**State of Wisconsin**
DEPARTMENT OF NATURAL RESOURCES
3911 Fish Hatchery Road
Fitchburg WI 53711-5397

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711


June 20, 2013

Mr. Mark Meunier
Madison Kipp Corporation
201 Waubesa Street
Madison WI 53713

Subject: Review of March 2013 Madison Kipp Site Investigation and Interim Actions Report February 2012 –January 2013

Dear Mr. Meunier:

The Department has completed its review of the March 2013 site investigation and interim actions report (SI Report) prepared by ARCADIS for the Madison Kipp Corporation (MKC) Waubesa Street site. In preparing this review the Department considered comments from other state and city agencies involved with this site as well as concerns raised by the technical consultants retained by the nearby residents. MKC also submitted "Supplemental Site Information/Addendum 1", dated May 29, 2013, providing additional information regarding potential receptors, transport mechanisms and potential remedial actions. This review letter does not incorporate comments on that document.

This site investigation report represents twelve months of work investigating soil, groundwater and indoor air for the presence of a variety of contaminants both on- and off-site that was performed on an aggressive schedule following the Department's May 11, 2012 letter to MKC.

The MKC Site Investigation Report is incomplete. The Department has organized its comments by topic area. First, we discuss the conceptual site model and work needed to finalize the model. This summary is followed by similar discussions of soil, groundwater, soil vapor, remediation and miscellaneous issues. The Department is requiring MKC to respond to these comments by September 30 with a document that updates the conceptual site model, including updates to a number of maps and other issues discussed below. In addition, MKC will provide one or more work plans by August 1, 2013 to address the additional investigative work required by the Department.

## 1. CONCEPTUAL SITE MODEL

Arcadis states (on page 97 of the SI Report) that a conceptual site model, or CSM, "synthesizes all relevant data (e.g., the facility and release history, geologic and hydrogeologic conditions, nature and extent of contamination, potential receptors and transport mechanisms, etc.) to provide a technical basis for remedial decision-making." MKC evaluated:

- subsurface geology and hydrogeology relating to the site and associated contamination migration.

However, a ch. NR 716, Wis. Adm. Code compliant site investigation report requires additional information necessary to develop a complete CSM, including discussions about:

- historic quantities and types of chemicals used;
- historic chemical storage locations;
- historic waste disposal practices;
- changes to facility operations over time, and how those changes might affect contaminant movement; and

- changes to facility layout over time, both structurally and as it relates to on- and off-site precipitation flow patterns;
- migration pathways off-site for groundwater, soil, and soil vapor contamination;
- the source or sources of the on- and off-site soil, groundwater and soil vapor concentrations; and
- the role of shallow groundwater contamination as an on- and off-site vapor source.
- the potential movement of contaminants through floor drains, sumps or other building features that might allow for contaminants to leave the building and impact the soils beneath the manufacturing floor;
- possible contaminant movement through utility corridors to off-site receptors;
- a more detailed description of the various on- and off-site contaminant exposure scenarios including those homes where sub-slab or indoor air readings exceeded state guidance criteria; and
- the transport of contaminated soil and/or contaminated runoff waters from on-site to off-site residential properties and the role of this migration pathway to contaminants identified off-site.

For the past 2 years, the Department has requested material purchasing records from MKC. The Department needs a firm understanding of the volumes of solvents, hydraulic fluids and other potential source materials that were used at the site. Also, we still do not have an understanding of the years various compounds of concern were used. The Phase I reports provided include limited use and disposal history.

## 2. SOIL CONTAMINATION INVESTIGATION

As a result of the soil contamination investigation, the presence of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and metals-related contamination has been identified both on- and off-site. The Department believes additional on- and off-site soil investigation is required and its recommendations/requirements are outlined as follows:

A. PAH contamination:

i. Off-site:

Arcadis provided an evaluation of the on- and off-site PAH data dated January 21, 2013. This evaluation used statistical modeling in an attempt to demonstrate the off-site PAHs were attributable to background PAH sources. The results of Arcadis' PAH evaluation is inconclusive without actual data to support those conclusions.

Therefore, a background sampling effort is needed for PAHs. MKC must provide a work plan in accordance with s. NR 710.11(5), Wis. Adm. Code, by August 1 with a proposal for off-site background soil sample collection and data analysis. A final recommendation regarding remedial actions will be based upon the results of this background sampling effort.

ii. On-site:

The SI Report documents the widespread presence of PAHs across the MKC property. The concentrations of PAHs exceed the suggested generic soil clean-up levels in an industrial setting as set forth in s. NR720.19, Wis. Adm. Code. MKC must provide an appropriate response recommendation to address any direct contact and/or groundwater threat these concentrations pose.

B. PCB contamination:

i. Off-site:

Arcadis identified off-site PCB contamination at concentrations greater than the generic soil clean-up levels in a residential setting as set forth in s. NR720.19, Wis. Adm. Code, as being present in the backyards of homes along Waubesa Street that share a common property boundary with MKC. The Department and the United States Environmental Protection Agency (U.S. EPA) have jointly reviewed the PCB sampling results. To address this contamination, MKC:

- submitted a work plan on December 14, 2012, to excavate the PCB-contaminated soil. This work-plan was approved on March 12, 2013;
- excavated contaminated soil from impacted backyards at 241, 245, 249, 253 and 257 Waubesa Street during May and June, 2013; and
- expanded the excavation of PCB-contaminated soil to include additional, affected off-site properties (233 and, once access is obtained, 237 Waubesa Street) based upon confirmation sampling performed as part of the original work plan.

The detailed sampling along the MKC property boundary with 233 and 237 Waubesa Street showed that significant PCB contamination exists along the western boundary of the MKC property. The Department is requiring that MKC submit a work plan for additional PCB soil investigation along the MKC property line with 261, 265, and 269 Waubesa Street using the same sampling interval as was used along the property line with 233 and 237 Waubesa Street. In addition, the PCB soil investigation must be extended along the north property boundary of 233 Waubesa Street.

There does not appear to be a significant off-site release of PCBs in the backyards of the homes along South Marquette Street that share a common property boundary with MKC. No further investigation or remedial work will be required along South Marquette Street for PCBs.

The presence of PCB contamination is uncertain in the vicinity of the rain garden located off MKC property to the northwest. This area receives storm-water runoff from the MKC facility. It is not clear if soils in this area have been impacted by contamination carried in runoff waters. The Department is requiring a work plan, due August 1, 2013, to provide sufficient data to demonstrate whether PCB contamination is present in the rain garden soils.

ii. On-site:

Arcadis identified PCB contamination at various locations on the MKC property, including significant concentrations of PCBs beneath the manufacturing buildings. Due to the high concentrations of PCBs found on-site, the U.S. EPA and the Department have a shared responsibility for regulating PCBs. The Department and U.S. EPA have coordinated their directives when requiring MKC to take response actions regarding PCB contamination. In response to the on-site PCB contamination MKC:

- provided a final work plan dated December 5, 2012 and approved on December 5, 2012 which resulting in 670 tons of PCB-contaminated soil being excavated from two areas on-site where contamination was accessible in the north parking lot. PCBs in this area remain at concentrations at or below 50 parts per million (ppm) total PCBs. As required by the Toxic Substance Control Act (TSCA), a deed restriction and other long-term requirements will be placed on the property as a result of this residual contamination;
- excavated contaminated soil from the property boundary along Waubesa Street in accordance with the approved off-site PCB remedial work plan noted above. The Department recently directed MKC to expand the on-site PCB investigation to examine the area of MKC property north of the homes along Waubesa Street. That direction included PCB soil investigation on MKC property bounded by 233 Waubesa St. to the south, Waubesa Street to the west, and the MKC building to the north and east.
- identified significant concentrations of PCBs beneath the manufacturing buildings.

U.S. EPA has determined that the nature and extent of the PCB soil contamination beneath the manufacturing buildings needs to be further defined both laterally and vertically. This will require additional sample collection. A work plan, due August 1, 2013, for this effort is required to be submitted for review and approval and is to include a proposal to define the extent of the PCB contamination. U.S. EPA and Department staff will work with MKC to develop this plan. After the extent of PCB contamination is defined, U.S. EPA and the Department expect that MKC will propose actions to address the PCB contaminated soils, including the possibility of soil removal.

C. VOC contamination:

i. Off-site:

Based upon the soil sampling performed by Arcadis, there have been releases of VOCs onto properties that share a common property boundary with the MKC facility along both Waubesa and South Marquette Streets. However, concentrations of these contaminants are not present at concentrations that represent a human health or environmental risk. No further investigation or remedial work will be required regarding the low-level off-site VOC contamination along Waubesa and South Marquette Streets.

The presence of VOC contamination is uncertain in the vicinity of the rain garden located off MKC property to the northwest. As noted earlier, this area receives storm-water runoff from the MKC facility; it is unclear if rain garden soils have been impacted by contamination carried in runoff waters. A work plan to provide data demonstrating whether VOC contamination is present in the rain garden soils is needed by August 1, 2013.

ii. On-site:

Currently, the Department believes the VOC soil contamination on-site has been defined for those areas that are easily accessible. On page 14 a comment is made that there are no floor drains in the manufacturing portions of the buildings. If floor drains do not exist, there needs to be an explanation for the widespread occurrence of tetrachloroethylene (PCE) and PCBs beneath the buildings. Because both the PCB and VOC contamination has not been adequately defined beneath the buildings, a work plan to define contamination beneath the buildings is required. This work plan should be submitted for Department review by August 1, 2013.

D. Metals-related contamination:

i. Off-site:

Elevated lead levels were detected at three off-site properties (106 and 142 Marquette Street and 261 Waubesa Street). MKC needs to provide an explanation as to why these concentrations are present by September 30, 2013. If the source of off-site lead is due to MKC operations or property, MKC must submit a plan that discusses how they will address any environmental concerns the lead concentrations may pose.

ii. On-site:

There are several locations on-site that exhibit elevated concentrations of metals, specifically barium, lead, mercury and selenium. MKC needs to provide an explanation as to why these elevated concentrations are present and how they will address any environmental concerns these contaminants/concentrations may pose by September 30, 2013.

E. General comments:

MKC has not identified utility corridors or building features (sumps, open pits, etc.) that may be present on-site that could affect contaminant movement. The Department is requiring MKC to provide a discussion of these types of site features as part of its revised conceptual site model by September 30, 2013. The presence of such features may affect the need for further investigation/remediation.

Maps depicting all soil-related contamination should show locations of samples and associated contamination concentrations, and provide an indication of whether any applicable standards have been exceeded. Maps should include any historic data available in order to display the complete picture of soil contamination concentrations both pre- and post-remediation for both current and historic efforts to address soil contamination. These maps should be submitted by September 30, 2013.

Additionally, a map showing the measured area of influence of each soil vapor extraction well needs to be added to the report.

### 3. GROUNDWATER CONTAMINATION INVESTIGATION

Over the past year MKC performed a great deal of work to aid in defining the extent and degree of groundwater contamination. Those efforts included:

- Characterization of the bedrock aquifer;
- Installation of additional water table wells to assess the extent of contamination that could affect contaminated vapor movement; and
- Installation of several deep, multiport wells to aid in defining the extent of groundwater contamination deeper in the aquifer.

However, the Department believes additional work is needed to define both the shallow and deep groundwater contamination. Specific requirements include:

- installation of a water table well north of the site between monitoring well nest MW-9/15 and well MW-1 to help fully delineate the shallow groundwater impacts to the north; and
- installation of a groundwater monitoring nest further north of well nest MW-9/15 to define the northern movement of contamination in the unconsolidated and bedrock formations. The nest shall be designed to evaluate flow and water quality in the unconsolidated, Lone Rock and Wonewoc Formations.

The Department may request additional deep monitoring wells to further define the extent of the groundwater plume and the threat of contamination to the City of Madison Well #8.

The Wisconsin Geologic and Natural History Survey (the Survey) is completing a groundwater flow model for Dane County. The Department recommends MKC contact the Survey to insure that the groundwater flow descriptions provided in the SI Report are consistent with the most recent findings of the Survey.

In addition to the groundwater maps submitted in the May 29, 2013 Addendum #1, additional groundwater maps are needed.

- Maps showing groundwater contamination distribution, within the various geologic units, down to the enforcement standard for all the key chlorinated compounds involved with the MKC site.
- Water elevation maps that show the range (highest and lowest) of groundwater/piezometric elevation change elevation change and flow direction change measured over the site history for each identified hydrogeologic unit.

This information should be submitted by September 30, 2013.

### 4. SOIL VAPOR INVESTIGATION

The Department believes the soil vapor investigation is nearly complete and additional off-site testing is not required. However, the Department believes that indoor air and sub-slab testing should be completed in the office portions of the MKC facility. The Department and staff from both involved health agencies will work with MKC to devise an acceptable work plan by August 1, 2013.

In addition, the SI Report should include a discussion of all vapor investigation and mitigation work completed by MKC as well as by the Department. This will provide a more complete picture of the activities taken to address soil vapor and vapor intrusion issues as they pertain to the MKC investigation.

### 5. REMEDIATION

We understand detailed remedial discussions will take place when the site investigation and conceptual model work is final. The groundwater-related goal for the site is to return groundwater quality to compliance with state groundwater enforcement standards in a reasonable time frame. The Spills Law, s. 292.11, Wis. Stats., requires

"A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance…to restore the environment to the extent practicable…", and s. NR726.05(2)(b)2., Wis. Adm. Code, requires that if natural attenuation is the chosen remedial option, "natural attenuation will bring the groundwater into compliance with ch. NR140 groundwater quality standards within a reasonable period of time,…" Groundwater enforcement standards are typically utilized to define restoration. Reasonable time-frame is site-specific. The term "facilitates groundwater restoration" implies natural attenuation as your preferred remedial option. Natural attenuation as the groundwater remedy, based upon what we currently know, is not a likely solution.

The Department believes some type of active remedial option on- and possibly off-site will be needed to address groundwater contamination based upon contaminant concentrations at depth. When evaluating remedial options, MKC must keep in mind the Department's requirement for on- and possibly off-site remedial actions related to the groundwater.

It seems possible that VOC soil contamination in the north parking lot could be contributing to the contamination in groundwater. As we learn more about the hydrogeologic conditions in the area of the north parking lot, we believe we will gain a better understanding of the impact this soil contamination may be having on groundwater and further soil remediation in the area may be necessary.

**MISSCELLAEOUS ISSUES**

The following comments and clarifications pertain to portions of the report that did not fit well into the above topical areas:

The Department understands the current building configuration was arrived sometime after 1968 when the building expansion to the southwest took place.

Southeast Corner Gasoline Station:

There was a petroleum station on the southeast corner of the site for a number of years. There has been a recent tank pulled and a soil and groundwater investigation is planned for the area. When this investigation is complete the Department will make a determination of the source of the petroleum compounds detected in well nest MW-6. At this point it is not entirely certain that the petroleum contaminants are from an offsite source.

Debris:

A more detailed description of the debris location and distribution (mentioned on page 57) should be provided. A simple map showing location and thickness would be suitable. This information should be submitted by September 30, 2013.

In conclusion, this letter is in response to the work completed to-date in response to the Department's May 11, 2012 letter. Attachment A provides a summary of the additional major tasks, detailed in this letter. If information provided by MKC regarding the conceptual model or other information becomes available that leads the Department to believe additional areas of the site needs more work, additional investigation and/or remediation will be required to ensure the site is adequately responded to.

Please let me know if you would like to meet to discuss this response.

Sincerely,

Linda Hanefeld MFB

Linda Hanefeld
South Central Region Remediation and Redevelopment Team Leader

cc: Rep. Chris Taylor
Sen. Fred Risser
Sen. Mark Miller
Katie Crawley, Madison Mayor Paul Soglin's Office
Marsha Rummel, Madison Alderperson
Tony Koblinski - MKC
David Crass, Michael Best and Friedrich
Steve Tinker, WI DOJ
Ken Zolneirczyk, USEPA
Henry Nehls-Lowe, WI Department of Health Services
John Hausbeck, Public Health Madison/Dane County
Jennine Trask/Chris Kubacki, ARCADIS
Mark Aquino, SCR
Mark Giesfeldt, RR/5

Attachment A - MAJOR TASK SUMMARY

**Revisions to the SI Report, Including Updating the Conceptual Site Model – All Due September 30, 2013**

Expand the conceptual site model to better discuss contaminant source or sources and migration and exposure pathways for soil, soil vapor and groundwater.

Provide more definitive documentation of past material purchases, years of use and handling, storage and disposal practices of all materials containing the detected site contaminants.

Add to the current draft report the tables and maps showing the 2002 to 2011 off-site soil and soil vapor testing locations and results.

Add the off-site sub-slab soil vapor investigation results performed by the Department.

Add to the current report tables and maps that show the pre- and post-remedial soil concentrations from those areas receiving chemical treatments.

Provide a more detailed description of the debris encountered across the site.

Provide water table maps that include maximum and minimum groundwater/piezometric elevation change and flow direction change measured over site history for each identified hydrogeologic unit.

Contact the WGNHS to confirm the groundwater flow descriptions for Lone Rock and Wonewoc Formations

Finalize and provide the on- and off-site soil contamination maps using summer 2012 air photos as the base map to describe the distribution of VOC, PAH and PCB contaminants.

Provide a more complete discussion of the source of on- and off-site detections of the barium, lead, mercury and selenium.

For all groundwater isoconcentration maps, provide contours that range down to and include the enforcement standards for all chlorinated compounds associated with the site.

Provide a map showing the area of influence of each soil vapor extraction well.

**Work Plan Elements – All Due August 1, 2013**
MKC will provide one or more work plans to address the following issues:

Background PAH sampling and data analysis.

Additional PCB sampling west of the MKC building.

Sampling for degree and extent of PCB and VOC soil contamination beneath the MKC manufacturing buildings.

Conduct soil sampling in the current rain garden on the north edge of the property to determine potential direct contact concerns during gardening work for PCBs and VOCs.

conduct sub-slab and indoor air testing in the office portions of the MKC building to assess the vapor intrusion pathway in the non-production areas of the plant.

install a water table well between monitoring well MW-1 and monitoring well nest MW9/15.

Install a monitoring well nest north of well nest MW9/15 to describe the extent of contamination in the unconsolidated, Lone Rock and Wonewoc Formations.