REPORT OF GROUNDWATER MONITORING ACTIVITIES SUMMER 2023

Bozeman Landfill
Bozeman, Montana

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PRESENTED TO

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AVD	Absolute Value Difference
ARM	Administrative Rules of Montana
bgs	Below Ground Surface
btoc	Below Top of Casing
DO	Dissolved Oxygen
DEQ	Montana Department of Environmental Quality
GPS	Groundwater Protection Standard
HHS	Montana Numeric Water Quality Human Health Standard
ORP	Oxidation Reduction Potential
MCA	Montana Codes Annotated
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/L	Milligrams per Liter
POC	Point of Compliance
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
ug/L	Micrograms per Liter
VOC	Volatile Organic Compound

1.0 INTRODUCTION

Semi-annual groundwater monitoring is required at the Bozeman Landfill (**Figure 1**) in accordance with Title 75, Chapter 10, Part 2, of the Montana Codes Annotated (MCA), otherwise known as the Montana Solid Waste Management Act, and as specified in the City of Bozeman Class II Landfill License 196. This monitoring is completed in summer during two separate events (typically June and August) and again in early winter (late November or early December).

This document describes sampling methods and groundwater data presentation and analysis. **Figures** and **Tables** presenting project location, monitoring sites, and selected field and analytical data are attached. **Appendix A** contains groundwater sampling logs and field notes. **Appendix B** contains copies of the laboratory reports and chains of custody. **Appendix C** contains the Data Review, Verification, and Data Validation Report for the June and August sample sets and **Appendix D** provides supporting data for the statistical analysis. **Appendix E** provides graphs depicting long-term groundwater data over time for several monitoring locations.

2.0 METHODS

Tetra Tech personnel completed this monitoring event in accordance with the Groundwater Sampling and Analysis Plan dated July 14, 2023 (Tetra Tech, 2023). The 2023 plan amends the previous plan (Tetra Tech, 2015) as proposed by Tetra Tech (2020) and approved by the Montana Department of Environmental Quality (DEQ) (DEQ, 2020 and 2022).

Groundwater sampling occurred on June 12 and 13 (volatile organic compounds [VOCs], anions, and nitrate/nitrite) and August 17, 18, and 21 (dissolved or total metals) at the monitoring wells and locations shown in **Figure 2**. A schedule of monitoring activities and analytical constituents for the summer monitoring event are presented in **Tables 1**, **2,** and **3**.

Monitoring activities included measurement of water levels, field parameters, passive diffusion sampling of monitoring wells, sampling of one water supply well (Valley View Vet Well), and sampling of one surface water spring (McIlhattan Seep).

2.1 WATER LEVEL AND FIELD PARAMETER MEASUREMENTS

Water levels were measured on June 12 and 13, 2023 using an electric well probe that was decontaminated before use at each monitoring well. Depth to water measurements were made from the north quadrant of the polyvinyl chloride (PVC) collar of each monitoring well and were recorded as depth below top of casing (btoc).

Other field parameters, including temperature, pH, specific conductivity, dissolved oxygen (DO, measured in milligrams per liter) and oxidation reduction potential (ORP, measured in millivolts) were measured from an aliquot of water removed from the passive diffusion sampler during sample collection. In the case of McIlhattan Seep (spring) and Valley View Vet Clinic, the multimeter probe was completely submersed in water flowing at the sampling location. All measurements were recorded on field sampling logs (**Appendix A**).

2.2 GROUNDWATER SAMPLE COLLECTION

Water samples were also collected from each monitoring point (**Figure 2**) in accordance with the Groundwater Monitoring Sampling and Analysis Plan (Tetra Tech, 2023). In general, the following sampling procedures were used:

- Monitoring wells were sampled using passive diffusion samplers (EON Products, 2023). The samplers consist of a cylindrical container constructed of a semi-permeable membrane which were filled with distilled water, lowered into the screened interval of the monitoring well, and allowed to equilibrate with groundwater passing through the well screen for a minimum of one month. The samplers were removed from the well, pierced with a plastic straw, and the water collected into sample containers for submittal to the analytical laboratory or measurement of field parameters.

- The summer monitoring event is divided among two separate outings, one held in June and a second in August, due to sample volume and equipment equilibration requirements associated with the use of passive sampling equipment as approved by DEQ (2022).

- For dissolved metals analysis, water was collected with and removed from the passive diffusion samplers as described above, poured into disposable polyethylene bailers, and filtered in the field using a 0.45-micron filter.

- Pertinent information (sample date, time, well location, field parameters, etc.) was recorded on groundwater sampling logs (**Appendix A**).

- Samples were packed in ice-filled coolers and shipped with Chain-of-Custody forms to the analytical laboratory. Chain-of-Custody forms for the sampling event are included with the laboratory reports in **Appendix B**.

- Monitoring activities at the McIlhattan Seep (**Figure 2**) consisted of filling a disposable bailer from the PVC pipe from which the seep discharges, filtering for metals analysis, and filling the sample bottles. Bottles for non-metal parameters were filled directly from the seep discharge pipe. Field parameters were measured from water collected into a clean container placed immediately below the PVC pipe.

- Monitoring activities at the Valley View Vet Well (**Figure 2**) consisted of filling sample bottles directly from a spigot after allowing the water to run for a minimum of five minutes. Field parameters were measured using a bucket to create a flow-through cell into which the water quality probe was submerged.

During this semi-annual monitoring event, samples were collected from 21 sites along with nine quality assurance/quality control samples (i.e., six field duplicates, one equipment blank, and two trip blanks). Analyses varied between wells but generally consisted of volatile organic compounds (VOCs), dissolved and total metals, sulfate, chloride, and nitrogen (as NO2 + NO3) as listed in **Tables 1, 2,** and **3**.

The analytical laboratory provided sample containers, preservatives, and trip blanks. One trip blank (identified as “Trip Blank”) was prepared for each cooler used to transport VOC samples and consisted of de-ionized water. Upon receipt of the samples at the laboratory, natural samples and the trip blank were analyzed for VOCs (in accordance with Method 8260 MSV Low Level) listed in Appendix I to 40 CFR Part 258 contained in ARM 17.50.1306(7).

Each duplicate sample was collected at the same time and analyzed for the same constituents as the corresponding natural sample at a respective sampling location.

The equipment blank consisted of a sample of distilled water from the same lot used to fill the passive diffusion samplers.

Field parameter measurements and laboratory analytical results were entered into the project groundwater database. A statistical analysis was performed on selected constituents and monitoring locations following the U.S. Environmental Protection Agency's Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities – Unified Guidance (USEPA, 2009).

3.0 DATA PRESENTATION AND ANALYSIS

Groundwater monitoring results are summarized in this section. **Figures** and **Tables** cited in the report are presented at the end of the text.

3.1 GROUNDWATER OCCURRENCE AND MOVEMENT

Depth to Groundwater and Seasonal Variation

Depth to groundwater was consistent with previous June monitoring events and ranged between approximately 1.44 feet btoc in well MW-10 to 115 feet btoc in well MW-15 on June 12, 2023. Groundwater elevations ranged from approximately 4,680 ft amsl in well MW-10 near the western margin of the site outside of the landfill to 4809 ft amsl in well MW-15 at the northeastern margin of the site.

Groundwater levels/elevations are presented in **Table 4**. **Chart E-1** (in **Appendix E**) depicts changes and trends in groundwater levels since 1994 in monitoring wells MW-5, MW-8A, and MW-12 that are oriented in a line roughly spanning the upgradient and downgradient extents of the site. Groundwater elevations in these wells experienced an overall decline between 2011 and 2015-2017 before increasing through 2018-2020 then appear to resume a downward trend at wells MW-5 and MW-12.

Groundwater Flow Direction and Hydraulic Gradient

Groundwater elevations were generally consistent with those measured during previous monitoring events and indicate that groundwater flows toward the southwest beneath the Unlined Closed Cell (**Figure 3**). Flow direction shifts to the west-southwest between the Lined Closed Cell and well MW-10, at the western margin of the site.

The groundwater gradients at the site were:

- 5.4% beneath the unlined closed cell (wells MW-15 and MW-12).
- 3.1% beneath the lined closed cell (wells MW-11 and MW-13).
- 1.8% in the area south of the site (wells MW-24 and MW-27).

Groundwater flow directions and gradients in these areas are consistent with previous monitoring events.

3.2 GROUNDWATER QUALITY

The following sections discuss inorganic constituent and VOC data. The discussion compares constituent concentrations to the Montana Human Health Standards (HHS; DEQ, 2019) established by the State of Montana for the protection of groundwater and the United States Environmental Protection Agency's (USEPA) Maximum Contaminant Level (MCL) if there is no HHS. Discussion of statistically significant trends in the data is provided in **Section 5**.

3.2.1 Organic Constituents

The VOC analysis (8260B MSV Low Level method) measures concentrations of 58 constituents (**Appendix B**). Eighteen VOC constituents were detected and included constituents detected during previous monitoring events. A listing of June 2023 VOC detections is presented in **Table 5** and a historical summary of selected VOCs is presented in **Table 6**. **Figures 4** through **8** display concentrations of benzene, tetrachloroethene, trichloroethene, and vinyl chloride at each well monitored in June 2023.

The Montana HHS for vinyl chloride is 0.2 micrograms per liter (µg/L) with the annotation Health Advisory (HA) while the USEPA Maximum Contaminant Level (MCL) for vinyl chloride in drinking water is 2 µg/L. Montana HHS exceedances of vinyl chloride standards were limited to monitoring wells MW-12 at 0.400 milligrams per liter (mg/L) which is below the practical quantitation limit (PQL), MW-13 (5.04 mg/L), and MW-18 (0.710 mg/L). No other regulatory exceedances of other VOCs were detected (**Table 5**).

Concentrations of VOCs measured during June 2023 were similar to those measured in previous monitoring events. Long-term VOC concentrations detected in selected monitoring wells are presented in **Appendix E** (**Charts E-2** to **E-6**). These charts present selected VOC constituent concentration changes through time, both before and after start-up of the first landfill gas (LFG) extraction system, and the following upgraded LFG extraction system.

A more detailed statistical analysis of VOC and inorganic constituent trends and comparison to Groundwater Protection Standards (GPSs) are provided in **Section 5**.

3.2.2 Inorganic Constituents

Inorganic constituents (chloride, sulfate, nitrate + nitrite as nitrogen, and metals) were measured in samples collected from select monitoring locations listed in **Table 1**. These data are provided in the analytical laboratory reports (**Appendix B**) and summarized below.

Samples for chloride and sulfate analyses were collected from fifteen wells. These constituents do not have regulatory limits in groundwater but are analyzed to evaluate whether groundwater is being impacted by landfill leachate. The monitoring stations where these constituents are of note are listed below:

Unlined Waste Cell

- Chloride concentrations were 4.0 mg/L and 2.4 mg/L, at upgradient wells MW-5 and MW-15, respectively. At down-gradient wells chloride concentrations were 27.9 mg/L (MW-12) and 190 mg/L (MW-18).

- Sulfate concentrations in the vicinity of the unlined cell follow similar trends compared to chloride concentrations with low sulfate concentrations at upgradient wells MW-5 (8.0

mg/L) and MW-15 (13.8 mg/L) and greater concentrations at down-gradient wells MW-12 (20.3 mg/L) and MW-18 (18.4 mg/L).

Lined Waste Cell

- Chloride and sulfate concentrations were similar between upgradient well MW-12 (chloride = 27.9 mg/L; sulfate = 20.3 mg/L) and down-gradient wells MW-4 and MW-13 (chloride = 25.0 mg/L and 38.0 mg/L; sulfate 16.0 mg/L and 20.2 mg/L). Another downgradient well, MW-9A, had a chloride concentration of 45.5 mg/L which was elevated relative to the upgradient well.

Samples for nitrogen analysis (nitrate + nitrite as N) were collected from 16 wells and the McIlhattan Seep. Nitrogen in groundwater has an MCL of 10 mg/L. Concentrations of nitrogen are summarized below:

- The concentration of nitrogen in well MW-8A was 25.8 mg/L, which exceeded the regulatory standard of 10 mg/L (DEQ, 2019).
- Locations where nitrogen concentrations regularly exceed 5 mg/L are limited to wells MW-8A, MW-11, MW-27, and the McIlhattan Seep.
- Nitrogen concentrations in upgradient wells MW-5 and MW-15 ranged from 2.8 to 3.4 mg/L.

The only groundwater sample which exceeded the USEPA MCL (http://water.epa.gov/drink/contaminants/) was collected from monitoring well MW-8A although wells LF-3, MW-6, MW-8A, and the McIlhattan Seep appear to display increasing nitrogen concentrations as discussed further in **Sections 5** and **6**.

4.0 DATA VALIDATION

The data validation process is used to determine the adequacy and quality of laboratory analytical data for the Bozeman Landfill. The objective of data validation is to identify unreliable or invalid laboratory measurements and qualify that data for interpretive use. This section summarizes validations performed in accordance with Tetra Tech's Groundwater Monitoring Sampling and Analysis Plan (Tetra Tech, 2023), guidelines prepared by the USEPA (1999, 2004, and 2017) and DEQ (2018 (**Appendix C**).

The data validation indicates that some quality assurance / quality control (QA/QC) objectives were not met for certain analytes however, after qualification, the analytical results reported in this document are appropriate for interpretive use and statistical analysis.

4.1 FIELD QA/QC

Analytical results were evaluated using field duplicate and trip blank samples as discussed below.

Field Duplicates

The following field duplicate / natural sample pairs were submitted for QA/QC purposes as part of the Summer 2023 monitoring event. The analytical list for each QA/QC sample pair varied based on the analyses required for the natural sample as listed in **Table 1**.

June

- MW-15 (DUP-1). VOCs, chloride, sulfate, and nitrogen.
- MW-17 (DUP-2). VOCs, chloride, and sulfate.
- Valley View Vet Clinic (DUP-3). VOCs, chloride, sulfate, nitrogen, and total recoverable metals.

August

- MW-15 (DUP-1). Dissolved metals.
- MW-17 (DUP-2). Dissolved metals.
- LF-2 (DUP-3). Dissolved metals.

Field duplicate results aid in the assessment of sampling and analytical precision. Analytical results for the natural and duplicate samples collected were evaluated using the following criteria:

- The Relative Percent Difference (RPD) between the two samples was calculated when both values of the natural/duplicate pair were greater than five times the Practical Quantitation Limit (PQL) for a given analyte.
- The Absolute Value Difference (AVD) between the natural and duplicate sample for a given analyte was calculated when one or both values were less than five times the PQL.
- The RPD or AVD was not calculated for values of the natural/duplicate pair that were equal, or if one or both values were below the PQL.

RPDs are calculated by dividing the difference between the two reported values for a given constituent by the average of the two reported values. Analytical results of constituents where the RPD was greater than 20 percent are considered estimated concentrations.

AVDs are calculated by subtracting the results of the two reported values for a given constituent. If the difference exceeds the PQL, then results for this constituent are considered estimated.

Results of comparison of field duplicates with their natural samples indicated the following:

<u>June DUP-1 and MW-15 samples</u>

- The RPD for nitrogen exceeded 20% (20.9 %).

<u>June DUP-2 and MW-17 samples</u>

- Data for all analytes were within QA/QC limits.

<u>June DUP-3 and Valley View Vet Clinic samples</u>

- Data for all analytes were within QA/QC limits.

August DUP-1 and MW-15 samples

- Data for all analytes were within QA/QC limits.

August DUP-2 and MW-17 samples

- Data for all analytes were within QA/QC limits.

August DUP-3 and LF-2 samples

- Data for all analytes were within QA/QC limits.

Concentrations of constituents exceeding QA/QC criteria were flagged as estimates (R1) in the project monitoring database.

Trip Blanks

Two trip blanks were provided and analyzed for VOCs. A trip blank consists of deionized water containerized by the laboratory and shipped to Tetra Tech's Bozeman, Montana office with the sample containers. Trip blanks were kept in field coolers during sampling and shipped back to the laboratory with the samples upon conclusion of field activities. Analytical results of the trip blank sample(s) were reviewed to determine if any constituent was measured in the sample(s) at detectable concentrations. The results are as follows:

- No constituents were detected in the trip blanks at concentrations above the PQL or MDL (Method Detection Limit) (**Table 5**).

Equipment Blanks

One equipment blank was submitted for analysis VOCs, anions, nitrogen, and metals. An equipment blank consists of the same deionized water used to fill the passive diffusion samplers prior to installation into the monitoring wells. For dissolved metals analysis, this water is filtered using a disposable bailer and filter in the same manner as for natural samples.

Analytical results of the equipment blank sample(s) were reviewed to determine if any constituent was measured in the sample(s) at detectable concentrations. The results are as follows:

- No VOCs were detected at concentrations above the PQL (**Table 5**).
- Dissolved barium was detected at a concentration of 0.0012 mg/L (see August lab report in **Appendix B**). No other metals were detected above the PQL or MDL. Barium concentrations in natural samples ranged from 0.031 mg/L to 0.14 mg/L indicating that bias introduced by the sampling equipment was minimal relative to the concentrations measured in the natural samples; however, these results are flagged as biased high (J+) in the project database.

4.2 LABORATORY QA/QC

The analytical laboratory received groundwater samples on June 14, 2023 (VOCs, anions, nitrogen, and for the Valley View Vet Well, metals) and August 23, 2023 (metals). Chain-of-Custody documents accompanied the samples from collection to receipt at the laboratory. All samples were properly preserved and analyzed within the respective holding time for each analyte (unless otherwise noted on the report via a qualifier). More information is provided in the Data Review, Verification, & Validation Report contained in **Appendix C**.

Laboratory QA/QC issues are listed in the laboratory reports and mostly pertain to matrix spikes, method blanks, and lab duplicates. The laboratory report indicates that calibration standards had been used, calibration verification had been conducted, laboratory controls were in place and analyzed, laboratory duplicates were used, and laboratory spikes documented.

5.0 STATISTICAL ANALYSIS OF WATER QUALITY DATA

The City completed the first of two corrective measures assessments for the Bozeman Landfill in November 1995. A landfill gas extraction system was installed as the preferred alternative in the first corrective measures assessment and operated at the site from December 1997 to July 2016. A second corrective measure began operation in August 2016 and is currently in operation. This corrective measure consists of an expanded landfill gas extraction system, a soil vapor extraction system, and a groundwater and vadose zone air injection system as described in Tetra Tech's Construction Completion Report (Tetra Tech, 2018).

According to ARM 17.50.1310(5)(b), remedies selected because of the corrective measures assessment are considered complete when concentrations of all constituents listed in ARM 17.50.1307 have not exceeded the GPSs for a period of three consecutive years based on statistical analysis of the data.

As indicated in the discussion above, there are exceedances of regulatory standards at the site. Of those constituents listed in ARM 17.50.1307, the following constituents have equaled or exceeded regulatory standards at the Bozeman Landfill on at least a single occasion in the last five years (2018-2023):

- Tetrachloroethene
- Methylene Chloride
- Vinyl Chloride
- Nitrate+Nitrite as N

The dataset was also screened for VOCs using the double quantification rule. This quasi-statistical rule is often used in detection monitoring to confirm an exceedance in a dataset that is predominantly populated with non-detect values. In this instance, the double quantification rule was used to identify well-constituent pairs that exhibit quantified measurements (i.e., at or above the PQL) in two consecutive sampling events within the last five years. Besides those listed above, the following constituents were identified in the VOC screening process:

- *1,1-Dichloroethane*
- 1,2-Dichloropropane
- *Acetone*
- *Chloroethane*
- Cis-1,2-Dichloroethene
- Trichloroethene
- 1,4-Dichlorobenzene
- *2-Propanol*
- Benzene
- Dichlorodifluoromethane
- *Tetrahydrofuran*
- Trichlorofluoromethane

Those constituents with GPSs were evaluated to determine if they are present at statistically significant concentrations above the GPS. Constituents without a GPS are *italicized* in the bulleted list above. In accordance with MCA 17.50.1307(8), constituents identified in the Appendix II list (40 CFR Part 258) for which GPSs have not been promulgated, shall use background concentrations in the place of a GPS. Because these are VOCs, the background concentration would be zero; however, laboratories cannot accurately report concentrations below the PQL. Therefore, PQLs were used as the compliance limit. Constituents not identified in the Appendix II list for which GPSs have not been promulgated were evaluated using trend tests. Additionally, trend tests were used to evaluate metals and groundwater quality parameters (i.e., chloride, nitrogen, and sulfate). Selection and description of the statistical tests employed are described below, as are the results. Supporting data for different aspects of the statistical analysis are provided in **Appendix D**.

5.1 STATISTICAL ANALYSIS APPROACH

To conform with the U.S. Environmental Protection Agency's Statistical Analysis of Groundwater Monitoring Data at Resource Conservation and Recovery Act (RCRA) Facilities – Unified Guidance (USEPA, 2009), Tetra Tech has updated the statistical approach for the analysis of groundwater samples collected at the Bozeman Landfill. Sanitas ™ Statistical Software (Sanitas, 2023) was used to perform the statistical evaluation.

The proportion of parameter concentrations reported below the method detection limit (MDL) (i.e., non-detects) and the statistical distribution of observed data were evaluated when considering the appropriate statistical method. Given the need for intrawell evaluation, which is appropriate for hydrogeologic systems exhibiting natural variability, monitoring program status (corrective action), and the relatively large data set, the statistical method referred to as "confidence intervals" is appropriate for the statistical analyses. This method is endorsed by USEPA because it provides a flexible and statistically accurate method to test how a parameter estimated from a single sample location compares to a fixed numerical limit (USEPA, 2009). Parametric confidence intervals were calculated for data sets that have an identifiable (normal, log-normal, etc.) distribution. Non-parametric confidence intervals were calculated for datasets in which the distribution cannot be determined. The latter method is commonly used when the data set contains a substantial proportion of non-detect values. Confidence intervals are discussed in more detail in the following section.

Confidence intervals cannot be used to evaluate groundwater concentrations for compounds that do not have an associated GPS (MCL, HHS, etc.) or an alternative numerical limit. In instances where GPSs have not been promulgated and the compounds are not identified in the Appendix II list, Mann-Kendall/Sen's Slope tests were performed to evaluate the data for trends. This statistical test is an intrawell non-parametric evaluation of the change in concentration levels over time. To remove any artificial trends introduced by changes to reporting limits over time, the tests were run by replacing historic non-detected values with current-day reporting limits. Metals, chloride, nitrogen, and sulfate data were also evaluated using Mann-Kendall/Sen's Slope tests **Appendix D**.

5.2 STATISTICAL METHOD – CONFIDENCE INTERVALS

A confidence interval is constructed from sample data and is designed to contain the mean concentration of an analyte, with a designated level of confidence. This confidence interval is then compared to a GPS. In corrective action, the test determines whether concentrations have

decreased below a compliance level. Therefore, in corrective action monitoring, the upper confidence level (UCL) is of most importance as it is compared to the GPS. This approach is the recommended statistical strategy in compliance/assessment and corrective action monitoring by the USEPA (USEPA, 2009).

5.2.1 Distribution and Censored Data

The distribution of the data is evaluated by applying the Shapiro-Wilk or Shapiro-Francia test of normality to the raw data or, when applicable to the Ladder of Powers (Helsel & Hirsch, 1992) transformed data. If less than 15-percent of the observations are non-detects, these will be replaced with one-half the PQL prior to running the normality test and constructing the confidence intervals. If more than 15-percent but less than 50-percent of the data are below the detection limit, the data's sample mean and standard deviation are adjusted according to the method of Kaplan-Meier (USEPA, 2009). If more than 50-percent of the data are below the detection limit, these values are replaced with one-half the MDL and a non-parametric confidence interval is constructed. Estimated data (flagged with a "J"), in which the concentration is reported to be between the MDL and PQL, were treated as valid measurements and were not substituted per the unified guidance (USEPA, 2009).

5.2.2 Parametric Confidence Intervals

To construct a parametric confidence interval, it is preferable to have eight or more measurements. The mean, "$\overline{X}$", and the standard deviation of the sample concentration values are calculated separately for each compliance well (monitoring point). For each well, the confidence interval is calculated as:

$$\overline{X} \pm t_{(1-\alpha,n-1)} \frac{S}{\sqrt{n}}$$

Where: "S" is the compliance well's standard deviation, "n" is the number of observations for the compliance point; and "$t_{(1-\alpha, n-1)}$" is obtained from the Student's t-distribution table (USEPA, 1989) with (n-1) degrees of freedom.

The confidence intervals were constructed with a 99-percent confidence level. If the UCL is above the GPS (the interval overlaps the compliance limit), there is statistically significant evidence of noncompliance.

5.2.3 Non-Parametric Confidence Intervals

For non-parametric confidence intervals, the interval is constructed around the median of the sample concentration dataset with a 98-percent confidence level. The procedure requires at least seven observations. The observations are ordered from smallest to largest and unique ranks are assigned separately within the monitoring point dataset. The critical values of the order statistics are determined as follows:

- If the minimum seven observations are used, the critical values are the first and seventh values.

- Otherwise, the smallest integer, "M", is found such that the cumulative binomial distribution with parameters n (sample size) and probability of success (p = 0.5) is at least 0.99. The exact confidence coefficients for sample sizes up to 11 are given by the EPA (Table 6-3;

USEPA, 1989). For larger samples, take as an approximation the nearest integer value to:

$$M = \frac{n}{2} + 1 + Z_{(1-\alpha)}\sqrt{\frac{n}{4}}$$

Where "$Z_{(1-\alpha)}$" is 1-α percentile from the normal distribution table (Table 4, Appendix B; USEPA, 1989). Once "M" has been determined, (n+1-M) is computed and the confidence limits are taken as the order statistics, X(M) and X(n+1-M). "X" is the ordered list of values in the dataset. If the upper limit, X(n+1-M), exceeds the compliance limit, there is statistically significant evidence of non-compliance.

5.3 RESULTS AND DISCUSSION

Confidence intervals were constructed for the constituents with concentrations that have exceeded GPSs in the past five years, and for those constituents identified by the VOC screening process. Trend tests were also used to evaluate inorganic data and VOCs identified during the screening process that do not have GPSs and are not on the Appendix II list.

Outputs of the statistical testing results are contained in **Appendix D**. The statistical evaluations that were performed and reported below constitute the statistical basis for demonstrating the regulatory compliance status of the Bozeman Landfill.

5.3.1 Confidence Interval Results

Confidence intervals were constructed for 13 VOCs and nitrate+nitrite (see **Appendix D**). The following constituent/well pairs had statistically significant evidence of exceedances of the GPSs:

- 1,1-Dichloroethane: MW-6, MW-7A, MW-12, MW-13, and MW-17
- Acetone: MW-18
- Methylene Chloride: MW-17
- Tetrachloroethene: MW-17 and MW-20
- Vinyl chloride: MW-12, MW-13, and MW-18
- Nitrate+Nitrite: MW-8A

This list is consistent with past observed exceedances of GPSs, with the exception of acetone. A GPS has not been promogulated for either acetone or 1,1-dichloroethane, and therefore their respective PQLs were used as the compliance limits. Thus, any confirmed detection (concentrations above the PQL) will exceed the compliance limit. Trend analyses were conducted to further evaluate the VOC exceedances listed above. A discussion of those findings is presented below.

5.3.2 Trend Test Results

A 98-percent confidence level was used for the trend analyses. Increasing trends were identified in the datasets for the following inorganic compounds:

- Arsenic: MW-8A
- Barium: MW-10, MW-11, and McIlhattan Seep

- Chloride: LF-3 and MW-13
- Chromium: MW-5 and MW-8A
- Cobalt: MW-12 and MW-13
- Copper: MW-12
- Nickel: MW-4
- Nitrate+Nitrite: LF-3, MW-6, MW-8A, and McIlhattan Seep
- Selenium: MW-5
- Sulfate: LF-3, MW-6, MW-12, MW-13, and Vet Clinic

The inorganic results indicate increasing trends for constituents commonly found in landfill leachate. Concentrations for metals (arsenic, barium, chromium, cobalt, copper, selenium), chloride, sulfate, and nitrate+nitrite for June and August 2023 are presented on **Figure 8.** The cause or causes of these increases are unclear because monitoring wells located between the apparent source(s) (i.e., the lined and/or unlined waste cells) and the impacted wells do not display similar trends and in some cases display decreasing trends for the same constituents.

No organic constituents exhibited detrimental trends. Furthermore, the trend analyses for methylene chloride, tetrachloroethene, and vinyl chloride (the VOCs with statistically significant exceedances of GPSs) showed non-significant or decreasing trends in concentrations for those datasets. Outputs for the trend analyses are presented in **Appendix D.**

6.0 SUMMARY

The following summarizes data, calculations, and interpretations resulting from the groundwater monitoring event:

- Groundwater elevations at the landfill were consistent with groundwater elevations measured during previous monitoring events and indicate a southwest groundwater flow beneath the Unlined Closed Cell. In the southwest portion of the site (vicinity of wells MW-4 and MW-27), groundwater flow shifts to a west-southwest direction.
- During this monitoring event fifteen VOC constituents were detected and included the same constituents detected previously at the site. Exceedances of USEPA regulatory levels and/or Montana HHS for this monitoring event were limited to vinyl chloride at MW-12 (0.400 ug/L, below the PQL), MW-13 (5.04 ug/L), and MW-18 (0.710 ug/L). For inorganic constituents, only nitrate+nitrite as N exceeded the USEPA and Montana GPS of 10 mg/L in well MW-8A.
- Statistical evaluations using confidence intervals were completed for the dataset (2018 through present) as described in **Section 5.0**. Statistically significant evidence of the mean concentrations exceeding GPSs were identified for the following constituent/well pairs: 1,1-dichloroethane: MW-6, MW-7A, MW-12, MW-13, MW-17; acetone: MW-18; methylene chloride: MW-17; tetrachloroethene: MW-17 and MW-20; vinyl chloride: MW-12, MW-13, and MW-18; and nitrate+nitrite: MW-8A (see **Section 5.3.1**). However, it should be noted, that for the VOC datasets, the reported concentrations exhibit non-significant or decreasing trends.
- Trend analyses were conducted for the dataset as described in **Section 5.3.2**. Statistically significant increasing trends were identified for the following constituent/well pairs: arsenic:

MW-8A; barium: MW-10, MW-11, and McIlhattan Seep; chloride: LF-3 and MW-13; chromium: MW-5 and MW-8A; cobalt: MW-12 and MW-13; copper: MW-12; nickel: MW-4 nitrate+nitrite: LF-3, MW-6, MW-8A, and McIlhattan Seep; selenium: MW-5; and sulfate: LF-3, MW-6, MW-12, MW-13, and Vet Clinic.

- Increasing trends for some metals, chloride, nitrate+nitrite, and sulfate were observed. The source of loading for these constituents is unclear because monitoring wells located between the apparent source(s) (i.e., the lined and/or unlined waste cells) and the impacted wells do not display similar trends and in some cases display decreasing trends for the same constituents. It may be the case the groundwater flow paths are more complex on a localized scale than indicated by the potentiometric surface of the overall site.

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ONLINE REFERENCE:

U.S. EPA Maximum Contaminant Levels
http://water.epa.gov/drink/contaminants/

Montana DEQ Solid Waste Program Laws and Rules:
http://www.deq.mt.gov/SolidWaste/LawsRules.mcpx

TABLES

Table 1 – Summer Groundwater Monitoring Schedule

Groundwater Monitoring Station	VOCs [1]	Chloride and Sulfate	Nitrate + Nitrite as Nitrogen	Metals [2]
Method	8260 (Low Level)	300.0	353.2	6020 (7470A Low Level for Mercury)
LF – 2	X		X	X
LF – 3	X	X	X	X
MW – 4 *	X	X	X	X
MW – 5 *	X	X	X	X
MW – 6 *	X	X	X	X
MW - 7A	X		X	X
MW - 8A *	X	X	X	X
MW - 9A	X	X	X	X
MW – 10	X		X	X
MW – 11	X		X	X
MW – 12	X	X	X	X
MW – 13	X	X	X	X
MW – 15 *	X	X	X	X
MW – 17	X	X		X
MW – 18	X	X		X
MW – 19	Every 5 yrs., next sampling June 2026			
MW – 20	X	X		X
MW – 22	X			
MW – 23	Every 3 yrs., next sampling June 2024		Every 3 yrs., next sampling June 2024	
MW – 24	X	X	X	X
MW – 27	X	X	X	X
McIlhattan Seep	X		X	X
Shop Well	Every 3 yrs., next sampling June 2024		Every 3 yrs., next sampling June 2024	Every 3 yrs., next sampling June 2024
Valley View Vet Well	X	X	X	X
Dup 1	X	X	X	X
Dup 2	X	X	X	X
Dup 3	X	X	X	X
Eqpt Blank 1	X	X	X	X
Trip Blank	X			

Field parameters (i.e., depth to water, pH, specific conductivity, dissolved oxygen, and oxidation-reduction potential) measured at all locations during June monitoring event.

[1] VOCs = Volatile organic compounds as listed in **Table 2**.

[2] Metals listed in **Table 3** will be sampled in August except for Valley View Vet Well, Shop Well, and McIlhattan Seep which are monitored in June.

* Point of Compliance.

Table 2 – Volatile Organic Compounds Required for Groundwater Monitoring

Parameter[1]	Parameter[1]
1,1,1,2-Tetrachloroethane	Bromodichloromethane
1,1,1-Trichloroethane	Bromoform
1,1,2,2-Tetrachloroethane	Chloroform
1,1,2-Trichloroethane	Chloromethane
1,1,2-Trichlorotrifluoroethane	Cyclohexane
1,1-Dichloroethane	Dibromochloromethane
1,1-Dichloroethene	Dibromomethane
1,2,3-Trichloropropane	Dichlorodifluoromethane
1,2,4-Trimethylbenzene	Ethylbenzene
1,2-Dibromo-3-chloropropane	Iodomethane
1,2-Dibromoethane (EDB)	Isopropylbenzene (Cumene)
1,2-Dichlorobenzene	Methyl-tert-butyl ether
1,2-Dichloroethane	Methylene Chloride
1,2-Dichloropropane	Styrene
1,4-Dichlorobenzene	Tetrachloroethene
1,4-Dioxane (p-Dioxane)	Tetrahydrofuran
2-Butanone (MEK)	Toluene
2-Hexanone	Trichloroethene
2-Propanol	Trichlorofluoromethane
4-Methyl-2-pentanone (MIBK)	Vinyl acetate
Acetone	Vinyl chloride
Acrylonitrile	Xylene (Total)
Benzene	cis-1,2-Dichloroethene
Bromochloromethane	cis-1,3-Dichloropropene
Bromodichloromethane	n-Hexane
Bromoform	n-Propylbenzene
Bromomethane	trans-1,2-Dichloroethene
Carbon disulfide	trans-1,3-Dichloropropene
Carbon tetrachloride	trans-1,4-Dichloro-2-butene
Chlorobenzene	1,2-Dichloroethane-d4 (S)
Chloroethane	Toluene-d8 (S)
Bromochloromethane	4-Bromofluorobenzene (S)

[1] Volatile Organic Compounds analyzed using Method 8260 (low level).

Table 3 – Metals Required for Groundwater Monitoring

Parameter[1]	Method
Arsenic	6020
Barium	6020
Cadmium	6020
Chromium	6020
Cobalt	6020
Copper	6020
Lead	6020
Mercury (low range [0.000093 mg/L] detection methods required)	7470A (low level)
Nickel	6020
Selenium	6020
Silver	6020
Thallium	6020
Vanadium	6020
Zinc	6020

[1] Metals analyzed for dissolved concentrations except “McIlhattan Seep”, “Valley View Vet Well”, and “Shop Well” which are analyzed for total recoverable metals.

TABLE 4
Groundwater Levels
Bozeman Landfill, Bozeman Montana

MEASURING POINT ELEVATION (in feet above mean sea level)														
	4,709.50		4,723.59		4,759.77		4,717.87		4,888.98		4,734.14		4,732.67	
MPE change	Initial MPE	4702.71	Initial MPE	4717.1	Initial MPE	4751.89	Initial MPE	4710.90	Initial MPE	4882.37	Initial MPE	4738.68	Initial MPE	4727.23
Well No.	LF-2		LF-3		MW 3		MW 4		MW 5		MW 6[1]		MW 6B	
Monitoring Event	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV	DTW	ELEV
May-86	14.20	4695.30	15.50	4708.09	48.76	4703.13	20.60	4697.27	--	--	--	--	--	--
October-86	14.53	4694.97	15.20	4708.39	48.87	4703.02	20.64	4697.23	--	--	--	--	--	--
August-92	--	--	--	--	--	--	--	--	--	--	45.40	4698.73	--	--
February-93	--	--	16.39	4707.20	--	--	22.35	4695.52	112.66	4776.32	43.57	4700.56	--	--
July-93	14.52	4694.98	15.10	4708.49	49.91	4701.98	21.73	4696.14	111.60	4777.38	43.35	4700.78	--	--
January-94	14.72	4694.78	14.85	4708.74	49.50	4702.39	20.70	4697.17	110.76	4778.22	43.02	4701.11	--	--
June-94	15.42	4694.08	15.45	4708.14	50.34	4701.55	20.97	4696.90	110.26	4778.72	42.91	4701.22	--	--
February-95	14.43	4695.07	14.72	4708.87	50.41	4701.48	20.67	4697.20	110.71	4778.27	42.88	4701.25	--	--
June-95	14.7	4694.80	14.88	4708.71	50.27	4701.62	20.08	4697.79	110.06	4778.92	42.71	4701.42	--	--
November-95	14.39	4695.11	15.33	4708.26	49.87	4702.02	20.51	4697.36	109.70	4779.28	42.80	4701.33	--	--
June-96	13.68	4695.82	13.92	4709.67	49.30	4702.59	20.78	4697.09	109.50	4779.48	42.55	4701.58	--	--
December-96	14.29	4695.21	14.34	4709.25	48.82	4703.07	20.3	4697.57	110.10	4778.88	44.77	4699.36	--	--
June-97	12.31	4697.19	12.40	4711.19	47.07	4704.82	13.39	4704.48	108.64	4780.34	39.85	4704.28	--	--
December-97	14.16	4695.34	14.00	4709.59	48.02	4703.87	20.37	4697.50	106.71	4782.27	42.73	4701.40	--	--
June-98	13.21	4696.29	12.98	4710.61	--	--	19.27	4698.60	106.10	4782.88	30.95	4703.19	--	--
December-98	14.32	4695.18	13.82	4709.77	47.97	4703.92	20.37	4697.50	105.75	4783.23	31.24	4702.90	--	--
June-99	14.07	4695.43	13.53	4710.06	47.74	4704.15	20.25	4697.62	106.01	4782.97	31.13	4703.01	--	--
December-99	14.42	4695.08	14.31	4709.28	48.22	4703.67	20.54	4697.33	106.86	4782.12	31.33	4702.81	--	--
June-00	--	--	13.98	4709.61	48.28	4703.61	20.47	4697.40	108.22	4780.76	31.33	4702.81	--	--
November-00	14.53	4694.97	14.23	4709.36	48.77	4703.12	20.69	4697.18	109.69	4779.29	31.53	4702.61	--	--
June-01	14.27	4695.23	13.97	4709.62	48.91	4702.98	20.60	4697.27	110.61	4778.37	31.66	4702.48	--	--
December-01	14.63	4694.87	14.01	4709.58	49.40	4702.49	20.83	4697.04	111.77	4777.21	31.79	4702.35	--	--
June-02	13.31	4696.19	13.66	4709.93	48.59	4703.30	19.72	4698.15	112.47	4776.51	31.59	4702.55	--	--
December-02	14.78	4694.72	14.22	4709.37	49.85	4702.04	20.92	4696.95	113.26	4775.72	31.87	4702.27	--	--
June-03	14.20	4695.30	14.02	4709.57	49.35	4702.54	20.41	4697.46	113.52	4775.46	31.79	4702.35	--	--
December-03	14.92	4694.58	14.35	4709.24	50.32	4701.57	21.02	4696.85	114.30	4774.68	31.96	4702.18	--	--
June-04	14.36	4695.14	14.23	4709.36	50.13	4701.76	20.72	4697.15	114.94	4774.04	31.95	4702.19	--	--
December-04	14.71	4694.79	14.71	4708.88	50.53	4701.36	20.99	4696.88	115.68	4773.30	32.43	4701.71	--	--
June-05	14.13	4695.37	14.13	4709.46	50.05	4701.84	20.57	4697.30	116.01	4772.97	31.92	4702.22	--	--
December-05	14.86	4694.64	14.29	4709.30	50.72	4701.17	20.98	4696.89	116.85	4772.13	32.07	4702.07	--	--
March-06	--	--	14.02	4709.57	--	--	--	--	--	--	31.94	4702.20	--	--
June-06	13.95	4695.55	14.85	4708.74	--	--	21.80	4696.07	114.39	4774.59	31.90	4702.24	--	--
September-06	--	--	14.24	4709.35	--	--	--	--	--	--	--	--	--	--
December-06	--	--	13.98	4709.61	--	--	20.91	4696.96	116.45	4772.53	29.9	4704.24	--	--
March-07	--	--	13.22	4710.37	--	--	--	--	--	--	31.55	4702.59	--	--
June-07	--	--	13.63	4709.96	--	--	18.95	4698.92	115.69	4773.29	31.43	4702.71	--	--
December-07	--	--	14.07	4709.52	--	--	20.86	4697.01	115.51	4773.47	31.94	4702.20	--	--
June-08	--	--	12.74	4710.85	--	--	18.92	4698.95	114.88	4774.10	31.19	4702.95	--	--
December-08	--	--	13.98	4709.61	--	--	20.8	4697.07	114.07	4774.91	33.8	4700.34	--	--
June-09	--	--	13.24	4710.35	--	--	19.8	4698.07	113.42	4775.56	31.62	4702.52	--	--
December-09	--	--	13.87	4709.72	--	--	20.6	4697.27	113.03	4775.95	31.78	4702.36	--	--
June-10	--	--	12.94	4710.65	--	--	19.76	4698.11	112.45	4776.53	31.41	4702.73	--	--
December-10	14.32	4695.18	13.81	4709.78	--	--	20.69	4697.18	111.97	4777.01	31.52	4702.62	--	--
June-11	12.73	4696.77	12.66	4710.93	--	--	19.29	4698.58	110.63	4778.35	30.99	4703.15	--	--
December-11	14.29	4695.21	13.71	4709.88	--	--	20.48	4697.39	110.05	4778.93	31.40	4702.74	--	--
June-12	14.12	4695.38	13.52	4710.07	--	--	20.39	4697.48	110.12	4778.86	31.29	4702.85	18.69	4713.98
December-12	14.26	4695.24	13.93	4709.66	49.24	4702.65	20.73	4697.14	111.31	4777.67	31.44	4702.70	19.40	4713.27
June-13	14.05	4695.45	14.33	4709.26	--	--	20.69	4697.18	112.36	4776.62	31.47	4702.67	19.25	4713.42
December-13	14.28	4695.22	13.77	4709.82	--	--	20.75	4697.12	113.12	4775.86	31.56	4702.58	19.34	4713.33
March-14	13.30	4696.20	13.22	4710.37	--	--	19.86	4698.01	113.02	4775.96	31.33	4702.81	19.34	4713.33
August-14	14.24	4695.26	14.23	4709.36	--	--	20.70	4697.17	112.85	4776.13	31.52	4702.62	19.41	4713.26
December-14	14.17	4695.33	13.87	4709.72	--	--	20.76	4697.11	112.95	4776.03	31.52	4702.62	19.30	4713.37
June-15	14.28	4695.22	14.19	4709.40	--	--	20.66	4697.21	113.89	4775.09	31.55	4702.59	19.46	4713.21
December-15	14.31	4695.19	14.00	4709.59	--	--	20.82	4697.05	114.89	4774.09	31.65	4702.49	19.55	4713.12
June-16	14.20	4695.30	14.26	4709.33	--	--	20.50	4697.37	115.95	4773.03	31.55	4702.59	19.53	4713.14
December-16	14.30	4695.20	13.95	4709.64	--	--	20.87	4697.00	116.24	4772.74	31.75	4702.39	19.66	4713.01
June-17	13.57	4695.93	13.44	4710.15	--	--	20.03	4697.84	116.10	4772.88	31.42	4702.72	19.13	4713.54
December-17	14.16	4695.34	13.89	4709.70	--	--	20.79	4697.08	115.88	4773.10	31.69	4702.45	19.53	4713.14
August-18	14.06	4695.44	14.43	4709.16	--	--	20.32	4697.55	114.00	4774.98	31.35	4702.79	19.02	4713.65
November-18	14.11	4695.39	13.84	4709.75	--	--	20.66	4697.21	113.12	4775.86	31.42	4702.72	18.94	4713.73
June-19	13.34	4696.16	13.54	4710.05	--	--	19.91	4697.96	112.30	4776.68	31.11	4703.03	18.27	4714.40
December-19	14.00	4695.50	13.58	4710.01	--	--	20.51	4697.36	112.14	4776.84	31.32	4702.82	15.68	4716.99
June-20	13.95	4695.55	14.25	4709.34	--	--	20.48	4697.39	112.51	4776.47	31.25	4702.89	18.80	4713.87
December-20	14.90	4694.60	13.68	4709.91	--	--	20.72	4697.15	112.59	4776.39	31.38	4702.76	18.94	4713.73
June-21	14.28	4695.22	14.56	4709.03	--	--	20.62	4697.25	113.59	4775.39	31.39	4702.75	19.13	4713.54
December-21	14.41	4695.09	13.82	4709.77	--	--	20.72	4697.15	114.05	4774.93	31.53	4702.61	--	--
June-22	13.47	4696.03	13.29	4710.30	--	--	19.85	4698.02	114.49	4774.49	31.24	4702.90	--	--
December-22	14.10	4695.40	13.75	4709.84	--	--	--	--	--	--	31.58	4702.56	--	--
June-23	13.55	4695.95	13.40	4710.19	--	--	20.00	4697.87	114.92	4774.06	31.29	4702.85	--	--

MPE change : Measuring point elevation change. Collar elevations were resurveyed on 6/4/2014 and used to calculate DTW for all dates after accounting for PVC removal/addition, where applicable.

DTW : Depth to water below measuring point (feet)

ELEV : Groundwater elevation above mean sea level (feet). Well locations shown on Figure 2.

1 : 9.99 feet of PVC was removed on 06/30/1998.

-- : Blank cell denotes no available data

TABLE 5
Summary of Volatile Organic Compound Detections
June 2023 Groundwater Monitoring
Bozeman Landfill, Bozeman, Montana

	Sampling Site																										
	LF-2	LF-3	MW-4	MW-5	MW-6	MW-7A	MW-8A	MW-9A	MW-10	MW-11	MW-12	MW-13	MW-15	MW-17	MW-18	MW-20	MW-22	MW-24	MW-27	McIL-HATTAN SEEP	VET CLINIC WELL	DUP 1	DUP 2	DUP 3	Equipment Blank (Blank for water used during Summer 2023 Monitoring Event)[1]	TRIP BLANK 1	TRIP BLANK 2
Analyte	June 12 and 13, 2023																										
1,1,1,2-Tetrachloroethane																											
1,1,1-Trichloroethane																											
1,1,2,2-Tetrachloroethane																											
1,1,2-Trichloroethane																											
1,1,2-Trichlorotrifluoroethane																											
1,1-Dichloroethane			0.420 J		1.07	0.453 J		0.443 J			0.362 J	1.02		0.430 J									0.474 J				
1,1-Dichloroethene																											
1,2,3-Trichloropropane																											
1,2,4-Trimethylbenzene																											
1,2-Dibromo3chloropropane																											
1,2-Dibromoethane (EDB)																											
1,2-Dichlorobenzene																											
1,2-Dichloroethane																			0.766					0.772			
1,2-Dichloropropane												0.189 J		1.17									1.16				
1,4-Dichlorobenzene																											
1,4-Dioxane (p-Dioxane)																											
2-Butanone (MEK)																											
2-Hexanone																											
2-Propanol																					2.75 J			4.11 J			
4-Methyl-2-pentanone (MIBK)																											
Acetone																									13.2 J		
Acrylonitrile																											
Benzene												0.466 J			0.115 J												
Bromochloromethane																											
Bromodichloromethane																									0.164 J		
Bromoform																											
Bromomethane																											
Carbon disulfide																											
Carbon tetrachloride																											
Chlorobenzene																											
Chloroethane												1.84 J															
Chloroform																	0.745								0.121 J		0.226 J
Chloromethane																											
cis-1,2-Dichloroethene	0.223 J	0.494 J	0.427 J		0.937		0.306 J	0.695	0.150 J		1.02	1.09		10.4	0.346 J					0.136 J			10.3				
cis-1,3-Dichloropropene																											
Cyclohexane																											
Dibromochloromethane																									0.230 J		
Dibromomethane																											
Dichlorodifluoromethane										2.20 J																	
Ethylbenzene																											
Iodomethane																											
Isopropylbenzene (Cumene)																											
Methylene Chloride														1.56 J									1.60 J			1.03 J	1.06 J
Methyl-tert-butyl ether																											
n-Hexane																											
n-Propylbenzene																											
Styrene																											
Tetrachloroethene	0.420 J	0.740	0.403 J					0.819						3.62		1.45		0.463 J	0.662	0.419 J			3.63				
Tetrahydrofuran											1.18 J	1.13 J			2.90 J												
Toluene																											
trans-1,2-Dichloroethene																											
trans-1,3-Dichloropropene																											
trans-1,4-Dichloro-2-butene																											
Trichloroethene								0.518						1.81									1.82				
Trichlorofluoromethane										0.922 J																	
Vinyl acetate																											
Vinyl chloride											0.400 J	**5.04**			0.710												
Xylene (Total)																											

Notes:
Concentrations in micrograms per liter (µg/L)
Bolded Values - Constituent concentration exceeding USEPA Drinking Water Standards, Maximum Contaminant Level (Vinyl Chloride) and/or Montana Human Health Standard
Reference - 2019, DEQ. Circular DEQ-7 Montana Numeric Water Quality Standards. June.
Blank record and/or field - Analyte Not Detected above minimum detection limit (MDL)
J - Estimated Concentration (less than analytical practical quantitation limit or PQL but greater than the analytical MDL)
1: Equipment blank results for August metals monitoring discussed in Appendix D. Data for this blank sample will also apply to wells MW-4, MW-5, MW-7A, MW-10, MW-11, MW-15, MW-22, MW-24, and MW-27 sampled during Summer 2024 VOC event.

TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-2	12/6/2010	U 1	U 1	U 1	U 1	U 1	1.3	U 1	U 1
	6/14/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	1.1	U 0.05	U 0.049
	12/5/2011	U 0.047	0.27	U 5	U 0.072	U 0.13	1.4	J 0.23	U 0.16
	6/4/2012	J 0.12	J 0.25	U 2	U 0.072	U 0.13	1.9	J 0.31	U 0.16
	12/6/2012	U 0.047	J 0.15	U 2	U 0.072	U 0.13	1.1	J 0.14	U 0.16
	6/12/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	0.86	J 0.12	U 0.2
	12/18/2013	U 0.24	J 0.29	U 2	U 0.25	U 0.5	0.83	J 0.15	U 0.1
	3/27/2014	U 0.24	J 0.37	U 2	U 0.25	U 0.5	0.89	J 0.16	U 0.1
	8/21/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	1.2	J 0.13	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	0.98	J 0.31	U 0.082
	6/15/2015	U 0.21	J 0.36	U 0.56	U 0.22	U 0.64	0.67	J 0.23	U 0.081
	12/1/2015	U 0.21	J 0.37	U 0.56	U 0.22	U 0.64	0.75	J 0.19	U 0.081
	6/15/2016	U 0.21	J 0.48	U 0.56	U 0.22	U 0.64	0.72	U 0.14	U 0.081
	8/25/2016	U 0.042	J 0.44	U 0.097	U 0.055	U 0.08	0.84	J 0.12	U 0.084
	11/28/2016	U 0.042	J 0.36	U 0.097	U 0.055	U 0.08	0.65	J 0.14	U 0.098
	4/17/2017	U 0.042	J 0.29	U 0.097	U 0.055	U 0.08	0.62	U 0.044	U 0.098
	6/16/2017	U 0.042	J 0.48	U 0.097	U 0.055	U 0.08	0.76	J 0.094	U 0.098
	9/20/2017	U 0.13	J 0.48	U 1.2	U 0.14	U 1.1	0.73	U 0.18	U 0.096
	11/29/2017	U 0.13	0.55	U 1.2	U 0.14	U 1.1	0.96	U 0.18	U 0.096
	3/27/2018	U 0.13	J 0.36	U 1.2	U 0.14	U 1.1	0.74	U 0.18	U 0.096
	8/20/2018	U 0.1	J 0.4	U 0.98	U 0.17	U 0.16	1.1	U 0.15	U 0.092
	10/16/2018	U 0.1	J 0.42	U 0.98	U 0.17	J 0.52	0.8	U 0.15	U 0.092
	11/27/2018	U 0.1	J 0.42	U 0.98	U 0.17	U 0.16	0.73	U 0.15	U 0.092

Notes: µg/L - micrograms per liter
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NA - Not Applicable U - Less than

- Value greater than the HHS

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J Analyte detected below the reporting limit, therefore result is an estimate. Other QA/QC data flags are defined in analytical laboratory report.

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Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-2	3/27/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	J 0.42	U 0.15	U 0.092
	6/12/2019	U 0.1	J 0.27	U 0.98	U 0.17	U 0.16	0.65	U 0.15	U 0.092
	9/24/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	J 0.48	U 0.15	U 0.092
	12/3/2019	U 0.1	J 0.26	U 0.98	U 0.17	U 0.48	0.67	U 0.15	U 0.092
	3/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	0.6	U 0.11	U 0.098
	6/23/2020	U 0.12	J 0.39	U 2	U 0.14	U 0.16	0.63	U 0.11	U 0.098
	9/21/2020	U 0.0941	J 0.275	U 0.43	U 0.1	U 0.96	0.526	U 0.19	U 0.234
	12/1/2020	U 0.0941	J 0.365	U 0.43	U 0.1	UL0 0.96	0.615	U 0.19	U 0.234
	3/19/2021	U 0.0941	J 0.308	U 0.43	U 0.1	U 0.96	J 0.439	U 0.19	U 0.234
	6/22/2021	U 0.0941	J 0.214	U 0.43	U 0.1	U 0.96	J 0.486	U 0.19	U 0.234
	12/15/2021	U 0.0941	J 0.288	U 0.43	U 0.1	U 0.96	J 0.399	U 0.19	U 0.234
	6/21/2022	U 0.0941	J- 0.223	U 0.43	UJ- 0.1	U 0.96	J 0.407	UJ- 0.19	UJ 0.234
	12/7/2022	U 0.0941	J 0.203	U 0.43	U 0.1	U 0.96	J 0.396	U 0.19	U 0.234
	6/13/2023	U 0.0941	J 0.223	U 0.43	U,L0 0.1	U,L0 0.96	J 0.42	U 0.19	U 0.234
LF-3	1/18/1994	U 2	U 1	U 5	U 1	U 1	5	1	U 1
	6/27/1994	U 1	U 1	U 5	U 1	U 1	5	1	U 1
	2/1/1995	U 1	U 1	U 5	U 1	U 1	5	1	U 1
	6/28/1995	U 1	U 1	U 1	U 1	U 1	3	1	U 1
	11/28/1995	U 1	U 1	U 5	U 1	U 1	6	2	U 1
	6/25/1996	U 1	1	U 5	U 1	U 1	6	2	U 1
	12/11/1996	U 1	U* 1	U 5	U 1	U 1	5	2	U 1
	6/19/1997	U 1	1	U 1	U 1	U 2	6	2	U 2
	12/15/1997	U 1	1	U 5	U 1	U 1	2	6	U 1

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-3	3/24/1998	U 1	1	U 5	U 1	U 1	7	2	U 1
	6/29/1998	U 1	U 1	<(2) 5	(2) U 1	< (2) 1	6	3	U 1
	9/29/1998	U 1	1	11	U 1	U 1	7	3	U 1
	12/14/1998	U 1	1	UB 5	U 1	U 1	6	6	U 1
	3/15/1999	U 1	U 1	U 5	U 1		6	2	U 1
	6/22/1999	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	9/13/1999	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	12/13/1999	U 1	U 1	U 5	U 1	U 1	5	2	U 1
	3/22/2000	U 1	U 1	U 5	U 1	U 1	5	2	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	9/22/2000	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	11/28/2000	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	3/22/2001	U 1	1	U 5	U 1	U 1	5	1	U 1
	6/11/2001	U 1	1	U 5	U 1	U 1	5	2	U 1
	9/19/2001	U 1	1	U(1,3) 5	U 1	1	5	3	U 1
	12/17/2001	U 1	1	U 5	U 1	U 1	6	2	U 1
	3/25/2002	U 1	1	U 5	U 1	2	6	1	U 1
	6/13/2002	U 1	1	U 5	U 1	U 1	5	1	U 1
	9/24/2002	U 1	1	UJR 5	U 1	U 1	5	1	U 1
	12/12/2002	U 1	1	U 5	U 1	U 1	6	1	U 1
	3/24/2003	U 1	1	U 5	U 1	U 1	5	1	U 1
	6/9/2003	U 1	1	U 5	U 1	U 1	5	1	U 1
	9/25/2003	U 1	1	U 5	U 1	U 1	5	1	U 1

Notes: µg/L - micrograms per liter
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		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-3	12/4/2003	U 1	U 1	U 5	U 1	U 1	4	1	UJF% 1
	3/25/2004	U 1	1	U 5	U 1	U 1	4	U 1	U 1
	6/9/2004	U 1	1	U 5	U 1	U 1	4	U 1	U 1
	9/9/2004	U 1	U 1	U 5	U 1	U 1	4	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	4	U 1	U 1
	3/29/2005	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	9/20/2005	U 1	U 1	BU 5	U 1	U 1	3	U 1	U 1
	12/13/2005	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	3/16/2006	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	6/12/2006	U 0.5	0.8	U 5	U 1	U 1	2.7	0.5	U 0.5
	9/20/2006	U 0.5	0.6	U 5	U 1	U 1	2.3	U 0.5	U 0.5
	12/5/2006	U 0.5	0.7	U 5	U 1	U 1	2.7	U 0.5	U 0.5
	3/13/2007	U 0.5	0.8	U 5	U 1	U 1	2.7	0.6	U 0.5
	6/21/2007	U 0.5	0.9	U 5	U 1	U 1	2.6	0.6	UJF% 0.5
	12/11/2007	U 0.5	0.8	U 5	U 1	U 1	2.5	0.6	U 0.5
	6/25/2008	U 0.5	1	U 5	U 1	U 1	2.9	0.7	U 0.5
	12/8/2008	U 1	1.6	U 4	U 1	U 1	3.9	1.1	U 0.4
	6/2/2009	U 0.5	1.5	U 2	U 0.5	U 2	4.5	1	U 0.2
	12/10/2009	U 0.5	1.8	UB 2	U 0.5	U 2	4.4	1	U 0.2
	6/16/2010	U 0.5	2.1	30.4	U 0.5	U 0.5	4.4	1.1	U 0.5
	12/6/2010	U 1	1.2	U 1	U 1	U 1	3.9	U 1	U 1
	6/13/2011	U 0.038	1.9	U 2	J 0.11	J 0.11	3.9	0.96	U 0.049

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-3	12/6/2011	U 0.047	1.8	U 5	U 0.072	U 0.13	3.8	0.9	U 0.16
	6/4/2012	J 0.053	1.9	U 2	J 0.086	U 0.13	4.1	0.94	U 0.16
	12/6/2012	U 0.047	1.8	U 2	J 0.14	U 0.13	3.8	0.88	U 0.16
	6/12/2013	U 0.24	2.3	U 2	U 0.25	U 0.5	4.2	1	U 0.2
	12/18/2013	U 0.24	2.2	U 2	U 0.25	U 0.5	3.4	0.78	U 0.1
	3/26/2014	U 0.24	2	U 2	U 0.25	U 0.5	2.4	0.61	U 0.1
	8/20/2014	U 0.073	2.4	U 2	U 0.077	U 0.34	5.5	1.1	U 0.082
	12/10/2014	U 0.073	3.4	U 2	U 0.087	U 0.34	4.2	0.94	U 0.082
	6/15/2015	U 0.21	2.1	U 0.56	U 0.22	U 0.64	3.9	0.82	U 0.081
	12/1/2015	U 0.21	2.4	U 0.56	U 0.22	U 0.64	3.8	0.94	U 0.081
	6/15/2016	U 0.21	2.7	U 0.56	U 0.22	U 0.64	3.6	0.76	U 0.081
	8/25/2016	U 0.042	2.9	U 0.097	U 0.055	U 0.08	4.1	0.94	U 0.084
	11/28/2016	U 0.042	2.5	U 0.097	U 0.055	U 0.08	3.9	0.71	U 0.098
	4/17/2017	U 0.042	2.7	U 0.097	U 0.055	U 0.08	3.3	0.88	U 0.098
	6/15/2017	U 0.042	2.4	U 0.097	U 0.055	U 0.08	2.9	0.88	U 0.098
	9/20/2017	U 0.13	2.3	U 1.2	U 0.14	U 1.1	3.4	0.82	U 0.096
	11/29/2017	U 0.13	2.3	U 1.2	U 0.14	U 1.1	3.4	0.7	U 0.096
	3/27/2018	U 0.13	2	U 1.2	U 0.14	U 1.1	3.4	0.88	U 0.096
	8/20/2018	U 0.1	2.3	U 0.98	U 0.17	U 0.16	3.5	0.93	U 0.092
	10/16/2018	U 0.1	2.1	U 0.98	U 0.17	J 0.71	2.9	0.82	U 0.092
	11/27/2018	U 0.1	1.7	U 0.98	U 0.17	U 0.16	3	0.7	U 0.092
	3/27/2019	39.9	1.3	U 0.98	U 0.17	U 0.16	1.8	0.45	U 0.092
	6/12/2019	U 0.1	1.5	U 0.98	U 0.17	U 0.16	2.4	0.58	U 0.092

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
LF-3	9/24/2019	U 0.1	1.4	U 0.98	U 0.17	U 0.48	1.9	0.49	U 0.092
	12/3/2019	U 0.1	1.3	U 0.98	U 0.17	U 0.48	2.4	0.62	U 0.092
	3/23/2020	U 0.12	1.4	U 2	U 0.14	U 0.16	1.8	0.46	U 0.098
	6/23/2020	U 0.12	1.3	U 2	U 0.14	U 0.16	1.8	0.49	U 0.098
	9/21/2020	U 0.0941	0.995	U 0.43	U 0.1	U 0.96	1.7	J 0.488	U 0.234
	12/1/2020	U 0.0941	1.08	U 0.43	J 0.104	UL0 0.96	1.74	J 0.495	U 0.234
	3/19/2021	U 0.0941	1.07	U 0.43	U 0.1	U 0.96	1.56	J 0.481	U 0.234
	6/22/2021	U 0.0941	0.73	U 0.43	U 0.1	U 0.96	1.32	J 0.383	U 0.234
	12/14/2021	U 0.0941	0.785	U 0.43	U 0.1	U 0.96	1.44	J 0.321	U 0.234
	6/22/2022	U 0.0941	J- 0.915	U 0.43	UJ- 0.1	U 0.96	J- 1.01	UJ- 0.278	UJ- 0.234
	12/7/2022	U 0.0941	0.635	U 0.43	U 0.1	U 0.96	0.884	J 0.3	U 0.234
	6/13/2023	U 0.0941	J 0.494	U 0.43	U,L0 0.1	U,L0 0.96	0.74	U 0.19	U 0.234
MW-4	1/18/1994	U 2	U 1	U 5	2	U 1	4	2	U 1
	6/27/1994	U 1	U 1	U* 5	2	U 1	4	2	U 1
	1/31/1995	U 1	U 1	U* 5	1	U 1	3	2	U 1
	6/27/1995	U 1	U 1	JX 1	1	U 1	2	1	U 1
	11/28/1995	U 1	U 1	U* 5	1	U 1	3	1	U 1
	6/25/1996	U 1	U 1	U 5	1	U 1	3	2	U 1
	12/11/1996	U 1	U* 1	U 5	U 1	U 1	2	1	U 1
	6/19/1997	U 1	U 1	U 1	U 1	U 2	2	U 1	U 2
	12/15/1997	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	6/29/1998	U 1	<(2) 1	<(5) 5	U 1	< (2) 1	2	1	U 1
	12/14/1998	U 1	U 1	UB 5	U 1	U 1	2	2	U 1

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
NA - Not Applicable U - Less than

- Value greater than the HHS

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TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-4	6/22/1999	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	12/13/1999	U 1	U 1	U 5	U 1	U 1	2	1	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	11/28/2000	U 1	U 1	U 5	U 1	U 1	1	1	U 1
	6/11/2001	U 1	U 1	U 5	U 1	U 1	2	1	U 1
	12/17/2001	U 1	1	U 5	U 1	U 1	1	1	U 1
	6/13/2002	U 1	U 1	U 5	U 1	U 1	1	1	U 1
	12/11/2002	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	6/9/2003	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	12/4/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/9/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.5	U 0.5	U 0.5
	12/5/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/19/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	UJF% 0.5
	12/11/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.5	U 0.5	U 0.5
	6/23/2008	U 0.5	U 0.5	U 5	U 1	U 1	0.5	U 0.5	U 0.5
	12/8/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	J 0.98	J 0.54	U 0.2
	12/10/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	J 0.83	J 0.56	U 0.2
	6/15/2010	U 0.5	0.51	27.6	U 0.5	U 0.5	0.85	0.66	U 0.5

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		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-4	12/7/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/13/2011	U 0.038	J 0.49	U 2	J 0.24	J 0.097	0.78	0.66	U 0.049
	12/7/2011	U 0.047	J 0.4	U 5	J 0.25	U 0.13	0.87	0.64	U 0.16
	6/4/2012	J 0.51	J 0.48	U 2	J 0.25	U 0.13	1.2	0.86	U 0.16
	12/4/2012	U 0.047	J 0.45	U 2	J 0.29	U 0.13	1.1	0.79	U 0.16
	6/10/2013	U 0.24	J 0.5	U 2	J 0.42	U 0.5	1.1	0.97	U 0.2
	12/16/2013	U 0.24	J 0.47	U 2	J 0.45	U 0.5	1	0.77	U 0.1
	3/26/2014	U 0.24	0.53	U 2	J 0.45	U 0.5	1	0.86	U 0.1
	8/20/2014	U 0.073	J 0.4	U 2	U 0.077	U 0.34	1.6	0.89	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	1.2	1	U 0.082
	6/16/2015	U 0.21	U 0.25	U 0.56	J 0.45	U 0.64	1.2	0.78	U 0.081
	11/30/2015	U 0.21	J 0.48	U 0.56	U 0.22	U 0.64	1.1	0.73	U 0.081
	6/14/2016	U 0.21	J 0.43	U 0.56	J 0.28	U 0.64	1	0.74	U 0.081
	11/29/2016	U 0.042	J 0.45	U 0.097	U 0.055	U 0.08	0.88	0.65	U 0.098
	6/14/2017	U 0.042	0.55	U 0.097	U 0.055	U 0.08	0.79	0.64	U 0.098
	11/30/2017	U 0.13	0.59	U 1.2	U 0.14	U 1.1	1	0.57	U 0.096
	8/20/2018	U 0.1	0.58	U 0.98	J 0.37	J 0.41	1	0.59	U 0.092
	11/29/2018	U 0.1	0.54	U 0.98	J 0.31	U 0.16	0.81	0.49	U 0.092
	6/12/2019	U 0.1	0.59	U 0.98	U 0.17	U 0.16	0.79	0.43	U 0.092
	12/2/2019	U 0.1	0.61	U 0.98	J 0.26	U 0.48	0.88	J 0.38	U 0.092
	6/22/2020	U 0.12	0.61	U 2	J 0.36	U 0.16	0.82	0.5	U 0.098
	11/30/2020	U 0.0941	0.6	U 0.43	J 0.369	UL0 0.96	0.842	J 0.466	U 0.234
	6/21/2021	U 0.0941	J 0.492	U 0.43	J 0.317	U 0.96	0.674	J 0.439	U 0.234

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TABLE 6
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Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-4	12/13/2021	U 0.0941	0.508	U 0.43	J 0.346	U 0.96	0.825	J 0.398	U 0.234
	6/21/2022	U 0.0941	0.57	U 0.43	0.595	U 0.96	0.616	UJ- 0.35	UJ 0.234
	6/12/2023	U 0.0941	J 0.427	U 0.43	J,L0 0.42	U,L0 0.96	J 0.403	U 0.19	U 0.234
MW-5	1/17/1994	U 2	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/27/1994	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	1/31/1995	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/27/1995	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	11/27/1995	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/25/1996	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/11/1996	U 1	U 1	U 5	U 1	U* 1	U 1	U 1	U 1
	6/19/1997	U 1	U 1	U 1	U 1	U 2	U 1	U 1	U 2
	12/15/1997	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/29/1998	U 1	U 1	U 5	U 1	1	U 1	U 1	U 1
	12/14/1998	U 1	U 1	UB 5	U 1	U 1	U 1	U 1	U 1
	6/22/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/13/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	11/28/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/11/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/17/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/13/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/11/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/9/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1

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		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-5	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/9/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/5/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/19/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	UJF% 0.5
	12/11/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/23/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/8/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	12/3/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	6/14/2010	U 0.5	U 0.5	38.3	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5
	12/6/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/13/2011	J 0.07	U 0.08	U 2	U 0.072	J 0.057	U 0.041	U 0.05	U 0.049
	12/6/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/4/2012	J 0.073	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	12/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/10/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.12	U 0.2
	12/16/2013	2.1	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	8/21/2014	6.2	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/9/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082

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Sampling Location	Sampling Date	LABORATORY PARAMETERS							
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-5	6/16/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/30/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/14/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/29/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/15/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	11/30/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	8/20/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	11/28/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	6/10/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/2/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	6/22/2020	1.4	U 0.2	U 2	U 0.14	J 0.24	U 0.093	U 0.11	U 0.098
	11/30/2020	J 0.173	U 0.126	U 0.43	U 0.1	UL0 0.96	U 0.3	U 0.19	U 0.234
	6/21/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/13/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/23/2022	UJ- 0.0941	UJ- 0.126	UJ- 0.43	UJ- 0.1	UJ- 0.96	UJ- 0.3	UJ- 0.19	UJ- 0.234
	6/12/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-6	8/3/1993	U 1	2.3	U 1	1.7	U 1	U 1	5.1	3.7
	1/18/1994	U 2	2	U 5	U 1	U 1	1	5	6
	6/28/1994	U 1	3	U 5	3	U 1	1	6	8
	2/1/1995	U* 1	3	U 5	3	U 1	1	5	12
	6/27/1995	U 1	2	U 1	U 1	U 1	U 1	3	9
	11/28/1995	U 1	1	U 5	2	U 1	1	3	6
	6/25/1996	U 1	U* 1	U 5	2	1	1	2	11

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-6	12/11/1996	U 1	U 1	U 5	2	U 1	U* 1	2	11
	6/19/1997	U 1	U 1	U 1	U 1	U 2	1	U 1	U 2
	12/16/1997	U 1	U 1	U 5	2	U 1	2	U 1	14
	3/23/1998	U 1	U 1	U 5	2	U 1	U 1	2	13
	6/29/1998	U 1	<(2) 1	U 5	1	U 1	<(2) 1	1	15
	9/29/1998	U 1	U 1	U 5	1	U 1	U 1	1	9
	3/15/1999	U 1	U 1	U 5	U 1		U 1	1	9
	6/22/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	9
	9/13/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	9
	12/13/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	10
	3/22/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	4
	6/7/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	3
	9/22/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	3
	11/28/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	3
	3/21/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/11/2001	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	9/19/2001	U 1	U 1	U(1,3) 5	U 1	U 1	U 1	U 1	U 1
	12/18/2001	U 1	U 1	U 5	1	U 1	U 1	1	U 1
	3/25/2002	U 1	1	U 5	U 1	U 1	U 1	2	U 1
	6/13/2002	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	9/24/2002	U 1	1	UJR 5	U 1	U 1	U 1	1	U 1
	12/12/2002	U 1	2	U 5	1	U 1	U 1	2	U 1
	3/24/2003	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1

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NA - Not Applicable U - Less than

- Value greater than the HHS

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-6	6/9/2003	U 1	1	U 5	U 1	U 1	U 1	2	U 1
	9/25/2003	U 1	2	U 5	U 1	U 1	U 1	2	U 1
	12/4/2003	U 1	1	U 5	U 1	U 1	U 1	2	UJF% 1
	3/24/2004	U 1	2	U 5	1	U 1	U 1	2	U 1
	6/8/2004	U 1	2	U 5	U 1	U 1	U 1	2	U 1
	9/9/2004	U 1	1	U 5	U 1	U 1	U 1	2	U 1
	12/7/2004	U 1	2	U 5	U 1	U 1	U 1	2	U 1
	3/29/2005	U 1	2	U 5	1	U 1	U 1	2	U 1
	6/16/2005	U 1	1	U 5	1	U 1	2	2	U 1
	9/20/2005	U 1	2	BU 5	U 1	U 1	U 1	3	U 1
	12/14/2005	U 1	1	U 5	1	U 1	2	2	U 1
	3/16/2006	U 1	U 1	U 5	U 1	U 1	2	1	U 1
	6/13/2006	U 0.5	0.8	U 5	1.1	U 1	2.5	1.1	U 0.5
	9/21/2006	U 0.5	1.8	U 5	U 1	U 1	0.9	2.2	U 0.5
	12/6/2006	U 0.5	1.5	U 5	1	U 1	1.8	1.6	U 0.5
	3/15/2007	U 0.5	1	U 5	1	U 1	1.4	1	U 0.5
	6/20/2007	U 0.5	0.8	U 5	U 1	U 1	1.1	1	UJF% 0.5
	12/10/2007	U 0.5	1.8	U 5	1.1	U 1	1.3	1.9	U 0.5
	6/24/2008	U 0.5	0.8	U 5	U 1	U 1	0.9	0.8	U 0.5
	12/9/2008	U 1	1.8	U 4	1.4	U 1	1.7	2.2	U 0.4
	6/2/2009	U 0.5	1.4	U 2	1.1	U 2	J 0.88	1.3	U 0.2
	12/9/2009	U 0.5	1.8	UB 2	1.3	U 2	1.7	1.8	2.1
	6/15/2010	U 0.5	1.5	19.1	1.1	U 0.5	1.3	1.4	2.4

Notes: µg/L - micrograms per liter
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TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-6	12/7/2010	U 1	2.2	U 1	1.1	U 1	1	1.5	5.3
	6/13/2011	J 0.31	1.3	U 2	0.94	U 0.021	0.78	0.96	5.2
	12/5/2011	U 0.047	1	U 5	0.89	U 0.13	1.5	0.88	1.2
	6/5/2012	J 0.21	2.5	U 2	1.1	U 0.13	0.93	1.1	1.8
	12/4/2012	J 0.12	2.1	U 2	0.95	U 0.13	0.97	0.79	1.5
	6/10/2013	U 0.24	2.3	U 2	1.2	U 0.5	0.8	0.82	0.65
	12/16/2013	U 0.24	2.9	U 2	1.3	U 0.5	0.64	0.66	1.2
	8/20/2014	J 0.15	2	U 2	1	U 0.34	0.69	0.63	0.74
	12/9/2014	U 0.073	1.9	U 2	1.3	U 0.34	1	0.77	0.82
	6/17/2015	U 0.21	1.1	U 0.56	0.91	U 0.64	0.79	0.51	0.58
	12/2/2015	U 0.21	2.1	U 0.56	0.82	U 0.64	0.57	0.5	0.9
	6/15/2016	U 0.21	2.1	U 0.56	1.1	U 0.64	0.53	J 0.32	0.23
	11/29/2016	J 0.05	2.3	U 0.097	1.1	U 0.08	0.59	0.44	0.4
	6/14/2017	U 0.042	1.8	U 0.097	1.2	U 0.08	0.6	0.44	0.21
	12/1/2017	U 0.13	2.1	U 1.2	0.98	U 1.1	0.82	0.42	0.49
	8/20/2018	J 0.14	1.6	U 0.98	0.94	J 0.2	0.7	0.45	0.74
	11/29/2018	J 0.21	1.6	U 0.98	0.83	U 0.16	J 0.48	J 0.37	2.1
	6/13/2019	J 0.18	1.8	U 0.98	0.81	U 0.16	J 0.41	J 0.27	1.5
	12/3/2019	J 0.19	1.6	U 0.98	0.87	U 0.48	J 0.31	J 0.26	1.8
	6/23/2020	J 0.19	1.8	U 2	1.3	U 0.16	J 0.43	0.41	1.6
	12/1/2020	J 0.264	1.9	U 0.43	1.38	UL0 0.96	J 0.331	J 0.332	2.38
	6/21/2021	J 0.175	1.45	U 0.43	1.06	U 0.96	U 0.3	J 0.258	1.29
	12/13/2021	J 0.14	1.7	U 0.43	1.15	U 0.96	U 0.3	J 0.291	1.24

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Bozeman, Montana

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-6	6/21/2022	J 0.149	1.73	U 0.43	1.29	U 0.96	U 0.3	UJ- 0.291	J 0.78
	12/8/2022	U 0.0941	1.07	U 0.43	0.95	U 0.96	U 0.3	J 0.411	U 0.234
	6/12/2023	U 0.0941	0.937	U 0.43	1.07	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-6B	6/5/2012	U 0.047	U 0.08	U 2	U 0.5	U 0.13	U 0.16	U 0.11	U 0.16
	12/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/10/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.12	U 0.2
	12/16/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	6/17/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/14/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/13/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
MW-7A	1/18/1994	U 2	U 1	12	6	U 1	27	4	U 1
	6/28/1994	U* 1	U 1	18	7	U 1	32	5	U 1
	2/1/1995	U 1	U 1	14	6	U 1	24	4	1
	6/27/1995	2	U 1	JX 17	6	U 1	13	5	U 1
	11/27/1995	U* 1	U 1	10	4	U 1	17	4	1
	6/25/1996	2	U* 1	15	5	U 1	16	6	4
	12/11/1996	U* 1	U 1	10	3	U 1	10	4	2
	6/20/1997	2	U 1	15	4	U 2	13	5	7
	12/16/1997	2	1	JX 18	5	U 1	5	13	5
	3/23/1998	2	U 1	14	4	U 1	11	4	4
	6/30/1998	2	1	15	4	U 1	11	4	6
	9/29/1998	2	1	19	4	U 1	11	4	3

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		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-7A	12/14/1998	2	1	B 21	5	U 1	11	11	4
	3/15/1999	2	U 1	14	4		10	3	3
	6/22/1999	2	U 1	U 5	4	U 5	6	3	4
	9/13/1999	2	U 1	U 5	3	U 1	8	3	3
	12/14/1999	1	U 1	U 5	3	U 1	7	2	2
	3/22/2000	1	U 1	U 5	3	U 1	9	3	2
	6/7/2000	U 1	U 1	U 5	3	U 1	7	U 1	3
	9/22/2000	U 1	U 1	U 5	3	U 1	7	2	3
	11/28/2000	U 1	U 1	U 5	3	U 1	7	2	3
	3/21/2001	U 1	U 1	U 5	4	U 1	11	3	2
	6/11/2001	1	U 1	U 5	4	U 1	12	3	3
	9/19/2001	U 1	U 1	U(1,3) 5	3	U 1	8	2	U 1
	12/17/2001	U 1	U 1	U 5	5	U 1	11	3	2
	3/25/2002	U 1	U 1	U 5	3	U 1	9	2	1
	6/13/2002	U 1	U 1	U 5	5	U 1	10	3	2
	9/24/2002	U 1	U 1	UJR 5	3	U 1	8	2	1
	12/12/2002	U 1	U 1	U 5	5	U 1	12	3	1
	3/24/2003	U 1	U 1	U 5	3	U 1	9	2	U 1
	6/10/2003	U 1	U 1	U 5	3	U 1	9	2	U 1
	9/25/2003	U 1	U 1	U 5	3	U 1	8	2	U 1
	12/4/2003	U 1	U 1	U 5	4	U 1	7	2	UJF% 1
	3/24/2004	U 1	U 1	U 5	2	U 1	4	U 1	U 1
	6/8/2004	U 1	U 1	U 5	2	U 1	6	1	U 1

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Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-7A	9/9/2004	U 1	U 1	U 5	1	U 1	5	U 1	U 1
	12/7/2004	U 1	U 1	U 5	2	U 1	6	1	U 1
	3/29/2005	U 1	U 1	U 5	1	U 1	3	U 1	U 1
	6/17/2005	U 1	U 1	U 5	2	U 1	6	1	U 1
	9/20/2005	U 1	U 1	BU 5	1	U 1	3	U 1	U 1
	12/14/2005	U 1	U 1	U 5	1	U 1	4	U 1	U 1
	3/16/2006	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	6/13/2006	U 0.5	U 0.5	U 5	1.6	U 1	4.2	0.7	U 0.5
	9/21/2006	U 0.5	U 0.5	U 5	U 1	U 1	2.7	U 0.5	U 0.5
	12/7/2006	U 0.5	U 0.5	U 5	U 1	U 1	1.7	U 0.5	U 0.5
	3/15/2007	U 0.5	U 0.5	U 5	1	U 1	2.2	U 0.5	U 0.5
	6/20/2007	0.5	U 0.5	U 5	U 1	U 1	2.3	0.6	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	1.3	U 1	2.4	0.5	U 0.5
	6/24/2008	U 0.5	U 0.5	U 5	1.5	U 1	3.5	0.7	U 0.5
	12/10/2008	U 1	U 1	U 4	2.9	U 1	5.5	1.3	0.53
	6/2/2009	U 0.5	U 0.5	U 2	1.6	U 2	4	J 0.81	U 0.2
	12/9/2009	U 0.5	U 0.5	UB 2	3.1	U 2	5.6	1.4	0.57
	6/16/2010	U 0.5	U 0.5	30.2	1.7	U 0.5	3.4	0.83	U 0.5
	12/7/2010	U 1	U 1	U 1	4.3	U 1	8.6	1.9	U 1
	6/14/2011	0.52	J 0.41	U 2	4.6	U 0.021	7.9	2	0.7
	12/6/2011	0.72	0.67	U 5	5.3	U 0.13	8.3	2.3	0.88
	6/5/2012	0.91	0.94	U 2	6.5	U 0.13	12	3	1.1
	12/5/2012	0.56	0.7	U 2	4.6	U 0.13	7.7	2	0.71

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-7A	6/12/2013	J 0.28	0.54	U 2	3.6	U 0.5	5	1.4	J 0.25
	12/17/2013	U 0.24	J 0.47	U 2	3.3	U 0.5	3.9	1.1	0.22
	8/20/2014	J 0.21	0.71	U 2	2.8	U 0.34	6.9	1.8	U 0.082
	12/9/2014	J 0.37	U 0.11	U 2	4.7	U 0.34	7	1.7	0.56
	6/16/2015	J 0.23	U 0.25	U 0.56	3.8	U 0.64	5.3	1.6	J 0.27
	12/2/2015	U 0.21	0.54	U 0.56	2.5	U 0.64	3.9	1.4	0.22
	6/15/2016	J 0.26	0.57	U 0.56	2.9	U 0.64	3.3	1.5	0.25
	11/30/2016	J 0.098	J 0.3	U 0.097	1.6	U 0.08	2.1	0.98	J 0.18
	6/15/2017	J 0.19	0.71	U 0.097	3.1	U 0.08	2.5	2.1	0.43
	12/1/2017	U 0.13	0.5	U 1.2	1.8	U 1.1	1.9	1.5	J 0.17
	8/23/2018	J 0.36	0.94	U 0.98	2.9	U 0.16	2.3	3	0.5
	11/28/2018	J 0.18	0.66	U 0.98	2	U 0.16	1.8	2	0.29
	6/10/2019	U 0.1	J 0.3	U 0.98	1.5	U 0.16	1.3	1.2	J 0.1
	12/2/2019	J 0.19	0.57	U 0.98	2	U 0.48	1.6	1.7	0.36
	6/22/2020	J 0.18	0.65	U 2	2.5	U 0.16	1.4	2	0.24
	11/30/2020	J 0.204	0.641	U 0.43	2.92	UL0 0.96	1.44	1.96	J 0.45
	6/21/2021	J 0.116	J 0.298	U 0.43	1.42	U 0.96	0.817	1.17	U 0.234
	12/13/2021	J 0.164	J 0.487	U 0.43	1.94	U 0.96	1.24	1.22	J 0.469
	6/21/2022	J 0.263	0.712	U 0.43	2.32	U 0.96	1.29	1.63	J 0.391
	6/12/2023	U 0.0941	U 0.126	U 0.43	J 0.453	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-7B	8/3/1993	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	1/18/1994	U 2	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/28/1994	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-7B	2/1/1995	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/27/1995	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	12/6/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/5/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/16/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/15/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/10/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
MW-8A	1/19/1994	U 2	U 1	U 5	U 1	U 1	5	1	U 1
	6/28/1994	U 1	1	U 5	U 1	U 1	4	3	U 1
	2/1/1995	U 1	1	U 5	1	U 1	4	3	U 1
	6/27/1995	U 1	1	U 1	1	U 1	2	3	U 1
	11/28/1995	U 1	1	U* 5	2	U 1	3	3	U 1
	6/25/1996	U 1	2	U 5	2	U 1	3	3	U 1
	12/12/1996	U 1	1	U 5	1	U 1	2	3	U 1
	6/19/1997	U 1	1	U 1	1	U 2	2	2	U 2
	12/16/1997	U 1	3	U 5	1	U 1	3	3	U 1
	6/30/1998	U 1	4	<(2) 5	2	U 1	4	5	U 1
	12/15/1998	U 1	5	UB 5	1	U 1	4	4	U 1
	6/22/1999	U 1	3	U 5	U 1	U 1	2	3	U 1
	12/14/1999	U 1	3	U 5	U 1	U 1	2	3	U 1
	6/8/2000	U 1	2	U 5	U 1	U 1	2	3	U 1
	11/29/2000	U 1	2	U 5	U 1	U 1	2	2	U 1
	6/12/2001	U 1	1	U 5	U 1	U 1	2	2	U 1

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Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-8A	12/18/2001	U 1	U 1	U 5	U 1	U 1	1	1	U 1
	6/14/2002	U 1	U 1	U 5	U 1	U 1	1	1	U 1
	12/13/2002	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/7/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/13/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.7	U 0.5	U 0.5
	12/6/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.7	U 0.5	U 0.5
	6/20/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.8	U 0.5	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5
	6/24/2008	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	J 0.86	U 0.5	U 0.2
	12/9/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	J 0.85	U 0.5	U 0.2
	6/15/2010	U 0.5	U 0.5	20	U 0.5	U 0.5	0.81	U 0.5	U 0.5
	12/7/2010	U 1	U 1	U 1	U 1	U 1	1.3	U 1	U 1
	6/14/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	0.64	J 0.28	U 0.049
	12/5/2011	U 0.047	J 0.42	U 5	U 0.072	U 0.13	0.6	J 0.3	U 0.16
	6/5/2012	U 0.047	J 0.46	U 2	U 0.072	U 0.13	0.8	J 0.35	U 0.16
	12/4/2012	U 0.047	0.62	U 2	U 0.072	U 0.13	0.65	J 0.28	U 0.16

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TABLE 6
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Sampling Location	Sampling Date	LABORATORY PARAMETERS							
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-8A	6/12/2013	U 0.24	0.77	U 2	U 0.25	U 0.5	0.68	J 0.33	U 0.2
	12/16/2013	U 0.24	0.96	U 2	U 0.25	U 0.5	0.63	J 0.34	U 0.1
	3/27/2014	U 0.24	0.95	U 2	U 0.25	U 0.5	0.65	J 0.35	U 0.1
	8/20/2014	U 0.073	1.2	U 2	U 0.077	U 0.34	1.3	J 0.36	U 0.082
	12/8/2014	U 0.073	1.4	U 2	U 0.087	U 0.34	0.99	0.58	U 0.082
	6/17/2015	U 0.21	0.65	U 0.56	U 0.22	U 0.64	0.84	J 0.38	U 0.081
	12/2/2015	U 0.21	1.1	U 0.56	U 0.22	U 0.64	0.84	J 0.37	U 0.081
	6/14/2016	U 0.21	1	U 0.56	U 0.22	U 0.64	0.81	J 0.39	U 0.081
	11/29/2016	U 0.042	1.2	U 0.097	U 0.055	U 0.08	0.84	0.41	U 0.098
	6/14/2017	U 0.042	1.3	U 0.097	U 0.055	U 0.08	0.7	J 0.32	U 0.098
	12/1/2017	U 0.13	1.2	U 1.2	U 0.14	U 1.1	0.95	J 0.35	U 0.096
	8/23/2018	U 0.1	0.63	U 0.98	U 0.17	U 0.16	0.7	U 0.15	U 0.092
	11/28/2018	U 0.1	0.59	U 0.98	U 0.17	U 0.16	0.69	J 0.21	U 0.092
	6/12/2019	U 0.1	0.52	U 0.98	U 0.17	U 0.16	0.52	U 0.15	U 0.092
	12/2/2019	U 0.1	0.51	U 0.98	U 0.17	U 0.48	0.56	U 0.15	U 0.092
	6/22/2020	U 0.12	0.63	U 2	U 0.14	U 0.16	J 0.44	J 0.15	U 0.098
	11/30/2020	U 0.0941	0.627	U 0.43	U 0.1	UL0 0.96	0.532	J 0.218	U 0.234
	6/21/2021	U 0.0941	J 0.357	U 0.43	U 0.1	U 0.96	J 0.37	U 0.19	U 0.234
	12/14/2021	U 0.0941	J 0.492	U 0.43	U 0.1	U 0.96	J 0.495	U 0.19	U 0.234
	6/21/2022	U 0.0941	0.537	U 0.43	J 0.122	U 0.96	J 0.34	J 0.227	UJ 0.234
	12/7/2022	U 0.0941	J 0.355	U 0.43	U 0.1	U 0.96	J 0.366	U 0.19	U 0.234
	6/12/2023	U 0.0941	J 0.306	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-8B	2/1/1995	U 1	2	U 5	1	U 1	4	3	U 1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-8B	12/5/2011	U 0.047	J 0.29	U 5	U 0.072	U 0.13	0.81	J 0.43	U 0.16
	6/5/2012	J 0.056	J 0.23	U 2	U 0.072	U 0.13	0.83	J 0.38	U 0.16
	6/17/2015	U 0.21	J 0.29	U 0.56	U 0.22	U 0.64	0.78	J 0.38	U 0.081
	6/14/2017	U 0.042	1.2	U 0.097	U 0.055	U 0.08	0.72	J 0.33	U 0.098
	6/12/2019	U 0.1	0.95	U 0.98	U 0.17	U 0.16	0.68	J 0.24	U 0.092
MW-8C	6/5/2012	J 0.064	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	12/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/12/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.12	U 0.2
	12/16/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	6/17/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/14/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/12/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
MW-9A	1/18/1994	U 2	U 1	U 5	2	U 1	4	2	U 1
	6/27/1994	U 1	U 1	U 5	2	U 1	5	2	U 1
	1/31/1995	U 1	U* 1	U 5	1	U 1	4	2	U 1
	6/27/1995	U 1	U 1	U 1	1	U 1	2	U 1	U 1
	11/28/1995	U 1	U 1	U* 5	1	U 1	3	1	U 1
	6/25/1996	U 1	U 1	U 5	U* 1	U 1	2	U* 1	U 1
	12/11/1996	U 1	U 1	U 5	U 1	U 1	2	U* 1	U 1
	6/19/1997	U 1	U 1	U 1	U 1	U 2	1	U 1	U 2
	12/16/1997	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	6/29/1998	U 1	U 1	5	(2) U 1	< (2) 1	1	U(2) 1	U 1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-9A	12/14/1998	U 1	U 1	UB 5	U 1	U 1	1	1	U 1
	6/22/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/13/1999	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	11/28/2000	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	6/11/2001	U 1	U 1	U 5	1	U 1	2	1	U 1
	12/17/2001	U 1	U 1	U 5	U 1	U 1	2	1	U 1
	6/13/2002	U 1	1	U 5	U 1	U 1	2	1	U 1
	12/12/2002	U 1	1	U 5	U 1	U 1	2	1	U 1
	6/9/2003	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	12/4/2003	U 1	U 1	U 5	U 1	U 1	1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	12/7/2004	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	1	U 1	U 1
	6/13/2006	U 0.5	0.5	U 5	U 1	U 1	1	0.5	U 0.5
	12/6/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.9	0.5	U 0.5
	6/20/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.8	0.5	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5
	6/24/2008	U 0.5	U 0.5	U 5	U 1	U 1	0.7	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	1.2	J 0.55	U 0.2
	12/4/2009	U 0.5	J 0.62	UB 2	U 0.5	U 2	1.2	J 0.71	U 0.2

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-9A	6/15/2010	U 0.5	0.59	17.7	U 0.5	U 0.5	1.1	0.71	U 0.5
	12/7/2010	U 1	U 1	U 1	U 1	U 1	1.1	U 1	U 1
	6/14/2011	U 0.038	J 0.44	U 2	J 0.18	U 0.021	0.95	0.64	U 0.049
	12/5/2011	U 0.047	J 0.48	U 5	J 0.28	U 0.13	0.95	0.75	U 0.16
	6/4/2012	J 0.066	J 0.47	U 2	J 0.27	U 0.13	1.4	0.95	U 0.16
	12/4/2012	U 0.047	J 0.46	U 2	J 0.31	U 0.13	1.2	0.78	U 0.16
	6/10/2013	U 0.24	0.54	U 2	J 0.4	U 0.5	1.4	0.95	U 0.2
	12/17/2013	U 0.24	0.68	U 2	J 0.42	U 0.5	1.2	0.85	U 0.1
	8/20/2014	U 0.073	J 0.37	U 2	U 0.077	U 0.34	1.7	0.82	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	0.51	U 0.34	1.6	1.4	U 0.082
	6/16/2015	U 0.21	U 0.25	U 0.56	J 0.44	U 0.64	1.5	0.88	U 0.081
	11/30/2015	U 0.21	0.64	U 0.56	J 0.37	U 0.64	1.3	0.92	U 0.081
	6/14/2016	U 0.21	0.64	U 0.56	J 0.38	U 0.64	1.4	0.97	U 0.081
	11/29/2016	U 0.042	0.75	U 0.097	J 0.4	U 0.08	1.1	0.9	U 0.098
	6/14/2017	U 0.042	0.75	U 0.097	J 0.43	U 0.08	1.1	1.1	U 0.098
	11/30/2017	U 0.13	0.91	U 1.2	J 0.46	U 1.1	1.5	0.88	U 0.096
	8/20/2018	U 0.1	0.73	U 0.98	J 0.39	J 0.24	1.4	0.79	U 0.092
	11/29/2018	U 0.1	0.76	U 0.98	J 0.38	U 0.16	1.3	0.82	U 0.092
	6/10/2019	U 0.1	0.66	U 0.98	J 0.29	U 0.16	1.3	0.67	U 0.092
	12/2/2019	U 0.1	0.76	U 0.98	J 0.36	U 0.48	1.3	0.65	U 0.092
	6/22/2020	U 0.12	0.75	U 2	J 0.43	U 0.16	1.3	0.65	U 0.098
	11/30/2020	U 0.0941	0.81	U 0.43	J 0.476	UL0 0.96	1.21	0.738	U 0.234
	6/21/2021	U 0.0941	0.556	U 0.43	J 0.361	U 0.96	0.923	0.536	U 0.234

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-9A	12/13/2021	U 0.0941	0.697	U 0.43	J 0.419	U 0.96	1.1	0.566	U 0.234
	6/21/2022	U 0.0941	0.75	U 0.43	0.521	U 0.96	0.864	0.769	UJ 0.234
	12/8/2022	U 0.0941	0.656	U 0.43	J 0.389	U 0.96	0.871	0.675	U 0.234
	6/12/2023	U 0.0941	0.695	U 0.43	J,L0 0.443	U,L0 0.96	0.819	0.518	U 0.234
MW-9B	1/31/1995	U 1	U* 1	U 5	U* 1	U 1	4	2	U 1
	12/5/2011	U 0.047	0.67	U 5	J 0.28	U 0.13	1.2	1.1	U 0.16
	6/4/2012	J 0.052	0.53	U 2	J 0.19	U 0.13	1.4	1	U 0.16
	6/16/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1	0.94	U 0.081
	6/14/2017	U 0.042	0.66	U 0.097	U 0.055	U 0.08	0.91	0.69	U 0.098
	6/10/2019	U 0.1	0.68	U 0.98	U 0.17	U 0.16	0.93	0.61	U 0.092
MW-10	6/27/1994	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	2/2/1995	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	6/28/1995	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	11/28/1995	U 1	U 1	U* 5	U 1	U 1	U* 1	U* 1	U 1
	6/26/1996	U 1	U 1	U 5	U 1	U 1	U 1	U* 1	U 1
	12/12/1996	U 1	U 1	U 5	U 1	U* 1	U 1	U* 1	U 1
	6/20/1997	U 1	U 1	U 1	U 1	U 2	U 1	U 1	U 2
	12/17/1997	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/29/1998	U 1	U 1	U(3) 5	U 1	3	U 1	1	U 1
	12/15/1998	U 1	U 1	UB 5	U 1	U 1	U 1	U 1	U 1
	6/23/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/13/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-10	6/8/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	11/29/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2001	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	12/18/2001	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	6/14/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/12/2002	U 1	U 1	U 5	U 1	U 1	U 1	1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/17/2005	U 1	U 1	B U 5	U 1	U 1	U 1	U 1	U 1
	12/13/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/13/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	0.6	U 0.5
	12/6/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	0.6	U 0.5
	6/19/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	0.7	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	0.6	U 0.5
	6/26/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/2/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	J 0.66	U 0.2
	12/4/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	U 0.5	J 0.82	U 0.2
	6/16/2010	U 0.5	U 0.5	42.4	U 0.5	U 0.5	U 0.5	0.78	U 0.5
	12/6/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/14/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	U 0.041	0.7	U 0.049

Notes: µg/L - micrograms per liter
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- Value greater than the HHS

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		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-10	12/6/2011	U 0.047	J 0.26	U 5	U 0.072	U 0.13	U 0.16	0.57	U 0.16
	6/4/2012	J 0.093	J 0.2	U 2	U 0.072	U 0.13	U 0.16	0.58	U 0.16
	12/5/2012	U 0.047	J 0.17	U 2	U 0.072	U 0.13	U 0.16	J 0.5	U 0.16
	6/12/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	J 0.39	U 0.2
	3/27/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	J 0.33	U 0.1
	8/21/2014	U 0.073	J 0.18	U 2	U 0.077	U 0.34	U 0.099	0.49	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	0.67	U 0.082
	6/15/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	J 0.39	U 0.081
	12/1/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	0.52	U 0.081
	6/16/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	J 0.4	U 0.081
	11/28/2016	U 0.042	J 0.25	U 0.097	U 0.055	U 0.08	U 0.13	0.45	U 0.098
	6/16/2017	U 0.042	J 0.19	U 0.097	U 0.055	U 0.08	U 0.13	J 0.33	U 0.098
	11/29/2017	U 0.13	J 0.43	U 1.2	U 0.14	U 1.1	U 0.16	J 0.4	U 0.096
	8/22/2018	U 0.1	J 0.19	U 0.98	U 0.17	J 0.48	U 0.17	J 0.39	U 0.092
	11/27/2018	U 0.1	J 0.23	U 0.98	U 0.17	U 0.16	U 0.17	J 0.32	U 0.092
	6/12/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	J 0.3	U 0.092
	12/3/2019	U 0.1	J 0.27	U 0.98	U 0.17	U 0.48	U 0.17	J 0.25	U 0.092
	6/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	U 0.093	J 0.29	U 0.098
	12/2/2020	U 0.0941	J 0.204	U 0.43	U 0.1	UL0 0.96	U 0.3	J 0.344	U 0.234
	6/21/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/14/2021	U 0.0941	J 0.201	U 0.43	U 0.1	U 0.96	U 0.3	J 0.271	U 0.234
	6/22/2022	U 0.0941	JJ- 0.192	U 0.43	UJ- 0.1	U 0.96	U 0.3	UJ- 0.212	UJ 0.234
	6/13/2023	U 0.0941	J 0.15	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-11	11/27/1995	U 1	U 1	U* 5	U 1	U 1	U 1	U 1	U 1
	6/26/1996	U 1	U 1	U 5	U 1	U* 1	U 1	U 1	U 1
	12/12/1996	U 1	U 1	U 5	U 1	U* 1	U 1	U 1	U 1
	6/19/1997	U 1	U 1	U 1	U 1	U 2	U 1	U 1	U 2
	12/16/1997	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/30/1998	U 1	U 1	U(3) 5	U 1	U(3) 1	U 1	U 1	U 1
	12/14/1998	U 1	U 1	UB 5	U 1	U 1	U 1	U 1	U 1
	6/22/1999	U 1	U 1	U 5	U 1	1	U 1	U 1	U 1
	12/14/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/8/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	11/29/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/18/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/14/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/13/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/13/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/13/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5
	12/6/2006	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-11	6/20/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 2	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/24/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	12/4/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	J 0.54	U 0.5	U 0.2
	6/15/2010	U 0.5	U 0.5	27.7	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5
	12/7/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/14/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	U 0.041	U 0.05	U 0.049
	12/5/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	J 0.25	U 0.11	U 0.16
	6/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	J 0.32	U 0.11	U 0.16
	12/5/2012	U 0.047	U 0.08	U 2	J 0.2	U 0.13	J 0.34	U 0.11	U 0.16
	6/12/2013	U 0.24	U 0.23	U 2	J 0.28	U 0.5	J 0.38	U 0.12	U 0.2
	12/17/2013	U 0.24	U 0.23	U 2	J 0.31	U 0.5	J 0.41	U 0.13	U 0.1
	8/19/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	J 0.36	U 0.084	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	J 0.37	U 0.084	U 0.082
	6/17/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	J 0.26	U 0.14	U 0.081
	12/2/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	J 0.25	U 0.14	U 0.081
	6/14/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/29/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	J 0.2	U 0.044	U 0.098
	6/14/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	12/4/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	8/22/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 0.68	J 0.33	U 0.15	U 0.092

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-11	11/28/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	J 0.2	U 0.15	U 0.092
	6/10/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/2/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	6/22/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	U 0.093	U 0.11	U 0.098
	11/30/2020	U 0.0941	U 0.126	U 0.43	U 0.1	UL0 0.96	U 0.3	U 0.19	U 0.234
	6/21/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/15/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	UJ- 0.1	U 0.96	U 0.3	UJ- 0.19	UJ 0.234
	6/12/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-12	11/27/1995	9	12	U* 5	4	U 1	1	11	50
	6/26/1996	11	10	U 5	5	U* 1	U* 1	9	81
	12/12/1996	7	6	U 5	4	U 1	U* 1	9	49
	6/20/1997	8	2	U 1	3	U 2	U 1	2	99
	12/16/1997	6	1	U 5	3	U 1	1	U 1	48
	3/24/1998	5	U 1	U 5	3	U 1	U 1	1	44
	6/30/1998	4	U(3) 1	U(3) 5	2	U 1	U 1	U(3) 1	43
	9/29/1998	3	U 1	U 5	2	U 1	U 1	1	29
	12/15/1998	3	U 1	UB 5	2	U 1	U 1	U 1	22
	3/17/1999	2	U 1	U 5	1	U 1	U 1	U 1	22
	6/23/1999	2	U 1	U 5	U 1	U 1	U 1	U 1	23
	9/13/1999	2	U 1	U 5	U 1	U 1	U 1	U 1	25
	12/14/1999	2	U 1	U 5	U 1	U 1	U 1	U 1	25
	3/22/2000	1	U 1	U 5	U 1	U 1	U 1	U 1	16

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-12	6/8/2000	1	U 1	U 5	U 1	U 1	U 1	U 1	27
	9/22/2000	2	U 1	U 5	1	U 1	U 1	U 1	33
	11/29/2000	2	U 1	U 5	U 1	U 1	U 1	U 1	29
	3/21/2001	2	U 1	U 5	1	U 1	U 1	U 1	19
	6/12/2001	1	U 1	U 5	U 1	U 1	U 1	1	18
	9/19/2001	1	1	U(1,3) 5	U 1	U 1	U 1	1	16
	12/18/2001	2	2	U 5	1	U 1	U 1	2	20
	3/25/2002	1	2	U 5	1	U 1	U 1	3	21
	6/14/2002	1	2	U 5	U 1	U 1	U 1	2	22
	9/24/2002	1	3	UJR 5	U 1	U 1	U 1	3	15
	12/13/2002	1	4	U 5	U 1	U 1	U 1	4	22
	3/24/2003	1	4	U 5	U 1	U 1	U 1	5	16
	6/10/2003	1	5	U 5	U 1	U 1	U 1	6	14
	9/25/2003	1	6	U 5	1	U 1	U 1	8	19
	12/4/2003	2	6	U 5	1	U 1	U 1	8	JF% 27
	3/24/2004	2	7	U 5	1	U 1	U 1	8	24
	6/8/2004	1	7	U 5	1	U 1	U 1	7	15
	9/9/2004	1	7	U 5	1	U 1	U 1	9	17
	12/7/2004	1	7	U 5	1	U 1	U 1	8	16
	3/29/2005	1	7	U 5	1	U 1	U 1	7	19
	6/17/2005	U 1	7	B U 5	1	U 1	1	8	16
	9/20/2005	1	7	BU 5	1	U 1	1	7	12
	12/14/2005	U 1	6	U 5	1	U 1	1	6	15

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-12	3/16/2006	U 1	6	U 5	U 1	U 1	1	6	19
	6/13/2006	1.2	8.3	U 5	1	U 1	1.2	6.8	13
	9/21/2006	0.8	5.9	U 5	U 1	U 1	1.5	6.3	12.5
	12/7/2006	0.5	3.6	U 5	U 1	U 1	U 0.5	2.8	4.4
	3/15/2007	0.9	7.4	U 5	1	U 1	3	7	11.5
	6/21/2007	1	8.2	U 5	U 1	U 1	1.8	6.5	JF% 21
	12/11/2007	0.9	10	U 5	1.2	U 1	1.2	7.5	19
	6/25/2008	0.9	7.1	U 5	U 1	U 1	0.6	5.1	16
	12/10/2008	1.5	7.7	U 4	U 1	U 1	U 1	5.7	13.3
	6/2/2009	1.9	8	U 2	J 0.91	U 2	U 0.5	5.1	19.7
	12/9/2009	2.5	11.6	UB 2	1.2	U 2	U 0.5	6.7	26.4
	6/15/2010	2.2	9.6	22.3	1.1	U 0.5	U 0.5	4.4	27.4
	12/7/2010	1.8	11.3	U 1	1.5	U 1	U 1	4.5	J 30.4
	6/14/2011	2	4.4	U 2	1.4	U 0.021	U 0.041	1.9	J 24.9
	12/6/2011	2.1	9.6	U 5	1.7	U 0.13	U 0.16	4.3	17.4
	6/5/2012	2	10.8	U 2	2	U 0.13	U 0.16	3.5	20.7
	12/5/2012	1.5	9.1	U 2	1.7	U 0.13	U 0.16	1.5	21.2
	6/12/2013	1.4	11.1	U 2	1.9	U 0.5	U 0.25	1	17.7
	12/17/2013	1.5	6.6	U 2	1.5	U 0.5	U 0.25	0.42	22.4
	3/27/2014	1.7	3.9	U 2	1.2	U 0.5	U 0.25	J 0.25	19.7
	8/19/2014	1.1	7.2	U 2	0.99	U 0.34	U 0.099	J 0.29	10.7
	12/8/2014	1.3	5.5	U 2	1	U 0.34	U 0.12	U 0.084	17
	6/17/2015	1	6.8	U 0.56	0.87	J 0.9	U 0.19	J 0.26	10.5

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-12	12/2/2015	1.2	6.5	U 0.56	1.1	U 0.64	U 0.19	U 0.14	11
	6/14/2016	1.1	8.3	U 0.56	1.1	U 0.64	U 0.19	U 0.14	10.5
	8/25/2016	1.2	9.8	U 0.097	1.1	U 0.08	U 0.13	U 0.051	10.2
	11/29/2016	0.9	6.2	U 0.097	1.1	U 0.08	U 0.13	U 0.044	7.9
	4/17/2017	0.72	7.4	U 0.097	1.1	U 0.08	U 0.13	U 0.044	8.7
	6/14/2017	0.7	6.1	U 0.097	1.1	U 0.08	U 0.13	U 0.044	9
	9/20/2017	0.79	8	U 1.2	0.9	U 1.1	U 0.16	U 0.18	5.9
	12/4/2017	0.78	6.3	U 1.2	0.98	U 1.1	U 0.16	U 0.18	6.3
	3/27/2018	0.74	7.7	U 1.2	0.74	U 1.1	U 0.16	U 0.18	5.3
	8/22/2018	1	6.9	U 0.98	1.2	U 0.16	U 0.17	J 0.21	9.4
	10/16/2018	0.64	5.1	U 0.98	0.94	U 0.16	U 0.17	U 0.15	8.7
	11/28/2018	0.54	5.4	U 0.98	0.96	U 0.16	U 0.17	J 0.29	10
	3/27/2019	0.86	8.5	U 0.98	1.5	U 0.16	U 0.17	J 0.32	9.7
	6/10/2019	0.82	6.8	U 0.98	1.7	U 0.16	U 0.17	0.73	15.1
	9/23/2019	0.57	8.7	U 0.98	1.5	U 0.16	U 0.17	J 0.39	6.4
	12/2/2019	0.6	9.1	U 0.98	1.6	U 0.48	U 0.17	0.8	8.3
	3/23/2020	0.52	8.6	U 2	2.1	U 0.16	U 0.093	0.79	11.2
	6/22/2020	0.65	10.3	U 2	2.2	U 0.16	U 0.093	1.1	7.6
	9/21/2020	0.616	8.35	U 0.43	1.75	U 0.96	U 0.3	J 0.477	4.92
	12/1/2020	0.516	6.17	U 0.43	1.8	UL0 0.96	U 0.3	0.57	5.94
	3/19/2021	0.515	6.51	U 0.43	1.74	U 0.96	U 0.3	0.73	6.51
	6/21/2021	J 0.418	6.19	U 0.43	1.4	U 0.96	U 0.3	0.69	5.95
	12/15/2021	J 0.221	3.3	U 0.43	0.909	U 0.96	U 0.3	J 0.24	2.29

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Bozeman Landfill
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Sampling Location	Sampling Date	LABORATORY PARAMETERS							
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-12	6/22/2022	J 0.423	3.18	U 0.43	J- 0.803	U 0.96	U 0.3	J- 0.306	J 3.93
	12/7/2022	U 0.0941	2.06	U 0.43	0.54	U 0.96	U 0.3	U 0.19	J 0.319
	6/12/2023	U 0.0941	1.02	U 0.43	J,L0 0.362	U,L0 0.96	U 0.3	U 0.19	J 0.4
MW-13	11/28/1995	1	U 1	U* 5	2	U 1	U* 1	2	21
	6/25/1996	1	U* 1	U 5	3	U 1	U* 1	1	41
	12/11/1996	1	U* 1	U 5	2	U 1	U 1	U 1	28
	6/20/1997	U 1	1	U 1	1	U 2	1	2	26
	12/16/1997	1	U 1	U 5	2	U 1	2	U 1	29
	3/23/1998	1	U 1	U 5	2	U 1	U 1	1	29
	6/30/1998	1	(3) U 1	U 5	1	U 1	(3) U 1	1	34
	9/29/1998	1	U 1	U 5	1	U 1	U 1	1	24
	12/14/1998	1	U 1	UB 5	1	U 1	U 1	U 1	24
	3/15/1999	U 1	U 1	6	U 1	U 1	U 1	U 1	19
	6/23/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	23
	9/13/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	26
	12/14/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	27
	3/22/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	18
	6/8/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	23
	9/22/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	24
	11/29/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	22
	3/21/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	15
	6/12/2001	1	U 1	U 5	U 1	U 1	U 1	U 1	19
	9/19/2001	U 1	U 1	U(1,3) 5	U 1	U 1	U 1	U 1	12

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-13	12/18/2001	U 1	U 1	U 5	1	U 1	U 1	U 1	10
	3/25/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	11
	6/13/2002	U 1	U 1	U 5	1	U 1	U 1	U 1	12
	9/24/2002	U 1	U 1	UJR 5	U 1	U 1	U 1	U 1	10
	12/13/2002	U 1	U 1	U 5	1	U 1	U 1	U 1	12
	3/24/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	8
	6/10/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	7
	9/25/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	13
	12/4/2003	U 1	U 1	U 5	1	U 1	U 1	U 1	JF% 15
	3/24/2004	U 1	U 1	U 5	1	U 1	U 1	U 1	13
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	8
	9/9/2004	U 1	U 1	U 5	1	U 1	U 1	U 1	11
	12/7/2004	U 1	U 1	U 5	1	U 1	U 1	U 1	9
	3/29/2005	U 1	U 1	U 5	1	U 1	U 1	U 1	11
	6/17/2005	U 1	U 1	U 5	1	U 1	U 1	U 1	9
	9/20/2005	U 1	U 1	BU 5	1	U 1	U 1	U 1	8
	12/14/2005	U 1	U 1	U 5	1	U 1	U 1	U 1	9
	3/16/2006	U 1	U 1	U 5	U 1	U 1	U 1	U 1	11
	6/13/2006	0.6	0.7	U 5	U 1	U 1	U 0.5	U 0.5	7.1
	9/21/2006	0.6	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	7.6
	12/7/2006	0.5	0.7	U 5	U 1	U 1	U 0.5	U 0.5	9.7
	3/15/2007	U 0.5	0.8	U 5	1	U 1	U 0.5	U 0.5	9.6
	6/20/2007	0.6	1	U 5	1	U 1	U 0.5	0.6	JF% 20

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-13	12/11/2007	0.6	0.9	U 5	1.2	U 1	U 0.5	U 0.5	18
	6/24/2008	U 0.5	0.8	U 5	U 1	U 1	U 0.5	0.5	15
	12/10/2008	U 1	1.3	U 4	1.3	U 1	U 1	U 1	20.2
	6/2/2009	J 0.53	1.1	U 2	J 0.96	U 2	U 0.5	J 0.61	14.6
	12/9/2009	J 0.69	1.1	UB 2	1.2	U 2	U 0.5	J 0.61	22.5
	6/16/2010	0.68	1.1	36.3	1	U 0.5	U 0.5	0.55	19.9
	12/7/2010	U 1	U 1	U 1	1.1	U 1	U 1	U 1	J 23.8
	6/15/2011	0.61	0.99	U 2	0.96	U 0.021	J 0.25	0.55	J 17.9
	12/7/2011	0.79	1	U 5	1	U 0.13	J 0.29	0.5	17.7
	6/6/2012	0.69	1.1	U 2	0.98	U 0.13	J 0.33	J 0.46	19.3
	12/5/2012	0.66	1.1	U 2	1.1	U 0.13	J 0.23	J 0.41	20.9
	6/12/2013	0.72	1.2	U 2	1.5	U 0.5	J 0.26	J 0.36	21.1
	12/17/2013	0.59	1.1	U 2	1.5	U 0.5	U 0.25	J 0.32	18.9
	3/27/2014	0.68	1.1	U 2	1.5	U 0.5	U 0.25	J 0.31	17.1
	8/19/2014	0.59	0.82	U 2	0.83	U 0.34	J 0.25	0.45	11.7
	12/9/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	J 0.14	0.41	16.7
	6/16/2015	0.6	J 0.27	U 0.56	0.89	U 0.64	J 0.23	J 0.34	11.6
	12/2/2015	J 0.46	0.77	U 0.56	0.8	U 0.64	J 0.21	J 0.35	9
	6/15/2016	0.67	1	U 0.56	1.1	U 0.64	U 0.19	J 0.39	11.2
	11/30/2016	J 0.46	0.92	U 0.097	0.95	U 0.08	U 0.13	J 0.37	8.4
	6/15/2017	0.51	1.2	U 0.097	1.1	U 0.08	U 0.13	0.61	9.7
	12/1/2017	0.51	1.1	U 1.2	0.93	U 1.1	U 0.16	J 0.39	6.7
	8/23/2018	0.57	1	U 0.98	0.84	J 0.69	J 0.31	0.49	6.1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-13	11/29/2018	0.61	0.81	U 0.98	0.73	U 0.16	U 0.17	J 0.31	8.7
	6/10/2019	0.51	0.93	U 0.98	0.83	U 0.16	U 0.17	J 0.21	9.7
	12/2/2019	0.53	0.95	U 0.98	U 0.17	U 0.48	U 0.17	J 0.26	10.2
	6/22/2020	J 0.45	1.2	U 2	1.1	U 0.16	U 0.093	J 0.35	8.2
	11/30/2020	0.546	1.18	U 0.43	1.43	U 0.96	U 0.3	J 0.327	8.9
	6/21/2021	J 0.497	0.972	U 0.43	1.07	U 0.96	U 0.3	J 0.347	8.13
	12/13/2021	0.508	1.06	U 0.43	1.23	U 0.96	U 0.3	J 0.336	8.06
	6/21/2022	J 0.476	1.01	U 0.43	1.01	U 0.96	U 0.3	J 0.441	J 4.09
	12/8/2022	J 0.456	0.87	U 0.43	0.979	U 0.96	U 0.3	J 0.263	5.92
	6/12/2023	J 0.466	1.09	U 0.43	1.02	U,L0 0.96	U 0.3	U 0.19	C5 5.04
MW-14	3/22/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/11/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/12/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/9/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/13/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/7/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/21/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	UJF% 0.5
	12/11/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-14	6/25/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/10/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/3/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	12/10/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	6/15/2010	U 0.5	U 0.5	19.7	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5
	12/6/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/15/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	U 0.041	U 0.05	U 0.049
	12/5/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	12/17/2013	U 0.24	U 0.23	U 2	U 0.25	J 0.96	U 0.25	U 0.13	U 0.1
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
MW-15	10/8/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/11/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/16/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/5/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/19/2007	U 0.5	U 0.5	U 5	U 1	1.2	U 0.5	U 0.5	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-15	6/23/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/8/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/1/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	12/4/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	6/14/2010	U 0.5	U 0.5	32.9	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5
	12/6/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/13/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	U 0.041	U 0.05	U 0.049
	12/6/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/4/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	12/5/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/10/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.12	U 0.2
	12/16/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	3/27/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	8/20/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	6/16/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/30/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/14/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/29/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/15/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	11/30/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	8/20/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 0.61	U 0.17	U 0.15	U 0.092
	11/28/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-15	6/10/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/2/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	6/22/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	U 0.093	U 0.11	U 0.098
	11/30/2020	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/21/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/13/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/21/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	UJ 0.234
	6/12/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-16	6/4/2012	U 0.047	3.4	U 2	1.4	U 0.13	2.2	2.9	U 0.16
	12/4/2012	U 0.047	3.4	U 2	1	U 0.13	1.2	2	U 0.16
	6/10/2013	U 0.24	4.3	U 2	1.5	U 0.5	1.4	2.1	U 0.2
	12/17/2013	U 0.24	4.3	U 2	1.5	U 0.5	1	1.4	U 0.1
MW-17	3/25/2014	J 0.38	24.5	J 5	0.57	U 0.5	15.9	5.9	1.5
	5/1/2014	J 0.079	27.6	5.1	0.74	U 0.34	16	5.8	2.3
	8/19/2014	J 0.098	27.4	4.7	0.63	U 0.34	24.8	7.4	1
	12/9/2014	J 0.34	33	4.2	U 0.087	U 0.34	21.8	7.7	1.5
	6/17/2015	U 0.21	22	4.5	0.6	U 0.64	15.7	5.4	0.93
	12/2/2015	U 0.21	16.3	J 2.9	J 0.36	U 0.64	12.5	4.4	0.45
	6/14/2016	U 0.21	9.3	J 2.1	U 0.22	U 0.64	7	2.5	0.26
	8/25/2016	U 0.042	5.6	J 0.34	U 0.055	U 0.08	4	1.4	J 0.14
	11/30/2016	U 0.042	8.4	J 1.5	U 0.055	U 0.08	3.2	1.4	U 0.098
	4/18/2017	U 0.042	6.5	J 0.23	U 0.055	U 0.08	4.5	2	U 0.098

Notes: µg/L - micrograms per liter
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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-17	6/14/2017	U 0.042	7.4	J 0.57	U 0.055	U 0.08	3.8	2	U 0.098
	9/20/2017	U 0.13	4.9	U 1.2	U 0.14	U 1.1	3.7	1.5	U 0.096
	12/4/2017	U 0.13	5.6	U 1.2	U 0.14	U 1.1	3.8	1.6	U 0.096
	3/27/2018	U 0.13	6	U 1.2	U 0.14	U 1.1	4	1.7	U 0.096
	8/21/2018	U 0.1	16.2	6.2	0.55	U 0.16	3.5	2.1	U 0.092
	10/16/2018	U 0.1	17.2	7.7	0.59	U 0.16	4.5	2.6	J 0.13
	11/28/2018	U 0.1	18.7	9.4	0.79	U 0.16	6.2	3.2	0.35
	3/27/2019	U 0.1	25.4	14.6	0.89	U 0.16	8.9	3.6	0.43
	6/13/2019	U 0.1	27.5	14.2	0.93	U 0.16	10	4.7	0.56
	9/23/2019	U 0.1	21.4	12.6	0.81	U 0.16	6.7	3.9	0.3
	12/2/2019	U 0.1	24.4	12.3	0.85	U 0.48	8.9	4.4	0.3
	3/23/2020	U 0.12	21.2	8.4	0.72	U 0.16	8.5	3.8	0.29
	6/23/2020	U 0.12	21.6	6.9	0.81	U 0.16	9.8	4.2	0.36
	9/21/2020	U 0.0941	15.1	4.11	0.549	U 0.96	8.87	3.65	U 0.234
	12/1/2020	U 0.0941	15.6	3.6	0.672	U 0.96	8.04	3.28	U 0.234
	3/19/2021	U 0.0941	14	2.82	0.524	U 0.96	7.59	3.16	U 0.234
	6/22/2021	U 0.0941	11.1	J 1.82	J 0.398	U 0.96	7.45	2.92	U 0.234
	12/14/2021	U 0.0941	9.82	J 1.61	J 0.325	U 0.96	5.72	1.96	U 0.234
	6/22/2022	U 0.0941	6.83	J 1.01	UJ- 0.226	U 0.96	4.25	1.71	UJ 0.234
	12/7/2022	U 0.0941	11.4	2.73	J 0.454	U 0.96	4.31	1.93	U 0.234
	6/12/2023	U 0.0941	10.4	J 1.56	J 0.43	U,L0 0.96	3.62	1.81	U 0.234
MW-18	5/2/2014	0.66	18.5	U 2	0.56	U 0.34	0.87	J 0.38	3.3
	8/20/2014	1.3	19	U 2	0.65	U 0.34	0.94	0.49	2.5

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-18	12/9/2014	1.3	17.1	U 2	U 0.087	U 0.34	0.51	0.5	3.9
	6/16/2015	1.1	13.4	U 0.56	J 0.37	U 0.64	J 0.23	0.47	3.2
	12/2/2015	0.93	9.6	U 0.56	J 0.34	U 0.64	U 0.19	0.42	3.9
	6/14/2016	0.94	6.8	U 0.56	U 0.22	U 0.64	U 0.19	J 0.29	3.5
	8/25/2016	1.2	7.2	U 0.097	U 0.055	U 0.08	U 0.13	J 0.3	5
	11/30/2016	0.85	4.1	U 0.097	U 0.055	U 0.08	U 0.13	J 0.35	4.1
	4/18/2017	1.1	4.3	U 0.097	U 0.055	U 0.08	U 0.13	J 0.27	5.4
	6/15/2017	J 0.48	1.5	U 0.097	U 0.055	U 0.08	U 0.13	J 0.3	2.1
	9/21/2017	0.61	2.5	U 1.2	U 0.14	U 1.1	U 0.16	J 0.32	2.4
	12/4/2017	0.78	2.4	U 1.2	U 0.14	U 1.1	U 0.16	J 0.29	3.9
	3/27/2018	0.71	2.2	U 1.2	U 0.14	U 1.1	U 0.16	J 0.25	3.9
	8/21/2018	J 0.41	1.1	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	1.5
	10/16/2018	0.6	1.5	U 0.98	U 0.17	J 0.47	U 0.17	J 0.29	2.7
	11/28/2018	0.67	1.7	U 0.98	U 0.17	U 0.16	U 0.17	J 0.32	3.8
	3/27/2019	1.2	1.9	U 0.98	U 0.17	U 0.16	U 0.17	J 0.27	4.6
	6/10/2019	J 0.18	J 0.16	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	0.47
	9/23/2019	J 0.42	0.84	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	1.8
	12/3/2019	J 0.45	1	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	2.2
	3/23/2020	J 0.45	1.2	U 2	U 0.14	U 0.16	U 0.093	U 0.11	2.7
	6/22/2020	J 0.31	1.2	U 2	U 0.14	U 0.16	U 0.093	J 0.24	1.5
	9/21/2020	0.525	0.784	U 0.43	U 0.1	U 0.96	U 0.3	J 0.218	2.38
	12/1/2020	J 0.436	0.712	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	1.91
	3/19/2021	J 0.354	0.704	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	1.72

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-18	6/22/2021	J 0.271	0.634	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/14/2021	J 0.251	0.55	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	1.4
	6/22/2022	U 0.0941	J 0.381	U 0.43	U 0.1	U 0.96	U 0.3	J 0.199	UJ 0.234
	12/7/2022	J 0.102	J 0.418	U 0.43	U 0.1	U 0.96	U 0.3	J 0.219	0.912
	6/12/2023	J 0.115	J 0.346	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	C5 0.71
MW-19	3/26/2014	J 0.24	U 0.23	U 2	U 0.25	U 0.5	0.77	U 0.13	U 0.1
	5/1/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	0.8	U 0.084	U 0.2
	8/20/2014	J 0.14	U 0.11	U 2	U 0.077	U 0.34	1.2	U 0.084	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	1.1	U 0.084	U 0.082
	6/18/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	0.87	U 0.14	U 0.081
	12/1/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	0.9	U 0.14	U 0.081
	6/15/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	0.72	U 0.14	U 0.081
	11/28/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	0.76	U 0.044	U 0.098
	6/15/2017	J 0.15	U 0.12	U 0.097	U 0.055	U 0.08	0.72	U 0.044	U 0.098
	11/29/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	0.88	U 0.18	U 0.096
	8/20/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	0.73	U 0.15	U 0.092
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	0.68	U 0.15	U 0.092
	6/12/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	0.82	U 0.15	U 0.092
	12/4/2019	J 0.11	U 0.15	U 0.98	U 0.17	U 0.48	0.68	U 0.15	U 0.092
	6/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	0.66	U 0.11	U 0.098
	12/1/2020	J 0.113	U 0.126	U 0.43	U 0.1	U 0.96	0.716	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.515	U 0.19	U 0.234
	12/14/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.628	U 0.19	U 0.234

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-19	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.591	U 0.19	UJ 0.234
MW-20	3/25/2014	U 0.24	J 0.32	U 2	U 0.25	U 0.5	10.6	J 0.34	U 0.1
	5/2/2014	J 0.69	J 0.15	U 2	U 0.077	U 0.34	9.4	J 0.33	U 0.2
	8/19/2014	J 0.14	0.95	U 2	U 0.077	U 0.34	14.5	0.76	U 0.082
	12/9/2014	U 0.073	1	U 2	U 0.087	U 0.34	13.8	0.91	U 0.082
	6/17/2015	U 0.21	0.8	U 0.56	U 0.22	U 0.64	9.6	0.55	U 0.081
	12/1/2015	U 0.21	1.2	U 0.56	U 0.22	U 0.64	11.7	0.7	U 0.081
	6/15/2016	U 0.21	0.91	U 0.56	U 0.22	U 0.64	9.9	0.66	U 0.081
	8/25/2016	U 0.042	0.7	U 0.097	U 0.055	U 0.08	11.5	0.55	U 0.084
	11/30/2016	U 0.042	J 0.43	U 0.097	U 0.055	U 0.08	7.3	J 0.39	U 0.098
	4/17/2017	U 0.042	J 0.44	U 0.097	U 0.055	U 0.08	6.5	J 0.4	U 0.098
	6/15/2017	U 0.042	J 0.43	U 0.097	U 0.055	U 0.08	8.5	0.47	U 0.098
	9/21/2017	U 0.13	J 0.29	U 1.2	U 0.14	U 1.1	6.7	J 0.39	U 0.096
	12/4/2017	U 0.13	J 0.32	U 1.2	U 0.14	U 1.1	5.7	J 0.22	U 0.096
	3/27/2018	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	8.1	J 0.39	U 0.096
	8/22/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 0.33	8.3	J 0.34	U 0.092
	10/16/2018	U 0.1	J 0.16	U 0.98	U 0.17	J 0.24	7.4	0.41	U 0.092
	11/27/2018	U 0.1	J 0.25	U 0.98	U 0.17	U 0.16	6.7	J 0.32	U 0.092
	3/27/2019	U 0.1	J 0.18	U 0.98	U 0.17	U 0.16	6.5	J 0.22	U 0.092
	6/13/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	7.1	J 0.27	U 0.092
	9/23/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	3.8	U 0.15	U 0.092
	12/3/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	6.8	J 0.16	U 0.092
	3/23/2020	U 0.12	J 0.23	U 2	U 0.14	U 0.16	6.7	J 0.17	U 0.098

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-20	6/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	5	J 0.2	U 0.098
	9/22/2020	U 0.0941	J 0.183	U 0.43	U 0.1	U 0.96	4.41	JL0 0.208	U 0.234
	12/1/2020	U 0.0941	J 0.255	U 0.43	U 0.1	U 0.96	5.06	J 0.267	U 0.234
	3/19/2021	U 0.0941	J 0.22	U 0.43	U 0.1	U 0.96	3.69	J 0.245	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	4.51	U 0.19	U 0.234
	12/14/2021	U 0.0941	J 0.19	U 0.43	U 0.1	U 0.96	4.08	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	2.71	J 0.194	UJ 0.234
	12/7/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	1.73	U 0.19	U 0.234
	6/13/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	1.45	U 0.19	U 0.234
MW-21	3/28/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	5/1/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.2
	8/20/2014	J 0.18	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	12/1/2015	J 0.24	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/28/2017	J 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/4/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	12/2/2020	J 0.113	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/15/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	UJ 0.234
MW-22	3/27/2014	J 0.33	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1

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TABLE 6
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Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-22	5/1/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.2
	8/20/2014	J 0.46	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/10/2014	J 0.32	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	12/1/2015	J 0.22	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/28/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/4/2019	J 0.13	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	12/2/2020	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/15/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	UJ 0.234
	6/13/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	U 0.3	U 0.19	U 0.234
MW-23	3/27/2014	J 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	5/1/2014	J 0.2	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.2
	8/20/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/10/2014	J 0.33	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	12/1/2015	J 0.32	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/28/2017	J 0.24	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	11/27/2018	J 0.22	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/4/2019	J 0.2	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	12/2/2020	J 0.16	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2021	J 0.142	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/15/2021	J 0.12	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-23	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	UJ 0.234
MW-24	3/25/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	J 0.3	U 0.13	U 0.1
	5/2/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	J 0.36	U 0.084	U 0.2
	8/21/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	0.57	U 0.084	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	1.7	U 0.084	U 0.082
	6/18/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1.1	U 0.14	U 0.081
	12/1/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1	U 0.14	U 0.081
	6/16/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	0.66	U 0.14	U 0.081
	8/25/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	0.56	U 0.051	U 0.084
	11/28/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	1.1	U 0.044	U 0.098
	6/15/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	1.2	U 0.044	U 0.098
	11/28/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	1.7	U 0.18	U 0.096
	8/22/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 0.95	2.8	U 0.15	U 0.092
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	3	U 0.15	U 0.092
	6/13/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	2	U 0.15	U 0.092
	12/3/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	0.8	U 0.15	U 0.092
	6/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	J 0.37	U 0.11	U 0.098
	12/2/2020	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.755	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.726	U 0.19	U 0.234
	12/14/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.852	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.558	U 0.19	UJ 0.234
	6/13/2023	U 0.0941	U 0.126	U 0.43	U,L0 0.1	U,L0 0.96	J 0.463	U 0.19	U 0.234

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-25	5/2/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.2
	8/21/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	11/28/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	12/3/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
MW-26	3/27/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	5/1/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.2
	8/21/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/11/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	11/28/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	12/3/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
MW-27	1/16/2015	J 0.083	U 0.11	U 2	U 0.087	U 0.34	1.2	U 0.084	U 0.082
	6/18/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1.4	U 0.14	U 0.081
	6/15/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1.1	U 0.14	U 0.081
	11/28/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	0.96	U 0.044	U 0.098
	6/19/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	0.91	U 0.044	U 0.098
	11/29/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	1.1	U 0.18	U 0.096
	8/22/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 0.74	0.99	U 0.15	U 0.092
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	1.1	U 0.15	U 0.092
	6/13/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	1	U 0.15	U 0.092
	12/4/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	1.4	U 0.15	U 0.092
	6/24/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	1.1	U 0.11	U 0.098

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
MW-27	12/1/2020	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	1.09	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.992	U 0.19	U 0.234
	12/14/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	1.13	U 0.19	U 0.234
	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.75	U 0.19	UJ 0.234
	6/13/2023	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	0.662	U 0.19	U 0.234
McILHATTAN SEEP	1/19/1994	U 2	1	U 5	U 1	U 1	4	3	U 1
	1/19/1994	U 2	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/27/1994	U 1	U 1	U 5	U 1	U 1	5	1	U 1
	6/27/1994	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	1/31/1995	U 1	U* 1	U 5	U* 1	U 1	4	1	U 1
	6/28/1995	U 1	U 1	U 1	U 1	U 1	3	2	U 1
	11/28/1995	U 1	U 1	U* 5	U* 1	U 1	5	1	U 1
	6/26/1996	U 1	U 1	U 5	U 1	U* 1	2	U* 1	U 1
	12/12/1996	U 1	U* 1	U 5	U* 1	U* 1	3	U* 1	U 1
	6/20/1997	U 1	U 1	U 1	U 1	U 2	U 1	U 1	U 2
	12/17/1997	U 1	U 1	U 5	U 1	U 1	1	4	U 1
	6/29/1998	U 1	U(3) 1	8	U(3) 1	U(3) 1	3	1	U 1
	12/15/1998	U 1	U 1	UB 5	U 1	U 1	4	4	U 1
	6/23/1999	U 1	U 1	U 5	U 1	U 1	2	1	U 1
	12/14/1999	U 1	U 1	U 5	U 1	U 1	3	2	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	3	1	U 1
	11/29/2000	U 1	U 1	U 5	U 1	U 1	3	1	U 1
	6/12/2001	U 1	U 1	U 5	U 1	U 1	3	1	U 1

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
McILHATTAN SEEP	12/18/2001	U 1	U 1	U 5	U 1	U 1	3	1	U 1
	6/14/2002	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	12/12/2002	U 1	U 1	U 5	U 1	U 1	4	1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	12/3/2003	U 1	U 1	U 5	U 1	U 1	2	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	3	U 1	U 1
	6/17/2005	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	2	U 1	U 1
	6/12/2006	U 0.5	U 0.5	U 5	U 1	U 1	1.4	U 0.5	U 0.5
	12/7/2006	U 0.5	U 0.5	U 5	U 1	U 1	1.8	0.5	U 0.5
	6/19/2007	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	UJF% 0.5
	12/10/2007	U 0.5	U 0.5	U 5	U 1	U 1	1.3	U 0.5	U 0.5
	6/26/2008	U 0.5	U 0.5	U 5	U 1	U 1	0.6	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	1.4	U 1	U 0.4
	6/2/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	1.1	U 0.5	U 0.2
	12/4/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	1.6	U 0.5	U 0.2
	6/16/2010	U 0.5	U 0.5	40.4	U 0.5	U 0.5	1.2	U 0.5	U 0.5
	12/6/2010	U 1	U 1	U 1	U 1	U 1	1.2	U 1	U 1
	6/14/2011	U 0.038	U 0.08	U 2	U 0.072	J 0.061	0.73	J 0.26	U 0.049
	12/6/2011	U 0.047	J 0.13	U 5	U 0.072	U 0.13	1.1	J 0.3	U 0.16
	6/5/2012	U 0.047	J 0.19	U 2	U 0.072	U 0.13	1.1	J 0.32	U 0.16
	12/5/2012	U 0.047	J 0.23	U 2	U 0.072	U 0.13	1.2	J 0.32	U 0.16

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HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
McILHATTAN SEEP	6/12/2013	U 0.24	J 0.3	U 2	U 0.25	U 0.5	1.3	0.41	U 0.2
	12/18/2013	U 0.24	J 0.32	U 2	U 0.25	J 0.7	1.2	J 0.39	U 0.1
	3/28/2014	U 0.24	U 0.23	U 2	U 0.25	U 0.5	1.2	0.41	U 0.1
	8/21/2014	U 0.073	J 0.26	U 2	U 0.077	U 0.34	1.7	J 0.3	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	6/15/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	1.2	J 0.37	U 0.081
	12/1/2015	U 0.21	J 0.34	U 0.56	U 0.22	U 0.64	1.2	0.41	U 0.081
	6/16/2016	U 0.21	J 0.39	U 0.56	U 0.22	U 0.64	0.95	J 0.3	U 0.081
	11/28/2016	U 0.042	J 0.39	U 0.097	U 0.055	U 0.08	1	J 0.26	U 0.098
	6/16/2017	U 0.042	J 0.32	U 0.097	U 0.055	U 0.08	0.87	J 0.35	U 0.098
	11/29/2017	U 0.13	J 0.37	U 1.2	U 0.14	U 1.1	1	J 0.22	U 0.096
	8/22/2018	U 0.1	J 0.36	U 0.98	U 0.17	J 0.52	0.96	J 0.25	U 0.092
	11/27/2018	U 0.1	J 0.32	U 0.98	U 0.17	U 0.16	0.83	J 0.25	U 0.092
	6/12/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	0.59	U 0.15	U 0.092
	12/3/2019	U 0.1	J 0.19	U 0.98	U 0.17	U 0.48	0.75	U 0.15	U 0.092
	6/23/2020	U 0.12	J 0.28	U 2	U 0.14	U 0.16	0.69	U 0.11	U 0.098
	12/2/2020	U 0.0941	J 0.186	U 0.43	U 0.1	U 0.96	0.623	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	J 0.492	U 0.19	U 0.234
	12/14/2021	U 0.0941	J 0.172	U 0.43	U 0.1	U 0.96	0.62	U 0.19	U 0.234
	6/22/2022	U 0.0941	J 0.178	U 0.43	U 0.1	U 0.96	J 0.423	J 0.199	UJ 0.234
	12/7/2022	U 0.0941	J 0.156	U 0.43	U 0.1	U 0.96	0.546	U 0.19	U 0.234
	6/13/2023	U 0.0941	J 0.136	U 0.43	U 0.1	U 0.96	J 0.419	U 0.19	U 0.234
SHOP WELL	6/13/2011	U 0.038	1	U 2	1.6	U 0.021	3.8	2.3	J 0.13

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Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
SHOP WELL	12/7/2011	U 0.047	0.95	U 5	1.7	U 0.13	3.9	2.2	U 0.16
	6/4/2012	U 0.047	0.64	U 2	1.2	U 0.13	3.7	1.7	U 0.16
	12/4/2012	U 0.047	0.86	U 2	1.7	J 0.21	4.5	2.1	U 0.16
	6/10/2013	U 0.24	0.65	U 2	1.9	U 0.5	4.4	1.7	U 0.2
	12/16/2013	U 0.24	1.5	U 2	3.7	U 0.5	7.3	3	U 0.1
	8/19/2014	U 0.073	1	U 2	2.1	U 0.34	8.7	2.5	U 0.082
	12/8/2014	U 0.073	U 0.11	U 2	2.2	U 0.34	7.2	U 0.084	U 0.082
	12/1/2017	U 0.13	1.1	U 1.2	2.3	U 1.1	5.6	2	U 0.096
	12/3/2019	U 0.1	1.1	U 0.98	1.8	U 0.48	5.8	1.8	U 0.092
	12/13/2021	U 0.0941	1.18	U 0.43	2.28	U 0.96	5.07	1.49	U 0.234
SNOWFILL WELL	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
VET CLINIC WELL	1/19/1994	U 2	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/28/1994	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	1/31/1995	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/28/1995	U 1	U 1	U 1	U 1	U 1	4	2	U 1
	11/28/1995	U 1	U 1	U* 5	U 1	U 1	U 1	U 1	U 1
	6/26/1996	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/12/1996	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/20/1997	U 1	U 1	U 1	U 1	U 2	U 1	U 1	U 2
	12/17/1997	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/30/1998	U 1	U 1	U(3) 5	U 1	U 1	U 1	U 1	U 1
	12/15/1998	U 1	U 1	UB 5	U 1	U 1	U 1	U 1	U 1

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
NA - Not Applicable U - Less than

- Value greater than the HHS

Vinyl Chloride concentration highlighted only if greater than 2 micrograms per liter (EPA Maximum Contaminant Level). Montana HHS is greater than 0.2 micrograms per liter (not highlighted).

-- - Not collected/analyzed

J Analyte detected below the reporting limit, therefore result is an estimate. Other QA/QC data flags are defined in analytical laboratory report.

TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
VET CLINIC WELL	6/23/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/1999	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/7/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	11/28/2000	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/18/2001	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/14/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/12/2002	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/10/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/4/2003	U 1	U 1	U 5	U 1	U 1	U 1	U 1	UJF% 1
	6/8/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/6/2004	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/17/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	12/14/2005	U 1	U 1	U 5	U 1	U 1	U 1	U 1	U 1
	6/12/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/7/2006	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/21/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	UJF% 0.5
	12/12/2007	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	6/25/2008	U 0.5	U 0.5	U 5	U 1	U 1	U 0.5	U 0.5	U 0.5
	12/9/2008	U 1	U 1	U 4	U 1	U 1	U 1	U 1	U 0.4
	6/2/2009	U 0.5	U 0.5	U 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	12/10/2009	U 0.5	U 0.5	UB 2	U 0.5	U 2	U 0.5	U 0.5	U 0.2
	6/16/2010	U 0.5	U 0.5	38.1	U 0.5	U 0.5	U 0.5	U 0.5	U 0.5

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
NA - Not Applicable U - Less than

- Value greater than the HHS

Vinyl Chloride concentration highlighted only if greater than 2 micrograms per liter (EPA Maximum Contaminant Level). Montana HHS is greater than 0.2 micrograms per liter (not highlighted).

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J Analyte detected below the reporting limit, therefore result is an estimate. Other QA/QC data flags are defined in analytical laboratory report.

TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
VET CLINIC WELL	12/8/2010	U 1	U 1	U 1	U 1	U 1	U 1	U 1	U 1
	6/15/2011	U 0.038	U 0.08	U 2	U 0.072	U 0.021	U 0.041	U 0.05	U 0.049
	12/7/2011	U 0.047	U 0.08	U 5	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/5/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	12/6/2012	U 0.047	U 0.08	U 2	U 0.072	U 0.13	U 0.16	U 0.11	U 0.16
	6/12/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.12	U 0.2
	12/18/2013	U 0.24	U 0.23	U 2	U 0.25	U 0.5	U 0.25	U 0.13	U 0.1
	8/21/2014	U 0.073	U 0.11	U 2	U 0.077	U 0.34	U 0.099	U 0.084	U 0.082
	12/10/2014	U 0.073	U 0.11	U 2	U 0.087	U 0.34	U 0.12	U 0.084	U 0.082
	6/15/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	12/1/2015	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	6/16/2016	U 0.21	U 0.25	U 0.56	U 0.22	U 0.64	U 0.19	U 0.14	U 0.081
	11/28/2016	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	6/16/2017	U 0.042	U 0.12	U 0.097	U 0.055	U 0.08	U 0.13	U 0.044	U 0.098
	11/29/2017	U 0.13	U 0.2	U 1.2	U 0.14	U 1.1	U 0.16	U 0.18	U 0.096
	8/22/2018	U 0.1	U 0.15	U 0.98	U 0.17	J 1.2	U 0.17	U 0.15	U 0.092
	11/27/2018	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	6/12/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.16	U 0.17	U 0.15	U 0.092
	12/3/2019	U 0.1	U 0.15	U 0.98	U 0.17	U 0.48	U 0.17	U 0.15	U 0.092
	6/23/2020	U 0.12	U 0.2	U 2	U 0.14	U 0.16	U 0.093	U 0.11	U 0.098
	12/2/2020	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	6/22/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234
	12/14/2021	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
NA - Not Applicable U - Less than

- Value greater than the HHS

Vinyl Chloride concentration highlighted only if greater than 2 micrograms per liter (EPA Maximum Contaminant Level). Montana HHS is greater than 0.2 micrograms per liter (not highlighted).

-- - Not collected/analyzed

J Analyte detected below the reporting limit, therefore result is an estimate. Other QA/QC data flags are defined in analytical laboratory report.

TABLE 6
Summary of Selected Volatile Organic Compounds
Bozeman Landfill
Bozeman, Montana

Sampling Location	Sampling Date	LABORATORY PARAMETERS							
		Benzene (µg/L)	Cis 1,2-dichloro-ethene (µg/L)	Methylene Chloride (µg/L)	1,1-Dichloro-ethane (µg/L)	Chloro-methane (µg/L)	Tetrachloro-ethene (µg/L)	Trichloro-ethene (µg/L)	Vinyl chloride (µg/L)
HHS		**5**	**70**	**5**	NA	NA	**5**	**5**	**2**
VET CLINIC WELL	6/22/2022	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	UJ 0.234
	6/13/2023	U 0.0941	U 0.126	U 0.43	U 0.1	U 0.96	U 0.3	U 0.19	U 0.234

Notes: µg/L - micrograms per liter
HHS - Human Health Standard (EPA Maximum Contaminant Level or HHS in Circular DEQ-7, Montana Numeric WQ Stds, June 2019)
NA - Not Applicable U - Less than

- Value greater than the HHS

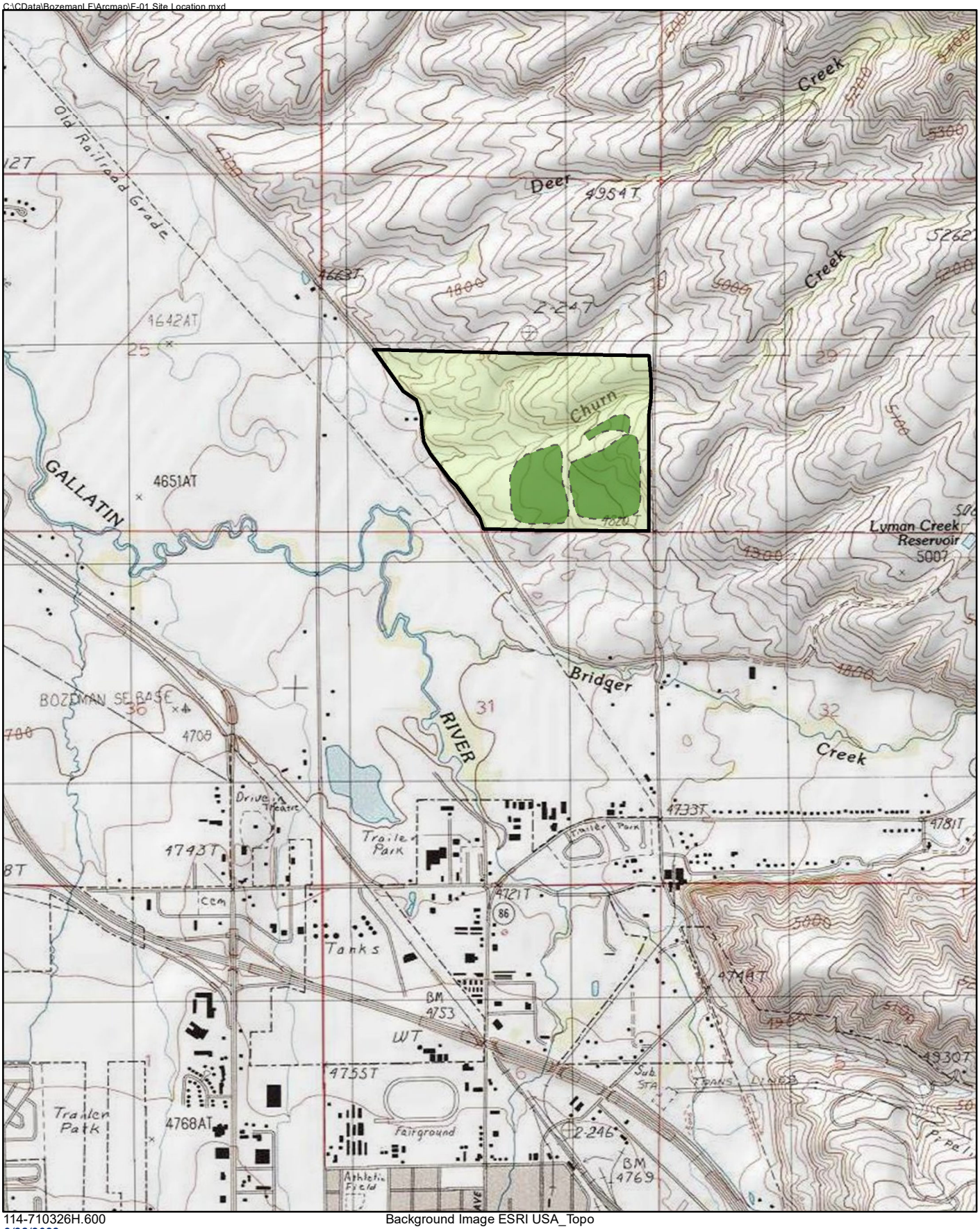
Vinyl Chloride concentration highlighted only if greater than 2 micrograms per liter (EPA Maximum Contaminant Level). Montana HHS is greater than 0.2 micrograms per liter (not highlighted).

-- - Not collected/analyzed

J Analyte detected below the reporting limit, therefore result is an estimate. Other QA/QC data flags are defined in analytical laboratory report.

FIGURES

C:\CData\BozemanLF\Arcmap\F-01 Site Location.mxd



114-710326H.600
9/28/2022

Background Image ESRI USA_Topo

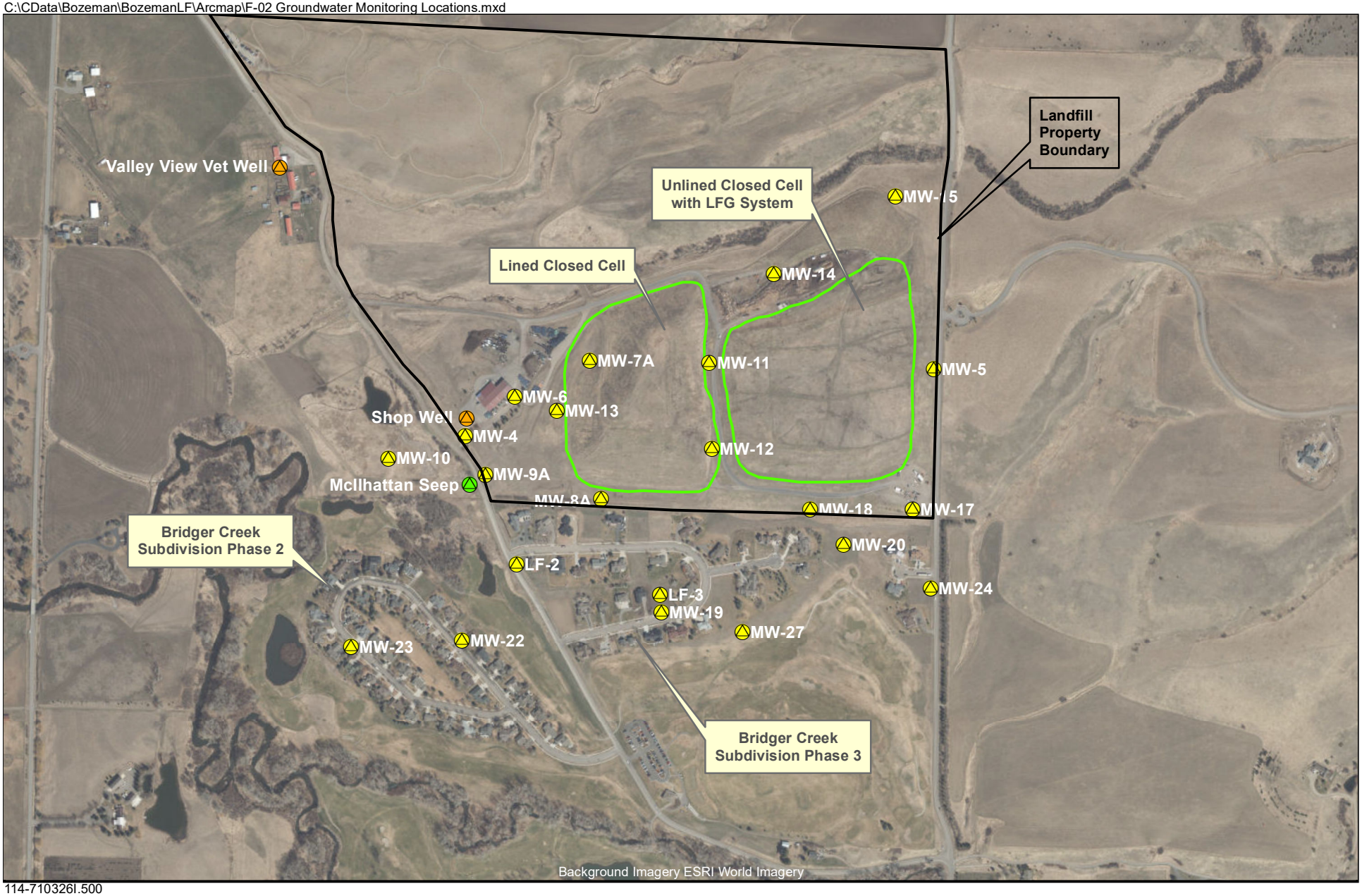
N

Miles

0 1:24,000 0.5

Site Location Map
Bozeman Landfill
Bozeman, Montana
Figure 1

C:\CData\Bozeman\BozemanLF\Arcmap\F-02 Groundwater Monitoring Locations.mxd



114-710326I.500
1/11/2024

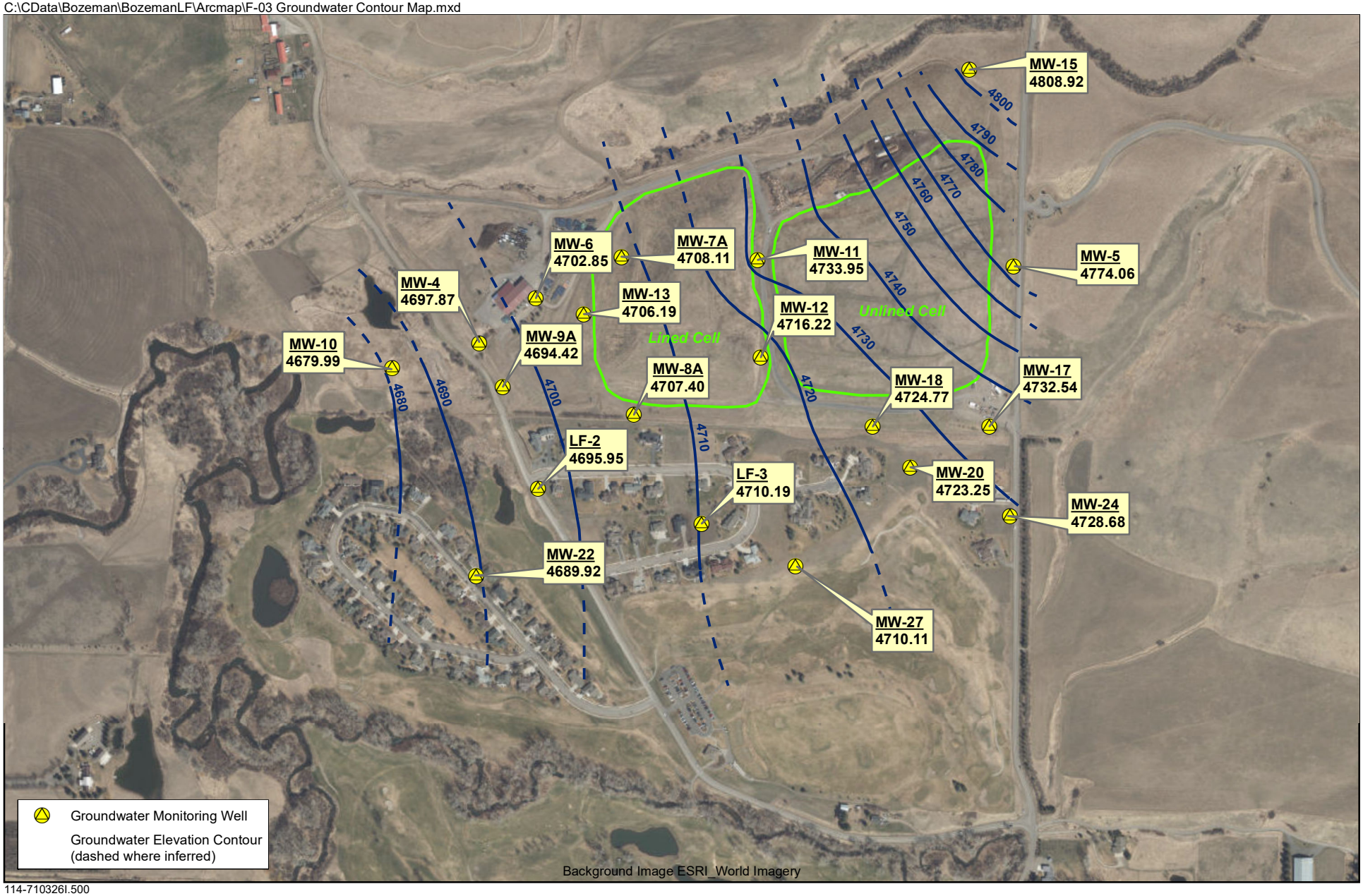
N

Feet
0 500

Groundwater Monitoring Well
Water Supply Well
Seep
Approximate Limits of Waste Cells

Groundwater Monitoring Locations
Bozeman Landfill
Bozeman, Montana
FIGURE 2

C:\CData\Bozeman\BozemanLF\Arcmap\F-03 Groundwater Contour Map.mxd



114-710326I.500
1/10/2024

N

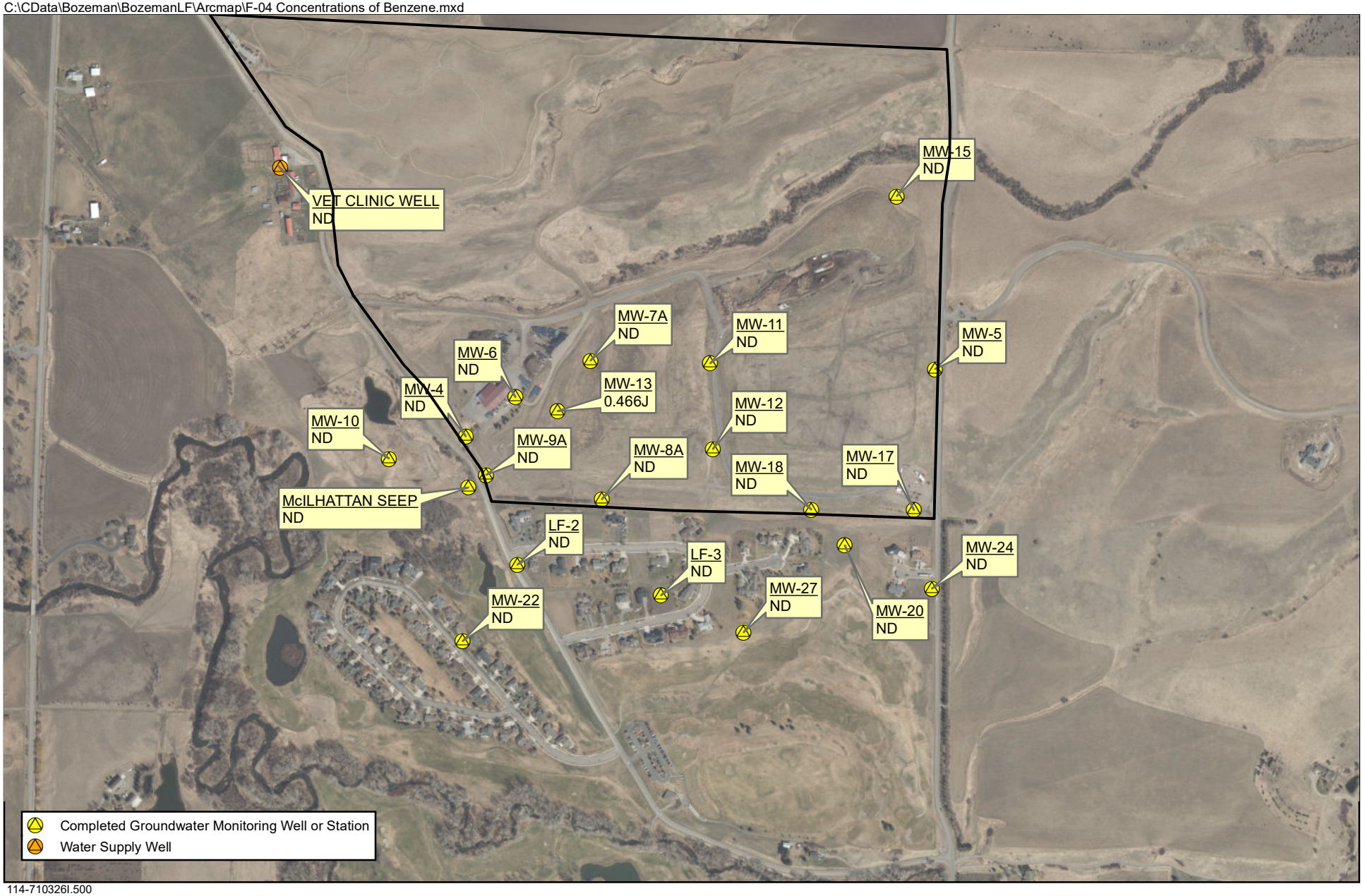
0 300 600
Feet

Note:
All well locations are approximate.
Only those wells used for preparation of groundwater contour map are shown

Approximate Limits of Waste Cells

Groundwater Contour Map
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 3

C:\CData\Bozeman\BozemanLF\Arcmap\F-04 Concentrations of Benzene.mxd



114-710326I.500
1/10/2024

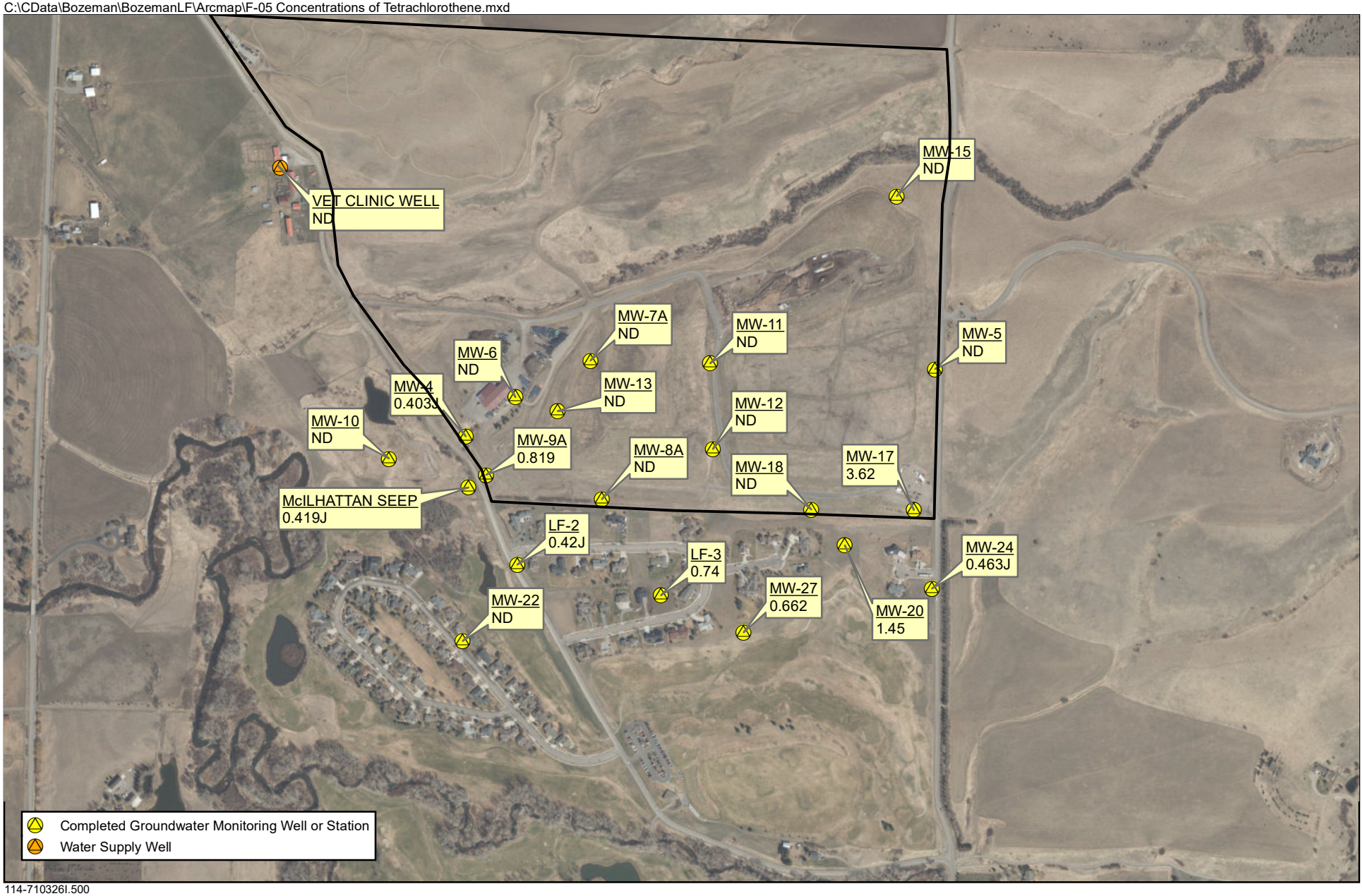
N

0 300 600
Feet

NOTE:
All well locations are approximate
June 2023 Benzene Concentration
J: Indicates Estimated Concentration (less than analytical practical quantitation limit)
Concentration in micrograms per liter
ND: Not Detected Above Minimum Detection Limit
Only wells sampled during monitoring event are shown
Bolded concentrations of constituent indicate exceedance of groundwater protection standard

Concentrations of Benzene in Groundwater
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 4

C:\CData\Bozeman\BozemanLF\Arcmap\F-05 Concentrations of Tetrachlorothene.mxd



114-710326I.500
1/10/2024

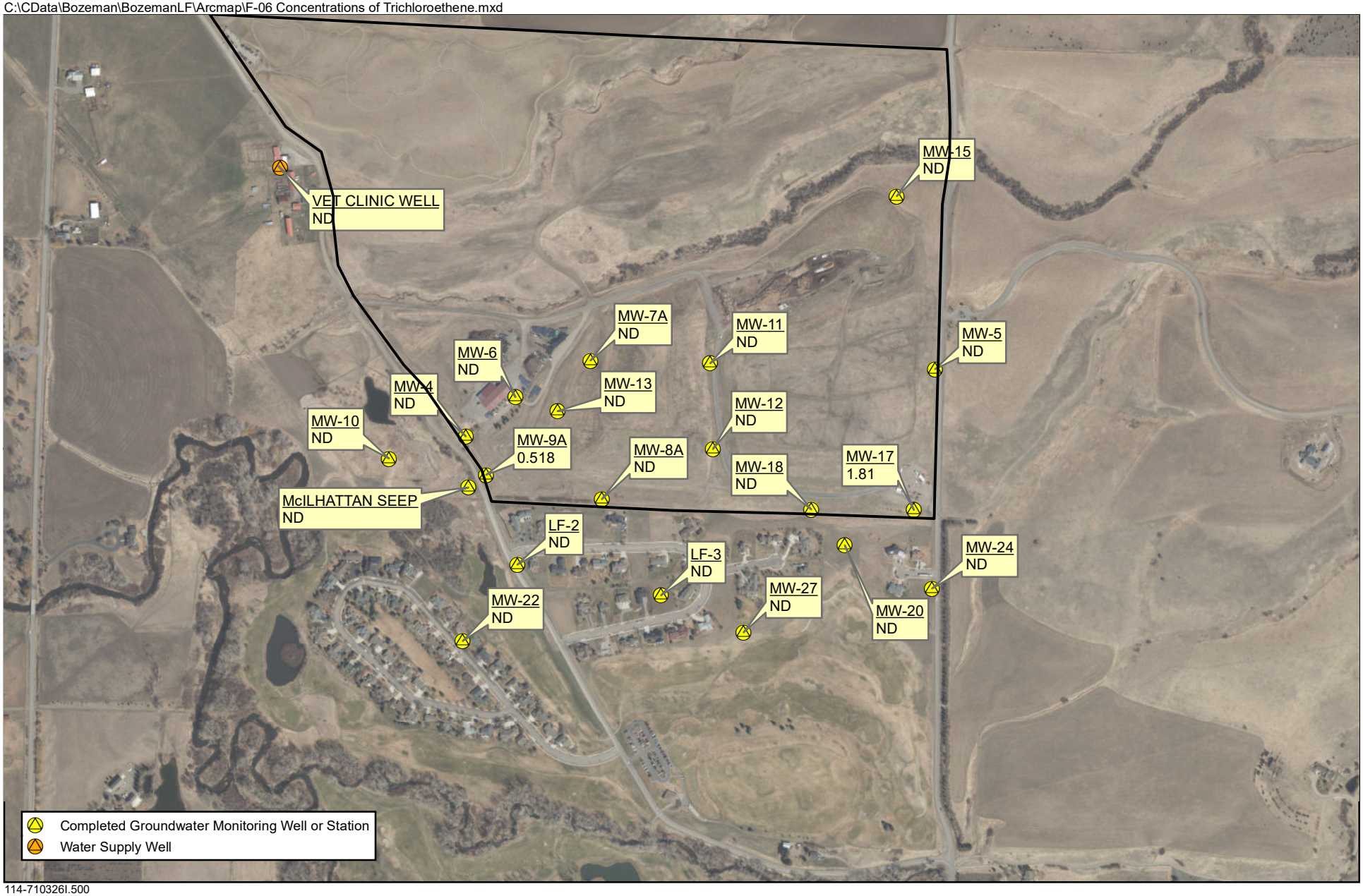
N

0 300 600
Feet

NOTE:
All well locations are approximate
June 2023 Tetrachloroethene Concentration
J: Indicates Estimated Concentration (less than analytical practical quantitation limit)
Concentration in micrograms per liter
ND: Not Detected Above Minimum Detection Limit
Only wells sampled during monitoring event are shown
Bolded concentrations of constituent indicate exceedance of groundwater protection standard

Concentrations of Tetrachloroethene in Groundwater
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 5

C:\CData\Bozeman\BozemanLF\Arcmap\F-06 Concentrations of Trichloroethene.mxd



114-710326I.500
1/10/2024

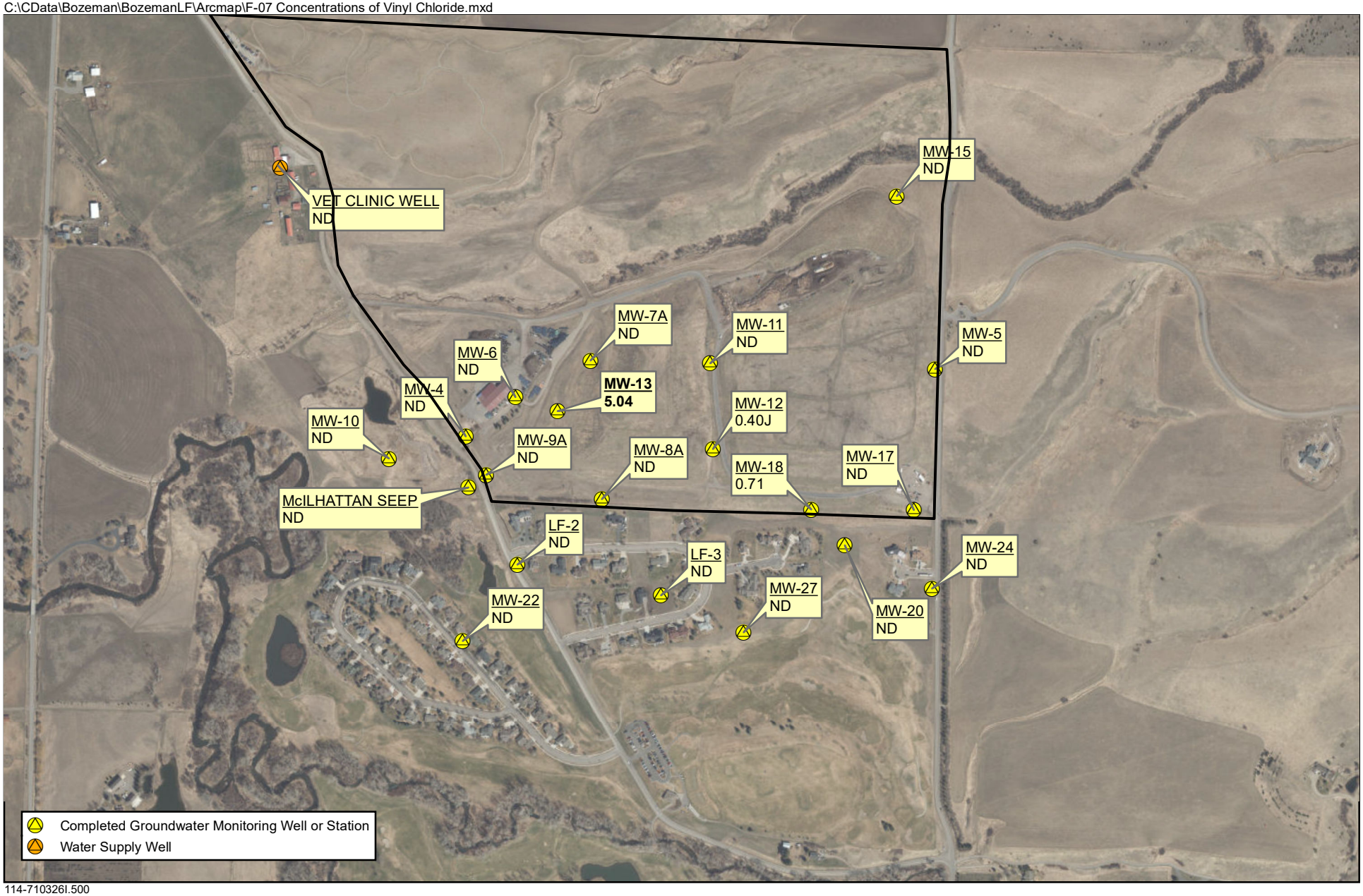
N

0 300 600
Feet

NOTE:
All well locations are approximate
June 2023 Trichloroethene Concentration
J: Indicates Estimated Concentration (less than analytical practical quantitation limit)
Concentration in micrograms per liter
ND: Not Detected Above Minimum Detection Limit
Only wells sampled during monitoring event are shown
Bolded concentrations of constituent indicate exceedance of groundwater protection standard

Concentrations of Trichloroethene in Groundwater
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 6

C:\CData\Bozeman\BozemanLF\Arcmap\F-07 Concentrations of Vinyl Chloride.mxd



114-710326I.500
1/10/2024

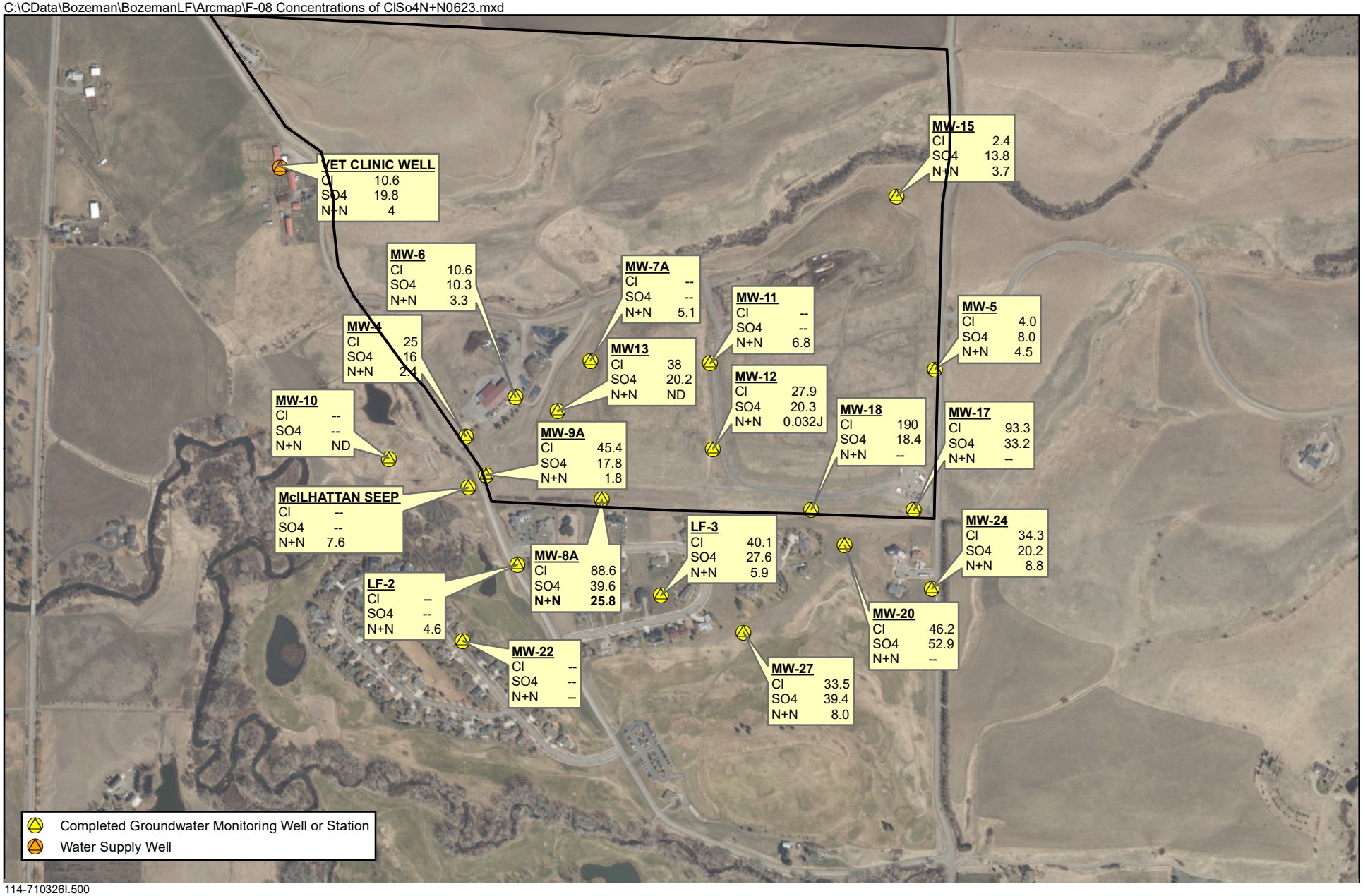
N

0 300 600
Feet

NOTE:
All well locations are approximate
June 2023 Vinyl Chloride Concentration
J: Indicates Estimated Concentration (less than analytical practical quantitation limit)
Concentration in micrograms per liter
ND: Not Detected Above Minimum Detection Limit
Only wells sampled during monitoring event are shown
Bolded concentrations of constituent indicate exceedance of groundwater protection standard

Concentrations of Vinyl Chloride in Groundwater
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 7

C:\CData\Bozeman\BozemanLF\Arcmap\F-08 Concentrations of ClSo4N+N0623.mxd



114-710326I.500
11/22/2023

N

0 300 600
Feet

NOTE:
All well locations are approximate
December 2022 Chloride,Sulfate and Nitrogen Concentrations
J: Indicates Estimated Concentration (less than analytical practical quantitation limit)
ND: Not Detected Above Minimum Detection Limit
- -: Parameter not analyzed
Only wells sampled during monitoring event are shown
Bolded concentrations of constituent indicate exceedance of groundwater protection standard

Concentrations of Chloride, Sulfate and Nitrogen in Groundwater
June 2023
Bozeman Landfill
Bozeman, Montana
FIGURE 8

APPENDIX A – SAMPLING LOGS AND FIELD NOTES

APPENDIX B – LABORATORY ANALYTICAL REPORTS

APPENDIX C – DATA VALIDATION

APPENDIX D – STATISTICAL EVALUATION WORKSHEETS

APPENDIX E – GROUNDWATER DATA OVER TIME