Jolly, Becky <becky.jolly@dnr.iowa.gov>

Fwd: Dickinson County Landfill Holding Pond

1 message

Smith, Mike <mike.smith@dnr.iowa.gov> Fri, Jan 10, 2025 at 4:21 PM
To: Becky Jolly <becky.jolly@dnr.iowa.gov>

Becky:

Please add to the database

Thanks,
MIke

---------- Forwarded message ---------
From: **Kanakkanatt, Samuel** <skanakka@wm.com>
Date: Fri, Jan 10, 2025 at 2:48 PM
Subject: Dickinson County Landfill Holding Pond
To: Mike Smith (mike.smith@dnr.iowa.gov) <mike.smith@dnr.iowa.gov>

Hi Mike,

It was nice talking with you on the phone today as I mentioned here is a summary we put together. This email provides the results of the confirmatory resampling of the Holding Pond for arsenic, nickel, and dissolved nickel conducted on 11/12/24, and the proposed plan to discharge water from the Holding Pond, if needed, based on the information presented herein. Laboratory analysis of the 11/12/24 Holding Pond samples identified nickel at a concentration of 0.0328 mg/L and dissolved nickel at a concentration of 0.0342 mg/L. Arsenic was not detected in the 11/12/24 Holding Pond sample. The 11/12/24 Holding Pond nickel and dissolved nickel results are essentially the same indicating that sediment in the sample/sample collection methods are not a major contributor to the observed nickel concentrations in the Holding Pond. The 11/12/24 Holding Pond nickel result (0.0328 mg/L) remains above statistical limits (intrawell and interwell) for nickel in the Holding Pond, however, remains below the IDNR groundwater protection standard (GWPS) of 0.1 mg/L for nickel.

Through review of historical data and submittals it has been determined that the presence of nickel in the Holding Pond is a background condition already documented in water contributed to the Holding Pond from Groundwater Underdrains GU-B/C. Explanations for the presence of nickel in GU-B/C samples were provided to the IDNR in the letter Disposition of Phase B/C Underdrain and Holding Pond Waters dated October 23, 2012 (2012 Letter). The 2012 Letter ultimately concluded that the groundwater underdrains and Holding Pond had not been affected by contact with leachate and that management of underdrain water and Holding Pond water could continue in accordance with the practice of intermittent discharge of the Holding Pond.

All nickel concentrations observed in the Holding Pond (ranging from 0.010 to 0.0364 mg/L) to date are within the range of nickel concentrations detected in the GU-B/C samples from 2008 through 2012 (ranging from 0.012 to 0.0724 mg/L with omission of the apparent 3.51 mg/L outlier). The explanations for the presence of nickel in GU-B/C provided in the 2012 Letter remain applicable to the Holding Pond. The current nickel results for the Holding Pond are not indicative of leachate mixing, rather, are representative of background conditions previously documented for water contributed to the Holding Pond from GU-B/C.

It is also noted that all nickel concentrations detected in the Holding Pond have remained below the nickel chronic and acute water quality standards for lakes and wetlands [Class B(LW) waters], of 0.093 mg/L and 0.840 mg/L, respectively.

There were no VOC detections in the Holding Pond sample collected on October 2, 2024 (Fall 2024 Event). The Holding Pond arsenic result from the Fall 2024 event was not confirmed with the November 2024 confirmatory resampling as arsenic was not detected. The current nickel concentration, and resultant statistical exceedances, are representative of previously documented background water quality conditions of water contributed to the Holding Pond from GU-B/C.

We propose continuing to manage water in the Holding Pond in accordance with past management practices, water will be released from the Holding Pond provided there are no detectable VOCs and that there are no statistical exceedances attributed to the Landfill.

Based on the information provided herein, the Holding Pond results from the fall 2024 monitoring event conducted on October 2, 2024 and subsequent November 2024 confirmatory resampling allow for discharge of water from the Holding Pond as there are no VOC detections and no statistically significant increases attributed to the Landfill for the Holding Pond. We propose to continue monitoring of the Holding Pond in 2025 in accordance with the semi-annual detection monitoring schedule.

Please let us know if the IDNR agrees with this approach and if you have any questions.

Thanks,

Sam Kanakkanatt

Engineer

Upper Midwest

skanakka@wm.com

Cell: 608.622.3410

2650 Cliff Rd W,

Burnsville, MN 55337

3 attachments

image001.jpg
6K

IDNR Hold Pond & GU water ltr 10-15-12.pdf
2906K

draft_Tbl 6 with GU-B_C.pdf
132K

LIESCH

HYDROGEOLOGISTS ■ ENGINEERS ■ ENVIRONMENTAL SCIENTISTS

October 23, 2012

Mr. Mike Smith
Solid Waste Section
Iowa Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319

RE: Dickinson Sanitary Landfill (30-SDP-1-75P)
Disposition of Phase B/C Underdrain and Holding Pond Waters

Dear Mr. Smith:

We are writing in response to Iowa Department of Natural Resources (IDNR) correspondence dated August 7, 2012, and specifically item 1, which comments on the disposition of the water collected from the Phase B and Phase C groundwater under-drains suggesting the potential need to manage that water, which is discharged into the Holding Pond, as leachate. This letter addresses these comments, and in so doing provides the following: a summary of Phase B and Holding Pond monitoring events and permitting activities; a review of recent Holding Pond water quality; a comparison of Phase B/C underdrain water quality to that of leachate; and, a review of potential sources of nickel in groundwater samples. Cumulatively, the data and analyses included herein, indicates that the Phase B/C groundwater, as well as the Holding Pond water, are not affected by leachate and therefore do not require management as leachate.

For reference, item 1 from the IDNR letter is presented below.

1. The latest sampling report [June 20, 2012 Semi-Annual Monitoring Report] indicates that a verified control limit exceedance for nickel was determined at the discharge of groundwater underdrain GU-B/C. While the Department is exploring options to allow for passive treatment of volatile organic compounds in groundwater underdrain discharges to non-detect levels prior to discharge into a water of the United States, it appears that the nickel exceedance will not allow for such a solution and the discharge from GU-B/C must immediately be handled as leachate. Permit Amendment No. 4 clearly states "all water collected from beneath the FML in Phases B and C groundwater collection sump shall be stored, treated, and disposed of as leachate. Please indicate this operation change by September 30, 2012.

It is noted that following discussion with the IDNR, additional time, until October 31, 2012, was allotted to respond to this item.

Site Conditions & Monitoring of Underdrains & Holding Pond

Groundwater collected from the Phase B and Phase C underdrains is discharged into the adjacent Holding Pond, which in turn intermittently discharges to lowland areas in the southwest corner of the site. This low-lying area extends toward the southwest to an off-site wetland complex of approximately 50 acres. The wetland complex has considerable storage capacity and has often been observed to be dry.

The initiation of monitoring water from the Phase B underdrain was concurrent with the completion of construction of Phase B in October 2000. At that time it was determined that low-level volatile organic compound detections in the Phase B groundwater were not the result of a leachate release, and were attributed to landfill gas. The initial weekly monitoring schedule was modified to a monthly schedule in December 2000. The monthly schedule continued to analyze for VOCs, major ions and the IDNR list of Baseline parameters which at that time did not include nickel. A timeline of Phase B / Holding Pond monitoring, NPDES permitting activities and a summary of the monitoring data, from 2000 through 2008 are presented on the attached tables in **Attachment A**.

The data collected by the monitoring events referenced above include leachate indicator parameters such as chloride and sodium as well as the other inorganic parameters, all of which remained at stable low levels indicating no leachate contact to the underdrain water or Holding Pond. Furthermore, nearly all data from the Holding Pond was non-detect for VOCs.

September 2012 Holding Pond Nickel Data

On the basis of no VOC detections and no indication of any leachate contact, sampling of the Holding Pond was eliminated with the issuance of the January 2009 Permit. To supplement the historic data discussed above, samples were collected from the Holding Pond by Minnesota Valley Testing Laboratories (MVTL) on September 10, 2012 and tested for both total and dissolved nickel by TestAmerica Laboratories (TAL). The TAL report is provided as **Attachment B**. The results for both total and dissolved nickel were non-detect (<0.01 mg/L or <10 ug/L). As a point of comparison, the nickel chronic and acute water quality standards for lakes and wetlands [Class B(LW) waters], are 150 and 1,400 ug/L respectively.

Comparison of Phase B/C Water Quality to Leachate

At the Landfill's discretion both leachate and groundwater samples have been tested once per year for the major ions calcium, magnesium, sodium potassium, alkalinity, chloride and sulfate. These major ions account for the majority of the total dissolved solids in waters and are therefore useful in comparing water quality from various potential sources including leachate. A visual comparison of the major ion data is provided through Stiff diagrams and Piper plots. Otter Creek Environmental has generated the Stiff diagrams and Piper plots for the landfill data.

Stiff diagrams represent water chemistry and geometric shapes generated by plotting the concentrations of major ions against a vertical line of zero concentration with cations plotted to the left and anions to the right of the zero line. The resultant shape is a fingerprint of an individual sample with the overall size proportional to the total dissolved solids in the sample. The size and shape of a Stiff diagram for a leachate is larger and distinctly shaped in comparison to that of waters that have not been affected by leachate. The Stiff diagrams generated for 2011 and 2012 Landfill data are presented in **Attachment C**.

Piper plots utilize the same major ion data to display multiple samples on a single diagram. Within the diagram an individual sample is plotted using the percentage of each major ion on separate triangles with the percentages determined by the ratio of each cation or anion to the total concentration of ions expressed as milliequivalents per liter. Different water types will plot in different areas and thus illustrate the differences, or similarities, of the water types of various samples. The Piper plots for 2011 and 2012 data are presented in **Attachment C**.

The Stiff diagrams and Piper plots for the Landfill data illustrate the differences between leachate and groundwater, whereby groundwater, including that from the Phase B and C underdrains, is of a calcium bicarbonate type with low mineralization. This is contrasted by leachate that is a highly mineralized sodium bicarbonate water type. The plots of the underdrain groundwater samples do not indicate mixing with leachate.

Potential Sources of Nickel in Groundwater and Soil Testing

Despite the lack of any detections of nickel in the Holding Pond, for purposes of completeness additional analyses were undertaken to ascertain the potential source(s) of nickel in groundwater. Groundwater underdrain pumps are constructed of stainless steel which contains nickel, and it is documented that wear and corrosion of stainless steel can affect nickel groundwater concentrations (D. Oakley and N. Korte, 1996). Notable wear on the pumps has been documented at the Landfill as pumps have required replacement due to wear as is typical. It is also noted that subtle soil changes from oxidizing to reducing conditions, which could occur from liner construction may also mobilize metals. Such redox reactions affect transport of metals including nickel, whereby oxidizing conditions favor retention of metals within soils and reducing conditions can acceleration migration in groundwater (McLean and Bledsoe, 1992). Landfill gas may also affect migration of metals through even slight changes in pH and alkalinity.

In addition to the Holding Pond water samples, soil samples were also collected on September 10th from the soil borrow area of the Landfill and from two nearby undeveloped off-site locations. The results, which range from 15.7 to 21.8 mg/Kg are provided in **Attachment B**, indicate nickel concentrations of on-site and off-site soils to be very similar and below the average nickel concentration of 40 mg/Kg (USEPA SW-974, April 1983).

Given the above potential sources of naturally occurring nickel which are orders of magnitude higher than groundwater levels, and contributions from pump wear, the levels observed in the groundwater are not unusual or unexpected.

Summary

- Water quality data was collected from Phase B and the Holding Pond from 2000 through 2008. Leachate indicator parameters such as chloride and sodium, as well as the other inorganic parameters, remained at stable low levels indicating no leachate contact to the underdrain or Holding Pond water. Holding Pond samples were also tested for VOCs which were typically not detected.

- Holding Pond samples collected in September 2012, were tested for nickel and the results for both total and dissolved nickel were non-detect (<10.0 ug/L). By comparison, the chronic and acute surface water quality standards for Class B(LW) are 150 and 1,400 ug/L respectively.

- Major ion data has been collected from leachate and groundwater samples. The ion data has been used to generate Stiff diagrams and Piper plots which indicate that the groundwater underdrain waters are not mixing with leachate.

- Soil samples from the site and undeveloped off-site locations were tested and found to have similar concentrations of nickel well within the common naturally occurring range.

- Potential mechanisms that may mobilize nickel into groundwater at the landfill include wear on stainless steel pump materials, changes in redox from oxidizing to reducing soil conditions, and changes in pH, all of which may affect migration of metals.

Cumulatively, the site conditions, monitoring data and aforementioned analyses indicate that the groundwater underdrains and Holding Pond are not affected by contact with leachate. This provides confirmation that the engineered containment systems and operating systems are functioning as designed and no further action is needed. Management of underdrain water and Holding Pond water can continue in accordance with the current practice of intermittent discharge of the Holding Pond.

We appreciate the opportunity to address the disposition of groundwater underdrain and Holding Pond water by reviewing the historic information collected per previous IDNR permits and by incorporating more recently collected data. If you have any questions regarding this information please contact Terry Johnson (952 471-9469), Debra McDonald (507 526-2194) or me at your convenience. Thank you.

Sincerely,

LIESCH ASSOCIATES, INC.

Mark Olson

Mark Olson
Project Manager

WASTE MANAGEMENT, INC.

Terry Johnson, P.G., R.G.
Director, Groundwater Protection

cc: Bryon Whiting – IDNR Spencer, Iowa
Jeff Vassar – Dickinson Landfill, Inc
Debra McDonald – WM Blue Earth MN

References:

McLean, Joan E. and Bert Bledsoe. 1992. *Behavior of Metals in Soils.* EPA Ground Water Issue. Office of Research and Development EPA/540/S-92/018.

D. Oakley and N.E. Korte. 1996. *Nickel and Chromium in Ground Water Samples as Influenced by Well Construction and Sampling Methods.* Ground Water Monitoring & Remediation. Winter 1996. Pp. 93-99.

USEPA Office of Solid Waste and Emergency Response, Hazardous Waste Land Treatment, SW-874. 1983. P. 273, table 6.46.

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APPENDIX A

Dickinson Landfill
Timeline for Phase B/Holding Pond Monitoring & Permitting

2000

- Phase B Construction & Phase B Groundwater Source Evaluation Report (Oct 16, 2000) [determined VOCs not from leachate release – likely gas related]
- Initiated monthly sampling December 2000

2001-2003

- Monthly Sampling of Phase B groundwater and Holding Pond water for VOCs and major ions
- NPDES Individual Permit issued Nov. 11, 2002 (permit #30000902) [Outfall 1 Holding Pond discharge; Outfall 2 SW location in ditch downstream]

2004

- Monthly sampling terminated (per 2003 IDNR Permit)
- Semi-annual Sampling of Phase B and Holding Pond initiated

2005

- Continuation of Semi-annual Phase B and Holding Pond sampling

2006

- Rec'd Application from IDNR for Individual NPDES Permit Renewal Dec 11, 2006

2007

- March 2007 Individual Permit renewal application submitted to IDNR
- Summer 2007 Phase C GW included with Phase B GW in discharge to Holding Pond
- Semi-annual monitoring of Phase B/C groundwater and Holding Pond continues

2008

- Semi-annual monitoring of Phase B/C groundwater and Holding Pond continues.
- NOV to individual permit; response with supporting documentation June 2, 2008

2009

- New LF Permit issued Jan 2009
- Monitoring of Phase B GW and Holding Pond no longer required [not included in Permit]
- WM Discussions with IDNR on status of individual NDPES Permit application; IDNR considers application of the general industrial NDPES Permit

2010

- October Application for coverage under General Industrial NPDES permit submitted.
- December 1, 2010 IDNR letter officially closing individual permit 3000902

TABLE 1
Dickinson Landfill - Phase B/Holding Pond Groundwater Monitoring Summary

Weekly Sampling	Phase B Discharge	Holding Pond
10/13/00	NT	A
10/18/00	A	A
10/25/00	A	A
11/01/00	A	A
11/09/00	A	A

Monthly Sampling	Phase B Discharge	Holding Pond
12/20/00	A	A
01/04/01	A	A
02/07/01	A	A
03/07/01	A	A
04/18/01	A	A
05/22/01	A	A
06/06/01	A	A
07/09/01	A	A
08/08/01	A	A
09/26/01	NT	A
10/02/01	A	A
10/15/01	A	A
11/28/01	A	A
01/09/02	A	A
01/31/02	A	A
02/25/02	A	A
03/25/02	A	A
04/22/02	A	A
05/24/02	A	A
06/11/02	A	A
07/09/02	A	A
08/12/02	A	A
09/18/02	A	A
10/10/02	A	A
11/21/02	A	A
12/17/02	A	A
01/07/03	A	A
02/27/03	A	A
03/18/03	A	A
04/24/03	A	A
05/27/03	A	A
06/18/03	A	A

Monthly Sampling	Phase B Discharge	Holding Pond
07/15/03	A	A
08/13/03	A	A
09/02/03	A	A
10/15/03	A	A
11/20/03	A	A
12/10/03	A	A

Semi-Annual Sampling	Phase B Discharge	Holding Pond
04/27/04	A	A
10/07/04	A	A
04/27/05	A	A
10/05/04	A	A
04/11/06	A	A
10/05/06	A	A
04/18/07	A	A
10/03/07	A	A
04/24/08	A	A
09/24/08	A	A

A = VOCs (Method 8260), IDNR Baseline parameters, and additional major anions and cations

Dickinson Landfill
Phase B Groundwater Evaluation [2]
2003 - 2008 Sampling Events (VOCs in parts per billion)

Parameter	RL	Date	Phase B GW [2]	Holding Pond
Cis-1,2-dichloroethene	1.0 ug	01/07/03	56	3.0
		02/27/03	100	7.5
		03/27/03	67	2.7
		04/24/03	89	ND
		05/27/03	71	1.2
		06/19/03	81	ND
		07/15/03	82	ND
		08/13/03	70	1.1
		09/02/03	85	1.1
		10/15/03	79	1.2
		11/20/03	71	ND
		12/10/03	59	3.2
		04/27/04	84	ND
		10/07/04	68	ND
		04/27/05	65	ND
		10/05/05	4.5	ND
		04/11/06	40	ND
		10/5/06 [1]	43	ND
		04/18/07	34	ND
		10/03/07	31	ND
		04/24/08	32	ND
		09/24/08	38	ND
Trichloroethene	1.0 ug	01/07/03	33	2.4
		02/27/03	67	5
		03/27/03	50	2
		04/24/03	57	ND
		05/27/03	51	ND
		06/19/03	55	ND
		07/15/03	44	ND
		08/13/03	46	ND
		09/02/03	58	ND
		10/15/03	53	ND
		11/20/03	50	ND
		12/10/03	39	2.1
		04/27/04	52	ND
		10/07/04	44	ND
		04/27/05	40	ND
		10/05/05	3.4	ND
		04/11/06	24	ND
		10/5/06 [1]	21	ND
		04/18/07	17	ND
		10/03/07	7.9	ND
		04/24/08	9.1	ND
		09/24/08	8	ND
Vinyl Chloride	1.0 ug	01/07/03	9.4	ND
		02/27/03	37	ND
		03/27/03	33	ND
		04/24/03	38	ND
		05/27/03	32	ND
		06/19/03	44	ND
		07/15/03	40	ND
		08/13/03	33	ND
		09/02/03	48	ND
		10/15/03	44	ND
		11/20/03	35	ND
		12/10/03	27	ND
		04/27/04	40	ND
		10/07/04	34	ND
		04/27/05	29	ND
		10/05/05	ND	ND
		04/11/06	24	ND
		10/5/06 [1]	20	ND
		04/18/07	14	ND
		10/03/07	9.8	ND
		04/24/08	11	ND
		09/24/08	16	ND

Dickinson Landfill
Phase B Groundwater Evaluation [2]
2003 - 2008 Sampling Events (VOCs in parts per billion)

Parameter	RL	Date	Phase B GW [2]	Holding Pond
1,1-Dichlorethane	1.0 ug	01/07/03	2.6	ND
		02/27/03	4.6	ND
		03/27/03	4.4	ND
		04/24/03	4.7	ND
		05/27/03	4.2	ND
		06/19/03	5.8	ND
		07/15/03	5.8	ND
		08/13/03	5.2	ND
		09/02/03	5.8	ND
		10/15/03	5.8	ND
		11/20/03	6.1	ND
		12/10/03	4.4	ND
		04/27/04	6.5	ND
		10/07/04	6.6	ND
		04/27/05	8.2	ND
		10/05/05	1.8	ND
		04/11/06	9.5	ND
		10/5/06 [1]	12.0	ND
		04/18/07	12	ND
		10/03/07	11	ND
		04/24/08	15	ND
		09/24/08	19	ND
Trans-1,2-dichloroethene	1.0 ug	01/07/03	ND	ND
		02/27/03	ND	ND
		03/27/03	ND	ND
		04/24/03	ND	ND
		05/27/03	ND	ND
		06/19/03	ND	ND
		07/15/03	ND	ND
		08/13/03	ND	ND
		09/02/03	ND	ND
		10/15/03	ND	ND
		11/20/03	ND	ND
		12/10/03	ND	ND
		04/27/04	ND	ND
		10/07/04	ND	ND
		04/27/05	ND	ND
		10/05/05	ND	ND
		04/11/06	1	ND
		10/5/06 [1]	ND	ND
		04/18/07	ND	ND
		10/03/07	ND	ND
		04/24/08	ND	ND
		09/24/08	ND	ND
Methylene Chloride	1.0 ug	01/07/03	ND	ND
		02/27/03	ND	ND
		03/27/03	ND	ND
		04/24/03	ND	ND
		05/27/03	ND	ND
		06/19/03	ND	ND
		07/15/03	ND	ND
		08/13/03	2.2	1.8
		09/02/03	ND	ND
		10/15/03	ND	ND
		11/20/03	ND	ND
		12/10/03	ND	ND
		04/27/04	ND	ND
		10/07/04	ND	ND
		04/27/05	ND	ND
		10/05/05	ND	ND
		04/11/06	ND	ND
		10/5/06 [1]	ND	ND
		04/18/07	ND	ND
		10/03/07	ND	ND
		04/24/08	ND	ND
		09/24/08	ND	ND

Dickinson Landfill
Phase B Groundwater Evaluation [2]
2003 - 2008 Sampling Events (VOCs in parts per billion)

Parameter	RL	Date	Phase B GW [2]	Holding Pond
Chloroethane	1.0ug/L	03/27/03	3.1	ND
		04/24/03	2.9	ND
		05/27/03	2.4	ND
		06/19/03	4	ND
		08/13/03	3.2	ND
		09/02/03	4	ND
		10/15/03	4.3	ND
		11/20/03	3.6	ND
		12/10/03	2.6	ND
		04/27/04	5.9	ND
		10/07/04	6.2	ND
		04/27/05	7.8	ND
		10/05/05	ND	ND
		04/11/06	9	ND
		10/5/06 [1]	10	ND
		04/18/07	6.4	ND
		10/03/07	8.8	ND
		04/24/08	7.7	ND
		09/24/08	8.5	ND
Acetone*	5.0 ug	03/07/01	ND	6.5*
Chlorobenzene*	1.0ug/L	11/28/01	1.1*	ND

* = single unconfirmed detection; no detection from subsequent sampling events
(1) = Holding pond sample collected Oct 16, 2006.
(2) = beginning Summer 2007 discharge also includes water from Phase C underdrain system.
RL = Reporting Limit unless otherwise indicated
ND = Not Detected at or above the reporting limit
NT = Not Tested (Sample not collected)
( ) = Duplicate sample results in parenthesis
W:\ll\50382\[Phase B GW 2003 confirmed VOC.xls]VOCs

Dickinson Landfill
Phase B / Holding Pond VOC Data Summary
(results in parts per billion)

Parameter	RL	Date	Phase B GW	Holding Pond
Cis-1,2-dichloroethene	1.0 ug	09/20/00	81 (85)	12 (10)
		10/13/00	NT	6.1
		10/18/00	64	8.4
		10/25/00	78	4.2
		11/01/00	66	2.3
		11/09/00	77 (59)	1.3
		12/20/00	77	9
		01/04/01	79	11
		02/08/01	59	7.4
		03/07/01	74	8.5
		04/17/01	80	1.9
		05/22/01	91	ND
		06/06/01	110	2
		07/09/01	73	1.6
		08/08/01	97 (91)	1.8
	0.6 ug/L	09/26/01	NT	2.2
	1.0 ug/L	10/02/01	67 (46)	1.8
		10/15/01	93	ND
		11/28/01	120	1.4
		01/09/02	120	11
		01/31/02	97	5.8
		02/25/02	88	2.8
		03/25/02	84	3.6
		04/22/02	100	1.6
		05/24/02	92	1.3
		06/11/02	98	ND
		07/09/02	45	ND
		08/12/02	78	1.4
		09/18/02	83	1.2
		10/10/02	110	1.1
		11/21/02	80	1.6
		12/17/02	100	2.1
		01/07/03	56	3.0
		02/27/03	100	7.5
		03/27/03	67	2.7
		04/24/03	89	ND
		05/27/03	71	1.2
		06/19/03	81	ND
		07/15/03	82	ND
		08/13/03	70	1.1
		09/02/03	85	1.1
		10/15/03	79	1.2
		11/20/03	71	ND
		12/10/03	59	3.2
		04/27/04	84	ND
		10/07/04	68	ND
Trichloroethene	1.0 ug	09/20/00	77 (82)	11 (9)
		10/13/00	NT	5.6
		10/18/00	56	7.1
		10/25/00	74	4.3
		11/01/00	65	2.7
		11/09/00	64 (53)	1.5
		12/20/00	53	6.8
		01/04/01	59	7
		02/08/01	41	4.1
		03/07/01	53	5.5
		04/17/01	60	1.4
		05/22/01	63	ND
		06/06/01	69	1.3
		07/09/01	53	1.1
		08/08/01	64 (63)	1.4
	0.4 ug/L	09/26/01	NT	1.6
	1.0 ug/L	10/02/01	57 (28)	1.4
		10/15/01	67	ND
		11/28/01	86	1
		01/09/02	85	8.3
		01/31/02	67	4.5
		02/25/02	52	1.6
		03/25/02	59	2.5
		04/22/02	71	1.3
		05/24/02	63	1.2
		06/11/02	67	ND
		07/09/02	35	ND
		08/12/02	53	1.2
		09/18/02	58	ND
		10/10/02	84	ND
		11/21/02	56	1.2
		12/17/02	74	2.1
		01/07/03	33	2.4
		02/27/03	67	5
		03/27/03	50	2

Dickinson Landfill
Phase B / Holding Pond VOC Data Summary
(results in parts per billion)

Parameter	RL	Date	Phase B GW	Holding Pond
Trichloroethene	1.0 ug	04/24/03	57	ND
		05/27/03	51	ND
		06/19/03	55	ND
		07/15/03	44	ND
		08/13/03	46	ND
		09/02/03	58	ND
		10/15/03	53	ND
		11/20/03	50	ND
		12/10/03	39	2.1
		04/27/04	52	ND
		10/07/04	44	ND
Vinyl Chloride	1.0 ug	09/20/00	27 (27)	< 2 (< 2)
		10/13/00	NT	ND
		10/18/00	16	ND
		10/25/00	18	ND
		11/01/00	14	ND
		11/09/00	14 (13)	ND
		12/20/00	16	ND
		01/04/01	15	ND
		02/08/01	15	ND
		03/07/01	28	ND
		04/17/01	24	ND
		05/22/01	23	ND
		06/06/01	28	ND
		07/09/01	24	ND
		08/08/01	23 (20)	ND
	0.6 ug/L	09/26/01	NT	ND
	1.0 ug/L	10/02/01	30 (6.8)	ND
		10/15/01	30	ND
		11/28/01	39	ND
		01/09/02	53	1.1
		01/31/02	34	ND
		02/25/02	35	ND
		03/25/02	17	ND
		04/22/02	41	ND
		05/24/02	37	ND
		06/11/02	34	ND
		07/09/02	12	ND
		08/12/02	30	ND
		09/18/02	35	ND
		10/10/02	49	ND
		11/21/02	37	ND
		12/17/02	45	ND
		01/07/03	9.4	ND
		02/27/03	37	ND
		03/27/03	33	ND
		04/24/03	38	ND
		05/27/03	32	ND
		06/19/03	44	ND
		07/15/03	40	ND
		08/13/03	33	ND
		09/02/03	48	ND
		10/15/03	44	ND
		11/20/03	35	ND
		12/10/03	27	ND
		04/27/04	40	ND
		10/07/04	34	ND
1,1-Dichloroethane	1.0 ug	09/20/00	< 2 (< 2)	< 2 (< 2)
		10/13/00	NT	ND
		10/18/00	ND	ND
		10/25/00	1.4	ND
		11/01/00	1.2	ND
		11/09/00	1.2 (ND)	ND
		12/20/00	1.5	ND
		01/04/01	1.2	ND
		02/08/01	ND	ND
		03/07/01	1.8	ND
		04/17/01	1.9	ND
		05/22/01	1.8	ND
		06/06/01	2.4	ND
		07/09/01	2.0	ND
		08/08/01	1.7 (1.9)	ND
	0.6 ug/L	09/26/01	NT	ND
	1.0 ug/L	10/02/01	1.8 (ND)	ND
		10/15/01	3.0	ND
		11/28/01	2.8	ND
		01/09/02	3.8	ND
		01/31/02	2.5	ND
		02/25/02	3.0	ND
		03/25/02	3.4	ND
		04/22/02	ND	ND
		05/24/02	ND	ND
		06/11/02	4.5	ND
		07/09/02	ND	ND
		08/12/02	ND	ND
		09/18/02	ND	ND
		10/10/02	4.3	ND
		11/21/02	4.1	ND
		12/17/02	5.4	ND

Dickinson Landfill
Phase B / Holding Pond VOC Data Summary
(results in parts per billion)

Parameter	RL	Date	Phase B GW	Holding Pond
1,1-Dichlorethane	1.0 ug	01/07/03	2.6	ND
		02/27/03	4.6	ND
		03/27/03	4.4	ND
		04/24/03	4.7	ND
		05/27/03	4.2	ND
		06/19/03	5.8	ND
		07/15/03	5.8	ND
		08/13/03	5.2	ND
		09/02/03	5.8	ND
		10/15/03	5.8	ND
		11/20/03	6.1	ND
		12/10/03	4.4	ND
		04/27/04	6.5	ND
		10/07/04	6.6	ND
Trans-1,2-dichloroethene	1.0 ug	09/20/00	< 4 (< 4)	< 4 (< 4)
		10/13/00	NT	ND
		10/18/00	ND	ND
		10/25/00	1.2	ND
		11/01/00	ND	ND
		11/09/00	ND (ND)	ND
		12/20/00	ND	ND
		01/04/01	1.1	ND
		02/08/01	2.2	ND
		03/07/01	ND	ND
		04/17/01	ND	ND
		05/22/01	2.5	ND
		06/06/01	ND	ND
		07/09/01	1.4	ND
		08/08/01	1.7 (ND)	ND
	0.7 ug/L	09/26/01	NT	ND
	1.0 ug/L	10/02/01	ND (ND)	ND
		10/15/01	ND	ND
		11/28/01	ND	ND
		01/09/02	1.7	ND
		01/31/02	ND	ND
		02/25/02	1.2	ND
		03/25/02	1.2	ND
		04/22/02	ND	ND
		05/24/02	ND	ND
		06/11/02	ND	ND
		07/09/02	ND	ND
		08/12/02	ND	ND
		09/18/02	ND	ND
		10/10/02	ND	ND
		11/21/02	ND	ND
		12/17/02	ND	ND
		01/07/03	ND	ND
		02/27/03	ND	ND
		03/27/03	ND	ND
		04/24/03	ND	ND
		05/27/03	ND	ND
		06/19/03	ND	ND
		07/15/03	ND	ND
		08/13/03	ND	ND
		09/02/03	ND	ND
		10/15/03	ND	ND
		11/20/03	ND	ND
		12/10/03	ND	ND
		04/27/04	ND	ND
		10/07/04	ND	ND
Methylene Chloride	1.0 ug	09/20/00	< 4 (< 4)	< 4 (< 4)
		10/13/00	NT	ND
		10/18/00	ND	ND
		10/25/00	1.9	ND
		11/01/00	1.5	ND
		11/09/00	1.3 (1.5)	ND
		12/20/00	2.1	ND
		01/04/01	2.7	ND
		02/08/01	1	ND
		03/07/01	1.6	ND
		04/17/01	ND	ND
		05/22/01	ND	ND
		06/06/01	5.8	ND
		07/09/01	1.6	ND
		08/08/01	1.6 (5.9)	ND
	1.2 ug/L	09/26/01	NT	ND
	1.0 ug/L	10/02/01	ND (1.8)	ND
		10/15/01	8.5	ND
		11/28/01	2.4	ND
		01/09/02	2.8	ND
		01/31/02	1.7	ND
		02/25/02	2.6	ND
		03/25/02	2.6	ND

Dickinson Landfill
Phase B / Holding Pond VOC Data Summary
(results in parts per billion)

Parameter	RL	Date	Phase B GW	Holding Pond
Methylene Chloride	1.0 ug	04/22/02	ND	ND
		05/24/02	ND	ND
		06/11/02	ND	ND
		07/09/02	ND	ND
		08/12/02	ND	ND
		09/18/02	ND	ND
		10/10/02	ND	ND
		11/21/02	ND	ND
		12/17/02	ND	ND
		01/07/03	ND	ND
		02/27/03	ND	ND
		03/27/03	ND	ND
		04/24/03	ND	ND
		05/27/03	ND	ND
		06/19/03	ND	ND
		07/15/03	ND	ND
		08/13/03	2.2	1.8
		09/02/03	ND	ND
		10/15/03	ND	ND
		11/20/03	ND	ND
		12/10/03	ND	ND
		04/27/04	ND	ND
		10/07/04	ND	ND
Chloroethane	1.0ug/L	02/25/02	1.2	ND
		03/27/03	3.1	ND
		04/24/03	2.9	ND
		05/27/03	2.4	ND
		06/19/03	4	ND
		08/13/03	3.2	ND
		09/02/03	4	ND
		10/15/03	4.3	ND
		11/20/03	3.6	ND
		12/10/03	2.6	ND
		04/27/04	5.9	ND
		10/07/04	6.2	ND
Acetone*	5.0 ug	03/07/01	ND	6.5*
Chlorobenzene*	1.0ug/L	11/28/01	1.1*	ND

* = single unconfirmed detection; no detection from subsequent sampling events
RL = Reporting Limit unless otherwise indicated
ND = Not Detected at or above the reporting limit
NT = Not Tested (Sample not collected)
( ) = Duplicate sample results in parenthesis

W:\[SD182\[Phase B GW confirmed VOC.xls]VOCs

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Ammonia (mg/L)	01/07/03	<0.010	<0.010
	02/27/03	<0.010	<0.010
	03/27/03	<0.010	<0.010
	04/24/03	<0.010	<0.010
	05/27/03	<0.010	<0.010
	06/18/03	<0.010	0.036
	07/15/03	<0.010	0.03
	08/13/03	<0.010	<0.010
	09/02/03	<0.010	<0.010
	10/15/03	<0.020	<0.020
	11/20/03	<0.020	<0.020
	04/27/04	<0.020	<0.020
	10/07/04	0.11	<0.020
	04/27/05	<0.020	<0.020
	10/05/05	0.57	0.12
	04/11/06	<0.020	1.2
	10/5/06 [1]	0.039	0.056
	04/18/07	0.32	<0.020
	10/03/07	<0.020	0.12
	04/24/08	0.03	0.24
	09/24/08	0.27	0.063
Chemical Oxygen Demand (mg/L)	01/07/03	<5	<5
	02/27/03	<5	<5
	03/27/03	17.5	29.1
	04/24/03	<5	11.1
	05/27/03	12.5	19.4
	06/18/03	15.3	12.9
	07/15/03	<10	<10
	08/13/03	<10	<10
	09/02/03	<10	14.8
	10/15/03	<10	13.1
	11/20/03	<10	<10
	04/27/04	<10	14.4
	10/07/04	<10	<10
	04/27/05	<10	11.8
	10/05/05	38	14.3
	04/11/06	<10	<10
	10/5/06 [1]	<10	26.6
	04/18/07	37.4	23.7
	10/03/07	<10	20.8
	04/24/08	<10	<10
	09/24/08	<10	15.8
Chloride (mg/L)	01/07/03	15.0	17.2
	02/27/03	12.3	15.5
	03/27/03	12.9	12.4
	04/24/03	16.8	14.8
	05/27/03	14.4	10.3
	06/18/03	15.1	11.3
	07/15/03	15.6	13.4
	08/13/03	12.2	13.6
	09/02/03	13.4	14.8

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Chloride (mg/L)	10/15/03	12.7	18.2
	11/20/03	11.8	14.8
	04/27/04	15	13.8
	10/07/04	11.5	11.2
	04/27/05	11.2	11.1
	10/05/05	16.1	26.7
	04/11/06	11.1	27.8
	10/5/06 [1]	10.8	13.9
	04/18/07	14.1	11.4
	10/03/07	14.2	14.1
	04/24/08	14.3	17.3
	09/24/08	14.7	18.3
Sulfate (mg/L)	01/07/03	141	148
	02/27/03	127	150
	03/27/03	136	113
	04/24/03	158	125
	05/27/03	147	118
	06/18/03	139	115
	07/15/03	144	109
	08/13/03	134	120
	09/02/03	105	107
	10/15/03	116	132
	11/20/03	128	125
	04/27/04	128	116
	10/07/04	126	79.8
	04/27/05	127	99.7
	10/05/05	102	62.3
	04/11/06	124	88.1
	10/5/06 [1]	124	89.5
	04/18/07	115	79.9
	10/03/07	123	122
	04/24/08	117	124
	09/24/08	106	91.5
Metals			
Arsenic, mg/L	01/07/03	<0.010	<0.010
	02/27/03	<0.010	<0.010
	03/27/03	0.015	<0.010
	04/24/03	<0.010	<0.010
	05/27/03	0.011	<0.010
	06/18/03	<0.010	<0.010
	07/15/03	<0.010	<0.010
	08/13/03	<0.010	<0.010
	09/02/03	<0.010	<0.010
	10/15/03	<0.010	<0.010
	11/20/03	<0.010	<0.010
	04/27/04	<0.010	<0.010
	10/07/04	<0.010	<0.010
	04/27/05	<0.010	<0.010
	10/05/05	<0.010	<0.010
	04/11/06	<0.010	<0.010
	10/5/06 [1]	<0.010	<0.010
	04/18/07	<0.010	<0.010
	10/03/07	<0.010	<0.010
	04/24/08	<0.010	<0.010
	09/24/08	<0.010	<0.010

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Barium , mg/L	01/07/03	0.42	0.041
	02/27/03	0.25	0.048
	03/27/03	0.48	0.041
	04/24/03	0.1	0.035
	05/27/03	0.56	0.024
	06/18/03	0.5	0.019
	07/15/03	0.39	0.024
	08/13/03	0.34	0.026
	09/02/03	0.25	0.032
	10/15/03	0.38	0.038
	11/20/03	0.25	0.046
	04/27/04	0.35	0.037
	10/07/04	0.061	0.046
	04/27/05	0.27	0.042
	10/05/05	0.32	0.052
	04/11/06	0.068	0.084
	10/5/06 [1]	0.081	0.044
	04/18/07	0.085	0.06
	10/03/07	0.073	0.1
	04/24/08	0.087	0.17
	09/24/08	0.095	0.072
Cadmium, mg/L	01/07/03	<0.0010	<0.0010
	02/27/03	<0.0010	<0.0010
	03/27/03	<0.0010	<0.0010
	04/24/03	<0.0010	<0.0010
	05/27/03	<0.0010	<0.0010
	06/18/03	<0.0010	<0.0010
	07/15/03	<0.0010	<0.0010
	08/13/03	<0.0010	<0.0010
	09/02/03	<0.0010	<0.0010
	10/15/03	<0.0010	<0.0010
	11/20/03	<0.0010	<0.0010
	04/27/04	<0.0010	<0.0010
	10/07/04	<0.0010	<0.0010
	04/27/05	<0.0010	<0.0010
	10/05/05	<0.0010	<0.0010
	04/11/06	<0.0010	<0.0010
	10/5/06 [1]	<0.0010	<0.0010
	04/18/07	<0.0010	<0.0010
	10/03/07	<0.0010	<0.0010
	04/24/08	<0.0010	<0.0010
	09/24/08	<0.0010	<0.0010
Calcium, mg/L	01/07/03	138	95.4
	02/27/03	143	104
	03/27/03	141	79.1
	04/24/03	134	72.4
	05/27/03	135	40
	06/18/03	138	66
	07/15/03	153	34.2
	08/13/03	152	39.6
	09/02/03	148	38.2

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Calcium, mg/L	10/15/03	148	53.4
	11/20/03	139	76.2
	04/27/04	161	76.3
	10/07/04	145	55.2
	04/27/05	163	61.1
	10/05/05	251	42.8
	04/11/06	158	91
	10/5/06 [1]	152	57
	04/18/07	149	84.5
	10/03/07	157	76.1
	04/24/08	155	113
	09/24/08	164	67.5
Chromium, mg/L	01/07/03	<0.0030	<0.0030
	02/27/03	<0.0030	<0.0030
	03/27/03	<0.0030	<0.0030
	04/24/03	<0.0030	<0.0030
	05/27/03	<0.0030	<0.0030
	06/18/03	<0.0030	<0.0030
	07/15/03	<0.0030	<0.0030
	08/13/03	<0.0030	<0.0030
	09/02/03	<0.0030	<0.0030
	10/15/03	<0.0030	<0.0030
	11/20/03	<0.0030	<0.0030
	04/27/04	<0.0030	<0.0030
	10/07/04	<0.0030	<0.0030
	04/27/05	<0.0030	<0.0030
	10/05/05	<0.0030	<0.0030
	04/11/06	<0.0030	<0.0030
	10/5/06 [1]	<0.0030	<0.0030
	04/18/07	<0.0030	<0.0030
	10/03/07	<0.0030	<0.0030
	04/24/08	<0.0030	<0.0030
	09/24/08	<0.0030	<0.0030
Copper, mg/L	01/07/03	<0.0040	<0.0040
	02/27/03	<0.0040	<0.0040
	03/27/03	0.0047	<0.0040
	04/24/03	<0.0040	<0.0040
	05/27/03	<0.0040	<0.0040
	06/18/03	<0.0040	<0.0040
	07/15/03	<0.0040	<0.0040
	08/13/03	<0.0040	<0.0040
	09/02/03	<0.0040	<0.0040
	10/15/03	<0.0040	<0.0040
	11/20/03	<0.0040	<0.0040
	04/27/04	<0.0040	<0.0040
	10/07/04	<0.0040	<0.0040
	04/27/05	<0.0040	<0.0040
	10/05/05	0.0067	<0.0040
	04/11/06	<0.0040	<0.0040
	10/5/06 [1]	0.01	<0.0040
	04/18/07	0.013	<0.0040
	10/03/07	<0.0040	<0.0040
	04/24/08	0.0042	<0.0040
	09/24/08	<0.0040	<0.0040

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Iron, mg/L	01/07/03	<0.060	<0.060
	02/27/03	<0.060	0.065
	03/27/03	<0.060	0.083
	04/24/03	<0.060	0.06
	05/27/03	<0.060	<0.060
	06/18/03	<0.060	<0.060
	07/15/03	0.55	0.079
	08/13/03	<0.060	<0.060
	09/02/03	<0.060	<0.060
	10/15/03	<0.060	<0.060
	11/20/03	<0.060	<0.060
	04/27/04	<0.060	0.062
	10/07/04	0.061	0.085
	04/27/05	<0.060	<0.060
	10/05/05	1.7	0.23
	04/11/06	<0.060	0.28
	10/5/06 [1]	0.58	<0.060
	04/18/07	0.16	0.13
	10/03/07	<0.060	1.2
	04/24/08	0.094	0.12
	09/24/08	0.14	0.084
Lead, mg/L	01/07/03	<0.0050	<0.0050
	02/27/03	<0.0050	<0.0050
	03/27/03	<0.0050	<0.0050
	04/24/03	<0.0050	<0.0050
	05/27/03	<0.0050	<0.0050
	06/18/03	<0.0050	<0.0050
	07/15/03	<0.0050	<0.0050
	08/13/03	<0.0050	<0.0050
	09/02/03	<0.0050	<0.0050
	10/15/03	<0.0050	<0.0050
	11/20/03	<0.0050	<0.0050
	04/27/04	<0.0050	<0.0050
	10/07/04	<0.0050	<0.0050
	04/27/05	<0.0050	<0.0050
	10/05/05	<0.0050	<0.0050
	04/11/06	<0.0050	<0.0050
	10/5/06 [1]	<0.0050	<0.0050
	04/18/07	<0.0050	<0.0050
	10/03/07	<0.0050	<0.0050
	04/24/08	<0.0050	<0.0050
	09/24/08	<0.0050	<0.0050
Magnesium, mg/L	01/07/03	40.4	45.4
	02/27/03	41.1	50.2
	03/27/03	39.9	36.6
	04/24/03	37.4	35.8
	05/27/03	36.6	33.2
	06/18/03	38	8.5
	07/15/03	43.3	36.2
	08/13/03	42.2	41.3
	09/02/03	42.6	43.7
	10/15/03	41.6	46
	11/20/03	39.5	45.3

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Magnesium, mg/L	04/27/04	44.5	38.8
	10/07/04	41.4	30.6
	04/27/05	43.5	37
	10/05/05	75	27.4
	04/11/06	44.6	34.6
	10/5/06 [1]	43.8	37.7
	04/18/07	42.2	29.6
	10/03/07	45.4	36.6
Mg total (dissolved)	04/24/08	45.5 (48.9)	42.1 (43.4)
	09/24/08	49.4(50.1)	49.2(49.9)
Mercury, mg/L	01/07/03	<0.0040	<0.00040
	02/27/03	<0.0040	<0.00040
	03/27/03	<0.0040	<0.0040
	04/24/03	<0.0040	<0.0040
	05/27/03	<0.0040	<0.0040
	06/18/03	<0.0040	<0.0040
	07/15/03	<0.0040	<0.0040
	08/13/03	<0.0040	<0.0040
	09/02/03	<0.0040	<0.0040
	10/15/03	<0.0040	<0.0040
	11/20/03	<0.0040	<0.0040
	04/27/04	<0.00040	<0.00040
	10/07/04	<0.00040	<0.00040
	04/27/05	<0.00040	<0.00040
	10/05/05	<0.00040	<0.00040
	04/11/06	<0.00040	<0.00040
	10/5/06 [1]	<0.00040	<0.00040
	04/18/07	<0.00040	<0.00040
	10/03/07	<0.00040	<0.00040
	04/24/08	<0.00040	<0.00040
	09/24/08	<0.00040	<0.00040
Potassium, mg/L	01/07/03	2.2	5.4
	02/27/03	5	6.8
	03/27/03	4.6	5.7
	04/24/03	4.3	5.3
	05/27/03	3	3
	06/18/03	2.7	0.7
	07/15/03	5	4.3
	08/13/03	5.2	6.5
	09/02/03	3.4	6.8
	10/15/03	3.9	7.4
	11/20/03	5.1	6.8
	04/27/04	4	5.4
	10/07/04	5.5	5.6
	04/27/05	5.6	5.1
	10/05/05	2.5	7.9
	04/11/06	5.6	7.4
	10/5/06 [1]	5.5	6.2
	04/18/07	5.6	5.4
	10/03/07	5.7	6.5
	04/24/08	5.7	7.6
	09/24/08	5.9	6..4

Dickinson Landfill
Phase B Groundwater Evaluation
Summary of 2003 - 2008 Inorganic Data [2]

Parameter	Date	Phase B GW	Holding Pond
Sodium, mg/L	01/07/03	24.0	8.6
	02/27/03	8.2	8.8
	03/27/03	8.9	6
	04/24/03	6.6	7.2
	05/27/03	13.8	6.4
	06/18/03	15.6	11.8
	07/15/03	8.2	7.3
	08/13/03	8	8.1
	09/02/03	20	7.9
	10/15/03	11.9	9
	11/20/03	8.3	7.9
	04/27/04	9.6	7.2
	10/07/04	6.6	5.6
	04/27/05	8.1	6.9
	10/05/05	15.9	18.4
	04/11/06	7.7	19.2
	10/5/06 [1]	7.1	10.2
	04/18/07	7.5	6.8
	10/03/07	7.9	9.5
	04/24/08	8.9	11.7
	09/24/08	9.2	13.2
Zinc, mg/L	01/07/03	0.30	<0.010
	02/27/03	0.10	<0.010
	03/27/03	0.23	<0.010
	04/24/03	0.05	<0.010
	05/27/03	0.38	<0.010
	06/18/03	0.44	0.26
	07/15/03	0.18	<0.010
	08/13/03	0.14	<0.010
	09/02/03	0.43	<0.010
	10/15/03	0.42	<0.010
	11/20/03	0.17	<0.010
	04/27/04	0.24	<0.010
	10/07/04	<0.010	<0.010
	04/27/05	0.063	<0.010
	10/05/05	0.034	<0.010
	04/11/06	0.01	<0.010
	10/5/06 [1]	0.28	<0.010
	04/18/07	0.06	<0.010
	10/03/07	0.013	<0.010
	04/24/08	0.04	<0.010
	09/24/08	0.017	<0.010

NOTES

NT=Not Tested (Sample not collected)

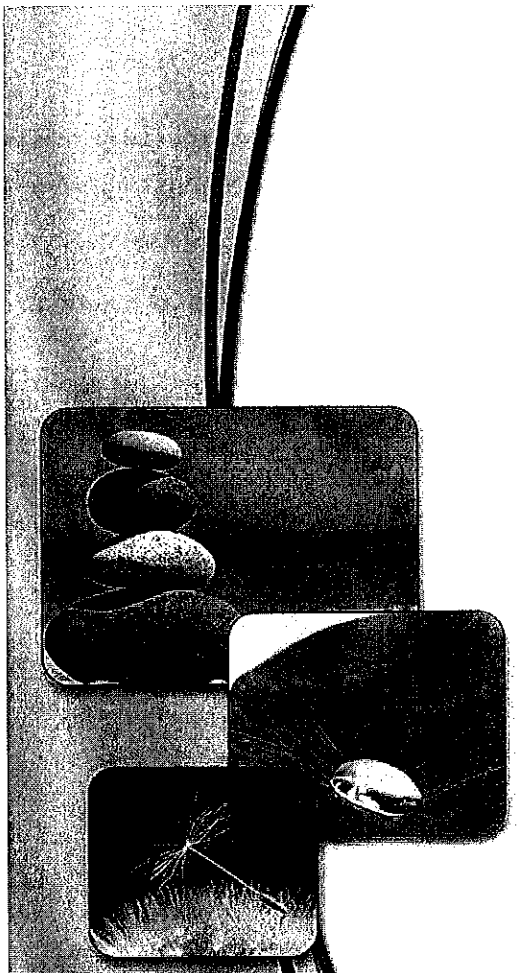
* - values are corrected values per laboratory data quality review; original values were incorrectly calculated and/or reported.

(1) - holding pond sample collected Oct. 16, 2006.

(2) - beginning summer 2007 discharge also includes water from Phase C underdrain system.

W:\lf\50382\[Phase B GW Eval 2003.xls]Inorganics

APPENDIX B



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-24892-1
Client Project/Site: Dickinson Landfill
Revision: 1 Holding Pond nickel
9/10/12

For:
Waste Management
2575 190th Street
Spirit Lake, Iowa 51360

Attn: Jeff Vassar

Authorized for release by:
10/18/2012 4:43:17 PM
Ryan VanDette
Project Manager I
ryan.vandette@testamericainc.com

Designee for

Peggy Gray-Erdmann
Project Manager II
peggy.gray-erdmann@testamericainc.com

Table of Contents

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-24892-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-24892-1

Comments
No additional comments.

Receipt
The samples were received on 9/11/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 4.3° C.

Metals
No analytical or quality issues were noted.

Detection Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Client Sample ID: Holding Pond — **Lab Sample ID: 480-24892-1**

No Detections

Client Sample ID: Holding Pond — **Lab Sample ID: 480-24892-2**

No Detections

Client Sample ID: Holding Pond

Lab Sample ID: 480-24892-1

Date Collected: 09/10/12 10:00
Matrix: Surface Water
Date Received: 09/11/12 09:00

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 17:14	1

Client Sample ID: Holding Pond

Lab Sample ID: 480-24892-2

Date Collected: 09/10/12 10:00
Matrix: Water
Date Received: 09/11/12 09:00

Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 16:11	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 480-79997/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 80321 — **Prep Batch: 79997**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.2		mg/Kg		09/11/12 13:40	09/11/12 23:18	1
Nickel	ND		5.4		mg/Kg		09/11/12 13:40	09/11/12 23:18	1

Lab Sample ID: LCSSRM 480-79997/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 80321 — **Prep Batch: 79997**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	94.6	88.08		mg/Kg		93.1	69.2 - 131.2
Nickel	57.6	54.73		mg/Kg		95.0	70.0 - 130.2

Lab Sample ID: 480-24892-6 MS — **Client Sample ID: OFF SITE 2**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 80321 — **Prep Batch: 79997**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	7.7		47.1	50.48		mg/Kg	☼	91	75 - 125
Nickel	21.8		47.1	69.21		mg/Kg	☼	101	75 - 125

Lab Sample ID: 480-24892-6 MSD — **Client Sample ID: OFF SITE 2**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 80321 — **Prep Batch: 79997**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	7.7		49.1	52.13		mg/Kg	☼	90	75 - 125	3	20
Nickel	21.8		49.1	68.37		mg/Kg	☼	95	75 - 125	1	20

Lab Sample ID: MB 480-80015/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 80283 — **Prep Batch: 80015**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 16:14	1

Lab Sample ID: LCS 480-80015/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 80283 — **Prep Batch: 80015**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	0.200	0.200		mg/L		100	80 - 120

Lab Sample ID: MB 480-79331/15-B — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 80282 — **Prep Batch: 80025**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 15:10	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-79331/16-B
Matrix: Water
Analysis Batch: 80282

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 80025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Nickel	0.200	0.199		mg/L		100	80 - 120

QC Association Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Metals

Prep Batch: 80015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-1	Holding Pond	Total/NA	Surface Water	3005A	

Prep Batch: 80025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-2	Holding Pond	Dissolved	Water	3005A	

Analysis Batch: 80282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-2	Holding Pond	Dissolved	Water	6010B	80025

Analysis Batch: 80283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-1	Holding Pond	Total/NA	Surface Water	6010B	80015

Lab Chronicle

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Client Sample ID: Holding Pond

Lab Sample ID: 480-24892-1

Date Collected: 09/10/12 10:00

Matrix: Surface Water

Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			80015	09/12/12 07:50	SS	TAL BUF
Total/NA	Analysis	6010B		1	80283	09/12/12 17:14	MM	TAL BUF

Client Sample ID: Holding Pond

Lab Sample ID: 480-24892-2

Date Collected: 09/10/12 10:00

Matrix: Water

Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			80025	09/12/12 07:50	SS	TAL BUF
Dissolved	Analysis	6010B		1	80282	09/12/12 16:11	LH	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-13
California	NELAC	9	1169CA	09-30-12
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAC	4	E87672	06-30-13
Georgia	State Program	4	N/A	03-31-13
Georgia	State Program	4	956	06-30-13
Georgia	State Program	4	956	03-31-12
Illinois	NELAC	5	200003	09-30-12
Iowa	State Program	7	374	03-01-13
Kansas	NELAC	7	E-10187	01-31-13
Kentucky	State Program	4	90029	12-31-12
Kentucky (UST)	State Program	4	30	04-01-13
Louisiana	NELAC	6	02031	06-30-13
Maine	State Program	1	NY00044	12-04-12
Maryland	State Program	3	294	03-31-13
Massachusetts	State Program	1	M-NY044	06-30-13
Michigan	State Program	5	9937	04-01-13
Minnesota	NELAC	5	036-999-337	12-31-12
New Hampshire	NELAC	1	2973	09-11-13
New Hampshire	NELAC	1	2337	11-17-12
New Jersey	NELAC	2	NY455	06-30-13
New York	NELAC	2	10026	03-31-13
North Dakota	State Program	8	R-176	03-31-13
Oklahoma	State Program	6	9421	08-31-13
Oregon	NELAC	10	NY200003	06-09-13
Pennsylvania	NELAC	3	68-00281	07-31-13
Tennessee	State Program	4	TN02970	04-01-13
Texas	NELAC	6	T104704412-11-2	07-31-13
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAC	3	460185	09-14-13
Washington	State Program	10	C784	02-10-13
West Virginia DEP	State Program	3	252	09-30-13
Wisconsin	State Program	5	998310390	08-31-13

Method Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL BUF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-24892-1	Holding Pond	Surface Water	09/10/12 10:00	09/11/12 09:00
480-24892-2	Holding Pond	Water	09/10/12 10:00	09/11/12 09:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica

Client Information	Sampler: Jeff Hoffman	Lab PM: Gray-Erdmann, Peggy	Carrier Tracking No(s):	COC No: 480-27260-7074 1
Client Contact: Tim Portner	Phone: 507-276-4062	E-Mail: peggy gray-erdmann@testamericainc.com		Page: Page 1 of 1
Company: Minnesota Valley Testing Laboratories				Job #:
Address: 1126 North Front Street	Due Date Requested:			
City: New Ulm	TAT Requested (days):			
State, Zip: MN, 56073				
Phone:	PO #: Purchase Order not required			
Email: tportner@mvtl.com	WO #:			
Project Name: Dickinson Landfill	Project #: 48003212			
Site: Iowa	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (w=water, s=solid, o=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010B - Nickel	6010B - (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
Holding Pond	9-10-12	10:00	G	Water			1			
Holding Pond		10:00		Water			1			
bottom cut		10:15		Solid				1		
Grade Cut		10:25		Solid				1		
off Site 1		10:40		Solid				1		
off Site 2		10:50		Solid				1		
				Solid						

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date:	Time:	Method of Shipment

	Date/Time	Company		Date/Time	Company
Relinquished by			Received by: Zachary A. Dickson	9/11/12 0900	TAL BUFFALO
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #1 4.3

10/18/2012

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson
Site No.:
Sample Point: Holding Pond (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
09/10/12					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or (N)
Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: X — A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle
Sampling Device: X
X-Other: Whale

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other ____
Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl)	Depth to Water (DTW) (from TOC) (ft)	Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)	Stick Up (from ground elevation) (ft)	Casing ID (in)	Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1000	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____
09/10/12	6.68	797	19.1	00	7.7	70	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: none Color: none Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny 65° Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): ____

FIELD COMMENTS

Sampled from North West corner of H. Pond

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoffman	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson
Site No.:
Sample Point: bottom cut
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE (NFO)

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N] Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] A- Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Pision Pump F-Dipper/Bottle

Sampling Device [ ]

X-Other:

Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other

Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl) | Depth to Water (DTW) (from TOC) (ft) | Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft) | Stick Up (from ground elevation) (ft) | Casing ID (in) | Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by State/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:15	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
09/10/12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Odor: Color: Other:

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

Soil sample from on-site borrow area
- bottom cut GPS 15T0331093
(UTM) 4803771
- depth to bottom cut 12-15'

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson

Site No.: ____ Sample Point: Grader cut (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID: ____

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N] Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] A- Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle

Sampling Device [ ]

X-Other: [ ]

Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other ____

Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other: ____

WELL DATA

Well Elevation (at TOC) [ ] (ft/msl) Depth to Water (DTW) (from TOC) [ ] (ft) Groundwater Elevation (site datum, from TOC) [ ] (ft/msl)

Total Well Depth (from TOC) [ ] (ft) Stick Up (from ground elevation) [ ] (ft) Casing ID [ ] (in) Casing Material [ ]

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:25	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: ____ Odor: ____ Color: ____ Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

Soil Sample from on-site borrow area
- Grader cut
- GPS 15T 0331090
(UTM) 4803771

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/13	Jeff Hoffman	Jeff Hoff	MTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson SLF
Site No.:
Sample Point: off Site 1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N]
Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ]
Sampling Device [ ]
X-Other:

A- Submersible Pump
B-Peristaltic Pump
C-QED Bladder Pump
D-Bailer
E-Piston Pump
F-Dipper/Bottle

Filter Type: [ ]
A-In-line Disposable
B-Pressure
C-Vacuum
X-Other

Sample Tube Type: [ ]
A-Teflon
B-Stainless Steel
C-PVC
D-Polypropylene
X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC) (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID (in)
Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit		pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1040		1st							
		2nd							
		3rd							
		4th							
Suggested range for 3 consec. readings or note Permit/State requirements:			+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: / Units
9/10/12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: _____ Odor: _____ Color: _____ Other: _____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-30 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

- off Site Soil Sample - 1
- LPS 15T 0033 1548 (WTM) 4804 191
- Sample Depth 0-12"

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson SLF

Site No.:

Sample Point: off Site 12 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N]

Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] — A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device [ ] — A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: [ ] — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

X-Other:

Sample Tube Type: [ ] — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1050	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
9 10 12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: _____ Odor: _____ Color: _____ Other: _____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-30 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

- off Site Soil Sample 12
- GPS 15T 0331833 4804196
- Sample depth 0-12"

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-24892-1

Login Number: 24892
List Number: 1
Creator: Janish, Carl

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	mvtl
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

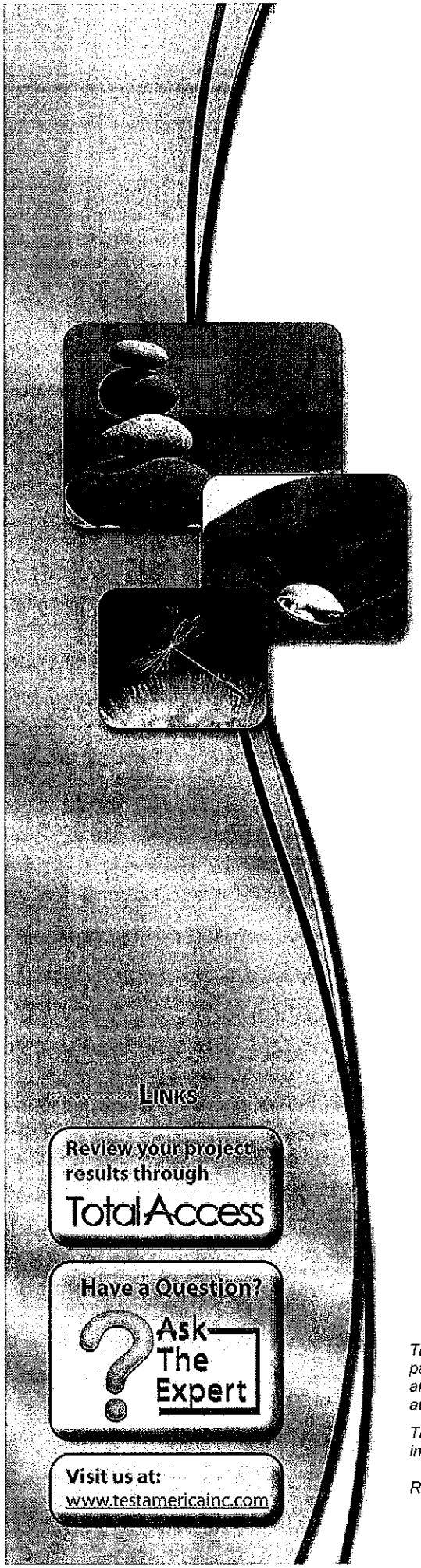
Client: Waste Management

Job Number: 480-24892-1

Login Number: 24892
List Number: 1
Creator: Janish, Carl

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	mvtl
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-24892-1
Client Project/Site: Dickinson Landfill
Revision: 2 'Soil nickel

For:
Waste Management
2575 190th Street
Spirit Lake, Iowa 51360

Attn: Jeff Vassar

Authorized for release by:
10/18/2012 4:46:54 PM
Ryan VanDette
Project Manager I
ryan.vandette@testamericainc.com

Designee for

Peggy Gray-Erdmann
Project Manager II
peggy.gray-erdmann@testamericainc.com

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-24892-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-24892-1

Comments
No additional comments.

Receipt
The samples were received on 9/11/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 4.3° C.

Metals
No analytical or quality issues were noted.

Detection Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Client Sample ID: BOTTOM CUT — Lab Sample ID: 480-24892-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	4.1		2.2		mg/Kg	1	☼	6010B	Total/NA
Nickel	15.7		5.5		mg/Kg	1	☼	6010B	Total/NA

Client Sample ID: GRADE CUT — Lab Sample ID: 480-24892-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.6		2.4		mg/Kg	1	☼	6010B	Total/NA
Nickel	19.9		5.9		mg/Kg	1	☼	6010B	Total/NA

Client Sample ID: OFF SITE 1 — Lab Sample ID: 480-24892-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.7		2.7		mg/Kg	1	☼	6010B	Total/NA
Nickel	17.1		6.9		mg/Kg	1	☼	6010B	Total/NA

Client Sample ID: OFF SITE 2 — Lab Sample ID: 480-24892-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	7.7		2.5		mg/Kg	1	☼	6010B	Total/NA
Nickel	21.8		6.2		mg/Kg	1	☼	6010B	Total/NA

Client Sample ID: BOTTOM CUT — **Lab Sample ID: 480-24892-3**
Date Collected: 09/10/12 10:15 — Matrix: Solid
Date Received: 09/11/12 09:00 — Percent Solids: 84.9

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.1		2.2		mg/Kg	☼	09/11/12 13:40	09/11/12 23:22	1
Nickel	15.7		5.5		mg/Kg	☼	09/11/12 13:40	09/11/12 23:22	1

Client Sample ID: GRADE CUT — **Lab Sample ID: 480-24892-4**
Date Collected: 09/10/12 10:25 — Matrix: Solid
Date Received: 09/11/12 09:00 — Percent Solids: 86.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.6		2.4		mg/Kg	☼	09/11/12 13:40	09/11/12 23:24	1
Nickel	19.9		5.9		mg/Kg	☼	09/11/12 13:40	09/11/12 23:24	1

Client Sample ID: OFF SITE 1 — **Lab Sample ID: 480-24892-5**
Date Collected: 09/10/12 10:40 — Matrix: Solid
Date Received: 09/11/12 09:00 — Percent Solids: 78.6

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.7		2.7		mg/Kg	☼	09/11/12 13:40	09/11/12 23:27	1
Nickel	17.1		6.9		mg/Kg	☼	09/11/12 13:40	09/11/12 23:27	1

Client Sample ID: OFF SITE 2 — **Lab Sample ID: 480-24892-6**
Date Collected: 09/10/12 10:50 — Matrix: Solid
Date Received: 09/11/12 09:00 — Percent Solids: 86.4

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.7		2.5		mg/Kg	☼	09/11/12 13:40	09/11/12 23:29	1
Nickel	21.8		6.2		mg/Kg	☼	09/11/12 13:40	09/11/12 23:29	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 480-79997/1-A
Matrix: Solid
Analysis Batch: 80321

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 79997

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.2		mg/Kg		09/11/12 13:40	09/11/12 23:18	1
Nickel	ND		5.4		mg/Kg		09/11/12 13:40	09/11/12 23:18	1

Lab Sample ID: LCSSRM 480-79997/2-A
Matrix: Solid
Analysis Batch: 80321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 79997

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	94.6	88.08		mg/Kg		93.1	69.2 - 131.2
Nickel	57.6	54.73		mg/Kg		95.0	70.0 - 130.2

Lab Sample ID: 480-24892-6 MS
Matrix: Solid
Analysis Batch: 80321

Client Sample ID: OFF SITE 2
Prep Type: Total/NA
Prep Batch: 79997

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	7.7		47.1	50.48		mg/Kg	☼	91	75 - 125
Nickel	21.8		47.1	69.21		mg/Kg	☼	101	75 - 125

Lab Sample ID: 480-24892-6 MSD
Matrix: Solid
Analysis Batch: 80321

Client Sample ID: OFF SITE 2
Prep Type: Total/NA
Prep Batch: 79997

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	7.7		49.1	52.13		mg/Kg	☼	90	75 - 125	3	20
Nickel	21.8		49.1	68.37		mg/Kg	☼	95	75 - 125	1	20

Lab Sample ID: MB 480-80015/1-A
Matrix: Water
Analysis Batch: 80283

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 80015

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 16:14	1

Lab Sample ID: LCS 480-80015/2-A
Matrix: Water
Analysis Batch: 80283

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 80015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	0.200	0.200		mg/L		100	80 - 120

Lab Sample ID: MB 480-79331/15-B
Matrix: Water
Analysis Batch: 80282

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 80025

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Nickel	ND		0.010		mg/L		09/12/12 07:50	09/12/12 15:10	1

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-79331/16-B
Matrix: Water
Analysis Batch: 80282

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 80025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Nickel	0.200	0.199		mg/L		100	80 - 120

QC Association Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Metals

Prep Batch: 79997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-3	BOTTOM CUT	Total/NA	Solid	3050B	
480-24892-4	GRADE CUT	Total/NA	Solid	3050B	
480-24892-5	OFF SITE 1	Total/NA	Solid	3050B	
480-24892-6	OFF SITE 2	Total/NA	Solid	3050B	

Analysis Batch: 80321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-3	BOTTOM CUT	Total/NA	Solid	6010B	79997
480-24892-4	GRADE CUT	Total/NA	Solid	6010B	79997
480-24892-5	OFF SITE 1	Total/NA	Solid	6010B	79997
480-24892-6	OFF SITE 2	Total/NA	Solid	6010B	79997

General Chemistry

Analysis Batch: 80426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-24892-3	BOTTOM CUT	Total/NA	Solid	Moisture	
480-24892-4	GRADE CUT	Total/NA	Solid	Moisture	
480-24892-5	OFF SITE 1	Total/NA	Solid	Moisture	
480-24892-6	OFF SITE 2	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Client Sample ID: BOTTOM CUT

Lab Sample ID: 480-24892-3
Matrix: Solid
Percent Solids: 84.9

Date Collected: 09/10/12 10:15
Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			79997	09/11/12 13:40	SS	TAL BUF
Total/NA	Analysis	6010B		1	80321	09/11/12 23:22	LH	TAL BUF
Total/NA	Analysis	Moisture		1	80426	09/13/12 14:08	ZLR	TAL BUF

Client Sample ID: GRADE CUT

Lab Sample ID: 480-24892-4
Matrix: Solid
Percent Solids: 86.4

Date Collected: 09/10/12 10:25
Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			79997	09/11/12 13:40	SS	TAL BUF
Total/NA	Analysis	6010B		1	80321	09/11/12 23:24	LH	TAL BUF
Total/NA	Analysis	Moisture		1	80426	09/13/12 14:08	ZLR	TAL BUF

Client Sample ID: OFF SITE 1

Lab Sample ID: 480-24892-5
Matrix: Solid
Percent Solids: 78.6

Date Collected: 09/10/12 10:40
Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			79997	09/11/12 13:40	SS	TAL BUF
Total/NA	Analysis	6010B		1	80321	09/11/12 23:27	LH	TAL BUF
Total/NA	Analysis	Moisture		1	80426	09/13/12 14:08	ZLR	TAL BUF

Client Sample ID: OFF SITE 2

Lab Sample ID: 480-24892-6
Matrix: Solid
Percent Solids: 86.4

Date Collected: 09/10/12 10:50
Date Received: 09/11/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			79997	09/11/12 13:40	SS	TAL BUF
Total/NA	Analysis	6010B		1	80321	09/11/12 23:29	LH	TAL BUF
Total/NA	Analysis	Moisture		1	80426	09/13/12 14:08	ZLR	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-13
California	NELAC	9	1169CA	09-30-12
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAC	4	E87672	06-30-13
Georgia	State Program	4	N/A	03-31-13
Georgia	State Program	4	956	06-30-13
Georgia	State Program	4	956	03-31-12
Illinois	NELAC	5	200003	09-30-12
Iowa	State Program	7	374	03-01-13
Kansas	NELAC	7	E-10187	01-31-13
Kentucky	State Program	4	90029	12-31-12
Kentucky (UST)	State Program	4	30	04-01-13
Louisiana	NELAC	6	02031	06-30-13
Maine	State Program	1	NY00044	12-04-12
Maryland	State Program	3	294	03-31-13
Massachusetts	State Program	1	M-NY044	06-30-13
Michigan	State Program	5	9937	04-01-13
Minnesota	NELAC	5	036-999-337	12-31-12
New Hampshire	NELAC	1	2973	09-11-13
New Hampshire	NELAC	1	2337	11-17-12
New Jersey	NELAC	2	NY455	06-30-13
New York	NELAC	2	10026	03-31-13
North Dakota	State Program	8	R-176	03-31-13
Oklahoma	State Program	6	9421	08-31-13
Oregon	NELAC	10	NY200003	06-09-13
Pennsylvania	NELAC	3	68-00281	07-31-13
Tennessee	State Program	4	TN02970	04-01-13
Texas	NELAC	6	T104704412-11-2	07-31-13
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAC	3	460185	09-14-13
Washington	State Program	10	C784	02-10-13
West Virginia DEP	State Program	3	252	09-30-13
Wisconsin	State Program	5	998310390	08-31-13

Method Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Waste Management
Project/Site: Dickinson Landfill

TestAmerica Job ID: 480-24892-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-24892-3	BOTTOM CUT	Solid	09/10/12 10:15	09/11/12 09:00
480-24892-4	GRADE CUT	Solid	09/10/12 10:25	09/11/12 09:00
480-24892-5	OFF SITE 1	Solid	09/10/12 10:40	09/11/12 09:00
480-24892-6	OFF SITE 2	Solid	09/10/12 10:50	09/11/12 09:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Tim Portner	Jeff Hoffman Phone: 507-276-4062	Gray-Erdmann, Peggy E-Mail: peggy gray-erdmann@testamericainc.com		480-27260-7074 1 Page: Page 1 of 1

Company: Minnesota Valley Testing Laboratories
Address: 1126 North Front Street
City: New Ulm
State, Zip: MN, 56073
Phone:
Email: tportner@mvtl.com
Project Name: Dickinson Landfill
Site: Iowa

Due Date Requested:
TAT Requested (days):
PO #: Purchase Order not required
WO #:
Project #: 48003212
SSOW#:

Job #:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - Di Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010B - Nickel	8010B - (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N		
Holding Pond	9-10-12	10:00	G	Water	Y		1			
Holding Pond		10:00		Water	N		1			
bottom cut		10:15		Solid				1		
Grade Cut		10:25		Solid				1		
off Site 1		10:40		Solid				1		
off Site 2		10:50		Solid				1		
				Solid						

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date:	Time:	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1				[signature]	9/11/12 0900	TAL BUFFALO
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: △ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: #1 4.3

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson Site No.: Sample Point: Holding Pond Sample ID:

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
09 10 12					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or (N)

Purging Device: X — A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: X

X-Other: Whale

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other ____

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl) Depth to Water (DTW) (from TOC) ____ (ft) Groundwater Elevation (site datum, from TOC) ____ (ft/msl)

Total Well Depth (from TOC) ____ (ft) Stick Up (from ground elevation) ____ (ft) Casing ID ____ (in) Casing Material ____

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1 10:00	1st	1st						
2	2nd	2nd						
3	3rd	3rd						
4	4th	4th						
5								
6								
7								
8								
9								
10								
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____
09 10 12	6.68	797	19.1	00	7.7	70	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear Odor: none Color: none Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny 65° Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Sampled from North West corner of H. Pond

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Dickinson
Site No.:
Sample Point: bottom cut (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N
Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)
Purging Device: A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle
Sampling Device:
X-Other:
Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other
Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC) (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID (in)
Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:15	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
09/10/12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: ____ Odor: ____ Color: ____ Other: ____
Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

Soil sample from on-site borrow area
- bottom cut GPS 15T0331093
(UTM) 4803771
- depth to bottom cut 12-15'

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson

Site No.:

Sample Point: Grade cut

Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (site datum, from TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by State/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:25	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: ____ Odor: ____ Color: ____ Other: ____

Weather Conditions (required daily, or as conditions change): Direction/Speed: S-20 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

Soil Sample from on-site borrow area
- Grade cut
- GPS 15T 0331090
(UTM) 4803771

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/13	Jeff Hoffman	Jeff Hoffman	MTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: Dickinson SLF
Site No.:
Sample Point: off Site 1
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hr:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N]
Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] A- Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle
Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other:

Sampling Device [ ]
X-Other:
Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC) (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID (in)
Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
10:40	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
9 10 12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: Odor: Color: Other:
Weather Conditions (required daily, or as conditions change): Direction/Speed: S-30 Outlook: Sunny Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

- off Site Soil Sample - 1
- GPS 15 T 0033 1568 (WTM) 4804 191
- Sample Depth 0 - 12"

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Hoffman	Jeff Hoff	MVTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Dickinson SLF
Site No.:
Sample Point: off Site 2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: [Y] or [N]
Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] A- Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle
Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other
Sampling Device [ ]
X-Other:
Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl) | Depth to Water (DTW) (from TOC) (ft) | Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft) | Stick Up (from ground elevation) (ft) | Casing ID (in) | Casing Material

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1050	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
9/10/12							

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

FIELD COMMENTS

Sample Appearance: ____ Odor: ____ Color: ____ Other: ____
Weather Conditions (required daily, or as conditions change): Direction/Speed: S-30 Outlook: Sunny Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

- off Site Soil Sampler 2
- GPS 15T 033833 4804196
- Sample depth 0-12"

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
9/10/12	Jeff Huffman	Jeff Huff	MWTL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-24892-1

Login Number: 24892

List Number: 1

Creator: Janish, Carl

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	mvtl
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-24892-1

Login Number: 24892

List Number: 1

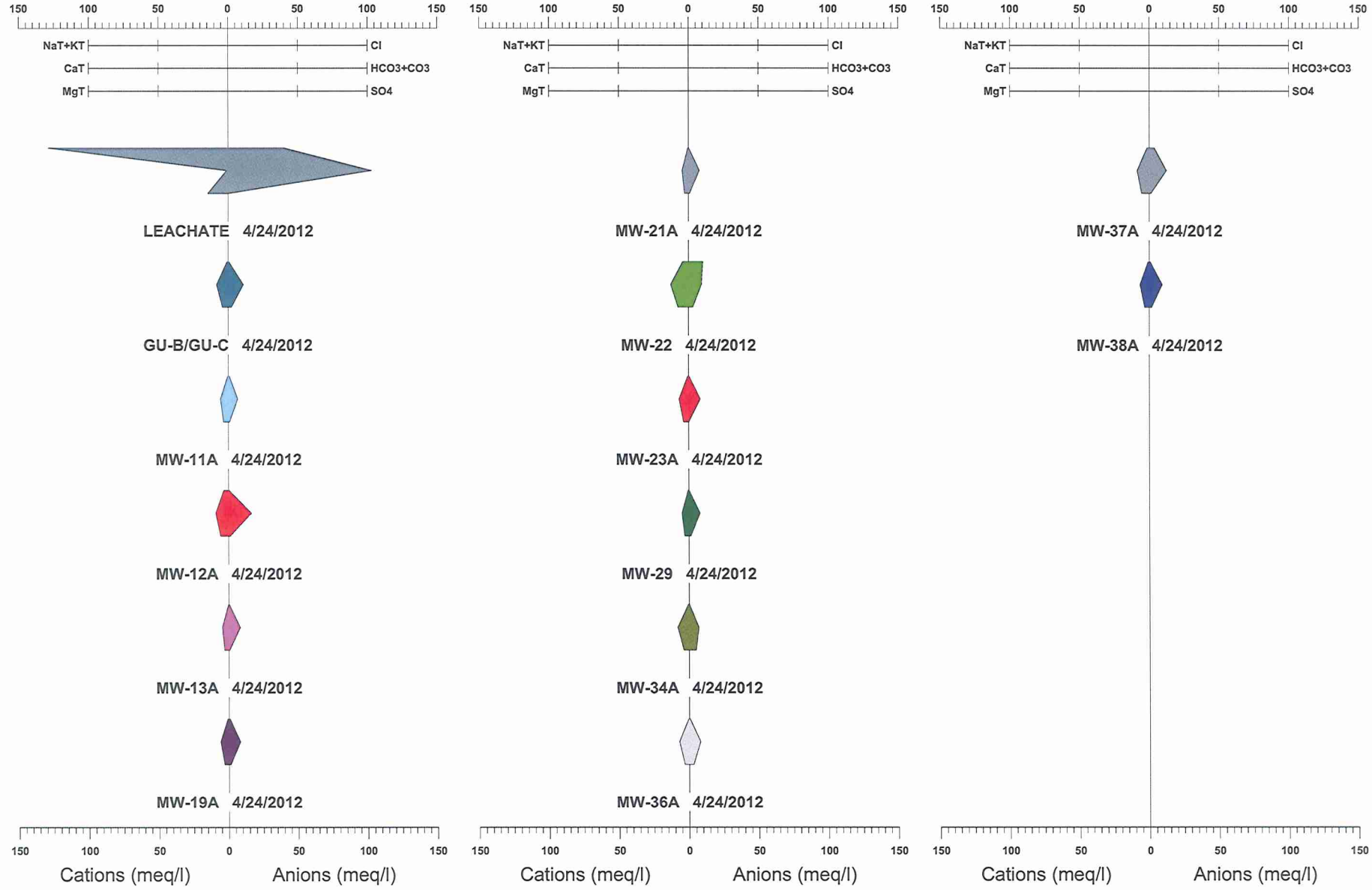
Creator: Janish, Carl

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	mvtl
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

APPENDIX C

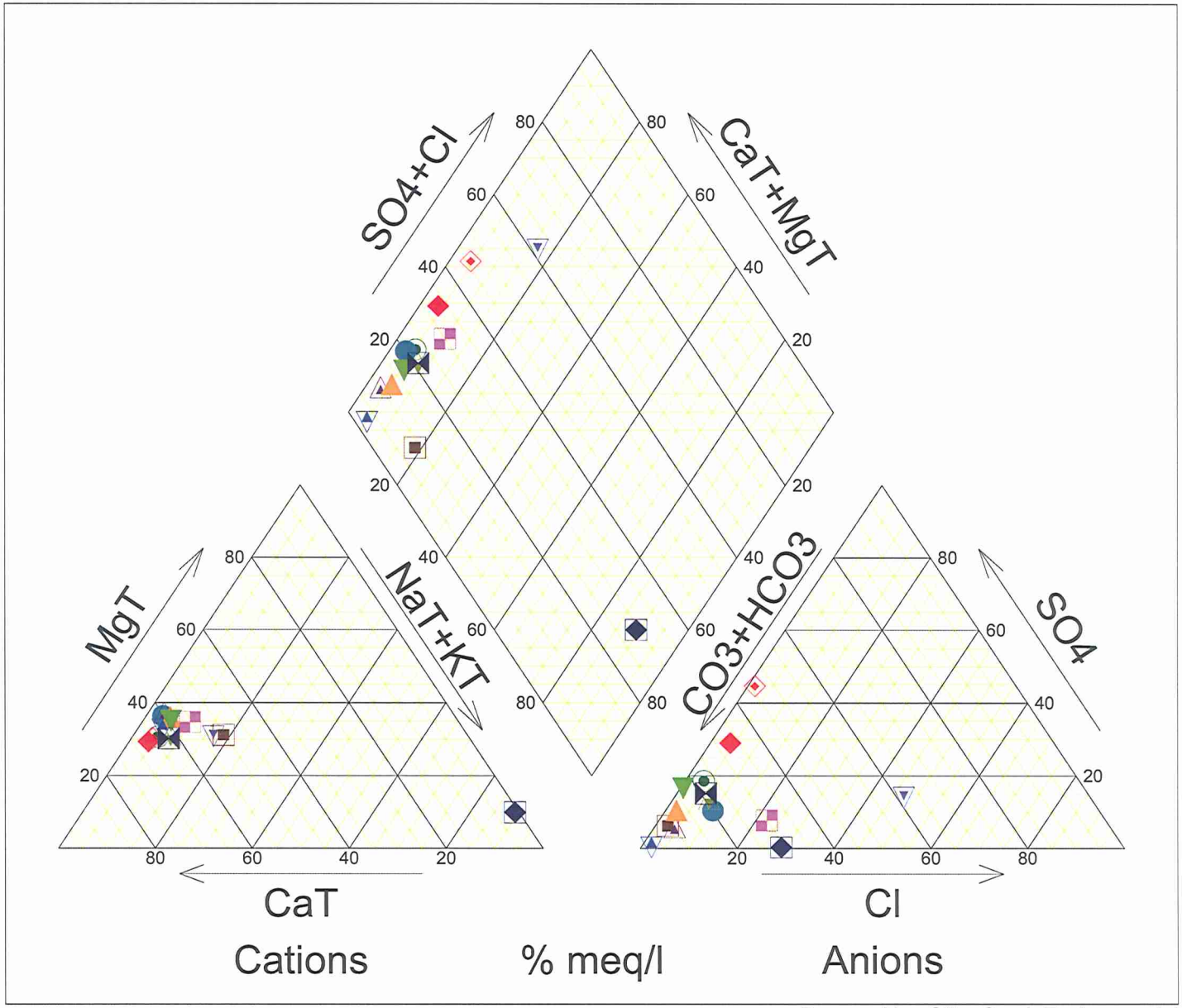
Dickinson Landfill



Prepared by: Otter Creek Environmental

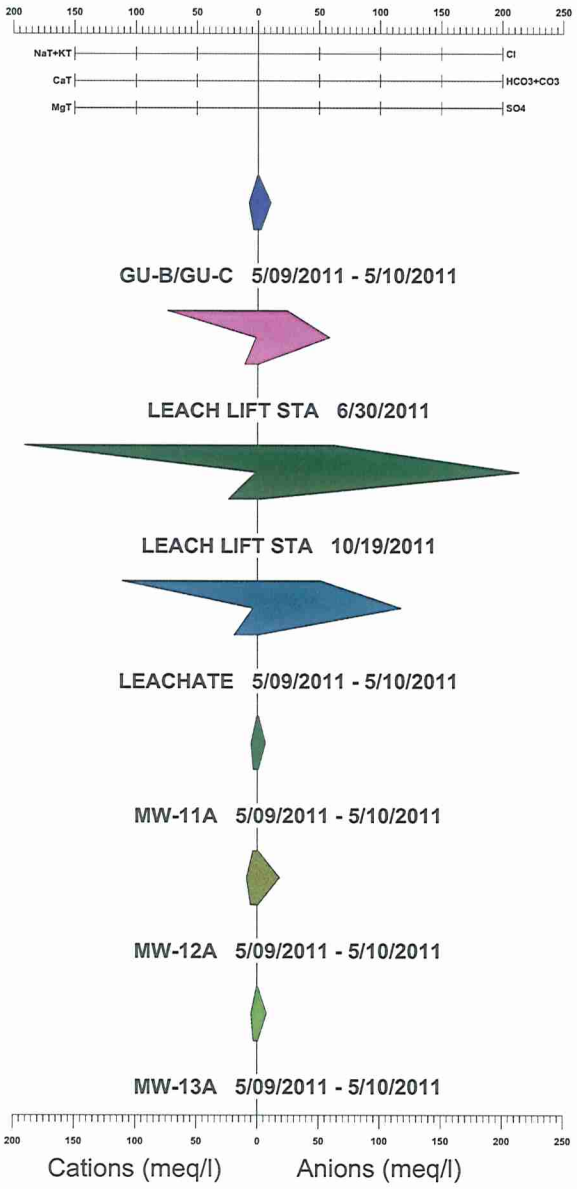
Dickinson Landfill

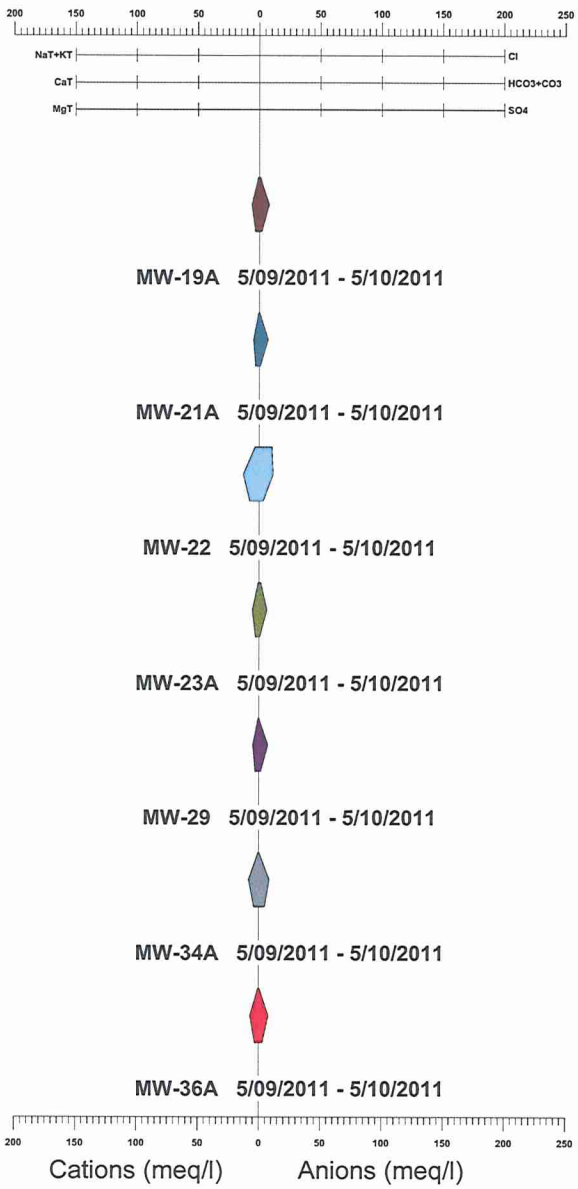
LEACHATE	4/24/2012
GU-B/GU-C	4/24/2012
MW-11A	4/24/2012
MW-12A	4/24/2012
MW-13A	4/24/2012
MW-19A	4/24/2012
MW-21A	4/24/2012
MW-22	4/24/2012
MW-23A	4/24/2012
MW-29	4/24/2012
MW-34A	4/24/2012
MW-36A	4/24/2012
MW-37A	4/24/2012
MW-38A	4/24/2012

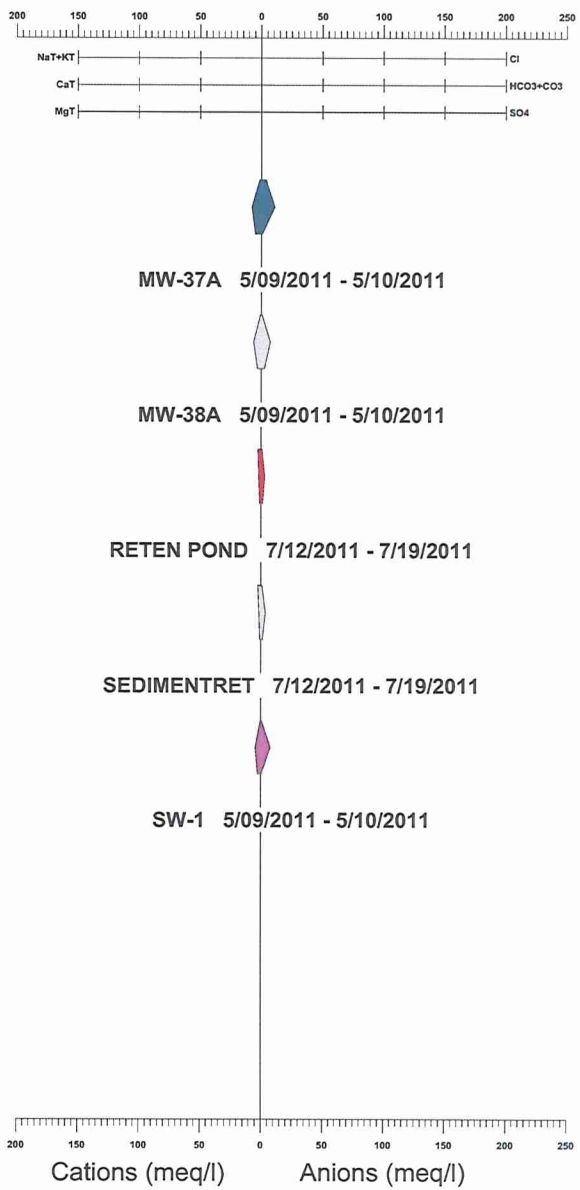


Prepared by: Otter Creek Environmental

Dickinson Landfill



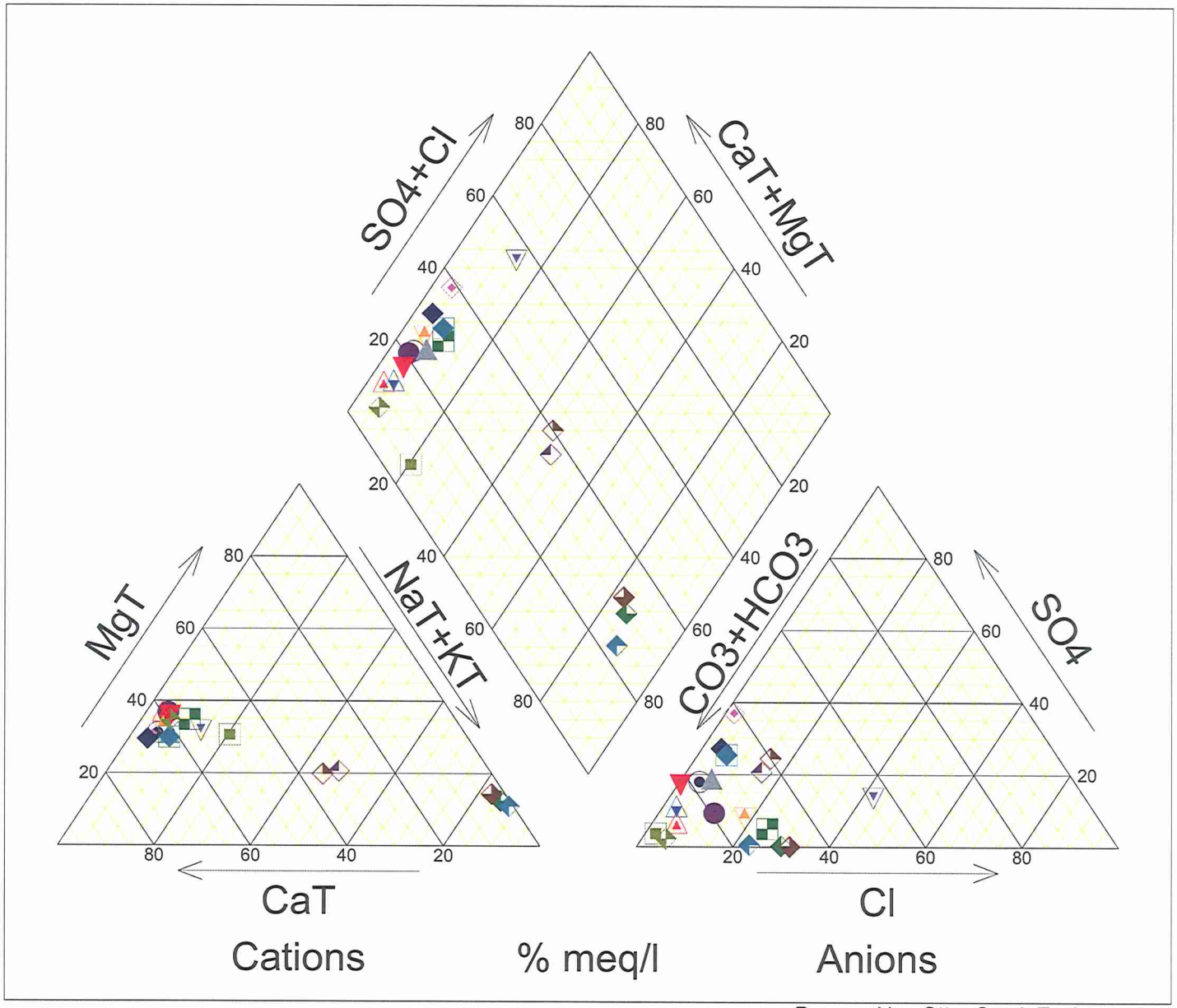




Prepared by: Otter Creek Environmental

Dickinson Landfill

GU-B/GU-C	5/09/2011 - 5/10/2011
LEACH LIFT STA	6/30/2011
LEACH LIFT STA	10/19/2011
LEACHATE	5/09/2011 - 5/10/2011
MW-11A	5/09/2011 - 5/10/2011
MW-12A	5/09/2011 - 5/10/2011
MW-13A	5/09/2011 - 5/10/2011
MW-19A	5/09/2011 - 5/10/2011
MW-21A	5/09/2011 - 5/10/2011
MW-22	5/09/2011 - 5/10/2011
MW-23A	5/09/2011 - 5/10/2011
MW-29	5/09/2011 - 5/10/2011
MW-34A	5/09/2011 - 5/10/2011
MW-36A	5/09/2011 - 5/10/2011
MW-37A	5/09/2011 - 5/10/2011
MW-38A	5/09/2011 - 5/10/2011
RETEN POND	7/12/2011 - 7/19/2011
SEDIMENTRET	7/12/2011 - 7/19/2011
SW-1	5/09/2011 - 5/10/2011



Prepared by: Otter Creek Environmental

Table 6
Dickinson Landfill, Inc.
Major Ion Data [1]

Major Ion Parameter	Date	Units	MCL [2]	RL	MW-11A	MW-12A	MW-13A	MW-18A	MW-19A	MW-21A	MW-22	MW-23A	MW-29	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	SW-1	GU-B&GU-C	Leachate
cations																					
Calcium	04/29/08	MG/L	na	0.5	113	207	89.6	117	123	93.6	NT	NT	NT	NT	NT	NT	NT	NT	89.6	161	459
	09/24/08				113	196	91.1	107	127	97.2	NT	NT	NT	NT	NT	NT	NT	NT	Dry	156	256
	10/26/09				113	203	93.3	NT	118	96.8	132	117	85.7	167	144	187	113	NT	Dry	162	169
	04/13/10				105	176	89.5	NT	120	93.2	199	109	93.7	160	141	157	127	NT	NT	146	120
	05/10/11				105	174	98	NT	124	92.9	257	105	97	163	139	158	126	NT	91.5	153	75.9
	04/24/12				113	185	94.9	NT	121	91.6	254	138	99.4	162	143	174	133	NT	116	165	23.2
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	138	NT	NT	NT
Magnesium - Total	04/29/08	MG/L	na	0.2	41.8	75.1	32.4	39.7	35.8	35	NT	NT	NT	NT	NT	NT	NT	NT	32.4	47.2	183
	09/24/08				42.0	72.1	33.4	36.4	36.2	37.1	NT	NT	NT	NT	NT	NT	NT	NT	Dry	47.0	315
	10/26/09				41.5	74.7	34.3	NT	34.7	37.3	45.6	36.6	32.3	46.5	37.9	65.5	33.0	NT	Dry	49	216
	04/13/10				38.4	66.4	33.1	NT	35.5	36.1	69.2	34.2	33.3	45.1	37.2	55.8	36.2	NT	NT	39	203
	05/10/11				40.0	66	37	NT	38	35.5	90.8	33.9	35.8	47.2	37.4	60.4	36.9	NT	32.6	45.5	233
	04/24/12				41.4	69.6	36.1	NT	37.2	34.1	90.2	44	35.7	45.5	38.2	66.1	39.3	NT	38.5	47.8	175
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	47.7	NT	NT	NT
Potassium - Total	04/29/08	MG/L	na	0.5	2.4	6.2	1.9	3.2	2.2	3.1	NT	NT	NT	NT	NT	NT	NT	NT	1.9	5.8	220
	09/24/08				2.7	6.3	2.2	2.5	0.93	3.6	NT	NT	NT	NT	NT	NT	NT	NT	Dry	6.1	432
	10/26/09				2.9	6.36	2.09	NT	0.844	3.44	1.2	1.8	3.62	4.71	5.45	3.61	2.40	NT	Dry	6.28	416
	04/13/10				2.37	5.36	1.86	NT	0.761	2.66	1.31	1.45	3.92	4.65	4.64	1.76	0.595	NT	NT	4.71	308
	05/10/11				2.7	6.2	2.3	NT	1.1	3.7	1.9	1.4	7	5	4.7	1.8	0.92	NT	1.9	6.2	419
	04/24/12				2.9	5.9	2.3	NT	1.1	4.2	2.2	2.4	4.3	5.2	5	1.8	0.79	NT	2	7.2	366
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3	NT	NT	NT
Sodium - Total	04/29/08	MG/L	na	1	6.2	84.9	4.2	4.6	22.1	7.6	NT	NT	NT	NT	NT	NT	NT	NT	4.2	9	917
	09/24/08				6.1	80.6	4.2	4.6	21.5	6.2	NT	NT	NT	NT	NT	NT	NT	NT	Dry	8.8	1990
	10/26/09				5.7	78.1	4.3	NT	16.9	5.9	30.6	10.9	9.0	8.4	6.6	32.7	13.4	NT	Dry	9.3	1880
	04/13/10				9	92.8	4.1	NT	15.9	5.9	42.9	8.6	7.6	8.5	6.2	27.6	12.4	NT	NT	8	1630
	05/10/11				7.7	79.7	4.9	NT	17.2	7.4	74.2	9.9	8	9.5	6.7	31.8	18.7	NT	9.5	10.8	2300
	04/24/12				5.8	74.9	4.6	NT	16.8	6.7	91.2	11.8	8.6	9.7	6.7	34.4	18.4	NT	15	11.2	2750
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.9	NT	NT	NT
anions																					
Alkalinity, Bicarb	04/29/08	MG/L	na	25	169	745	170	207	316	311	NT	NT	NT	NT	NT	NT	NT	NT	NT	389	2570
	09/24/08				360	932	401	325	460	332	NT	NT	NT	NT	NT	NT	NT	NT	Dry	490	5270
	10/26/09				327	873	784	NT	398	297	429	296	279	389	350	330	310	NT	Dry	452	3720
	04/13/10				308	903	409	NT	386	324	482	285	336	421	366	469	370	NT	NT	547	3770
	05/10/11				315	882	355	NT	383	350	552	315	359	408	385	520	346	NT	372	497	5580
	04/24/12				312	769	358	NT	357	339	412	364	345	298	351	564	413	NT	NT	496	4860
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	448	NT	NT	NT
Chloride	04/29/08	MG/L	na	0.5	36.4	17.4	9	8.8	19.6	6.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	13.2	1030
	09/24/08				28.5	16.9	21.68	8.2	23.0	6.2	NT	NT	NT	NT	NT	NT	NT	NT	Dry	13.8	2000
	10/26/09				26.6	9.32	9.48	NT	19.7	6.54	45.8	49.2	1.97	7.34	14.3	84.1	17.9	NT	Dry	16.1	1730
	04/13/10				35.7	10.6	10.8	NT	23.6	8.63	195	60.6	1.79	8.48	16.1	110	25.3	NT	NT	20	1370
	05/10/11				32.3	14.5	14.3	NT	22.5	7.9	376	55.9	1.9	8.4	16	129	21.4	NT	14.2	18.5	1840
	04/24/12				27.2	15.2	11.7	NT	23.6	6.1	359	5.8	1.8	5.6	15.3	127	22.2	NT	NT	17.5	1410
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	19.1	NT	NT	NT

Table 6
Dickinson Landfill, Inc.
Major Ion Data [1]

Major Ion Parameter	Date	Units	MCL [2]	RL	MW-11A	MW-12A	MW-13A	MW-18A	MW-19A	MW-21A	MW-22	MW-23A	MW-29	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	SW-1	GU-B&GU-C	Leachate
Sulfate	04/29/08	MG/L	na	2 (10)	35.9	57.4	14.6	63.5	61.3	35.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	112	366
	09/24/08				37.3	46.2	17.4	57.9	34.8	40.1	NT	NT	NT	NT	NT	NT	NT	NT	Dry	106	ND
	10/26/09				37.1	19.5	19.3	NT	20.4	36.3	58	38.8	42.4	203	122	106	105	NT	Dry	116	ND
	04/13/10				38.2	25.2	24.5	NT	57.8	38.2	137	43.4	67.6	233	138	89.7	114	NT	NT	120	ND
	05/10/11				35.6	32.9	25.6	NT	92	43.6	163	32.6	71.3	236	146	35.5	123	NT	8.5	110	ND
	04/24/12				39.2	50.8	22.5	NT	59.8	39.2	144	ND	66.5	236	146	59.6	76.2	NT	NT	114	20.5
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	43.1	NT	NT	NT

NOTES

[1] = major ion data collected at initiative of Dickinson Landfill for informational purposes

[2] MCL - Federal Maximum Contaminant Level, MCLs as listed in Iowa Chapter 113 .7(5) are listed in parenthesis

na = not applicable - Federal MCL not established for this parameter

RL - laboratory reporting limit (RLs may vary dependant upon sample matrix and/or interference)

Methods = from EPA publication SW-846 3rd edition; methods may change from those listed due to changes in technology, updates and additions to published methodology and when regulations require different methods.

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Antimony	04/29/08	6	6	µg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(6)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Arsenic	04/29/08	0.01	0.01	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.01)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.037	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Arsenic	05/27/15	0.01	0.01	mg/L	NT	ND	ND	ND	ND	ND	ND	ND	0.012	ND	ND	ND	NT	ND
	08/20/15		(0.01)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	0.016	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	0.019	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	0.017	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	0.034	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	0.029	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	0.040	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	0.035	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	0.033	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	0.0446	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	0.0364	ND	ND	0.012	NT	ND
	12/17/20				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	0.0562	ND	ND	ND	NT	ND
	5/3/21 (2)				NT	NT	NT	NT	NT	NT	NT	NT	0.0456	NT	NT	NT	NT	NT
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	0.0537	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	0.0461	ND	ND	ND	NT	0.0104
	7/28/22 (01)				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
	7/28/22 (02)				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	0.0377	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	0.0358	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	0.0467	ND	ND	ND	NT	0.0104
	11/27/23				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	0.0447	ND	ND	ND	NT	0.0213
	07/18/24				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0356
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	0.0623	ND	ND	ND	NT	0.014
	11/12/24				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Barium	04/29/08	0.02	2	mg/L	0.19	0.21	0.17	0.18	0.22	NT	NT	NT	NT	NT	NT	NT	0.088	NT
	05/22/08		(2)		0.19	0.21	0.16	0.15	0.21	NT	NT	NT	NT	NT	NT	NT	0.11	NT
	06/18/08				0.19	0.2	0.17	0.15	0.21	NT	NT	NT	NT	NT	NT	NT	0.086	NT
	08/13/08				0.19	0.2	0.17	0.14	0.23	NT	NT	NT	NT	NT	NT	NT	0.092	NT
	09/24/08				0.2	0.24	0.15	0.15	0.23	NT	NT	NT	NT	NT	NT	NT	0.091	NT
	04/27/09				0.183	0.23	0.183	0.137	0.181	0.125	0.0394	0.0415	NT	NT	NT	NT	0.124	NT
	10/26/09				0.192	0.234 (0.248)	0.195	0.131 (0.135)	0.235	0.147	0.0406	0.0428	0.146	0.195	NT	NT	0.125	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	0.146	0.215	NT	NT	NT	NT
	12/17/09				0.195	0.187 (0.236)	0.205	0.135 (0.133)	0.231	0.143	0.0392	0.0435	0.148	0.25	NT	NT	0.149	NT
	04/13/10				0.178	0.215	0.163	0.129	0.190	0.123	0.0330	0.0380	0.108	0.185	NT	NT	0.165	NT
	05/18/10				NT	NT	NT	NT	NT	0.128	0.0346	0.0367	0.115	0.186	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	0.146	0.0375	0.0394	0.128	0.192	NT	NT	NT	NT
	07/09/10				NT	0.213	NT	0.154	NT	0.15	NT	NT	0.126	0.185	NT	NT	0.223	NT
	08/18/10				NT	NT	NT	NT	NT	0.16	0.0354	0.0393	0.134	0.213	NT	NT	NT	NT
	10/18/10				0.209	0.186	0.201	0.144	0.213	0.166	0.0399	0.0442	0.165	0.224	NT	NT	0.184	NT
	05/10/11				0.2	0.22 (0.23)	0.23	0.15 (0.15)	0.24	0.12 (0.020)	0.035	0.039	0.19 (0.19)	0.2 (0.2)	NT	NT	0.15 (0.15)	NT
	10/19/11				0.22	0.19	0.22	0.17	0.26	0.19	0.05	0.042	0.24	0.2	NT	NT	Dry	NT
	04/24/12				0.2	0.22	0.22	0.15	0.22	0.17	0.038	0.037	0.24	0.21	NT	NT	0.15	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29	NT	NT	NT
	10/25/12*				0.37	0.23	0.19	0.15	0.22	dry	0.036	0.043	0.29	0.22	0.49	NT	NT	0.17*
	05/07/13				NT	0.19	0.27	0.13	0.22	0.17	0.033	0.037	0.29	0.23	0.3	NT	NT	0.13
	11/11/13				0.2	0.24	0.18	0.13	0.22	0.98	0.038	0.041	0.037	0.024	0.31	NT	NT	0.18
	05/13/14				ND	0.22	ND	0.17	0.22	0.15	0.03	0.033	0.32	0.22	0.27	NT	NT	0.14
	11/12/14				0.22	0.25	0.27	0.17	0.27	0.18	0.037	0.046	frozen	frozen	0.33	0.25	NT	0.21
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24	NT	NT
	05/27/15				NT	0.21	0.21	0.12	0.19	0.23	0.031	0.036	0.35	0.21	0.29	0.19	NT	0.19
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.19	NT	NT
	11/18/15				0.28	0.21	0.25	0.1	0.24	0.27	0.031	0.04	0.4	0.2	0.31	0.25	NT	0.047
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.29	NT	NT
	06/16/16				0.17	0.26	0.23	0.17	0.24	0.29	0.037	0.024	0.32	0.2	0.25	0.029	NT	0.041
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.31	NT	NT
	11/16/16				0.15	0.23	0.29	0.22	0.25	0.29	0.039	0.031	0.37	0.22	0.34	0.29	NT	0.11
	05/30/17				0.18	0.26	0.3	0.17	0.25	0.32	0.043	0.03	0.45	0.21	0.26	0.3	NT	0.09
	11/21/17				0.22	0.25	0.27	0.16	0.3	0.35	0.31	0.32	0.54	0.23	0.32	0.34	NT	0.15
	05/31/18				0.2	0.25	0.25	0.15	0.26	0.66	0.22	0.29	0.54	0.2	0.22	0.29	NT	0.093
	10/31/18				0.21	0.24	0.34	0.16	0.27	0.46	0.15	0.30	0.64	0.21	0.28	0.3	NT	0.12
	05/28/19				0.24	0.29	0.32	0.16	0.31	1.3	0.19	Inaccessible	0.65	0.24	0.2	0.29	NT	0.14
	10/15/19				0.27	0.24	0.31	0.17	0.31	0.62	0.18	0.29	0.68	0.23	0.27	0.27	NT	0.15
	06/03/20				0.261	0.24	0.335	0.153	0.286	1.02	0.196	Inaccessible	0.718	0.242	0.192	0.293	NT	0.0717
	10/07/20				0.234	0.259	0.304	0.146	0.294	0.478	Inaccessible	Inaccessible	0.756	0.255	0.267	0.305	NT	0.166
	05/03/21				0.212	0.266	0.344	0.133	0.279	1.17	0.0357	0.303	0.805	0.231	0.286	0.236	NT	0.0576
	11/09/21				0.259	0.278	0.365	0.168	0.273	1.3	Inaccessible	Inaccessible	0.914	0.28	0.39	0.245	NT	0.155
	01/13/22				NT	NT	NT	NT	NT	NT	0.0351	0.038	NT	NT	NT	NT	NT	NT
	05/17/22				0.207	0.252	0.322	0.136	0.247	1.49	0.235	0.182	0.802	0.243	0.251	0.22	NT	0.0895
	10/17/22				0.236	0.288	0.389	0.151	0.285	1.08	0.297	0.223	0.871	0.277	0.325	0.259	NT	0.0757
	05/22/23**				0.239	0.299	0.444	0.138	0.277	2.54	0.186	0.267	0.982	0.237	0.208	0.263	NT	0.0837
	10/5/23***				0.245	0.277	0.401	0.156	0.292	1.23	NT	NT	1.14	0.3	0.301	0.314	NT	0.26
	05/20/24				0.22	0.345	0.451	0.15	0.269	2.45	NT	NT	1.16	0.26	0.167	0.251	NT	0.0487

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Barium	07/18/24	0.02	2	mg/L	NT	NT	NT	NT	NT	1.95	NT	NT	NT	NT	NT	NT	NT	NT
	10/02/24		(2)		0.237	0.283	0.42	0.166	0.29	1.64	Inaccessible	NT	1.42	0.216	0.253	0.272	NT	0.166
Beryllium	04/29/08	0.004	0.004	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.004)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Cadmium	04/29/08	0.005	0.005	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.005)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Cadmium	11/18/15	0.005	0.005	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16		(0.005)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Chromium	04/29/08	0.01	0.1	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.1)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				0.023	ND	ND	ND	ND	dry	ND	ND	ND	ND	0.022	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.083	ND	ND	0.012	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.011	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	0.0077	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Cobalt	04/29/08	0.01	na	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.007)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Cobalt	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.0111	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*		*na*		0.011	ND	ND	ND	ND	dry	ND	ND	0.011	ND	ND	NT	NT	ND*
	05/07/13	(0.0028)	(0.0028)		NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.034	ND	ND	0.016	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	0.011	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.0063	ND	ND	ND	ND	ND	ND	ND	0.0083	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	0.0078	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	0.0068	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	0.0069	ND	ND	ND	NT	ND
	05/31/18	0.0021	(0.0021)		ND	ND	ND	ND	ND	0.013	ND	ND	0.0073	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	0.0033	ND	ND	0.0080	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	0.014	ND	Inaccessible	0.0070	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	0.0062	ND	ND	0.0079	ND	ND	ND	NT	ND
	06/03/20	*0.002*			ND	ND	ND	ND	ND	0.00974	ND	Inaccessible	0.00910	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	0.00312	Inaccessible	Inaccessible	0.00966	ND	ND	ND	NT	ND
	05/03/21				ND	ND	0.00283	ND	ND	0.0147	ND	ND	0.01060	ND	ND	ND	NT	ND
	11/09/21				ND	0.00204	ND	ND	ND	0.0102	Inaccessible	Inaccessible	0.0125	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	0.0144	ND	ND	0.014	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	0.0038	ND	ND	0.0132	ND	ND	ND	NT	ND
	05/22/23**				ND	0.00236	0.00465	ND	ND	0.0149	ND	ND	0.016	ND	ND	ND	NT	ND
	10/5/23***				ND	0.00217	0.00237	ND	ND	0.00519	NT	NT	0.0187	0.00247	ND	ND	NT	0.00244
	11/27/23				NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	ND
	05/20/24				ND	ND	0.00217	ND	ND	0.0135	NT	NT	0.0184	0.00207	ND	ND	NT	0.00394
	07/18/24				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
	10/02/24				ND	0.0024	ND	ND	ND	ND	Inaccessible	NT	0.0239	ND	ND	ND	NT	0.00578
Copper	04/29/08	0.01	1.3	mg/L	ND	ND	ND	0.01	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(1.3)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	0.144	NT
	10/26/09				ND	ND(0.006)	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.134	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.411	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.027	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				0.021	ND	ND	ND	ND	dry	ND	ND	ND	ND	0.017	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.11	ND	ND	0.13	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Copper	10/31/18	0.01	1.3	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19		(1.3)		ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	0.0113	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	0.0111	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Lead	04/29/08	0.01	0.015	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.015)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	0.0103	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.0166	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.109	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	0.024	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	0.0113	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Nickel	04/29/08	0.01	na	mg/L	ND	ND	ND	0.018	ND	NT	NT	NT	NT	NT	NT	NT	0.025	NT
	05/22/08		(0.1)		ND	ND	ND	0.015	ND	NT	NT	NT	NT	NT	NT	NT	0.014	NT
	06/18/08				ND	ND	ND	0.014	ND	NT	NT	NT	NT	NT	NT	NT	0.023	NT
	08/13/08				ND	ND	ND	0.012	ND	NT	NT	NT	NT	NT	NT	NT	0.012	NT
	09/24/08				ND	ND	ND	0.012	ND	NT	NT	NT	NT	NT	NT	NT	0.012	NT
	04/27/09				ND	ND	ND	0.0121	ND	ND	ND	ND	NT	NT	NT	NT	0.0713	NT
	10/26/09				ND	ND	ND	0.0313 (0.012)	ND	ND	ND	ND	0.0408	0.0284	NT	NT	0.033	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	0.039	0.0311	NT	NT	NT	NT
	12/17/09				ND	ND	ND	0.0122 (0.0120)	ND	ND	ND	ND	0.040	0.0351	NT	NT	0.0724	NT
	04/13/10				ND	ND	ND	0.0125	ND	ND	ND	ND	0.0378	0.0278	NT	NT	3.51	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	0.0359	0.028	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	0.0378	0.0282	NT	NT	NT	NT
	07/09/10				NT	ND	NT	0.0141	NT	ND	NT	NT	0.0369	0.0269	NT	NT	0.0122	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	0.0407	0.0326	NT	NT	NT	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Nickel	10/18/10	0.01	na	mg/L	ND	ND	ND	0.0124	ND	ND	ND	ND	0.0422	0.038	NT	NT	0.0137	NT
	05/10/11		(0.1)		ND	ND	ND	0.014 (0.014)	ND	ND	ND	ND	0.038 (0.038)	0.025 (0.026)	NT	NT	0.021 (0.015)	NT
	10/19/11				ND	ND	ND	0.014	ND	ND	ND	ND	0.046	0.025	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	0.013	ND	ND	ND	ND	0.048	0.027	NT	NT	0.044	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				0.023	ND	ND	0.012	ND	dry	ND	ND	0.054	0.024	0.03	NT	NT	ND*
	05/07/13				NT	0.011	ND	0.011	ND	ND	ND	ND	0.066	0.025	ND	NT	NT	ND
	11/11/13				ND	ND	ND	0.011	ND	0.1	ND	ND	0.06	0.026	ND	NT	NT	ND
	05/13/14				ND	ND	ND	0.013	ND	ND	ND	ND	0.064	0.019	ND	NT	NT	ND
	11/12/14				ND	ND	ND	0.013	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	0.011	ND	ND	ND	ND	0.057	0.019	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.013	0.011	ND	ND	ND	ND	ND	ND	0.1	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	0.014	ND	ND	ND	ND	0.045	0.01	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	0.015	ND	ND	ND	ND	0.048	0.01	ND	ND	NT	ND
	05/30/17				ND	ND	ND	0.016	ND	0.013	ND	ND	0.051	0.013	ND	ND	NT	ND
	11/21/17				ND	ND	ND	0.013	ND	0.011	ND	ND	0.051	0.016	ND	ND	NT	ND
	05/31/18				ND	ND	ND	0.015	ND	0.04	ND	ND	0.053	0.017	ND	ND	NT	ND
	10/31/18				ND	0.010	ND	0.019	ND	0.016	0.017	ND	0.063	0.018	ND	ND	NT	ND
	05/28/19				ND	ND	ND	0.016	ND	0.042	ND	Inaccessible	0.077	0.018	ND	ND	NT	0.011
	10/15/19				ND	ND	ND	0.021	ND	0.021	0.021	ND	0.075	0.021	ND	ND	NT	0.010
	06/03/20				ND	0.0106	ND	0.0221	ND	0.028	ND	Inaccessible	0.0834	0.0265	ND	ND	NT	0.0137
	10/07/20				ND	ND	ND	0.0233	ND	0.0124	Inaccessible	Inaccessible	0.101	0.0309	ND	ND	NT	ND
	05/03/21				ND	ND	ND	0.0181	ND	0.0261	ND	ND	0.0903	0.0277	ND	ND	NT	ND
	11/09/21				ND	ND	ND	0.0177	ND	0.0158	Inaccessible	Inaccessible	0.106	0.0296	ND	ND	NT	0.0168
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22		*[4] 0.093 [0.840]*		ND	0.0109	ND	0.0204	ND	0.0233	ND	ND	0.102	0.0306	ND	ND	NT	0.0223
	7/28/22 (01)				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0116
	7/28/22 (02)				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0174
	10/17/22				ND	ND	ND	0.0261	ND	0.01	ND	ND	0.135	0.0361	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	0.0183	ND	0.0236	ND	ND	0.131	0.0257	ND	ND	NT	0.0287
	10/5/23***				ND	0.0118	ND	0.0302	ND	0.0121	NT	NT	0.178	0.0288	ND	0.0234	NT	0.0259
	05/20/24				ND	ND	ND	0.0261	ND	0.0185	NT	NT	0.181	0.0391	ND	ND	NT	0.038
	07/18/24				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0216
	10/02/24				ND	0.0132	ND	0.0251	ND	ND	Inaccessible	NT	0.258	0.0316	ND	ND	NT	0.0364
	11/12/24				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0328 [0.0342]
Selenium	04/29/08	0.01	0.05	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.05)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	0.011	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				0.067	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.044	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	0.022	0.046	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	0.012	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	0.025	0.038	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	0.026	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Selenium	05/03/21	0.01	0.05	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21		(0.05)		ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Silver	04/29/08	0.01	na	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.1)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Thallium	04/29/08	2	2	µg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(2)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				ND	ND	ND	ND	ND	dry	ND	ND	ND	ND	ND	NT	NT	ND*

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Thallium	05/07/13	2	2	µg/L	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13		(2)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	2.44	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Vanadium	04/29/08	0.02	na	mg/L	ND	ND	ND	0.022	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	05/22/08		(0.049)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	ND	NT
	10/26/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				0.055	ND	ND	ND	ND	dry	ND	ND	ND	ND	0.05	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.17	ND	ND	ND	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				ND	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	ND	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.02	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.033	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16		(0.035)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Zinc	04/29/08	0.02	na	mg/L	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	0.057	NT
	05/22/08		(2)		ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	0.026	NT
	06/18/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	0.044	NT
	08/13/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	09/24/08				ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	ND	NT
	04/27/09				ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	NT	0.665	NT
	10/26/09				0.034	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	11/23/09				NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	12/17/09				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.126	NT
	04/13/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	1.53	NT
	05/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	06/21/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT
	10/18/10				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND	NT
	10/19/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	Dry	NT
	04/24/12				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	0.062	NT
	08/06/12				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT
	10/25/12*				0.052	ND	ND	ND	ND	dry	ND	ND	ND	ND	0.055	NT	NT	ND*
	05/07/13				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/11/13				ND	ND	ND	ND	ND	0.17	ND	ND	0.024	ND	ND	NT	NT	ND
	05/13/14				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	ND
	11/12/14				0.026	ND	ND	ND	ND	ND	ND	ND	frozen	frozen	ND	0.025	NT	ND
	03/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.027	NT	NT
	05/27/15				NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/20/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/18/15				0.032	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	04/25/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	06/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT
	11/16/16				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/30/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/21/17				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/31/18				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/28/19				ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/15/19				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	06/03/20	*0.05*			ND	ND	ND	ND	ND	ND	ND	Inaccessible	ND	ND	ND	ND	NT	ND
	10/07/20				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	05/03/21				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	11/09/21				ND	ND	ND	ND	ND	ND	Inaccessible	Inaccessible	ND	ND	ND	ND	NT	ND
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/17/22				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	05/22/23**				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND
	10/5/23***				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	05/20/24				ND	ND	ND	ND	ND	ND	NT	NT	ND	ND	ND	ND	NT	ND
	10/02/24				ND	ND	ND	ND	ND	ND	Inaccessible	NT	ND	ND	ND	ND	NT	ND
Total Suspended Solids (TSS)	06/16/16	2	na	mg/L	8.8	28.7	ND	18.4	ND	5.2	ND	ND	81.0	ND	32.4	11.2	NT	4.4
	08/17/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	14.0	NT	NT
	11/16/16				8.0	19.2	ND	5.6	ND	ND	ND	ND	37.6	7.6	61.2	8.8	NT	19.2
	05/30/17				6.8	13.2	ND	6.4	ND	2.4	ND	ND	50.0	4.4	65.6	7.6	NT	7.2
	11/21/17				12.4	15.2	ND	12.4	ND	ND	32.4	ND	31.2	5.6	20.8	6	NT	5.6
	05/31/18				ND	12	ND	7.2	ND	4	3.2	2.8	21.6	3.6	14	ND	NT	ND
	10/31/18				4.4	12.0	ND	24.0	ND	ND	40.8	ND	56.4	35.6	98.0	4.4	NT	33.6
	05/28/19				3.2	29.6	ND	24.4	ND	10.4	38	Inaccessible	55.2	18.8	60.4	6.4	NT	75.6
	10/15/19				35.2	17.6	ND	10.4	ND	10.8	46.8	2.0	15.6	ND	13.2	2.4	NT	2.4
	06/03/20	*2.5*			6.4	20.0	ND	17.0	ND	8.2	33.8	Inaccessible	65.3	13.0	24.7	13.2	NT	ND
	10/07/20				11.7	13.5	ND	20.4	ND	3.7	Inaccessible	Inaccessible	455	4.3	32.4	91.6	NT	11.4
	05/03/21				7.7	23.2	ND	16.2	4.1	14.5	5.9	71.4	73	ND	5.5	28.8	NT	3.5
	5/3/21 (2)				NT	NT	NT	NT	NT	NT	NT	NT	76.1	NT	NT	NT	NT	NT
	11/09/21				32.6	13.7	ND	28.3	ND	8.4	Inaccessible	Inaccessible	54.9	3	54.7	18.9	NT	3.8
	01/13/22				NT	NT	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT	NT	NT
	05/17/22				5.6	26	ND	19.9	ND	4.1	69.8	6.1	69.5	4.6	35	43.1	NT	13.8
	10/17/22				23.5	26.8	ND	40.4	ND	5.6	133	5.1	64	8.3	18.8	62.5	NT	3.4
	05/22/23**				4.1	33.3	29.6	12.2	ND	11.1	63.8	4.1	62.6	5.4	49.7	ND	NT	51.8
	10/5/23***				26.9	13.6	11	15.4	ND	12	NT	NT	151	319	29.3	168	NT	18
	05/20/24				3.8	30.4	10	20.3	3.3	34.2	NT	NT	76.4	4.9	31.3	6.3	NT	6.2
	10/02/24				3.7	12.8	5.81	39	2.5	17	Inaccessible	NT	86	23.4	12.4	6.8	NT	5.9
Appendix II [3]																		
Cyanide	10/26/09	10	200	µg/L	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	12/17/09		(200)		NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NA	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	NT	NT	ND	ND	NT	NA	NT	NT
	10/18/10				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NA	ND	NT
	10/19/11				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	Dry	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Cyanide	05/07/13	10	200	µg/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/11/13		(200)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/13/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/12/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/27/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/16/16				NT	ND	NT	ND	NT	NT	NT	NT	ND	ND	NT	NT	NT	NT
	11/16/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/30/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/21/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/28/19				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/15/19				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/03/20				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/07/20				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
	05/03/21				NT	ND	NT	ND	NT	ND	NT	NT	16.4	14.1	NT	NT	NT	NT
	11/09/21				NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT
	12/21/21				NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT
Mercury	10/26/09	0.4	2	µg/L	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	12/17/09		(2)		NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NA	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	NT	NT	ND	ND	NT	NA	NT	NT
	10/18/10				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NA	ND	NT
	10/19/11				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	Dry	NT
	05/07/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/11/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/13/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond
Mercury	11/12/14	0.4	2	µg/L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/27/15		(2)		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/16/16				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/16/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/30/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/21/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/28/19				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/15/19				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/03/20				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/07/20				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
	05/03/21				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/09/21				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
Sulfide	10/26/09	1	na	mg/L	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	12/17/09				NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NA	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	NT	NT	ND	ND	NT	NA	NT	NT
	10/18/10				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/10/11				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NA	ND	NT
	10/19/11				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	Dry	NT
	05/07/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/11/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/13/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/12/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/27/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/16/16				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/16/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/30/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/21/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/28/19				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/15/19				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/03/20				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/07/20				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
	05/03/21				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/09/21				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
Tin	10/26/09	20	na	µg/L	NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	12/17/09		(4,200)		NT	ND	NT	ND	NT	NT	NT	NT	NT	NT	NT	NA	ND	NT
	07/09/10				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NA	ND	NT
	08/18/10				NT	NT	NT	NT	NT	ND	NT	NT	ND	ND	NT	NA	NT	NT
	10/18/10				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/10/11				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	10/19/11				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	Dry	NT
	05/07/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/11/13				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	05/13/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NT	NT
	11/12/14				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/27/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/18/15				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/16/16				NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/16/16				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/30/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	11/21/17				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	10/31/18				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/28/19				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/15/19				NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	06/03/20				NT	NT	NT	NT	NT	NT	NT	Inaccessible	NT	NT	NT	NT	NT	NT
	10/07/20				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT
	05/03/21	*50*			NT	ND	NT	ND	NT	ND	NT	NT	ND	ND	NT	NT	NT	NT
	11/09/21				NT	NT	NT	NT	NT	NT	Inaccessible	Inaccessible	NT	NT	NT	NT	NT	NT

Notes:

* GW Holding Pond Data collected on 12/4/12

[1] = Detection monitoring parameters per Appendix 1 of Chapter 567-113.15; metals results are total concentrations

[2] MCL - Federal Maximum Contaminant Level for drinking water supplies

Iowa Groundwater Protection Standard or GWPS for a protected groundwater sources listed below MCL in (parenthesis)

[3] = Additional inorganic parameters per Appendix II of Chapter 567-113.15

[4] = *Nickel Chronic Class B(LW) water quality standards for lakes and wetlands [acute in brackets]*

na = not applicable - Federal MCL not established for this parameter

ND = not detected at or above laborartory reporting limit

NT = not tested, sampling either not required, well not yet installed, or insufficient well volume

RL - laboratory reporting limit (RLs may vary dependant upon sample matrix and/or interference)

Unconfirmed detection - compound not detected above RL during resampling

** = Samples MW-12A, MW-13A, MW-21A, MW-23A, MW-37A collected on 6/8/2023

*** = Samples from MW38 collected on 10/23/2023

[0.0342] = Holding Pond Dissolved Nickel Result 11/12/2024

Table 6 - Semi-Annual Detection Monitoring Metals Results (2008-2024)

Dickinson Landifll - Spirit Lake, Iowa

Permit No. 30-SDP-07-75P

Detection Parameters (IDNR) [1]	Date	RL	MCL [2]	Units	MW-11A	MW-12A	MW-13A	MW-19A	MW-21A	MW-23A	MW-34A	MW-36A	MW-37A	MW-38A	MW-39A	MW-40A	GU-B/C	GW Holding Pond

Methods = from EPA publication SW-846 3rd edition; methods may change from those listed due to changes in technology, updates and additions to published methodology and when regulations require different methods.

(2) = MW-37A extended purge sample results 5/3/21

(01)(02) = Two samples collected from Holding Pond on 7/28/22 for arsenic and nickel analysis for confirmation/verification purposes