HGL
HydroGeoLogic, Inc
Exceeding Expectations

Kansas City Operations

Redactions - CBI

June 21, 2013 File Copy

Mr. Jim Seiler
AES Project Officer
U.S. Environmental Protection Agency, Region 7
901 North 5th Street
Kansas City, KS 66101

RE: Semiannual Groundwater Sampling Report, March 2013 Sampling Event for the Garvey Elevator Site, Hastings, Nebraska.
U.S. EPA Region 7 AES Contract No. EP-S7-05-05; Task Order No. 0034
EPA Task Order Project Officer: Brian Zurbuchen, Ph.D.

Dear Mr. Seiler:

HydroGeoLogic, Inc. (HGL) is pleased to submit one electronic copy on CD and one hard copy of the Groundwater Sampling Report for the March 2013 sampling event at the Garvey Elevator Site in Hastings, Nebraska. This document was prepared in accordance with the EPA-approved Task Order Proposal Amendment 3, Revision 1 submitted for task order 0034 on February 5, 2013. This report has been revised from the June 14 version per comments from the EPA TOPO received via email on June 20, 2013.

As requested by EPA, two additional copies of the revised version (hard copy and CD) of this report will be sent to Laurie Brunner at the Nebraska Department of Environmental Quality. Should you have any questions or comments, please contact us at 913-317-8860.

Sincerely,

[redacted]

AES Program Manager

Enclosures

The following Appendices are available only on CD

Attachments 4 and 5

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6340 Glenwood, Suite 200, Building #7, Overland Park, KS 66202
Phone: (913) 317-8860 Fax: (913) 317-8868
www.hgl.com

GROUNDWATER SAMPLING REPORT
MARCH 2013 SAMPLING EVENT
GARVEY ELEVATOR SITE
HASTINGS, NEBRASKA

TO: Brian Zurbuchen, Ph.D., EPA TOPO
FROM: [redacted]
THROUGH: [redacted] P.G., AES Program Manager
DATE: June 21, 2013
SUBJECT: Groundwater Sampling, Garvey Elevator Site
CONTRACT NO: EP-S7-05-05
TASK ORDER NO: 0034

1.0 INTRODUCTION

This data summary report describes the field sampling activities completed by HydroGeoLogic, Inc. (HGL) in March 2013 at the Garvey Elevator Site (Garvey) in Hastings, Nebraska. The site location is illustrated on Figure 1 in Attachment 2. These sampling efforts are part of the ongoing activities to support the remedial action being conducted by HGL under U.S. Environmental Protection Agency (EPA) Region 7 Architect and Engineering Services (AES) contract EP-S7-05-05.

The site background, history of operations, and past investigations are described in detail in the final *Remedial Investigation Report* prepared by HGL in April 2011 under task order 0033 (HGL, 2011). Work at the site commenced under task order 0033 and is continuing under task orders 0034 and 0046. A brief chronology of regulatory actions at the site follows:

- July 1994. Garvey notified the Nebraska Department of Environmental Quality (NDEQ) of a release of organic solvents and the presence of groundwater contamination at its grain storage facility (EPA, 2010). The discovery date of the carbon tetrachloride release was June 16, 1994. Carbon tetrachloride was detected in an on-site water supply well at 199 micrograms per liter (μg/L) during a Phase I Environmental Site Assessment (Terracon, 1994).
- April 1995. Garvey Elevators, Inc. entered the NDEQ Remedial Action Program Monitoring Act Voluntary Cleanup Program (VCP). While in the VCP, Garvey conducted further site characterization, installed the groundwater extraction and treatment (GET) and soil vapor extraction (SVE) systems, and provided alternative drinking water sources to affected residents.
- 1997. The city of Hastings notified NDEQ that carbon tetrachloride was detected in municipal well #13 located 1,500 feet northeast of the former Garvey property.
- 2002 and 2003. EPA assisted NDEQ with site evaluations.

- September 14, 2005. The Garvey Elevator Site was placed on the National Priorities List.
- September 28, 2005. In preparation for sale of the property to Ag Grain Processors (AGP), who are the current owners of the property, Garvey Elevators, Inc., AGP, and EPA entered into an agreement to allow proceeds from the sale of the grain elevator to be used for investigation and site cleanup (EPA, 2005). Garvey subsequently agreed to conduct investigation and source area treatment activities at the Garvey Elevator Site. In a separate agreement with AGP, Garvey Elevators, Inc. placed money into an escrow account to fund response actions at the site.
- March 27, 2008. Garvey Elevators, Inc. filed Chapter 7 bankruptcy.
- April 2008. EPA instructed Garvey Elevators, Inc., and its contractors to stop work at the Site.
- May 2008. EPA took over ongoing removal activities, including providing alternative water supplies to affected residents, and operation and maintenance of the GET and SVE systems. EPA designated two operable units (OUs) at the Site. OU1 consists of soil and groundwater contamination that is generally within the boundaries of the 22-acre property historically used by Garvey in its grain storage facility operations. OU2 consists of the contaminated groundwater outside of OU1, in the general direction of groundwater flow to the east.
- December 2008. EPA initiated a fund-lead Remedial Investigation (RI)/Feasibility Study that includes a human health risk assessment and screening level ecological risk assessment.
- June 2010. EPA published an Interim Record of Decision (ROD) for Garvey Elevator Site OU1 that addressed soil and groundwater contamination on site. The selected interim remedy included continued operation, and possible expansion, of the existing GET system (EPA, 2010).
- Groundwater monitoring has been ongoing at the site since the Interim ROD was published. Eight rounds of sampling have been conducted. The baseline sampling was conducted in June 2010 and documented in the RI report. The September 2010, December 2010, March 2011, and September 2011 sampling events were documented in the first Semiannual Groundwater Sampling Report, dated January 6, 2012 (HGL, 2012a). The December 2011 and March 2012 sampling events were documented in a Semiannual Groundwater Sampling Report, dated June 12, 2012 (HGL, 2012b).

The current sampling plan calls for gauging groundwater levels in the OU1 and OU2 monitoring wells, and sampling of select OU2 monitoring wells in March, June, and September 2013. This report describes the March 2013 sampling event and presents the analytical results.

Groundwater level measurements and elevations and the analytical data are summarized in tables in Attachment 1. Maps and figures are presented in Attachment 2. Trend graphs showing concentration trends for carbon tetrachloride and chloroform in selected monitoring

wells are presented in Attachment 3. Field forms and analytical data reports are provided in electronic form as Attachments 4 and 5, respectively.

2.0 FIELD ACTIVITIES

The sampling activities were conducted March 26 through April 2, 2013. A total of 85 OU1 and OU2 monitoring wells were gauged, and 30 OU2 wells were sampled for analysis for select volatile organic compounds (VOCs). The well locations are shown on Figure 2 (Attachment 2).

Field activities were conducted in accordance with the EPA-approved Work Plan and Field Sampling Plan (FSP) Addendum prepared under task order 0033 (HGL, 2009 and 2010). Any deviations from the procedures presented in the Work Plan and FSP are discussed in the relevant subsection. Quality control (QC) samples were collected to ensure usability of the data as detailed in Section 2.3.

2.1 WATER LEVEL GAUGING

On March 26, 2013, water levels in 58 monitoring wells were measured with an electronic water level probe before initiating groundwater sampling activities. It should be noted that MW-10B, located at the Hastings Equity Grain Bin property could not be located beneath a snow drift (Figure 2). The water levels in the OU1 Waterloo Multilevel System monitoring wells (MW-19A/C, MW-20A/C/D/E, MW-30A/C/D/E, and MW-31A/C) and the nested wells (MW-47B/C/D, MW-48B/C/D, MW-49B/C/D, MW-50B/C/D, MW-51B/C/D) were recorded at the GET system programmable logic controller (PLC). The dedicated transducers in these 27 wells were attached to a telemetry system in April 2011, which relays water level measurements to the PLC. Table 1 in Attachment 1 summarizes the water level measurements and associated groundwater elevations for each of the field events.

During past sampling events, a photoionization detector (PID) was utilized to measure possible organic vapor concentrations emanating from the monitoring wells. PID readings were collected from the wellhead immediately upon opening the well cap. Because no PID readings were measured above background, the wellhead monitoring was discontinued after the March 2011 sampling event and so no PID readings are recorded on the water level measurement forms included in Attachment 4.

2.2 GROUNDWATER SAMPLING

A total of 39 groundwater samples (including 11 QC samples) were collected for select VOCs analysis. All samples were submitted to the EPA Region 7 laboratory for VOC analysis using Region 7 Method 3230.13E. Samples from 19 of the wells were analyzed only for carbon tetrachloride and chloroform. Samples from 11 of the wells were analyzed for carbon tetrachloride, chloroform, trichloroethene (TCE), and tetrachloroethene (PCE). The wells where historical data indicated they were in an area where contaminated groundwater plumes

originating at Garvey Elevator Site and at the West Highway 6 & Highway 281 Site were comingled were chosen by EPA for the additional TCE and PCE analysis.

Purging and Sampling

Groundwater samples were collected from the monitoring wells using low-flow purging (micro-purging) and sampling methods. The monitoring wells were purged and sampled using a portable bladder pump and dedicated tubing. The purge rate was adjusted as low as possible to minimize drawdown and did not exceed 0.5 liters per minute (L/min). The water level in the well was monitored throughout the purging process.

Physical parameters of pH, temperature, specific conductivity, oxidation reduction potential, dissolved oxygen, turbidity, and water levels were recorded every 3 to 5 minutes during the purging process and recorded on sampling forms (Attachment 4). Purging continued until the parameters stabilized as specified in the Work Plan (HGL, 2009). (Note: the sampling form for MW-17C was completed, but was lost in the field and is not included in Attachment 4.)

Groundwater samples were collected directly from the discharge tubing before the flow-through cell, and directly into the appropriate sample container. The pumping rate remained constant during purging. After sampling at each well, the pumps were decontaminated as described in the Work Plan and as summarized in Section 2.4. Between sampling events, the tubing and other sampling equipment and supplies are stored in the nearby West Highway 6 & Highway 281 Site GET system building.

Copies of the EPA sample collection sheets and the associated chain of custody records for the sampling event are included in Attachment 4.

2.3 QUALITY ASSURANCE/QUALITY CONTROL SAMPLING

In March 2013, 11 samples were collected to fulfill QC requirements: 4 duplicates, 1 trip blank, 2 ambient blanks, 2 matrix spike/matrix spike duplicates (MS/MSDs), and 2 equipment rinsate blanks. Duplicate samples were collected from the following wells:

- MW-43D (duplicate sample 6047-13-FD);
- MW-44D (duplicate sample 6047-103-FD);
- MW-45C (duplicate sample 6047-6-FD); and
- MW-105D (duplicate sample 6047-110-FD).

The samples from MW-43D and MW-45C were analyzed for carbon tetrachloride and chloroform only. The samples from MW-44D and MW-105D were additionally analyzed for TCE and PCE.

The two MS/MSD samples were collected from monitoring wells:

- MW-18A (sample 6047-2; carbon tetrachloride, chloroform), and
- MW-42D (sample 6047-105; carbon tetrachloride, chloroform, TCE, PCE).

Rinsate blank (sample 6047-18) was collected after decontaminating the equipment following sample collection at MW-46D2. Rinsate blank (sample 6047-117) was collected after decontaminating the equipment following sample collection at MW-105A.

2.4 EQUIPMENT DECONTAMINATION

Decontamination procedures were conducted in accordance with the Work Plan (HGL, 2009). Portable bladder pumps and other sample equipment that could not be damaged by water were decontaminated after purging and sampling each well. These items were decontaminated by placing them in a wash tub containing potable water and Alconox or low-sudsing non-phosphate detergent. The interior of pumps were flushed for at least 3 minutes and the exteriors (and non-pump equipment) were scrubbed with a bristle brush or similar utensil. Equipment was then rinsed with tap water in a second wash tub followed by a deionized water rinse.

2.5 INVESTIGATION-DERIVED WASTE MANAGEMENT

Purged groundwater and decontamination fluids were managed as liquid investigation-derived waste (IDW). The liquid IDW from both sampling events was treated through the on-site GET system. Used personal protective equipment and expendable sampling supplies were collected in garbage bags and disposed of as municipal solid waste.

3.0 SEMIANNUAL GROUNDWATER RESULTS

Based on the known geology, the aquifer beneath the Site has been divided into aquifer zones as discussed in the RI Report (HGL, 2011). The zones and their descriptions are as follows:

- upper aquifer zone – Zones A/B, extending from the water table to the top of the upper aquitard (approximately 115 to 125 feet below ground surface [bgs]).
- medial aquifer zones – Zone C, extending from the base of the upper aquitard to the top of the lower aquitard (approximately 130 to 155 feet bgs).
- lower aquifer zone, extending from the base of the lower aquitard to the top of bedrock.
    - upper portion – Zone D (approximately 160 to 200 feet bgs)
    - lower portion – Zone E (approximately 200 to 235 feet bgs)

The discussion of results presented in the following subsections is based on these aquifer zones, and is limited to the OU2 area downgradient of the site.

3.1 GROUNDWATER LEVELS AND POTENTIOMETRIC SURFACE

The groundwater level measurements for March 2013 are shown in Table 1 in Attachment 1, along with historical measurements back to June 2010. Potentiometric maps for the March 2013 water level data were prepared based on static water levels from monitoring wells. The potentiometric surfaces for aquifer Zones A/B, C, and D/E are illustrated on Figures 3, 4, and

5, respectively (Attachment 2). Based on the water level measurements, the potentiometric groundwater contours indicate the general groundwater flow is to the east/southeast, which is similar to the groundwater contours based on water level measurements back to the June 2010 baseline sampling event and is consistent with regional groundwater flow.

As Figure 3 illustrates, groundwater flow in the upper aquifer zone (Zones A/B) beneath the site and downgradient is generally to the southeast. However, farther downgradient of the site, groundwater in this zone appears to flow in a more east-southeasterly direction.

The groundwater flow direction in the medial zone (Zone C, Figure 4) and lower aquifer zone (Zone D/E, Figure 5) throughout the study area is consistently to the east-southeast. It should be noted that monitoring of the medial aquifer zone ends at MW-106C approximately 3.2 miles downgradient of the site.

3.2 ANALYTICAL RESULTS

The complete groundwater sample analytical results from March 2013 are provided in Table 2 in Attachment 1. The field parameters for the 30 monitoring wells sampled are summarized in Table 3 in Attachment 1. The laboratory analytical report is presented in Attachment 5.

As shown in Table 2, carbon tetrachloride was the only VOC analyzed that was detected at concentrations that exceeded the preliminary remediation goals (PRGs) for the site. It was detected above the PRG in 11 of the 30 sampled monitoring wells. The PRG for carbon tetrachloride is the federal drinking water maximum contaminant level (MCL) of 5 μg/L. The ranges of carbon tetrachloride detections and number of detections observed in the aquifer zones during the March 2013 sampling event are as follows:

- Aquifer Zone C—11 J μg/L to 52 μg/L, 4 wells; and
- Aquifer Zone D/E—2.5 μg/L to 510 μg/L, 8 wells.

The J qualifier indicates that concentration is an estimate. Carbon tetrachloride was not detected in any of the seven A/B aquifer zone monitoring wells sampled in March 2013. Figures 6 and 7 illustrate the March 2013 carbon tetrachloride concentrations for the C and D/E aquifer zones, respectively. Isoconcentration contours for carbon tetrachloride also are included on the figures. In general, the isoconcentration contours show that the off-site carbon tetrachloride plume to be relatively stable compared with the sampling events that have occurred between 2010 and 2012, as detailed in the RI Report and the periodic sampling reports (HGL, 2011; 2012a; and 2012b).

As in past sampling events, the highest concentrations of carbon tetrachloride in OU2 are present in the deepest (D/E zone) aquifer. The highest carbon tetrachloride concentration recorded in the OU2 off-site area during March 2013 was 510 μg/L in MW-46D1 screened from 156 feet to 166 feet bgs. The adjacent well, MW-46D2, screened at 191 feet to 201 feet bgs, contained carbon tetrachloride at 230 μg/L. These wells are situated approximately 1.6 miles downgradient of the source area at the grain elevator. The carbon tetrachloride plume

above the MCL presumably extends beyond monitoring well MW-44D, which is downgradient of the source area approximately 4.6 miles and the farthest from the source. Carbon tetrachloride was reported in this well at 26 µg/L—more than 5 times the PRG.

Chloroform was also detected in the same two wells, MW-46D1 and MW-46D2, that had the highest carbon tetrachloride concentrations. No TCE or PCE were detected in March 2013 groundwater samples. Chloroform concentrations detected wells MW-46D1 and MW-46D did not exceed the PRG of 80 µg/L.

Trend graphs were generated for carbon tetrachloride and chloroform for 10 monitoring wells at 7 locations in OU2. Three locations have nested pairs of wells. These trend graphs are included as Attachment 3. The dataset for each was compiled from sampling results from previous investigations and sampling events, and ranges from November 1994 to March 2013, depending on the date of well installation at a particular location. In general, the trend graphs from wells closer to the site in the medial aquifer (MW-12C, MW-17C, MW-18C) all illustrate decreases in carbon tetrachloride concentrations, although MW-17C and MW-18C show fluctuating concentrations after peak levels were observed in August 2008. Farther downgradient in the medial aquifer, concentrations also show a downward trend at MW-105C. Concentrations have generally been trending upward in the deep aquifer farther downgradient in wells installed in approximately 2010 or later at MW-46D1/D2, MW-42D/E, and MW-105D. However, results from March 2013 show decreases in carbon tetrachloride concentrtations at almost all locations from the previous sampling event in March 2012.

The analytical laboratory reports for the sampling events are included in Attachment 5 in electronic copy only.

4.0 REFERENCES

HydroGeologic, Inc. (HGL), 2009. Revised Final Work Plan, Remedial Investigation/Feasibility Study, Garvey Elevator Site, Hastings, Nebraska. June.

HGL, 2010. Final Work Plan and Field Sampling Plan Addendum for Remedial Investigation Activities, Garvey Elevator Site, Hastings, Nebraska. March.

HGL, 2011. Final Remedial Investigation Report, Garvey Elevator Superfund Site, Hastings, Nebraska. April.

HGL, 2012a. Semiannual Groundwater Sampling Report, Garvey Elevator Superfund Site, Hastings, Nebraska. January.

HGL, 2012b. Semiannual Groundwater Sampling Report, Garvey Elevator Superfund Site, Hastings, Nebraska. June.

Terracon, 1994. Phase I Environmental Site Assessment, Garvey Elevators Grain Storage

Facility, Highway 6, Hastings, Nebraska. May.

U.S. Environmental Protection Agency (EPA), 2005. Agreement, Garvey Elevators, Inc. and AGP Grain Marketing LLC with U.S. EPA Region 7. Docket No. CERCLA-07-2005-0268. September.

EPA, 2010. Interim Record of Decision, Garvey Elevator Superfund Site Operable Unit 1, Hastings, Nebraska. June.

ATTACHMENTS: Attachment 1 Tables
Attachment 2 Figures
Attachment 3 Trend Graphs
Attachment 4 Field Sheets (Electronic only)
Attachment 5 Laboratory Analytical Report (Electronic only))

ATTACHMENT 1

TABLES

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Table 1
Monitoring Well Water Levels and Elevations
Garvey Elevator Site
Hastings, NE

Site	Well ID[1,2]	State Plane Coordinates		Top of Casing Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Top of Screen Elevation (ft amsl)	Bottom of Screen Elevation (ft amsl)	Depth to Water (ft btoc)									Water Level Elevation (ft amsl)								
		Northing	Easting							Jun-10	Sep-10	Dec-10	Mar-11	Apr-11	Sep-11	Dec-11	Mar-12	Mar-13	Jun-10	Sep-10	Dec-10	Mar-11	Apr-11	Sep-11	Dec-11	Mar-12	Mar-13
OU1	MW-1A	270590.926	2080164.407	1927.08	1925.80	102	117	1823.80	1808.80	111.73	112.66	112.33	111.73	NR	111.83	111.29	110.91	112.80	1815.35	1814.42	1814.75	1815.35	NR	1815.25	1815.79	1816.17	1814.28
OU1	MW-2A	271240.41	2080539.870	1930.22	1927.33	103	118	1824.33	1809.33	115.21	116.11	115.59	115.11	NR	115.03	114.51	114.17	116.30	1815.01	1814.11	1814.63	1815.11	NR	1815.19	1815.71	1816.05	1813.92
OU1	MW-3A	270755.17	2080773.994	1934.27	1930.99	108	123	1822.99	1807.99	121.14	122.17	121.35	120.85	NR	120.70	120.04	119.79	122.30	1813.13	1812.10	1812.92	1813.42	NR	1813.57	1814.23	1814.48	1811.97
OU1	MW-3B	270761.378	2080778.055	1932.75	1931.07	130.6	135.5	1800.47	1797.57	119.69	120.71	120.05	119.82	NR	119.67	118.56	118.51	120.74	1813.06	1812.04	1812.70	1812.93	NR	1813.08	1814.19	1814.24	1812.01
OU1	MW-3D	270763.009	2080754.275	1933.37	1931.46	171	176	1760.46	1755.46	119.53	120.59	119.96	120.10	NR	118.58	118.93	118.52	120.54	1813.84	1812.78	1813.41	1813.27	NR	1814.79	1814.44	1814.85	1812.83
OU1	MW-3E	270744.057	2080767.604	1932.25	1930.99	233.4	238.4	1697.59	1692.59	118.44	119.47	118.86	119.00	NR	118.46	117.87	117.42	119.43	1813.81	1812.78	1813.39	1813.25	NR	1813.79	1814.38	1814.83	1812.82
OU1	MW-4A	270341.995	2080827.075	1931.60	1931.84	108.5	123.5	1823.34	1808.34	118.21	119.34	118.93	118.44	NR	118.50	117.96	117.44	119.27	1813.39	1812.26	1812.67	1813.16	NR	1813.10	1813.64	1814.16	1812.33
OU1	MW-4B	270342.585	2080832.776	1931.38	1931.70	127	132	1804.70	1799.70	118.31	119.31	118.74	118.29	NR	118.40	117.89	117.25	119.02	1813.07	1812.07	1812.64	1813.09	NR	1812.98	1813.49	1814.13	1812.36
OU1	MW-5A	269943.836	2080752.777	1930.26	1930.06	107.5	122.5	1822.56	1807.56	116.87	117.94	117.54	117.03	NR	117.19	116.61	116.09	117.92	1813.39	1812.32	1812.72	1813.23	NR	1813.07	1813.65	1814.17	1812.34
OU1	MW-5B	269947.071	2080745.584	1931.72	1930.12	129	132	1801.12	1798.12	117.97	119.02	118.64	118.13	NR	118.33	117.72	117.18	119.04	1813.75	1812.70	1813.08	1813.59	NR	1813.39	1814.00	1814.54	1812.68
OU1	MW-5D	269930.791	2080740.508	1931.87	1929.85	162	167	1767.85	1762.85	118.16	119.20	118.61	118.36	NR	118.21	117.62	117.10	119.07	1813.71	1812.67	1813.26	1813.51	NR	1813.66	1814.25	1814.77	1812.80
OU1	MW-6A	271237.345	2081216.968	1931.99	1929.48	107.5	122.5	1821.98	1806.98	117.80	118.49	118.19	117.70	NR	117.55	117.06	116.78	118.81	1814.19	1813.50	1813.80	1814.29	NR	1814.44	1814.93	1815.21	1813.18
OU1	MW-6D	271244.17	2081221.205	1931.14	1929.46	163.5	173.5	1765.96	1755.96	117.92	118.95	118.32	118.73	NR	118.01	117.30	116.94	118.95	1813.22	1812.19	1812.82	1812.41	NR	1813.13	1813.84	1814.20	1812.19
OU1	MW-6E	271244.606	2081208.806	1932.13	1929.65	225	235	1704.65	1694.65	118.85	119.89	119.25	119.66	NR	118.96	118.30	117.86	119.88	1813.28	1812.24	1812.88	1812.47	NR	1813.17	1813.83	1814.27	1812.25
OU1	MW-7A	269088.475	2079699.700	1923.22	1920.92	98	113	1822.92	1807.92	108.11	109.20	108.49	107.85	NR	108.18	107.48	106.98	109.04	1815.11	1814.02	1814.73	1815.37	NR	1815.04	1815.74	1816.24	1814.18
OU1	MW-7B	269088.781	2079692.537	1923.84	1920.89	130	135	1790.89	1785.89	108.78	109.85	109.16	108.46	NR	108.87	108.21	107.67	109.63	1815.06	1813.99	1814.68	1815.38	NR	1814.97	1815.63	1816.17	1814.21
OU1	MW-8A	271214.203	2079067.544	1943.22	1940.80	114.5	129.5	1826.30	1811.30	125.82	126.29	126.02	125.71	NR	125.53	125.15	124.76	126.60	1817.40	1816.93	1817.20	1817.51	NR	1817.69	1818.07	1818.46	1816.62
OU1	MW-9A	272193.736	2080628.145	1928.03	1925.40	101.3	116.3	1824.10	1809.10	111.43	111.60	111.42	110.96	NR	110.65	110.44	110.31	111.89	1816.60	1816.43	1816.61	1817.07	NR	1817.38	1817.59	1817.72	1816.14
OU2	MW-10A	272535.399	2081973.782	1923.48	1923.81	101.8	116.8	1822.01	1807.01	108.71	108.81	108.58	108.39	NR	108.20	NR	107.68	109.06	1814.77	1814.67	1814.90	1815.09	NR	1815.28	NR	1815.80	1814.42
OU2	MW-10B	272530.51	2081982.385	1923.35	1923.70	120	125	1803.70	1798.70	109.68	110.37	109.95	110.00	NR	109.63	NR	108.75	NR	1813.67	1812.98	1813.40	1813.35	NR	1813.72	NR	1814.60	NR
OU2	MW-11A	271826.499	2083509.070	1911.84	1912.28	91	106	1821.28	1806.28	98.05	97.89	98.36	98.61	NR	97.55	NR	98.21	99.38	1813.79	1813.95	1813.48	1813.23	NR	1814.29	NR	1813.63	1812.46
OU2	MW-12A	270399.71	2085390.335	1919.65	1917.13	102.4	117.4	1814.73	1799.73	113.05	113.18	112.99	112.82	NR	112.59	NR	112.20	113.89	1806.60	1806.47	1806.66	1806.83	NR	1807.06	NR	1807.45	1805.76
OU2	MW-12C	270400.369	2085379.468	1919.64	1916.68	150	160	1766.68	1756.68	113.89	114.84	114.25	113.87	NR	113.96	NR	112.97	114.83	1805.75	1804.80	1805.39	1805.77	NR	1805.68	NR	1806.67	1804.81
OU2	MW-12D	270399.729	2085403.614	1918.89	1916.98	167	177	1749.98	1739.98	113.11	114.06	113.44	112.09	NR	113.14	NR	112.18	114.04	1805.78	1804.83	1805.45	1806.80	NR	1805.75	NR	1806.71	1804.85
OU1	MW-13C	270368.902	2081015.694	1929.65	1928.74	133	135.5	1795.74	1793.24	118.07	119.06	116.89	117.75	NR	118.58	117.16	117.01	118.39	1811.58	1810.59	1812.76	1811.90	NR	1811.07	1812.49	1812.64	1811.26
OU1	MW-13E	270393.318	2081014.304	1930.43	1928.89	230.8	235.8	1698.09	1693.09	117.30	118.35	117.53	117.62	NR	118.09	116.64	116.25	118.19	1813.13	1812.08	1812.90	1812.81	NR	1812.34	1813.79	1814.18	1812.24
OU2	MW-14A	270968.774	2084137.323	1911.69	1909.56	91	106	1818.56	1803.56	101.82	101.42	101.30	101.23	NR	101.08	NR	100.74	102.14	1809.87	1810.27	1810.39	1810.46	NR	1810.61	NR	1810.95	1809.55
OU2	MW-16A	267054.564	2084286.931	1914.94	1915.45	100	115	1815.45	1800.45	108.60	109.86	108.91	108.22	NR	108.11	NR	107.53	109.61	1806.34	1805.08	1806.03	1806.72	NR	1806.83	NR	1807.41	1805.33
OU2	MW-16C	267048.421	2084285.970	1915.08	1915.47	140.2	155.2	1775.27	1760.27	108.72	110.07	109.18	108.45	NR	108.83	NR	107.73	109.84	1806.36	1805.01	1805.90	1806.63	NR	1806.25	NR	1807.35	1805.24
OU2	MW-17A	268796.556	2082958.916	1903.70	1901.85	84.5	104.5	1817.35	1797.35	94.12	95.38	94.55	93.89	NR	93.90	NR	93.20	95.19	1809.58	1808.32	1809.15	1809.81	NR	1809.80	NR	1810.50	1808.51
OU2	MW-17C	268795.876	2082969.298	1902.91	1901.67	130	140	1771.67	1761.67	93.62	94.83	94.02	93.40	NR	93.73	NR	92.67	94.62	1809.29	1808.08	1808.89	1809.51	NR	1809.18	NR	1810.24	1808.29
OU2	MW-17D	268796.267	2082964.251	1902.93	1901.73	190	192.5	1711.73	1709.23	93.59	94.82	93.96	93.39	NR	93.70	NR	92.64	94.62	1809.34	1808.11	1808.97	1809.54	NR	1809.23	NR	1810.29	1808.31
OU2	MW-18A	268693.818	2085938.384	1912.89	1910.64	97	112	1813.64	1798.64	106.82	107.26	107.33	106.86	NR	106.69	NR	106.60	108.65	1806.07	1805.63	1805.56	1806.03	NR	1806.20	NR	1806.29	1804.24
OU2	MW-18C	268683.36	2085938.592	1913.09	1910.53	135	140	1775.53	1770.53	108.89	110.89	109.31	108.64	NR	109.00	NR	107.94	109.97	1804.20	1802.20	1803.78	1804.45	NR	1804.09	NR	1805.15	1803.12
OU2	MW-18D	268704.658	2085938.735	1913.32	1910.61	188	193	1722.61	1717.61	109.07	110.37	109.49	108.88	NR	109.19	NR	108.15	110.16	1804.25	1802.95	1803.83	1804.44	NR	1804.13	NR	1805.17	1803.16
OU1	MW-19A	270955.133	2081332.850	1929.89	1927.81	127	132	1800.81	1795.81	116.08	117.02	116.74	116.23	NR	116.88	116.16	115.91	116.56	1813.11	1812.88	1813.15	1813.66	NR	1813.01	1813.73	1813.98	1811.25
OU1	MW-19C	270955.133	2081332.850	1929.89	1927.81	152	162	1775.81	1765.81	116.90	117.98	117.46	117.49	NR	117.89	117.01	116.67	117.17	1812.30	1811.92	1812.43	1812.41	NR	1812.00	1812.88	1813.22	1810.64
OU1	MW-20A	270597.445	2081202.233	1929.93	1927.97	127	132	1800.97	1795.97	117.34	118.42	117.18	117.37	NR	118.14	117.00	116.92	117.23	1811.87	1811.50	1812.75	1812.56	NR	1811.79	1812.93	1813.01	1810.74
OU1	MW-20C	270597.445	2081202.233	1929.93	1927.97	152	162	1775.97	1765.97	117.11	118.59	119.91	119.80	NR	121.01	122.26	122.36	122.94	1812.10	1811.34	1810.02	1810.13	NR	1808.92	1807.67	1807.57	1805.03
OU1	MW-20D	270597.445	2081202.233	1929.93	1927.97	182	192	1745.97	1735.97	116.82	118.05	117.31	117.42	NR	117.97	NR	116.74	117.38	1812.39	1811.87	1812.62	1812.51	NR	1811.96	NR	1813.19	1810.59
OU1	MW-20E	270597.445	2081202.233	1929.93	1927.97	222	232	1705.97	1695.97	117.38	118.40	117.89	117.81	NR	118.38	117.63	117.12	117.91	1811.83	1811.53	1812.03	1812.12	NR	1811.55	1812.30	1812.81	1810.06
OU1	MW-30A	270271.723	2081095.430	1930.98	1929.03	127	132	1802.03	1797.03	117.97	119.00	118.33	118.04	NR	119.04	118.20	117.89	117.99	1812.32	1811.99	1812.65	1812.95	NR	1811.94	1812.78	1813.09	1811.04
OU1	MW-30C	270271.723	2081095.430	1930.98	1929.03	152	162	1777.03	1767.03	117.97	119.06	118.34	118.13	NR	118.90	118.11	117.71	118.27	1812.31	1811.93	1812.64	1812.85	NR	1812.08	1812.87	1813.27	1810.76
OU1	MW-30D	270271.723	2081095.430	1930.98	1929.03	182	192	1747.03	1737.03	118.07	119.19	118.52	118.32	NR	119.10	118.31	117.89	118.55	1812.22	1811.79	1812.46	1812.66	NR	1811.88	1812.67	1813.09	1810.48
OU1	MW-30E	270271.723	2081095.430	1930.98	1929.03	222	232	1707.03	1697.03	118.60	119.63	119.06	118.85	NR	119.83	119.11	118.53	119.21	1811.68	1811.35	1811.93	1812.13	NR	1811.15	1811.87	1812.45	1809.82
OU1	MW-31A	269550.764	2080816.035	1932.35	1930.08	127	132	1803.08	1798.08	118.62	119.72	119.06	118.37	NR	119.46	118.68	118.28	119.33	1813.00	1812.62	1813.28	1813.97	NR	1812.89	1813.67	1814.07	1810.75
OU1	MW-31C	269550.764	2080816.035	1932.35	1930.08	152	162	1778.08	1768.08	118.63	119.75	119.19	118.63	NR	119.24	118.55	118.07	118.37	1813.00	1812.60	1813.16	1813.72	NR	1813.11	1813.80	1814.28	1811.71

Table 1
Monitoring Well Water Levels and Elevations
Garvey Elevator Site
Hastings, NE

Site	Well ID[1,2]	State Plane Coordinates		Top of Casing Elevation (ft amsl)	Ground Surface Elevation (ft amsl)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Top of Screen Elevation (ft amsl)	Bottom of Screen Elevation (ft amsl)	Depth to Water (ft btoc)									Water Level Elevation (ft amsl)								
		Northing	Easting							Jun-10	Sep-10	Dec-10	Mar-11	Apr-11	Sep-11	Dec-11	Mar-12	Mar-13	Jun-10	Sep-10	Dec-10	Mar-11	Apr-11	Sep-11	Dec-11	Mar-12	Mar-13
OU2	MW-41D1	266698.668	2089673.997	1917.19	1915.24	160	170	1755.24	1745.24	119.97	121.49	120.36	119.53	NR	120.22	NR	118.88	121.16	1797.22	1795.70	1796.83	1797.66	NR	1796.97	NR	1798.31	1796.03
OU2	MW-41D2	266707.978	2089674.385	1916.96	1914.99	195	205	1719.99	1709.99	119.63	121.24	120.12	119.29	NR	119.94	NR	118.63	120.91	1797.33	1795.72	1796.84	1797.67	NR	1797.02	NR	1798.33	1796.05
OU2	MW-42D	269167.917	2100135.441	1904.03	1902.07	174	184	1728.07	1718.07	121.11	123.16	121.72	120.85	NR	122.20	NR	120.49	123.10	1782.92	1780.87	1782.31	1783.18	NR	1781.83	NR	1783.54	1780.93
OU2	MW-42E	269162.709	2100143.018	1904.13	1902.23	204	214	1698.23	1698.23	121.14	123.28	121.86	120.97	NR	122.31	NR	120.61	123.17	1782.99	1780.85	1782.27	1783.16	NR	1781.82	NR	1783.52	1780.96
OU2	MW-43D	265395.165	2097605.559	1910.30	1908.35	180	190	1728.35	1718.35	125.96	128.10	126.49	125.56	NR	126.43	NR	124.90	127.38	1784.34	1782.20	1783.81	1784.74	NR	1783.87	NR	1785.40	1782.92
OU2	MW-43E	265404.224	2097604.607	1910.34	1908.45	210	220	1698.45	1688.45	125.86	127.98	126.45	125.49	NR	126.48	NR	124.89	127.36	1784.48	1782.36	1783.89	1784.85	NR	1783.86	NR	1785.45	1782.98
OU2	MW-44D	267552.024	2105258.206	1885.05	1885.30	183	193	1702.30	1692.30	109.77	111.71	110.58	109.74	NR	110.96	NR	109.30	112.07	1775.28	1773.34	1774.47	1775.31	NR	1774.09	NR	1775.75	1772.98
OU2	MW-44E	267540.726	2105259.021	1885.05	1885.30	203	213	1682.30	1672.30	109.86	111.74	110.57	109.76	NR	110.98	NR	109.30	112.10	1775.19	1773.31	1774.48	1775.29	NR	1774.07	NR	1775.75	1772.95
OU2	MW-45C	270056.013	2083476.694	1911.78	1909.82	137	147	1772.82	1762.82	102.82	103.88	103.17	102.86	NR	102.90	NR	101.86	103.75	1808.96	1807.90	1808.61	1808.92	NR	1808.88	NR	1809.92	1808.03
OU2	MW-45D	270046.773	2083475.763	1911.38	1909.46	159	169	1750.46	1740.46	102.39	103.52	102.80	102.53	NR	102.54	NR	101.52	103.40	1808.99	1807.86	1808.58	1808.85	NR	1808.84	NR	1809.86	1807.98
OU2	MW-46D1	269055.175	2089632.928	1912.85	1910.97	156	166	1754.97	1744.97	114.59	116.00	114.92	114.23	NR	114.89	NR	113.64	115.79	1798.26	1796.85	1797.93	1798.62	NR	1797.96	NR	1799.21	1797.06
OU2	MW-46D2	269063.723	2089632.455	1913.03	1911.03	191	201	1720.03	1710.03	114.72	116.19	115.11	114.41	NR	115.11	NR	113.81	115.95	1798.31	1796.84	1797.92	1798.62	NR	1797.92	NR	1799.22	1797.08
OU1	MW-47B	270779.709	2081046.275	1932.09		119.3	129.3	1810.39	1800.39	NA	NA	119.59	119.03	118.80	118.93	118.07	117.83	115.88	NA	NA	1812.50	1813.06	1813.29	1813.16	1814.02	1814.26	1814.07
OU1	MW-47C	270779.81	2081045.917	1932.09	1929.95	139	149	1790.80	1780.80	NA	NA	121.27	NR	118.67	121.62	118.49	119.59	119.20	NA	NA	1810.82	NR	1813.42	1810.47	1813.60	1812.50	1810.75
OU1	MW-47D	270779.646	2081046.033	1932.10		160	170	1769.57	1759.57	NA	NA	119.03	NR	118.60	118.45	118.10	117.74	115.75	NA	NA	1813.07	NR	1813.50	1813.65	1814.00	1814.36	1814.20
OU1	MW-48B	270038.231	2080890.346	1931.05		117.32	127.32	1811.75	1801.75	NA	NA	119.04	118.57	117.95	118.85	118.22	117.74	117.10	NA	NA	1812.01	1812.48	1813.10	1812.20	1812.83	1813.31	1811.77
OU1	MW-48C	270037.873	2080890.299	1931.03	1928.87	139.8	149.8	1788.74	1778.74	NA	NA	118.83	NR	117.54	118.53	117.83	117.37	116.51	NA	NA	1812.20	NR	1813.49	1812.50	1813.20	1813.66	1812.36
OU1	MW-48D	270038.325	2080890.203	1931.05		160	170	1768.74	1758.74	NA	NA	118.00	NR	117.52	117.82	117.07	116.68	116.23	NA	NA	1813.05	NR	1813.53	1813.23	1813.98	1814.37	1812.64
OU1	MW-49B	270644.176	2080860.098	1931.46		118.1	128.1	1810.95	1800.95	NA	NA	120.80	120.31	118.53	119.19	118.76	118.46	118.65	NA	NA	1810.66	1811.15	1812.93	1812.27	1812.70	1813.00	1810.69
OU1	MW-49C	270643.931	2080860.262	1931.47	1929.34	139	149	1790.06	1780.06	NA	NA	119.15	119.11	117.65	119.12	117.69	117.78	116.64	NA	NA	1812.32	1812.36	1813.82	1812.35	1813.78	1813.69	1812.70
OU1	MW-49D	270643.943	2080859.976	1931.46		160.6	170.6	1768.48	1758.48	NA	NA	118.13	118.41	117.63	118.06	117.17	116.80	114.95	NA	NA	1813.33	1813.05	1813.83	1813.40	1814.29	1814.66	1814.39
OU1	MW-50B	270485.861	2080900.112	1931.51		116.9	126.9	1812.11	1802.11	NA	NA	118.93	118.48	118.34	118.37	117.80	117.33	116.26	NA	NA	1812.58	1813.03	1813.17	1813.14	1813.71	1814.18	1812.99
OU1	MW-50C	270485.898	2080899.742	1931.54	1929.25	136.8	146.8	1791.66	1781.66	NA	NA	119.97	119.70	117.93	119.64	118.67	118.68	118.22	NA	NA	1811.57	1811.84	1813.61	1811.90	1812.87	1812.86	1811.03
OU1	MW-50D	270486.057	2080899.932	1931.46		158.1	168.1	1771.12	1761.12	NA	NA	118.38	118.49	117.79	118.23	117.38	117.01	114.94	NA	NA	1813.08	1812.97	1813.67	1813.23	1814.08	1814.45	1814.31
OU1	MW-51B	270305.947	2080987.446	1931.60		116.5	126.5	1812.88	1802.88	NA	NA	119.43	119.04	118.61	119.24	118.27	117.68	115.92	NA	NA	1812.17	1812.56	1812.99	1812.36	1813.33	1813.92	1813.51
OU1	MW-51C	270305.696	2080987.514	1931.62	1929.43	139.5	149.5	1789.97	1779.97	NA	NA	120.21	NR	118.26	119.85	119.02	118.80	117.55	NA	NA	1811.41	NR	1813.36	1811.77	1812.60	1812.82	1811.88
OU1	MW-51D	270305.888	2080987.639	1931.62		160	170	1769.27	1759.27	NA	NA	118.75	NR	118.19	118.60	117.80	117.39	117.09	NA	NA	1812.87	NR	1813.43	1813.02	1813.82	1814.23	1812.34
Hwy 6	MW-103A	273092.587	2088210.135	1916.31	1916.75	111	126	1805.75	1790.75	NA	NA	NA	NA	NA	NA	NA	NA	114.13	NA	NA	NA	NA	NA	NA	NA	NA	1802.18
Hwy 6	MW-103C	273084.88	2088210.272	1916.35	1916.82	160	180	1756.82	1736.82	NA	NA	NA	NA	NA	NA	NA	NA	115.65	NA	NA	NA	NA	NA	NA	NA	NA	1800.70
Hwy 6	MW-103D	273078.372	2088209.997	1916.09	1916.82	192	212	1724.82	1704.82	NA	NA	NA	NA	NA	NA	NA	NA	115.30	NA	NA	NA	NA	NA	NA	NA	NA	1800.79
Hwy 6	MW-104A	271921.238	2088225.729	1908.57	1908.98	100	115	1808.57	1793.57	105.34	105.34	104.85	104.41	NR	104.71	NR	104.29	105.85	1803.23	1803.23	1803.72	1804.16	NR	1803.86	NR	1804.28	1802.72
Hwy 6	MW-104C	271929.471	2088225.413	1908.56	1908.92	160	180	1748.56	1728.56	107.01	107.97	107.39	106.90	NR	107.21	NR	106.19	108.04	1801.55	1800.59	1801.17	1801.66	NR	1801.35	NR	1802.37	1800.52
Hwy 6	MW-104D	271937.379	2088225.393	1908.48	1909.01	192	212	1716.48	1696.48	106.98	107.88	107.31	106.83	NR	107.11	NR	106.11	107.94	1801.50	1800.60	1801.17	1801.65	NR	1801.37	NR	1802.37	1800.54
Hwy 6	MW-105A	270085.306	2089866.113	1919.31	1916.62	108	123	1811.31	1796.31	119.74	120.32	119.73	119.14	NR	119.37	NR	118.96	120.78	1799.57	1798.99	1799.58	1800.17	NR	1799.94	NR	1800.35	1798.53
Hwy 6	MW-105C	270077.035	2089866.331	1919.36	1916.83	159.5	179.5	1759.86	1739.86	121.10	122.44	121.48	120.81	NR	121.45	NR	120.24	122.35	1798.26	1796.92	1797.88	1798.55	NR	1797.91	NR	1799.12	1797.01
Hwy 6	MW-105D	270069.428	2089866.388	1919.22	1916.79	192	212	1727.22	1707.22	121.00	122.27	121.30	120.65	NR	121.28	NR	120.06	122.16	1798.22	1796.95	1797.92	1798.57	NR	1797.94	NR	1799.16	1797.06
Hwy 6	MW-106A	270461.463	2098152.600	1909.22	1906.85	114	129	1795.22	1780.22	120.23	121.24	120.68	119.94	NR	120.65	NR	120.36	122.10	1788.99	1787.98	1788.54	1789.28	NR	1788.57	NR	1788.86	1787.12
Hwy 6	MW-106C	270456.847	2098159.989	1909.22	1906.74	161	181	1748.22	1728.22	122.85	124.86	123.50	122.59	NR	123.91	NR	122.34	124.80	1786.37	1784.36	1785.72	1786.63	NR	1785.31	NR	1786.88	1784.42
Hwy 6	MW-106D	270452.369	2098166.199	1909.20	1906.64	192	212	1717.20	1697.20	122.96	124.90	123.52	122.63	NR	123.93	NR	122.37	124.84	1786.24	1784.30	1785.68	1786.57	NR	1785.27	NR	1786.83	1784.36

Notes:

[1] = Water level elevations at monitoring wells at MW-19A/C, MW-20A/C/D/E, MW-30A/C/D/E, MW-31A/C, MW-47B/C/D, MW-48B/C/D, MW-49B/C/D, MW-50B/C/D, and MW-51B/C/D were recorded at the GET system programmable logic controller (PLC) beginning in April 2011.

[2] = The Top of Casing Elevation for the Waterloo Multilevel wells (MW-19A/C, MW-20A/C/D/E, MW-30A/C/D/E, MW-31A/C) was measured at the top of the Waterloo system manifold minus 8.5 inches [0.708 ft], which is the distance between the top of the manifold to the outer 4-inch PVC casing.

-Hwy 6 wells installed for the West Highway 6 & Highway 281 Site.

amsl - above mean seal level

bgs - below ground surface

btoc - below top of casing

ft - feet

NA - not applicable

NR - not recorded

OU1 - Operable Unit 1; these wells are associated with on-site groundwater

OU2 - Operable Unit 2; these wells are associated with off-site groundwater

Table 2
Analytical Results for OU2 Monitoring Wells
Garvey Elevator Site
Hastings, NE

Sample Location	Sample Collection Date	EPA Lab ID	Carbon Tetrachloride	Chloroform	TCE	PCE
			PRG=5 µg/L	PRG=80 µg/L	PRG=5 µg/L	PRG=5 µg/L
MW-12A	3/28/13	6047-10	1.0 U	1.0 U	NS	NS
MW-12C	3/28/13	6047-11	**18**	1.0 U	NS	NS
MW-12D	3/27/13	6047-1	1.0 U	1.0 U	NS	NS
MW-14A	3/28/13	6047-101	1.0 U	1.0 U	1.0 U	1.0 U
MW-16A	3/30/13	6047-19	1.0 U	1.0 U	NS	NS
MW-16C	3/30/13	6047-20	1.0 U	1.0 U	NS	NS
MW-17A	3/28/13	6047-8	1.0 U	1.0 U	NS	NS
MW-17C	3/28/13	6047-9	**24**	1.0 U	NS	NS
MW-17D	3/28/13	6047-7	1.0 U	1.0 U	NS	NS
MW-18A	3/27/13	6047-2	1.0 U	1.0 U	NS	NS
MW-18C	3/27/13	6047-3	**11 J**	1.0 U	NS	NS
MW-18D	3/27/13	6047-4	**17**	1.0 U	NS	NS
MW-41D1	3/30/13	6047-15	1.0 U	1.0 U	NS	NS
MW-41D2	3/30/13	6047-14	1.0 U	1.0 U	NS	NS
MW-42D	3/29/13	6047-105	**48**	1.0 U	1.0 U	1.0 U
MW-42E	3/29/13	6047-104	**41**	1.0 U	1.0 U	1.0 U
MW-43D	3/30/13	6047-13	1.0 U	1.0 U	NS	NS
	3/30/13	6047-13-FD	1.0 U	1.0 U	NS	NS
MW-43E	3/30/13	6047-12	**2.5**	1.0 U	NS	NS
MW-44D	3/29/13	6047-103	**26**	1.0 U	1.0 U	1.0 U
	3/29/13	6047-103-FD	**26**	1.0 U	1.0 U	1.0 U
MW-44E	3/29/13	6047-102	1.0 U	1.0 U	1.0 U	1.0 U
MW-45C	3/28/13	6047-6	1.0 U	1.0 U	NS	NS
	3/28/13	6047-6-FD	1.0 U	1.0 U	NS	NS
MW-45D	3/28/13	6047-5	1.0 U	1.0 U	NS	NS
MW-46D1	3/30/13	6047-16	**510**	**2.8**	NS	NS
MW-46D2	3/30/13	6047-17	**230**	**1.2**	NS	NS

Table 2
Analytical Results for OU2 Monitoring Wells
Garvey Elevator Site
Hastings, NE

Sample Location	Sample Collection Date	EPA Lab ID	Carbon Tetrachloride PRG=5 µg/L	Chloroform PRG=80 µg/L	TCE PRG=5 µg/L	PCE PRG=5 µg/L
MW-105A	4/2/13	6047-116	1.0 U	1.0 U	1.0 U	1.0 U
MW-105C	4/2/13	6047-115	**52**	1.0 U	1.0 U	1.0 U
MW-105D	4/2/13	6047-110	**21**	1.0 U	1.0 U	1.0 U
	4/2/13	6047-110-FD	**21**	1.0 U	1.0 U	1.0 U
MW-106A	3/29/13	6047-108	1.0 U	1.0 U	1.0 U	1.0 U
MW-106C	3/29/13	6047-107	1.0 U	1.0 U	1.0 U	1.0 U
MW-106D	3/29/13	6047-106	1.0 U	1.0 U	1.0 U	1.0 U

Notes:
Bolded results indicate a detection.
Shaded results indicate that the reported result is greater than the PRG.
All results reported in µg/L.
EPA - U.S. Environmental Protection Agency
ID - identification
J - the identification of the analyte was acceptable. The associated value is an estimate.
NS - not sampled
PRG - preliminary remediation goal
PCE - tetrachloroethene
TCE - trichloroethene
µg/L - micrograms per liter
U - The analyte was not detected at or above the reporting limit.

Table 3
Field Parameters for OU2 Monitoring Wells
Garvey Elevator Site
Hastings, NE

Sample Location	Sample Collection Date	EPA Lab ID	Temperature (°C)	pH (SU)	Specific Conductivity (µmhos/cm)	Total Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW-12A	3/28/13	6047-10	15.20	6.95	665	5.07	109.5	1.45
MW-12C	3/28/13	6047-11	14.11	6.84	406	4.68	145.0	0.68
MW-12D	3/27/13	6047-1	12.92	6.92	293	6.72	116.8	0.15
MW-14A	3/28/13	6047-101	11.99	6.62	628	6.77	165.9	0.34
MW-16A	3/30/13	6047-19	14.39	6.91	660	5.81	157.7	0.10
MW-16C	3/30/13	6047-20	12.75	6.72	520	6.71	163.4	0.26
MW-17A	3/28/13	6047-8	12.99	7.69	594	2.29	119.4	1.89
MW-17C	3/28/13	6047-9	12.69	6.92	388	5.60	NA	0.80
MW-17D	3/28/13	6047-7	12.40	7.19	200	3.54	119.4	0.69
MW-18A	3/27/13	6047-2	12.46	6.94	217	1.89	102.3	10.1
MW-18C	3/27/13	6047-3	12.73	6.78	413	4.64	144.3	0.12
MW-18D	3/27/13	6047-4	11.40	7.11	306	2.28	166.9	0.57
MW-41D1	3/30/13	6047-15	14.00	6.80	459	6.50	135.9	3.29
MW-41D2	3/30/13	6047-14	12.87	6.98	245	4.66	141.3	3.65
MW-42D	3/29/13	6047-105	17.28	6.94	403	6.42	107.8	10.03
MW-42E	3/29/13	6047-104	15.76	7.04	314	4.50	98.6	15.5
MW-43D	3/30/13	6047-13	11.76	6.71	365	6.59	169.0	1.15
	3/30/13	6047-13-FD	11.76	6.71	365	6.59	169.0	1.15
MW-43E	3/30/13	6047-12	11.76	6.71	276	5.97	170.3	1.31
MW-44D	3/29/13	6047-103	12.24	6.93	291	6.32	143.1	9.11
	3/29/13	6047-103-FD	12.24	6.93	291	6.32	143.1	9.11
MW-44E	3/29/13	6047-102	11.51	7.09	226	3.97	159.3	0.60
MW-45C	3/28/13	6047-6	11.63	7.19	415	5.28	146.9	9.8
	3/28/13	6047-6-FD	11.63	7.19	415	5.28	146.9	9.8
MW-45D	3/28/13	6047-5	10.35	7.02	364	8.14	179.2	0.70
MW-46D1	3/30/13	6047-16	15.38	6.80	447	5.90	111.2	>1000
MW-46D2	3/30/13	6047-17	14.79	6.95	410	5.77	119.3	4.30

Table 3
Field Parameters for OU2 Monitoring Wells
Garvey Elevator Site
Hastings, NE

Sample Location	Sample Collection Date	EPA Lab ID	Temperature (°C)	pH (SU)	Specific Conductivity (µmhos/cm)	Total Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
MW-105A	4/2/13	6047-116	12.48	7.42	717	2.28	43.8	0.40
MW-105C	4/2/13	6047-115	12.39	6.92	525	4.62	131.9	0.92
MW-105D	4/2/13	6047-110	10.64	6.04	250	5.45	184.1	0.33
	4/2/13	6047-110-FD	10.64	6.04	250	5.45	184.1	0.33
MW-106A	3/29/13	6047-108	13.77	6.95	538	5.51	177.1	0.09
MW-106C	3/29/13	6047-107	13.66	6.63	391	7.33	161.3	0.13
MW-106D	3/29/13	6047-106	14.13	7.02	266	3.93	155.1	0.41

Notes:
°C - degrees celsius
EPA - U.S. Environmental Protection Agency
ID - identification
µmhos/cm - micromhos per centimeter
mg/L - milligrams per liter
mV - millivolts
NA - not available
NTU - nephelometric turbidity units
SU - standard unit

ATTACHMENT 2

FIGURES

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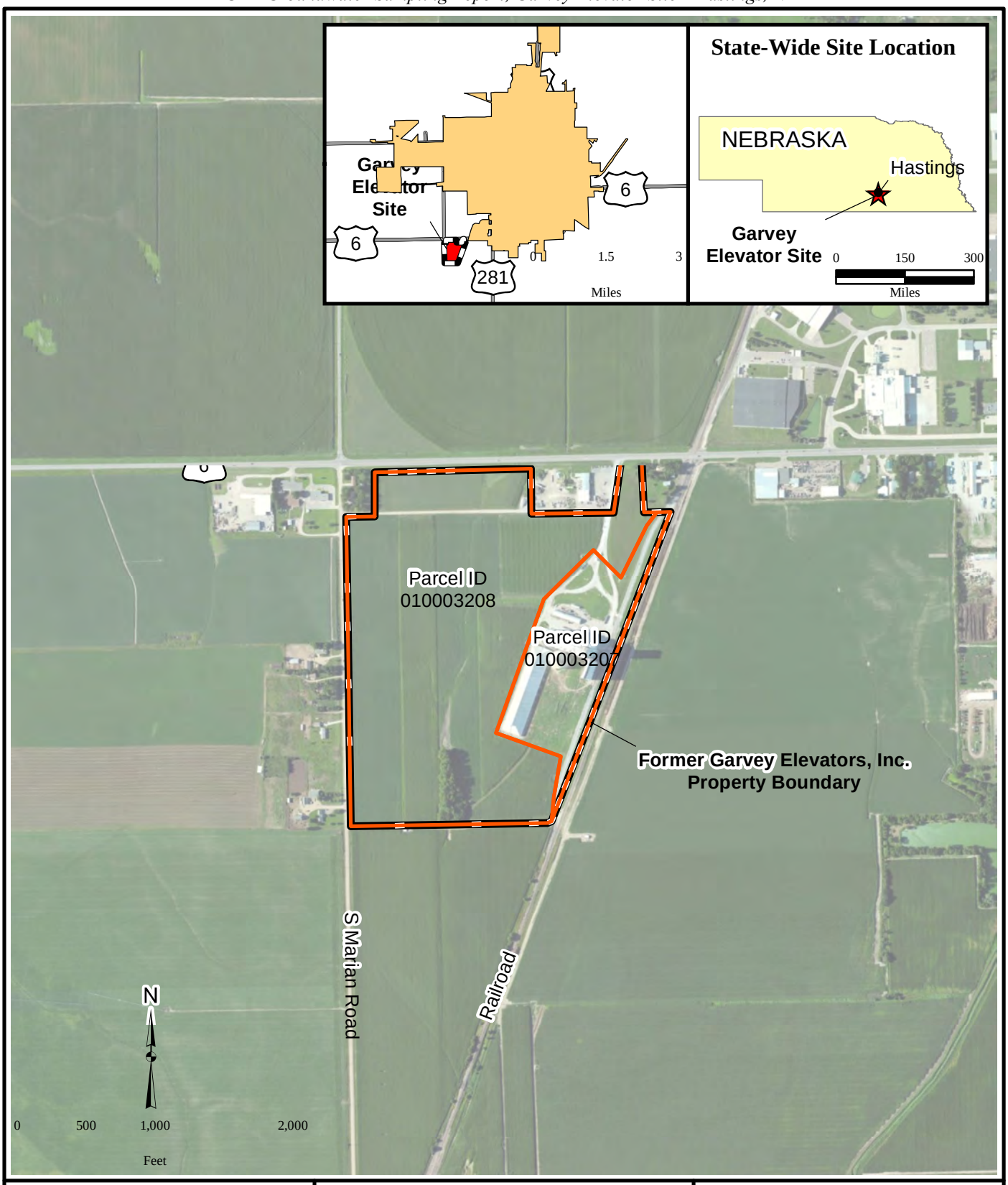

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6/11/2013 PD
Source: ENSR GDB 2008, DNR, ESRI, ArcGIS Online Imagery

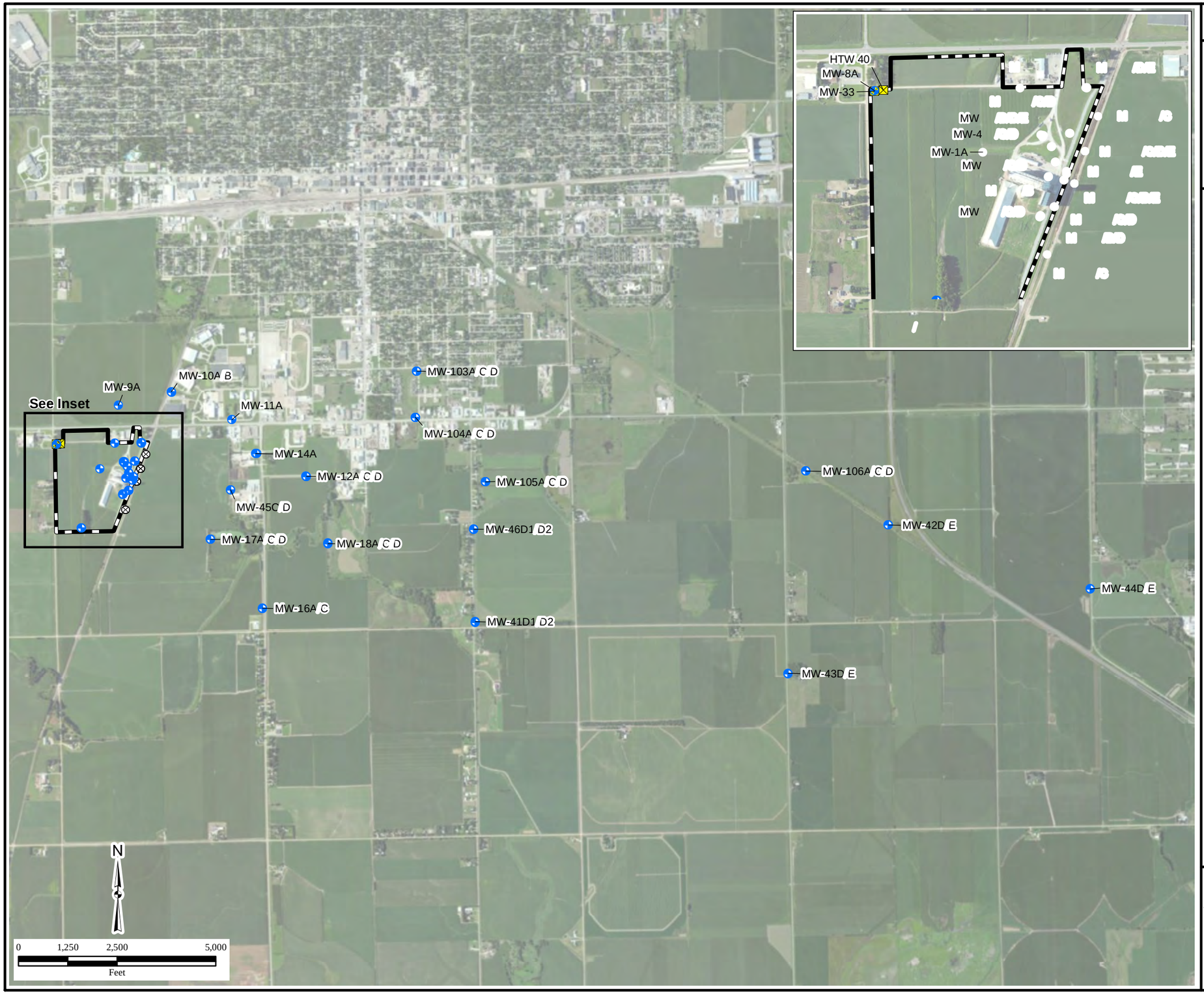
Legend

Parcel Boundary

Garvey Property

Figure 1
Site Location
Garvey Elevator
Superfund Site
Hastings, NE

Figure 2
Monitoring Well Locations
OU1 and OU2



Legend

- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-11A — Well Identification
- Garvey Property Boundary

Note:
OU=operable unit

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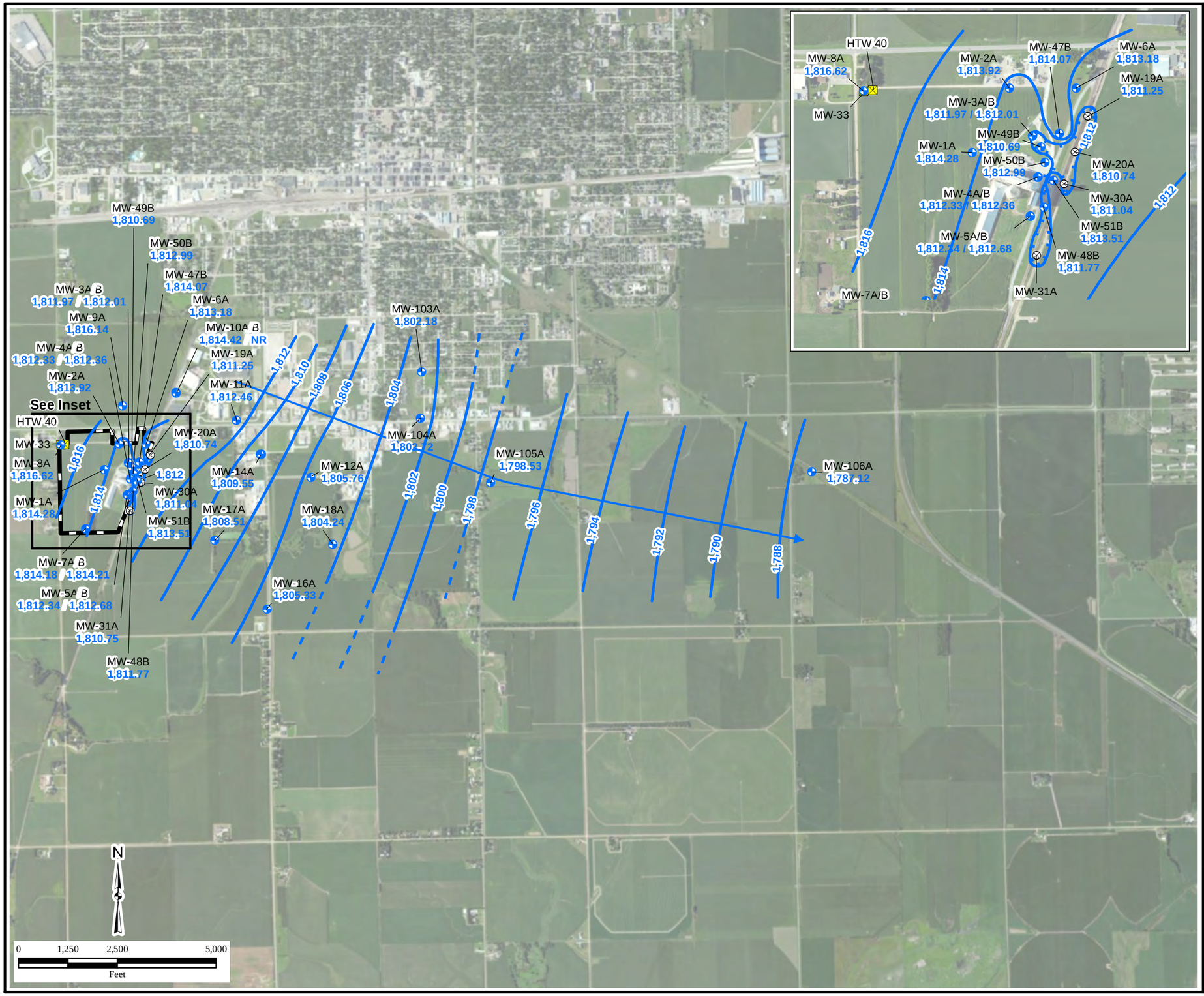
(2)site_layout.mxd
6/11/2013 PD
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

Figure 3
Potentiometric Surface
Zone A/B
March 2013



Legend

- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-31A 1,810.75 — Well Identification, Groundwater Elevation (ft amsl)
- 1,790 — Groundwater Elevation Contour (ft amsl) (dashed where inferred)
- Groundwater Depression Contour
- General Groundwater Flow Direction
- Garvey Property Boundary

Note:
ft amsl=feet above mean sea level

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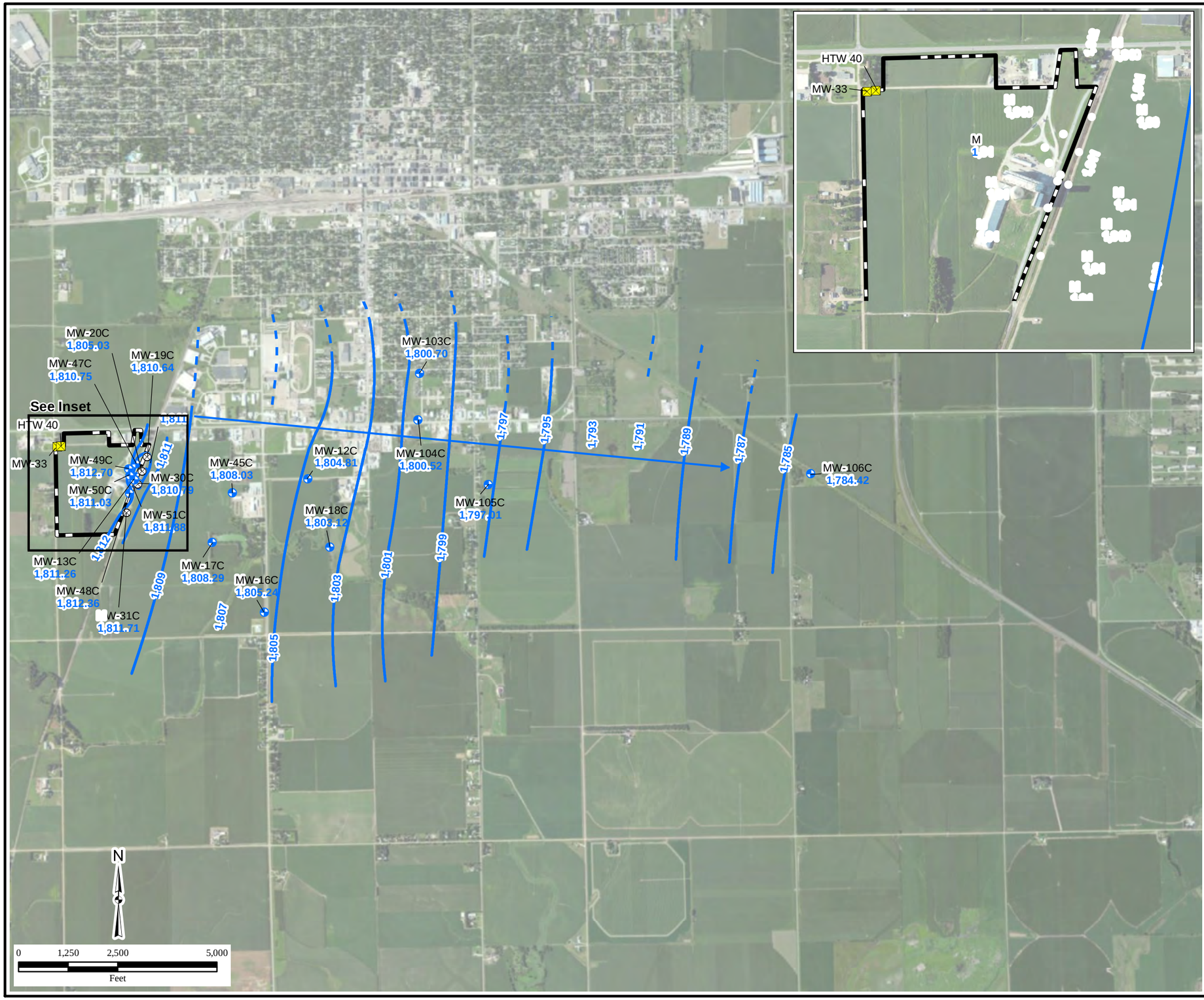
6/10/2013 PD
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

Figure 4
Potentiometric Surface
Zone C
March 2013



Legend

- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-31C 1,811.71 — Well Identification / Groundwater Elevation (ft amsl)
- 1,789 — Groundwater Elevation Contour (ft amsl) (dashed where inferred)
- Groundwater Depression Contour
- General Groundwater Flow Direction
- Garvey Property Boundary

Note:
ft amsl=feet above mean sea level

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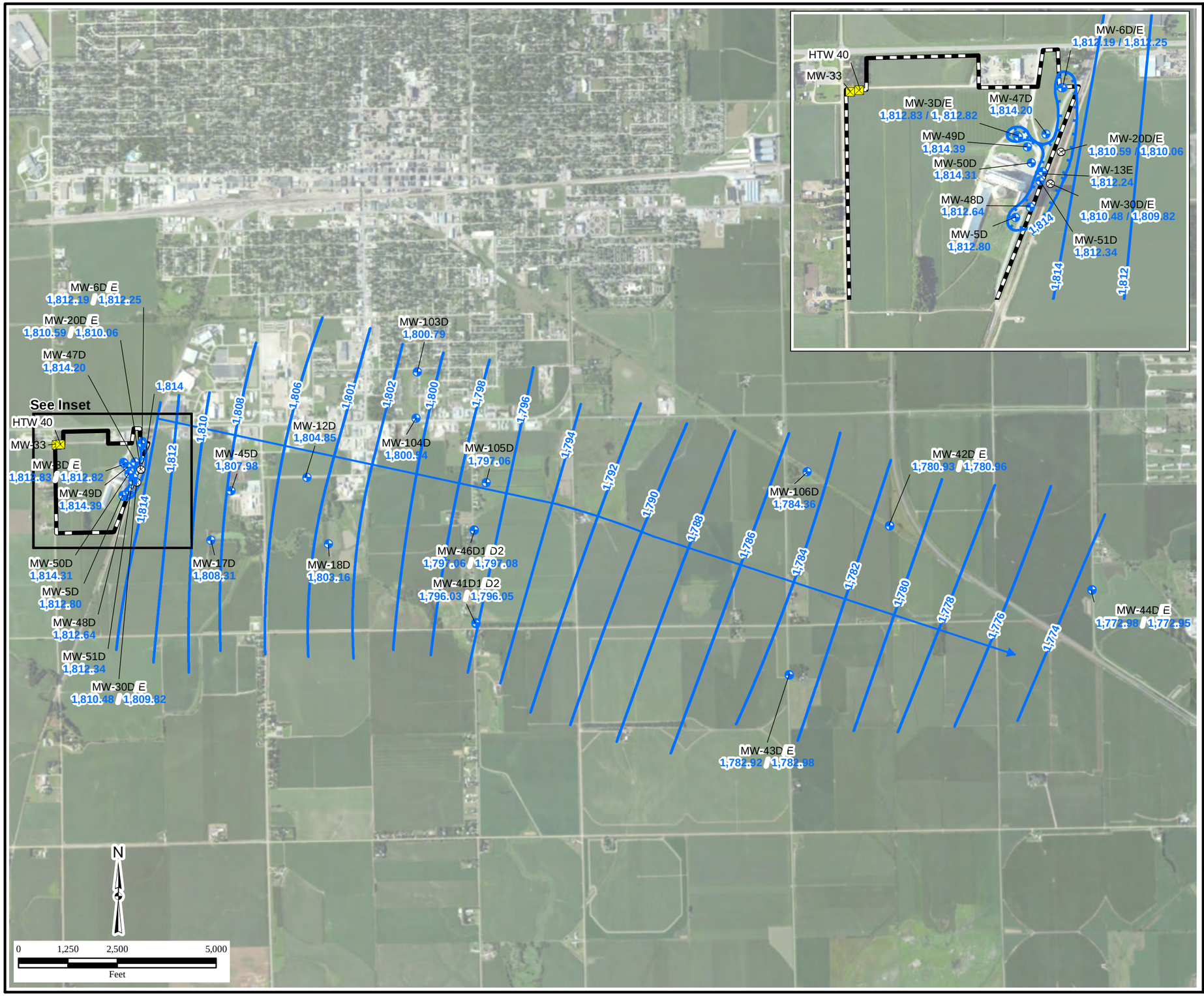
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

Figure 5
Potentiometric Surface
Zone D/E
March 2013



Legend

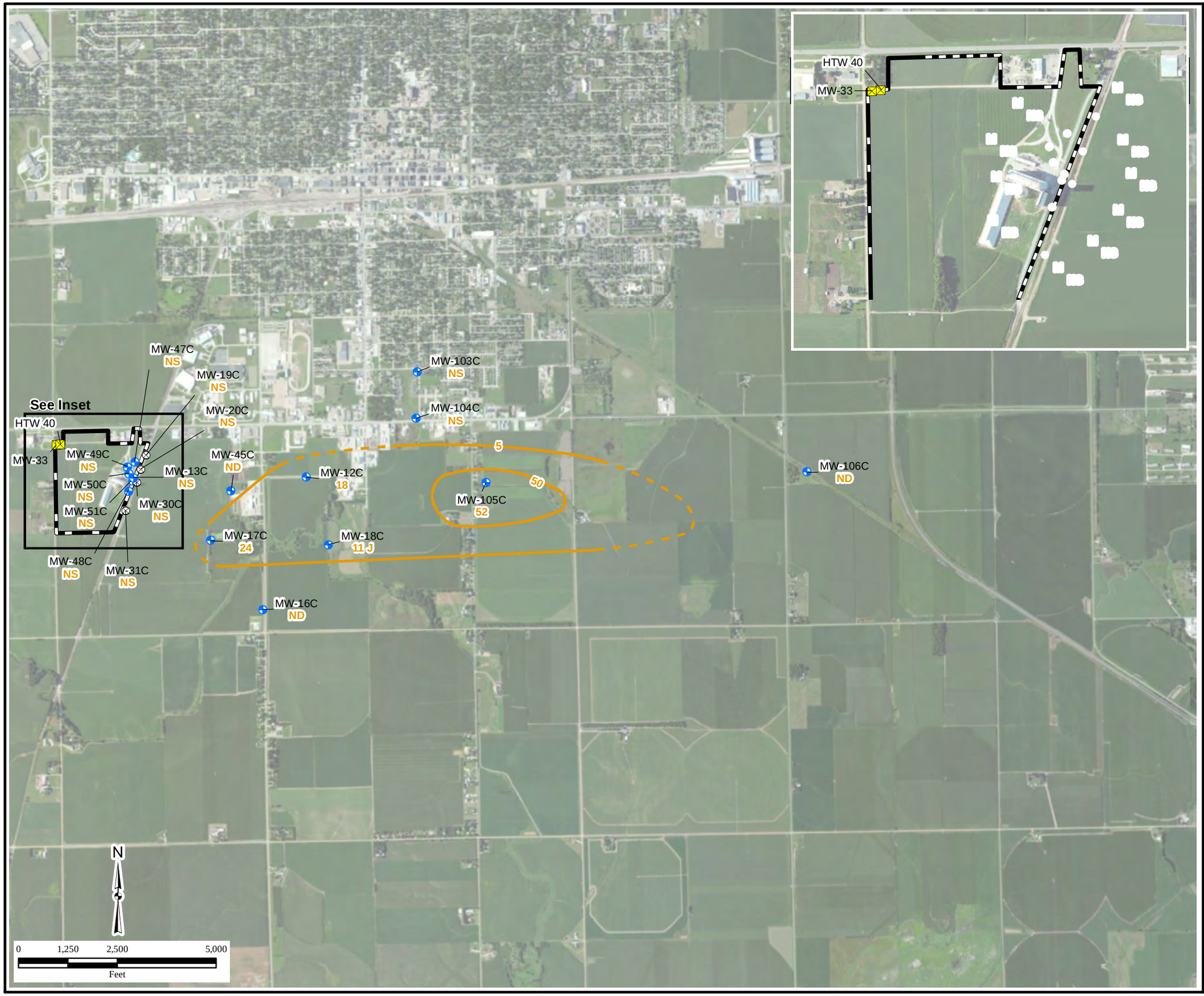
- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-48D 1,812.64 — Well Identification / Groundwater Elevation (ft amsl)
- 1,790 — Groundwater Elevation Contour (ft amsl)
- Groundwater Depression Contour
- General Groundwater Flow Direction
- Garvey Property Boundary

Note:
ft amsl=feet above mean sea level

\\Gst-srv-01\hglgis\Garvey_MSIW\GWSR_2013-03\(5)Zone_D_E_Pot_Surf_Mar_2013.mxd
6/10/2013 PD
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

Figure 6
Carbon Tetrachloride in the Medial Aquifer Zone C March 2013



Legend

- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-105C / 52 — Well Identification; Carbon Tetrachloride Concentration (µg/L)
- 5 — Carbon Tetrachloride Concentration Contour (µg/L, dashed where inferred)
- Garvey Property Boundary

Notes:
µg/L=micrograms per liter
J=reported value is an estimate
ND=nondetect
NS=not sampled

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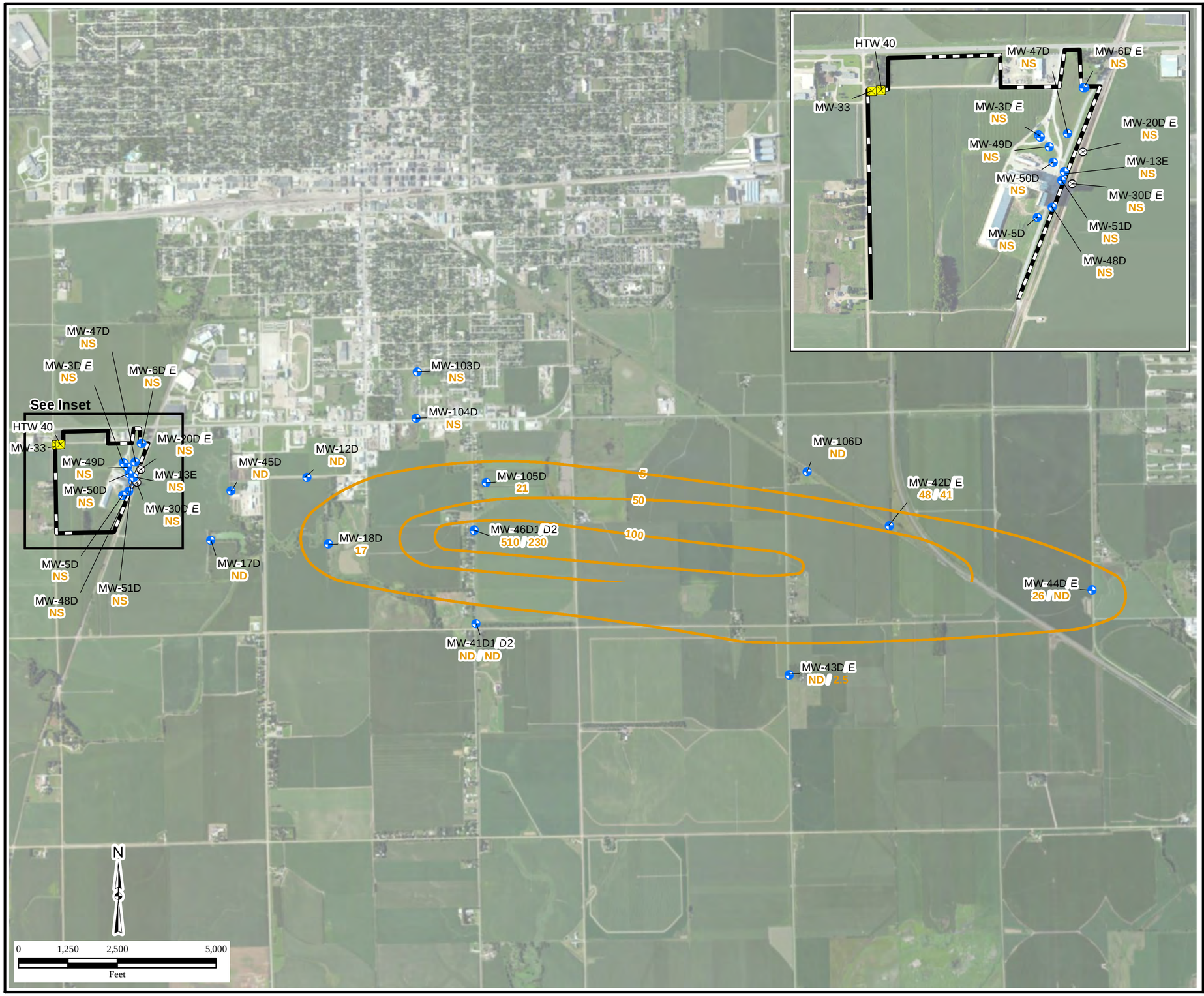
6/10/2013 PD
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

Figure 7
Carbon Tetrachloride in the Lower Aquifer Zone D/E March 2013



Legend

- Monitoring Well
- Multilevel Well
- Hydraulic Conductivity Well
- MW-105D / 21 — Well Identification; Carbon Tetrachloride Concentration (µg/L)
- 5 — Carbon Tetrachloride Concentration Contour (µg/L, dashed where inferred)
- Garvey Property Boundary

Notes:
µg/L=micrograms per liter
ND=nondetect
NS=not sampled

\\Gst-srv-01\hglgis\Garvey_MSIW\GWSR_2013-03\(7)Zone_D_E_Carb_Tet_Mar_2013.mxd
6/10/2013 PD
Source: ENSR GDB 2008, DNR
ArcGIS Online Imagery

HGL HydroGeoLogic, Inc

ATTACHMENT 3

TREND GRAPHS

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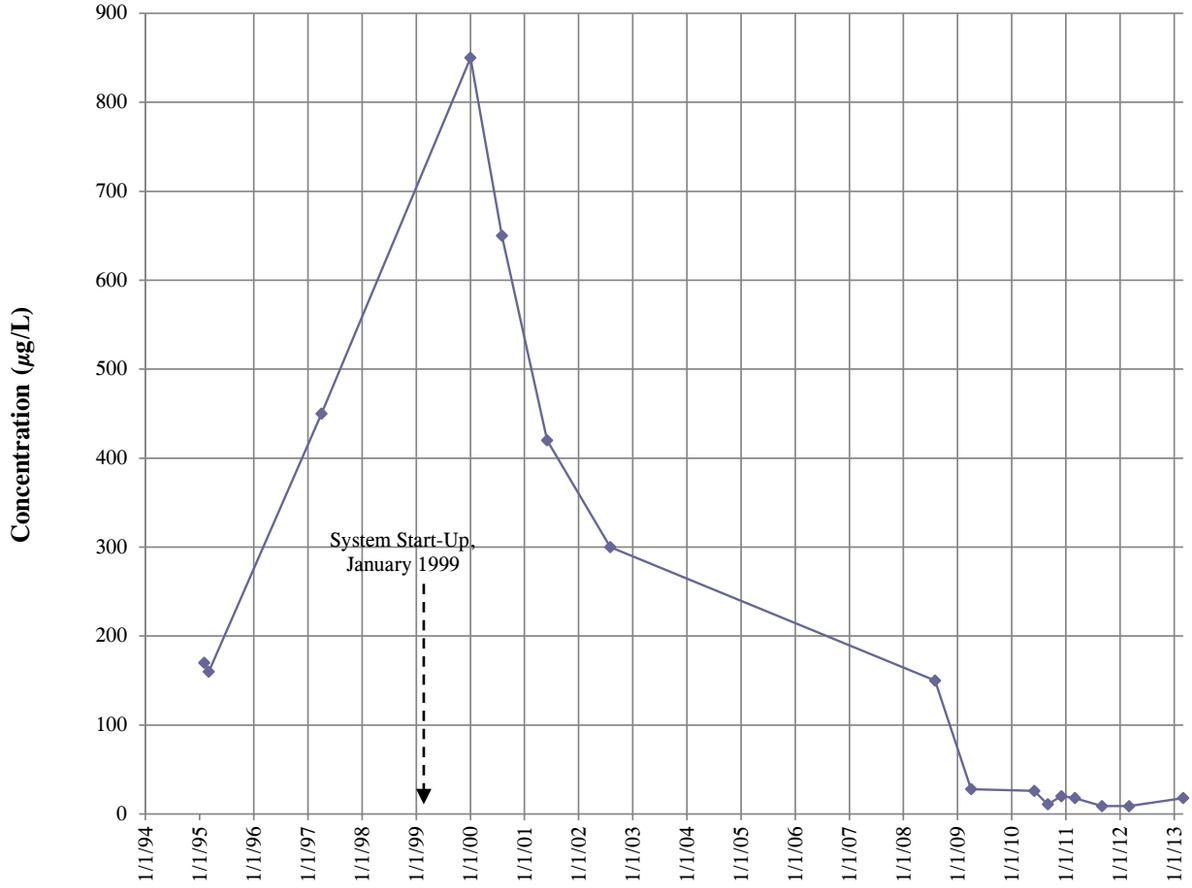
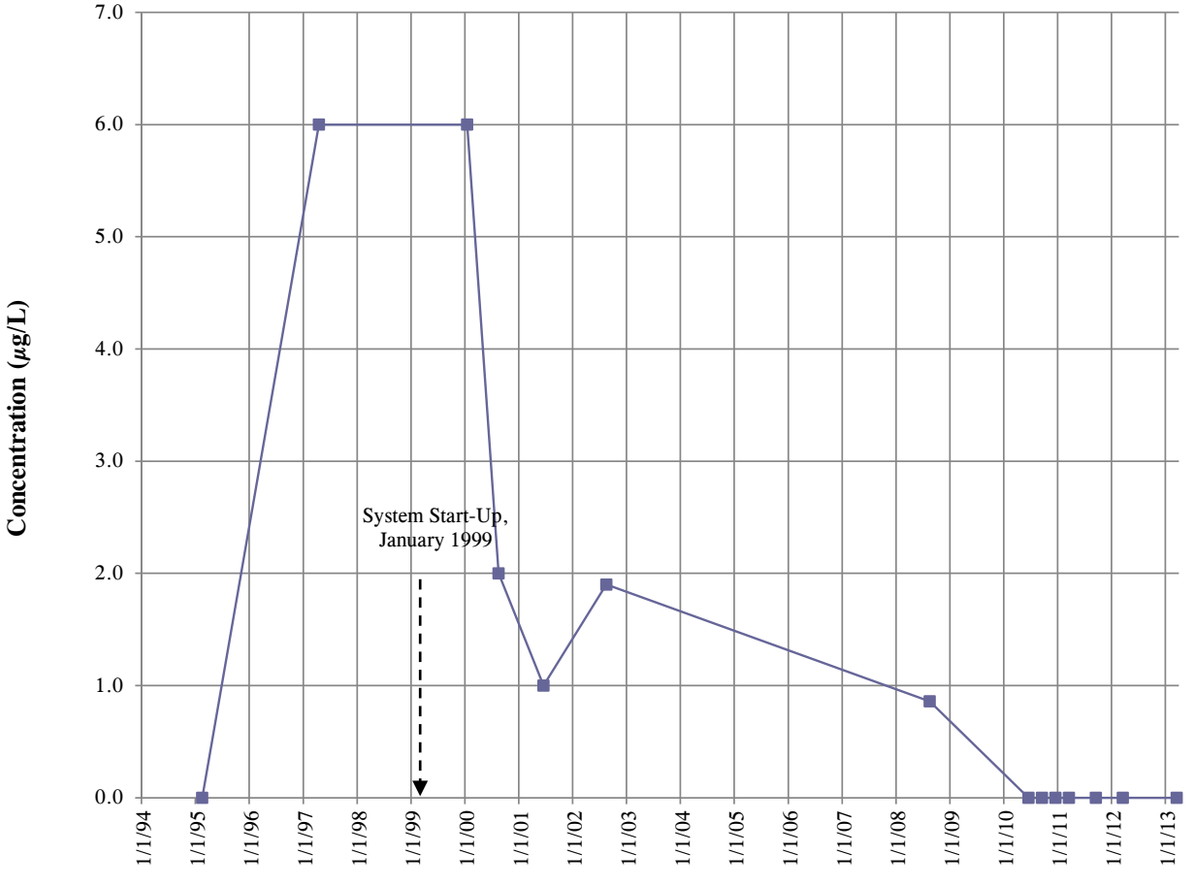
Trend Graph 1 - MW-12C Carbon Tetrachloride



Carbon Tetrachloride

2/14/95	170
3/16/95	160
4/29/97	450
1/16/00	850
8/12/00	650
6/5/01	420
8/12/02	300
8/12/08	150
4/22/09	28
6/19/10	26
9/23/10	11
12/17/10	20
3/27/11	18
9/30/11	8.9
3/14/12	8.8
3/28/13	18

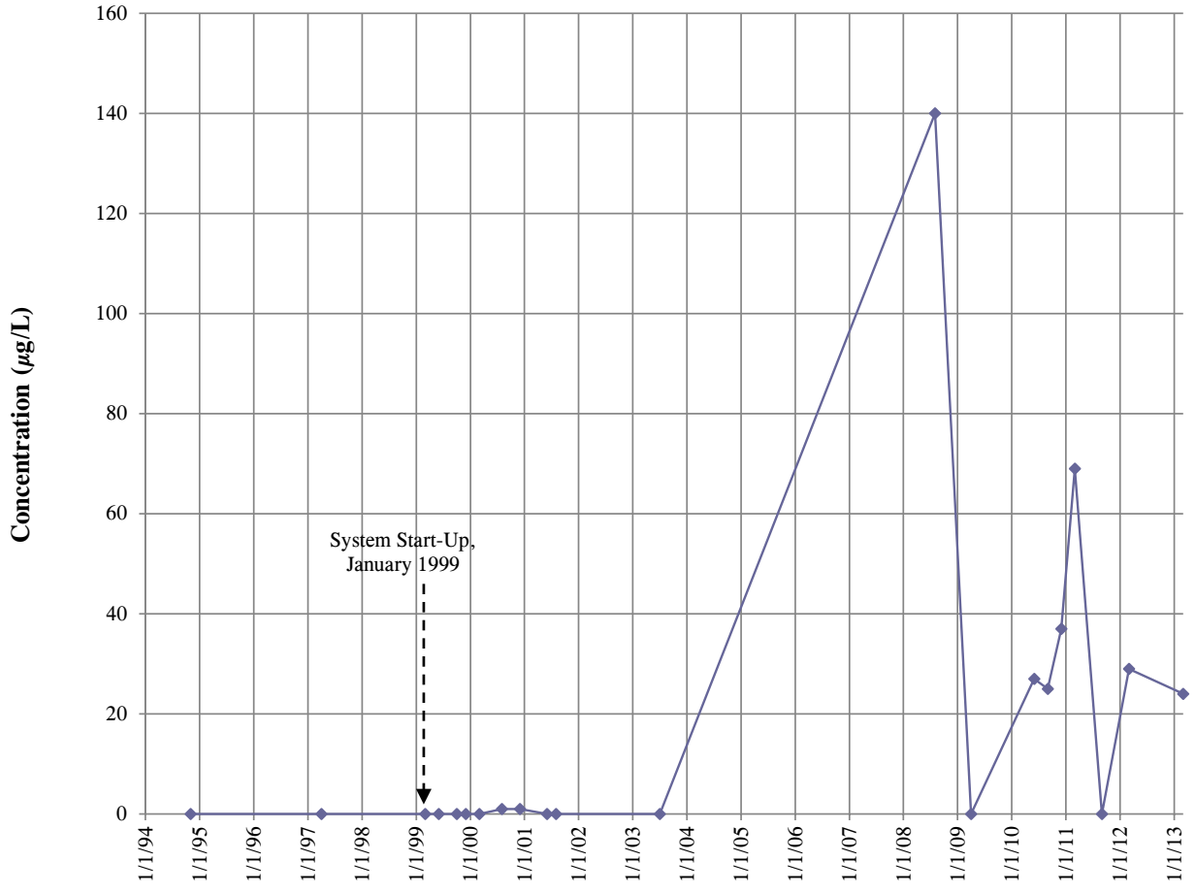
Trend Graph 2 - MW-12C Chloroform



Chloroform

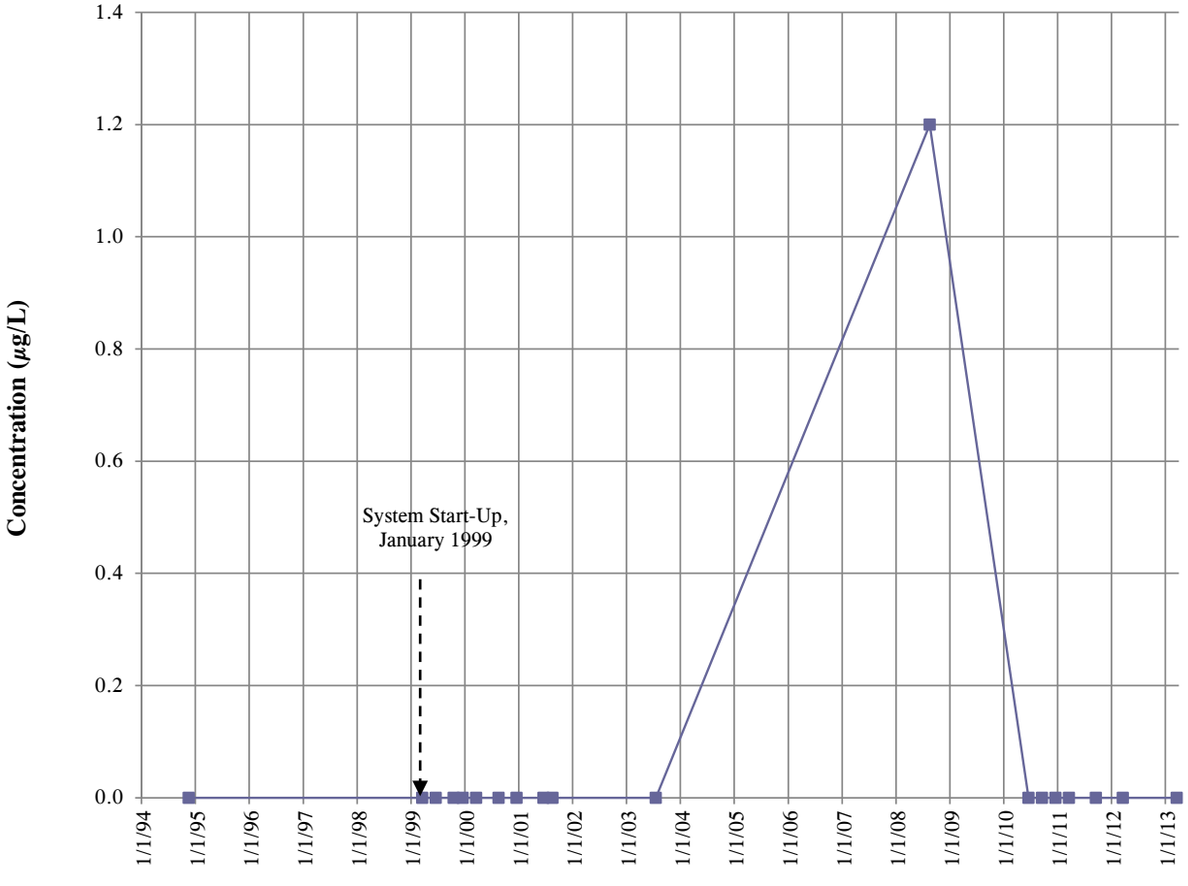
2/14/95	ND
3/16/95	ND
4/29/97	6
1/16/00	6
8/12/00	2
6/5/01	1
8/12/02	1.9
8/12/08	0.86
4/22/09	ND
6/19/10	ND
9/23/10	ND
12/17/10	ND
3/27/11	ND
9/30/11	ND
3/14/12	ND
3/28/13	ND

Trend Graph 3 - MW-17C Carbon Tetrachloride



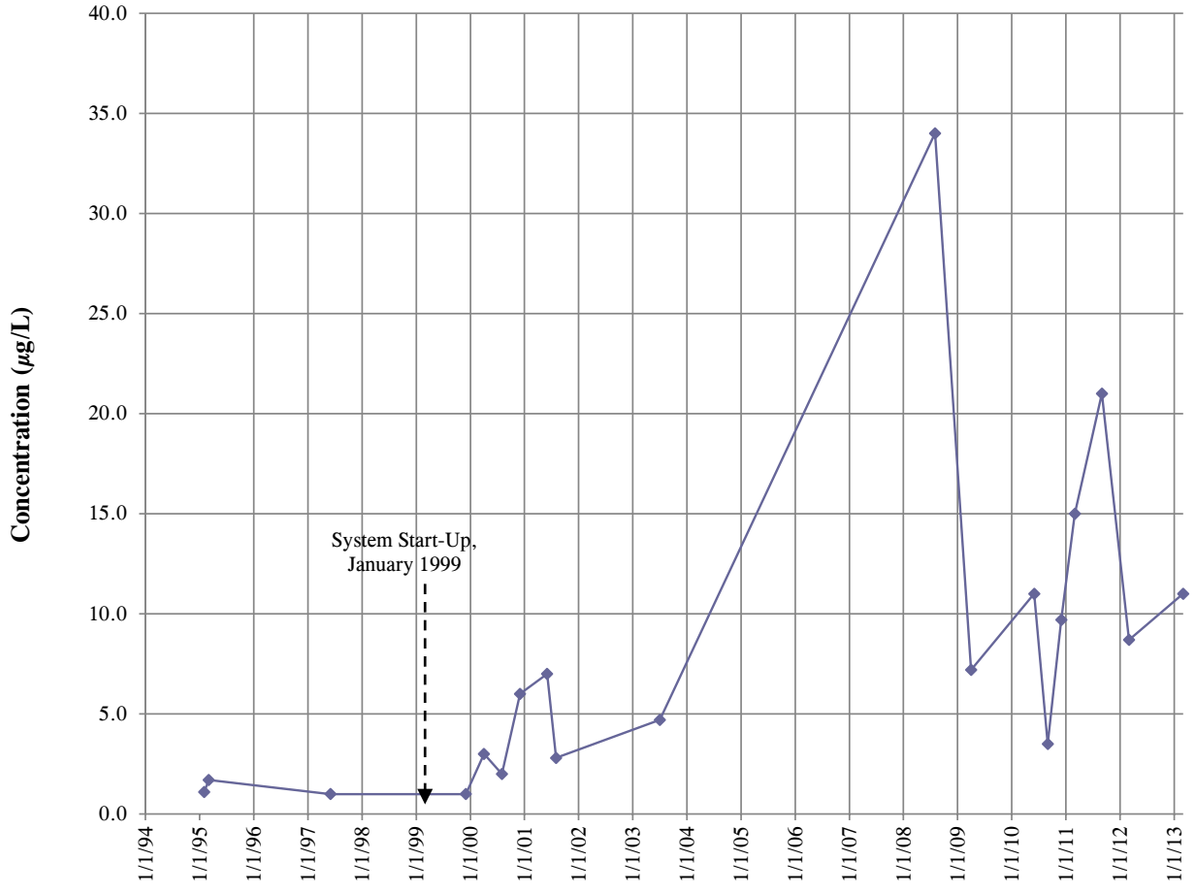
Carbon Tetrachloride	
11/30/94	ND
4/29/97	ND
3/26/99	ND
6/24/99	ND
10/4/99	ND
12/15/99	ND
3/26/00	ND
8/12/00	1
12/20/00	1
6/7/01	ND
8/13/01	ND
7/17/03	ND
8/13/08	140
4/24/09	130 J
6/16/10	27
9/22/10	25
12/15/10	37
3/23/11	69
9/30/11	0
3/17/12	29
3/28/13	24

Trend Graph 4 - MW-17C Chloroform



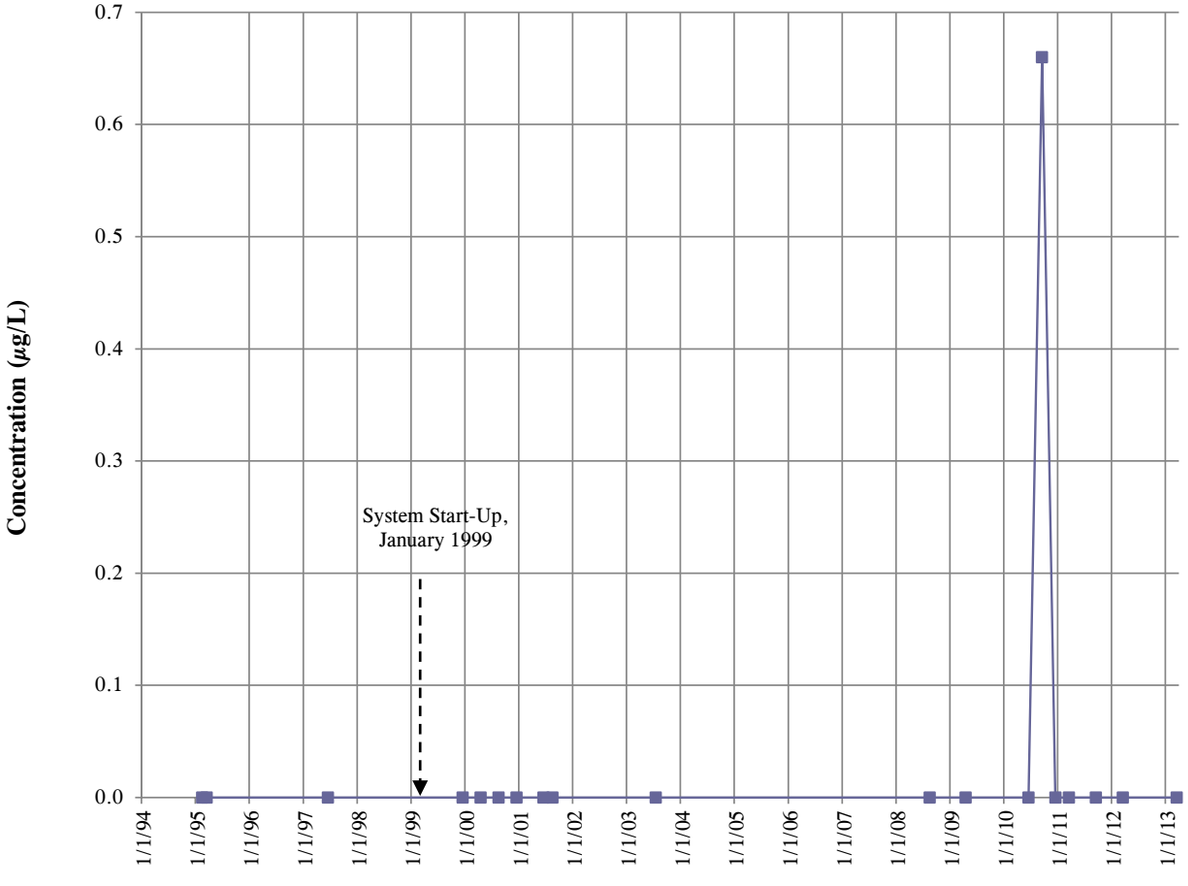
Chloroform	
11/30/94	NA
4/29/97	ND
3/26/99	ND
6/24/99	ND
10/4/99	ND
12/15/99	ND
3/26/00	ND
8/12/00	ND
12/20/00	ND
6/7/01	ND
8/13/01	ND
7/17/03	ND
8/13/08	1.2
4/24/09	ND
6/16/10	ND
9/22/10	ND
12/15/10	ND
3/23/11	ND
9/30/11	ND
3/17/12	ND
3/28/13	ND

Trend Graph 5 - MW-18C Carbon Tetrachloride



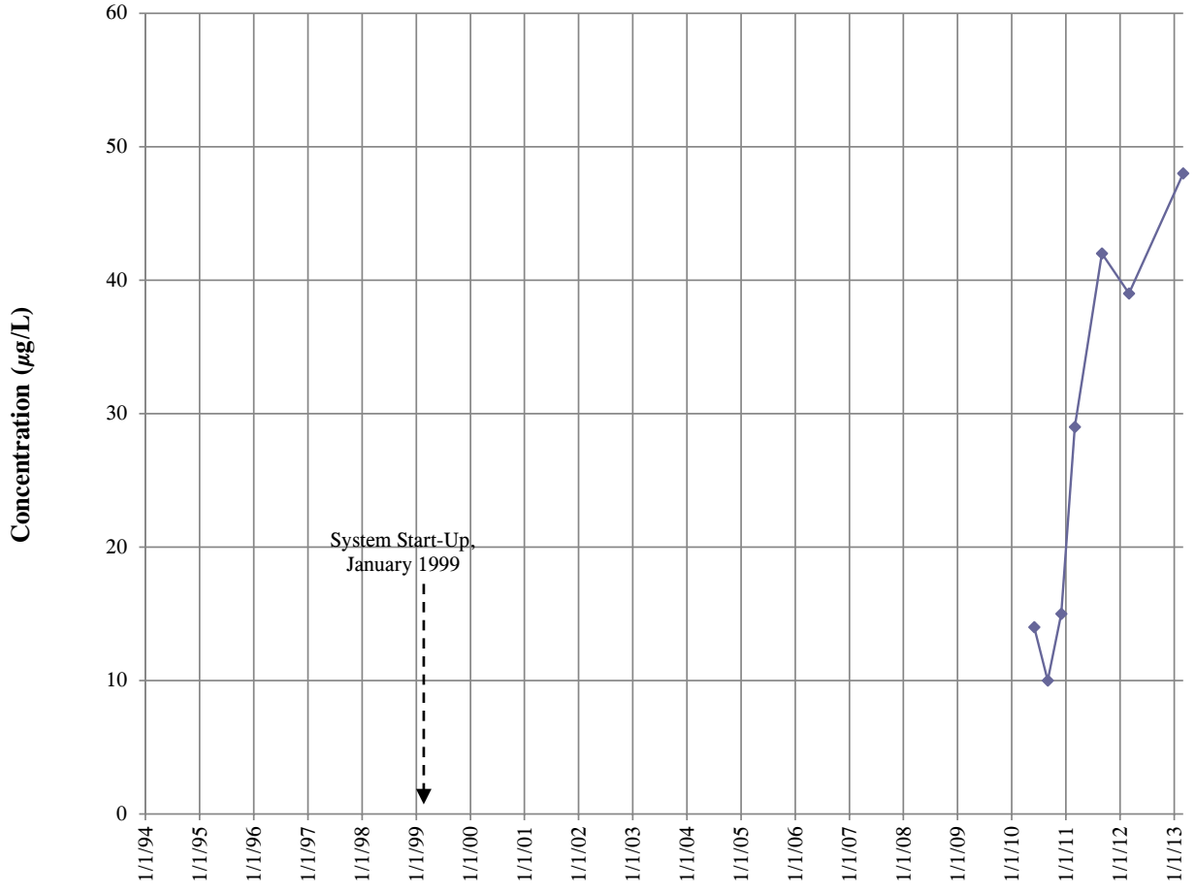
Carbon Tetrachloride	
2/14/95	1.1
3/16/95	1.7
6/20/97	1
12/16/99	1
4/4/00	3
8/11/00	2
12/20/00	6
6/7/01	7
8/14/01	2.8
7/16/03	4.7
8/13/08	34
4/21/09	7.2
6/15/10	11
9/22/10	3.5
12/15/10	9.7
3/24/11	15
9/27/11	21 J
3/15/12	8.7
3/27/13	11 J

Trend Graph 6 - MW-18C Chloroform



Chloroform	
2/14/95	ND
3/16/95	ND
6/20/97	ND
12/16/99	ND
4/4/00	ND
8/11/00	ND
12/20/00	ND
6/7/01	ND
8/14/01	ND
7/16/03	ND
8/13/08	ND
4/21/09	ND
6/15/10	ND
9/22/10	0.66
12/15/10	ND
3/24/11	ND
9/27/11	ND
3/15/12	ND
3/27/13	ND

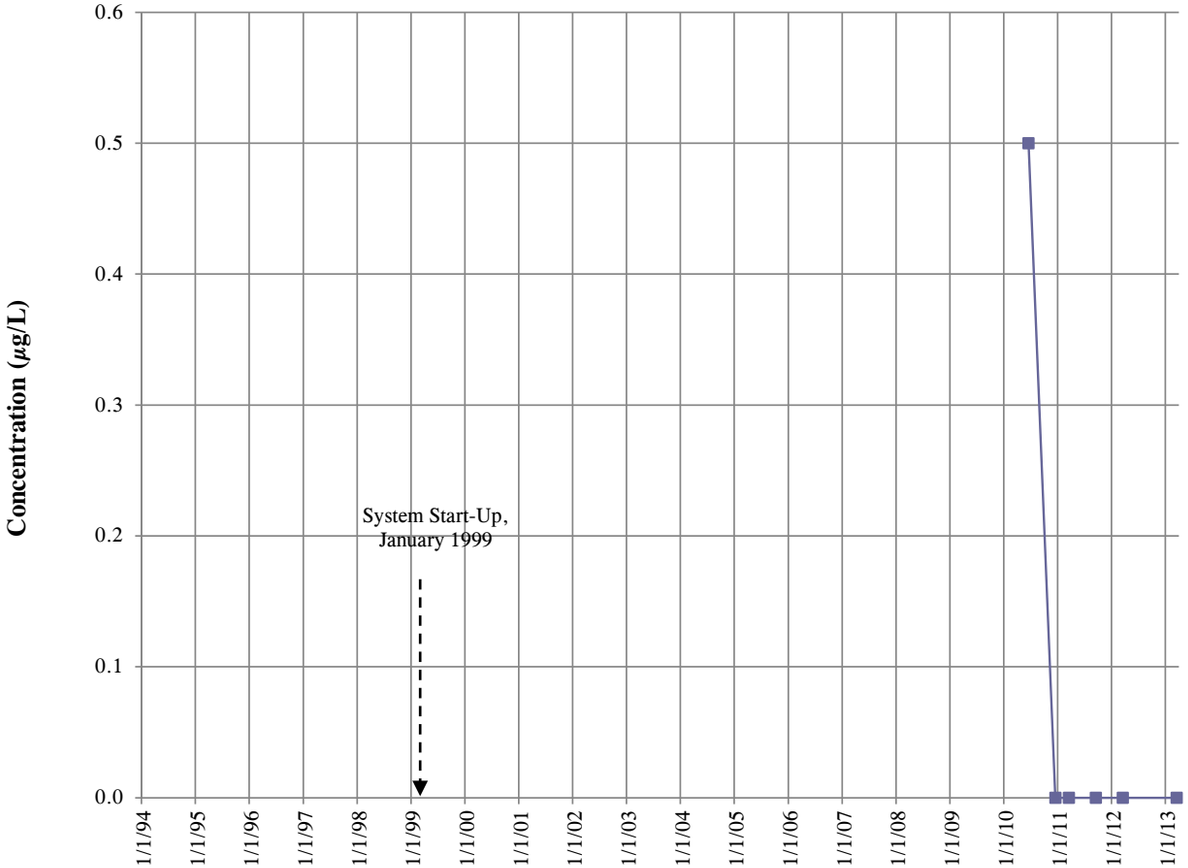
Trend Graph 7 - MW-42D Carbon Tetrachloride



Carbon Tetrachloride

6/18/10	14
9/24/10	10
12/14/10	15 J
3/26/11	29
9/29/11	42 J
3/12/12	39
3/29/13	48

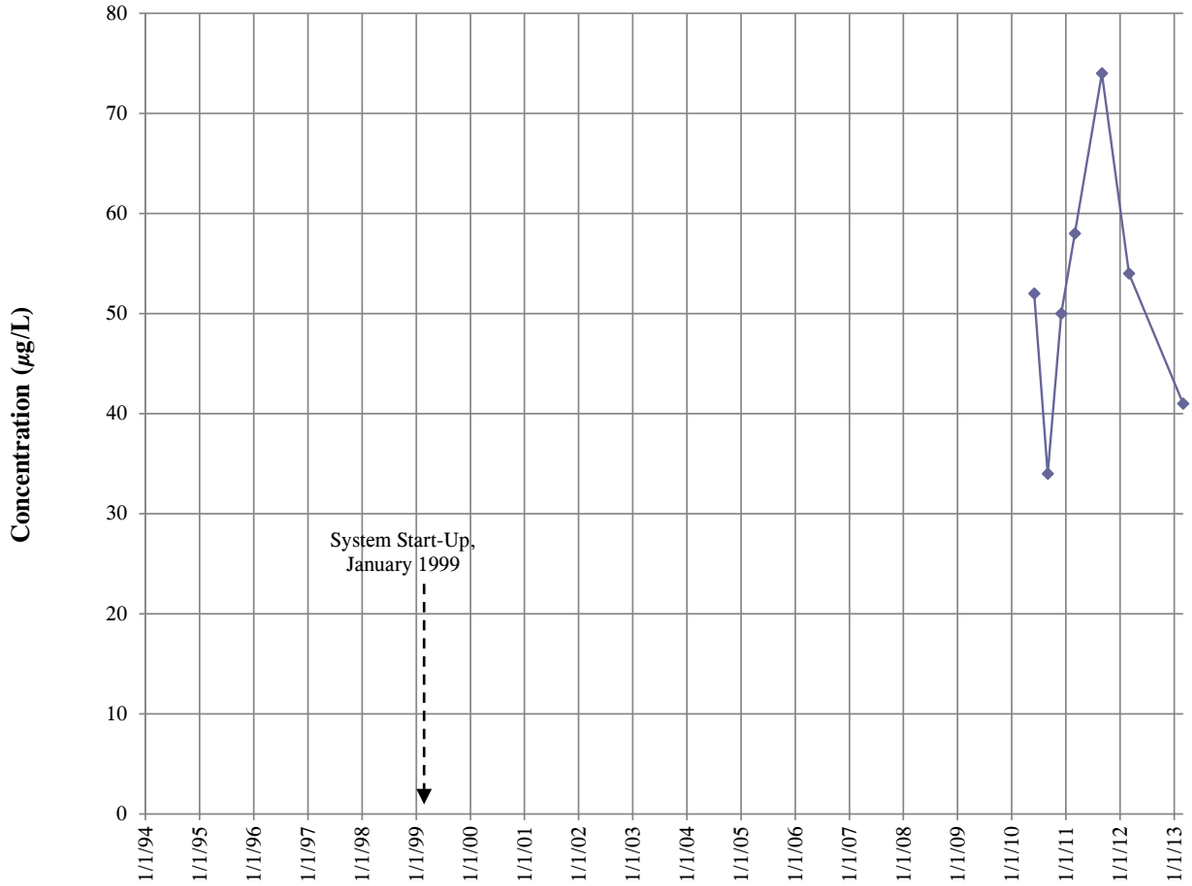
Trend Graph 8 - MW-42D Chloroform



Chloroform

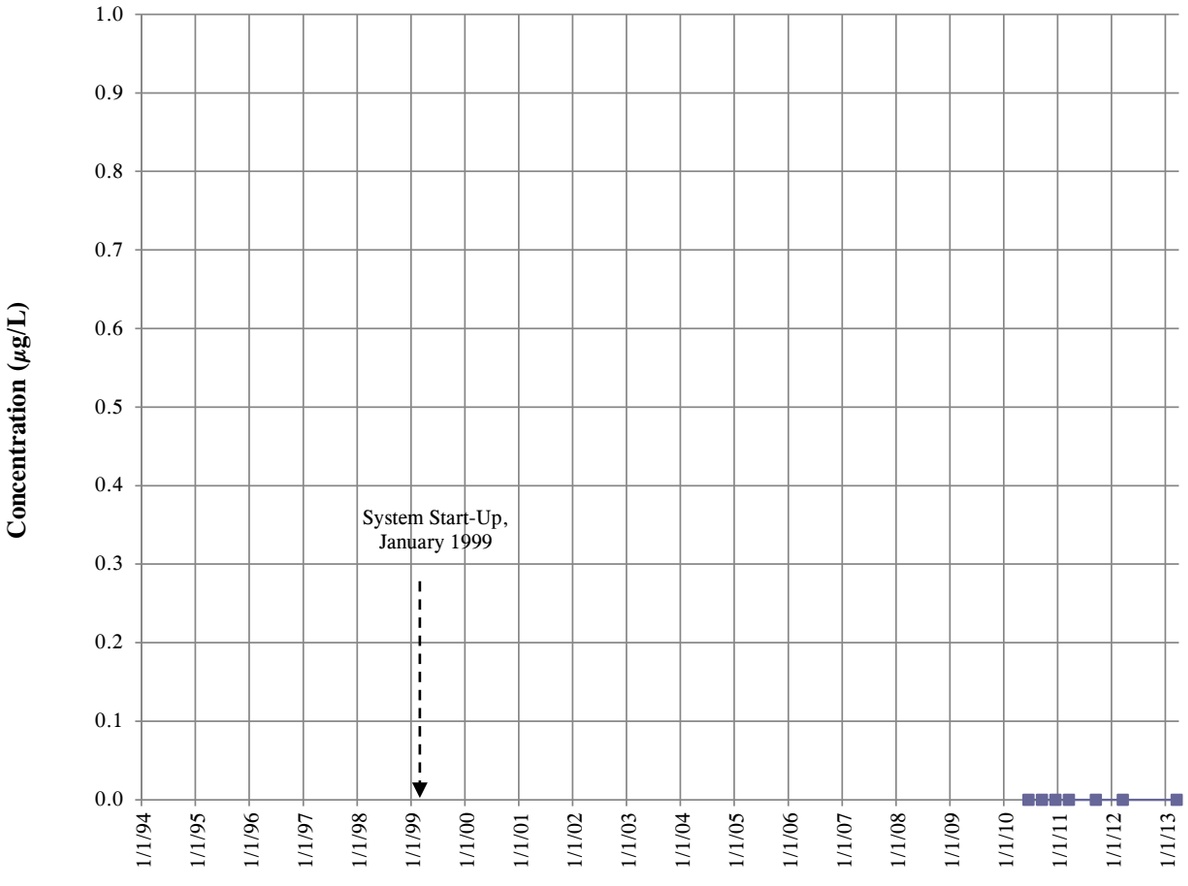
6/18/10	0.5
9/24/10	ND
12/14/10	ND
3/26/11	ND
9/29/11	ND
3/12/12	ND
3/29/13	ND

Trend Graph 9 - MW-42E Carbon Tetrachloride



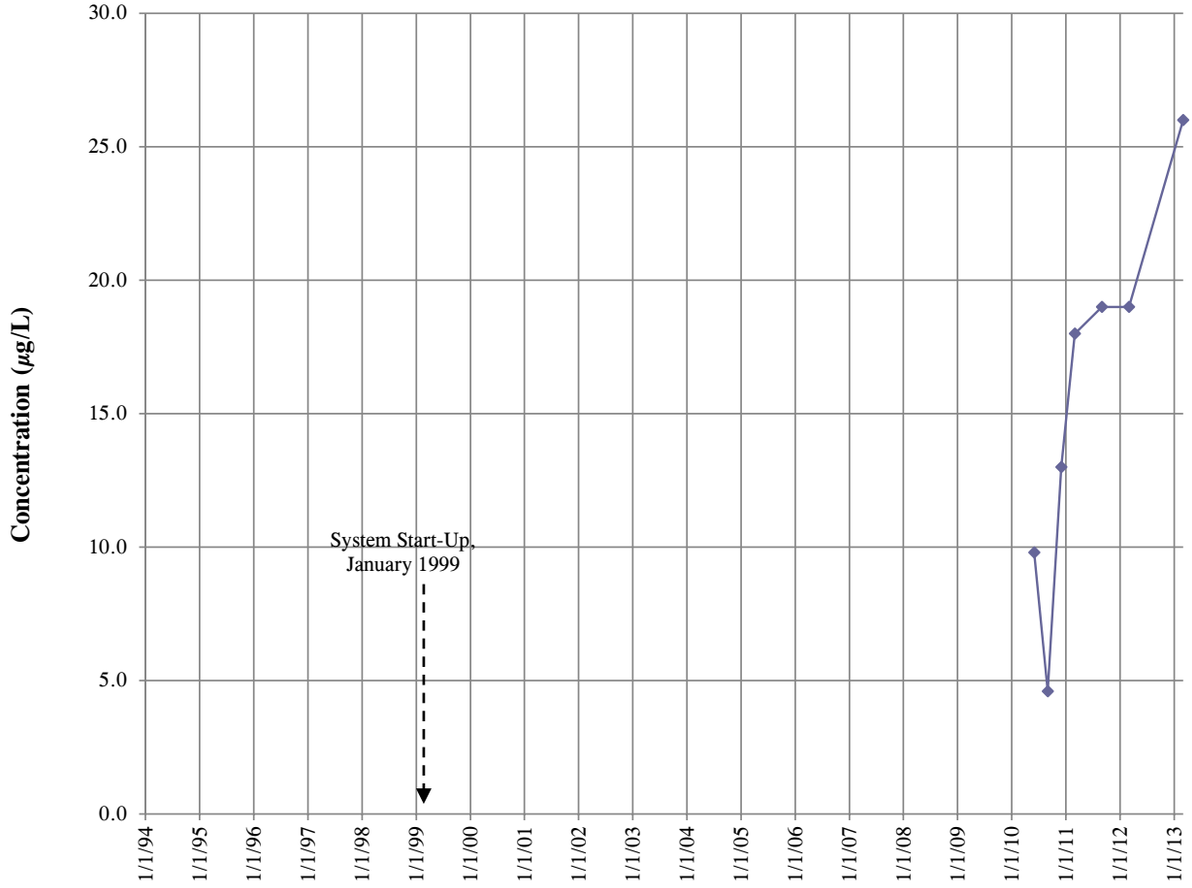
Carbon Tetrachloride	
6/18/10	52
9/24/10	34
12/14/10	50
3/26/11	58
9/29/11	74 J
3/12/12	54
3/29/13	41

Trend Graph 10 - MW-42E Chloroform



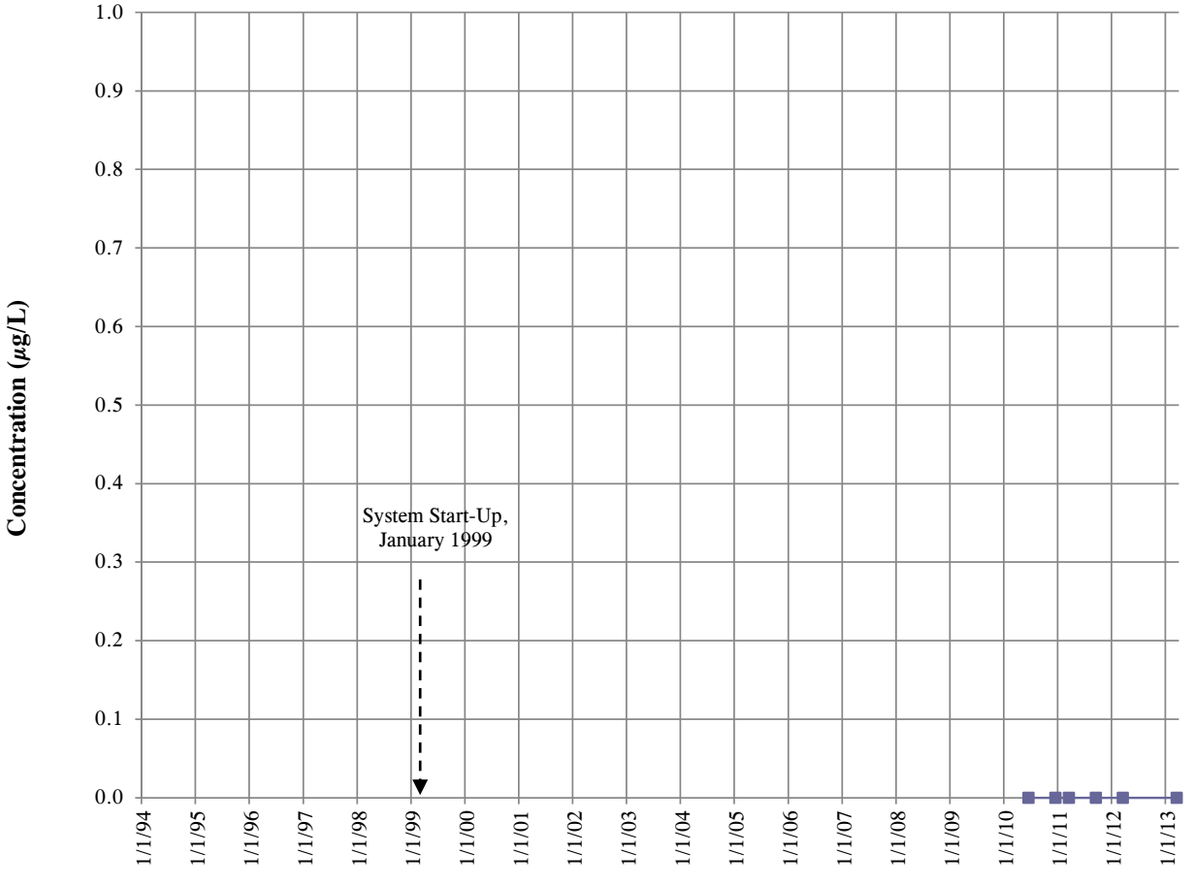
Chloroform	
6/18/10	ND
9/24/10	ND
12/14/10	ND
3/26/11	ND
9/29/11	ND
3/12/12	ND
3/29/13	ND

Trend Graph 11 - MW-44D Carbon Tetrachloride



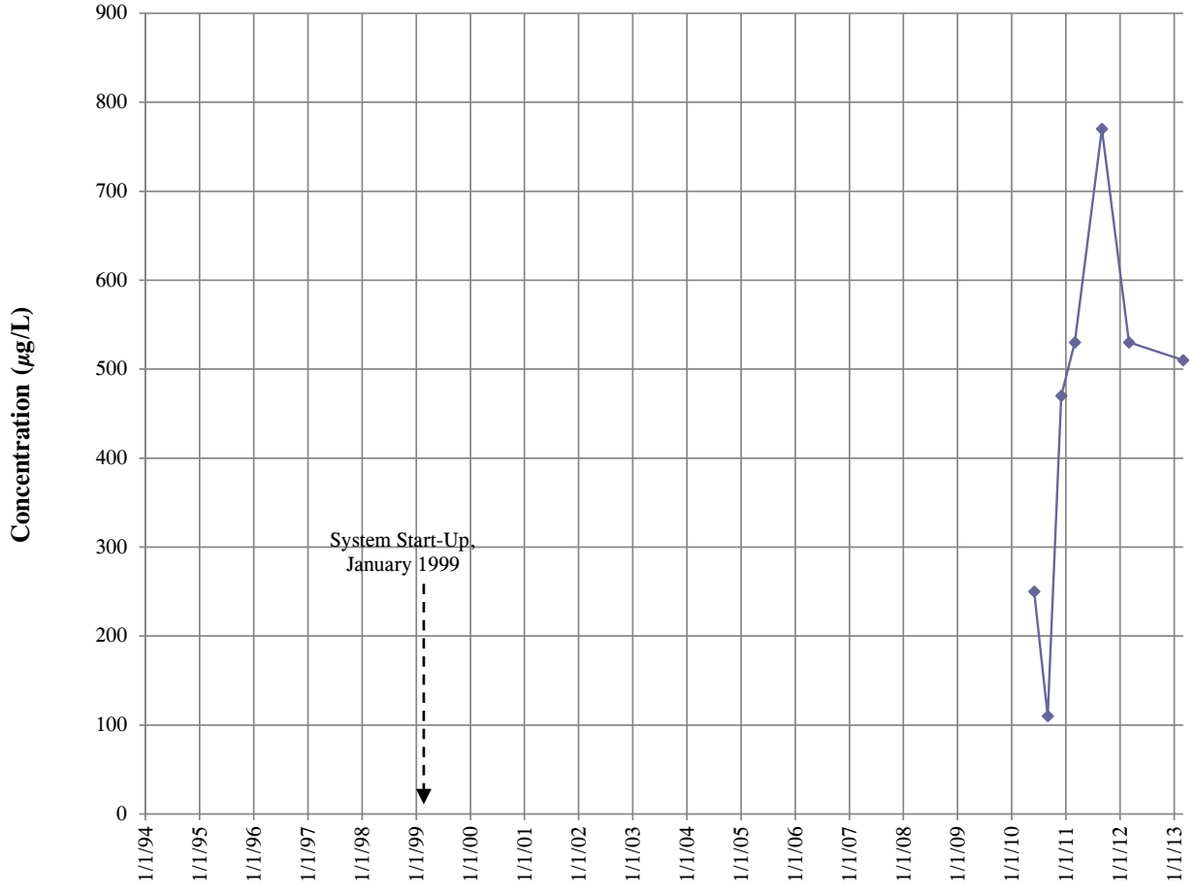
Carbon Tetrachloride	
6/18/10	9.8
9/26/10	4.6
12/14/10	13
3/25/11	18
9/27/11	19
3/15/12	19
3/29/13	26

Trend Graph 12 - MW-44D Chloroform



Chloroform	
6/18/10	ND
9/24/10	ND
12/14/10	ND
3/26/11	ND
9/29/11	ND
3/12/12	ND
3/29/13	ND

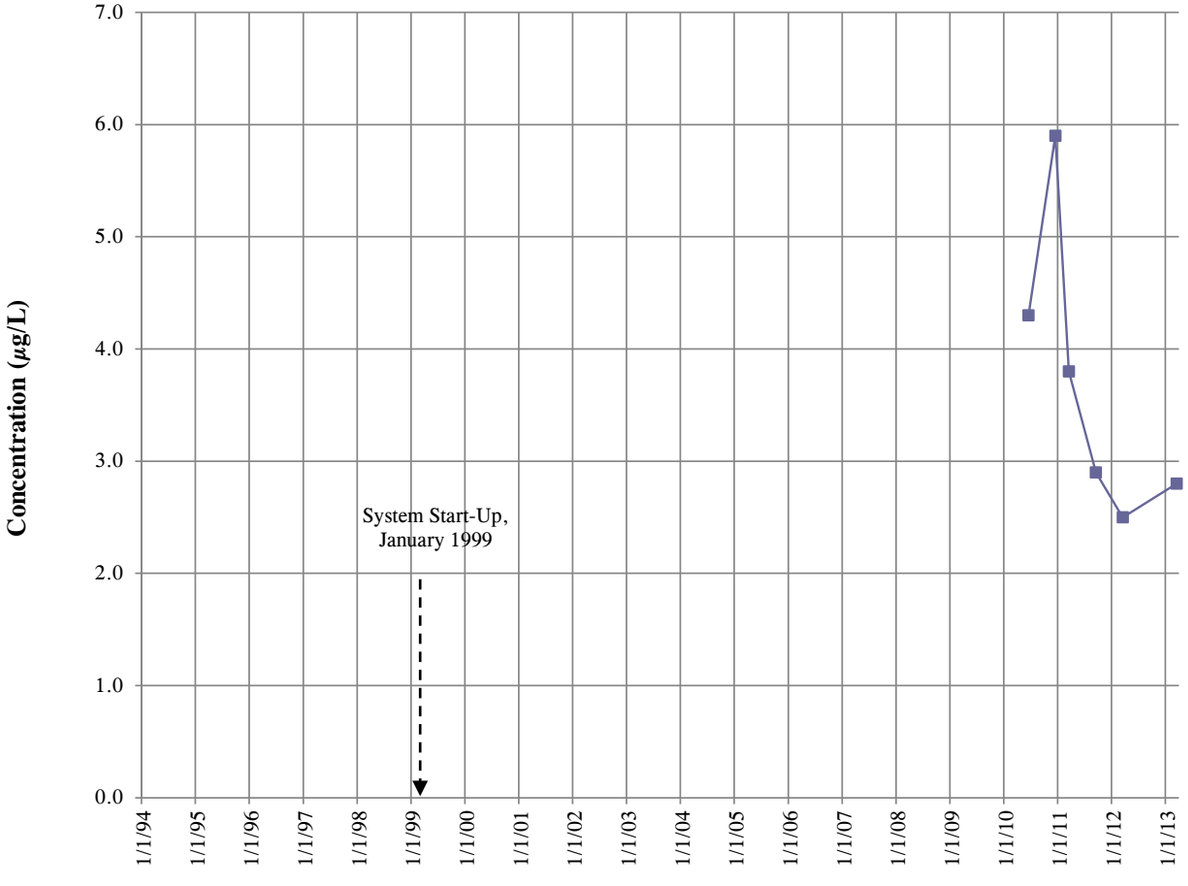
Trend Graph 13 - MW-46D1 Carbon Tetrachloride



Carbon Tetrachloride

6/17/10	250
9/25/10	110
12/18/10	470
3/23/11	530
9/28/11	770
3/16/12	530
3/30/13	510

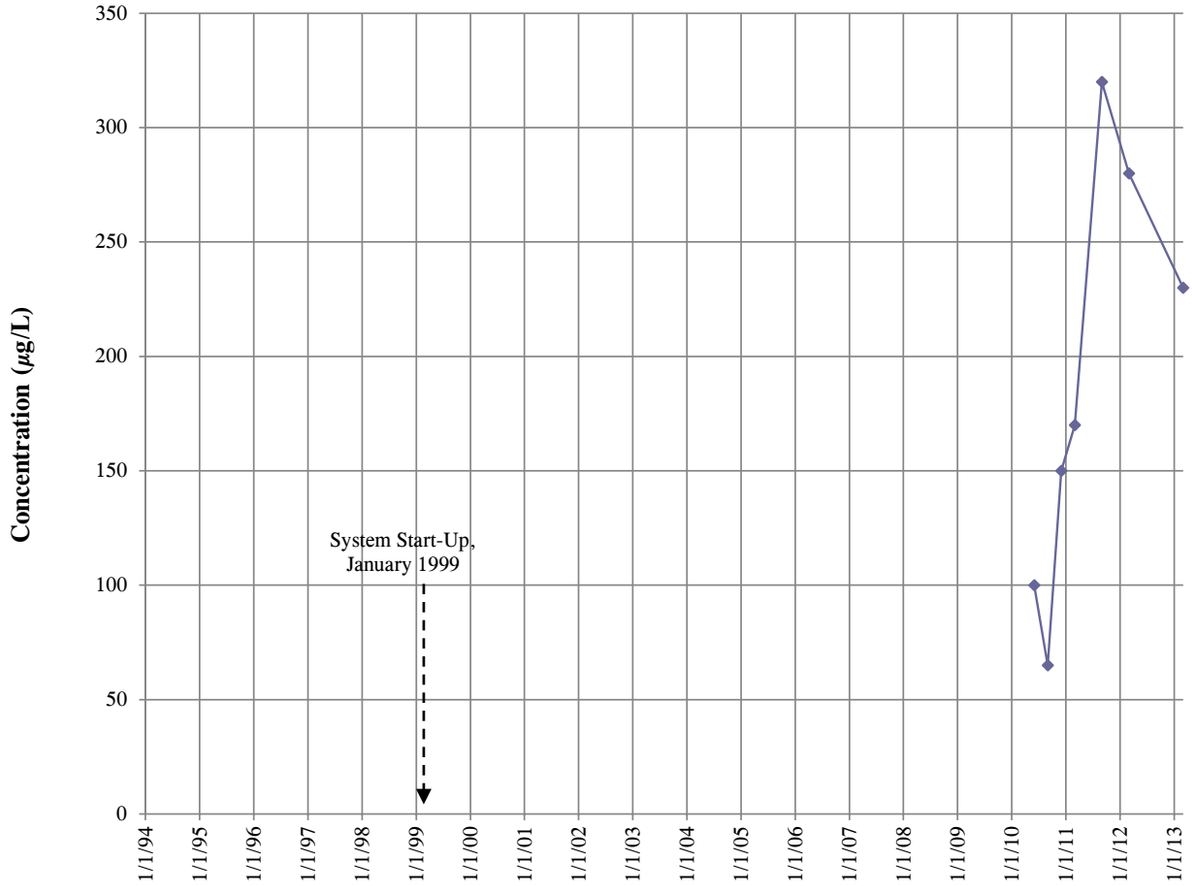
Trend Graph 14 - MW-46D1 Chloroform



Chloroform

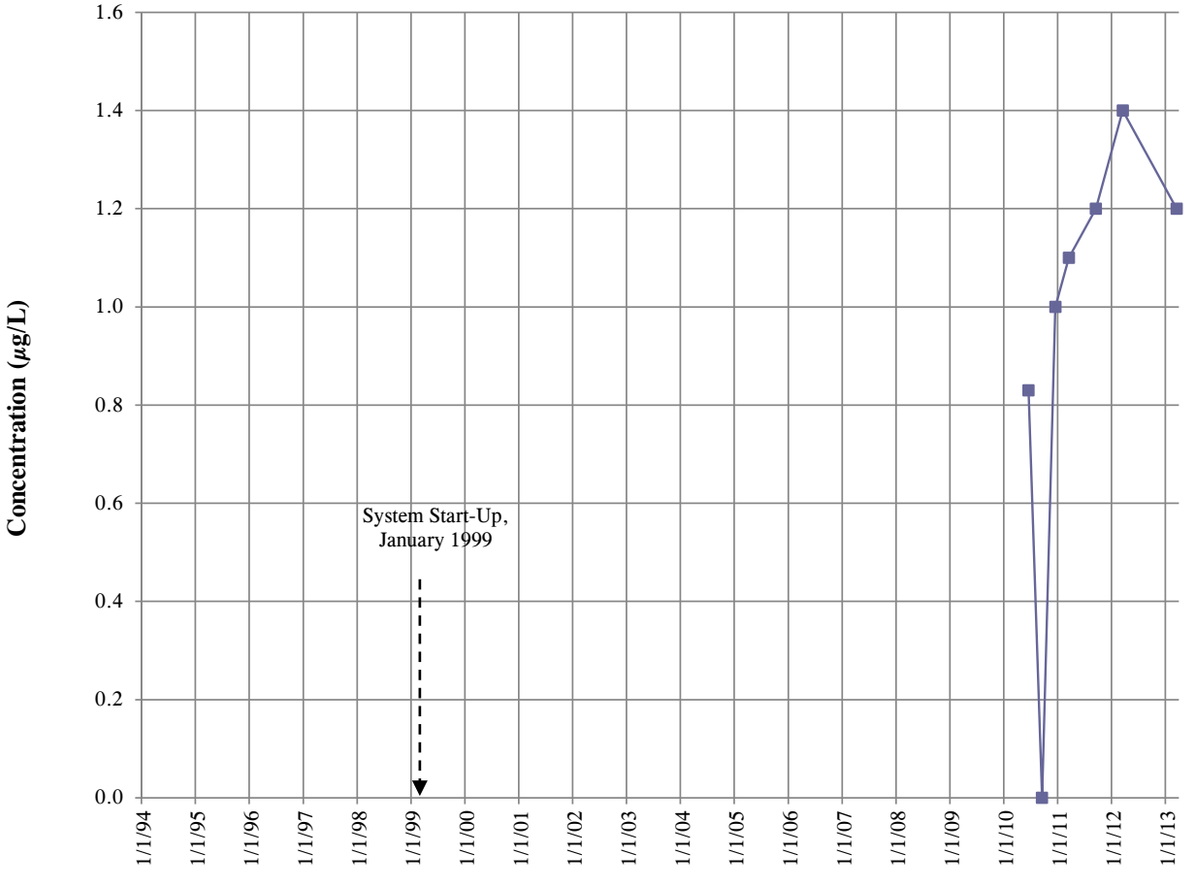
6/17/10	4.3
9/25/10	4.0
12/18/10	5.9
3/23/11	3.8
9/28/11	2.9
3/16/12	2.5
3/30/13	2.8

Trend Graph 15 - MW-46D2 Carbon Tetrachloride



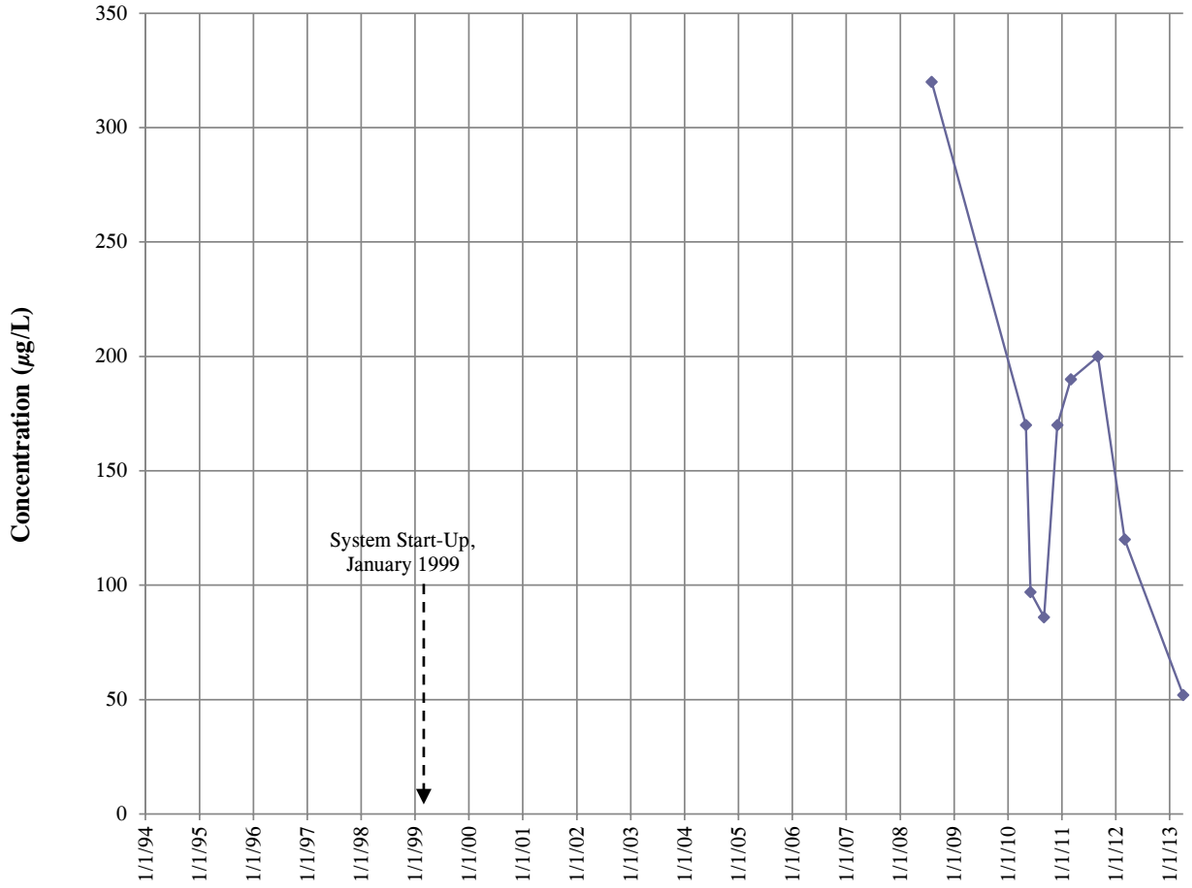
Carbon Tetrachloride	
6/17/10	100
9/25/10	65
12/18/10	150
3/23/11	170
9/28/11	320
3/16/12	280
3/30/13	230

Trend Graph 16 - MW-46D2 Chloroform



Chloroform	
6/17/10	0.8
9/25/10	ND
12/18/10	1
3/23/11	1.1
9/28/11	1.2
3/16/12	1.4
3/30/13	1.2

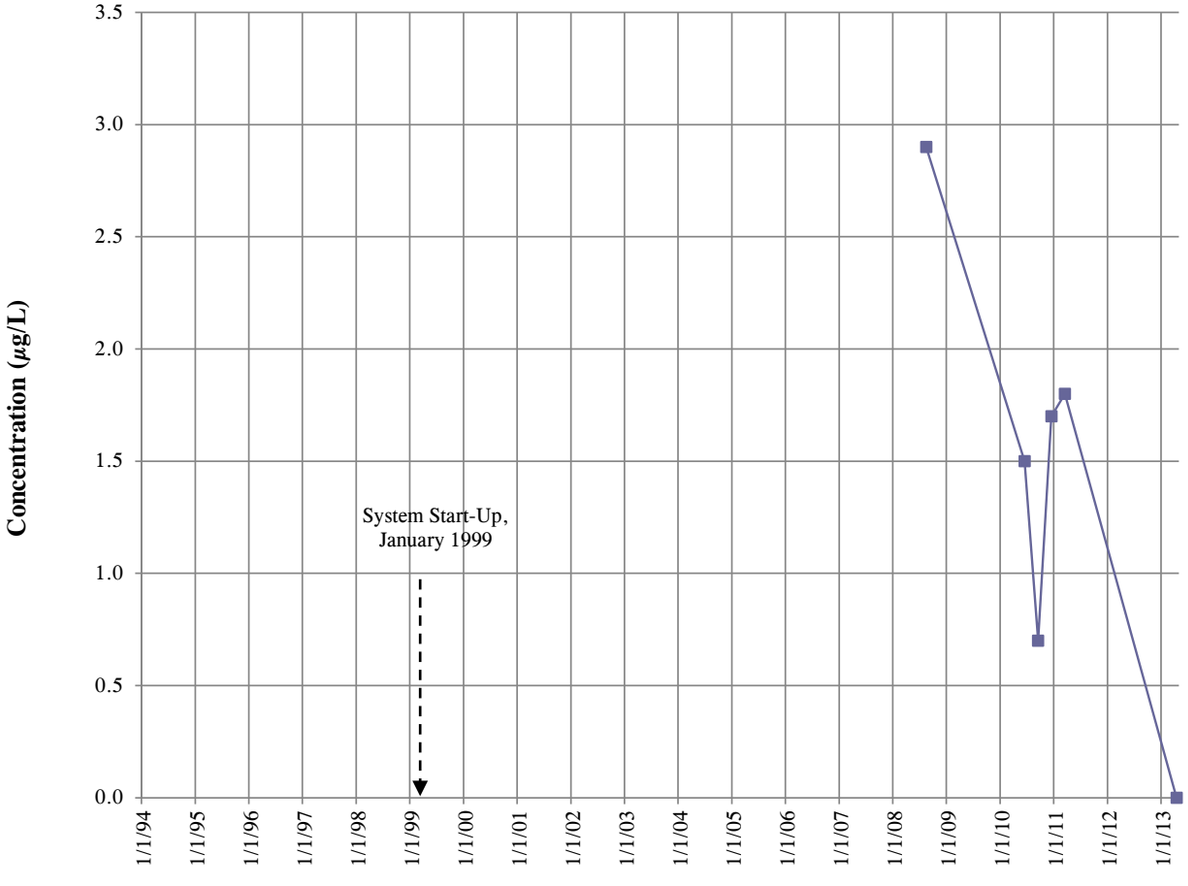
Trend Graph 17 - MW-105C Carbon Tetrachloride



Carbon Tetrachloride

8/8/08	320
5/12/10	170
6/19/10	97
9/26/10	86
12/17/10	170
3/27/11	190
9/28/11	200 J
3/16/12	120
4/2/13	52

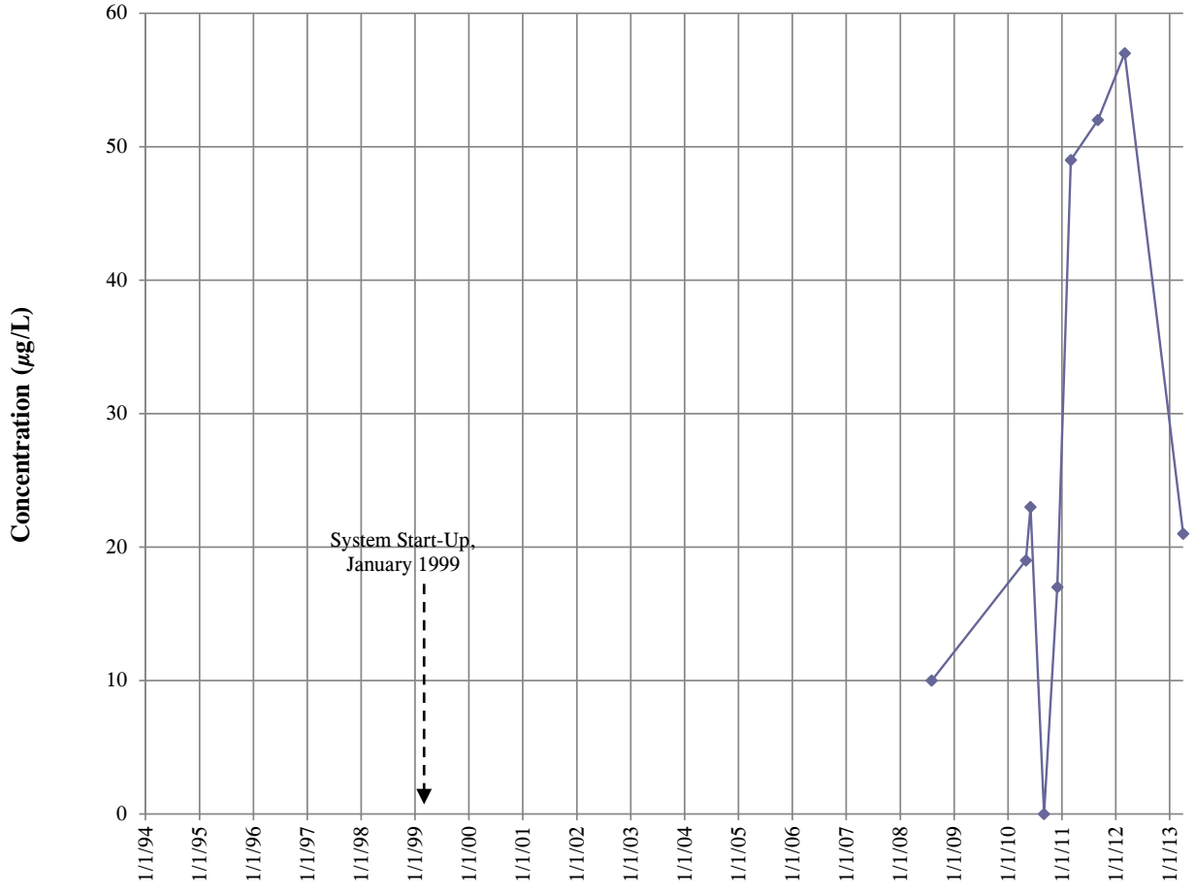
Trend Graph 18 - MW-105C Chloroform



Chloroform

8/8/08	2.9
5/12/10	1.6
6/19/10	1.5
9/26/10	0.7
12/17/10	1.7
3/27/11	1.8
9/28/11	1.2
3/16/12	1.1
4/2/13	ND

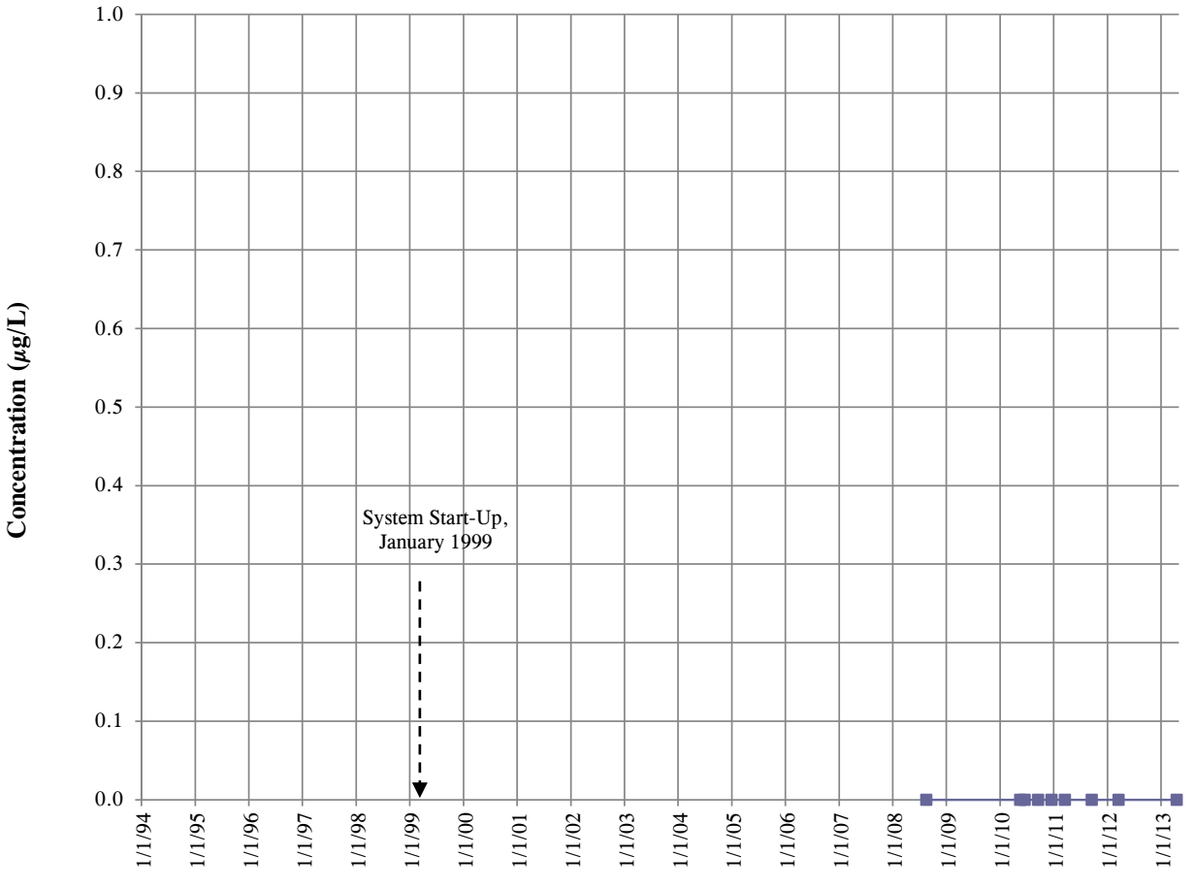
Trend Graph 19 - MW-105D Carbon Tetrachloride



Carbon Tetrachloride

8/8/08	10
5/12/10	19
6/19/10	23
9/26/10	0
12/17/10	17
3/27/11	49
9/28/11	52 J
3/16/12	57
4/2/13	21

Trend Graph 20 - MW-105D Chloroform



Chloroform

8/8/08	ND
5/12/10	ND
6/19/10	ND
9/26/10	ND
12/17/10	ND
3/27/11	ND
9/28/11	ND
3/16/12	ND
4/2/13	ND

ATTACHMENT 4

FIELD SHEETS

(Electronic Form Only)

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WATER LEVEL DATA

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HGL/CDM

MONITORING WELL WATER LEVEL DATA

Site: Garvey	Site Location: Hastings, NE
Field Team: [redacted]	

Measurement Point: ☐ BTOC ☐ BGS ☐ Other (specify) _____

Measurement Device: ☐ Water Level Detector ☐ Weighted Tape

☐ Other (specify) _____

Date	Time	Well ID	PID Reading (ppm)	Well Depth (ft.)	Well SWL (ft.)	Comments/ Weather
3/20/12	1015	MW-44 D		112.07		
3/20/12	1020	MW-44 E		112.10		well cap broken
	1045	MW-42D		123.10		
	1050	MW-42E		123.17		
	1055	MW-106A		122.10		
	1100	MW-106C		124.50		
	1105	MW-106D		124.54		
	1115	MW-43D		127.33		
	1120	MW-43E		127.32		
	1130	MW-41D1		121.16		
	1135	MW-41D2		120.91		
	1145	MW-46D1		115.79		
	1150	MW-46D2		115.95		
	1155	MW-105A		120.78		
	1200	MW-105C		122.35		
	1205	MW-105D		122.10		
	1305	MW-103A		114.13		
	1310	MW-103C		115.65		
	1315	MW-103D		115.30		
	1320	MW-104A		105.85		
	1325	MW-104C		108.04		

HGL/CDM

MONITORING WELL
WATER LEVEL
DATA

(2)

Site: Garvey	Site Location: Hastings, NE
Field Team: [redacted]	

Measurement Point: ☐ BTOC ☐ BGS ☐ Other (specify) _____

Measurement Device: ☐ Water Level Detector ☐ Weighted Tape

☐ Other (specify) _____

Date	Time	Well ID	PID Reading (ppm)	Well Depth (ft.)	Well SWL (ft.)	Comments/ Weather
3/20/12	1330	MW-104D	+RL	107.94		
	1335	MW-16A		109.61		
	1400	MW-16C		109.84		
	1410	MW-12A		113.89		
	1415	MW-12C		114.83		
	1420	MW-12D		114.04		
	1430	MW-14A		102.14		
	1520	MW-18C		109.97		
	1525	MW-18A		108.05		
	1530	MW-18D		110.16		
	1535	MW-45D		103.90		
	1540	MW-45C		103.75		
	1545	MW-17A		95.19		
	1550	MW-17D		94.62		
	1555	MW-17C		94.62		

HGL/CDM

MONITORING WELL
WATER LEVEL
DATA

Site: Garvey, NE | Site Location: Hastings, NE

Field Team: [redacted]

Measurement Point: ☒ BTOC ☐ BGS ☐ Other (specify) _____

Measurement Device: ☒ Water Level Detector ☐ Weighted Tape

☐ Other (specify) _____

Date	Time	Well ID	PID Reading (ppm)	Well Depth (ft.)	Well SWL (ft.)	Comments/ Weather
3/26/13	0953	MW-7A			109.04	
	1004	MW-2A			116.30	
	1008	MW-6D			118.95	
	1012	MW-6A			118.81	
	1010	MW-6E			119.88	
	1020	MW-3E			119.43	
	1022	MW-3A			122.30	
	1024	MW-3B			120.74	
	1037	MW-4A			119.27	
	1048	MW-5B			119.04	
	1050	MW-5A			117.92	
	1106	MW-8A			126.60	
	1113	MW-9A			111.89	
	1138	MW-13E			118.19	
	1241	MW-1A			112.80	Solonist Trans Cap
	1245	MW-3D			120.54	Solonist Trans Cap
	1254	MW-7B			109.63	Solinist Trans Cap
	1303	MW-13C			118.39	Solonist Trans Cap
	1308	MW-5D			119.07	Solonist Trans Cap
	1315	MW-4B			119.02	Solonist Trans Cap
↓	1339	MW-10A			109.06	

HGL/CDM

MONITORING WELL
WATER LEVEL
DATA

Site: GARVEY, NE	Site Location: Hastings NE
Field Team: [redacted]	

Measurement Point: ☒ BTOC ☐ BGS ☐ Other (specify) _____

Measurement Device: ☒ Water Level Detector ☐ Weighted Tape

☐ Other (specify) _____

Date	Time	Well ID	PID Reading (ppm)	Well Depth (ft.)	Well SWL (ft.)	Comments/ Weather
3/26/13	1400	MW-10B			—	Could not find
↓	1420	MW-11A			99.38	

PURGE SHEETS

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LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: NW-12A

Initial Static Water Level (feet btoc): 113.84

Final Water Level (feet btoc): _____

Purge Start Time: 1610

Sample Time: 1650

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-10

Controller Settings: Recharge: 15 secs Discharge: 15 secs Pressure: 70 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1615	113.84	16.13	7.57	0.556	11.44	120.3	2.06	160	
1620	113.86	15.75	6.98	0.661	7.21	118.2	2.56	160	
1625	113.86	15.36	6.96	0.664	5.98	115.2	2.95	160	
1630	13.86	15.24	6.95	0.663	5.61	112.6	2.38	160	
1635	13.86	15.15	6.95	0.664	5.24	111.6	1.66	160	
1640	13.86	15.15	6.95	0.664	5.08	110.0	1.53	160	
1645	13.86	15.20	6.95	0.665	5.07	109.5	1.45	160	
1650	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: MW-12C

Initial Static Water Level (feet btoc): 114.78

Final Water Level (feet btoc): _____

Purge Start Time: 1725

Sample Time: 1805

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: L6047-11

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 90 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1730	114.78	16.91	7.70	0.421	7.53	186.9	0.63	150	
1735	114.78	14.70	6.85	0.414	5.34	182.7	0.85	150	
1740	114.78	14.39	6.87	0.412	4.91	168.6	0.68	150	
1745	114.78	14.22	6.84	0.410	4.95	161.3	0.61	150	
1750	114.78	14.19	6.85	0.409	4.73	154.1	0.53	150	
1755	114.78	14.12	6.84	0.407	4.69	148.0	0.63	150	
1800	114.78	14.11	6.84	0.406	4.68	145.0	0.68	150	
1805	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/27/13

Well ID: MW-12D

Initial Static Water Level (feet btoc): 114.04

Final Water Level (feet btoc): _____

Purge Start Time: 1155

Sample Time: 1315

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-1

Controller Settings: Recharge: 15 secs Discharge: 15 secs Pressure: 90 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1235	114.05	12.74	7.16	0.305	~~9.89~~ 9.89	154.3	0.36	.200	
1240	114.05	12.60	6.97	0.295	8.65	130.6	0.33	.200	
1245	114.05	12.47	6.94	0285	7.97	121.3	0.33	200	
1250	114.05	12.57	6.93	0.287	7.57	119.5	0.38	.200	
1255	114.05	12.75	6.93	0.290	7.24	118.6	0.20	.200	
1300	114.05	12.88	6.92	0.291	6.91	117.9	0.14	.200	
1305	114.05	12.96	6.92	0.293	6.80	117.3	0.15	.200	
1310	114.05	12.92	6.92	0.293	6.72	116.8	0.15	.200	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: _____

Well ID: MW-14A

Initial Static Water Level (feet btoc): 102.13

Final Water Level (feet btoc): 102.13

Purge Start Time: 1850

Sample Time: 1940

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-101

Controller Settings: Recharge: 7 secs Discharge: 13 secs Pressure: 60 psi

Cycles Per Minute: 3

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1855	102.13	13.04	6.74	0.629	7.00	267.0	2.90	200	
1900	102.13	12.94	6.70	0.633	6.17	241.4	2,26	200	
1905	102.13	12.75	6.67	0.632	6.10	218.1	2.24	200	
1910	102.13	12.56	6.66	0.632	6.07	200.1	1.48	200	
1915	102.13	12.36	6.65	0.632	6.56	187.2	1.02	200	
1920	102.13	12.20	6.63	0.630	6.46	182.2	0.75	200	
1925	102.13	12.26	6.63	0.630	6.62	175.4	0.34	200	
1930	102.13	12.14	6.63	0.629	6.57	169.6	0.30	200	
1935	102.13	11.99	6.62	0.628	6.77	165.9	0.34	200	
1940	Complete Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-16A

Initial Static Water Level (feet btoc): 109.61

Final Water Level (feet btoc): 109.61

Purge Start Time: 1640

Sample Time: 1730

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: 10047-19

Sample Number: N/A

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 65 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1650	109.61	14.23	6.97	0.631	6.82	221.3	2.93	200	
1655	109.61	14.27	6.95	0.633	6.58	216.3	3.84	200	
1700	109.61	15.30	6.94	0.664	5.60	196.8	0.79	200	
1705	109.61	15.53	6.93	0.674	5.53	183.0	0.44	200	
1710	109.61	14.28	6.93	0.662	5.88	172.8	0.31	200	
1715	109.61	14.78	6.91	0.666	6.04	165.6	0.81	200	
1720	109.61	14.26	6.92	0.662	5.61	160.6	0.73	200	
1725	109.61	14.39	6.91	0.660	5.81	157.7	0.10	200	
1730	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-16C

Initial Static Water Level (feet btoc): 109.83

Final Water Level (feet btoc): 109.83

Purge Start Time: 1755

Sample Time: 1835

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 060720

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1800	109.83	13.84	7.56	0.412	9.28	210.4	0.76	200	
1805	109.83	13.11	6.77	0.502	7.29	197.3	0.28	200	
1810	109.83	12.97	6.74	0.511	6.82	185.7	0.15	200	
1815	109.83	12.97	6.75	0.518	6.81	177.8	0.10	200	
1820	109.83	12.90	6.74	0.521	7.15	171.0	0.14	200	
1825	109.83	12.78	6.72	0.520	6.92	167.3	0.13	200	
1830	109.83	12.75	6.72	0.520	6.71	163.4	0.26	200	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: MW-17A

Initial Static Water Level (feet btoc): 94.97

Final Water Level (feet btoc): _____

Purge Start Time: 1340

Sample Time: 1430

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-8

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 65 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1345	94.97	14.75	7.62	0.574	6.11	242.2	7.48	200	
1350	94.97	13.61	7.41	0.585	3.49	201.8	10.20	200	
1355	94.97	13.40	7.50	0585	3.04	176.9	9.50	200	
1400	94.97	13.31	7.56	0.589	2.97	159.0	9.00	200	
1405	94.97	13.08	7.62	0.591	2.86	146.3	5.45	200	
1410	94.97	13.08	7.65	0.592	2.40	135.1	3.97	200	
1415	94.97	12.65	7.66	0.592	2.40	128.1	2.97	200	
1420	94.97	12.75	7.68	0.593	2.38	123.5	2.49	200	
1425	94.97	12.99	7.69	0.594	2.29	119.4	1.89	200	
1430	Collected Sample.								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: _____

Well ID: MW-17D

Purging/Sampling Device: Bladder Pump

Initial Static Water Level (feet btoc): 94.68

Analytical Parameters: Select LDL VOCs

Final Water Level (feet btoc): 94.68

QC Samples Collected: N/A

Purge Start Time: 1230

Sample Number: 6047-7

Sample Time: 1320

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 95 psi

Samplers= Signatures: [redacted]

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1235	94.68	12.43	7.52	0.203	5.33	216.1	2.18	200	
1240	94.68	12.28	7.29	0.201	4.10	183.6	2.76	200	
1245	94.68	12.25	7.24	0.200	3.85	161.8	2.24	200	
1250	94.68	12.27	7.24	0.199	3.79	150.5	1.90	200	
1255	94.68	12.27	7.21	0.199	3.70	141.9	1.50	200	
1300	94.68	12.30	7.20	0.199	3.63	135.9	1.30	200	
1305	94.68	12.33	7.20	0.199	3.58	128.0	1.10	200	
1310	94.68	12.37	7.20	0.200	3.55	122.3	0.89	200	
1315	94.68	12.40	7.19	0.200	3.54	119.4	0.69	200	
1320	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/27/13

Well ID: MW-18A

Initial Static Water Level (feet btoc): 108.66

Final Water Level (feet btoc): 107.29

Purge Start Time: 1430

Sample Time: ~~6047-2RL~~ 1555

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: MS/MSD (6047-2-MS, 6047-2-MSD)

Sample Number: 6047-2

Controller Settings: Recharge: 9 secs Discharge: 6 secs Pressure: 80 psi

Cycles Per Minute: 4

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
~~1440~~	107.29	13.25	7.11	0.234	5.34	157.9	174.5	100	
1445	107.29	12.78	6.77	0.227	3.43	146.2	103.0	100	
1450	107.29	12.60	6.70	0.223	2.96	142.6	84.1	100	
1455	107.29	12.60	6.78	0.221	2.57	134.2	59.8	100	
1500	107.29	12.47	6.89	0.219	2.23	123.1	45.0	100	
1505	107.29	12.48	6.88	0.218	2.14	118.9	36.6	100	
1510	107.29	12.38	6.78	0.218	2.07	118.3	30.3	100	
1515	107.29	12.33	6.74	0.217	2.03	115.5	27.0	100	
1520	107.29	12.39	6.94	0.216	2.00	110.6	22.3	100	
1525	107.29	12.39	6.95	0.216	2.00	109.7	18.6	100	
1530	107.29	12.39	6.95	0.216	1.95	108.1	16.0	100	
1535	107.29	12.40	6.95	0.217	1.93	106.1	13.5	100	
1540	107.29	12.43	6.96	0.217	1.99	104.7	11.3	100	
1545	107.29	12.45	6.94	0.217	1.90	103.2	10.7	100	
1550	107.29	12.46	6.94	0.217	1.89	102.5	10.1	100	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3-27-13

Well ID: MW-18C

Initial Static Water Level (feet btoc): 109.97

Final Water Level (feet btoc): _____

Purge Start Time: 1630

Sample Time: 1720

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 60473

Controller Settings: Recharge: 15 secs Discharge: 15 secs Pressure: 85 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1635	109.97	14.38	8.47	0.276	8.12	225.4	0.51	225	
1640	109.97	13.02	6.77	0.398	7.52	211.7	0.36	225	
1645	109.97	12.89	6.76	0.409	6.59	207.6	0.15	225	
1650	109.97	12.89	6.78	0.411	5.67	185.4	0.16	225	
1655	108.97	12.78	6.78	0.413	5.46	171.9	0.14	225	
PM 1700	109.97	12.70	6.79	0.413	5.30	159.9	0.15	225	
1705	109.97	12.75	6.79	0.414	5.07	153.6	0.14	225	
1710	109.97	12.81	6.78	0.414	4.74	148.0	0.12	225	
1715	109.97	12.73	6.78	0.413	4.64	144.3	0.12	225	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/27/13

Well ID: MW-18D

Initial Static Water Level (feet btoc): 110.14

Final Water Level (feet btoc): _____

Purge Start Time: 1790

Sample Time: 1920

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-4

Controller Settings: Recharge: 20 secs Discharge: 10 secs Pressure: 05 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1830	110.16	12.46	8.55	0.312	8.69	281.5	0.59	100	
1835	110.16	12.00	7.54	0.311	8.10	250.0	0.58	100	
1840	110.16	11.80	7.27	0.310	6.65	229.8	0.80	100	
1845	110.16	11.73	7.22	0.309	4.84	213.6	0.72	100	
1850	110.16	11.67	7.19	0.309	3.98	202.2	0.77	100	
1855	110.16	11.62	7.16	0.308	2.99	188.4	1.11	1000	
1900	110.16	11.58	7.15	0.307	2.74	183.1	0.64	100	
1905	110.16	11.50	7.15	0.306	2.39	175.3	0.95	100	
1910	110.16	11.45	7.11	0.307	2.30	170.0	0.63	100	
1915	110.16	11.40	7.11	0.306	2.28	166.9	0.57	100	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-41D

Initial Static Water Level (feet btoc): 121.08

Final Water Level (feet btoc): 121.08

Purge Start Time: 1155

Sample Time: 1300

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected:

Sample Number:

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 85 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1200	121.08	14.40	7.37	0.448	6.05	227.0	25.58	200	
1205	121.08	13.60	6.85	0.453	6.59	197.5	23.7	200	
1210	121.08	13.48	6.81	0.463	6.86	185.4	27.4	200	
1215	121.08	13.43	6.80	0.452	6.78	174.3	36.1	200	
1220	121.08	13.45	6.80	0.453	6.78	163.3	27.5	200	
1225	121.08	13.54	6.80	0.454	6.58	156.2	22.7	200	
1230	121.08	13.59	6.80	0.454	6.59	151.6	18.6	200	
1235	121.08	13.69	6.80	0.455	6.60	146.7	15.0	200	
1240	121.08	13.74	6.80	0.456	6.63	143.0	10.3	200	
1245	121.08	13.69	6.80	0.456	6.58	139.9	7.24	200	
1250	121.08	14.00	6.80	0.459	6.56	137.3	4.89	200	
1255	121.08	14.00	6.80	0.459	6.50	135.9	3.29	200	
1300	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-41D2

Initial Static Water Level (feet btoc): 120.59

Final Water Level (feet btoc): 120.59

Purge Start Time: 1050

Sample Time: 1130

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-14

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 110 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1055	120.59	12.70	8.59	0.233	8.31	162.7	1.15	200	
1100	120.59	12.49	7.24	0.241	6.56	163.4	16.2	200	
1105	120.59	12.53	7.01	0.243	5.29	158.0	9.61	200	
1110	120.59	12.54	6.99	0.244	4.88	151.2	4.74	200	
1115	120.59	12.90	6.98	0.246	4.74	147.0	4.53	200	
1120	120.59	12.78	6.99	0.245	4.65	143.0	3.98	200	
1125	120.59	12.97	6.98	0.245	4.66	141.3	3.65	200	
1130	Collected Samples								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-42D

Initial Static Water Level (feet btoc): 123.00

Final Water Level (feet btoc): 123.00

Purge Start Time: 1347

Sample Time: 1500

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: MS/MSD

Sample Number: 6047-105

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1400	123.00	17.01	7.59	0.395	6.02	209.5	47.7	100	
1405	123.00	16.71	7.10	0.397	6.64	172.8	42.1	100	
1410	123.00	16.84	7.37	0.398	6.72	161.1	35.6	100	
1415	123.00	16.95	7.33	0.399	6.52	146.5	33.4	100	
1420	123.00	16.91	7.30	0.399	6.73	137.6	31.1	100	
1425	123.00	17.03	6.97	0.399	6.63	133.4	27.0	100	
1430	123.00	17.09	6.95	0.400	6.66	125.1	24.7	100	
1435	123.00	17.08	6.95	0.400	6.52	118.8	16.5	100	
1440	123.00	17.15	6.94	0.401	6.52	114.1	13.6	100	
1445	123.00	17.19	6.94	0.402	6.52	111.2	11.2	100	
1450	123.00	17.25	6.94	0.402	6.49	109.9	11.1	100	
1455	123.00	17.28	6.94	0.403	6.42	107.8	10.3	100	
1500	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-48C

Initial Static Water Level (feet btoc): 123.08

Final Water Level (feet btoc): _____

Purge Start Time: 1130

Sample Time: _____

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 1100 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1145	123.08	13.88	7.13	0.299	6.83	200.7	986	200	
1150	123.08	14.03	7.06	0.301	6.05	177.0	558	200	
1155	123.08	14.03	7.05	0.301	5.77	165.4	385	200	
1200	123.08	14.16	7.05	0.302	5.44	150.4	228	200	
1205	123.08	14.34	7.05	0.304	5.30	143.6	144	200	
1210	123.08	14.51	7.05	0.305	5.21	134.8	92.2	200	
1215	123.08	14.61	7.04	0.305	5.10	129.9	79.7	200	
1220	123.08	14.76	7.05	0.306	4.96	125.2	58.1	200	
1225	123.08	14.98	7.03	0.308	4.64	119.7	47.8	200	
1230	123.08	14.95	7.04	0.308	4.69	115.0	39.6	200	
1235	123.08	15.02	7.04	0.308	4.60	113.2	36.2	200	
1240	123.08	15.20	7.04	0.310	4.59	108.8	29.6	200	
1245	123.08	15.31	7.04	0.310	4.58	106.5	28.3	200	
1250	123.08	15.43	7.04	0.311	4.48	104.4	22.8	200	
1255	123.08	15.44	7.04	0.311	4.55	102.0	18.8	200	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-42E (cont)

Purging/Sampling Device: Bladder Pump

Initial Static Water Level (feet btoc): _____

Analytical Parameters: Select LDL VOCs

Final Water Level (feet btoc): _____

QC Samples Collected: _____

Purge Start Time: _____

Sample Number: _____

Sample Time: _____

Controller Settings: Recharge: _____ secs Discharge: _____ secs Pressure: _____ psi

Samplers= Signatures [redacted]

Cycles Per Minute: _____

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1300	123.08	15.52	7.04	0.312	4.55	100.6	16.8	200	
1305	123.08	15.73	7.04	0.314	4.48	99.2	15.9	200	
1310	123.08	15.70	7.04	0.314	4.50	98.6	15.5	200	
1315	Collect samples								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-43D

Initial Static Water Level (feet btoc): 127.35

Final Water Level (feet btoc): 127.35

Purge Start Time: 0915

Sample Time: 0955

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected:

Sample Number:

Controller Settings: Recharge: 15 secs Discharge: 15 secs Pressure: 110 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0920	127.35	11.44	8.12	0.233	10.67	197.6	6.43	250	
0925	127.35	11.76	6.77	0.335	7.93	198.3	7.56	250	
0930	127.35	11.84	6.69	0.354	7.32	189.9	4.88	250	
0935	127.35	11.84	6.69	0.363	6.94	182.6	3.94	250	
0940	127.35	11.82	6.70	0.366	6.72	177.2	2.60	250	
0945	127.35	11.77	6.70	0.365	6.69	173.5	2.53	250	
0950	127.35	11.76	6.71	0.365	6.59	169.0	1.15	250	
0955	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/30/13

Well ID: MW-43E

Initial Static Water Level (feet btoc): 127.30

Final Water Level (feet btoc): 127.30

Purge Start Time: 0805

Sample Time: 0850

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-12

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 110 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0815	127.30	11.59	6.90	0.308	9.54	223.6	6.97	200	
0820	127.30	11.69	6.78	0.284	7.01	209.0	6.78	200	
0825	127.30	11.69	6.77	0.291	6.57	203.3	4.96	200	
0830	127.30	11.72	6.76	0.276	6.24	189.0	3.25	200	
0835	127.30	11.77	6.76	0.276	6.06	179.5	2.32	200	
0840	127.30	11.77	6.76	0.276	6.02	174.5	1.50	200	
0845	127.30	11.76	6.77	0.276	5.97	170.3	1.31	200	
0850	~~127.30~~	Collected Sample						~~200~~ TSW	

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-44D

Initial Static Water Level (feet btoc): 111.99

Final Water Level (feet btoc): 111.99

Purge Start Time: 0950

Sample Time: 1030

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: 6047-103-FD

Sample Number: 6047-103

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 110 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0955	111.99	12.07	7.85	0.255	5.72	153.5	4.55	200	
1000	111.99	12.00	7.06	0.270	6.85	164.1	3.69	200	
1005	111.99	12.07	6.93	0.281	6.71	158.3	5.52	200	
1010	111.99	12.12	6.92	0.286	6.59	151.8	8.54	200	
1015	111.99	12.14	6.92	0.290	6.46	148.2	9.83	200	
1020	111.99	12.18	6.92	0.291	6.40	144.7	8.31	200	
1025	111.99	12.24	6.93	0.291	6.32	143.1	9.11	200	
1030	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

HGL CDM

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-44E

Initial Static Water Level (feet btoc): 112.02

Final Water Level (feet btoc): _____

Purge Start Time: 0840

Sample Time: 0925

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: _____

Sample Number: _____

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 110 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
~~0845~~ ~~112.02~~	112.02	10.96	8.27	0.256	68.52	208.0	2.00	250	
0850	112.02	10.97	7.14	0.230	9.13	200.8	2.00	250	
0855	112.02	10.92	7.07	0.228	7.56	206.1	2.05	250	
0900	112.02	11.17	7.04	0.226	6.20	184.7	1.18	250	
0905	112.02	11.30	7.11	0.226	4.56	172.6	1.03	250	
0910	112.02	11.38	7.11	0.226	4.10	166.6	0.85	250	
0915	112.02	11.45	7.09	0.226	3.99	162.8	0.65	250	
0920	112.02	11.51	7.09	0.226	3.97	159.3	0.60	250	
0925	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3-28-13

Well ID: MW-45C

Initial Static Water Level (feet btoc): 103.80

Final Water Level (feet btoc): _____

Purge Start Time: 1025

Sample Time: 1110

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: 6047-6-FD

Sample Number: 6047-6

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 78 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1030	103.80	10.20	8.18	0251	9.96	191.8	8.70	100	
1035	103.80	10.86	7.30	0.369	7.82	184.0	8.15	100	
1040	103.80	11.02	7.19	0.396	6.67	175.2	9.11	100	
1045	103.80	11.10	7.20	0.405	6.04	167.1	9.21	100	
1050	103.80	11.17	7.21	0.408	5.75	162.2	8.51	100	
1055	103.80	11.43	7.21	0.411	5.48	154.4	10.2	100	
1100	103.80	11.58	7.20	0.413	5.29	148.6	9.3	100	
1105	103.80	11.63	7.19	0.415	5.28	146.9	9.8	100	
1110	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: MW-45D

Initial Static Water Level (feet btoc): 103.44

Final Water Level (feet btoc): 103.44

Purge Start Time: 0910

Sample Time: 0950

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: NA

Sample Number: 6047-5

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 90 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
0915	103.44	9.42	7.45	0.287	61.00	214.3	1.88	250	
0920	103.44	9.44	6.95	0.343	16.37	218.2	3.70	250	
0925	103.44	9.72	6.96	0.358	9.98	193.9	4.58	250	
0930	103.44	9.80	6.97	0.360	8.99	189.8	3.47	250	
0935	103.44	9.98	6.97	0.362	8.70	186.8	1.59	250	
0940	103.44	10.02	6.99	0.361	8.25	185.9	1.67	250	
0945	103.44	10.35	7.02	0.364	8.14	179.2	0.70	250	
0950	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: _____

Well ID: MW-46D,

Initial Static Water Level (feet btoc): 115.71

Final Water Level (feet btoc): 115.71

Purge Start Time: 1340

Sample Time: 1435

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-16

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 90 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1345	115.71	16.76	7.42	0.406	13.34	129.4	>1000	200	
1350	115.71	15.84	6.82	0.450	7.38	128.6	>1000	200	
1355	115.71	15.39	6.79	0.450	6.61	125.5	>1000	200	
1400	115.71	15.40	6.80	0.449	5.95	122.3	>1000	200	
1405	115.71	15.30	6.80	0.449	5.82	119.2	>1000	200	
1410	115.71	15.27	6.80	0.448	5.75	118.2	>1000	200	
1415	115.71	15.34	6.80	0.448	5.84	115.4	>1000	200	
1420	115.71	15.32	6.80	0.448	6.00	113.8	>1000	200	
1425	115.71	15.41	6.80	0.448	5.86	117.1	>1000	200	
1430	115.71	15.38	6.80	0.447	5.90	111.2	>1000	200	
1435	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: _____

Well ID: MW-46D2

Initial Static Water Level (feet btoc): 115.63

Final Water Level (feet btoc): 115.63

Purge Start Time: 14:50

Sample Time: 1535

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 60047-17

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 105 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1500	115.63	16.97	7.71	0.338	7.70	149.2	36.4	250	
1505	115.63	15.27	7.01	0.407	5.80	142.1	8.51	250	
1510	115.63	14.83	6.94	0.410	5.80	133.7	7.58	250	
1515	115.63	14.84	6.95	0.410	5.91	129.1	4.89	250	
1520	115.63	14.75	6.95	0.410	5.82	124.9	4.74	250	
1525	115.63	14.76	6.95	0.410	5.84	121.3	4.76	250	
1530	115.63	14.79	6.95	0.410	5.77	119.3	4.30	250	
1535	Collect samples								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 4/2/13

Well ID: MW-105A

Initial Static Water Level (feet btoc): 120.67

Final Water Level (feet btoc): 120.67

Purge Start Time: 1410

Sample Time: 15:15

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: —

Sample Number: 6047-116

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1420	120.67	12.96	7.22	0.685	6.51	151.8	0.66	200	
1425	120.67	12.74	7.21	0.703	5.26	132.6	0.59	200	
1430	120.67	12.62	7.24	0.712	4.59	111.4	1.03	200	
1435	120.67	12.64	7.27	0.716	3.82	89.7	0.98	200	
1440	120.67	12.60	7.28	0.718	3.38	80.4	0.62	200	
1445	120.67	12.59	7.31	0.719	3.13	69.5	0.65	200	
1450	120.67	12.59	7.34	0.720	2.86	61.8	0.66	200	
1455	120.67	12.55	7.36	0.719	2.63	54.6	0.47	200	
1500	120.67	12.50	7.38	0.719	2.41	50.0	0.45	200	
1505	120.67	12.44	7.40	0.716	2.35	47.1	0.41	200	
1510	120.67	12.48	7.42	0.717	2.28	43.8	0.40	200	
1515	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: _____

Well ID: MW-105C

Initial Static Water Level (feet btoc): 116.91

Final Water Level (feet btoc): 116.91

Purge Start Time: 1240

Sample Time: 1330

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: —

Sample Number: 6047-115

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 95 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1250	116.91	12.44	6.87	0.506	6.47	123.5	0.96	200	
1255	116.91	12.34	6.89	0.515	5.97	126.4	0.83	200	
1300	116.91	12.32	6.87	0.521	5.19	128.6	1.08	200	
1305	116.91	12.34	6.93	0.524	4.91	128.9	0.93	200	
1310	116.91	12.42	6.93	0.525	4.79	130.0	0.84	200	
1315	116.91	12.43	6.96	0.526	4.65	130.5	0.80	200	
1320	116.91	12.32	6.93	0.526	4.66	131.4	0.96	200	
1325	116.91	12.39	6.92	0.525	4.62	131.9	0.92	200	
1330	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 04/02/13

Well ID: MW-105D

Initial Static Water Level (feet btoc): 122.09

Final Water Level (feet btoc): 122.09

Purge Start Time: 11:00

Sample Time: 1150

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: 6047-110-FD

Sample Number: 6047-110

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 105 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1110	122.09	10.50	6.91	0.271	9.60	269.9	0.58	250	
1115	122.09	10.81	5.70	0.255	6.71	251.1	0.44	250	
1120	122.09	10.94	5.61	0.251	6.00	233.2	0.38	250	
1125	122.09	10.97	5.72	0.250	5.75	215.0	0.34	250	
1130	122.09	11.01	5.86	0.250	5.55	200.9	0.30	250	
1135	122.09	10.97	5.98	0.250	5.32	192.9	0.31	250	
1140	122.09	10.53	6.04	0.247	5.57	188.3	0.34	250	
1145	122.09	10.64	6.04	0.250	5.45	184.1	0.33	250	
1150	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: MW-106A

Initial Static Water Level (feet btoc): 121.88

Final Water Level (feet btoc): 121.88

Purge Start Time: 1825

Sample Time: 1910

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-108

Controller Settings: Recharge: 15 secs Discharge: 15 secs Pressure: 80 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1830	121.88	15.79	8.02	0.378	9.98	264.3	0.93	125	
1835	121.88	14.84	7.06	0.469	8.61	252.6	0.81	125	
1840	121.88	13.91	6.94	0.519	7.31	233.3	0.61	125	
1845	121.88	13.73	6.92	0.534	5.90	207.7	0.60	125	
1850	121.88	13.74	6.93	0.537	6.02	197.8	0.19	125	
1855	121.88	13.82	6.92	0.538	5.83	186.6	0.20	125	
1900	121.88	13.80	6.92	0.538	5.60	181.3	0.14	125	
1905	121.88	13.77	6.95	0.538	5.51	177.1	0.09	125	
1910	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/28/13

Well ID: MW-106C

Initial Static Water Level (feet btoc): 124.60

Final Water Level (feet btoc): 124.60

Purge Start Time: 1720

Sample Time: 1810

Samplers= Signatures [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-107

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: 90 psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1725	124.60	17.60	7.90	0.439	13.14	282.3	0.68	200	
1730	124.60	16.15	7.36	0.417	10.15	249.6	0.27	200	
1735	124.60	14.72	6.84	0.404	8.58	231.1	0.15	200	
1740	124.60	14.32	6.67	0.399	7.82	209.4	0.22	200	
1745	124.60	14.29	6.66	0.399	7.68	193.8	0.18	200	
1750	124.60	14.26	6.66	0.398	7.45	180.0	0.19	200	
1755	124.60	14.14	6.65	0.397	7.38	171.0	0.17	200	
1800	124.60	13.87	6.65	0.396	7.48	166.3	0.15	200	
1805	124.60	13.66	6.63	0.391	7.33	161.3	0.13	200	
1810	~~124.60~~	Complete	Sample						

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

LOW-FLOW GROUNDWATER SAMPLING LOG

Site Name: Garvey Elevator Site OU2 Date: 3/29/13

Well ID: MW-106D

Initial Static Water Level (feet btoc): 124.62

Final Water Level (feet btoc): 124.62

Purge Start Time: 1610

Sample Time: 1655

Samplers= Signatures: [redacted]

Purging/Sampling Device: Bladder Pump

Analytical Parameters: Select LDL VOCs

QC Samples Collected: N/A

Sample Number: 6047-106

Controller Settings: Recharge: 10 secs Discharge: 20 secs Pressure: ~~50~~ 75 (75%) psi

Cycles Per Minute: 2

Time	Water Level (ft btoc)	Temperature (Degrees C)	pH	Specific Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (mL/min)	Comments
1615	124.62	17.00	7.67	0.284	6.52	241.0	0.91	200	
1620	124.62	14.50	7.23	0.269	4.58	217.9	0.91	200	
1625	124.62	14.44	7.16	0.268	4.15	207.6	0.80	200	
1630	124.62	14.29	7.10	0.267	3.74	190.5	0.69	200	
1635	124.62	14.04	7.06	0.265	3.63	176.0	0.50	200	
1640	124.62	13.96	7.04	0.265	3.75	164.0	0.43	200	
1645	124.62	13.81	7.01	0.264	3.90	156.2	0.56	200	
1650	124.62	14.13	7.02	0.266	3.93	155.1	0.41	200	
1655	Collected Sample								

Tubing Volume Calculations:
0.17-inch ID Tubing = 4.5 mL per foot of tubing

HGL CDM

PARAMETERS FOR WATER QUALITY STABILIZATION

Temperature	± 1° C	DO / Turbidity	± 10 %
pH	± 0.1 pH unit	ORP	± 10 mV
Conductivity	± 3 %	Water Level	± 0.3 feet

EPA FIELD SHEETS

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Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 1 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-1-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-121

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/27/13	13:15
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.293	umhos/cm
Dissolved Oxygen :	4.72	mg/L
Temperature :	12.92	Deg C
Turbidity :	0.15	NTU
pH :	6.92	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 2 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-2-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-18A

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/27/13 15:55
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.217	umhos/cm
Dissolved Oxygen :	1.89	mg/L
Temperature :	12.46	Deg C
Turbidity :	10.1	NTU
pH :	6.94	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
3 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

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Sample Comments:

(N/A)

Collected triple volume for MS/MSD
6047-2-MS, 6047-2-MSD

3/29/13

Sample Collected By: HGL

109.97

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 3 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-3-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-18C

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/27/13	17:20
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.413	umhos/cm
Dissolved Oxygen :	4.64	mg/L
Temperature :	12.73	Deg C
Turbidity :	0.12	NTU
pH :	6.78	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 4 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-4-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-18D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/27/13 19:20

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.306	umhos/cm
Dissolved Oxygen :	2.28	mg/L
Temperature :	11.40	Deg C
Turbidity :	0.57	NTU
pH :	7.11	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 5 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-5-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW.45D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/28/13 09:50

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.364	umhos/cm
Dissolved Oxygen :	8.14	mg/L
Temperature :	10.35	Deg C
Turbidity :	0.70	NTU
pH :	7.02	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 6 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-6-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/28/13	11:10
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.415	umhos/cm
Dissolved Oxygen :	5.28	mg/L
Temperature :	11.63	Deg C
Turbidity :	9.8	NTU
pH :	7.19	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate sample collected (6047-6-FD)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 6 **QC Code:** FD **Matrix:** Water **Tag ID:** 6047-6-FD

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/28/13	11:10
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.415	umhos/cm
Dissolved Oxygen :	5.28	mg/L
Temperature :	11.63	Deg C
Turbidity :	9.8	NTU
pH :	7.19	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate sample collected (6047-6-FD)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 7 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-7-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-17D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/28/13 13:20
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.200	umhos/cm
Dissolved Oxygen :	3.54	mg/L
Temperature :	12.40	Deg C
Turbidity :	0.69	NTU
pH :	7.19	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 8 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-8-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-17A

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/28/13 14:30
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.594	umhos/cm
Dissolved Oxygen :	2.29	mg/L
Temperature :	12.99	Deg C
Turbidity :	1.89	NTU
pH :	7.69	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 9 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-9-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-17C

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/28/13 15:25
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.388	umhos/cm
Dissolved Oxygen :	5.60	mg/L
Temperature :	12.69	Deg C
Turbidity :	0.80	NTU
pH :	6.92	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 10 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-10-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-12A

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/28/13	16:50
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.645	umhos/cm
Dissolved Oxygen :	5.07	mg/L
Temperature :	15.20	Deg C
Turbidity :	1.45	NTU
pH :	6.95	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 11 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-11-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-12C

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/28/13	18:05
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.406	umhos/cm
Dissolved Oxygen :	4.68	mg/L
Temperature :	14.11	Deg C
Turbidity :	0.68	NTU
pH :	6.84	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 12 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-12-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-44ERL 43E

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	08:50
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.276	umhos/cm
Dissolved Oxygen :	5.97	mg/L
Temperature :	11.76	Deg C
Turbidity :	1.31	NTU
pH :	6.77	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 13 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-13-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-43D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/30/13 09:55
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.365	umhos/cm
Dissolved Oxygen :	6.59	mg/L
Temperature :	11.76	Deg C
Turbidity :	1.15	NTU
pH :	6.71	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate Sample Collected

Sample Collected By: HGL

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

4/11/13

ASR Number: 6047 **Sample Number:** 13 **QC Code:** FD **Matrix:** Water **Tag ID:** 6047-13-FD

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-43D

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	09:55
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.365	umhos/cm
Dissolved Oxygen :	6.59	mg/L
Temperature :	11.76	Deg C
Turbidity :	1.15	NTU
pH :	6.71	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate Sample Collected

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 14 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-14-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-4102

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	11:30
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.245	umhos/cm
Dissolved Oxygen :	4.66	mg/L
Temperature :	12.87	Deg C
Turbidity :	3.45	NTU
pH :	6.98	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 15 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-15-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-41D1

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/30/13 13:00
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.459	umhos/cm
Dissolved Oxygen :	6.50	mg/L
Temperature :	14.00	Deg C
Turbidity :	3.29	NTU
pH :	6.80	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 16 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-16-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-46DI

Expected Conc: (or Circle One: Low Medium (High))

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	14:35
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.447	umhos/cm
Dissolved Oxygen :	5.90	mg/L
Temperature :	15.38	Deg C
Turbidity :	>1000	NTU
pH :	6.80	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 17 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-17-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-46D2

Expected Conc: (or Circle One: Low (Medium) High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	1535
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.410	umhos/cm
Dissolved Oxygen :	5.77	mg/L
Temperature :	14.79	Deg C
Turbidity :	4.30	NTU
pH :	6.95	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 18 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-18-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: Rinsate

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/20/13 16:55

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	N/A	umhos/cm
Dissolved Oxygen :		mg/L
Temperature :		Deg C
Turbidity :		NTU
pH :		SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Note: Rinsate from pump #1.

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 19 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-19-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-116A

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/30/13	17:30
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.1660	umhos/cm
Dissolved Oxygen :	5.81	mg/L
Temperature :	14.39	Deg C
Turbidity :	0.10	NTU
pH :	6.91	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 20 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-20-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOAs (Carbon Tet. & Chloroform only)

External Sample Number: MW-16C

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/30/13 18:35
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.520	umhos/cm
Dissolved Oxygen :	6.71	mg/L
Temperature :	12.75	Deg C
Turbidity :	0.26	NTU
pH :	6.72	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 22 **QC Code:** FB **Matrix:** Water **Tag ID:** 6047-22-FB

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (1) LDL VOA Trip Blank sample

External Sample Number: Ambient Blank

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/30/13 18:10
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Outdoor blank.

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 101 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-101-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-14A

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/28/13 9:40
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.628	umhos/cm
Dissolved Oxygen :	6.77	mg/L
Temperature :	11.99	Deg C
Turbidity :	0.34	NTU
pH :	6.62	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 102 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-102-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-44E

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 09:25
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.226	umhos/cm
Dissolved Oxygen :	3.97	mg/L
Temperature :	11.51	Deg C
Turbidity :	0.60	NTU
pH :	7.09	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 103 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-103-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-44D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 10:30
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.291	umhos/cm
Dissolved Oxygen :	6.32	mg/L
Temperature :	12.24	Deg C
Turbidity :	9.11	NTU
pH :	6.93	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate Collected

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 103 **QC Code:** FD **Matrix:** Water **Tag ID:** 6047-103-FD

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-44D

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	3/29/13	10:30
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.291	umhos/cm
Dissolved Oxygen :	6.32	mg/L
Temperature :	12.24	Deg C
Turbidity :	9.11	NTU
pH :	6.93	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Duplicate Collected

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 104 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-104-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-42E

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 8:15
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.314	umhos/cm
Dissolved Oxygen :	4.50	mg/L
Temperature :	15.76	Deg C
Turbidity :	15.5	NTU
pH :	7.04	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 105 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-105-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-42D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 15:00
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.403	umhos/cm
Dissolved Oxygen :	6.42	mg/L
Temperature :	17.28	Deg C
Turbidity :	10.3	NTU
pH :	6.94	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

(12)

Sample Comments:

(N/A)

Collected triple volume for MS/MSD.
4/1/13

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 106 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-106-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-106D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 16:55
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.2166	umhos/cm
Dissolved Oxygen :	3.93	mg/L
Temperature :	14.13	Deg C
Turbidity :	0.41	NTU
pH :	7.02	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 107 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-107-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-106C

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 18:10

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.391	umhos/cm
Dissolved Oxygen :	7.33	mg/L
Temperature :	13.66	Deg C
Turbidity :	0.13	NTU
pH :	6.63	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 108 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-108-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-106A

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/29/13 14:10
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.538	umhos/cm
Dissolved Oxygen :	5.51	mg/L
Temperature :	13.77	Deg C
Turbidity :	0.09	NTU
pH :	6.95	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 109 **QC Code:** EB **Matrix:** Water **Tag ID:** 6047-109-EB

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: Trip Blank

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/20/13 15:45
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	N/A	umhos/cm
Dissolved Oxygen :		mg/L
Temperature :		Deg C
Turbidity :		NTU
pH :		SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A) trip blank

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 110 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-110-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-105D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 04/07/13 11:50
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.250	umhos/cm
Dissolved Oxygen :	5.45	mg/L
Temperature :	10.64	Deg C
Turbidity :	0.33	NTU
pH :	6.04	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

4/4/14

ASR Number: 6047 **Sample Number:** 110 **QC Code:** FD **Matrix:** Water **Tag ID:** 6047-110-FD

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-105D

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 04/02/13 11:50
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.250	umhos/cm
Dissolved Oxygen :	5.45	mg/L
Temperature :	10.64	Deg C
Turbidity :	0.33	NTU
pH :	6.04	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 115 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-115-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-105C

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 4/2/13 13:30
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.525	umhos/cm
Dissolved Oxygen :	4.62	mg/L
Temperature :	12.39	Deg C
Turbidity :	0.92	NTU
pH :	6.92	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 116 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-116-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: MW-105A

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 4/2/13 15:15
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	0.717	umhos/cm
Dissolved Oxygen :	2.28	mg/L
Temperature :	12.48	Deg C
Turbidity :	0.40	NTU
pH :	7.42	SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** 117 **QC Code:** __ **Matrix:** Water **Tag ID:** 6047-117-__

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: Rinsate Sample

Expected Conc: (or Circle One: Low Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	4/2/13	15:30
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :		umhos/cm
Dissolved Oxygen :		mg/L
Temperature :		Deg C
Turbidity :		NTU
pH :		SU

Deleted w/ COC 4/4/13

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Sample 6047-117 is a Rinsate Sample collected at the end of the sampling event at 15:30 on 4/2/13.

Sample Collected By: HGL

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 6047 **Sample Number:** ~~119~~ 120 RI **QC Code:** EB **Matrix:** Water **Tag ID:** 6047-~~119~~ 120 RI-EB

Project ID: BZA72Z02 **Project Manager:** Brian Zurbuchen
Project Desc: Garvey Elevator - RI/FS sampling
City: Hastings **State:** Nebraska
Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER **Site ID:** A72Z **Site OU:** 02

Location Desc: (2) LDL VOAs (Carbon Tet., Chloroform, PCE & TCE only)

External Sample Number: Ambient

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 3/31/13 05:10
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Field Measurement

Parameter	Value	Units
Conductance, Specific :	N/A	umhos/cm
Dissolved Oxygen :		mg/L
Temperature :		Deg C
Turbidity :		NTU
pH :		SU

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	2 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)
Outdoor Blank

Sample Collected By: HGL

SUP

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print): D. Zlinbuchn

NAME OF SURVEY OR ACTIVITY: Garvey Elevator

DATE OF COLLECTION: ~~27~~ DAY 03 MONTH 13 YEAR

SHEET 1 of

CONTENTS OF SHIPMENT: Groundwater Samples

SAMPLE NUMBER	CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt other sample numbers etc.)
6047-1					1	X					
6047-2					3	X					Triple Vol (MS/MSD)
6047-3					1	X					
6047-4					1	X					
6047-5					1	X					
6047-6					1	X					
6047-6-FD					1	X					Duplicate of 6047-6
6047-7					1	X					
6047-8					1	X					
~~6047-120-TB~~					~~1~~	~~X~~					~~Trip Blank~~
6047-9					1	✓					Delivered w/out LIMS provided tags. Discarded @ SR 3/29/13

Missing on COC but rec'd sample. RSCC added @ SR + emailed PM. 3/29/13

ASR Incomplete 3/28/13

Email sent to PM ~~+ phone call~~ 3/29/13

Clr. Temp. Rec'd. Det. 0-1° 3/29/13

DESCRIPTION OF SHIPMENT: 1 PIECE(S) CONSISTING OF ____ BOX(ES); 1 ICE CHEST(S): OTHER ____

MODE OF SHIPMENT: X COMMERCIAL CARRIER FedEx; ~~FRL~~ COURIER; SAMPLER CONVEYED

8753 6175 1456 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
[redacted] ☑ SEALED ☐ UNSEALED	3/28/13	1650	Nicole Roblez 3/29/13 900Am ☐ SEALED ☐ UNSEALED	Analysis
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

EPA

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Chris Bobb/Brian Zurbuchen	Garvey Grain Elevator	28 / 03 / 13	1 of 1

CONTENTS OF SHIPMENT Groundwater Samples

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
6047-10					1	X					
6047-11					1	X					
6047-101					1	X					
6047-102					1	X					
6047-103					1	X					
6047-104					1	X					
6047-105					3	X					triple volume for MS/MSD
6047-103-FD					1	X					duplicate of 6047-103
6047-106					1	X					
6047-107					1	X					
6047-108					1	X					
6047-12					1	X					
6047-13					1	X					
6047-13-FD	Labeled 04/14-FD. MR				1	X					duplicate of 6047-13
6047-14	Corrected tag @SR to				1	X					
6047-15	Show 13-FD to 4/1/13				1	X					
6047-16	Matches FTS + COC				1	X					
6047-17					1	X					
6047-18					1	X					rinsate
6047-19					1	X					
6047-22-FB					1	X					blank
6047-20					1	X					
6047-120-FB					1	X					blank
6047-109-FB					1	X					blank

DESCRIPTION OF SHIPMENT — ASR Incomplete

22 PIECE(S) CONSISTING OF ____ BOX(ES)

2 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER

____ COURIER

X SAMPLER CONVEYED

Clr, Temps. Rec'd. bet 0-1° 4/1/13

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
[redacted] SEALED ☐ UNSEALED ☑	4/1/13	1105	RD Wiggans SEALED ☐ UNSEALED ☐	Rec'd at lab
RELINQUISHED BY SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

*U.S. GPO: 2002-756-917/40053

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Brian Zurbuchen	Garvey Elevator	02 / 04 / 13	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	CUBITAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
6047-110					1	X					
6047-115					1	X					
6047-110-FD					1	X					Field Dup of 6047-110
6047-116					1	X					
6047-117					1	X					Risate Sample

NUMBERS OF CONTAINERS PER SAMPLE NUMBER

ASR Complete!!

Y. Stuart Walford 02 04 13 TAW 4/2/13

Clr; Temp Rec'd. bet 0-1°C 4/4/13

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
1 PIECE(S) CONSISTING OF ____ BOX(ES) 4/4/13	X COMMERCIAL CARRIER Fed Ex
1 ICE CHEST(S) OTHER ____	COURIER
	SAMPLER CONVEYED (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD 4/4/13

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
[redacted] ☒ SEALED ☐ UNSEALED	4/3/13	0900	Nicole Roble 900A ☒ SEALED ☐ UNSEALED	Analysis
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

ATTACHMENT 5

LABORATORY ANALYTICAL REPORT

(Electronic Form Only)

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United States Environmental Protection Agency
Region 7
300 Minnesota Avenue
Kansas City, KS 66101

Date: 04/19/2013

Subject: Transmittal of Sample Analysis Results for ASR #: 6047

Project ID: BZA72Z02

Project Description: Garvey Elevator - RI/FS sampling

From: Michael F. Davis, Chief
Chemical Analysis and Response Branch, Environmental Services Division

To: Brian Zurbuchen
SUPR/IANE

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Brian Zurbuchen Org: SUPR/IANE Phone: 913-551-7101
Project ID: BZA72Z02 QAPP Number: SDMS 40322811
Project Desc: Garvey Elevator - RI/FS sampling
Location: Hastings State: Nebraska Program: Superfund
Site Name: GARVEY ELEVATOR - OFF-SITE GROUNDWATER Site ID: A72Z Site OU: 02
Purpose: Site Characterization GPRA PRC: 303DD2

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

__ = Field Sample
FB = Field Blank
FD = Field Duplicate

Units: Specific units in which results are reported.

umhos/cm = Micromhos per Centimeter
Deg C = Degrees Celsius
NTU = Nephelometric Turbidity Units
mg/L = Milligrams per Liter
ug/L = Micrograms per Liter
SU = Standard Units (pH)

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank) = Values have been reviewed and found acceptable for use.
J = The identification of the analyte is acceptable; the reported value is an estimate.
U = The analyte was not detected at or above the reporting limit.

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1	__	Water	MW-12D		03/27/2013	13:15			03/29/2013
2	__	Water	MW-18A		03/27/2013	15:55			03/29/2013
3	__	Water	MW-18C		03/27/2013	17:20			03/29/2013
4	__	Water	MW-18D		03/27/2013	19:20			03/29/2013
5	__	Water	MW-45D		03/28/2013	09:50			03/29/2013
6	__	Water	(1) LDL VOAs (Carbon Tet. & Chloroform only)		03/28/2013	11:10			03/29/2013
6	FD	Water	(1) LDL VOAs (Carbon Tet. & Chloroform only)		03/28/2013	11:10			03/29/2013
7	__	Water	(1) LDL VOAs (Carbon Tet. & Chloroform only)		03/28/2013	13:20			03/29/2013
8	__	Water	MW-17A		03/28/2013	14:30			03/29/2013
9	__	Water	MW-17C		03/28/2013	15:25			03/29/2013
10	__	Water	MW-12A		03/28/2013	16:50			04/01/2013
11	__	Water	MW-12C		03/28/2013	18:05			04/01/2013
12	__	Water	MW-43E		03/30/2013	08:50			04/01/2013
13	__	Water	MW-43D		03/30/2013	09:55			04/01/2013
13	FD	Water	MW-43D		03/30/2013	09:55			04/01/2013
14	__	Water	MW-41D2		03/30/2013	11:30			04/01/2013
15	__	Water	MW-41D1		03/30/2013	13:00			04/01/2013
16	__	Water	MW-46D1		03/30/2013	14:35			04/01/2013
17	__	Water	MW-46D2		03/30/2013	15:35			04/01/2013
18	__	Water	Rinsate		03/30/2013	16:55			04/01/2013
19	__	Water	MW-16A		03/30/2013	17:30			04/01/2013
20	__	Water	MW-16C		03/30/2013	17:35			04/01/2013
22	FB	Water	Ambient Blank sample		03/30/2013	18:10			04/01/2013
101	__	Water	MW-14A		03/28/2013	19:40			04/01/2013
102	__	Water	MW-44E		03/29/2013	09:25			04/01/2013
103	__	Water	MW-44D		03/29/2013	10:30			04/01/2013
103	FD	Water	MW-44D		03/29/2013	10:30			04/01/2013
104	__	Water	MW-42E		03/29/2013	13:15			04/01/2013
105	__	Water	MW-42D		03/29/2013	15:00			04/01/2013
106	__	Water	MW-106D		03/29/2013	16:55			04/01/2013
107	__	Water	MW-106C		03/29/2013	18:10			04/01/2013
108	__	Water	MW-106A		03/29/2013	19:10			04/01/2013
109	FB	Water	Trip Blank sample		03/20/2013	15:45			04/01/2013
110	__	Water	MW-105D		04/02/2013	11:50			04/04/2013
110	FD	Water	MW-105D		04/02/2013	11:50			04/04/2013
115	__	Water	MW-105C		04/02/2013	13:30			04/04/2013
116	__	Water	MW-105A		04/02/2013	15:15			04/04/2013
117	__	Water	Rinsate		04/02/2013	15:30			04/04/2013
120	FB	Water	Ambient Blank sample		03/31/2013	08:10			04/01/2013

Analysis	Comments About Results For This Analysis

1 Conductivity by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	19-__	20-__
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__
	107-__	108-__	110-__	110-FD	115-__	116-__	

Comments:
(N/A)

1 pH of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	19-__	20-__
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__
	107-__	108-__	110-__	110-FD	115-__	116-__	

Comments:
(N/A)

1 Temperature of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	19-__	20-__
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__
	107-__	108-__	110-__	110-FD	115-__	116-__	

Comments:
(N/A)

1 Total Dissolved Oxygen in Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	19-__	20-__
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__

Analysis	Comments About Results For This Analysis

Samples: 107-__ 108-__ 110-__ 110-FD 115-__ 116-__

Comments:
(N/A)

1 Turbidity of Water by Field Measurement

Lab: (Field Measurement)

Method: Measurement of field parameter

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	19-__	20-__
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__
	107-__	108-__	110-__	110-FD	115-__	116-__	

Comments:
(N/A)

1 VOCs in Water by GC/MS for Low Detection Limits

Lab: Region 7 ESAT Contract Lab (In-House)

Method: EPA Region 7 RLAB Method 3230.13E

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	6-FD
	7-__	8-__	9-__	10-__	11-__	12-__	13-__
	13-FD	14-__	15-__	16-__	17-__	18-__	19-__
	20-__	22-FB					

Comments:
Carbon Tetrachloride (72%, 74%-125%) was J-coded in sample 3. Although the analyte in question has been positively identified in the sample, the quantitation is an estimate (J-coded) due to low recovery of this analyte in the laboratory matrix spike. The actual concentration for this analyte may be higher than the reported value.

2 VOCs in Water by GC/MS for Low Detection Limits

Lab: Region 7 ESAT Contract Lab (In-House)

Method: EPA Region 7 RLAB Method 3230.13E

Samples:							
	101-__	102-__	103-__	103-FD	104-__	105-__	106-__
	107-__	108-__	109-FB	110-__	110-FD	115-__	116-__
	117-__	120-FB					

Comments:

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.293	0.217	0.413	0.306
1 pH of Water by Field Measurement					
pH	SU	6.92	6.94	6.78	7.11
1 Temperature of Water by Field Measurement					
Temperature	Deg C	12.92	12.46	12.73	11.40
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	6.72	1.89	4.64	2.28
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.15	10.1	0.12	0.57
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	1.0 U	11 J	17
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	5-__	6-__	6-FD	7-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.364	0.415	0.415	0.200
1 pH of Water by Field Measurement					
pH	SU	7.02	7.19	7.19	7.19
1 Temperature of Water by Field Measurement					
Temperature	Deg C	10.35	11.63	11.63	12.40
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	8.14	5.28	5.28	3.54
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.70	9.8	9.8	0.69
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	8-__	9-__	10-__	11-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.594	0.388	0.665	0.406
1 pH of Water by Field Measurement					
pH	SU	7.69	6.92	6.95	6.84
1 Temperature of Water by Field Measurement					
Temperature	Deg C	12.99	12.69	15.20	14.11
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	2.29	5.60	5.07	4.68
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	1.89	0.80	1.45	0.68
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	24	1.0 U	18
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	12-__	13-__	13-FD	14-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.276	0.365	0.365	0.245
1 pH of Water by Field Measurement					
pH	SU	6.71	6.71	6.71	6.98
1 Temperature of Water by Field Measurement					
Temperature	Deg C	11.76	11.76	11.76	12.87
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	5.97	6.59	6.59	4.66
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	1.31	1.15	1.15	3.65
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	2.5	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	15-__	16-__	17-__	18-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.459	0.447	0.410	
1 pH of Water by Field Measurement					
pH	SU	6.80	6.80	6.95	
1 Temperature of Water by Field Measurement					
Temperature	Deg C	14.00	15.38	14.79	
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	6.50	5.90	5.77	
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	3.29	>1000	4.30	
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	510	230	1.0 U
Chloroform	ug/L	1.0 U	2.8	1.2	1.0 U

Analysis/ Analyte	Units	19-__	20-__	22-FB	101-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.660	0.520		0.628
1 pH of Water by Field Measurement					
pH	SU	6.91	6.72		6.62
1 Temperature of Water by Field Measurement					
Temperature	Deg C	14.39	12.75		11.99
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	5.81	6.71		6.77
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.10	0.26		0.34
1 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	1.0 U	1.0 U	
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	
2 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L				1.0 U
Chloroform	ug/L				1.0 U
Tetrachloroethene	ug/L				1.0 U
Trichloroethene	ug/L				1.0 U

Analysis/ Analyte	Units	102-__	103-__	103-FD	104-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.226	0.291	0.291	0.314
1 pH of Water by Field Measurement					
pH	SU	7.09	6.93	6.93	7.04
1 Temperature of Water by Field Measurement					
Temperature	Deg C	11.51	12.24	12.24	15.76
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	3.97	6.32	6.32	4.50
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	0.60	9.11	9.11	15.5
2 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	26	26	41
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	105-__	106-__	107-__	108-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm	0.403	0.266	0.391	0.538
1 pH of Water by Field Measurement					
pH	SU	6.94	7.02	6.63	6.95
1 Temperature of Water by Field Measurement					
Temperature	Deg C	17.28	14.13	13.66	13.77
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L	6.42	3.93	7.33	5.51
1 Turbidity of Water by Field Measurement					
Turbidity	NTU	10.03	0.41	0.13	0.09
2 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	48	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	109-FB	110-__	110-FD	115-__
1 Conductivity by Field Measurement					
Conductivity	umhos/cm		0.250	0.250	0.525
1 pH of Water by Field Measurement					
pH	SU		6.04	6.04	6.92
1 Temperature of Water by Field Measurement					
Temperature	Deg C		10.64	10.64	12.39
1 Total Dissolved Oxygen in Water by Field Measurement					
Dissolved Oxygen	mg/L		5.45	5.45	4.62
1 Turbidity of Water by Field Measurement					
Turbidity	NTU		0.33	0.33	0.92
2 VOCs in Water by GC/MS for Low Detection Limits					
Carbon Tetrachloride	ug/L	1.0 U	21	21	52
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	116-__	117-__	120-FB
1 Conductivity by Field Measurement				
Conductivity	umhos/cm	0.717		
1 pH of Water by Field Measurement				
pH	SU	7.42		
1 Temperature of Water by Field Measurement				
Temperature	Deg C	12.48		
1 Total Dissolved Oxygen in Water by Field Measurement				
Dissolved Oxygen	mg/L	2.28		
1 Turbidity of Water by Field Measurement				
Turbidity	NTU	0.40		
2 VOCs in Water by GC/MS for Low Detection Limits				
Carbon Tetrachloride	ug/L	1.0 U	1.0 U	1.0 U
Chloroform	ug/L	1.0 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U	1.0 U

United States Environmental Protection Agency
Region VII
300 Minnesota Avenue
Kansas City, KS 66101

Date: __/__/____

Subject: Data Disposition/Sample Release for ASR #: 6047
Project ID: BZA72Z02
Project Description: Garvey Elevator - RI/FS sampling

From: Brian Zurbuchen
SUPR/IANE

To: Alisha Claycamp
ENSV/CARB

I have received and reviewed the Transmittal of Sample Analysis Results for the above-referenced Analytical Services Request(ASR) and have indicated my findings below by checking one of the boxes for Data Disposition.

I understand all samples will be disposed upon receipt of this form, unless samples are requested to be held. If I do not return this form all samples will be disposed of on _____.

☐ "RELEASED" - Read-only to all Region 7 employees and contractors that have R7LIMS "Customer" account. All Samples may be disposed of upon receipt of this form if not requested to be held.

☐ "Project Manager Accessible" - Available on the LAN in R7LIMS for my use only. All Samples may be disposed of upon receipt of this form if not requested to be held.

☐ "Archived" - THIS DATA IS OF A SENSITIVE NATURE. Any future reports must be requested through the laboratory. All samples may be disposed of upon receipt of the form if not requested to be held.

☐ Hold Samples - I have determined that the samples need to be held until _____, after which time they will be disposed of in accordance with applicable regulations.
The reason for the hold is:

☐ Samples are associated with a legal proceeding.

☐ Question/Concern with data - possible reanalysis requested.

☐ Other:_____