

# 2025 Fall Site Inspection

## Keokuk Ferro-Sil Monofill (Closed) Permit No. 56-SDP-17-91P

Engineers Project No. 7252-1/21-2007

## Prepared for

Glencore, Ltd.

## Prepared by

Klingner & Associates, P.C.

610 North 4<sup>th</sup> Street, Suite 100 Burlington, Iowa 52601

## **Date Prepared**

September 24, 2025

I HERE BY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.  Jessica A. Coca
MY LICENSE RENEWAL DATE IS DEC. 31, 2026
IOWA REGISTRATION NUMBER: 25623
PAGES OR SHEETS COVERED BY THIS SEAL: ALL
DATE OF ISSUANCE: 9/24/2025

#### **LANDFILL GENERAL OBSERVATIONS**

An engineering inspection was conducted at the landfill on September 5, 2025. Conditions were partly cloudy and the temperature was around 60 degrees Fahrenheit. The landfill entrance gate was locked and access roads were well maintained with rock. Signage was installed at the entrance gate that provided the site and contact information. Groundwater well locations were accessible and in good condition. The most recent mowing was completed in May of 2024 with supplemental mowing performed in September of 2024 around the leachate lagoon. Mowing is anticipated to be completed again in 2026. The vegetative cover is in good condition. Due to concerns regarding a potential release of leachate to groundwater from the lagoon area from laboratory results documented in the 2023 & 2024 AWQRs, observations were made around the slopes and base of the lagoon for any indication of leachate seepage. The area had not received any recent rains, so soils were very dry on the surface. No evidence of leachate seeps or moisture on the surface was observed.

The leachate pond level appeared to be slightly below normal levels, likely due to low amounts of precipitation in August and hot weather.

#### **Permit Conditions**

The site permit was issued on April 4, 2007, and permit amendments have been issued by letter. In a letter dated January 30<sup>th</sup>, 2018, the IDNR required a number of things including a) minor modifications to the sampling plan, b) regular sampling of the leachate pond, and c) a requirement to clean out the leachate collection lines every three years. These items were implemented in 2018.

The leachate collection lines were jetted in October of 2024 to confirm that the system is freely flowing into the leachate collection pond. Documentation of the jetting of the leachate collection lines was provided in the 2024 AWQR. Jetting of the lines is to be completed again in 2027.

#### **Leachate System**

An automatic pump system with a run timer and float system was installed on the site and has been operational since October 18<sup>th</sup>, 2017. The run time is checked periodically during site visits by CHEM-ECO Environmental and Klingner and recorded such that the leachate pumping quantities can be reported to the City of Keokuk and lowa DNR in future reports.

The run time during the September 5, 2025 visit was 4892 hours and 15 minutes. The pump hours on March 26, 2025 were recorded to be 4800 Hours and 24 Minutes.

The total pumping between the Fall and Spring inspections was 320,960 gallons.

The run time readout is cumulative, so successive readings must be subtracted to find the difference at each period. The flow rate of the pump system is estimated to be approximately 64 GPM. Note that the estimated flow rate was decreased after flow measurements were taken using a doppler flow meter and additional flow calculations were performed at the request of the City of Keokuk during the Industrial Discharge Permitting process in 2023.

There currently is no plan to prepare a separate LCSPE report.

Month of Reading	Pump Hours	Elapsed Run Time (Hours)	Elapsed Run Time (Minutes)	Gallons Pumped (64 GPM)
April	4819.08	14.7	883	56,512
May	4857.35	34.0	2,038	130,432
June	4860.02	2.7	160	10,240
July	4881.43	21.4	1,285	82,240
August	4892.25	10.8	649	41,536
September (as of 9/5)	4892.25	0	0	0
Total Estimated Pump	ing April 2025 –	September 2025	5,015	320,960



Date	09/05/25	Inspected by	JAC
Eng Proj #	21-2007		

CLOSED LANDFILL INSI	PECTION CHECKLIST
KEOKUK FERRO-SIL MONOFILL LANI	DFILL CONTACT: STEVEN DEMASI, TWIN RIVERS HOLDING CO.
PERMIT NUMBER 56-SDP-17-91P PERMIT ISSUED APRIL 4, 200	17 FXPIRES 4/4/2037
1 ENIII 1000E971 11E-4, 200	7, 24 11(20-4)-12001
Weather Conditions: 60F, Partly Cloudy	
GENERAL	
1.) Landfill ID and contact info posted?	YES
2.) Is entrance gate locked?	YES
3.) Entrance Road Conditions	GOOD, some erosion on the slope toward the leachate lagoon
COVER	
4.) Condition of Final Cover: Vegetation	GOOD
5.) Has topsoil been placed on the landfill?	YES.
6.) Has the landfill been properly graded and seeded?	YES.
EROSION	
7.) Is drainage and erosion being controlled on the landfill?	YES
LEACHATE	
8.) Is there evidence of leachate on the surface of the landfill?	NO
9.) Are there any leachate flows leaving the site?	NONE OBSERVED
10.) Has the landfill submitted plans for a leachate collection/treatment system?	
11.) Has the approved leachate collection and treatment system been construc	ted? YES
12.) Does the landfill have a permit to discharge leachate?	YES, TO SANITARY SEWER MANHOLE IN KINDUSTRY PARK. CITY OF KEOKUK.
LANDFILL GAS	
13.) Is there evidence of landfill gas problems?	NO
MONITORING WELLS	
14.) Are monitoring wells in good condition?	YES
15.) Are monitoring wells marked and identified?	YES
MISCELLANEOUS	
16.) Is there evidence of open burning?	NO
17.) Is there evidence of open dumping, litter?	NO
18.) Is there evidence of rodents or insects as a result of improper landfilling o	perations? NO
Additional Comments:	



Description	Looking north from south end of landfill	_
Date	9/5/2025	1



Description	Looking northeast from south end of landfill	
Date	9/5/2025	2





Description	Looking east, toward southeast part of landfill	
Date	9/5/2025	3



Description	Leachate collection area	_
Date	9/5/2025	4





Description	Southern slope of landfill	_
Date	9/5/2025	5



Description	Looking south, along the east side of the landfill	
Date	9/5/2025	6



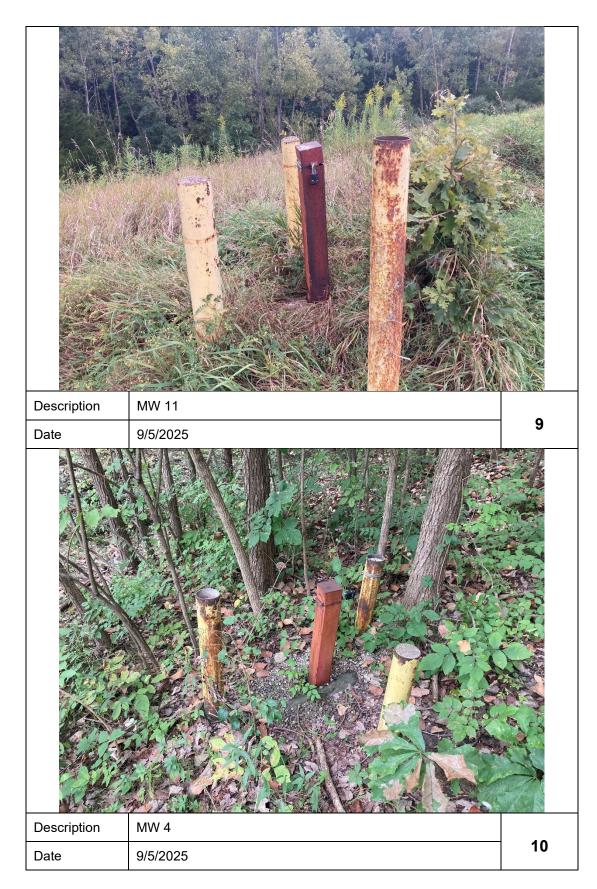


Description	Looking south along the east slope of the landfill	_
Date	9/5/2025	7



Description	East slope of landfill	
Date	9/5/2025	8









Description	MW 12	
Date	9/5/2025	11

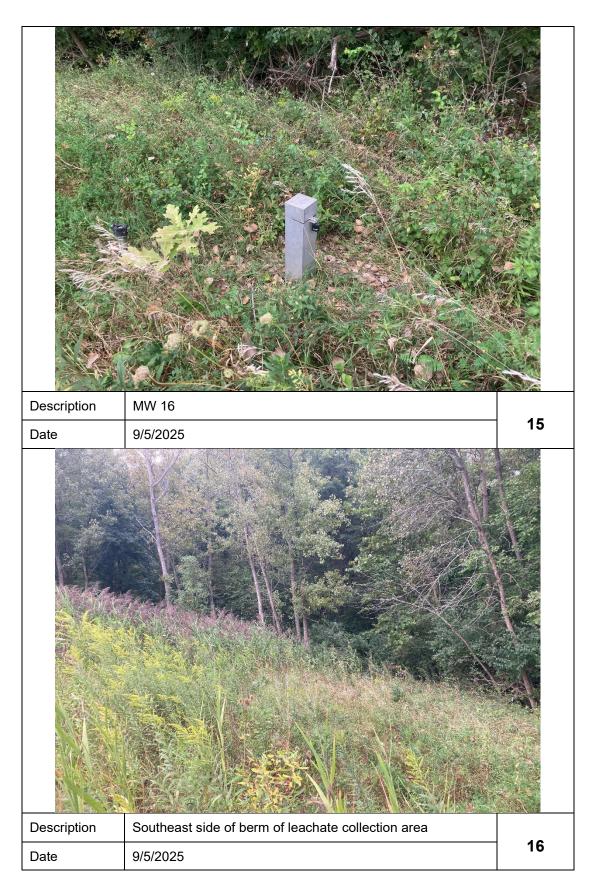


Description	MW 13	
Date	9/5/2025	12













Description	Southern slope of landfill	
Date	9/5/2025	17



Description	Southeast slope of landfill	
Date	9/5/2025	18





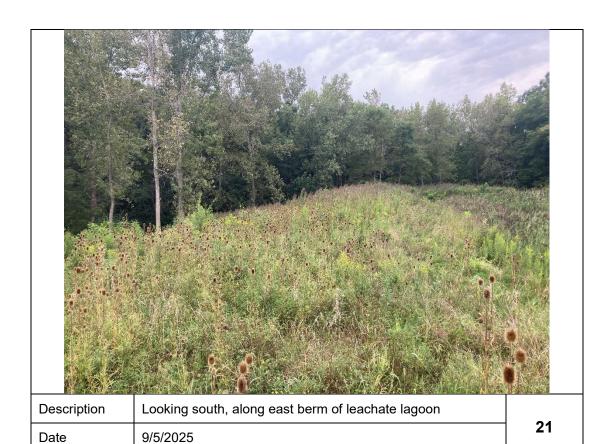
Description	East side of leachate lagoon berm	
Date	9/5/2025	19



Description	Area northeast of leachate lagoon	
Date	9/5/2025	20



22







9/5/2025

Date





