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Ada County Landfill

Semiannual Groundwater Detection and Monitoring Report April 2020

Draft

July 2020

Ada County

REGISTERED PROFESSIONAL GEOLOGIST
GREGORY A. WARREN
940
STATE OF IDAHO
7/29/20

Ada County Landfill

Project No:	D3293800.A.CS.EV.1
Document Title:	Semiannual Groundwater Detection and Monitoring Report April 2020
Document No.:	PPS0724201349BOI
Revision:	Draft
Date:	July 2020
Client Name:	Ada County
Author:	Allan Erickson/BOI
File Name:	01a_StandardReport.dotx

Jacobs Engineering Group Inc.

999 W Main Street, Suite 1200
Boise, Idaho 83702
United States
T +1.208.345.5310
www.jacobs.com

Document History and Status

Revision	Date	Description	By	Review	Approved
0	6/22/20	Initial Draft	ND		
1	7/23/20	Senior Review	GW	GW	
2	7/27/20	Final QC	GW	GW	
3	7/27/20	Approval	AE		AE

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Acronyms and Abbreviations

µg/L	microgram(s) per liter
1,1 – DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCP	dichloropropane
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-dichloroethene
DCFM	dichlorodifluoromethane
DEE	diethyl ether
DEQ	Department of Environmental Quality
DQE	data quality evaluation
EPA	U.S. Environmental Protection Agency
FD	field duplicate
ft/ft	foot per foot
GWPS	groundwater protection standard
HHC	Hidden Hollow Cell
LFG	landfill gas
MCL	maximum concentration level
mg/L	milligram(s) per liter
MS	matrix spike
MSD	matrix spike duplicate
NRC	North Ravine Cell
PCE	tetrachloroethylene
QA/QC	quality assurance and quality control
RCRA	Resource Conservation and Recovery Act
RSL	regional screening level
SL	screening level
SOP	standard operating procedure
TCE	trichloroethylene
TCFM	trichlorofluoromethane
UPL	upper prediction limit
VC	vinyl chloride

VOC	volatile organic compound
WBU	water-bearing unit
yd^3	cubic yard(s)

1. Introduction

Pursuant to Resource Conservation and Recovery Act (RCRA) Subtitle E regulations (40 Code of Federal Regulations [CFR] 258) and the State of Idaho's Solid Waste Facilities Act (Idaho Code Title 39 Chapter 74), Ada County must maintain a groundwater monitoring program capable of detecting, monitoring, and correcting releases of potentially hazardous materials to the subsurface and groundwater at the Ada County Landfill. The April 2020 monitoring event conformed to the criteria for municipal solid waste landfills according to RCRA Subtitle E regulations (40 CFR 258.51 and 40 CFR 258.53 through 258.55) and associated state regulations (Sections 39-7412 and 39-7414 Idaho Code).

This report presents the results of groundwater monitoring conducted in April 2020 at the Hidden Hollow Cell (HHC) and North Ravine Cell (NRC) of the Ada County Landfill in Boise, Idaho. The following sections present the field activities and the analytical results of the groundwater monitoring events, including detection monitoring at the NRC; and detection, assessment, and remediation monitoring at the HHC. Groundwater sampling followed the protocols established in the draft *Sampling and Analysis Plan – Ada County Landfill Semiannual Groundwater Sampling Program, Boise, Idaho* report (CH2M 2019).

2. Facility Description

2.1 Location and Site Plan

The Ada County Landfill is in Section 12, Township 4 North, Range 1 East, off Seamans Gulch and Hill Roads in northwestern Boise, Idaho (Figure 1). The County-owned landfill and its surrounding property include approximately 2,727 acres (Figure 2).

2.2 Disposal Cell Description and General Operation

The following sections describe the Ada County Landfill disposal cell and general operations.

2.2.1 Hidden Hollow Cell

The HHC footprint is approximately 108 acres, with an estimated capacity of 13,655,000 cubic yards (yd^3) (CH2M 2016). In 2018, the HHC was filled to capacity and was capped with an evapotranspiration soil cover.

2.2.2 North Ravine Cell

The NRC lined area will be built out in stages to accommodate Ada County's municipal solid waste disposal needs. The construction of Stage 1 of the NRC was completed in January 2007. Stage 1 includes the cell infrastructure and 20 acres of lined cell. Stage 2 of the NRC, which was completed in December 2009, added 35 acres of lined cell. Stage 3 was constructed in 2018, and added 30 acres.

The NRC incorporates a liner, a leachate collection system, and gas collection systems. The design area of the NRC is approximately 260 acres and has a capacity of approximately 70,000,000 yd^3 yards. The estimated NRC volume of waste in place as of September 30, 2019 is 5,145,000 yd^3 or about 67.4 percent of design volume.

2.3 Groundwater Extraction System

In 1994, in response to RCRA Subtitle E regulations, Ada County determined shallow groundwater beneath the HHC had become impacted by volatile organic compounds (VOCs). At that time, investigations indicated the bulk of the contaminated groundwater leaving the HHC was constrained to a narrow flow path, likely associated with a north-south trending, coarse-grained stream or alluvial deposit (CH2M, 1998). In response to this discovery, Ada County installed additional monitoring wells in 1996, and installed a groundwater remediation system to intercept, collect, and treat the impacted groundwater before it migrated off Ada County property.

The original remediation system was installed along the old access road to the landfill (Figure 3), and originally consisted of five extraction wells (EW-1 through EW-5), an air stripper, and two injection wells. The original remediation system appeared to intercept most of the influx of impacted groundwater flowing from the landfill. Natural attenuation (flushing, volatilization, biodegradation, and dilution) reduces contaminant concentrations in the groundwater between the remediation system and the impacted domestic wells located downgradient.

In 2000, Ada County installed five additional potential extraction wells, EW-6 through EW-10, near the mouth of Seamans Gulch. The purpose of these wells was to capture and treat impacted groundwater at the Ada County Landfill property boundary along Hill Road more efficiently (Figure 3). Based on groundwater sampling results at that time, it was determined that three of these wells (EW-8, EW-9, and EW-10) would not effectively intercept the contaminant mass migrating down Seamans Gulch. Extraction wells EW-6 and EW-7 were equipped with pumps to extract groundwater and discharge it to the air stripper. More recently, a pump was installed in EW-9, and a discharge line was connected to the air stripper in September 2014.

2.4 Vapor Extraction System

Ada County installed an extensive landfill gas (LFG) extraction system to limit the potential impact of VOC vapors on groundwater and to reduce nuisance odors. The LFG extraction system began to operate in 2004, when a series of horizontal collectors and extraction wells were installed directly into the closed and covered southern portion of the HHC. Since then, as the HHC has continued to fill, additional horizontal collectors and extraction wells have been routinely added to the LFG extraction system. Appendix A shows the layout of the LFG system.

Vapor data indicate the HHC LFG extraction system is collecting a significant portion of the LFG that is being generated at the HHC. Vapor data collected between June 2007 and June 2011 indicate the LFG plume at the HHC has diminished (CH2M 2011a).

At the NRC, LFG extraction began in 2010. To date, LFG extraction has consisted of horizontal collectors installed into the waste. Appendix A shows the locations of the existing and planned horizontal collectors.

3. Monitoring Activities

3.1 Monitoring Networks

This section describes the current monitoring networks at the HHC and the NRC at the Ada County Landfill.

3.1.1 Hidden Hollow Cell

The following subsections describe the monitoring network activities for the HHC. Table 1 lists the monitoring wells, analytes, and sampling schedule for detection monitoring at the HHC. Figure 3 shows the well locations, and Appendix B provides well construction information.

3.1.1.1 Hidden Hollow Cell Detection Monitoring Network

Groundwater monitoring wells B-2, B-6A, B-7, B-8, B-10, and B-11 have been designated as detection monitoring wells at the HHC. Well B-7 is upgradient and represents background concentrations of the monitored parameters. The other five wells are point-of-compliance downgradient wells.

3.1.1.2 Hidden Hollow Cell Assessment Monitoring Network

The assessment monitoring wells are downgradient of the HHC and monitor the lateral and vertical extents of the VOC plume. Table 1 groups the 23 assessment monitoring wells into the uppermost, intermediate, and deep(er) water-bearing units (WBUs) downgradient of the HHC. The assessment monitoring wells monitor the interior of the plume, where VOC concentrations are the greatest, and define the horizontal and vertical limits of contamination. Because of the rugged terrain, monitoring wells could not be installed in some areas; therefore, the horizontal limits of the VOC plume are interpolated based on known concentrations, concentration gradients, and groundwater flow directions.

3.1.1.3 Hidden Hollow Cell Remediation Monitoring Network

The remediation monitoring wells are downgradient of the HHC and monitor the performance of the groundwater remediation system. A total of 16 wells are designated as remediation monitoring wells:

- Six of the wells are currently operated as groundwater extraction wells (EW-2, EW-3, EW-4, EW-6, EW-7, and EW-9).
- Five of the wells are monitoring wells that track the progress of remediation at strategic locations within the VOC plume (B-12, B-15, B-28, B-30, and B-35).
- One offsite monitoring well (B-48) and four domestic wells (D-10, D-12, D-18, and D-42) track the VOC plume where it had previously migrated beyond the Ada County property boundary and across Hill Road.

3.1.2 North Ravine Cell

The following subsections describe the NRC monitoring network. Table 2 lists the monitoring wells, analytes, and sampling schedule for detection monitoring at the NRC. Figure 4 shows the well locations, and Appendix B provides well construction information.

3.1.2.1 North Ravine Cell Detection Monitoring Network

NRC wells MW-101, MW-102, and MW-103 are upgradient wells that represent background concentrations for the full NRC. The other nine wells, MW-104 through MW-112, were intended as downgradient wells at the point-of-compliance for the full NRC. However, only five of the nine point-of-compliance wells (MW-105, MW-106, MW-107, MW-108, and MW-109) are currently downgradient of active Stage 1 and 2 areas of the NRC. The remaining four point-of-compliance wells are downgradient of undisturbed or undeveloped portions of the NRC (MW-104, MW-110, MW-111, and MW-112); therefore, they do not currently monitor potentially impacted groundwater from the NRC.

3.1.2.2 North Ravine Cell Piezometer Network

The piezometer network is used to evaluate groundwater elevations around the NRC and to serve as alternative groundwater sample wells. Piezometer P-3 has been used as an alternative detection monitoring well for MW-104, which has been dry.

3.2 Water-level Measurement Methods

Static water levels at the HHC and NRC were measured between April 8 and 9, 2020, using an electronic water-level sounder, and in accordance with the standard operating procedure (SOP) *Water Level Measurements* (included in Appendix C). The depth to water was measured to the nearest 0.01 foot from an established surveyed measuring point at each well. Water levels were measured for each well for the NRC and HHC sites before groundwater sampling, to provide a snapshot view of groundwater elevations before potential impacts from pumping were encountered during sampling.

3.3 Detection Monitoring Sampling Methods

The following subsections describe the detection monitoring sampling methods for HHC and NRC. Each monitoring well was sampled according to established SOPs, including *Groundwater Sampling from Monitoring Wells* and *Low-Flow Groundwater Sampling from Monitoring Wells* (Appendix C). While purging monitoring wells, field parameter measurements (pH, conductivity, temperature, dissolved oxygen, and turbidity), purge volumes, and purge rates were recorded on field data sheets, which are included in Appendix D.

3.3.1 Hidden Hollow Cell

HHC detection monitoring wells B-2, B-6A, B-7, B-8, B-10, and B-11 were sampled between April 20 and April 28, 2020. These wells were sampled for the constituents listed in Appendix I of the RCRA Subtitle E regulations.

Groundwater monitoring wells B-3 and M-3 are completed in a seasonally perched water zone downgradient of the landfill. These wells are sampled for RCRA Subtitle E regulation Appendix I/II organics when perched groundwater is present. In April 2020, both wells were dry; therefore, samples were not collected from these locations.

Wells B-6A, B-8, B-10, and B-11 were purged and sampled using dedicated Grundfos environmental sampling pumps, equipped with dedicated polyvinyl chloride discharge piping.

Wells B-2 and B-7 were purged and sampled using low-flow sampling procedures with a portable Grundfos Redi-Flo 2 environmental sampling pump. Wells B-8, B-10, and B-11 were purged and sampled using low-flow sampling procedures with dedicated pumps. During spring of 2020, B-6A was added to the extraction well network; the new sample location is in the groundwater stripper building.

Purge water pumped from wells B-2, B-8, and B-11 was containerized and disposed of at the landfill leachate pond. Purge water from wells B-7 and B-10 was discharged on the ground because historically, these wells have not contained detectable VOCs, or their VOC concentrations were less than the maximum concentration levels (MCL). Detection monitoring well B-6A was connected to the remediation system in March 2020 and pumps continuously; therefore, the purge water from this well runs into the air stripper and is treated.

For quality assurance and quality control (QA/QC) purposes, a duplicate sample was collected from B-11 (2004 FD-5) for the analysis of all constituents.

3.3.2 North Ravine Cell

NRC detection monitoring wells MW-101 through MW-112 were sampled from April 20 through April 23, 2020. Point-of-compliance well MW-104 had insufficient water and could not be sampled; therefore, nearby piezometer P-3 was sampled in lieu of MW-104.

The 12 NRC detection monitoring wells were sampled for total and dissolved inorganics (metals) and the VOCs listed in Appendix I of the RCRA Subtitle E regulation. Each NRC detection monitoring well was purged and sampled with dedicated Grundfos Redi-Flo 4, or Redi-Flo 2 variable-speed, environmental sampling pumps equipped with dedicated discharge tubing. Purging followed low-flow purging procedures in accordance with the SOP *Low-Flow Groundwater Sampling from Monitoring Wells* (Appendix C). Appendix B shows the depths of dedicated pump intakes. Samples for dissolved metals were field-filtered using disposable, 0.45-micron, hose-end filters. Approximately 0.25 liter of water was pumped through each filter before a sample was collected. For QA/QC purposes, a duplicate sample was collected from MW-109 (2004 FD-4) for analysis of all constituents.

3.4 Assessment Monitoring Sampling Methods

The HHC assessment monitoring wells listed in Table 1 were sampled between April 13 and April 27, 2020, using U.S. Environmental Protection Agency (EPA) Method 8260 for VOCs, which includes all RCRA Subtitle E regulation, Appendix I VOCs. Each assessment well was sampled with a Grundfos Redi-Flo 2 variable-speed pump. Each well was purged using low-flow procedures (less than 400 milliliters per minute), and parameters were allowed to stabilize before sampling took place. Purged water from wells with a recent historical detection of VOCs were containerized and disposed of at the leachate pond in accordance with the SOP *Handling and Disposal of Investigation-Derived Waste* (Appendix C). These wells include B-1, B-4, B-9, B-18, B-24, B-26, B-42, B-43, B-44, B-45, and EW-11. For QA/QC purposes, duplicate samples were collected from B-9 (2004 FD-2), B-42 (2004 FD-1), and B-47 (2004 FD-3) for analysis of VOCs.

3.5 Remediation Monitoring Sampling Methods

The HHC remediation monitoring wells listed in Table 1 were sampled between April 14 and April 28, 2020 and were analyzed for VOCs using EPA Method 8260. The remediation monitoring wells were sampled with a portable Grundfos Redi-Flo 2 variable-speed pump. Each well was purged using low-flow procedures, and parameters were allowed to stabilize before sampling took place. Purge water from wells with a recent historical detection of VOCs (B-30) was stored in a portable tank and then discharged into the landfill's leachate pond. The SOP *Groundwater Sampling from Monitoring Wells, Treatment System Effluent, Extraction Wells, and Domestic Wells* (provided in Appendix C) describes the methodology for sampling these wells.

The remediation extraction wells were sampled from a sample port directly upstream of the air stripper. During spring of 2020, B-6A was added to the extraction well network. The sample from B-6A was collected from a tap directly upstream of the air stripper. The stripper effluent was sampled from the polyvinyl chloride discharge outfall. Extraction well flow rates were also recorded during sampling.

Three domestic wells on Hill Road (near its intersection with Seamans Gulch) were also sampled for VOCs on April 27, 2020, using EPA Method 8260. The domestic well samples were collected from hose spigots upstream of water treatment or storage tanks. Water was allowed to run for about 10 minutes at a rate of approximately 5 gallons per minute before the domestic well samples were collected.

3.6 Methods – General

The following subsections describe the general field methods used during the sampling event. Appendix C contains detailed SOPs for the field methods discussed herein.

3.6.1 Sample Containers and Shipping

The groundwater samples were placed directly into laboratory-supplied, pre-preserved sample bottles. Each sample container was immediately closed, labeled, and placed in a cooler with ice, where it remained until it was delivered to the analytical laboratory.

The samples were shipped to Eurofins Laboratories, Inc. in Denver, Colorado, via Federal Express next-day mail using procedures detailed in the *Sample Security (Chain-of-Custody), Packaging and Shipping Procedures* SOP (Appendix C). Laboratory-prepared trip blanks vials were also shipped with collected samples.

3.6.2 Field Data

The field data contained a description of the field activities, including the following information:

- Field conditions
- Water-level measurements
- Field parameter measurements
- Purge volumes
- Sample identification and methodology
- Date and time of sample collection
- General field comments and observations

The field data were recorded in a dedicated field notebook, as well as on field data sheets (Appendix D).

3.6.3 Decontamination Procedures

Wells with dedicated pumps and discharge lines do not require decontamination before they are used. The portable, nondedicated submersible pump was decontaminated before initial uses, and then before use for each well, by pumping within a soapy (Alconox or similar) wash container and being rinsed with distilled water. Each monitoring well sampled with the Grundfos Redi-Flo 2 pump has its own dedicated discharge tubing. The water level probe and the first several feet of the water level sounder tape were decontaminated between uses with a distilled water rinse.

4. Groundwater Flow

Table 3 lists the April 2020 static water levels and groundwater elevations for the Ada County Landfill wells. Appendix E presents the historical water level information for the Ada County Landfill. Water levels were measured from all of the wells within 2 consecutive days to gain an accurate snapshot of the current water elevations.

Figure 5 presents a water table surface map for the Ada County Landfill. The groundwater flows predominantly to the southwest, which is consistent with previous measurements for the study area. At the HHC, the average horizontal hydraulic gradient from well B-7 to well B-6A is approximately 0.021 foot per foot (ft/ft). Downgradient of the HHC, the gradient ranges from approximately 0.076 ft/ft between wells B-6A and B-36, and approximately 0.041 ft/ft between wells B-8 and B-47.

At the NRC, the average horizontal hydraulic gradient between P-1 and well MW-109 is approximately 0.034 ft/ft. Downgradient of Stages 1 and 2 of the NRC, the hydraulic gradient steepens and is 0.15 ft/ft between MW-106 and P-5, where a hydraulic boundary is interpreted to exist.

Available data indicate a significant change in groundwater flow occurs directly west of wells B-1, B-9, EW-2, EW-3, and EW-4 (CH2M 2011b). Figure 5 shows the interpreted trace of this inferred hydraulic boundary (note the change in gradients in this vicinity, discussed in the previous paragraph). Figure 6 provides a detailed view of the effect the boundary has on groundwater flow in the extraction well network area, and the interpreted drawdown and capture zone around the extraction wells. Section 5 discusses the overall effects of the hydraulic boundary on groundwater flow and VOC distributions.

Figure 7 shows a groundwater contour map of the intermediate and deep WBUs. This figure indicates the intermediate and deeper WBUs also have a southwestern gradient, with a steepness of approximately 0.04 ft/ft. The vertical hydraulic gradient in the remediation area at well pair B-29 and B-24 indicates a downward hydraulic gradient of 0.45 ft/ft.

5. Groundwater Quality

5.1 North Ravine Cell Detection Monitoring

Tables 4 and 5 summarize analytical results for the April 2020 NRC groundwater samples. Appendix F provides copies of the laboratory reports and chain-of-custody documentation. Groundwater sampling used the following analytical methods:

- RCRA Subtitle E regulation, Appendix I VOCs by EPA Method 8260C
- Total and Dissolved Inorganic compounds (metals) by EPA Method 6020A

Tables 4 and 5 also include groundwater protection standards (GWPS) for the VOCs and inorganics. The GWPS consist of the MCLs for constituents regulated under the federal drinking water program; or, if an MCL is not available, risk-based screening levels (SLs) from EPA's Regional Screening Level (RSL) database are used (EPA 2014). The SLs are conservative residential tap water values that are used for preliminary screening under Superfund and do not automatically designate a site as "dirty" or trigger a response action.

5.1.1 Analytical Results

The following subsections describe the analytical results from the April 2020 sampling event.

5.1.1.1 Volatile Organic Compounds

Table 4 summarizes the results of the laboratory analyses for VOCs for the NRC compliance monitoring wells. The VOC analytical results for previous detection and assessment monitoring events dating back to 2009 are shown in Appendix K for comparison.

In April 2020, wells MW-101, MW-102, MW-103, P-3, MW-109, MW-110, and MW-112 showed detectable VOCs. Tetrachloroethylene (PCE) was detected in wells MW-109 at 1.7 micrograms per liter (µg/L) and MW-110 at 1.2 µg/L, respectively. Trichloroethylene (TCE) was detected in well MW-110 at 1.3 (µg/L) The MCL of PCE is 5.0 µg/L and the MCL of TCE is 5.0 µg/L. Note, PCE was detected in well MW-109 before the NRC opened in July 2007.

Dichlorodifluoromethane (DCFM) and trichlorofluoromethane (TCFM) were detected in well MW-109 at concentrations of 2.2 µg/L and an estimated (J-flagged) 0.32 J µg/L, respectively. The SLs for DCFM and TCFM are 200 µg/L and 1,100 µg/L, respectively (EPA 2014). Methyl ethyl ketone was detected in well MW-101 at an estimated (J-flagged) 3 J µg/L. The SL for methyl ethyl ketone is 5,600 µg/L. Toluene was detected in wells MW-101, MW-102, MW-103, and P-3 at concentrations of 0.36 J µg/L, 1.8 µg/L, 0.87 J µg/L, and 0.76 J µg/L, respectively. The MCL for toluene is 1,000 µg/L.

The April 2020 results are consistent with previous VOC concentrations at the NRC. The other NRC compliance wells were nondetect for Appendix I VOCs.

5.1.1.2 Inorganics

Table 5 summarizes the laboratory results for April 2020 inorganic analytes for both total (unfiltered) and dissolved (filtered) samples collected from the NRC monitoring wells. The inorganic analytical results for previous detection monitoring events are also shown for comparison. Note, CH2M HILL, Engineers, Inc. (CH2M) (now Jacobs Engineering Group Inc. [Jacobs]) provided a comprehensive analysis comparing total-to-dissolved results for NRC samples collected using both low-stress (low-flow) and three-volume purge methods (CH2M 2013).

Four Appendix I inorganics constituent concentrations equaled or exceeded their respective MCLs. Total arsenic equaled or exceeded the groundwater MCL of 0.01 milligrams per liter (mg/L) in wells MW-101, MW-105, and MW-112 at concentrations of 0.079 mg/L, 0.024 mg/L, and 0.011 mg/L, respectively. Dissolved arsenic exceeded the groundwater MCL of 0.01 mg/L at MW-105 and MW-112 at concentrations of 0.023 mg/L and 0.011 mg/L, respectively. MW-105 also exceeded the MCL of 0.006 mg/L for cobalt with total and dissolved concentrations of 0.014 mg/L. These results are consistent with previous results dating back to 2009.

Wells MW-101 and MW-112 are upgradient of the currently constructed footprint of the NRC. Well MW-105 is a downgradient point-of-compliance well for the NRC. Most of the NRC wells had low detections of arsenic, an element that is naturally occurring in local igneous rocks. The elevated concentrations of arsenic observed in most of the wells, including background wells, are consistent with naturally elevated arsenic levels within the NRC area.

5.1.2 Statistical Review

For the NRC, the intrawell 95 percent upper prediction limit (UPL) is the background threshold value used to potential exceedances of inorganics in groundwater. The intrawell 95 percent UPL was determined to be appropriate for the NRC because this is a relatively new, state-of-the-art facility that is unlikely to have experienced a release of VOCs or inorganic constituents to groundwater. If an exceedance of the UPL for total or dissolved inorganics, or both, is observed in the statistical review, the well will be re-sampled to confirm whether the detection is an anomaly.

NRC intrawell UPLs were calculated based on the available data collected from NRC detection monitoring wells between May 2004 and April 2020. As presented in *Ada County Landfill Semiannual Groundwater Detection and Monitoring Report* (CH2M 2013), the non-ideal sampling conditions at many NRC monitoring wells (that is, high turbidity and suspended solids) appeared to introduce colloidal or particulate materials into samples, resulting in significant disparities between total and dissolved metal concentrations at several NRC wells. Total metal concentrations can be erratic over time at some NRC locations, whereas the dissolved data are more consistent. Thus, dissolved metal values are used for comparison when a total metal concentration exceeds a UPL.

Since the NRC is a new, double-lined landfill where an ongoing release is highly unlikely, it is reasonable to assume that dissolved data collected to date and into the near future are representative of natural, undisturbed conditions.

These UPLs were calculated using either a nonparametric (no distributional assumption) approach when evidence for a particular distribution was not available, or using a distributional assumption (when deemed appropriate for the approved background data). The distribution possibilities included those computed by EPA's 2013 ProUCL (Version 5.0) software: the normal, gamma, and lognormal distributions. When more than one distribution was found to offer reasonable fit, the distribution with the least skewness was chosen (normal chosen over gamma, and gamma chosen over lognormal). When nondetects were included for a given constituent (censored data) but at least 50 percent of the results were detected, regression-on-order statistics techniques were applied to calculate the UPL, when available. ProUCL 5 does not offer the regression-on-order statistics functionality for the normal distribution. When fewer than 50 percent detections were available or the normal distributional assumption was chosen, the Kaplan-Meier approach was applied.

UPLs can be calculated for either the next observation or multiple next observations. The latter UPL will be greater than a UPL calculated for the next observation, since it seeks to provide 95 percent confidence that none of the following observations will exceed the calculated UPL. When only a single unique detection was available, that value was used as the UPL ("Single Detect" basis). For those cases, there was no opportunity to adjust the calculation to consider multiple next observations. Therefore, using the only detected value as a UPL may result in more false positives than the other approaches.

The April 2020 results were compared to the UPLs calculated for data through October 2019. Appendix G lists the UPLs for detectable analytes and provides supporting documentation (including NRC total metal UPLs, NRC dissolved metal UPLs, and time plots). Appendix G also includes the technical memorandum submitted to the Idaho Department of Environmental Quality (DEQ) in May 2020 regarding the April 2020 data. Idaho DEQ approved this memorandum via e-mail on June 23, 2020.

In April 2020, concentrations of all total Appendix I inorganic constituents were less than the UPLs at the following monitoring wells:

- MW-101
- MW-102
- MW-103
- MW-104 (P-3)
- MW-105
- MW-106
- MW-108
- MW-109
- MW-111

Therefore, retesting for inorganics is not warranted at these wells.

At MW-107 A total cobalt exceeded the UPL (k=165) of 0.00063 mg/L with a concentration of 0.0017 mg/L. The dissolved cobalt concentration of <0.000092 mg/L did not exceed the UPL. No retesting is recommended for this well.

At MW-110, dissolved antimony exceeded the respective UPL:

- Dissolved antimony exceeded the UPL (k=165) of 0.00015 mg/L as a nondetect, at a concentration of <0.0004 mg/L. Furthermore, both total and dissolved antimony were nondetects (<0.0004 mg/L).

Because the total and dissolved concentrations of antimony were nondetect, retesting well is recommended for this well.

At MW-112, dissolved antimony exceeded the respective UPL:

- Dissolved antimony exceeded the UPL (k=165) of 0.00035 mg/L as a nondetect, at a concentration of <0.0004 mg/L. Furthermore, both total and dissolved antimony were nondetects (<0.0004 mg/L).

5.2 Hidden Hollow Cell Detection Monitoring

Tables 6, and 7 summarize the Appendix I organic and inorganic analytical results for groundwater samples collected in April 2020 from HHC detection monitoring wells. Appendix F provides copies of the laboratory reports and chain-of-custody documentation. Groundwater samples were analyzed using the following methods:

- Appendix I VOCs by EPA Method 8260C
- Appendix I inorganic compounds by EPA Method 6020A

Tables 6, 7, and 8 also include GWPS for VOCs and inorganics. The GWPS consist of the MCLs for each constituent regulated under the federal drinking water program; or, if an MCL is not available, the risk-based SLs from EPA's RSL database (EPA 2014) are listed. Since a release has occurred at the HHC and is being addressed under the corrective action requirements of 40 CFR 258.58, the MCLs and SLs are assumed to be potential indicators for evaluating the progress of remediation.

5.2.1 Analytical Results

The following subsections describe the analytical results for the HHC detection monitoring wells.

5.2.1.1 Volatile Organic Compounds

Table 6 summarizes the April 2020 results of the laboratory analyses for Appendix I VOCs at the HHC detection monitoring wells. The VOC analytical results for previous detection monitoring events dating back to 2009 are also shown in Appendix K for comparison. Figure 8 illustrates the April 2020 distribution of total VOCs in shallow groundwater downgradient of the HHC.

The greatest total VOC concentrations are near B-6A, at the southeastern corner of the HHC, near the original source area. The core of the VOC contaminant plume appears to continue to migrate along an axis running from well B-6A to the area of B-42 and extraction wells EW-2, EW-3, and EW-4, consistent with the general groundwater flow direction, but possibly more southwesterly.

VOCs also appear to be migrating from historical source areas in the HHC southward, towards B-43 and B-45, which is interpreted to reflect another north-south trending hydraulic barrier that appears to be a flow control path (CH2M 2015). VOC detections can be summarized as follows.

Downgradient well B-2 had 13 Appendix I VOC detections, but only 1,1-dichloroethane (1,1 - DCA), PCE, and vinyl chloride (VC) concentrations exceeded their SLs or MCLs at 3.4 µg/L (MCL = 2.7 µg/L), 19 µg/L (MCL = 5 µg/L) and 4.2 µg/L (MCL = 2 µg/L), respectively. Other VOCs detected in B-2 included:

- Benzene
- DCFM
- cis-1,2-dichloroethene (cis-1,2-DCE)
- trans-1,2-dichloroethene
- TCE
- TCFM
- 1,1-dichloroethene (1,1-DCE)
- Toluene
- Diethyl ether (DEE)
- 1,1,2-Trichloro-1,1,2-trifluoroethane

These VOCs were detected at concentrations less than their respective MCLs or SLs, and are consistent with previous detections.

Figure 9 shows VOC concentration trends in B-2. DCFM concentrations have increased since April 2008, but the concentrations have remained less than the SL of 200 µg/L. PCE has increased slightly since October 2013 to concentrations exceeding the MCL of 5 µg/L, with an April 2020 concentration of 19 µg/L, but the trend has remained stable.

Monitoring well B-6A had the greatest overall VOC concentrations in April 2020 (209.56 µg/L). Seventeen Appendix I VOCs were detected in well B-6A (Table 6)..PCE and TCE, exceeded their MCLs of 5.0 µg/L at concentrations of 120 µg/L, and 15 µg/L, respectively. 1,1-DCA was detected at 5 µg/L, exceeding its SL of 2.7 µg/L. The other VOCs detected in MW-6A included:

- Benzene
- DCFM
- cis-1,2-DCE
- trans-1,2-dichloroethene
- methylene chloride
- TCFM
- VC
- Chlorobenzene
- Chloroform
- 1,4-dichlorobenzene (1,4-DCB)
- 1,1-DCE
- Dichloropropane (1,2-DCP)
- DEE

These VOCs were detected at concentrations less than their respective MCLs or SLs, and concentrations are consistent with previous samples.

Figure 10 illustrates that in well B-6/6A, VOC concentrations generally increased between October 1997 and October 2006, declined between October 2006 and April 2008, and then increased again between April 2008 and April 2010. Since April 2010, most VOC concentrations in B-6/B-6A appear to be generally stable, likely in response to the construction of the gas extraction wells installed between 2009 and 2012. PCE concentrations are relatively stable since approximately 2010, but are exceed the MCL of 5 µg/L, with an April 2020 concentration of 120 µg/L. DCFM concentrations are stable around 44 µg/L, and are less than the SL of 200 µg/L.

Six Appendix I VOCs were detected in upgradient well B-7. PCE was detected in HHC well B-7 at 1.1 µg/L (MCL = 5 µg/L). The additional five VOCs detected (all low-level J-flagged detections) in B-7 included:

- Benzene
- DCFM
- TCFM
- Toluene
- Xylenes (total)

Seven Appendix I VOCs were detected in well B-8. PCE was detected in well B-8 at a concentration of 12 µg/L, exceeding the MCL. The additional six VOCs detected in B-8 were less than their respective MCLs and included:

- 1,1-DCA
- cis-1,2-DCE
- TCE
- TCFM
- 1,4-DCB
- DEE

These VOCs were detected at levels less than their respective MCLs or SLs and are all consistent with previous detections.

Figure 11 illustrates that in well B-8, total VOC concentrations have generally been declining since the early 2000s. Temporary increases in acetone in 2014 and 2016 created spikes in total VOCs in those years. PCE concentrations have been slightly decreasing to stable since the early 2000s.

HHC detection monitoring well B-10 had one VOC detection in April 2020: a low-level J-flagged (estimated) detection of PCE at 0.23 J µg/L.

Well B-11 had 15 Appendix I VOC detections. PCE was the only VOC that exceeded the MCL, at a concentration of 16 µg/L. The remaining 14 VOC detections in B-11 were less than their respective MCLs or SLs, and included:

- Benzene
- 1,1-DCA
- cis-1,2-DCE
- TCE
- VC
- chlorobenzene
- 1,2-DCB
- 1,4-DCB
- 1,2-DCP
- toluene
- sec-Butylbenzene
- tetrahydrofuran
- bromobenzene
- Diethyl ether

Figure 12 shows that at well B-11, VOC concentrations have stabilized since 2013, likely in response to interior and exterior extraction well construction and operation. PCE concentrations have decreased since the early 2000s but remained greater than the MCL at a concentration of 16 µg/L in April 2020.

5.2.1.2 Inorganic Compounds

Table 7 summarizes the April 2020 laboratory results for inorganic analytes for the HHC detection monitoring wells. The analytical results for inorganic constituents from previous detection monitoring events are shown in Appendix K for comparison. The only detections of inorganics that exceeded MCLs or SLs were arsenic and cobalt in well B-11, at concentrations of 0.081 mg/L and 0.038 mg/L, respectively.

These results are consistent with previous results, and as previously noted, arsenic is naturally elevated in the area. No other inorganic constituents exceeded their MCL or SL in HHC detection monitoring wells for April 2020.

5.2.2 Statistical Review

Ada County did not conduct a statistical analysis on the HHC groundwater results, because the HHC is known to have had a VOC release, and Ada County is already containing and treating the VOC-contaminated groundwater. In addition, Ada County monitors the effluent from the HHC groundwater treatment system so no organic constituents exceed Idaho water quality standards beyond the HHC point-of-compliance wells.

5.3 Hidden Hollow Cell Remediation Monitoring

5.3.1 Analytical Results

Table 1 lists the HHC assessment monitoring wells. These wells monitor the lateral and vertical extents of groundwater VOC contamination downgradient of the HHC and are grouped according to the relative depths of their respective WBUs as interpreted by CH2M (2010) but modified to acknowledge DEQ's interpretation of the hydrostratigraphy (DEQ 2010). Groundwater samples from these wells were analyzed for VOCs using EPA Method 8260C.

5.3.1.1 Uppermost Water-bearing Unit(s)

The uppermost WBU consists of the following components:

- WBU-1 along the axis of the plume, the most contaminated WBU downgradient of the HHC (CH2M 2010)
- Select water table wells located in the interior of the plume downgradient of the HHC, and select wells located east and west of WBU-1

Table 8 includes the analytical results for the assessment monitoring wells. Figure 8 shows the VOC distribution in the assessment monitoring wells. The margins of the VOC plume in the uppermost WBU are monitored by assessment monitoring wells B-1, B-9, B-17, B-18, B-42, and B-47 on the west; and by wells B-43, B-44, B-45, and B-52 on the east. Note, B-43, B-45, and B-52 are completed in the second WBU but appear to have greater VOC concentrations than the shallowest water in this area and are thus used to define the plume boundaries.

Wells B-1 and B-42 typically exhibit the greatest VOC concentrations within the interior of the plume in WBU-1. In April 2020, total detected VOC concentrations at interior wells ranged from 77.3 µg/L at well B-1 to 216.8 µg/L at well B-42. PCE exceeded the MCL at B-1 and at B-42, with concentrations of 28 and 78 µg/L, respectively. TCE exceeded the MCL at B-1 and B-42 at concentrations of 8.1, and 22 µg/L, respectively. 1,1-DCA exceeded the SL (2.7 µg/L) at well B-1 and B-42 at concentrations of 4.9 µg/L and 13 µg/L, respectively. VC exceeded the MCL (2.0 µg/L) at well B-42 at a concentration of 5.7 µg/L. Concentrations of these VOCs appear to have been increasing in B-42 since its installation in 2011. The cause of increase is unknown, other than this well's location in a preferred flowpath downgradient from sources within the original HHC cell, and outside the capture zone of the extraction wells. Conversely, the individual VOCs and total VOCs in B-1 have decreased since the 1990s.

Wells B-9, B-17, and B-47 are on the western side of the HHC and downgradient to cross-gradient. Total VOC concentrations were 82.1 µg/L in B-9, and 20.5 µg/L in well B-47, which is downgradient. Well B-17 results indicate only low levels of VOCs, with a total of 1.8 µg/L. No VOCs were detected in well B-35, downgradient of the extraction wells. B-18 and B-38 had low-level detections of total VOCs at 1.9 µg/L and 0.7 µg/L, respectively.

On the eastern and southeastern sides of the VOC plume near Seamans Gulch, total VOC concentrations ranged from 11.2 µg/L at well B-44, to 93.1 µg/L and 69.1 µg/L at wells B-43 and B-45, to 17.2 µg/L at well B-52. These wells define and constrain a south-trending lobe in the VOC plume, which is interpreted to follow a north-south flowpath formed by one or more geological structures (CH2M 2015).

PCE exceeded the MCL of 5.0 µg/L in wells B-43 and B-45 at concentrations of 40 µg/L (up from a previous detection of 17 µg/L) and 20 µg/L, respectively. PCE was detected exceeding the MCL of 5.0 µg/L in well B-44, with a concentration of 5.1 µg/L. B-52 showed a PCE concentration of 7.2 µg/L and appears to define the western side of the south-trending lobe of the VOC plume. These results are consistent with previous readings, except for the PCE increase at B-43. However, the PCE concentration of 40 µg/L is consistent with concentrations observed between 2010 and 2018.

As Section 4 discussed, available data indicate a hydraulic boundary formed by one or more north-south trending geological structures, causing a significant change in hydrogeological conditions and contaminant distribution and migration west of wells B-1, B-9, EW-2, EW-3, and EW-4. The hydraulic boundary appears to redirect the VOC plume southward, in a direction oblique to the areawide southwesterly hydraulic gradient. VOC concentrations diminish west of this boundary, as evidenced by lack of or very low VOC detections in downgradient monitoring wells B-17, B-18, B-38, and B-47.
Other north-south trending hydraulic boundaries, either north-trending faults or highly-permeable sand lenses, appear to direct some VOCs southward from the landfill towards wells B-43 and B-45, which is oblique to the general groundwater flow direction.

At the intersection with Hill Road, the narrow VOC flow path appears to be mostly confined to saturated zones east of Seamans Gulch Road, as evidenced by the general absence of detectable VOCs west of Seamans Gulch Road. The absence of VOCs to the west of the road is inconsistent with the regional southwesterly direction of groundwater flow. As noted, the exact nature and cause of this alignment of the VOC boundary are not fully understood. Regardless of the cause of the hydraulic boundary, the existence of the boundary, depicted on Figures 5 and 8, is confirmed by the distribution of VOCs.

5.3.1.2 Intermediate Water-bearing Unit(s)

The VOC plume in the intermediate WBU(s) is represented by wells B-24 and B-26, in the remediation area, and wells B-39 and EW-10 downgradient (Figure 7). PCE and TCE exceeded their respective MCLs at B-24, at concentrations of 44 µg/L and 10 µg/L. Well B-26 also exceeded the MCL for PCE, at a concentration of 31 µg/L. EW-10 exceeded the MCL for PCE at a concentration of 7.8 µg/L. PCE was less than the MCL at B-39, at concentrations of 4.8 µg/L. These are similar to previous concentrations, although it appears the concentration of PCE is increasing; possibly from downward leakage.

5.3.1.3 Deep Water-bearing Unit(s)

The plume in the deep WBU(s) is represented by wells B-29 B-50, B-51, and EW-11. No VOCs were detected in well B-29, which is completed in a coarse sand lens within the blue clay confining layer. The

PCE concentration in EW-11 was 5.9 µg/L in April 2020, slightly greater than the MCL of 5.0 µg/L, but less than the concentration observed in 2018.

5.4 Hidden Hollow Cell Remediation Monitoring

5.4.1 Analytical Results

Table 1 lists HHC groundwater remediation extraction and monitoring wells. Table 8 provides the results of the laboratory analyses for VOCs for these wells. PCE concentrations detected at EW-3, EW-4, EW-6 and EW-9 all exceeded the MCL at concentrations of 14 µg/L, 18 µg/L, 5.2 µg/L, and 8.5 µg/L, respectively. TCE concentrations at EW-4 dropped to less than the MCL 5 µg/L, to 4.8 µg/L. These wells continue to capture and remove VOCs from the groundwater, as evidenced by the overall decrease in VOC concentrations since the construction of the remediation system in 1995. The effects of the extraction wells are discussed in the following sections.

As described, detection monitoring well B-6A was fitted with a dedicated pump and connected to the extraction well network in March 2020. The purpose of this was to replace EW-7, a low-flow pumping well with very low VOC concentrations, with a higher-flow pumping well with very high VOC concentrations. B-6A is also located in the original source area, rather than downgradient, where the other extraction wells are located. Therefore, B-6A is intended to capture VOCs near the source and route the VOC-impacted groundwater into the stripper system for treatment. In April 2020, the total VOCs in B-6A were 209 µg/L, similar to historical concentrations. VOC concentration trends will continue to be monitored in B-6A, and the flow rates will be adjusted to optimize the drawdown and capture of VOC-impacted groundwater in the historical source area.

Domestic wells (D-10, D-12, D-18, and D-42) are also HHC groundwater remediation monitoring wells. The analytical results for these domestic wells are provided in Table 8, in Appendix H, and are shown on Figure 8. Low concentrations of PCE, less than the MCL, were detected in D-10, D-12, and D-18 at 0.42 J µg/L, 1.4 µg/L, and 2.8 µg/L, respectively. TCE was detected at less than the MCL at D-12 and D-18 at 0.73 J µg/L and 0.73 J µg/L, respectively. DCFM was detected in domestic wells D-10 and D-18, with concentrations of 3.4 µg/L and 1.6 J µg/L, respectively, far less than the SL of 200 µg/L. These wells are used for irrigation only; the residences have been connected to the public water supply for drinking and household water. In addition to the typical domestic wells in the monitoring program, D-42 was sampled at the request of the homeowner and was nondetect for all analytes.

5.4.2 Extraction Well Flow Rates and Volatile Organic Compound Removal

Table 9 summarizes groundwater capture and treatment rates achieved by the remediation system (air stripper). The treatment rates are based on average monthly flows and analytical results. Appendix I of this document provides the groundwater extraction and VOC concentrations for the previous 6 months.

Based on the most recent 6-month period leading up to April 2020, approximately 98,533 gallons of groundwater were treated daily which resulted in the removal of approximately 0.03 pound of VOCs per day (Table 9). Since operations began in April 1998, more than 431 million gallons of water have been treated, and approximately 284 pounds of VOCs have been removed from site groundwater (Table 9). Note, EW-7 was taken offline and replaced with B-6A, so future evaluations will not include EW-7. In its first month, B-6A was pumped an average of ~9,200 gallons per day, with a daily VOC removal rate of 0.0170 pound, which is greater than the other wells combined because of the elevated VOC concentrations. Flows and water levels will continue to be monitored and adjusted monthly for optimal performance.

5.4.2.1 Effects of Groundwater Extraction Wells EW-2, EW-3, and EW-4

Extraction wells EW-2, EW-3, and EW-4 draw water from WBU-1, and historically showed the greatest VOC concentrations in groundwater downgradient of the HHC. Figure 13 illustrates the positive effects these extraction wells and the LFG extraction systems have had on groundwater in WBU-1. VOC concentrations in EW-2, EW-3, and EW-4 have been declining since 2006, suggesting the groundwater capture and LFG vapor extraction systems are reducing the migration of VOCs from the HHC. However, B-28 has showed an increase in PCE concentrations since late 2017 into 2020, and appears to be outside the capture zone of the extraction wells. Total VOCs in EW-3 and EW-4 increased slightly in April 2020.

Figure 14 illustrates the improved groundwater quality downgradient of WBU-1 as a result of the extraction wells. Several wells, including B-12, B-14, B-15, B-19, B-20, B-21, B-22, and EW-8, are completed within the uppermost WBU(s) downgradient of the extraction wells. Before the groundwater extraction system was installed in 1998, VOC concentrations in these downgradient wells substantially exceeded MCLs. However, since the installation of the extraction wells in WBU-1, VOCs in the downgradient uppermost WBU wells have declined dramatically to concentrations at levels less than the MCLs.

Figure 15 shows the relationship of VOC concentrations in the pumped unit at WBU-1 to deeper, underlying WBUs. As this figure shows, there was an overall decrease in VOC concentrations when the extraction wells were placed online until approximately 2011, where concentrations have been relatively stable since. Total VOCs still remain around 100 µg/L in B-24, possibly due to downward leakage through semi-confining layers. B-29 is completed in a coarse sand lens within the blue clay, and has been nondetect for VOCs since its installation in 1996.

5.4.2.2 Effects of Groundwater Extraction Wells EW-6 EW-7, and EW-9

Further downgradient, the groundwater remediation network consists of two working groundwater extraction wells: (1) EW-6, and (2) EW-9. In the spring of 2020, extraction well EW-7 was taken offline because of low production and very low VOC concentrations. Figure 16 shows VOC concentrations at EW-6 and EW-9, and other wells near the property boundary (D-10, D-18, and B-48). These select wells are partially or fully completed within the same WBU(s) as EW-6, EW-7, and EW-9, and show improvements in water quality within the same zone(s).

Groundwater extraction at EW-6 EW-7, and EW-9 has reduced VOC concentrations to the extent that only one domestic well, D-10, periodically exceeds the MCL for PCE. The large seasonal fluctuations in VOC concentrations in D-10 from canal leakage have also been substantially reduced.

In April 2020, only low-level, J-flagged VOCs (toluene and xylenes) were detected in monitoring well B-48, which is approximately 60 feet west of D-10 and is screened across the same saturated unit as D-10. No VOCs have ever been detected in a domestic well along Hill Road to the west of D-18 or in a domestic well to the east of D-12. The VOC data indicate the southern extent of the VOC plume is limited to a comparatively narrow pathway where it crosses the landfill property boundary in the general vicinity of wells D-10, D-12, and D-18.

5.5 Quality Assurance and Quality Control

Jacobs' chemists completed a data quality evaluation (DQE) that included data validation and QA/QC procedures, provided in Appendix J. The objective of this DQE report is to assess the data quality of analytical results for groundwater samples collected from the Ada County Landfill, Ada County Idaho. Jacobs collected samples April 13 through April 28, 2020. Guidance for this DQE report came from the method-specific requirements of EPA methods used by the laboratory, industry standard validation practices, and professional judgement.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness. This report is intended as a general data quality assessment designed to summarize data issues.

This DQE report covers 54 water samples, including 5 water field duplicates (FDs). Five water matrix spike/matrix spike duplicates (MS/MSD) were collected (or selected by the laboratory as batch QC) and analyzed. Three trip blanks were included in coolers with volatile organic analyses; one for each day of sample shipment. One equipment blank was collected.

Samples were collected and delivered to TestAmerica laboratory in Arvada, Colorado. Three sample delivery groups were evaluated for data quality. Table 1 lists the SDGs, sample identifications, and collection and analysis chronology associated with the project samples. Table 2 summarizes the field samples collected by date.

One hundred percent of the analytical results were validated following an EPA Level II definition using an automated electronic process of review. The assessment of includes a review of the following laboratory summary forms:

- Chain-of-custody documentation
- Holding time
- Method and field blanks
- Laboratory control samples
- Surrogate spikes
- MS/MSD
- FD precision
- Case narrative review

Table 3 summarizes sample results and the reasons each was flagged. The information in Table 3 is presented so each flag applied to a method/matrix/analyte is shown. It also provides a statistical evaluation of the results so it shows the percentage of results impacted by a specific data quality condition or flag, related to the total results available for each target analyte/matrix. Only out-of-control conditions noted during the data validation are discussed in Table 3 and in the following subsections.

The results were qualified based on out of control equipment and trip blank contamination, laboratory control samples, and MS/MSD control, as well as some continuing calibration error. In addition, the samples were preserved with acid as required, but 2-chloroethylvinyl ether cannot be analyzed once the samples are preserved. That target compound has been rejected. Tables 4 through 7 provide an overview of the out of control conditions noted and how specific data were flagged.

The data generated from groundwater sample analyses are of sufficient quality and quantity necessary for accomplishing project objectives. The sample results accurately indicate the presence and/or absence of target analyte contamination at sampled locations. Each sample was collected and analyzed in accordance with method specification.

The sample results are believed to be representative of site conditions at the time of collection. Results obtained are comparable to industry standards in that collection and analytical techniques followed approved, documented procedures. All results were reported in industry standard units. Although blank contamination occurred, the concentrations were less than the reporting levels and representative of normal field and laboratory procedures. In cases of elevated reporting levels due to matrix interference or high target analyte concentrations, or both, the results obtained for associated samples/analyses reflect the best achievable data for the site-specific conditions.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid and completeness objectives were met, apart from 2-chloroethylvinyl ether, where no data are available. Overall, the data can be used for project decisions, considering the validation flags applied to the data. Table 8 details the results for completeness objectives. Table 9 details results with minimum, maximum, and mean values for the effort. Table 10 details the precision of detected FD results.

6. Recommendations

Jacobs recommends the following for detection and assessment monitoring at the HHC and NRC:

- Continue with semiannual sampling for both dissolved and total metals at all NRC detection monitoring wells, using low-flow methodology, to further evaluate the representativeness of total and dissolved metals concentrations at each well.
- Continue to calculate intrawell UPLs annually for total metals concentrations at the NRC detection monitoring wells.
- Continue semiannual sampling at the HHC detection, assessment, and remediation wells.
- Continue to optimize the groundwater extraction system by monitoring water levels, adjusting extraction rates, and evaluating analytical data. In particular, now that B-6A is an operating extraction well, monitor flow rates and drawdown to evaluate capture of VOCs in the remnant source areas.

This report will be placed in the operating record for the facility, as required by RCRA Subtitle E and associated state regulations.

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Tables

Table 1. HHC Monitoring Program Summary

Well ID	Location Relative to the HHC	Sampling Frequency[a]	Analytes Sampled	Monitoring Purpose
HHC Groundwater Detection Monitoring Wells [b]				
B-2	Downgradient	semiannual	App I: VOC, metals	Downgradient point-of-compliance well
		annual	App II: compounds	
B-6A	Downgradient	semiannual	App I: VOC, metals	Downgradient point-of-compliance well
		annual	App II: compounds	
B-7	Upgradient	semiannual	App I: VOC, metals	Upgradient, background water quality well
		annual	App II: compounds	
B-8	Downgradient	semiannual	App I: VOC, metals	Downgradient point-of-compliance well
		annual	App II: compounds	
B-10	Downgradient	semiannual	App I: VOC, metals	Downgradient point-of-compliance well
		annual	App II: compounds	
B-11	Downgradient	semiannual	App I: VOC, metals	Downgradient point-of-compliance well
		annual	App II: compounds	
HHC Assessment Monitoring Wells				
Uppermost Water-Bearing Unit(s)				
B-1	Downgradient, WBU-1[c]	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-9	Downgradient	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-17	Downgradient	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-18	Downgradient	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-38	Downgradient, WBU-1	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-42	Downgradient	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
B-43	Downgradient	semiannual	App I: VOC	Monitor the lateral eastern extent of the VOC plume
B-44	Downgradient	semiannual	App I: VOC	Monitor the lateral eastern extent of the VOC plume
B-45	Downgradient	semiannual	App I: VOC	Monitor the lateral eastern extent of the VOC plume
B-47	Downgradient	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume
Intermediate Water-Bearing Unit(s)				
B-24	Downgradient, WBU-3	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the toe of the HHC
B-26	Downgradient, WBU-3	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the toe of the HHC
B-39	Downgradient, WBU-4	semiannual	App I: VOC	Monitor the central to lateral western extent of the VOC plume
B-52	Downgradient, WBU-2	semiannual	App I: VOC	Monitor the VOC plume downgradient of the landfill property boundary
B-56	Downgradient, WBU-3	semiannual	App I: VOC	Monitor the VOC plume downgradient of the landfill property boundary
EW-6[d]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor the VOC plume at the downgradient landfill property boundary
EW-7[d]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor the VOC plume at the downgradient landfill property boundary
EW-9	Downgradient, WBU-4	semiannual	App I: VOC	Monitor the lateral eastern extent of the VOC plume at the landfill property boundary
EW-10	Downgradient, WBU-4	semiannual	App I: VOC	Monitor the lateral western extent of the VOC plume at the landfill property boundary

Table 1. HHC Monitoring Program Summary

Well ID	Location Relative to the HHC	Sampling Frequency[a]	Analytes Sampled	Monitoring Purpose
Deep Water-Bearing Unit(s)				
B-29	Downgradient, WBU-4 or 5	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the toe of the HHC
B-50	Downgradient, WBU-3	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the toe of the HHC
B-51	Downgradient, WBU-3	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the toe of the HHC
EW-11	Downgradient, WBU-5	semiannual	App I: VOC	Monitor the downward vertical migration of the VOC plume near the property boundary
HHC Remediation Monitoring Wells				
EW-2	Downgradient, WBU-1	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
EW-3	Downgradient, WBU-1	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
EW-4	Downgradient, WBU-1	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
EW-6	Downgradient, WBU-4	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
EW-7	Downgradient, WBU-4	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
EW-9	Downgradient, WBU-4	semiannual	App I: VOC	Monitor VOC removal rate at the extraction well
B-12	Downgradient, WBU-3	semiannual	App I: VOC	Monitor VOC trends over time in the uppermost water-bearing unit downgradient of extraction wells EW-1, -2, & -3
B-15	Downgradient, WBU-4	semiannual	App I: VOC	Monitor VOC trends over time in uppermost water-bearing unit near landfill property boundary
B-28	Downgradient, WBU-1	semiannual	App I: VOC	Monitor VOC in uppermost water-bearing unit directly downgradient of extraction wells EW-1, -2, & -3
B-30	Downgradient, WBU-2	semiannual	App I: VOC	Monitor VOC migration into intermediate water-bearing unit directly below extraction wells EW-1, -2, & -3
B-35	Downgradient, WBU-1	semiannual	App I: VOC	Monitor VOC trends over time in the uppermost water-bearing unit directly downgradient of extraction wells EW-1, -2, & -3
B-48	Downgradient, WBU-4	semiannual	App I: VOC	Monitor off-property VOC trends in domestic well south of Hill Rd. near leading edge of plume
D-10[e]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor off-property VOC trends in domestic well south of Hill Rd. near leading edge of plume
D-12[e]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor off-property VOC trends in domestic well south of Hill Rd. near leading edge of plume
D-18[e]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor off-property VOC trends in domestic well south of Hill Rd. near leading edge of plume
D-42[e]	Downgradient, WBU-4	semiannual	App I: VOC	Monitor off-property VOC trends in domestic well north of Hill Rd. near leading edge of plume

[a] Semiannual sampling frequency - Appendix I compounds at the detection, assessment, and remediation monitoring wells are sampled every year in April and October.

[b] Annual sampling frequency - Appendix II compounds are sampled annually in October.

[c] The WBU-designation is based on the water-bearing units along the core of the HHC VOC plume as depicted in *Hidden Hollow Cell Groundwater Data Review Ada County Landfill* (CH2M, 2010).

[d] The well also serves as a HHC remediation monitoring well.

[e] The WBU for the domestic wells is estimated (CH2M, 2010).

Notes:
HHC = Hidden Hollow Cell
ID = identification
VOC = volatile organic compound
WBU = water-bearing unit

Table 2. NRC Monitoring Program Summary

Well ID	Location Relative to the NRC	Sampling Frequency[a]	Analytes Sampled[b]	Monitoring Purpose
NRC Groundwater Detection Monitoring Wells				
MW-101	Upgradient	semiannual	Appendix I: VOC, metals	NRC upgradient, background water quality well
MW-102	Upgradient	semiannual	Appendix I: VOC, metals	NRC upgradient, background water quality well
MW-103	Upgradient	semiannual	Appendix I: VOC, metals	NRC upgradient, background water quality well
MW-104[c]	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-105	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-106	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-107A	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-108	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-109	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-110[c,d]	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-111[c,d]	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
MW-112[c,d]	Downgradient	semiannual	Appendix I: VOC, metals	Downgradient point of compliance well
NRC Piezometers				
P-1	Upgradient	semiannual	None	Water level monitoring
P-2	Upgradient	semiannual	None	Water level monitoring
P-3[e]	Downgradient	semiannual	None	Water level monitoring
P-5	Downgradient	semiannual	None	Water level monitoring
P-6	Downgradient	semiannual	None	Water level monitoring

[a] Semiannual sampling frequency - Appendix I compounds are sampled every year in April and October.

[b] Appendix II compounds will be sampled on an approved schedule if downgradient detection wells show increase.

[c] Wells MW-104, -110, -111, -112, are point-of-compliance wells that are currently downgradient of undisturbed portions of the NRC. Therefore, until the NRC is expanded to include these wells, these wells represent background conditions at the NRC.

[d] Wells MW-110, -111, and -112 are are directly upgradient of the HHC and are currently downgradient of undisturbed portions of the NRC. Therefore, until the NRC is expanded to include these wells, these wells are potential upgradient/background wells for the HHC and may be subject to Appendix II monitoring if HHC data warrant the additional background samples.

[e] P-3 is a piezometer that is sampled for Appendix I compounds in-lieu of MW-104 when MW-104 is dry.

Notes:

HHC = Hidden Hollow Cell

ID = identification

NRC = North Ravine Cell

VOC = volatile organic compound

WBU = water-bearing unit

Table 3. Ada County Landfill Monitoring Well Water Level Data, April 2020

Well ID	Easting Coordinate (ft)	Northing Coordinate (ft)	Measuring Point Elevation (ft)	Sample Date	DTW (feet bmp)	WL Elevation (feet amsl)
HHC Groundwater Detection/Assessment Monitoring Wells						
B-2	358470.71	741015.98	2,869.59	9-Apr-20	117.53	2,752.06
B-6A	360149.50	740343.53	3023.76	8-Apr-20	250.48	2,773.28
B-7	361321.01	742911.21	3,152.40	8-Apr-20	186.15	2,966.25
B-8	358546.25	741939.81	2,970.58	9-Apr-20	129.58	2,841.00
B-10	361013.86	741020.53	2,979.69	9-Apr-20	133.04	2,846.65
B-11	359132.90	740364.59	3,000.31	9-Apr-20	245.57	2,754.74
M-3	358348.76	739602.48	2,800.27	9-Apr-20	29.75	2,770.52
HHC Other Groundwater Monitoring Wells						
B-1	358279.81	739895.84	2,816.17	9-Apr-20	85.84	2,730.33
B-3	358468.71	741025.63	2,870.53	9-Apr-20	Dry	Dry
B-4	360273.72	739230.04	2,774.59	9-Apr-20	17.05	2,757.54
B-5					No well constructed	
B-9	357986.03	741500.24	2,934.68	9-Apr-20	202.00	2,732.68
B-12	358815.64	738216.56	2,713.07	9-Apr-20	25.32	2,687.75
B-13	358504.66	738968.08	2,765.03	9-Apr-20	48.95	2,716.08
B-14	357989.55	737036.30	2,662.49	9-Apr-20	36.54	2,625.95
B-15	358216.99	737082.70	2,671.91	9-Apr-20	61.97	2,609.94
B-16	357105.80	742383.51	2,836.70	9-Apr-20	113.69	2,723.01
B-17	356932.57	741296.39	2,846.64	9-Apr-20	196.72	2,649.92
B-18	357401.58	738613.26	2,790.51	9-Apr-20	166.68	2,623.83
B-19	358087.73	736877.32	2,652.93	9-Apr-20	49.08	2,603.85
B-20	358211.51	736847.63	2,657.21	9-Apr-20	51.40	2,605.81
B-21	357821.07	736977.07	2,649.78	9-Apr-20	26.44	2,623.34
B-22	358297.98	737451.44	2,683.34		Abandoned	
B-23	358211.51	737069.33	2,671.39	9-Apr-20	68.86	2,602.53
B-24	358590.20	738652.80	2,745.78	9-Apr-20	51.87	2,693.91
B-25	358592.10	738688.90	2,748.15	9-Apr-20	33.52	2,714.63
B-26	358688.40	738436.30	2,731.83	9-Apr-20	41.26	2,690.57
B-27	358449.80	739311.00	2,786.03	9-Apr-20	72.91	2,713.12
B-28	358680.90	738444.50	2,732.88	9-Apr-20	20.30	2,712.58
B-29	358605.20	738647.40	2,745.13	9-Apr-20	66.62	2,678.51
B-30	358600.11	738637.01	2,745.37	9-Apr-20	49.25	2,696.12
B-31	358684.07	738420.11	2,731.19	9-Apr-20	39.92	2,691.27
B-32	358548.69	738833.96	2,758.39	9-Apr-20	42.88	2,715.51
B-33					No well constructed	
B-34	358500.86	739058.25	2,770.79	9-Apr-20	54.30	2,716.49
B-35	358515.56	738559.88	2,734.63	9-Apr-20	19.03	2,715.60
B-36	358671.34	738207.17	2,713.28	9-Apr-20	22.11	2,691.17
B-37					No well constructed	
B-38	358402.72	738673.85	2,762.70	9-Apr-20	47.96	2,714.74
B-39	358287.52	737458.04	2,683.13	9-Apr-20	73.38	2,609.75
B-40	355984.25	741663.68	2,756.67		Abandoned	
B-41	355094.53	740707.01	2,710.20	9-Apr-20	120.46	2,589.74
B-42	358165.55	739665.38	2,808.29	9-Apr-20	100.94	2,707.35
B-43	359914.24	738968.63	2,750.56	9-Apr-20	10.04	2,740.52
B-44	360537.63	739506.73	2,799.20	9-Apr-20	25.01	2,774.19
B-45	360347.45	738869.98	2,780.49	9-Apr-20	38.89	2,741.60
B-46	359905.15	738947.17	2,750.67	9-Apr-20	10.49	2,740.18
B-47	357415.94	740877.13	2,859.78	9-Apr-20	196.25	2,663.53
B-48	357985.75	736647.22	2,630.31	9-Apr-20	34.33	2,595.98
B-50	358874.88	738191.53	2712.30	9-Apr-20	31.28	2,681.02
B-51	359326.11	738518.86	2724.26	9-Apr-20	45.72	2,678.54
B-52	359624.23	738773.02	2738.50	9-Apr-20	25.54	2,712.96
B-56	360709.58	739665.90	2812.35	9-Apr-20	33.44	2,778.91

Table 3. Ada County Landfill Monitoring Well Water Level Data, April 2020

Well ID	Easting Coordinate (ft)	Northing Coordinate (ft)	Measuring Point Elevation (ft)	Sample Date	DTW (feet bmp)	WL Elevation (feet amsl)
HHC Groundwater Extraction Wells						
EW-1	358582.44	738694.98	2,749.88	9-Apr-20	57.56	2,692.32
EW-2	358587.67	738679.49	2,747.65	9-Apr-20	32.60	2,715.05
EW-3	358541.56	738839.34	2,759.13	9-Apr-20	43.21	2,715.92
EW-4	358499.60	738978.73	2,766.28	9-Apr-20	49.88	2,716.40
EW-5	358635.83	738561.80	2,741.36	9-Apr-20	27.53	2,713.83
EW-6	358217.60	736893.80	2,661.10	9-Apr-20	75.12	2,585.98
EW-7	358115.76	736862.60	2,653.90	9-Apr-20	51.51	2,602.39
EW-8	358126.26	736862.79	2,654.47	9-Apr-20	49.92	2,604.55
EW-9	358333.80	736828.22	2,697.50	9-Apr-20	119.25	2,578.25
EW-10	357976.82	737001.82	2,660.04	9-Apr-20	59.92	2,600.12
EW-11	358165.12	736838.24	2,654.16	9-Apr-20	56.95	2,597.21
HHC Groundwater Injection Wells						
IW-1	358391.88	738681.27	2,763.21	9-Apr-20	49.25	2,713.96
IW-2	358517.51	738388.57	2,744.14	9-Apr-20	No Access	No Access
NRC Detection Monitoring Wells						
MW-101	362777.21	745247.83	3,210.63	8-Apr-20	195.01	3,015.62
MW-102	362361.59	746733.55	3,206.67	8-Apr-20	106.20	3,100.47
MW-103	359416.69	747465.93	3,136.12	8-Apr-20	128.32	3,007.80
MW-104	357678.00	746799.44	3,035.73	8-Apr-20	Dry	
MW-105	357442.34	745961.38	2,941.05	8-Apr-20	55.37	2,885.68
MW-106	357584.27	745206.10	3,038.33	8-Apr-20	122.45	2,915.88
MW-107	357662.44	744609.21	3,099.57	8-Apr-20	-	-
MW-107A	357699.62	744515.68	3,097.75	8-Apr-20	171.91	2,925.84
MW-108	358176.46	744010.42	3,141.98	8-Apr-20	210.98	2,931.00
MW-109	358959.00	743909.82	3,153.66	8-Apr-20	215.75	2,937.91
MW-110	359732.07	743892.39	3,152.81	8-Apr-20	198.55	2,954.26
MW-111	360551.25	743867.91	3,153.83	8-Apr-20	185.06	2,968.77
MW-112	361273.35	743826.06	3,155.90	8-Apr-20	187.98	2,967.92
NRC Piezometers						
P-1	361883.95	747203.00	3,120.30	8-Apr-20	32.01	3,088.29
P-2	360189.61	747386.27	3,180.66	8-Apr-20	129.53	3,051.13
P-3	357391.44	747145.14	3,085.19	8-Apr-20	173.97	2,911.22
P-4	356641.03	745646.99	2,876.80			
P-5	356620.55	744768.71	2,918.02	8-Apr-20	170.71	2,747.31
P-6	354402.12	747436.79	2,777.48	8-Apr-20	24.51	2,752.97

Notes:
DTW = Depth to water surface
ft bmp = feet below measuring point
feet amsl = feet above mean sea level
blank = Measurement not taken
NM = not measured

TABLE 4

Analytical Results for Appendix I VOCs Detected in NRC Groundwater Detection Monitoring Well Samples (in µg/L)

Ada County Landfill

Well ID	Sample Date	EPA Method	Toluene	Acetone	MEK	PCE	TCE	THF	DCFM	TCFM	Total VOCs
MCL [a]			**1,000**			**5**	**5**				**----**
EPA Regional Screening Level [a]				**14,000**	**5,600**			**3,400**	**200**	**1,100**	**----**
NRC Detection Wells											
MW-101	04/09/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	10/29/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/21/20		0.36 J	<20.0	3 J	<1.0	<1.0	<7.0	<2.0	<2.0	3.4
MW-102	04/08/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	10/29/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/21/20	8260	1.8	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	1.8
MW-103	04/09/19	8260	<1.0	<25.0	2.9	<1.0	<1.0	<10.0	<1.0	<1.0	2.9
	10/29/19	8260	<1.0	11 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	11.0
	04/20/20	8260	0.87 J	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.9
P-3 [b]	04/09/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	10/29/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/20/20	8260	0.76 J	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.8
MW-105	04/05/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	11/01/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/21/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0
MW-106	04/05/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	11/01/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/21/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0
MW-107A	04/05/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	11/01/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/22/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0
MW-108	04/05/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	11/01/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/23/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0
MW-109	04/05/19	8260	<1.0	<25.0	<50.0	1.9	<1.0	<10.0	2.4	<1.0	4.3
	11/01/19	8260	<1.0	<25.0 J	<25.0 J	0.93 J	<1.0	<5.0	1.2 J	0.83	3.0
	04/23/20	8260	<1.0	<20.0	<20.0	1.7	<1.0	<7.0	2.2	0.32 J	4.2
2004 FD-4	04/23/20	8260	<1.0	<20.0	<20.0	1.8	<1.0	<7.0	2.2	0.34 J	4.3
RPD (%)			Na[c]	Na[c]	Na[c]	5.71	Na[c]	Na[c]	Na[c]	6.06	--

TABLE 4

Analytical Results for Appendix I VOCs Detected in NRC Groundwater Detection Monitoring Well Samples (in µg/L)

Ada County Landfill

Well ID	Sample Date	EPA Method	Toluene	Acetone	MEK	PCE	TCE	THF	DCFM	TCFM	Total VOCs
MCL [a]			**1,000**			**5**	**5**				**----**
EPA Regional Screening Level [a]				**14,000**	**5,600**			**3,400**	**200**	**1,100**	**----**
MW-110	04/08/19	8260	<1.0	<25.0	<50.0	1.3	1.6	<10.0	0.52	0.34	3.8
	10/31/19	8260	<1.0	<25.0 J	<25.0 J	0.63 J	0.71 J	<5.0	<1.0	<1.0	1.3
	04/23/20	8260	<1.0	<20.0	<20.0	1.2	1.3	<7.0	<2.0	<2.0	2.5
MW-111	04/08/19	8260	<1.0	<25.0	<50.0	<1.0	<1.0	<10.0	<1.0	<1.0	0.0
	10/31/19	8260	<1.0	<25.0 J	<25.0 J	<1.0	<1.0	<5.0	<1.0	<1.0	0.0
	04/23/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0
MW-112	04/16/19	8260	7.9	<25.0 J	<50.0 J	<1.0 J	<1.0 J	<10.0 J	<1.0 J	<1.0 J	7.9
	11/01/19	8260	--	--	--	--	--	--	--	--	--
	04/22/20	8260	<1.0	<20.0	<20.0	<1.0	<1.0	<7.0	<2.0	<2.0	0.0

Notes:

[a] The groundwater protection standard is the MCL. For VOCs with no MCL, the EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites (http://epa-prgs.ornl.gov/chemicals/index.shtml), dated November 2018.

[b] Well P-3 was added to the NRC sampling in April 2009 due to well MW-104 being dry. Well P-3 is sampled when MW-104 is dry.

[c] NA, not applicable. Unable to compare laboratory results because at least one result is below detection limits.

"---" = Not sampled because of insufficient water in well or failed pump.

"***" = Not analyzed

Bold = Exceeds the Maximum Contaminant Level (MCL)

µg/L = microgram per Liter

EPA = U.S. Environmental Protection Agency

ND "<" = not detected. Nondetects are reported at Reporting Limit (RL).

J flag = Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

VOC = volatile organic compound

ND = Not detected

RPD = Relative Percent Difference

<u>Chemical Acronyms:</u>

TCE = Trichloroethylene

TCFM = Trichorofluoromethane

THF = Tetrahydrofuran

DCFM = Dichlorodifluoromethane

MEK = Methyl ethyl ketone

PCE = Tetrachloroethylene

TABLE 5

Analytical Results for Inorganics Detected in NRC Groundwater Detection Monitoring Well Samples (in mg/L)

Ada County Landfill

Well Number	Sample Date	Analysis	Analytical Constituent (mg/L)														
			Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Ni	Se	Ag	Th	V	Zn
	MCL [a]		***0.006***	***0.01***	***2.0***	***0.004***	***0.005***	***0.100***		***1.3***	***0.015***		***0.05***		***0.002***		
	EPA Regional Screening Level [a]								***0.006***			***0.39***		***0.094***		***0.086***	***6.0***
MW-101	04/09/19	Total (Low-flow)	<0.00087	**0.043**	0.05	<0.0001	<0.0001	<0.0024	0.00018	0.002	0.00029	0.002	<0.0003	<0.0008	<0.0008	<0.0016	0.019
	04/09/19	Diss. (Low-flow)	<0.0008	**0.043**	0.053	<0.0001	<0.0001	0.0037	0.0001	0.0035	0.00013	0.0022	<0.0003	<0.0008	<0.0008	0.00096	0.0072
	10/29/19	Total (Low-flow)	<0.0015	**0.12**	0.074	<0.00017	<0.00028	0.042	0.0049	0.011	0.00079 J	0.049	<0.00082	0.0017	<0.00012	0.0029	<0.037
	10/29/19	Diss. (Low-flow)	<0.0015	**0.017**	0.051	<0.00017	<0.00028	0.0045	0.0014 J	0.0013 J	<0.00029	0.013	<0.00082	0.00017 J	<0.00012	<0.002	0.011 J
	04/21/20	Total (Low-flow)	<0.0004	**0.079**	0.061	<0.00008	<0.00027	0.0084	0.0003 J	0.0051	0.0004 J	0.0046	<0.00037	0.000081 J	<0.000089	0.0028 J	0.019
	04/21/20	Diss. (Low-flow)	<0.0004	0.0073	0.042	<0.00008	<0.00027	0.0011 J	0.00014 J	<0.00056	<0.00018	0.0028	<0.00037	<0.000033	<0.000089	<0.0012	0.0052 J
MW-102	04/08/19	Total (Low-flow)	<0.0014	0.0038	0.54	0.0015	0.00076	<0.0021	**0.011**	<0.0012	**0.023**	0.029	<0.0003	<0.0008	<0.0008	0.021	0.058
	04/08/19	Diss. (Low-flow)	0.0012	0.003	0.057	<0.0001	<0.0001	0.012	0.00024	0.021	<0.0001	0.0057	0.00035	<0.0008	<0.0008	0.008	<0.0052
	10/29/19	Total (Low-flow)	<0.0015	0.0029	0.054	<0.00017	<0.00028	0.0014 J	<0.00056	<0.001	<0.00029	0.0096	<0.00082	<0.00012	<0.00012	0.0079	<0.0088
	10/29/19	Diss. (Low-flow)	<0.0015	0.0031	0.058	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	0.011	<0.00082	<0.00012	<0.00012	0.0076	<0.0088
	04/21/20	Total (Low-flow)	<0.0004	0.0036 J	0.09	0.00023 J	<0.00027	0.041	0.0023	0.0065	0.0055	0.028	<0.00037	<0.000033	<0.000089	0.016 J	0.017
	04/21/20	Diss. (Low-flow)	<0.0004	0.0024 J	0.059	<0.00008	<0.00027	0.0045	0.00049 J	0.0015 J	0.00059 J	0.014	<0.00037	<0.000033	<0.000089	0.0077 J	0.012
MW-103	04/09/19	Total (Low-flow)	<0.00088	0.0081	0.07	0.00018	0.00012	0.008	0.0027	0.0042	0.0046	0.026	0.00035	<0.0008	<0.0008	0.0096	0.13
	04/09/19	Diss. (Low-flow)	0.00081	0.0075	0.055	<0.0001	<0.0001	0.0027	0.0002	0.0015	<0.0001	0.0044	0.00042	<0.0008	<0.0008	0.007	0.029
	10/29/19	Total (Low-flow)	<0.0015	0.0097	0.086	0.00024 J	<0.00028	0.031	0.002 J	0.0088	0.0027	0.022	<0.00082	0.00027 J	0.00012 J	0.011	<0.053
	10/29/19	Diss. (Low-flow)	<0.0015	0.008	0.052	<0.00017	<0.00028	0.0034	<0.00056	0.0022 J	<0.00029	0.0027	<0.00082	<0.00012	0.00014 J	0.0049	0.035
	04/20/20	Total (Low-flow)	0.00067 J	0.0068	0.067	0.00022 J	<0.00027	0.03	0.001	0.0099	0.0044	0.021	0.00045 J	<0.000033	<0.000089	0.01 J	0.02
	04/20/20	Diss. (Low-flow)	0.001 J	0.0067	0.057	0.00013 J	<0.00027	0.005	0.0004 J	0.0013 J	<0.00018	0.011	<0.00037	<0.000033	<0.000089	0.0064 J	0.014
P-3 [b]	04/09/19	Total (Low-flow)	<0.00089	0.0037	0.054	<0.0001	<0.0001	<0.0034	0.00054	0.0033	0.00023	0.0033	<0.0003	<0.0008	<0.0008	<0.0013	<0.0052
	04/09/19	Diss. (Low-flow)	0.00091	0.0035	0.068	<0.0001	<0.0001	0.003	0.00068	<0.0012	0.00011	0.0028	<0.0003	<0.0008	<0.0008	<0.0007	<0.0052
	10/29/19	Total (Low-flow)	<0.0015	**0.012**	0.19 J	0.00097 J	<0.00028	0.095 J	**0.0069**	0.063	0.013	0.055	<0.00082	0.00042 J	0.00019 J	0.019 J	<0.077
	10/29/19	Diss. (Low-flow)	<0.0015	0.0057	0.085	0.00021 J	<0.00028	0.035	0.002 J	0.015	0.0027	0.025	<0.00082	0.00017 J	0.00018 J	0.0036	0.016 J
	04/20/20	Total (Low-flow)	<0.0004	0.0053	0.056	0.000095 J	<0.00027	0.019	0.00086 J	0.013 J	0.00095 J	0.013	<0.00037	0.000088 J	<0.000089	0.0017 J	0.0098 J
	04/20/20	Diss. (Low-flow)	<0.0004	0.0044 J	0.044	<0.00008	<0.00027	0.0025	0.00024 J	0.00079 J	<0.00018	0.0089	<0.00037	<0.000033	<0.000089	<0.0012	0.0045 J
MW-105	04/05/19	Total (Low-flow)	<0.0014	**0.026**	0.26	<0.0001	<0.0001	<0.0031	**0.013**	<0.0012	<0.0001	0.0069	<0.0003	<0.0008	<0.0008	<0.0013	0.0093
	04/05/19	Diss. (Low-flow)	0.00082	**0.028**	0.27	<0.0001	<0.0001	0.01	**0.014**	0.0015	<0.0001	0.0083	<0.0003	<0.0008	<0.0008	0.00098	0.0077
	11/01/19	Total (Low-flow)	<0.0015	**0.026**	0.28	<0.00017	<0.00028	<0.001	**0.015**	<0.001	<0.00029	0.0096	<0.00082	<0.00012	<0.00012	<0.002	<0.01
	11/01/19	Diss. (Low-flow)	<0.0015	**0.024**	0.29	<0.00017	<0.00028	<0.001	**0.015**	<0.001	<0.00029	0.0087	<0.00082	<0.00012	<0.00012	<0.002	0.009 J
	04/21/20	Total (Low-flow)	<0.0004	**0.024**	0.3	<0.00008	<0.00027	0.0018 J	**0.014**	0.00067 J	0.00019 J	0.0088	<0.00037	<0.000033	<0.000089	<0.0012	0.0082 J
	04/21/20	Diss. (Low-flow)	<0.0004	**0.023**	0.29	<0.00008	<0.00027	0.0012 J	**0.014**	<0.00056	<0.00018	0.0086	<0.00037	<0.000033	<0.000089	<0.0012	0.0098 J

TABLE 5

Analytical Results for Inorganics Detected in NRC Groundwater Detection Monitoring Well Samples (in mg/L)

Ada County Landfill

			Analytical Constituent (mg/L)														
Well Number	**Sample Date**	**Analysis**	**Sb**	**As**	**Ba**	**Be**	**Cd**	**Cr**	**Co**	**Cu**	**Pb**	**Ni**	**Se**	**Ag**	**Th**	**V**	**Zn**
	MCL[a]		***0.006***	***0.01***	***2.0***	***0.004***	***0.005***	***0.100***		***1.3***	***0.015***		***0.05***		***0.002***		
	EPA Regional Screening Level[a]								***0.006***			***0.39***		***0.094***		***0.086***	***6.0***
MW-106	04/05/19	Total (Low-flow)	<0.0008	0.0031	0.049	<0.0001	<0.0001	<0.0013	0.00012	<0.0012	<0.0001	0.0014	0.00035	<0.0008	<0.0008	<0.0015	<0.0052
	04/05/19	Diss. (Low-flow)	<0.0008	0.0023	0.044	<0.0001	<0.0001	0.0022	<0.0001	<0.0012	<0.0001	0.0013	<0.0003	<0.0008	<0.0008	0.0014	0.0061
	11/01/19	Total (Low-flow)	<0.0015	0.0026	0.054	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	<0.002	<0.01
	11/01/19	Diss. (Low-flow)	<0.0015	0.0019	0.055	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	<0.002	<0.0088
	04/21/20	Total (Low-flow)	<0.0004	0.0026 J	0.056	<0.00008	<0.00027	0.0023	0.00014 J	0.00061 J	<0.00018	0.0013 J	<0.00037	<0.000033	<0.000089	<0.0012	0.0034 J
	04/21/20	Diss. (Low-flow)	<0.0004	0.002 J	0.056	<0.00008	<0.00027	0.00099 J	<0.000092	<0.00056	<0.00018	0.001 J	<0.00037	<0.000033	<0.000089	<0.0012	0.0051 J
MW-107A	04/05/19	Total (Low-flow)	<0.0008	0.0055	0.07	<0.0001	<0.0001	<0.00061	0.00011	<0.0012	0.00011	0.0049	0.00036	<0.0008	<0.0008	<0.0039	0.0065
	04/05/19	Diss. (Low-flow)	0.0012	0.005	0.068	<0.0001	<0.0001	0.023	<0.0001	0.05	<0.0001	0.0049	0.00046	<0.0008	<0.0008	0.0036	<0.0052
	11/01/19	Total (Low-flow)	<0.0015	0.0074	0.083	<0.00017	<0.00028	0.012	<0.00056	0.0013 J	<0.00029	0.0091	<0.00082	<0.00012	<0.00012	0.004	<0.012
	11/01/19	Diss. (Low-flow)	<0.0015	0.0061	0.083	<0.00017	<0.00028	0.001 J	<0.00056	<0.001	<0.00029	0.0057	<0.00082	<0.00012	<0.00012	0.0031	<0.0088
	04/22/20	Total (Low-flow)	<0.0004	0.0058	0.091	<0.00008	<0.00027	0.0058	0.0017	0.0052	0.00061 J	0.0092	<0.00037	<0.000033	<0.000089	0.0042 J	0.0065 J
	04/22/20	Diss. (Low-flow)	<0.0004	0.0053	0.089	<0.00008	<0.00027	0.00074 J	<0.000092	0.00064 J	<0.00018	0.0064	<0.00037	<0.000033	<0.000089	0.0036 J	0.0032 J
MW-108	04/05/19	Total (Low-flow)	<0.0008	0.0074	0.039	<0.0001	<0.0001	<0.0013	<0.0001	<0.0012	0.00068	<0.0005	0.0004	<0.0008	<0.0008	<0.005	0.0076
	04/05/19	Diss. (Low-flow)	0.0009	0.0084	0.041	<0.0001	<0.0001	0.0029	<0.0001	<0.0012	0.00013	<0.0005	0.00045	<0.0008	<0.0008	0.0054	<0.0052
	11/01/19	Total (Low-flow)	<0.0015	0.0088	0.044	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	0.0042	<0.0088
	11/01/19	Diss. (Low-flow)	<0.0015	0.0087	0.046	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	0.0032	<0.0088
	04/23/20	Total (Low-flow)	<0.0004	0.0077	0.043	<0.00008	<0.00027	0.0012 J	<0.000092	0.0021	0.00032 J	<0.0003	<0.00037	<0.000033	<0.000089	0.0037 J	0.0055 J
	04/23/20	Diss. (Low-flow)	<0.0004	0.0085	0.046	<0.00008	<0.00027	0.001 J	<0.000092	<0.00056	<0.00018	<0.0003	<0.00037	<0.000033	<0.000089	0.0037 J	0.0023 J
MW-109	04/05/19	Total (Low-flow)	<0.0008	0.0038	0.067	<0.0001	<0.0001	<0.00086	<0.0001	<0.0012	0.00014	<0.0005	<0.0003	<0.0008	<0.0008	<0.0034	<0.0052
	04/05/19	Diss. (Low-flow)	<0.0008	0.0034	0.06	<0.0001	<0.0001	0.0011	<0.0001	<0.0012	<0.0001	<0.0005	<0.0003	<0.0008	<0.0008	0.0027	<0.0052
	11/01/19	Total (Low-flow)	<0.0015	0.0039	0.073	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	<0.002	<0.0088
	11/01/19	Diss. (Low-flow)	<0.0015	0.0044	0.076	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	<0.002	<0.0088
	04/23/20	Total (Low-flow)	<0.0004	0.0038 J	0.073	<0.00008	<0.00027	0.001 J	<0.000092	<0.00056	0.00023 J	0.00042 J	<0.00037	<0.000033	<0.000089	0.0025 J	0.0098 J
	04/23/20	Diss. (Low-flow)	<0.0004	0.0037 J	0.077	<0.00008	<0.00027	0.00059 J	<0.000092	<0.00056	<0.00018	<0.0003	<0.00037	<0.000033	<0.000089	0.0014 J	0.0022 J
MW-109 Field Duplicate		**Total**	<0.0004	0.0038 J	0.072	<0.00008	<0.00027	0.00094 J	<0.000092	<0.00056	0.00019 J	0.00032 J	<0.00037	<0.000033	<0.000089	0.0023 J	0.003 J
2004 FD-4		**RPD (%)**	NA[c]	0.0	1.4	NA[c]	NA[c]	6.2	NA[c]	NA[c]	19.0	27.0	NA[c]	NA[c]	NA[c]	8.3	106.3
		Dissolved	<0.0004	0.0037 J	0.079	<0.00008	<0.00027	0.00065 J	<0.000092	<0.00056	<0.00018	<0.0003	<0.00037	<0.000033	<0.000089	0.0013 J	0.0026 J
		RPD (%)	NA[c]	0.0	2.6	NA[c]	NA[c]	9.7	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]	NA[c]	7.4	16.7
MW-110	04/08/19	Total (Low-flow)	**0.012**	**0.038**	0.61	<0.001	<0.001	0.043	<0.001	0.063	0.0041	<0.005	<0.003	<0.008	**<0.008**	0.066	0.064
	04/08/19	Diss. (Low-flow)	0.0011	0.0045	0.07	<0.0001	<0.0001	0.0016	<0.0001	<0.0012	<0.0001	<0.0005	<0.0003	<0.0008	<0.0008	0.0072	<0.0052
	10/31/19	Total (Low-flow)	<0.0015	0.0041	0.062	<0.00017	<0.00028	0.0013 J	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	0.006	<0.0088
	10/31/19	Diss. (Low-flow)	<0.0015	0.004	0.066	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.00029	<0.0015	<0.00082	<0.00012	<0.00012	0.006	<0.0088
	04/23/20	Total (Low-flow)	<0.0004	0.0037 J	0.064	<0.00008	<0.00027	0.001 J	<0.000092	<0.00056	<0.00018	0.00039 J	<0.00037	<0.000033	<0.000089	0.0037 J	0.0023 J
	04/23/20	Diss. (Low-flow)	<0.0004	0.0039 J	0.065	<0.00008	<0.00027	0.0021	<0.000092	<0.00056	0.0004 J	0.00053 J	<0.00037	<0.000033	<0.000089	0.0054 J	0.0036 J

TABLE 5

Analytical Results for Inorganics Detected in NRC Groundwater Detection Monitoring Well Samples (in mg/L)

Ada County Landfill

Well Number	Sample Date	Analysis	Analytical Constituent (mg/L)														
			Sb	**As**	**Ba**	**Be**	**Cd**	**Cr**	**Co**	**Cu**	**Pb**	**Ni**	**Se**	**Ag**	**Th**	**V**	**Zn**
	MCL [a]		***0.006***	***0.01***	***2.0***	***0.004***	***0.005***	***0.100***		***1.3***	***0.015***		***0.05***		***0.002***		
	EPA Regional Screening Level [a]								***0.006***			***0.39***		***0.094***		***0.086***	***6.0***
MW-111	04/08/19	Total (Low-flow)	<0.0013	0.0041	0.053	<0.0001	<0.0001	<0.0011	<0.0001	<0.0012	0.00052	0.017	0.00049	<0.0008	<0.0008	<0.0059	<0.0052
	04/08/19	Diss. (Low-flow)	<0.0008	0.004	0.05	<0.0001	<0.0001	0.0024	<0.0001	<0.0012	0.00017	0.016	0.00038	<0.0008	<0.0008	0.0051	<0.0052
	10/31/19	Total (Low-flow)	<0.0015	0.0043	0.055	<0.00017	<0.00028	0.0014 J	<0.00056	<0.001	0.0034	0.026	<0.00082	<0.00012	<0.00012	0.0053	<0.0088
	10/31/19	Diss. (Low-flow)	<0.0015	0.0042	0.058	<0.00017	<0.00028	0.0011 J	<0.00056	<0.001	0.0029	0.023	<0.00082	<0.00012	<0.00012	0.0052	<0.0088
	04/23/20	Total (Low-flow)	<0.0004	0.0039 J	0.057	<0.00008	<0.00027	0.0018 J	<0.000092	<0.00056	0.00057 J	0.011	<0.00037	<0.000033	<0.000089	0.0045 J	0.0023 J
	04/23/20	Diss. (Low-flow)	<0.0004	0.004 J	0.058	<0.00008	<0.00027	0.0015 J	<0.000092	<0.00056	<0.00018	0.013	0.00044 J	<0.000033	<0.000089	0.0043 J	<0.002
MW-112	04/16/19	Total (Low-flow)	<0.00094	0.0097	0.041	<0.0001	<0.0001	0.004	<0.00016	0.002	<0.0001	0.0046	0.00033	<0.0008	<0.0008	0.0047	<0.0052
	04/16/19	Diss. (Low-flow)	<0.0008	0.0094	0.046	<0.0001	<0.0001	0.0038	0.00012	0.0013	<0.0001	0.0031	0.00034	<0.0008	<0.0008	0.0049	0.0052
	10/31/19	Total (Low-flow)	Not Sampled														
	10/31/19	Diss. (Low-flow)	Not Sampled														
	04/22/20	Total (Low-flow)	<0.0004	**0.011**	0.043	<0.00008	<0.00027	0.006	0.0003 J	0.0012 J	0.00029 J	0.0035	0.00039 J	<0.000033	<0.000089	0.0066 J	0.0093 J
	04/22/20	Diss. (Low-flow)	<0.0004	**0.011**	0.043	<0.00008	<0.00027	0.0072	0.00033 J	0.003	<0.00018	0.0085	0.00053 J	<0.000033	<0.000089	0.0052 J	0.042

Notes:

[a] The groundwater protection standard is the state MCL. For inorganics with no MCL, the EPA Region Regional Screening Levels for Chemical Contaminants at Superfund Sites (http://www.epa.gov/region6/6pd/rcra_c/pd-n/screen.htm), dated November 2014.

[b] P-3 sampled when MW-104 is dry

[c] NA, not applicable. RPD is calculated if both the normal and duplicate results are greater than the reporting limit.

Bold = Exceeds the MCL

Nondetects are reported at MDL.

--- = Not sampled

< = less than

% = percent

3-vol = Sample purge method was removal of 3-casing volumes prior to collecting sample.

B flag = The sample concentration is associated with laboratory blank contamination

Diss. = Dissolved metals analysis

EPA = U.S. Environmental Protection Agency

"J" flag = Analyte detected at a level less than the RL and greater than or equal to the MDL. Concentrations that are "J" flagged are estimated.

Low-flow = Sample purge method was low-stress (minimal drawdown) per EPA (1996)

MCL = maximum concentration level

MDL = method detection limit

mg/L = milligram per Liter

RL = reporting limit

RPD = Relative Percent Difference

Total = Total metals analysis

Chemical Acronyms:

Sb = Antim	Cr = Chromium	Se = Selenium
As = Arseni	Co = Cobalt	Ag = Silver
Ba = Bariur	Cu = Copper	Th = Thallium
Be = Berylli	Pb = Lead	V = Vanadium
Cd = Cadm	Ni = Nickel	Zn = Zinc

TABLE 6

Analytical Results for Appendix I /II VOCs Detected in HHC Groundwater Detection Monitoring Well Samples (in ug/L)

Ada County Landfill

Principle Appendix I/II VOCs

Well ID	Sample Date	Benzene	DCFM	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	MC	PCE	TCE	TCFM	VC	Total Principle VOCs[b]
MCL[a]		5			70	100	5	5	5		2	
EPA Regional Screening Level[a]			200	2.7						1,100		
B-2	04/23/19	0.41 J	31	1.9	0.93 J	<1	<5	**13**	2.8	6	**2.4**	58.44
	11/01/19	0.58 J	32 J	**3.4**	1.2	<1	<5	**10**	2.9	5.9	**3.1**	59.08
	04/20/20	0.87 J	68	**3.4**	1.6	0.27 J	<5	**19**	3.8	8.7	**4.2**	109.84
B-6A	04/26/19	0.71 J	27	**3.6**	2.3	0.58 J	3.4 J	**130**	**13**	5.5	0.79 J	186.88
	10/31/19	0.56 J	22 J	**3.7**	1.8	<1	<5	**49**	**7.5**	3.9	<1	88.46
	04/28/20	0.68 J	44	**5**	8.9	0.62 J	0.87 J	**120**	**15**	6.1	1.5	202.67
B-7	04/18/19	<1 J	1.2 J	<1 J	<1 J	<1 J	<5 J	1.2 J	<1 J	1.3 J	<1 J	3.7
	11/01/19	<1	<1 J	<1	<1	<1	<5	<1	<1	0.73 J	<1	0.73
	04/22/20	0.24 J	0.96 J	<1	<1	<1	<5	1.1	<1	0.6 J	<1	2.9
B-8	04/25/19	<1	2.5	0.73 J	0.71 J	<1	<5	**13**	1	1.2	<1	19.14
	10/31/19	<1	2.8	1.1	1.1	<1	<5	**14**	1.4	1.7	<1	22.1
	04/28/20	<1	<2	0.66 J	0.76 J	<1	<5	**12**	0.87 J	0.79 J	<1	15.08
B-10	04/26/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0
	10/31/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0
	04/28/20	<1	<2	<1	<1	<1	<5	0.23 J	<1	<2	<1	0.23
B-11	04/26/19	0.6 J	0.81 J	2.1	5.5	<1	<5	**13**	4.1	0.34 J	0.6 J	27.05
	10/31/19	0.56 J	0.87 J	2.3	4.1	<1	<5	**11**	3.3	<1	0.62 J	22.75
	04/28/20	0.68 J	<2	2.2	5.3	<1	<5	**16**	3.9	<2	0.59 J	28.67
2004 FD-5	04/28/20	0.63 J	1.2 J	2.1	5	<1	<5	**14**	3.5	<2	0.52 J	26.95
RPD (%)		*7.6*	*NA*[c]	*4.7*	*5.8*	*NA*[c]	*NA*[c]	*13.3*	*10.8*	*NA*[c]	*12.6*	--

Other Appendix I/II VOCs

Well ID	Sample Date	Acetone	BDCMA	CBZ	CD	CE	CF	CM	1,2-DCA	1,2-DCB	1,4-DCB	1,1-DCE	1,2-DCP	HCBD	MIPK	NPTH	Tol	1,1,1-TCA	1,2,3-TCP	Xylenes (total)
MCL[a]			80	100			80		5	600	75	7	5				1,000	200		10,000
EPA Regional Screening Level[a]		14,000			810	21,000		190						0.3	1,200	0.17			0.0008	
B-2	04/23/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.68 J	<1	<2	<10	<5	<1	<1	<1	<3
	11/01/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/20/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	0.73 J	<1	<1	<5	<1	0.58 J	<1	<3	<2
B-6A	04/26/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	0.29 J	0.33 J	0.27 J	<2	<10	<5	0.73 J	<1	<1	<3
	10/31/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	220	<1	<5	<10
	04/28/20	<20	<1	0.22 J	<2	<4	0.46 J	<2	<1	0.22 J	1.4	0.38 J	0.51 J	<1	<5	<1	<1	<1	<3	<2
B-7	04/18/19	<25 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<1 J	<2 J	<10 J	<5 J	<1 J	<1 J	<1 J	<3 J
	11/01/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
	04/22/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	0.74 J	<1	<3	0.27 J
B-8	04/25/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	0.87 J	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/31/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	0.99 J	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	0.85 J	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-10	04/26/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/31/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-11	04/26/19	<25	<1	0.93 J	<1	<1	<1	<1	0.37 J	1.2	9.4	<1	0.55 J	<2	<10	<5	<1	<1	<1	<3
	10/31/19	<25	<1	0.59 J	<1	<1	<1	<1	0.69 J	0.66 J	6.4	<1	<1	<5	<25	<1	35	<1	<5	<10
	04/28/20	<20	<1	0.91 J	<2	<4	<1	<2	<1	0.94 J	9.4	<1	0.53 J	<1	<5	<1	0.24 J	<1	<3	<2
2004 FD-5	04/28/20	<20	<1	0.9 J	<2	<4	<1	<2	<1	0.88 J	8.3	<1	0.51 J	<1	<5	<1	0.35 J	<1	<3	0.27 J
RPD (%)		*NA*[c]	*NA*[c]	*1.1*	*NA*[c]	*NA*[c]	*NA*[c]	*NA*[c]	*NA*[c]	*6.6*	*12.4*	*NA*[c]	*3.8*	*NA*[c]	*NA*[c]	*NA*[c]	*37.3*	*NA*[c]	*NA*[c]	*NA*[c]

Other VOCs

Well ID	Sample Date	SBTBZ	2CT	1,2,3-TRCBZ	THF	DEE	BB	1,1,2-TFTCA	Total Other VOCs[b]	Total All VOCs
MCL[a]										
EPA Regional Screening Level[a]		2000	240	7	None	None	62	55,000		
B-2	04/23/19	<1 J	<1	<1	1.2 J	0.38 J	<1	1.7	3.96	62.4
	11/01/19	<1	<1	<1	<5	<1	<1	0.88 J	0.88	59.96
	04/20/20	<2	<1	<1	<7	0.85	<1	1.6 J	3.76	113.6
B-6A	04/26/19	<1 J	<1	<1	<10	0.95 J	<1	0.19 J	2.76	189.64
	10/31/19	<1	<1	<1	<5	3 J	<1	<1	223	311.46
	04/28/20	<2	<1	<1	<7	3.7	<1	<1 J	6.89	209.56
B-7	04/18/19	<1 J	<1 J	<1 J	<10 J	<5 J	<1 J	<1 J	0	3.7
	11/01/19	<1	<1	<1	<5	<1	<1	<1 J	0	0.73
	04/22/20	<2	<1	<1	<7	<0.5	<1	<1 J	1.01	3.91
B-8	04/25/19	<1 J	<1	<1	1.1 J	1.3 J	<1	0.22 J	3.49	22.63
	10/31/19	<1	<1	<1	<5	2	<1	<1	2.99	25.09
	04/28/20	<2	<1	<1	<7	1.4	<1	<1 J	2.25	17.33
B-10	04/26/19	<1 J	<1	<1	<10 J	<5	<1	<1	0	0
	10/31/19	<1	<1	<1	<5	<1	<1	<1	0	0
	04/28/20	<2	<1	<1	<7	<0.5	<1	<1 J	0	0.23
B-11	04/26/19	0.31 J	<1	<1	<10	13	<1	<1	25.76	52.81
	10/31/19	<1	<1	<1	<5	12	<1	<1	55.34	78.09
	04/28/20	0.38 J	<1	<1	0.87 J	9	0.17 J	<1 J	22.44	51.11
2004 FD-5	04/28/20	0.35 J	<1	<1	0.9 J	9.2	<1	<1 J	21.66	48.61
RPD (%)		*8.2*	*NA*[c]	*NA*[c]	*3.4*	*2.2*	*NA*[c]	*NA*[c]	--	--

[a] The groundwater protection standard is the state MCL. For VOCs with no MCL, the EPA RSLs for Chemical Contaminants at Superfund Sites is used (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables), dated November 2018.

[b] Total VOCs assumes nondetected values ("<") to be zero.

[c] NA, Not applicable. For RPD calculation, unable to compare laboratory results due to at least one result being below detection limits.

μ/L = microgram per Liter

J flag = Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL).

MCL = maximum concentration level.

RSL = regional screening level

Bold and Shaded cells indicate exceedance of MCL or RSL

"<" = Not Detected. Nondetects are reported at Reporting Limit (RL).

RPD = relative percent difference

VOC = volatile organic compound

Chemical Acronyms:

Principle VOCs

- DCFM = Dichlorodifluoromethane (freon-12)
- 1,1-DCA = 1,1-Dichloroethane
- cis-1,2-DCE = cis-1,2-Dichlorethene
- DCFM = Dichlorodifluoromethane (freon-12)
- MC = Methylene chloride
- PCE = Tetrachloroethylene
- TCE = Trichloroethylene
- TCFM = Trichorofluoromethane
- trans-1,2-DCE = trans-1,2-Dichloroethene
- VC = Vinyl chloride

Other VOCs

- BDCMA = Bromodichoromethane
- BB = Bromobenzene
- CBZ = Chlorobenzene
- CD = Carbon Disulfide
- CE = Chloroethane
- CF = Chloroform
- CM = Chloromethane
- 2-CT = 2-Chlorotoluene
- 1,4-DCB = 1,4-Dichlorobenzene
- 1,1-DCE = 1,1-Dichloroethene
- DEE = Diethyl ether
- HCBD = Hexachlorobutadiene
- MEK = Methyl ethyl ketone
- MIPK = 4-Methyl-2-pentanone
- NPTH = Naphthalene
- SBTBZ =sec-Butylbenzene
- THF = tetrahydrofuran
- 1,2,3-TRCBZ = 1,2,3-Trichlorobenzene
- 1,1,1-TCA = 1,1,1-trichloroethane
- 1,2,3-TCP = 1,2,3-Trichloropropane
- 1,1,2-TFTCA = 1,1,2-Trichloro-1,1,2-trifluoroethane
- 1,2-DCP =Dichloropropane

Bold and Shaded cells indicate exceedance of MCL or RSL

TABLE 7

Analytical Results for Inorganics Detected in HHC Groundwater Detection Monitoring Well Samples (in mg/L)

Ada County Landfill

Well ID	Sample Date	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Cyanide	Pb	Hg	Ni	Se	Ag	Sulfide	Th	Sn	V	Zn
		Analytical Constituent (mg/L)																		
	MCL [a, b]	*0.006*	*0.01*	*2.00*	*0.004*	*0.005*	*0.100*		*1.3*	*0.2*	*0.015*	*0.002*		*0.05*			*0.002*			
	EPA Regional Screening Level [a, b]							*0.006*					*0.39*		*0.094*	*None*		*12.0*	*0.086*	*6.0*
B-2	04/23/19	<0.00089	0.0036	0.51 J	<0.0001	0.00015 J	0.077 J	0.0024 J	0.0034	---	<0.0001	<0.0001	0.0059 J	<0.0003	<0.0008 J	---	<0.0008	---	0.0038 J	<0.0061
	11/1/19	<0.0015	0.004	0.58	<0.00017	<0.00028	0.0052	<0.00056	0.0069	<0.0035	0.0011 J	<0.000076	0.0059	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	0.0052	<0.02
	04/20/20	<0.0004	0.0031 J	0.52	<0.00008	<0.00027	0.0044	0.00015 J	0.0016 J	---	0.00025 J	---	0.0045	<0.00037	<0.000033	---	<0.000089	---	0.0028 J	0.0055 J
B-6A	04/26/19	<0.00095	0.0032	0.47	<0.0001	<0.0001	0.00076 J	<0.0001	<0.0012	---	<0.0001	0.00013 J	0.00064 J	<0.0003	<0.0008	---	<0.0008	---	0.0059	<0.0052
	10/31/19	<0.0015	0.0033	0.52	<0.00017	<0.00028	0.022	<0.00056	0.0032	<0.0035	0.0016	0.00082	0.0015 J	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	0.0071	<0.1
	04/28/20	<0.0004	0.0039 J	0.44	<0.00008	<0.00027	<0.0005	<0.000092	<0.00056	---	<0.00018	---	0.00071 J	0.00041 J	<0.000033	---	<0.000089	---	0.0075	0.0038 J
B-7	04/18/19	<0.001	0.0021	0.18	<0.0001	<0.0001	0.0029	0.0022	0.0016 J	---	<0.0001	---	0.0035	<0.0003	<0.0008	---	<0.0008	---	0.0048	<0.0052
	11/1/19	<0.0015	0.0028	0.19	<0.00017	<0.00028	0.0019 J	0.00057 J	0.0014 J	<0.0035	<0.00029	<0.000076	0.0078	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	0.0057	<0.0088
	04/22/20	<0.0004	0.0021 J	0.16	<0.00008	<0.00027	0.0026	0.00022 J	0.0022	---	<0.00018	---	0.0033	<0.00037	<0.000033	---	<0.000089	---	0.0048 J	0.0092 J
B-8	04/25/19	<0.00091	0.0038	0.18	<0.0001	<0.0001	0.00098 J	<0.0001	0.0096	---	0.0003 J	<0.0001	0.0016 J	<0.0003	<0.0008	---	<0.0008	---	0.0038	<0.019
	10/31/19	<0.0015	0.0042	0.19	<0.00017	<0.00028	0.001 J	<0.00056	0.013	<0.0035	0.0012 J	<0.000076	0.0025	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	0.0039	<0.017
	04/28/20	<0.0004	0.004 J	0.19	<0.00008	<0.00027	0.00057 J	<0.000092	0.0067	---	0.00051 J	---	0.0012 J	<0.00037	<0.000033	---	<0.000089	---	0.005	0.0064 J
B-10	04/26/19	<0.00087	0.005	0.051	<0.0001	<0.0001	0.0011 J	<0.0001	<0.0012	---	<0.0001	<0.0001	0.0024	<0.0003	<0.0008	---	<0.0008	---	0.0047	<0.0052
	10/31/19	<0.0015	0.0054	0.053	<0.00017	<0.00028	<0.001	<0.00056	<0.001	<0.0035	<0.00029	<0.000076	<0.0015	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	0.0048	<0.0088
	04/28/20	<0.0004	0.005	0.066	<0.00008	<0.00027	0.00082 J	<0.000092	<0.00056	---	<0.00018	---	<0.0003	<0.00037	<0.000033	---	<0.000089	---	0.0062	<0.002
B-11	04/26/19	<0.00092	**0.091**	0.32	<0.0001	<0.0001	<0.0005	**0.045**	<0.0012	---	<0.0001	<0.0001	0.0065	<0.0003	<0.0008	---	<0.0008	---	0.0011 J	<0.006
	10/31/19	<0.0015	**0.097**	0.31	<0.00017	<0.00028	<0.001	**0.047**	0.0024 J	<0.0035	0.0021	<0.000076	0.0091	<0.00082	<0.00012	<0.057	<0.00012	<0.0016	<0.002	<0.019
	04/28/20	<0.0004	**0.081**	0.32	0.00012 J	<0.00027	0.0013 J	**0.038**	0.00062 J	---	0.0015	---	0.0061	<0.00037	<0.000033	---	<0.000089	---	<0.0012	0.0075 J
2004 FD-5	04/28/20	<0.0004	**0.1**	0.34	<0.00008	<0.00027	0.0012 J	**0.041**	0.00096 J	---	0.0015	---	0.0063	<0.00037	<0.000033	---	<0.000089	---	<0.0012	0.0078 J
RPD (%)		*NA [c]*	*21.0*	*6.1*	*NA [c]*	*NA [c]*	*8.0*	*7.6*	*43.0*	*NA [c]*	*0.0*	*NA [c]*	*3.2*	*NA [c]*	*NA [c]*	*NA [c]*	*NA [c]*	*NA [c]*	*NA [c]*	*3.9*

Notes:

[a,b] The groundwater protection standard is the state MCL except for inorganics with no MCL, and then the EPA Region Regional Screening Levels for Chemical Contaminants at Superfund Sites are applied (http://www.epa.gov/region6/6pd/rcra_c/pd-n/screen.htm), dated November 2014.

[c] NA, not applicable. Unable to compare laboratory results because of at least one result being below detection limits.

Bold and Shaded cells indicate exceedance of MCL or RSL

Nondetects are reported at MDL.

"B" flag = The sample concentration is associated with laboratory blank contamination

EPA = U.S. Environmental Protection Agency

HHC = Hidden Hollow Cell

ID = identification

"J" flag = Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the MDL. Concentrations within this range are estimated.

MCL = maximum concentration level

MDL = Method Detection Limit

mg/L = milligram per Liter

"R" flag = result was rejected. Concentrations within this range are estimated.

RPD = relative percent difference

Chemical Acronyms:

Sb = Antimony	Cd = Cadmium	Pb = Lead	Ag = Silver	Zn = Zinc
As = Arsenic	Cr = Chromium	Hg = Mercury	Th = Thallium	
Ba = Barium	Co = Cobalt	Ni = Nickel	Sn = Tin	
Be = Beryllium	Cu = Copper	Se = Selenium	V = Vanadium	

TABLE 8
Analytical Results for VOCs Detected in HHC Groundwater Assessment/Remediation Monitoring Well Samples (in µ/L)
Ada County Landfill

Principle Appendix I/II VOCs

Well ID	Sample Date	Benzene	DCFM	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	MC	PCE	TCE	TCFM	VC	Total Principle VOCs[b]
MCL[a, b]		5			70	100	5	5	5		2	
EPA Regional Screening Level[a, b]			200	2.7						1,100		
B-1	04/17/19	<1 J	17 J	**6.1 J**	7.1 J	<1 J	<5 J	**26 J**	**10 J**	2.2 J	1.1 J	69.5
	11/18/19	<1	12	**4.1**	4.6	<1 J	<5 J	**22**	**7.3**	1.5	0.68 J	52.2
	04/15/20	0.26 J	18	**4.9**	5.8	0.37 J	<5	**28**	**8.1**	<2	0.89 J	66.3
B-4	11/19/19	<1	1.3	0.77 J	1.3	<1 J	<5 J	3.8	1.5	0.59 J	<1	9.3
B-9	04/18/19	<1	4.9 J	1.9	1.5	<1	<5	**6.5**	1.3	0.78 J	<1	16.9
	10/28/19	<1	2.2 J	0.78 J	0.86 J	<1 J	<5	2.1 J	0.68 J	<1	<1	6.6
	04/17/20	0.47 J	32	**7.2**	7.5	0.22 J	<5	**21**	**5.1**	3.3	0.55 J	77.3
2004 FD-2	*04/17/20*	*0.47 J*	*32*	***7.3***	*7.6*	*0.24 J*	*<5*	***21***	***5.2***	*3.3*	*0.58 J*	*77.7*
RPD (%)		*0.0*	*0.0*	*1.4*	*1.3*	*8.7*	*NA[c]*	*0.0*	*1.9*	*0.0*	*5.3*	--
B-12	04/15/19	<1	0.24 J	0.81 J	0.41 J	<1	<5	3.2	1.2	<1	<1	5.9
	11/18/19	<1	<1	<1 J	<1	<1 J	<5 J	2.1	0.76 J	<1	<1	2.9
	04/14/20	<1	<2	<1	<1	<1	<5	0.75 J	0.38 J	<2	<1	1.1
B-15	04/24/19	<1	0.98 J	<1	<1	<1	<5	0.7 J	0.2 J	<1	<1	1.9
	10/28/19	<1	0.96 J	<1	<1	<1	<5	<1	<1	<1	<1	1.0
	04/24/20	<1	1.7 J	<1	<1	<1	<5	0.87 J	0.25 J	<2	<1	2.8
B-17	04/18/19	<1	0.39 J	<1	<1	<1	<5	0.2 J	<1	<1	<1	0.6
	10/17/19	<1	1.1 J	<1	<1	<1	<5	<1	<1	<1	<1	1.1
	04/17/20	<1	0.73 J	0.25 J	<1	<1	<5	0.59 J	0.21 J	<2	<1	1.8
B-18	04/26/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	10/30/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	04/27/20	0.23 J	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.2
B-24	04/17/19	1	47	**5.7**	0.96 J	0.39 J	<5	**38**	**11**	4.6	**2.1**	110.8
	11/18/19	0.9 J	24	**3.9**	0.9 J	<1 J	<5 J	**26**	**8.0**	2.6	1.3	67.6
	04/16/20	1.4	48	**5.2**	1.3	0.64 J	0.29 J	**44**	**10**	<2	1.9	112.7
B-26	11/19/19	<1	7.1	1.7	<1	<1	<5	**11**	3.1	2.4	<1	25.3
	04/16/20	<1	16	2.5	0.27 J	0.26 J	<5	**31**	4.8	<2	<1	54.8
B-28	04/17/19	<1	4.7	**3.6**	3.6	<1	<5	**16**	**6.3**	<1	<1	34.2
	10/16/19	<1	4.9 J	1.7	1.6	<1	<5	**6.4**	2.4	<1	<1	17.0
	04/16/20	<1	5.7	**4.3**	4.3	<1	<5	**22**	**7.3**	<2	<1	43.6
B-29	04/17/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	11/18/19	<1	<1	<1 J	<1	<1 J	<5 J	<1	<1	<1	<1	0.0
	04/16/20	<1	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.0
B-30	04/17/19	<1	15	0.41 J	<1	<1	<5	4.1	0.64 J	1.5	<1	21.7
	11/20/19	<1	13	<1	<1	<1	<5	2.7	<1	1.2	<1	16.9
	04/16/20	<1	20	0.53 J	<1	<1	0.25 J	4.8	0.99 J	1.1 J	<1	27.7
B-35	04/23/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	11/19/19	<1	<1	<1 J	<1	<1 J	<5 J	<1	<1	<1	<1	0.0
	04/16/20	<1	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.0
B-38	04/16/19	<1	1.5	<1	<1	<1	<5	<1	<1	<1	<1	1.5
	11/19/19	<1	<1	<1 J	<1	<1 J	<5 J	<1	<1	<1	<1	0.0
	04/15/20	<1	0.7 J	<1	<1	<1	<5	<1	<1	<2	<1	0.7
B-39	04/15/19	<1	3.2 J	0.3 J	<1	<1	<5	3.7	0.8 J	0.91 J	<1	8.9
	10/28/19	<1	2.3 J	<1	<1	<1	<5	1.8	0.65 J	0.9 J	<1	5.7
	04/14/20	<1	3.2	0.4 J	0.18 J	<1	<5	4.8	1.1	<2	<1	9.7
B-42	04/16/19	2.6	79	**14**	2.6	1.2 J	4.4 J	**57**	**21**	9.7	**4.9**	196.4
	11/18/19	2.5	47	**11**	2.5	0.9 J	<5 J	**61**	**19**	6.6	**4.6**	155.1
	04/15/20	3.3	84	**13**	3.5	1.3	3.3 J	**78**	**22**	<2	**5.7**	214.1
2004 FD-1	*04/15/20*	*3.2*	*81*	***13***	*3.6*	*1.4*	*3.1 J*	***80***	***22***	*<2*	***5.5***	*212.8*
RPD (%)		*3.1*	*3.6*	*0.0*	*2.8*	*7.4*	*6.2*	*2.5*	*0.0*	*NA[c]*	*3.6*	--
B-43	11/19/19	<1	12	**3.4**	4.8	<1 J	<5 J	**17**	**10**	1.7	<1	48.9
	04/14/20	<1	22	**4.3**	7.2	0.48 J	<5	**40**	**18**	<2	<1	92.0
B-44	04/04/19	<1	1.6	1.1	1.3	<1	<5	**5.6**	1.8	<1	<1	11.4
	11/19/19	<1	1.4	0.99 J	1.2	<1 J	<5 J	**5.1**	1.5	0.76 J	<1	11.0
	04/13/20	<1	1.6 J	1.1	1.4	<1	<5	**5.1**	1.4	0.34 J	<1	10.9
B-45	04/24/19	<1	8.6	**2.8**	10	0.26 J	<5	**22**	**12**	1.1	0.81 J	57.6
	10/16/19	<1	18 J	**5.6**	16	<1	<5	**27**	**18**	2.5 J	1.6 J	88.7
	04/24/20	0.24 J	15	**3.3**	10	0.32 J	<5	**20**	**11**	1.7 J	0.96 J	62.5
B-46	11/19/19	<1	<1	<1 J	0.8 J	<1 J	<5 J	1.9	0.9 J	<1	<1	3.6
B-47	04/18/19	<1	5.6	0.77 J	<1	<1	<5	**6.6**	0.66 J	1	<1	14.6
	10/16/19	<1	9.5 J	1.3	<1	<1	<5	**7.0**	1	1.3 J	<1	20.1
	04/17/20	<1	9.0	0.96 J	<1	<1	<5	**8.1**	1	1 J	<1	20.1
2004 FD-3	*04/17/20*	*<1*	*9.1*	*0.95 J*	*<1*	*<1*	*<5*	***8.0***	*0.9 J*	*1 J*	*<1*	*20.0*
RPD (%)		*NA[c]*	*1.1*	*1.0*	*NA[c]*	*NA[c]*	*NA[c]*	*1.2*	*10.5*	*0.0*	*NA[c]*	--
B-48	04/22/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	10/16/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	04/24/20	<1	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.0
B-50	04/15/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	11/19/19	<1	<1	<1 J	<1	<1 J	<5 J	<1	<1	<1	<1	0.0
	04/14/20	<1	<2	<1	<1	<1	<5	0.3 J	<1	<2	<1	0.3

Other Appendix I/II VOCs

Well ID	Sample Date	Acetone	BDCMA	CBZ	CD	CE	CF	CM	1,2-DCA	1,2-DCB	1,4-DCB	1,1-DCE	1,2-DCP	HCBD	MIPK	NPTH	Tol	1,1,1-TCA	1,2,3-TCP	Xylenes (total)
MCL[a, b]			80	100			80		5	600	75	7	5				1,000	200		10,000
EPA Regional Screening Level[a, b]		14,000			810	21,000		190						0.3	1,200	0.17			0.0008	
B-1	04/17/19	<25 J	<1 J	0.74 J	<1 J	<1 J	0.29 J	<1 J	0.35 J	0.43 J	6.5 J	<1 J	0.7 J	<2 J	<10 J	<5 J	<1 J	<1 J	<1 J	<3 J
	11/18/19	<25	<1	<1	<1	<1	<1	<1	0.65 J	<1	5.2	<1	0.71 J	<5	<25	<1	<1	<1	<5	<10
	04/15/20	<20	<1	<1	<2	<4	0.26 J	<2	0.7 J	0.46 J	5	<1	0.76 J	<1	<5	<1	<1	<1	<3	<2
B-4	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
B-9	04/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/28/19	<25	<1	<1	<1	<1	<1	<1	<1	<1 J	<1 J	<1	<1	<5	<25	<1	<1	<1 J	<5	<10 J
	04/17/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	0.67 J	0.52 J	<1	<1	<5	<1	<1	<1	<3	<2
2004 FD-2	*04/17/20*	*<20*	*<1*	*<1*	*<2*	*<4*	*<1*	*<2*	*<1*	*<1*	*0.67 J*	*0.56 J*	*<1*	*<1*	*<5*	*<1*	*<1*	*<1*	*<3*	*<2*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*0.0*	*7.4*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*
B-12	04/15/19	<25	<1	<1	<1	<1	0.23 J	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/14/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-15	04/24/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/28/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
	04/24/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	0.43 J	<1	<3	<2
B-17	04/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/17/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.43 J	<1	<5	<10
	04/17/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-18	04/26/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/27/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	1.2	<1	<3	0.49 J
B-24	04/17/19	3.1 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.6 J	<1	<2	<10	<5	<1	<1	<1	<3
	11/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.62 J	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	0.29 J	<2	<1	<1	<1	0.44 J	<1	<1	<5	<1	<1	<1	<3	<2
B-26	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.54 J	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	0.29 J	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-28	04/17/19	<25	<1	<1	<1	<1	<1	<1	<1	0.28 J	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	<1	<2	<1	0.39 J	<1	<1	0.41 J	<1	<5	<1	<1	<1	<3	<2
B-29	04/17/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-30	04/17/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/20/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.56 J	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-35	04/23/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.53 J	<1	<5	<10
	04/16/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-38	04/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/15/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-39	04/15/19	<25	<1	<1	<1	<1	0.52 J	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/28/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/14/20	<20	0.16 J	<1	<2	<4	0.51 J	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-42	04/16/19	<25	<1	<1	<1	<1	0.63 J	<1	<1	<1	<1	0.93 J	<1	<2	<10	<5	<1	<1	<1	<3
	11/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.73 J	<1	<5	<25	<1	<1	<1	<5	<10
	04/15/20	<20	<1	<1	<2	<4	0.64 J	<2	<1	<1	<1	0.78 J	0.2 J	<1	<5	<1	<1	<1	<3	<2
2004 FD-1	*04/15/20*	*<20*	*<1*	*<1*	*<2*	*<4*	*0.64 J*	*<2*	*<1*	*<1*	*<1*	*0.98 J*	*<1*	*<1*	*<5*	*<1*	*<1*	*<1*	*<3*	*<2*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*0.0*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*22.7*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*
B-43	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.41 J	<1	<5	<10
	04/14/20	<20	<1	<1	<2	<4	0.23 J	<2	0.34 J	<1	<1	<1	0.25 J	<1	<5	<1	<1	<1	<3	<2
B-44	04/04/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.74 J	<1	<5	<10
	04/13/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	0.24 J	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-45	04/24/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	1.5	<1	0.32 J	<2	<10	<5	<1	<1	<1	<3
	10/16/19	<25	<1	<1	<1	<1	<1	<1	0.66 J	<1	2.3	<1	0.51 J	<5	<25	<1	<1	<1	<5	<10
	04/24/20	<20	<1	0.25 J	<2	<4	<1	<2	<1	0.25 J	1.7	<1	<1	<1	<5	<1	0.52 J	<1	<3	0.21 J
B-46	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.55 J	<1	<5	<10
B-47	04/18/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.52 J	<1	<2	<10	**1.8 J**	<1	<1	<1	<3
	10/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.78 J	<1	<5	<25	<1	0.55 J	<1	<5	<10
	04/17/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	0.43 J	<1	<1	<5	<1	<1	<1	<3	<2
2004 FD-3	*04/17/20*	*<20*	*<1*	*<1*	*<2*	*<4*	*<1*	*<2*	*<1*	*<1*	*<1*	*0.46 J*	*<1*	*<1*	*<5*	*<1*	*<1*	*<1*	*<3*	*<2*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*6.7*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*
B-48	04/22/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/24/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	0.45 J	<1	<3	0.23 J
B-50	04/15/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.43 J	<1	<5	<10
	04/14/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2

Other VOCs

Well ID	Sample Date	SBTBZ	2CT	1,2,3-TRCBZ	THF	DEE	BB	1,1,2-TFTCA	Total Other VOCs[b]	Total All VOCs
MCL[a, b]										
EPA Regional Screening Level[a, b]		2000	240	7	None	None	62	55,000		
B-1	04/17/19	<1 J	<1 J	<1 J	<10 J	4.7 J	<1 J	0.16 J	13.9	83.4
	11/18/19	<1	<1	<1	<5	3.4	<1	<1	10.0	62.1
	04/15/20	<2	<1	<1	<7	3.4	<1	0.4 J	11.0	77.3
B-4	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.0	9.3
B-9	04/18/19	<1	<1	<1	<10	0.74 J	<1	<1	0.7	17.6
	10/28/19	<1	<1 J	<1	<5	<1	<1 J	<1	0.0	6.6
	04/17/20	<2	<1	<1	<7	3.1	<1	0.42 J	4.7	82.1
2004 FD-2	*04/17/20*	*<2*	*<1*	*<1*	*<7*	*3.1*	*<1*	*0.39 J*	*4.7*	*82.4*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*0.0*	*NA[c]*	*7.4*	--	--
B-12	04/15/19	<1	<1	<1	<10	<5	<1	<1	0.2	6.1
	11/18/19	<1	<1	<1	<5	<1	<1	<1	0.0	2.9
	04/14/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	1.1
B-15	04/24/19	<1 J	<1	<1	<10 J	<5	<1	<1	0.0	1.9
	10/28/19	<1	<1	<1	<5	<1	<1	<1 J	0.0	1.0
	04/24/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.4	3.3
B-17	04/18/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.6
	10/17/19	<1 J	<1	<1	<5	<1	<1	<1	0.4	1.5
	04/17/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.0	1.8
B-18	04/26/19	<1 J	<1	<1	<10 J	<5	<1	<1	0.0	0.0
	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/27/20	<2	<1	<1	<7	<0.5	<1	<1 J	1.7	1.9
B-24	04/17/19	<1	<1	<1	<10	0.41 J	<1	0.42 J	4.5	115.3
	11/18/19	<1	<1	<1	<5	<1	<1	<1	0.6	68.2
	04/16/20	<2	<1	<1	<7	0.23 J	<1	0.56 J	1.5	114.3
B-26	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.5	25.8
	04/16/20	<2	<1	<1	<7	0.19 J	<1	<1	0.5	55.3
B-28	04/17/19	<1	<1	<1	<10	0.48 J	<1	<1	0.8	35.0
	10/16/19	<1	<1	<1	<5	<1	<1	<1	0.0	17.0
	04/16/20	<2	<1	<1	<7	0.48 J	<1	<1	1.3	44.9
B-29	04/17/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.0
	11/18/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/16/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	0.0
B-30	04/17/19	<1	<1	<1	<10	<5	<1	<1	0.0	21.7
	11/20/19	<1	<1	<1	<5	<1	<1	<1	0.6	17.5
	04/16/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	27.7
B-35	04/23/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.0
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.5	0.5
	04/16/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	0.0
B-38	04/16/19	<1	<1	<1	<10	<5	<1	<1	0.0	1.5
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/15/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	0.7
B-39	04/15/19	<1	<1	<1	<10	<5	<1	<1	0.5	9.4
	10/28/19	<1	<1	<1	<5	<1	<1	<1	0.0	5.7
	04/14/20	<2	<1	<1	<7	<0.5	<1	<1	0.7	10.4
B-42	04/16/19	<1	<1	<1	<10	0.36 J	<1	0.67 J	2.6	199.0
	11/18/19	<1	<1	<1	<5	<1	<1	0.52 J	1.3	156.4
	04/15/20	<2	<1	<1	<7	0.3 J	<1	0.8 J	2.7	216.8
2004 FD-1	*04/15/20*	*<2*	*<1*	*<1*	*<7*	*0.27 J*	*<1*	*0.8 J*	*2.7*	*215.5*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*10.5*	*NA[c]*	*0.0*	--	--
B-43	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.4	49.3
	04/14/20	<2	<1	<1	<7	0.26 J	<1	<1	1.1	93.1
B-44	04/04/19	<1	<1	<1 J	<10	<5	<1	<1	0.0	11.4
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.7	11.7
	04/13/20	<2	<1	<1	<7	<0.5	<1	<1	0.2	11.2
B-45	04/24/19	<1 J	<1	<1	1.3 J	2.9 J	<1	<1	6.0	63.6
	10/16/19	<1	<1	<1	<5	4.9	<1	<1	8.4	97.1
	04/24/20	<2	<1	<1	<7	3.6	<1	<1 J	6.5	69.1
B-46	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.6	4.2
B-47	04/18/19	<1	<1	<1	<10	<5	<1	<1	2.3	17.0
	10/16/19	<1	<1	<1	<5	<1	<1	<1	1.3	21.4
	04/17/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.4	20.5
2004 FD-3	*04/17/20*	*<2*	*<1*	*<1*	*<7*	*<0.5*	*<1*	*<1 J*	*0.5*	*20.4*
RPD (%)		*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	*NA[c]*	--	--
B-48	04/22/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.0
	10/16/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/24/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.7	0.7
B-50	04/15/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.0
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.4	0.4
	04/14/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	0.3

TABLE 8

Analytical Results for VOCs Detected in HHC Groundwater Assessment/Remediation Monitoring Well Samples (in µ/L)

Ada County Landfill

Principle Appendix I/II VOCs

Well ID	Sample Date	Benzene	DCFM	1,1-DCA	cis-1,2-DCE	trans-1,2-DCE	MC	PCE	TCE	TCFM	VC	Total Principle VOCs[b]
MCL[a, b]		5			70	100	5	5	5		2	
EPA Regional Screening Level[a, b]			200	2.7						1,100		
B-51	04/04/19	<1	<1	<1	<1	<1	<5	0.95 J	0.3 J	<1	<1	1.3
	11/19/19	<1	<1	<1 J	<1	<1 J	<5 J	0.68 J	<1	<1	<1	0.7
	04/13/20	<1	<2	<1	<1	<1	<5	1.3	0.5 J	<2	<1	1.8
B-52	04/04/19	<1	4	<1	0.88 J	<1	<5	**5.6**	3.4	<1	<1	13.9
	11/19/19	<1	2.8	0.71 J	0.72 J	<1 J	<5 J	3.4	2.7	<1	<1	10.3
	04/13/20	<1	4.2	0.94 J	1.1	<1	<5	**7.2**	3.8	<2	<1	17.2
B-56	04/04/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	11/19/19	<1	<1	<1 J	<1	<1 J	<5 J	<1	<1	<1	<1	0.0
	04/13/20	<1	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.0
Extraction Wells												
EW-2	04/25/19	<1	1.5	1.4	1.9	<1	<5	**7.0**	2.5	<1	<1	14.3
	10/30/19	<1	<1 J	0.52 J	<1	<1	<5	1.6	0.7 J	<1	<1	2.8
	04/28/20	<1	<2	0.55 J	0.68 J	<1	<5	2.7	0.98 J	<2	<1	4.9
EW-3	10/30/19	<1	2.5 J	2.5	3.3	<1	<5	**11**	4.5	<1	<1	23.8
	04/28/20	0.19 J	4.9	2.7	3.8	<1	<5	**14**	4.6	0.25 J	<1	30.4
EW-4	04/25/19	<1	4.7	2.7	4.1	<1	<5	**15**	4.9	0.48 J	0.19 J	32.1
	10/30/19	<1	4.5 J	2.6	3.5	<1	<5	**12**	4.2	0.62 J	<1	27.4
	04/28/20	<1	9.1	**3.0**	3.7	<1	<5	**18**	4.8	0.61 J	<1	39.2
EW-6	04/25/19	<1	1.6	0.28 J	<1	<1	<5	3.9	0.91 J	0.45 J	<1	7.1
	10/30/19	<1	1.9 J	<1	<1	<1	<5	3.4	1	0.62 J	<1	6.9
	04/28/20	<1	3.6	0.43 J	0.19 J	<1	<5	**5.2**	1.1	0.51 J	<1	11.0
EW-7	04/25/19	<1	0.59 J	<1	<1	<1	<5	1.3	0.34 J	<1	<1	2.2
	10/30/19	<1	0.87 J	<1	<1	<1	<5	1.2	<1	<1	<1	2.1
EW-9	04/25/19	<1	2.1	0.76 J	1.2	<1	<5	**7.0**	3.8	0.36 J	<1	15.2
	10/30/19	<1	1.8 J	0.87 J	0.85 J	<1	<5	4.6	2.9	<1	<1	11.0
	04/28/20	<1	4.1	1.1	1.6	<1	<5	**8.5**	4.4	0.41 J	<1	20.1
EW-10	04/15/19	<1	6.5	<1	<1	<1	<5	3.5	0.33 J	1.6	<1	11.9
	10/16/19	<1	10 J	<1	<1	<1	<5	3.9	0.58 J	1.9 J	<1	16.4
	04/14/20	<1	6.4	0.62 J	<1	<1	<5	**7.8**	1.3	<2	<1	16.1
EW-11	04/24/19	<1	2.9	0.7 J	0.69 J	<1	<5	**5.4**	3.2	0.52 J	<1	13.4
	10/28/19	<1	2.6 J	0.88 J	0.57 J	<1	<5	4.0	2.5	<1	<1	10.6
	04/24/20	0.21 J	5.4	1	0.92 J	<1	<5	**5.9**	3.6	0.49 J	<1	17.5
Air Stripper Effluent	04/25/19	<1	<1	<1	<1	<1	<5	0.28 J	<1	<1	<1	0.3
	10/30/19	<1	<1 J	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	04/28/20	<1	<2	<1	0.38 J	<1	<5	2	0.5 J	<2	<1	2.9
Domestic Wells												
D-10	04/16/19	<1	8.3	<1	<1	<1	<5	1.1	<1	0.5 J	<1	9.9
	10/30/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	04/27/20	<1	3.4	<1	<1	<1	<5	0.42 J	<1	<2	<1	3.8
D-12	04/16/19	<1	0.89 J	<1	<1	<1	<5	1.8	0.8 J	<1	<1	3.5
	10/30/19	<1	<1	<1	<1	<1	<5	0.99 J	0.55 J	<1	<1	1.5
	04/27/20	<1	<2	<1	<1	<1	<5	1.4	0.73 J	<2	<1	2.1
D-18	04/16/19	<1	1.8	<1	<1	<1	<5	1.7	0.2 J	<1	<1	3.7
	10/30/19	<1	<1	<1	<1	<1	<5	0.89 J	<1	<1	<1	0.9
	04/27/20	<1	1.6 J	0.44 J	0.28 J	<1	<5	2.8	0.73 J	<2	<1	5.9
D-41	04/16/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
D-42	10/30/19	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.0
	04/27/20	<1	<2	<1	<1	<1	<5	<1	<1	<2	<1	0.0

Other Appendix I/II VOCs

Well ID	Sample Date	Acetone	BDCMA	CBZ	CD	CE	CF	CM	1,2-DCA	1,2-DCB	1,4-DCB	1,1-DCE	1,2-DCP	HCBD	MIPK	NPTH	Tol	1,1,1-TCA	1,2,3-TCP	Xylenes (total)
MCL[a, b]			80	100			80		5	600	75	7	5				1,000	200		10,000
EPA Regional Screening Level[a, b]		14,000			810	21,000		190						0.3	1,200	0.17			0.0008	
B-51	04/04/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/13/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-52	04/04/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/13/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
B-56	04/04/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	11/19/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/13/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
Extraction Wells																				
EW-2	04/25/19	<25	<1	0.21 J	<1	<1	<1	<1	<1	0.39 J	2	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
	04/28/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	0.72 J	<1	<1	<1	<5	<1	<1	<1	<3	<2
EW-3	10/30/19	<25	<1	<1	<1	<1	<1	<1	0.59 J	0.6 J	3.2	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	0.56 J	<2	<4	<1	<2	<1	0.75 J	3.9	<1	0.43 J	<1	<5	<1	<1	<1	<3	<2
EW-4	04/25/19	<25	<1	0.55 J	<1	<1	<1	<1	0.28 J	0.91 J	3.7	<1	0.46 J	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25	<1	<1	<1	<1	<1	<1	0.5 J	0.64 J	2.2	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	0.49 J	<2	<4	<1	<2	<1	0.81 J	2.2	<1	0.45 J	<1	<5	<1	<1	<1	<3	<2
EW-6	04/25/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	<1	<2	<4	0.23 J	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
EW-7	04/25/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
EW-9	04/25/19	<25	<1	<1	<1	<1	0.29 J	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
	04/28/20	<20	<1	<1	<2	<4	0.39 J	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
EW-10	04/15/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	0.87 J	<1	<5	<10
	04/14/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
EW-11	04/24/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/28/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1 J	<5	<10
	04/24/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	0.76 J	<1	<3	0.28 J
Air Stripper Effluent	04/25/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/28/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
Domestic Wells																				
D-10	04/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	3.1	<1	<1	<1	10	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/27/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
D-12	04/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/27/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
D-18	04/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/27/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2
D-41	04/16/19	<25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<10	<5	<1	<1	<1	<3
D-42	10/30/19	<25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<25	<1	<1	<1	<5	<10
	04/27/20	<20	<1	<1	<2	<4	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<3	<2

Other VOCs

Well ID	Sample Date	SBTBZ	2CT	1,2,3-TRCBZ	THF	DEE	BB	1,1,2-TFTCA	Total Other VOCs[b]	Total All VOCs
MCL[a, b]										
EPA Regional Screening Level[a, b]		2000	240	7	None	None	62	55,000		
B-51	04/04/19	<1	<1	<1 J	<10	<5	<1	<1	0.0	1.3
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.7
	04/13/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	1.8
B-52	04/04/19	<1	<1	<1 J	<10	<5	<1	<1	0.0	13.9
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.0	10.3
	04/13/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	17.2
B-56	04/04/19	<1	<1	<1 J	<10	<5	<1	<1	0.0	0.0
	11/19/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/13/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	0.0
Extraction Wells										
EW-2	04/25/19	<1 J	<1	<1	1.2 J	0.93 J	<1	<1	4.7	19.0
	10/30/19	<1	<1	<1	<5	<1	<1	<1 J	0.0	2.8
	04/28/20	<2	<1	<1	<7	0.4 J	<1	<1 J	1.1	6.0
EW-3	10/30/19	<1	<1	<1	<5	3	<1	<1	7.4	31.2
	04/28/20	<2	<1	<1	<7	2.4	<1	<1 J	8.0	38.5
EW-4	04/25/19	<1	<1	<1	1.3 J	1.7 J	<1	<1	8.9	41.0
	10/30/19	<1	<1	<1	<5	2.2	<1	<1	5.5	33.0
	04/28/20	<2	<1	<1	<7	1.4	<1	<1 J	5.4	44.6
EW-6	04/25/19	<1 J	<1	<1	<10 J	<5	<1	<1	0.0	7.1
	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	6.9
	04/28/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.2	11.3
EW-7	04/25/19	<1 J	<1	<1	<10 J	<5	<1	<1	0.0	2.2
	10/30/19	<1	<1	<1	<5	<1	<1	<1 J	0.0	2.1
EW-9	04/25/19	<1 J	<1	<1	0.89 J	<5	<1	<1	1.2	16.4
	10/30/19	<1	<1	<1	<5	<1	<1	<1 J	0.0	11.0
	04/28/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.4	20.5
EW-10	04/15/19	<1	<1	<1	<10	<5	<1	<1	0.0	11.9
	10/16/19	<1	<1	<1	<5	<1	<1	<1	0.9	17.3
	04/14/20	<2	<1	<1	<7	<0.5	<1	<1	0.0	16.1
EW-11	04/24/19	<1 J	<1	<1	<10 J	<5	<1	<1	0.0	13.4
	10/28/19	<1	<1	<1	<5	<1	<1	<1 J	0.0	10.6
	04/24/20	<2	<1	<1	<7	0.15 J	<1	<1 J	1.2	18.7
Air Stripper Effluent	04/25/19	<1 J	<1	<1	1.2 J	<5	<1	<1	1.2	1.5
	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/28/20	<2	<1	<1	<7	0.26 J	<1	<1 J	0.3	3.1
Domestic Wells										
D-10	04/16/19	<1	<1	<1	<10	<5	<1	<1	0.0	9.9
	10/30/19	<1	<1	<1	<5	<1	<1	<1	13.1	13.1
	04/27/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.0	3.8
D-12	04/16/19	<1	<1	<1	<10	<5	<1	<1	0.0	3.5
	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	1.5
	04/27/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.0	2.1
D-18	04/16/19	<1	<1	<1	<10	<5	<1	<1	0.0	3.7
	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.9
	04/27/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.0	5.9
D-41	04/16/19	<1	<1	<1	<10	<5	<1	<1	0.0	0.0
D-42	10/30/19	<1	<1	<1	<5	<1	<1	<1	0.0	0.0
	04/27/20	<2	<1	<1	<7	<0.5	<1	<1 J	0.0	0.0

Notes:

[a] The groundwater protection standard is the state MCL. For VOCs with no established MCL, the EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites is used, available at: (http://epa-prgs.ornl.gov/chemicals/index.shtml), dated November 2018.

[b] **Bold and Shaded cells indicate exceedance of MCL or RSL**

[c] NA, Not pplicable - For RPD (Relative Percent Difference) calculation, unable to compare laboratory results due to at least one result being below detection limits.

"J" flag = Analyte detected at a level less than the RL and greater than or equal to the MDL.

"<" = not detected. Nondetects are reported at Reporting Limit (RL).

VOC = volatile organic compound

µ/L = microgram per Liter

EPA = U.S. Environmental Protection Agency

MCL = maximum concentration level

RL = reporting limit

HHC = Hidden Hollow Cell

Chemical Acronyms:

Primary VOCs

DCFM = Dichlorodifluoromethane (freon-12)
1,1-DCA = 1,1-Dichloroethane
cis-1,2-DCE = cis-1,2-Dichlorethene
trans-1,2-DCE = trans-1,2-Dichloroethene
MC = Methylene chloride
PCE = Tetrachloroethylene
TCE = Trichloroethylene
TCFM = Trichorofluoromethane
VC = Vinyl chloride

Other VOCs

BDCMA = Bromodichoromethane
CBZ = Chlorobenzene
CD = Carbon Disulfide
CE = Chloroethane
CF = Chloroform
CM = Chloromethane
1,2-DCA = 1,2-Dichloroethane
1,2-DCB = 1,2-Dichlorobenzene
1,4-DCB = 1,4-Dichlorobenzene
1,1-DCE = 1,1-Dichloroethene
DCM = Dichlorofluoromethane
1,2-DCP = 1,2-Dichloropropane
DEE = Diethyl ether
HCBD = Hexachlorobutadiene
MIBK = 4-Methyl-2-pentanone
NPTH = Naphthalene
Tol. = Toluene
1,1,1-TCA = 1,1,1-trichloroethane
1,2,3-TCP = 1,2,3-Trichloropropane
SBTBZ = sec-Butylbenzene

Table 9. Summary of Groundwater Treatment through April 2020 (HHC Remediation System)

	Daily Treatment Rates[a]		Total Treatment Information		
Extraction Well	Groundwater (gallons/day)	VOC Mass (pounds/day)	Total Volume of Treated Groundwater (gallons)	Total VOC Mass Removed (pounds)	Comments
EW-1	0	0	165,717	0.06	Discontinued in September 1998 because of lowered water table and lack of flow.
EW-2	11,458	0.0004	63,652,699	27.38	Extraction well near the toe of the landfill. Operates continuously.
EW-3	21,038	0.0061	116,755,940	147.45	Extraction well near the toe of the landfill. Operates continuously.
EW-4	9,596	0.0031	67,697,816	87.05	Extraction well near the toe of the landfill. Operates continuously under normal operating conditions.
EW-5	0	0	294,803	1.32	Discontinued in April 1998 because of lowered water table and lack of flow.
B-6A	9,197	0.0170	439,912	0.81	Added to extraction well network on 3/11/20. Operates continuously, and as of April, 2020 continuing to monitor drawdown vs pumping rate to optimize.
EW-6	14,298	0.0011	96,324,857	9.47	Extraction well downgradient of the landfill near the mouth of Seamans Gulch. Operates continuously.
EW-7	6,875	0.0001	44,282,620	3.98	Extraction well downgradient of the landfill near the mouth of Seaman's Gulch. Discontinued in March, 2020 and replaced with B-6A.
EW-9	26,072	0.0034	42,269,495	6.75	Extraction well downgradient of the landfill near the mouth of Seamans Gulch. Operates continuously.
Total	**98,533**	**0.0313**	**431,883,859**	**284.3**	

[a] Daily treatment rates for the most recent 6-month period: October 2019 to April 2020.

Notes:

HHC = Hidden Hollow Cell

VOC = volatile organic compound

Figures

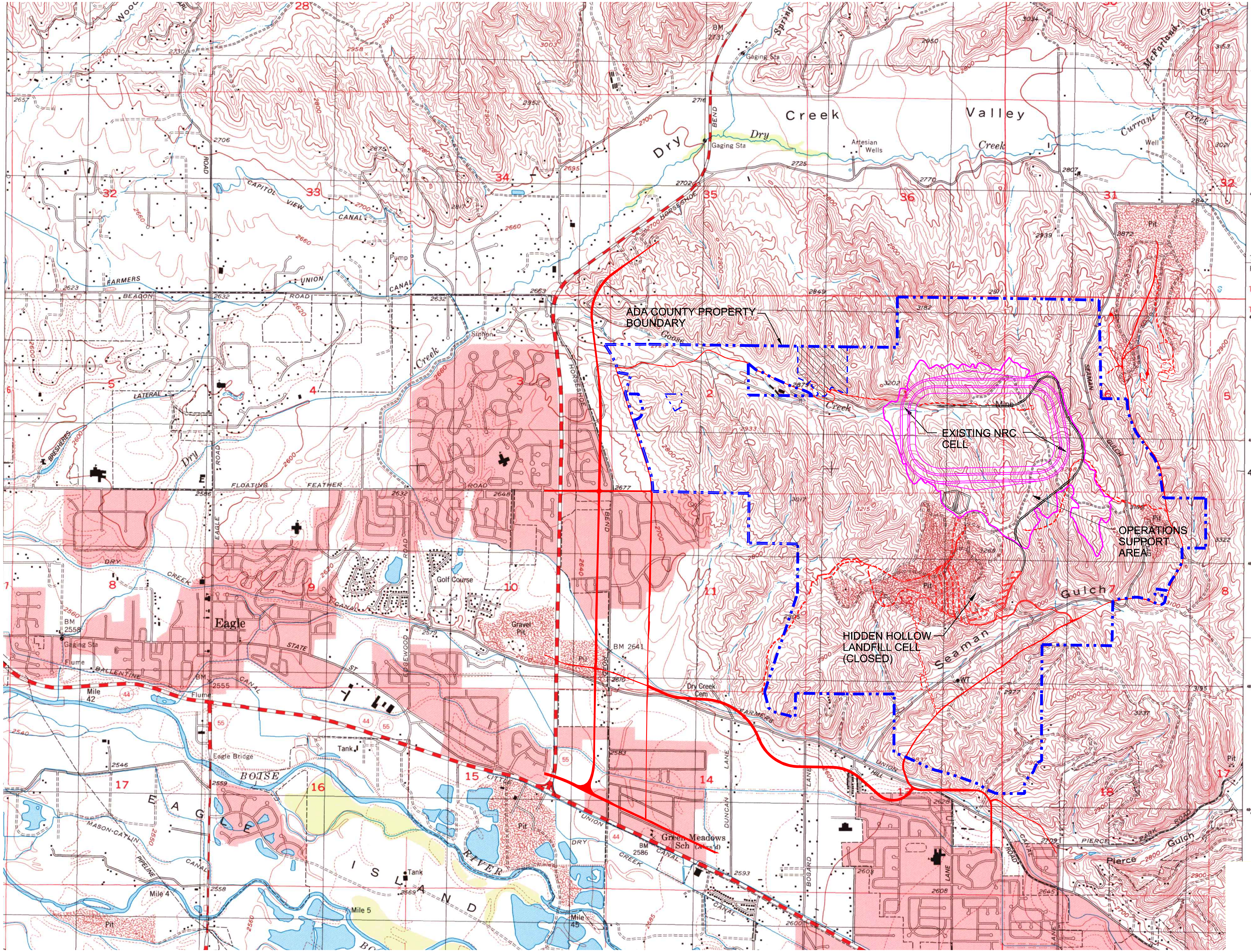


FIGURE 1
LANDFILL LOCATION MAP
APRIL 2020
ADA COUNTY LANDFILL

JACOBS

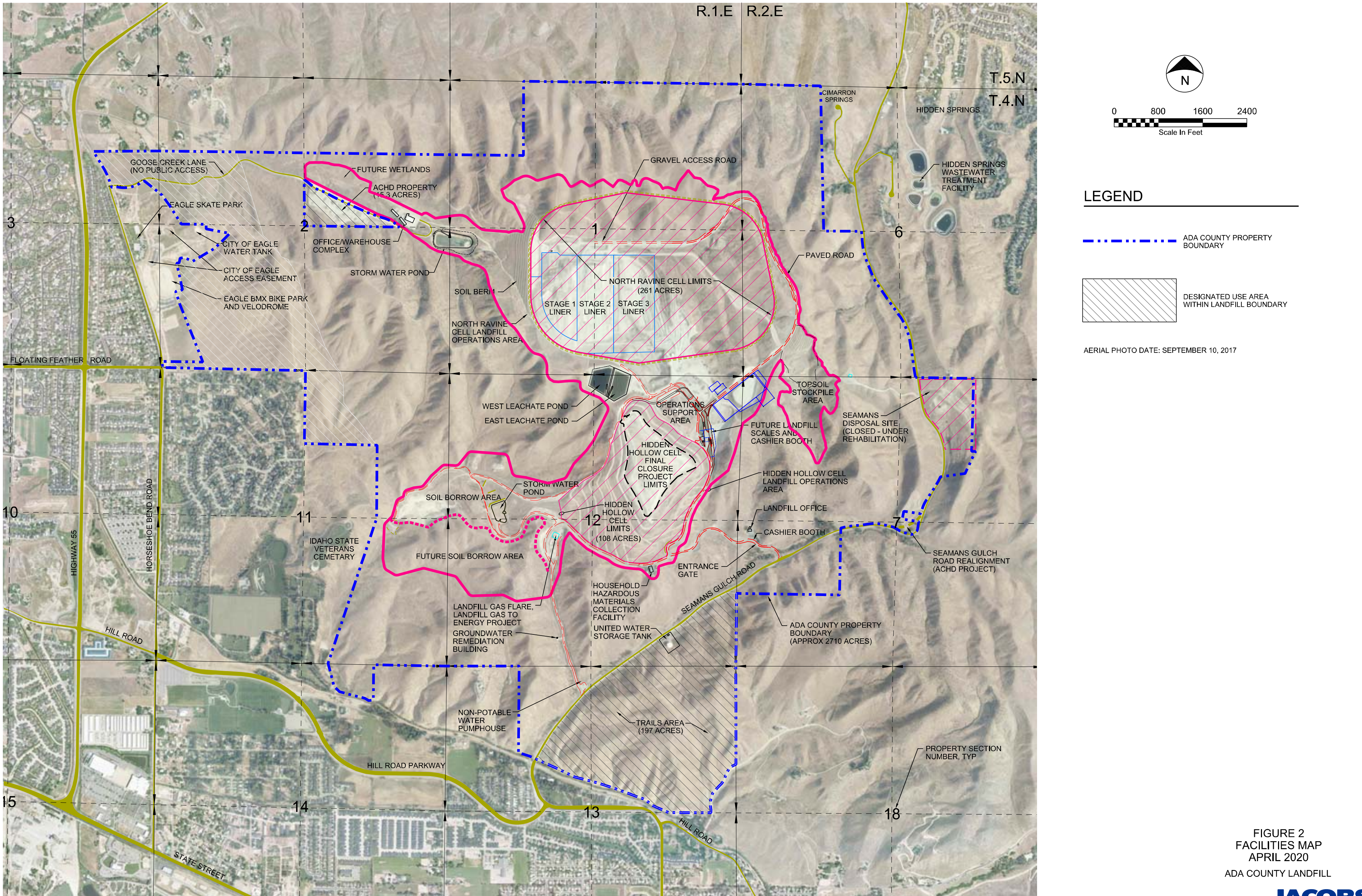


FIGURE 2
FACILITIES MAP
APRIL 2020

ADA COUNTY LANDFILL

JACOBS

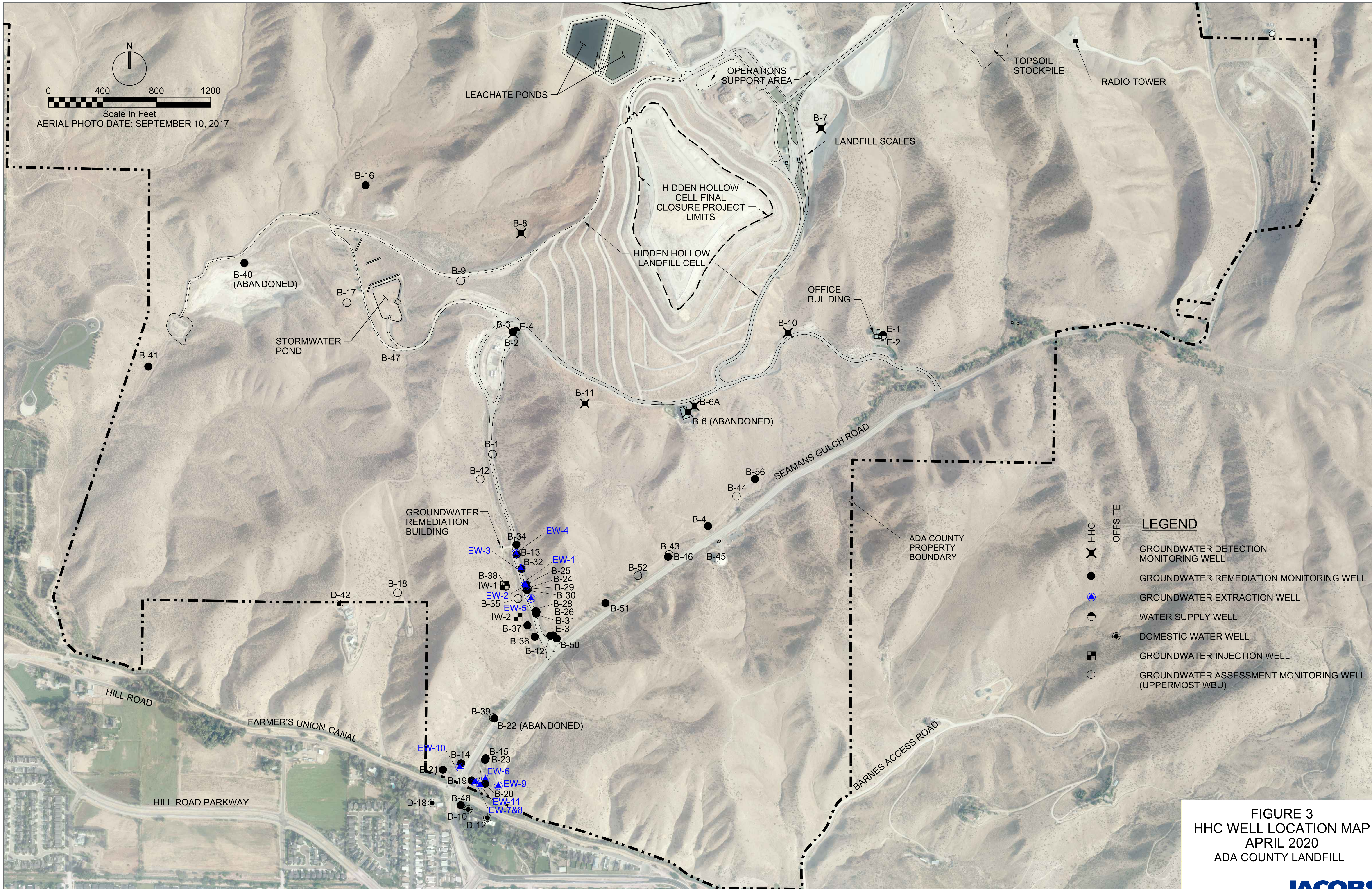


FIGURE 3
HHC WELL LOCATION MAP
APRIL 2020
ADA COUNTY LANDFILL

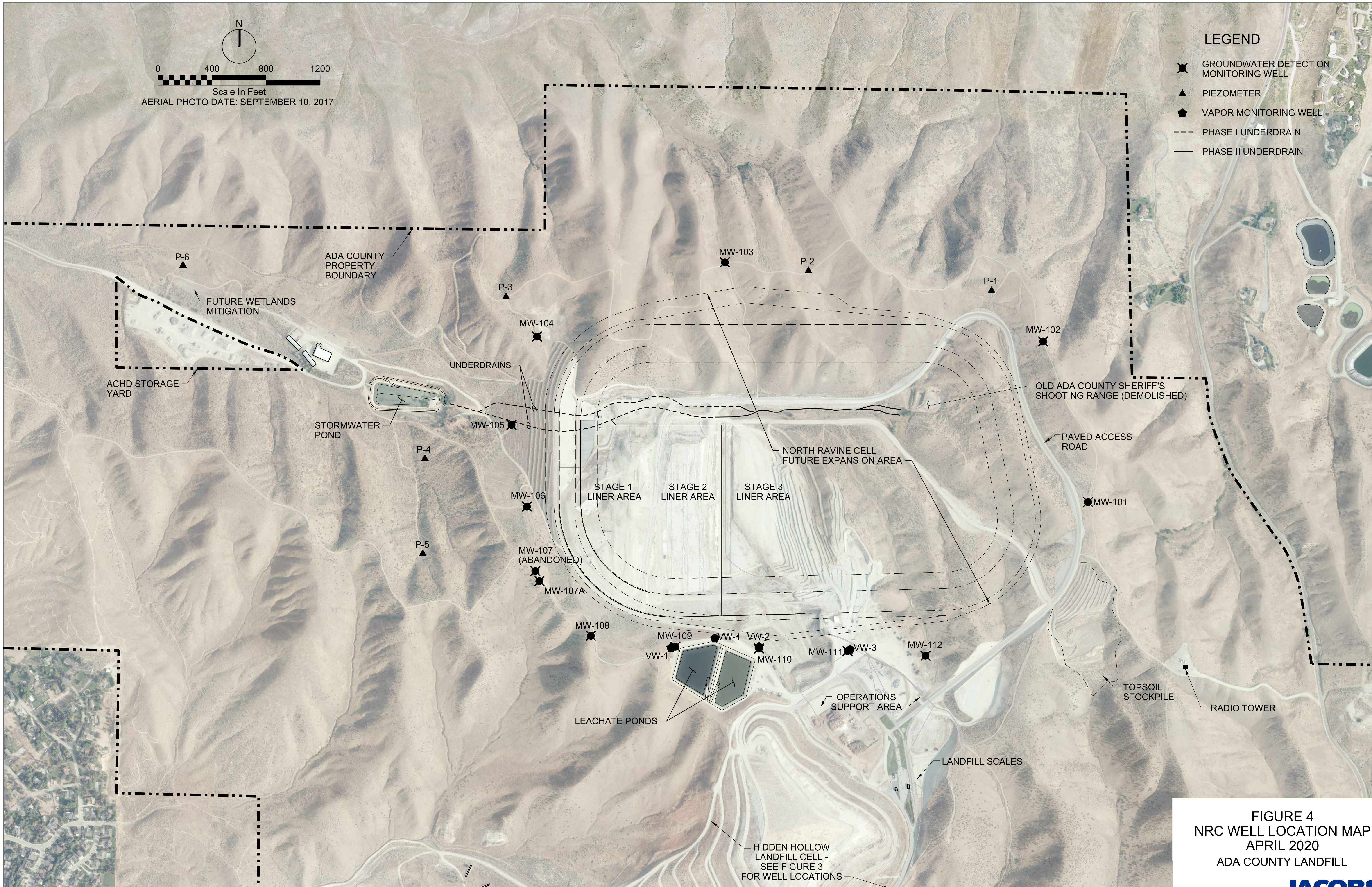
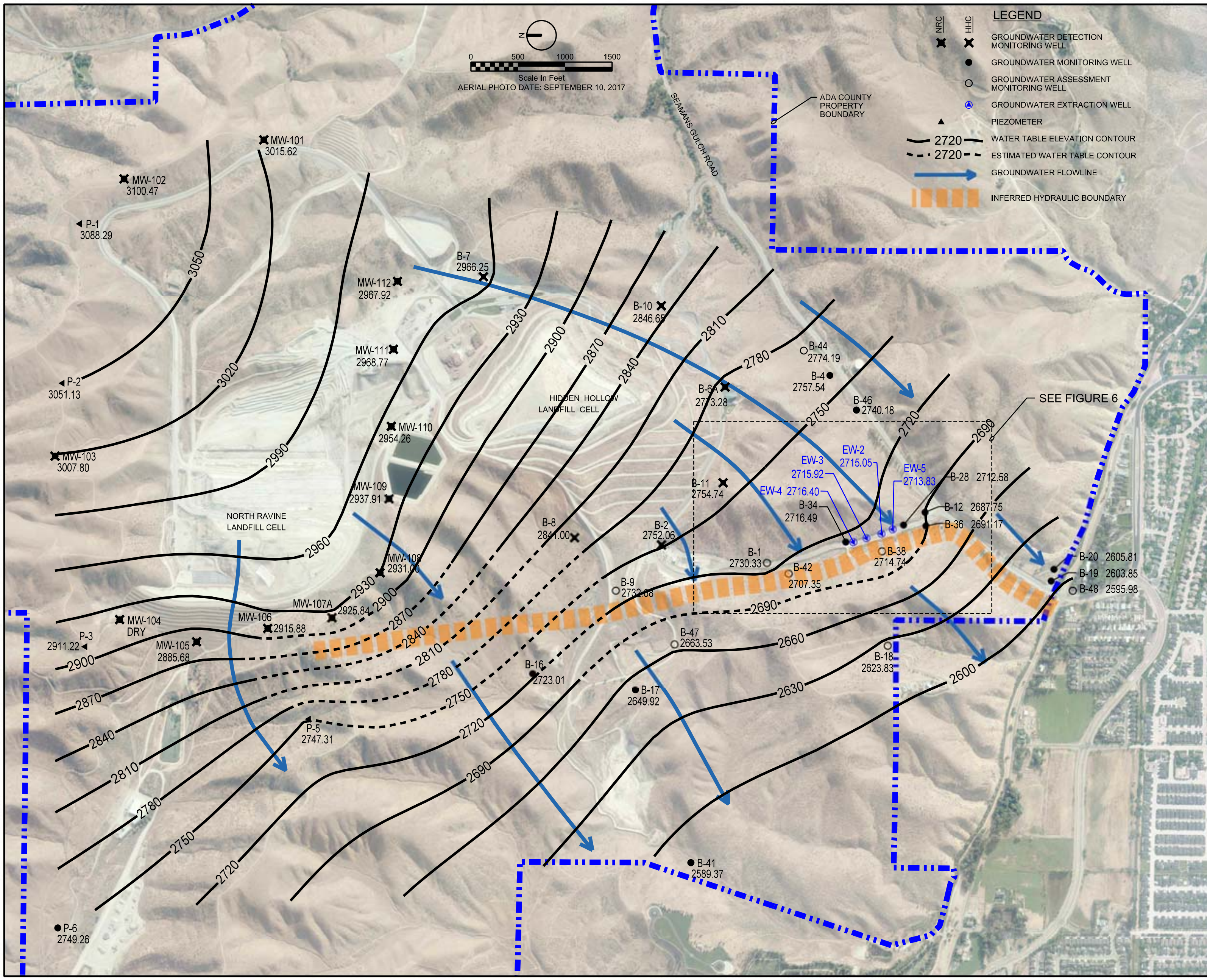


FIGURE 4
NRC WELL LOCATION MAP
APRIL 2020
ADA COUNTY LANDFILL

JACOBS



Water Level Data					
	Top of Casing	Screen Ele.		Groundwater Elev (April 2020)	
Well	(M.P.) EL	(ft amsl)		DTW	EL
ID	(ft amsl)	Top	Bottom	(ft bmp)	(ft amsl)
NRC Wells and Piezometers					
MW-101	3210.63	3046.90	3006.90	195.01	3015.62
MW-102	3206.67	3099.90	3069.90	106.20	3100.47
MW-103	3136.12	3021.90	3001.90	128.32	3007.80
MW-104	3035.73	2955.20	2935.20	DRY	DRY
MW-105	2941.05	2889.03	2869.03	55.37	2885.68
MW-106	3038.33	2923.67	2903.67	122.45	2915.88
MW-107A	3097.75	2937.25	2917.25	171.91	2925.84
MW-108	3141.98	2914.40	2894.40	210.98	2931.00
MW-109	3153.66	2946.56	2921.56	215.75	2937.91
MW-110	3152.81	2975.46	2940.46	198.55	2954.26
MW-111	3153.83	2970.55	2950.55	185.06	2968.77
MW-112	3155.90	2964.96	2954.96	187.98	2967.92
P-1	3120.30	3074.70	3064.70	32.01	3088.29
P-2	3180.66	3066.10	3036.10	129.53	3051.13
P-3	3085.19	2921.90	2901.90	173.97	2911.22
P-5	2918.02	2754.60	2744.60	170.71	2747.31
P-6	2777.48	2745.90	2725.90	24.51	2752.97
HHC Wells					
B-1	2816.17	2720.88	2700.88	85.84	2730.33
B-2	2869.59	2753.73	2733.73	117.53	2752.06
B-4	2774.59	2758.03	2748.03	17.05	2757.54
B-6A	3023.76	2791.00	2751.00	250.48	2773.28
B-7	3152.40	2972.40	2942.40	186.15	2966.25
B-8	2970.58	2843.28	2823.28	129.58	2841.00
B-9	2934.68	2720.34	2700.34	202.00	2732.68
B-10	2979.69	2829.47	2809.47	133.04	2846.65
B-11	3000.31	2760.59	2730.59	245.57	2754.74
B-12	2713.07	2687.20	2667.20	25.32	2687.75
B-16	2836.70	2709.67	2694.67	113.69	2723.01
B-17	2846.64	2651.82	2631.82	196.72	2649.92
B-18	2790.51	2630.83	2610.83	166.68	2623.83
B-19	2652.93	2606.81	2591.81	49.08	2603.85
B-20	2657.21	2612.65	2597.65	51.40	2605.81
B-28	2732.88	2705.25	2695.25	20.30	2712.58
B-34	2770.79	2698.91	2688.91	54.30	2716.49
B-36	2713.28	2693.92	2673.92	22.11	2691.17
B-38	2762.70	2720.40	2690.40	47.96	2714.74
B-41	2710.20	2589.70	2569.70	120.46	2589.74
B-42	2808.29	2708.96	2688.96	100.94	2707.35
B-44	2799.20	2776.78	2766.78	25.01	2774.19
B-46	2750.67	2740.39	2730.39	10.49	2740.18
B-47	2859.78	2668.99	2648.99	196.25	2663.53
B-48	2630.31	2586.61	2576.61	34.33	2595.98
EW-2	2747.68	2712.06	2692.06	32.60	2715.08
EW-3	2759.13	2706.65	2686.65	43.21	2715.92
EW-4	2766.28	2711.83	2691.83	49.88	2716.40
EW-5	2741.36	2711.8	2696.8	27.53	2713.83

FIGURE 5
ADA COUNTY LANDFILL
WATER TABLE SURFACE MAP
APRIL 2020

ADA COUNTY LANDFILL

JACOBS

PLOT DATE: 2020/09/10

PLOT TIME: 2:05:41 PM

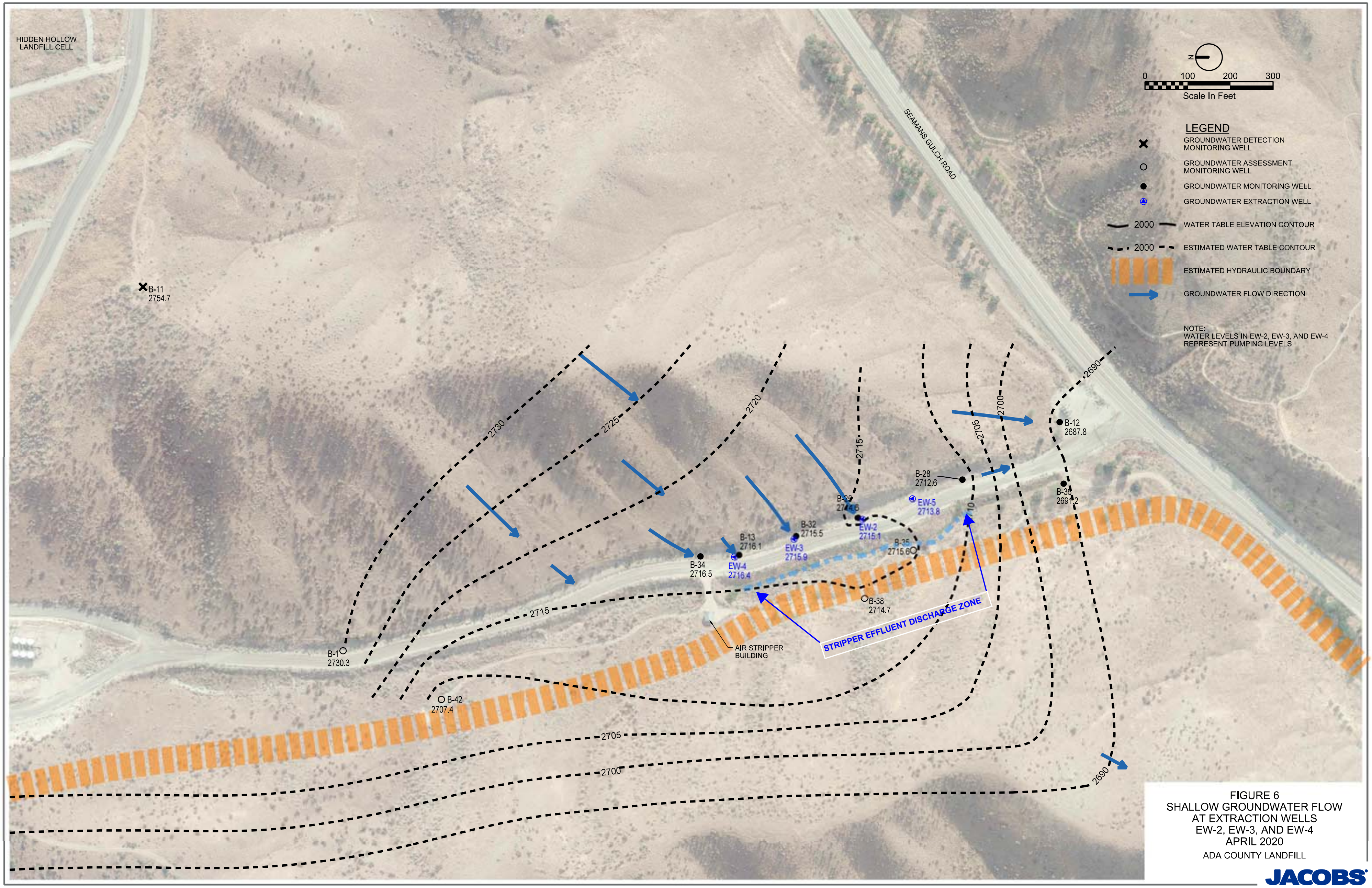


FIGURE 6
SHALLOW GROUNDWATER FLOW
AT EXTRACTION WELLS
EW-2, EW-3, AND EW-4
APRIL 2020
ADA COUNTY LANDFILL

JACOBS

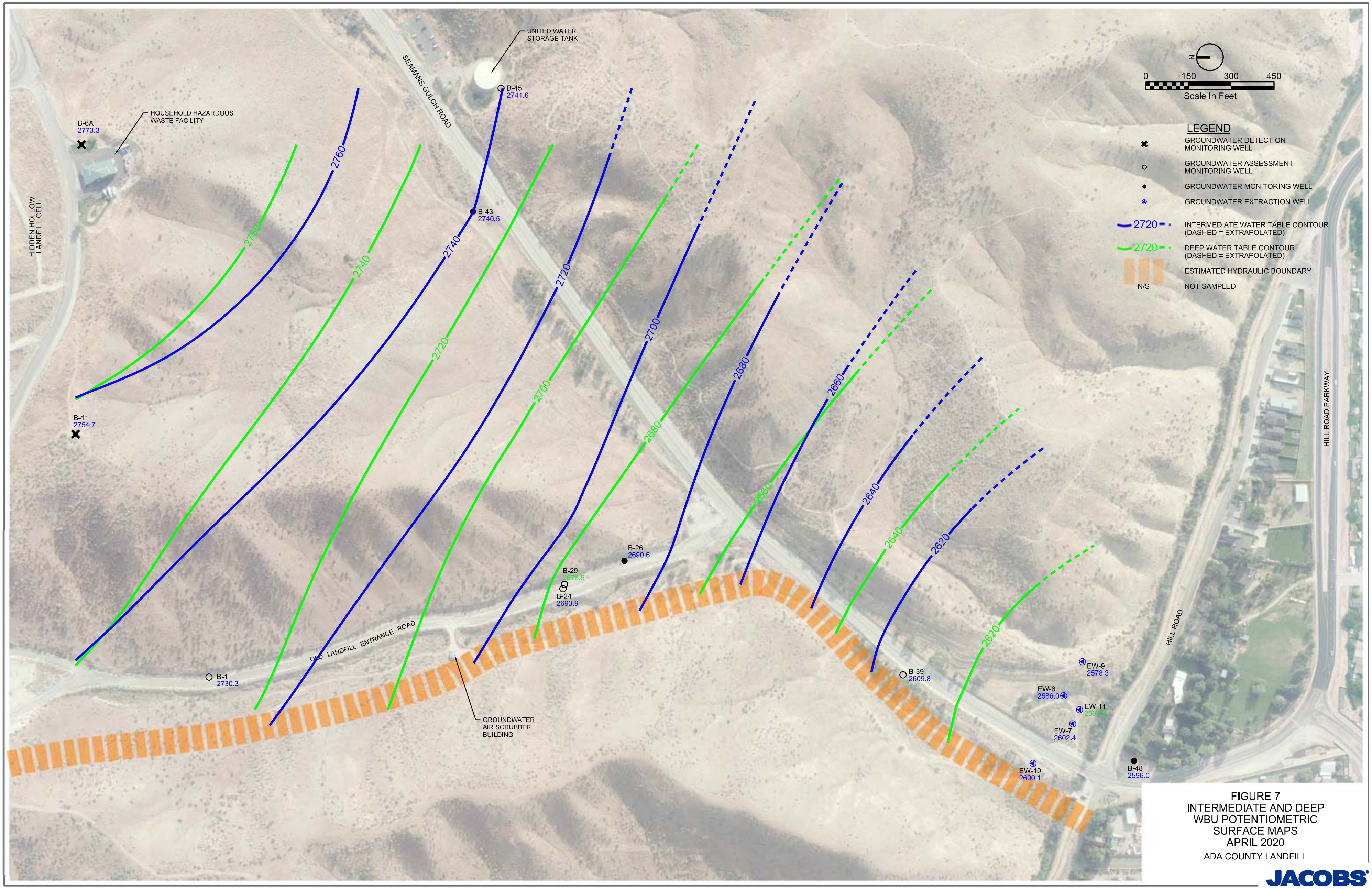


FIGURE 7
INTERMEDIATE AND DEEP WBU POTENTIOMETRIC SURFACE MAPS
APRIL 2020
ADA COUNTY LANDFILL

JACOBS

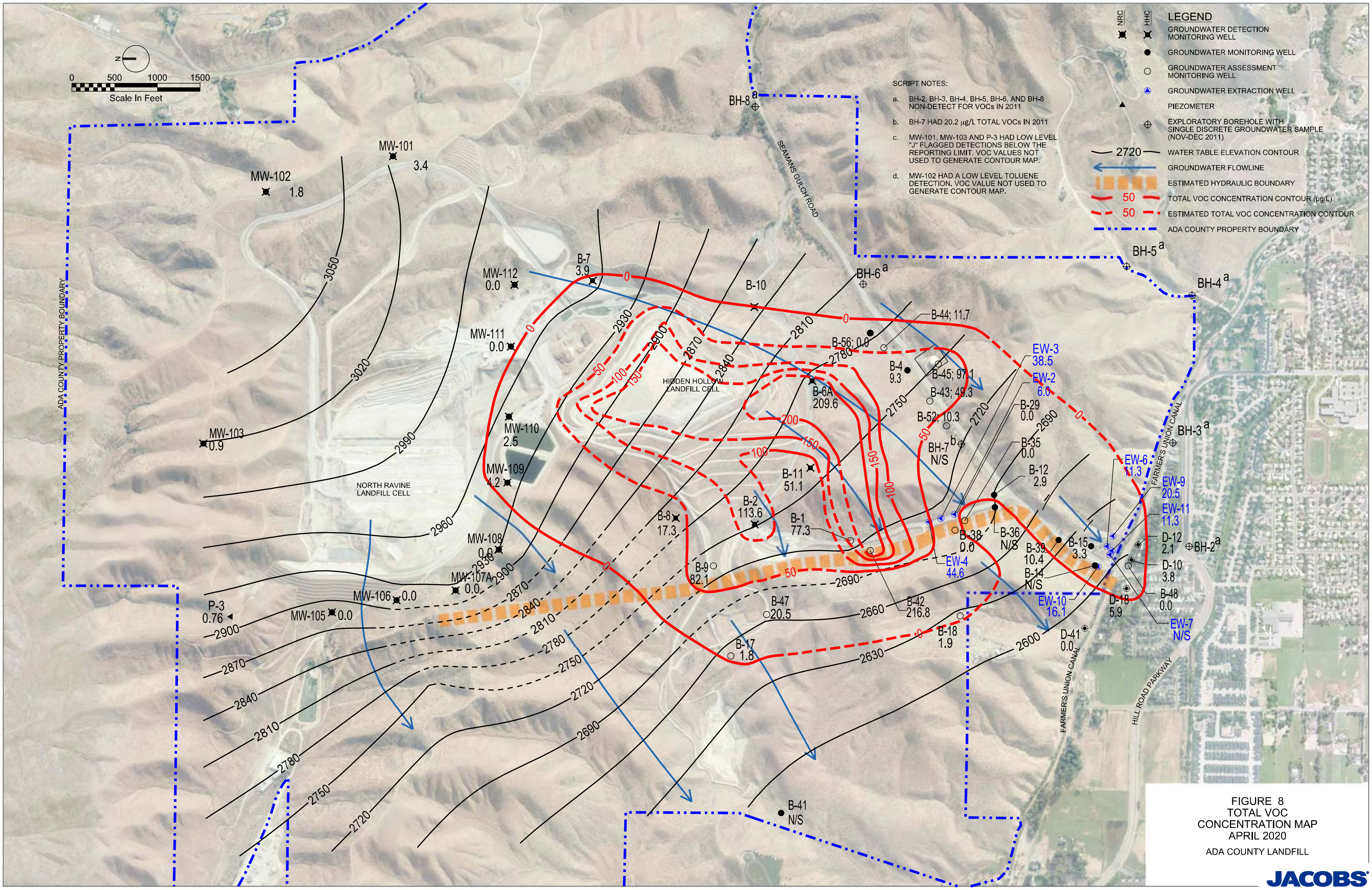
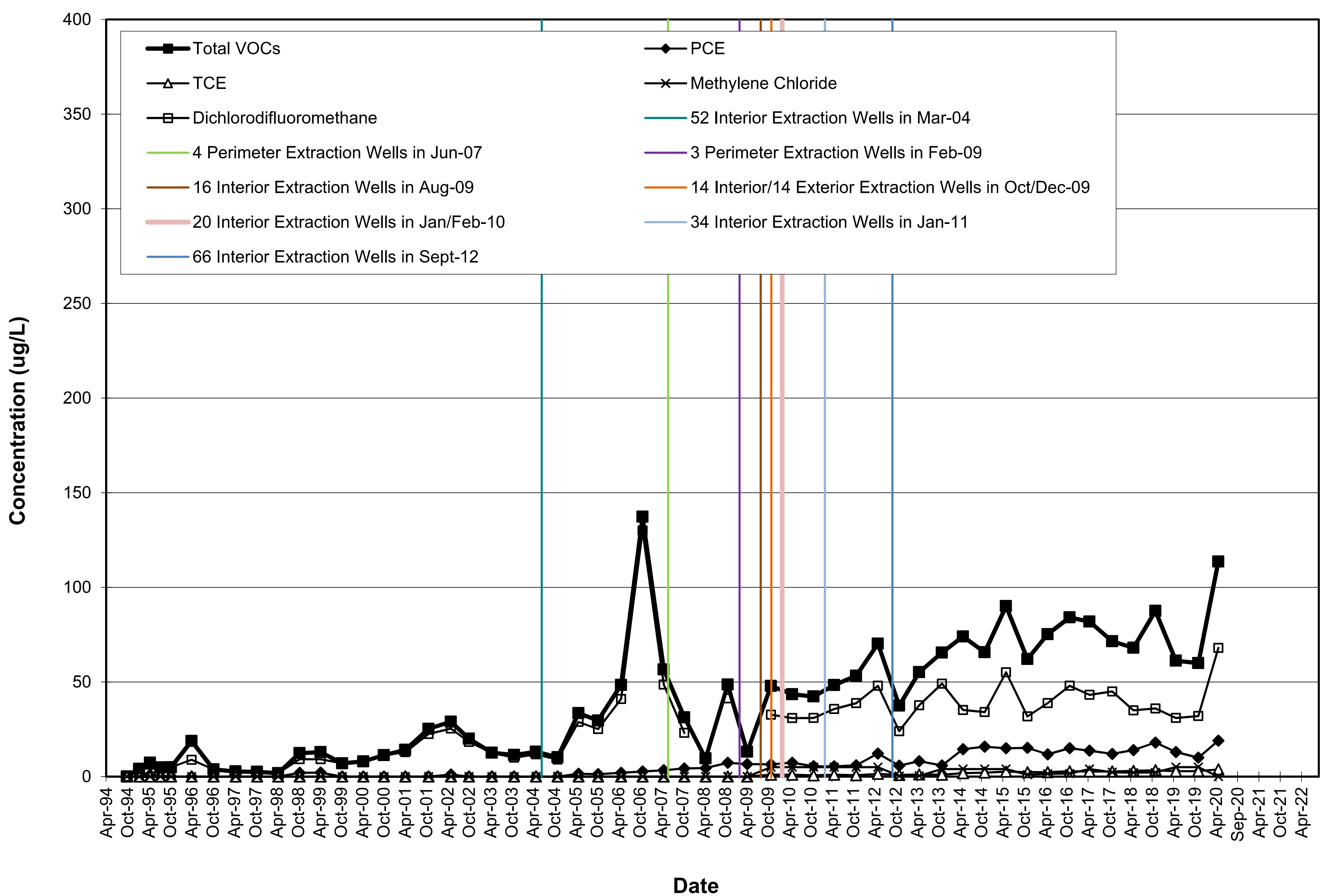


FIGURE 8
TOTAL VOC CONCENTRATION MAP
APRIL 2020
ADA COUNTY LANDFILL

JACOBS

Figure 9. Selected VOC Concentrations for Monitoring Well B-2



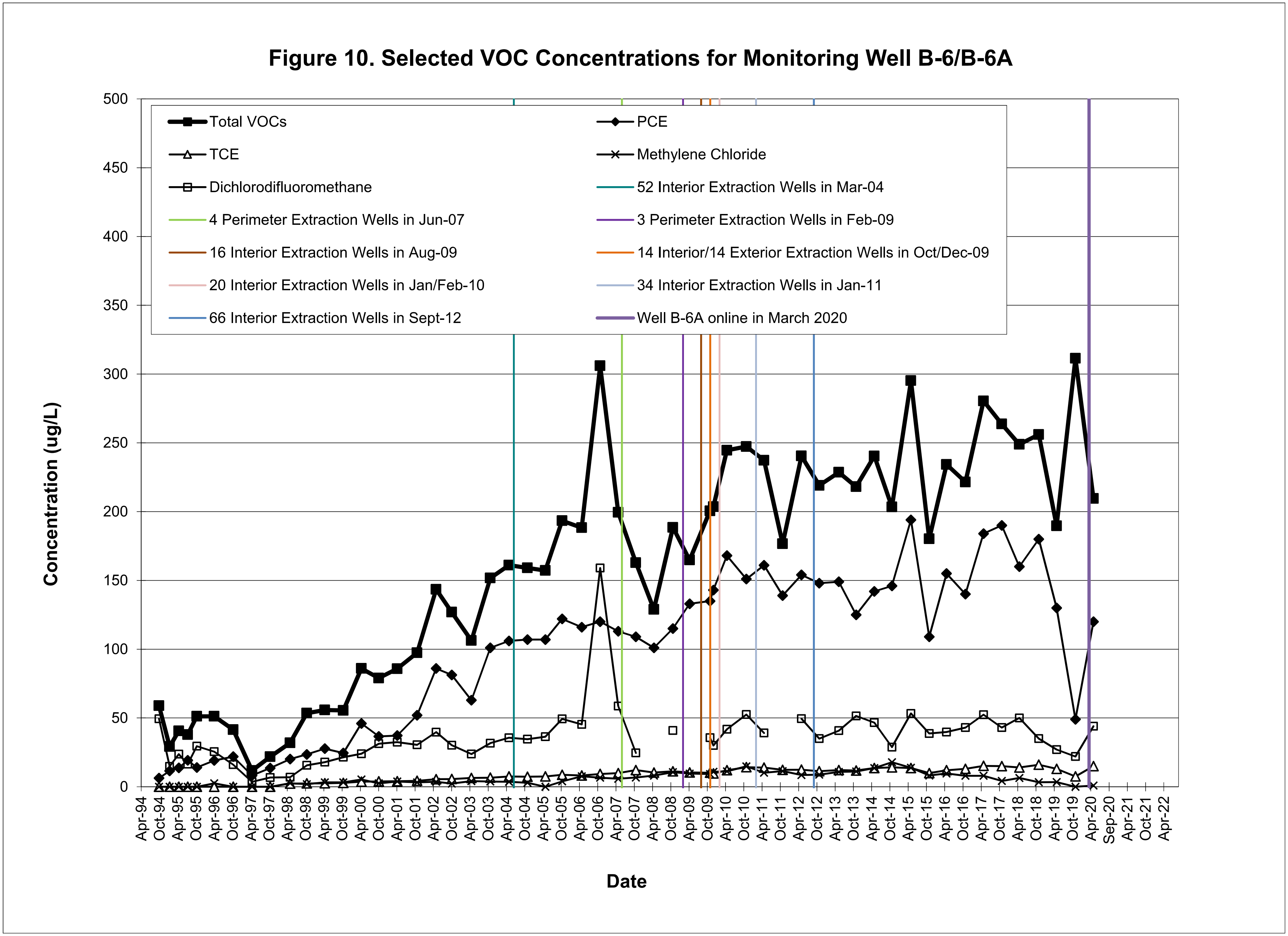


Figure 10. Selected VOC Concentrations for Monitoring Well B-6/B-6A
Total VOCs
PCE
TCE
Methylene Chloride
Dichlorodifluoromethane
52 Interior Extraction Wells in Mar-04
4 Perimeter Extraction Wells in Jun-07
3 Perimeter Extraction Wells in Feb-09
16 Interior Extraction Wells in Aug-09
14 Interior/14 Exterior Extraction Wells in Oct/Dec-09
20 Interior Extraction Wells in Jan/Feb-10
34 Interior Extraction Wells in Jan-11
66 Interior Extraction Wells in Sept-12
Well B-6A online in March 2020
Concentration (ug/L)
0
50
100
150
200
250
300
350
400
450
500
Date
Apr-94
Oct-94
Apr-95
Oct-95
Apr-96
Oct-96
Apr-97
Oct-97
Apr-98
Oct-98
Apr-99
Oct-99
Apr-00
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
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Apr-04
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Apr-15
Oct-15
Apr-16
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Apr-21
Oct-21
Apr-22

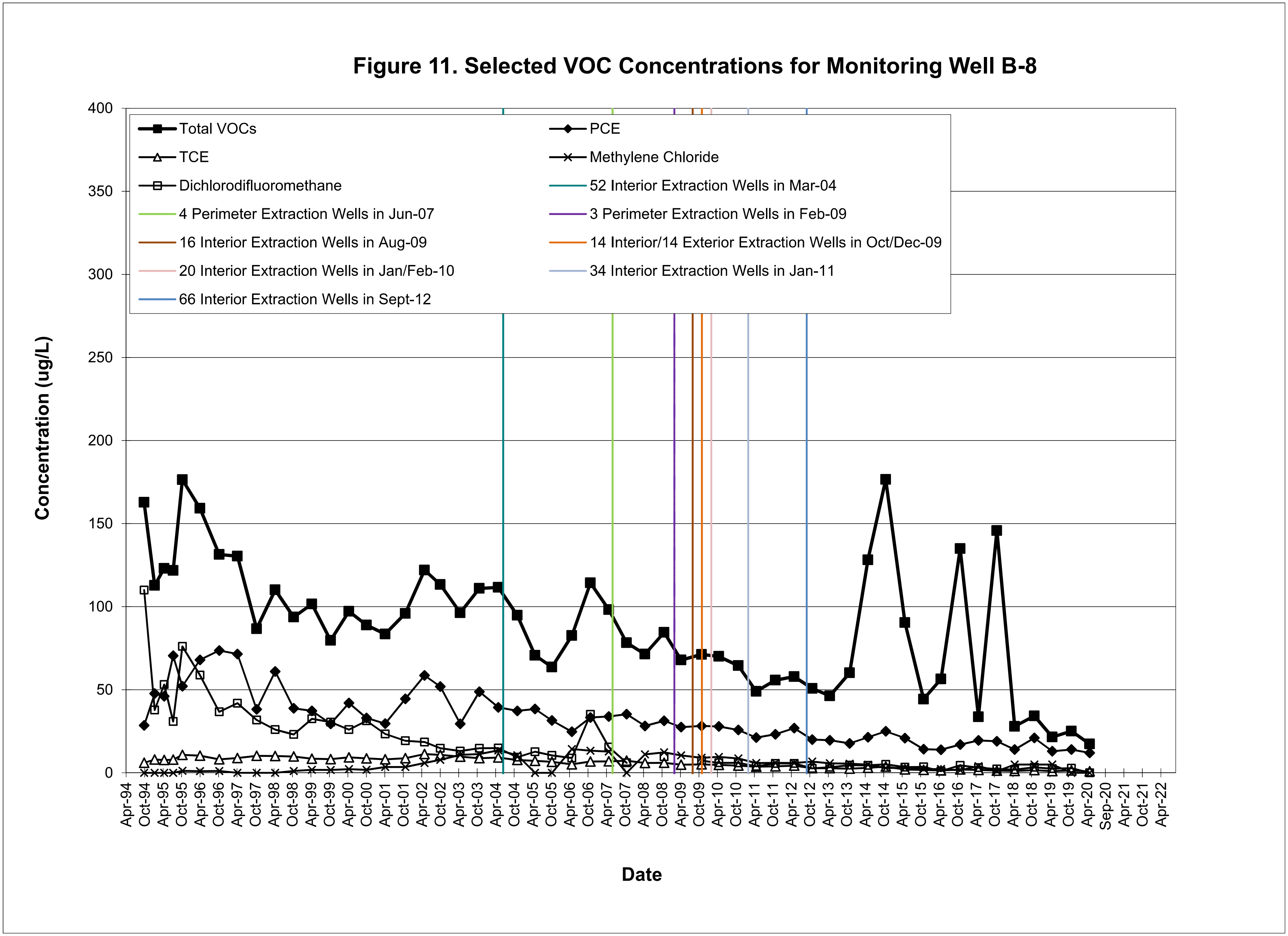

Figure 11. Selected VOC Concentrations for Monitoring Well B-8
Concentration (ug/L)
400
350
300
250
200
150
100
50
0
Total VOCs
PCE
TCE
Methylene Chloride
Dichlorodifluoromethane
52 Interior Extraction Wells in Mar-04
4 Perimeter Extraction Wells in Jun-07
3 Perimeter Extraction Wells in Feb-09
16 Interior Extraction Wells in Aug-09
14 Interior/14 Exterior Extraction Wells in Oct/Dec-09
20 Interior Extraction Wells in Jan/Feb-10
34 Interior Extraction Wells in Jan-11
66 Interior Extraction Wells in Sept-12
Apr-94 Oct-94 Apr-95 Oct-95 Apr-96 Oct-96 Apr-97 Oct-97 Apr-98 Oct-98 Apr-99 Oct-99 Apr-00 Oct-00 Apr-01 Oct-01 Apr-02 Oct-02 Apr-03 Oct-03 Apr-04 Oct-04 Apr-05 Oct-05 Apr-06 Oct-06 Apr-07 Oct-07 Apr-08 Oct-08 Apr-09 Oct-09 Apr-10 Oct-10 Apr-11 Oct-11 Apr-12 Oct-12 Apr-13 Oct-13 Apr-14 Oct-14 Apr-15 Oct-15 Apr-16 Oct-16 Apr-17 Oct-17 Apr-18 Oct-18 Apr-19 Oct-19 Apr-20 Sep-20 Apr-21 Oct-21 Apr-22
Date

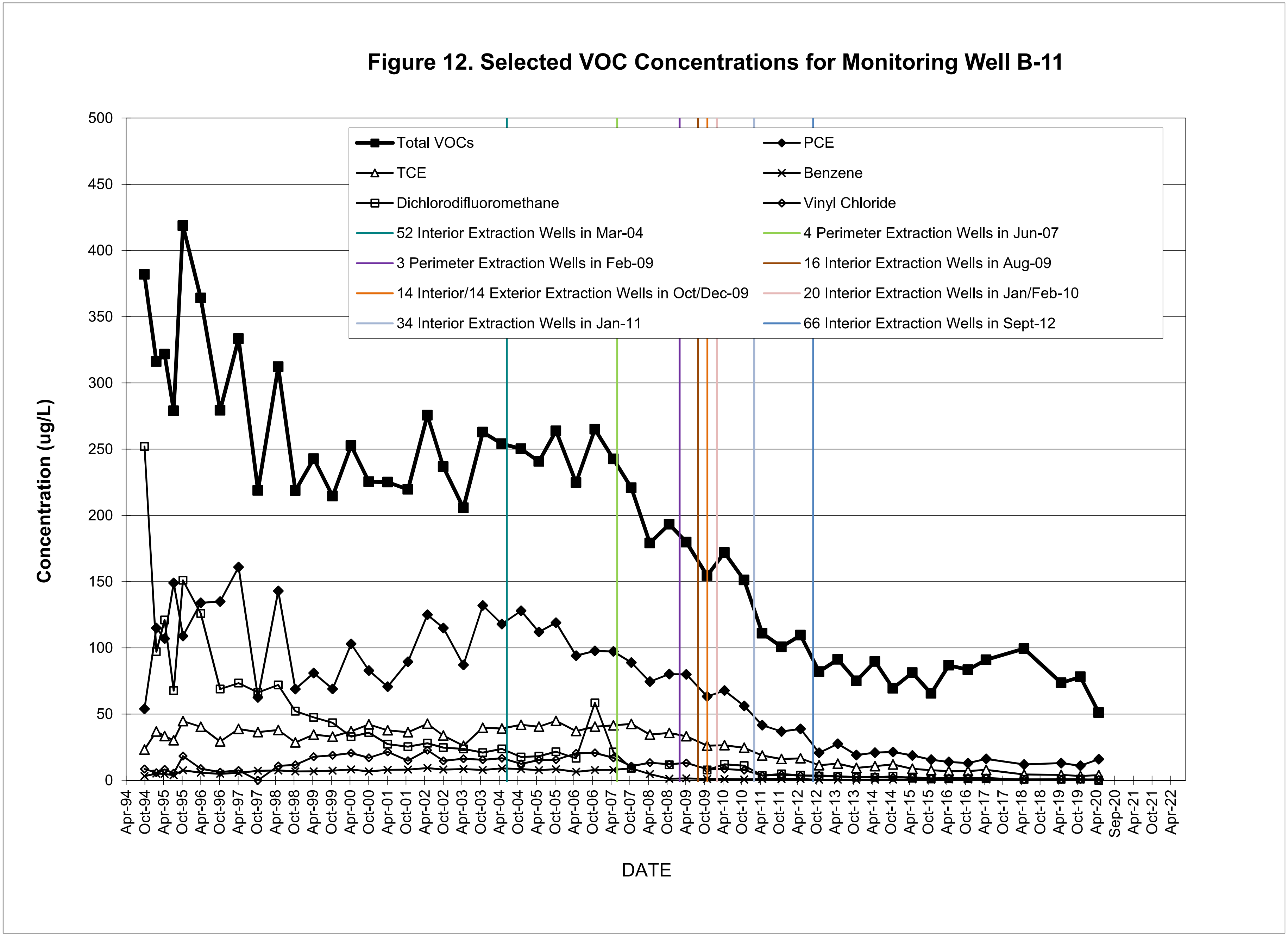
Figure 12. Selected VOC Concentrations for Monitoring Well B-11
Total VOCs
PCE
TCE
Benzene
Dichlorodifluoromethane
Vinyl Chloride
52 Interior Extraction Wells in Mar-04
4 Perimeter Extraction Wells in Jun-07
3 Perimeter Extraction Wells in Feb-09
16 Interior Extraction Wells in Aug-09
14 Interior/14 Exterior Extraction Wells in Oct/Dec-09
20 Interior Extraction Wells in Jan/Feb-10
34 Interior Extraction Wells in Jan-11
66 Interior Extraction Wells in Sept-12
Concentration (ug/L)
DATE
0
50
100
150
200
250
300
350
400
450
500
Apr-94
Oct-94
Apr-95
Oct-95
Apr-96
Oct-96
Apr-97
Oct-97
Apr-98
Oct-98
Apr-99
Oct-99
Apr-00
Oct-00
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Oct-17
Apr-18
Oct-18
Apr-19
Oct-19
Apr-20
Sep-20
Apr-21
Oct-21
Apr-22

Figure 13. Total VOC Concentrations in WBU-1 at Extraction Wells EW-2, EW-3, & EW-4 and Monitoring Wells B-28 & B-35

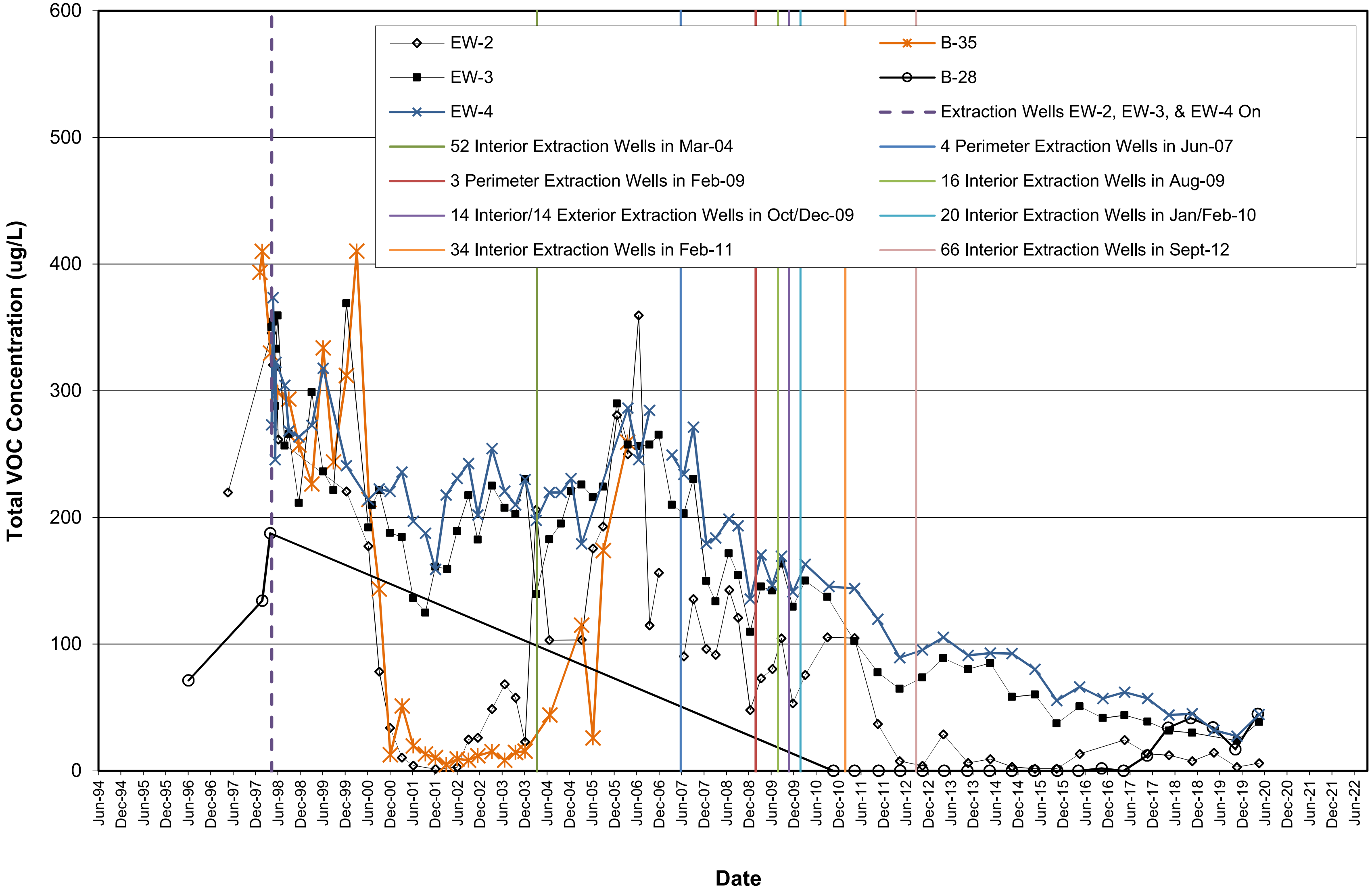


Figure 14. Total VOC Concentrations in All Uppermost WBU Wells Downgradient of WBU-1

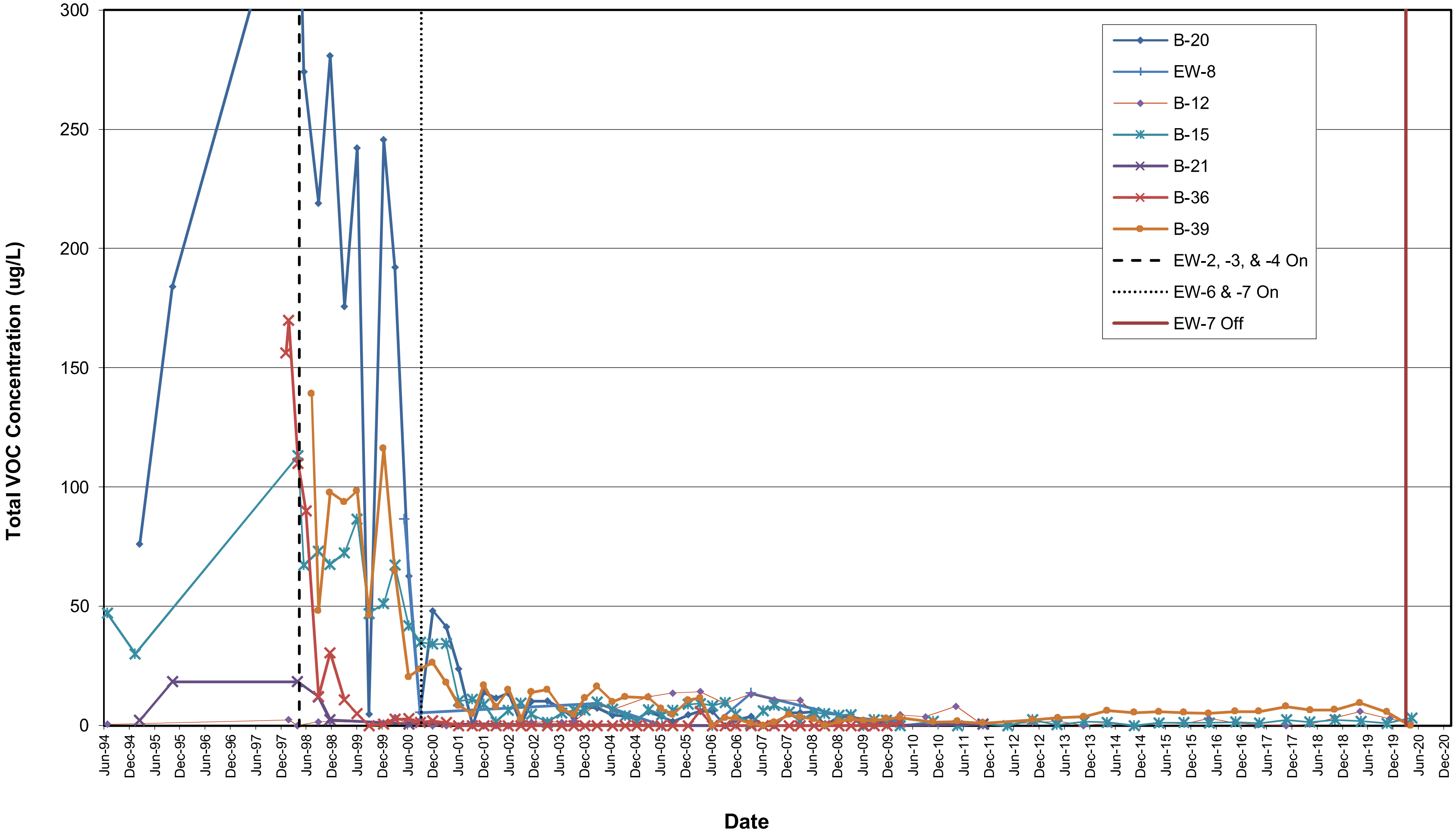
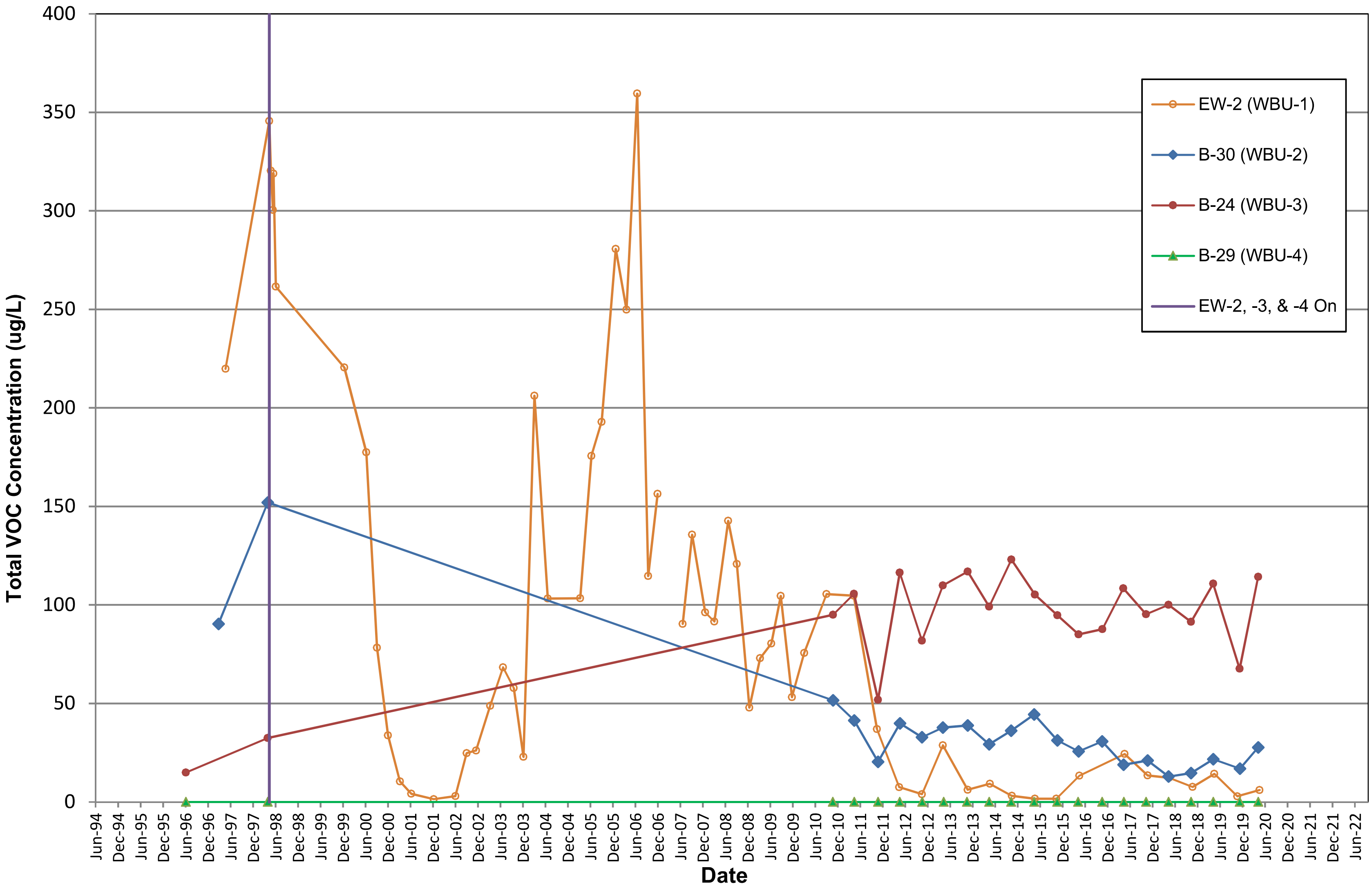


Figure 15. Total VOC Concentrations in Water-Bearing Units Below WBU-1



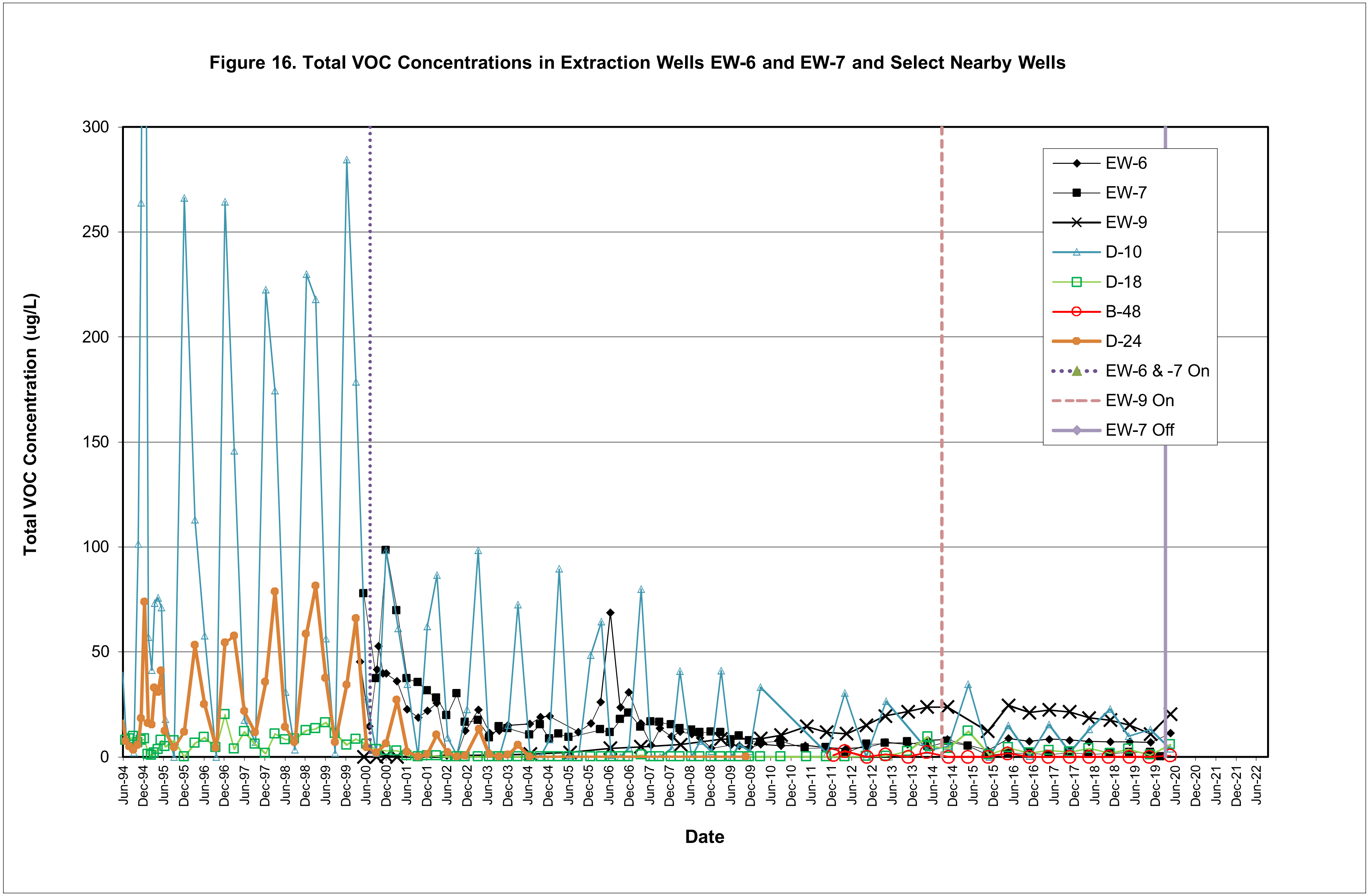


Figure 16. Total VOC Concentrations in Extraction Wells EW-6 and EW-7 and Select Nearby Wells
Total VOC Concentration (ug/L)
Date
300
250
200
150
100
50
0
Jun-94
Dec-94
Jun-95
Dec-95
Jun-96
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Jun-07
Dec-07
Jun-08
Dec-08
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EW-6
EW-7
EW-9
D-10
D-18
B-48
D-24
EW-6 & -7 On
EW-9 On
EW-7 Off