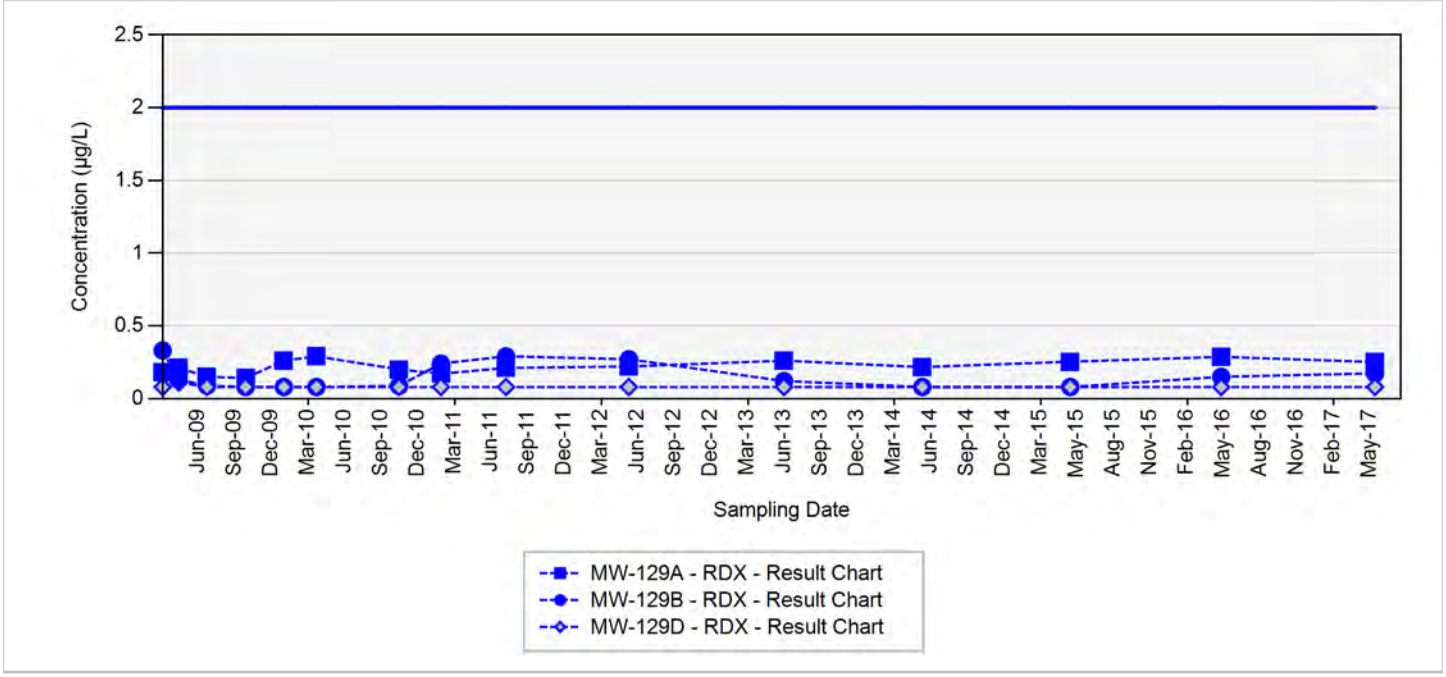
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-129



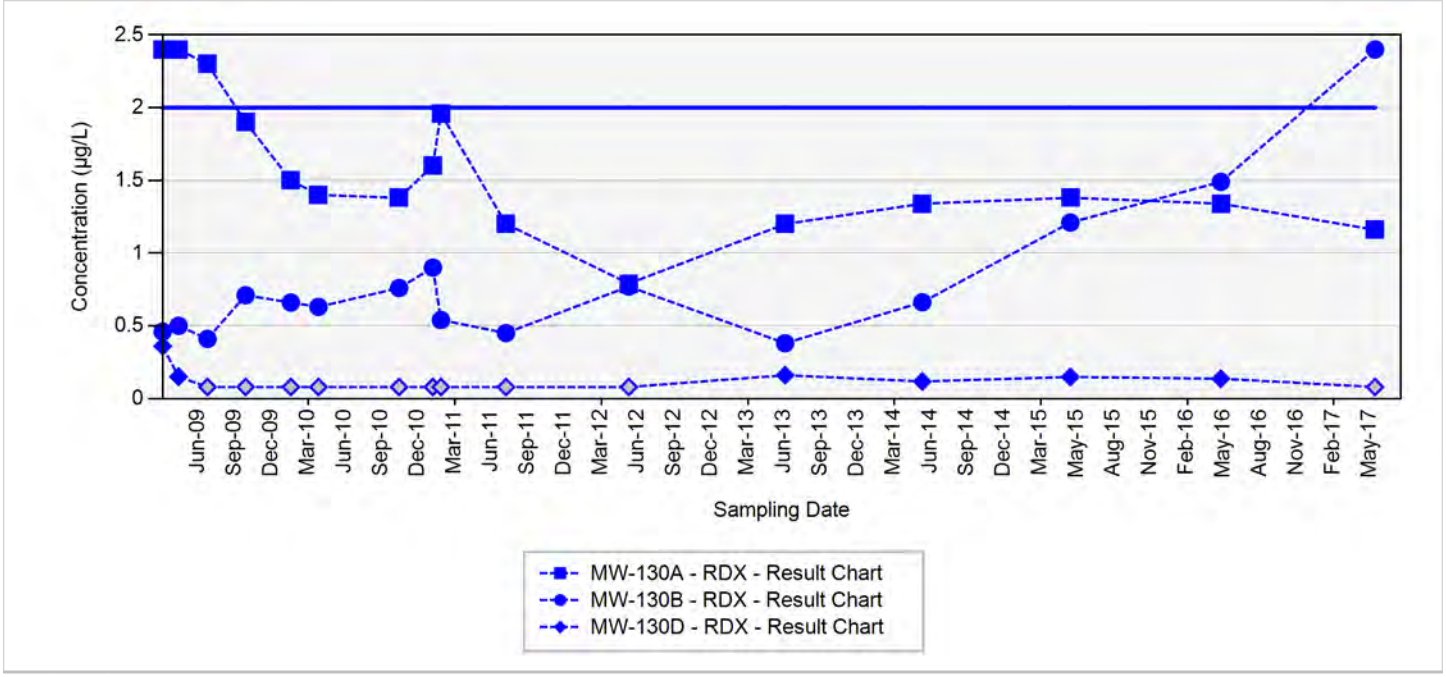
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

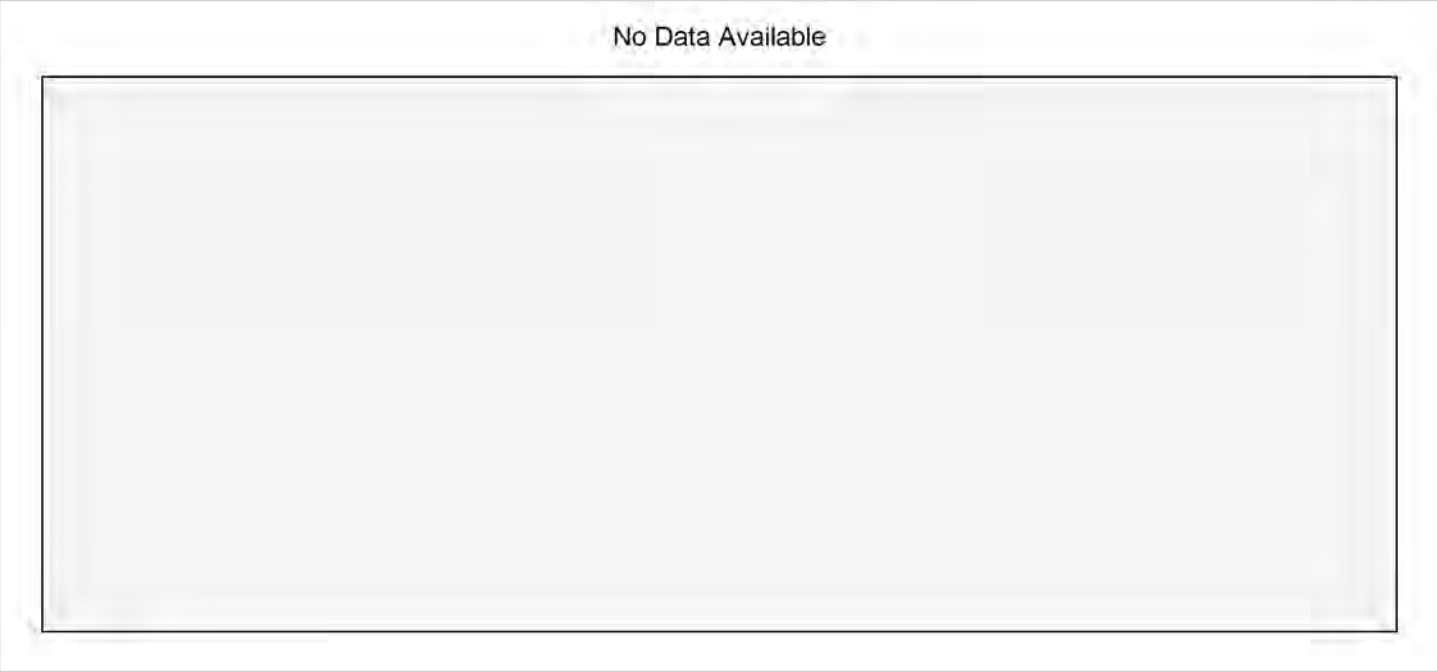
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-130





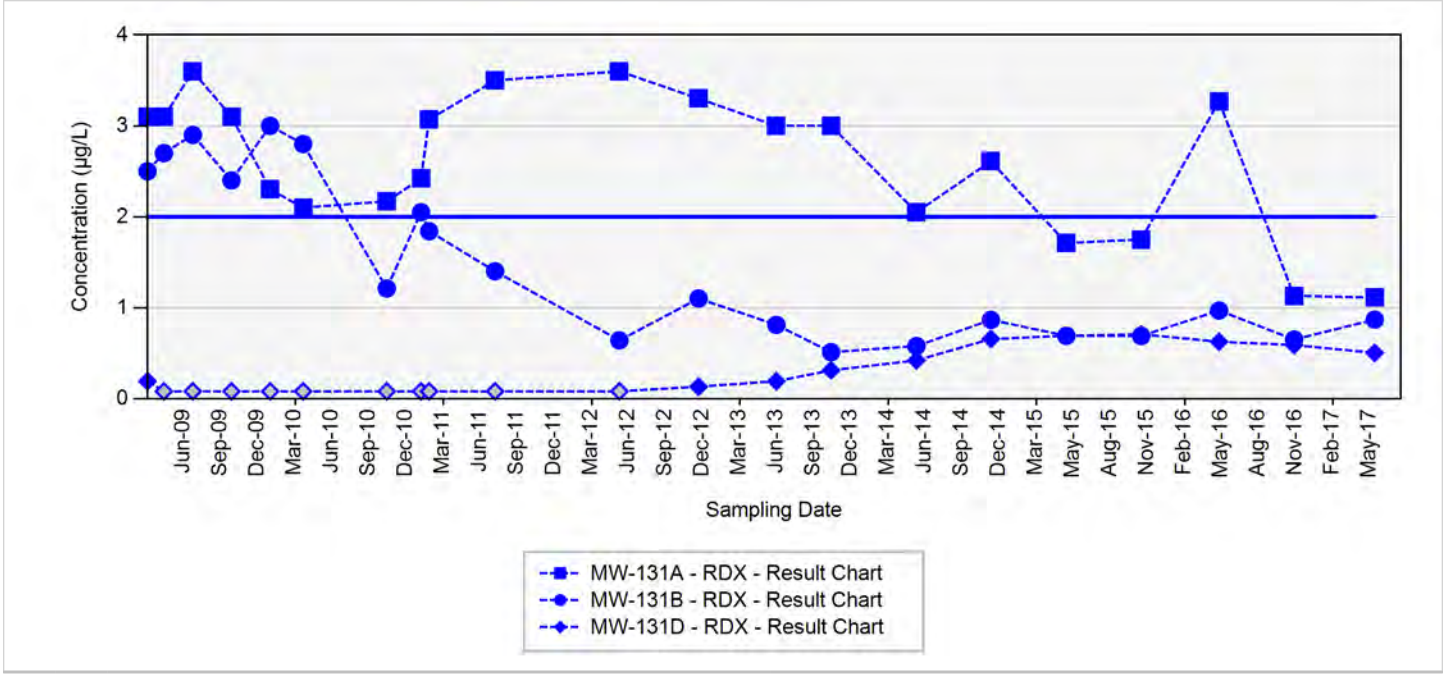
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

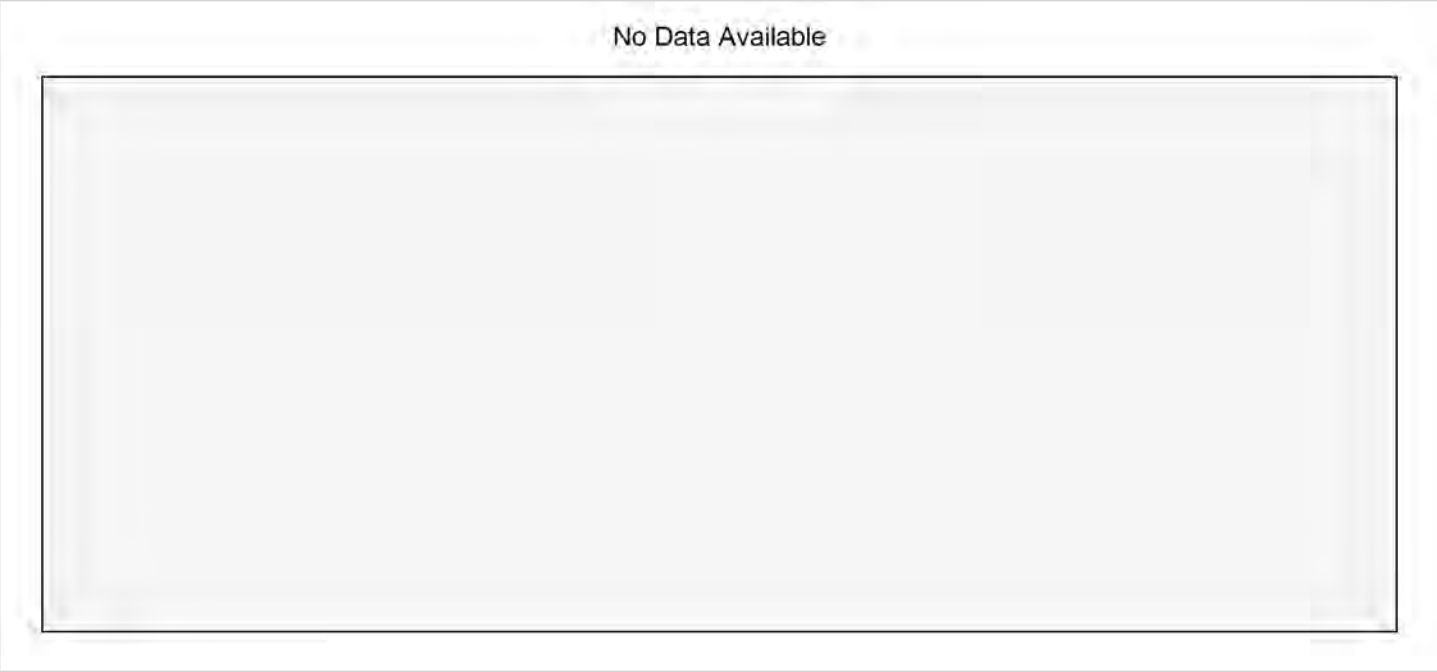
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-131





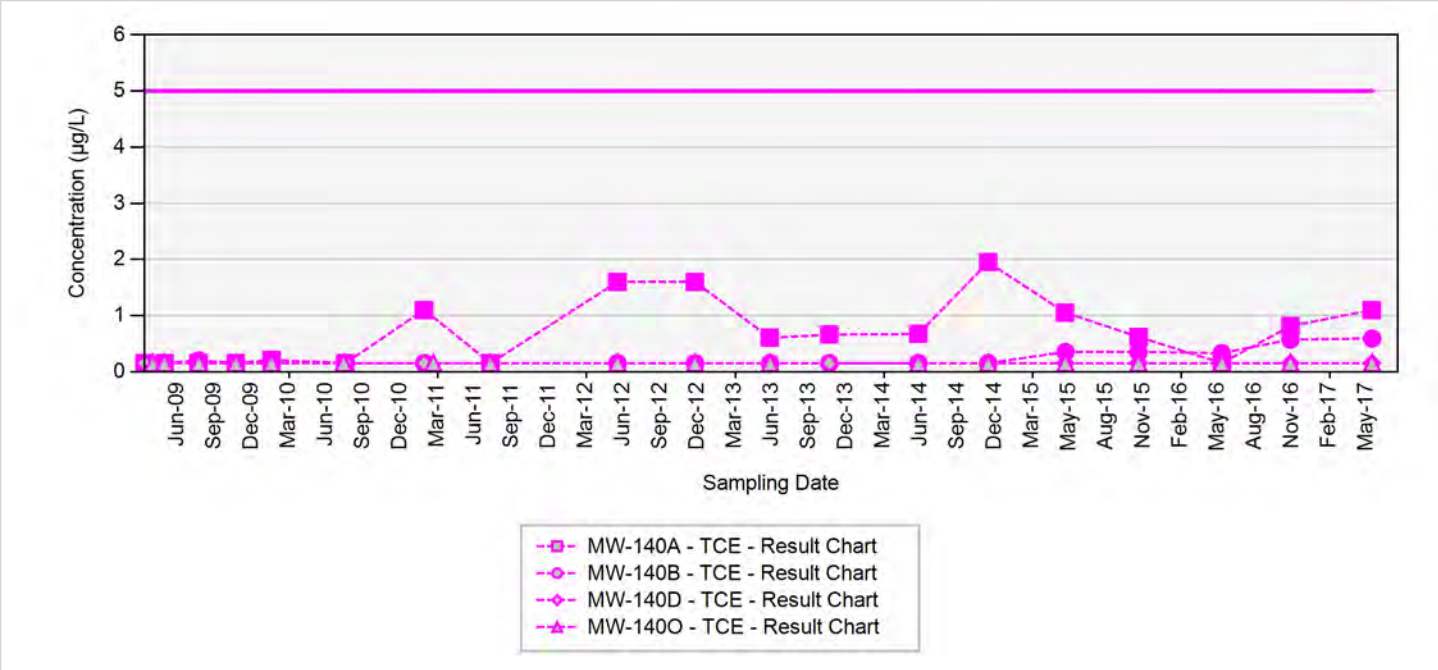
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-140



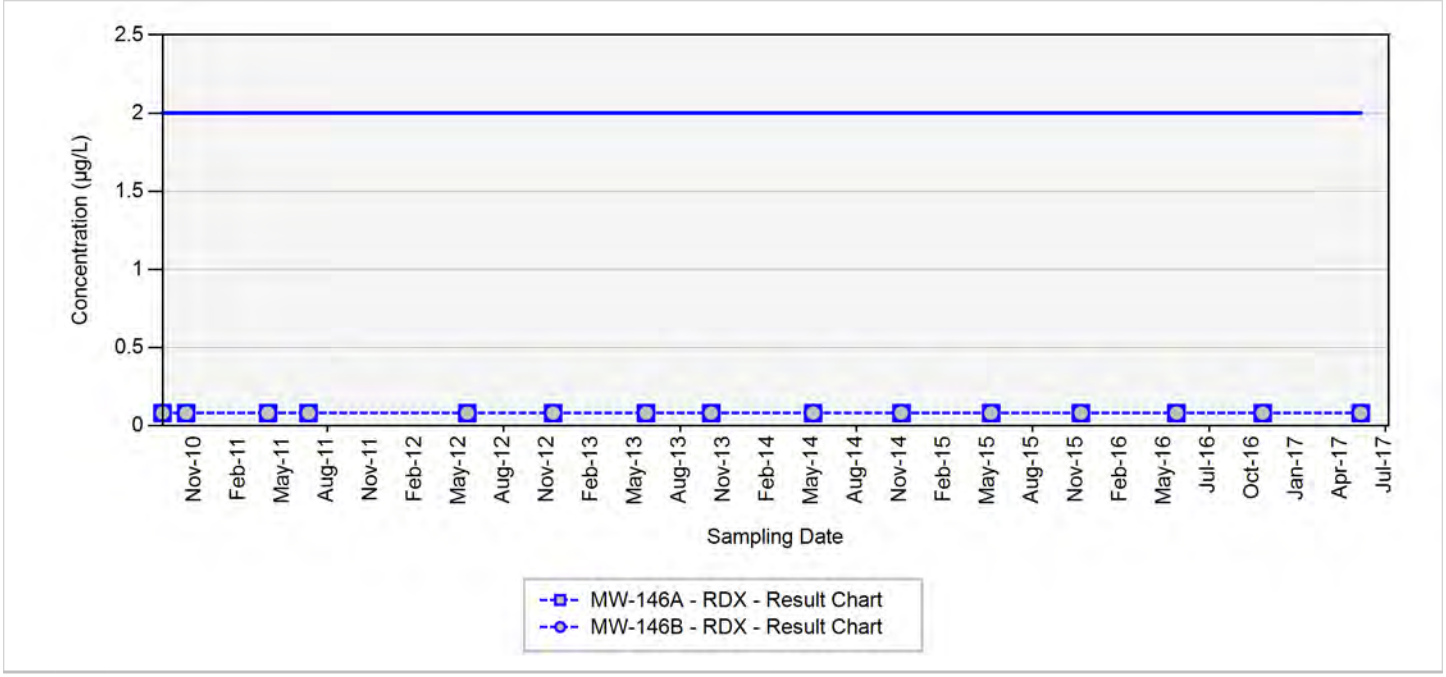
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

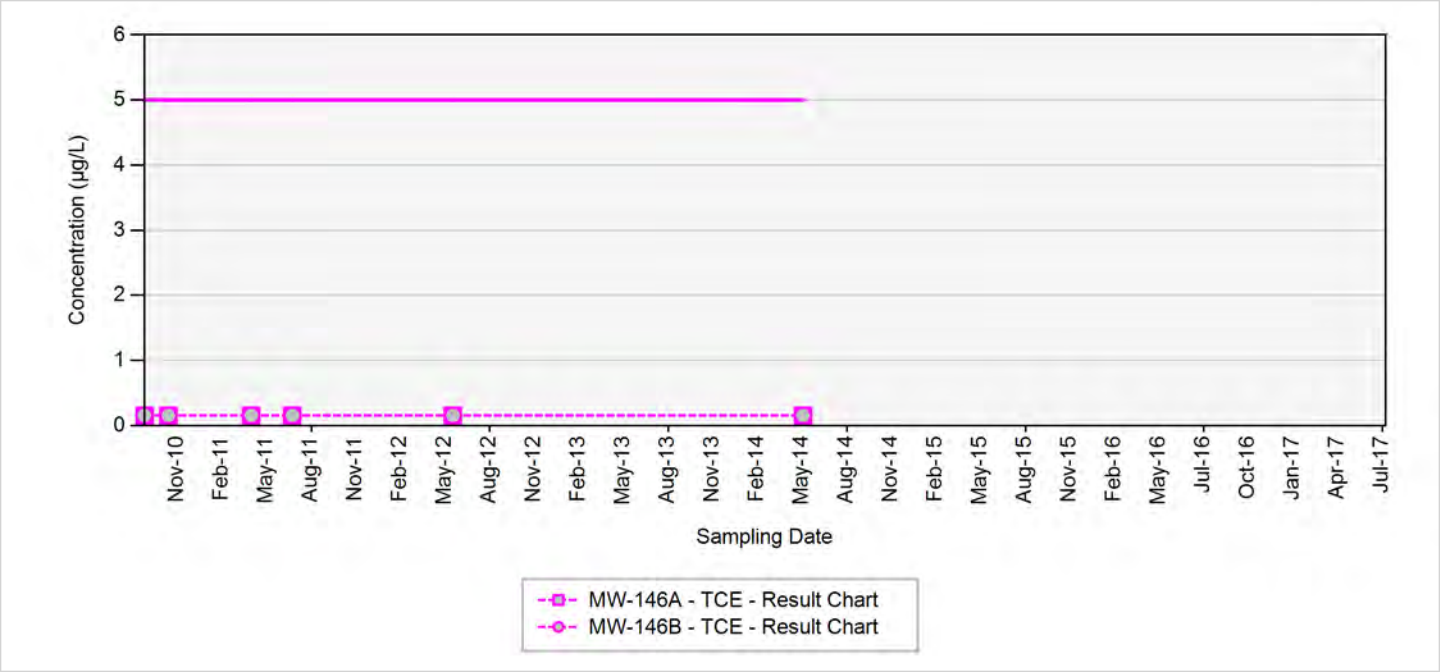
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-146





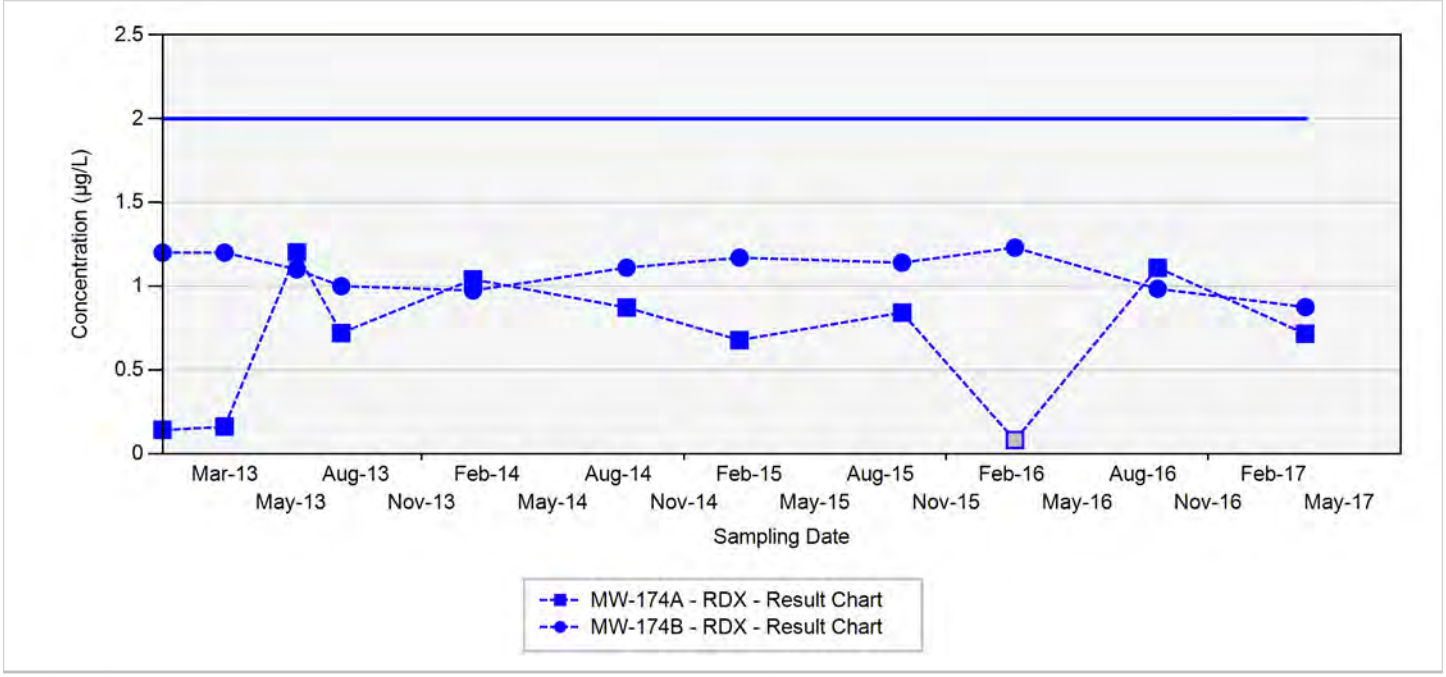
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

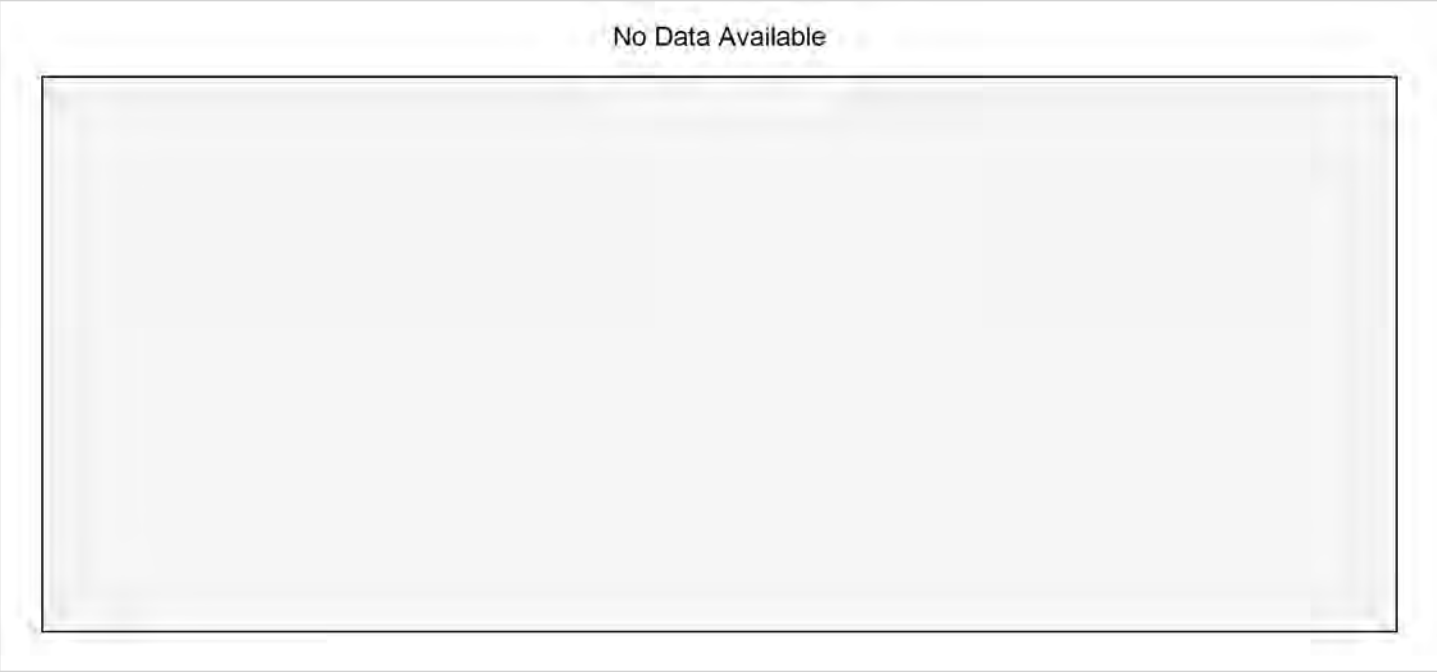
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-174





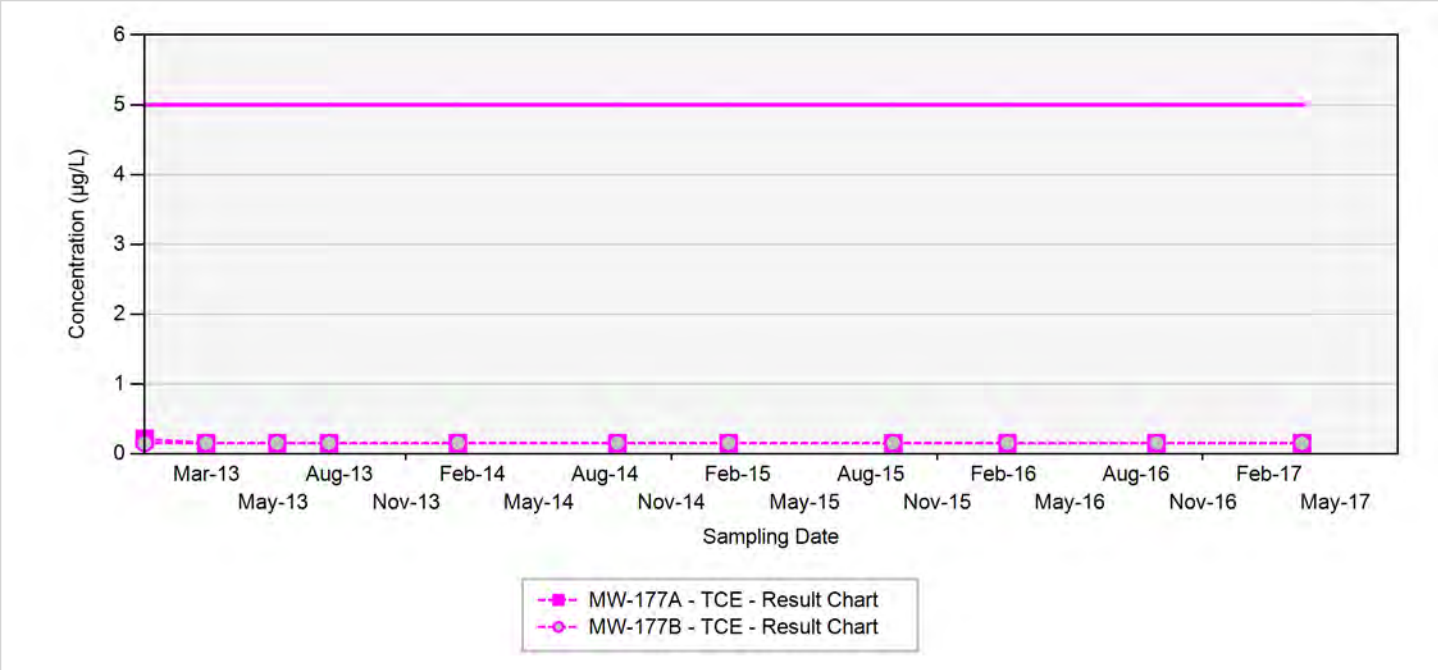
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-177



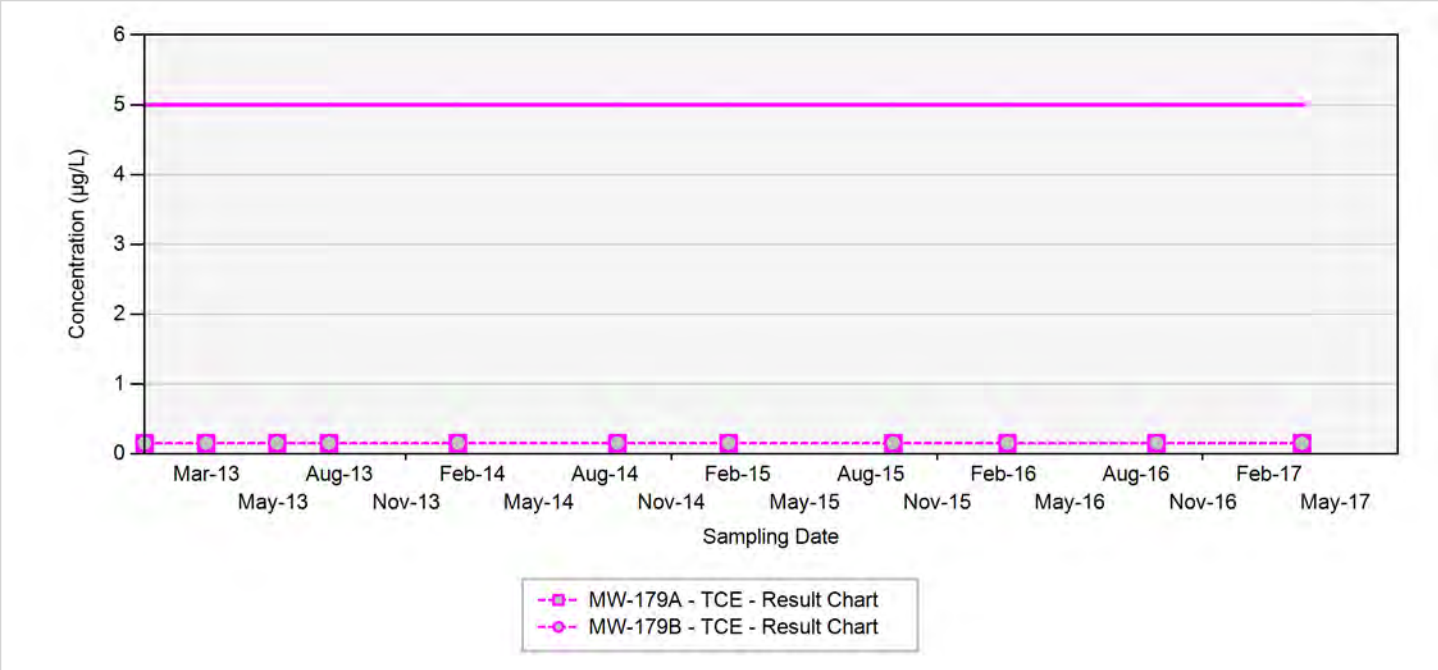
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

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.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-179



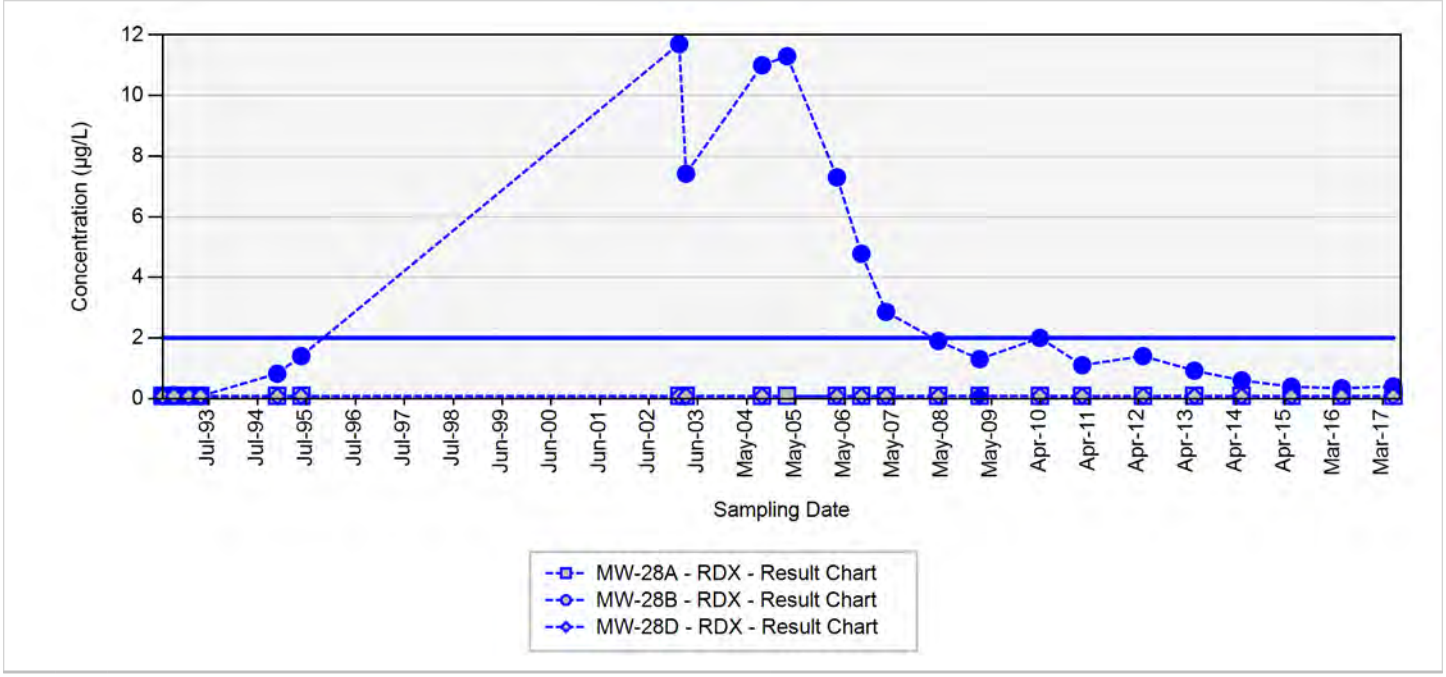
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

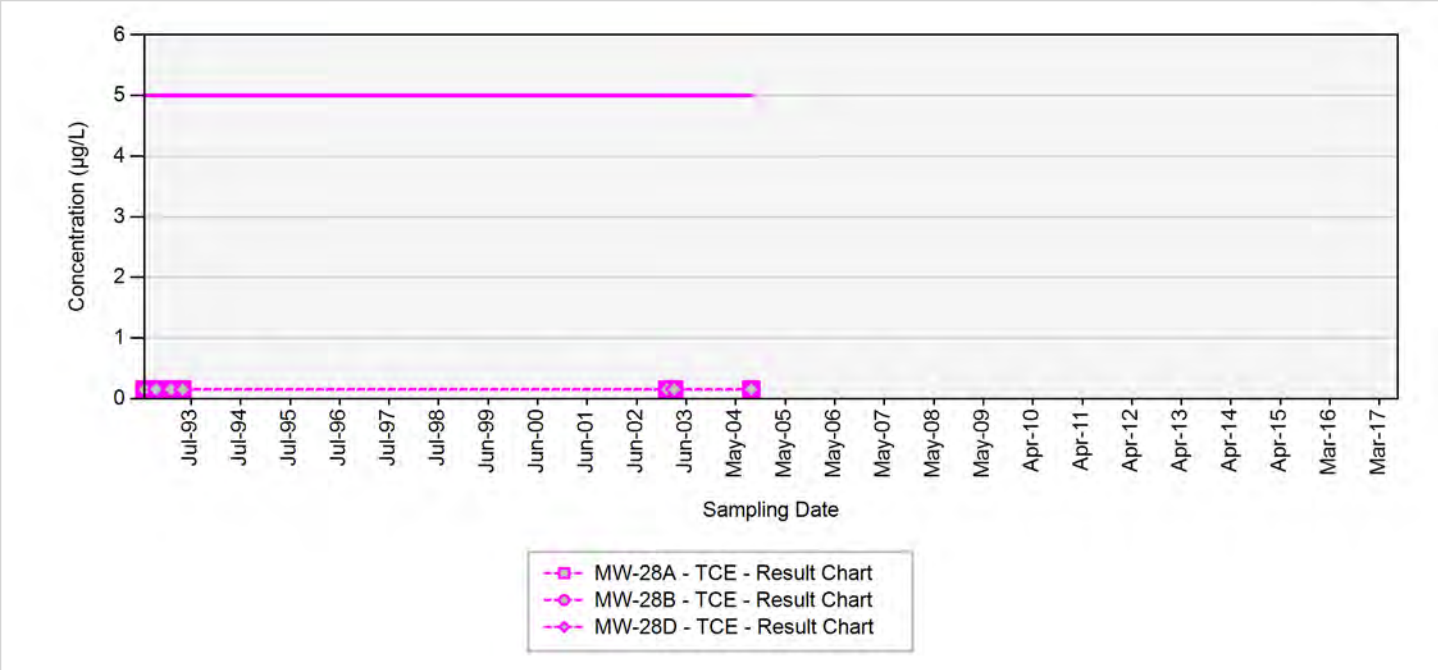
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-28





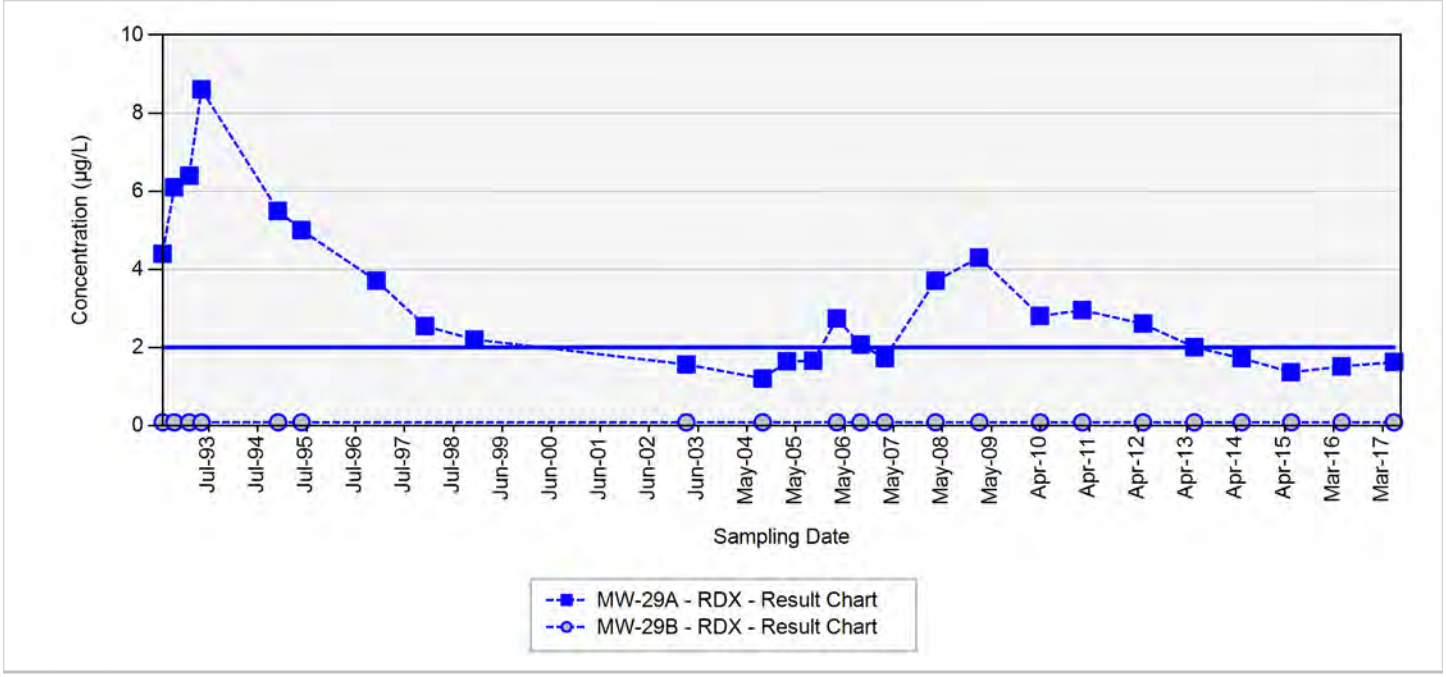
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

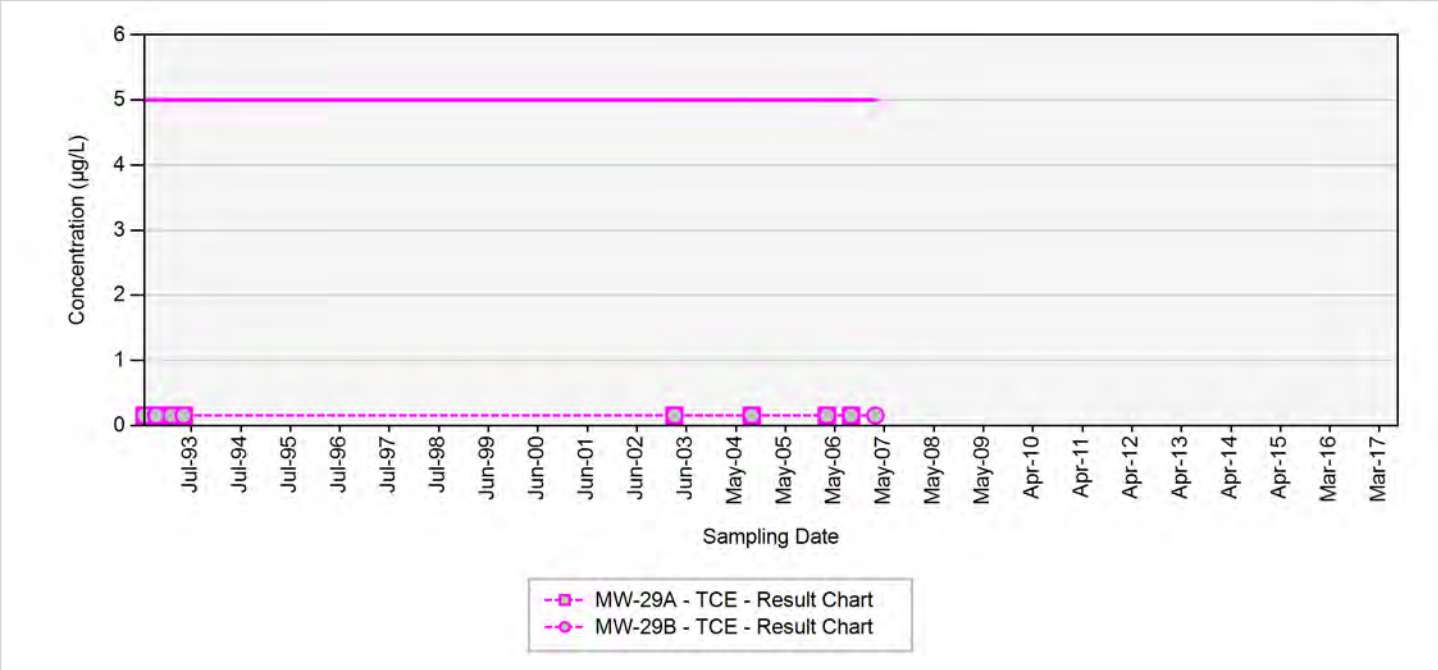
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-29





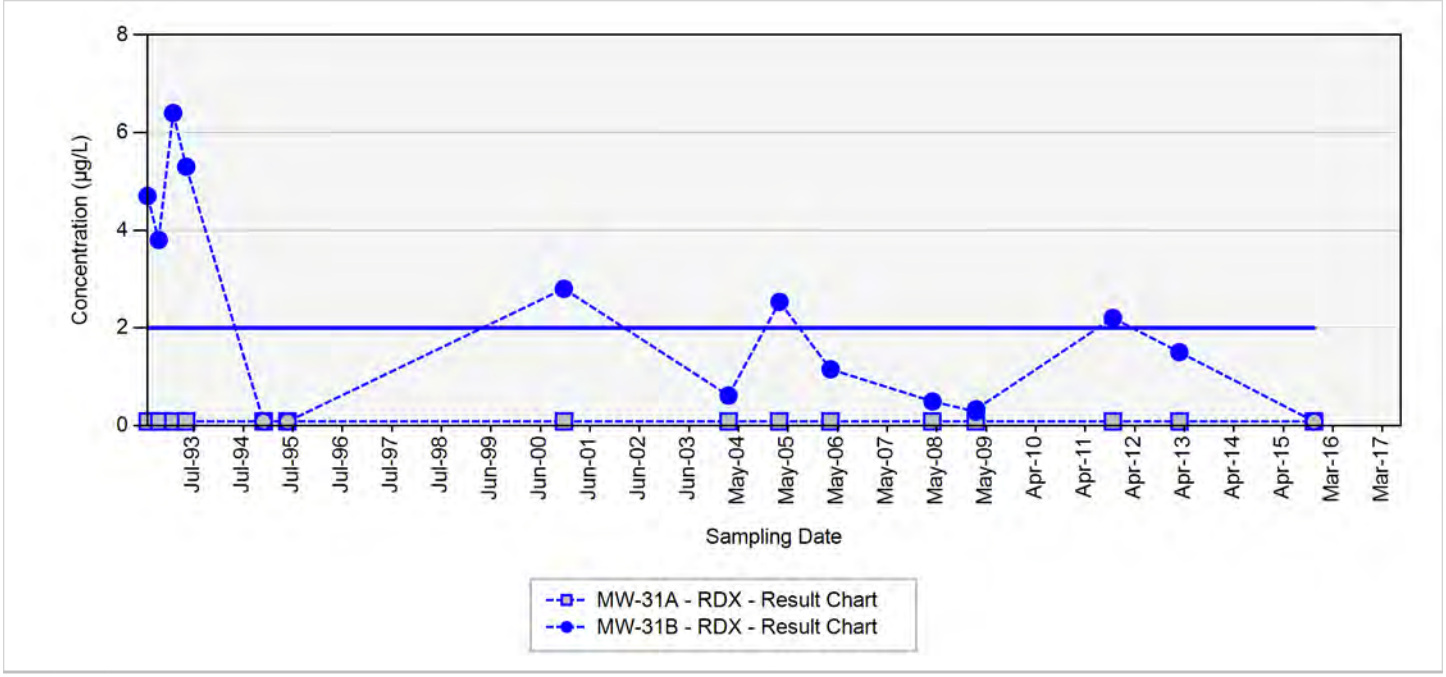
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

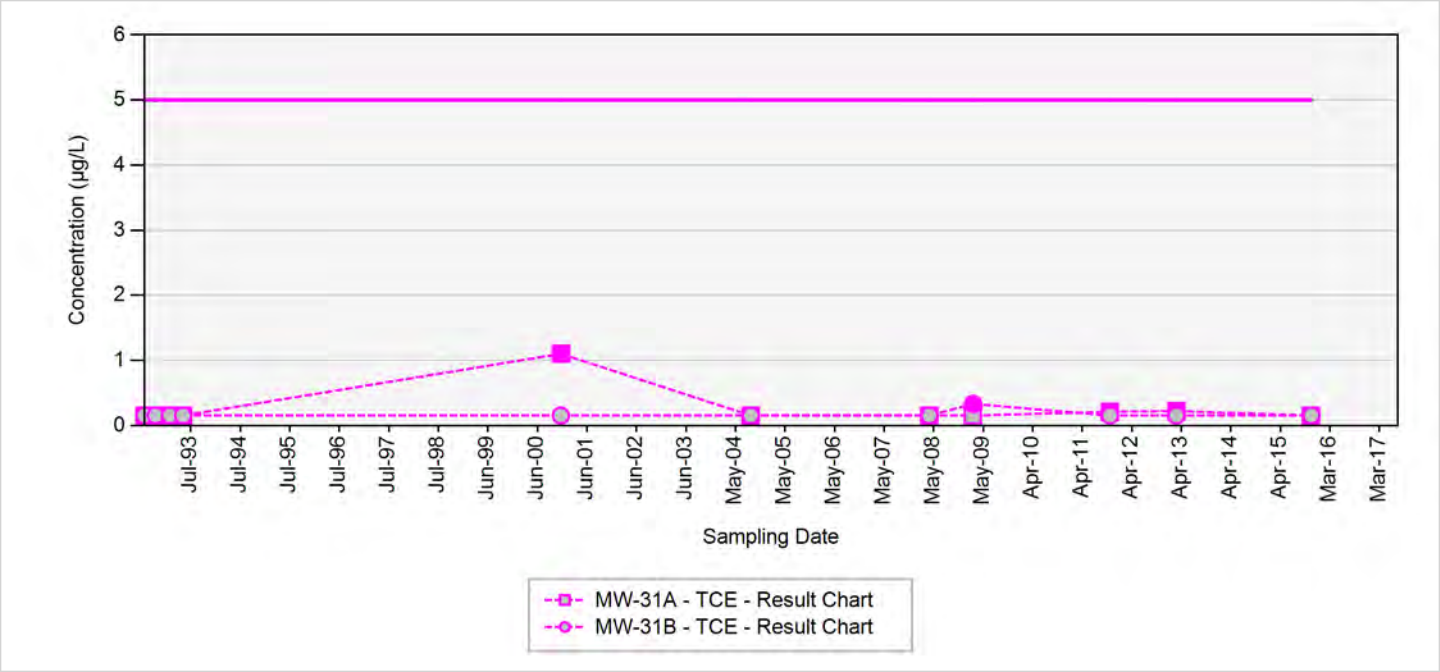
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-31





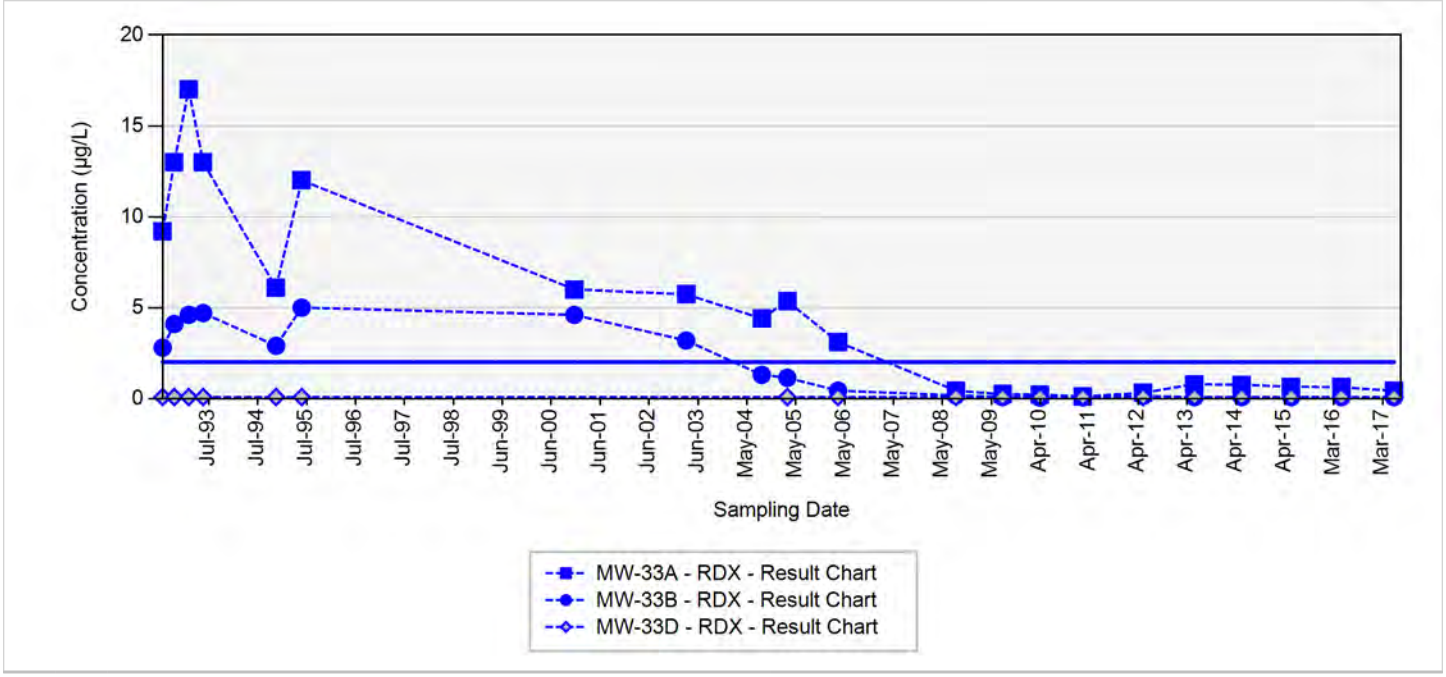
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

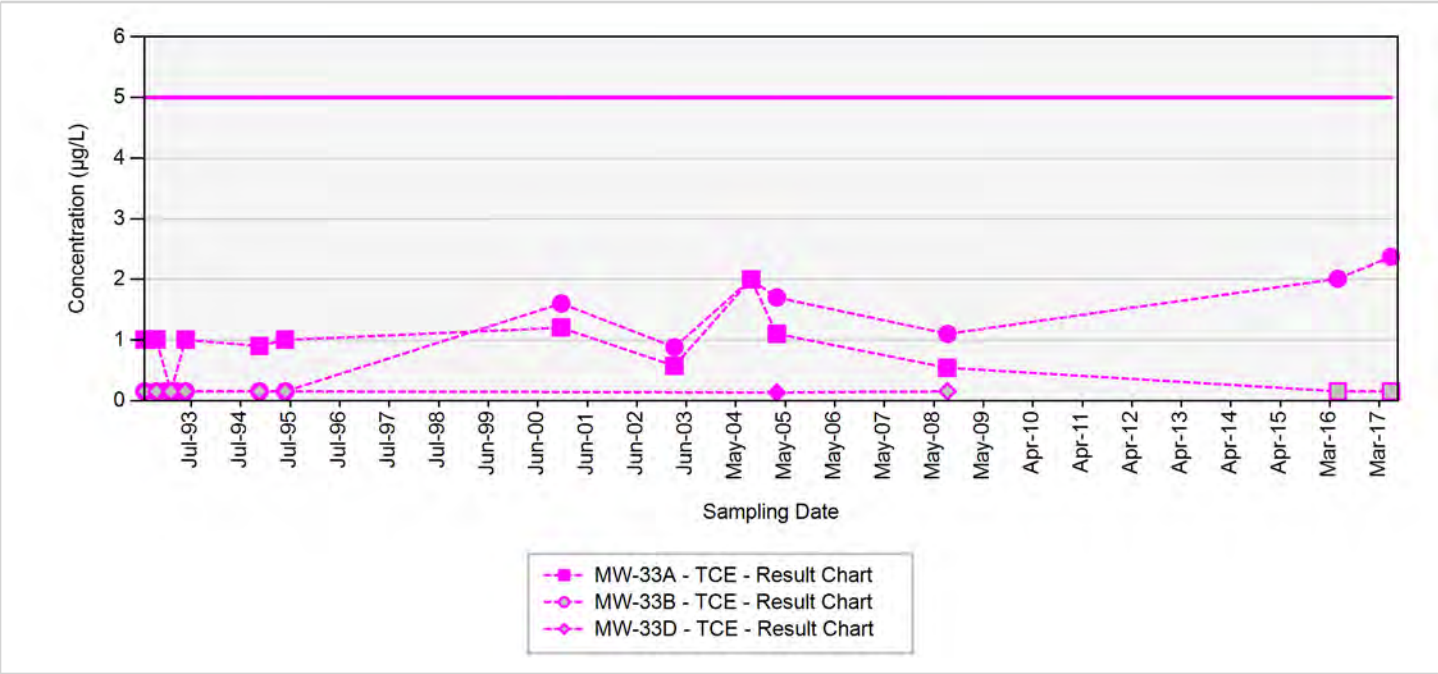
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-33





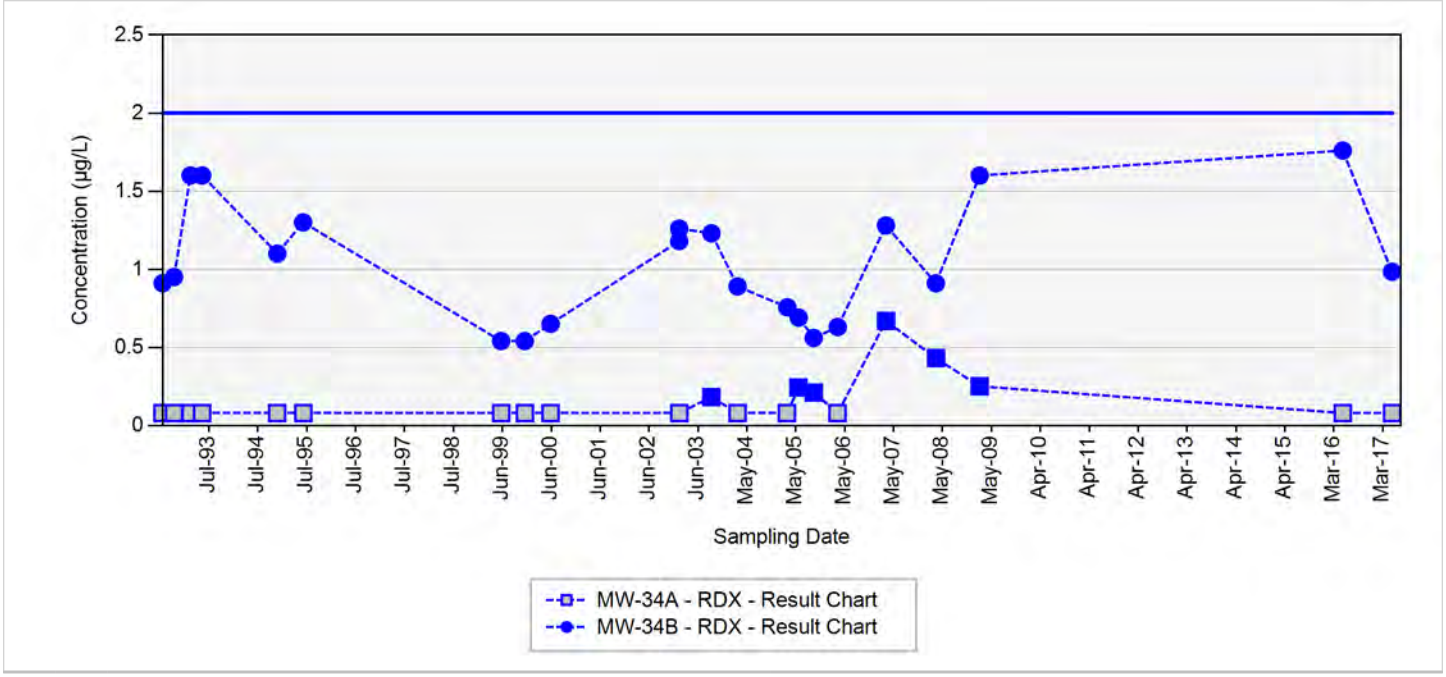
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

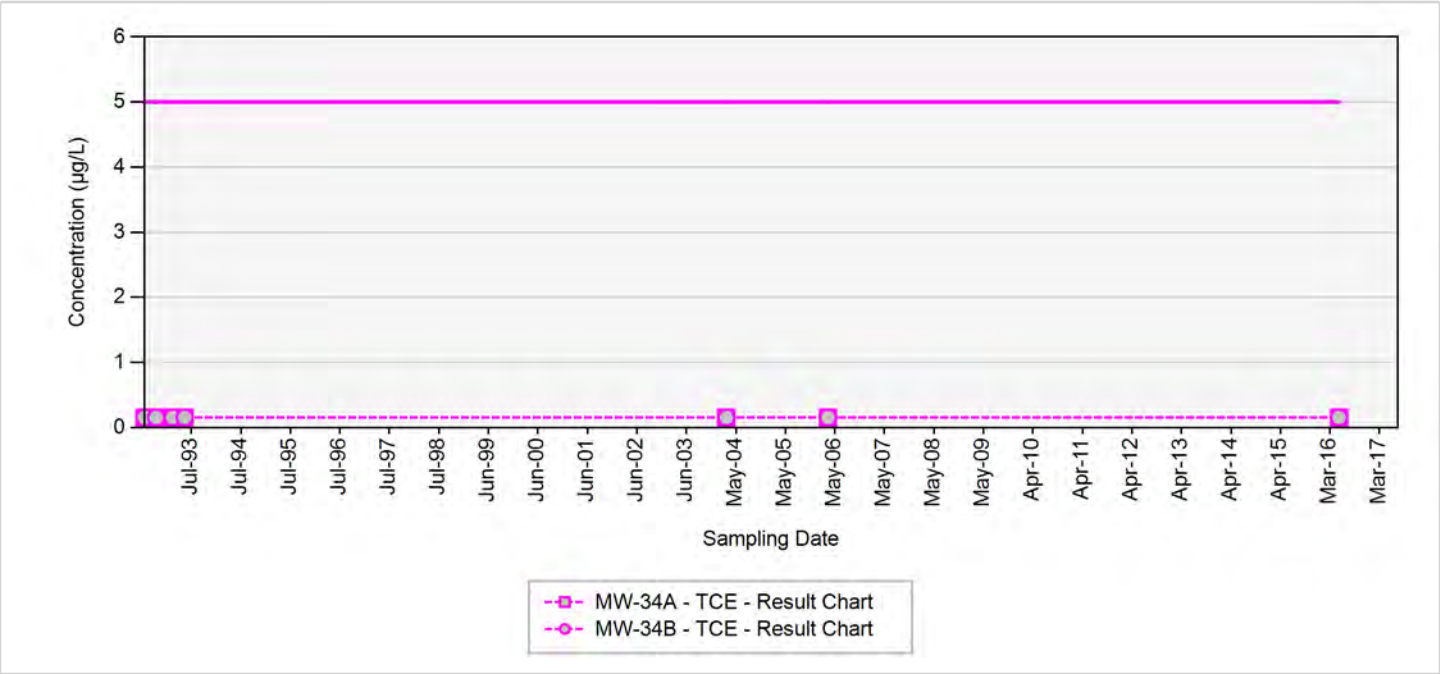
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-34





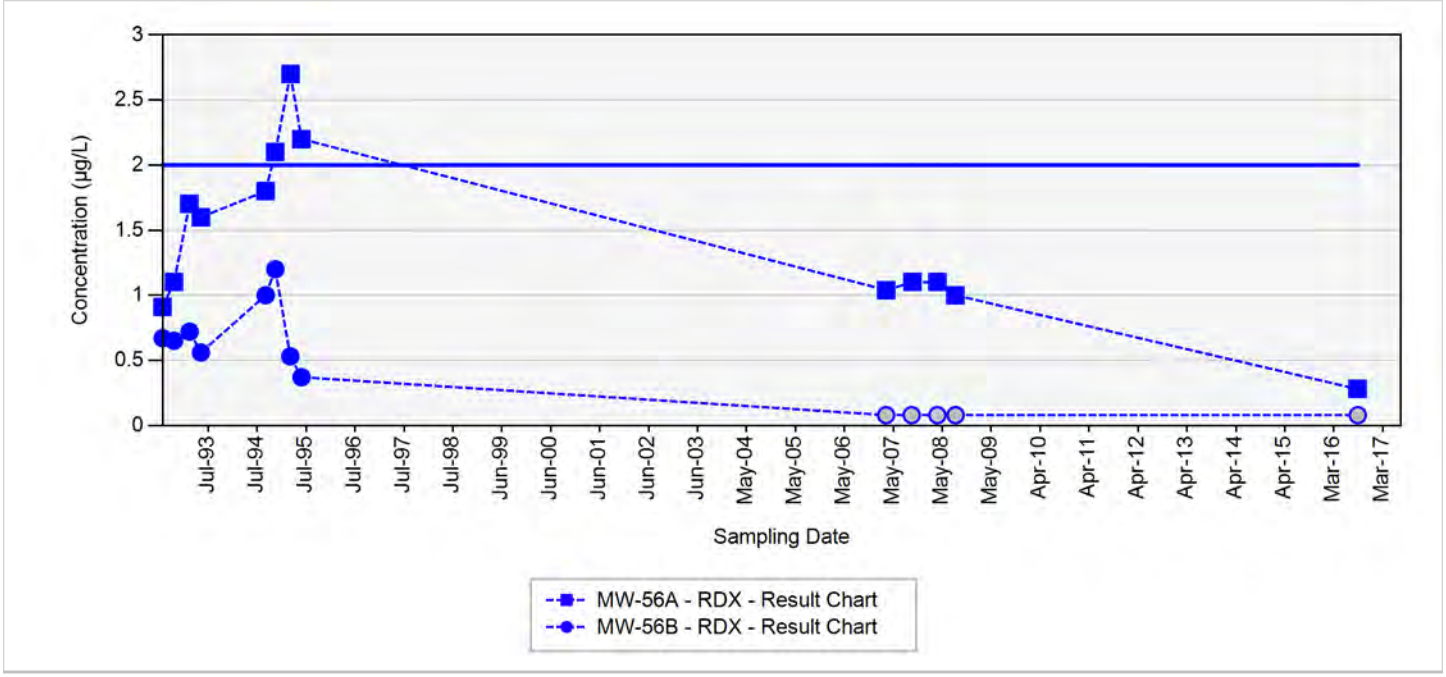
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

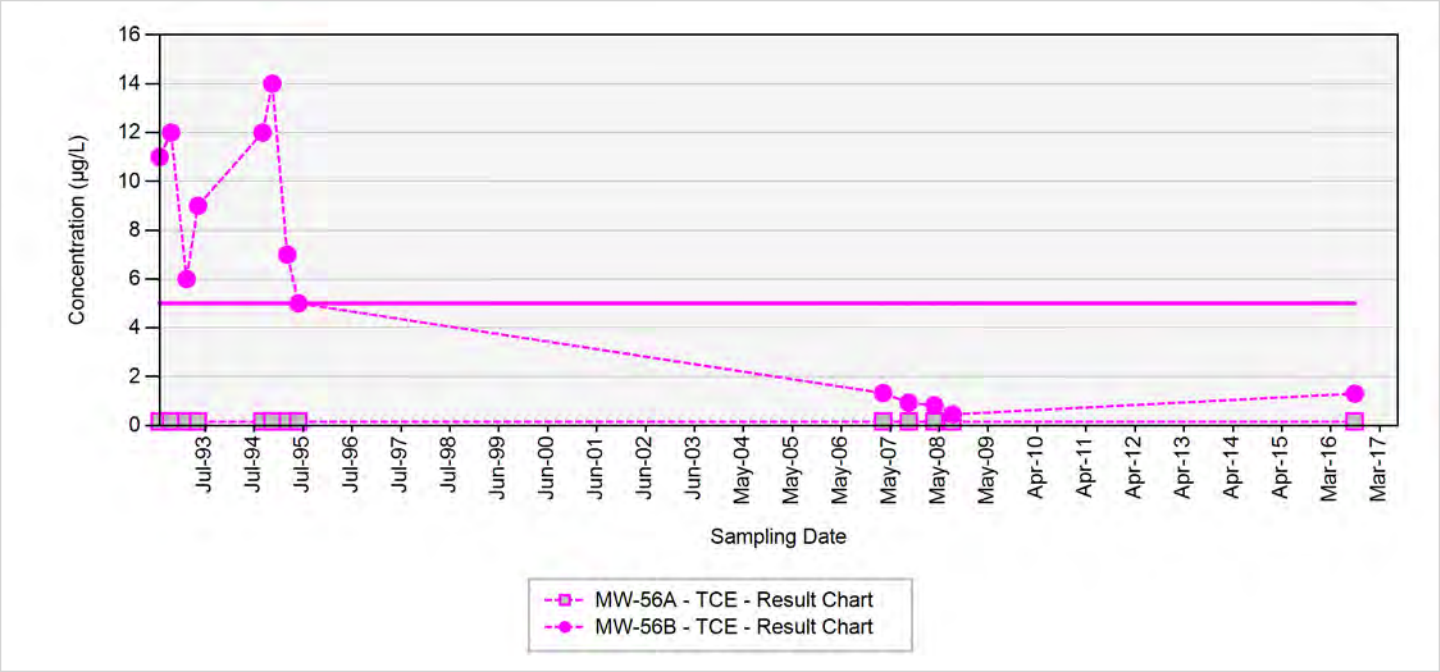
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-56





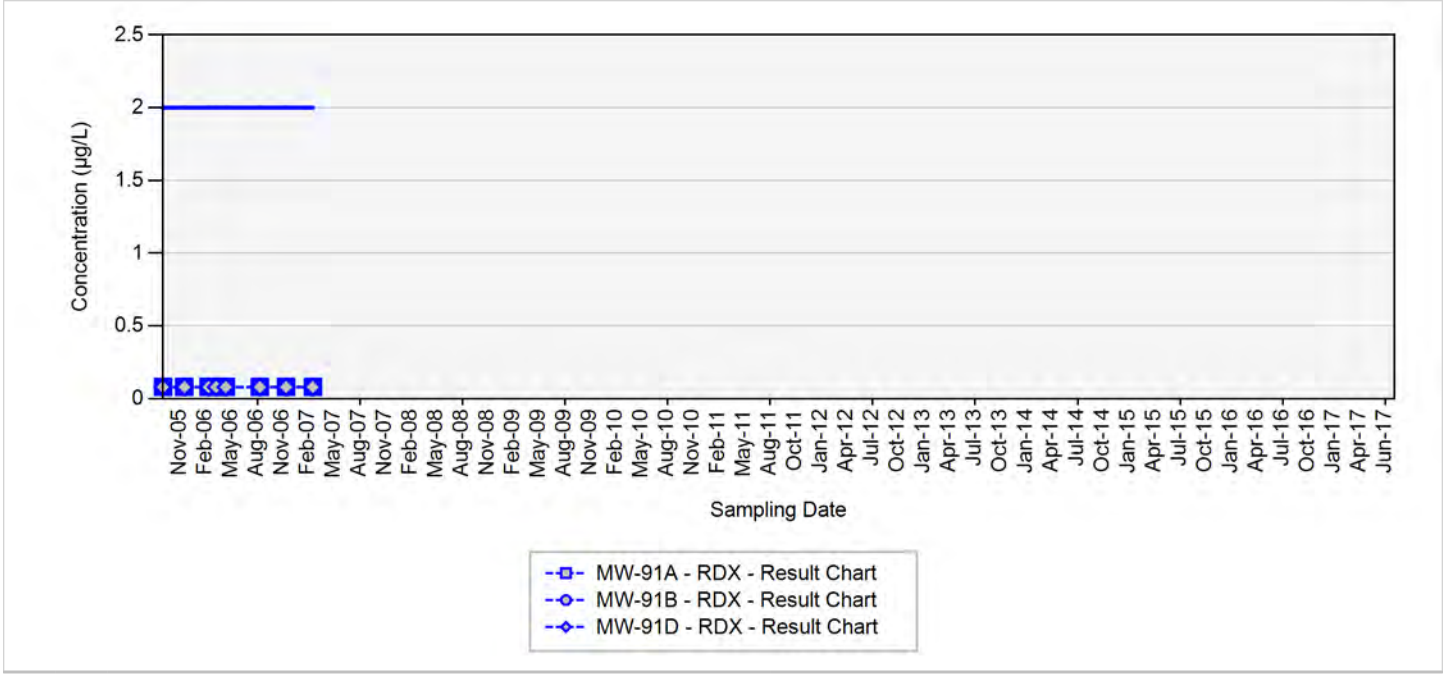
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

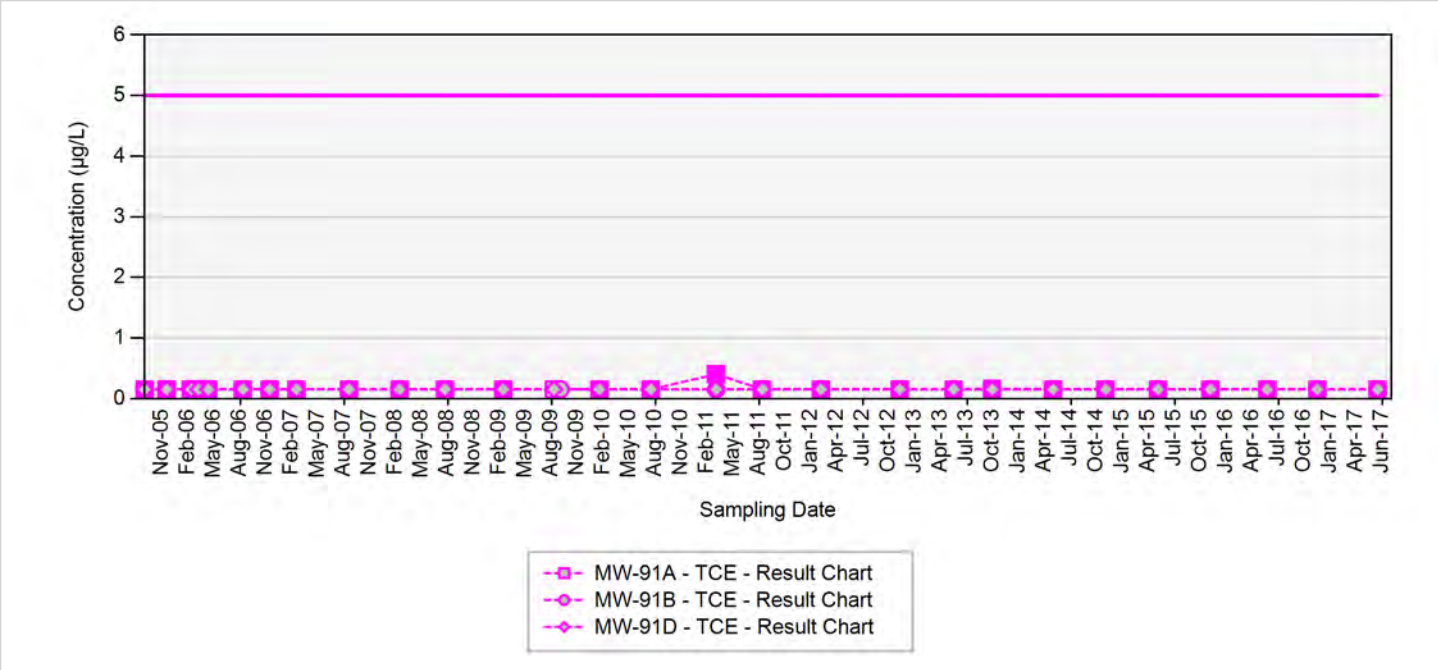
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-91





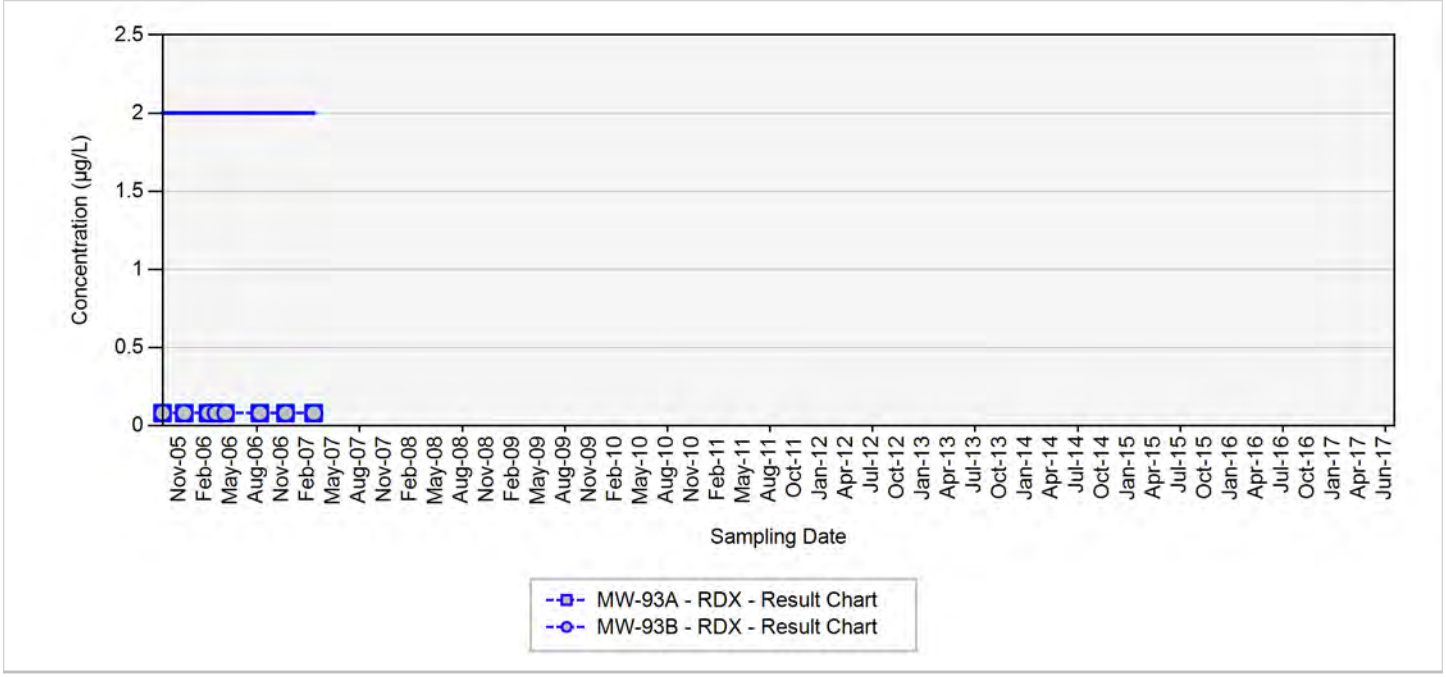
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

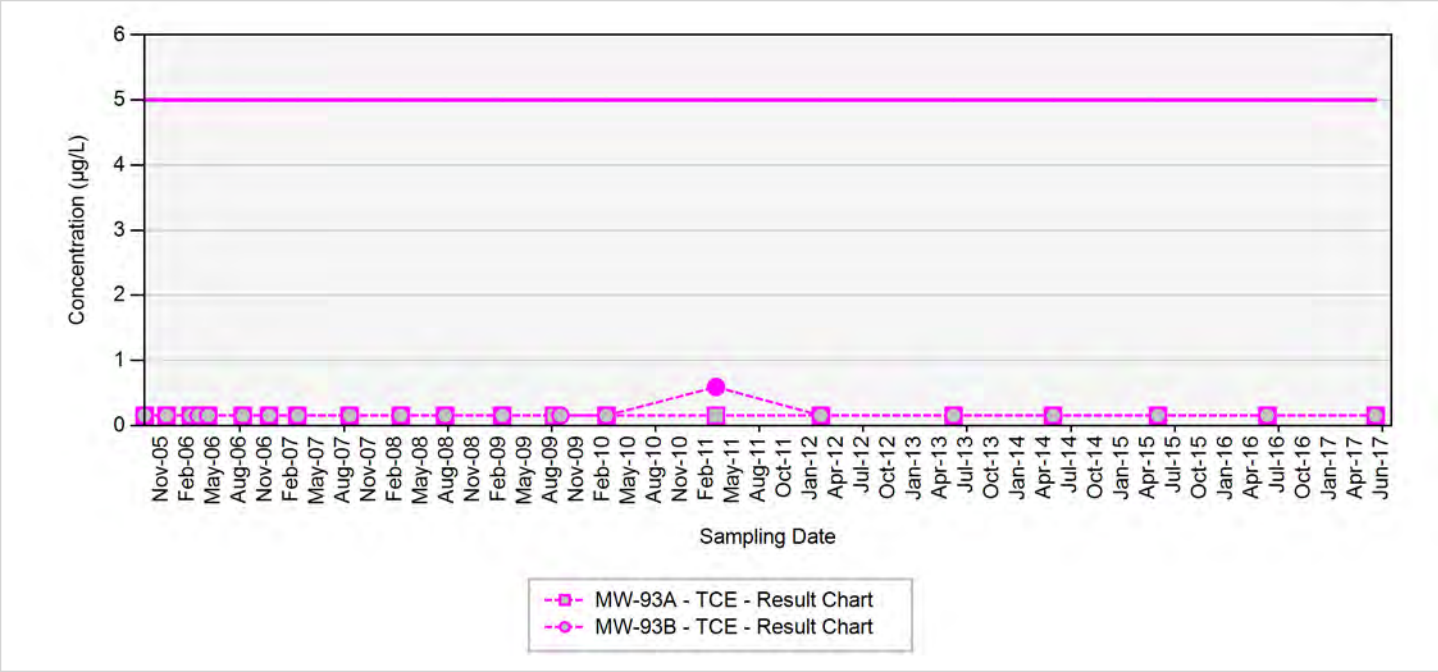
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-93





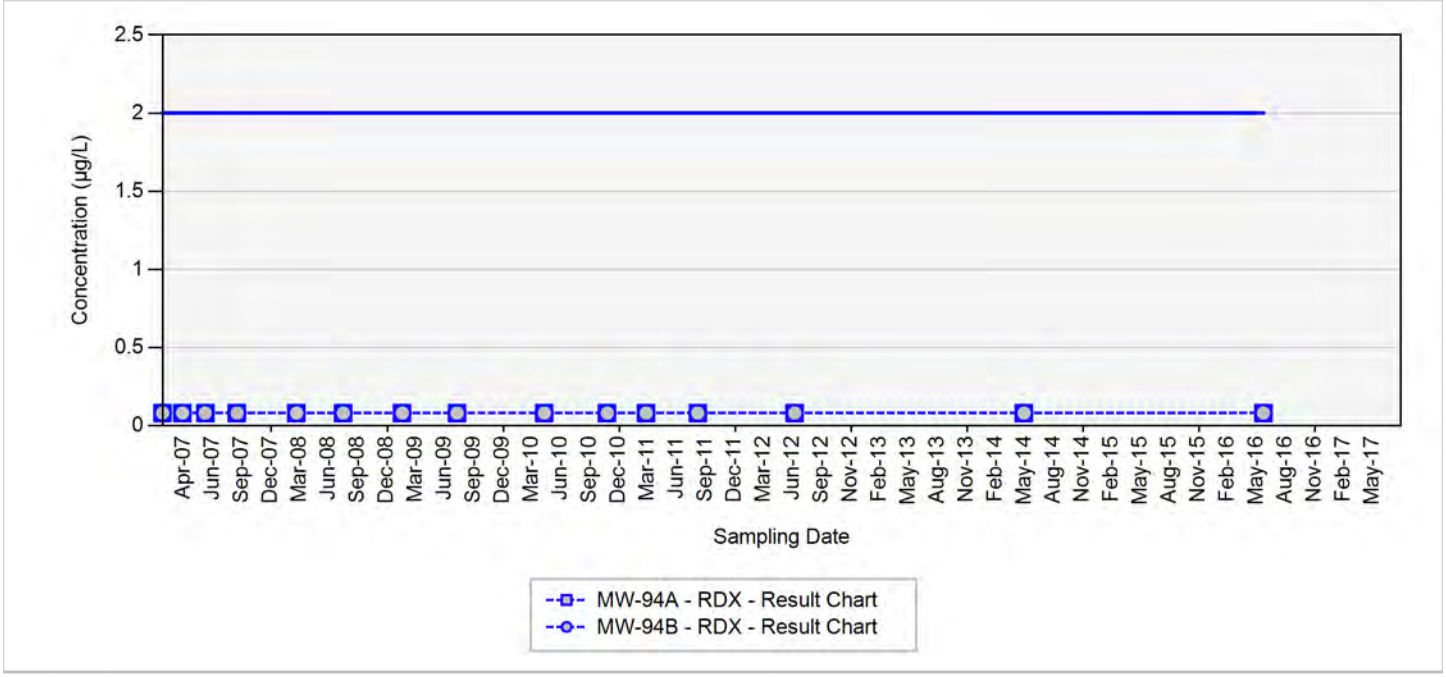
TCE - trichloroethene
RDX - hexahydro-1,3,5-trinitro-1,3,5-triazine
Final Target Groundwater Cleanup Goals for TCE is 5 µg/L
Final Target Groundwater Cleanup Goals for RDX is 2 µg/L

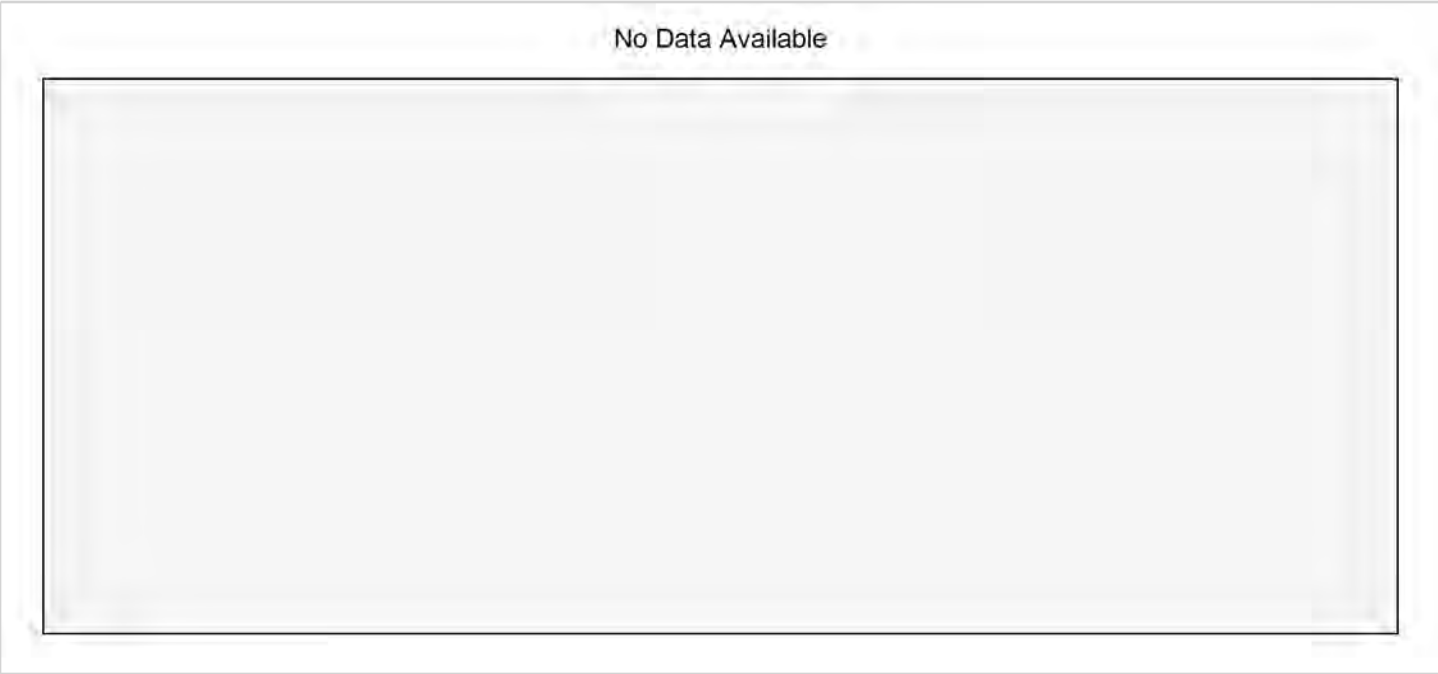
In the event that both a normal sample and a field duplicate were collected, the higher of the two results will be displayed on the chart

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

Appendix B.7
Concentration Trend Charts for Side and Downgradient Monitoring Wells

MW-94





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

PREDICTIVE SIMULATIONS RESULTS

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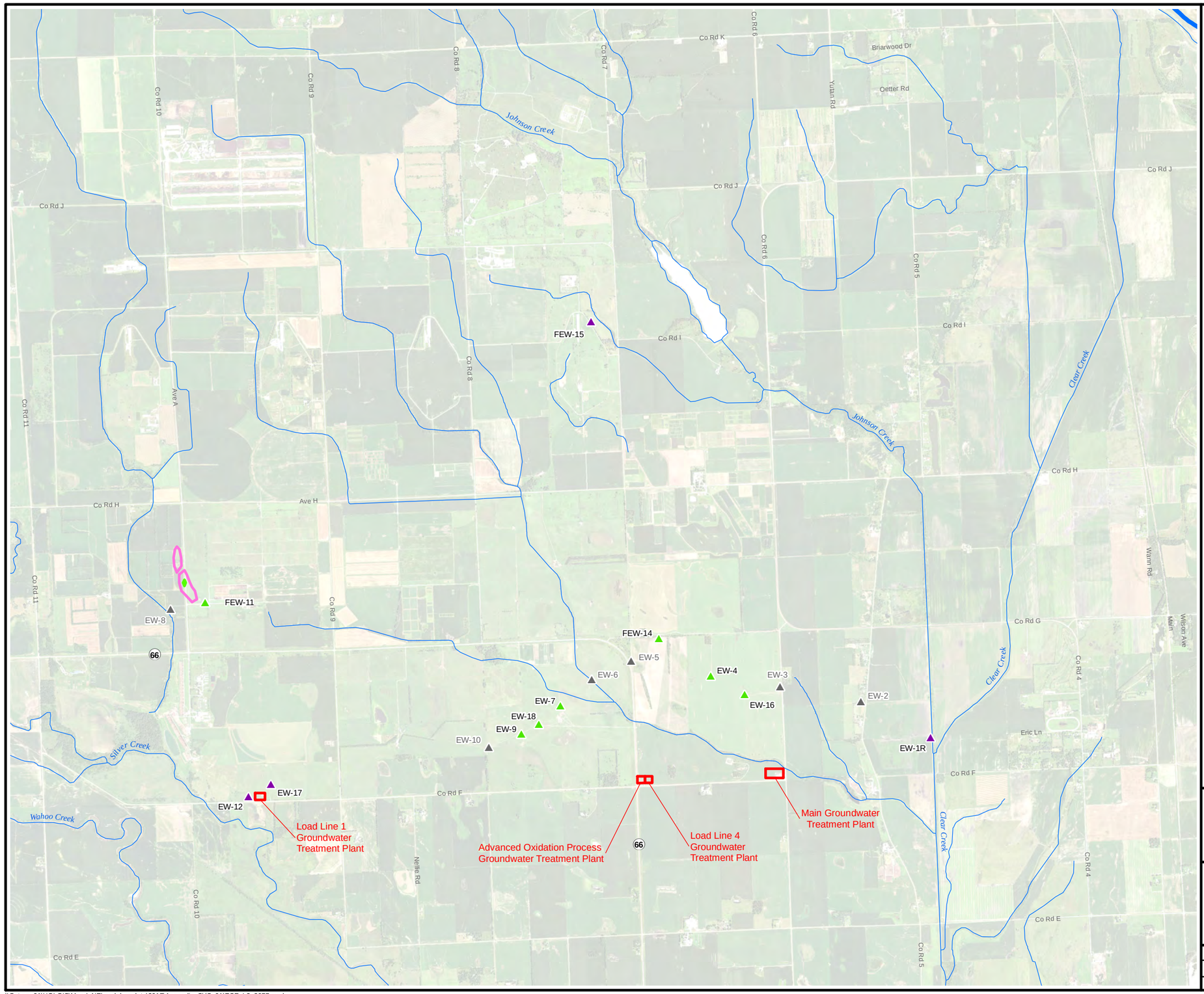

Legend

- 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 Groundwater Model Update

Figure C.1
Predicted TCE Concentrations
Layer 2 (2077)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

\\Gst-srv-01\HGLGIS\Mead_NE\model_update\2017\Appendix_C\(C_01)TCE_L2_2077.mxd

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
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Figure C.2
Predicted TCE Concentrations
Layer 2 (2087)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
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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Figure C.3
Predicted TCE Concentrations
Layer 2 (2097)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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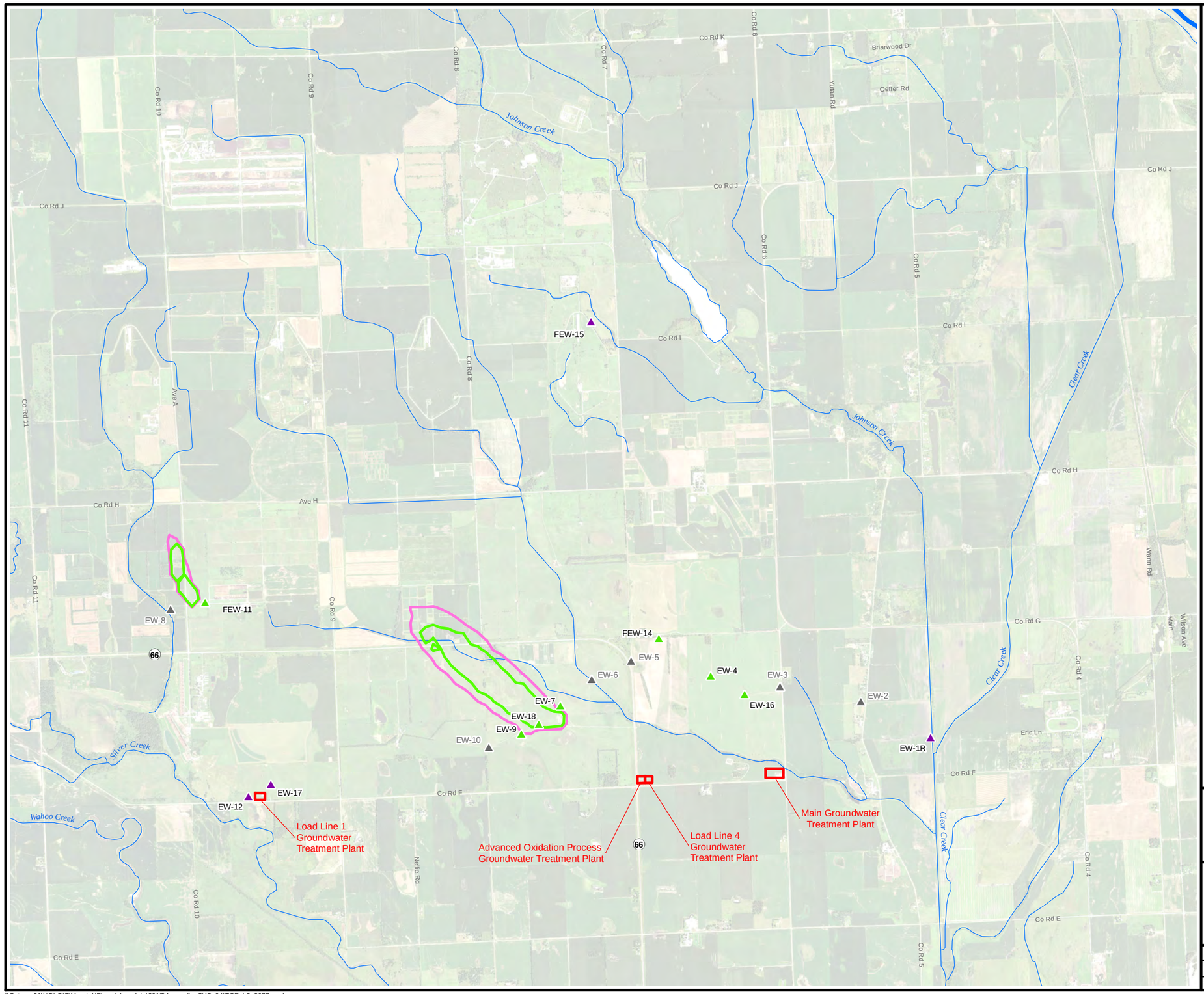

Legend

- 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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Figure C.4
Predicted TCE Concentrations
Layer 3 (2077)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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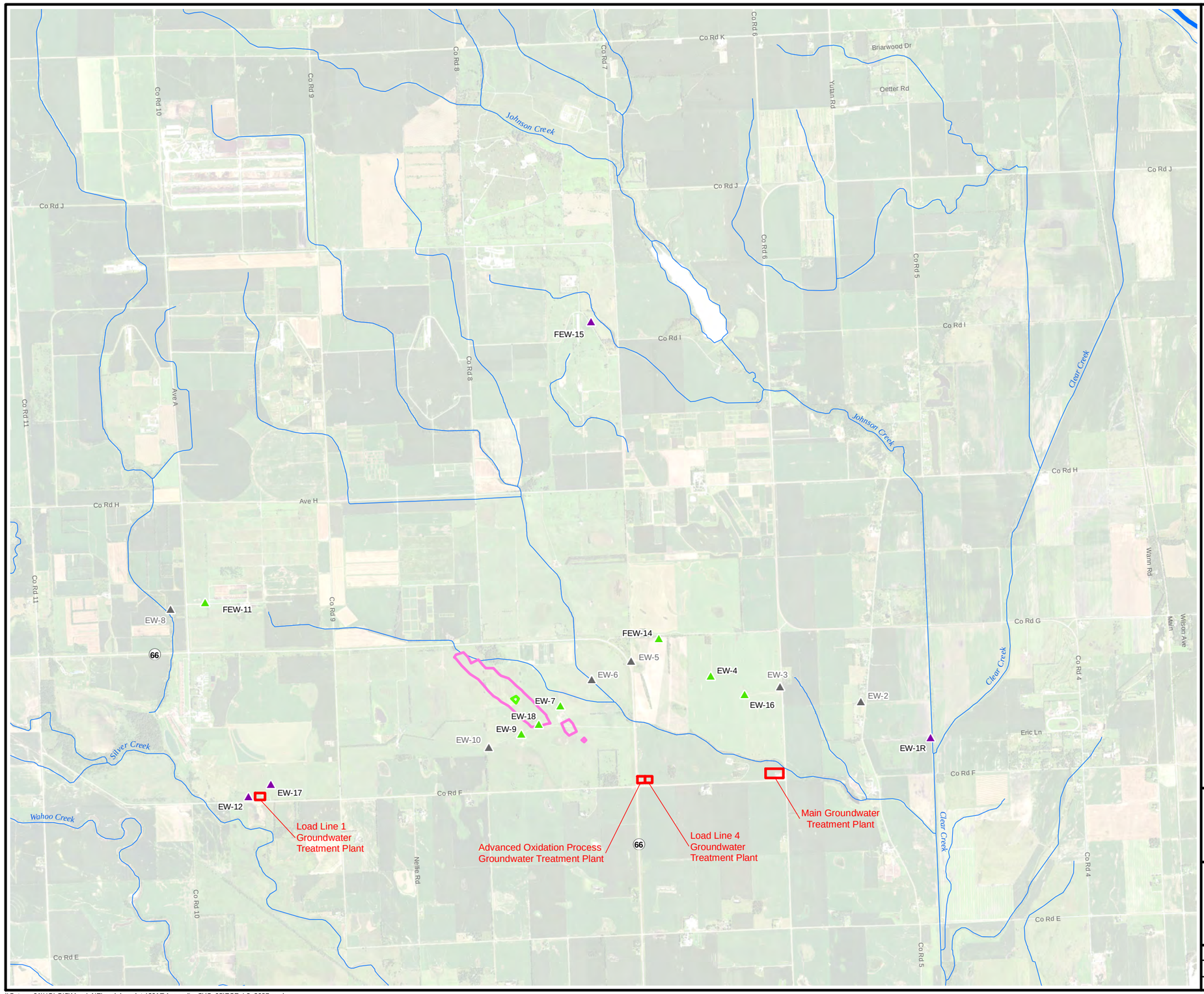

Legend

- 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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Figure C.5
Predicted TCE Concentrations
Layer 3 (2087)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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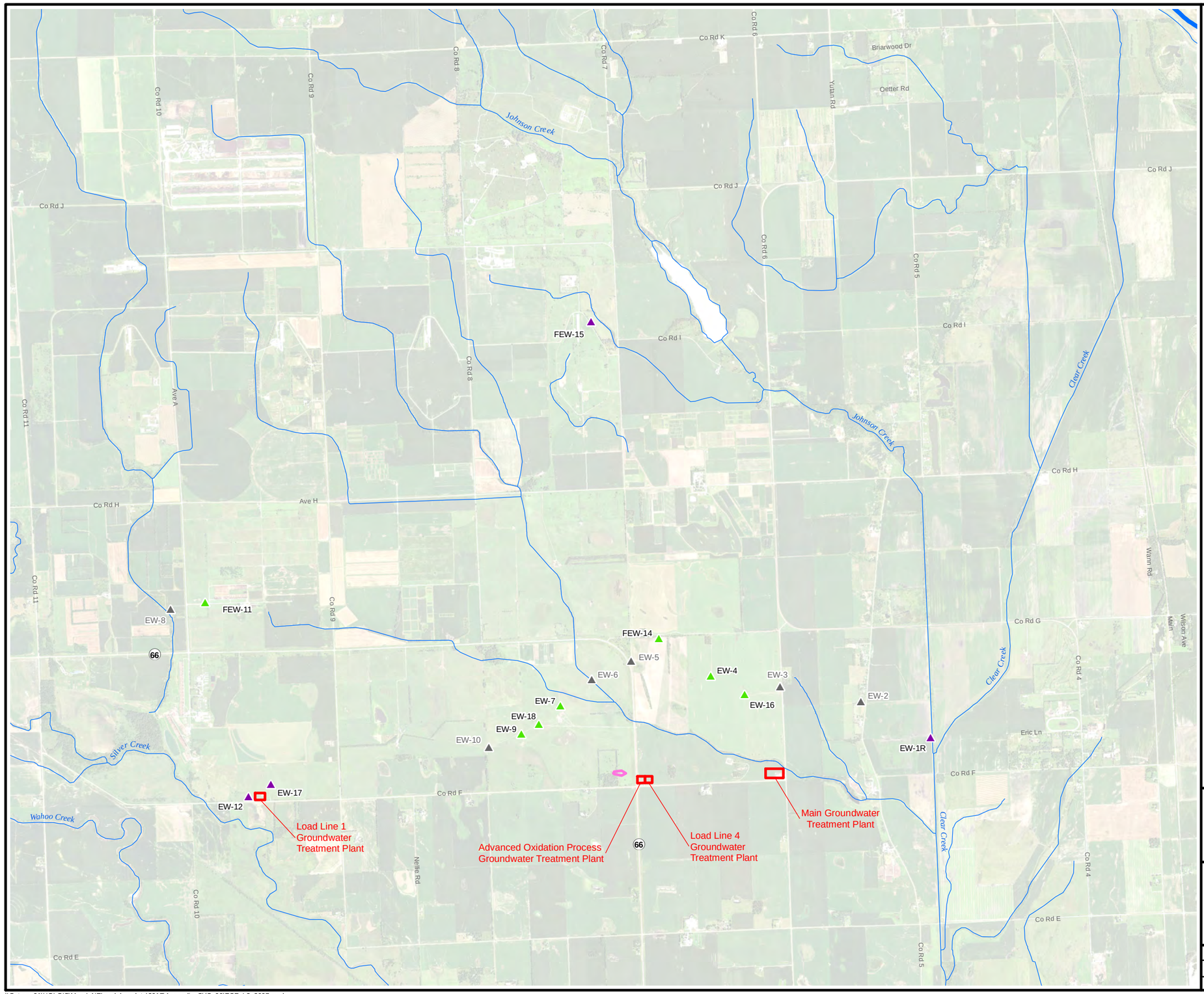

Legend

- 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
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Figure C.6
Predicted TCE Concentrations
Layer 3 (2097)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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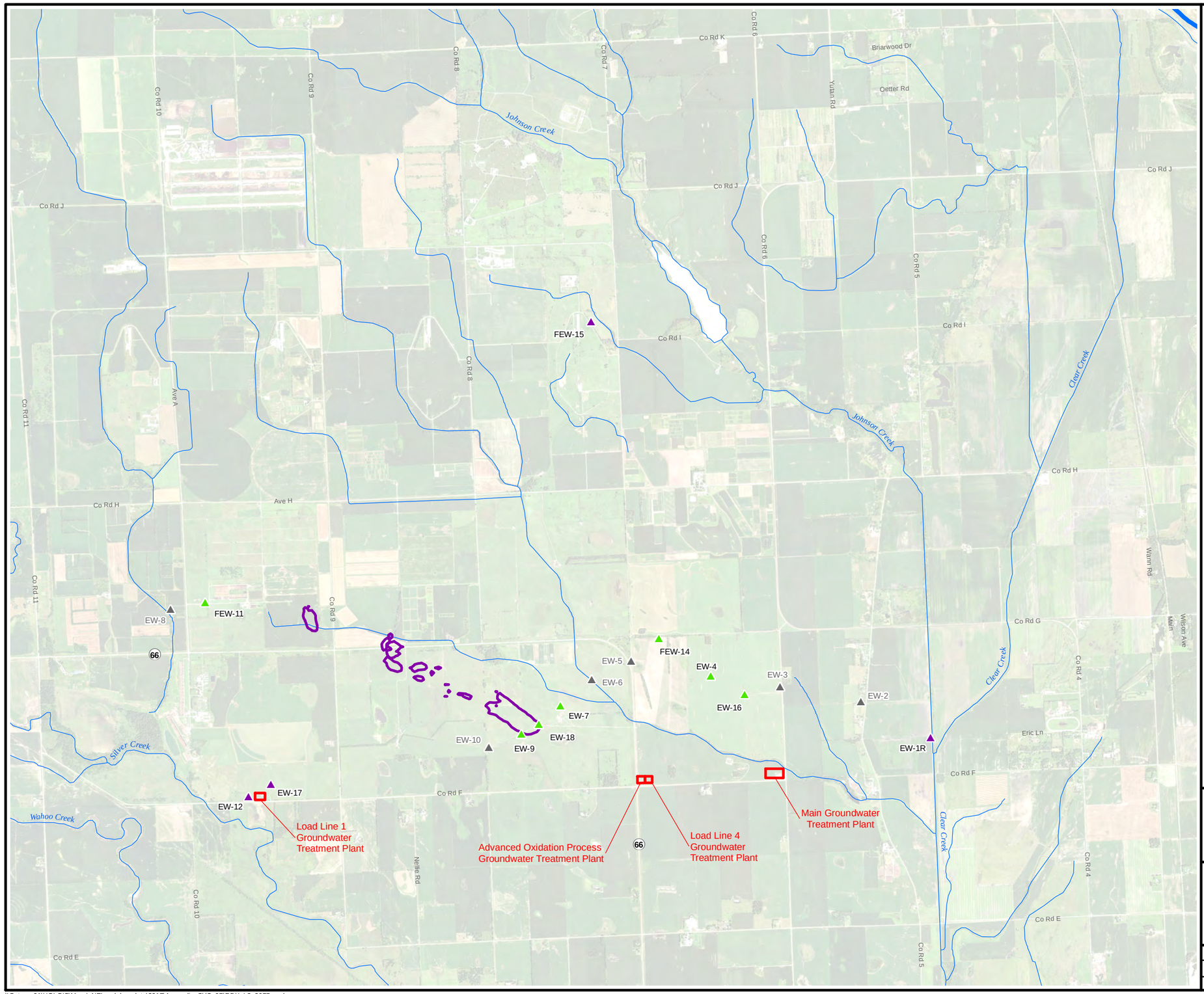

Legend

- 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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Figure C.7
Predicted RDX Concentrations
Layer 2 (2077)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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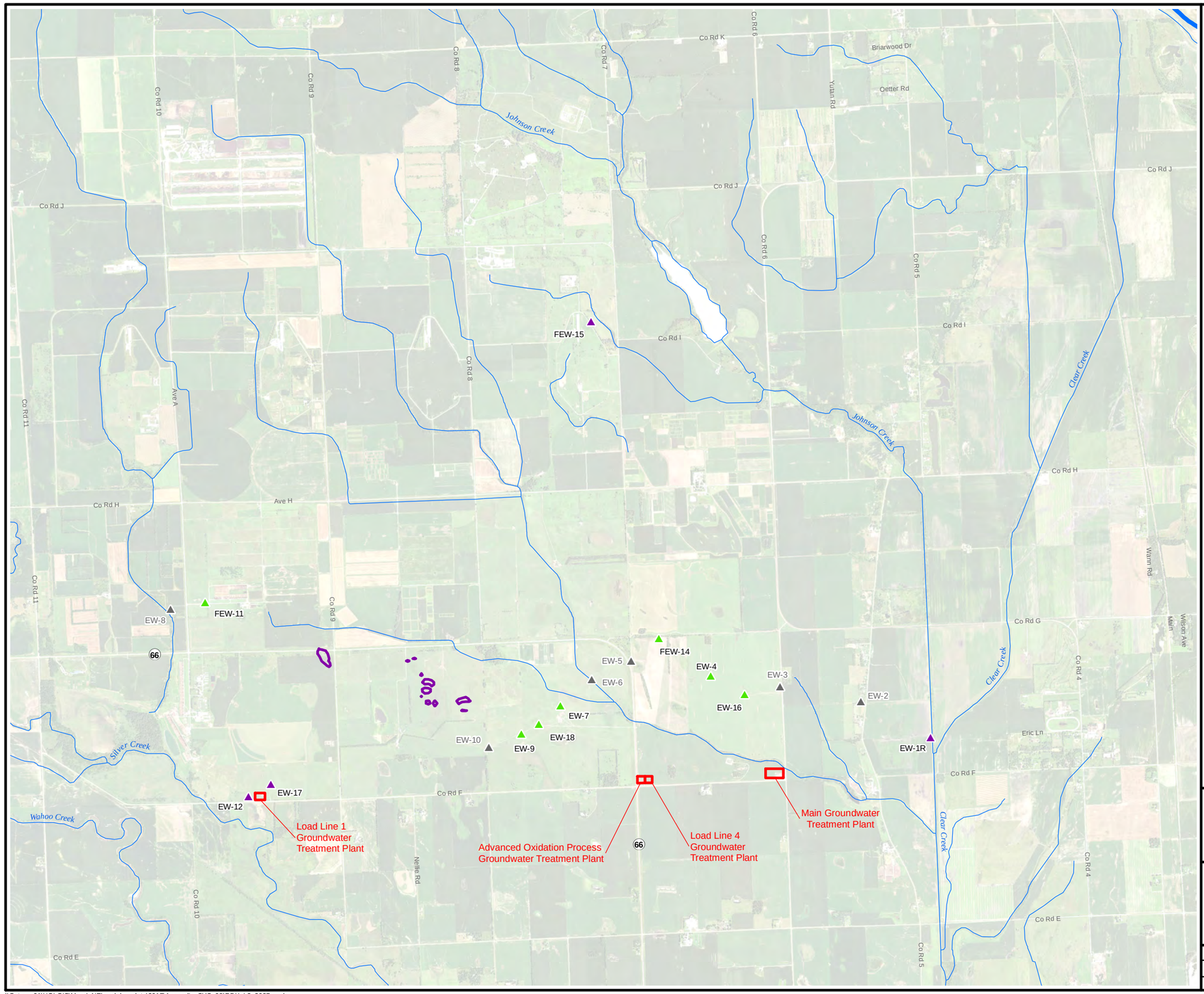

Legend

- 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 Groundwater Model Update

Figure C.8
Predicted RDX Concentrations
Layer 2 (2087)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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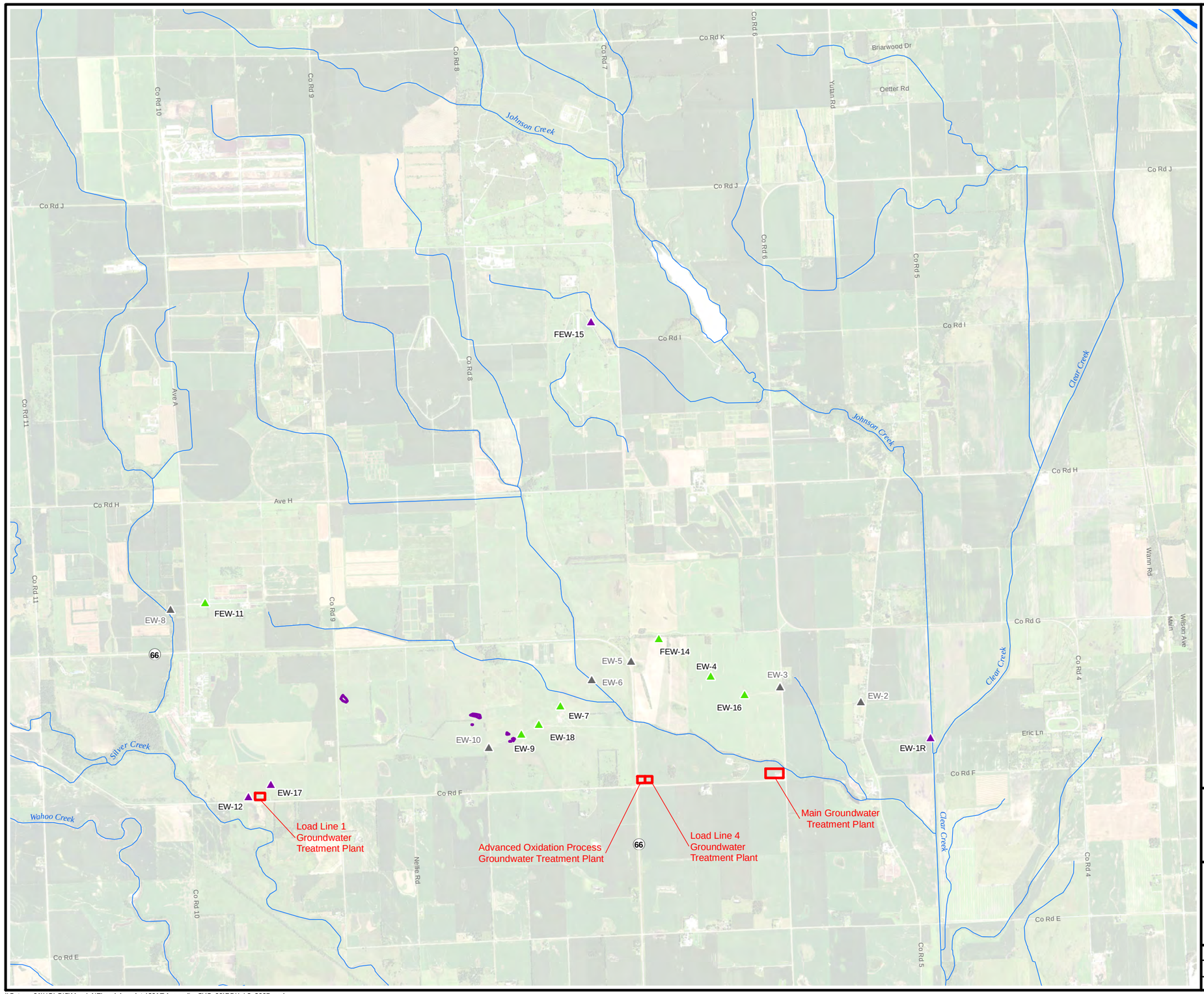

Legend

- 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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2017 Groundwater Model Update

Figure C.9
Predicted RDX Concentrations
Layer 2 (2097)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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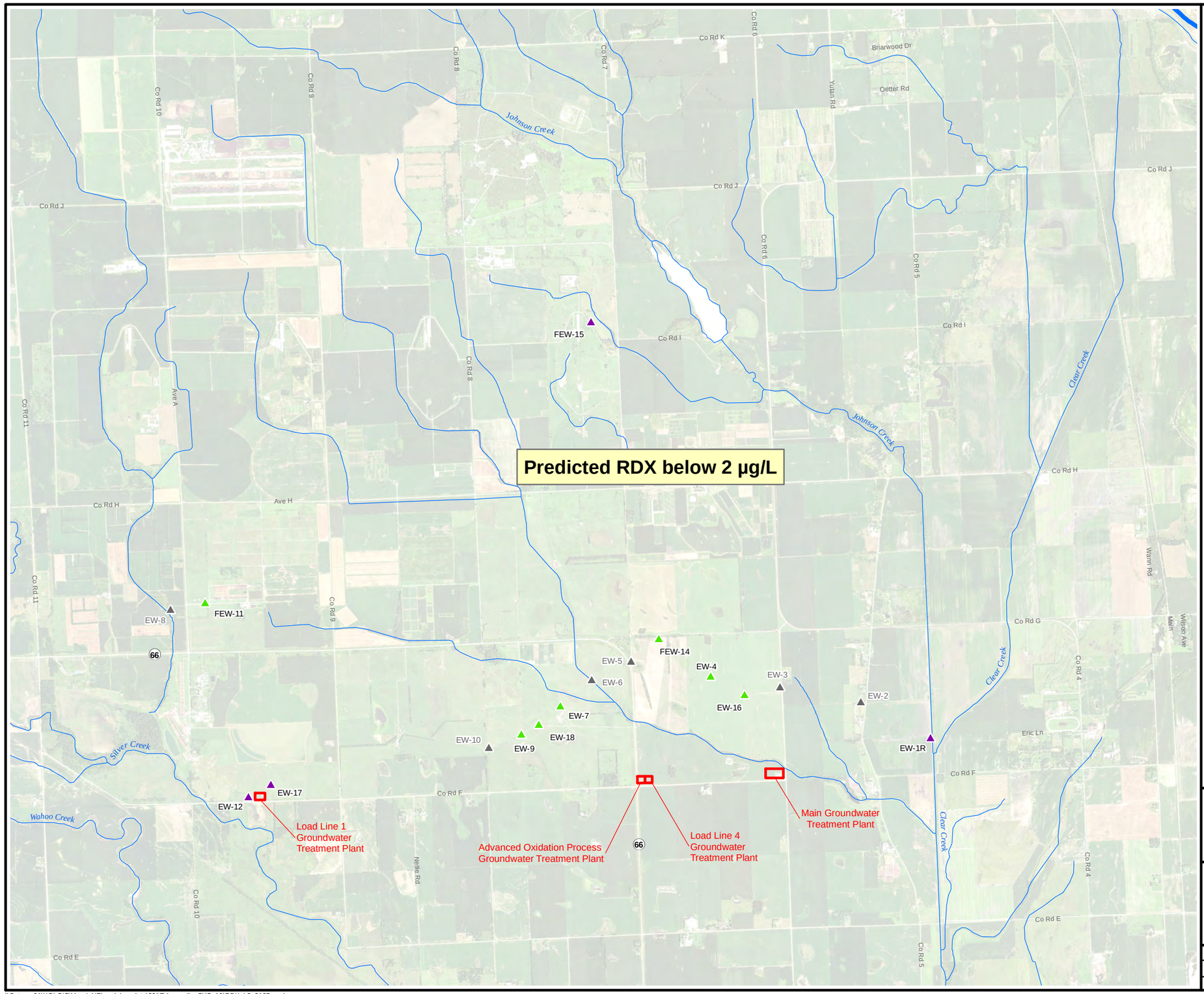

Legend

- 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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2017 Groundwater Model Update

Figure C.10
Predicted RDX Concentrations
Layer 2 (2107)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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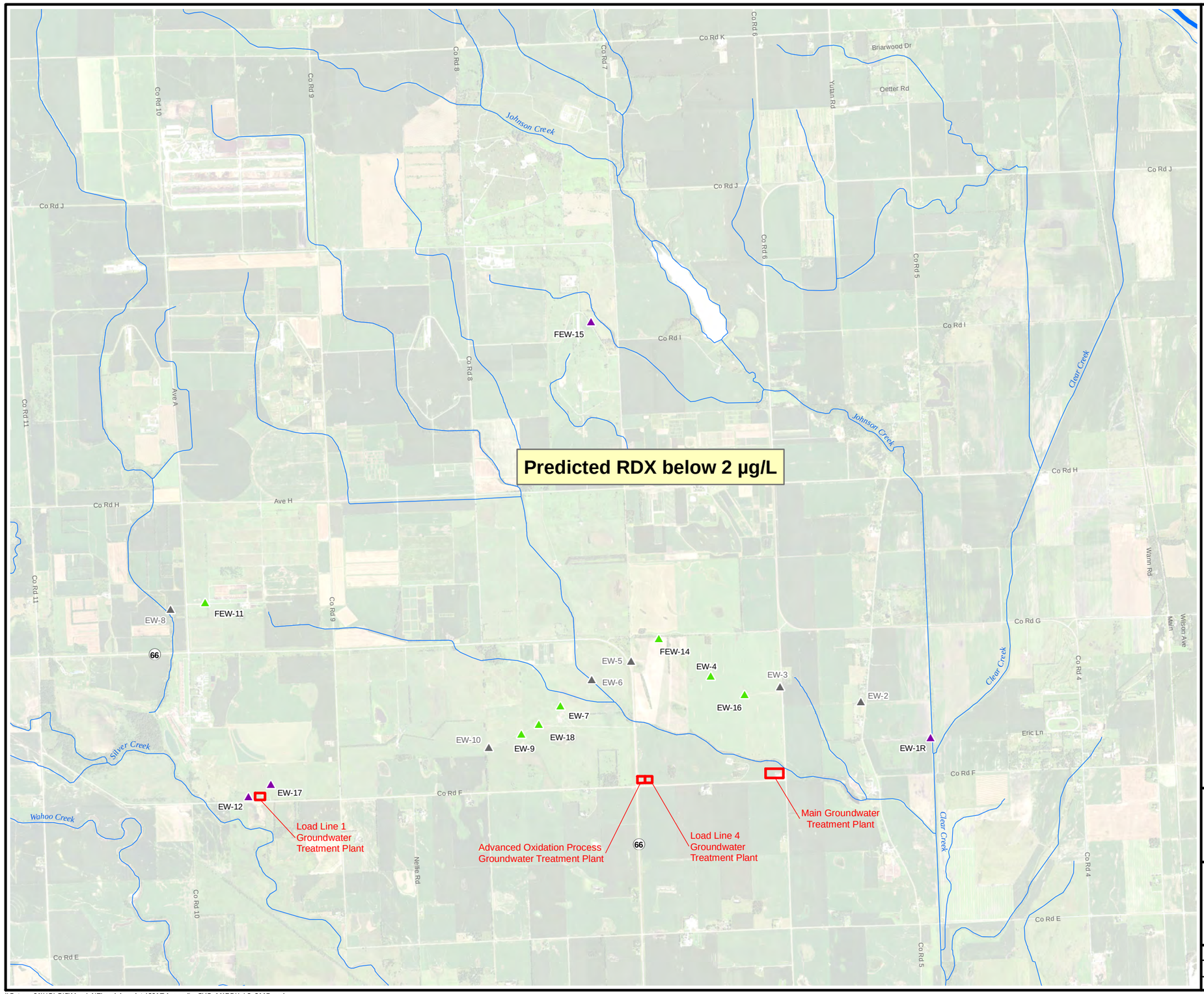

Legend

- 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 Groundwater Model Update

Figure C.11
Predicted RDX Concentrations
Layer 2 (2117)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/25/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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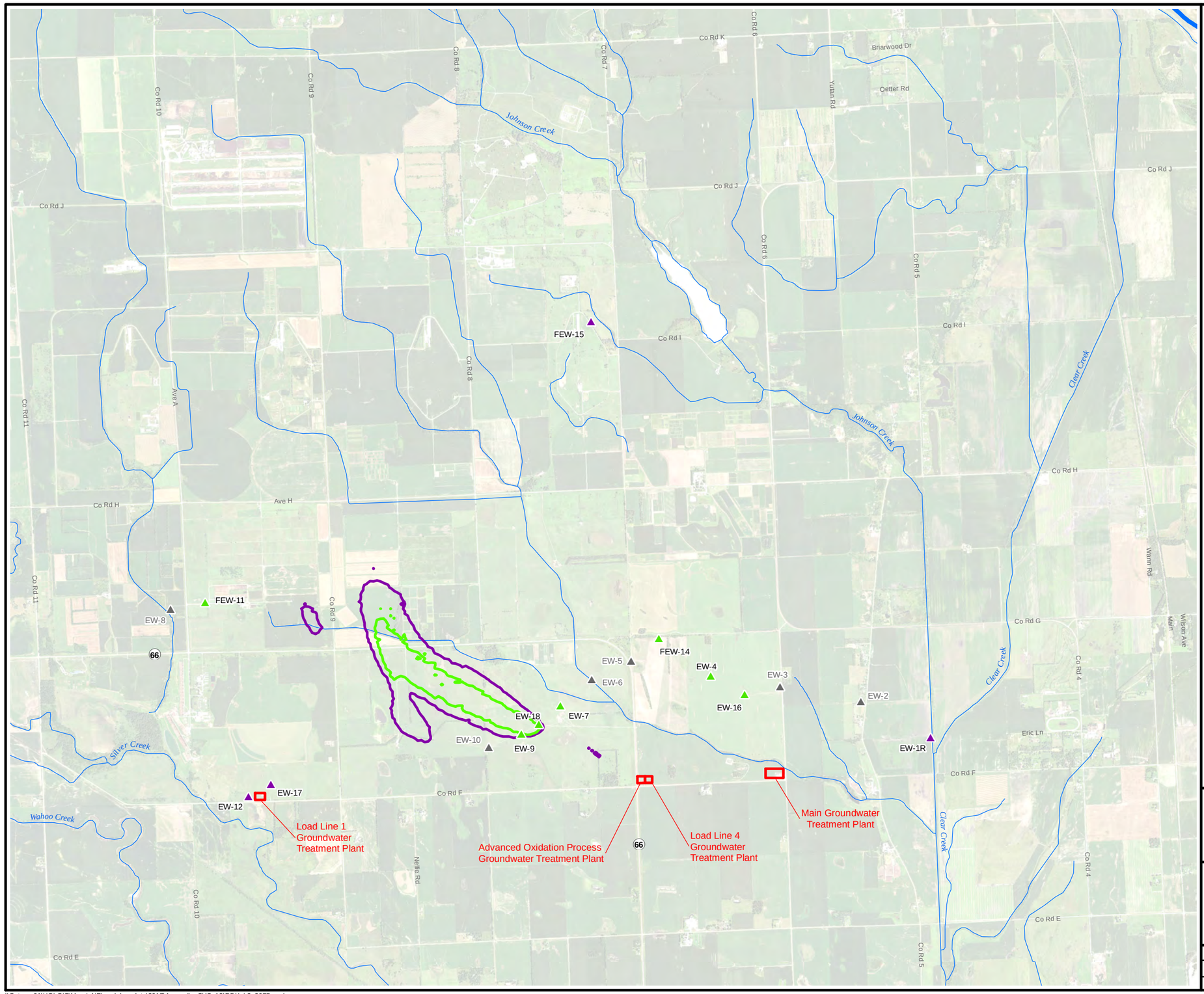

Legend

- 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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Figure C.12
Predicted RDX Concentrations
Layer 3 (2077)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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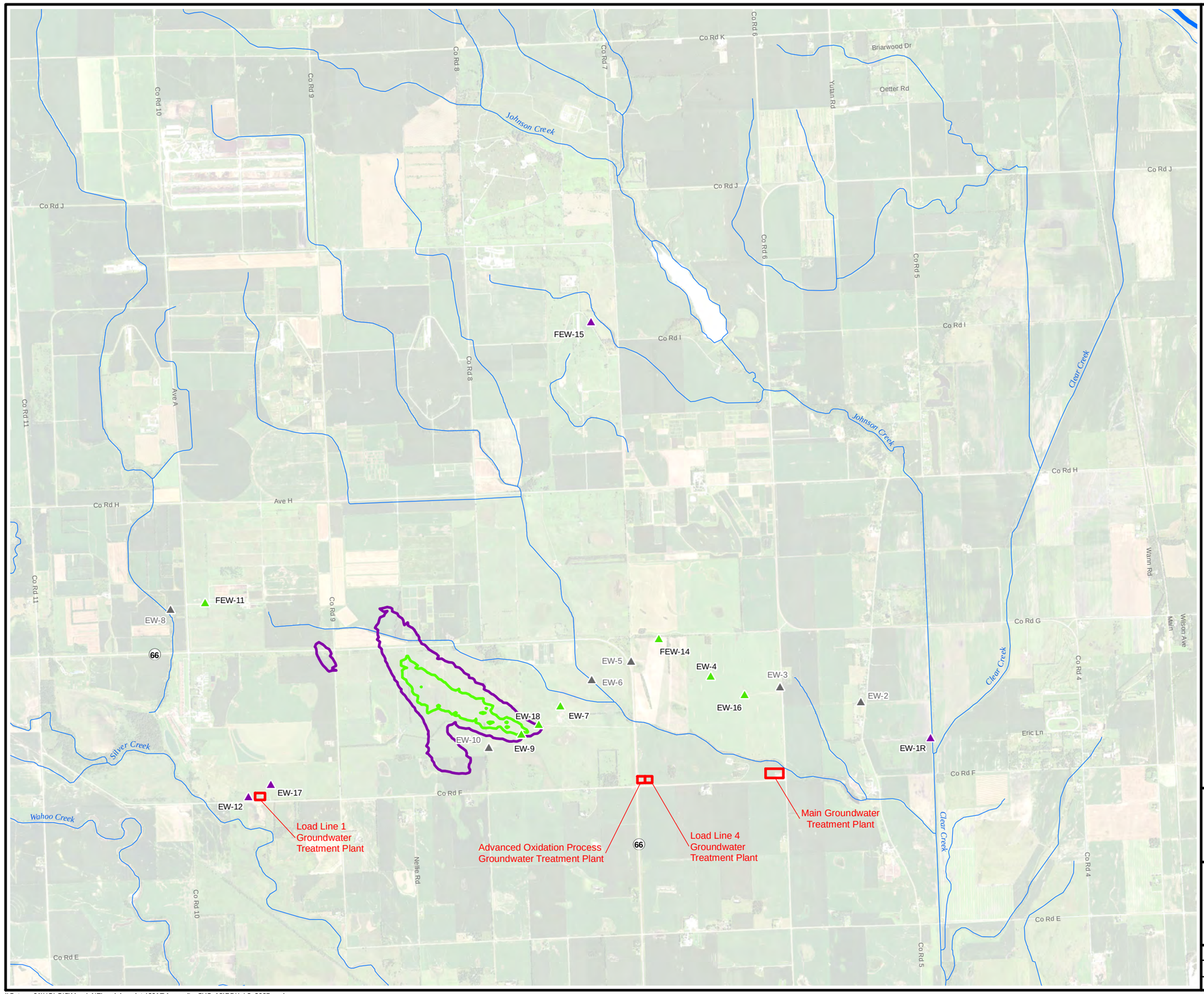

Legend

- 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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Figure C.13
Predicted RDX Concentrations
Layer 3 (2087)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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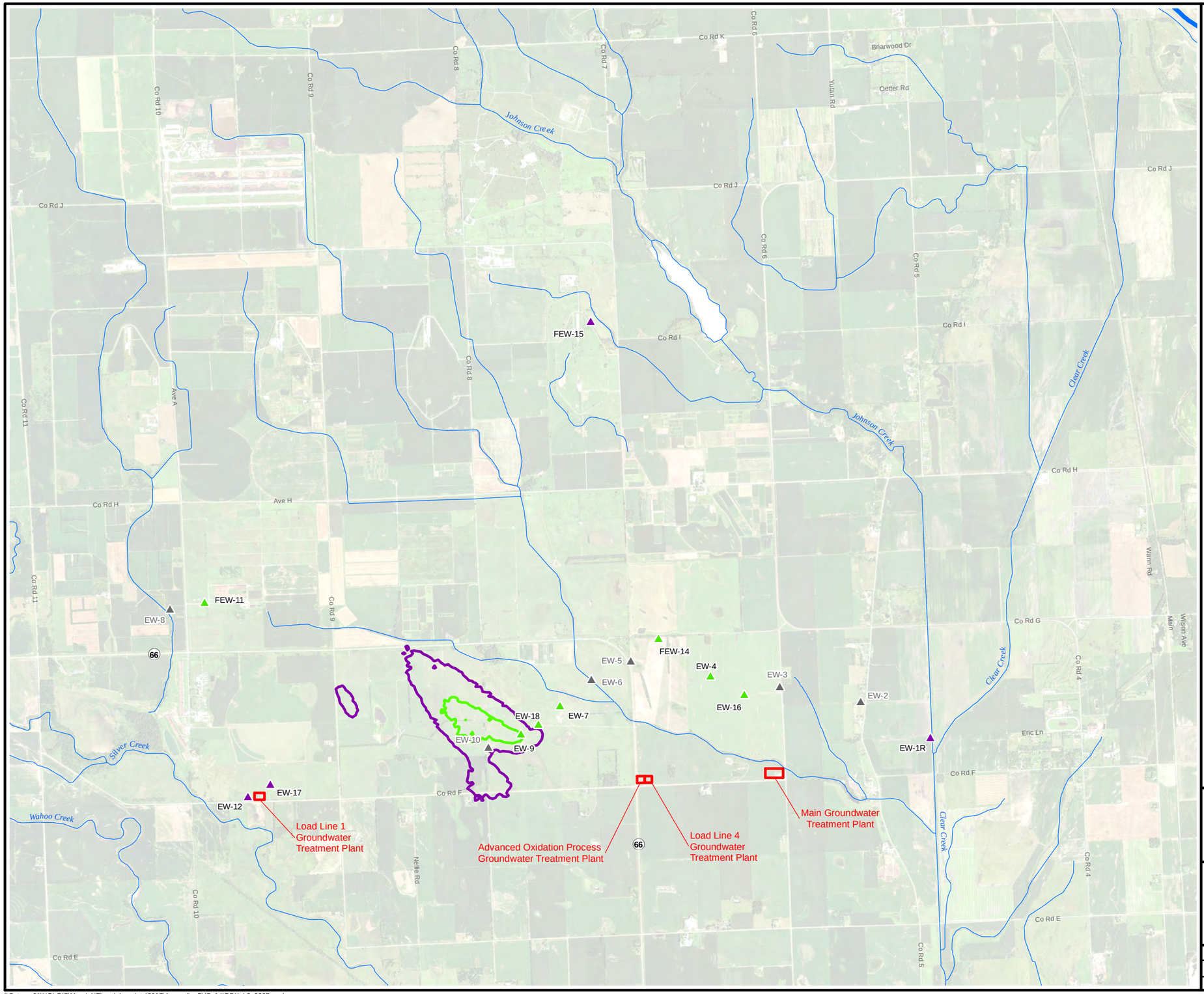

Legend

- 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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Figure C.14
Predicted RDX Concentrations
Layer 3 (2097)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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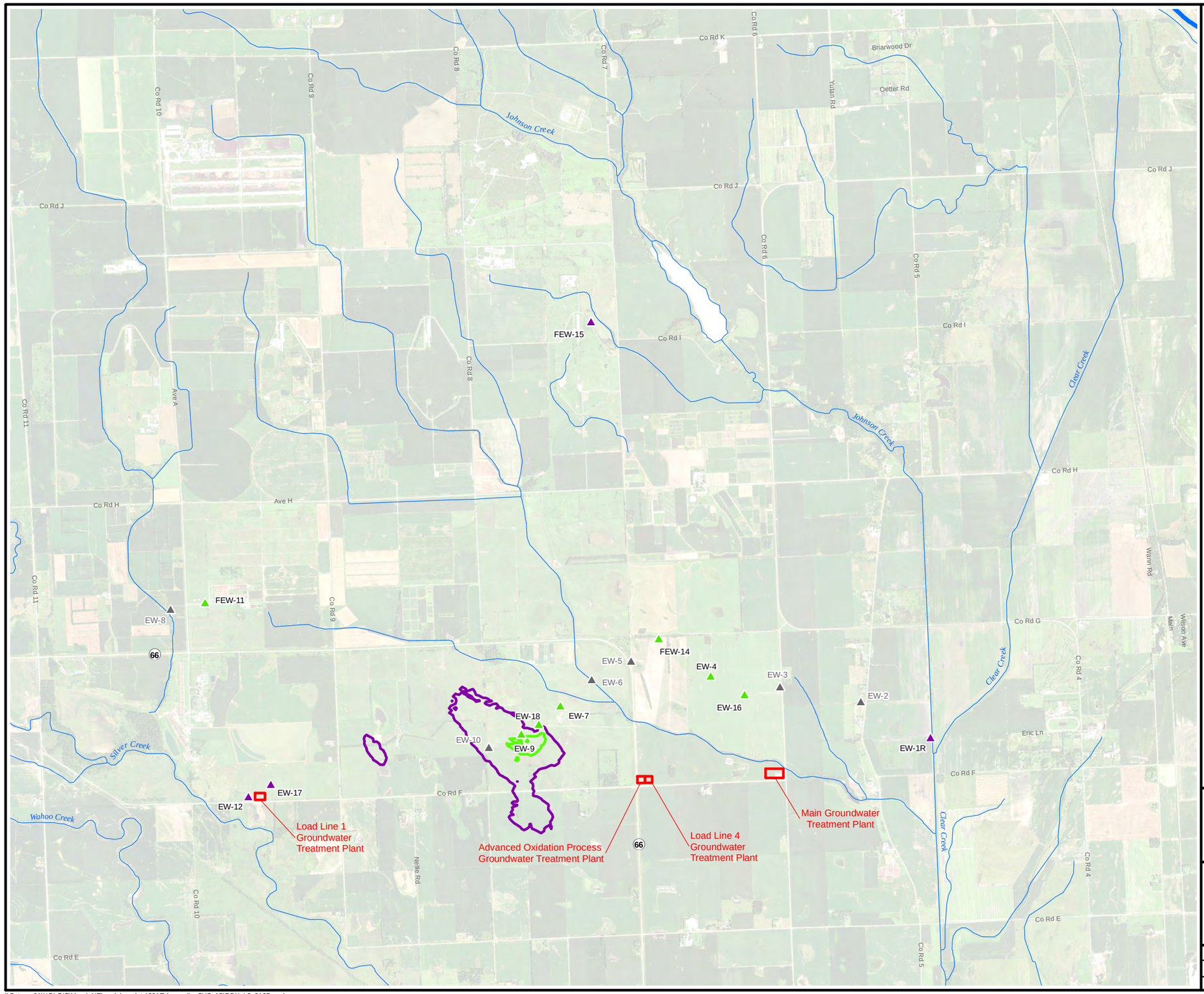

Legend

- 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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Figure C.15
Predicted RDX Concentrations
Layer 3 (2107)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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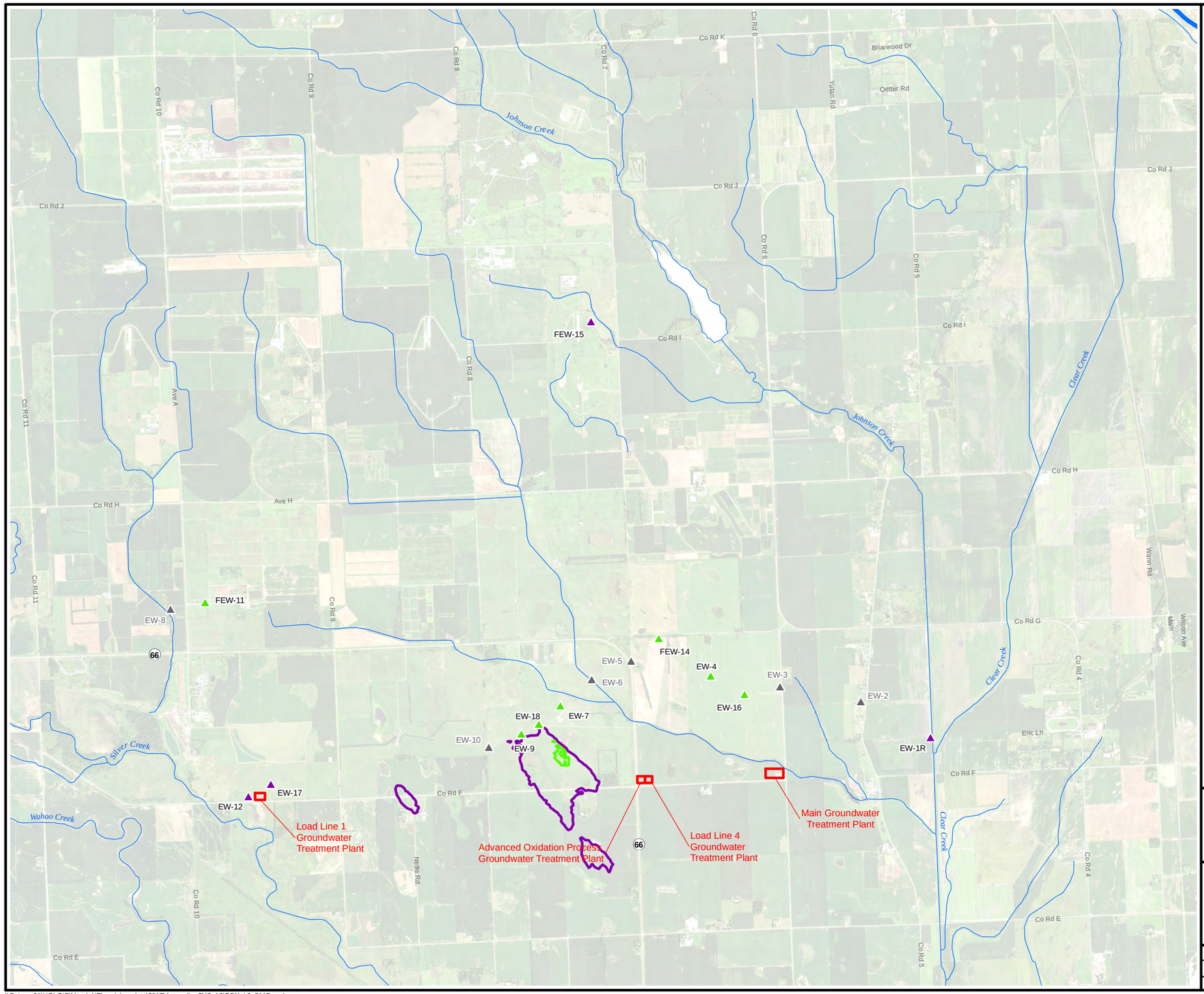

Legend

- 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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Figure C.16
Predicted RDX Concentrations
Layer 3 (2117)

Drawn by: RR	Reviewed by: TH	Source: HGL, ECC, NAIP (2016) Projection: NAD 1983 Nebraska State Plane Units: Feet
Date: 09/30/2017	Date: 10/04/2017	
Version: 1	Revision Date / Initials:	

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