Stantec

Memo

To:	Geoff Strack, PE, Waste Connections	From:	Brad Sullivan, PE, Stantec Brett Ballavance, PE, Stantec
File:	227704387	Date:	November 11, 2021

Reference: SKB Environmental Cloquet Landfill – Cell 4C & 6C CCR Certification Construction

The purpose of this memorandum is to satisfy 40 CFR 257.70 (e) and (f) with respect to the recently constructed cells 4C and 6C at the SKB Environmental Cloquet Landfill (the Facility herein). The above refenced rules are as follows:

> *(e) Prior to construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system meets the requirements of this section.*
>
> *(f) Upon completion of construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority that the design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system have been constructed in accordance with the requirements of this section.*

Pursuant to 40 CFR 257.70 (e), the Facility operates under MPCA solid waste permit SW-399, which includes the State's approval for the design and construction of the Cells 4 and 6, along with other cells, as an industrial waste disposal facility permitted to accept CCR.

The Construction Documentation Report (CDR) prepared by Stantec, dated October 2021, and memorandum addendum dated October 25, 2021, provides a detailed narrative of all construction and documentation activities completed throughout Cell 4C and 6C construction. Pursuant to 40 CFR 257.70 (f), the lining system of Cells 4 and 6 consist of (from top down):

- 12" granular drainage layer (drainage sand)
- 60 mil HDPE liner
- Geosynthetic clay (GCL) liner (approved equivalent to 12" thick compacted clay liner)
- 12" thick compacted clay barrier

The CDR was approved by the MPCA on October 26, 2021, via email from Dan Aamodt.

No leachate collection piping was constructed as part of Cell 4C and 6C. However, the leachate within the two cells drain into the existing Cell 4 and 6 leachate collection piping, respectively, which is designed in accordance with CFR 257.70.

In addition to the above referenced Rules, the cell was constructed in accordance with 40 CFR 257.60 – Placement above the uppermost aquifer, which requires no less than 5 feet of separation between the upper most aquifer and the landfill base. The comparison of the attached drilling log for P-3R to the Record Drawing base grades confirms this Rule met.

To the best of our knowledge, Cells 4C and 6C have been constructed in accordance with 40 CFR 257.70.

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Brad Sullivan PE # 56502
November 11, 2021

WENCK ASSOCIATES, INC.
DRILL LOG

BY: Christopher Kaiser **DATE:** 08/25/2020 **CLIENT:** Waste Connections (SKB - Cloquet) **BOREHOLE NO:** P-3R
PROJECT NO: B003053-19-183
GENERAL WELL LOCATION: 200699.38, 561679.77
LEGAL LOCATION: **STATE:** Minnesota **COUNTY:** Carlton **TOWNSHIP:** 49 **RANGE:** 17 **SECTION:** 25
DRILLING CONTRACTOR: EPC - Duluth
DRILLING METHOD: Rotary, Auger **DRILL RIG TYPE:** IHI Crawler Rig **DRILLERS:** Kyle
DATE STARTED: 08/25/2020 **DATE COMPLETED:** 08/25/2020 **WATER LEVEL:** 1131.65' **HELPER:** N/A
TOTAL BOREHOLE DEPTH: 24.5' **TOTAL WELL DEPTH:** 23.5' **GROUND ELEVATION:** 1147.15' **HELPER:** N/A
BOREHOLE DIAMETER: 6" **WELL DIAMETER:** 2" **MONUMENT CASING STICKUP:** 1.27'

DEPTH INTERVAL (FEET)	BLOW COUNTS	COLOR	GEOLOGIC DESCRIPTION	REMARKS
0'	2,3,4,7	Br.	Poorly graded sand with silt and gravel (SP-SM).	No topsoil.
SI 2'				
SI 4.5'	2,3,3,3		Same as above	
5'				
SI 6.5'	2,3,4,3		Same as above	Bed of larger cobbles at 8'-10'
SI 9'	4,4,8,9		Same as above	Fining downwards from 10' - 12'.
10'				
SI 11.5'	5,12,15,20	Br.	Poorly graded sand with some silt. Trace gravel (SP/SP-SM)	Soil damp at 13'. Saturated at 14.5-16.5'.
SI 14'	5,2,8,9		Same as above	
15'				
15.5' ▼				
SI 16.5'	2,5,9,25		Same as above	
				Tough drilling from 18-20'
		D.Br.	Poorly graded sand with some gravel (SP). Some inter-bedded slate	
20'			present, possible weathered Thomson Fm.	Intermittent tough drilling to EOB (slatey material)
SI 21.5'	8,21,22,2			
25'				
SI 26.5'	8,8,24,50		Same as above	

NOTE: SI : SAMPLING INTERVAL