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MADISON-KIPP CORPORATION
ENVIRONMENTAL RESPONSE ACTIVITY
SCOPE OF WORK

WORK ELEMENT: SOILS

The remedial goal is to remove all soil in adjacent off-site residential parcels such that no amount of any compounds of concern associated with releases from the Madison-Kipp site in excess of a remedial action level remains in the top one foot of readily accessible soil, thereby eliminating the soil direct contact exposure pathway at the subject residential parcels. "Compounds of concern associated with releases from the Madison-Kipp site" shall mean tetrachloroethene (PCE), trichloroethene and cis- and trans-1,2-dichloroethene and vinyl chloride.

Tasks:

1. At the approximate areas shown on Figure 1, excavate the top one foot of readily accessible soil from the residential parcels at 146, 150, 154, 162 and 166 South Marquette Street. "Readily accessible" means any soils that can be excavated without the removal of buildings, large trees, concrete or pavement or other temporary or permanent structures or fixtures. Care will be taken to excavate as much soil as possible around trees, pavement, decking, fencing and such other obstructions. No post excavation soil samples are needed where the top one foot of soil is removed because the remedial goal will have been met. (90 days, subject to access)

2. Conduct soil sampling at or near the following residential properties on South Marquette Street at the locations and following the protocols defined in Attachment A:

A. At 142 and 202 South Marquette Street collect discrete soil samples, using the protocols defined in Attachment A, from a depth of 9 to 12 inches of accessible soil at each of the locations depicted on Figure 1 along the western property boundary between Madison-Kipp and the private property. The samples will be analyzed for the full range of volatile organic compounds ("VOCs") using USEPA method SW 8260B. (30 days)

B. At 114, 118, 126, 128, 130, 134 and 138 South Marquette Street, collect two discrete soil samples, using the protocols described in Attachment A, from two separate locations depicted on Figure 2 along the western property boundary between Madison-Kipp and the private property. The soil samples will be collected from a depth of 9 to 12 inches and laboratory analyzed for the full range of VOCs using USEPA method SW 8260B. (30 days)

The detected soil concentrations of compounds of concern, if any, from these nine parcels will be compared to a remedial action level ("RAL") for each compound of concern to determine whether any further response action is necessary for soils. For the purposes of this Scope of Work, the RAL will be 10% of (i.e., more stringent than) the USEPA Ingestion Value for the compound of concern on non-industrial sites using the USEPA on-line soil screening calculator with WDNR-defined default parameters for Wisconsin, as specified below.

C. The calculated USEPA Ingestion Value for PCE is 1.23 ppm; as such, the RAL for PCE will be 0.123 ppm.

D. The calculated USEPA Ingestion Value for trichloroethene is 14.3 ppm; as such, the RAL for trichloroethene will be 1.43 ppm.

E. The calculated USEPA Ingestion Value for cis-1,2-dichloroethene is 156 ppm; as such, the RAL for cis-1,2-dichloroethene will be 15.6 ppm.

F. The calculated USEPA Ingestion Value for trans-1,2-dichloroethene is 313 ppm; as such, the RAL for trans -1,2-dichloroethene will be 31.3 ppm.

G. The calculated USEPA Ingestion Value for vinyl chloride is 3.82 ppm; as such, the RAL for vinyl chloride will be 0.382 ppm.

H. If the above RALs are not exceeded for any compound of concern in any soil sample obtained with respect to a subject parcel, then no further investigation or remedial actions will be required at that subject parcel. If on any parcel a detected soil concentration for a compound of concern exceeds the RAL, then additional soil investigation will be required in the top one foot of soil on that parcel to define the full extent of soil that exists in exceedance of the RAL in the top one foot of soil.

I. Once the full extent of the compound of concern soil concentrations that exceed the RAL in the top one foot of soil at that parcel is defined, then the top one foot of readily accessible soil exceeding the RAL shall be excavated and backfilled. No post excavation soil samples are needed from the base of the excavation where the top one foot of soil is removed because the remedial goal will have been met. Side wall samples at a minimum spacing of one sample per sidewall or every 50 feet, whichever is greater, will be collected to document RAL compliance at the perimeter of the excavation on the residential properties. (60 days from completion of all characterization sampling required in C, above)

All excavated and backfilled parcels shall be re-seeded and mulched.

For all soils to be excavated pursuant to this Scope of Work, the DNR has determined that the soils can be managed as solid waste pursuant to NR 500 because there is no basis to determine the waste to be hazardous. The soils are not a listed hazardous waste based

on generator knowledge nor are the contaminant levels expected to attain any hazardous levels based on TCLP characterization and the Department will issue a "contained out" determination to confirm that the soils may be managed as solid waste.

WORK ELEMENT: SOIL VAPOR

The remedial goals are to: 1) complete installation, repairs and performance testing of in-home vapor mitigation systems at the five (5) residences identified below to eliminate the exposure pathway via soil vapor intrusion at these residences; and 2) eliminate or intercept exposure to and off-site migration of soil vapors from the Madison-Kipp property to off-site properties via either installation and operation of a soil vapor extraction ("SVE") system, installation of in-home vapor mitigation systems or some combination thereof. As indicated in the following tasks, the SVE system is the preferred and primary response action, where feasible, and in-home systems are a secondary response action.

Tasks:

1. Complete installation, repairs and performance testing to address issues raised in the Department of Health Services letter of June 27, 2011 at the five South Marquette Street residences with existing in-home vapor mitigation systems. The testing shall ensure that the depressurization system is operating as designed and intended. A final letter report shall be submitted to the Department and the Department of Health Services upon completion of the work (45 days). The residences are:

146 South Marquette Street
150 South Marquette Street
154 South Marquette Street
162 South Marquette Street
166 South Marquette Street

2. Install shallow (depth of 7-8 feet below ground surface) soil vapor probes along the property boundary between Madison-Kipp and the following residences:

237 Waubesa Street
249 Waubesa Street
261 Waubesa Street
106 South Marquette Street
110 South Marquette Street
128 South Marquette Street
202 South Marquette Street
210 South Marquette Street
222 South Marquette Street

Vapor samples will be collected in accordance with the protocols described in Attachment A and shall be analyzed using method TO 15 reporting concentrations for the

soil vapor compounds of concern of tetrachloroethene (PCE), trichloroethene and cis- and trans-1,2-dichloroethene and vinyl chloride. A single sample will be taken at each location.

If reported concentrations for all of the soil vapor compounds of concern noted above are No Detect, then no further vapor probes are required to be installed or sampled at these locations and the SVE system, if feasible, will not be required to be designed to encompass this area.

If concentrations of any of the soil vapor compounds of concern are detected, then either further vapor extraction or the installation of further in-home vapor mitigation systems will be required.

3. Prepare a SVE pilot test work plan for the conduct of an SVE pilot test in the area of well nest MW5. The approximate location of the test well is shown on Figure 3. The SVE pilot test work plan submitted to the Department for Department review and approval shall include testing protocol and well design specifics. The SVE pilot test shall be promptly conducted following receipt of the Department's written approval. The SVE pilot test shall be deemed successful and the system feasible if a vapor extraction well can generate a horizontal area of vacuum influence such that an economically feasible vapor extraction system can be designed and installed on the eastern portion of the Madison-Kipp property to remediate residual shallow soil contamination and eliminate off-site migration of contaminant soil vapors. (30 days to submit work plan; 60 days to complete test following work plan approval)

4. If the SVE pilot test is deemed successful and the system feasible, then a remedial design document will be prepared and submitted for the Department's review and approval. (120 days after completion of the SVE pilot test)

5. Upon receipt of the Department's written approval of the SVE system remedial design document, construct the SVE system in accordance with the approved design specifications. Madison-Kipp shall obtain all necessary permits, including an air emission control permit, if necessary, to allow the construction and operation of the approved SVE system. As-built construction documentation shall be provided to the Department within 30 days of final construction and successful system startup.

6. Upon successful SVE system installation and startup, develop and submit to the Department for review and approval a SVE system performance monitoring plan for soil vapor monitoring to be conducted during system operation. The SVE system performance monitoring plan will include, at minimum:

- Probe locations and depths
- Sampling schedule
- Analytical parameters
- Vacuum testing protocol and frequency

Vacuum pressure will be tested in off-site vapor probes to be installed pursuant to this Scope of Work. If the SVE system is achieving negative pressure, then the system will be considered to be achieving vapor mitigation.

Vapor samples called for in the SVE system performance monitoring plan will be collected in accordance with the protocols described in Attachment A. Vapor samples will be analyzed by the Wisconsin State Laboratory of Hygiene using method TO 15, reporting concentrations for the soil vapor compounds of concern of tetrachloroethene (PCE), trichloroethene, cis- and trans-1,2-dichloroethene and vinyl chloride.

Baseline vapor samples will be collected prior to system startup. The first sampling after system startup will occur after 60 days of operation. If detectable vapor concentrations are not being reduced, the SVE system will need to be modified to address the migration pathways, or in-home mitigation systems may be installed.

7. Prepare and submit for Department review annual SVE system operation, monitoring and maintenance reports. The reports will include, but not be limited to, hours of operation, extraction well flow readings, maintenance issues and horizontal capture zone delineation.

8. If the SVE pilot test is not successful and a full scale SVE system is not feasible as determined herein, then install in-home vapor mitigation systems in residences to be determined by the Department based on existing site data. (90 days)

<u>WORK ELEMENT: GROUNDWATER</u>

The remedial goal is to achieve compliance to the extent it is technically and economically feasible with enforcement standards at the point of standards application for the compounds of concern associated with releases from the Madison-Kipp site or to establish that natural attenuation will bring groundwater into compliance within a reasonable period of time, thereby addressing any off-site exposure pathway via groundwater. As previously noted, “compounds of concern associated with releases from the Madison-Kipp site” shall mean PCE, trichloroethene and cis- and trans-1,2-dichloroethene and vinyl chloride.

Tasks:

1. Prepare and submit to the Department for review and written approval a remedial design document to expand the currently operating ozone sparging system to remediate the shallow and deep groundwater contamination detected at monitoring wells MW2D and well nest MW3. (90 days)

2. Construct and operate the approved expanded ozone sparging remedial system. As-built construction documentation shall be submitted to the Department following construction completion and system startup. (60 days)

3. Operate, monitor and maintain the remedial system as designed and approved and submit to the Department an annual operating report including hours of operation, ozone flow rates and maintenance issues.

4. Operate the complete ozone remediation system until (i) the site groundwater does not exceed groundwater enforcement standards or (ii) to the point it can be shown that the site groundwater will comply with groundwater standards within a reasonable period of time via natural attenuation utilizing the methods then allowed by the Department pursuant to NR 700. Either approach will have the effect of addressing any off-site exposure pathway via groundwater.

5. Submit to the Department, for review and written approval, a groundwater monitoring plan sufficient to meet the requirements of NR 716 to monitor changes in groundwater conditions across the site and to evaluate progress toward compliance with groundwater enforcement standards. Upon approval Madison-Kipp shall implement the plan. The sampling shall be performed in accordance with the protocols defined in Attachment A. Such plan shall include the potential for the addition to or abandonment of monitoring points depending on the results of the data gathered pursuant to this work element. (150 days)

WORK ELEMENT: REPORTING

Tasks:

1. All reports required hereby shall be submitted to the Department in both writing and electronic form.

ATTACHMENT A
SAMPLING PROTOCOLS
MADISON-KIPP CORPORATION

SOIL

Soil samples will be collected using a stainless steel hand auger.

Decontamination: The auger and any other tools that will come in contact with soil samples will be decontaminated prior to advancing each boring, and prior to collection of each sample. The auger and tools will be washed in a solution of either alconox or trisodium phosphate, followed by 2 to 3 rinses with distilled water.

Sample collection: A fresh pair of sanitary rubber gloves will be worn by the sampler for each sample collected. Samples will be placed in laboratory-supplied sample containers. For each sample, 25 to 30 grams of soil will be placed in the container, to which laboratory-supplied methanol will be added for preservation.

Soil borings will be backfilled with unused soil from the boring.

Delivery to laboratory: Samples will be placed on ice in a cooler for delivery to the laboratory. All sample transport and handling will be documented with chain-of-custody forms.

SOIL VAPOR

Soil vapor samples will be collected from 1-inch PVC vapor probes and from discrete vapor probes with ¼-inch Tygon tubing.

Set up – 1-inch PVC: A rubber stopper with a section of glass tubing will be dedicated for each probe. For sampling, the rubber stopper will be firmly placed in the top of each probe. A new section of Tygon tube will be placed on the glass rod and attached to a low-flow air pump. An in-line three-way valve will be placed on each tube, for purposes of sample collection.

Purging: Based on the depth of each probe, the air volume will be calculated. A low-flow sampling pump will be used to purge a minimum of five probe volumes, prior to sample collection.

Sample collection: Samples will be collected in laboratory-supplied Summa canisters. The tube will be connected to the canister using a brass compression fitting. The canister valve will be opened to allow a low flow into the canister. When flow is complete, the valve is closed and the canister is disconnected.

Set up – Tygon tubing: The ¼-inch tubing will be attached to the in port of a low-flow air pump. The probe and tube is purged for approximately 5 minutes.

Sample collection: As with the 1-inch probes, the tubing is attached to a Summa canister with a brass compression fitting. The canister valve will be opened to allow a low flow into the canister. When flow is complete, the valve is closed and the canister is disconnected.

Delivery to the laboratory: Samples will be delivered directly to the Wisconsin State Laboratory of Hygiene. All samples will be delivered on the same day of collection, and will be tracked with chain-of-custody forms.

GROUNDWATER
All wells except MW-5D and MW-5D2:

Purging: Each well is equipped with a dedicated bailer, with plastic rope of adequate length for the bailer to reach the bottom of the well. The water level is measured, and the volume of water in the casing is calculated. An amount of water is purged which is equal or greater to three casing volumes. Water is measured in 5-gallon buckets, which are emptied into 55-gallon drums.

Sample collection: After purging is complete, the bailer is used to pull the sample from the well. Water is drained from the bailer directly into laboratory-supplied 40-mL vials, which are prepared with hydrochloric acid preservative. The vials are capped, and observed to verify that no headspace is present. For the event that headspace may be present or due to the possibility of breakage, three vials are filled for each sample.

Wells MW-5D and MW-5D2:

Purging: These two wells are equipped with dedicated double whale pumps. The water level is measured, and the volume of water in the casing is calculated. As with the other wells, an amount of water is purged which is equal or greater to three casing volumes. Water is measured in 5-gallon buckets, which are emptied into 55-gallon drums.

Sample collection: After purging is complete, the sample is drawn directly from the pump outflow into laboratory-supplied 40-mL vials, which are prepared with hydrochloric acid preservative. As with the other wells, three vials are filled for each sample.

Cooling and transport to laboratory: Immediately after sample collection, the sample is put into an iced-cooler. Upon completion of sampling, the cooled sampled are transported directly to the analytical laboratory. If possible, samples will be delivered on the same day of collection. If the delivery cannot be made on the same day as collection, the samples are maintained in an iced cooler until delivery is possible. All samples will be tracked with chain-of-custody forms.