

**2023**  
**ANNUAL GROUNDWATER QUALITY REPORT**  
**OF**  
**THE AMES-STORY ENVIRONMENTAL LANDFILL**  
**85-SDP-13-91C**  
**AMES, IOWA**

by:  
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**November, 2023**



**6004-23A.320**

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## Certification

Prepared by:  \_\_\_\_\_

Date: 11-28-2023

Typed: Todd Whipple, CPG

# Section 1.0 Background Information

## 1.1 Report Format

Table 1 through Table 13 are attached to this report and satisfy the IDNR requirement to provide the tables to meet the IDNR format requirements included in the February 7, 2023 Letter from IDNR (Doc #105774).

## 1.2 Report Priority

No requests are made herein for priority review of this document.

## 1.3 Period of Report Coverage

Water quality data evaluation is based on a running compilation of data beginning in April, 1991. Statistical evaluations herein are based on the most recent water quality data collected through September 13, 2023.

## 1.4 Current Site Maps

Figure 1 is attached illustrating the current site features, monitoring well locations, and subsurface gas probe locations.

Figure 2 represents the shallow groundwater contour map. This map has been updated to include the groundwater diversion lines (9 lines total) below the fill areas. This update was requested in the February 7, 2023 IDNR Comment Letter (Doc #105774).

Figure 3 represents the Potentiometric Map of the Deep Sand Layer. This map has been updated to include the groundwater diversion lines (9 lines total) below the fill areas. This update was requested in the February 7, 2023 IDNR Comment Letter (Doc #105774).

## 1.5 Site Status and Applicable Rules

### **Site Location**

The Ames-Story Environmental Landfill is located in a portion of the E½ of Section 1, T83N, R24W, Story County, Iowa. The site is within the Corporate Limits of Ames, Iowa and is described as parcels and lots and is situated at the west end of Watt Street, Ames, Iowa. The facility operates under the Iowa Department of Natural Resources (IDNR) Permit Number 85-SDP-13-91C.

### **Landfill Layout**

The geology and hydrogeology are described in the 1996 HIR/HMSP (Doc #36043). Previous land use is undeveloped land within an industrial portion of Ames. The solid waste stream included construction and demolition waste from May 1, 1991 through June 30, 2011.

Trenches 1 through 4 are located within the north portion of the site and were constructed between 1990 and 1996. Trenches 5 & 6 are located within the south portion of the site. Trench 5 construction was completed and approved for waste acceptance June 16, 1999. Trench 6 construction was completed and approved for waste acceptance May 26, 2000.

Landfilling in all trenches ceased prior to June 30, 2011. Figure 1 illustrates the site layout.

Groundwater collection and diversion piping exists below the liner at this facility. The groundwater collection and diversion piping on the north side of the site (Trenches 1-4) discharges to the stream along the north side of the site. The groundwater collection and diversion piping on the north side is monitored at the end of the discharge piping at sampling point SW-3. The groundwater collection and diversion piping on the south side of the site (Trenches 5-6) discharges to the City of Ames Sanitary sewer and is conveyed to the City of Ames WWTP. There is no sampling point in the groundwater collection and diversion piping on the south side of the site. The Water Table Contour Map (Figure 2) and the Potentiometric Map of the Deep Sand Layer (Figure 3) are attached illustrating the groundwater collection system effects.

#### **Applicable Rules**

Iowa Administrative Code (IAC) 567-114 is applicable to the site. Summary of Hydrologic Monitoring System Plan (HMSP)

### **MONITORING WELL MAINTENANCE PERFORMANCE REEVALUATION**

Monitoring Well Maintenance Performance Reevaluation Reports (MWMPR) dated June 10, 1993; March 30, 1998; June, 2003; December, 2010; April, 2015; and April, 2020 were prepared and submitted in accordance with IAC 567-114.21. The 2020 MWMPR (most recent) concluded that the integrity of all MW's was intact, and that no changes in the HMSP monitoring wells were recommended. The Monitoring Well Maintenance Performance Reevaluation is due in 2025, unless a variance to IAC 114.21 is requested. Table 3 outlines the status of well performance and maintenance activities performed as required by IAC 567-114.21(2). Water elevation information is summarized in Table 4 and Table 4A.

#### *Monitoring Well Redevelopment – MW-35*

The Spring (3/24/2023) water quality results indicated an intermittent pattern of elevated arsenic concentrations at monitoring well MW-35, with the March 24, 2023 concentration reported at 102.0 ug/L.

MW-35 was redeveloped on June 13, 2023 in response to the March 24, 2023 arsenic result at MW-35. Redevelopment was accomplished by installing a surge disk on waterra tubing and pumping the well for several minutes while 3 gallons of water heavily laden with silt and fines was removed from well and the well pack. Following surging activities the well was pumped at a rate of 1.0 gpm using an electric submersible pump for 354 minutes (7:28 am to 1:22 pm). Approximately 354 gallons were pumped from MW-35. A sample was collected from the discharge of the electric pump at completion of pumping and was submitted to Keystone Labs for arsenic analysis. Testing indicates that the detected concentration of arsenic on June 13, 2023 (5.1 ug/L) following redevelopment and pumping of MW-35 was considerably lower than on March 24, 2023 (102.0 ug/L). Further the detected concentration of arsenic on September 13, 2023 (6.9 ug/L) continues to be considerably lower than on March 24, 2023. It appears that the

elevated arsenic at MW-35 may be tied to a condition within the well itself or within the formation at MW-35, rather than from the landfill.

#### *Monitoring Well Redevelopment – MW-34*

Historic well depth monitoring indicated the presence of 1.7 feet of sediment in the well.

MW-34 was redeveloped on September 13, 2023 following the collection of water samples. Redevelopment was accomplished by installing a surge disk on waterra tubing and pumping the well for several minutes while 4 gallons of water heavily laden with silt and fines was removed from well and the well pack. Following surging activities the well measured 0.5 feet deeper than prior to sampling. The measured well depth increased to 16.1 feet deep, while the apparent thickness of silt was reduced to 1.2 feet.

#### *High & Low Water Levels*

Current year water elevation data is included on Table 4. Historic water elevation data (1991-2023) is included in the Table 4 Supplement. A Water Table Contour Map (Figure 2) and A Potentiometric Map of the Deep Sand layer (Figure 3) dated September, 2023 are included with this report and illustrate the water surfaces and the effects of the topography. Also, the groundwater underdrain flowline elevations are included on Figure 2 and Figure 3 as requested in the February 7, 2023 Letter from IDNR (Doc #105774). Review of the maps confirms control of the water table and sand seam aquifers at this site.

Review of the 2023 water elevation data does not indicate any remarkable water elevation conditions.

#### *Well Depth & Sedimentation*

Well depth measurements were made September 13, 2023. Review of the well depth data included on Table 4 indicate that well sedimentation is estimated to be less than one (1) foot at all site monitoring wells, with the exception of MW-34 (1.20 feet sediment) following well redevelopment on September 13, 2023.

#### *Well Recharge Rates & Chemistry*

The baseline measured horizontal hydraulic conductivity testing results (1991 to 2003) for each site monitoring well is included on Table 4. Horizontal hydraulic conductivities ranged between  $10^{-3}$  cm/sec and  $10^{-6}$  cm/sec.

Field recovery data recorded on February 28, 2020 (also on Table 4) indicates that the monitoring well hydraulic conductivities across the site demonstrate the same range ( $10^{-3}$  cm/sec and  $10^{-6}$  cm/sec) and that the recorded 2020 conductivities at each well fall within one order of magnitude of the baseline hydraulic conductivity. Hydraulic conductivity information indicates that recharge to the individual wells remains sufficient to promote collection of representative water quality samples and the wells were functioning as intended. Monitoring well recharge reevaluation is due every five (5) years according to 114.21(2)"d", and should be evaluated again in 2025.

Based on the apparent static condition of the water surfaces across the site, it appears that the semi-annual water elevation data is sufficient to adequately monitor the hydrologic condition of the site. Review of the water elevation data for 2023 does not indicate excessive variability compared to historic water elevation data. The wells are interpreted to be appropriately located to detect any impact, should it occur. Water elevation data is summarized in Table 4 and Table 4A.

## Section 2.0 Reporting Period Monitoring Activities

The Hydrologic Monitoring for the site is approved by Permit Revision #1 (dated June 30, 2023 (Doc# 107098)) including the approved Waiver dated June 1, 2023. The current HMSP is summarized in the Table 1. The HMSP Implementation Schedule for 2024 is itemized in Table 2.

The site (both the north and south fill areas) is characterized as having two (2) groundwater systems that are monitored as part of the HMSP, the Water Table system and the Deep Sand Layer System. Background monitoring wells include MW-6, MW-7, MW-8, MW-22 (plugged), MW-27 (plugged), MW-28, MW-29, MW-36, and MW-37. The approved Waiver dated June 1, 2023, allows four (4) of the seven (7) background wells to be sampled each year according to the semi-annual schedule included in the waiver. The background monitoring wells are functioning effectively as valid sampling points based on the hydrogeology and the water quality results.

Downgradient monitoring points include MW-25, MW-33, MW-34, MW-35, MW-39, MW-40, and SW-3 (tile). Provision 5e of the Permit requires semi-annual sampling for indicator compounds to be performed at the designated monitoring wells at the site. The TOX and phenol testing requirements included in IAC 114.26(4)"F" are reduced to once per five (5) years in the approved Waiver dated June 1, 2023.

Supplemental compounds arsenic, total; boron, total; sulfate; and turbidity are also required to be sampled semi-annually in Provision 5e of the Permit.

A summary of the planned 2024 sample collection events at each well is included on Table 2.

Field sampling information for the March 24, 2023 and September 13, 2023 sampling episodes is included on the field forms (IDNR Form 542-1322) in Appendix A.

A comprehensive summary of Analytical Data for the episodes between April 23, 1991 and September 13, 2023 is included on Table 9.

### 2.1 Current Detection Monitoring Activities

Background wells are currently MW-6, MW-7, MW-8, MW-22 (plugged), MW-27 (plugged), MW-28, MW-29, MW-36, and MW-37.

Downgradient monitoring points include MW-25, MW-33, MW-34, MW-35, MW-39, MW-40, and SW-3 (south underdrain tile).

## 2.2 Current Assessment Monitoring Activities

There are no assessment monitoring activities at the site.

A Site-Wide Arsenic Source and Speciation Study was completed in September, 2017, (Doc # 90322) and identified both natural arsenic sources and natural reducing conditions at the site.

## 2.3 Current Corrective Action Activities

There are no corrective actions or corrective action monitoring activities at the site.

# Section 3.0 Data Evaluation and Summary

Field Sampling Forms for the March 24, 2023 and September 13, 2023 sample collection episodes are included in Appendix A. Chemical analytical results for the March 24, 2023 and September 13, 2023 sample collection episodes are included in Appendix B. The chemical analytical data is also presented in tabular and graphical form by chemical compound over time in Table 10. The Summary Tables and statistical computations of background are included in Table 5. The graphs of the concentration versus time for the downgradient sampling points illustrate those compounds that exceed statistical limits and are incorporated in Table 10. Groundwater Protection Standards have also been included on Tables 5-10. Review of Tables 5-10 indicate the following observations.

## QUALITY ASSURANCE/QUALITY CONTROL

A blind duplicate sample was collected at MW-25 during the March 24, 2023 sampling episode. A blind duplicate sample was collected at MW-28 during the September 13, 2023 sampling episode.

The purpose of the field duplicate is to evaluate the precision of sample collection and analysis process from the field through the laboratory. The calculation of the Relative Percent Difference (RPD) for duplicate pair results is used as a means to evaluate the precision.

The Quality Control (QC) limit for the RPD on field duplicates is established at thirty percent (30%) for duplicate pairs that have reported concentrations five (5) times greater than the laboratory Reporting Limit. For samples and respective duplicates with reported analyte concentrations nearer the Reporting Limit, the RPD calculations demonstrate greater variability and the RPD can be very large. RPD values are considered non-representative in the following conditions:

- a) Both the original and the duplicate results are less than five (5) times the Reporting Limit.
- b) One or both results are qualified, flagged, or estimated.
- c) One or both results are non-detected.

The results of the blind duplicate and the monitoring well results March 24, 2023 and September 13, 2023 were within the limits established and indicate that the data quality is acceptable without restriction.

## **BACKGROUND DATA VALIDATION**

A summary table of field measured turbidity is included in Table 9.

The background data for total metals utilized herein has been restricted to include only sample results that have been collected by “No Purge” methods in order to avoid turbidity related issues that may have been associated with historic sample collection methods. Total metals using no-purge sampling techniques has been performed at the facility since the September 9, 2014 sampling episode.

## **SITE SPECIFIC GWPS**

Review of the control limit calculated for arsenic indicates that the normal background concentration for arsenic (0.0332 mg/L) exceeds the Statewide Standard (0.01 mg/L) published in Iowa Administrative Code (IAC) 567, Chapter 137. In instances where the natural background concentrations for a compound exceed the Statewide Standard, site-specific GWPS should be calculated using site-specific information. In this instance, the calculated control limit for arsenic (0.0332 mg/L) is utilized as the Site-Specific GWPS for the facility. For many compounds tested, GWPS do not exist (Table 5). For compounds that do have GWPS (beyond arsenic), the published IAC 567, Chapter 137 GWPS are utilized.

## **STATISTICALLY SIGNIFICANT INCREASES (SSI)**

Test results from background monitoring wells (Table 5) are utilized to establish background conditions of site groundwater.

The current HMSP and sample collection methods have been in-place since September 9, 2014. All downgradient well data collected since September 9, 2014 is evaluated herein. In the downgradient wells, compounds that have exceeded a calculated control limit in 2023 are summarized in Table 6.

The water quality data at each downgradient well is also evaluated over time in Table 7 which summarizes compounds in downgradient wells that have exceeded a control limit since September 9, 2014.

Note that in wells where compounds have been detected that exceed a control limit in 2019 - 2023, supplemental sampling has not been implemented. Prior to February 18, 2019 the compounds tested in water were extensive. The testing of barium, cobalt, lithium, manganese, strontium, and vanadium was discontinued following the September, 2018 sample collection event based on the undetected or insignificant concentrations of the supplemental compounds (Doc #94402 and Doc #94423). The supplemental sampling for arsenic, boron, and sulfate has been on-going to gauge water quality and water quality changes over time at this site in accordance with Permit Revision #1 (dated June 30, 2023 (Doc# 107098)).

Table 8 summarizes compounds in downgradient wells that exceed a GWPS. It is noted that the only compound detected that exceeds a GWPS is arsenic at MW-34 (intermittently over a year ago), MW-35 (intermittently), and MW-39 (intermittently – over two years ago). There are no other compounds recorded that exceed the GWPS.

As discussed in the Arsenic Source and Speciation Study, dated September, 2017, (Doc # 90322) the oxidation-reduction potential (ORP) in the vicinity of MW-34 and MW-35 is anticipated to vary in the alluvial sands along the stream. The variable ORP is anticipated to be the cause of the highly variable arsenic concentrations detected at MW-34 and MW-35 over time.

The regional land use is industrial and the City trunk sewer lines are present along the creek along the north side of the facility (near MW-25, MW-33, MW-34, and MW-35) and along the creek southwest of the facility.

The comprehensive summary of all water quality data over time is included in Table 9. Exceedances of the control limits for each respective compound in the downgradient wells are highlighted in yellow. Where a compound concentration exceeds a GWPS (arsenic only), the text is included in bold red.

The highlights (in yellow and in red text) are added to Table 9 & Table 10 to aid in visual tracking of exceedances over time.

No additional supplemental sampling is recommended at this time.

#### **ASSESSMENT MONITORING SUMMARY**

Not Applicable.

#### **STATISTICALLY SIGNIFICANT LEVELS (SSL)**

Not Applicable.

#### **ASSESSMENT OF CORRECTIVE MEASURES (ACM)**

Not Applicable.

#### **CORRECTIVE MEASURES MONITORING PLAN (CAMP)**

Not Applicable.

### **Section 4.0 Leachate Collection System Performance Evaluation**

*General* - The leachate control system (LCS) consists of a series of gravity collection pipes that underlie the trench fills. Trenches 1 through 4 are located north of a topographic divide and the LCS drain north to a City of Ames interceptor sanitary sewer located along the stream to the north. The LCS in Trenches 5 and 6 are located south of the topographic divide and drains south to a City of Ames interceptor sanitary sewer located along the railroad to the south-southwest.

The leachate collection layer and leachate collection piping exist above the liner at this facility and controls the head on the liner. Four (4) leachate piezometers exist in the north portion of the site to

monitor leachate head. Two (2) leachate piezometers exist in the south portion of the site to monitor leachate head. Leachate well numbering (LPZ-1, LPZ-2, LPZ-3, LPZ-4R, LPZ-5R, and LPZ-6R) corresponds directly to the trench in which the leachate piezometer is located.

Filling and capping of the entire site is complete (completed 2011). As required by the approved Development and Operational Plans (DOPS), leachate head monitoring wells have been installed within each Trench. The four (4) leachate piezometers in the north trenches (Trenches 1-4) were installed in May, 2003. Leachate piezometer LPZ-4 was replaced on November 23, 2016 with LPZ-4R. The two (2) leachate piezometers in the south trenches (Trenches 5 & 6) were installed between November 16, 2007 and November 27, 2007. The well heads in Trench 5 and 6 were modified in October, 2011 during site closure. Leachate piezometer LPZ-5 was replaced on December 17, 2014 with LPZ-5R. Leachate piezometer LPZ-6 was replaced on June 13, 2023 with LPZ-6R (Doc #107015).

*Leachate Line Cleaning* - The leachate lines were cleaned on the following dates in 2020, 2021, 2022, and 2023:

January 28, 2020 to February 1, 2020  
November 6, 2020 to November 9, 2020  
May 20, 2021  
November 24, 2021  
November 1, 2022 to November 2, 2022  
October 26, 2023 to October 27, 2023

In accordance with the IDNR Letter dated January 12, 2022 (Doc #102010), the leachate line in Phase 5R was cleaned annually in 2022 and 2023.

*Leachate Head Measurements* - Leachate liquid elevations at the six (6) leachate piezometers have been recorded routinely (quarterly at a minimum) since installation and are summarized in Table 12.

The leachate thickness in Trench 1 (LPZ-1) has been recorded as ranging from dry to 0.85 feet over the last four (4) quarters. The leachate thickness in Trench 1 was recorded as dry on September 13, 2023.

The leachate thickness in Trench 2 (LPZ-2) has been recorded as dry over the last four (4) quarters.

The leachate thickness in Trench 3 (LPZ-3) has been recorded as ranging from 0.42 to 0.70 feet over the last four (4) quarters. The leachate thickness in Trench 3 was recorded as 0.55 feet on September 13, 2023.

The leachate thickness in Trench 4 (LPZ-4R) has been recorded as dry in 2023, except in March, 2023, when leachate head spiked at 1.9 feet (22.8 inches). The measurement was verified, but did not persist and returned to a dry condition before June 13, 2023.

Since installation of LPZ-5R in late 2014, the leachate thickness in Trench 5 has ranged from *dry* to 2.39 ft. Over the last four (4) quarters, the leachate thickness has ranged from 1.83 to 2.26 feet. The leachate thickness in Trench 5 was recorded as 2.16 ft. on September 13, 2023.

Since installation of LPZ-6R on June 13, 2023, the leachate thickness in Trench 6 has ranged from 0.65 to 5.91 feet. The leachate thickness in Trench 6 was recorded as 5.91 ft. on September 13, 2023.

*Response to the Leachate Thicknesses recorded at LPZ-5R & LPZ-6R* - To address concerns included in the IDNR letters dated January 2, 2020 (Doc #96684) and February 4, 2021 (Doc #99703), multiple leachate line cleanings in Trench 5 were performed in 2020 and 2021 (summarized above) in accordance with 114.26(11)"a"(8). In accordance with the IDNR Letter dated January 12, 2022 (Doc #102010), the leachate line in Phase 5R was cleaned annually in 2022 (completed November 2, 2022) and 2023 (completed October 27, 2023).

The quarterly leachate thickness measurements are utilized to ascertain whether the multiple leachate line cleanings had a positive effect on the observed leachate head. Accelerated line cleaning frequency does not appear to have any appreciable effect on leachate head in Trench 5 or Trench 6.

In 2020 and 2021, the leachate thickness at LPZ-5R ranged from 1.41 feet to 2.18 feet, with an average thickness of 1.89 feet. In 2022, the leachate thickness at LPZ-5R ranged from 1.56 feet to 2.39 feet, with an average thickness of 1.72 feet. In 2023, the leachate thickness at LPZ-5R ranged from 2.16 feet to 2.26 feet, with an average thickness of 2.21 feet.

In 2007 through 2009 (prior to breaking), the leachate thickness at LPZ-6 ranged from 3.3 feet to 7.08 feet, with an average thickness of 4.73 feet. In 2023 (following replacement), the leachate thickness at LPZ-6R ranged from 0.65 feet to 5.91 feet, with an average thickness of 3.07 feet.

Since installation of LPZ-5R in late 2014, forty-four (44) thickness of leachate on the liner measurements (Table 12) have been collected and all but one (1) exceeds 12 inches.

Similarly, eight (8) measurements are recorded in LPZ-6 and three (3) are recorded in LPZ-6R. All eleven (11) measurements in Trench 6 exceed 12 inches.

*The average thickness of leachate on the liner in Trench 5 calculated from the 44 measurements is 21.24 inches (1.77 feet).*

*The average thickness of leachate on the liner in Trench 6 calculated from the 11 measurements is 36.84 inches (3.07 feet).*

It is recognized that the average thickness of leachate on the liner in Trench 5 and Trench 6 consistently exceeds 12 inches (the intent of the design), even though the landfill was designed and constructed in accordance with requirements of IAC 567, Chapter 114.26(11)"a"(1) through (7).

Although the average recorded leachate thickness is greater than anticipated by design and construction (12 inches), the leachate collection system demonstrates highly consistent performance and is functionally successful in maintaining a lowered leachate head on the liner. Further, the recorded performance in Trench 5 and 6 is appropriate to protect the soils, the surface water, and the groundwater from leachate contamination as per rule (114.26(1)"g").

The leachate collection system drainage layer situated above the liner in Trench 5 and Trench 6 is connected to the Ames sanitary sewer system as a method of **primary** containment (Trench 5 completed June 16, 1999 and Trench 6 completed May 26, 2000). The groundwater diversion

layer situated below the liner in Trench 5 and Trench 6 is connected to the Ames sanitary sewer system as a method of **secondary** containment (completed February 7, 2012 (Doc #68508)).

*It is also noted that the top of liner in Trench 5 (903.52) is constructed lower than the liner bottom of Trench 6 (906.52) and leachate conveyance is designed to move from Trench 6 to Trench 5, then out to the sanitary sewer. The observed leachate elevations in Trench 5 and Trench 6 (all available readings over time) support that the leachate capture, and conveyance performs as designed.*

The accelerated frequency of leachate line cleaning (in accordance with 114.26(11)"a"(8)) has not improved leachate thickness conditions over the past four (4) years and should return to the standard three (3) year frequency required by rule (114.26(11)"a"(8)).

Aside from the slightly elevated leachate thickness recorded at LPZ-5R and LPZ-6R available data suggest that closure and capping of the landfill is effective in controlling surges in leachate head during periods of wet weather, while the existing Leachate Collection System and Groundwater Diversion System successfully controls fluctuation in the leachate surface across the site by actively conveying leachate out of the closed fill system and dewatering groundwater below the landfill cells. The leachate control system generally appears to be functioning as intended (capturing leachate and lowering leachate head). The groundwater diversion system for Trench 5 and Trench 6 generally appears to be functioning as intended (capturing groundwater below the liner and conveying it to the sanitary sewer). Based on available data, it is interpreted that the existing Leachate Collection System and groundwater diversion system are effective in achieving and controlling a lowered leachate head elevation and maintaining groundwater quality standards at compliance monitoring points. It is also obvious the lowered leachate head is not 12 inches, or less, rather it is a value greater than 12 inches.

*Leachate Analyses* - Ames-Story Environmental Landfill was removed from the City of Ames Pretreatment Program by the City of Ames Water and Pollution Control Department effective August 25, 2015. Leachate was last sampled from the south manhole on March 27, 2017.

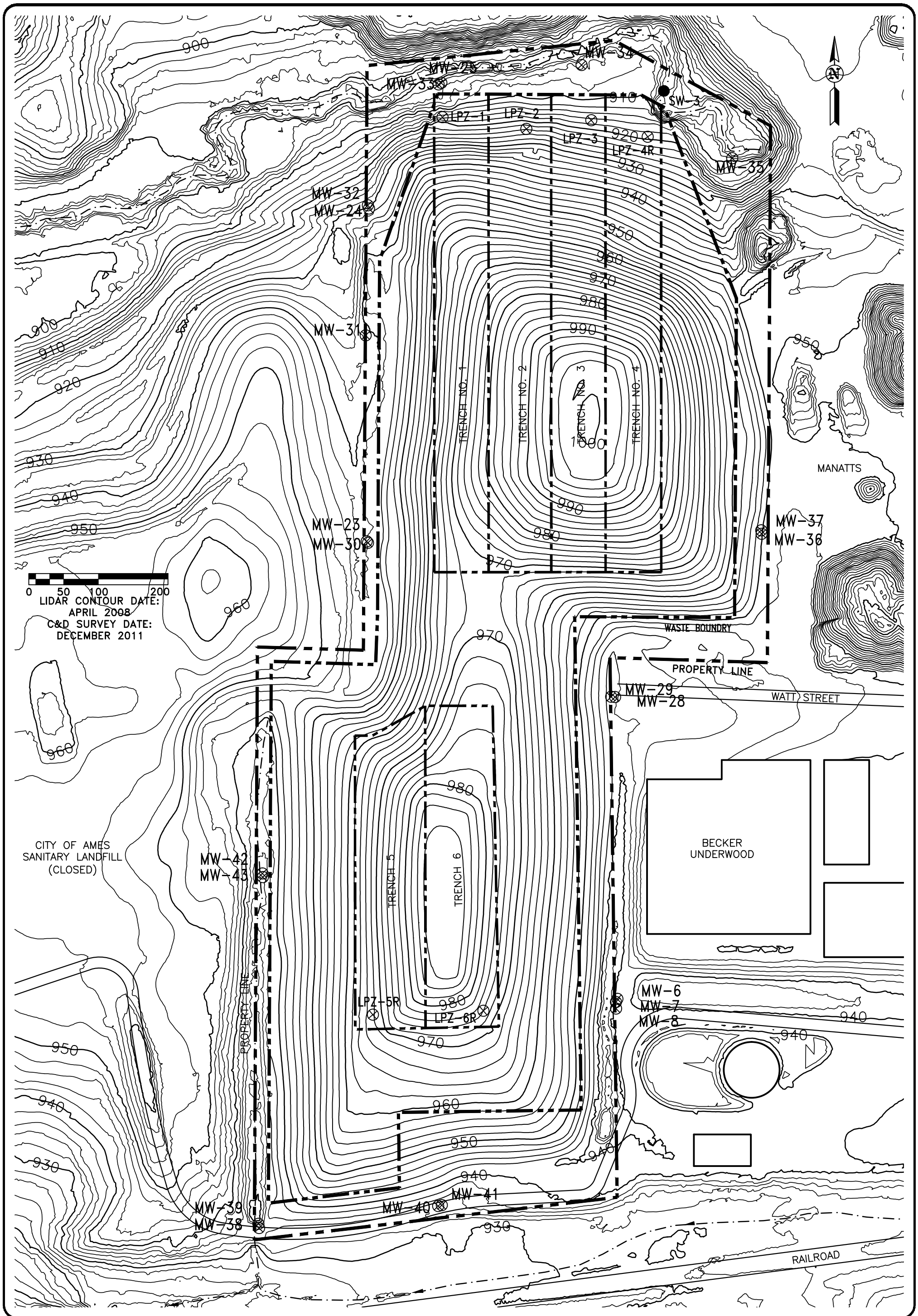
The historic chemical analysis of the leachate indicated that all parameters were within permit limits in effect at the time. The volume of leachate conveyed to the Ames Water Pollution Control Plant is reported as 2,244 gallons per month (approximately 26,932 gpy).

## Section 5.0 Gas Monitoring

Explosive gas monitoring was performed quarterly through September, 2023, per IAC 567-114.26(15). Results of the explosive gas monitoring indicate that explosive gases were within applicable limits along the entire site perimeter. Gas monitoring results are summarized in Table 13. Note that no structures remain on the site.

## Section 6.0 Recommendations

- a. Continue to perform sampling in accordance with Special Provision X.5 of the Revised Permit #1. Supplemental analyses are not recommended.
- b. Sample collected in September 2027 should include analyses for TOX and Phenol in accordance with IAC 114.26(4)"f" and the approved waiver dated June 1, 2023.
- c. Continue to evaluate water quality in the Annual Water Quality Report, due November 30 of each year.
- d. Continue to perform semi-annual water level measurements in March and September of each year and reevaluate the data in the Annual Water Quality Report due November 30 of each year.
- e. The Monitoring Well Maintenance Performance Reevaluation Report (MWMPR) should be performed in 2025, unless a request for a variance to rule is approved by IDNR.
- f. The leachate collection lines cleaning should return to the 3-year frequency per rule (next cleaning event in 2026). The routine frequency of line cleaning is in satisfaction of Permit Special Provision 8e, since the semi-annual and annual cleanings performed since 2020 have not lowered leachate levels in Trenches 5 & 6.
- g. Continue to perform quarterly leachate level measurements and continue to re-evaluate in the Annual Groundwater Quality Report/Leachate Control System Performance Evaluation due November 30 of each year.
- h. Continue to perform quarterly explosive gas monitoring and report the results in the Annual Groundwater Quality Report.



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## SITE PLAN

AMES-STORY ENVIRONMENTAL LANDFILL  
AMES, IOWA

FIGURE: 1

| REVISION     | NO.                 | DATE            |
|--------------|---------------------|-----------------|
| DRAWN<br>DRA | PROJECT NO.<br>6004 | DATE<br>10-2-23 |



| WATER ELEVATION<br>SEPTEMBER 13, 2023 |        |
|---------------------------------------|--------|
| WELL                                  | ELEV.  |
| MW-7                                  | 921.99 |
| MW-8                                  | 908.12 |
| MW-29                                 | 933.65 |
| MW-30                                 | 908.39 |
| MW-32                                 | 904.34 |
| MW-33                                 | 896.26 |
| MW-36                                 | 932.75 |
| MW-38                                 | 910.44 |
| MW-41                                 | 915.11 |
| MW-42                                 | 921.08 |
|                                       |        |

0 50 100 200  
LIDAR CONTOUR DATE:  
APRIL 2008  
C&D SURVEY DATE:  
DECEMBER 2011

CITY OF AMES  
SANITARY LANDFILL  
(CLOSED)

MW-42

MW-30

MW-32

MW-33

SW-3

MW-36

MW-29

MW-7  
MW-8

MW-41

MW-38

GROUNDWATER UNDERDRAIN  
TYP 9 PLACES

WASTE BOUNDRY

PROPERTY LINE

WATT STREET

BECKER  
UNDERWOOD

RAILROAD

MANATTS



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POTENTIOMETRIC SURFACE  
OF DEEP AQUIFER  
AMES-STORY ENVIRONMENTAL LANDFILL  
AMES, IOWA

FIGURE: 3

| REVISION     | NO.                 | DATE            |
|--------------|---------------------|-----------------|
| DRAWN<br>DRA | PROJECT NO.<br>6004 | DATE<br>10-2-23 |

Table 1 – Monitoring Program Summary

Table 1  
Monitoring Program Summary  
Annual Water Quality Report  
Ames-Story Environmental Landfill  
Permit No. 85-SDP-13-91C

| Monitoring Well | Formation    | Current Monitoring Program | Change for next sampling event | Historic - Constituents that exceed a control limit | Current Spring - Constituents that exceed a control limit | Current Fall - Constituents that exceed a control limit | Historic - Constituents that exceed a GWPS | Current - Constituents that exceed a GWPS | Total # of Samples in each monitoring program since September 9, 2014 |            |                   |
|-----------------|--------------|----------------------------|--------------------------------|-----------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------------|--------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------|------------|-------------------|
|                 |              |                            |                                |                                                     |                                                           |                                                         |                                            |                                           | Detection                                                             | Assessment | Corrective Action |
| MW-6            | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 16                                                                    | 0          | 0                 |
| MW-7            | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 16                                                                    | 0          | 0                 |
| MW-8            | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 17                                                                    | 0          | 0                 |
| MW-28           | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 16                                                                    | 0          | 0                 |
| MW-29           | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 16                                                                    | 0          | 0                 |
| MW-36           | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 17                                                                    | 0          | 0                 |
| MW-37           | Glacial Till | Background                 | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 15                                                                    | 0          | 0                 |
| SW-3            | Glacial Till | Detection                  | NC                             | None                                                | None                                                      | None                                                    | None                                       | None                                      | 13                                                                    | 0          | 0                 |
| MW-25           | Glacial Till | Detection                  | NC                             | Boron, Conductivity                                 | Boron                                                     | Boron                                                   | None                                       | None                                      | 15                                                                    | 0          | 0                 |
| MW-33           | Glacial Till | Detection                  | NC                             | Iron, Nitrogen as Ammonia, Boron                    | Iron, Nitrogen as Ammonia, Boron                          | Iron, Nitrogen as Ammonia, Boron                        | None                                       | None                                      | 15                                                                    | 0          | 0                 |
| MW-34           | Glacial Till | Detection                  | NC                             | Arsenic, Iron, Nitrogen as Ammonia, Boron           | Boron, Sulfate                                            | Iron, Nitrogen as Ammonia                               | Arsenic                                    | None                                      | 14                                                                    | 0          | 0                 |
| MW-35           | Glacial Till | Detection                  | NC                             | Arsenic, COD, Chloride, Conductivity, Temperature   | Arsenic, Chloride, Conductivity                           | None                                                    | Arsenic                                    | Arsenic (March)                           | 17                                                                    | 0          | 0                 |
| MW-39           | Glacial Till | Detection                  | NC                             | Arsenic, Conductivity, Sulfate                      | Sulfate                                                   | None                                                    | Arsenic                                    | None                                      | 16                                                                    | 0          | 0                 |
| MW-40           | Glacial Till | Detection                  | NC                             | Chloride, Temperature                               | None                                                      | None                                                    | None                                       | None                                      | 16                                                                    | 0          | 0                 |

Table 2 – Monitoring Program Implementation Schedule

Table 2  
Monitoring Program Implementation Schedule  
Annual Water Quality Report  
Ames-Story Environmental Landfill  
Permit No. 85-SDP-13-91C

| Monitoring Well | Recent Sampling Dates and Constituents       | Upcoming Sampling Dates and Constituents |                   | Supplemental Sampling     |            |
|-----------------|----------------------------------------------|------------------------------------------|-------------------|---------------------------|------------|
|                 |                                              | March, 2024                              | September, 2024** | Previously Collected      | Next Event |
| MW-6*           | Note 1 (7 year cycle) & Note 2 (next = 2027) | ---                                      | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-7*           | Note 1 (7 year cycle) & Note 2 (next = 2027) | ---                                      | ---               | Not Required by 114.26(7) | N/A        |
| MW-8*           | Note 1 (7 year cycle) & Note 2 (next = 2027) | ---                                      | ---               | Not Required by 114.26(7) | N/A        |
| MW-28*          | Note 1 (7 year cycle) & Note 2 (next = 2027) | ---                                      | ---               | Not Required by 114.26(7) | N/A        |
| MW-29*          | Note 1 (7 year cycle) & Note 2 (next = 2027) | Note 1                                   | ---               | Not Required by 114.26(7) | N/A        |
| MW-36*          | Note 1 (7 year cycle) & Note 2 (next = 2027) | Note 1                                   | ---               | Not Required by 114.26(7) | N/A        |
| MW-37*          | Note 1 (7 year cycle) & Note 2 (next = 2027) | ---                                      | Note 1            | Not Required by 114.26(7) | N/A        |
| SW-3            | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-25           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-33           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-34           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-35           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-39           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
| MW-40           | Note 1 (semi-annual) & Note 2 (next = 2027)  | Note 1                                   | Note 1            | Not Required by 114.26(7) | N/A        |
|                 |                                              |                                          |                   |                           |            |

| Background Well Sampling Schedule (Seven Year Cycle) |        |      |      |      |       |       |       |       |
|------------------------------------------------------|--------|------|------|------|-------|-------|-------|-------|
|                                                      |        | MW-6 | MW-7 | MW-8 | MW-28 | MW-29 | MW-36 | MW-37 |
| Year 1                                               | Spring | 2023 | 2023 |      |       |       |       |       |
| Year 1                                               | Fall   |      |      | 2023 | 2023  |       |       |       |
| Year 2                                               | Spring |      |      |      |       | 2024  | 2024  |       |
| Year 2                                               | Fall   | 2024 |      |      |       |       |       | 2024  |
| Year 3                                               | Spring |      | 2025 | 2025 |       |       |       |       |
| Year 3                                               | Fall   |      |      |      | 2025  | 2025  |       |       |
| Year 4                                               | Spring |      |      |      |       |       | 2026  | 2026  |
| Year 4                                               | Fall   | 2026 | 2026 |      |       |       |       |       |
| Year 5                                               | Spring |      |      | 2027 | 2027  |       |       |       |
| Year 5                                               | Fall   |      |      |      |       | 2027  | 2027  |       |
| Year 6                                               | Spring | 2028 |      |      |       |       |       | 2028  |
| Year 6                                               | Fall   |      | 2028 | 2028 |       |       |       |       |
| Year 7                                               | Spring |      |      |      | 2029  | 2029  |       |       |
| Year 7                                               | Fall   |      |      |      |       |       | 2029  | 2029  |
| Year 1                                               | Spring | 2030 | 2030 |      |       |       |       |       |
| Year 1                                               | Fall   |      |      | 2030 | 2030  |       |       |       |

**Note 1** Semi-annually for 114.26(4)"e" and Arsenic (total), sulfate, and boron

**Note 2** 1 time per each 5 years\* for 114.26(4)"f"

\* - The frequency of Background Well sample collection is reduced as per the Waiver Approval (Doc #106906) and per the Seven Year Cycle Table above.

\*\* - The frequency of the "annual parameters (TOX & Phenol)" are reduced to 1 time per 5 years as per the Waiver Approval (Doc #106906). Due again in 2027.

Table 3 – Monitoring Well Maintenance Performance Reevaluation Schedule

**Table 3**  
**Monitoring Well Maintenance and Performance Revaluation Schedule**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

| Compliance with:                                                                 | Monitoring Calendar Years |      |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------|---------------------------|------|------|------|------|------|------|------|------|------|
|                                                                                  | 1998                      | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| 567 IAC 115.21(2)"a" high and low water levels (biennial)                        | X                         |      | X    |      | X    |      | X    |      | X    |      |
| 567 IAC 115.21(2)"b" changes in the hydrologic setting and flow paths (biennial) | X                         |      | X    |      | X    |      | X    |      | X    |      |
| 567 IAC 115.21(2)"c" well depths (annual)                                        | X                         | X    | X    | X    | X    | X    | X    | X    | X    | X    |
| 567 IAC 115.21(2)"c" insitu permeability testing (every 5 years)                 | X                         |      |      |      |      | X    |      |      |      |      |

| Compliance with:                                                                 | Monitoring Calendar Years |      |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------|---------------------------|------|------|------|------|------|------|------|------|------|
|                                                                                  | 2008                      | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| 567 IAC 115.21(2)"a" high and low water levels (biennial)                        | X                         |      | X    |      | X    |      | X    |      | X    |      |
| 567 IAC 115.21(2)"b" changes in the hydrologic setting and flow paths (biennial) | X                         |      | X    |      | X    |      | X    |      | X    |      |
| 567 IAC 115.21(2)"c" well depths (annual)                                        | X                         | X    | X    | X    | X    | X    | X    | X    | X    | X    |
| 567 IAC 115.21(2)"c" insitu permeability testing (every 5 years)                 |                           |      | X    |      |      |      |      | X    |      |      |

| Compliance with:                                                                 | Monitoring Calendar Years |      |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------|---------------------------|------|------|------|------|------|------|------|------|------|
|                                                                                  | 2018                      | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
| 567 IAC 115.21(2)"a" high and low water levels (biennial)                        | X                         |      | X    |      | X    |      | P    |      | P    |      |
| 567 IAC 115.21(2)"b" changes in the hydrologic setting and flow paths (biennial) | X                         |      | X    |      | X    |      | P    |      | P    |      |
| 567 IAC 115.21(2)"c" well depths (annual)                                        | X                         | X    | X    | X    | X    | X    | P    | P    | P    | P    |
| 567 IAC 115.21(2)"c" insitu permeability testing (every 5 years)                 |                           |      | X    |      |      |      |      | P    |      |      |

X = completed  
P = Planned  
N/A = Not Applicable

Table 4 – Monitoring Well Maintenance Performance Summary

Table 4  
Monitoring Well Maintenance and Performance Summary  
Annual Water Quality Report  
Ames-Story Environmental Landfill  
Permit No. 85-SDP-13-91C

| Well                        | Top of casing | Top of Screen | Total Depth |                                     | Date of Measurements |            | Maximum Depth<br>Discrepancy (ft) | Hydraulic Cond.<br>(cm/sec)/date | Most Recent Recharge Rate |                 |
|-----------------------------|---------------|---------------|-------------|-------------------------------------|----------------------|------------|-----------------------------------|----------------------------------|---------------------------|-----------------|
|                             |               |               |             |                                     | 3/24/2023            | 9/13/2023  |                                   |                                  | March 2020                | Change          |
| MW-6                        | 942.88        | 931.05        | 21.7        | Groundwater Level (ft)              | 7.05                 | 8.99       | 0.5                               | 6.10E-04<br>1991                 | 3.14E-04                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 935.83               | 933.89     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 21.2                 | 21.2       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 4.78                 | 2.84       |                                   |                                  |                           |                 |
| MW-7                        | 943.21        | 899.55        | 53          | Groundwater Level (ft)              | 20.34                | 21.22      | 0.2                               | 2.00E-05<br>1991                 | 4.62E-06                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 922.87               | 921.99     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 52.8                 | 52.8       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 23.32                | 22.44      |                                   |                                  |                           |                 |
| MW-8                        | 942.76        | 881.05        | 71.7        | Groundwater Level (ft)              | 33.6                 | 34.64      | 0.7                               | 8.30E-04<br>1991                 | 1.29E-04                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 909.16               | 908.12     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 71                   | 71         |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 28.11                | 27.07      |                                   |                                  |                           |                 |
| MW-28                       | 946.02        | 933.55        | 22.3        | Groundwater Level (ft)              | 5.64                 | 7.76       | -0.15                             | 9.30E-04<br>1991                 | 5.94E-04                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 940.38               | 938.26     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 22.45                | 22.45      |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 6.83                 | 4.71       |                                   |                                  |                           |                 |
| MW-29                       | 945.61        | 902.55        | 53.5        | Groundwater Level (ft)              | 10.21                | 11.95      | -0.1                              | 2.48E-05<br>1998                 | 6.70E-06                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 935.4                | 933.66     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 53.6                 | 53.6       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 32.85                | 31.11      |                                   |                                  |                           |                 |
| MW-36                       | 948.97        | 906.9         | 53.5        | Groundwater Level (ft)              | 15.46                | 16.22      | 0.3                               | 4.19E-06<br>1996                 | 2.53E-06                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 933.51               | 932.75     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 53.2                 | 53.2       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 26.61                | 25.85      |                                   |                                  |                           |                 |
| MW-37                       | 949.49        | 929.03        | 30.6        | Groundwater Level (ft)              | 7.2                  | 8.4        | 0.9                               | 3.90E-04<br>1996                 | 3.01E-05                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 942.29               | 941.09     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 29.7                 | 29.7       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 13.26                | 12.06      |                                   |                                  |                           |                 |
| MW-25                       | 906.34        | 896.84        | 19.5        | Groundwater Level (ft)              | 9.45                 | 9.85       | 0.1                               | >0.0001<br>1997                  | >0.0001                   | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 896.89               | 896.49     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 19.4                 | 19.4       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 0.05                 | -0.35      |                                   |                                  |                           |                 |
| MW-33                       | 906.32        | 880.66        | 28.2        | Groundwater Level (ft)              | 9.61                 | 10.06      | -0.3                              | 4.00E-04<br>1991                 | 3.73E-03                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 896.71               | 896.26     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 28.5                 | 28.5       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 16.05                | 15.6       |                                   |                                  |                           |                 |
| MW-34                       | 909.5         | 902.5         | 17.3        | Groundwater Level (ft)              | 6.24                 | 10.6       | 1.2                               | 5.17E-04<br>1998                 | 8.96E-04<br>2015          | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 903.26               | 898.9      |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 15.6                 | 16.1       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 0.76                 | -3.6       |                                   |                                  |                           |                 |
| MW-35                       | 916.19        | 906.19        | 20.6        | Groundwater Level (ft)              | 13.38                | 13.51      | 0.8                               | 7.53E-03<br>2003                 | 8.40E-03                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 902.81               | 902.68     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 19.8                 | 20.1       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | -3.38                | -3.51      |                                   |                                  |                           |                 |
| MW-39                       | 935.93        | 916.16        | 30.2        | Groundwater Level (ft)              | 15.48                | 20.3       | 0.45                              | 6.54E-04<br>1996                 | 1.53E-05                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 920.45               | 915.63     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 29.75                | 29.75      |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 4.29                 | -0.53      |                                   |                                  |                           |                 |
| MW-40                       | 933.07        | 923.61        | 20          | Groundwater Level (ft)              | 4.49                 | 12.58      | 0.3                               | 5.68E-04<br>1996                 | 2.45E-05                  | Not Appreciable |
|                             |               |               |             | Groundwater Elevation (Ft MSL)      | 928.58               | 920.49     |                                   |                                  |                           |                 |
|                             |               |               |             | Measured Well Depth (ft)            | 19.7                 | 19.7       |                                   |                                  |                           |                 |
|                             |               |               |             | Submerged (+) or Exposed screen (-) | 4.97                 | -3.12      |                                   |                                  |                           |                 |
| Groundwater Underdrain SW-3 |               |               |             |                                     | 250 ml/min           | 378 mi/min |                                   |                                  |                           |                 |

Table 4A – Routine Water Levels









Table 5 – Background and GWPS Summary

**Table 5**  
**Background and GWPS Summary**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

**Background Wells (MW-6, MW-7, MW-8, MW-28, MW-29, MW-36, and MW-37)**

| <b>Inorganics - Appendix I</b> |              |                   |             |           |              |              |               |
|--------------------------------|--------------|-------------------|-------------|-----------|--------------|--------------|---------------|
| <b>Constituent</b>             | <b>Units</b> | <b>Model Type</b> | <b>Mean</b> | <b>SD</b> | <b>Limit</b> | <b>GWPS*</b> | <b>Source</b> |
| Arsenic (As - total)           | mg/L         | mean+2STD         | 0.0125      | 0.0104    | 0.0332       | 0.0332       | Site          |
| COD                            | mg/L         | mean+2STD         | 18.4        | 21.3      | 61.0         | None         | IAC 137       |
| Chloride                       | mg/L         | mean+2STD         | 45.5        | 66.7      | 179.0        | None         | IAC 137       |
| Conductivity                   | µs/cm        | mean+2STD         | 886         | 456       | 1798.0       | None         | IAC 137       |
| Iron (Fe- dissolved)           | mg/L         | mean+2STD         | 1.36        | 2.17      | 5.70         | None         | IAC 137       |
| Nitrogen, as ammonia           | mg/L         | mean+2STD         | 0.5         | 0.2       | 0.9          | 30           | IAC 137       |
| pH - high                      |              | mean+2STD         | 7.5         | 0.6       | 8.60         | None         | IAC 137       |
| pH - low                       |              | mean+2STD         | 7.5         | 0.6       | 6.30         | None         | IAC 137       |
| Phenol                         | mg/L         | mean+2STD         | 0.05        | 0.01      | 0.07         | 2            | IAC 137       |
| Temperature                    | C            | mean+2STD         | 13.3        | 4.6       | 22.5         | None         | IAC 137       |
| TOX                            | mg/L         | mean+2STD         | 0.021       | 0.031     | 0.082        | None         | IAC 137       |
| Boron (B - total)              | mg/L         | mean+2STD         | 0.098       | 0.089     | 0.275        | 6            | IAC 137       |
| Sulfate                        | mg/L         | mean+2STD         | 171         | 190       | 550.0        | None         | IAC 137       |
| Turbidity                      | NTU          | mean+2STD         | 35.06       | 100.38    | 235.82       | None         | IAC 137       |

= Site Specific Limit exceeds the GWPS. A Site-Specific GWPS equal to the Limit is warranted

\* - Groundwater Protection Standards published in Iowa Administrative Code (IAC) 567, Chapter 137.

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

Mean  
Standard Deviation (STD)  
Mean + 2 STD

0.0332

AMES-STORY ENVIRONMENTAL LANDFILL

85-SDP-13-91P

MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER              | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|------------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                        |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|            |                        |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| mg/L       |                        |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991 | Chemical Oxygen Demand | --              | 61.0                  |                    | 8.3            | 67.8           | NT            |                                 | 12            | 20.1          | NT            | NT            |
| 10/15/1991 | Chemical Oxygen Demand | --              | 61.0                  |                    | 15             | 64.8           | NT            |                                 | 16.5          | 19.4          | NT            | NT            |
| 01/23/1992 | Chemical Oxygen Demand | --              | 61.0                  |                    | 24.2           | 84.1           | NT            |                                 | 5             | NT            | NT            | NT            |
| 03/23/1992 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 119            | NT            |                                 | 5             | 50            | NT            | NT            |
| 09/30/1992 | Chemical Oxygen Demand | --              | 61.0                  |                    | 50             | NT             | NT            |                                 | 24            | 180           | NT            | NT            |
| 03/05/1993 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 50.8           | NT            |                                 | 5             | NT            | NT            | NT            |
| 09/21/1993 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 47.3           | 5             |                                 | 5             | 47.3          | 5             | 5             |
| 03/23/1994 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 64             | 5             |                                 | 5             | 64            | 5             | 5             |
| 09/16/1994 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 52             | 5             |                                 | 5             | 52            | 5             | 5             |
| 03/16/1995 | Chemical Oxygen Demand | --              | 61.0                  |                    | 38             | 57             | 5             |                                 | 32            | 26            | 5             | 5             |
| 09/13/1995 | Chemical Oxygen Demand | --              | 61.0                  |                    | 5              | 34             | 35            |                                 | 5             | 5             | 5             | 12            |
| 03/28/1996 | Chemical Oxygen Demand | --              | 61.0                  | 5                  | plugged        | 26             | 5             | 11                              | plugged       | 5             | 5             | 5             |
| 06/20/1996 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | NT             | 5             | 10                              |               | NT            | 5             | 5             |
| 09/13/1996 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 18             | 5             | 5                               |               | 5             | 5             | 5             |
| 12/16/1996 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | 28             | 5             | NT                              |               | 5             | 5             | 5             |
| 03/19/1997 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 19             | 5             | 5                               |               | 5             | 5             | 5             |
| 06/18/1997 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 27             | 12            | 5                               |               | 5             | 5             | 10            |
| 08/30/1997 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 12                              |               | 5             | 5             | 5             |
| 03/10/1998 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 12                              |               | 5             | 5             | 5             |
| 09/21/1998 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 12                              |               | 5             | 5             | 5             |
| 03/18/1999 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 5                               |               | 5             | 5             | 5             |
| 09/21/1999 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 5                               |               | 5             | 5             | 5             |
| 03/21/2000 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | 5              | 5             | NT                              |               | 5             | 5             | 5             |
| 06/28/2000 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | 5             | NT                              |               | NT            | 5             | 11            |
| 09/28/2000 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 11             | 20            | 5                               |               | 5             | 5             | 5             |
| 12/27/2000 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | 5             | NT                              |               | NT            | 5             | 5             |
| 03/28/2001 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 11            | 5                               |               | 5             | 5             | 5             |
| 09/02/2001 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 11             | 19            | 5                               |               | 5             | 5             | 5             |
| 03/19/2002 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 24             | 5             | 5                               |               | 5             | 5             | 5             |
| 09/19/2002 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 11             | 12            | 5                               |               | 5             | 5             | 5             |
| 03/14/2003 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 28             | 5             | 5                               |               | 5             | 5             | 5             |
| 09/29/2003 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 23             | 12            | 5                               |               | 5             | 5             | 5             |
| 03/08/2004 | Chemical Oxygen Demand | --              | 61.0                  | 20                 |                | 17             | 5             | 5                               |               | 5             | 5             | 5             |
| 09/27/2004 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 17             | 5             | 5                               |               | 5             | 5             | 10            |
| 03/17/2005 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 21             | 18            | 5                               |               | 5             | 5             | 5             |
| 09/22/2005 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 23             | 19            | 5                               |               | 10            | 19            | 5             |
| 03/17/2006 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 14             | 11            | 5                               |               | 5             | 5             | 5             |
| 09/22/2006 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 10             | 5             | 5                               |               | 5             | 5             | 5             |
| 03/14/2007 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 5             | 5                               |               | 5             | 5             | 5             |
| 09/22/2007 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 18             | 16            | 5                               |               | 5             | 5             | 5             |
| 03/03/2008 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 5              | 15            | 5                               |               | 23            | 5             | 5             |
| 09/05/2008 | Chemical Oxygen Demand | --              | 61.0                  | 17                 |                | 65             | 46            | 10                              |               | 24            | 29            | 31            |
| 03/09/2009 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 62             | 36            | 5                               |               | 5             | 5             | 38            |
| 09/23/2009 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 43             | 41            | 12                              |               | 5             | 5             | 11            |
| 03/16/2010 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | 5              | 5             | NT                              |               | 38            | 38            | 24            |
| 09/10/2010 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 64             | 22            | 5                               |               | 32            | 44            | 5             |
| 03/01/2011 | Chemical Oxygen Demand | --              | 61.0                  | 74                 |                | 76             | 71            | 5                               |               | 5             | 5             | 5             |
| 09/22/2011 | Chemical Oxygen Demand | --              | 61.0                  | 46                 |                | 38             | 19            | 5                               |               | 5             | 35            | 5             |
| 03/02/2012 | Chemical Oxygen Demand | --              | 61.0                  | 30                 |                | 65             | 40            | 24                              |               | 5             | 109           | 5             |
| 09/05/2012 | Chemical Oxygen Demand | --              | 61.0                  | 19                 |                | 51             | 49            | 16                              |               | 32            | 150           | 32            |
| 03/08/2013 | Chemical Oxygen Demand | --              | 61.0                  | 18                 |                | 60             | 45            | 5                               |               | 27            | 77            | 35            |
| 09/13/2013 | Chemical Oxygen Demand | --              | 61.0                  | 18                 |                | 62             | 59            | 5                               |               | 13            | 65            | 32            |
| 03/06/2014 | Chemical Oxygen Demand | --              | 61.0                  | 11                 |                | 54             | 42            | 5                               |               | 12            | 52            | 10            |
| 09/09/2014 | Chemical Oxygen Demand | --              | 61.0                  | 20                 |                | 59             | 57            | 5                               |               | 23            | 24            | 31            |
| 03/11/2015 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 45             | 50            | 5                               |               | 49            | 84            | 5             |
| 09/09/2015 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 46             | 37            | 5                               |               | 32            | 37            | 12            |
| 03/11/2016 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 25             | 5             | 5                               |               | 15            | 35            | 19            |
| 10/27/2016 | Chemical Oxygen Demand | --              | 61.0                  | 11                 |                | 19             | 12            | 10                              |               | 25            | 46            | 20            |
| 09/07/2017 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 29             | 13            | 5                               |               | 15            | 36            | 13            |
| 03/01/2018 | Chemical Oxygen Demand | --              | 61.0                  | 5                  |                | 31             | 10            | 5                               |               | 55            | 54            | 31            |
| 09/19/2018 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 27             | 10            | 10                              |               | 49            | 41            | 53            |
| 03/27/2019 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 34             | 10            | 10                              |               | 10            | 10            | 26            |
| 09/05/2019 | Chemical Oxygen Demand | --              | 61.0                  | 45                 |                | 26             | 10            | 10                              |               | 84            | 24            | 10            |
| 02/28/2020 | Chemical Oxygen Demand | --              | 61.0                  | 73                 |                | 37             | 10            | 35                              |               | 35            | 38            | 31            |
| 08/31/2020 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 28             | 10            | 10                              |               | 10            | 38            | 10            |
| 03/05/2021 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 24             | 10            | 10                              |               | 10            | 27            | 10            |
| 09/13/2021 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 22             | 23            | 10                              |               | 32            | 41            | 20            |
| 03/02/2022 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 31             | 22            | 10                              |               | 38            | 34            | 30            |
| 09/12/2022 | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 10             | 34            | 48                              |               | 26            | 34            | 10            |
| 03/24/2023 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | 34            | NT                              |               | NT            | 49            | NT            |
| 09/13/2023 | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | 10             | NT            | NT                              |               | NT            | NT            | 29            |

Mean 18.4  
Standard Deviation (STD) 21.3  
Mean + 2 STD 61.0

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

Mean  
Standard Deviation (STD)  
Mean + 2 STD

179.0

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER           | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|---------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                     |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|            |                     |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 03/16/1995 | Conductivity, us/cm | --              | 1798                  |                    | 590            | 890            | 580           |                                 | 550           | 360           | 320           | 310           |
| 09/13/1995 | Conductivity, us/cm | --              | 1798                  |                    | 490            | 740            | 510           |                                 | 380           | 280           | 140           | 130           |
| 03/28/1996 | Conductivity, us/cm | --              | 1798                  | 500                | plugged        | 720            | 420           | 490                             | plugged       | 340           | 330           | 340           |
| 06/20/1996 | Conductivity, us/cm | --              | 1798                  | 640                |                | NT             | NT            | 290                             |               | NT            | NT            | NT            |
| 09/13/1996 | Conductivity, us/cm | --              | 1798                  | 560                |                | 750            | 670           | 280                             |               | 330           | 290           | 280           |
| 12/16/1996 | Conductivity, us/cm | --              | 1798                  | NT                 |                | 740            | 770           | NT                              |               | 320           | 360           | 350           |
| 03/19/1997 | Conductivity, us/cm | --              | 1798                  | 800                |                | 750            | 630           | 340                             |               | 350           | 390           | 370           |
| 06/18/1997 | Conductivity, us/cm | --              | 1798                  | 530                |                | 540            | 540           | 280                             |               | 250           | 250           | 250           |
| 08/30/1997 | Conductivity, us/cm | --              | 1798                  | 700                |                | 670            | 660           | 280                             |               | 310           | 270           | 250           |
| 03/10/1998 | Conductivity, us/cm | --              | 1798                  | 860                |                | 710            | 630           | 410                             |               | 370           | 350           | 360           |
| 09/21/1998 | Conductivity, us/cm | --              | 1798                  | 650                |                | 590            | 460           | 280                             |               | 300           | 250           | 220           |
| 03/18/1999 | Conductivity, us/cm | --              | 1798                  | 1600               |                | 976            | 628           | 625                             |               | 628           | 573           | 620           |
| 09/21/1999 | Conductivity, us/cm | --              | 1798                  | 650                |                | 590            | 1216          | 280                             |               | 300           | 534           | 524           |
| 03/21/2000 | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1256          | NT                              |               | NT            | 696           | 670           |
| 06/28/2000 | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1138          | NT                              |               | NT            | 621           | 617           |
| 09/28/2000 | Conductivity, us/cm | --              | 1798                  | 688                |                | 686            | 466           | 688                             |               | 1245          | 680           | 700           |
| 12/27/2000 | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1252          | NT                              |               | NT            | 717           | 728           |
| 03/28/2001 | Conductivity, us/cm | --              | 1798                  | 1949               |                | 938            | 1532          | 812                             |               | 725           | 764           | 794           |
| 09/02/2001 | Conductivity, us/cm | --              | 1798                  | 1583               |                | NT             | 1446          | 687                             |               | NT            | 674           | 586           |
| 03/19/2002 | Conductivity, us/cm | --              | 1798                  | NT                 |                | 1607           | 1590          | NT                              |               | 724           | 684           | 663           |
| 09/19/2002 | Conductivity, us/cm | --              | 1798                  | 1530               |                | 1395           | 1521          | 640                             |               | 686           | 703           | 673           |
| 03/14/2003 | Conductivity, us/cm | --              | 1798                  | 1129               |                | 1358           | 1379          | 499                             |               | 658           | 731           | 710           |
| 09/29/2003 | Conductivity, us/cm | --              | 1798                  | 1185               |                | 890            | 1018          | 584                             |               | 615           | 606           | 593           |
| 03/08/2004 | Conductivity, us/cm | --              | 1798                  | 1647               |                | 1294           | 1225          | 646                             |               | 787           | 704           | 709           |
| 09/27/2004 | Conductivity, us/cm | --              | 1798                  | 1819               |                | 1580           | 1673          | 750                             |               | 760           | 822           | 774           |
| 03/17/2005 | Conductivity, us/cm | --              | 1798                  | 1564               |                | 1413           | 1225          | 650                             |               | 733           | 704           | 709           |
| 09/22/2005 | Conductivity, us/cm | --              | 1798                  | 1029               |                | 948            | 919           | 638                             |               | 611           | 592           | 579           |
| 03/17/2006 | Conductivity, us/cm | --              | 1798                  | 1607               |                | 1378           | 1377          | 709                             |               | 762           | 779           | 759           |
| 09/22/2006 | Conductivity, us/cm | --              | 1798                  | 1374               |                | 1275           | 1281          | 680                             |               | 670           | 686           | 656           |
| 03/14/2007 | Conductivity, us/cm | --              | 1798                  | 1889               |                | 1334           | 1336          | 763                             |               | 667           | 701           | 644           |
| 09/22/2007 | Conductivity, us/cm | --              | 1798                  | 1866               |                | 1275           | 1065          | 658                             |               | 670           | 532           | 522           |
| 03/03/2008 | Conductivity, us/cm | --              | 1798                  | 2000               |                | NT             | NT            | 641                             |               | NT            | NT            | NT            |
| 09/05/2008 | Conductivity, us/cm | --              | 1798                  | 1418               |                | 685            | 804           | 688                             |               | 467           | 504           | 484           |
| 03/09/2009 | Conductivity, us/cm | --              | 1798                  | 1376               |                | 1406           | 1255          | 758                             |               | 712           | 796           | 743           |
| 09/23/2009 | Conductivity, us/cm | --              | 1798                  | 1160               |                | 1501           | 1560          | 520                             |               | 677           | 681           | 620           |
| 03/16/2010 | Conductivity, us/cm | --              | 1798                  | NT                 |                | 1590           | 1700          | NT                              |               | 780           | 690           | 711           |
| 09/10/2010 | Conductivity, us/cm | --              | 1798                  | 1314               |                | 1270           | 855           | 587                             |               | 475           | 720           | 610           |
| 03/01/2011 | Conductivity, us/cm | --              | 1798                  | 1080               |                | 1122           | 928           | 583                             |               | 565           | 615           | 553           |
| 09/22/2011 | Conductivity, us/cm | --              | 1798                  | 998                |                | 1373           | 640           | 518                             |               | 413           | 617           | 534           |
| 03/02/2012 | Conductivity, us/cm | --              | 1798                  | 1868               |                | 1945           | 1695          | 767                             |               | 769           | 859           | 736           |
| 09/05/2012 | Conductivity, us/cm | --              | 1798                  | 998                |                | 1373           | 640           | 518                             |               | 413           | 617           | 534           |
| 03/08/2013 | Conductivity, us/cm | --              | 1798                  | 1860               |                | 1900           | 1680          | 750                             |               | 670           | 880           | 730           |
| 09/13/2013 | Conductivity, us/cm | --              | 1798                  | 1620               |                | 1430           | 1600          | 650                             |               | 530           | 830           | 660           |
| 03/06/2014 | Conductivity, us/cm | --              | 1798                  | 1640               |                | 1550           | 1650          | 670                             |               | 550           | 810           | 680           |
| 09/09/2014 | Conductivity, us/cm | --              | 1798                  | 1760               |                | 1627           | 1527          | 730                             |               | 617           | 806           | 594           |
| 03/11/2015 | Conductivity, us/cm | --              | 1798                  | 1700               |                | 1660           | 1580          | 710                             |               | 440           | 820           | 610           |
| 09/09/2015 | Conductivity, us/cm | --              | 1798                  | 1104               |                | 1311           | 1046          | 574                             |               | 610           | 675           | 527           |
| 03/11/2016 | Conductivity, us/cm | --              | 1798                  | 1304               |                | 1420           | 1290          | 635                             |               | 659           | 610           | 550           |
| 10/27/2016 | Conductivity, us/cm | --              | 1798                  | 1430               |                | 1480           | 1300          | 630                             |               | 710           | 890           | 680           |
| 03/01/2018 | Conductivity, us/cm | --              | 1798                  | 2004               |                | 2108           | 1544          | 803                             |               | 603           | 1022          | 805           |
| 09/19/2018 | Conductivity, us/cm | --              | 1798                  | 1455               |                | 1545           | 1371          | 664                             |               | 618           | 857           | 599           |
| 03/27/2019 | Conductivity, us/cm | --              | 1798                  | 1565               |                | 1669           | 1208          | 603                             |               | 636           | 849           | 629           |
| 09/05/2019 | Conductivity, us/cm | --              | 1798                  | 1355               |                | 1210           | 1281          | 563                             |               | 578           | 880           | 619           |
| 02/28/2020 | Conductivity, us/cm | --              | 1798                  | 1707               |                | 1991           | 1519          | 620                             |               | 626           | 864           | 664           |
| 08/31/2020 | Conductivity, us/cm | --              | 1798                  | 1517               |                | 1656           | 1380          | 575                             |               | 622           | 945           | 650           |
| 03/05/2021 | Conductivity, us/cm | --              | 1798                  | 1572               |                | 1829           | 1495          | 622                             |               | 603           | 893           | 649           |
| 09/13/2021 | Conductivity, us/cm | --              | 1798                  | 1463               |                | 1997           | 1478          | 588                             |               | 632           | 937           | 538           |
| 03/02/2022 | Conductivity, us/cm | --              | 1798                  | 1532               |                | 2490           | 1660          | 578                             |               | 535           | 925           | 657           |
| 09/12/2022 | Conductivity, us/cm | --              | 1798                  | 1634               |                | 1425           | 1769          | 586                             |               | 538           | 879           | 618           |
| 03/24/2023 | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 2276          | NT                              |               | NT            | 977           | NT            |
| 09/13/2023 | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |

Mean 886  
Standard Deviation (STD) 456  
Mean + 2 STD 1798

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER       | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|-----------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                 |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|            |                 |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|            | mg/L            |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991 | Iron, dissolved | --              | 5.70                  |                    | 0.459          | 0.159          | NT            |                                 | 1.5           | 0.05          | NT            | NT            |
| 10/15/1991 | Iron, dissolved | --              | 5.70                  |                    | 1.02           | 0.035          | NT            |                                 | 1.3           | 1.3           | NT            | NT            |
| 01/23/1992 | Iron, dissolved | --              | 5.70                  |                    | 0.015          | 0.015          | NT            |                                 | 0.196         | NT            | NT            | NT            |
| 03/23/1992 | Iron, dissolved | --              | 5.70                  |                    | 0.015          | 0.164          | NT            |                                 | 0.038         | 0.743         | NT            | NT            |
| 09/30/1992 | Iron, dissolved | --              | 5.70                  |                    | 0.015          | NT             | NT            |                                 | 0.015         | 0.015         | NT            | NT            |
| 03/05/1993 | Iron, dissolved | --              | 5.70                  |                    | 0.015          | 0.015          | NT            |                                 | 0.015         | NT            | NT            | NT            |
| 09/21/1993 | Iron, dissolved | --              | 5.70                  |                    | 0.537          | 0.015          | NT            |                                 | 0.823         | 0.015         | 1.04          | 2.08          |
| 03/23/1994 | Iron, dissolved | --              | 5.70                  |                    | 0.083          | 0.015          | 0.077         |                                 | 1.1           | 0.015         | 2.92          | 1.85          |
| 09/16/1994 | Iron, dissolved | --              | 5.70                  |                    | 0.074          | 0.015          | 0.015         |                                 | 2.6           | 0.037         | 1.55          | 3.28          |
| 03/16/1995 | Iron, dissolved | --              | 5.70                  |                    | 5.05           | 0.015          | 0.015         |                                 | 1.94          | 0.015         | 2.18          | 1.83          |
| 09/13/1995 | Iron, dissolved | --              | 5.70                  |                    | 0.35           | 0.015          | 0.015         |                                 | 2.3           | 0.015         | 1.35          | 0.716         |
| 03/28/1996 | Iron, dissolved | --              | 5.70                  | 1.8                | plugged        | 0.015          | 0.015         | 0.015                           | plugged       | 0.015         | 2.18          | 1.83          |
| 06/20/1996 | Iron, dissolved | --              | 5.70                  | 4.94               |                | NT             | NT            | 0.015                           |               | NT            | NT            | NT            |
| 09/13/1996 | Iron, dissolved | --              | 5.70                  | 0.793              |                | 0.015          | 0.066         | 0.015                           |               | 0.015         | 0.015         | 3.42          |
| 12/16/1996 | Iron, dissolved | --              | 5.70                  | NT                 |                | 0.05           | 0.088         | NT                              |               | 0.015         | 1.62          | 2.83          |
| 03/19/1997 | Iron, dissolved | --              | 5.70                  | 3.87               |                | 0.032          | 0.015         | 0.329                           |               | 0.032         | 2.62          | 3.01          |
| 06/18/1997 | Iron, dissolved | --              | 5.70                  | 4.07               |                | 0.015          | 0.015         | 0.015                           |               | 0.086         | 1.66          | 3.65          |
| 08/30/1997 | Iron, dissolved | --              | 5.70                  | 4.22               |                | 0.015          | 0.015         | 0.559                           |               | 0.064         | 2.6           | 3.55          |
| 03/10/1998 | Iron, dissolved | --              | 5.70                  | 3.78               |                | 0.015          | 0.015         | 1.09                            |               | 0.041         | 0.429         | 3.06          |
| 09/21/1998 | Iron, dissolved | --              | 5.70                  | 6.59               |                | 0.015          | 0.015         | 0.61                            |               | 0.085         | 1.37          | 2.7           |
| 03/18/1999 | Iron, dissolved | --              | 5.70                  | 3.73               |                | 0.044          | 0.015         | 0.767                           |               | 0.052         | 2.59          | 3.11          |
| 09/21/1999 | Iron, dissolved | --              | 5.70                  | 7.01               |                | 0.015          | 0.015         | 0.519                           |               | 0.043         | 0.665         | 1.76          |
| 03/21/2000 | Iron, dissolved | --              | 5.70                  | NT                 |                | 0.015          | 0.015         | NT                              |               | 0.252         | 2.58          | 3.22          |
| 06/28/2000 | Iron, dissolved | --              | 5.70                  | NT                 |                | NT             | 0.015         | NT                              |               | NT            | 0.146         | 2.71          |
| 09/28/2000 | Iron, dissolved | --              | 5.70                  | 0.067              |                | 0.015          | 0.015         | 0.015                           |               | 0.031         | 0.533         | 3.23          |
| 12/27/2000 | Iron, dissolved | --              | 5.70                  | NT                 |                | NT             | 0.015         | NT                              |               | NT            | 0.412         | 2.22          |
| 03/28/2001 | Iron, dissolved | --              | 5.70                  | 0.015              |                | 0.039          | 0.015         | 0.196                           |               | 0.015         | 0.094         | 2.1           |
| 09/02/2001 | Iron, dissolved | --              | 5.70                  | 6.85               |                | 0.015          | 0.015         | 0.103                           |               | 0.015         | 0.244         | 2.6           |
| 03/19/2002 | Iron, dissolved | --              | 5.70                  | 0.713              |                | 0.015          | 0.015         | 0.015                           |               | 0.015         | 0.178         | 2.91          |
| 09/19/2002 | Iron, dissolved | --              | 5.70                  | 0.496              |                | 0.015          | 0.015         | 0.015                           |               | 0.015         | 0.184         | 3.4           |
| 03/14/2003 | Iron, dissolved | --              | 5.70                  | 3.64               |                | 0.015          | 0.035         | 0.015                           |               | 0.153         | 1.31          | 4.11          |
| 09/29/2003 | Iron, dissolved | --              | 5.70                  | 1.02               |                | 0.015          | 0.015         | 0.015                           |               | 0.015         | 0.178         | 1.28          |
| 03/08/2004 | Iron, dissolved | --              | 5.70                  | 5.52               |                | 0.015          | 0.015         | 0.073                           |               | 0.015         | 0.128         | 3.82          |
| 09/27/2004 | Iron, dissolved | --              | 5.70                  | 5.25               |                | 0.015          | 0.015         | 0.015                           |               | 0.034         | 0.267         | 4.16          |
| 03/17/2005 | Iron, dissolved | --              | 5.70                  | 0.015              |                | 0.222          | 0.015         | 0.015                           |               | 0.039         | 1.96          | 3.17          |
| 09/22/2005 | Iron, dissolved | --              | 5.70                  | 0.416              |                | 0.015          | 0.015         | 0.015                           |               | 0.032         | 1.04          | 4.42          |
| 03/17/2006 | Iron, dissolved | --              | 5.70                  | 2.8                |                | 0.036          | 0.015         | 0.057                           |               | 0.066         | 1.32          | 4.82          |
| 09/22/2006 | Iron, dissolved | --              | 5.70                  | 6.76               |                | 0.015          | 0.015         | 0.039                           |               | 0.096         | 1.44          | 4.95          |
| 03/14/2007 | Iron, dissolved | --              | 5.70                  | 3.06               |                | 0.015          | 0.044         | 0.18                            |               | 0.068         | 1.49          | 4.61          |
| 09/22/2007 | Iron, dissolved | --              | 5.70                  | 1.68               |                | 0.05           | 0.05          | 0.212                           |               | 0.05          | 0.297         | 5.05          |
| 03/03/2008 | Iron, dissolved | --              | 5.70                  | 3.42               |                | 0.015          | 0.015         | 0.258                           |               | 0.015         | 1.52          | 5.02          |
| 09/05/2008 | Iron, dissolved | --              | 5.70                  | 0.015              |                | 0.039          | 0.015         | 0.212                           |               | 0.015         | 1.01          | 4.6           |
| 03/09/2009 | Iron, dissolved | --              | 5.70                  | 3.82               |                | 0.161          | 0.181         | 0.131                           |               | 0.103         | 2.3           | 4.96          |
| 09/23/2009 | Iron, dissolved | --              | 5.70                  | 0.05               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 0.05          | 4.3           |
| 03/16/2010 | Iron, dissolved | --              | 5.70                  | NT                 |                | 0.05           | 0.05          | NT                              |               | 0.05          | 0.05          | 3.87          |
| 09/10/2010 | Iron, dissolved | --              | 5.70                  | 7.18               |                | 0.05           | 0.05          | 0.505                           |               | 0.152         | 0.17          | 4.12          |
| 03/01/2011 | Iron, dissolved | --              | 5.70                  | 6.82               |                | 0.05           | 0.05          | 0.135                           |               | 0.05          | 0.05          | 4.3           |
| 09/22/2011 | Iron, dissolved | --              | 5.70                  | 1.49               |                | 0.05           | 0.05          | 0.505                           |               | 0.113         | 4.33          | 4.44          |
| 03/02/2012 | Iron, dissolved | --              | 5.70                  | 4.98               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 0.05          | 3.57          |
| 09/05/2012 | Iron, dissolved | --              | 5.70                  | 7.81               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 5.32          | 3.86          |
| 03/08/2013 | Iron, dissolved | --              | 5.70                  | 3.64               |                | 0.05           | 0.05          | 0.229                           |               | 0.05          | 5.14          | 7.19          |
| 09/13/2013 | Iron, dissolved | --              | 5.70                  | 7.82               |                | 0.05           | 0.05          | 0.325                           |               | 0.315         | 5.04          | 2.87          |
| 03/06/2014 | Iron, dissolved | --              | 5.70                  | 3.49               |                | 0.05           | 0.05          | 0.183                           |               | 0.131         | 1             | 3.18          |
| 09/09/2014 | Iron, dissolved | --              | 5.70                  | 7.29               |                | 0.05           | 0.05          | 0.05                            |               | 0.631         | 4.73          | 1.49          |
| 03/11/2015 | Iron, dissolved | --              | 5.70                  | 3.44               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 1.17          | 2.63          |
| 09/09/2015 | Iron, dissolved | --              | 5.70                  | 9.05               |                | 0.05           | 0.05          | 0.05                            |               | 0.983         | 5.52          | 1.57          |
| 03/11/2016 | Iron, dissolved | --              | 5.70                  | 3.73               |                | 0.05           | 0.05          | 0.237                           |               | 0.103         | 0.922         | 2.11          |
| 10/27/2016 | Iron, dissolved | --              | 5.70                  | 8.18               |                | 0.05           | 0.05          | 0.255                           |               | 0.05          | 4.12          | 2.02          |
| 09/07/2017 | Iron, dissolved | --              | 5.70                  | 9.17               |                | 0.05           | 0.05          | 0.05                            |               | 0.141         | 5.58          | 0.787         |
| 03/01/2018 | Iron, dissolved | --              | 5.70                  | 4.84               |                | 0.05           | 0.05          | 0.156                           |               | 0.113         | 2.9           | 1.6           |
| 09/19/2018 | Iron, dissolved | --              | 5.70                  | 8.18               |                | 0.05           | 0.05          | 0.05                            |               | 0.868         | 6.57          | 0.433         |
| 03/27/2019 | Iron, dissolved | --              | 5.70                  | 8.00               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 0.458         | 1.08          |
| 09/05/2019 | Iron, dissolved | --              | 5.70                  | 8.75               |                | 0.05           | 0.05          | 0.05                            |               | 0.239         | 6.39          | 0.641         |
| 02/28/2020 | Iron, dissolved | --              | 5.70                  | 4.03               |                | 0.05           | 0.05          | 0.05                            |               | 0.05          | 1.3           | 1.52          |
| 08/31/2020 | Iron, dissolved | --              | 5.70                  | 8.52               |                | 0.05           | 0.05          | 0.05                            |               | 0.128         | 6.09          | 2.46          |
| 03/05/2021 | Iron, dissolved | --              | 5.70                  | 5.35               |                | 0.05           | 0.05          | 0.05                            |               | 0.201         | 2.38          | 0.868         |
| 09/13/2021 | Iron, dissolved | --              | 5.70                  | 8.96               |                | 0.05           | 0.05          | 0.118                           |               | 0.05          | 14.5          | 3.32          |
| 03/02/2022 | Iron, dissolved | --              | 5.70                  | 5.68               |                | 0.05           | 0.05          | 0.05                            |               | 0.279         | 1.64          | 2.56          |
| 09/12/2022 | Iron, dissolved | --              | 5.70                  | 6.98               |                | 0.05           | 0.05          | 0.193                           |               | 0.05          | 8.21          | 0.395         |
| 03/24/2023 | Iron, dissolved | --              | 5.70                  | NT                 |                | NT             | 0.05          | NT                              |               | NT            | 1.53          | NT            |
| 09/13/2023 | Iron, dissolved | --              | 5.70                  | NT                 |                | 0.05           | NT            | NT                              |               | NT            | NT            | 1.6           |

Mean 1.36  
Standard Deviation (STD) 2.17  
Mean + 2 STD 5.70

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER         | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|-------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                   |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|            |                   |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|            | mg/L              |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.25           | 0.25           | NT            |                                 | 0.25          | 0.25          | NT            | NT            |
| 10/15/1991 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.25           | 0.25           | NT            |                                 | 0.25          | 0.25          | NT            | NT            |
| 01/23/1992 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | NT            | NT            | NT            |
| 03/23/1992 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | NT            | NT            |
| 09/30/1992 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | NT             | NT            |                                 | 0.5           | 0.5           | NT            | NT            |
| 03/05/1993 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | NT            | NT            | NT            |
| 09/21/1993 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | 0.5           | 0.5           |
| 03/23/1994 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | 0.5           | 1.2           |
| 09/16/1994 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | 0.5           | 0.5           |
| 03/16/1995 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | 0.5           | 1.1           |
| 09/13/1995 | Nitrogen, Ammonia | 30              | 0.9                   |                    | 0.5            | 0.5            | NT            |                                 | 0.5           | 0.5           | 0.5           | 1.1           |
| 03/28/1996 | Nitrogen, Ammonia | 30              | 0.9                   | 1.4                | plugged        | 0.5            | 0.5           | 1.2                             | plugged       | 0.5           | 0.5           | 1.1           |
| 06/20/1996 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | NT             | NT            | 0.5                             |               | NT            | NT            | NT            |
| 09/13/1996 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 12/16/1996 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | 0.5            | 0.5           | NT                              |               | 0.5           | 0.5           | 1.2           |
| 03/19/1997 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 06/18/1997 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.2           |
| 08/30/1997 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 03/10/1998 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/21/1998 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/18/1999 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/21/1999 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.3           |
| 03/21/2000 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | 0.5            | 0.5           | NT                              |               | 0.5           | 0.5           | 1             |
| 06/28/2000 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | NT             | 0.5           | NT                              |               | NT            | 0.5           | 1.13          |
| 09/28/2000 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 12/27/2000 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | NT             | 0.5           | NT                              |               | NT            | 0.5           | 1.08          |
| 03/28/2001 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 09/02/2001 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.3           |
| 03/19/2002 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 09/19/2002 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/14/2003 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 1.2           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/29/2003 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/08/2004 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.3           |
| 09/27/2004 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/17/2005 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.5           |
| 09/22/2005 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/17/2006 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/22/2006 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.2           |
| 03/14/2007 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/22/2007 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 03/03/2008 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/05/2008 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/09/2009 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/23/2009 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/16/2010 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | 0.5            | 0.5           | NT                              |               | 0.5           | 0.5           | 0.5           |
| 09/10/2010 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 1.0           | 0.5           | 1.4           |
| 03/01/2011 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | NT                              |               | 0.5           | 0.5           | 0.5           |
| 09/22/2011 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/02/2012 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/05/2012 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/08/2013 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 09/13/2013 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.1           |
| 03/06/2014 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/09/2014 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/11/2015 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.09          |
| 09/09/2015 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/11/2016 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 10/27/2016 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1             |
| 09/07/2017 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 03/01/2018 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/19/2018 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 1.02          |
| 03/27/2019 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 09/05/2019 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.05          |
| 02/28/2020 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.5           |
| 08/31/2020 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.05          |
| 03/05/2021 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.05          |
| 09/13/2021 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.05          |
| 03/02/2022 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 0.5           | 0.05          |
| 09/12/2022 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | 0.5            | 0.5           | 0.5                             |               | 0.5           | 1.54          | 1.28          |
| 03/24/2023 | Nitrogen, Ammonia | 30              | 0.9                   | NT                 |                | NT             | 0.5           | NT                              |               | NT            | 0.5           | NT            |
| 09/13/2023 | Nitrogen, Ammonia | 30              | 0.9                   | 0.5                |                | NT             | NT            | NT                              |               | NT            | NT            | 0.5           |

Mean 0.5  
Standard Deviation (STD) 0.2  
Mean + 2 STD 0.9

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |           |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|                          |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 04/23/1991               | pH        | 6.3             | 8.6                   |                    | 7.01           | 6.99           | NT            |                                 | 7.82          | 7.8           | NT            | NT            |
| 10/15/1991               | pH        | 6.3             | 8.6                   |                    | 7.05           | 7.71           | NT            |                                 | 7.76          | 6.96          | NT            | NT            |
| 01/23/1992               | pH        | 6.3             | 8.6                   |                    | 7.16           | 7.41           | NT            |                                 | 7.53          | NT            | NT            | NT            |
| 03/23/1992               | pH        | 6.3             | 8.6                   |                    | 7.61           | 7.32           | NT            |                                 | 7.51          | 7.68          | NT            | NT            |
| 09/30/1992               | pH        | 6.3             | 8.6                   |                    | 7.22           | NT             | NT            |                                 | 7.68          | 7.36          | NT            | NT            |
| 03/05/1993               | pH        | 6.3             | 8.6                   |                    | 7.58           | 6.72           | NT            |                                 | 7.73          | NT            | NT            | NT            |
| 09/21/1993               | pH        | 6.3             | 8.6                   |                    | 7.34           | 6.73           | 7             |                                 | 7.61          | 7.1           | 7             | 7.3           |
| 03/23/1994               | pH        | 6.3             | 8.6                   |                    | 7.4            | 7.05           | 7.3           |                                 | 7.5           | 7.1           | 7.4           | 7.3           |
| 09/16/1994               | pH        | 6.3             | 8.6                   |                    | 6.82           | 6.57           | 7             |                                 | 6.86          | 6.95          | 7.4           | 7.3           |
| 03/16/1995               | pH        | 6.3             | 8.6                   |                    | 7.2            | 6.9            | 7.5           |                                 | 7.6           | 6.7           | 7.8           | 7.9           |
| 09/13/1995               | pH        | 6.3             | 8.6                   |                    | 7.3            | 7              | 7.8           |                                 | 7.6           | 7.1           | 8.2           | 8             |
| 03/28/1996               | pH        | 6.3             | 8.6                   | 7.9                | plugged        | 8.4            | 7.8           | 8                               | plugged       | 8.2           | 7.8           | 7.8           |
| 06/20/1996               | pH        | 6.3             | 8.6                   | 6.7                |                | NT             | NT            | 7                               |               | NT            | NT            | NT            |
| 09/13/1996               | pH        | 6.3             | 8.6                   | 7.8                |                | 7.7            | 7.6           | 8.3                             |               | 8.3           | 7.9           | 7.9           |
| 12/16/1996               | pH        | 6.3             | 8.6                   | NT                 |                | 6.8            | 6.9           | NT                              |               | 7.2           | 6.8           | 6.7           |
| 03/19/1997               | pH        | 6.3             | 8.6                   | 7.7                |                | 7.7            | 7.7           | 8.2                             |               | 7.7           | 7.4           | 7.3           |
| 06/18/1997               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.8            | 8.4           | 8.2                             |               | 7.8           | 7.8           | 7.6           |
| 08/30/1997               | pH        | 6.3             | 8.6                   | 8.1                |                | 8              | 8             | 7.7                             |               | 7.8           | 6.8           | 6.7           |
| 03/10/1998               | pH        | 6.3             | 8.6                   | 7.8                |                | 8.1            | 8.3           | 7.8                             |               | 7.8           | 8.2           | 8.1           |
| 09/21/1998               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 6.4           | 7.2                             |               | 7.2           | 3.2           | 2.8           |
| 03/18/1999               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.7            | 7.2           | 7.4                             |               | 7.8           | 6.9           | 7             |
| 09/21/1999               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 7.2           | 7.2                             |               | 7.2           | 7.4           | 7.7           |
| 03/21/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7.9           | NT                              |               | NT            | 8.1           | 7.9           |
| 06/28/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7.1           | NT                              |               | NT            | 7.3           | 7.1           |
| 09/28/2000               | pH        | 6.3             | 8.6                   | 7                  |                | 7.4            | 6.8           | 7.5                             |               | 7.1           | 7.3           | 7.3           |
| 12/27/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 8.2           | NT                              |               | NT            | 8.5           | 8.5           |
| 03/28/2001               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.8            | 6.8           | 7.5                             |               | 7.4           | 7.9           | 7.5           |
| 09/02/2001               | pH        | 6.3             | 8.6                   | 7.7                |                | NT             | 6.9           | 7.5                             |               | NT            | 7.4           | 7.7           |
| 03/19/2002               | pH        | 6.3             | 8.6                   | 6.8                |                | 7.4            | 6.5           | NT                              |               | 7.2           | 7.2           | 7.1           |
| 09/19/2002               | pH        | 6.3             | 8.6                   | 6.7                |                | 6.8            | 6.6           | 7.8                             |               | 7.7           | 7.1           | 6.9           |
| 03/14/2003               | pH        | 6.3             | 8.6                   | 7.5                |                | 6.7            | 6.6           | 7.6                             |               | 7             | 7             | 7.1           |
| 09/29/2003               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.4            | 6.9           | 7.8                             |               | 7.7           | 7.4           | 7.4           |
| 03/08/2004               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.5            | 7.1           | 7                               |               | 7.5           | 7.1           | 7.7           |
| 09/27/2004               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.3            | 6.7           | 7.5                             |               | 7.7           | 7.8           | 7.6           |
| 03/17/2005               | pH        | 6.3             | 8.6                   | 7.3                |                | 6.9            | 7.1           | 8                               |               | 7.4           | 7.1           | 7.7           |
| 09/22/2005               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.2            | 7.2           | 7.6                             |               | 7.7           | 8             | 8.3           |
| 03/17/2006               | pH        | 6.3             | 8.6                   | 8                  |                | 7.8            | 8.1           | 8.3                             |               | 8.2           | 8.3           | 8.4           |
| 09/22/2006               | pH        | 6.3             | 8.6                   | 7.7                |                | 8              | 7.7           | 8.1                             |               | 8.4           | 8.3           | 8.4           |
| 03/14/2007               | pH        | 6.3             | 8.6                   | 6.9                |                | 7.2            | 6.7           | 7.4                             |               | 7.3           | 7.2           | 7.3           |
| 09/22/2007               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.2            | 6.9           | 7.71                            |               | 8.4           | 7.4           | 7.5           |
| 03/03/2008               | pH        | 6.3             | 8.6                   | 6.93               |                | 7              | 6.7           | 7.44                            |               | 7.1           | 7.2           | 7.2           |
| 09/05/2008               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 6.6           | 7.3                             |               | 7.3           | 7.2           | 7.1           |
| 03/09/2009               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.3            | 8             | 7.7                             |               | 7.6           | 7.6           | 7.6           |
| 09/23/2009               | pH        | 6.3             | 8.6                   | 8.1                |                | 8.4            | 7.8           | 8.2                             |               | 7.9           | 7.9           | 8             |
| 03/16/2010               | pH        | 6.3             | 8.6                   | NT                 |                | 8              | 7.3           | NT                              |               | 7.8           | 7.7           | 7.7           |
| 09/10/2010               | pH        | 6.3             | 8.6                   | 7.8                |                | 7              | 7.2           | 8                               |               | 7             | 7.1           | 7.1           |
| 03/01/2011               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.7            | 7.8           | 7.9                             |               | 7.9           | 7.9           | 7.8           |
| 09/22/2011               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.6            | 7.7           | 7.8                             |               | 7.9           | 7.9           | 7.7           |
| 03/02/2012               | pH        | 6.3             | 8.6                   | 7.7                |                | 7.2            | 7.2           | 7.4                             |               | 7.5           | 7.2           | 7.3           |
| 09/05/2012               | pH        | 6.3             | 8.6                   | 8                  |                | 8              | 8             | 8.1                             |               | 8.2           | 8.1           | 8.2           |
| 03/08/2013               | pH        | 6.3             | 8.6                   | 6.7                |                | 6.7            | 6.3           | 7                               |               | 7             | 6.7           | 6.8           |
| 09/13/2013               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.2            | 7             | 7.6                             |               | 7.9           | 7.1           | 7.6           |
| 03/06/2014               | pH        | 6.3             | 8.6                   | 7.8                |                | 8.8            | 7.6           | 8.9                             |               | 8.4           | 8.5           | 8.3           |
| 09/09/2014               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.1            | 7.5           | 7.7                             |               | 7.7           | 7.3           | 7.8           |
| 03/11/2015               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.6            | 6.7           | 7.7                             |               | 8             | 7.4           | 7.5           |
| 09/09/2015               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.2            | 6.9           | 7.9                             |               | 7.5           | 7.4           | 7.7           |
| 03/11/2016               | pH        | 6.3             | 8.6                   | 7.8                |                | 7.9            | 7.6           | 8.3                             |               | 8.1           | 8.3           | 8.2           |
| 10/27/2016               | pH        | 6.3             | 8.6                   | 7.4                |                | 7.1            | 7             | 7.8                             |               | 7.6           | 7.3           | 7.5           |
| 03/01/2018               | pH        | 6.3             | 8.6                   | 6.9                |                | 7.4            | 7.1           | 7.9                             |               | 8             | 7.4           | 7.7           |
| 09/19/2018               | pH        | 6.3             | 8.6                   | 7                  |                | 7.3            | 7.5           | 7                               |               | 7.4           | 7.4           | 8.1           |
| 03/27/2019               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.3            | 7.1           | 7.9                             |               | 7.7           | 7.5           | 7.8           |
| 09/05/2019               | pH        | 6.3             | 8.6                   | 7.4                |                | 7.4            | 7.1           | 7.7                             |               | 7.7           | 7.6           | 7.8           |
| 02/28/2020               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.4            | 7.5           | 7.7                             |               | 7.8           | 7.8           | 8.3           |
| 08/31/2020               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.3            | 7.1           | 8.3                             |               | 8.3           | 7.4           | 7.6           |
| 03/05/2021               | pH        | 6.3             | 8.6                   |                    |                |                |               |                                 |               |               |               |               |
| 09/13/2021               | pH        | 6.3             | 8.6                   | 6.9                |                | 6.8            | 6.9           | 7.5                             |               | 8             | 7.1           | 7.2           |
| 03/02/2022               | pH        | 6.3             | 8.6                   | 6.8                |                | 6.9            | 6.9           | 7.4                             |               | 7.6           | 7             | 7.3           |
| 09/12/2022               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.3            | 6.9           | 8.1                             |               | 8.8           | 7.5           | 8.2           |
| 03/24/2023               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7             | NT                              |               | NT            | 6.9           | NT            |
| 09/13/2023               | pH        | 6.3             | 8.6                   | NT                 |                | 6.7            | NT            | NT                              |               | NT            | NT            | 6.8           |
| Mean                     |           |                 |                       |                    | 7.5            |                |               |                                 |               |               |               |               |
| Standard Deviation (STD) |           |                 |                       |                    | 0.6            |                |               |                                 |               |               |               |               |
| Mean + 2 STD             |           |                 |                       |                    | 8.6            |                |               |                                 |               |               |               |               |
| Mean - 2 STD             |           |                 |                       |                    | 6.3            |                |               |                                 |               |               |               |               |

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

## MONITORING WELL SAMPLING RESULTS

|                          |      |
|--------------------------|------|
| Mean                     | 0.05 |
| Standard Deviation (STD) | 0.01 |
| Mean + 2 STD             | 0.07 |

## WATER

|                          |      |
|--------------------------|------|
| Mean                     | 13.3 |
| Standard Deviation (STD) | 4.6  |
| Mean + 2 STD             | 22.5 |

## WATER

Mean  
Standard Deviation (STD)  
Mean + 2 STD

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER                | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|--------------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                          |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|            |                          |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|            | mg/L                     |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 03/11/2016 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.176          | 0.05           |               | 0.151                           |               | 0.05          | 0.05          | 0.05          |
| 10/27/2016 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.277          | 0.106          |               | 0.14                            |               | 0.05          | 0.05          | 0.05          |
| 09/07/2017 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.262          | 0.05           |               | 0.143                           |               | 0.05          | 0.05          | 0.05          |
| 03/01/2018 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.168          | 0.05           |               | 0.117                           |               | 0.05          | 0.05          | 0.05          |
| 09/19/2018 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.256          | 0.05           |               | 0.180                           |               | 0.05          | 0.05          | 0.05          |
| 03/27/2019 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.175          | 0.05           |               | 0.149                           |               | 0.05          | 0.05          | 0.05          |
| 09/05/2019 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.343          | 0.05           |               | 0.138                           |               | 0.05          | 0.05          | 0.05          |
| 02/28/2020 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.218          | 0.05           |               | 0.143                           |               | 0.05          | 0.05          | 0.05          |
| 08/31/2020 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.31           | 0.05           |               | 0.141                           |               | 0.05          | 0.05          | 0.05          |
| 03/05/2021 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.317          | 0.05           |               | 0.125                           |               | 0.05          | 0.05          | 0.05          |
| 09/13/2021 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.389          | 0.05           |               | 0.124                           |               | 0.05          | 0.05          | 0.05          |
| 03/02/2022 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.256          | 0.05           |               | 0.110                           |               | 0.05          | 0.05          | 0.05          |
| 09/12/2022 | Boron, Total             | 6               | 0.275                 | 0.05               | 0.467          | 0.05           |               | 0.130                           |               | 0.05          | 0.05          | 0.05          |
| 03/24/2023 | Boron, Total             | 6               | 0.275                 | NT                 | NT             | 0.05           |               | NT                              |               | NT            | 0.05          | NT            |
| 09/13/2023 | Boron, Total             | 6               | 0.275                 | NT                 | 0.338          | NT             |               | NT                              |               | NT            | NT            | 0.114         |
|            | Mean                     |                 |                       | 0.098              |                |                |               |                                 |               |               |               |               |
|            | Standard Deviation (STD) |                 |                       | 0.089              |                |                |               |                                 |               |               |               |               |
|            | Mean + 2 STD             |                 |                       | 0.275              |                |                |               |                                 |               |               |               |               |

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |           |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|                          |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 03/11/2016               | Sulfate   | --              | 549.8635              | 597                |                | 529            | 133           | 16.9                            |               | 71.4          | 71.6          | 26.1          |
| 10/27/2016               | Sulfate   | --              | 549.8635              | 514                |                | 524            | 102           | 11                              |               | 74.5          | 79.1          | 42            |
| 09/07/2017               | Sulfate   | --              | 549.8635              | 470                |                | 407            | 76.6          | 9.2                             |               | 67            | 70            | 42.8          |
| 03/01/2018               | Sulfate   | --              | 549.8635              | 600                |                | 539            | 76.9          | 10.5                            |               | 68.1          | 69.1          | 40.9          |
| 09/19/2018               | Sulfate   | --              | 549.8635              | 468                |                | 512            | 53.3          | 9                               |               | 70.9          | 73.2          | 45            |
| 03/27/2019               | Sulfate   | --              | 549.8635              | 550                |                | 532            | 44.2          | 10.9                            |               | 64.2          | 71.2          | 44.9          |
| 09/05/2019               | Sulfate   | --              | 549.8635              | 442                |                | 315            | 33.3          | 13.7                            |               | 56.4          | 75.1          | 44.8          |
| 02/28/2020               | Sulfate   | --              | 549.8635              | 518                |                | 440            | 40.7          | 8.7                             |               | 64.8          | 70            | 42.5          |
| 08/31/2020               | Sulfate   | --              | 549.8635              | 436                |                | 357            | 29.9          | 13.6                            |               | 67.4          | 69.6          | 41.4          |
| 03/05/2021               | Sulfate   | --              | 549.8635              | 546                |                | 361            | 49.5          | 9.5                             |               | 65.1          | 69.6          | 41.7          |
| 09/13/2021               | Sulfate   | --              | 549.8635              | 371                |                | 377            | 54.4          | 11                              |               | 70.7          | 70.2          | 43.3          |
| 03/02/2022               | Sulfate   | --              | 549.8635              | 378                |                | 477            | 88.6          | 10                              |               | 70.8          | 71.3          | 41.6          |
| 09/12/2022               | Sulfate   | --              | 549.8635              | 363                |                | 323            | 147           | 12.6                            |               | 71.4          | 70.5          | 33            |
| 03/24/2023               | Sulfate   | --              | 549.8635              | NT                 |                | NT             | 315           | NT                              |               | NT            | 74.6          | NT            |
| 09/13/2023               | Sulfate   | --              | 549.8635              | NT                 |                | 418            | NT            | NT                              |               | NT            | NT            | 46.4          |
| Mean                     |           |                 |                       | 171                |                |                |               |                                 |               |               |               |               |
| Standard Deviation (STD) |           |                 |                       | 190                |                |                |               |                                 |               |               |               |               |
| Mean + 2 STD             |           |                 |                       | 550                |                |                |               |                                 |               |               |               |               |

AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER      | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|----------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |                |                 |                       | Control Limits     |                |                |               | Control Limits                  |               |               |               |               |
|                          |                |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 09/09/2014               | Turbidity, NTU | --              | 235.8151              | 632.4              |                | 0.44           | 2.03          | 11.02                           |               | 4.43          | 39.1          | 40.9          |
| 03/11/2016               | Turbidity, NTU | --              | 235.8151              | 101                |                | 2.26           | 1.13          | 0.97                            |               | 7.08          | 3.95          | 2.14          |
| 10/27/2016               | Turbidity, NTU | --              | 235.8151              | 6.65               |                | 2.69           | 1.34          | 6.36                            |               | 16.9          | 1.68          | 3.12          |
| 03/27/2017               | Turbidity, NTU | --              | 235.8151              | 129                |                | 1.25           | 3.15          | 3.79                            |               | 10.1          | NT            | 23            |
| 09/07/2017               | Turbidity, NTU | --              | 235.8151              | 418.2              |                | 0.72           | 0.59          | 2.72                            |               | 13.34         | 45.19         | 8.35          |
| 03/01/2018               | Turbidity, NTU | --              | 235.8151              | 30.1               |                | 1.23           | 0.7           | 0.91                            |               | 3.91          | 5.64          | 7.51          |
| 09/19/2018               | Turbidity, NTU | --              | 235.8151              | 668                |                | 0.42           | 0.63          | 0.71                            |               | 2.61          | 1.43          | 5.81          |
| 03/27/2019               | Turbidity, NTU | --              | 235.8151              | 195.1              |                | 2.11           | 1.28          | 0.83                            |               | 11.76         | 3.02          | 36.95         |
| 09/05/2019               | Turbidity, NTU | --              | 235.8151              | 36.19              |                | 0.95           | 0.56          | 1.84                            |               | 22.06         | 30.36         | 18.85         |
| 02/28/2020               | Turbidity, NTU | --              | 235.8151              | 218.7              |                | 7.68           | 1.21          | 0.93                            |               | 1.14          | 4.15          | 25.68         |
| 08/31/2020               | Turbidity, NTU | --              | 235.8151              | 168                |                | 1.68           | 0.83          | 6                               |               | 2.74          | 114           | 34.58         |
| 03/05/2021               | Turbidity, NTU | --              | 235.8151              | 103.4              |                | 4.28           | 1.28          | 1.4                             |               | 12.29         | 12.26         | 21.07         |
| 09/13/2021               | Turbidity, NTU | --              | 235.8151              | 84.39              |                | 1.79           | 0.94          | 1.23                            |               | 5.66          | 4.53          | 5.87          |
| 03/02/2022               | Turbidity, NTU | --              | 235.8151              | 64.75              |                | 2.73           | 1.49          | 3.7                             |               | 15.86         | 10.21         | 14.62         |
| 09/12/2022               | Turbidity, NTU | --              | 235.8151              | 61.68              |                | 2.66           | 0.94          | 4.15                            |               | 9.12          | 9.36          | 4.7           |
| 03/24/2023               | Turbidity, NTU | --              | 235.8151              | NT                 |                | NT             | 1.33          | NT                              |               | NT            | 36.31         | NT            |
| 09/13/2023               | Turbidity, NTU | --              | 235.8151              | NT                 |                | 4.61           | NT            | NT                              |               | NT            | NT            | 51.95         |
| Mean                     |                |                 |                       | 35.06              |                |                |               |                                 |               |               |               |               |
| Standard Deviation (STD) |                |                 |                       | 100.38             |                |                |               |                                 |               |               |               |               |
| Mean + 2 STD             |                |                 |                       | 235.82             |                |                |               |                                 |               |               |               |               |

Table 6 – Summary of Current Year Detections with Limit Exceedances

**Table 6**  
**Summary of Well/Detected Constituent Pairs With Limit Exceedances**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

**2023**

| Well           | Constituent       | Units | Most recent result | Background Standard | GWPS   |
|----------------|-------------------|-------|--------------------|---------------------|--------|
| MW-6           | None              |       |                    |                     |        |
| MW-7           | None              |       |                    |                     |        |
| MW-8           | None              |       |                    |                     |        |
| MW-28          | None              |       |                    |                     |        |
| MW-29          | None              |       |                    |                     |        |
| MW-36          | None              |       |                    |                     |        |
| MW-37          | None              |       |                    |                     |        |
| SW-3           | None              |       |                    |                     |        |
| MW-25 - Spring | Boron             | mg/L  | 0.921              | 0.275               | 6.0    |
| MW-25 - Fall   | Boron             | mg/L  | 0.859              | 0.275               | 6.0    |
| MW-33 - Spring | Iron              | mg/L  | 11.2               | 5.70                | None   |
| MW-33 - Fall   | Iron              | mg/L  | 9.8                | 5.70                | None   |
| MW-33 - Spring | Nitrogen, Ammonia | mg/L  | 1.64               | 0.90                | 30.0   |
| MW-33 - Fall   | Nitrogen, Ammonia | mg/L  | 1.76               | 0.90                | 30.0   |
| MW-33 - Spring | Boron             | mg/L  | 0.470              | 0.275               | 6.0    |
| MW-33 - Fall   | Boron             | mg/L  | 0.589              | 0.275               | 6.0    |
| MW-34 - Fall   | Iron              | mg/L  | 12.3               | 5.70                | None   |
| MW-34 - Fall   | Nitrogen, Ammonia | mg/L  | 1.42               | 0.90                | 30.0   |
| MW-34 - Spring | Boron             | mg/L  | 0.285              | 0.275               | 6.0    |
| MW-34 - Spring | Sulfate           | mg/L  | 552                | 550                 | None   |
| MW-35 - Spring | Arsenic           | mg/L  | 0.1020             | 0.0332              | 0.0332 |
| MW-35 - Spring | Chloride          | mg/L  | 587                | 179.0               | None   |
| MW-35 - Spring | Conductivity      | mg/L  | 2604               | 1798.0              | None   |
| MW-39 - Spring | Sulfate           | mg/L  | 607.0              | 549.9               | None   |
| MW-40          | None              |       |                    |                     |        |

Table 7 – Summary of Ongoing and Newly Identified SSI

**Table 7**  
**Summary of Ongoing and Newly Identified Limit Exceedances**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

**2023**

| Date      | Well         | Constituent       | Units | Most recent result | Background Standard | GWPS   | Initial Exceedance | Recorded Exceedances                                                                |
|-----------|--------------|-------------------|-------|--------------------|---------------------|--------|--------------------|-------------------------------------------------------------------------------------|
| 9/13/2023 | MW-25 - Fall | Boron             | mg/L  | 0.859              | 0.275               | 6.0    | 3/11/2016          | 15 of 15 episodes (all)                                                             |
| 9/13/2023 | MW-33 - Fall | Iron              | mg/L  | 9.8                | 5.70                | None   | 9/9/2014           | 17 of 17 episodes (all)                                                             |
| 9/13/2023 | MW-33 - Fall | Nitrogen, Ammonia | mg/L  | 1.76               | 0.90                | 30.0   | 9/9/2014           | 18 of 18 episodes (all)                                                             |
| 9/13/2023 | MW-33 - Fall | Boron             | mg/L  | 0.589              | 0.275               | 6.0    | 3/11/2016          | 15 of 15 episodes (all)                                                             |
| 9/13/2023 | MW-34 - Fall | Arsenic           | mg/L  | 0.0149             | 0.0332              | 0.0332 | 3/5/2021           | 3/5/2021, 3/2/2022                                                                  |
| 9/13/2023 | MW-34 - Fall | Iron              | mg/L  | 12.30              | 5.70                | None   | 9/7/2017           | 9/7/2017, 9/5/2019, 8/31/2020, 9/13/2021, 3/2/2022, 9/12/2022, 9/13/2023            |
| 9/13/2023 | MW-34 - Fall | Nitrogen, Ammonia | mg/L  | 1.42               | 0.90                | 30.0   | 9/7/2017           | 9/7/2017, 9/5/2019, 8/31/2020, 9/13/2021, 9/12/2022, 9/13/2023                      |
| 9/13/2023 | MW-34 - Fall | Boron             | mg/L  | 0.21               | 0.28                | 6.0    | 9/19/2018          | 9/19/2018, 3/24/2023                                                                |
| 9/13/2023 | MW-34 - Fall | Sulfate           | mg/L  | 167.0              | 549.9               | None   | 3/24/2023          | 3/24/2023                                                                           |
| 9/13/2023 | MW-35 - Fall | Arsenic           | mg/L  | 0.0069             | 0.0332              | 0.0332 | 10/27/2016         | 10/27/2016, 3/1/2018, 3/27/2019, 8/31/2020, 3/2/2022, 3/24/2023                     |
| 9/13/2023 | MW-35 - Fall | COD               | mg/L  | 25.0000            | 61.0                | None   | 9/9/2015           | 9/9/2015, 10/27/2016, 9/5/2019                                                      |
| 9/13/2023 | MW-35 - Fall | Chloride          | mg/L  | 113.0              | 179.0               | None   | 3/11/2015          | 3/11/2015, 3/11/2016, 3/1/2018, 3/27/2019, 2/28/2020, 3/5/2021, 3/2/2022, 3/24/2023 |
| 9/13/2023 | MW-35 - Fall | Conductivity      | us/cm | NT                 | 1798.0              | None   | 3/27/2019          | 3/27/2019, 2/28/2020, 3/24/2023                                                     |
| 9/13/2023 | MW-35 - Fall | Temperature       | C     | NT                 | 22.5                | None   | 9/5/2019           | 9/5/2019                                                                            |
| 9/13/2023 | MW-39 - Fall | Arsenic           | mg/L  | 0.0187             | 0.0332              | 0.0332 | 8/31/2020          | 8/31/2020, 3/5/2021                                                                 |
| 9/13/2023 | MW-39 - Fall | Conductivity      | us/cm | NT                 | 1798.0              | None   | 3/1/2018           | 3/1/2018, 3/5/2021, 3/2/2022                                                        |
| 9/13/2023 | MW-39 - Fall | Sulfate           | mg/L  | 544.00             | 549.90              | None   | 3/1/2018           | 3/1/2018, 9/5/2019, 8/31/2020, 3/5/2021, 9/13/2021, 3/2/2022, 9/12/2022, 3/24/2023  |
| 9/13/2023 | MW-39 - Fall | Turbidity         | mg/L  | 86.03              | 235.82              | None   | 3/5/2021           | 3/5/2021                                                                            |
| 9/13/2023 | MW-40 - Fall | Chloride          | mg/L  | 26.1               | 179.0               | None   | 3/1/2018           | 3/1/2018                                                                            |
| 9/13/2023 | MW-40 - Fall | Temperature       | C     | NT                 | 22.5                | None   | 9/19/2018          | 9/19/2018, 9/5/2019                                                                 |

Table 8 - Summary of Ongoing and Newly Identified SSL

Table 8  
Summary of Ongoing and Newly Identified GWPS Exceedances  
Annual Water Quality Report  
Ames-Story Environmental Landfill  
Permit No. 85-SDP-13-91C

**2023**

| Date      | Well         | Constituent | Units | Most recent result | Background Standard | GWPS   | Initial Exceedance | Consecutive Compliance Dates |             |           | Notes        |
|-----------|--------------|-------------|-------|--------------------|---------------------|--------|--------------------|------------------------------|-------------|-----------|--------------|
|           |              |             |       |                    |                     |        |                    | 1st Occurrence               | Most Recent | Duration  |              |
| 9/13/2023 | MW-34 - Fall | Arsenic     | mg/L  | 0.0149             | 0.0332              | 0.0332 | 3/5/2021           | 9/12/2022                    | 9/13/2023   | 1 year    | Intermittent |
| 9/13/2023 | MW-35 - Fall | Arsenic     | mg/L  | 0.0069             | 0.0332              | 0.0332 | 10/27/2016         | 6/13/2023                    | 9/13/2023   | 6 months  | Intermittent |
| 9/13/2023 | MW-39 - Fall | Arsenic     | mg/L  | 0.0187             | 0.0332              | 0.0332 | 8/31/2020          | 9/13/2021                    | 9/13/2023   | 2.0 years | Intermittent |

## Combined Table 9 & 10– Analytical Data Summary & Exceedance Tracking

**Table 9 & Table 10**  
**Analytical Data Summary & Exceedance Tracking**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

*See Following Pages*

|     |                            |
|-----|----------------------------|
|     | = Exceedance of Background |
| 0.4 | = Exceedance of a GWPS     |

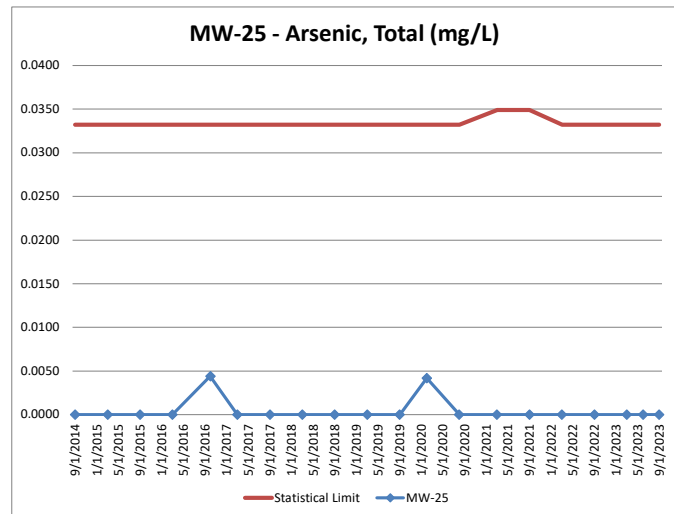
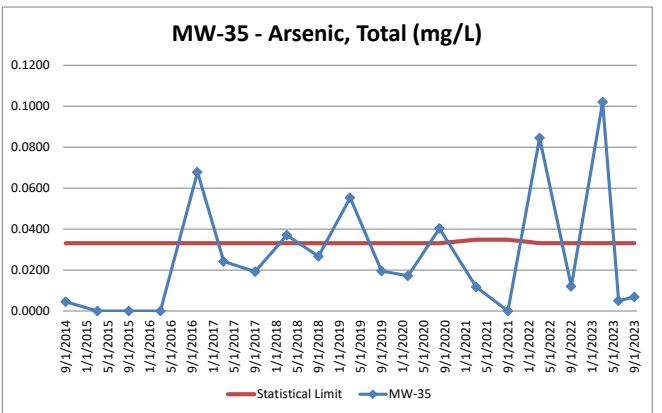
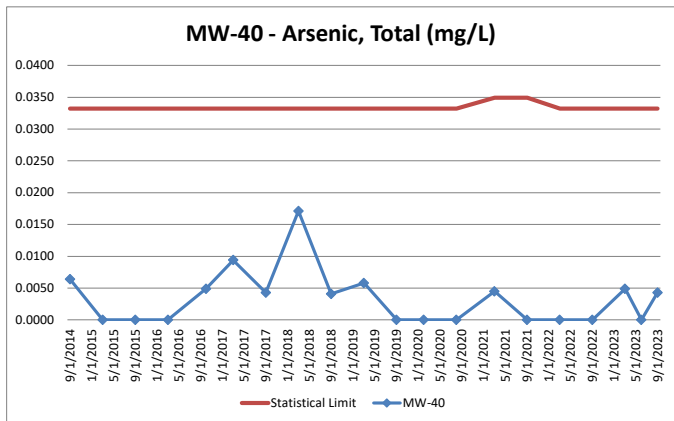
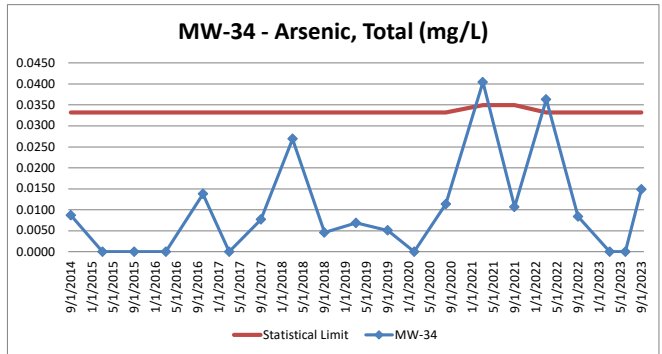
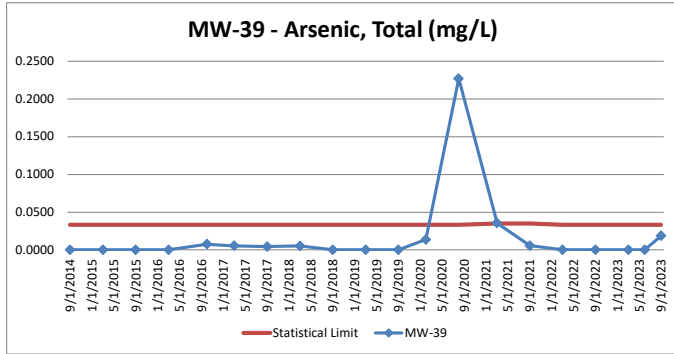
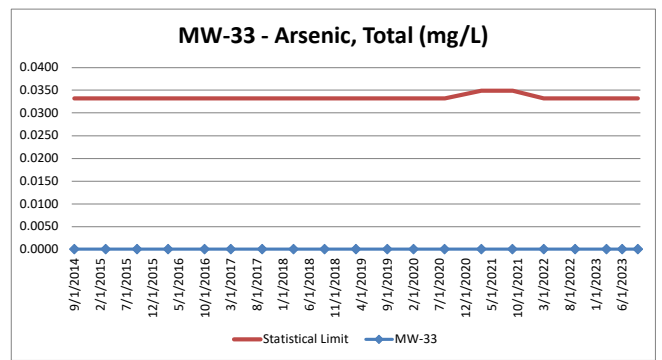
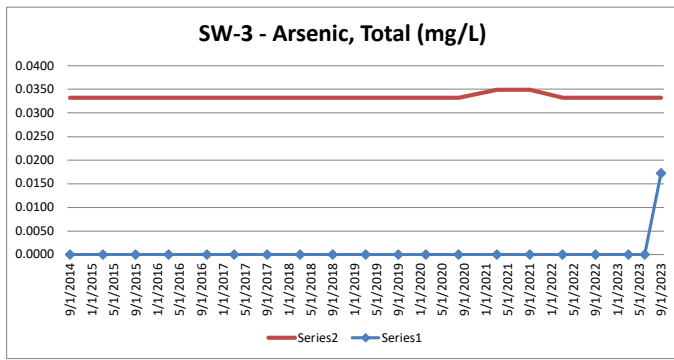
AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER      | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|----------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |                |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |                |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|                          | mg/L           |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 10/15/1991               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 01/23/1992               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 03/23/1992               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/30/1992               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 03/05/1993               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/21/1993               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 03/23/1994               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/16/1994               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 03/16/1995               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/13/1995               | Arsenic, Total | 0.0332          | 0.0332                |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 03/28/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT                 | plugged        | NT             | NT            | NT                              | plugged       | NT            | NT            | NT            |
| 06/20/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 12/16/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/19/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/18/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 08/30/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/10/1998               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1998               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/18/1999               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1999               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/21/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/28/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/28/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 12/27/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/28/2001               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/02/2001               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/19/2002               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/19/2002               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/14/2003               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/29/2003               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/08/2004               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/27/2004               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/17/2005               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2005               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/17/2006               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2006               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/01/2007               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2007               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/03/2008               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2008               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/09/2009               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/23/2009               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/16/2010               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/10/2010               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/01/2011               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2011               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/02/2012               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2012               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/08/2013               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/15/2013               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/06/2014               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/09/2014               | Arsenic, Total | 0.0332          | 0.0332                | 0.0279             |                | <0.004         | <0.004        | 0.0375                          |               | 0.0239        | 0.0226        | 0.0187        |
| 03/11/2015               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | 0.0187                          |               | NT            | NT            | NT            |
| 09/09/2015               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | 0.014                           |               | 0.0146        | 0.0174        | 0.0213        |
| 03/11/2016               | Arsenic, Total | 0.0332          | 0.0332                | 0.0051             |                | <0.004         | <0.004        | 0.0153                          |               | 0.0061        | 0.0056        | 0.0183        |
| 10/27/2016               | Arsenic, Total | 0.0332          | 0.0332                | 0.0081             |                | <0.004         | <0.004        | 0.015                           |               | 0.0252        | <0.004        | 0.0212        |
| 03/27/2017               | Arsenic, Total | 0.0332          | 0.0332                | 0.0248             |                | <0.004         | <0.004        | 0.017                           |               | 0.0214        | NT            | 0.0181        |
| 09/07/2017               | Arsenic, Total | 0.0332          | 0.0332                | 0.007              |                | <0.004         | <0.004        | 0.0154                          |               | 0.0214        | 0.0173        | 0.0184        |
| 03/01/2018               | Arsenic, Total | 0.0332          | 0.0332                | 0.0056             |                | <0.004         | <0.004        | 0.0143                          |               | 0.0075        | 0.0118        | 0.0233        |
| 09/19/2018               | Arsenic, Total | 0.0332          | 0.0332                | 0.0493             |                | <0.004         | <0.004        | 0.0132                          |               | 0.013         | 0.0227        | 0.0255        |
| 03/27/2019               | Arsenic, Total | 0.0332          | 0.0332                | 0.0101             |                | <0.004         | <0.004        | 0.0138                          |               | 0.0154        | 0.0042        | 0.0157        |
| 09/05/2019               | Arsenic, Total | 0.0332          | 0.0332                | 0.0137             |                | <0.004         | <0.004        | 0.0125                          |               | 0.0214        | 0.034         | 0.0212        |
| 02/28/2020               | Arsenic, Total | 0.0332          | 0.0332                | 0.0183             |                | <0.004         | <0.004        | 0.0143                          |               | 0.007         | 0.0062        | 0.0346        |
| 08/31/2020               | Arsenic, Total | 0.0332          | 0.0332                | 0.0151             |                | <0.004         | <0.004        | 0.0108                          |               | 0.0147        | 0.0424        | 0.019         |
| 03/05/2021               | Arsenic, Total | 0.0349          | 0.0349                | 0.0076             |                | <0.004         | <0.004        | 0.0286                          |               | 0.0088        | 0.0062        | 0.019         |
| 09/13/2021               | Arsenic, Total | 0.0349          | 0.0349                | 0.0068             |                | <0.004         | <0.004        | 0.0118                          |               | 0.017         | 0.0506        | 0.0205        |
| 03/02/2022               | Arsenic, Total | 0.0332          | 0.0332                | 0.0048             |                | <0.004         | <0.004        | 0.0124                          |               | 0.0097        | 0.0042        | 0.022         |
| 09/12/2022               | Arsenic, Total | 0.0332          | 0.0332                | 0.0052             |                | <0.004         | <0.004        | 0.0106                          |               | 0.0111        | 0.0159        | 0.0165        |
| 03/24/2023               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | <0.004        | NT                              |               | NT            | 0.0122        | NT            |
| 06/13/2023               | Arsenic, Total | 0.0332          | 0.0332                | NT                 |                | NT             | NT            | NT                              | NT            | NT            | NT            | NT            |
| 09/13/2023               | Arsenic, Total | 0.0332          | 0.0332                | NT                 | NT             | <0.004         | NT            | NT                              | NT            | NT            | NT            | 0.0128        |
| Mean                     |                |                 |                       | 0.014              |                | #DIV/0!        | #DIV/0!       | 0.016                           |               | 0.015         | 0.018         | 0.020         |
| Standard Deviation (STD) |                |                 |                       | 0.012              |                | #DIV/0!        | #DIV/0!       | 0.007                           |               | 0.006         | 0.014         | 0.005         |
| Mean + 2 STD             |                |                 |                       | 0.038              |                | #DIV/0!        | #DIV/0!       | 0.029                           |               | 0.027         | 0.046         | 0.030         |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER      | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W<br>SW 3 | D.G.W<br>MW 39 | D.G.W<br>MW 40 | BOTH<br>MW 25 | BOTH<br>MW 33 | BOTH<br>MW 34 | BOTH<br>MW35 |
|--------------------------|----------------|-----------------|-----------------------|---------------|----------------|----------------|---------------|---------------|---------------|--------------|
|                          |                |                 |                       |               |                |                |               |               |               |              |
| mg/L                     |                |                 |                       |               |                |                |               |               |               |              |
| 04/23/1991               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | ---           | NT            |              |
| 10/15/1991               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | ---           | NT            |              |
| 01/23/1992               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 03/23/1992               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 09/30/1992               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 03/05/1993               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 09/21/1993               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 03/23/1994               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 09/16/1994               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 03/16/1995               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            |              |
| 09/13/1995               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/28/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 06/20/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 09/13/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 12/16/1996               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/19/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 06/18/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 08/30/1997               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/10/1998               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 09/21/1998               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/18/1999               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 09/21/1999               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/21/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT            |                |                | NT            | NT            | NT            | NT           |
| 06/28/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/28/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | DRY          |
| 12/27/2000               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/28/2001               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/02/2001               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/19/2002               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/19/2002               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/14/2003               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/29/2003               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/08/2004               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/27/2004               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/17/2005               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/22/2005               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/17/2006               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/22/2006               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/01/2007               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/22/2007               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/03/2008               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/05/2008               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/09/2009               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/23/2009               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/16/2010               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/10/2010               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/01/2011               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/22/2011               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/02/2012               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/05/2012               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/08/2013               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/15/2013               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/06/2014               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/09/2014               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | 0.0064         | <0.004        | <0.004        | 0.0087        | 0.0046       |
| 03/11/2015               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 09/09/2015               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 03/11/2016               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| 10/27/2016               | Arsenic, Total | 0.0332          | 0.0332                | Dry           | 0.0076         | 0.0049         | 0.0044        | <0.004        | 0.0138        | 0.0679       |
| 03/27/2017               | Arsenic, Total | 0.0332          | 0.0332                | NT            | 0.0055         | 0.0094         | NT            | NT            | NT            | 0.0243       |
| 09/07/2017               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | 0.0043         | 0.0043         | <0.004        | <0.004        | 0.0077        | 0.0193       |
| 03/01/2018               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | 0.0054         | 0.0171         | <0.004        | <0.004        | 0.0269        | 0.0371       |
| 09/19/2018               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | 0.0041         | <0.004        | <0.004        | 0.0046        | 0.0267       |
| 03/27/2019               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | 0.0058         | <0.004        | <0.004        | 0.0069        | 0.0553       |
| 09/05/2019               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | <0.004         | <0.004        | <0.004        | 0.0051        | 0.0196       |
| 02/28/2020               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | 0.0139         | <0.004         | 0.0042        | <0.004        |               | 0.0173       |
| 08/31/2020               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | 0.227          | <0.004         | <0.004        | <0.004        | 0.0114        | 0.0404       |
| 03/05/2021               | Arsenic, Total | 0.0349          | 0.0349                | <0.004        | 0.0356         | 0.0045         | <0.004        | <0.004        | 0.0404        | 0.0118       |
| 09/13/2021               | Arsenic, Total | 0.0349          | 0.0349                | Dry           | 0.0058         | <0.004         | <0.004        | <0.004        | 0.0107        | <0.004       |
| 03/02/2022               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | <0.004         | <0.004        | <0.004        | 0.0363        | 0.0846       |
| 09/12/2022               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | <0.004         | <0.004        | <0.004        | 0.0084        | 0.0121       |
| 03/24/2023               | Arsenic, Total | 0.0332          | 0.0332                | <0.004        | <0.004         | 0.0049         | <0.004        | <0.004        |               | 0.102        |
| 06/13/2023               | Arsenic, Total | 0.0332          | 0.0332                | NT            | NT             | NT             | NT            | NT            | NT            | 0.0051       |
| 09/13/2023               | Arsenic, Total | 0.0332          | 0.0332                | 0.0172        | 0.0187         | 0.0043         | <0.004        | <0.004        | 0.0149        | 0.0069       |
| Mean                     |                |                 |                       | 0.02          | 0.036          | 0.007          | 0.004         | #DIV/0!       | 0.015         | 0.033        |
| Standard Deviation (STD) |                |                 |                       | 0.00          | 0.068          | 0.004          | 0.000         | #DIV/0!       | 0.011         | 0.029        |
| Mean + 2 STD             |                |                 |                       | 0.02          | 0.172          | 0.014          | 0.005         | #DIV/0!       | 0.038         | 0.091        |



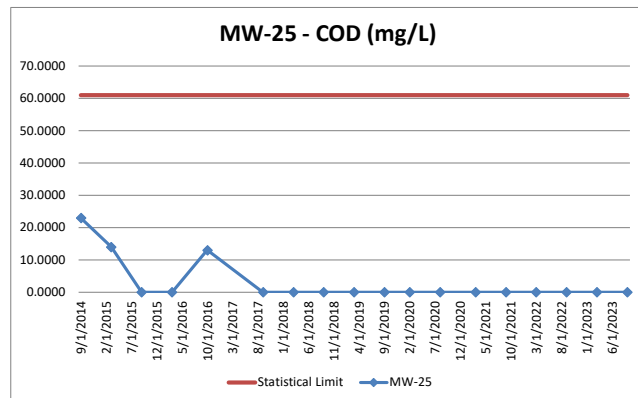
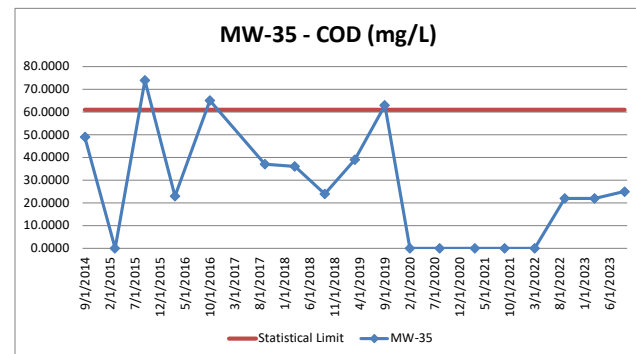
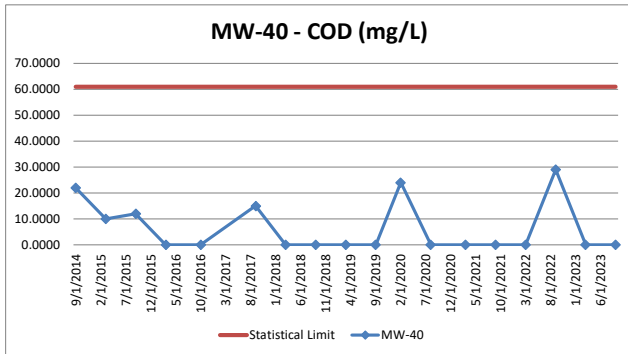
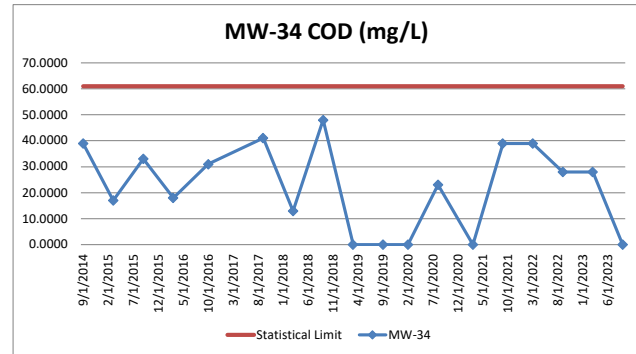
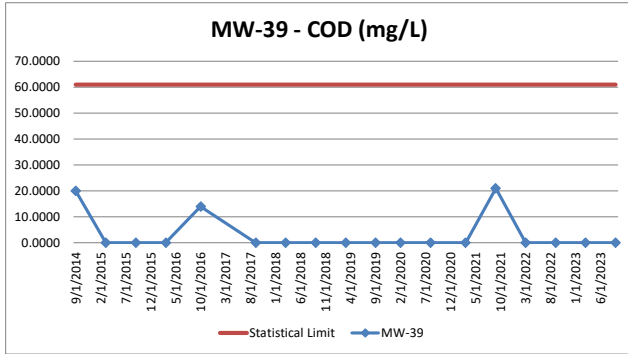
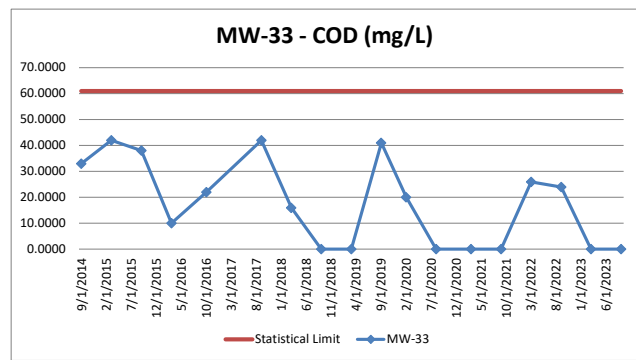
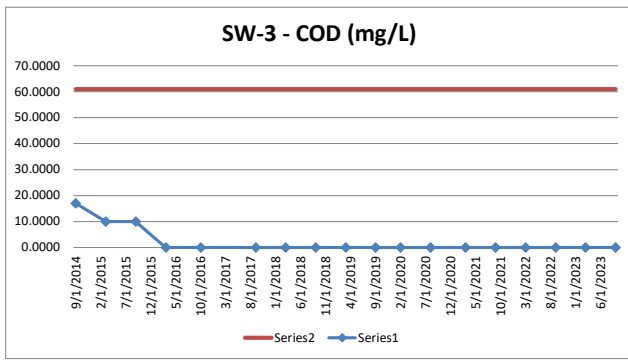
AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER              | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|------------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |                        |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |                        |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|                          | mg/L                   |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991               | Chemical Oxygen Demand | --              | 61.0                  |                    | 8.3            | 67.8           | NT            |                                 | 12            | 20.1          | NT            | NT            |
| 10/15/1991               | Chemical Oxygen Demand | --              | 61.0                  |                    | 15             | 64.8           | NT            |                                 | 16.5          | 19.4          | NT            | NT            |
| 01/23/1992               | Chemical Oxygen Demand | --              | 61.0                  |                    | 24.2           | 84.1           | NT            |                                 | <10           | NT            | NT            | NT            |
| 03/23/1992               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 119            | NT            |                                 | <10           | 50            | NT            | NT            |
| 09/30/1992               | Chemical Oxygen Demand | --              | 61.0                  |                    | 50             | NT             | NT            |                                 | 24            | 180           | NT            | NT            |
| 03/05/1993               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 50.8           | NT            |                                 | <10           | NT            | NT            | NT            |
| 09/21/1993               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 47.3           | <10           |                                 | <10           | 47.3          | <10           | <10           |
| 03/23/1994               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 64             | <10           |                                 | <10           | 64            | <10           | <10           |
| 09/16/1994               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 52             | <10           |                                 | <10           | 52            | <10           | <10           |
| 03/16/1995               | Chemical Oxygen Demand | --              | 61.0                  |                    | 38             | 57             | <10           |                                 | 32            | 26            | <10           | <10           |
| 09/13/1995               | Chemical Oxygen Demand | --              | 61.0                  |                    | <10            | 34             | 35            |                                 | <10           | <10           | <10           | 12            |
| 03/28/1996               | Chemical Oxygen Demand | --              | 61.0                  | <10                | plugged        | 26             | <10           | 11                              | plugged       | <10           | <10           | <10           |
| 06/20/1996               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | NT             | <10           | 10                              |               | NT            | <10           | <10           |
| 09/13/1996               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 18             | <10           | <10                             |               | <10           | <10           | <10           |
| 12/16/1996               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | 28             | <10           | NT                              |               | <10           | <10           | <10           |
| 03/19/1997               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 19             | <10           | <10                             |               | <10           | <10           | <10           |
| 06/18/1997               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 27             | 12            | <10                             |               | <10           | <10           | 10            |
| 08/30/1997               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | 12                              |               | <10           | <10           | <10           |
| 03/10/1998               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | 12                              |               | <10           | <10           | <10           |
| 09/21/1998               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | 12                              |               | <10           | <10           | <10           |
| 03/18/1999               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | <10                             |               | <10           | <10           | <10           |
| 09/21/1999               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | <10                             |               | <10           | <10           | <10           |
| 03/21/2000               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | <10            | <10           | NT                              |               | <10           | <10           | <10           |
| 06/28/2000               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | <10           | NT                              |               | NT            | <10           | 11            |
| 09/28/2000               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 11             | 20            | <10                             |               | <10           | <10           | <10           |
| 12/27/2000               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | <10           | NT                              |               | NT            | <10           | <10           |
| 03/28/2001               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | 11            | <10                             |               | <10           | <10           | <10           |
| 09/02/2001               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 11             | 19            | <10                             |               | <10           | <10           | <10           |
| 03/19/2002               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 24             | <10           | <10                             |               | <10           | <10           | <10           |
| 09/19/2002               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 11             | 12            | <10                             |               | <10           | <10           | <10           |
| 03/14/2003               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 28             | <10           | <10                             |               | <10           | <10           | <10           |
| 09/29/2003               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 23             | 12            | <10                             |               | <10           | <10           | <10           |
| 03/08/2004               | Chemical Oxygen Demand | --              | 61.0                  | 20                 |                | 17             | <10           | <10                             |               | <10           | <10           | <10           |
| 09/27/2004               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 17             | <10           | <10                             |               | <10           | <10           | 10            |
| 03/17/2005               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 21             | 18            | <10                             |               | <10           | <10           | <10           |
| 09/22/2005               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 23             | 19            | <10                             |               | 10            | 19            | <10           |
| 03/17/2006               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 14             | 11            | <10                             |               | <10           | <10           | <10           |
| 09/22/2006               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 10             | <10           | <10                             |               | <10           | <10           | <10           |
| 03/14/2007               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | <10           | <10                             |               | <10           | <10           | <10           |
| 09/22/2007               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 18             | 16            | <10                             |               | <10           | <10           | <10           |
| 03/03/2008               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | <10            | 15            | <10                             |               | 23            | <10           | <10           |
| 09/05/2008               | Chemical Oxygen Demand | --              | 61.0                  | 17                 |                | 65             | 46            | 10                              |               | 24            | 29            | 31            |
| 03/09/2009               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 62             | 36            | <10                             |               | <10           | <10           | 38            |
| 09/23/2009               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 43             | 41            | 12                              |               | <10           | <10           | 11            |
| 03/16/2010               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | <10            | <10           | NT                              |               | 38            | 38            | 24            |
| 09/10/2010               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 64             | 22            | <10                             |               | 32            | 44            | <10           |
| 03/01/2011               | Chemical Oxygen Demand | --              | 61.0                  | 74                 |                | 76             | 71            | <10                             |               | <10           | <10           | <10           |
| 09/22/2011               | Chemical Oxygen Demand | --              | 61.0                  | 46                 |                | 38             | 19            | <10                             |               | <10           | 35            | <10           |
| 03/02/2012               | Chemical Oxygen Demand | --              | 61.0                  | 30                 |                | 65             | 40            | 24                              |               | <10           | 109           | <10           |
| 09/05/2012               | Chemical Oxygen Demand | --              | 61.0                  | 19                 |                | 51             | 49            | 16                              |               | 32            | 150           | 32            |
| 03/08/2013               | Chemical Oxygen Demand | --              | 61.0                  | 18                 |                | 60             | 45            | <10                             |               | 27            | 77            | 35            |
| 09/13/2013               | Chemical Oxygen Demand | --              | 61.0                  | 18                 |                | 62             | 59            | <10                             |               | 13            | 65            | 32            |
| 03/06/2014               | Chemical Oxygen Demand | --              | 61.0                  | 11                 |                | 54             | 42            | <10                             |               | 12            | 52            | 10            |
| 09/09/2014               | Chemical Oxygen Demand | --              | 61.0                  | 20                 |                | 59             | 57            | <10                             |               | 23            | 24            | 31            |
| 03/11/2015               | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 45             | 50            | <10                             |               | 49            | 84            | <10           |
| 09/09/2015               | Chemical Oxygen Demand | --              | 61.0                  | 10                 |                | 46             | 37            | <10                             |               | 32            | 37            | 12            |
| 03/11/2016               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 25             | <10           | <10                             |               | 15            | 35            | 19            |
| 10/27/2016               | Chemical Oxygen Demand | --              | 61.0                  | 11                 |                | 19             | 12            | 10                              |               | 25            | 46            | 20            |
| 09/07/2017               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 29             | 13            | <10                             |               | 15            | 36            | 13            |
| 03/01/2018               | Chemical Oxygen Demand | --              | 61.0                  | <10                |                | 31             | 10            | <10                             |               | 55            | 54            | 31            |
| 09/19/2018               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 27             | <20           | <20                             |               | 49            | 41            | 53            |
| 03/27/2019               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 34             | <20           | <20                             |               | <20           | <20           | 26            |
| 09/05/2019               | Chemical Oxygen Demand | --              | 61.0                  | 45                 |                | 26             | <20           | <20                             |               | 84            | 24            | <20           |
| 02/28/2020               | Chemical Oxygen Demand | --              | 61.0                  | 73                 |                | 37             | <20           | 35                              |               | 35            | 38            | 31            |
| 08/31/2020               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 28             | <20           | <20                             |               | <20           | 38            | <20           |
| 03/05/2021               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 24             | <20           | <20                             |               | <20           | 27            | <20           |
| 09/13/2021               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 22             | 23            | <20                             |               | 32            | 41            | 20            |
| 03/02/2022               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | 31             | 22            | <20                             |               | 38            | 34            | 30            |
| 09/12/2022               | Chemical Oxygen Demand | --              | 61.0                  | <20                |                | <20            | 34            | 48                              |               | 26            | 34            | <20           |
| 03/24/2023               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | NT             | 34            | NT                              |               | NT            | 49            | NT            |
| 09/13/2023               | Chemical Oxygen Demand | --              | 61.0                  | NT                 |                | <20            | NT            | NT                              |               | NT            | NT            | 29            |
| Mean                     |                        |                 |                       | 28.1               | 27.1           | 39.3           | 29.2          | 17.7                            | 21.1          | 38.3          | 48.5          | 23.8          |
| Standard Deviation (STD) |                        |                 |                       | 20.8               | 15.2           | 22.3           | 16.4          | 11.6                            | 7.6           | 31.1          | 28.3          | 11.1          |
| Mean + 2 STD             |                        |                 |                       | 69.8               | 57.5           | 83.9           | 62.0          | 40.9                            | 36.3          | 100.5         | 105.0         | 45.9          |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER              | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH  |
|--------------------------|------------------------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
|                          |                        |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35  |
| mg/L                     |                        |                 |                       |       |       |       |       |       |       |       |
| 04/23/1991               | Chemical Oxygen Demand | --              | 61.0                  | 10.5  |       |       | 33.4  | ---   | 120.1 |       |
| 10/15/1991               | Chemical Oxygen Demand | --              | 61.0                  | <10   |       |       | 17.2  | ---   | 14.3  |       |
| 01/23/1992               | Chemical Oxygen Demand | --              | 61.0                  | <10   |       |       | 12    | 33.4  | <10   |       |
| 03/23/1992               | Chemical Oxygen Demand | --              | 61.0                  | <10   |       |       | 20    | 54    | 10    |       |
| 09/30/1992               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | 230   | 28    | 107   |       |
| 03/05/1993               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   |       |
| 09/21/1993               | Chemical Oxygen Demand | --              | 61.0                  | <10   |       |       | <10   | <10   | <10   |       |
| 03/23/1994               | Chemical Oxygen Demand | --              | 61.0                  | <10   |       |       | <10   | 19    | <10   |       |
| 09/16/1994               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | <10   | 13    | <10   |       |
| 03/16/1995               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | 39    | 69    | 29    |       |
| 09/13/1995               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | <10   | <10   | <10   |       |
| 03/28/1996               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | <10   | <10   | <10   | <10   |
| 06/20/1996               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | NT    | NT    | NT    | 10    |
| 09/13/1996               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | 12    | <10   | <10   |
| 12/16/1996               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | NT    | NT    | NT    | NT    |
| 03/19/1997               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | 14    | <10   | <10   |
| 06/18/1997               | Chemical Oxygen Demand | --              | 61.0                  | NT    |       |       | NT    | NT    | NT    | <10   |
| 08/30/1997               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   | <10   |
| 03/10/1998               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   | <10   |
| 09/21/1998               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   | <10   |
| 03/18/1999               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   | <10   |
| 09/21/1999               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | <10   | <10   |
| 03/21/2000               | Chemical Oxygen Demand | --              | 61.0                  | DRY   |       |       | <10   | <10   | 55    | NT    |
| 06/28/2000               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 11    | <10   | NT    | NT    | NT    | NT    |
| 09/28/2000               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | <10   | <10   | DRY   |
| 12/27/2000               | Chemical Oxygen Demand | --              | 61.0                  | NT    | <10   | <10   | NT    | NT    | NT    | NT    |
| 03/28/2001               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | <10   | 28    | <10   |
| 09/02/2001               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 17    | 19    | 11    |
| 03/19/2002               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 17    | 36    | 14    |
| 09/19/2002               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 18    | <10   | <10   | 19    | 15    | <10   |
| 03/14/2003               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 28    | 55    | 54    |
| 09/29/2003               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 18    | 17    | <10   |
| 03/08/2004               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 17    | 36    | <10   |
| 09/27/2004               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | 16    | 37    | 21    | 27    |
| 03/17/2005               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 23    | 19    | <10   | 22    | 54    | <10   |
| 09/22/2005               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | 10    | 21    | 10    | 10    |
| 03/17/2006               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 13    | 27    | <10   |
| 09/22/2006               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | 12    | 24    | 53    | 10    |
| 03/14/2007               | Chemical Oxygen Demand | --              | 61.0                  | <10   | <10   | <10   | <10   | 15    | 32    | 11    |
| 09/22/2007               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | 12    | 12    | 17    | 50    | 12    |
| 03/03/2008               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | <10   | 10    | 25    | 11    |
| 09/05/2008               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 14    | 20    | 19    | 17    | 46    | 63    |
| 03/09/2009               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | 16    | 34    | 33    | 45    |
| 09/23/2009               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | <10   | <10   | 24    | 28    | 25    | 33    |
| 03/16/2010               | Chemical Oxygen Demand | --              | 61.0                  | 11    | 159   | 18    | 67    | 30    | 47    | 364   |
| 09/10/2010               | Chemical Oxygen Demand | --              | 61.0                  | 17    | 18    | <10   | 56    | 22    | 25    | 53    |
| 03/01/2011               | Chemical Oxygen Demand | --              | 61.0                  | 115   | <10   | <10   | <10   | <10   | 11    | 81    |
| 09/22/2011               | Chemical Oxygen Demand | --              | 61.0                  | <10   | 24    | 15    | <10   | 34    | 42    | 46    |
| 03/02/2012               | Chemical Oxygen Demand | --              | 61.0                  | 30    | 31    | 15    | <10   | 30    | 37    | 48    |
| 09/05/2012               | Chemical Oxygen Demand | --              | 61.0                  | 23    | 21    | 21    | 15    | 29    | 52    | 71    |
| 03/08/2013               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 17    | 24    | 24    | 31    | 29    | 114   |
| 09/13/2013               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 10    | 77    | 15    | 34    | <10   | 70    |
| 03/06/2014               | Chemical Oxygen Demand | --              | 61.0                  | <10   | 40    | 16    | 24    | <10   | 20    | 44    |
| 09/09/2014               | Chemical Oxygen Demand | --              | 61.0                  | 17    | 20    | 22    | 23    | 33    | 39    | 49    |
| 03/11/2015               | Chemical Oxygen Demand | --              | 61.0                  | 10    | <10   | 10    | 14    | 42    | 17    | <10   |
| 09/09/2015               | Chemical Oxygen Demand | --              | 61.0                  | 10    | <10   | 12    | <10   | 38    | 33    | 74    |
| 03/11/2016               | Chemical Oxygen Demand | --              | 61.0                  | <10   | <10   | <10   | <10   | 10    | 18    | 23    |
| 10/27/2016               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 14    | <10   | 13    | 22    | 31    | 65    |
| 09/07/2017               | Chemical Oxygen Demand | --              | 61.0                  | <10   | <10   | 15    | <10   | 42    | 41    | 37    |
| 03/01/2018               | Chemical Oxygen Demand | --              | 61.0                  | <10   | <10   | <10   | <10   | 16    | 13    | 36    |
| 09/19/2018               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | 48    | 24    |
| 03/27/2019               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | <20   | 39    |
| 09/05/2019               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | 41    | <20   | 63    |
| 02/28/2020               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | 24    | <20   | 20    |       | <20   |
| 08/31/2020               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | 23    | <20   |
| 03/05/2021               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | <20   | <20   |
| 09/13/2021               | Chemical Oxygen Demand | --              | 61.0                  | DRY   | 21    | <20   | <20   | <20   | 39    | <20   |
| 03/02/2022               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | 26    | 39    | <20   |
| 09/12/2022               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | 29    | <20   | 24    | 28    | 22    |
| 03/24/2023               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | 28    | 22    |
| 09/13/2023               | Chemical Oxygen Demand | --              | 61.0                  | <20   | <20   | <20   | <20   | <20   | <20   | 25    |
| Mean                     |                        |                 |                       | 27.1  | 29.4  | 21.8  | 32.3  | 26.0  | 35.2  | 49.4  |
| Standard Deviation (STD) |                        |                 |                       | 31.8  | 35.4  | 15.1  | 45.4  | 12.1  | 21.3  | 60.1  |
| Mean + 2 STD             |                        |                 |                       | 90.6  | 100.2 | 52.0  | 123.1 | 50.1  | 77.7  | 169.6 |



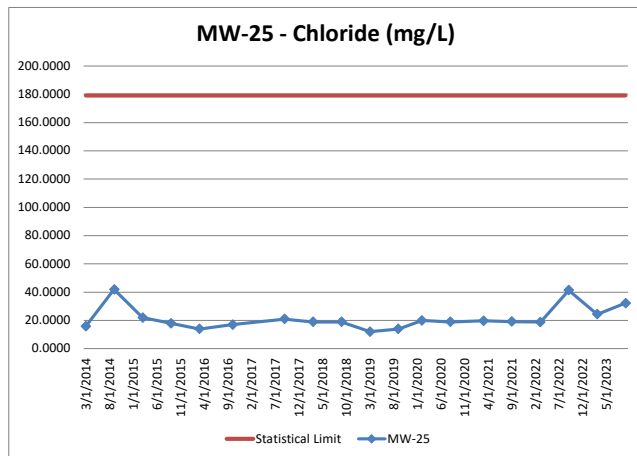
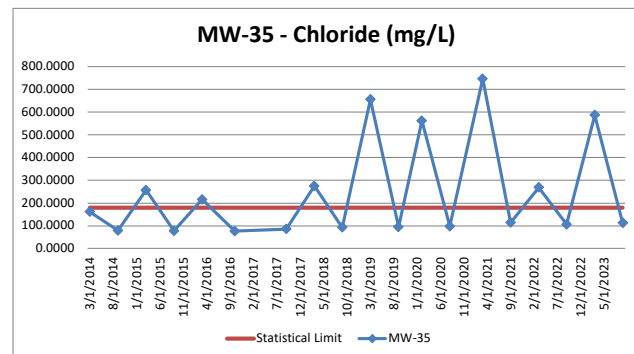
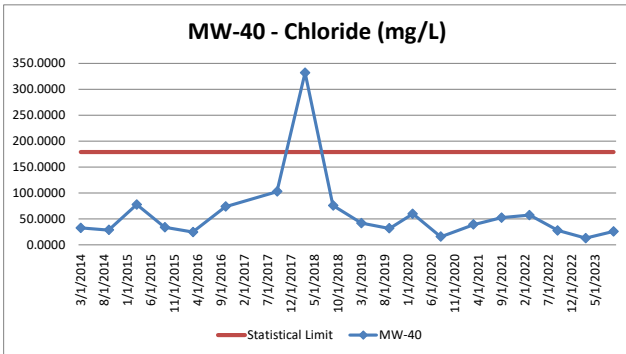
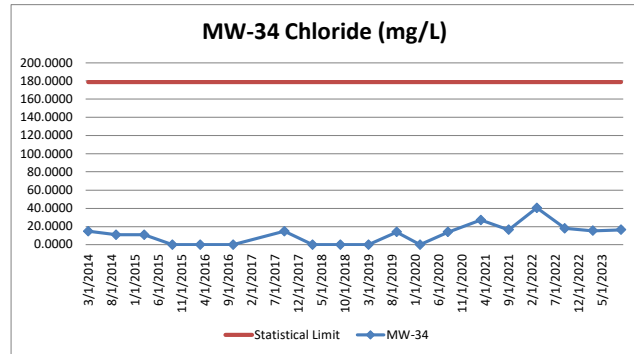
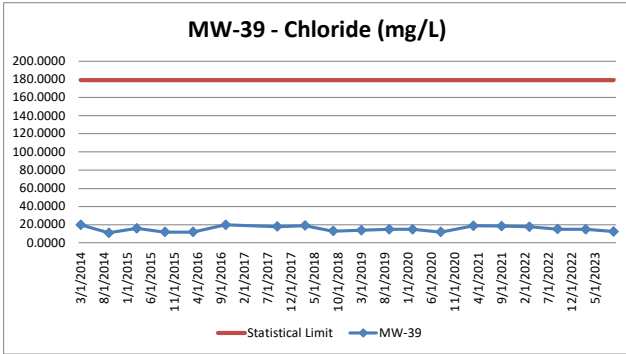
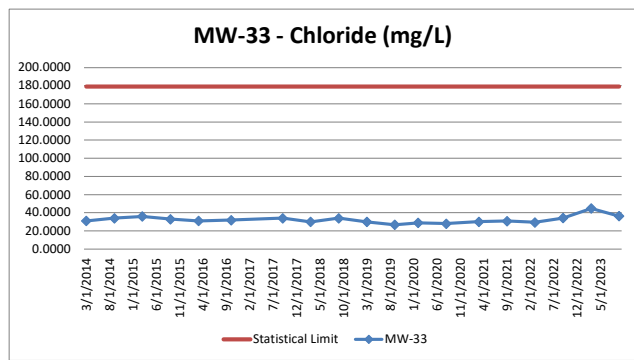
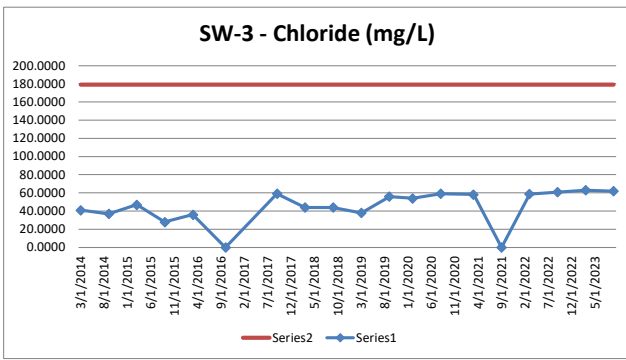
AMES-STORY ENVIRONMENTAL LANDFILL  
85-SDP-13-91P  
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |           |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|                          | mg/L      |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991               | Chloride  | --              | 179.0                 |                    | 4.5            | 65             | NT            |                                 | 2             | 4             | NT            | NT            |
| 10/15/1991               | Chloride  | --              | 179.0                 |                    | 3.77           | 47.6           | NT            |                                 | <1            | 1.89          | NT            | NT            |
| 01/23/1992               | Chloride  | --              | 179.0                 |                    | 5.8            | 50.9           | NT            |                                 | 1.6           | NT            | NT            | NT            |
| 03/23/1992               | Chloride  | --              | 179.0                 |                    | 5.3            | 48.1           | NT            |                                 | 1.1           | 3.7           | NT            | NT            |
| 09/30/1992               | Chloride  | --              | 179.0                 |                    | 19             | NT             | NT            |                                 | 1             | 3             | NT            | NT            |
| 03/05/1993               | Chloride  | --              | 179.0                 |                    | <10            | 59.2           | NT            |                                 | <10           | NT            | NT            | NT            |
| 09/21/1993               | Chloride  | --              | 179.0                 |                    | <10            | 90             | 10.8          |                                 | <10           | <10           | <10           | <10           |
| 03/23/1994               | Chloride  | --              | 179.0                 |                    | <10            | 88.6           | 33.9          |                                 | <10           | <10           | <10           | <10           |
| 09/16/1994               | Chloride  | --              | 179.0                 |                    | <10            | 79             | 56            |                                 | <10           | <10           | <10           | <10           |
| 03/16/1995               | Chloride  | --              | 179.0                 |                    | 15             | 52             | 27            |                                 | 11            | <10           | 9.8           | 4.7           |
| 09/13/1995               | Chloride  | --              | 179.0                 |                    | <10            | 55             | 36            |                                 | <10           | <10           | 14            | <10           |
| 03/28/1996               | Chloride  | --              | 179.0                 | 9                  | plugged        | 67             | 27            | 14                              | plugged       | 4.2           | 9.8           | 4.7           |
| 06/20/1996               | Chloride  | --              | 179.0                 | 6.7                |                | NT             | NT            | 3.8                             |               | NT            | NT            | NT            |
| 09/13/1996               | Chloride  | --              | 179.0                 | 5.1                |                | 129            | 25.9          | 1.7                             |               | 2.2           | 9.9           | 1.7           |
| 12/16/1996               | Chloride  | --              | 179.0                 | NT                 |                | 139            | 28            | NT                              |               | <10           | 12            | <10           |
| 03/19/1997               | Chloride  | --              | 179.0                 | <10                |                | 153            | <10           | <10                             |               | <10           | 10            | <10           |
| 06/18/1997               | Chloride  | --              | 179.0                 | <10                |                | 125            | 25            | <10                             |               | <10           | 11            | <10           |
| 08/30/1997               | Chloride  | --              | 179.0                 | <10                |                | 109            | 23            | <10                             |               | <10           | <10           | <10           |
| 03/10/1998               | Chloride  | --              | 179.0                 | <10                |                | 120            | 39            | <10                             |               | <10           | 11            | <10           |
| 09/21/1998               | Chloride  | --              | 179.0                 | <10                |                | 93             | 19            | <10                             |               | <10           | 11            | <10           |
| 03/18/1999               | Chloride  | --              | 179.0                 | <10                |                | 97             | 20            | <10                             |               | <10           | 12            | <10           |
| 09/21/1999               | Chloride  | --              | 179.0                 | <10                |                | 73             | 33            | <10                             |               | <10           | 11            | <10           |
| 03/21/2000               | Chloride  | --              | 179.0                 | NT                 |                | 249            | 33            | NT                              |               | <10           | 20            | 36            |
| 06/28/2000               | Chloride  | --              | 179.0                 | NT                 |                | NT             | 28            | NT                              |               | NT            | <10           | <10           |
| 09/28/2000               | Chloride  | --              | 179.0                 | <10                |                | 78             | 59            | <10                             |               | <10           | 11            | <10           |
| 12/27/2000               | Chloride  | --              | 179.0                 | NT                 |                | NT             | 46            | NT                              |               | NT            | 10            | <10           |
| 03/28/2001               | Chloride  | --              | 179.0                 | 12                 |                | 122            | 38            | <10                             |               | <10           | 13            | <10           |
| 09/02/2001               | Chloride  | --              | 179.0                 | <10                |                | 96             | 48            | <10                             |               | <10           | 14            | <10           |
| 03/19/2002               | Chloride  | --              | 179.0                 | 10                 |                | 159            | 73            | <10                             |               | <10           | 11            | <10           |
| 09/19/2002               | Chloride  | --              | 179.0                 | 10                 |                | 120            | 67            | <10                             |               | <10           | 11            | <10           |
| 03/14/2003               | Chloride  | --              | 179.0                 | <10                |                | 102            | 85            | <10                             |               | <10           | 12            | <10           |
| 09/29/2003               | Chloride  | --              | 179.0                 | 10                 |                | 103            | 52            | <10                             |               | <10           | 13            | <10           |
| 03/08/2004               | Chloride  | --              | 179.0                 | 10                 |                | 143            | 71            | <10                             |               | <10           | 14            | 34            |
| 09/27/2004               | Chloride  | --              | 179.0                 | 12                 |                | 100            | 56            | <10                             |               | <10           | 14            | <10           |
| 03/17/2005               | Chloride  | --              | 179.0                 | 15                 |                | 96             | 69            | <10                             |               | <10           | 12            | <10           |
| 09/22/2005               | Chloride  | --              | 179.0                 | 16                 |                | 75             | 62            | <10                             |               | 14            | 16            | <10           |
| 03/17/2006               | Chloride  | --              | 179.0                 | 16                 |                | 108            | 83            | <10                             |               | <10           | 15            | <10           |
| 09/22/2006               | Chloride  | --              | 179.0                 | 13                 |                | 100            | 81            | <10                             |               | <10           | 13            | <10           |
| 03/14/2007               | Chloride  | --              | 179.0                 | 20                 |                | 100            | 96            | <10                             |               | <10           | 15            | <10           |
| 09/22/2007               | Chloride  | --              | 179.0                 | 15                 |                | 100            | 102           | <10                             |               | <10           | 16            | <10           |
| 03/03/2008               | Chloride  | --              | 179.0                 | 22                 |                | 274            | 121           | <10                             |               | <10           | 15            | <10           |
| 09/05/2008               | Chloride  | --              | 179.0                 | 20                 |                | 169            | 96            | <10                             |               | <10           | 15            | <10           |
| 03/09/2009               | Chloride  | --              | 179.0                 | 19                 |                | 166            | 128           | <10                             |               | <10           | 13            | <10           |
| 09/23/2009               | Chloride  | --              | 179.0                 | 23                 |                | 122            | 170           | <10                             |               | <10           | 15            | <10           |
| 03/16/2010               | Chloride  | --              | 179.0                 | NT                 |                | 169            | 177           | NT                              |               | 10            | 22            | <10           |
| 09/10/2010               | Chloride  | --              | 179.0                 | 23                 |                | 174            | 107           | <10                             |               | <10           | 21            | <10           |
| 03/01/2011               | Chloride  | --              | 179.0                 | 31                 |                | 189            | 176           | <10                             |               | <10           | 22            | <10           |
| 09/22/2011               | Chloride  | --              | 179.0                 | 13                 |                | 205            | 133           | <10                             |               | 11            | 25            | <10           |
| 03/02/2012               | Chloride  | --              | 179.0                 | 30                 |                | 192            | 192           | <10                             |               | <10           | 21            | <10           |
| 09/05/2012               | Chloride  | --              | 179.0                 | 28                 |                | 165            | 202           | <10                             |               | 26            | 25            | <10           |
| 03/08/2013               | Chloride  | --              | 179.0                 | 27                 |                | 134            | 171           | <10                             |               | 15            | 22            | <10           |
| 09/13/2013               | Chloride  | --              | 179.0                 | 27                 |                | 121            | 199           | <10                             |               | 14            | 28            | 10            |
| 03/06/2014               | Chloride  | --              | 179.0                 | 13                 |                | 118            | 151           | 48                              |               | 12            | 18            | 17            |
| 09/09/2014               | Chloride  | --              | 179.0                 | 19                 |                | 193            | 169           | <10                             |               | 13            | 26            | 35            |
| 03/11/2015               | Chloride  | --              | 179.0                 | 34                 |                | 168            | 201           | <10                             |               | 34            | 33            | 13            |
| 09/09/2015               | Chloride  | --              | 179.0                 | 30                 |                | 140            | 134           | <10                             |               | 16            | 31            | <10           |
| 03/11/2016               | Chloride  | --              | 179.0                 | 28                 |                | 111            | 134           | <10                             |               | 19            | 27            | <10           |
| 10/27/2016               | Chloride  | --              | 179.0                 | 24                 |                | 101            | 140           | <10                             |               | 27            | 31            | <10           |
| 09/07/2017               | Chloride  | --              | 179.0                 | 33                 |                | 102            | 206           | <10                             |               | 29            | 39            | 12            |
| 03/01/2018               | Chloride  | --              | 179.0                 | 38                 |                | 118            | 231           | <10                             |               | 27            | 40            | 12            |
| 09/19/2018               | Chloride  | --              | 179.0                 | 34                 |                | 110            | 206           | <10                             |               | 25            | 47            | 15            |
| 03/27/2019               | Chloride  | --              | 179.0                 | 39                 |                | 131            | 227           | <10                             |               | 42            | 45            | 15            |
| 09/05/2019               | Chloride  | --              | 179.0                 | 38                 |                | 77             | 234           | <10                             |               | 27            | 50            | 15            |
| 02/28/2020               | Chloride  | --              | 179.0                 | 40                 |                | 290            | 244           | <10                             |               | 29            | 48            | 17            |
| 08/31/2020               | Chloride  | --              | 179.0                 | 39                 |                | 217            | 232           | <10                             |               | 31            | 57            | 15            |
| 03/05/2021               | Chloride  | --              | 179.0                 | 41.8               |                | 247            | 283           | 1.7                             |               | 36.1          | 47.7          | 18.1          |
| 09/13/2021               | Chloride  | --              | 179.0                 | 38                 |                | 345            | 291           | <1.0                            |               | 31.8          | 62.4          | 18            |
| 03/02/2022               | Chloride  | --              | 179.0                 | 39.2               |                | 316            | 331           | 1.5                             |               | 34.6          | 47.2          | 17.1          |
| 09/12/2022               | Chloride  | --              | 179.0                 | 39.6               |                | 133            | 328           | 1.5                             |               | 36.9          | 61.1          | 16.2          |
| 03/24/2023               | Chloride  | --              | 179.0                 | NT                 |                | NT             | 319           | NT                              |               | NT            | 64.5          | NT            |
| 09/13/2023               | Chloride  | --              | 179.0                 | NT                 |                | 133            | NT            | NT                              |               | NT            | NT            | 18.6          |
| Mean                     |           |                 |                       | 23.5               | 8.9            | 133.0          | 121.7         | 10.3                            | 3.3           | 20.0          | 23.6          | 16.4          |
| Standard Deviation (STD) |           |                 |                       | 11.0               | 5.9            | 63.6           | 88.9          | 15.9                            | 3.8           | 12.0          | 15.4          | 8.8           |
| Mean + 2 STD             |           |                 |                       | 45.5               | 20.7           | 260.2          | 299.6         | 42.2                            | 11.0          | 44.0          | 54.5          | 34.1          |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH  |
|--------------------------|-----------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
|                          |           |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35  |
| mg/L                     |           |                 |                       |       |       |       |       |       |       |       |
| 04/23/1991               | Chloride  | --              | 179.0                 | 11.5  |       |       | 13.5  | ---   | 6     |       |
| 10/15/1991               | Chloride  | --              | 179.0                 | 8.02  |       |       | 17.4  | ---   | 6.6   |       |
| 01/23/1992               | Chloride  | --              | 179.0                 | 12.1  |       |       | 43.5  | 44.6  | 10    |       |
| 03/23/1992               | Chloride  | --              | 179.0                 | 14.8  |       |       | 70.8  | 70.8  | 9     |       |
| 09/30/1992               | Chloride  | --              | 179.0                 | DRY   |       |       | 83    | 28    | 3     |       |
| 03/05/1993               | Chloride  | --              | 179.0                 | DRY   |       |       | 101   | 22.5  | <10   |       |
| 09/21/1993               | Chloride  | --              | 179.0                 | 16.6  |       |       | 20    | 26    | <10   |       |
| 03/23/1994               | Chloride  | --              | 179.0                 | 19.8  |       |       | 65.1  | 29.2  | <10   |       |
| 09/16/1994               | Chloride  | --              | 179.0                 | NT    |       |       | 82    | 21    | <10   |       |
| 03/16/1995               | Chloride  | --              | 179.0                 | NT    |       |       | 76    | 27    | <10   |       |
| 09/13/1995               | Chloride  | --              | 179.0                 | NT    |       |       | 69    | 22    | 15    |       |
| 03/28/1996               | Chloride  | --              | 179.0                 | NT    |       |       | 173   | 22    | 8.9   | 30    |
| 06/20/1996               | Chloride  | --              | 179.0                 | NT    |       |       | NT    | NT    | NT    | 44    |
| 09/13/1996               | Chloride  | --              | 179.0                 | Dry   |       |       | 5.3   | 23.6  | 7.1   | 54.2  |
| 12/16/1996               | Chloride  | --              | 179.0                 | NT    |       |       | NT    | NT    | NT    | NT    |
| 03/19/1997               | Chloride  | --              | 179.0                 | DRY   |       |       | 23    | 38    | 17    | 96    |
| 06/18/1997               | Chloride  | --              | 179.0                 | NT    |       |       | NT    | NT    | NT    | 95    |
| 08/30/1997               | Chloride  | --              | 179.0                 | DRY   |       |       | 30    | 19    | <10   | 86    |
| 03/10/1998               | Chloride  | --              | 179.0                 | DRY   |       |       | 72    | 24    | 10    | 37    |
| 09/21/1998               | Chloride  | --              | 179.0                 | DRY   |       |       | 31    | 19    | 10    | 81    |
| 03/18/1999               | Chloride  | --              | 179.0                 | DRY   |       |       | 83    | 21    | 15    | 29    |
| 09/21/1999               | Chloride  | --              | 179.0                 | DRY   |       |       | 52    | 20    | 26    | 67    |
| 03/21/2000               | Chloride  | --              | 179.0                 | DRY   |       |       | 55    | 23    | 45    | NT    |
| 06/28/2000               | Chloride  | --              | 179.0                 | DRY   | 42    | 65    | NT    | NT    | NT    | NT    |
| 09/28/2000               | Chloride  | --              | 179.0                 | DRY   | 36    | 22    | 124   | 24    | 13    | DRY   |
| 12/27/2000               | Chloride  | --              | 179.0                 | NT    | 49    | 46    | NT    | NT    | NT    | NT    |
| 03/28/2001               | Chloride  | --              | 179.0                 | DRY   | 40    | 54    | 229   | 24    | 105   | 87    |
| 09/02/2001               | Chloride  | --              | 179.0                 | DRY   | 45    | 23    | 135   | 29    | 56    | 150   |
| 03/19/2002               | Chloride  | --              | 179.0                 | DRY   | 49    | 56    | 142   | 53    | 52    | 179   |
| 09/19/2002               | Chloride  | --              | 179.0                 | DRY   | 43    | 35    | 181   | 44    | 25    | 111   |
| 03/14/2003               | Chloride  | --              | 179.0                 | DRY   | 53    | 30    | 163   | 383   | 34    | 185   |
| 09/29/2003               | Chloride  | --              | 179.0                 | DRY   | 45    | 25    | 165   | 30    | 23    | 141   |
| 03/08/2004               | Chloride  | --              | 179.0                 | DRY   | 42    | 47    | 197   | 45    | 43    | 149   |
| 09/27/2004               | Chloride  | --              | 179.0                 | DRY   | 30    | 43    | 49    | 51    | 21    | 114   |
| 03/17/2005               | Chloride  | --              | 179.0                 | DRY   | 29    | 27    | 125   | 48    | 30    | 235   |
| 09/22/2005               | Chloride  | --              | 179.0                 | DRY   | 27    | 53    | 49    | 45    | 21    | 119   |
| 03/17/2006               | Chloride  | --              | 179.0                 | DRY   | 34    | 39    | 146   | 49    | 28    | 340   |
| 09/22/2006               | Chloride  | --              | 179.0                 | DRY   | 24    | 16    | 288   | 44    | <10   | 142   |
| 03/14/2007               | Chloride  | --              | 179.0                 | 66    | 22    | 26    | 52    | 58    | <10   | 51    |
| 09/22/2007               | Chloride  | --              | 179.0                 | DRY   | 14    | 26    | 26    | 53    | 11    | 52    |
| 03/03/2008               | Chloride  | --              | 179.0                 | DRY   | 22    | 22    | 34    | 53    | 10    | 10    |
| 09/05/2008               | Chloride  | --              | 179.0                 | DRY   | 13    | 30    | 26    | 40    | <10   | 85    |
| 03/09/2009               | Chloride  | --              | 179.0                 | DRY   | 16    | 14    | 27    | 44    | <10   | 239   |
| 09/23/2009               | Chloride  | --              | 179.0                 | DRY   | 16    | 32    | 28    | 39    | 12    | 105   |
| 03/16/2010               | Chloride  | --              | 179.0                 | 23    | 16    | 254   | 18    | 38    | <10   | 98    |
| 09/10/2010               | Chloride  | --              | 179.0                 | 39    | 17    | 13    | 16    | 35    | <10   | 94    |
| 03/01/2011               | Chloride  | --              | 179.0                 | 23    | 18    | 21    | 18    | 34    | 10    | 89    |
| 09/22/2011               | Chloride  | --              | 179.0                 | 47    | 12    | 23    | 16    | 32    | 10    | 88    |
| 03/02/2012               | Chloride  | --              | 179.0                 | 55    | 20    | 15    | 20    | 31    | 17    | 278   |
| 09/05/2012               | Chloride  | --              | 179.0                 | 53    | 24    | 24    | 24    | 28    | 13    | 101   |
| 03/08/2013               | Chloride  | --              | 179.0                 | DRY   | 26    | 60    | 65    | 34    | 14    | 339   |
| 09/13/2013               | Chloride  | --              | 179.0                 | DRY   | 19    | 31    | 24    | 44    | 12    | 112   |
| 03/06/2014               | Chloride  | --              | 179.0                 | 41    | 20    | 33    | 16    | 31    | 15    | 162   |
| 09/09/2014               | Chloride  | --              | 179.0                 | 37    | 11    | 29    | 42    | 34    | 11    | 79    |
| 03/11/2015               | Chloride  | --              | 179.0                 | 47    | 16    | 78    | 22    | 36    | 11    | 257   |
| 09/09/2015               | Chloride  | --              | 179.0                 | 28    | 12    | 34    | 18    | 33    | <10   | 78    |
| 03/11/2016               | Chloride  | --              | 179.0                 | 36    | 12    | 25    | 14    | 31    | <10   | 216   |
| 10/27/2016               | Chloride  | --              | 179.0                 | DRY   | 20    | 74    | 17    | 32    | <10   | 76    |
| 09/07/2017               | Chloride  | --              | 179.0                 | 59    | 18    | 103   | 21    | 34    | 15    | 86    |
| 03/01/2018               | Chloride  | --              | 179.0                 | 44    | 19    | 332   | 19    | 30    | <10   | 275   |
| 09/19/2018               | Chloride  | --              | 179.0                 | 44    | 13    | 76    | 19    | 34    | <10   | 93    |
| 03/27/2019               | Chloride  | --              | 179.0                 | 38    | 14    | 42    | 12    | 30    | <10   | 656   |
| 09/05/2019               | Chloride  | --              | 179.0                 | 56    | 15    | 32    | 14    | 27    | 14    | 95    |
| 02/28/2020               | Chloride  | --              | 179.0                 | 54    | 15    | 60    | 20    | 29    |       | 562   |
| 08/31/2020               | Chloride  | --              | 179.0                 | 59    | 12    | 16    | 19    | 28    | 14    | 98    |
| 03/05/2021               | Chloride  | --              | 179.0                 | 58.2  | 18.9  | 39.4  | 19.7  | 30.1  | 27.2  | 747   |
| 09/13/2021               | Chloride  | --              | 179.0                 | DRY   | 18.5  | 52.5  | 19.2  | 30.9  | 16.6  | 114   |
| 03/02/2022               | Chloride  | --              | 179.0                 | 58.7  | 17.9  | 57.5  | 18.9  | 29.5  | 40.5  | 269   |
| 09/12/2022               | Chloride  | --              | 179.0                 | 60.8  | 15.2  | 28    | 41.4  | 34.3  | 18.1  | 106   |
| 03/24/2023               | Chloride  | --              | 179.0                 | 63.2  | 15    | 13.3  | 24.4  | 44.9  | 15.5  | 587   |
| 09/13/2023               | Chloride  | --              | 179.0                 | 62.0  | 12.5  | 26.1  | 32.3  | 36.4  | 16.6  | 113   |
| Mean                     |           |                 |                       | 41.2  | 23.7  | 48.4  | 60.0  | 39.8  | 20.5  | 163.3 |
| Standard Deviation (STD) |           |                 |                       | 17.7  | 11.9  | 55.1  | 60.1  | 44.5  | 17.3  | 153.9 |
| Mean + 2 STD             |           |                 |                       | 76.6  | 47.5  | 158.6 | 180.3 | 128.8 | 55.0  | 471.0 |



AMES-STORY ENVIRONMENTAL LANDFILL

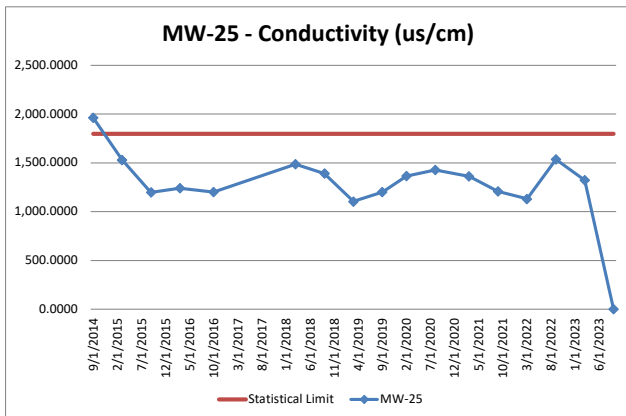
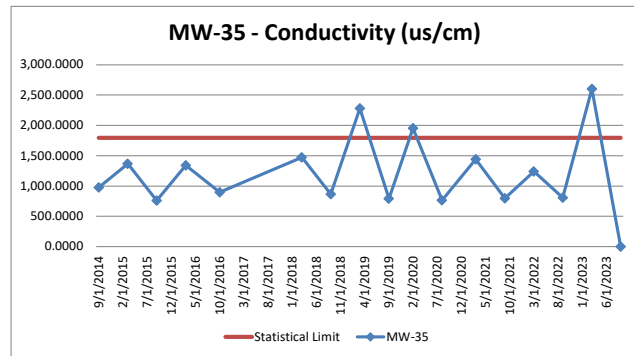
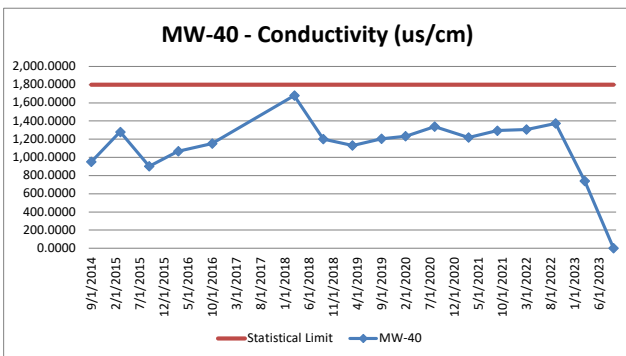
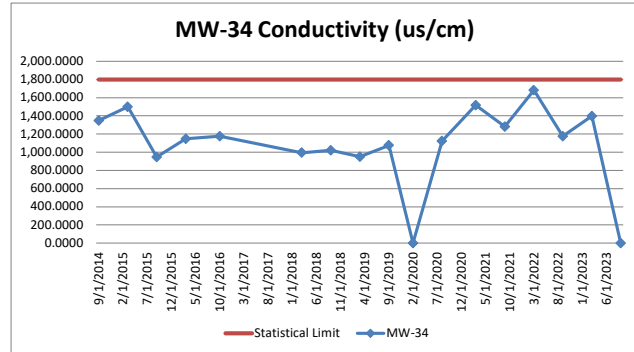
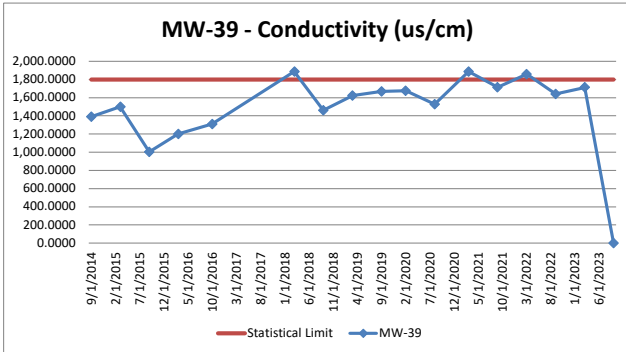
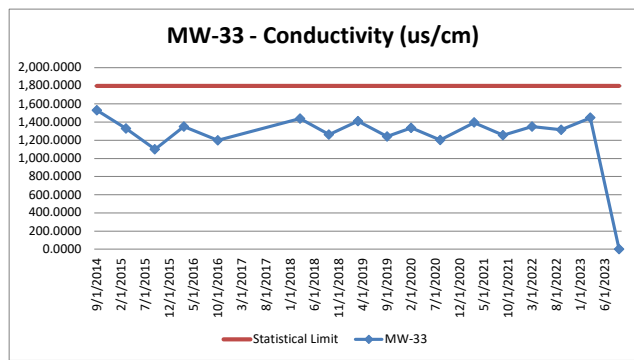
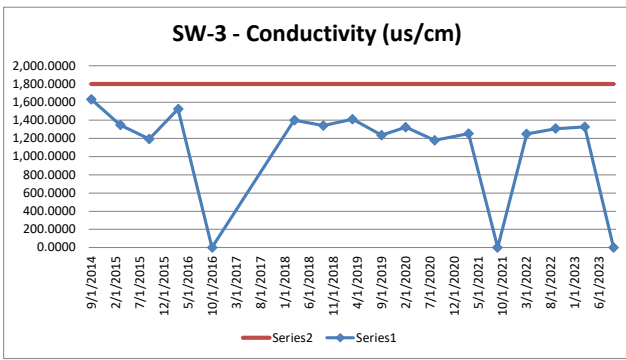
MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER           | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |     |
|--------------------------|---------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|-----|
|                          |                     |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |     |
|                          |                     |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |     |
| 03/16/1995               | Conductivity, us/cm | --              | 1798                  |                    | 590            | 890            | 580           |                                 | 550           | 360           | 320           | 310           |     |
| 09/13/1995               | Conductivity, us/cm | --              | 1798                  |                    | 490            | 740            | 510           |                                 | 380           | 280           | 140           | 130           |     |
| 03/28/1996               | Conductivity, us/cm | --              | 1798                  | 500                | plugged        | 720            | 420           | 490                             | plugged       | 340           | 330           | 340           |     |
| 06/20/1996               | Conductivity, us/cm | --              | 1798                  | 640                |                | NT             | NT            | 290                             |               | NT            | NT            | NT            |     |
| 09/13/1996               | Conductivity, us/cm | --              | 1798                  | 560                |                | 750            | 670           | 280                             |               | 330           | 290           | 280           |     |
| 12/16/1996               | Conductivity, us/cm | --              | 1798                  | NT                 |                | 740            | 770           | NT                              |               | 320           | 360           | 350           |     |
| 03/19/1997               | Conductivity, us/cm | --              | 1798                  | 800                |                | 750            | 630           | 340                             |               | 350           | 390           | 370           |     |
| 06/18/1997               | Conductivity, us/cm | --              | 1798                  | 530                |                | 540            | 540           | 280                             |               | 250           | 250           | 250           |     |
| 08/30/1997               | Conductivity, us/cm | --              | 1798                  | 700                |                | 670            | 660           | 280                             |               | 310           | 270           | 250           |     |
| 03/10/1998               | Conductivity, us/cm | --              | 1798                  | 860                |                | 710            | 630           | 410                             |               | 370           | 350           | 360           |     |
| 09/21/1998               | Conductivity, us/cm | --              | 1798                  | 650                |                | 590            | 460           | 280                             |               | 300           | 250           | 220           |     |
| 03/18/1999               | Conductivity, us/cm | --              | 1798                  | 1600               |                | 976            | 628           | 625                             |               | 628           | 573           | 620           |     |
| 09/21/1999               | Conductivity, us/cm | --              | 1798                  | 650                |                | 590            | 1216          | 280                             |               | 300           | 534           | 524           |     |
| 03/21/2000               | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1256          | NT                              |               | NT            | 696           | 670           |     |
| 06/28/2000               | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1138          | NT                              |               | NT            | 621           | 617           |     |
| 09/28/2000               | Conductivity, us/cm | --              | 1798                  | 688                |                | 686            | 466           | 688                             |               | 1245          | 680           | 700           |     |
| 12/27/2000               | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 1252          | NT                              |               | NT            | 717           | 728           |     |
| 03/28/2001               | Conductivity, us/cm | --              | 1798                  | 1949               |                | 938            | 1532          | 812                             |               | 725           | 764           | 794           |     |
| 09/02/2001               | Conductivity, us/cm | --              | 1798                  | 1583               |                | NT             | 1446          | 687                             |               | NT            | 674           | 586           |     |
| 03/19/2002               | Conductivity, us/cm | --              | 1798                  | NT                 |                | 1607           | 1590          | NT                              |               | 724           | 684           | 663           |     |
| 09/19/2002               | Conductivity, us/cm | --              | 1798                  | 1530               |                | 1395           | 1521          | 640                             |               | 686           | 703           | 673           |     |
| 03/14/2003               | Conductivity, us/cm | --              | 1798                  | 1129               |                | 1358           | 1379          | 499                             |               | 658           | 731           | 710           |     |
| 09/29/2003               | Conductivity, us/cm | --              | 1798                  | 1185               |                | 890            | 1018          | 584                             |               | 615           | 606           | 593           |     |
| 03/08/2004               | Conductivity, us/cm | --              | 1798                  | 1647               |                | 1294           | 1225          | 646                             |               | 787           | 704           | 709           |     |
| 09/27/2004               | Conductivity, us/cm | --              | 1798                  | 1819               |                | 1580           | 1673          | 750                             |               | 760           | 822           | 774           |     |
| 03/17/2005               | Conductivity, us/cm | --              | 1798                  | 1564               |                | 1413           | 1225          | 650                             |               | 733           | 704           | 709           |     |
| 09/22/2005               | Conductivity, us/cm | --              | 1798                  | 1029               |                | 948            | 919           | 638                             |               | 611           | 592           | 579           |     |
| 03/17/2006               | Conductivity, us/cm | --              | 1798                  | 1607               |                | 1378           | 1377          | 709                             |               | 762           | 779           | 759           |     |
| 09/22/2006               | Conductivity, us/cm | --              | 1798                  | 1374               |                | 1275           | 1281          | 680                             |               | 670           | 686           | 656           |     |
| 03/14/2007               | Conductivity, us/cm | --              | 1798                  | 1889               |                | 1334           | 1336          | 763                             |               | 667           | 701           | 644           |     |
| 09/22/2007               | Conductivity, us/cm | --              | 1798                  | 1866               |                | 1275           | 1065          | 658                             |               | 670           | 532           | 522           |     |
| 03/03/2008               | Conductivity, us/cm | --              | 1798                  | 2000               |                | NT             | NT            | 641                             |               | NT            | NT            | NT            |     |
| 09/05/2008               | Conductivity, us/cm | --              | 1798                  | 1418               |                | 685            | 804           | 688                             |               | 467           | 504           | 484           |     |
| 03/09/2009               | Conductivity, us/cm | --              | 1798                  | 1376               |                | 1406           | 1255          | 758                             |               | 712           | 796           | 743           |     |
| 09/23/2009               | Conductivity, us/cm | --              | 1798                  | 1160               |                | 1501           | 1560          | 520                             |               | 677           | 681           | 620           |     |
| 03/16/2010               | Conductivity, us/cm | --              | 1798                  | NT                 |                | 1590           | 1700          | NT                              |               | 780           | 690           | 711           |     |
| 09/10/2010               | Conductivity, us/cm | --              | 1798                  | 1314               |                | 1270           | 855           | 587                             |               | 475           | 720           | 610           |     |
| 03/01/2011               | Conductivity, us/cm | --              | 1798                  | 1080               |                | 1122           | 928           | 583                             |               | 565           | 615           | 553           |     |
| 09/22/2011               | Conductivity, us/cm | --              | 1798                  | 998                |                | 1373           | 640           | 518                             |               | 413           | 617           | 534           |     |
| 03/02/2012               | Conductivity, us/cm | --              | 1798                  | 1868               |                | 1945           | 1695          | 767                             |               | 769           | 859           | 736           |     |
| 09/05/2012               | Conductivity, us/cm | --              | 1798                  | 998                |                | 1373           | 640           | 518                             |               | 413           | 617           | 534           |     |
| 03/08/2013               | Conductivity, us/cm | --              | 1798                  | 1860               |                | 1900           | 1680          | 750                             |               | 670           | 880           | 730           |     |
| 09/13/2013               | Conductivity, us/cm | --              | 1798                  | 1620               |                | 1430           | 1600          | 650                             |               | 530           | 830           | 660           |     |
| 03/06/2014               | Conductivity, us/cm | --              | 1798                  | 1640               |                | 1550           | 1650          | 670                             |               | 550           | 810           | 680           |     |
| 09/09/2014               | Conductivity, us/cm | --              | 1798                  | 1760               |                | 1627           | 1527          | 730                             |               | 617           | 806           | 594           |     |
| 03/11/2015               | Conductivity, us/cm | --              | 1798                  | 1700               |                | 1660           | 1580          | 710                             |               | 440           | 820           | 610           |     |
| 09/09/2015               | Conductivity, us/cm | --              | 1798                  | 1104               |                | 1311           | 1046          | 574                             |               | 610           | 675           | 527           |     |
| 03/11/2016               | Conductivity, us/cm | --              | 1798                  | 1304               |                | 1420           | 1290          | 635                             |               | 659           | 610           | 550           |     |
| 10/27/2016               | Conductivity, us/cm | --              | 1798                  | 1430               |                | 1480           | 1300          | 630                             |               | 710           | 890           | 680           |     |
| 03/01/2018               | Conductivity, us/cm | --              | 1798                  | 2004               |                | 2108           | 1544          | 803                             |               | 603           | 1022          | 805           |     |
| 09/19/2018               | Conductivity, us/cm | --              | 1798                  | 1455               |                | 1545           | 1371          | 664                             |               | 618           | 857           | 599           |     |
| 03/27/2019               | Conductivity, us/cm | --              | 1798                  | 1565               |                | 1669           | 1208          | 603                             |               | 636           | 849           | 629           |     |
| 09/05/2019               | Conductivity, us/cm | --              | 1798                  | 1355               |                | 1210           | 1281          | 563                             |               | 578           | 880           | 619           |     |
| 02/28/2020               | Conductivity, us/cm | --              | 1798                  | 1707               |                | 1991           | 1519          | 620                             |               | 626           | 864           | 664           |     |
| 08/31/2020               | Conductivity, us/cm | --              | 1798                  | 1517               |                | 1656           | 1380          | 575                             |               | 622           | 945           | 650           |     |
| 03/05/2021               | Conductivity, us/cm | --              | 1798                  | 1572               |                | 1829           | 1495          | 622                             |               | 603           | 893           | 649           |     |
| 09/13/2021               | Conductivity, us/cm | --              | 1798                  | 1463               |                | 1997           | 1478          | 588                             |               | 632           | 937           | 538           |     |
| 03/02/2022               | Conductivity, us/cm | --              | 1798                  | 1532               |                | 2490           | 1660          | 578                             |               | 535           | 925           | 657           |     |
| 09/12/2022               | Conductivity, us/cm | --              | 1798                  | 1634               |                | 1425           | 1769          | 586                             |               | 538           | 879           | 618           |     |
| 03/24/2023               | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | 2276          | NT                              |               | NT            | 977           | NT            |     |
| 09/13/2023               | Conductivity, us/cm | --              | 1798                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |     |
| Mean                     |                     |                 |                       |                    | 1349           | 540            | 1294          | 1192                            | 590           | 465           | 575           | 671           | 580 |
| Standard Deviation (STD) |                     |                 |                       |                    | 425            | 50             | 446           | 420                             | 144           | 85            | 178           | 208           | 156 |
| Mean + 2 STD             |                     |                 |                       |                    | 2199           | 640            | 2186          | 2032                            | 879           | 635           | 931           | 1087          | 891 |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER           | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH |
|--------------------------|---------------------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|------|
|                          |                     |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35 |
| 03/16/1995               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 510   | 420   | 550   |      |
| 09/13/1995               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 770   | 720   | 660   |      |
| 03/28/1996               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 640   | 500   | 460   | 520  |
| 06/20/1996               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | NT    | NT    | NT    | 460  |
| 09/13/1996               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 60    | 500   | 570   | 440  |
| 12/16/1996               | Conductivity, us/cm | --              | 1798                  | NT    |       |       | NT    | NT    | NT    | NT   |
| 03/19/1997               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 620   | 590   | 580   | 600  |
| 06/18/1997               | Conductivity, us/cm | --              | 1798                  | NT    |       |       | NT    | NT    | NT    | 380  |
| 08/30/1997               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 540   | 410   | 490   | 490  |
| 03/10/1998               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 510   | 360   | 470   | 390  |
| 09/21/1998               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 460   | 590   | 540   | 490  |
| 03/18/1999               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 1370  | 902   | 1438  | 1005 |
| 09/21/1999               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | 460   | 590   | 540   | 490  |
| 03/21/2000               | Conductivity, us/cm | --              | 1798                  | DRY   |       |       | NT    | NT    | NT    | NT   |
| 06/28/2000               | Conductivity, us/cm | --              | 1798                  | DRY   | 1074  | 884   | NT    | NT    | NT    | NT   |
| 09/28/2000               | Conductivity, us/cm | --              | 1798                  | DRY   | 1324  | 923   | 1083  | 1009  | 1209  | DRY  |
| 12/27/2000               | Conductivity, us/cm | --              | 1798                  | NT    | 1224  | 960   | NT    | NT    | NT    | NT   |
| 03/28/2001               | Conductivity, us/cm | --              | 1798                  | DRY   | 1622  | 1266  | 1161  | 1730  | 3000  | 1246 |
| 09/02/2001               | Conductivity, us/cm | --              | 1798                  | DRY   | 1354  | 885   | 1455  | 1098  | 1455  | 1889 |
| 03/19/2002               | Conductivity, us/cm | --              | 1798                  | DRY   | 1470  | 1146  | 1490  | 1313  | NT    | 1167 |
| 09/19/2002               | Conductivity, us/cm | --              | 1798                  | DRY   | 1235  | 1081  | 1225  | 1182  | 1287  | 1209 |
| 03/14/2003               | Conductivity, us/cm | --              | 1798                  | DRY   | 1201  | 926   | 833   | 732   | 1020  | 709  |
| 09/29/2003               | Conductivity, us/cm | --              | 1798                  | DRY   | 1035  | 819   | 1241  | 890   | 1055  | 886  |
| 03/08/2004               | Conductivity, us/cm | --              | 1798                  | DRY   | 1446  | 955   | 1360  | 1154  | 1237  | 1124 |
| 09/27/2004               | Conductivity, us/cm | --              | 1798                  | DRY   | 1588  | 1310  | 1546  | 1300  | 1218  | 995  |
| 03/17/2005               | Conductivity, us/cm | --              | 1798                  | DRY   | 1364  | 1044  | 1407  | 1228  | 1432  | 1275 |
| 09/22/2005               | Conductivity, us/cm | --              | 1798                  | DRY   | 949   | 1049  | 1598  | 1160  | 929   | 852  |
| 03/17/2006               | Conductivity, us/cm | --              | 1798                  | DRY   | 1422  | 1413  | 1685  | 1451  | 1775  | 1589 |
| 09/22/2006               | Conductivity, us/cm | --              | 1798                  | DRY   | 1274  | 1067  | 1785  | 1225  | 1495  | 1097 |
| 03/14/2007               | Conductivity, us/cm | --              | 1798                  | 1540  | 1550  | 1336  | 1815  | 1560  | 1118  | 1084 |
| 09/22/2007               | Conductivity, us/cm | --              | 1798                  | DRY   | 1346  | 1980  | 1713  | 1497  | 1374  | 1277 |
| 03/03/2008               | Conductivity, us/cm | --              | 1798                  | DRY   | 1310  | NT    | 1700  | 1433  | 993   | 773  |
| 09/05/2008               | Conductivity, us/cm | --              | 1798                  | DRY   | NT    | NT    | 2564  | 1570  | 1416  | 970  |
| 03/09/2009               | Conductivity, us/cm | --              | 1798                  | DRY   | 1174  | 960   | 1664  | 1238  | 747   | 1194 |
| 09/23/2009               | Conductivity, us/cm | --              | 1798                  | DRY   | 1180  | 1390  | 1515  | 1180  | 1148  | 881  |
| 03/16/2010               | Conductivity, us/cm | --              | 1798                  | 1650  | 1480  | 1421  | 1460  | 1560  | 1250  | 1305 |
| 09/10/2010               | Conductivity, us/cm | --              | 1798                  | 1205  | 1142  | 1051  | 1257  | 1125  | 950   | 974  |
| 03/01/2011               | Conductivity, us/cm | --              | 1798                  | 1102  | 921   | 774   | 1127  | 1071  | 934   | 1302 |
| 09/22/2011               | Conductivity, us/cm | --              | 1798                  | 998   | 1159  | 1042  | 1060  | 950   | 962   | 715  |
| 03/02/2012               | Conductivity, us/cm | --              | 1798                  | 1430  | 1418  | 993   | 1312  | 1255  | 1112  | 1196 |
| 09/05/2012               | Conductivity, us/cm | --              | 1798                  | 998   | 1159  | 1042  | 1060  | 950   | 962   | 715  |
| 03/08/2013               | Conductivity, us/cm | --              | 1798                  | DRY   | 1520  | 1250  | 1610  | 1460  | 1840  | 1810 |
| 09/13/2013               | Conductivity, us/cm | --              | 1798                  | DRY   | 1440  | 1280  | 1590  | 1440  | 1260  | 910  |
| 03/06/2014               | Conductivity, us/cm | --              | 1798                  | 1450  | 1560  | 1130  | 1750  | 1380  | 1340  | 1380 |
| 09/09/2014               | Conductivity, us/cm | --              | 1798                  | 1630  | 1392  | 952   | 1960  | 1530  | 1350  | 980  |
| 03/11/2015               | Conductivity, us/cm | --              | 1798                  | 1350  | 1500  | 1280  | 1530  | 1330  | 1500  | 1370 |
| 09/09/2015               | Conductivity, us/cm | --              | 1798                  | 1195  | 1003  | 901   | 1198  | 1102  | 949   | 761  |
| 03/11/2016               | Conductivity, us/cm | --              | 1798                  | 1525  | 1200  | 1067  | 1240  | 1352  | 1149  | 1340 |
| 10/27/2016               | Conductivity, us/cm | --              | 1798                  | DRY   | 1310  | 1150  | 1200  | 1200  | 1175  | 900  |
| 03/01/2018               | Conductivity, us/cm | --              | 1798                  | 1402  | 1886  | 1679  | 1487  | 1440  | 995   | 1476 |
| 09/19/2018               | Conductivity, us/cm | --              | 1798                  | 1342  | 1460  | 1201  | 1390  | 1262  | 1023  | 865  |
| 03/27/2019               | Conductivity, us/cm | --              | 1798                  | 1413  | 1622  | 1129  | 1104  | 1410  | 950   | 2282 |
| 09/05/2019               | Conductivity, us/cm | --              | 1798                  | 1235  | 1670  | 1205  | 1200  | 1242  | 1076  | 793  |
| 02/28/2020               | Conductivity, us/cm | --              | 1798                  | 1325  | 1675  | 1231  | 1364  | 1338  |       | 1956 |
| 08/31/2020               | Conductivity, us/cm | --              | 1798                  | 1180  | 1527  | 1337  | 1428  | 1204  | 1125  | 769  |
| 03/05/2021               | Conductivity, us/cm | --              | 1798                  | 1253  | 1886  | 1219  | 1361  | 1395  | 1518  | 1440 |
| 09/13/2021               | Conductivity, us/cm | --              | 1798                  | DRY   | 1716  | 1294  | 1208  | 1256  | 1282  | 796  |
| 03/02/2022               | Conductivity, us/cm | --              | 1798                  | 1250  | 1860  | 1305  | 1130  | 1352  | 1682  | 1241 |
| 09/12/2022               | Conductivity, us/cm | --              | 1798                  | 1308  | 1641  | 1374  | 1536  | 1317  | 1175  | 809  |
| 03/24/2023               | Conductivity, us/cm | --              | 1798                  | 1329  | 1713  | 739   | 1323  | 1448  | 1398  | 2604 |
| 09/13/2023               | Conductivity, us/cm | --              | 1798                  | NT    | NT    | NT    | NT    | NT    | NT    | NT   |
| Mean                     |                     |                 |                       | 1323  | 1400  | 1146  | 1272  | 1146  | 1138  | 1060 |
| Standard Deviation (STD) |                     |                 |                       | 173   | 242   | 234   | 440   | 339   | 426   | 462  |
| Mean + 2 STD             |                     |                 |                       | 1670  | 1883  | 1614  | 2152  | 1824  | 1991  | 1985 |

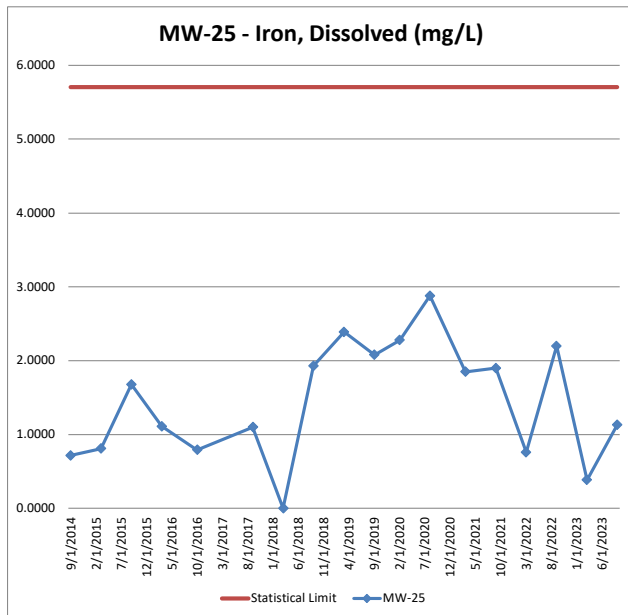
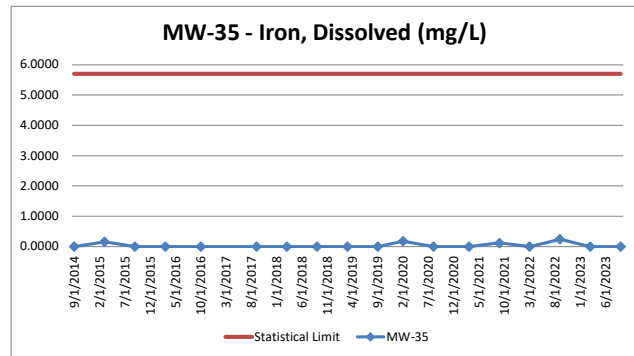
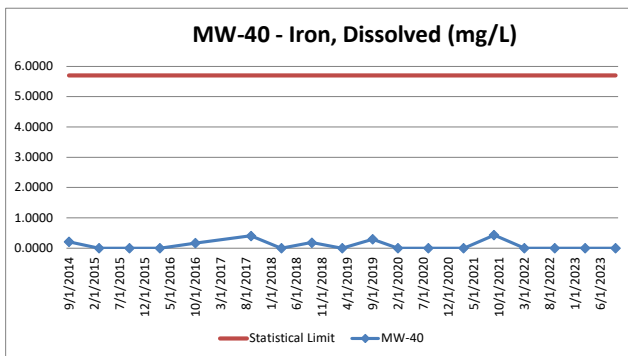
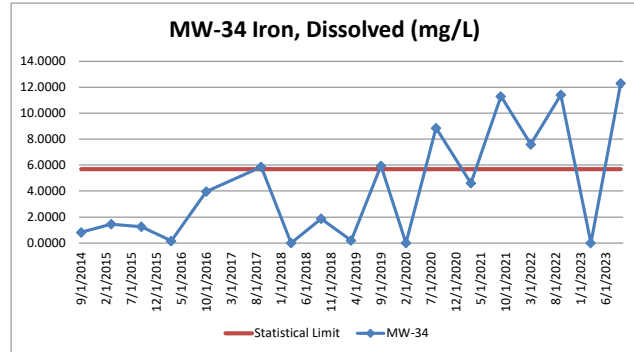
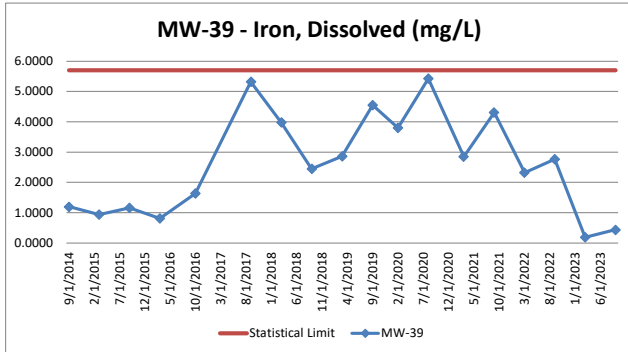
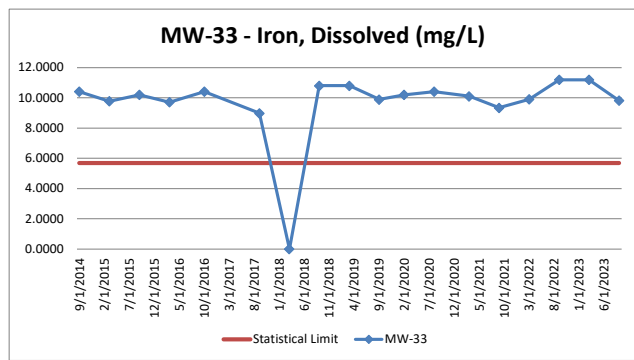
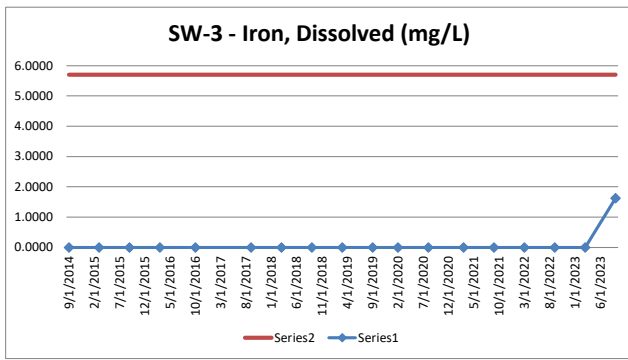




## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER       | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W   | D.G.W  | D.G.W  | BOTH   | BOTH  | BOTH   | BOTH   |
|--------------------------|-----------------|-----------------|-----------------------|---------|--------|--------|--------|-------|--------|--------|
|                          |                 |                 |                       | SW 3    | MW 39  | MW 40  | MW 25  | MW 33 | MW 34  | MW35   |
| mg/L                     |                 |                 |                       |         |        |        |        |       |        |        |
| 04/23/1991               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | 0.177  | ---   | 0.133  |        |
| 10/15/1991               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | 0.205  | ---   | 0.767  |        |
| 01/23/1992               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | <0.03  | <0.03 | <0.03  |        |
| 03/23/1992               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | 0.121  | 0.052 | <0.03  |        |
| 09/30/1992               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | <0.03  | 0.033 | 0.043  |        |
| 03/05/1993               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | <0.03  | 0.035 | <0.03  |        |
| 09/21/1993               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | <0.03  | 2.46  | 0.05   |        |
| 03/23/1994               | Iron, dissolved | --              | 5.70                  | <0.03   |        |        | <0.03  | 9.65  | 0.084  |        |
| 09/16/1994               | Iron, dissolved | --              | 5.70                  | NT      |        |        | 0.05   | 2.9   | 0.55   |        |
| 03/16/1995               | Iron, dissolved | --              | 5.70                  | NT      |        |        | 0.038  | 1.24  | 0.47   |        |
| 09/13/1995               | Iron, dissolved | --              | 5.70                  | NT      |        |        | <0.03  | 8.5   | 0.317  |        |
| 03/28/1996               | Iron, dissolved | --              | 5.70                  | NT      |        |        | <0.03  | 5.77  | 0.386  | 0.067  |
| 06/20/1996               | Iron, dissolved | --              | 5.70                  | NT      |        |        | NT     | NT    | NT     | 0.927  |
| 09/13/1996               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.134  | 2.27  | 1.3    | 1.02   |
| 12/16/1996               | Iron, dissolved | --              | 5.70                  | NT      |        |        | NT     | NT    | NT     | NT     |
| 03/19/1997               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | <0.03  | 7.18  | <0.03  | 0.484  |
| 06/18/1997               | Iron, dissolved | --              | 5.70                  | NT      |        |        | NT     | NT    | NT     | 0.523  |
| 08/30/1997               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.076  | 5.02  | 1.93   | 5.05   |
| 03/10/1998               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.717  | 5.83  | 1.52   | 0.5    |
| 09/21/1998               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.166  | 2.2   | 3.09   | 0.415  |
| 03/18/1999               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.131  | 5.64  | 4.78   | 0.162  |
| 09/21/1999               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.076  | 3.99  | 5.53   | 0.337  |
| 03/21/2000               | Iron, dissolved | --              | 5.70                  | DRY     |        |        | 0.371  | 5.69  | 4.15   | NT     |
| 06/28/2000               | Iron, dissolved | --              | 5.70                  | DRY     | 0.033  | <0.03  | NT     | NT    | NT     | NT     |
| 09/28/2000               | Iron, dissolved | --              | 5.70                  | DRY     | <0.03  | <0.03  | <0.03  | 0.303 | 3.3    | DRY    |
| 12/27/2000               | Iron, dissolved | --              | 5.70                  | NT      | 0.109  | <0.03  | NT     | NT    | NT     | NT     |
| 03/28/2001               | Iron, dissolved | --              | 5.70                  | DRY     | <0.03  | <0.03  | <0.03  | 2.7   | <0.03  | 0.108  |
| 09/02/2001               | Iron, dissolved | --              | 5.70                  | DRY     | 1.15   | <0.03  | <0.03  | 4.47  | 6.97   | 0.168  |
| 03/19/2002               | Iron, dissolved | --              | 5.70                  | DRY     | 0.04   | <0.03  | <0.03  | 4.46  | 0.654  | <0.03  |
| 09/19/2002               | Iron, dissolved | --              | 5.70                  | DRY     | 0.087  | <0.03  | <0.03  | 4.12  | 5.65   | <0.03  |
| 03/14/2003               | Iron, dissolved | --              | 5.70                  | DRY     | 0.041  | <0.03  | <0.03  | 4.95  | 4.67   | <0.03  |
| 09/29/2003               | Iron, dissolved | --              | 5.70                  | DRY     | 0.041  | <0.030 | <0.030 | 0.556 | 5.63   | 0.078  |
| 03/08/2004               | Iron, dissolved | --              | 5.70                  | DRY     | 3.46   | <0.030 | 0.121  | 7.99  | 0.231  | 0.109  |
| 09/27/2004               | Iron, dissolved | --              | 5.70                  | DRY     | 0.136  | <0.030 | 0.034  | 2.56  | 0.39   | <0.030 |
| 03/17/2005               | Iron, dissolved | --              | 5.70                  | DRY     | 0.288  | <0.030 | 0.073  | 6.07  | 0.046  | <0.030 |
| 09/22/2005               | Iron, dissolved | --              | 5.70                  | DRY     | 0.033  | <0.030 | 0.034  | 5.11  | 0.666  | 0.042  |
| 03/17/2006               | Iron, dissolved | --              | 5.70                  | DRY     | 0.042  | <0.030 | 0.03   | 4.99  | <0.030 | <0.030 |
| 09/22/2006               | Iron, dissolved | --              | 5.70                  | DRY     | 0.135  | 0.132  | 0.048  | 3.83  | 0.074  | <0.030 |
| 03/14/2007               | Iron, dissolved | --              | 5.70                  | <0.030  | 0.45   | <0.030 | 0.066  | 6.06  | <0.030 | <0.030 |
| 09/22/2007               | Iron, dissolved | --              | 5.70                  | DRY     | 0.151  | <0.100 | <0.100 | 3.24  | 1.85   | <0.100 |
| 03/03/2008               | Iron, dissolved | --              | 5.70                  | DRY     | 0.091  | <0.030 | 0.14   | 6.72  | <0.030 | <0.030 |
| 09/05/2008               | Iron, dissolved | --              | 5.70                  | DRY     | 0.11   | <0.030 | 0.18   | 3.88  | <0.030 | <0.030 |
| 03/09/2009               | Iron, dissolved | --              | 5.70                  | DRY     | 2.07   | <0.100 | 0.091  | 8.65  | 0.036  | <0.100 |
| 09/23/2009               | Iron, dissolved | --              | 5.70                  | DRY     | <0.100 | <0.100 | <0.100 | 1.27  | 1.01   | <0.100 |
| 03/16/2010               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.76   | <0.100 | <0.100 | 10.4  | <0.100 | <0.100 |
| 09/10/2010               | Iron, dissolved | --              | 5.70                  | <0.100  | 4.00   | <0.100 | 0.589  | 9.09  | 0.623  | <0.100 |
| 03/01/2011               | Iron, dissolved | --              | 5.70                  | <0.100  | 5.06   | <0.100 | 0.46   | 9.59  | <0.100 | <0.100 |
| 09/22/2011               | Iron, dissolved | --              | 5.70                  | <0.100  | 6.65   | <0.100 | 0.82   | 8.11  | 3.67   | <0.100 |
| 03/02/2012               | Iron, dissolved | --              | 5.70                  | <0.100  | 6.75   | <0.100 | 0.935  | 8.24  | 0.217  | <0.100 |
| 09/05/2012               | Iron, dissolved | --              | 5.70                  | 0.109   | 3.62   | <0.100 | 0.554  | 7.97  | 1.9    | <0.100 |
| 03/08/2013               | Iron, dissolved | --              | 5.70                  | DRY     | 3.08   | <0.100 | 0.606  | 11.7  | 3.88   | <0.100 |
| 09/13/2013               | Iron, dissolved | --              | 5.70                  | DRY     | 1.79   | <0.100 | 0.364  | 10.3  | 3.64   | <0.100 |
| 03/06/2014               | Iron, dissolved | --              | 5.70                  | <0.100  | 1.26   | 0.499  | 0.85   | 8.89  | 5.6    | <0.100 |
| 09/09/2014               | Iron, dissolved | --              | 5.70                  | <0.100  | 1.20   | 0.213  | 0.717  | 10.4  | 0.829  | <0.100 |
| 03/11/2015               | Iron, dissolved | --              | 5.70                  | <0.100  | 0.938  | <0.100 | 0.809  | 9.78  | 1.45   | 0.159  |
| 09/09/2015               | Iron, dissolved | --              | 5.70                  | <0.100  | 1.16   | <0.100 | 1.68   | 10.2  | 1.26   | <0.100 |
| 03/11/2016               | Iron, dissolved | --              | 5.70                  | <0.100  | 0.81   | <0.100 | 1.11   | 9.71  | 0.165  | <0.100 |
| 10/27/2016               | Iron, dissolved | --              | 5.70                  | DRY     | 1.64   | 0.168  | 0.793  | 10.4  | 3.96   | <0.100 |
| 09/07/2017               | Iron, dissolved | --              | 5.70                  | <0.100  | 5.32   | 0.406  | 1.1    | 8.98  | 5.86   | <0.100 |
| 03/01/2018               | Iron, dissolved | --              | 5.70                  | NT      | 3.98   | <0.100 | NT     | NT    | NT     | NT     |
| 09/19/2018               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.45   | 0.186  | 1.93   | 10.8  | 1.87   | <0.100 |
| 03/27/2019               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.86   | <0.100 | 2.39   | 10.8  | 0.201  | <0.100 |
| 09/05/2019               | Iron, dissolved | --              | 5.70                  | <0.100  | 4.55   | 0.293  | 2.08   | 9.89  | 5.95   | <0.100 |
| 02/28/2020               | Iron, dissolved | --              | 5.70                  | <0.100  | 3.80   | <0.100 | 2.28   | 10.2  |        | 0.181  |
| 08/31/2020               | Iron, dissolved | --              | 5.70                  | <0.100  | 5.43   | <0.100 | 2.88   | 10.4  | 8.86   | <0.100 |
| 03/05/2021               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.85   | <0.100 | 1.85   | 10.1  | 4.60   | <0.100 |
| 09/13/2021               | Iron, dissolved | --              | 5.70                  | DRY     | 4.31   | 0.438  | 1.90   | 9.34  | 11.3   | 0.120  |
| 03/02/2022               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.32   | <0.100 | 0.76   | 9.9   | 7.60   | <0.100 |
| 09/12/2022               | Iron, dissolved | --              | 5.70                  | <0.100  | 2.77   | <0.100 | 2.20   | 11.2  | 11.4   | 0.243  |
| 03/24/2023               | Iron, dissolved | --              | 5.70                  | <0.100  | 0.189  | <0.100 | 0.39   | 11.2  | <0.100 | <0.100 |
| 09/13/2023               | Iron, dissolved | --              | 5.70                  | 1.63    | 0.44   | <0.100 | 1.13   | 9.81  | 12.3   | <0.100 |
| Mean                     |                 |                 |                       | 0.87    | 2.01   | 0.29   | 0.73   | 6.58  | 2.95   | 0.56   |
| Standard Deviation (STD) |                 |                 |                       | #DIV/0! | 1.96   | 0.13   | 0.77   | 3.48  | 3.17   | 1.09   |
| Mean + 2 STD             |                 |                 |                       | #DIV/0! | 5.93   | 0.55   | 2.27   | 13.53 | 9.30   | 2.75   |

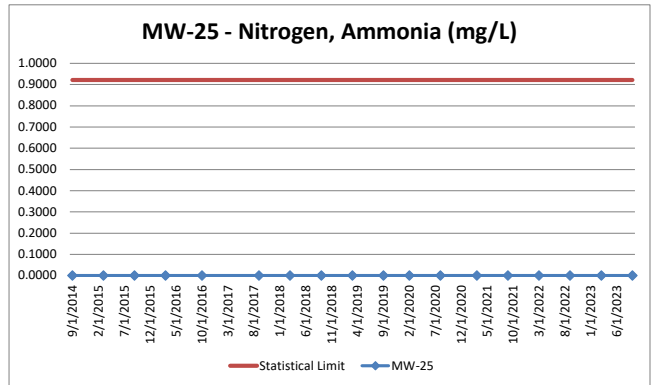
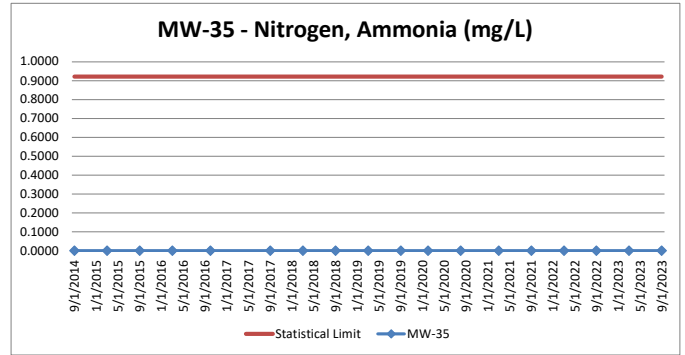
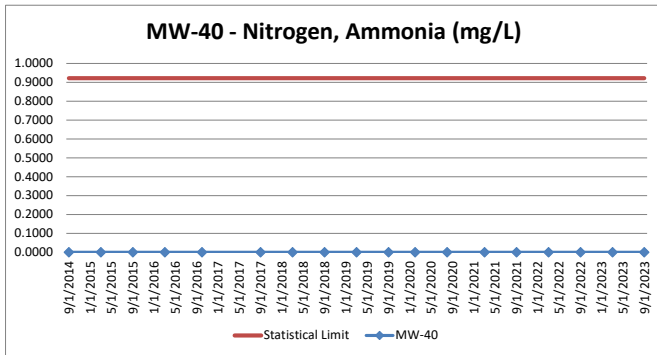
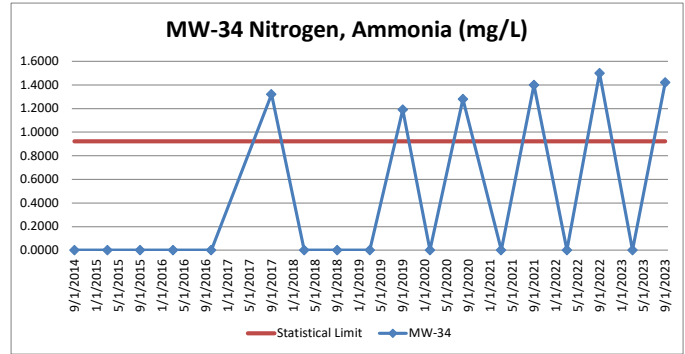
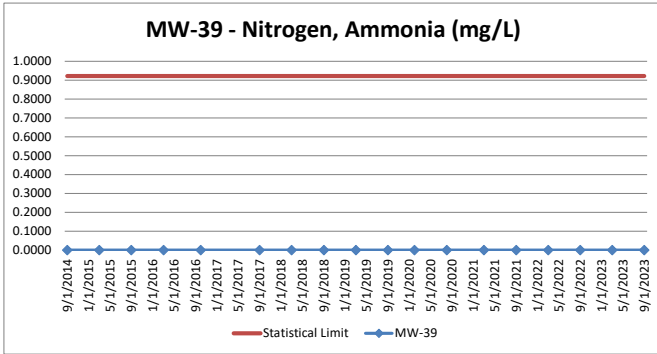
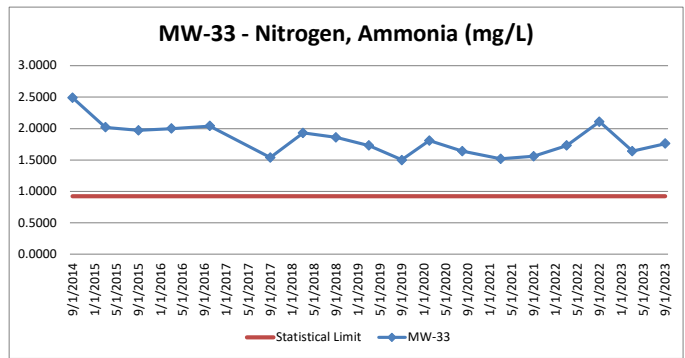
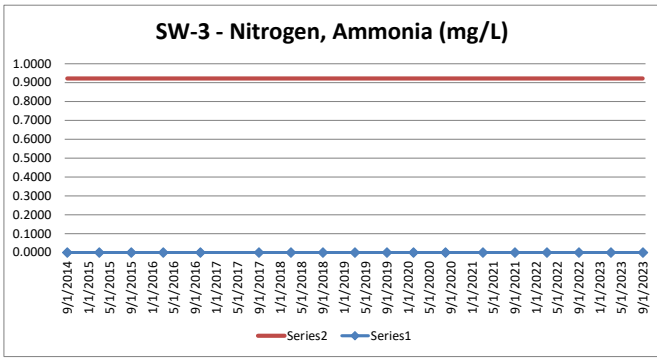




## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER         | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W   | D.G.W   | D.G.W   | BOTH    | BOTH  | BOTH  | BOTH    |
|--------------------------|-------------------|-----------------|-----------------------|---------|---------|---------|---------|-------|-------|---------|
|                          |                   |                 |                       | SW 3    | MW 39   | MW 40   | MW 25   | MW 33 | MW 34 | MW35    |
| mg/L                     |                   |                 |                       |         |         |         |         |       |       |         |
| 04/23/1991               | Nitrogen, Ammonia | 30              | 0.9                   | <0.5    |         |         | <0.5    | ---   | <0.5  |         |
| 10/15/1991               | Nitrogen, Ammonia | 30              | 0.9                   | <0.5    |         |         | <0.5    | ---   | <0.5  |         |
| 01/23/1992               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    |         |         | <1.0    | <1.0  | <1.0  |         |
| 03/23/1992               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    |         |         | <1.0    | <1.0  | <1.0  |         |
| 09/30/1992               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | <1    | <1    |         |
| 03/05/1993               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.7   | <1    |         |
| 09/21/1993               | Nitrogen, Ammonia | 30              | 0.9                   | <1      |         |         | <1      | 1.7   | <1    |         |
| 03/23/1994               | Nitrogen, Ammonia | 30              | 0.9                   | <1      |         |         | <1      | 1.8   | 1.1   |         |
| 09/16/1994               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | <1      | 1.8   | 1.3   |         |
| 03/16/1995               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | <1      | 1.6   | 1     |         |
| 09/13/1995               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | <1      | 1.5   | 1.2   |         |
| 03/28/1996               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | <1      | 1.4   | 1.8   | <1      |
| 06/20/1996               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | NT      | NT    | NT    | <1      |
| 09/13/1996               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.6   | 1.4   | <1      |
| 12/16/1996               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | NT      | NT    | NT    | NT      |
| 03/19/1997               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.5   | <1    | <1      |
| 06/18/1997               | Nitrogen, Ammonia | 30              | 0.9                   | NT      |         |         | NT      | NT    | NT    | <1      |
| 08/30/1997               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.4   | 1.4   | <1      |
| 03/10/1998               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.4   | 1.4   | <1      |
| 09/21/1998               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.4   | 1.4   | <1      |
| 03/18/1999               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.4   | <1    | <1      |
| 09/21/1999               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.5   | <1    | <1      |
| 03/21/2000               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     |         |         | <1      | 1.6   | <1    | NT      |
| 06/28/2000               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | NT      | NT    | NT    | NT      |
| 09/28/2000               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | 1.35  | <1    | DRY     |
| 12/27/2000               | Nitrogen, Ammonia | 30              | 0.9                   | NT      | <1      | <1      | NT      | NT    | NT    | NT      |
| 03/28/2001               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | 1.8   | <1    | <1      |
| 09/02/2001               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | 1.6   | <1    | <1      |
| 03/19/2002               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | 2.2   | <1    | <1      |
| 09/19/2002               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | <1    | <1    | <1      |
| 03/14/2003               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1      | <1      | 1.4   | <1    | <1      |
| 09/29/2003               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1.0    | <1.0    | 1.6   | 1.2   | <1.0    |
| 03/08/2004               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1      | <1.0    | <1.0    | 2     | <1.0  | <1.0    |
| 09/27/2004               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 2.2   | 1     | <1.0    |
| 03/17/2005               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.5   | <1.0  | <1.0    |
| 09/22/2005               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 2.2   | 1     | <1.0    |
| 03/17/2006               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.8   | <1.0  | <1.0    |
| 09/22/2006               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.8   | <1.0  | <1.0    |
| 03/14/2007               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.9   | <1.0  | <1.0    |
| 09/22/2007               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.7   | <1.0  | <1.0    |
| 03/03/2008               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.6   | <1.0  | <1.0    |
| 09/05/2008               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 2.1   | <1.0  | <1.0    |
| 03/09/2009               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.6   | <1.0  | <1.0    |
| 09/23/2009               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.9   | 1.2   | <1.0    |
| 03/16/2010               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.7   | <1.0  | <1.0    |
| 09/10/2010               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | <1.0  | <1.0  | <1.0    |
| 03/01/2011               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2     | <1.0  | <1.0    |
| 09/22/2011               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.4   | <1.0  | <1.0    |
| 03/02/2012               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.7   | <1.0  | <1.0    |
| 09/05/2012               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.4   | <1.0  | <1.0    |
| 03/08/2013               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.7   | <1.0  | <1.0    |
| 09/13/2013               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.8   | <1.0  | <1.0    |
| 03/06/2014               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2.05  | <1.0  | <1.0    |
| 09/09/2014               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2.49  | <1.0  | <1.0    |
| 03/11/2015               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2.02  | <1.0  | <1.0    |
| 09/09/2015               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.97  | <1.0  | <1.0    |
| 03/11/2016               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2     | <1.0  | <1.0    |
| 10/27/2016               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 2.04  | <1.0  | <1.0    |
| 09/07/2017               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.54  | 1.32  | <1.0    |
| 03/01/2018               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.93  | <1.0  | <1.0    |
| 09/19/2018               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.86  | <1.0  | <1.0    |
| 03/27/2019               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.73  | <1.0  | <1.0    |
| 09/05/2019               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.5   | 1.19  | <1.0    |
| 02/28/2020               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.81  | <1.0  | <1.0    |
| 08/31/2020               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.64  | 1.28  | <1.0    |
| 03/05/2021               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.52  | <1.0  | <1.0    |
| 09/13/2021               | Nitrogen, Ammonia | 30              | 0.9                   | DRY     | <1.0    | <1.0    | <1.0    | 1.56  | 1.40  | <1.0    |
| 03/02/2022               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.73  | <1.0  | <1.0    |
| 09/12/2022               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 2.11  | 1.50  | <1.0    |
| 03/24/2023               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.64  | <1.0  | <1.0    |
| 09/13/2023               | Nitrogen, Ammonia | 30              | 0.9                   | <1.0    | <1.0    | <1.0    | <1.0    | 1.76  | 1.42  | <1.0    |
| Mean                     |                   |                 |                       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | 1.7   | 1.3   | #DIV/0! |
| Standard Deviation (STD) |                   |                 |                       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | 0.3   | 0.2   | #DIV/0! |
| Mean + 2 STD             |                   |                 |                       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | 2.2   | 1.7   | #DIV/0! |



## AMES-STORY ENVIRONMENTAL LANDFILL

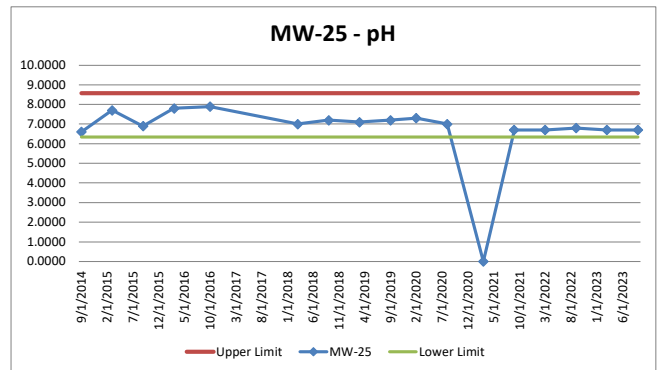
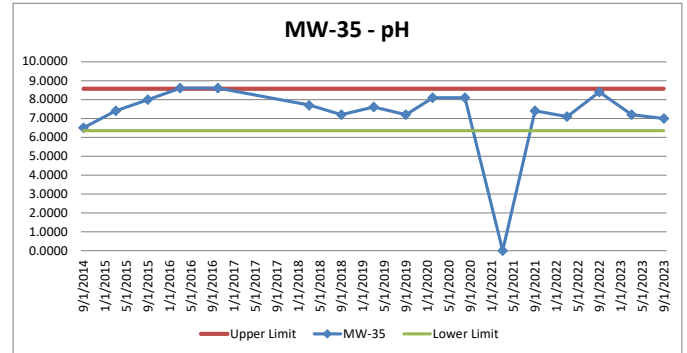
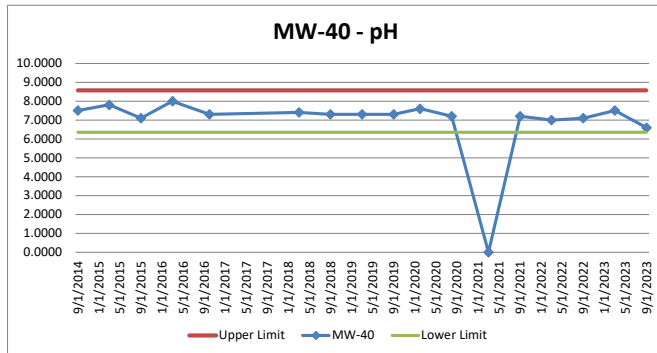
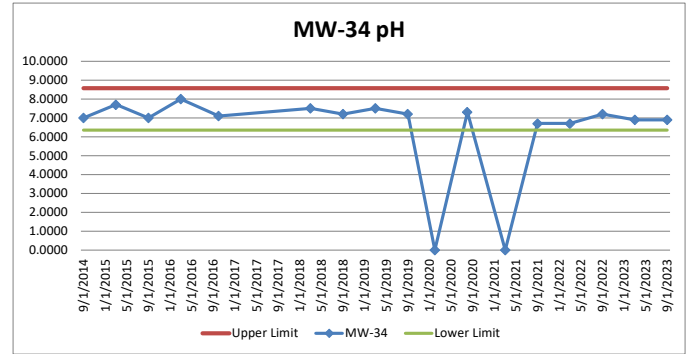
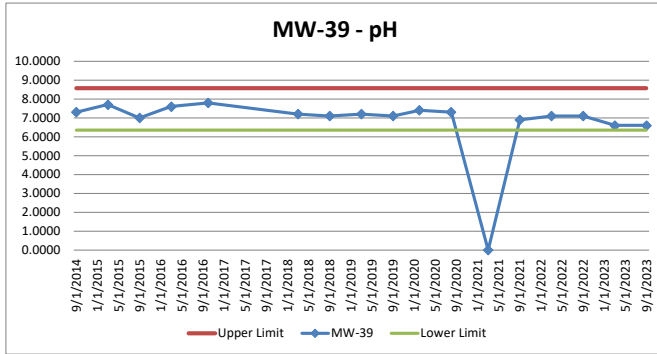
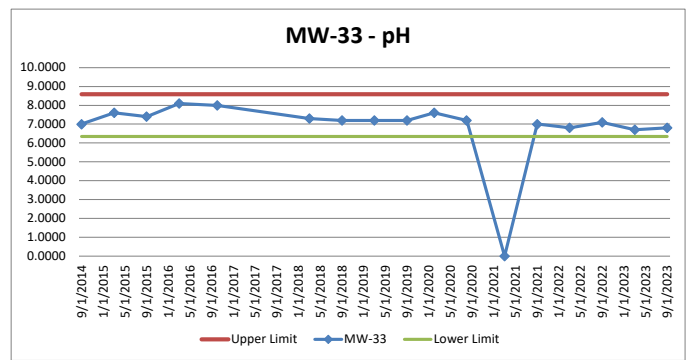
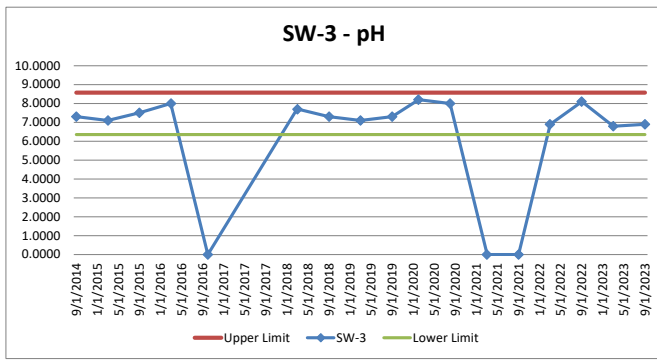
## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |           |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 04/23/1991               | pH        | 6.3             | 8.6                   |                    | 7.01           | 6.99           | NT            |                                 | 7.82          | 7.8           | NT            | NT            |
| 10/15/1991               | pH        | 6.3             | 8.6                   |                    | 7.05           | 7.71           | NT            |                                 | 7.76          | 6.96          | NT            | NT            |
| 01/23/1992               | pH        | 6.3             | 8.6                   |                    | 7.16           | 7.41           | NT            |                                 | 7.53          | NT            | NT            | NT            |
| 03/23/1992               | pH        | 6.3             | 8.6                   |                    | 7.61           | 7.32           | NT            |                                 | 7.51          | 7.68          | NT            | NT            |
| 09/30/1992               | pH        | 6.3             | 8.6                   |                    | 7.22           | NT             | NT            |                                 | 7.68          | 7.36          | NT            | NT            |
| 03/05/1993               | pH        | 6.3             | 8.6                   |                    | 7.58           | 6.72           | NT            |                                 | 7.73          | NT            | NT            | NT            |
| 09/21/1993               | pH        | 6.3             | 8.6                   |                    | 7.34           | 6.73           | 7             |                                 | 7.61          | 7.1           | 7             | 7.3           |
| 03/23/1994               | pH        | 6.3             | 8.6                   |                    | 7.4            | 7.05           | 7.3           |                                 | 7.5           | 7.1           | 7.4           | 7.3           |
| 09/16/1994               | pH        | 6.3             | 8.6                   |                    | 6.82           | 6.57           | 7             |                                 | 6.86          | 6.95          | 7.4           | 7.3           |
| 03/16/1995               | pH        | 6.3             | 8.6                   |                    | 7.2            | 6.9            | 7.5           |                                 | 7.6           | 6.7           | 7.8           | 7.9           |
| 09/13/1995               | pH        | 6.3             | 8.6                   |                    | 7.3            | 7              | 7.8           |                                 | 7.6           | 7.1           | 8.2           | 8             |
| 03/28/1996               | pH        | 6.3             | 8.6                   | 7.9                | plugged        | 8.4            | 7.8           | 8                               | plugged       | 8.2           | 7.8           | 7.8           |
| 06/20/1996               | pH        | 6.3             | 8.6                   | 6.7                |                | NT             | NT            | 7                               |               | NT            | NT            | NT            |
| 09/13/1996               | pH        | 6.3             | 8.6                   | 7.8                |                | 7.7            | 7.6           | 8.3                             |               | 8.3           | 7.9           | 7.9           |
| 12/16/1996               | pH        | 6.3             | 8.6                   | NT                 |                | 6.8            | 6.9           | NT                              |               | 7.2           | 6.8           | 6.7           |
| 03/19/1997               | pH        | 6.3             | 8.6                   | 7.7                |                | 7.7            | 7.7           | 8.2                             |               | 7.7           | 7.4           | 7.3           |
| 06/18/1997               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.8            | 8.4           | 8.2                             |               | 7.8           | 7.8           | 7.6           |
| 08/30/1997               | pH        | 6.3             | 8.6                   | 8.1                |                | 8              | 8             | 7.7                             |               | 7.8           | 6.8           | 6.7           |
| 03/10/1998               | pH        | 6.3             | 8.6                   | 7.8                |                | 8.1            | 8.3           | 7.8                             |               | 7.8           | 8.2           | 8.1           |
| 09/21/1998               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 6.4           | 7.2                             |               | 7.2           | 3.2           | 2.8           |
| 03/18/1999               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.7            | 7.2           | 7.4                             |               | 7.8           | 6.9           | 7             |
| 09/21/1999               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 7.2           | 7.2                             |               | 7.2           | 7.4           | 7.7           |
| 03/21/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7.9           | NT                              |               | NT            | 8.1           | 7.9           |
| 06/28/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7.1           | NT                              |               | NT            | 7.3           | 7.1           |
| 09/28/2000               | pH        | 6.3             | 8.6                   | 7                  |                | 7.4            | 6.8           | 7.5                             |               | 7.1           | 7.3           | 7.3           |
| 12/27/2000               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 8.2           | NT                              |               | NT            | 8.5           | 8.5           |
| 03/28/2001               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.8            | 6.8           | 7.5                             |               | 7.4           | 7.9           | 7.5           |
| 09/02/2001               | pH        | 6.3             | 8.6                   | 7.7                |                | NT             | 6.9           | 7.5                             |               | NT            | 7.4           | 7.7           |
| 03/19/2002               | pH        | 6.3             | 8.6                   | 6.8                |                | 7.4            | 6.5           | NT                              |               | 7.2           | 7.2           | 7.1           |
| 09/19/2002               | pH        | 6.3             | 8.6                   | 6.7                |                | 6.8            | 6.6           | 7.8                             |               | 7.7           | 7.1           | 6.9           |
| 03/14/2003               | pH        | 6.3             | 8.6                   | 7.5                |                | 6.7            | 6.6           | 7.6                             |               | 7             | 7             | 7.1           |
| 09/29/2003               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.4            | 6.9           | 7.8                             |               | 7.7           | 7.4           | 7.4           |
| 03/08/2004               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.5            | 7.1           | 7                               |               | 7.5           | 7.1           | 7.7           |
| 09/27/2004               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.3            | 6.7           | 7.5                             |               | 7.7           | 7.8           | 7.6           |
| 03/17/2005               | pH        | 6.3             | 8.6                   | 7.3                |                | 6.9            | 7.1           | 8                               |               | 7.4           | 7.1           | 7.7           |
| 09/22/2005               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.2            | 7.2           | 7.6                             |               | 7.7           | 8             | 8.3           |
| 03/17/2006               | pH        | 6.3             | 8.6                   | 8                  |                | 7.8            | 8.1           | 8.3                             |               | 8.2           | 8.3           | 8.4           |
| 09/22/2006               | pH        | 6.3             | 8.6                   | 7.7                |                | 8              | 7.7           | 8.1                             |               | 8.4           | 8.3           | 8.4           |
| 03/14/2007               | pH        | 6.3             | 8.6                   | 6.9                |                | 7.2            | 6.7           | 7.4                             |               | 7.3           | 7.2           | 7.3           |
| 09/22/2007               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.2            | 6.9           | 7.71                            |               | 8.4           | 7.4           | 7.5           |
| 03/03/2008               | pH        | 6.3             | 8.6                   | 6.93               |                | 7              | 6.7           | 7.44                            |               | 7.1           | 7.2           | 7.2           |
| 09/05/2008               | pH        | 6.3             | 8.6                   | 7                  |                | 7              | 6.6           | 7.3                             |               | 7.3           | 7.2           | 7.1           |
| 03/09/2009               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.3            | 8             | 7.7                             |               | 7.6           | 7.6           | 7.6           |
| 09/23/2009               | pH        | 6.3             | 8.6                   | 8.1                |                | 8.4            | 7.8           | 8.2                             |               | 7.9           | 7.9           | 8             |
| 03/16/2010               | pH        | 6.3             | 8.6                   | NT                 |                | 8              | 7.3           | NT                              |               | 7.8           | 7.7           | 7.7           |
| 09/10/2010               | pH        | 6.3             | 8.6                   | 7.8                |                | 7              | 7.2           | 8                               |               | 7             | 7.1           | 7.1           |
| 03/01/2011               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.7            | 7.8           | 7.9                             |               | 7.9           | 7.9           | 7.8           |
| 09/22/2011               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.6            | 7.7           | 7.8                             |               | 7.9           | 7.9           | 7.7           |
| 03/02/2012               | pH        | 6.3             | 8.6                   | 7.7                |                | 7.2            | 7.2           | 7.4                             |               | 7.5           | 7.2           | 7.3           |
| 09/05/2012               | pH        | 6.3             | 8.6                   | 8                  |                | 8              | 8             | 8.1                             |               | 8.2           | 8.1           | 8.2           |
| 03/08/2013               | pH        | 6.3             | 8.6                   | 6.7                |                | 6.7            | 6.3           | 7                               |               | 7             | 6.7           | 6.8           |
| 09/13/2013               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.2            | 7             | 7.6                             |               | 7.9           | 7.1           | 7.6           |
| 03/06/2014               | pH        | 6.3             | 8.6                   | 7.8                |                | 8.8            | 7.6           | 8.9                             |               | 8.4           | 8.5           | 8.3           |
| 09/09/2014               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.1            | 7.5           | 7.7                             |               | 7.7           | 7.3           | 7.8           |
| 03/11/2015               | pH        | 6.3             | 8.6                   | 7.9                |                | 7.6            | 6.7           | 7.7                             |               | 8             | 7.4           | 7.5           |
| 09/09/2015               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.2            | 6.9           | 7.9                             |               | 7.5           | 7.4           | 7.7           |
| 03/11/2016               | pH        | 6.3             | 8.6                   | 7.8                |                | 7.9            | 7.6           | 8.3                             |               | 8.1           | 8.3           | 8.2           |
| 10/27/2016               | pH        | 6.3             | 8.6                   | 7.4                |                | 7.1            | 7             | 7.8                             |               | 7.6           | 7.3           | 7.5           |
| 03/01/2018               | pH        | 6.3             | 8.6                   | 6.9                |                | 7.4            | 7.1           | 7.9                             |               | 8             | 7.4           | 7.7           |
| 09/19/2018               | pH        | 6.3             | 8.6                   | 7                  |                | 7.3            | 7.5           | 7                               |               | 7.4           | 7.4           | 8.1           |
| 03/27/2019               | pH        | 6.3             | 8.6                   | 7.2                |                | 7.3            | 7.1           | 7.9                             |               | 7.7           | 7.5           | 7.8           |
| 09/05/2019               | pH        | 6.3             | 8.6                   | 7.4                |                | 7.4            | 7.1           | 7.7                             |               | 7.7           | 7.6           | 7.8           |
| 02/28/2020               | pH        | 6.3             | 8.6                   | 7.3                |                | 7.4            | 7.5           | 7.7                             |               | 7.8           | 7.8           | 8.3           |
| 08/31/2020               | pH        | 6.3             | 8.6                   | 7.5                |                | 7.3            | 7.1           | 8.3                             |               | 8.3           | 7.4           | 7.6           |
| 03/05/2021               | pH        | 6.3             | 8.6                   |                    |                |                |               |                                 |               |               |               |               |
| 09/13/2021               | pH        | 6.3             | 8.6                   | 6.9                |                | 6.8            | 6.9           | 7.5                             |               | 8             | 7.1           | 7.2           |
| 03/02/2022               | pH        | 6.3             | 8.6                   | 6.8                |                | 6.9            | 6.9           | 7.4                             |               | 7.6           | 7             | 7.3           |
| 09/12/2022               | pH        | 6.3             | 8.6                   | 7.1                |                | 7.3            | 6.9           | 8.1                             |               | 8.8           | 7.5           | 8.2           |
| 03/24/2023               | pH        | 6.3             | 8.6                   | NT                 |                | NT             | 7             | NT                              |               | NT            | 6.9           | NT            |
| 09/13/2023               | pH        | 6.3             | 8.6                   | NT                 |                | 6.7            | NT            | NT                              |               | NT            | NT            | 6.8           |
| Mean                     |           |                 |                       |                    | 7.4            | 7.2            | 7.4           | 7.2                             | 7.7           | 7.6           | 7.6           | 7.5           |
| Standard Deviation (STD) |           |                 |                       |                    | 0.4            | 0.2            | 0.5           | 0.5                             | 0.4           | 0.2           | 0.4           | 0.8           |
| Mean + 2 STD             |           |                 |                       |                    | 8.2            | 7.7            | 8.3           | 8.2                             | 8.5           | 8.1           | 8.5           | 9.0           |
| Mean - 2 STD             |           |                 |                       |                    | 6.6            | 6.8            | 6.4           | 6.2                             | 6.9           | 7.1           | 6.7           | 6.0           |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH |
|--------------------------|-----------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|------|
|                          |           |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35 |
| 04/23/1991               | pH        | 6.3             | 8.6                   | 7.73  |       |       | 7.55  | ---   | 7.01  |      |
| 10/15/1991               | pH        | 6.3             | 8.6                   | 7.80  |       |       | 7.60  | ---   | 7.03  |      |
| 01/23/1992               | pH        | 6.3             | 8.6                   | 7.72  |       |       | 7.27  | 7.26  | 7.31  |      |
| 03/23/1992               | pH        | 6.3             | 8.6                   | 7.45  |       |       | 7.39  | 7.37  | 7.32  |      |
| 09/30/1992               | pH        | 6.3             | 8.6                   | 7.45  |       |       | 7.31  | 7.3   | 7.13  |      |
| 03/05/1993               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.41  | 7.42  | 7.34  |      |
| 09/21/1993               | pH        | 6.3             | 8.6                   | 7.34  |       |       | 6.85  | 7.29  | 7.12  |      |
| 03/23/1994               | pH        | 6.3             | 8.6                   | 7.39  |       |       | 7.16  | 7.18  | 7.4   |      |
| 09/16/1994               | pH        | 6.3             | 8.6                   | 7.39  |       |       | 6.46  | 7.22  | 6.99  |      |
| 03/16/1995               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.7   | 7.6   | 7.7   |      |
| 09/13/1995               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.6   | 7.6   | 7.6   |      |
| 03/28/1996               | pH        | 6.3             | 8.6                   | Dry   |       |       | 7.9   | 7.9   | 8     | 8    |
| 06/20/1996               | pH        | 6.3             | 8.6                   | NT    |       |       | NT    | NT    | NT    | 7.5  |
| 09/13/1996               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.7   | 7.7   | 8     | 8.1  |
| 12/16/1996               | pH        | 6.3             | 8.6                   | NT    |       |       | NT    | NT    | NT    | NT   |
| 03/19/1997               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.5   | 7.5   | 7.7   | 8.1  |
| 06/18/1997               | pH        | 6.3             | 8.6                   | NT    |       |       | NT    | NT    | NT    | 8.2  |
| 08/30/1997               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.8   | 7.9   | 8     | 8    |
| 03/10/1998               | pH        | 6.3             | 8.6                   | DRY   |       |       | 6.4   | 5.8   | 5.8   | 5.4  |
| 09/21/1998               | pH        | 6.3             | 8.6                   | DRY   |       |       | 6.2   | 5.8   | 7.4   | 7.4  |
| 03/18/1999               | pH        | 6.3             | 8.6                   | DRY   |       |       | 7.3   | 7.4   | 7.7   | 6.9  |
| 09/21/1999               | pH        | 6.3             | 8.6                   | DRY   |       |       | 6.2   | 5.8   | 7.4   | 7.4  |
| 03/21/2000               | pH        | 6.3             | 8.6                   | DRY   |       |       | NT    | NT    | NT    | NT   |
| 06/28/2000               | pH        | 6.3             | 8.6                   | DRY   | 5.9   | 5.8   | NT    | NT    | NT    | NT   |
| 09/28/2000               | pH        | 6.3             | 8.6                   | DRY   | 7.1   | 7.1   | 7.2   | 7.3   | 7.2   | NT   |
| 12/27/2000               | pH        | 6.3             | 8.6                   | NT    | 8     | 8.1   | NT    | NT    | NT    | NT   |
| 03/28/2001               | pH        | 6.3             | 8.6                   | DRY   | 7.2   | 7.7   | 7.5   | 7.4   | 7.5   | 7.5  |
| 09/02/2001               | pH        | 6.3             | 8.6                   | DRY   | 7.1   | 7.9   | 7.7   | 7.8   | 7.3   | 7.3  |
| 03/19/2002               | pH        | 6.3             | 8.6                   | DRY   | 6.9   | 7.5   | 7     | 7.2   | 7     | 7.1  |
| 09/19/2002               | pH        | 6.3             | 8.6                   | DRY   | 6.7   | 6.9   | 7.5   | 7     | 6.7   | 6.9  |
| 03/14/2003               | pH        | 6.3             | 8.6                   | DRY   | 8     | 8.1   | 7.1   | 7.4   | 7.3   | 7.1  |
| 09/29/2003               | pH        | 6.3             | 8.6                   | DRY   | 7.2   | 7.5   | 7.4   | 7.8   | 7.4   | 7.5  |
| 03/08/2004               | pH        | 6.3             | 8.6                   | DRY   | 7.1   | 7.5   | 7.6   | 7.4   | 7.4   | 7.4  |
| 09/27/2004               | pH        | 6.3             | 8.6                   | DRY   | 7     | 7.6   | 7     | 7.1   | 7.2   | 7.2  |
| 03/17/2005               | pH        | 6.3             | 8.6                   | DRY   | 7.2   | 7.9   | 7.5   | 7.6   | 7.5   | 7.6  |
| 09/22/2005               | pH        | 6.3             | 8.6                   | DRY   | 7.5   | 7.3   | 7     | 7.6   | 7.4   | 7.3  |
| 03/22/2006               | pH        | 6.3             | 8.6                   | DRY   | 8.2   | 8.4   | 7.7   | 7.7   | 8     | 7.9  |
| 09/22/2006               | pH        | 6.3             | 8.6                   | DRY   | 8.1   | 7.8   | 7.8   | 7.9   | 7.7   | 7.5  |
| 03/14/2007               | pH        | 6.3             | 8.6                   | 7.4   | 6.8   | 7     | 6.8   | 7     | 7.4   | 6.9  |
| 09/22/2007               | pH        | 6.3             | 8.6                   | DRY   | 6.88  | 7.04  | 7.06  | 7.27  | 7.22  | 6.66 |
| 03/03/2008               | pH        | 6.3             | 8.6                   | DRY   | 7.11  | 6.9   | 6.73  | 7.13  | 7.48  | 6.42 |
| 09/05/2008               | pH        | 6.3             | 8.6                   | DRY   | 6.9   | 6.9   | 6.8   | 7.2   | 7.3   | 7.2  |
| 03/09/2009               | pH        | 6.3             | 8.6                   | DRY   | 7.1   | 7.3   | 7     | 6.9   | 7.5   | 7.1  |
| 09/23/2009               | pH        | 6.3             | 8.6                   | DRY   | 7.8   | 7.8   | 8.4   | 7.9   | 8.4   | 9.1  |
| 03/16/2010               | pH        | 6.3             | 8.6                   | 7.3   | 7.6   | 7.7   | 7.1   | 6.9   | 7.2   | 7.1  |
| 09/10/2010               | pH        | 6.3             | 8.6                   | 7.4   | 7.8   | 8     | 7.3   | 7.2   | 7.3   | 7.3  |
| 03/01/2011               | pH        | 6.3             | 8.6                   | 7.7   | 7.9   | 7.9   | 7.7   | 8     | 7.9   | 7.6  |
| 09/22/2011               | pH        | 6.3             | 8.6                   | 7.5   | 8     | 7.7   | 7.4   | 7.8   | 7.6   | 7.5  |
| 03/02/2012               | pH        | 6.3             | 8.6                   | 7.1   | 7.1   | 7.2   | 6.9   | 6.9   | 6.7   | 6.5  |
| 09/05/2012               | pH        | 6.3             | 8.6                   | 8     | 8     | 8     | 8.1   | 8     | 8.1   | 8.1  |
| 03/08/2013               | pH        | 6.3             | 8.6                   | DRY   | 6.6   | 6.7   | 7.1   | 7.1   | 7.2   | 7.1  |
| 09/13/2013               | pH        | 6.3             | 8.6                   | DRY   | 7     | 7.1   | 7.1   | 7.2   | 7.4   | 7.7  |
| 03/06/2014               | pH        | 6.3             | 8.6                   | 7.2   | 7.8   | 8.2   | 7.4   | 7.5   | 7.4   | 6.4  |
| 09/09/2014               | pH        | 6.3             | 8.6                   | 7.3   | 7.3   | 7.5   | 6.6   | 7     | 7     | 6.5  |
| 03/11/2015               | pH        | 6.3             | 8.6                   | 7.1   | 7.7   | 7.8   | 7.7   | 7.6   | 7.7   | 7.4  |
| 09/09/2015               | pH        | 6.3             | 8.6                   | 7.5   | 7     | 7.1   | 6.9   | 7.4   | 7     | 8    |
| 03/11/2016               | pH        | 6.3             | 8.6                   | 8     | 7.6   | 8     | 7.8   | 8.1   | 8     | 8.6  |
| 10/27/2016               | pH        | 6.3             | 8.6                   | DRY   | 7.8   | 7.3   | 7.9   | 8     | 7.1   | 8.6  |
| 03/01/2018               | pH        | 6.3             | 8.6                   | 7.7   | 7.2   | 7.4   | 7     | 7.3   | 7.5   | 7.7  |
| 09/19/2018               | pH        | 6.3             | 8.6                   | 7.3   | 7.1   | 7.3   | 7.2   | 7.2   | 7.2   | 7.2  |
| 03/27/2019               | pH        | 6.3             | 8.6                   | 7.1   | 7.2   | 7.3   | 7.1   | 7.2   | 7.5   | 7.6  |
| 09/05/2019               | pH        | 6.3             | 8.6                   | 7.3   | 7.1   | 7.3   | 7.2   | 7.2   | 7.2   | 7.2  |
| 02/28/2020               | pH        | 6.3             | 8.6                   | 8.2   | 7.4   | 7.6   | 7.3   | 7.6   |       | 8.1  |
| 08/31/2020               | pH        | 6.3             | 8.6                   | 8     | 7.3   | 7.2   | 7     | 7.2   | 7.3   | 8.1  |
| 03/05/2021               | pH        | 6.3             | 8.6                   |       |       |       |       |       |       |      |
| 09/13/2021               | pH        | 6.3             | 8.6                   | DRY   | 6.9   | 7.2   | 6.7   | 7     | 6.7   | 7.4  |
| 03/02/2022               | pH        | 6.3             | 8.6                   | 6.9   | 7.1   | 7     | 6.7   | 6.8   | 6.7   | 7.1  |
| 09/12/2022               | pH        | 6.3             | 8.6                   | 8.1   | 7.1   | 7.1   | 6.8   | 7.1   | 7.2   | 8.4  |
| 03/24/2023               | pH        | 6.3             | 8.6                   | 6.8   | 6.6   | 7.5   | 6.7   | 6.7   | 6.9   | 7.2  |
| 09/13/2023               | pH        | 6.3             | 8.6                   | 6.9   | 6.6   | 6.6   | 6.7   | 6.8   | 6.9   | 7.0  |
| Mean                     |           |                 |                       | 7.5   | 7.3   | 7.4   | 7.2   | 7.3   | 7.3   | 7.4  |
| Standard Deviation (STD) |           |                 |                       | 0.4   | 0.5   | 0.5   | 0.5   | 0.5   | 0.4   | 0.6  |
| Mean + 2 STD             |           |                 |                       | 8.2   | 8.2   | 8.4   | 8.1   | 8.3   | 8.2   | 8.7  |
| Mean - 2 STD             |           |                 |                       | 6.8   | 6.3   | 6.5   | 6.3   | 6.3   | 6.5   | 6.2  |



## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |           |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
|                          | mg/L      |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | <0.100        | NT            | NT            |
| 10/15/1991               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | <0.100        | NT            | NT            |
| 01/23/1992               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | NT            | NT            | NT            |
| 03/23/1992               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | <0.100        | NT            | NT            |
| 09/30/1992               | Phenols   | 2               | 0.07                  |                    | <0.1           | NT             | NT            |                                 | <0.100        | <0.100        | NT            | NT            |
| 03/05/1993               | Phenols   | 2               | 0.07                  |                    | NT             | NT             | <0.1          |                                 | NT            | NT            | NT            | NT            |
| 09/21/1993               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | <0.100        | <0.1          | <0.1          |
| 03/23/1994               | Phenols   | 2               | 0.07                  |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/16/1994               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | <0.1          |                                 | <0.100        | <0.100        | <0.1          | <0.1          |
| 03/16/1995               | Phenols   | 2               | 0.07                  |                    | NT             | NT             | <0.1          |                                 | NT            | NT            | <0.1          | <0.1          |
| 09/13/1995               | Phenols   | 2               | 0.07                  |                    | <0.1           | <0.1           | NT            |                                 | <0.100        | <0.100        | NT            | NT            |
| 03/28/1996               | Phenols   | 2               | 0.07                  | NT                 | plugged        | NT             | NT            | NT                              | plugged       | <0.1          | NT            | NT            |
| 06/20/1996               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               |               | NT            | NT            |
| 09/13/1996               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 12/16/1996               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/19/1997               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/18/1997               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 08/30/1997               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 03/10/1998               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1998               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 03/18/1999               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1999               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 03/21/2000               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/28/2000               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/28/2000               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 12/27/2000               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/28/2001               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/02/2001               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 03/19/2002               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/19/2002               | Phenols   | 2               | 0.07                  | <0.1               |                | <0.1           | <0.1          | <0.1                            |               | <0.1          | <0.1          | <0.1          |
| 03/14/2003               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/29/2003               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/08/2004               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/27/2004               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/17/2005               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2005               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/17/2006               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2006               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/14/2007               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2007               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/03/2008               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2008               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | 0.216         | <0.100        | <0.100        |
| 03/09/2009               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/23/2009               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/16/2010               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/10/2010               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/01/2011               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2011               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/02/2012               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2012               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/08/2013               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2013               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/06/2014               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/09/2014               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/11/2015               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/09/2015               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/11/2016               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 10/27/2016               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 09/07/2017               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/01/2018               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/19/2018               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/27/2019               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2019               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 02/28/2020               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 08/31/2020               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/05/2021               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2021               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/02/2022               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/12/2022               | Phenols   | 2               | 0.07                  | <0.100             |                | <0.100         | <0.100        | <0.100                          |               | <0.100        | <0.100        | <0.100        |
| 03/24/2023               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2023               | Phenols   | 2               | 0.07                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| Mean                     |           |                 |                       | #DIV/0!            | #DIV/0!        | #DIV/0!        | #DIV/0!       | #DIV/0!                         | #DIV/0!       | 0.216         | #DIV/0!       | #DIV/0!       |
| Standard Deviation (STD) |           |                 |                       | #DIV/0!            | #DIV/0!        | #DIV/0!        | #DIV/0!       | #DIV/0!                         | #DIV/0!       | 0             | #DIV/0!       | #DIV/0!       |
| Mean + 2 STD             |           |                 |                       | #DIV/0!            | #DIV/0!        | #DIV/0!        | #DIV/0!       | #DIV/0!                         | #DIV/0!       | 0.216         | #DIV/0!       | #DIV/0!       |

## MONITORING WELL SAMPLING RESULTS

Mean  
Standard Deviation (STD)  
Mean + 2 STD

## AMES-STORY ENVIRONMENTAL LANDFILL

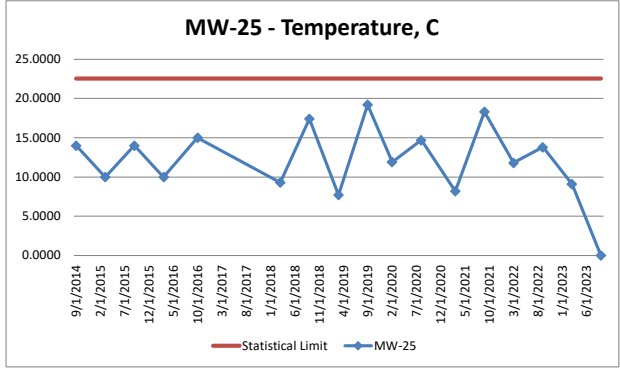
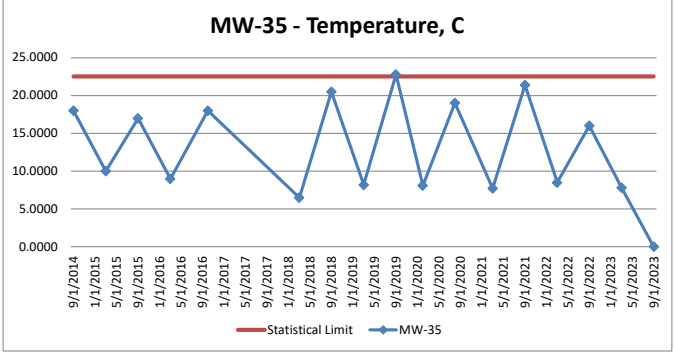
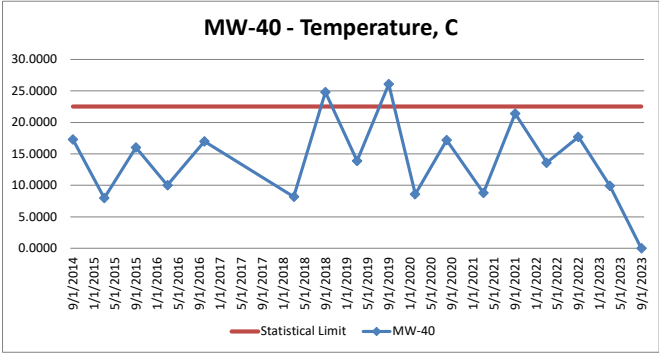
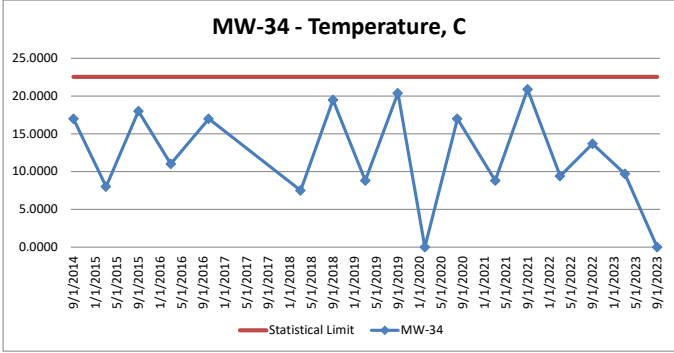
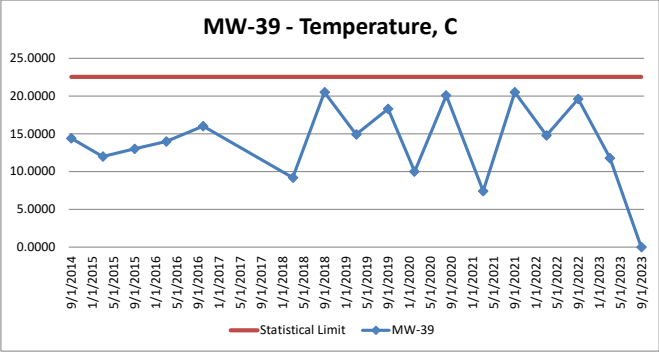
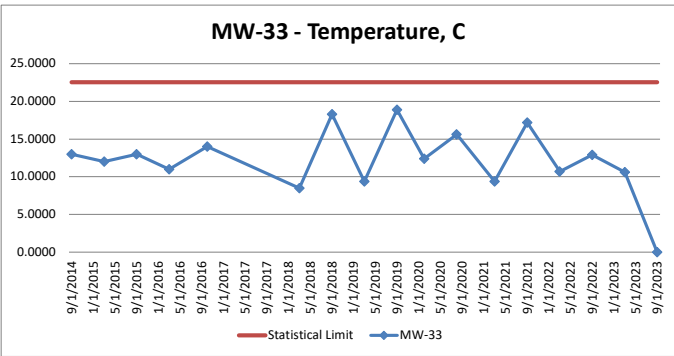
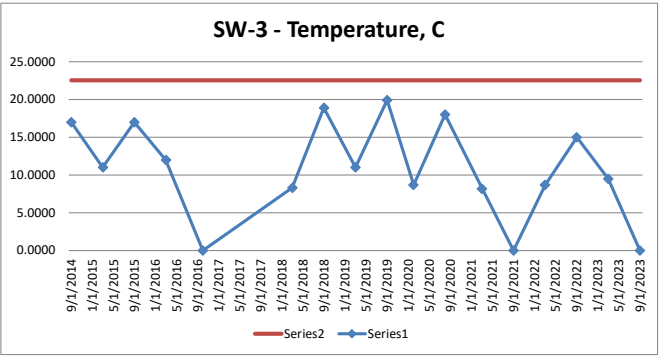
## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER            | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|----------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |                      |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |                      |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 04/23/1991               | Temperature, celsius | --              | 22.5                  |                    | 14.1           | 16.9           | NT            |                                 | 11.4          | 12.7          | NT            | NT            |
| 10/15/1991               | Temperature, celsius | --              | 22.5                  |                    | 13.6           | 12.4           | NT            |                                 | 10.7          | 11.9          | NT            | NT            |
| 01/23/1992               | Temperature, celsius | --              | 22.5                  |                    | 8.2            | 6.1            | NT            |                                 | 8.4           | NT            | NT            | NT            |
| 03/23/1992               | Temperature, celsius | --              | 22.5                  |                    | 7.6            | 9.5            | NT            |                                 | 11            | 10.5          | NT            | NT            |
| 09/30/1992               | Temperature, celsius | --              | 22.5                  |                    | 10.6           | NT             | NT            |                                 | 11.5          | 12.1          | NT            | NT            |
| 03/05/1993               | Temperature, celsius | --              | 22.5                  |                    | 8.8            | 5.2            | NT            |                                 | 10.3          | NT            | NT            | NT            |
| 09/21/1993               | Temperature, celsius | --              | 22.5                  |                    | 17.3           | 17.5           | 14.2          |                                 | 14.4          | 14.6          | 10.9          | 10.4          |
| 03/23/1994               | Temperature, celsius | --              | 22.5                  |                    | 11.6           | 10.2           | 9.2           |                                 | 12.1          | 8.2           | 8.4           | 9.3           |
| 09/16/1994               | Temperature, celsius | --              | 22.5                  |                    | 18.7           | 21.3           | 18            |                                 | 14.8          | 17.1          | 15            | 14            |
| 03/16/1995               | Temperature, celsius | --              | 22.5                  |                    | 7              | 5              | 6             |                                 | 8             | 6             | NT            | 10            |
| 09/13/1995               | Temperature, celsius | --              | 22.5                  |                    | 4.73           | 4.72           | 4.3           |                                 | 4.71          | 4.62          | 4.3           | 4.3           |
| 03/28/1996               | Temperature, celsius | --              | 22.5                  | 9                  | plugged        | 6              | 5             | 10                              | plugged       | 7             | 10            | 10            |
| 06/20/1996               | Temperature, celsius | --              | 22.5                  | 13                 |                | NT             | NT            | 14                              |               | NT            | NT            | NT            |
| 09/13/1996               | Temperature, celsius | --              | 22.5                  | 17                 |                | 19             | 17            | 12                              |               | 17            | 14            | 13            |
| 12/16/1996               | Temperature, celsius | --              | 22.5                  | NT                 |                | 10             | 7             | NT                              |               | 12            | 7             | 8             |
| 03/19/1997               | Temperature, celsius | --              | 22.5                  | 9                  |                | 6              | 4             | 10                              |               | 8             | 7             | 7             |
| 06/18/1997               | Temperature, celsius | --              | 22.5                  | 14                 |                | 15             | 14            | 13                              |               | 14            | 15            | 14            |
| 08/30/1997               | Temperature, celsius | --              | 22.5                  | 20                 |                | 20             | 23            | 14                              |               | 17            | 18            | 16            |
| 03/10/1998               | Temperature, celsius | --              | 22.5                  | 8                  |                | 6              | 8             | 10                              |               | 8             | 11            | 8             |
| 09/21/1998               | Temperature, celsius | --              | 22.5                  | 16                 |                | 18             | 19            | 11                              |               | 14            | 15            | 15            |
| 03/18/1999               | Temperature, celsius | --              | 22.5                  | 8                  |                | 5              | 12            | 10                              |               | 6             | 11            | 11            |
| 09/21/1999               | Temperature, celsius | --              | 22.5                  | 16                 |                | 18             | 21            | 11                              |               | 14            | 13            | 13            |
| 03/21/2000               | Temperature, celsius | --              | 22.5                  | NT                 |                | NT             | 11            | NT                              |               | NT            | 9             | 9             |
| 06/28/2000               | Temperature, celsius | --              | 22.5                  | NT                 |                | NT             | 19            | NT                              |               | NT            | NT            | NT            |
| 09/28/2000               | Temperature, celsius | --              | 22.5                  | 19                 |                | 17             | 20            | 15                              |               | 18            | 16            | 15            |
| 12/27/2000               | Temperature, celsius | --              | 22.5                  | NT                 |                | NT             | 13            | NT                              |               | NT            | 14            | 13            |
| 03/28/2001               | Temperature, celsius | --              | 22.5                  | 8                  |                | 6              | 10            | 10                              |               | 8             | 13            | 13            |
| 09/02/2001               | Temperature, celsius | --              | 22.5                  | 17                 |                | NT             | NT            | 14                              |               | NT            | NT            | NT            |
| 03/19/2002               | Temperature, celsius | --              | 22.5                  | 10                 |                | 7              | 8             | 12                              |               | 10            | 11            | 11            |
| 09/19/2002               | Temperature, celsius | --              | 22.5                  | 19                 |                | 20             | 18            | 14                              |               | 18            | 15            | 14            |
| 03/14/2003               | Temperature, celsius | --              | 22.5                  | 12                 |                | 7              | 6             | 13                              |               | 5             | 10            | 11            |
| 09/29/2003               | Temperature, celsius | --              | 22.5                  | 17                 |                | 15             | 18            | 14                              |               | 15            | 14            | 14            |
| 03/08/2004               | Temperature, celsius | --              | 22.5                  | 11                 |                | 6              | 7             | 12                              |               | 10            | 12            | 12            |
| 09/27/2004               | Temperature, celsius | --              | 22.5                  | 19                 |                | 21             | 18            | 16                              |               | 17            | 15            | 14            |
| 03/17/2005               | Temperature, celsius | --              | 22.5                  | 10                 |                | 9              | 7             | 13                              |               | 13            | 12            | 12            |
| 09/22/2005               | Temperature, celsius | --              | 22.5                  | 21                 |                | 27             | 25            | 20                              |               | 22            | 23            | 25            |
| 03/17/2006               | Temperature, celsius | --              | 22.5                  | 14                 |                | 9              | 8             | 14                              |               | 10            | 11            | 11            |
| 09/22/2006               | Temperature, celsius | --              | 22.5                  | 22                 |                | 24             | 22            | 23                              |               | 21            | 18            | 24            |
| 03/14/2007               | Temperature, celsius | --              | 22.5                  | 8                  |                | 6              | 7             | 11                              |               | 9             | 12            | 12            |
| 09/22/2007               | Temperature, celsius | --              | 22.5                  | 19.2               |                | 19             | 19.6          | 15.9                            |               | 21            | 14.9          | 14.8          |
| 03/03/2008               | Temperature, celsius | --              | 22.5                  | 8                  |                | 6              | 8             | 10.5                            |               | 10            | 12            | 12            |
| 09/05/2008               | Temperature, celsius | --              | 22.5                  | 16.9               |                | 18.4           | 18.2          | 13.5                            |               | 15.9          | 13.4          | 13.5          |
| 03/09/2009               | Temperature, celsius | --              | 22.5                  | 5                  |                | 5              | 6             | 11                              |               | 10            | 12            | 12            |
| 09/23/2009               | Temperature, celsius | --              | 22.5                  | 17                 |                | 16             | 16            | 15                              |               | 14            | 13            | 14            |
| 03/16/2010               | Temperature, celsius | --              | 22.5                  | NT                 |                | 8              | 8             | NT                              |               | 10            | 11            | 12            |
| 09/10/2010               | Temperature, celsius | --              | 22.5                  | 15                 |                | 18             | 18            | 14                              |               | 14            | 19            | 23            |
| 03/01/2011               | Temperature, celsius | --              | 22.5                  | 13                 |                | 10             | 10            | 13                              |               | 13            | 13            | 13            |
| 09/22/2011               | Temperature, celsius | --              | 22.5                  | 14                 |                | 18             | 17            | 13                              |               | 14            | 14            | 14            |
| 03/02/2012               | Temperature, celsius | --              | 22.5                  | 13                 |                | 9              | 9             | 12                              |               | 12            | 11            | 12            |
| 09/05/2012               | Temperature, celsius | --              | 22.5                  | 15                 |                | 18             | 18            | 13                              |               | 13            | 14            | 13            |
| 03/08/2013               | Temperature, celsius | --              | 22.5                  | 11                 |                | 9              | 9             | 12                              |               | 12            | 12            | 12            |
| 09/13/2013               | Temperature, celsius | --              | 22.5                  | 14                 |                | 18             | 18            | 15                              |               | 15            | 15            | 14            |
| 03/06/2014               | Temperature, celsius | --              | 22.5                  | 12                 |                | 9              | 8             | 10                              |               | 11            | 12            | 13            |
| 09/09/2014               | Temperature, celsius | --              | 22.5                  | 14                 |                | 16.5           | 18.4          | 13                              |               | 17.4          | 16.7          | 16            |
| 03/11/2015               | Temperature, celsius | --              | 22.5                  | 11                 |                | 8              | 10            | 12                              |               | 12            | 13            | 14            |
| 09/09/2015               | Temperature, celsius | --              | 22.5                  | 14                 |                | 16             | 16            | 13                              |               | 13            | 13            | 13            |
| 03/11/2016               | Temperature, celsius | --              | 22.5                  | 14                 |                | 11             | 10            | 14                              |               | 14            | 14            | 15            |
| 10/27/2016               | Temperature, celsius | --              | 22.5                  | 15                 |                | 17             | 17            | 14                              |               | 14            | 14            | 14            |
| 03/01/2018               | Temperature, celsius | --              | 22.5                  | 11.5               |                | 7.3            | 7.5           | 9.1                             |               | 8             | 9.5           | 10.8          |
| 09/19/2018               | Temperature, celsius | --              | 22.5                  | 20.2               |                | 20.8           | 21.5          | 20.7                            |               | 19.1          | 18.7          | 19.5          |
| 03/27/2019               | Temperature, celsius | --              | 22.5                  | 16.4               |                | 14.9           | 18.4          | 16.7                            |               | 17.6          | 14.8          | 16.1          |
| 09/05/2019               | Temperature, celsius | --              | 22.5                  | 22.7               |                | 26             | 24.1          | 22.3                            |               | 21.4          | 17.2          | 19.3          |
| 02/28/2020               | Temperature, celsius | --              | 22.5                  | 10                 |                | 6.6            | 4.9           | 10.1                            |               | 7.1           | 8.8           | 10.6          |
| 08/31/2020               | Temperature, celsius | --              | 22.5                  | 17                 |                | 19             | 20.5          | 16                              |               | 20            | 14.9          | 15.1          |
| 03/05/2021               | Temperature, celsius | --              | 22.5                  | 14.5               |                | 8.6            | 12.3          | 12.6                            |               | 10.9          | 14.5          | 14.5          |
| 09/13/2021               | Temperature, celsius | --              | 22.5                  | 21.2               |                | 19.4           | 23.9          | 19.3                            |               | 21.3          | 17.8          | 24.4          |
| 03/02/2022               | Temperature, celsius | --              | 22.5                  | 15.3               |                | 12.7           | 14            | 17                              |               | 12.2          | 13.8          | 14.6          |
| 09/12/2022               | Temperature, celsius | --              | 22.5                  | 16                 |                | 17             | 20.9          | 16.6                            |               | 18.8          | 18.5          | 19.2          |
| 03/24/2023               | Temperature, celsius | --              | 22.5                  | NT                 |                | NT             | 6.5           | NT                              |               | NT            | 9.5           | NT            |
| 09/13/2023               | Temperature, celsius | --              | 22.5                  | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| Mean                     |                      |                 |                       | 14.3               | 11.1           | 13.0           | 13.6          | 13.7                            | 10.7          | 13.2          | 13.2          | 13.6          |
| Standard Deviation (STD) |                      |                 |                       | 4.1                | 4.2            | 6.1            | 6.0           | 3.1                             | 2.7           | 4.4           | 3.3           | 3.9           |
| Mean + 2 STD             |                      |                 |                       | 22.6               | 19.5           | 25.2           | 25.5          | 19.9                            | 16.1          | 21.9          | 19.8          | 21.4          |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER            | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W<br>SW 3 | D.G.W<br>MW 39 | D.G.W<br>MW 40 | BOTH<br>MW 25 | BOTH<br>MW 33 | BOTH<br>MW 34 | BOTH<br>MW35 |
|--------------------------|----------------------|-----------------|-----------------------|---------------|----------------|----------------|---------------|---------------|---------------|--------------|
|                          |                      |                 |                       |               |                |                |               |               |               |              |
| 04/23/1991               | Temperature, celsius | --              | 22.5                  | 13.1          |                |                | 15.1          | ---           | 12.4          |              |
| 10/15/1991               | Temperature, celsius | --              | 22.5                  | 14.7          |                |                | 14.6          | ---           | 16.2          |              |
| 01/23/1992               | Temperature, celsius | --              | 22.5                  | 3.5           |                |                | 8.3           | 8.3           | 6.2           |              |
| 03/23/1992               | Temperature, celsius | --              | 22.5                  | 5.5           |                |                | 7.2           | 7.3           | 6.5           |              |
| 09/30/1992               | Temperature, celsius | --              | 22.5                  | 7.1           |                |                | 10.7          | 10.7          | 10.1          |              |
| 03/05/1993               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 6.9           | 6.9           | 6.1           |              |
| 09/21/1993               | Temperature, celsius | --              | 22.5                  | 15.2          |                |                | 14.6          | 14.7          | 14.8          |              |
| 03/23/1994               | Temperature, celsius | --              | 22.5                  | 11.8          |                |                | 9.4           | 11.7          | 12            |              |
| 09/16/1994               | Temperature, celsius | --              | 22.5                  | 11.8          |                |                | 19.9          | 18.5          | 2.11          |              |
| 03/16/1995               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 7             | 7             | 6             |              |
| 09/13/1995               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 4.63          | 4.24          | 4.66          |              |
| 03/28/1996               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 7             | 7             | 7             | 6            |
| 06/20/1996               | Temperature, celsius | --              | 22.5                  | NT            |                |                | NT            | NT            | NT            | 13           |
| 09/13/1996               | Temperature, celsius | --              | 22.5                  | Dry           |                |                | 15            | 16            | 16            | 16           |
| 12/16/1996               | Temperature, celsius | --              | 22.5                  | NT            |                |                | NT            | NT            | NT            | NT           |
| 03/19/1997               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 6             | 7             | 6             | 6            |
| 06/18/1997               | Temperature, celsius | --              | 22.5                  | NT            |                |                | NT            | NT            | NT            | 12           |
| 08/30/1997               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 19            | 20            | 21            | 17           |
| 03/10/1998               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 10            | 9             | 9             | 9            |
| 09/21/1998               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 17            | 18            | 17            | 15           |
| 03/18/1999               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 9             | 8             | 9             | 9            |
| 09/21/1999               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | 17            | 18            | 17            | 15           |
| 03/21/2000               | Temperature, celsius | --              | 22.5                  | DRY           |                |                | NT            | NT            | NT            | NT           |
| 06/28/2000               | Temperature, celsius | --              | 22.5                  | DRY           | 14             | NT             | NT            | NT            | NT            | NT           |
| 09/28/2000               | Temperature, celsius | --              | 22.5                  | DRY           | 16             | 17             | 17            | 16            | 17            | NT           |
| 12/27/2000               | Temperature, celsius | --              | 22.5                  | NT            | 13             | 11             | NT            | NT            | NT            | NT           |
| 03/28/2001               | Temperature, celsius | --              | 22.5                  | DRY           | 11             | 8              | 9             | 9             | 6             | 7            |
| 09/02/2001               | Temperature, celsius | --              | 22.5                  | DRY           | 15             | 17             | 14            | 13            | 17            | 15           |
| 03/19/2002               | Temperature, celsius | --              | 22.5                  | DRY           | 10             | 8              | 10            | 11            | 10            | 10           |
| 09/19/2002               | Temperature, celsius | --              | 22.5                  | DRY           | 18             | 17             | NT            | NT            | 19            | 16           |
| 03/14/2003               | Temperature, celsius | --              | 22.5                  | DRY           | 13             | 10             | 9             | 10            | 10            | 10           |
| 09/29/2003               | Temperature, celsius | --              | 22.5                  | DRY           | 15             | 16             | 15            | 14            | 19            | 17           |
| 03/08/2004               | Temperature, celsius | --              | 22.5                  | DRY           | 12             | 8              | 9             | 12            | 7             | 5            |
| 09/27/2004               | Temperature, celsius | --              | 22.5                  | DRY           | 18             | 18             | 15            | 15            | 18            | 16           |
| 03/17/2005               | Temperature, celsius | --              | 22.5                  | DRY           | 11             | 9              | 9             | 9             | 8             | 9            |
| 09/22/2005               | Temperature, celsius | --              | 22.5                  | DRY           | 22             | 22             | 17            | 17            | 18            | 20           |
| 03/17/2006               | Temperature, celsius | --              | 22.5                  | DRY           | 16             | 10             | 10            | 11            | 14            | 8            |
| 09/22/2006               | Temperature, celsius | --              | 22.5                  | DRY           | 17             | 20             | 17            | 16            | 21            | 18           |
| 03/14/2007               | Temperature, celsius | --              | 22.5                  | 6             | 9              | 6              | 8             | 9             | 4             | 6            |
| 09/22/2007               | Temperature, celsius | --              | 22.5                  | DRY           | 15.1           | 16.1           | 17            | 16.6          | 21.1          | 16.8         |
| 03/03/2008               | Temperature, celsius | --              | 22.5                  | DRY           | 9.2            | 8              | 7.2           | 7.5           | 2.5           | 6.7          |
| 09/05/2008               | Temperature, celsius | --              | 22.5                  | DRY           | 12.7           | 15.7           | 14.1          | 14            | 16.6          | 16           |
| 03/09/2009               | Temperature, celsius | --              | 22.5                  | DRY           | 11             | 6              | 8             | 7             | 3             | 7            |
| 09/23/2009               | Temperature, celsius | --              | 22.5                  | DRY           | 14             | 15             | 14            | 14            | 16            | 14           |
| 03/16/2010               | Temperature, celsius | --              | 22.5                  | 11            | 10             | 9              | 8             | 9             | 6             | 8            |
| 09/10/2010               | Temperature, celsius | --              | 22.5                  | 17            | 15             | 16             | 15            | 15            | 19            | 20           |
| 03/01/2011               | Temperature, celsius | --              | 22.5                  | 8             | 13             | 11             | 10            | 11            | 9             | 9            |
| 09/22/2011               | Temperature, celsius | --              | 22.5                  | 16            | 14             | 16             | 13            | 13            | 16            | 18           |
| 03/02/2012               | Temperature, celsius | --              | 22.5                  | 6             | 13             | 10             | 10            | 10            | 7             | 8            |
| 09/22/2011               | Temperature, celsius | --              | 22.5                  | 18            | 16             | 17             | 14            | 13            | 18            | 17           |
| 03/08/2013               | Temperature, celsius | --              | 22.5                  | DRY           | 13             | 9              | 10            | 11            | 10            | 10           |
| 09/13/2013               | Temperature, celsius | --              | 22.5                  | DRY           | 14             | 15             | 13            | 14            | 17            | 15           |
| 03/06/2014               | Temperature, celsius | --              | 22.5                  | 7             | 12             | 9              | 8             | 11            | 8             | 7            |
| 09/09/2014               | Temperature, celsius | --              | 22.5                  | 17            | 14.4           | 17.3           | 14            | 13            | 17            | 18           |
| 03/11/2015               | Temperature, celsius | --              | 22.5                  | 11            | 12             | 8              | 10            | 12            | 8             | 10           |
| 09/09/2015               | Temperature, celsius | --              | 22.5                  | 17            | 13             | 16             | 14            | 13            | 18            | 17           |
| 03/11/2016               | Temperature, celsius | --              | 22.5                  | 12            | 14             | 10             | 10            | 11            | 11            | 9            |
| 10/27/2016               | Temperature, celsius | --              | 22.5                  | DRY           | 16             | 17             | 15            | 14            | 17            | 18           |
| 03/01/2018               | Temperature, celsius | --              | 22.5                  | 8.3           | 9.2            | 8.2            | 9.3           | 8.5           | 7.5           | 6.5          |
| 09/19/2018               | Temperature, celsius | --              | 22.5                  | 18.9          | 20.5           | 24.8           | 17.4          | 18.3          | 19.5          | 20.5         |
| 03/27/2019               | Temperature, celsius | --              | 22.5                  | 11            | 14.9           | 13.9           | 7.7           | 9.4           | 8.8           | 8.2          |
| 09/05/2019               | Temperature, celsius | --              | 22.5                  | 19.9          | 18.3           | 26.1           | 19.2          | 18.9          | 20.4          | 22.8         |
| 02/28/2020               | Temperature, celsius | --              | 22.5                  | 8.7           | 10             | 8.6            | 11.9          | 12.4          |               | 8.1          |
| 08/31/2020               | Temperature, celsius | --              | 22.5                  | 18            | 20.1           | 17.2           | 14.7          | 15.6          | 17            | 19           |
| 03/05/2021               | Temperature, celsius | --              | 22.5                  | 8.2           | 7.4            | 8.8            | 8.2           | 9.4           | 8.8           | 7.7          |
| 09/13/2021               | Temperature, celsius | --              | 22.5                  | DRY           | 20.5           | 21.4           | 18.3          | 17.2          | 20.9          | 21.4         |
| 03/02/2022               | Temperature, celsius | --              | 22.5                  | 8.7           | 14.8           | 13.6           | 11.8          | 10.7          | 9.4           | 8.5          |
| 09/12/2022               | Temperature, celsius | --              | 22.5                  | 15            | 19.6           | 17.7           | 13.8          | 12.9          | 13.7          | 16           |
| 03/24/2023               | Temperature, celsius | --              | 22.5                  | 9.5           | 11.8           | 9.9            | 9.1           | 10.6          | 9.7           | 7.8          |
| 09/13/2023               | Temperature, celsius | --              | 22.5                  | NT            | NT             | NT             | NT            | NT            | NT            | NT           |
| Mean                     |                      |                 |                       | 11.8          | 14.1           | 13.5           | 12.0          | 12.1          | 12.3          | 12.6         |
| Standard Deviation (STD) |                      |                 |                       | 4.5           | 3.3            | 5.0            | 3.8           | 3.6           | 5.5           | 5.0          |
| Mean + 2 STD             |                      |                 |                       | 20.9          | 20.8           | 23.5           | 19.7          | 19.4          | 23.3          | 22.5         |



## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE                     | PARAMETER              | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|--------------------------|------------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                          |                        |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|                          |                        |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| mg/L                     |                        |                 |                       |                    |                |                |               |                                 |               |               |               |               |
| 04/23/1991               | Total Organic Halogens | --              | 0.082                 |                    | 0.017          | 0.06           | NT            |                                 | 0.011         | 0.016         | NT            | NT            |
| 10/15/1991               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | <0.01          | NT            |                                 | <0.01         | <0.01         | NT            | NT            |
| 01/23/1992               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | 0.03           | NT            |                                 | <0.01         | NT            | NT            | NT            |
| 03/23/1992               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | 0.04           | NT            |                                 | <0.01         | <0.01         | NT            | NT            |
| 09/30/1992               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | NT             | NT            |                                 | <0.01         | <0.01         | NT            | NT            |
| 03/05/1993               | Total Organic Halogens | --              | 0.082                 |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/21/1993               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | 0.05           | NT            |                                 | 0.01          | 0.01          | NT            | NT            |
| 03/23/1994               | Total Organic Halogens | --              | 0.082                 |                    | NT             | NT             | NT            |                                 | NT            | NT            | NT            | NT            |
| 09/16/1994               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | <0.05          | 0.02          |                                 | 0.011         | <0.01         | <0.01         | 0.04          |
| 03/16/1995               | Total Organic Halogens | --              | 0.082                 |                    | NT             | 0.06           | 0.03          |                                 | NT            | NT            | <0.01         | <0.01         |
| 09/13/1995               | Total Organic Halogens | --              | 0.082                 |                    | <0.01          | NT             | NT            |                                 | <0.01         | <0.01         | NT            | NT            |
| 03/28/1996               | Total Organic Halogens | --              | 0.082                 | NT                 | plugged        | 0.06           | NT            | NT                              | plugged       | <0.01         | NT            | NT            |
| 06/20/1996               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/1996               | Total Organic Halogens | --              | 0.082                 | 0.01               |                | 0.04           | 0.02          | 0.01                            |               | 0.01          | <0.01         | 0.01          |
| 12/16/1996               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/19/1997               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/18/1997               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 08/30/1997               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.02           | 0.02          | <0.01                           |               | <0.01         | <0.01         | <0.01         |
| 03/10/1998               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1998               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.03           | 0.02          | <0.01                           |               | <0.01         | <0.01         | <0.01         |
| 03/18/1999               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/21/1999               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.03           | 0.13          | <0.01                           |               | <0.01         | 0.03          | <0.01         |
| 03/21/2000               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 06/28/2000               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/28/2000               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.03           | 0.09          | <0.01                           |               | 0.02          | 0.02          | 0.02          |
| 12/27/2000               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 03/28/2001               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/02/2001               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.022          | 0.085         | <0.01                           |               | <0.01         | <0.01         | <0.01         |
| 03/19/2002               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/19/2002               | Total Organic Halogens | --              | 0.082                 | <0.01              |                | 0.033          | 0.099         | <0.01                           |               | <0.01         | <0.01         | 0.124         |
| 03/14/2003               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/29/2003               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | <0.010         | 0.057         | <0.010                          |               | <0.010        | <0.010        | <0.010        |
| 03/08/2004               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/27/2004               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.03           | 0.074         | <0.010                          |               | 0.014         | 0.013         | <0.010        |
| 03/17/2005               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2005               | Total Organic Halogens | --              | 0.082                 | 0.015              |                | 0.014          | 0.05          | 0.025                           |               | <0.010        | <0.010        | <0.010        |
| 03/17/2006               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2006               | Total Organic Halogens | --              | 0.082                 | 0.014              |                | 0.016          | 0.026         | 0.02                            |               | 0.035         | 0.03          | 0.036         |
| 03/14/2007               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2007               | Total Organic Halogens | --              | 0.082                 | 0.017              |                | 0.012          | 0.04          | <0.010                          |               | <0.010        | <0.010        | <0.010        |
| 03/03/2008               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2008               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.039          | 0.088         | <0.010                          |               | 0.025         | 0.042         | 0.017         |
| 03/09/2009               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/23/2009               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.04           | 0.111         | <0.010                          |               | 0.01          | <0.010        | 0.011         |
| 03/16/2010               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/10/2010               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.052          | 0.08          | <0.010                          |               | <0.010        | <0.010        | <0.010        |
| 03/01/2011               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/22/2011               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.052          | 0.068         | <0.010                          |               | 0.012         | <0.010        | <0.010        |
| 03/02/2012               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2012               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.029          | 0.05          | <0.010                          |               | <0.010        | <0.010        | 0.013         |
| 03/08/2013               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2013               | Total Organic Halogens | --              | 0.082                 | 0.014              |                | 0.035          | 0.313         | <0.010                          |               | 0.015         | 0.023         | <0.010        |
| 03/06/2014               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/09/2014               | Total Organic Halogens | --              | 0.082                 | 0.012              |                | 0.034          | 0.059         | <0.010                          |               | <0.010        | 0.014         | <0.010        |
| 03/11/2015               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/09/2015               | Total Organic Halogens | --              | 0.082                 | 0.039              |                | 0.04           | 0.064         | <0.010                          |               | 0.043         | 0.024         | <0.010        |
| 03/11/2016               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 10/27/2016               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.039          | 0.051         | 0.014                           |               | <0.010        | 0.015         | <0.010        |
| 09/07/2017               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.027          | 0.048         | <0.010                          |               | <0.010        | <0.010        | <0.010        |
| 03/01/2018               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/19/2018               | Total Organic Halogens | --              | 0.082                 | 0.014              |                | 0.033          | 0.06          | <0.010                          |               | <0.010        | <0.010        | <0.010        |
| 03/27/2019               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/05/2019               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.034          | 0.05          | <0.010                          |               | <0.010        | 0.031         | 0.012         |
| 02/28/2020               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 08/31/2020               | Total Organic Halogens | --              | 0.082                 | <0.010             |                | 0.023          | 0.033         | <0.010                          |               | <0.010        | <0.010        | 0.011         |
| 03/05/2021               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2021               | Total Organic Halogens | --              | 0.082                 | 0.014              |                | 0.045          | 0.099         | <0.010                          |               | <0.010        | 0.026         | <0.010        |
| 03/02/2022               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/12/2022               | Total Organic Halogens | --              | 0.082                 | 0.013              |                | 0.044          | 0.092         | <0.010                          |               | 0.02          | 0.035         | 0.014         |
| 03/24/2023               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| 09/13/2023               | Total Organic Halogens | --              | 0.082                 | NT                 |                | NT             | NT            | NT                              |               | NT            | NT            | NT            |
| Mean                     |                        |                 |                       | 0.016              | 0.017          | 0.036          | 0.070         | 0.017                           | 0.011         | 0.019         | 0.025         | 0.028         |
| Standard Deviation (STD) |                        |                 |                       | 0.008              | 0.000          | 0.013          | 0.054         | 0.006                           | 0.000         | 0.010         | 0.009         | 0.032         |
| Mean + 2 STD             |                        |                 |                       | 0.032              | 0.017          | 0.061          | 0.179         | 0.029                           | 0.012         | 0.039         | 0.042         | 0.092         |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER                | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W  | D.G.W  | BOTH   | BOTH   | BOTH  | BOTH   |
|------------|--------------------------|-----------------|-----------------------|-------|--------|--------|--------|--------|-------|--------|
|            |                          |                 |                       | SW 3  | MW 39  | MW 40  | MW 25  | MW 33  | MW 34 | MW35   |
| mg/L       |                          |                 |                       |       |        |        |        |        |       |        |
| 04/23/1991 | Total Organic Halogens   | --              | 0.082                 | 0.031 |        |        | 0.033  | ---    |       | 0.05   |
| 10/15/1991 | Total Organic Halogens   | --              | 0.082                 | <0.01 |        |        | <0.01  | ---    |       | <0.01  |
| 01/23/1992 | Total Organic Halogens   | --              | 0.082                 | <0.01 |        |        | <0.01  | <0.01  |       | <0.01  |
| 03/23/1992 | Total Organic Halogens   | --              | 0.082                 | 0.04  |        |        | 0.92   | 0.99   |       | 0.01   |
| 09/30/1992 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | 0.02   | <0.01  |       | 0.01   |
| 03/05/1993 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 09/21/1993 | Total Organic Halogens   | --              | 0.082                 | 0.02  |        |        | 0.02   | 0.05   |       | 0.02   |
| 03/23/1994 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 09/16/1994 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | 0.024  | 0.024  |       | <0.01  |
| 03/16/1995 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | 0.02   | 0.04   |       | 0.02   |
| 09/13/1995 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 03/28/1996 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 06/20/1996 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 09/13/1996 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | 0.02   | 0.01   |       | 0.01   |
| 12/16/1996 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 03/19/1997 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 06/18/1997 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 08/30/1997 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | <0.01  | <0.01  |       | <0.01  |
| 03/10/1998 | Total Organic Halogens   | --              | 0.082                 | NT    |        |        | NT     | NT     |       | NT     |
| 09/21/1998 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | 0.02   | 0.02   |       | <0.01  |
| 03/18/1999 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | NT     | NT     |       | NT     |
| 09/21/1999 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | 0.02   | 0.02   |       | 0.01   |
| 03/21/2000 | Total Organic Halogens   | --              | 0.082                 | DRY   |        |        | NT     | NT     |       | NT     |
| 06/28/2000 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/28/2000 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.02   | <0.01  | 0.02   | 0.02   |       | 0.02   |
| 12/27/2000 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 03/28/2001 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/02/2001 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.017  | <0.01  | 0.065  | 0.021  |       | 0.03   |
| 03/19/2002 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/19/2002 | Total Organic Halogens   | --              | 0.082                 | DRY   | <0.01  | 0.015  | 0.019  | 0.02   |       | 0.021  |
| 03/14/2003 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/29/2003 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | <0.010 | <0.010 | <0.010 |       | 0.012  |
| 03/08/2004 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/27/2004 | Total Organic Halogens   | --              | 0.082                 | DRY   | <0.010 | 0.01   | 0.034  | 0.034  |       | 0.012  |
| 03/17/2005 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/22/2005 | Total Organic Halogens   | --              | 0.082                 | DRY   | <0.010 | 0.079  | 0.035  | 0.115  |       | 0.053  |
| 03/17/2006 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | 0.019  |       | NT     |
| 09/22/2006 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.063  | <0.010 | 0.036  | 0.032  |       | 0.056  |
| 03/14/2007 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/22/2007 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.012  | <0.010 | 0.045  | 0.019  |       | 0.026  |
| 03/03/2008 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/05/2008 | Total Organic Halogens   | --              | 0.082                 | DRY   | <0.010 | <0.010 | 0.039  | 0.021  |       | 0.023  |
| 03/09/2009 | Total Organic Halogens   | --              | 0.082                 | DRY   | NT     | NT     | NT     | NT     |       | NT     |
| 09/23/2009 | Total Organic Halogens   | --              | 0.082                 | DRY   | <0.010 | <0.010 | 0.049  | 0.021  |       | 0.032  |
| 03/16/2010 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/10/2010 | Total Organic Halogens   | --              | 0.082                 | 0.022 | 0.023  | <0.010 | 0.033  | 0.016  |       | 0.020  |
| 03/01/2011 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/22/2011 | Total Organic Halogens   | --              | 0.082                 | 0.032 | 0.015  | <0.010 | 0.041  | <0.010 |       | 0.013  |
| 03/02/2012 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/05/2012 | Total Organic Halogens   | --              | 0.082                 | 0.028 | <0.010 | 0.011  | 0.028  | 0.015  |       | <0.010 |
| 03/08/2013 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/13/2013 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.013  | 0.012  | 0.037  | 0.028  |       | 0.020  |
| 03/06/2014 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/09/2014 | Total Organic Halogens   | --              | 0.082                 | 0.032 | 0.023  | 0.02   | 0.023  | 0.023  |       | 0.024  |
| 03/11/2015 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/09/2015 | Total Organic Halogens   | --              | 0.082                 | 0.028 | 0.026  | 0.014  | 0.026  | 0.024  |       | 0.023  |
| 03/11/2016 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 10/27/2016 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.017  | 0.025  | 0.055  | 0.020  |       | 0.025  |
| 09/07/2017 | Total Organic Halogens   | --              | 0.082                 | 0.025 | <0.010 | 0.016  | 0.029  | 0.020  |       | 0.010  |
| 03/01/2018 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/19/2018 | Total Organic Halogens   | --              | 0.082                 | 0.041 | 0.016  | 0.033  | <0.010 | 0.024  |       | <0.010 |
| 03/27/2019 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/05/2019 | Total Organic Halogens   | --              | 0.082                 | 0.022 | 0.011  | 0.012  | 0.024  | 0.01   |       | 0.015  |
| 02/28/2020 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 08/31/2020 | Total Organic Halogens   | --              | 0.082                 | 0.014 | <0.010 | 0.011  | 0.01   | <0.010 |       | <0.010 |
| 03/05/2021 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/13/2021 | Total Organic Halogens   | --              | 0.082                 | DRY   | 0.02   | <0.010 | 0.026  | 0.012  |       | 0.025  |
| 03/02/2022 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/12/2022 | Total Organic Halogens   | --              | 0.082                 | 0.047 | 0.011  | 0.013  | 0.025  | 0.027  |       | 0.015  |
| 03/24/2023 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
| 09/13/2023 | Total Organic Halogens   | --              | 0.082                 | NT    | NT     | NT     | NT     | NT     |       | NT     |
|            | Mean                     |                 |                       | 0.029 | 0.021  | 0.021  | 0.060  | 0.061  |       | 0.022  |
|            | Standard Deviation (STD) |                 |                       | 0.009 | 0.013  | 0.018  | 0.160  | 0.180  |       | 0.013  |
|            | Mean + 2 STD             |                 |                       | 0.047 | 0.046  | 0.057  | 0.380  | 0.420  |       | 0.047  |
|            |                          |                 |                       |       |        |        |        |        |       |        |



## AMES-STORY ENVIRONMENTAL LANDFILL

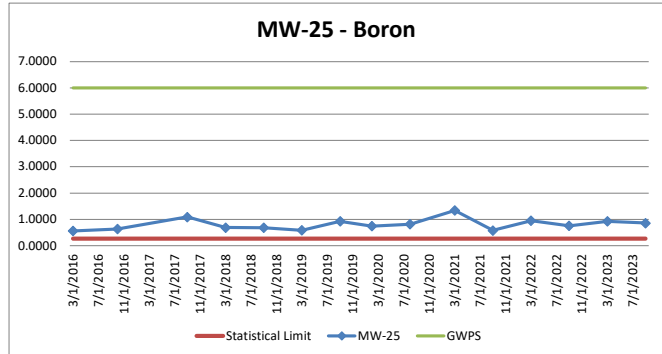
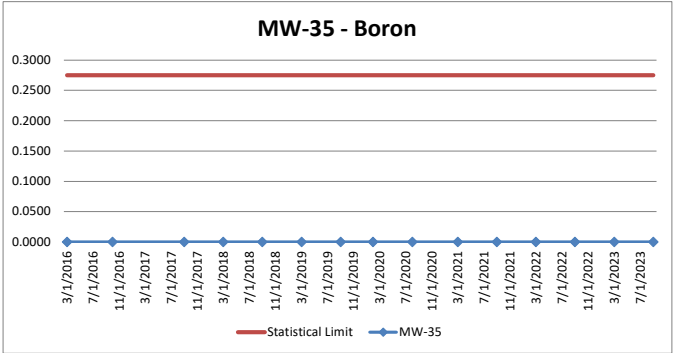
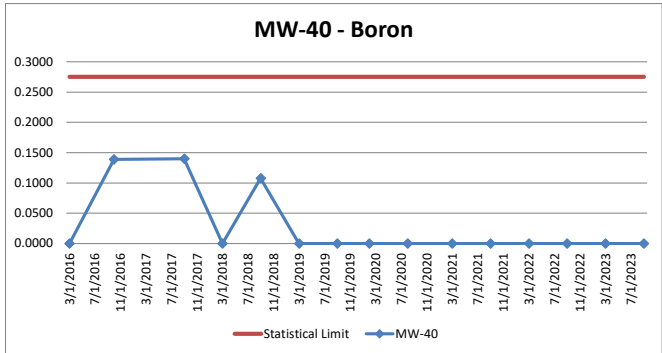
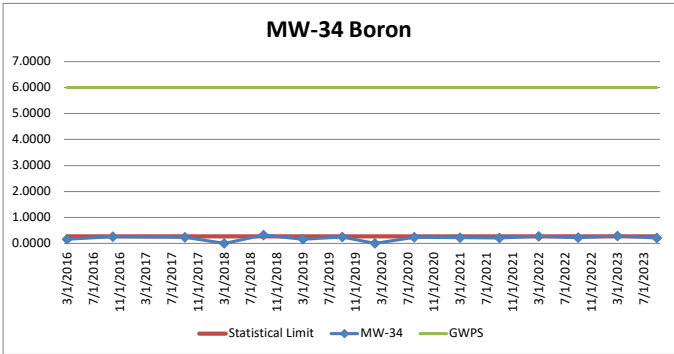
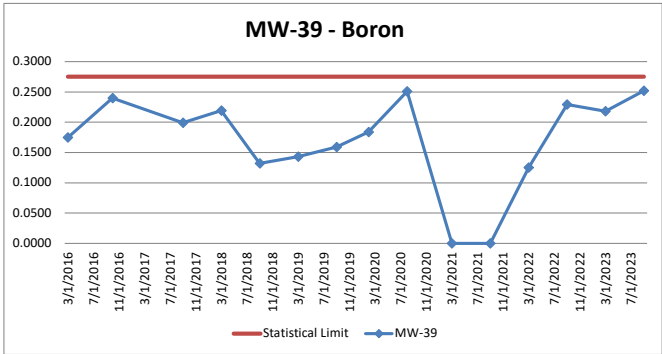
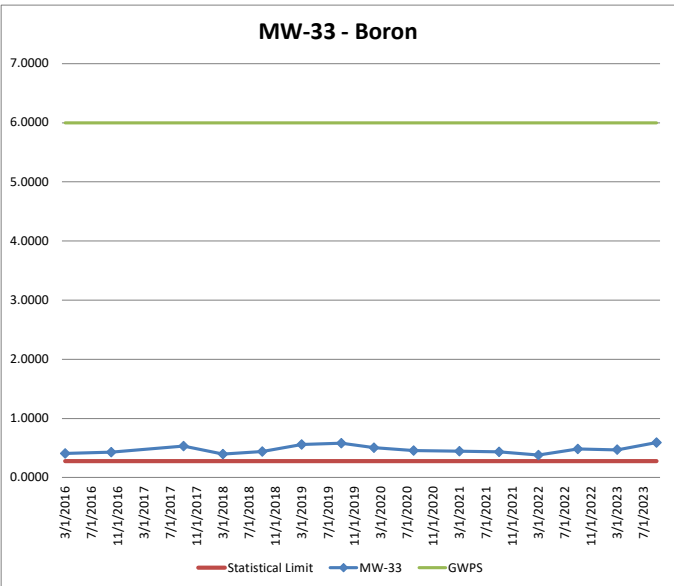
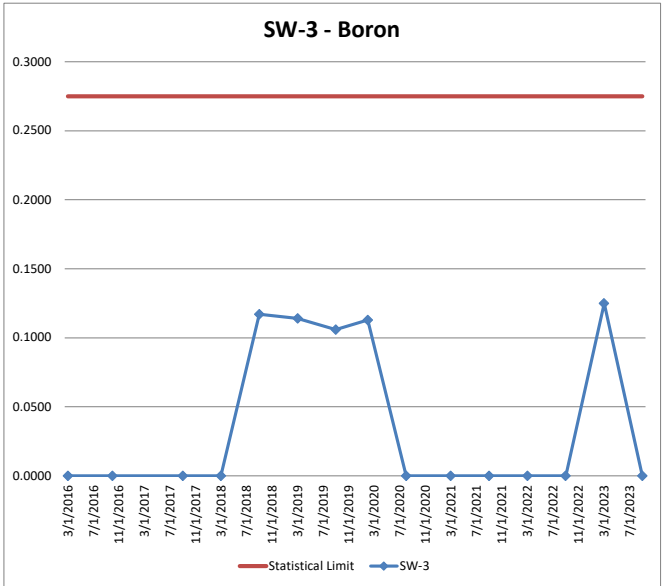
## MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER    | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|--------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |              |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|            |              |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 03/11/2016 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.176          | <0.1          | 0.151                           |               | <0.1          | <0.1          | <0.1          |
| 10/27/2016 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.277          | 0.106         | 0.14                            |               | <0.1          | <0.1          | <0.1          |
| 09/07/2017 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.262          | <0.1          | 0.143                           |               | <0.1          | <0.1          | <0.1          |
| 03/01/2018 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.168          | <0.1          | 0.117                           |               | <0.1          | <0.1          | <0.1          |
| 09/19/2018 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.256          | <0.1          | 0.180                           |               | <0.1          | <0.1          | <0.1          |
| 03/27/2019 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.0175         | <0.1          | 0.149                           |               | <0.1          | <0.1          | <0.1          |
| 09/05/2019 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.343          | <0.1          | 0.138                           |               | <0.1          | <0.1          | <0.1          |
| 02/28/2020 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.218          | <0.1          | 0.143                           |               | <0.1          | <0.1          | <0.1          |
| 08/31/2020 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.31           | <0.1          | 0.141                           |               | <0.1          | <0.1          | <0.1          |
| 03/05/2021 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.317          | <0.1          | 0.125                           |               | <0.1          | <0.1          | <0.1          |
| 09/13/2021 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.389          | <0.1          | 0.124                           |               | <0.1          | <0.1          | <0.1          |
| 03/02/2022 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.256          | <0.1          | 0.110                           |               | <0.1          | <0.1          | <0.1          |
| 09/12/2022 | Boron, Total | 6               | 0.275                 | <0.1               |                | 0.467          | <0.1          | 0.130                           |               | <0.1          | <0.1          | <0.1          |
| 03/24/2023 | Boron, Total | 6               | 0.275                 | NT                 |                | NT             | <0.1          | NT                              |               | NT            | <0.1          | NT            |
| 09/13/2023 | Boron, Total | 6               | 0.275                 | NT                 |                | 0.338          | NT            | NT                              |               | NT            | NT            | 0.114         |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER    | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW |               |                |                |               |               |               |              |
|------------|--------------|-----------------|-----------------------|---------------|----------------|----------------|---------------|---------------|---------------|--------------|
|            |              |                 |                       | D.G.W<br>SW 3 | D.G.W<br>MW 39 | D.G.W<br>MW 40 | BOTH<br>MW 25 | BOTH<br>MW 33 | BOTH<br>MW 34 | BOTH<br>MW35 |
| mg/L       |              |                 |                       |               |                |                |               |               |               |              |
| 03/11/2016 | Boron, Total | 6               | 0.275                 | <0.1          | 0.175          | <0.1           | 0.567         | 0.407         | 0.167         | <0.1         |
| 10/27/2016 | Boron, Total | 6               | 0.275                 | Dry           | 0.240          | 0.139          | 0.630         | 0.431         | 0.258         | <0.1         |
| 09/07/2017 | Boron, Total | 6               | 0.275                 | <0.1          | 0.199          | 0.14           | 1.090         | 0.532         | 0.236         | <0.1         |
| 03/01/2018 | Boron, Total | 6               | 0.275                 | <0.1          | 0.219          | <0.1           | 0.689         | 0.396         | <0.1          | <0.1         |
| 09/19/2018 | Boron, Total | 6               | 0.275                 | 0.117         | 0.132          | 0.108          | 0.682         | 0.440         | 0.320         | <0.1         |
| 03/27/2019 | Boron, Total | 6               | 0.275                 | 0.114         | 0.143          | <0.1           | 0.587         | 0.559         | 0.162         | <0.1         |
| 09/05/2019 | Boron, Total | 6               | 0.275                 | 0.106         | 0.159          | <0.1           | 0.921         | 0.581         | 0.247         | <0.1         |
| 02/28/2020 | Boron, Total | 6               | 0.275                 | 0.113         | 0.184          | <0.1           | 0.743         | 0.503         |               | <0.1         |
| 08/31/2020 | Boron, Total | 6               | 0.275                 | <0.1          | 0.251          | <0.1           | 0.817         | 0.457         | 0.236         | <0.1         |
| 03/05/2021 | Boron, Total | 6               | 0.275                 | <0.1          | <0.1           | <0.1           | 1.340         | 0.448         | 0.220         | <0.1         |
| 09/13/2021 | Boron, Total | 6               | 0.275                 | Dry           | <0.1           | <0.1           | 0.579         | 0.433         | 0.209         | <0.1         |
| 03/02/2022 | Boron, Total | 6               | 0.275                 | <0.1          | 0.125          | <0.1           | 0.948         | 0.381         | 0.270         | <0.1         |
| 09/12/2022 | Boron, Total | 6               | 0.275                 | <0.1          | 0.229          | <0.1           | 0.750         | 0.485         | 0.219         | <0.1         |
| 03/24/2023 | Boron, Total | 6               | 0.275                 | 0.125         | 0.218          | <0.1           | 0.921         | 0.470         | 0.285         | <0.1         |
| 09/13/2023 | Boron, Total | 6               | 0.275                 | <0.1          | 0.252          | <0.1           | 0.859         | 0.589         | 0.213         | <0.1         |



## AMES-STORY ENVIRONMENTAL LANDFILL

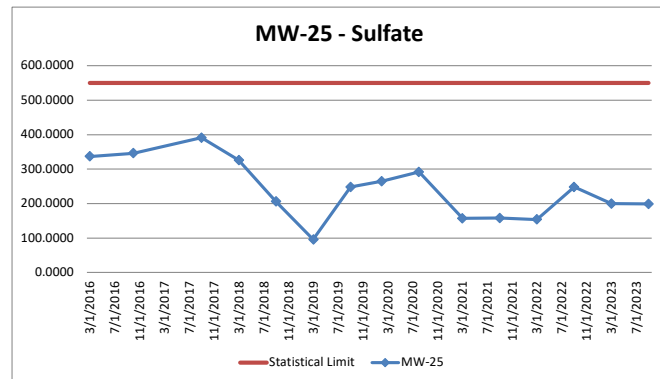
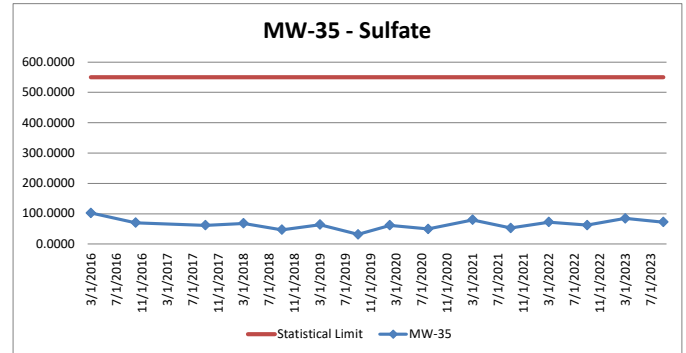
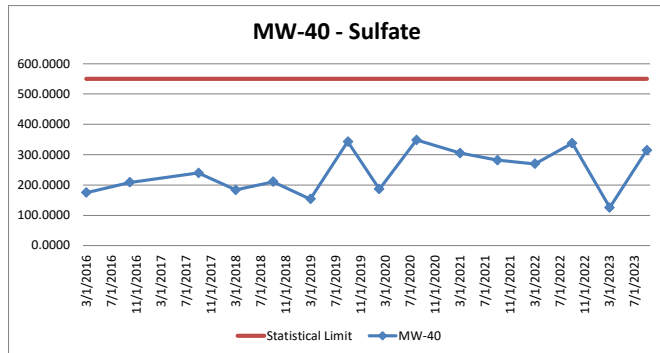
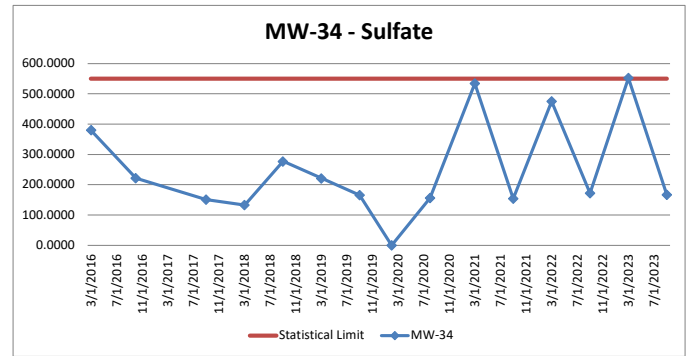
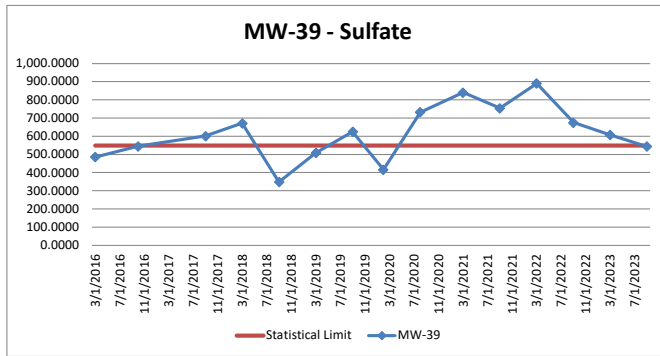
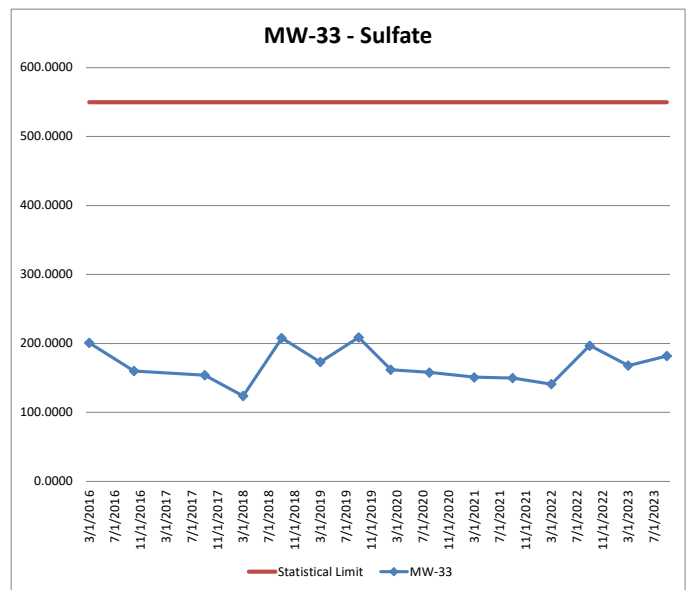
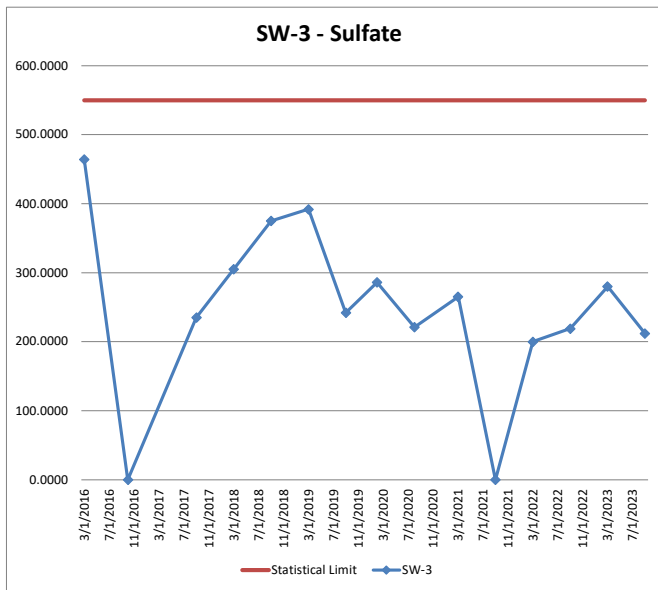
## MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|-----------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |           |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|            |           |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 03/11/2016 | Sulfate   | --              | 549.86                | 597                |                | 529            | 133           | 16.9                            |               | 71.4          | 71.6          | 26.1          |
| 10/27/2016 | Sulfate   | --              | 549.86                | 514                |                | 524            | 102           | 11                              |               | 74.5          | 79.1          | 42            |
| 09/07/2017 | Sulfate   | --              | 549.86                | 470                |                | 407            | 76.6          | 9.2                             |               | 67            | 70            | 42.8          |
| 03/01/2018 | Sulfate   | --              | 549.86                | 600                |                | 539            | 76.9          | 10.5                            |               | 68.1          | 69.1          | 40.9          |
| 09/19/2018 | Sulfate   | --              | 549.86                | 468                |                | 512            | 53.3          | 9                               |               | 70.9          | 73.2          | 45            |
| 03/27/2019 | Sulfate   | --              | 549.86                | 550                |                | 532            | 44.2          | 10.9                            |               | 64.2          | 71.2          | 44.9          |
| 09/05/2019 | Sulfate   | --              | 549.86                | 442                |                | 315            | 33.3          | 13.7                            |               | 56.4          | 75.1          | 44.8          |
| 02/28/2020 | Sulfate   | --              | 549.86                | 518                |                | 440            | 40.7          | 8.7                             |               | 64.8          | 70            | 42.5          |
| 08/31/2020 | Sulfate   | --              | 549.86                | 436                |                | 357            | 29.9          | 13.6                            |               | 67.4          | 69.6          | 41.4          |
| 03/05/2021 | Sulfate   | --              | 549.86                | 546                |                | 361            | 49.5          | 9.5                             |               | 65.1          | 69.6          | 41.7          |
| 09/13/2021 | Sulfate   | --              | 549.86                | 371                |                | 377            | 54.4          | 11                              |               | 70.7          | 70.2          | 43.3          |
| 03/02/2022 | Sulfate   | --              | 549.86                | 378                |                | 477            | 88.6          | 10                              |               | 70.8          | 71.3          | 41.6          |
| 09/12/2022 | Sulfate   | --              | 549.86                | 363                |                | 323            | 147           | 12.6                            |               | 71.4          | 70.5          | 33            |
| 03/24/2023 | Sulfate   | --              | 549.86                | NT                 |                | NT             | 315           | NT                              |               | NT            | 74.6          | NT            |
| 09/13/2023 | Sulfate   | --              | 549.86                | NT                 |                | 418            | NT            | NT                              |               | NT            | NT            | 46.4          |

## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

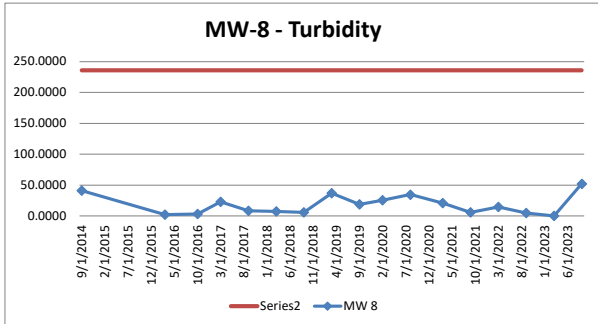
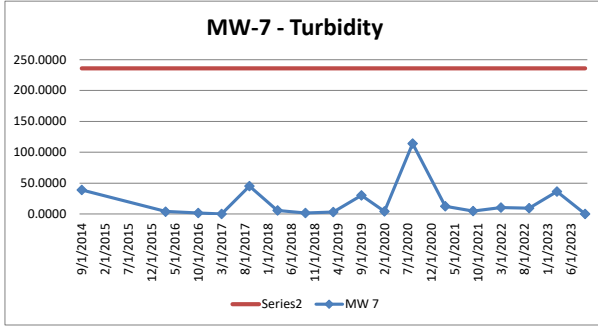
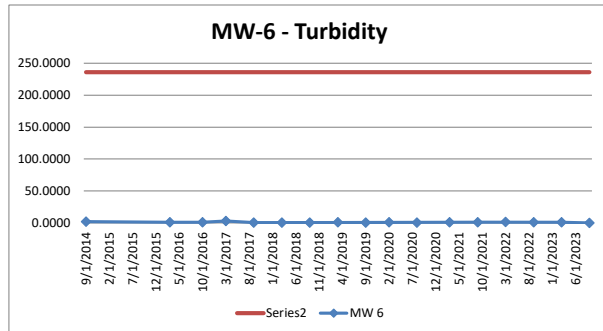
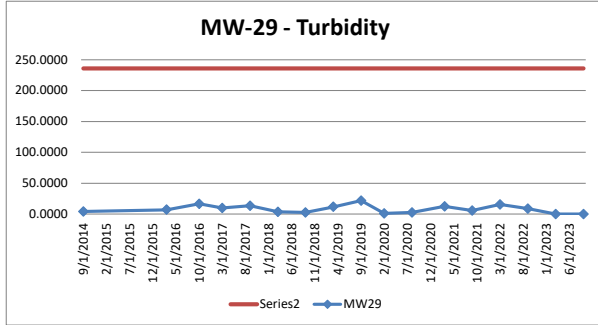
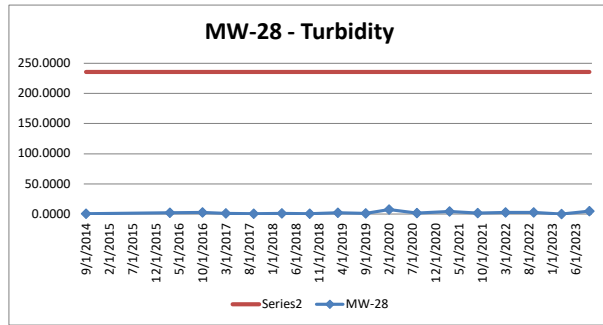
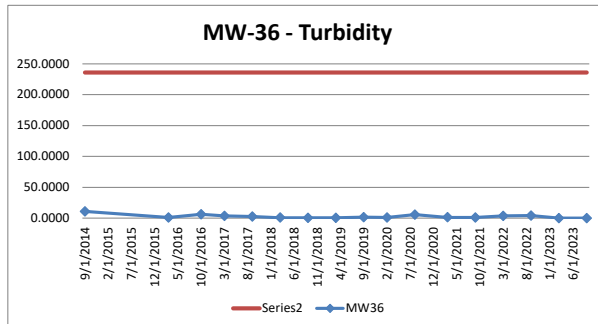
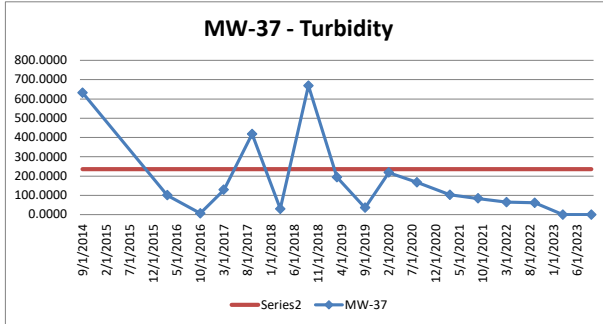
| DATE       | PARAMETER | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH |
|------------|-----------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|------|
|            |           |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35 |
|            | mg/L      |                 |                       |       |       |       |       |       |       |      |
| 03/11/2016 | Sulfate   | --              | 549.86                | 464   | 486   | 175   | 337   | 201   | 380   | 103  |
| 10/27/2016 | Sulfate   | --              | 549.86                | Dry   | 545   | 209   | 346   | 160   | 222   | 70.6 |
| 09/07/2017 | Sulfate   | --              | 549.86                | 235   | 601   | 240   | 391   | 154   | 151   | 62.2 |
| 03/01/2018 | Sulfate   | --              | 549.86                | 305   | 671   | 184   | 326   | 124   | 133   | 68.8 |
| 09/19/2018 | Sulfate   | --              | 549.86                | 375   | 348   | 211   | 206   | 208   | 277   | 47.4 |
| 03/27/2019 | Sulfate   | --              | 549.86                | 392   | 509   | 154   | 95.9  | 173   | 221   | 64.3 |
| 09/05/2019 | Sulfate   | --              | 549.86                | 242   | 625   | 343   | 248   | 209   | 166   | 32.1 |
| 02/28/2020 | Sulfate   | --              | 549.86                | 286   | 416   | 187   | 265   | 162   |       | 62.2 |
| 08/31/2020 | Sulfate   | --              | 549.86                | 221   | 732   | 349   | 292   | 158   | 156   | 49.9 |
| 03/05/2021 | Sulfate   | --              | 549.86                | 265   | 840   | 305   | 157   | 151   | 534   | 80.4 |
| 09/13/2021 | Sulfate   | --              | 549.86                | Dry   | 754   | 282   | 158   | 150   | 154   | 53.4 |
| 03/02/2022 | Sulfate   | --              | 549.86                | 200   | 891   | 270   | 154   | 141   | 475   | 72.7 |
| 09/12/2022 | Sulfate   | --              | 549.86                | 219   | 675   | 338   | 248   | 197   | 172   | 62.8 |
| 03/24/2023 | Sulfate   | --              | 549.86                | 280   | 607   | 126   | 200   | 168   | 552   | 85.2 |
| 09/13/2023 | Sulfate   | --              | 549.86                | 212   | 544   | 315   | 199   | 182   | 167   | 72.8 |



AMES-STORY ENVIRONMENTAL LANDFILL

MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER<br>mg/L | ACTION<br>LEVEL | MEAN +<br>2 STD<br>WT | WATER TABLE SYSTEM |                |                |               | UPPER AQUIFER SAND LAYER SYSTEM |               |               |               |               |
|------------|-------------------|-----------------|-----------------------|--------------------|----------------|----------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|            |                   |                 |                       | Upgradient Results |                |                |               | Upgradient Results              |               |               |               |               |
|            |                   |                 |                       | U.G.W<br>MW-37     | U.G.W<br>MW-22 | U.G.W<br>MW-28 | U.G.W<br>MW 6 | U.A.W<br>MW36                   | U.A.W<br>MW27 | U.A.W<br>MW29 | U.A.W<br>MW 7 | U.A.W<br>MW 8 |
| 09/09/2014 | Turbidity, NTU    | --              | 235.82                | 632.4              |                | 0.44           | 2.03          | 11.02                           |               | 4.43          | 39.1          | 40.9          |
| 03/11/2016 | Turbidity, NTU    | --              | 235.82                | 101                | 2.26           | 1.13           | 0.97          |                                 | 7.08          | 3.95          | 2.14          |               |
| 10/27/2016 | Turbidity, NTU    | --              | 235.82                | 6.65               | 2.69           | 1.34           | 6.36          |                                 | 16.9          | 1.68          | 3.12          |               |
| 03/27/2017 | Turbidity, NTU    | --              | 235.82                | 129                | 1.25           | 3.15           | 3.79          |                                 | 10.1          | NT            | 23            |               |
| 09/07/2017 | Turbidity, NTU    | --              | 235.82                | 418.2              | 0.72           | 0.59           | 2.72          |                                 | 13.34         | 45.19         | 8.35          |               |
| 03/01/2018 | Turbidity, NTU    | --              | 235.82                | 30.1               | 1.23           | 0.7            | 0.91          |                                 | 3.91          | 5.64          | 7.51          |               |
| 09/19/2018 | Turbidity, NTU    | --              | 235.82                | 668                | 0.42           | 0.63           | 0.71          |                                 | 2.61          | 1.43          | 5.81          |               |
| 03/27/2019 | Turbidity, NTU    | --              | 235.82                | 195.1              | 2.11           | 1.28           | 0.83          |                                 | 11.76         | 3.02          | 36.95         |               |
| 09/05/2019 | Turbidity, NTU    | --              | 235.82                | 36.19              | 0.95           | 0.56           | 1.84          |                                 | 22.06         | 30.36         | 18.85         |               |
| 02/28/2020 | Turbidity, NTU    | --              | 235.82                | 218.7              | 7.68           | 1.21           | 0.93          |                                 | 1.14          | 4.15          | 25.68         |               |
| 08/31/2020 | Turbidity, NTU    | --              | 235.82                | 168                | 1.68           | 0.83           | 6             |                                 | 2.74          | 114           | 34.58         |               |
| 03/05/2021 | Turbidity, NTU    | --              | 235.82                | 103.4              | 4.28           | 1.28           | 1.4           |                                 | 12.29         | 12.26         | 21.07         |               |
| 09/13/2021 | Turbidity, NTU    | --              | 235.82                | 84.39              | 1.79           | 0.94           | 1.23          |                                 | 5.66          | 4.53          | 5.87          |               |
| 03/02/2022 | Turbidity, NTU    | --              | 235.82                | 64.75              | 2.73           | 1.49           | 3.7           |                                 | 15.86         | 10.21         | 14.62         |               |
| 09/12/2022 | Turbidity, NTU    | --              | 235.82                | 61.68              | 2.66           | 0.94           | 4.15          |                                 | 9.12          | 9.36          | 4.7           |               |
| 03/24/2023 | Turbidity, NTU    | --              | 235.82                | NT                 | NT             | 1.33           | NT            |                                 | NT            | 36.31         | NT            |               |
| 09/13/2023 | Turbidity, NTU    | --              | 235.82                | NT                 |                | 4.61           | NT            |                                 | NT            | NT            | 51.95         |               |



## AMES-STORY ENVIRONMENTAL LANDFILL

## MONITORING WELL SAMPLING RESULTS

| DATE       | PARAMETER      | ACTION<br>LEVEL | MEAN +<br>2 STD<br>AW | D.G.W | D.G.W | D.G.W | BOTH  | BOTH  | BOTH  | BOTH  |
|------------|----------------|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
|            |                |                 |                       | SW 3  | MW 39 | MW 40 | MW 25 | MW 33 | MW 34 | MW35  |
|            | mg/L           |                 |                       |       |       |       |       |       |       |       |
| 09/09/2014 | Turbidity, NTU | --              | 235.82                | 20.6  | 0.43  | 0.33  | 7.05  | 12.99 | 2.9   | 3.51  |
| 03/11/2016 | Turbidity, NTU | --              | 235.82                | 0.48  | 7.06  | 50.5  | 3.61  | 30.25 | 14.73 | 218.4 |
| 10/27/2016 | Turbidity, NTU | --              | 235.82                | Dry   | 5.94  | 1.86  | 4.83  | 35.7  | 4.33  | 69    |
| 03/27/2017 | Turbidity, NTU | --              | 235.82                | Dry   | 91.9  | 11.1  | NT    | NT    | NT    | 10.2  |
| 09/07/2017 | Turbidity, NTU | --              | 235.82                | 0.33  | 1.64  | 0.51  | 9.04  | 1.35  | 3.61  | 21.34 |
| 03/01/2018 | Turbidity, NTU | --              | 235.82                | 0.3   | 101.4 | 75.68 | 2.3   | 2.15  | 220.6 | 7.68  |
| 09/19/2018 | Turbidity, NTU | --              | 235.82                | 0.59  | 15.44 | 0.69  | 3.4   | 2.75  | 39.59 | 43.9  |
| 03/27/2019 | Turbidity, NTU | --              | 235.82                | 23.27 | 1.57  | 24.96 | 6.55  | 0.81  | 5.45  | 83.93 |
| 09/05/2019 | Turbidity, NTU | --              | 235.82                | 1.01  | 5.87  | 1.9   | 4.6   | 12.8  | 1.99  | 5.09  |
| 02/28/2020 | Turbidity, NTU | --              | 235.82                | 0.51  | 111.5 | 27.05 | 1.38  | 1.15  |       | 1.55  |
| 08/31/2020 | Turbidity, NTU | --              | 235.82                | 0.97  | 244   | 1.58  | 233   | 61.6  | 9.89  | 2.16  |
| 03/05/2021 | Turbidity, NTU | --              | 235.82                | 1.17  | 335.3 | 1.57  | 7.65  | 20.26 | 166.2 | 49.23 |
| 09/13/2021 | Turbidity, NTU | --              | 235.82                | Dry   | 63.82 | 4.18  | 1.39  | 76.83 | 17.37 | 1.54  |
| 03/02/2022 | Turbidity, NTU | --              | 235.82                | 1.44  | 22.76 | 3.79  | 7.48  | 10.57 | 38.19 | 91.77 |
| 09/12/2022 | Turbidity, NTU | --              | 235.82                | 0.8   | 127   | 1.9   | 7.84  | 42.05 | 1.52  | 1.45  |
| 03/24/2023 | Turbidity, NTU | --              | 235.82                | 1.01  | 3.26  | 2.87  | 1.39  | 5.14  | 63.48 | 146.9 |
| 09/13/2023 | Turbidity, NTU | --              | 235.82                | 34.47 | 86.03 | 1.92  | 2.7   | 6.81  | 30.75 | 2.14  |

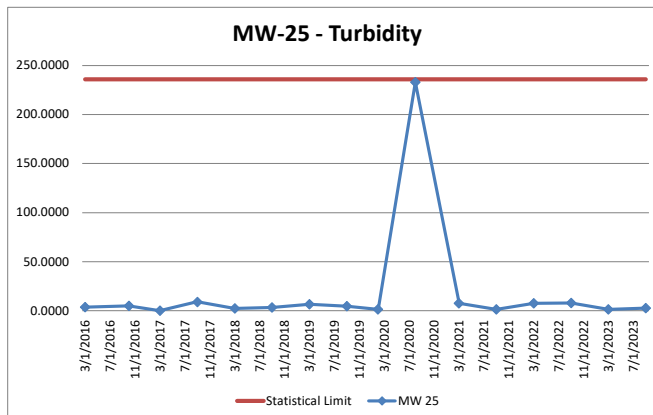
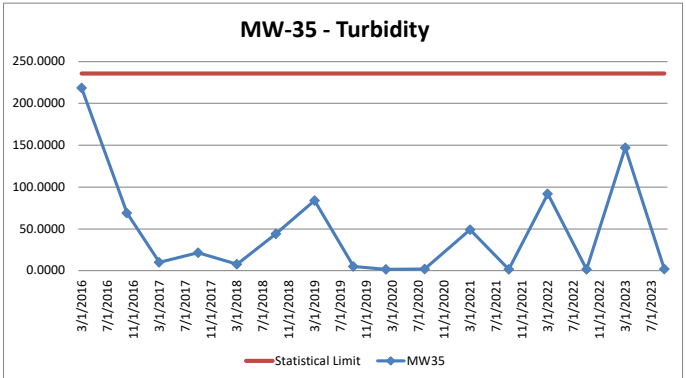
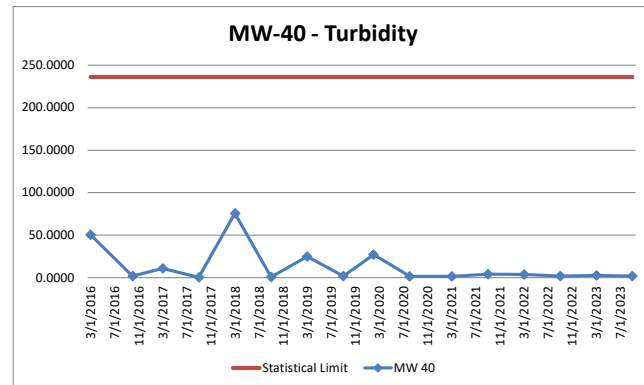
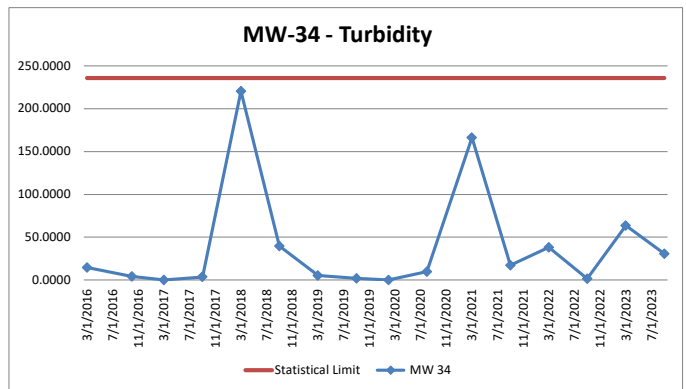
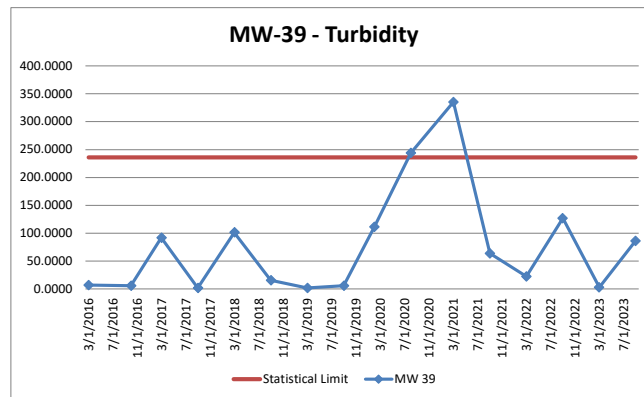
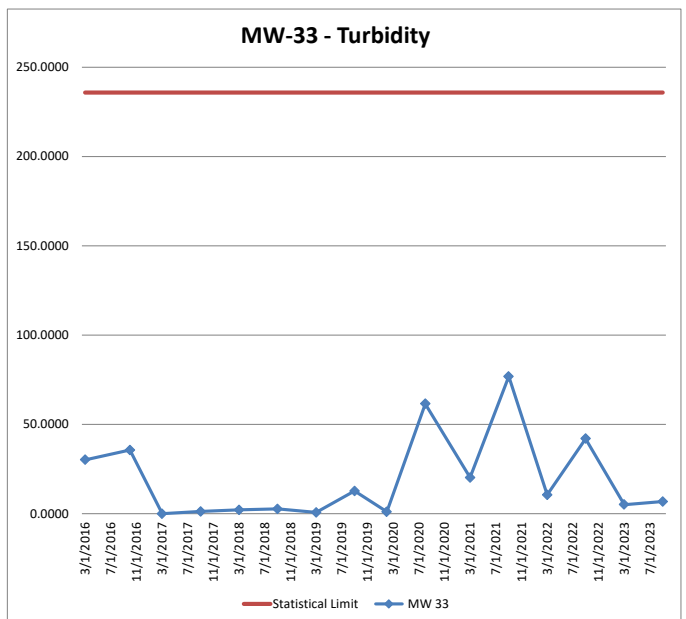
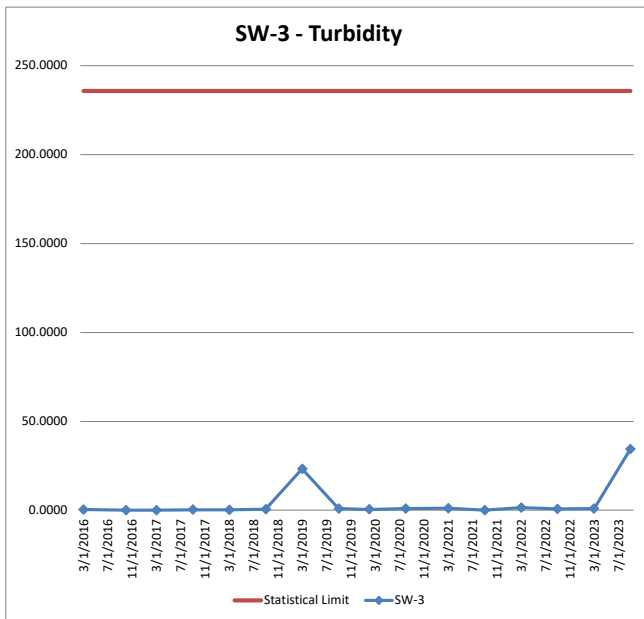


Table 11 – Corrective Action Trend Analysis  
NOT APPLICABLE

**Table 11**  
**Corrective Action Trend Analyses**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

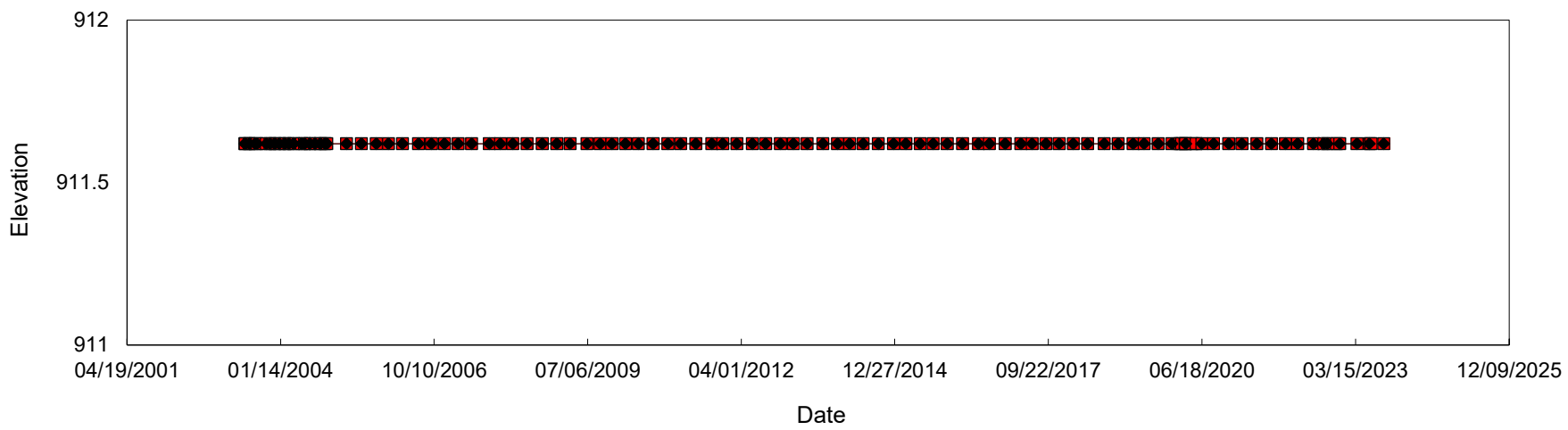
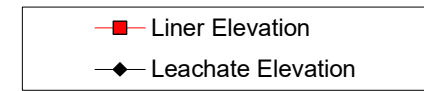
**NOT APPLICABLE**

Table 12 – Leachate Elevation & Thickness Summary



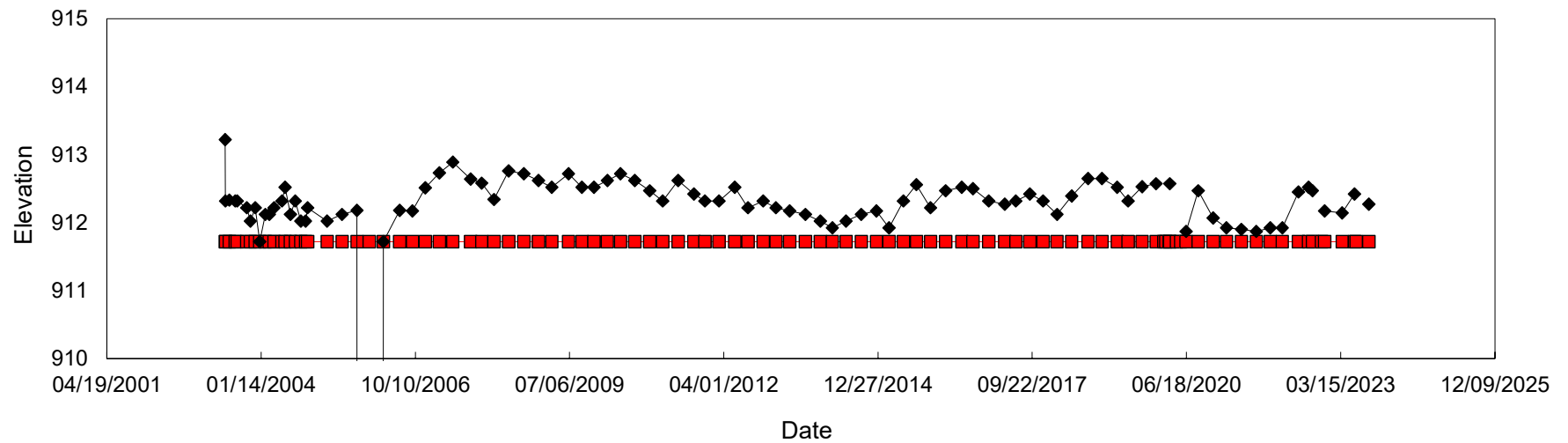


# Leachate vs. Liner LPZ-2

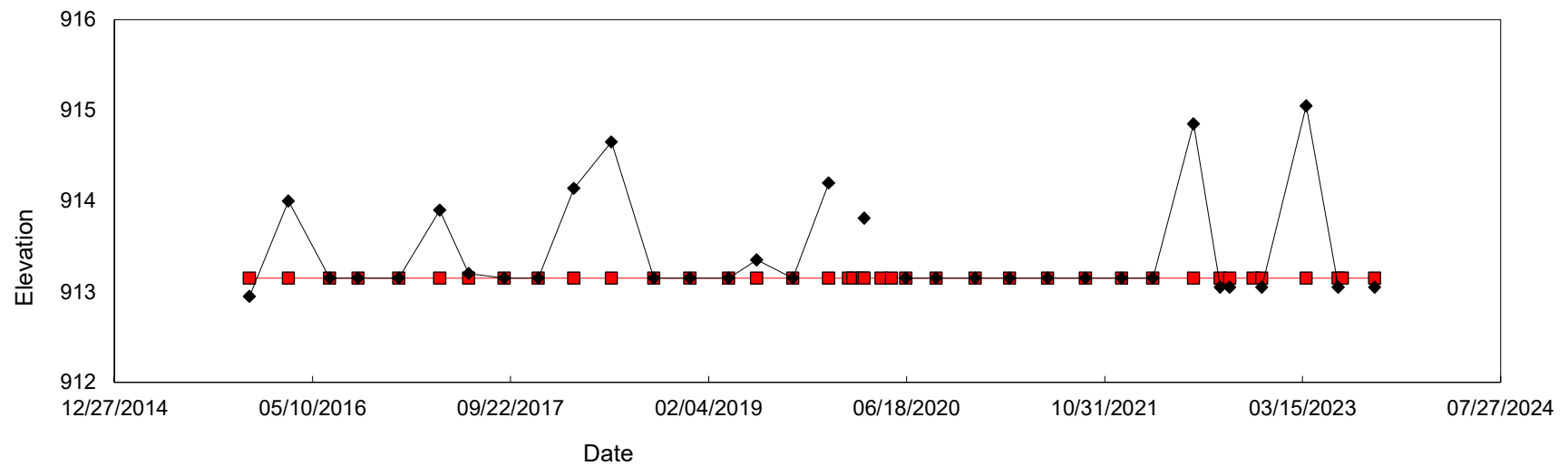
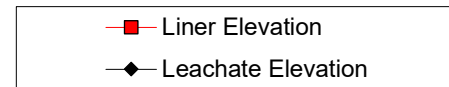


# Leachate vs. Liner LPZ-3

—■— Liner Elevation  
—◆— Leachate Elevation



# Leachate vs. Liner LPZ-4R



# Leachate vs. Liner LPZ-5R

- Liner Elevation
- ◆— Leachate Elevation
- Poly. (Leachate Elevation)

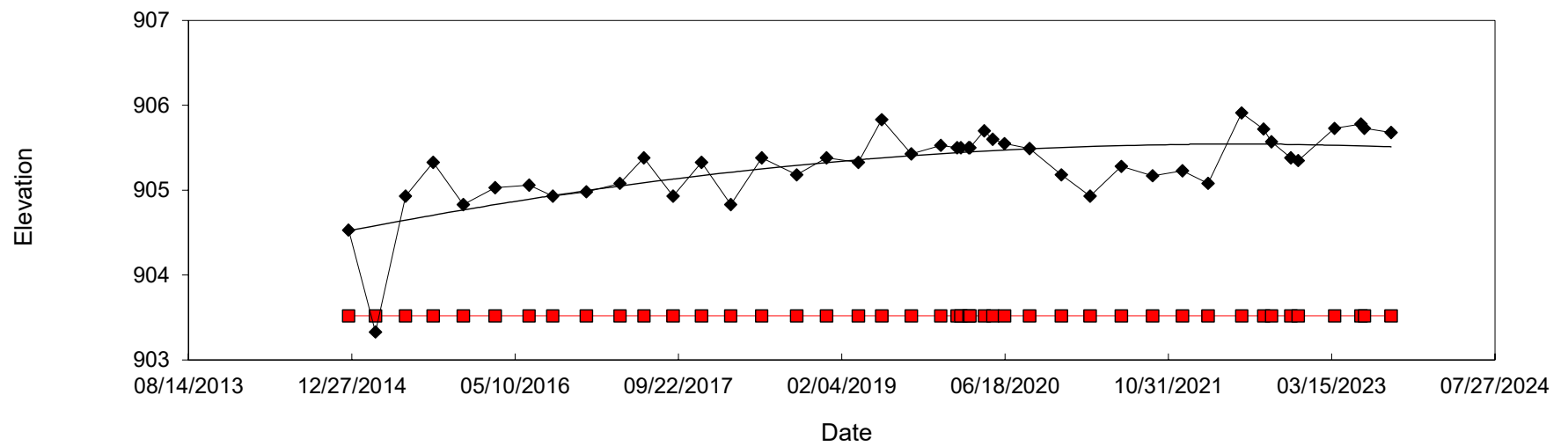




Table 13 – Gas Monitoring Summary

**Table 13**  
**Explosive Gas Monitoring Report**  
**Annual Water Quality Report**  
**Ames-Story Environmental Landfill**  
**Permit No. 85-SDP-13-91C**

| SAMPLING DATE:         | 12/02/2022          |             | 03/24/2023          |             | 06/13/2023          |             | 09/13/2023          |             |
|------------------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|
| Reference*<br>Location | Combustible<br>%LEL | Oxygen<br>% | Combustible<br>%LEL | Oxygen<br>% | Combustible<br>%LEL | Oxygen<br>% | Combustible<br>%LEL | Oxygen<br>% |
| MW28/MW29              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW36/MW37              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW35                   | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW33/MW25              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW32/MW24              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW30/MW23              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW34                   | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW31                   | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW6/MW7/MW8            | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW38/39                | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW40/MW41              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |
| MW42/MW43              | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        | 0                   | 20.9        |

## **APPENDIX A**

### **Field Sampling Forms**

**AMES-STORY ENVIRONMENTAL LANDFILL  
PERMIT # 85-SDP-13-91P**

3/24/2023

Sampled by: T. Whipple

Calm, Sunny 30-47 degrees

**IDNR Form 542-1322**

Monitoring Well: **MW-6 (up)**

**Primary Sampling Method:**  
**Secondary Sampling Method:**

No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114

**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 942.88      |
| Well Depth      | 21.70       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 942.88 |
| Well Depth          | 21.70  |
| Top Screen          | 931.05 |
| Bottom Screen       | 921.18 |
| Bottom Well         | 921.18 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 16     |
| Top sample          | 926.88 |
| Bottom sample       | 922.88 |
| Turbidity(NTU)      | 1.33   |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 | 8:20 | 7.05        | 935.83                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 10                                   | 0                              |
| Appendix I   | Metals               | 250                            | 250                                  | 0                              |
| Paragraph e  |                      | 750                            | 0                                    | 750                            |
| Paragraph f  | TOX                  | 0                              | 0                                    | 0                              |
| Supplemental | Sulfate              | 125                            | 125                                  | 0                              |
| Supplemental |                      |                                | 0                                    | 0                              |
| Supplemental |                      |                                | 0                                    | 0                              |
| Total        |                      |                                | 385                                  | 750                            |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 942.88            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 21.70             | Before purging            | 3/24/2023 | 8:20 | 7.05  | 935.83    | 7                                      | 2.9          | no          |
| Capped         | YES               | After purging             | 3/24/2023 | 8:34 | 9.90  | 932.98    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 931.05    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 1.93      | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 921.18    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 3/24/2023 |      | 21.20 | 921.68    |                                        |              |             |
|                |                   |                           |           |      |       | 0.50      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Before Sampling           |           |      |       | 942.88    | pH                                     | Conductivity | Temp.(C)    |
|                |                   |                           |           |      |       |           | 7                                      | 2276         | 6.5         |

## IDNR Form 542-1322

Monitoring Well: **MW-7 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 943.21      |
| Well Depth      | 53.00       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 943.21 |
| Well Depth          | 53.00  |
| Top Screen          | 899.55 |
| Bottom Screen       | 890.21 |
| Bottom Well         | 890.41 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 47     |
| Top sample          | 896.21 |
| Bottom sample       | 892.21 |
| Turbidity(NTU)      | 36.31  |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 | 8:25 | 20.34       | 922.87                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      |           | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|-----------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU | 10                   | 10                             | 0                                    | 36.31                          |
| Appendix I   | Metals    | 250                  | 250                            | 0                                    | 36.31                          |
| Paragraph e  |           | 750                  | 0                              | 750                                  |                                |
| Paragraph f  | TOX       | 0                    | 0                              | 0                                    |                                |
| Supplemental | Sulfate   | 125                  | 125                            | 0                                    | 36.31                          |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Total        |           |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 943.21            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.00             | Before purging            | 3/24/2023 | 8:25 | 20.34 | 922.87    | 5                                      | 0.9          | yes         |
| Capped         | YES               | After purging             | 3/24/2023 | 8:46 | 51.20 | 892.01    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 899.55    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | -7.54     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 890.21    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 3/24/2023 |      | 52.80 | 890.41    |                                        |              |             |
|                |                   |                           |           |      |       | 0.20      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 943.21    | 6.9                                    | 977          | 9.5         |

## IDNR Form 542-1322

Monitoring Well: **MW-8 (up)**Primary Sampling Method:  
Secondary Sampling Method:No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 942.76      |
| Well Depth      | 71.70       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 942.76 |
| Well Depth          | 71.70  |
| Top Screen          | 881.05 |
| Bottom Screen       | 871.06 |
| Bottom Well         | 871.76 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 942.76 |
| Bottom sample       | 938.76 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 |      | 33.60       | 909.16                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 942.76            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 71.70             | Before purging            | 3/24/2023 |      | 33.60 | 909.16    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 942.76    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 881.05    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 61.71     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 871.06    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/12/2022 |      | 71.00 | 871.76    |                                        |              |             |
|                |                   |                           |           |      |       | 0.70      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 942.76    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-28 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 946.02      |
| Well Depth      | 22.30       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 946.02 |
| Well Depth          | 22.30  |
| Top Screen          | 933.55 |
| Bottom Screen       | 923.55 |
| Bottom Well         | 923.32 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 946.02 |
| Bottom sample       | 942.02 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 |      | 5.64        | 940.38                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 946.02            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 22.30             | Before purging            | 3/24/2023 |      | 5.64  | 940.38    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 946.02    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 933.55    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 12.47     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 923.32    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/12/2022 |      | 22.45 | 923.57    |                                        |              |             |
|                |                   |                           |           |      |       | 0.25      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 946.02    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 946.02    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 946.02    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 946.02    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 946.02    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-29 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 945.61      |
| Well Depth      | 53.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 945.61 |
| Well Depth          | 53.50  |
| Top Screen          | 902.55 |
| Bottom Screen       | 892.11 |
| Bottom Well         | 892.01 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 945.61 |
| Bottom sample       | 941.61 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 |      | 10.21       | 935.4                 |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 945.61            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.50             | Before purging            | 3/24/2023 |      | 10.21 | 935.40    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 945.61    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 902.55    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 43.06     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 892.11    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/12/2022 |      | 53.60 | 892.01    |                                        |              |             |
|                |                   |                           |           |      |       | -0.10     | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 945.61    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-36 (up)**Primary Sampling Method:  
Secondary Sampling Method:No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 948.97      |
| Well Depth      | 53.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 948.97 |
| Well Depth          | 53.20  |
| Top Screen          | 906.9  |
| Bottom Screen       | 895.47 |
| Bottom Well         | 895.47 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 948.97 |
| Bottom sample       | 944.97 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 |      | 15.46       | 933.51                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 948.97            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.50             | Before purging           | 3/24/2023 |      | 15.46 | 933.51    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging            |           |      |       | 948.97    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |      |       | 906.90    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | 42.07     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |      |       | 895.47    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/12/2022 |      | 53.20 | 895.77    |                                        |              |             |
|                |                   |                          |           |      |       | 0.30      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 948.97    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-37 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 949.49      |
| Well Depth      | 30.60       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 949.49 |
| Well Depth          | 30.60  |
| Top Screen          | 929.03 |
| Bottom Screen       | 919.79 |
| Bottom Well         | 919.79 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 949.49 |
| Bottom sample       | 945.49 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 |      | 7.2         | 942.29                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 949.49            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 30.60             | Before purging           | 3/24/2023 |      | 7.2   | 942.29    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging            |           |      |       | 949.49    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |      |       | 929.03    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | 20.46     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |      |       | 918.89    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/12/2022 |      | 29.70 | 919.79    |                                        |              |             |
|                |                   |                          |           |      |       | 0.90      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 949.49    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-25 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 906.34      |
| Well Depth      | 19.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 906.34 |
| Well Depth          | 19.40  |
| Top Screen          | 896.84 |
| Bottom Screen       | 886.84 |
| Bottom Well         | 886.84 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 14     |
| Top sample          | 892.34 |
| Bottom sample       | 888.34 |
| Turbidity(NTU)      | 1.39   |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 | 9:49 | 9.45        | 896.89                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 10                                   | 0                              |
| Appendix I   | Metals               | 250                            | 250                                  | 0                              |
| Paragraph e  |                      | 750                            | 0                                    | 750                            |
| Paragraph f  | TOX                  | 0                              | 0                                    | 0                              |
| Supplemental | Sulfate              | 125                            | 125                                  | 0                              |
| Supplemental |                      |                                | 0                                    | 0                              |
| Supplemental |                      |                                | 0                                    | 0                              |
| Total        |                      |                                | 385                                  | 750                            |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 906.34            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 19.50             | Before purging           | 3/24/2023 | 9:49  | 9.45  | 896.89    | 5                                      | 3.1          | no          |
| Capped         | YES               | After purging            | 3/24/2023 | 10:00 | 9.56  | 896.78    |                                        |              |             |
| Standing Water | NO                | Top of Screen 8/13/1990  |           |       |       | 896.84    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -0.06     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 8/13/1990 |           |       |       | 886.84    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 19.40 | 886.94    |                                        |              |             |
|                |                   |                          |           |       |       | 0.10      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.34    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 906.34    | 6.7                                    | 1323         | 9.1         |

## IDNR Form 542-1322

Monitoring Well: **MW-33 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 906.32      |
| Well Depth      | 28.20       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 906.32 |
| Well Depth          | 28.50  |
| Top Screen          | 880.66 |
| Bottom Screen       | 878.12 |
| Bottom Well         | 878.12 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 23     |
| Top sample          | 883.32 |
| Bottom sample       | 879.32 |
| Turbidity(NTU)      | 5.14   |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 3/24/2023 | 9:58 | 9.61        | 896.71                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      |           | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|-----------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU | 10                   | 10                             | 0                                    | 5.14                           |
| Appendix I   | Metals    | 250                  | 250                            | 0                                    | 5.14                           |
| Paragraph e  |           | 750                  | 0                              | 750                                  |                                |
| Paragraph f  | TOX       | 0                    | 0                              | 0                                    |                                |
| Supplemental | Sulfate   | 125                  | 125                            | 0                                    | 5.14                           |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Total        |           |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 906.32            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 28.20             | Before purging           | 3/24/2023 | 9:58  | 9.61  | 896.71    | 9.5                                    | 3.1          | no          |
| Capped         | YES               | After purging            | 3/24/2023 | 10:18 | 9.90  | 896.42    |                                        |              |             |
| Standing Water | NO                | Top of Screen 8/13/1990  |           |       |       | 880.66    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | 15.76     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 8/13/1990 |           |       |       | 878.12    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 28.50 | 877.82    |                                        |              |             |
|                |                   |                          |           |       |       | -0.30     | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 906.32    | 6.7                                    | 1448         | 10.6        |

## IDNR Form 542-1322

Monitoring Well: **MW-34 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 909.50      |
| Well Depth      | 17.30       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 909.50 |
| Well Depth          | 15.55  |
| Top Screen          | 902.50 |
| Bottom Screen       | 892.50 |
| Bottom Well         | 892.20 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 10     |
| Top sample          | 899.5  |
| Bottom sample       | 895.5  |
| Turbidity(NTU)      | 63.48  |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 3/24/2023 | 10:37 | 6.24        | 903.26                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      |           | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|-----------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU | 10                   | 10                             | 0                                    | 63.48                          |
| Appendix I   | Metals    | 250                  | 250                            | 0                                    | 63.48                          |
| Paragraph e  |           | 750                  | 0                              | 750                                  |                                |
| Paragraph f  | TOX       | 480                  | 0                              | 0                                    |                                |
| Supplemental | Sulfate   | 125                  | 125                            | 0                                    | 63.48                          |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Total        |           |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 909.5             | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 17.30             | Before purging           | 3/24/2023 | 10:37 | 6.24  | 903.26    | 3                                      | 1.7          | yes         |
| Capped         | YES               | After purging            | 3/24/2023 | 10:53 | 7.87  | 901.63    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1991  |           |       |       | 902.50    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -0.87     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1991 |           |       |       | 892.20    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 15.60 | 893.90    |                                        |              |             |
|                |                   |                          |           |       |       | 1.70      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 909.50    | 6.9                                    | 1398         | 9.7         |

## IDNR Form 542-1322

Monitoring Well: **MW-35 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 916.19      |
| Well Depth      | 20.60       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 916.19 |
| Well Depth          | 19.80  |
| Top Screen          | 906.19 |
| Bottom Screen       | 896.19 |
| Bottom Well         | 895.59 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 14.5   |
| Top sample          | 901.69 |
| Bottom sample       | 897.69 |
| Turbidity(NTU)      | 146.90 |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 3/24/2023 | 11:29 | 13.38       | 902.81                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte              | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|----------------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All Field NTU        | 10                   | 10                             | 0                                    | 146.90                         |
| Appendix I Metals    | 250                  | 250                            | 0                                    | 146.90                         |
| Paragraph e          | 750                  | 0                              | 750                                  |                                |
| Paragraph f TOX      | 480                  | 0                              | 0                                    |                                |
| Supplemental Sulfate | 125                  | 125                            | 0                                    | 146.90                         |
| Supplemental         |                      | 0                              | 0                                    |                                |
| Supplemental         |                      | 0                              | 0                                    |                                |
| Total                |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 916.19            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 20.60             | Before purging           | 3/24/2023 | 11:29 | 13.38 | 902.81    | 3.5                                    | 3.0          | yes         |
| Capped         | YES               | After purging            | 3/24/2023 | 11:40 | 13.40 | 902.79    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |       |       | 906.19    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -3.40     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |       |       | 895.59    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 19.80 | 896.39    |                                        |              |             |
|                |                   |                          |           |       |       | 0.80      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 916.19    | 7.2                                    | 2604         | 7.8         |

## IDNR Form 542-1322

Monitoring Well: **MW-39 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 935.93      |
| Well Depth      | 30.20       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 935.93 |
| Well Depth          | 29.75  |
| Top Screen          | 916.16 |
| Bottom Screen       | 906.16 |
| Bottom Well         | 905.73 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 24     |
| Top sample          | 911.93 |
| Bottom sample       | 907.93 |
| Turbidity(NTU)      | 3.26   |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 3/24/2023 | 12:13 | 15.48       | 920.45                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 3.26                           |
| Appendix I   | Metals               | 250                            | 0                                    | 3.26                           |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 3.26                           |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 935.93            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 30.20             | Before purging           | 3/24/2023 | 12:13 | 15.48 | 920.45    | 7                                      | 2.9          | no          |
| Capped         | YES               | After purging            | 3/24/2023 | 12:32 | 22.15 | 913.78    |                                        |              |             |
| Standing Water | NO                | Top of Screen 2/15/1995  |           |       |       | 916.16    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -2.38     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 2/15/1995 |           |       |       | 905.73    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 29.75 | 906.18    |                                        |              |             |
|                |                   |                          |           |       |       | 0.45      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 935.93    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 935.93    | 6.6                                    | 1713         | 11.8        |

## IDNR Form 542-1322

Monitoring Well: **MW-40 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 933.07      |
| Well Depth      | 20.00       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 933.07 |
| Well Depth          | 19.70  |
| Top Screen          | 923.61 |
| Bottom Screen       | 913.61 |
| Bottom Well         | 913.07 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 14     |
| Top sample          | 919.07 |
| Bottom sample       | 915.07 |
| Turbidity(NTU)      | 2.87   |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 3/24/2023 | 12:45 | 4.49        | 928.58                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 2.87                           |
| Appendix I   | Metals               | 250                            | 0                                    | 2.87                           |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 2.87                           |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 933.07            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 20.00             | Before purging           | 3/24/2023 | 12:45 | 4.49  | 928.58    | 7.5                                    | 3.0          | no          |
| Capped         | YES               | After purging            | 3/24/2023 | 13:02 | 8.80  | 924.27    |                                        |              |             |
| Standing Water | NO                | Top of Screen 2/15/1995  |           |       |       | 923.61    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | 0.66      | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 2/15/1995 |           |       |       | 913.07    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 3/24/2023 |       | 19.70 | 913.37    |                                        |              |             |
|                |                   |                          |           |       |       | 0.30      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 933.07    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 933.07    | 7.5                                    | 739          | 9.9         |

**AMES-STORY ENVIRONMENTAL LANDFILL  
PERMIT # 85-SDP-13-91P**

3/24/2023

Sampled by: T. Whipple

Calm, Sunny 30-47 degrees

**IDNR Form 542-1324**

| SW-3 (dg) | Date      | Time | Type | Flowing | Quantity      | Discolored | Odor | Litter       |
|-----------|-----------|------|------|---------|---------------|------------|------|--------------|
|           | 3/24/2023 |      | tile | yes     | 250 ml/60 sec | No         | No   | No           |
|           |           |      |      |         |               | NTU        | pH   | Conductivity |
|           |           |      |      |         |               | 1.01       | 6.8  | 1329         |

;

| MW Number | Top Casing Elevation | Depth to Water (ft) | Water Elevation |
|-----------|----------------------|---------------------|-----------------|
| 23        | 945.98               | 6.46                | 939.52          |
| 24        | 939.44               | 22.65               | 916.79          |
| 30        | 945.54               | 35.42               | 910.12          |
| 31        | 941.43               | 4.95                | 936.48          |
| 32        | 393.86               | 35.36               | 358.5           |
| 38        | 936.59               | 23.3                | 913.29          |
| 41        | 933.46               | 15.1                | 918.36          |
| 42        | 940.64               | 14.43               | 926.21          |
| 43        | 940.83               | 11.18               | 929.65          |

dry



**AMES-STORY ENVIRONMENTAL LANDFILL  
PERMIT # 85-SDP-13-91P**

9/13/2023

Sampled by: T. Whipple

Calm, Sunny 55-78 degrees

**IDNR Form 542-1322**

Monitoring Well: **MW-6 (up)**

**Primary Sampling Method:**  
**Secondary Sampling Method:**

No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114

**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 942.88      |
| Well Depth      | 21.70       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 942.88 |
| Well Depth          | 21.70  |
| Top Screen          | 931.05 |
| Bottom Screen       | 921.18 |
| Bottom Well         | 921.18 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 942.88 |
| Bottom sample       | 938.88 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 |      | 8.99        | 933.89                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 0                              |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

|                |                   |                           |           |      |       |           |                                        |              |             |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| TOC            | 942.88            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
| Well Depth     | 21.70             | Before purging            | 9/13/2023 |      | 8.99  | 933.89    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 942.88    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 931.05    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 11.83     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 921.18    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/13/2023 |      | 21.20 | 921.68    |                                        |              |             |
|                |                   |                           |           |      |       | 0.50      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 942.88    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 942.88    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-7 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 943.21      |
| Well Depth      | 53.00       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 943.21 |
| Well Depth          | 53.00  |
| Top Screen          | 899.55 |
| Bottom Screen       | 890.21 |
| Bottom Well         | 890.41 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 943.21 |
| Bottom sample       | 939.21 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 |      | 21.22       | 921.99                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 0                              |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 943.21            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.00             | Before purging            | 9/13/2023 |      | 21.22 | 921.99    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 943.21    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 899.55    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 43.66     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 890.21    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/13/2023 |      | 52.80 | 890.41    |                                        |              |             |
|                |                   |                           |           |      |       | 0.20      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 943.21    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 943.21    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-8 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 942.76      |
| Well Depth      | 71.70       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 942.76 |
| Well Depth          | 71.70  |
| Top Screen          | 881.05 |
| Bottom Screen       | 871.06 |
| Bottom Well         | 871.76 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 65     |
| Top sample          | 877.76 |
| Bottom sample       | 873.76 |
| Turbidity(NTU)      | 51.95  |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 | 7:12 | 34.64       | 908.12                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 10                                   | 51.95                          |
| Appendix I   | Metals               | 250                            | 250                                  | 51.95                          |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            | 125                                  | 51.95                          |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 942.76            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 71.70             | Before purging            | 9/13/2023 | 7:12 | 34.64 | 908.12    | 7.5                                    | 1.2          | yes         |
| Capped         | YES               | After purging             | 9/13/2023 | 7:28 | 69.80 | 872.96    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 881.05    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | -8.09     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 871.06    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/13/2023 |      | 71.00 | 871.76    |                                        |              |             |
|                |                   |                           |           |      |       | 0.70      | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 942.76    | 6.8                                    | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-28 (up)****Primary Sampling Method:**  
**Secondary Sampling Method:**No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 946.02      |
| Well Depth      | 22.30       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 946.02 |
| Well Depth          | 22.30  |
| Top Screen          | 933.55 |
| Bottom Screen       | 923.55 |
| Bottom Well         | 923.32 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 17     |
| Top sample          | 929.02 |
| Bottom sample       | 925.02 |
| Turbidity(NTU)      | 4.61   |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 | 7:45 | 7.76        | 938.26                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      | 4.61                           |
| Appendix I   | Metals               | 250                            |                                      | 4.61                           |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            | 125                                  | 4.61                           |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 946.02            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons | # of Vol.    | Purged Dry?                            |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|---------|--------------|----------------------------------------|
| Well Depth     | 22.30             | Before purging            | 9/13/2023 | 7:45 | 7.76  | 938.26    | 8       | 3.4          | no                                     |
| Capped         | YES               | After purging             | 9/13/2023 | 7:59 | 11.50 | 934.52    |         |              |                                        |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 933.55    |         |              |                                        |
| Litter         | NO                |                           |           |      |       | 0.97      |         |              | feet above (+) or below (-) top screen |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 923.32    |         |              |                                        |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/13/2023 |      | 22.45 | 923.57    |         |              |                                        |
|                |                   |                           |           |      |       | 0.25      |         |              | feet sedimentation                     |
|                |                   | Recovery                  |           |      |       | 946.02    |         |              |                                        |
|                |                   | Recovery                  |           |      |       | 946.02    |         |              |                                        |
|                |                   | Recovery                  |           |      |       | 946.02    |         |              |                                        |
|                |                   | Recovery                  |           |      |       | 946.02    | pH      | Conductivity | Temp.(C)                               |
|                |                   | Before Sampling           |           |      |       | 946.02    | 6.7     | NT           | NT                                     |

## IDNR Form 542-1322

Monitoring Well: **MW-29 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 945.61      |
| Well Depth      | 53.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 945.61 |
| Well Depth          | 53.50  |
| Top Screen          | 902.55 |
| Bottom Screen       | 892.11 |
| Bottom Well         | 892.01 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 945.61 |
| Bottom sample       | 941.61 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 |      | 11.95       | 933.66                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 945.61            | 2" dia.                   | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|---------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.50             | Before purging            | 9/13/2023 |      | 11.95 | 933.66    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging             |           |      |       | 945.61    |                                        |              |             |
| Standing Water | NO                | Top of Screen 10/13/1988  |           |      |       | 902.55    |                                        |              |             |
| Litter         | NO                |                           |           |      |       | 43.06     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 10/13/1988 |           |      |       | 892.11    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well            | 9/13/2023 |      | 53.60 | 892.01    |                                        |              |             |
|                |                   |                           |           |      |       | -0.10     | feet sedimentation                     |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      |                                        |              |             |
|                |                   | Recovery                  |           |      |       | 0.00      | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling           |           |      |       | 945.61    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-36 (up)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 948.97      |
| Well Depth      | 53.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 948.97 |
| Well Depth          | 53.20  |
| Top Screen          | 906.9  |
| Bottom Screen       | 895.47 |
| Bottom Well         | 895.47 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 948.97 |
| Bottom sample       | 944.97 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 |      | 16.22       | 932.75                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 948.97            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 53.50             | Before purging           | 9/13/2023 |      | 16.22 | 932.75    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging            |           |      |       | 948.97    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |      |       | 906.90    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | 42.07     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |      |       | 895.47    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |      | 53.20 | 895.77    |                                        |              |             |
|                |                   |                          |           |      |       | 0.30      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 948.97    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 948.97    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-37 (up)**Primary Sampling Method:  
Secondary Sampling Method:No-Purge for Arsenic and Sulfate  
Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 949.49      |
| Well Depth      | 30.60       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 949.49 |
| Well Depth          | 30.60  |
| Top Screen          | 929.03 |
| Bottom Screen       | 919.79 |
| Bottom Well         | 919.79 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        |        |
| Top sample          | 949.49 |
| Bottom sample       | 945.49 |
| Turbidity(NTU)      |        |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 |      | 8.4         | 941.09                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             |                                      |                                |
| Appendix I   | Metals               | 250                            |                                      |                                |
| Paragraph e  |                      | 750                            |                                      |                                |
| Paragraph f  | TOX                  | 480                            |                                      |                                |
| Supplemental | Sulfate              | 125                            |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Supplemental |                      |                                |                                      |                                |
| Total        |                      | 0                              | 0                                    |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 949.49            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 30.60             | Before purging           | 9/13/2023 |      | 8.4   | 941.09    | 0                                      | 0.0          |             |
| Capped         | YES               | After purging            |           |      |       | 949.49    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |      |       | 929.03    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | 20.46     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |      |       | 918.89    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |      | 29.70 | 919.79    |                                        |              |             |
|                |                   |                          |           |      |       | 0.90      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 949.49    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 949.49    |                                        |              |             |

## IDNR Form 542-1322

Monitoring Well: **MW-25 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 906.34      |
| Well Depth      | 19.50       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 906.34 |
| Well Depth          | 19.40  |
| Top Screen          | 896.84 |
| Bottom Screen       | 886.84 |
| Bottom Well         | 886.84 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 14     |
| Top sample          | 892.34 |
| Bottom sample       | 888.34 |
| Turbidity(NTU)      | 2.7    |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 | 9:47 | 9.85        | 896.49                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 2.7                            |
| Appendix I   | Metals               | 250                            | 0                                    | 2.7                            |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 0                              | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 2.7                            |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 906.34            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 19.50             | Before purging           | 9/13/2023 | 9:47 | 9.85  | 896.49    | 5                                      | 3.2          | no          |
| Capped         | YES               | After purging            | 9/13/2023 | 9:58 | 10.10 | 896.24    |                                        |              |             |
| Standing Water | NO                | Top of Screen 8/13/1990  |           |      |       | 896.84    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | -0.60     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 8/13/1990 |           |      |       | 886.84    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |      | 19.40 | 886.94    |                                        |              |             |
|                |                   |                          |           |      |       | 0.10      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 906.34    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 906.34    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 906.34    | 6.7                                    | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-33 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 906.32      |
| Well Depth      | 28.20       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 906.32 |
| Well Depth          | 28.50  |
| Top Screen          | 880.66 |
| Bottom Screen       | 878.12 |
| Bottom Well         | 878.12 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 22.5   |
| Top sample          | 883.82 |
| Bottom sample       | 879.82 |
| Turbidity(NTU)      | 6.81   |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 9/13/2023 | 10:02 | 10.06       | 896.26                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      |           | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|-----------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU | 10                   | 10                             | 0                                    | 6.81                           |
| Appendix I   | Metals    | 250                  | 250                            | 0                                    | 6.81                           |
| Paragraph e  |           | 750                  | 0                              | 750                                  |                                |
| Paragraph f  | TOX       | 0                    | 0                              | 0                                    |                                |
| Supplemental | Sulfate   | 125                  | 125                            | 0                                    | 6.81                           |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Total        |           |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 906.32            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 28.20             | Before purging           | 9/13/2023 | 10:02 | 10.06 | 896.26    | 9.5                                    | 3.2          | no          |
| Capped         | YES               | After purging            | 9/13/2023 | 10:16 | 12.30 | 894.02    |                                        |              |             |
| Standing Water | NO                | Top of Screen 8/13/1990  |           |       |       | 880.66    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | 13.36     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 8/13/1990 |           |       |       | 878.12    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |       | 28.50 | 877.82    |                                        |              |             |
|                |                   |                          |           |       |       | -0.30     | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 906.32    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 906.32    | 6.8                                    | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-34 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 909.50      |
| Well Depth      | 17.30       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 909.50 |
| Well Depth          | 15.55  |
| Top Screen          | 902.50 |
| Bottom Screen       | 892.50 |
| Bottom Well         | 892.20 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 10.6   |
| Top sample          | 898.9  |
| Bottom sample       | 894.9  |
| Turbidity(NTU)      | 30.75  |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 9/13/2023 | 11:19 | 10.6        | 898.9                 |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 30.75                          |
| Appendix I   | Metals               | 250                            | 0                                    | 30.75                          |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 30.75                          |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 909.5             | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 17.30             | Before purging           | 9/13/2023 | 11:19 | 10.6  | 898.90    | 2.5                                    | 2.3          | yes         |
| Capped         | YES               | After purging            | 9/13/2023 | 11:28 | 15.80 | 893.70    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1991  |           |       |       | 902.50    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -8.80     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1991 |           |       |       | 892.20    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |       | 16.10 | 893.40    |                                        |              |             |
|                |                   |                          |           |       |       | 1.20      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 909.50    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 909.50    | 6.9                                    | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-35 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 916.19      |
| Well Depth      | 20.60       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 916.19 |
| Well Depth          | 19.80  |
| Top Screen          | 906.19 |
| Bottom Screen       | 896.19 |
| Bottom Well         | 895.59 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 13.8   |
| Top sample          | 902.39 |
| Bottom sample       | 898.39 |
| Turbidity(NTU)      | 2.14   |

| Date      | Time  | Water Level | Water Elevation Notes |
|-----------|-------|-------------|-----------------------|
| 9/13/2023 | 10:53 | 13.51       | 902.68                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 2.14                           |
| Appendix I   | Metals               | 250                            | 0                                    | 2.14                           |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 2.14                           |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 916.19            | 2" dia.                  | Date      | Time  | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|-------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 20.60             | Before purging           | 9/13/2023 | 10:53 | 13.51 | 902.68    | 3                                      | 2.6          |             |
| Capped         | YES               | After purging            | 9/13/2023 | 11:01 | 13.60 | 902.59    |                                        |              |             |
| Standing Water | NO                | Top of Screen 4/15/1996  |           |       |       | 906.19    |                                        |              |             |
| Litter         | NO                |                          |           |       |       | -3.60     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 4/15/1996 |           |       |       | 895.59    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |       | 19.80 | 896.39    |                                        |              |             |
|                |                   |                          |           |       |       | 0.80      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    |                                        |              |             |
|                |                   | Recovery                 |           |       |       | 916.19    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |       |       | 916.19    | 7                                      | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-39 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114

## GENERAL INFORMATION

|                 |             |
|-----------------|-------------|
| TOC             | 935.93      |
| Well Depth      | 30.20       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

## NO PURGE METHOD

|                     |        |
|---------------------|--------|
| TOC                 | 935.93 |
| Well Depth          | 29.75  |
| Top Screen          | 916.16 |
| Bottom Screen       | 906.16 |
| Bottom Well         | 905.73 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 24     |
| Top sample          | 911.93 |
| Bottom sample       | 907.93 |
| Turbidity(NTU)      | 86.03  |

red

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 | 8:49 | 20.3        | 915.63                |

## ANALYTES, CONTAINERS, AND VOLUMES

| Analyte      |           | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|-----------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU | 10                   | 10                             | 0                                    | 86.03                          |
| Appendix I   | Metals    | 250                  | 250                            | 0                                    | 86.03                          |
| Paragraph e  |           | 750                  | 0                              | 750                                  |                                |
| Paragraph f  | TOX       | 480                  | 0                              | 0                                    |                                |
| Supplemental | Sulfate   | 125                  | 125                            | 0                                    | 86.03                          |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Supplemental |           |                      | 0                              | 0                                    |                                |
| Total        |           |                      | 385                            | 750                                  |                                |

## PURGE &amp; SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection

| TOC            | 935.93            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 30.20             | Before purging           | 9/13/2023 | 8:49 | 20.3  | 915.63    | 3.5                                    | 2.2          | no          |
| Capped         | YES               | After purging            | 9/13/2023 | 8:58 | 24.00 | 911.93    |                                        |              |             |
| Standing Water | NO                | Top of Screen 2/15/1995  |           |      |       | 916.16    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | -4.23     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 2/15/1995 |           |      |       | 905.73    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |      | 29.75 | 906.18    |                                        |              |             |
|                |                   |                          |           |      |       | 0.45      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 935.93    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 935.93    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 935.93    | 6.6                                    | NT           | NT          |

## IDNR Form 542-1322

Monitoring Well: **MW-40 (dg)**
**Primary Sampling Method:**  
**Secondary Sampling Method:**

 No-Purge for Arsenic and Sulfate  
 Purge & Sample for all analytes in IAC 567, Chapter 114
**GENERAL INFORMATION**

|                 |             |
|-----------------|-------------|
| TOC             | 933.07      |
| Well Depth      | 20.00       |
| Capped          | YES         |
| Standing Water  | NO          |
| Litter          | NO          |
| Level Tape      | Solinst 101 |
| NTU Meter       | Hach 2100P  |
| No-Purge Equip  | Solinst 429 |
| Purge Equipment | Waterra     |

**NO PURGE METHOD**

|                     |        |
|---------------------|--------|
| TOC                 | 933.07 |
| Well Depth          | 19.70  |
| Top Screen          | 923.61 |
| Bottom Screen       | 913.61 |
| Bottom Well         | 913.07 |
| Sampler Length (ft) | 4      |
| Sampler Volume (mL) | 440    |
| Feet cordage        | 14     |
| Top sample          | 919.07 |
| Bottom sample       | 915.07 |
| Turbidity(NTU)      | 1.92   |

| Date      | Time | Water Level | Water Elevation Notes |
|-----------|------|-------------|-----------------------|
| 9/13/2023 | 8:22 | 12.58       | 920.49                |

**ANALYTES, CONTAINERS, AND VOLUMES**

| Analyte      | Required Volume (mL) | Volume Collected No-Purge (mL) | Volume Collected Purge & Sample (mL) | Turbidity this Container (NTU) |
|--------------|----------------------|--------------------------------|--------------------------------------|--------------------------------|
| All          | Field NTU            | 10                             | 0                                    | 1.92                           |
| Appendix I   | Metals               | 250                            | 0                                    | 1.92                           |
| Paragraph e  |                      | 750                            | 750                                  |                                |
| Paragraph f  | TOX                  | 480                            | 0                                    |                                |
| Supplemental | Sulfate              | 125                            | 0                                    | 1.92                           |
| Supplemental |                      | 0                              | 0                                    |                                |
| Supplemental |                      | 0                              | 0                                    |                                |
| Total        |                      | 385                            | 750                                  |                                |

**PURGE & SAMPLE METHOD - Purge by Waterra Inertial Lift Pump, then well rest, then sample collection**

| TOC            | 933.07            | 2" dia.                  | Date      | Time | Depth | Elevation | Gallons                                | # of Vol.    | Purged Dry? |
|----------------|-------------------|--------------------------|-----------|------|-------|-----------|----------------------------------------|--------------|-------------|
| Well Depth     | 20.00             | Before purging           | 9/13/2023 | 8:22 | 12.58 | 920.49    | 3.5                                    | 2.9          | no          |
| Capped         | YES               | After purging            | 9/13/2023 | 8:34 | 15.44 | 917.63    |                                        |              |             |
| Standing Water | NO                | Top of Screen 2/15/1995  |           |      |       | 923.61    |                                        |              |             |
| Litter         | NO                |                          |           |      |       | -5.98     | feet above (+) or below (-) top screen |              |             |
| Level Tape     | Solinst           | Bottom of Well 2/15/1995 |           |      |       | 913.07    |                                        |              |             |
| Equipment      | Disposable Bailer | Bottom of Well           | 9/13/2023 |      | 19.70 | 913.37    |                                        |              |             |
|                |                   |                          |           |      |       | 0.30      | feet sedimentation                     |              |             |
|                |                   | Recovery                 |           |      |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 933.07    |                                        |              |             |
|                |                   | Recovery                 |           |      |       | 933.07    | pH                                     | Conductivity | Temp.(C)    |
|                |                   | Before Sampling          |           |      |       | 933.07    | 6.6                                    | NT           | NT          |

**AMES-STORY ENVIRONMENTAL LANDFILL  
PERMIT # 85-SDP-13-91P**

9/13/2023

Sampled by: T. Whipple

Calm, Sunny 55-78 degrees

**IDNR Form 542-1324**

|           |           |      |      |         |               |            |      |              |
|-----------|-----------|------|------|---------|---------------|------------|------|--------------|
| SW-3 (dg) | Date      | Time | Type | Flowing | Quantity      | Discolored | Odor | Litter       |
|           | 9/13/2023 |      | tile | yes     | 378 ml/60 sec | No         | No   | No           |
|           |           |      |      |         |               | NTU        | pH   | Conductivity |
|           |           |      |      |         |               | 34.47      | 6.9  | NT           |

;

| MW Number | Top Casing Elevation | Depth to Water (ft) | Water Elevation |
|-----------|----------------------|---------------------|-----------------|
| 23        | 945.98               | 18.4                | 927.58          |
| 24        | 939.44               | 22.65               | 916.79          |
| 30        | 945.54               | 37.15               | 908.39          |
| 31        | 941.43               | 21.95               | 919.48          |
| 32        | 393.86               | 35.52               | 358.34          |
| 38        | 936.59               | 26.15               | 910.44          |
| 41        | 933.46               | 18.35               | 915.11          |
| 42        | 940.64               | 19.56               | 921.08          |
| 43        | 940.83               | 17.95               | 922.88          |

dry

## **APPENDIX B**

### **Laboratory Analytical Data**

## ANALYTICAL REPORT

April 13, 2023

Work Order: 1GC2639

Page 1 of 10

| Report To                                                             |
|-----------------------------------------------------------------------|
| Todd Whipple<br>HLW Engineering<br>PO Box 314<br>Story City, IA 50248 |

| Work Order Information                                                                                 |
|--------------------------------------------------------------------------------------------------------|
| Date Received: 3/27/2023 10:30:00AM<br>Collector: Whipple, Todd<br>Phone: (515) 733-4144<br>PO Number: |

Project: Ames-Story Landfill-Spring COC1

Project Number: 6004

| Analyte                | Result            | MRL          | Batch   | Method        | Analyst | Analyzed                  | Qualifier |
|------------------------|-------------------|--------------|---------|---------------|---------|---------------------------|-----------|
| <b>1GC2639-01</b>      | MW-6 (b)          |              |         | Matrix: Water |         | Collected: 03/24/23 08:34 |           |
| <b>COD, total</b>      | <b>34 mg/L</b>    | <b>20</b>    | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia      | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:48            |           |
| <b>Chloride</b>        | <b>319 mg/L</b>   | <b>10.0</b>  | 1GC1527 | EPA 9056      | MID     | 03/28/23 22:05            |           |
| Iron, dissolved        | <0.100 mg/L       | 0.100        | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 0:07             |           |
| <b>1GC2639-02</b>      | MW-7 (b)          |              |         | Matrix: Water |         | Collected: 03/24/23 08:46 |           |
| <b>COD, total</b>      | <b>49 mg/L</b>    | <b>20</b>    | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia      | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:49            |           |
| <b>Chloride</b>        | <b>64.5 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 18:02            |           |
| <b>Iron, dissolved</b> | <b>1.53 mg/L</b>  | <b>0.100</b> | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 0:35             |           |
| <b>1GC2639-03</b>      | MW-25             |              |         | Matrix: Water |         | Collected: 03/24/23 10:06 |           |
| COD, total             | <20 mg/L          | 20           | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia      | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:51            |           |
| <b>Chloride</b>        | <b>24.4 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 18:24            |           |
| <b>Iron, dissolved</b> | <b>0.385 mg/L</b> | <b>0.100</b> | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 0:43             |           |
| <b>1GC2639-04</b>      | MW-34             |              |         | Matrix: Water |         | Collected: 03/24/23 10:53 |           |
| <b>COD, total</b>      | <b>28 mg/L</b>    | <b>20</b>    | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia      | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:52            |           |
| <b>Chloride</b>        | <b>15.5 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 18:46            |           |
| Iron, dissolved        | <0.100 mg/L       | 0.100        | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 0:48             |           |
| <b>1GC2639-05</b>      | MW-35             |              |         | Matrix: Water |         | Collected: 03/24/23 11:40 |           |
| <b>COD, total</b>      | <b>22 mg/L</b>    | <b>20</b>    | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia      | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:54            |           |
| <b>Chloride</b>        | <b>587 mg/L</b>   | <b>50.0</b>  | 1GC1527 | EPA 9056      | MID     | 03/28/23 21:47            |           |
| Iron, dissolved        | <0.100 mg/L       | 0.100        | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 0:54             |           |
| <b>1GC2639-06</b>      | MW-39             |              |         | Matrix: Water |         | Collected: 03/24/23 12:32 |           |
| COD, total             | <20 mg/L          | 20           | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |

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April 13, 2023

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**Work Order: 1GC2639**

| Analyte                  | Result            | MRL          | Batch   | Method        | Analyst | Analyzed                  | Qualifier |
|--------------------------|-------------------|--------------|---------|---------------|---------|---------------------------|-----------|
| <b>1GC2639-06</b>        | MW-39             |              |         | Matrix: Water |         | Collected: 03/24/23 12:32 |           |
| Nitrogen, Ammonia        | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:55            |           |
| <b>Chloride</b>          | <b>15.0 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 19:31            |           |
| <b>Iron, dissolved</b>   | <b>0.189 mg/L</b> | <b>0.100</b> | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 1:04             |           |
| <b>1GC2639-07</b>        | MW-40             |              |         | Matrix: Water |         | Collected: 03/24/23 13:02 |           |
| COD, total               | <20 mg/L          | 20           | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia        | <1.00 mg/L        | 1.00         | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:57            |           |
| <b>Chloride</b>          | <b>13.3 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 19:54            |           |
| Iron, dissolved          | <0.100 mg/L       | 0.100        | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 1:13             |           |
| <b>1GC2639-08</b>        | MW-33             |              |         | Matrix: Water |         | Collected: 03/24/23 10:18 |           |
| COD, total               | <20 mg/L          | 20           | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| <b>Nitrogen, Ammonia</b> | <b>1.64 mg/L</b>  | <b>1.00</b>  | 1GD0365 | TIMBERLINE    | TJB     | 04/07/23 14:58            |           |
| <b>Chloride</b>          | <b>44.9 mg/L</b>  | <b>10.0</b>  | 1GC1439 | EPA 9056      | MID     | 03/27/23 20:38            |           |
| <b>Iron, dissolved</b>   | <b>11.2 mg/L</b>  | <b>0.100</b> | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 1:19             |           |
| <b>1GC2639-09</b>        | SW-3              |              |         | Matrix: Water |         | Collected: 03/24/23 11:06 |           |
| COD, total               | <20 mg/L          | 20           | 1GD0086 | EPA 410.4     | JLW     | 04/04/23 13:25            |           |
| Nitrogen, Ammonia        | <1.00 mg/L        | 1.00         | 1GD0366 | TIMBERLINE    | TJB     | 04/07/23 15:27            |           |
| <b>Chloride</b>          | <b>63.2 mg/L</b>  | <b>5.0</b>   | 1GC1439 | EPA 9056      | MID     | 03/27/23 20:16            |           |
| Iron, dissolved          | <0.100 mg/L       | 0.100        | 1GC1423 | EPA 6010B     | JAR     | 03/29/23 1:35             |           |

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April 13, 2023  
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Work Order: 1GC2639

**Determination of Conventional Chemistry Parameters - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GD0086 - Wet Chem Preparation**

|                                        |     |    |      |                               |      |                               |        |      |    |  |
|----------------------------------------|-----|----|------|-------------------------------|------|-------------------------------|--------|------|----|--|
| <b>Blank (1GD0086-BLK1)</b>            |     |    |      | Prepared & Analyzed: 04/04/23 |      |                               |        |      |    |  |
| COD, total                             | ND  | 20 | mg/L |                               |      |                               |        |      |    |  |
| <b>LCS (1GD0086-BS1)</b>               |     |    |      | Prepared & Analyzed: 04/04/23 |      |                               |        |      |    |  |
| COD, total                             | 104 | 27 | mg/L | 100.000                       |      | 104                           | 90-110 |      |    |  |
| <b>Matrix Spike (1GD0086-MS1)</b>      |     |    |      | <b>Source: 1GC2639-01</b>     |      | Prepared & Analyzed: 04/04/23 |        |      |    |  |
| COD, total                             | 142 | 27 | mg/L | 100.000                       | 34.0 | 108                           | 90-110 |      |    |  |
| <b>Matrix Spike Dup (1GD0086-MSD1)</b> |     |    |      | <b>Source: 1GC2639-01</b>     |      | Prepared & Analyzed: 04/04/23 |        |      |    |  |
| COD, total                             | 135 | 27 | mg/L | 100.000                       | 34.0 | 101                           | 90-110 | 4.79 | 10 |  |

**Batch 1GD0365 - General Prep HPLC/IC**

|                                        |      |      |      |                               |       |                               |        |      |    |  |
|----------------------------------------|------|------|------|-------------------------------|-------|-------------------------------|--------|------|----|--|
| <b>Blank (1GD0365-BLK1)</b>            |      |      |      | Prepared & Analyzed: 04/07/23 |       |                               |        |      |    |  |
| Nitrogen, Ammonia                      | ND   | 1.00 | mg/L |                               |       |                               |        |      |    |  |
| <b>LCS (1GD0365-BS1)</b>               |      |      |      | Prepared & Analyzed: 04/07/23 |       |                               |        |      |    |  |
| Nitrogen, Ammonia                      | 4.77 | 1.00 | mg/L | 5.00000                       |       | 95.3                          | 90-114 |      |    |  |
| <b>Matrix Spike (1GD0365-MS1)</b>      |      |      |      | <b>Source: 1GC2609-02</b>     |       | Prepared & Analyzed: 04/07/23 |        |      |    |  |
| Nitrogen, Ammonia                      | 5.73 | 1.00 | mg/L | 5.00000                       | 0.506 | 104                           | 84-115 |      |    |  |
| <b>Matrix Spike Dup (1GD0365-MSD1)</b> |      |      |      | <b>Source: 1GC2609-02</b>     |       | Prepared & Analyzed: 04/07/23 |        |      |    |  |
| Nitrogen, Ammonia                      | 5.18 | 1.00 | mg/L | 5.00000                       | 0.506 | 93.4                          | 84-115 | 10.1 | 20 |  |

**Batch 1GD0366 - General Prep HPLC/IC**

|                             |    |      |      |                               |  |  |  |  |  |  |
|-----------------------------|----|------|------|-------------------------------|--|--|--|--|--|--|
| <b>Blank (1GD0366-BLK1)</b> |    |      |      | Prepared & Analyzed: 04/07/23 |  |  |  |  |  |  |
| Nitrogen, Ammonia           | ND | 1.00 | mg/L |                               |  |  |  |  |  |  |

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Work Order: 1GC2639

**Determination of Conventional Chemistry Parameters - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GD0366 - General Prep HPLC/IC**

|                                        |      |      |      |                                                  |    |      |        |       |    |  |
|----------------------------------------|------|------|------|--------------------------------------------------|----|------|--------|-------|----|--|
| <b>LCS (1GD0366-BS1)</b>               |      |      |      | Prepared & Analyzed: 04/07/23                    |    |      |        |       |    |  |
| Nitrogen, Ammonia                      | 4.86 | 1.00 | mg/L | 5.00000                                          |    | 97.1 | 90-114 |       |    |  |
| <b>Matrix Spike (1GD0366-MS1)</b>      |      |      |      | Source: 1GC2639-09 Prepared & Analyzed: 04/07/23 |    |      |        |       |    |  |
| Nitrogen, Ammonia                      | 4.61 | 1.00 | mg/L | 5.00000                                          | ND | 92.2 | 84-115 |       |    |  |
| <b>Matrix Spike Dup (1GD0366-MSD1)</b> |      |      |      | Source: 1GC2639-09 Prepared & Analyzed: 04/07/23 |    |      |        |       |    |  |
| Nitrogen, Ammonia                      | 4.62 | 1.00 | mg/L | 5.00000                                          | ND | 92.3 | 84-115 | 0.135 | 20 |  |

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Work Order: 1GC2639

**Determination of Inorganic Anions - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GC1439 - General Prep HPLC/IC**

|                                        |       |      |      |                               |       |                               |        |       |    |  |
|----------------------------------------|-------|------|------|-------------------------------|-------|-------------------------------|--------|-------|----|--|
| <b>Blank (1GC1439-BLK1)</b>            |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Chloride                               | ND    | 1.0  | mg/L |                               |       |                               |        |       |    |  |
| <b>Blank (1GC1439-BLK2)</b>            |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Chloride                               | ND    | 1.0  | mg/L |                               |       |                               |        |       |    |  |
| <b>LCS (1GC1439-BS1)</b>               |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Chloride                               | 16.04 | 1.0  | mg/L | 15.5751                       |       | 103                           | 80-120 |       |    |  |
| <b>LCS Dup (1GC1439-BSD1)</b>          |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Chloride                               | 16.15 | 1.0  | mg/L | 15.5751                       |       | 104                           | 80-120 | 0.715 | 10 |  |
| <b>MRL Check (1GC1439-MRL1)</b>        |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Chloride                               | 0.86  | 1.0  | mg/L | 0.615300                      |       | 139                           | 50-150 |       |    |  |
| <b>Matrix Spike (1GC1439-MS1)</b>      |       |      |      | <b>Source: 1GC2124-01</b>     |       | Prepared & Analyzed: 03/27/23 |        |       |    |  |
| Chloride                               | 239.8 | 10.0 | mg/L | 155.751                       | 81.84 | 101                           | 81-116 |       |    |  |
| <b>Matrix Spike Dup (1GC1439-MSD1)</b> |       |      |      | <b>Source: 1GC2124-01</b>     |       | Prepared & Analyzed: 03/27/23 |        |       |    |  |
| Chloride                               | 237.6 | 10.0 | mg/L | 155.751                       | 81.84 | 100                           | 81-116 | 0.922 | 10 |  |

**Batch 1GC1527 - General Prep HPLC/IC**

|                             |    |     |      |                               |  |  |  |  |  |  |
|-----------------------------|----|-----|------|-------------------------------|--|--|--|--|--|--|
| <b>Blank (1GC1527-BLK1)</b> |    |     |      | Prepared & Analyzed: 03/28/23 |  |  |  |  |  |  |
| Chloride                    | ND | 1.0 | mg/L |                               |  |  |  |  |  |  |
| <b>Blank (1GC1527-BLK2)</b> |    |     |      | Prepared & Analyzed: 03/28/23 |  |  |  |  |  |  |
| Chloride                    | ND | 1.0 | mg/L |                               |  |  |  |  |  |  |

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**Work Order: 1GC2639**

April 13, 2023  
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**Determination of Inorganic Anions - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GC1527 - General Prep HPLC/IC**

|                                        |       |                           |      |                               |       |      |        |       |    |  |
|----------------------------------------|-------|---------------------------|------|-------------------------------|-------|------|--------|-------|----|--|
| <b>Blank (1GC1527-BLK3)</b>            |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | ND    | 1.0                       | mg/L |                               |       |      |        |       |    |  |
| <b>LCS (1GC1527-BS1)</b>               |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 14.99 | 1.0                       | mg/L | 15.5751                       |       | 96.2 | 80-120 |       |    |  |
| <b>LCS (1GC1527-BS2)</b>               |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 15.02 | 1.0                       | mg/L | 15.5751                       |       | 96.4 | 80-120 |       |    |  |
| <b>LCS Dup (1GC1527-BSD1)</b>          |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 15.04 | 1.0                       | mg/L | 15.5751                       |       | 96.6 | 80-120 | 0.333 | 10 |  |
| <b>LCS Dup (1GC1527-BSD2)</b>          |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 15.16 | 1.0                       | mg/L | 15.5751                       |       | 97.3 | 80-120 | 0.935 | 10 |  |
| <b>MRL Check (1GC1527-MRL1)</b>        |       |                           |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 0.61  | 1.0                       | mg/L | 0.615300                      |       | 99.1 | 50-150 |       |    |  |
| <b>Matrix Spike (1GC1527-MS1)</b>      |       | <b>Source: 1GC2543-03</b> |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 310.7 | 5.0                       | mg/L | 77.8755                       | 236.0 | 95.9 | 81-116 |       |    |  |
| <b>Matrix Spike (1GC1527-MS2)</b>      |       | <b>Source: 1GC2226-01</b> |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 15.24 | 1.0                       | mg/L | 15.5751                       | 0.52  | 94.5 | 81-116 |       |    |  |
| <b>Matrix Spike Dup (1GC1527-MSD1)</b> |       | <b>Source: 1GC2543-03</b> |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 309.3 | 5.0                       | mg/L | 77.8755                       | 236.0 | 94.2 | 81-116 | 0.442 | 10 |  |
| <b>Matrix Spike Dup (1GC1527-MSD2)</b> |       | <b>Source: 1GC2226-01</b> |      | Prepared & Analyzed: 03/28/23 |       |      |        |       |    |  |
| Chloride                               | 15.18 | 1.0                       | mg/L | 15.5751                       | 0.52  | 94.1 | 81-116 | 0.368 | 10 |  |

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Work Order: 1GC2639

**Determination of Dissolved Metals - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GC1423 - Dissolved Metal Prep**

|                                        |      |       |      |                               |    |                                       |        |       |    |  |
|----------------------------------------|------|-------|------|-------------------------------|----|---------------------------------------|--------|-------|----|--|
| <b>Blank (1GC1423-BLK1)</b>            |      |       |      | Prepared & Analyzed: 03/28/23 |    |                                       |        |       |    |  |
| Iron, dissolved                        | ND   | 0.100 | mg/L |                               |    |                                       |        |       |    |  |
| <b>LCS (1GC1423-BS1)</b>               |      |       |      | Prepared & Analyzed: 03/28/23 |    |                                       |        |       |    |  |
| Iron, dissolved                        | 2.63 | 0.100 | mg/L | 2.22222                       |    | 118                                   | 80-120 |       |    |  |
| <b>Matrix Spike (1GC1423-MS1)</b>      |      |       |      | <b>Source: 1GC2639-01</b>     |    | Prepared: 03/28/23 Analyzed: 03/29/23 |        |       |    |  |
| Iron, dissolved                        | 2.40 | 0.100 | mg/L | 2.22222                       | ND | 108                                   | 75-125 |       |    |  |
| <b>Matrix Spike Dup (1GC1423-MSD1)</b> |      |       |      | <b>Source: 1GC2639-01</b>     |    | Prepared: 03/28/23 Analyzed: 03/29/23 |        |       |    |  |
| Iron, dissolved                        | 2.41 | 0.100 | mg/L | 2.22222                       | ND | 108                                   | 75-125 | 0.336 | 20 |  |

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

**Certified Analyses Included In This Report**

| Method/Matrix              | Analyte           | Certifications |
|----------------------------|-------------------|----------------|
| <b>EPA 410.4 in Water</b>  | COD, total        | KS-NT,SIA1X    |
| <b>EPA 6010B in Water</b>  | Iron, dissolved   | SIA1X,KS-NT    |
| <b>EPA 9056 in Water</b>   | Chloride          | KS-NT,SIA1X    |
| <b>TIMBERLINE in Water</b> | Nitrogen, Ammonia | SIA1X          |

| Code  | Description                                         | Number  | Expires    |
|-------|-----------------------------------------------------|---------|------------|
| KS-KC | Kansas Department of Health and Environment-KC      | E-10110 | 04/30/2023 |
| KS-NT | Kansas Department of Health and Environment (NELAP) | E-10287 | 10/31/2023 |
| MO-KC | Missouri Department of Natural Resources            | 140     | 04/30/2023 |
| SIA1X | Iowa Dept. of Natural Resources                     | 95      | 02/01/2024 |

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HLW Engineering  
PO Box 314  
Story City, IA 50248

**Work Order: 1GC2639**

April 13, 2023  
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End of Report

*Sue Thompson*

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Keystone Laboratories

Sue Thompson  
Client Services Manager

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1 G C 2 6 3 9

HLW Engineering  
PM: Sue Thompson

**SITE INFORMATION**

Sampler: Todd Whipple

Project: Ames-Story Landfill-Spring COC1  
5004

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard ☐ RUSH, need by      /      /     

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

Mr. William Fedeler  
Ames/Story Environmental Landfill  
5817 Oakcrest Circle  
Ames, IA 50010

**LAB USE ONLY**

Work Order GC2639

Temperature 0.5

Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date           | Time        | Number of Containers | Analyses     | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|----------------|-------------|----------------------|--------------|-------------------|
| 01-001 | MW-28 (b)                         | Water  | GRAB        | <u>TT</u>      | <u>    </u> | <u>0</u>             | Indfil-parae | <u>    </u>       |
| 02-001 | MW-29 (b)                         | Water  | GRAB        | <u>TT</u>      | <u>    </u> | <u>0</u>             | Indfil-parae | <u>    </u>       |
| 03-001 | MW-5 (b)                          | Water  | GRAB        | <u>3/24/23</u> | <u>8:34</u> | <u>3</u>             | Indfil-parae | <u>01</u>         |
| 04-001 | MW-7 (b)                          | Water  | GRAB        | <u>3/24/23</u> | <u>8:46</u> | <u>3</u>             | Indfil-parae | <u>02</u>         |
| 05-001 | MW-8 (b)                          | Water  | GRAB        | <u>TT</u>      | <u>    </u> | <u>0</u>             | Indfil-parae | <u>    </u>       |
| 06-001 | MW-37 (b)                         | Water  | GRAB        | <u>TT</u>      | <u>    </u> | <u>0</u>             | Indfil-parae | <u>    </u>       |
| 07-001 | MW-36 (b)                         | Water  | GRAB        | <u>TT</u>      | <u>    </u> | <u>0</u>             | Indfil-parae | <u>    </u>       |

Relinquished By Todd Whipple Date/Time 3/27/23

Relinquished By

Date/Time

Received By Todd Whipple Date/Time 3-27-23

Date/Time

Received for Lab By

Date/Time

Original - Lab Copy Yellow - Sampler Copy

Remarks:

**SITE INFORMATION**

Sampler: TODD WHIPPLE

Project: Ames-Story Landfill-Spring COC1  
5004

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard ☐ RUSH, need by      /      /     

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

Mr. William Fedeler  
Ames/Story Environmental Landfill  
5817 Oakcrest Circle  
Ames, IA 50010

**LAB USE ONLY**

Work Order 19C2639

Temperature 0.5

Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses      | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|---------------|-------------------|
| 08-001 | MW-25                             | Water  | GRAB        | 3/24/23 | 10:06 | 3                    | Indfil-para-e | 03                |
| 09-001 | MW-34                             | Water  | GRAB        | 3/24/23 | 10:53 | 3                    | Indfil-para-e | 04                |
| 10-001 | MW-35                             | Water  | GRAB        | 3/24/23 | 11:40 | 3                    | Indfil-para-e | 05                |
| 11-001 | MW-39                             | Water  | GRAB        | 3/24/23 | 12:32 | 3                    | Indfil-para-e | 06                |
| 12-001 | MW-40                             | Water  | GRAB        | 3/24/23 | 13:02 | 3                    | Indfil-para-e | 07                |
| 13-001 | MW-33                             | Water  | GRAB        | 3/24/23 | 10:18 | 3                    | Indfil-para-e | 08                |
| 14-001 | SW-3                              | Water  | GRAB        | 3/24/23 | 11:06 | 3                    | Indfil-para-e | 09                |

Relinquished By Todd Whipple 3/27/23

Date/Time

Relinquished By

Date/Time

Remarks:

Date/Time

Received for Lab By

Date/Time

Original - Lab Copy Yellow - Sampler Copy



## ANALYTICAL REPORT

April 14, 2023

Work Order: 1GC2643

Page 1 of 9

| Report To                                                             |
|-----------------------------------------------------------------------|
| Todd Whipple<br>HLW Engineering<br>PO Box 314<br>Story City, IA 50248 |

| Work Order Information                                                                                 |
|--------------------------------------------------------------------------------------------------------|
| Date Received: 3/27/2023 10:30:00AM<br>Collector: Whipple, Todd<br>Phone: (515) 733-4144<br>PO Number: |

Project: Ames-Story Landfill-COC2

Project Number: 6004

| Analyte               | Result             | MRL           | Batch   | Method        | Analyst | Analyzed                  | Qualifier |
|-----------------------|--------------------|---------------|---------|---------------|---------|---------------------------|-----------|
| <b>1GC2643-01</b>     | MW-6 (b)           |               |         | Matrix: Water |         | Collected: 03/24/23 08:20 |           |
| <b>Sulfate</b>        | <b>315 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/27/23 22:08            |           |
| Arsenic, total        | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 19:50            |           |
| Boron, total          | <0.100 mg/L        | 0.100         | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 1:02             |           |
| <b>1GC2643-02</b>     | MW-7 (b)           |               |         | Matrix: Water |         | Collected: 03/24/23 08:25 |           |
| <b>Sulfate</b>        | <b>74.6 mg/L</b>   | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/27/23 22:30            |           |
| <b>Arsenic, total</b> | <b>0.0122 mg/L</b> | <b>0.0040</b> | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:15            |           |
| Boron, total          | <0.100 mg/L        | 0.100         | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 1:37             |           |
| <b>1GC2643-03</b>     | MW-25              |               |         | Matrix: Water |         | Collected: 03/24/23 09:49 |           |
| <b>Sulfate</b>        | <b>200 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/27/23 22:53            |           |
| Arsenic, total        | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:21            |           |
| <b>Boron, total</b>   | <b>0.921 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 1:43             |           |
| <b>1GC2643-04</b>     | MW-34              |               |         | Matrix: Water |         | Collected: 03/24/23 10:37 |           |
| <b>Sulfate</b>        | <b>552 mg/L</b>    | <b>10.0</b>   | 1GC1527 | EPA 9056      | MID     | 03/28/23 22:24            |           |
| Arsenic, total        | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:27            |           |
| <b>Boron, total</b>   | <b>0.285 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 1:49             |           |
| <b>1GC2643-05</b>     | MW-35              |               |         | Matrix: Water |         | Collected: 03/24/23 11:29 |           |
| <b>Sulfate</b>        | <b>85.2 mg/L</b>   | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/27/23 23:38            |           |
| <b>Arsenic, total</b> | <b>0.102 mg/L</b>  | <b>0.0040</b> | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:33            |           |
| Boron, total          | <0.100 mg/L        | 0.100         | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 1:55             |           |
| <b>1GC2643-06</b>     | MW-39              |               |         | Matrix: Water |         | Collected: 03/24/23 12:13 |           |
| <b>Sulfate</b>        | <b>607 mg/L</b>    | <b>10.0</b>   | 1GC1527 | EPA 9056      | MID     | 03/28/23 22:42            |           |
| Arsenic, total        | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:39            |           |
| <b>Boron, total</b>   | <b>0.218 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 2:01             |           |
| <b>1GC2643-07</b>     | MW-40              |               |         | Matrix: Water |         | Collected: 03/24/23 12:45 |           |
| <b>Sulfate</b>        | <b>126 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/28/23 0:22             |           |

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April 14, 2023  
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**Work Order: 1GC2643**

| Analyte           | Result             | MRL           | Batch   | Method        | Analyst | Analyzed                  | Qualifier |
|-------------------|--------------------|---------------|---------|---------------|---------|---------------------------|-----------|
| <b>1GC2643-07</b> | MW-40              |               |         | Matrix: Water |         | Collected: 03/24/23 12:45 |           |
| Arsenic, total    | <b>0.0049 mg/L</b> | <b>0.0040</b> | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 20:56            |           |
| Boron, total      | <0.100 mg/L        | 0.100         | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 2:23             |           |
| <b>1GC2643-08</b> | MW-33              |               |         | Matrix: Water |         | Collected: 03/24/23 09:58 |           |
| Sulfate           | <b>168 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/28/23 0:45             |           |
| Arsenic, total    | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 21:02            |           |
| Boron, total      | <b>0.470 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 2:29             |           |
| <b>1GC2643-09</b> | SW-3               |               |         | Matrix: Water |         | Collected: 03/24/23 11:06 |           |
| Sulfate           | <b>280 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/28/23 1:07             |           |
| Arsenic, total    | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 21:08            |           |
| Boron, total      | <b>0.125 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 2:35             |           |
| <b>1GC2643-10</b> | Field Duplicate    |               |         | Matrix: Water |         | Collected: 03/24/23 00:00 |           |
| Sulfate           | <b>201 mg/L</b>    | <b>5.0</b>    | 1GC1439 | EPA 9056      | MID     | 03/28/23 1:30             |           |
| Arsenic, total    | <0.0040 mg/L       | 0.0040        | 1GD0085 | EPA 6020A     | RVV     | 04/05/23 21:14            |           |
| Boron, total      | <b>0.958 mg/L</b>  | <b>0.100</b>  | 1GC1619 | EPA 6010B     | JAR     | 04/06/23 2:41             |           |

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Story City, IA 50248

April 14, 2023  
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Work Order: 1GC2643

**Determination of Inorganic Anions - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GC1439 - General Prep HPLC/IC**

|                                        |       |      |      |                               |       |                               |        |       |    |  |
|----------------------------------------|-------|------|------|-------------------------------|-------|-------------------------------|--------|-------|----|--|
| <b>Blank (1GC1439-BLK1)</b>            |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Sulfate                                | ND    | 1.0  | mg/L |                               |       |                               |        |       |    |  |
| <b>Blank (1GC1439-BLK2)</b>            |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Sulfate                                | ND    | 1.0  | mg/L |                               |       |                               |        |       |    |  |
| <b>LCS (1GC1439-BS1)</b>               |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Sulfate                                | 36.64 | 1.0  | mg/L | 34.2650                       |       | 107                           | 80-120 |       |    |  |
| <b>LCS Dup (1GC1439-BSD1)</b>          |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Sulfate                                | 36.84 | 1.0  | mg/L | 34.2650                       |       | 108                           | 80-120 | 0.553 | 10 |  |
| <b>MRL Check (1GC1439-MRL1)</b>        |       |      |      | Prepared & Analyzed: 03/27/23 |       |                               |        |       |    |  |
| Sulfate                                | 1.39  | 1.0  | mg/L | 1.10748                       |       | 126                           | 0-200  |       |    |  |
| <b>Matrix Spike (1GC1439-MS1)</b>      |       |      |      | <b>Source: 1GC2124-01</b>     |       | Prepared & Analyzed: 03/27/23 |        |       |    |  |
| Sulfate                                | 430.0 | 10.0 | mg/L | 342.650                       | 68.20 | 106                           | 87-113 |       |    |  |
| <b>Matrix Spike Dup (1GC1439-MSD1)</b> |       |      |      | <b>Source: 1GC2124-01</b>     |       | Prepared & Analyzed: 03/27/23 |        |       |    |  |
| Sulfate                                | 426.3 | 10.0 | mg/L | 342.650                       | 68.20 | 105                           | 87-113 | 0.855 | 10 |  |

**Batch 1GC1527 - General Prep HPLC/IC**

|                             |    |     |      |                               |  |  |  |  |  |  |
|-----------------------------|----|-----|------|-------------------------------|--|--|--|--|--|--|
| <b>Blank (1GC1527-BLK1)</b> |    |     |      | Prepared & Analyzed: 03/28/23 |  |  |  |  |  |  |
| Sulfate                     | ND | 1.0 | mg/L |                               |  |  |  |  |  |  |
| <b>Blank (1GC1527-BLK2)</b> |    |     |      | Prepared & Analyzed: 03/28/23 |  |  |  |  |  |  |
| Sulfate                     | ND | 1.0 | mg/L |                               |  |  |  |  |  |  |

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PO Box 314  
Story City, IA 50248

April 14, 2023  
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Work Order: 1GC2643

**Determination of Inorganic Anions - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte                                     | Result | Reporting Limit | Units | Spike Level                   | Source Result | %REC                          | %REC Limits | RPD   | RPD Limit | Notes |
|---------------------------------------------|--------|-----------------|-------|-------------------------------|---------------|-------------------------------|-------------|-------|-----------|-------|
| <b>Batch 1GC1527 - General Prep HPLC/IC</b> |        |                 |       |                               |               |                               |             |       |           |       |
| <b>Blank (1GC1527-BLK3)</b>                 |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | ND     | 1.0             | mg/L  |                               |               |                               |             |       |           |       |
| <b>LCS (1GC1527-BS1)</b>                    |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | 33.30  | 1.0             | mg/L  | 34.2650                       |               | 97.2                          | 80-120      |       |           |       |
| <b>LCS (1GC1527-BS2)</b>                    |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | 33.51  | 1.0             | mg/L  | 34.2650                       |               | 97.8                          | 80-120      |       |           |       |
| <b>LCS Dup (1GC1527-BSD1)</b>               |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | 32.97  | 1.0             | mg/L  | 34.2650                       |               | 96.2                          | 80-120      | 1.01  | 10        |       |
| <b>LCS Dup (1GC1527-BSD2)</b>               |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | 33.36  | 1.0             | mg/L  | 34.2650                       |               | 97.4                          | 80-120      | 0.446 | 10        |       |
| <b>MRL Check (1GC1527-MRL1)</b>             |        |                 |       | Prepared & Analyzed: 03/28/23 |               |                               |             |       |           |       |
| Sulfate                                     | 1.05   | 1.0             | mg/L  | 1.10748                       |               | 94.9                          | 0-200       |       |           |       |
| <b>Matrix Spike (1GC1527-MS1)</b>           |        |                 |       | <b>Source: 1GC2543-03</b>     |               | Prepared & Analyzed: 03/28/23 |             |       |           |       |
| Sulfate                                     | 212.5  | 5.0             | mg/L  | 171.325                       | 43.93         | 98.4                          | 87-113      |       |           |       |
| <b>Matrix Spike (1GC1527-MS2)</b>           |        |                 |       | <b>Source: 1GC2226-01</b>     |               | Prepared & Analyzed: 03/28/23 |             |       |           |       |
| Sulfate                                     | 33.43  | 1.0             | mg/L  | 34.2650                       | 1.03          | 94.6                          | 87-113      |       |           |       |
| <b>Matrix Spike Dup (1GC1527-MSD1)</b>      |        |                 |       | <b>Source: 1GC2543-03</b>     |               | Prepared & Analyzed: 03/28/23 |             |       |           |       |
| Sulfate                                     | 213.6  | 5.0             | mg/L  | 171.325                       | 43.93         | 99.1                          | 87-113      | 0.535 | 10        |       |
| <b>Matrix Spike Dup (1GC1527-MSD2)</b>      |        |                 |       | <b>Source: 1GC2226-01</b>     |               | Prepared & Analyzed: 03/28/23 |             |       |           |       |
| Sulfate                                     | 33.64  | 1.0             | mg/L  | 34.2650                       | 1.03          | 95.2                          | 87-113      | 0.611 | 10        |       |

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HLW Engineering  
PO Box 314  
Story City, IA 50248

April 14, 2023  
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Work Order: 1GC2643

**Determination of Total Metals - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GC1619 - EPA 3010A Digestion (Water)**

|                                        |       |       |      |                                                          |        |     |        |      |    |  |
|----------------------------------------|-------|-------|------|----------------------------------------------------------|--------|-----|--------|------|----|--|
| <b>Blank (1GC1619-BLK1)</b>            |       |       |      | Prepared: 03/30/23 Analyzed: 04/06/23                    |        |     |        |      |    |  |
| Boron, total                           | ND    | 0.100 | mg/L |                                                          |        |     |        |      |    |  |
| <b>LCS (1GC1619-BS1)</b>               |       |       |      | Prepared: 03/30/23 Analyzed: 04/06/23                    |        |     |        |      |    |  |
| Boron, total                           | 0.229 | 0.100 | mg/L | 0.200000                                                 |        | 115 | 80-120 |      |    |  |
| <b>Matrix Spike (1GC1619-MS1)</b>      |       |       |      | Source: 1GC2643-01 Prepared: 03/30/23 Analyzed: 04/06/23 |        |     |        |      |    |  |
| Boron, total                           | 0.337 | 0.100 | mg/L | 0.200000                                                 | 0.0865 | 125 | 75-125 |      |    |  |
| <b>Matrix Spike Dup (1GC1619-MSD1)</b> |       |       |      | Source: 1GC2643-01 Prepared: 03/30/23 Analyzed: 04/06/23 |        |     |        |      |    |  |
| Boron, total                           | 0.329 | 0.100 | mg/L | 0.200000                                                 | 0.0865 | 121 | 75-125 | 2.58 | 20 |  |
| <b>Post Spike (1GC1619-PS1)</b>        |       |       |      | Source: 1GC2643-01 Prepared: 03/30/23 Analyzed: 04/06/23 |        |     |        |      |    |  |
| Boron, total                           | 0.906 |       | mg/L | 0.800000                                                 | 0.0865 | 102 | 80-120 |      |    |  |

**Batch 1GD0085 - EPA 3005A Total Recoverable Metals**

|                                        |        |        |      |                                                          |        |      |        |      |    |  |
|----------------------------------------|--------|--------|------|----------------------------------------------------------|--------|------|--------|------|----|--|
| <b>Blank (1GD0085-BLK1)</b>            |        |        |      | Prepared: 04/03/23 Analyzed: 04/05/23                    |        |      |        |      |    |  |
| Arsenic, total                         | ND     | 0.0040 | mg/L |                                                          |        |      |        |      |    |  |
| <b>LCS (1GD0085-BS1)</b>               |        |        |      | Prepared: 04/03/23 Analyzed: 04/05/23                    |        |      |        |      |    |  |
| Arsenic, total                         | 0.0954 | 0.0040 | mg/L | 0.100000                                                 |        | 95.4 | 80-120 |      |    |  |
| <b>Matrix Spike (1GD0085-MS1)</b>      |        |        |      | Source: 1GC2643-01 Prepared: 04/03/23 Analyzed: 04/05/23 |        |      |        |      |    |  |
| Arsenic, total                         | 0.100  | 0.0040 | mg/L | 0.100000                                                 | 0.0016 | 98.5 | 75-125 |      |    |  |
| <b>Matrix Spike Dup (1GD0085-MSD1)</b> |        |        |      | Source: 1GC2643-01 Prepared: 04/03/23 Analyzed: 04/05/23 |        |      |        |      |    |  |
| Arsenic, total                         | 0.101  | 0.0040 | mg/L | 0.100000                                                 | 0.0016 | 99.6 | 75-125 | 1.17 | 20 |  |

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HLW Engineering  
PO Box 314  
Story City, IA 50248

April 14, 2023  
Page 6 of 9

Work Order: 1GC2643

**Determination of Total Metals - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GD0085 - EPA 3005A Total Recoverable Metals**

|                                 |                           |                    |                             |
|---------------------------------|---------------------------|--------------------|-----------------------------|
| <b>Post Spike (1GD0085-PS1)</b> | <b>Source: 1GC2643-01</b> | Prepared: 04/03/23 | Analyzed: 04/05/23          |
| Arsenic, total                  | 0.0937                    | mg/L               | 0.0800000 0.0015 115 80-120 |

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

**Certified Analyses Included In This Report**

| Method/Matrix             | Analyte        | Certifications |
|---------------------------|----------------|----------------|
| <b>EPA 6010B in Water</b> | Boron, total   | KS-NT,SIA1X    |
| <b>EPA 6020A in Water</b> | Arsenic, total | SIA1X,KS-NT    |
| <b>EPA 9056 in Water</b>  | Sulfate        | KS-NT,SIA1X    |

| Code  | Description                                         | Number  | Expires    |
|-------|-----------------------------------------------------|---------|------------|
| KS-KC | Kansas Department of Health and Environment-KC      | E-10110 | 04/30/2023 |
| KS-NT | Kansas Department of Health and Environment (NELAP) | E-10287 | 10/31/2023 |
| MO-KC | Missouri Department of Natural Resources            | 140     | 04/30/2023 |
| SIA1X | Iowa Dept. of Natural Resources                     | 95      | 02/01/2024 |

End of Report



Keystone Laboratories

Sue Thompson  
Client Services Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.*



1 G C 2 6 4 3

HLW Engineering  
PM: Sue Thompson

**SITE INFORMATION**

Sampler: Todd Whipple  
Project: Ames-Story Landfill-COC2  
6004

**SPECIAL INSTRUCTIONS**

None  
Turn Around Time  
☐ Standard ☐ RUSH, need by      /      /     

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

**INVOICE TO**

Mr. William Fedeier  
Ames/Story Environmental Landfill  
5817 Oakcrest Circle  
Ames, IA 50010

**LAB USE ONLY**

Work Order 16C2643  
Temperature 0.5  
Turn-Cooler: No

Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date           | Time        | Number of Containers | Analyses                | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|----------------|-------------|----------------------|-------------------------|-------------------|
| 01-001 | MW-28 (b)                         | Water  | GRAB        | <u>1/1</u>     | <u>    </u> | <u>0</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 02-001 | MW-29 (b)                         | Water  | GRAB        | <u>1/1</u>     | <u>    </u> | <u>0</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 03-001 | MW-6 (b)                          | Water  | GRAB        | <u>3/24/23</u> | <u>8:20</u> | <u>2</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 04-001 | MW-7 (b)                          | Water  | GRAB        | <u>3/24/23</u> | <u>8:25</u> | <u>2</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 05-001 | MW-8 (b)                          | Water  | GRAB        | <u>1/1</u>     | <u>    </u> | <u>0</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 06-001 | MW-37 (b)                         | Water  | GRAB        | <u>1/1</u>     | <u>    </u> | <u>0</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |
| 07-001 | MW-36 (b)                         | Water  | GRAB        | <u>1/1</u>     | <u>    </u> | <u>0</u>             | as-t-6020<br>s04-9056-w | b-t-6010          |

Relinquished By Edo Whipple Date/Time 3/22/23

Relinquished By Todd Whipple Date/Time 3-27-23  
Received By      Date/Time       
Original - Lab Copy Yellow - Sampler Copy

Remarks:



1 G C 2 6 4 3

HLW Engineering  
PM. Sue Thompson

**SITE INFORMATION**

Sampler: Todd Whipple  
Project: Ames-Story Landfill-COC2  
6004

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

**INVOICE TO**

Mr. William Fedeler  
Ames/Story Environmental Landfill  
5817 Oakcrest Circle  
Ames, IA 50010

**SPECIAL INSTRUCTIONS**

None  
Turn Around Time  
☐ Standard ☐ RUSH, need by      /      /     

**LAB USE ONLY**

Work Order 16C2643  
Temperature 0.5  
Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses                            | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|-------------------------------------|-------------------|
| 08-001 | MW-25                             | Water  | GRAB        | 3/24/23 | 9:49  | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 03                |
| 09-001 | MW-34                             | Water  | GRAB        | 3/24/23 | 10:37 | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 04                |
| 10-001 | MW-35                             | Water  | GRAB        | 3/24/23 | 11:29 | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 05                |
| 11-001 | MW-39                             | Water  | GRAB        | 3/24/23 | 12:13 | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 06                |
| 12-001 | MW-40                             | Water  | GRAB        | 3/24/23 | 12:45 | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 07                |
| 13-001 | MW-33                             | Water  | GRAB        | 3/24/23 | 9:58  | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 08                |
| 14-001 | SW-3                              | Water  | GRAB        | 3/24/23 | 11:06 | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 09                |

Relinquished By [Signature] Date/Time 3/29/23

Relinquished By [Signature] Date/Time 3/23/23  
Received for Lab By [Signature] Date/Time 1630

Received By      Date/Time       
Original - Lab Copy Yellow - Sampler Copy

Remarks:



1 G C 2 6 4 3

HLW Engineering  
PM: Sue Thompson

**SITE INFORMATION**

Sampler: TODD WHIPPLE  
Project: Ames-Story Landfill-COC2  
6004

**SPECIAL INSTRUCTIONS**

None  
Turn Around Time  
☐ Standard ☐ RUSH, need by      /      /     

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

Mr. William Fedeler  
Ames/Story Environmental Landfill  
5817 Oakcrest Circle  
Ames, IA 50010

**LAB USE ONLY**

Work Order 19C2643  
Temperature 0.5  
Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time | Number of Containers | Analyses                            | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|------|----------------------|-------------------------------------|-------------------|
| 15-001 | Field Duplicate                   | Water  | GRAB        | 3/24/23 | ✓    | 2                    | as-t-6020<br>s04-9056-w<br>b-t-6010 | 10                |

Relinquished By [Signature] 3/27/23  
Date/Time

Relinquished By [Signature] 3/27/23 1030  
Date/Time  
Received for Lab By  
Original - Lab Copy Yellow - Sampler Copy

Remarks:



## ANALYTICAL REPORT

June 24, 2023

Work Order: 1GF1403

Page 1 of 4

| Report To                                                             |
|-----------------------------------------------------------------------|
| Todd Whipple<br>HLW Engineering<br>PO Box 314<br>Story City, IA 50248 |

| Work Order Information                                                                                |
|-------------------------------------------------------------------------------------------------------|
| Date Received: 6/14/2023 9:46:00AM<br>Collector: Whipple, Todd<br>Phone: (515) 733-4144<br>PO Number: |

Project: Ames-Story Landfill-COC2

Project Number: 6004

| Analyte        | Result      | MRL    | Batch   | Method        | Analyst | Analyzed                  | Qualifier |
|----------------|-------------|--------|---------|---------------|---------|---------------------------|-----------|
| 1GF1403-01     | MW-35       |        |         | Matrix: Water |         | Collected: 06/13/23 13:22 |           |
| Arsenic, total | 0.0051 mg/L | 0.0040 | 1GF1058 | EPA 6020A     | RVV     | 06/23/23 0:34             |           |

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.*

HLW Engineering  
PO Box 314  
Story City, IA 50248

June 24, 2023  
Page 2 of 4

Work Order: 1GF1403

**Determination of Total Metals - Quality Control**  
**Keystone Laboratories - Newton**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 1GF1058 - EPA 3005A Total Recoverable Metals**

|                             |    |        |      |                                       |  |  |  |  |  |  |
|-----------------------------|----|--------|------|---------------------------------------|--|--|--|--|--|--|
| <b>Blank (1GF1058-BLK1)</b> |    |        |      | Prepared: 06/21/23 Analyzed: 06/23/23 |  |  |  |  |  |  |
| Arsenic, total              | ND | 0.0040 | mg/L |                                       |  |  |  |  |  |  |

|                          |        |        |      |                                       |  |      |        |  |  |  |
|--------------------------|--------|--------|------|---------------------------------------|--|------|--------|--|--|--|
| <b>LCS (1GF1058-BS1)</b> |        |        |      | Prepared: 06/21/23 Analyzed: 06/23/23 |  |      |        |  |  |  |
| Arsenic, total           | 0.0970 | 0.0040 | mg/L | 0.100000                              |  | 97.0 | 80-120 |  |  |  |

|                                   |       |        |      |                           |        |                                       |        |  |  |  |
|-----------------------------------|-------|--------|------|---------------------------|--------|---------------------------------------|--------|--|--|--|
| <b>Matrix Spike (1GF1058-MS1)</b> |       |        |      | <b>Source: 1GF1741-01</b> |        | Prepared: 06/21/23 Analyzed: 06/23/23 |        |  |  |  |
| Arsenic, total                    | 0.120 | 0.0040 | mg/L | 0.100000                  | 0.0108 | 109                                   | 75-125 |  |  |  |

|                                        |       |        |      |                           |        |                                       |        |      |    |  |
|----------------------------------------|-------|--------|------|---------------------------|--------|---------------------------------------|--------|------|----|--|
| <b>Matrix Spike Dup (1GF1058-MSD1)</b> |       |        |      | <b>Source: 1GF1741-01</b> |        | Prepared: 06/21/23 Analyzed: 06/23/23 |        |      |    |  |
| Arsenic, total                         | 0.122 | 0.0040 | mg/L | 0.100000                  | 0.0108 | 111                                   | 75-125 | 1.33 | 20 |  |

|                                 |        |  |      |                           |        |                                       |        |  |  |  |
|---------------------------------|--------|--|------|---------------------------|--------|---------------------------------------|--------|--|--|--|
| <b>Post Spike (1GF1058-PS1)</b> |        |  |      | <b>Source: 1GF1741-01</b> |        | Prepared: 06/21/23 Analyzed: 06/23/23 |        |  |  |  |
| Arsenic, total                  | 0.0934 |  | mg/L | 0.0800000                 | 0.0106 | 103                                   | 80-120 |  |  |  |

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

**Certified Analyses Included In This Report**

| Method/Matrix             | Analyte        | Certifications |
|---------------------------|----------------|----------------|
| <b>EPA 6020A in Water</b> |                |                |
|                           | Arsenic, total | SIA1X,KS-NT    |

| Code  | Description                                         | Number  | Expires    |
|-------|-----------------------------------------------------|---------|------------|
| KS-KC | Kansas Department of Health and Environment-KC      | E-10110 | 04/30/2024 |
| KS-NT | Kansas Department of Health and Environment (NELAP) | E-10287 | 10/31/2023 |
| MO-KC | Missouri Department of Natural Resources (KC)       | 140     | 04/30/2024 |
| MO-NT | Missouri Department of Natural Resources (Newton)   | 10170   | 04/30/2026 |
| SIA1X | Iowa Dept. of Natural Resources                     | 95      | 02/01/2024 |

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HLW Engineering  
PO Box 314  
Story City, IA 50248

June 24, 2023  
Page 3 of 4

**Work Order: 1GF1403**

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End of Report

*Sue Thompson*

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Keystone Laboratories

Sue Thompson  
Client Services Manager

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## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

Project Description

Ames-Story Landfill-COC2

For:

Todd Whipple

**HLW Engineering**

PO Box 314

Story City, IA 50248

A handwritten signature in black ink that reads "Heather Murphy". The signature is written in a cursive, flowing style.

---

Heather Murphy

Customer Relationship Specialist

Friday, September 29, 2023

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Keystone Laboratories - Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

600 East 17th Street South | Newton, IA 50208 | 641-792-8451 p | [www.microbac.com](http://www.microbac.com)



# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1335

### HLW Engineering

Todd Whipple  
PO Box 314  
Story City, IA 50248

Project Name: Ames-Story Landfill-COC2

Project / PO Number: / 6004  
Received: 09/15/2023  
Reported: 09/29/2023

### Sample Summary Report

| <u>Sample Name</u> | <u>Laboratory ID</u> | <u>Client Matrix</u> | <u>Sample Type</u> | <u>Sample Begin</u> | <u>Sample Taken</u> | <u>Lab Received</u> |
|--------------------|----------------------|----------------------|--------------------|---------------------|---------------------|---------------------|
| MW-28 (b)          | 1GI1335-01           | Water                | GRAB               |                     | 09/13/23 07:45      | 09/15/23 10:10      |
| MW-8 (b)           | 1GI1335-02           | Water                | GRAB               |                     | 09/13/23 07:12      | 09/15/23 10:10      |
| MW-25              | 1GI1335-03           | Water                | GRAB               |                     | 09/13/23 09:47      | 09/15/23 10:10      |
| MW-34              | 1GI1335-04           | Water                | GRAB               |                     | 09/13/23 11:19      | 09/15/23 10:10      |
| MW-35              | 1GI1335-05           | Water                | GRAB               |                     | 09/13/23 10:53      | 09/15/23 10:10      |
| MW-39              | 1GI1335-06           | Water                | GRAB               |                     | 09/13/23 08:49      | 09/15/23 10:10      |
| MW-40              | 1GI1335-07           | Water                | GRAB               |                     | 09/13/23 08:22      | 09/15/23 10:10      |
| MW-33              | 1GI1335-08           | Water                | GRAB               |                     | 09/13/23 10:02      | 09/15/23 10:10      |
| SW-3               | 1GI1335-09           | Water                | GRAB               |                     | 09/13/23 10:38      | 09/15/23 10:10      |
| Field Duplicate    | 1GI1335-10           | Water                | GRAB               |                     | 09/13/23 00:00      | 09/15/23 10:10      |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

#### Analytical Testing Parameters

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-28 (b)  | Collected By:    | Whipple, Todd   |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 7:45 |
| Lab Sample ID:    | 1GI1335-01 |                  |                 |

| Determination of Inorganic Anions    | Result        | RL        | Units        | DF        | Note        | Prepared        | Analyzed        | Analyst        |
|--------------------------------------|---------------|-----------|--------------|-----------|-------------|-----------------|-----------------|----------------|
| <b>EPA 9056</b>                      |               |           |              |           |             |                 |                 |                |
| Sulfate                              | 418           | 5.0       | mg/L         | 5         |             | 09/25/23 0000   | 09/25/23 1758   | MID            |
| <b>Determination of Total Metals</b> | <b>Result</b> | <b>RL</b> | <b>Units</b> | <b>DF</b> | <b>Note</b> | <b>Prepared</b> | <b>Analyzed</b> | <b>Analyst</b> |
| <b>EPA 3005A/EPA 6020A</b>           |               |           |              |           |             |                 |                 |                |
| Arsenic, total                       | <0.0040       | 0.0040    | mg/L         | 4         |             | 09/26/23 0902   | 09/27/23 2021   | RVV            |
| <b>EPA 3010A/EPA 6010B</b>           |               |           |              |           |             |                 |                 |                |
| Boron, total                         | 0.388         | 0.100     | mg/L         | 1         |             | 09/26/23 1613   | 09/27/23 1925   | JAR            |

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-8 (b)   | Collected By:    | Whipple, Todd   |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 7:12 |
| Lab Sample ID:    | 1GI1335-02 |                  |                 |

| Determination of Inorganic Anions    | Result        | RL        | Units        | DF        | Note        | Prepared        | Analyzed        | Analyst        |
|--------------------------------------|---------------|-----------|--------------|-----------|-------------|-----------------|-----------------|----------------|
| <b>EPA 9056</b>                      |               |           |              |           |             |                 |                 |                |
| Sulfate                              | 46.4          | 5.0       | mg/L         | 5         |             | 09/25/23 0000   | 09/25/23 1817   | MID            |
| <b>Determination of Total Metals</b> | <b>Result</b> | <b>RL</b> | <b>Units</b> | <b>DF</b> | <b>Note</b> | <b>Prepared</b> | <b>Analyzed</b> | <b>Analyst</b> |
| <b>EPA 3005A/EPA 6020A</b>           |               |           |              |           |             |                 |                 |                |
| Arsenic, total                       | 0.0128        | 0.0040    | mg/L         | 4         |             | 09/26/23 0902   | 09/27/23 2045   | RVV            |
| <b>EPA 3010A/EPA 6010B</b>           |               |           |              |           |             |                 |                 |                |
| Boron, total                         | 0.114         | 0.100     | mg/L         | 1         |             | 09/26/23 1613   | 09/27/23 1931   | JAR            |

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-25      | Collected By:    | Whipple, Todd   |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 9:47 |
| Lab Sample ID:    | 1GI1335-03 |                  |                 |

| Determination of Inorganic Anions    | Result        | RL        | Units        | DF        | Note        | Prepared        | Analyzed        | Analyst        |
|--------------------------------------|---------------|-----------|--------------|-----------|-------------|-----------------|-----------------|----------------|
| <b>EPA 9056</b>                      |               |           |              |           |             |                 |                 |                |
| Sulfate                              | 199           | 5.0       | mg/L         | 5         |             | 09/25/23 0000   | 09/25/23 1835   | MID            |
| <b>Determination of Total Metals</b> | <b>Result</b> | <b>RL</b> | <b>Units</b> | <b>DF</b> | <b>Note</b> | <b>Prepared</b> | <b>Analyzed</b> | <b>Analyst</b> |
| <b>EPA 3005A/EPA 6020A</b>           |               |           |              |           |             |                 |                 |                |
| Arsenic, total                       | <0.0040       | 0.0040    | mg/L         | 4         |             | 09/26/23 0902   | 09/27/23 2051   | RVV            |
| <b>EPA 3010A/EPA 6010B</b>           |               |           |              |           |             |                 |                 |                |
| Boron, total                         | 0.859         | 0.100     | mg/L         | 1         |             | 09/26/23 1613   | 09/27/23 1937   | JAR            |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-34      | Collected By:    | Whipple, Todd    |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 11:19 |
| Lab Sample ID:    | 1GI1335-04 |                  |                  |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |     |     |      |   |  |               |               |     |
|---------|-----|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 167 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 1853 | MID |
|---------|-----|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |        |        |      |   |  |               |               |     |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | 0.0149 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2057 | RVV |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |       |       |      |   |  |               |               |     |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | 0.213 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2003 | JAR |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-35      | Collected By:    | Whipple, Todd    |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 10:53 |
| Lab Sample ID:    | 1GI1335-05 |                  |                  |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |      |     |      |   |  |               |               |     |
|---------|------|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 72.8 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 1911 | MID |
|---------|------|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |        |        |      |   |  |               |               |     |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | 0.0069 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2103 | RVV |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |        |       |      |   |  |               |               |     |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | <0.100 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2009 | JAR |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-39      | Collected By:    | Whipple, Todd   |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 8:49 |
| Lab Sample ID:    | 1GI1335-06 |                  |                 |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |     |     |      |   |  |               |               |     |
|---------|-----|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 544 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 1929 | MID |
|---------|-----|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |        |        |      |   |  |               |               |     |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | 0.0187 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2110 | RVV |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |       |       |      |   |  |               |               |     |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | 0.252 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2014 | JAR |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-40      | Collected By:    | Whipple, Todd   |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 8:22 |
| Lab Sample ID:    | 1GI1335-07 |                  |                 |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |     |     |      |   |  |               |               |     |
|---------|-----|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 315 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 1947 | MID |
|---------|-----|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |        |        |      |   |  |               |               |     |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | 0.0043 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2116 | RVV |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |        |       |      |   |  |               |               |     |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | <0.100 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2035 | JAR |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-33      | Collected By:    | Whipple, Todd    |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 10:02 |
| Lab Sample ID:    | 1GI1335-08 |                  |                  |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |     |     |      |   |  |               |               |     |
|---------|-----|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 182 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 2005 | MID |
|---------|-----|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |         |        |      |   |  |               |               |     |
|----------------|---------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | <0.0040 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2134 | RVV |
|----------------|---------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |       |       |      |   |  |               |               |     |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | 0.589 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2041 | JAR |
|--------------|-------|-------|------|---|--|---------------|---------------|-----|

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | SW-3       | Collected By:    | Whipple, Todd    |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 10:38 |
| Lab Sample ID:    | 1GI1335-09 |                  |                  |

| Determination of Inorganic Anions | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-----------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 9056

|         |     |     |      |   |  |               |               |     |
|---------|-----|-----|------|---|--|---------------|---------------|-----|
| Sulfate | 212 | 5.0 | mg/L | 5 |  | 09/25/23 0000 | 09/25/23 2024 | MID |
|---------|-----|-----|------|---|--|---------------|---------------|-----|

| Determination of Total Metals | Result | RL | Units | DF | Note | Prepared | Analyzed | Analyst |
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|
|-------------------------------|--------|----|-------|----|------|----------|----------|---------|

#### EPA 3005A/EPA 6020A

|                |        |        |      |   |  |               |               |     |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|
| Arsenic, total | 0.0172 | 0.0040 | mg/L | 4 |  | 09/26/23 0902 | 09/27/23 2140 | RVV |
|----------------|--------|--------|------|---|--|---------------|---------------|-----|

#### EPA 3010A/EPA 6010B

|              |        |       |      |   |  |               |               |     |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|
| Boron, total | <0.100 | 0.100 | mg/L | 1 |  | 09/26/23 1613 | 09/27/23 2047 | JAR |
|--------------|--------|-------|------|---|--|---------------|---------------|-----|

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

|                          |                 |                         |               |
|--------------------------|-----------------|-------------------------|---------------|
| <b>Client Sample ID:</b> | Field Duplicate | <b>Collected By:</b>    | Whipple, Todd |
| <b>Sample Matrix:</b>    | Water           | <b>Collection Date:</b> | 09/13/2023    |
| <b>Lab Sample ID:</b>    | 1GI1335-10      |                         |               |

| Determination of Inorganic Anions | Result  | RL     | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|-----------------------------------|---------|--------|-------|----|------|---------------|---------------|---------|
| <b>EPA 9056</b>                   |         |        |       |    |      |               |               |         |
| Sulfate                           | 420     | 5.0    | mg/L  | 5  |      | 09/25/23 0000 | 09/25/23 2249 | MID     |
| Determination of Total Metals     | Result  | RL     | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 3005A/EPA 6020A</b>        |         |        |       |    |      |               |               |         |
| Arsenic, total                    | <0.0040 | 0.0040 | mg/L  | 4  |      | 09/26/23 0902 | 09/27/23 2146 | RVV     |
| <b>EPA 3010A/EPA 6010B</b>        |         |        |       |    |      |               |               |         |
| Boron, total                      | 0.389   | 0.100  | mg/L  | 1  |      | 09/26/23 1613 | 09/27/23 2053 | JAR     |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

#### Batch Log Summary

| Method    | Batch   | Laboratory ID | Client / Source ID |
|-----------|---------|---------------|--------------------|
| EPA 6020A | 1GI1345 | 1GI1345-BLK1  |                    |
|           |         | 1GI1345-BS1   |                    |
|           |         | 1GI1335-01    | MW-28 (b)          |
|           |         | 1GI1345-MS1   | 1GI1335-01         |
|           |         | 1GI1345-MSD1  | 1GI1335-01         |
|           |         | 1GI1345-PS1   | 1GI1335-01         |
|           |         | 1GI1335-02    | MW-8 (b)           |
|           |         | 1GI1335-03    | MW-25              |
|           |         | 1GI1335-04    | MW-34              |
|           |         | 1GI1335-05    | MW-35              |
|           |         | 1GI1335-06    | MW-39              |
|           |         | 1GI1335-07    | MW-40              |
|           |         | 1GI1335-08    | MW-33              |
|           |         | 1GI1335-09    | SW-3               |
|           |         | 1GI1335-10    | Field Duplicate    |
| Method    | Batch   | Laboratory ID | Client / Source ID |
| EPA 9056  | 1GI1399 | 1GI1399-BLK1  |                    |
|           |         | 1GI1399-MRL1  |                    |
|           |         | 1GI1399-BS1   |                    |
|           |         | 1GI1399-BSD1  |                    |
|           |         | 1GI1399-MS1   | 1GI1828-02         |
|           |         | 1GI1399-MSD1  | 1GI1828-02         |
|           |         | 1GI1399-BLK2  |                    |
|           |         | 1GI1399-BS2   |                    |
|           |         | 1GI1399-BSD2  |                    |
|           |         | 1GI1399-MS2   | 1GI1620-03         |
|           |         | 1GI1399-MSD2  | 1GI1620-03         |
|           |         | 1GI1335-01    | MW-28 (b)          |
|           |         | 1GI1335-02    | MW-8 (b)           |
|           |         | 1GI1335-03    | MW-25              |
|           |         | 1GI1335-04    | MW-34              |
|           |         | 1GI1335-05    | MW-35              |
|           |         | 1GI1335-06    | MW-39              |
|           |         | 1GI1335-07    | MW-40              |
|           |         | 1GI1335-08    | MW-33              |
|           |         | 1GI1335-09    | SW-3               |
|           |         | 1GI1399-BLK3  |                    |
|           |         | 1GI1335-10    | Field Duplicate    |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

| Method    | Batch   | Laboratory ID | Client / Source ID |
|-----------|---------|---------------|--------------------|
| EPA 6010B | 1GI1429 | 1GI1429-BLK1  |                    |
|           |         | 1GI1429-BS1   |                    |
|           |         | 1GI1335-01    | MW-28 (b)          |
|           |         | 1GI1335-02    | MW-8 (b)           |
|           |         | 1GI1335-03    | MW-25              |
|           |         | 1GI1429-MS1   | 1GI1335-03         |
|           |         | 1GI1429-MSD1  | 1GI1335-03         |
|           |         | 1GI1429-PS1   | 1GI1335-03         |
|           |         | 1GI1335-04    | MW-34              |
|           |         | 1GI1335-05    | MW-35              |
|           |         | 1GI1335-06    | MW-39              |
|           |         | 1GI1335-07    | MW-40              |
|           |         | 1GI1335-08    | MW-33              |
|           |         | 1GI1335-09    | SW-3               |
|           |         | 1GI1335-10    | Field Duplicate    |

#### Batch Quality Control Summary: Keystone Laboratories - Newton

| Determination of Inorganic Anions               | Result | RL   | Units | Spike Level                                                          | Source Result | %REC | %REC Limits | RPD    | RPD Limit | Notes |
|-------------------------------------------------|--------|------|-------|----------------------------------------------------------------------|---------------|------|-------------|--------|-----------|-------|
| Batch 1GI1399 - General Prep HPLC/IC - EPA 9056 |        |      |       |                                                                      |               |      |             |        |           |       |
| Blank (1GI1399-BLK1)                            |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 10:22                    |               |      |             |        |           |       |
| Sulfate                                         | <1.0   | 1.0  | mg/L  |                                                                      |               |      |             |        |           |       |
| Blank (1GI1399-BLK2)                            |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 15:13                    |               |      |             |        |           |       |
| Sulfate                                         | <1.0   | 1.0  | mg/L  |                                                                      |               |      |             |        |           |       |
| Blank (1GI1399-BLK3)                            |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 20:42                    |               |      |             |        |           |       |
| Sulfate                                         | <1.0   | 1.0  | mg/L  |                                                                      |               |      |             |        |           |       |
| LCS (1GI1399-BS1)                               |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 10:58                    |               |      |             |        |           |       |
| Sulfate                                         | 33.81  | 1.0  | mg/L  | 34.0                                                                 |               | 99.5 | 80-120      |        |           |       |
| LCS (1GI1399-BS2)                               |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 16:46                    |               |      |             |        |           |       |
| Sulfate                                         | 34.12  | 1.0  | mg/L  | 34.0                                                                 |               | 100  | 80-120      |        |           |       |
| LCS Dup (1GI1399-BSD1)                          |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 11:17                    |               |      |             |        |           |       |
| Sulfate                                         | 33.75  | 1.0  | mg/L  | 34.0                                                                 |               | 99.4 | 80-120      | 0.163  | 10        |       |
| LCS Dup (1GI1399-BSD2)                          |        |      |       | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 17:04                    |               |      |             |        |           |       |
| Sulfate                                         | 34.09  | 1.0  | mg/L  | 34.0                                                                 |               | 100  | 80-120      | 0.0704 | 10        |       |
| Matrix Spike (1GI1399-MS1)                      |        |      |       | Source: 1GI1828-02 Prepared: 09/25/23 00:00 Analyzed: 09/25/23 11:53 |               |      |             |        |           |       |
| Sulfate                                         | 371.4  | 10.0 | mg/L  | 340                                                                  | 46.52         | 95.6 | 87-113      |        |           |       |
| Matrix Spike (1GI1399-MS2)                      |        |      |       | Source: 1GI1620-03 Prepared: 09/25/23 00:00 Analyzed: 09/25/23 17:22 |               |      |             |        |           |       |
| Sulfate                                         | 424.3  | 10.0 | mg/L  | 340                                                                  | 43.94         | 112  | 87-113      |        |           |       |
| Matrix Spike Dup (1GI1399-MSD1)                 |        |      |       | Source: 1GI1828-02 Prepared: 09/25/23 00:00 Analyzed: 09/25/23 12:11 |               |      |             |        |           |       |
| Sulfate                                         | 372.6  | 10.0 | mg/L  | 340                                                                  | 46.52         | 96.0 | 87-113      | 0.317  | 10        |       |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1335

| Determination of Inorganic Anions                      | Result | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--------------------------------------------------------|--------|----|-------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 1GI1399 - General Prep HPLC/IC - EPA 9056</b> |        |    |       |             |               |      |             |     |           |       |

|                                        |                           |      |                                                   |     |       |     |        |      |    |  |
|----------------------------------------|---------------------------|------|---------------------------------------------------|-----|-------|-----|--------|------|----|--|
| <b>Matrix Spike Dup (1GI1399-MSD2)</b> | <b>Source: 1GI1620-03</b> |      | Prepared: 09/25/23 00:00 Analyzed: 09/25/23 17:40 |     |       |     |        |      |    |  |
| Sulfate                                | 398.6                     | 10.0 | mg/L                                              | 340 | 43.94 | 104 | 87-113 | 6.24 | 10 |  |

| Determination of Total Metals                                         | Result | RL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|-----------------------------------------------------------------------|--------|----|-------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 1GI1345 - EPA 3005A Total Recoverable Metals - EPA 6020A</b> |        |    |       |             |               |      |             |     |           |       |

|                             |                                                   |  |  |  |  |  |  |  |  |  |
|-----------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>Blank (1GI1345-BLK1)</b> | Prepared: 09/26/23 09:02 Analyzed: 09/27/23 19:57 |  |  |  |  |  |  |  |  |  |
|-----------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|

|                |         |        |      |  |  |  |  |  |  |  |
|----------------|---------|--------|------|--|--|--|--|--|--|--|
| Arsenic, total | <0.0040 | 0.0040 | mg/L |  |  |  |  |  |  |  |
|----------------|---------|--------|------|--|--|--|--|--|--|--|

|                          |                                                   |  |  |  |  |  |  |  |  |  |
|--------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>LCS (1GI1345-BS1)</b> | Prepared: 09/26/23 09:02 Analyzed: 09/27/23 20:03 |  |  |  |  |  |  |  |  |  |
|--------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|

|                |        |        |      |       |  |      |        |  |  |  |
|----------------|--------|--------|------|-------|--|------|--------|--|--|--|
| Arsenic, total | 0.0964 | 0.0040 | mg/L | 0.100 |  | 96.4 | 80-120 |  |  |  |
|----------------|--------|--------|------|-------|--|------|--------|--|--|--|

|                                   |                           |  |                                                   |  |  |  |  |  |  |  |
|-----------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Matrix Spike (1GI1345-MS1)</b> | <b>Source: 1GI1335-01</b> |  | Prepared: 09/26/23 09:02 Analyzed: 09/27/23 20:27 |  |  |  |  |  |  |  |
|-----------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|                |        |        |      |       |        |      |        |  |  |  |
|----------------|--------|--------|------|-------|--------|------|--------|--|--|--|
| Arsenic, total | 0.0997 | 0.0040 | mg/L | 0.100 | 0.0012 | 98.6 | 75-125 |  |  |  |
|----------------|--------|--------|------|-------|--------|------|--------|--|--|--|

|                                        |                           |  |                                                   |  |  |  |  |  |  |  |
|----------------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Matrix Spike Dup (1GI1345-MSD1)</b> | <b>Source: 1GI1335-01</b> |  | Prepared: 09/26/23 09:02 Analyzed: 09/27/23 20:33 |  |  |  |  |  |  |  |
|----------------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|                |        |        |      |       |        |      |        |      |    |  |
|----------------|--------|--------|------|-------|--------|------|--------|------|----|--|
| Arsenic, total | 0.0979 | 0.0040 | mg/L | 0.100 | 0.0012 | 96.7 | 75-125 | 1.92 | 20 |  |
|----------------|--------|--------|------|-------|--------|------|--------|------|----|--|

|                                 |                           |  |                                                   |  |  |  |  |  |  |  |
|---------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Post Spike (1GI1345-PS1)</b> | <b>Source: 1GI1335-01</b> |  | Prepared: 09/26/23 09:02 Analyzed: 09/27/23 20:39 |  |  |  |  |  |  |  |
|---------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|                |        |  |      |        |        |     |        |  |  |  |
|----------------|--------|--|------|--------|--------|-----|--------|--|--|--|
| Arsenic, total | 0.0894 |  | mg/L | 0.0800 | 0.0012 | 110 | 80-120 |  |  |  |
|----------------|--------|--|------|--------|--------|-----|--------|--|--|--|

### Batch 1GI1429 - EPA 3010A Digestion (Water) - EPA 6010B

|                             |                                                   |  |  |  |  |  |  |  |  |  |
|-----------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>Blank (1GI1429-BLK1)</b> | Prepared: 09/26/23 16:13 Analyzed: 09/27/23 19:02 |  |  |  |  |  |  |  |  |  |
|-----------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|

|              |        |       |      |  |  |  |  |  |  |  |
|--------------|--------|-------|------|--|--|--|--|--|--|--|
| Boron, total | <0.100 | 0.100 | mg/L |  |  |  |  |  |  |  |
|--------------|--------|-------|------|--|--|--|--|--|--|--|

|                          |                                                   |  |  |  |  |  |  |  |  |  |
|--------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>LCS (1GI1429-BS1)</b> | Prepared: 09/26/23 16:13 Analyzed: 09/27/23 19:20 |  |  |  |  |  |  |  |  |  |
|--------------------------|---------------------------------------------------|--|--|--|--|--|--|--|--|--|

|              |       |       |      |       |  |     |        |  |  |  |
|--------------|-------|-------|------|-------|--|-----|--------|--|--|--|
| Boron, total | 0.211 | 0.100 | mg/L | 0.200 |  | 106 | 80-120 |  |  |  |
|--------------|-------|-------|------|-------|--|-----|--------|--|--|--|

|                                   |                           |  |                                                   |  |  |  |  |  |  |  |
|-----------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Matrix Spike (1GI1429-MS1)</b> | <b>Source: 1GI1335-03</b> |  | Prepared: 09/26/23 16:13 Analyzed: 09/27/23 19:43 |  |  |  |  |  |  |  |
|-----------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|              |      |       |      |       |       |     |        |  |  |       |
|--------------|------|-------|------|-------|-------|-----|--------|--|--|-------|
| Boron, total | 1.17 | 0.100 | mg/L | 0.200 | 0.859 | 156 | 75-125 |  |  | QM-4X |
|--------------|------|-------|------|-------|-------|-----|--------|--|--|-------|

|                                        |                           |  |                                                   |  |  |  |  |  |  |  |
|----------------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Matrix Spike Dup (1GI1429-MSD1)</b> | <b>Source: 1GI1335-03</b> |  | Prepared: 09/26/23 16:13 Analyzed: 09/27/23 19:49 |  |  |  |  |  |  |  |
|----------------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|              |      |       |      |       |       |     |        |      |    |       |
|--------------|------|-------|------|-------|-------|-----|--------|------|----|-------|
| Boron, total | 1.19 | 0.100 | mg/L | 0.200 | 0.859 | 166 | 75-125 | 1.65 | 20 | QM-4X |
|--------------|------|-------|------|-------|-------|-----|--------|------|----|-------|

|                                 |                           |  |                                                   |  |  |  |  |  |  |  |
|---------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|
| <b>Post Spike (1GI1429-PS1)</b> | <b>Source: 1GI1335-03</b> |  | Prepared: 09/26/23 16:13 Analyzed: 09/27/23 19:55 |  |  |  |  |  |  |  |
|---------------------------------|---------------------------|--|---------------------------------------------------|--|--|--|--|--|--|--|

|              |      |  |      |       |       |     |        |  |  |  |
|--------------|------|--|------|-------|-------|-----|--------|--|--|--|
| Boron, total | 1.80 |  | mg/L | 0.800 | 0.859 | 117 | 80-120 |  |  |  |
|--------------|------|--|------|-------|-------|-----|--------|--|--|--|

#### Definitions

|               |                                                                                                                                                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>QM-4X:</b> | The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. |
| <b>RL:</b>    | Reporting Limit                                                                                                                                          |
| <b>RPD:</b>   | Relative Percent Difference                                                                                                                              |

#### Cooler Receipt Log

|                   |                |              |       |
|-------------------|----------------|--------------|-------|
| <b>Cooler ID:</b> | Default Cooler | <b>Temp:</b> | 0.0°C |
|-------------------|----------------|--------------|-------|

# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1335

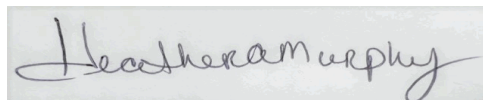
### Cooler Inspection Checklist

|                  |     |                        |     |
|------------------|-----|------------------------|-----|
| Custody Seals    | No  | Containers Intact      | Yes |
| COC/Labels Agree | Yes | Preservation Confirmed | No  |
| Received On Ice  | Yes |                        |     |

### Report Comments

*The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.*

### Reviewed and Approved By:



Heather Murphy  
Customer Relationship Specialist  
heather.murphy@microbac.com  
09/29/23 16:51



1 G I 1 3 3 5  
HLW Engineering  
PM: Sue Thompson

**SITE INFORMATION**

Sampler:

Todd Whipple

Project:

Ames-Story Landfill-COC2

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard

☐ RUSH, need by      /      /     

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

**REPORT TO**

Mr. William Fedeler  
Ames/Story Environmental Landfill  
2111 Leopold Dr  
Ames, IA 50010

**LAB USE ONLY**

Work Order

GI 1335

Temperature

0.0

Turn-Cooler:

No

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses                            | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|-------------------------------------|-------------------|
| 01-001 | MW-28 (b)                         | Water  | GRAB        | 9/13/23 | 7:45  | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 01                |
| 02-001 | MW-8 (b)                          | Water  | GRAB        | 9/13/23 | 7:12  | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 02                |
| 03-001 | MW-25                             | Water  | GRAB        | 9/13/23 | 9:47  | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 03                |
| 04-001 | MW-24                             | Water  | GRAB        | 9/13/23 | 11:19 | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 04                |
| 05-001 | MW-35                             | Water  | GRAB        | 9/13/23 | 10:53 | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 05                |
| 06-001 | MW-39                             | Water  | GRAB        | 9/13/23 | 8:49  | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 06                |
| 07-001 | MW-40                             | Water  | GRAB        | 9/13/23 | 8:22  | 2                    | as-t-6020<br>sod-9056-w<br>b-t-6010 | 07                |

Relinquished By [Signature] Date/Time 9/15/23

Relinquished By

Date/Time

Received for Lab By

Date/Time

Remarks:

Received By

Date/Time

Original - Lab Copy Yellow - Sampler Copy



1 G I 1 3 3 5  
HLW Engineering  
PM: Sue Thompson

**SITE INFORMATION**

Sampler: \_\_\_\_\_

Project: Ames-Story Landfill-COC2  
6004

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard ☐ RUSH, need by \_\_\_\_/\_\_\_\_/\_\_\_\_

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

**LAB USE ONLY**

Work Order 16I1335

Temperature 0.0

Turn-Cooler: No

**INVOICE TO**

Mr. William Federer  
Ames/Story Environmental Landfill  
2111 Leopold Dr  
Ames, IA 50010

☐ Custody Seal  
☒ Containers Intact  
☒ COC/Labels Agree  
☒ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses                | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|-------------------------|-------------------|
| 08-001 | MW-33                             | Water  | GRAB        | 9/13/23 | 10:02 | 2                    | as-t-6020<br>s04-9056-w | 08                |
| 09-001 | SW-3                              | Water  | GRAB        | 9/13/23 | 10:38 | 2                    | as-t-6020<br>s04-9056-w | 09                |
| 10-001 | Field Duplicate                   | Water  | GRAB        | 9/13/23 | ✓     | 2                    | as-t-6020<br>s04-9056-w | 10                |

Relinquished By: [Signature] Date/Time: 9/15/23

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received for Lab By: [Signature] Date/Time: 9/15/23 10:10

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Original - Lab Copy Yellow - Sampler Copy

Remarks:





Keystone Laboratories - Newton

CERTIFICATE OF ANALYSIS

1GI1338

Project Description

Ames-Story Landfill-Spring COC1

For:

Todd Whipple

**HLW Engineering**

PO Box 314

Story City, IA 50248

A handwritten signature in black ink that reads "Heather Murphy". The signature is written in a cursive style with a horizontal line extending from the end.

---

Heather Murphy

Customer Relationship Specialist

Friday, September 29, 2023

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Keystone Laboratories - Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

Microbac Laboratories, Inc.

600 East 17th Street South | Newton, IA 50208 | 641-792-8451 p | [www.microbac.com](http://www.microbac.com)



# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1338

### HLW Engineering

Todd Whipple  
PO Box 314  
Story City, IA 50248

### Project Name: Ames-Story Landfill-Spring COC1

Project / PO Number: / 6004  
Received: 09/15/2023  
Reported: 09/29/2023

### Sample Summary Report

| <u>Sample Name</u> | <u>Laboratory ID</u> | <u>Client Matrix</u> | <u>Sample Type</u> | <u>Sample Begin</u> | <u>Sample Taken</u> | <u>Lab Received</u> |
|--------------------|----------------------|----------------------|--------------------|---------------------|---------------------|---------------------|
| MW-28 (b)          | 1GI1338-01           | Water                | GRAB               |                     | 09/13/23 07:52      | 09/15/23 10:10      |
| MW-8 (b)           | 1GI1338-02           | Water                | GRAB               |                     | 09/13/23 07:21      | 09/15/23 10:10      |
| MW-25              | 1GI1338-03           | Water                | GRAB               |                     | 09/13/23 09:52      | 09/15/23 10:10      |
| MW-34              | 1GI1338-04           | Water                | GRAB               |                     | 09/13/23 11:24      | 09/15/23 10:10      |
| MW-35              | 1GI1338-05           | Water                | GRAB               |                     | 09/13/23 11:01      | 09/15/23 10:10      |
| MW-39              | 1GI1338-06           | Water                | GRAB               |                     | 09/13/23 08:53      | 09/15/23 10:10      |
| MW-40              | 1GI1338-07           | Water                | GRAB               |                     | 09/13/23 08:28      | 09/15/23 10:10      |
| MW-33              | 1GI1338-08           | Water                | GRAB               |                     | 09/13/23 10:06      | 09/15/23 10:10      |
| SW-3               | 1GI1338-09           | Water                | GRAB               |                     | 09/13/23 10:38      | 09/15/23 10:10      |

# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1338

### Analytical Testing Parameters

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-28 (b)  | Collected By:    | Unknown         |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 7:52 |
| Lab Sample ID:    | 1GI1338-01 |                  |                 |

### Determination of Conventional Chemistry Parameters

|                   | Result | RL   | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|-------------------|--------|------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>  |        |      |       |    |      |               |               |         |
| COD, total        | <20    | 20   | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b> |        |      |       |    |      |               |               |         |
| Nitrogen, Ammonia | <1.00  | 1.00 | mg/L  | 1  |      | 09/22/23 0824 | 09/22/23 1123 | JAH     |

### Determination of Inorganic Anions

|                 | Result | RL  | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|-----------------|--------|-----|-------|----|------|---------------|---------------|---------|
| <b>EPA 9056</b> |        |     |       |    |      |               |               |         |
| Chloride        | 133    | 5.0 | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1446 | MID     |

### Determination of Dissolved Metals

|                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 6010B</b> |        |       |       |    |      |               |               |         |
| Iron, dissolved  | <0.100 | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2116 | JAR     |

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-8 (b)   | Collected By:    | Unknown         |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 7:21 |
| Lab Sample ID:    | 1GI1338-02 |                  |                 |

### Determination of Conventional Chemistry Parameters

|                   | Result | RL   | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|-------------------|--------|------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>  |        |      |       |    |      |               |               |         |
| COD, total        | 29     | 20   | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b> |        |      |       |    |      |               |               |         |
| Nitrogen, Ammonia | <1.00  | 1.00 | mg/L  | 1  |      | 09/22/23 0824 | 09/22/23 1209 | JAH     |

### Determination of Inorganic Anions

|                 | Result | RL  | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|-----------------|--------|-----|-------|----|------|---------------|---------------|---------|
| <b>EPA 9056</b> |        |     |       |    |      |               |               |         |
| Chloride        | 18.6   | 5.0 | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1504 | MID     |

### Determination of Dissolved Metals

|                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 6010B</b> |        |       |       |    |      |               |               |         |
| Iron, dissolved  | 1.60   | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2134 | JAR     |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-25      | Collected By:    | Unknown         |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 9:52 |
| Lab Sample ID:    | 1GI1338-03 |                  |                 |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | <1.00  | 1.00  | mg/L  | 1  |      | 09/22/23 0824 | 09/22/23 1129 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 32.3   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1523 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | 1.13   | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2140 | JAR     |

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-34      | Collected By:    | Unknown          |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 11:24 |
| Lab Sample ID:    | 1GI1338-04 |                  |                  |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | 1.42   | 1.00  | mg/L  | 1  |      | 09/22/23 0824 | 09/22/23 1130 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 16.6   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1730 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | 12.3   | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2146 | JAR     |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-35      | Collected By:    | Unknown          |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 11:01 |
| Lab Sample ID:    | 1GI1338-05 |                  |                  |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | 25     | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | <1.00  | 1.00  | mg/L  | 1  |      | 09/22/23 0824 | 09/22/23 1132 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 113    | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1748 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | <0.100 | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2205 | JAR     |

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-39      | Collected By:    | Unknown         |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 8:53 |
| Lab Sample ID:    | 1GI1338-06 |                  |                 |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | <1.00  | 1.00  | mg/L  | 1  |      | 09/22/23 1105 | 09/22/23 1422 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 12.5   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1806 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | 0.438  | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2211 | JAR     |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

|                   |            |                  |                 |
|-------------------|------------|------------------|-----------------|
| Client Sample ID: | MW-40      | Collected By:    | Unknown         |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 8:28 |
| Lab Sample ID:    | 1GI1338-07 |                  |                 |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | <1.00  | 1.00  | mg/L  | 1  |      | 09/22/23 1105 | 09/22/23 1423 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 26.1   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1824 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | <0.100 | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2220 | JAR     |

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | MW-33      | Collected By:    | Unknown          |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 10:06 |
| Lab Sample ID:    | 1GI1338-08 |                  |                  |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | 1.76   | 1.00  | mg/L  | 1  |      | 09/22/23 1105 | 09/22/23 1424 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 36.4   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1842 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | 9.81   | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2226 | JAR     |

# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1338

|                   |            |                  |                  |
|-------------------|------------|------------------|------------------|
| Client Sample ID: | SW-3       | Collected By:    | Unknown          |
| Sample Matrix:    | Water      | Collection Date: | 09/13/2023 10:38 |
| Lab Sample ID:    | 1GI1338-09 |                  |                  |

| Determination of Conventional Chemistry Parameters | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
|----------------------------------------------------|--------|-------|-------|----|------|---------------|---------------|---------|
| <b>EPA 410.4</b>                                   |        |       |       |    |      |               |               |         |
| COD, total                                         | <20    | 20    | mg/L  | 1  |      | 09/18/23 1133 | 09/19/23 0922 | JLW     |
| <b>TIMBERLINE</b>                                  |        |       |       |    |      |               |               |         |
| Nitrogen, Ammonia                                  | <1.00  | 1.00  | mg/L  | 1  |      | 09/22/23 1105 | 09/22/23 1426 | JAH     |
| Determination of Inorganic Anions                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 9056</b>                                    |        |       |       |    |      |               |               |         |
| Chloride                                           | 62.0   | 5.0   | mg/L  | 5  |      | 09/27/23 0000 | 09/27/23 1900 | MID     |
| Determination of Dissolved Metals                  | Result | RL    | Units | DF | Note | Prepared      | Analyzed      | Analyst |
| <b>EPA 6010B</b>                                   |        |       |       |    |      |               |               |         |
| Iron, dissolved                                    | 1.63   | 0.100 | mg/L  | 1  |      | 09/20/23 1008 | 09/20/23 2232 | JAR     |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

#### Batch Log Summary

| Method     | Batch   | Laboratory ID | Client / Source ID |
|------------|---------|---------------|--------------------|
| EPA 410.4  | 1GI0887 | 1GI1338-01    | MW-28 (b)          |
|            |         | 1GI0887-BLK1  |                    |
|            |         | 1GI0887-BS1   |                    |
|            |         | 1GI0887-MS1   | 1GI1235-01         |
|            |         | 1GI1338-03    | MW-25              |
|            |         | 1GI1338-08    | MW-33              |
|            |         | 1GI1338-04    | MW-34              |
|            |         | 1GI1338-05    | MW-35              |
|            |         | 1GI1338-06    | MW-39              |
|            |         | 1GI1338-07    | MW-40              |
|            |         | 1GI1338-02    | MW-8 (b)           |
|            |         | 1GI1338-09    | SW-3               |
|            |         | 1GI0887-MSD1  | 1GI1235-01         |
|            |         |               |                    |
| Method     | Batch   | Laboratory ID | Client / Source ID |
| EPA 6010B  | 1GI1044 | 1GI1044-BLK1  |                    |
|            |         | 1GI1044-BS1   |                    |
|            |         | 1GI1338-01    | MW-28 (b)          |
|            |         | 1GI1044-MS1   | 1GI1338-01         |
|            |         | 1GI1044-MSD1  | 1GI1338-01         |
|            |         | 1GI1338-02    | MW-8 (b)           |
|            |         | 1GI1338-03    | MW-25              |
|            |         | 1GI1338-04    | MW-34              |
|            |         | 1GI1338-05    | MW-35              |
|            |         | 1GI1338-06    | MW-39              |
|            |         | 1GI1338-07    | MW-40              |
|            |         | 1GI1338-08    | MW-33              |
|            |         | 1GI1338-09    | SW-3               |
|            |         |               |                    |
| Method     | Batch   | Laboratory ID | Client / Source ID |
| TIMBERLINE | 1GI1205 | 1GI1205-BLK1  |                    |
|            |         | 1GI1205-BS1   |                    |
|            |         | 1GI1205-MS1   | 1GI1239-03         |
|            |         | 1GI1205-MSD1  | 1GI1239-03         |
|            |         | 1GI1205-BLK2  |                    |
|            |         | 1GI1205-BS2   |                    |
|            |         | 1GI1205-MS2   | 1GI1250-02         |
|            |         | 1GI1205-MSD2  | 1GI1250-02         |
|            |         | 1GI1338-01    | MW-28 (b)          |
|            |         | 1GI1338-03    | MW-25              |
|            |         |               |                    |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

TIMBERLINE

1GI1205

1GI1338-04

MW-34

1GI1338-05

MW-35

1GI1338-02

MW-8 (b)

**Method**

**Batch**

**Laboratory ID**

**Client / Source ID**

TIMBERLINE

1GI1229

1GI1229-BLK1

1GI1229-BS1

1GI1229-MS1

1GI1316-02

1GI1229-MSD1

1GI1316-02

1GI1338-06

MW-39

1GI1338-07

MW-40

1GI1338-08

MW-33

1GI1338-09

SW-3

1GI1229-BLK2

1GI1229-BS2

1GI1229-MS2

1GI1317-02

1GI1229-MSD2

1GI1317-02

**Method**

**Batch**

**Laboratory ID**

**Client / Source ID**

EPA 9056

1GI1573

1GI1573-BLK1

1GI1573-MRL1

1GI1573-BS1

1GI1573-BSD1

1GI1573-MS1

1GI1305-01

1GI1573-MSD1

1GI1305-01

1GI1338-01

MW-28 (b)

1GI1338-02

MW-8 (b)

1GI1338-03

MW-25

1GI1573-BLK2

1GI1338-04

MW-34

1GI1338-05

MW-35

1GI1338-06

MW-39

1GI1338-07

MW-40

1GI1338-08

MW-33

1GI1338-09

SW-3

#### Batch Quality Control Summary: Keystone Laboratories - Newton

| Determination of<br>Conventional Chemistry<br>Parameters | Result | RL | Units | Spike<br>Level | Source<br>Result | %REC | %REC<br>Limits | RPD | RPD<br>Limit | Notes |
|----------------------------------------------------------|--------|----|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|----------------------------------------------------------|--------|----|-------|----------------|------------------|------|----------------|-----|--------------|-------|

#### Batch 1GI0887 - Wet Chem Preparation - EPA 410.4

Blank (1GI0887-BLK1)

Prepared: 09/18/23 11:33 Analyzed: 09/19/23 09:22

|            |     |    |      |
|------------|-----|----|------|
| COD, total | <20 | 20 | mg/L |
|------------|-----|----|------|

Keystone Laboratories - Newton

600 East 17th Street South | Newton, IA 50208 | 641-792-8451 p | www.microbac.com

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

| Determination of<br>Conventional Chemistry<br>Parameters | Result                                                               | RL   | Units | Spike<br>Level | Source<br>Result | %REC<br>Limits | RPD  | RPD<br>Limit | Notes |
|----------------------------------------------------------|----------------------------------------------------------------------|------|-------|----------------|------------------|----------------|------|--------------|-------|
| <b>Batch 1GI0887 - Wet Chem Preparation - EPA 410.4</b>  |                                                                      |      |       |                |                  |                |      |              |       |
| <b>LCS (1GI0887-BS1)</b>                                 | Prepared: 09/18/23 11:33 Analyzed: 09/19/23 09:22                    |      |       |                |                  |                |      |              |       |
| COD, total                                               | 100                                                                  | 27   | mg/L  | 97.3           |                  | 103 90-110     |      |              |       |
| <b>Matrix Spike (1GI0887-MS1)</b>                        | Source: 1GI1235-01 Prepared: 09/18/23 11:33 Analyzed: 09/19/23 09:22 |      |       |                |                  |                |      |              |       |
| COD, total                                               | 110                                                                  | 27   | mg/L  | 97.3           | ND               | 113 90-110     |      |              | QM-07 |
| <b>Matrix Spike Dup (1GI0887-MSD1)</b>                   | Source: 1GI1235-01 Prepared: 09/18/23 11:33 Analyzed: 09/19/23 09:22 |      |       |                |                  |                |      |              |       |
| COD, total                                               | 112                                                                  | 27   | mg/L  | 97.3           | ND               | 115 90-110     | 1.58 | 10           | QM-07 |
| <b>Batch 1GI1205 - General Prep HPLC/IC - TIMBERLINE</b> |                                                                      |      |       |                |                  |                |      |              |       |
| <b>Blank (1GI1205-BLK1)</b>                              | Prepared: 09/22/23 08:24 Analyzed: 09/22/23 10:25                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | <1.00                                                                | 1.00 | mg/L  |                |                  |                |      |              |       |
| <b>Blank (1GI1205-BLK2)</b>                              | Prepared: 09/22/23 08:24 Analyzed: 09/22/23 11:05                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | <1.00                                                                | 1.00 | mg/L  |                |                  |                |      |              |       |
| <b>LCS (1GI1205-BS1)</b>                                 | Prepared: 09/22/23 08:24 Analyzed: 09/22/23 10:26                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 4.77                                                                 | 1.00 | mg/L  | 5.00           |                  | 95.3 90-114    |      |              |       |
| <b>LCS (1GI1205-BS2)</b>                                 | Prepared: 09/22/23 08:24 Analyzed: 09/22/23 11:06                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 4.79                                                                 | 1.00 | mg/L  | 5.00           |                  | 95.8 90-114    |      |              |       |
| <b>Matrix Spike (1GI1205-MS1)</b>                        | Source: 1GI1239-03 Prepared: 09/22/23 08:24 Analyzed: 09/22/23 10:28 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 11.0                                                                 | 1.00 | mg/L  | 5.00           | 6.67             | 86.8 84-115    |      |              |       |
| <b>Matrix Spike (1GI1205-MS2)</b>                        | Source: 1GI1250-02 Prepared: 09/22/23 08:24 Analyzed: 09/22/23 11:08 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 5.15                                                                 | 1.00 | mg/L  | 5.00           | 0.0896           | 101 84-115     |      |              |       |
| <b>Matrix Spike Dup (1GI1205-MSD1)</b>                   | Source: 1GI1239-03 Prepared: 09/22/23 08:24 Analyzed: 09/22/23 10:29 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 11.1                                                                 | 1.00 | mg/L  | 5.00           | 6.67             | 89.4 84-115    | 1.17 | 20           |       |
| <b>Matrix Spike Dup (1GI1205-MSD2)</b>                   | Source: 1GI1250-02 Prepared: 09/22/23 08:24 Analyzed: 09/22/23 11:09 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 5.26                                                                 | 1.00 | mg/L  | 5.00           | 0.0896           | 103 84-115     | 2.01 | 20           |       |
| <b>Batch 1GI1229 - General Prep HPLC/IC - TIMBERLINE</b> |                                                                      |      |       |                |                  |                |      |              |       |
| <b>Blank (1GI1229-BLK1)</b>                              | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:10                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | <1.00                                                                | 1.00 | mg/L  |                |                  |                |      |              |       |
| <b>Blank (1GI1229-BLK2)</b>                              | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:50                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | <1.00                                                                | 1.00 | mg/L  |                |                  |                |      |              |       |
| <b>LCS (1GI1229-BS1)</b>                                 | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:12                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 4.81                                                                 | 1.00 | mg/L  | 5.00           |                  | 96.2 90-114    |      |              |       |
| <b>LCS (1GI1229-BS2)</b>                                 | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:51                    |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 4.79                                                                 | 1.00 | mg/L  | 5.00           |                  | 95.8 90-114    |      |              |       |
| <b>Matrix Spike (1GI1229-MS1)</b>                        | Source: 1GI1316-02 Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:13 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 5.10                                                                 | 1.00 | mg/L  | 5.00           | 0.228            | 97.5 84-115    |      |              |       |
| <b>Matrix Spike (1GI1229-MS2)</b>                        | Source: 1GI1317-02 Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:53 |      |       |                |                  |                |      |              |       |
| Nitrogen, Ammonia                                        | 5.29                                                                 | 1.00 | mg/L  | 5.00           | 0.260            | 101 84-115     |      |              |       |

## Keystone Laboratories - Newton

### CERTIFICATE OF ANALYSIS

1GI1338

| Determination of<br>Conventional Chemistry<br>Parameters | Result                                            | RL    | Units | Spike<br>Level                                    | Source<br>Result | %REC | %REC<br>Limits | RPD   | RPD<br>Limit | Notes |
|----------------------------------------------------------|---------------------------------------------------|-------|-------|---------------------------------------------------|------------------|------|----------------|-------|--------------|-------|
| <b>Batch 1GI1229 - General Prep HPLC/IC - TIMBERLINE</b> |                                                   |       |       |                                                   |                  |      |                |       |              |       |
| <b>Matrix Spike Dup (1GI1229-MSD1)</b>                   | <b>Source: 1GI1316-02</b>                         |       |       | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:14 |                  |      |                |       |              |       |
| Nitrogen, Ammonia                                        | 5.29                                              | 1.00  | mg/L  | 5.00                                              | 0.228            | 101  | 84-115         | 3.73  | 20           |       |
| <b>Matrix Spike Dup (1GI1229-MSD2)</b>                   | <b>Source: 1GI1317-02</b>                         |       |       | Prepared: 09/22/23 11:05 Analyzed: 09/22/23 14:54 |                  |      |                |       |              |       |
| Nitrogen, Ammonia                                        | 5.51                                              | 1.00  | mg/L  | 5.00                                              | 0.260            | 105  | 84-115         | 4.03  | 20           |       |
| Determination of Inorganic<br>Anions                     | Result                                            | RL    | Units | Spike<br>Level                                    | Source<br>Result | %REC | %REC<br>Limits | RPD   | RPD<br>Limit | Notes |
| <b>Batch 1GI1573 - General Prep HPLC/IC - EPA 9056</b>   |                                                   |       |       |                                                   |                  |      |                |       |              |       |
| <b>Blank (1GI1573-BLK1)</b>                              | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 10:32 |       |       |                                                   |                  |      |                |       |              |       |
| Chloride                                                 | <1.0                                              | 1.0   | mg/L  |                                                   |                  |      |                |       |              |       |
| <b>Blank (1GI1573-BLK2)</b>                              | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 15:59 |       |       |                                                   |                  |      |                |       |              |       |
| Chloride                                                 | <1.0                                              | 1.0   | mg/L  |                                                   |                  |      |                |       |              |       |
| <b>LCS (1GI1573-BS1)</b>                                 | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 11:08 |       |       |                                                   |                  |      |                |       |              |       |
| Chloride                                                 | 15.04                                             | 1.0   | mg/L  | 15.5                                              |                  | 97.1 | 80-120         |       |              |       |
| <b>LCS Dup (1GI1573-BSD1)</b>                            | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 11:27 |       |       |                                                   |                  |      |                |       |              |       |
| Chloride                                                 | 15.13                                             | 1.0   | mg/L  | 15.5                                              |                  | 97.7 | 80-120         | 0.563 | 10           |       |
| <b>Matrix Spike (1GI1573-MS1)</b>                        | <b>Source: 1GI1305-01</b>                         |       |       | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 13:16 |                  |      |                |       |              |       |
| Chloride                                                 | 376.2                                             | 10.0  | mg/L  | 155                                               | 221.6            | 99.8 | 81-116         |       |              |       |
| <b>Matrix Spike Dup (1GI1573-MSD1)</b>                   | <b>Source: 1GI1305-01</b>                         |       |       | Prepared: 09/27/23 00:00 Analyzed: 09/27/23 13:34 |                  |      |                |       |              |       |
| Chloride                                                 | 376.9                                             | 10.0  | mg/L  | 155                                               | 221.6            | 100  | 81-116         | 0.167 | 10           |       |
| Determination of Dissolved<br>Metals                     | Result                                            | RL    | Units | Spike<br>Level                                    | Source<br>Result | %REC | %REC<br>Limits | RPD   | RPD<br>Limit | Notes |
| <b>Batch 1GI1044 - Dissolved Metal Prep - EPA 6010B</b>  |                                                   |       |       |                                                   |                  |      |                |       |              |       |
| <b>Blank (1GI1044-BLK1)</b>                              | Prepared: 09/20/23 10:08 Analyzed: 09/20/23 21:05 |       |       |                                                   |                  |      |                |       |              |       |
| Iron, dissolved                                          | <0.100                                            | 0.100 | mg/L  |                                                   |                  |      |                |       |              |       |
| <b>LCS (1GI1044-BS1)</b>                                 | Prepared: 09/20/23 10:08 Analyzed: 09/20/23 21:11 |       |       |                                                   |                  |      |                |       |              |       |
| Iron, dissolved                                          | 2.47                                              | 0.100 | mg/L  | 2.22                                              |                  | 111  | 80-120         |       |              |       |
| <b>Matrix Spike (1GI1044-MS1)</b>                        | <b>Source: 1GI1338-01</b>                         |       |       | Prepared: 09/20/23 10:08 Analyzed: 09/20/23 21:22 |                  |      |                |       |              |       |
| Iron, dissolved                                          | 2.36                                              | 0.100 | mg/L  | 2.22                                              | ND               | 106  | 75-125         |       |              |       |
| <b>Matrix Spike Dup (1GI1044-MSD1)</b>                   | <b>Source: 1GI1338-01</b>                         |       |       | Prepared: 09/20/23 10:08 Analyzed: 09/20/23 21:28 |                  |      |                |       |              |       |
| Iron, dissolved                                          | 2.37                                              | 0.100 | mg/L  | 2.22                                              | ND               | 107  | 75-125         | 0.354 | 20           |       |

# Keystone Laboratories - Newton

## CERTIFICATE OF ANALYSIS

1GI1338

### Definitions

**QM-07:** The spike recovery and/or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.  
**RL:** Reporting Limit  
**RPD:** Relative Percent Difference

### Cooler Receipt Log

**Cooler ID:** Default Cooler      **Temp:** 0.5°C

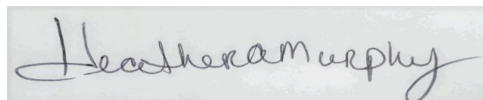
### Cooler Inspection Checklist

|                  |     |                        |     |
|------------------|-----|------------------------|-----|
| Custody Seals    | No  | Containers Intact      | Yes |
| COC/Labels Agree | Yes | Preservation Confirmed | No  |
| Received On Ice  | Yes |                        |     |

### Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. **The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.**

### Reviewed and Approved By:



Heather Murphy  
Customer Relationship Specialist  
heather.murphy@microbac.com  
09/29/23 16:50

**SITE INFORMATION**

Sampler:

Project:

Ames-Story Landfill-Spring CCC1

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard

☐ RUSH, need by \_\_\_/\_\_\_/\_\_\_

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

**INVOICE TO**

Mr. William Fedeler  
Ames/Story Environmental Landfill  
2111 Leopold Dr  
Ames, IA 50010

**LAB USE ONLY**

Work Order 1 G I 1 3 3 8

Temperature 0.5

Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☐ COC/Labels Agree  
☐ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses     | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|--------------|-------------------|
| 01-001 | MW-28 (b)                         | Water  | GRAB        | 9/13/23 | 7:52  | 3                    | Indfil-parae | 01                |
| 02-001 | MW-8 (b)                          | Water  | GRAB        | 9/13/23 | 7:21  | 3                    | Indfil-parae | 02                |
| 03-001 | MW-25                             | Water  | GRAB        | 9/13/23 | 9:52  | 3                    | Indfil-parae | 03                |
| 04-001 | MW-34                             | Water  | GRAB        | 9/13/23 | 11:24 | 3                    | Indfil-parae | 04                |
| 05-001 | MW-35                             | Water  | GRAB        | 9/13/23 | 11:01 | 3                    | Indfil-parae | 05                |
| 06-001 | MW-39                             | Water  | GRAB        | 9/13/23 | 8:53  | 3                    | Indfil-parae | 06                |
| 07-001 | MW-40                             | Water  | GRAB        | 9/13/23 | 8:28  | 3                    | Indfil-parae | 07                |

Relinquished By

Date/Time

9/15/23

Relinquished By

Date/Time

Received for Lab By  
Original - Lab Copy Yellow - Sampler Copy

Remarks:

Received By

Date/Time

**SITE INFORMATION**

Sampler:

Project:

Ames-Story Landfill-Spring COC1

**SPECIAL INSTRUCTIONS**

None

Turn Around Time

☐ Standard

☐ RUSH, need by \_\_\_/\_\_\_/\_\_\_

**REPORT TO**

Todd Whipple  
HLW Engineering  
PO Box 314  
Story City, IA 50248

Mr. William Fedeler  
Ames/Story Environmental Landfill  
2111 Leopold Dr  
Ames, IA 50010

**LAB USE ONLY**

Work Order GI 1338

Temperature 0.5

Turn-Cooler: No

☐ Custody Seal  
☒ Containers Intact  
☐ COC/Labels Agree  
☐ Preservation Confirmed  
☒ Received on Ice

| Number | Sample Identification / Client ID | Matrix | Sample Type | Date    | Time  | Number of Containers | Analyses      | Lab Sample Number |
|--------|-----------------------------------|--------|-------------|---------|-------|----------------------|---------------|-------------------|
| 08-001 | MW-33                             | Water  | GRAB        | 9/13/23 | 10:06 | 3                    | Indill-para-e | 08                |
| 09-001 | SW-3                              | Water  | GRAB        | 9/13/23 | 10:38 | 3                    | Indill-para-e | 09                |

Remarks:

Relinquished By [Signature] Date/Time 9/15/23 10:10  
Received for Lab By [Signature] Date/Time 9/15/23 10:10

Relinquished By [Signature] Date/Time 9/15/23 9:49  
Received By [Signature] Date/Time 9/15/23 9:49

Original - Lab Copy Yellow - Sampler Copy