



May 30, 2024

Roers Companies
c/o: Shane LaFave
110 Cheshire Lane, Suite 120
Minnetonka, MN 55305
Via Email Only to shane@roerscompanies.com

Subject: Technical Assistance Response – VMS Commissioning Review
Community Within the Corridor – East Block
2748 N. 32nd Street, Milwaukee, WI 53210
BRRTS #02-41-263675, FID #241025400

Dear Mr. LaFave:

On April 9, 2024, the Wisconsin Department of Natural Resources (DNR) received the report titled *Second Round of Commissioning* prepared by K. Singh & Associates, Inc. (K. Singh) on behalf of Community Within the Corridor (CWC) for the subject site. On April 16, 2024, the DNR requested additional information to supplement the information presented in the commissioning report. On April 29, 2024, the DNR received the requested additional information (collectively, the Report). The Report was presented with a technical assistance fee of \$700 for DNR review and response. The DNR reviewed the Report for compliance with Wisconsin Statutes (Wis. Stats.) ch. 292 and Wisconsin Administrative (Wis. Admin.) Code chs. NR 700-754. The DNR agrees with CWC that no vapor action level (VAL) exceedances were identified, and that adequate pressure field extension (PFE) was measured across the CWC East Block building during the March 2024 vapor mitigation system (VMS) commissioning event. The DNR acknowledges the extensive work that CWC and their team have conducted at this site to address Wis. Admin. Code NR 700 requirements, and our comments and recommendations presented in this letter are intended to assist CWC for the next phases of the project.

Report Overview

In summary, a commissioning event for the site's VMS occurred in March 2024, and consisted of the following actions, as presented in the Report:

- Building preparations that included sealing the building for 24 hours prior to indoor air sampling, inspecting cracks and joints in the building and sealing any additional areas in the building, as needed.
- PFE testing at 55 vapor pins to demonstrate a negative pressure of least 0.004 inches water column under the entire ground floor slab.
- Indoor air sampling at 130 locations using the portable gas chromatograph (GC) and at 70 locations using passive samplers to demonstrate that there are no indoor air VAL exceedances.
- Continuous air monitoring in Units 1045 and 1050 using the portable GC unit.
- Measurement of the blower exhaust, speed, anemometer readings, and trichloroethene (TCE) concentration of the VMS blower exhaust to demonstrate system efficiency.

Report Review

The DNR provides the following comments and recommendations in response to the information presented in the Report:

1. The DNR considers the March 2024 commissioning event to be the first successful commissioning event for the VMS at the subject site. The commissioning event that occurred a year earlier in March 2023 was unsuccessful due to inadequate PFE and due to the identified indoor air contamination exceeding the applicable VALs, indicating that the VMS was not properly mitigating the vapor intrusion pathway. As DNR has previously informed CWC, a minimum of three successful consecutive commissioning events are necessary to demonstrate that the VMS is preventing vapor intrusion and indoor air concentrations will not exceed established VALs. If any of the upcoming commissioning events identify indoor air contamination greater than the applicable VALs or inadequate PFE across the building footprint, the commissioning process may need to be restarted.
2. The DNR recommends that the indoor air sampling for the second VMS commissioning event be performed over a period of 28 days using passive samplers. This long-term indoor air sampling event would provide a more robust dataset as it would capture a wider range of conditions that may impact vapor intrusion, such as temperature, pressure, weather patterns (potentially including heavy rain events), building HVAC operations/cycles, etc. The DNR recommends that continuous indoor air monitoring using the GC unit be conducted in select sample locations over the same 28-day duration to provide field verification for this passive sampler indoor air data. The GC samplers should be deployed in the areas of the site building where vapor intrusion is most likely to occur, such as building sections 1B-W and 1B-SW.
3. Considering the indoor air data presented in the Report and in the *Weekly Report for the Week Ending 4/27/2024*, the DNR recommends that, for the next (second) commissioning event, a portion of the passive indoor air samplers proposed to be placed on the second and third floors of the site building be moved to the first-floor in building sections 1B-W and 1B-SW. The locations for the relocated samplers should be based on the results of GC sampling described in Review Comment #5 of this letter and the historical sub-slab vapor, indoor air, and soil data. The DNR requests that some passive sampling locations remain in the second and third floors of the site building in sections 1B-W and 1B-SW.
4. The DNR has determined that another heating season commissioning event during cold weather conditions is still necessary in order to assess a worst-case scenario for vapor intrusion. If the results of the next (second) commissioning event meet the criteria that were met in the March 2024 event, this third heating season commissioning event may focus exclusively on the units of concern on the first-floor level of building sections 1B-W and 1B-SW (i.e., units 1043, 1044, 1045, 1048, 1049, 1050, 1051, 1052, 1053, 1054, and 1055). Only these units in the site building are included in this requirement, as these sections represent the areas where vapor intrusion is most likely to occur due to the soil and vapor data identified across the site to date. Depending on the results of the second commissioning event, this heating season event could be planned as the third commissioning event. This requirement is based on the following:
 - VMS commissioning events during the heating season are important to demonstrate VMS effectiveness. During winter heating season conditions, a building's heating system(s) creates a pressure gradient that can exacerbate vapor intrusion into a building. The average temperature recorded by K. Singh during the March 2024 commissioning event, as indicated on Table 1 of the Report, was identified as 41.9 degrees Fahrenheit. According to the National Weather Service's database (<https://www.weather.gov>), January was the month with the coldest temperatures on

average in the heating season of 2023/2024. The average temperature identified during January 2024 was recorded as 27.8 degrees Fahrenheit. The March 2024 commissioning event at the subject site may not have occurred when building and weather conditions were most representative of the worst-case scenario for vapor intrusion. The requested 2024/2025 heating season commissioning event will provide necessary data to demonstrate that the VMS will prevent vapor intrusion from impacting the breathing space of the units of concern (identified above) over the long-term operation of the system.

- From 2023 – 2024, CWC performed hot spot remedial soil excavations within these building sections. Soil data presented in the *Soil Borings Report for Hotspot Areas* report, submitted to the DNR on October 26, 2023, indicates that a significant amount of soil contamination exists below the planned depth of the hot spot soil excavation (i.e., 4 ft bgs). The additional heating season commissioning event in these building sections is necessary to evaluate site conditions after the sub-slab vapor contamination has equilibrated with the materials used to fill the hot spot soil excavations.

Commissioning is an iterative process. If future VMS commissioning events identify issues, additional actions and/or commissioning events may be required.

5. The upcoming indoor air sampling/screening using the portable GC units should be performed adjacent to preferential pathways that were not assessed in the March 2024 commissioning event. More specifically, the next GC sampling event should include a greater number of sample locations in bathrooms and utility closets in the residential living spaces, particularly in building sections 1B-W and 1B-SW. Other locations to assess may include brick walls in residential living spaces, wooden columns, air space near sumps, VMS piping and building penetrations, and any other locations that may act as vapor migration pathways. If a sample location was selected based on its proximity to potential preferential pathways, then specifically note this on the data tables, such as in the notes section of Tables 3 and 4 in future submittals. Evaluate the results of the upcoming screening events to determine whether any additional sealing efforts may be necessary prior to the upcoming commissioning event. If TCE concentrations are observed above the VAL at any of these GC sample locations, perform corrective measures to interrupt any potential preferential pathway for vapor intrusion, and then collect passive indoor air samples from these corresponding locations in the upcoming commissioning event.
6. As noted in CWC's *Emergency Corrective Action Plan for Vapor Mitigation System*, dated April 18, 2023, for the site, stormwater inflow beneath the site building had a negative impact the VMS effectiveness, as shown in the *First Round of Commissioning* report submitted to the DNR on April 7, 2023. A supplemental round of PFE measurements should be collected immediately following a significant rain event, as may be feasible, to demonstrate that the stormwater management efforts completed by CWC as a part of their emergency corrective action plan were successful. This data should be submitted in the next commissioning report.
7. The DNR requests that vacuum measurements be collected from all the VMS blowers/fans during the upcoming commissioning events to establish performance criteria. The vacuum measurements will likely differ slightly between the blowers/fans. Establishing this performance data is critical for the long-term maintenance and monitoring of the VMS.
8. The Report states that Mr. Robert Fedorchak, a Professional Engineer (PE) and NRPP-certified mitigator with Patriot Engineering and Environmental, Inc., provided a peer review of the Report. By stating this, it implies that Mr. Robert Fedorchak approved the Report as a PE and NRPP-certified mitigator. If this statement is used in future reports, then please support it with a statement and/or memorandum of

approval with a signature and relevant certification documentation. If Mr. Robert Fedorchak has generated comments for CWC from his review(s), these should be included in this requested supporting documentation.

Other:

1. Clarify whether soil vapor extraction (SVE) is still being considered as a supplemental remedial action to the soil excavations. If so, then VMS sampling, mass removal and discharge rates must be tracked according to Wis. Admin Code chs. NR 700-754 and Wis. Admin. code § NR 419.07(6). Information related to the SVE operations should be provided, as applicable, in the interim action report, as requested in the *Next Steps* section of this letter.
2. Attachment B of the Report indicates that manhole sample locations IA-1 to IA-3 were sampled in March 2024. The Report does not include the lab data sheets, data tables, or information on the type of passive sampler deployed. Submit this information to the DNR as soon as feasible. As a reminder, all sampling results must be submitted to the DNR within 10 business days of receiving laboratory data, per Wis. Admin. Code § NR 716.14. Radiello passive samplers are not recommended when performing passive sewer gas sampling, as these specific samplers are prone to be affected by the high moisture content environment within sanitary sewers and could bias the sewer gas results low. The DNR recommends that you work with your selected laboratory to determine which available passive samplers may be most compatible for future sanitary sewer gas sampling events.
3. On February 5, 2024, CWC submitted *Weekly Report for the Week Ending 02/03/2024* without a fee for DNR review and response. This report indicates that following cleanup efforts in remediated areas, TCE levels (in indoor air) have decreased significantly. In the below requested interim action report, provide additional details on what these cleanup actions consisted of.
4. On April 30, 2024, CWC submitted *Weekly Report for the Week Ending 4/27/2024* without a fee for DNR review and response. The April 30, 2024, report presents an additional 160 indoor air data points that were collected throughout the site building. No VAL exceedances for TCE were identified during this testing event. The DNR acknowledges that this data is useful to support the commissioning process, and looks forward to reviewing the upcoming commissioning event reports.
5. The DNR continues to recommend that DNR guidance documents RR-800, *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*, and RR-649, *Guidance for Documenting the Investigation of Human-made Preferential Pathways Including Utility Corridors*, be referenced as work continues at this site.

Documentation

The following documentation and revisions should be included in future submittals, as applicable:

- A figure displaying both the PFE information and the VMS layout with relevant piping, valves, vacuum measurements and discharge points.
- A narrative and photo documentation of the final sealing actions for the wood columns. Provide a figure that shows which columns were sealed. Indicate how far below the foundations the wood columns penetrate. Note in the next commissioning report whether the indoor air samples collected via GC unit and passive sampler were collected after the planned final column sealing actions.

- Table 4 of the Report presents the passive air sampling analytical results. The DNR requests that in future submittals Table 4, or its equivalent, include documentation of any manipulated building conditions that were performed during the passive air sampling event. Actions to simulate normal occupancy conditions may include, but are not limited to, operation of kitchen and bathroom ventilation fans, elevators, and drying machines in laundry rooms, as may be typical during occupancy. Reporting on the normal occupancy conditions that were applied should include information about HVAC and thermostat settings/status. The DNR does not recommend that these actions include opening patio or other exterior doors during commissioning events, as this may dilute the indoor air contamination concentrations with outdoor air. Although this action may simulate normal occupancy conditions, one of the purposes of VMS commissioning is to understand worst-case scenarios for vapor intrusion.
- Data tables indicate a sample location of “string” for indoor and sanitary sewer gas samples. The description is inadequate and further discussion is needed. Indoor samples should indicate a location and notation for height within the breathing zone. Sanitary sewer samples should have descriptions including the total depth and final deployment depth or discussion of depth to liquid and height above fluid at the time of deployment.
- In conjunction with the submittal of future commissioning reports, the DNR requests that up-to-date, comprehensive raw excel sheets with the indoor air data be submitted to the DNR via email. This data presentation is useful for the DNR to perform our technical review of the indoor air data.

Next Steps

In consideration of administrative code requirements, the DNR is requesting the implementation of the following schedule:

- Per Wis. Admin. Code § NR 716.14, CWC must submit all sampling results within 10 business days of receiving laboratory data.
- Paragraph 4 of Section III of DNR’s Emergency Order requires CWC to demonstrate that the installed VMS is preventing exceedance of the VAL for TCE throughout the entire building under all expected occupied building operating conditions and that vapor concentrations of TCE will remain below the residential VAL throughout the entire building. In accordance with this paragraph and per Wis. Admin. Code ch. NR 724, submit a commissioning plan for the third heating season commissioning event in consideration with the comments presented in this letter. This plan should be generated in response to the next (second) commissioning event data. The DNR recommends that this be submitted with a technical assistance fee for formal DNR review and written response.
- Per Wis. Admin. Code § NR 724.15, submit a construction documentation or as-built report (i.e., interim action report) within 60 days after the date that construction of all interim actions is completed. If SVE is a remedial action proposed for this site, then the interim action report should present separate sections for the VMS and SVE operations, based on the different goals of these system functions. The interim action report should include the VMS commissioning summary report, or be provided prior to CWC requesting DNR’s approval of the VMS commissioning summary report following the third successful commissioning event. The DNR cannot approve the commissioning process for the entire site building until this documentation is submitted, following a minimum of three consecutive successful commissioning events.
 - Submit an interim operating, maintenance, and monitoring (OM&M) plan for all VMS components that includes the information specified in Wis. Admin. Code §§ NR 724.13(2) and 724.17, as applicable. CWC’s OM&M plan should be submitted as part of the interim action report.
 - Wisconsin Admin. Code § 724.13(1)(d) provides that “[v]apor mitigation systems and remedial actions designed to address vapor migration shall be monitored at a frequency

- determined by the department, to measure whether the action taken has been effective in meeting the vapor action level.” In consideration of the site-specific conditions present at the site, including high levels of TCE in the soil beneath the building, short term exposure health risks of TCE, complexity of the building structure and VMSs, and documented exceedances of the VAL for TCE in residential buildings, the DNR has determined that CWC must monitor the VMS on a continuous basis, as was outlined in the DNR’s May 8, 2023, *Technical Assistance Provided – Review of Emergency Corrective Action Plan* letter. CWC must determine and document how continuous monitoring will be achieved. It is strongly recommended that continuous monitoring of the VMS includes audible alarms to alert building occupants of system failures as well as instrumentation, such as telemetry, to allow immediate notification of a person directly responsible for arranging repairs in the event of a system malfunction. Per Wis. Admin. Code § NR 724.13(2)(c), include a contingency plan in the OM&M plan for anticipated or potential operation and maintenance problems, including a plan for how CWC will address a loss of electrical power to the system. It is strongly recommended that a backup power system be considered for the VMS to address this potential situation.
- As outlined in the DNR’s *Remedial Action Options Report Review* letter, dated December 11, 2023, include a detailed narrative and supporting photo documentation on the sealing efforts that are performed for various building features, such as columns, walls, floors, and other building features. This report should also include operation and discharge information for the sumps at the site. The interim OM&M plan included in this report should discuss how the sealing efforts will be inspected and maintained.

The DNR appreciates the actions you are taking to restore the environment at this site, and looks forward to continuing to assist you on this project. If you have any questions regarding this site or this letter, please contact me, the DNR Project Manager, at (414) 435-8021 or jane.pfeiffer@wisconsin.gov.

Sincerely,



Jane K. Pfeiffer
Project Manager – Hydrogeologist
Remediation & Redevelopment Program

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