July 16, 2025

TRANSMITTED ELECTRONICALLY

Mr. Mike Cocanig
Chief Operations Officer
Material Sciences Corporation
460 W Main Street
Canfield, Ohio 44406

RE: Material Sciences Corporation - Canfield
Assessment
Correspondence
Workplan
RCRA C - Hazardous Waste
Mahoning County
OHD000810283

Subject: Notice of Deficiency - RCRA Facility Investigation Workplan

Dear Mr. Cocanig:

On May 30, 2025, August Mack Environmental Inc. (AME) on behalf of Material Sciences Corporation (MSC), submitted to Ohio EPA an RCRA Facility Investigation (RFI) Workplan for the MSC facility located at 460 W Main Street, Canfield, Ohio.

Ohio EPA, Division of Environmental Response and Revitalization (DERR) has conducted a review of the above referenced RFI Workplan and has determined it to be incomplete and technically inadequate.

We have enclosed, as an attachment to this correspondence, detailed deficiency comments on the RFI Workplan. The Ecological Level III Scope of Work included as Attachment C of the RFI Workplan was approved by Ohio EPA's Division of Surface Water on July 1, 2025. Please provide a revised RFI Workplan addressing all areas indicated in the deficiency comments to Ohio EPA for approval **within 14 days of receipt of this letter**.

The revised RFI Workplan shall be prepared in accordance with the following editorial protocol or convention:

1) Old Language is over-struck, but not obliterated.

2) New Language is capitalized.

3) Page headers should indicate date of submission.

4) If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required.

The revised RFI Workplan should be submitted via email to Eric.Sainey@epa.ohio.gov, Christopher.Biro@epa.ohio.gov, Adriana.Cooper@epa.ohio.gov and/or through Ohio EPA's eBusiness Center at ebiz.epa.ohio.gov. Cover letter physical mailing address is:

Ohio Environmental Protection Agency
Division of Environmental Response and Revitalization, Northeast District Office
Attn: Chris Biro, Site Coordinator
2110 E Aurora Road, Ohio 44087

In accordance with Section XII of the December 31, 2024, Director's Final Findings and Orders (DFFO) agreed to by MSC and Ohio EPA, Ohio EPA will review the re-submitted RFI Workplan and approve, or modify and approve, the Workplan.

If you wish to arrange a meeting to discuss your responses to this Notice of Deficiency, please contact Chris Biro at 330.963.1141 or Christopher.Biro@epa.ohio.gov, and/or Adriana Cooper at 330.963.1237 or Adriana.Cooper@epa.ohio.gov.

Sincerely,

Natalie Oryshkewych

Natalie Oryshkewych
Environmental Manager
Division of Environmental Response and Revitalization

NO/cm

Attachment

ec: Brandon Lewis, August Mack Environmental, Inc.
Charlie Gomez, August Mack Environmental, Inc.
Bryant Hoffer, August Mack Environmental, Inc.
Will Bedel, August Mack Environmental, Inc.
Melissa Witherspoon, Environmental Administrator, CO, DERR
Melissa Storch, Assistant Environmental Administrator, CO, DERR
Eric Sainey, Environmental Manager, CO, DERR-ERAS
Melissa Langton, Environmental Supervisor, CO, DERR-ERAS
Kamalpreet Kawatra, Risk Assessor, CO, DERR-ERAS
Bill Zawiski, Environmental Supervisor, NEDO, DSW
Chris Biro, Environmental Specialist 2, NEDO, DERR
Adriana Cooper, Environmental Specialist 2, NEDO, DERR

General Comments

1) The RFI Workplan indicates that additional sampling will be conducted to determine the nature and extent of the release. However, the workplan does not indicate how nature and extent will be determined. For example, there is not an explanation as to whether residential screening levels or background concentrations will be used to determine nature and extent. The full extent of contamination is required for baseline risk assessment and in estimating volumes of material that may require treatment and evaluation in a corrective measure study. The extent of contamination is also an important detail for future risk management decisions.

Action Item: Update the RFI Workplan to include how nature and extent of contamination will be determined. Given the proximity of the release to residences located along Sawmill Creek and potential impacts to ecological receptors in the wetland and Sawmill Creek, it is recommended that nature and extent be determined using residential standards at 1E-06 and 0.1.

2) The RFI Workplan indicates that Trichloroethylene (TCE) and degradation by products are primary site contaminants of concern (COCs). However, no wetland and Sawmill Creek samples were analyzed for TCE and degradation by-products.

Action Item: Clarify in the RFI Workplan why wetland and Sawmill Creek samples are not analyzed for TCE and degradation by-products. This may include information on prior sampling that has been done that eliminates the need to characterize the contamination further.

3) The RFI Workplan should include data quality objectives and standard operating procedures that will be used to conduct sampling and data analyses.

Action Item: Revise the RFI Workplan to include the data quality objectives and standard operating procedures.

4) The RFI Workplan does not include the conceptual site model.

Action Item: Update the RFI Workplan to include the conceptual site model.

5) References to "the high school" and the "bike path" are vague and do not adequately describe the geographic location of these areas.

Action Item: Define "the high school" and the "bike path" (i.e., Canfield High School and the

Mill Creek MetroParks Bikeway). Abbreviations or simplified naming conventions may be used for these areas after they are adequately defined.

Groundwater and Vapor Intrusion

6) Figure 4D presents the locations of monitoring wells that are proposed to be installed to define the extent of groundwater contamination. Monitoring well MW-4, located on the western boundary of the MSC property, exceeds residential vapor intrusion screening levels (VISLs) for TCE at 13,000 micrograms per liter (µg/L). No wells are proposed to be installed to the west of MW-4. It is recommended that wells be installed west of MW-4 to determine the extent of the plume.

Action Item: Install a well, west of MW-4 to determine the extent of the TCE plume.

7) The RFI Workplan indicates that the February 2025 interim vapor intrusion (VI) investigation was conducted to evaluate VI risk for off-property receptors, and no additional VI sampling is proposed. One round of soil gas and sub-slab samples were collected east of the MSC property to determine vapor intrusion risks to Canfield High School. None of the samples exceeded residential VISLs based on one round of sampling. Monitoring wells MW-4 (located to the west of MSC), MW-5 and MW-15 (located to the east of MSC) indicate concentrations of TCE at 13,000 µg/L, 9,600 µg/L and 10,000 µg/L respectively, which are above the residential VISL of 9.9 µg/L and commercial VISL of 41 µg/L. Further delineation of the plume is needed west of MW-4 and east of MW-5 and MW-15 to determine the extent of TCE contamination above VISLs. Based on the extent of the plume, further VI assessment may be needed for the properties located to the west and east of MSC.

***Action Item*:** Further VI assessment may be needed for properties located to the east and west of MSC, based on the extent of the plume and concentrations of TCE and degradation by-products in groundwater above VISLs. This includes collecting multiple rounds of soil gas and sub-slab samples to account for temporal and seasonal variability in concentrations of COCs in groundwater.

8) Concentrations of free cyanide at on-property well MW-3 (1,300 µg/L) are above the residential VISL of 200 µg/L. Grab groundwater samples at SB-44, SB-43, SB-46 and SB-45, located to the east of MSC, do not exceed the residential VISL for cyanide. The RFI Workplan indicates that further nature and extent of the contamination will be determined by installing monitoring wells, both on-property and off-property. Based on the extent of the plume, vapor intrusion assessment will need to be conducted if concentrations of cyanide exceed VISLs. This may include pH testing and other assessment methods, as appropriate.

Action Item: Based on the extent of the plume and concentrations of cyanide above VISLs in groundwater, further VI assessment may be needed to evaluate VI risks.

Additional Groundwater Recommendations

9) Figure 4D presents the locations of proposed monitoring wells. Monitoring wells MW-5 and MW-15 located to the east of MSC indicate concentrations of TCE at 9,600 µg/L and 10,000 µg/L respectively. However, no wells are proposed southeast of these wells to define the extent of the plume in the southeastern direction.

Action Item: It is recommended that a well be installed southeast of MW-5 and MW-15 to define the extent of the plume.

10) The crock in the Basement of the galvanizing line on the west side of Building 1 may be hydrologically connected or interacting with groundwater beneath the MSC property. It is Ohio EPA's understanding that the water level in the crock was being gaged by MSC for an unknown frequency and duration and potentially sampled for laboratory analysis.

Action Item: Discuss the history of MSC's evaluation of the Basement crock. Provide water level and analytical data that was previously obtained. As part of this RFI Workplan and during the course of the sitewide perched water assessment, collect an additional round of water level gauging and a water sample for laboratory analysis from the Basement crock.

Sitewide Perched Water and Shallow Soil

11) Twenty-four shallow soil borings are planned to be advanced up to approximately five feet below ground surface. The RFI Workplan proposes that a variety of techniques will be used to advance the borings depending on the location. Proposed techniques are to include hand auger, Geoprobe, shovel, or mini-excavator. The purpose of the borings is to assess shallow water underlying the facility at locations in proximity to the Red and Yellow lines. Shallow groundwater in underlying fill material will likely be turbid which could affect sample collection and analytical results. Further, using multiple boring techniques could introduce variability in sample collection again potentially resulting in variability of sample results.

Action Item: Based on the likelihood of excessive turbidity it is recommended that shallow groundwater samples be filtered in accordance with guidance provided in the Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations. To the extent practical, it is recommended that borings be installed using direct push techniques to provide as much uniformity as possible with respect to boring installation and sample collection, thereby limiting sources of uncertainty during the assessment. In locations where direct push

technology cannot be used (i.e., due to accessibility) then an alternate technique (e.g., hand auger) may be implemented.

12) Shallow perched water is only proposed to be sampled for field free cyanide and field pH. While this may be used as a screening tool to determine the extent of free cyanide in the perched zone, the RFI Workplan should include how nature and extent of all site COCs in perched water will be determined. The RFI Workplan indicates that the primary site contaminants of potential concern (COPCs) are total cyanide, free cyanide, zinc, hexavalent chromium, and TCE and breakdown products.

***Action Item*:** Update the RFI Workplan to determine how nature and extent for all COCs will be determined in the perched zone.

13) Page 8 of the RFI Workplan states that twenty-four shallow soil boring locations are proposed along transects, in proximity to the red and yellow lines, and at known areas where the perched water appears to surface. Based on numerous Ohio EPA site visits and field observations, there are other locations where perched water is likely surfacing that warrant investigation. Additional locations include the following:

a) Perched water is known to surface on the west side of the ditch near transect T-425 as an orange-colored seep with an iridescent, biological sheen.

Action Item: Install a shallow soil boring at this location and evaluate perched water according to the methodology on page 8 of the RFI Workplan.

b) There is also an on-property wet depression/potential wetland in the forested area west of Building 2 that may be fed by shallow perched water and surface runoff from the concrete pavement north of Building 1. This area has also been subject to apparent historical dumping of gray slag and steel I-beams. This area is hydrologically connected to the small, ephemeral, impacted ditch area being investigated by proposed soil borings SB-113, SB-114, SB-115, SB-116.

Action Item: Install a shallow soil boring within this area and evaluate perched water according to the methodology on page 8 of the RFI Workplan. Soil samples should be collected for laboratory analysis as well. This area may be characterized as an additional SWMU or AOC as well.

c) It is unclear *from Figure 4B – Proposed Shallow Soil Boring Location Map* whether borings SB-103 and SB-109 are positioned within the small, ephemeral ditch mentioned in the bullet point above.

Action Item: Install a shallow soil boring within the small ephemeral ditch and evaluate perched water according to the methodology on page 8 of the RFI Workplan. Soil samples should be collected for laboratory analysis as well. If SB-103 and SB-108 are intended to be installed in this ditch, then no revision is necessary except for the addition of soil analysis. If sampling in this ditch is not currently proposed, SB-103 and/or SB-109 should be shifted to the west so the ditch can be evaluated.

d) No sampling is proposed for the upstream portion of the adjacent ditch that flows north through the alley between the eastern side of Building 1 and the neighboring building to the east. This portion of the adjacent ditch ends abruptly near the northeast corner of Building 1 (east of the electrical substation and east of the fence line) then daylights at the culvert outfall just upstream of transect T-0. Sampling at this location is important to determine either ditch baseline/background conditions, or the presence of unidentified contamination which could be migrating northward.

Action Item: Install a shallow soil boring at this location and evaluate perched water according to the methodology on page 8 of the RFI Workplan. Soil samples should be collected for laboratory analysis as well.

14) Ohio EPA has observed numerous releases of high pH wastewater (and potentially water treatment chemicals) in connection with water collection and treatment efforts on the MSC property during past site visits. Some releases have infiltrated exposed surface soils and penetrated through relief cuts in the concrete pavement. It is very likely that these releases have impacted the shallow perched water zone.

Action Item: Revise the "Rationale" column in Table 2 to explain that the vertical and horizontal delineation of impacts and characterization of shallow perched water is needed because of the initial July 2024 release to the adjacent ditch, historical site contamination and present-day releases during water collection and treatment activities.

Deep Soil Boring Installation and Sampling

15) The AOC-*6: Building One* section (page 9) states that a maximum of two soil samples will be selected for laboratory analysis at each soil boring location based on the depth of 0-2 feet (or immediately below the concrete) and the highest PID reading. Given the potential for sources to be present at depths below the 0-2 feet/under the slab (Red and Yellow line, Basement), additional sampling is needed to identify and characterize contamination under slab.

Action Item: Update the RFI workplan to include how source areas will be characterized

under the slab and how sampling will be conducted to horizontally and vertically delineate COC-impacted soils. Additional sampling is recommended at depths greater than two feet to characterize contamination under the slab. This may include collecting soil samples and analyzing for all COCs at multiple depths at soil boring locations SB-124/MW-16, SB-125/MW-17, SB-126/MW-18, SB-127, SB-128, SB-129/MW-19, SB-130 (inside Building 1). This information will also be useful when evaluating exposure pathways such as soil leaching to groundwater.

Wetland Delineation

16) The RFI Workplan states that wetland and sediment sampling in Sawmill Creek is being conducted to delineate impacts from the release. Based on the results of the sampling, additional sampling will be needed to determine nature and extent of the release.

Action Item: Conduct additional sampling, as needed, to determine nature and extent.

Ditch Sampling

17) The RFI Workplan indicates that due to the liner within the adjacent ditch, no further investigation is proposed. Soils within the ditch were excavated in accordance with the November 2024 Ditch Interim Measure Workplan based on the total cyanide concentration of 150 mg/kg as a remedial goal. The upper 6-inches of the ditch soils in the entire 1,125-foot length was excavated except for the area in proximity to Outfall 2 N that was excavated to a depth of 2.5 feet. Further, the Level II eco risk assessment indicates that because the adjacent ditch is currently bypassed, ecological receptors are not using the ditch as aquatic habitat and, therefore, would not be exposed to any potential chemicals. Though the liner is used as an interim measure to prevent cyanide migration and reduce stormwater contamination, concentrations of cyanide in the ditch remain above residential soil screening and ecological screening levels.

The presence of the liner does not eliminate the need for proper assessment and remediation of soils in the ditch area. Reliance on a presumptive remedy in lieu of determining nature and extent and evaluating risks to receptors is not appropriate at this stage of the RCRA FIRST process. Section of a final remedy or remedial goal occurs during the remedy selection phase of RCRA first process. Therefore, risk assessment and further evaluation will be needed to determine that concentrations of COCs under the liner do not pose an unacceptable risk to human and ecological receptors.

Action Item: Develop a plan for further investigation of the ditch area which will include characterization of nature and extent of COCs in the ditch and evaluating risks to ecological

receptors.

18) The *AOC-1 Adjacent Ditch* section (page 6) of the RFI Workplan is no longer current with respect to Ohio EPA approvals to discharge stormwater from the ditch to Sawmill Creek and subsequent date of implementation of the April 2025 revised Interim Measure Monitoring Plan. MSC began discharging stormwater from the ditch to Sawmill Creek on June 10, 2025.

Action Item: Revise the *AOC-1 Adjacent Ditch* section (page 6) of the RFI Workplan to discuss the timing and details of Ohio EPA's June 2025 approval letters to discharge storm water from the ditch to Sawmill Creek, the date the April 2025 revised Interim Measure Monitoring Plan became effective, and any pertinent details regarding subsequent storm event ("any precipitation of 0.1-inch or greater of accumulation") sampling in accordance with the April 2025 revised Interim Measure Monitoring Plan.

Eco Level II Risk Assessment

19) Table 1 does not present the correct screening levels for mercury. The screening level for mercury is 0.00051 mg/kg based on Preliminary Remediation Goals for ecological endpoints (Efroymson et al. 1997).

Action Item: Update the table to include the correct screening levels.

20) Total cyanide was screened out of the ecological risk assessment due to the absence of a sediment and soil screening value. Section 2.3.4 of the Ecological Risk Assessment Guidance Document states that if a screening benchmark does not exist for a contaminant of interest, it should be retained as a contaminant of potential concern (COPC). In addition, screening should account for site-specific chemical releases that have the potential to impact ecological receptors. Since cyanide was released from the site, which could result in impacting ecological receptors, it should be retained as a COPC.

Action Item: Update the risk assessment to include cyanide as a COPC.

21) Section 3.2 of the Level II ecological risk assessment indicates that chemicals detected in surface water were compared to the outside mixing zone maximum presented in OAC 3745-1-35. The maximum concentration of chemicals detected in surface water should be compared with outside mixing zone averages (OMZA) to determine COPCs.

Action Item: Update Table 3 to use OMZA as the screening values and update the list for COPCs.

22) Table 1 presents the locations where maximum concentrations of COCs were detected in soils. The risk assessment does not include a map of the sampling locations.

Actions Item: Update the risk assessment to include a map of the sampling locations.

23) The Wetland Delineation Report included as Attachment D (Attachment E in the Level I Ecological Risk Assessment) does not contain the wetland determination data forms for the upland and wetland sampling plots. The ORAM data forms are also provided but were not populated with any information, yet an ORAM score of 47 (Category 2) was assigned to the wetland.

Action Item: Include the wetland determination data forms for the wetland and upland sampling plots as well as the completed ORAM data forms in the Wetland Delineation Report provided as Attachment E in the Level I Ecological Risk Assessment and Attachment D in the Level II Ecological Risk Assessment.