UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD (SR-6J)
CHICAGO, ILLINOIS 60604-3590

REPLY TO THE ATTENTION OF: SR-6J

June 9, 2022

Michael L. Peterson, P.E.
Waste Management
Closed Sites Management Group
Waste Management, Inc.
W124N9355 Boundary Road
Menomonee Falls, Wisconsin 53051

VIA ELECTRONIC MAIL

Re: Temporary Shutdown of Active Remediation Systems and Remediation Progress at the Hagen Farm Superfund Site, Stoughton, WI

Dear Mr. Peterson,

The U.S. Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have had a chance to review the following documents submitted by SCS Engineers, Inc. (SCS) on behalf of Waste Management Wisconsin (WMWI) for the Hagen Farm Superfund Site ("Site"):

- LFAS and SVE Temporary Shut-Down Interim Assessment Report, Hagen Farm Superfund Site, Dane County, Wisconsin, received on February 17, 2022 (SCS, 2022a); and
- 2021 Annual Report, Hagen Farm, Town of Dunkirk, Dane County, Wisconsin, received on February 17, 2022 (SCS, 2022b).

Below are brief comments on the implementation of the rebound test and the subsequent remediation progress at the Source Control Operable Unit (SCOU) and Groundwater Control Operable Unit (GCOU) as discussed in the above-listed documents.

Summary of Rebound Test Implementation

SCS, on behalf of WMWI, prepared a work plan for a rebound test/temporary shut-down of the in-situ soil vapor extraction (SVE) system and low flow air sparge (LFAS) systems at the Site. Following from WMWI's July 9, 2019 correspondence to EPA, operation of the LFAS system was temporarily ceased on September 4, 2019, and operation of the SVE system was ceased on September 12, 2019. In its 2021 Interim Assessment Report (SCS, 2022a) and 2021Annual Report (SCS, 2022b), SCS concluded that, based on their assessment of data collected to date,

the temporary shutdown of the SVE and LFAS systems did not result in any significant or unanticipated adverse change in groundwater. In addition, SCS indicated that the results from the gas probe sampling events are consistent with a mature, well degraded waste mass, and elevated methane concentrations at one probe outside the cap footprint are no indication of a significant methane migration issue.

Discussion of Rebound Test Results and Remediation Progress

A brief discussion of key issues associated with the implementation of the rebound test and the interpretation of the SCOU and GCOU remediation progress, is provided below.

SCOU

Since system shutdown, methane concentrations under the cap have been steadily increasing, as indicated by measurements at the majority of gas probes. A brief qualitative discussion is provided in the above-referenced 2021 Interim Assessment Report and the 2021 Annual Report; however, the observed increase in methane concentrations beyond the explosive range is not fully addressed. The treatment system has been shut down since 2019 and there is no methane treatment system in place. Hence, further discussion is required to assess the potential for adverse conditions if/where landfill cap discontinuities may allow releases to the atmosphere or mixing conditions at the cap perimeter that can reduce methane concentrations to explosive levels. It should be noted that, although there are ICs in place, activities on-site (e.g., cap maintenance, vegetation mowing, etc.) can provide igniters that, under certain conditions, could increase the risk for explosion.

Under Appendix G, Health and Safety Plan, of the Landfill Cover Design Remedial Design/ Remedial Action Source Control Operable Unit report (Warzyn, 1991), there are specific actions required for exceedances of oxygen levels and Lower Explosive Limit (LEL) thresholds for combustible gases. Given that methane concentrations above the LEL have been measured at one probe at the perimeter of the cap (GP29), the actions required under the Health and Safety Plan should be considered. It should also be noted that, in similar situations, WDNR should be notified per the requirements listed in NR 507.22(c), Wis. Adm. Code (2021). I have attached an excerpt (Section 5 - Air Monitoring and other Field Equipment) from the above-cited 1991 Health and Safety Plan with relevant text highlighted in yellow. Also attached is a copy of Chapter NR 507 - Environmental Monitoring for Landfills.

In addition to releases to the environment, gas pressures have increased under the cap since system shutdown. No detailed discussion is provided in the 2021 Interim Assessment Report and the 2021 Annual Report regarding the acceptable range for those pressures. Increased gas pressures under the cap have been characterized as “low” in these reports, but there is no reference to published or estimated acceptable pressure levels that should be considered at the Site.

GCOU

Reported vinyl chloride (VC) concentrations at wells MW22 and P22B show an increasing trend since system shutdown, exceeding both the Preventive Action Limit (PAL) of 0.02 μg/L and Enforcement Standard (ES) of 0.2 μg/L. A brief, qualitative discussion is provided in the 2021 Interim Assessment Report and 2021 Annual Report with general statements regarding natural attenuation indicators and the potential for attenuation within the property boundary and beyond. However, no detailed discussion is provided on the actual attenuation processes within and downgradient of the cap to quantify attenuation rates that would provide a preliminary, but quantitative assessment of potential VC breakthrough at the property line monitoring wells P17C and P26B. Currently observed concentrations under the cap are below historical levels, but are well above the PAL and ES and, therefore, plume migration toward and beyond the property line should be fully assessed.

The decision to shut down the system was based on projections for a precipitous decrease in VC concentrations at wells P17C and P26B. However, detailed review of the data and the associated calculations suggests that these projections were extremely optimistic and, although VC concentrations at P17C continued following a downward trend, P26B concentrations did not show a similar behavior. In fact, VC concentrations at well P26B exhibited a sharp downward trend until about 2009, at which point they stabilized to levels slightly above the ES, following a consistent upward trend ever since. Hence, concentrations at the property boundary were in exceedance of both the PAL and ES, and operation of the treatment system did not fully address potential plume migration offsite in that area, even before system shutdown. Therefore, a detailed evaluation of aquifer conditions and mass flux in that area is warranted, to assess system performance and aquifer conditions in order to determine the potential for monitored natural attenuation (MNA) considerations.

While EPA and WDNR believe that the pilot study shutdown data is useful for determining the feasibility of MNA as a potential future remedy at the Site, safety and the protection of human health and the environment must be the primary consideration. In light of our concerns, EPA and WDNR request that the LFAS and SVE Temporary Shut-Down Interim Assessment Report (SCS, 2022a) and the 2021 Annual Report (SCS, 2022b) be revised to include the above-identified quantitative assessments and information for the SCOU and GCOU. The requested data assessment procedures should be included in Section 4.0 (Interim Data Evaluation) of the December 9, 2020 Work Plan document entitled: "*Pilot Shutdown of Active Remediation Systems at the Hagen Farm Site, Stoughton, WI".* The Work Plan also requires revisions previously identified in the January 6, 2021 and August 19, 2021 letters from EPA to WMWI.

In order to insure that this required information is submitted in a timely manner, EPA and its consultants will be happy to set up a meeting with you online to discuss this letter and clarify our requests. Please feel free to contact me if you have any questions.

Best regards,

Sheila A. Sullivan

Sheila A. Sullivan

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cc: Mike Prattke, SCS Engineers
B.J. LeRoy, WDNR
Alex Spiliotopoulos, S.S. Papadopulos &Assoc.
Jeffrey Cahn, EPA, ORC

Attachments (2)

- Landfill Cover Design Remedial Design/ Remedial Action Source Control Operable Unit report, Appendix G, Health and Safety Plan, Section 5 - Air Monitoring and other Field Equipment (Warzyn,1991)

- Chapter NR 507 - Environmental Monitoring for Landfills, Wis. Adm. Code (2021)

References

Department of Natural Resources (NR) - NR 507, Environmental Monitoring for Landfills. Wisconsin Administrative Code, No. 787, July 2021.

SCS Engineers (2020), Work Plan for Rebound Test – GCOU and SCOU Remedies. Hagen Farm Superfund Site, Dane County, Wisconsin. December 2020.

SCS Engineers (2022a), LFAS and SVE Temporary Shut-Down Interim Assessment Report, Hagen Farm Superfund Site, Dane County, Wisconsin. February 2022.

SCS Engineers (2022b), 2021 Annual Report, Hagen Farm, Town of Dunkirk, Dane County, Wisconsin. February 2022.

Warzyn Inc. (1991), Landfill Cover Design, Remedial Design/Remedial Action Source Control Operable Unit. Hagen Farm Site, Town of Dunkirk, Wisconsin. July 1991.

WMWI (2019), Letter to Ms. Sheila A. Sullivan, Remedial Project Manager, USEPA Region 5. July 9, 2019.