Bridgeton Landfill, LLC

Weekly Data Submittal
Week of January 14, 2018 – January 20, 2018

Required by Section 52.F of Agreed Order, Case No. 13SL-CC01088
Effective May 13, 2013

Contents:
Attachment A – Leachate Levels in Leachate Collection Sumps
Attachment B – Temperature Monitoring Probe Analytical Charts
Attachment C – Gas Interceptor Wellhead Temperature Graphs
Attachment D – Neck-Area Gas Extraction Wellhead Temperature Graphs

Provided Separately:
– Leachate Level in Leachate Collection Sump Raw Data Excel Spreadsheet
– Temperature Monitoring Probe Raw Data Excel Spreadsheet
– Heat Extraction System TMP Raw Data Excel Spreadsheet
– Gas Interceptor Well Reading Raw Data Excel Spreadsheet
– Neck-Area Gas Extraction Well Data Excel Spreadsheet

January 26, 2018
**Attachment A – Leachate Levels in Leachate Collection Sumps**

The downhole discharge piping for LCS-1D requires replacement. Pump and level sensor replacement is scheduled for the week of 1/22/18 pending suitable weather conditions.

The pump in LCS-2D was non-operational during the weekly reporting period.

The Blackhawk pneumatic pumps in LCS-3D were non-operational during the weekly reporting period. The casing on LCS-3D will be extended and the line sets for the Blackhawk pumps will be replaced as part of the east fill project. Liquid level was measured manually.

The level sensor in LCS-4B is currently operational and responsive. Liquid level was not recorded by the level sensor during the weekly reporting period. LCS-4B is equipped with a flow meter that displayed no flow during the weekly reporting period. Therefore, it can be concluded that the liquid level was below the bottom of the pump and level sensor in LCS-4B.

LCS-5B and LCS-6B were fully operational during the weekly reporting period.

**Attachment B - Temperature Monitoring Probe Analytical Charts**


Starting this week, the analytical charts for TMP-16, TMP-25, and TMP-28 have been replaced with TMP-16R, TMP-25R, and TMP-28R. Individual graphs for the original TMPs (TMP-16, TMP-25, and TMP-28) will no longer be provided in the Weekly Data Submittals. However, temperature readings will still be measured at these original TMPS.

TMP readings for evaluation of the Heat Extraction System (HES) are provided as attachment “Heat Extraction System TMP Raw Data Excel Spreadsheet,” but are not discussed in this report.

**Attachment C - Gas Interceptor Wellhead Temperature Graphs**

As part of the HES, there are currently cooling water circulation loops installed in twelve Gas Interceptor Wells (GIWs) (GIW-02 through GIW-13). The remaining well (GIW-01) had a measured gas temperature within its historical operating limits.

**Attachment D – Neck Area Gas Extraction Well Data**

Weekly gas temperature data is collected for select Gas Extraction Wells (GEWs) located in the neck area of the landfill. These wells include GEW-008, -009, -010, -038, -039, -040, 041R, -043R, -053, -054, -055, -056R, -109, and -110.

**North Quarry Oxygen Levels**
GEW-1A is noted as having an oxygen concentration greater than 2.0% since its installation in December 2015.

The area in which GEW-1A is installed is very saturated. Bridgeton has installed a sump near GEW-1A and increased the force main capacity during the North Quarry capping projects in an effort to lower the potentiometric surface in the area to improve gas quality and reduce ambient air intrusion at the well. Neither effort has successfully dewatered the gas well. Bridgeton will now be focusing on the type of pumps available and ensuring that existing pumps in the well and adjacent sump are performing optimally for the environment.
ATTACHMENT A

LEACHATE LEVELS IN LEACHATE COLLECTION SUMPS
LCS-1D Liquid Level Below Ground Surface

--- Transducer at 92.4 ft depth ---
--- Liquid Level may be lower ---

Measured Liquid Level Below Ground Surface (feet)
LCS-4B Liquid Level Below Ground Surface

--Transducer at 74 ft depth --
--Liquid Level may be lower--
ATTACHMENT B

TEMPERATURE MONITORING PROBE ANALYTICAL CHARTS
NOTE:
1. 2017 AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS, INC. AND IS DATED DECEMBER 2, 2016

LEGEND

- 2017 AERIAL TOPOGRAPHY (2' CONTOUR)
- 2017 AERIAL TOPOGRAPHY (10' CONTOUR)
- INSTALLED TMP LOCATION
- TMP-SPM (ABANDONED)
- REPLACEMENT TMP INSTALLED IN 2017

1. SEE NECK AREA INSET

PROJECT NUMBER: BT-124

BRIDGETON LANDFILL
13570 ST. CHARLES ROCK ROAD
BRIDGETON, MISSOURI 63044

AUGUST 2017
DEIGNED BY: PML

APPROVED BY: ---

REVISED DATE: ---
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.

TEMPERATURE VS DEPTH
BRIDGETON LANDFILL
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
TEMPERATURE VS DEPTH
BRIDGETON LANDFILL

Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
Notes for TMPs are summarized at the end of the TMP figures.
AVERAGE TEMPERATURES

TEMPERATURE VS TIME

BRIDGETON LANDFILL

DATE

TEMPERATURE VS TIME

BRIDGETON LANDFILL
MAXIMUM TEMPERATURES

DATE

TEMPERATURE VS TIME
BRIDGETON LANDFILL
TMP BRIDGETON LANDFILL NOTES
TMP notes that are new for the reporting week are in **bold**.

TMP-1: NONE

TMP-2:

1. TMP-2 has been replaced by TMP-2R and will no longer be monitored or included in the presentation.

TMP-2R:

1. Data reported on 11/29/2016 was inadvertently left as the 11/22/2016 data. This was corrected on 12/5/2016 reading submittal.

TMP-3:

1. No reliable temperature readings have been obtained at 170 ft depth since 1/29/2014, except on 3/13/2014.
2. The connectivity tests on 4/11/2014 conducted by CEC showed that units at 10, 90, 130, 210 and 250 ft depths are no longer reliable.
3. The connectivity tests on 10/28/2014 conducted by Feezor Engineering showed that units at 10, 90, 110, 130, 210 and 250 ft depths are not reliable.

TMP-3R:

1. The unit at 20 ft depth had a fluctuating resistance since 9/25/2017. Therefore the temperature is determined to be unreliable.

TMP-4:

1. The connectivity tests on 4/11/2014 conducted by CEC showed that the unit at 48 ft depth is no longer reliable.

TMP-4R: NONE

TMP-5: TMP NO LONGER IN SERVICE– Verified by Connectivity testing by Feezor Engineering in March 2015.

TMP-6:

1. The connectivity tests on 4/11/2014 conducted by CEC showed that units at 35, 55, 75, 155, 175, and 195 ft depths are no longer reliable.
2. No reliable temperature readings have been obtained at the unit at 215 ft depth since 6/13/2014.

TMP-7R: TMP NO LONGER IN SERVICE
TMP-8: TMP NO LONGER IN SERVICE

TMP-9:

1. Unit at 100 ft depth had an inaccurate temperature reading on 8/1/2013 and no reading since 8/6/2013.
2. The connectivity tests on 4/11/2014 conducted by CEC showed that units at 20, 60, 80, and 100 ft depths are no longer reliable.

TMP-10:

1. All units were verified by connectivity testing by Feezor Engineering on 6/1/2017 to be unreliable.

TMP-11:

1. All units were verified by connectivity testing by Feezor Engineering on 11/23/2016 to be unreliable.
2. TMP-11 is no longer in service and will not be included in the presentation.

TMP-11R: NONE

TMP-12:

2. All units were verified by connectivity testing by Feezor Engineering in October 2015 to be unreliable.

TMP-13: TMP NO LONGER IN SERVICE

TMP-14:

1. All units were verified by connectivity testing by Feezor Engineering in March 2016 to be unreliable.

TMP-14R:

1. Due to the connectivity test results by Feezor Engineering on TMP-14 (see note above), TMP-14R is added to this reporting data set as of 3/7/2016.

TMP-15: TMP WAS NEVER IN SERVICE

TMP-16:

1. TMP-16 has been replaced by TMP-16R and will no longer be included in the presentation.

TMP-16R: NONE

TMP-17: NONE
TMP-18: NONE

TMP-19: NOT PART OF THIS SUBMITTAL (HEAT EXTRACTION TMP)

TMP-20: NOT PART OF THIS SUBMITTAL (HEAT EXTRACTION TMP)

TMP-21: NONE

TMP-22: NONE

TMP-23: NONE

TMP-24: NONE

TMP-25:

1. **TMP-25 has been replaced by TMP-25R and will no longer be included in the presentation.**

TMP-25R: NONE

TMP-26:

1. Resistance on unit at 80 ft dropped 12.9 ohms (11/06/2017) and subsequent resistance reading continue to be low. Upon further investigation by Feezor Engineering, this unit is determined to be unreliable.

TMP-27: NONE

TMP-28:

1. **TMP-28 has been replaced by TMP-28R and will no longer be included in the presentation.**

TMP-28R: NONE

TMP-29: NONE

TMP-33: NONE

TMP-34: NONE

TMP-35: NONE

TMP-36: NONE

TMP-37: NONE

TMP-38: NONE

TMP-39: NONE
TMP-40: NONE
TMP-41: NONE
TMP-42: NONE
TMP-43: NONE
TMP-44: NONE
TMP-45: NONE
TMP-46: NONE
TMP-47: NONE
TMP-48: NONE
TMP-49: NONE

TMP vs DEPTH and TMP vs ELEVATION (for 01/15/18):

1. There were no reliable temperature readings for TMP-13 since 3/19/2014.
2. There were no reliable temperature readings for TMP-7R, as determined by the connectivity test on 4/11/2014.
3. There were no reliable temperature readings for TMP-5 since 11/5/2014.
4. There were no reliable temperature readings for TMP-12 since 9/28/2015.
5. There were no reliable temperature readings for TMP-8 since 9/9/2015.
6. There were no reliable temperature readings for TMP-14, confirmed since 3/7/2016.
7. There were no reliable temperature readings for TMP-11 as determined by the connectivity test on 11/23/2016.
8. TMP-2 has been replaced by TMP-2R and will no longer be monitored.
9. TMP-11 is no longer in service and will not be included in the presentation.
10. There were no reliable temperature readings for TMP-10 since 5/30/2017.
11. **TMP-16, 25, and 28 have been replaced by TMP-16R, 25R, and 28R and will be no longer reported since 1/15/2018.**
Gas Extraction Wells - Bridgeton Landfill
GIW-3 Wellhead Temperatures

Temperature °F

Wellhead Temp. (F)
GIW-8 Wellhead Temperatures

Temperature °F

Wellhead Temp. (F)

Dates:
- 9/26/17
- 9/27/17
- 10/4/17
- 10/11/17
- 10/16/17
- 10/25/17
- 11/1/17
- 11/8/17
- 11/15/17
- 11/22/17
- 11/29/17
- 12/6/17
- 12/13/17
- 12/20/17
- 12/27/17
- 1/3/18
- 1/10/18
ATTACHMENT D

NECK-AREA GAS EXTRACTION WELL DATA
GEW-010 Wellhead Temperatures

Wellhead Temp. (°F)

Temperature °F

GEW-038 Wellhead Temperatures

Wellhead Temp. (°F)

Temperature °F

GEW-055 Wellhead Temperatures

Wellhead Temp. (°F)