November 26, 2018 Reference No. 058502

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Dear Mr. Nemani:

Re: Response to Comments
Technical Review Soil Evaluation Memorandum April 20, 2018
Revitalizing Auto communities Environmental Response Trust
Nodular Industrial land Site, Saginaw, Michigan
REPA5-3544-017 July 19, 2018

Prior to providing responses to U.S. EPA's comments provided on August 31, 2018 to GHD's Soil Evaluation Memorandum dated April 201, 2018 for RACER's Nodular Industrial Land (Site), Saginaw, Michigan, the following background information describing the work that has been completed at the Site has been provided to give context to the Soil Evaluation Memorandum. To reiterate, the purpose of the Soil Evaluation Memorandum was to identify any potential concerns when comparing the data to more recent non-residential screening criteria (Part 201 Generic Cleanup Criteria and Screening Levels and DRAFT 2017 Part 201 Generic Cleanup Criteria and Screening Levels) than was used for screening in the September 28, 2012 Supplemental RCRA Facility Investigation (RFI) Report.

Background

The Site was part of a larger facility, formerly owned by General Motors Corporation (GMC), called the General Motors Powertrain Saginaw Metal Casting Operations (SMCO Facility). Prior to the GMC bankruptcy, the SMCO Facility encompassed approximately 700 acres. The SMCO Facility was divided into ten Investigative Units (IUs); based on historical use of the property by GMC. Each IU may contain several Areas of Interest (AOIs). Following the bankruptcy, approximately 315 acres were transferred to RACER and includes a portion of the Former Nodular Iron Plant Area (IU G), the Former Waste Water Treatment System and Stormwater Ditch (IU H), a portion of the Classified Sands Staging Area (portion of IU I), and an un-impacted strip of land to the north of the GMC Landfill (IU-J). The majority of the remaining lands are owned and operated by General Motors LLC, with a small portion (northern half of IU G) owned and operated by another entity.

RCRA Facility Investigation

In May 1995, the SMCO Facility was placed under a RCRA Section 3008(h) Unilateral Administrative Order (UAO) which required GMC to complete specific requirements in order to evaluate the environmental impacts at the Facility. These requirements included the completion of: Description of

Current Conditions report (DOCC), Interim Measures (IM) work plan and report, RCRA Facility Investigation (RFI) work plan and report, and Corrective Measures Study (CMS) work plan and report.

The work at the Site is currently being completed under Administrative Order on Consent (RCRA 05 2011 0023) (AOC) between U.S. EPA and RACER Trust for the Saginaw Nodular Industrial Land (Site) located in Saginaw, Michigan. The AOC became effective on September 29, 2011. The RFI was conducted at the SMCO Facility by GMC in several phases between 1998 and 2007 in accordance with 1995 UAO from U.S. EPA. The purpose of the RFI was to (i) define the nature and extent of contamination that may be impacting human health and the environment, (ii) focus investigation activities such that the subsequent phases becoming increasingly specific and data quality is sufficient to support the RFI baseline risk assessments, and (iii) collect data sufficient to support Corrective Measures Study. The results of the investigations were submitted to U.S. EPA in the Phase 1C RFI in March 2007 and included a human health risk assessment (HHRA) and an ecological risk assessment (ERA) (CRA, 2007).

The Phase 1C RFI included field investigations in all IUs that thoroughly investigated all relevant media (sediment, soil, surface water, and groundwater) for a conservative list of chemicals in a phased approach. The following summarizes the total number of investigative samples for each media at the Site prior to 2007:

- Groundwater –328 samples
- Sediment –12 samples
- Soil –594 samples
- Surface Water – 8 samples

All data were screened against the Michigan Act 451, Part 201 Generic Cleanup Criteria (June 2006) and the resulting findings were used to support decisions regarding the need for additional investigations. To the extent possible, chemicals with exposure media concentrations above screening criteria were delineated vertically and horizontally. At the completion of the Phase 1C RFI, sufficient data were available to complete quantitative risk assessments HHRA and ERA for the SMCO Facility under all current and reasonably expected future land uses. The risk assessments were completed using all the data collected during the RFI. The risk assessment conclusions from the Phase 1C RFI are summarized below:

Human Health Risk Assessment

Based on the assessment completed in 2007, and considering potential exposure routes, pathways, and Site-specific conditions, current human exposures were determined to be under control according to U.S. EPA's guidance for the Environmental Indicators CA725 determination (ENVIRON, 2003). The CA725 (Current Human Exposures Under Control) was approved on 9/29/2004 and the CA750 (Migration of Contaminated Groundwater Under Control) was approved on 8/25/2004. The results of the RFI baseline HHRA are intended to identify where a release of hazardous waste or constituents from the larger facility may cause exposures to be significant enough in the future to warrant additional

investigations and/or corrective measures. The HHRA was conducted to assess potential impacts of detected COCs on all types of human receptors, both on-site and off-site of the larger facility. These included:

On-Site:	Routine workers	Off-Site: Residents
	Maintenance workers	Routine workers
	Trespassers	Maintenance workers
	Construction workers	Recreational visitors

Using U.S. EPA risk assessment guidance, the HHRA was calculated for the human receptors listed above, evaluating potential exposure to the COCs via the following pathways:

- Inhalation (vapors, particulates)
- Ingestion (swallowing)
- Dermal absorption (via the skin)

The goal for human exposure risk at the Facility is a non-cancer hazard index (HI) of 1 or less, and a cumulative Site cancer risk (CSCR) of 1 x 10-4 (one in 10,000).

The baseline HHRA concluded that the potential exposures to routine workers, maintenance workers, trespassers, and off facility residents were not significant relative to reasonable maximum exposure under current and reasonably expected future land and groundwater uses at and around the Facility. However, there was the potential for unacceptable non-cancer hazards to a hypothetical construction worker from exposures to elevated ammonia and pH levels in shallow groundwater in IU G. In addition, there was a potential for unacceptable exposures to off Facility construction workers if off Facility migration of overburden groundwater from IU G, exhibiting high pH levels, were to occur.

Furthermore, the significance of risks to off Site residents were evaluated for potential exposure to volatile constituents in shallow groundwater via vapor migration into indoor air, windblown dust and vapors from on–Site soil, and direct contact with soil in redeveloped areas of the Site. Potential exposures of residents at IU G – TriCap were evaluated using data collected within this former area of IU G and default residential assumptions. Based on the results of this risk evaluation, potential exposures of off Facility residents to soil and indoor air vapors from groundwater are not significant.

The significance of hypothetical exposures to constituents that could potentially migrate from shallow groundwater in each on Facility IU to the Saginaw River was evaluated. This evaluation determined that the potential migration of constituents in on Facility groundwater to the Saginaw River is not expected to result in unacceptable human health risk via exposure to surface water.

U.S. EPA provided comments on the Phase 1C RFI on several occasions in the form of letters and emails. Comments from the U.S. EPA were initially received in a letter dated May 24, 2007 regarding the Phase 1C RFI. Response to U.S. EPA comments were submitted to the U.S. EPA on July 26, 2007.

Following the bankruptcy, a supplemental RFI report (CRA, 2012) was submitted, which focused on the IUs which were owned by RACER Properties and included sampling results and findings associated with work on-Site since the submittal of the Phase 1C RFI. In addition, the supplemental RFI report included revisions and/or supplements to address U.S. EPA comments received since submittal of the Phase 1C Report, as appropriate for the Site.

Following the bankruptcy, a RFI and Risk Assessment Report was submitted in August 2012, which focused on the IUs which were owned by General Motors LLC, to U.S. EPA with supplemental information provided in January 2013. Upon review, U.S. EPA provided comments on the RFI Report in October of 2014, which General Motors LLC responded to in January 2015. The U.S. EPA approved the RFI on August 5, 2015.

Other Investigations and Evaluations

Environmental Indicators

The approved EI CA750 (Migration of Contaminated Groundwater Under Control) included a proposed EI monitoring program which was initiated by GMC in 2003. The purpose of the monitoring plan was to confirm that the existing areas of groundwater contamination at the Site remain stable. GMC conducted the EI monitoring program annually until the bankruptcy after which RACER continued the annual sampling on its portion of the Site.

Since 2003, there have been fourteen rounds of annual CA 750 EI sampling completed with the results of the analyses continuing to be consistent or lower than the data evaluated in EIs. This data shows that concentrations of groundwater contaminants continues to be stable and that groundwater contamination is not continuing to migrate. The results are submitted to U.S. EPA annually with recommendations for modifications to the program, if applicable. Modifications to the program (e.g., removal of parameters after four consecutive rounds of concentrations below screening criteria, removal of monitoring wells after all parameters have four consecutive rounds of concentrations below screening criteria) are made with U.S. EPA's concurrence. U.S. EPA approved modifications to the program via email on November 12, 2009, November 8, 2013, November 4, 2014, and December 22, 2015.

Secondary Pond Investigation and Evaluation

In 2011, with U.S. EPA approval RACER initiated characterization of the Secondary Pond (sediment and water) for the purpose of obtaining an NPDES permit for the discharge of water, and if necessary, to evaluate remedial alternatives to address any issues identified. Multiple rounds of sampling were conducted of Secondary Pond sediments and water between 2011 and 2017. Following characterization of the Secondary Pond, an Ecological Screening Assessment for the Secondary Pond under Future Use Scenarios was prepared and submitted to U.S. EPA on August 18, 2017. U.S. EPA provided comments on the Ecological Screening Assessment on October 10, 2017, which were discussed in a meeting with U.S. EPA on December 4, 2017 and subsequently responded to on January 29, 2018. As a follow-up to U.S. EPA comments, sediment pore water sampling was conducted. The results were presented to U.S. EPA on May 11, 2018 in a meeting and a memorandum summarizing the results was submitted on

June 3, 2018. U.S. EPA provided comments on the pore water sample results on June 13, 2018 and responses to comments were provided to U.S. EPA on July 3, 2018. U.S. EPA provided email on September 17, 2018 with conclusions that ecological risks are minimal as there is no direct connection between the pond and the Saginaw River, requested an institutional control to prevent connection between the pond and nearby surface water, and approval to proceed with removal of PCBs >50 ppm in Secondary Pond sediments and following the removal, to allow the Secondary Ponds to naturalize.

North Ditch Investigation/Evaluation

In 2013, with U.S. EPA approval, RACER completed additional characterization of the North Ditch. The results of the investigation were submitted to U.S. EPA on October 23, 2013 and a Stabilization Alternative Evaluation and Recommendation for the North Ditch was submitted to U.S. EPA on February 26, 2014. Further work was proposed for the North Ditch but was placed on hold pending further in progress evaluation of the secondary pond. Environmental impacts in the North Ditch are currently being re-evaluated, consistent with the approach used and accepted by U.S. EPA for the Secondary Pond.

Additional Delineation of Manganese and PCB Impacts in IU G

In 2015, with U.S. EPA approval RACER initiated additional delineation of manganese and PCB impacts in soil in the south portion of IU G. A summary of the additional investigation of manganese and PCB impacts was submitted to U.S. EPA on February 15, 2017. U.S. EPA approved, via a March 8, 2017 email, the report and the recommendation to address the PCB impacts through deed restrictions as an interim measure. Note, the historical location with manganese impacts in soil above screening levels was re-sampled and step-outs collected, however, all sample results were below screening levels. Therefore, no further action was recommended with respect to manganese.

Groundwater Evaluation

A groundwater evaluation was completed to identify any potential concerns when comparing the data to more recent screening criteria than was used to screen the data in the September 28, 2012 Supplemental RFI Report (GHD). The evaluation was submitted to U.S. EPA on October 15, 2018. The evaluation identified that various metals may be present in groundwater near the downgradient property boundaries at concentrations above more recent screening criteria and have the potential to migrate off-Site. In addition, elevated pH is present across the Site and ammonia was found above Vapor Intrusion Screening Levels at the downgradient property boundary. As a result, follow-up groundwater sampling was recommended to confirm current conditions. RACER is proceeding with conducting the follow-up groundwater sampling, which is scheduled for the end of November 2018.

For ease of review we have provided BAH's comments in bold and italics followed by GHD's response.

General Comments

Comment 1:

According to text on pages 1 and 2 of the memo, samples results were initially compared to the Statewide Default Background Levels (final 2013 and draft 2017 values) and only further evaluated if the background level was exceeded. However, background levels have typically only been developed for metals and other inorganic constituents in soil. The presence of organic constituents is generally assumed to be anthropogenic and, thus, should be directly compared to specific nonresidential criteria issued in 2013 and/or proposed in 2017 (e.g. direct contact criteria, particulate soil inhalation criteria, volatile soil inhalation criteria [VSIC], and so on). Although the tables appear to show no exceedances for organic constituents (other than PCBs), the memo should clarify how (and whether) detected concentrations of these constituents were evaluated.

GHD Response:

The metals results were first compared to Statewide Default Background Levels. Metals exceedances were only evaluated further, if the concentrations were above Statewide Default Background Levels. All other parameters were compared to the current 2013 and draft 2017 Non-Residential MDEQ Part 201 criteria. The memorandum will be revised to clarify how the data was evaluated.

Comment 2:

On page 2 of the memo, RACER proposes to impose a deed restriction on Investigation Unit (IU) G, limiting use of this portion of the property to low occupancy levels due to PCB contamination up to 25 milligrams per kilogram (mg/kg) in soil. However, use of occupancy limits is only one of three options a facility can use to determine the maximum concentration of PCBs allowed to remain in place at a site under TSCA. These options are based on:

- ***Specific criteria established for high occupancy and low occupancy properties under TSCA's self-implementing cleanup and disposal provisions in 40 CFR Section 761.61(a);***
- ***The performance-based approach to decontamination and disposal outlined in 40 CFR Section 761.61(b); or***
- ***Site-specific risk assessment based on current and anticipated future use scenarios, and considering both human health and ecological exposures to residual PCB concentrations, as outlined in 40 CFR Section 761.61(c).***

It is unclear whether RACER has considered the third option and evaluated actual risks associated with PCBs in soil across the site. If risks are within acceptable levels, there may be no need to place a deed restriction on the property to ensure low occupancy levels are maintained. Moreover, if cumulative risks are higher than acceptable levels, it may be worth conducting a small-scale excavation to remove soil with the highest PCB concentrations at IU G, thereby reducing risks and allowing for broader future use of the property. It is EPA's strong preference to remove

contaminant mass rather than rely on administrative controls to protect human health and the environment

GHD Response:

Correct. RACER proposes to impose a deed restriction on IU G, limiting use of this portion of the property to low occupancy levels due to PCB contamination up to 25 mg/kg in soil. Note that due to wetlands developing since 2012 in the vicinity of the PCB impacted soil, ecological risks are currently being evaluated.

Comment 3:

On page 1, the memo notes that historic soil data were not compared to groundwater protection criteria because groundwater data are available for direct comparison against groundwater screening levels. However, the only mention of groundwater data cites monitoring conducted between November 1990 and February 1991. Expand the memo to discuss available groundwater data for the site and the time frame within which those data were collected. Residual contamination in soil can continue to migrate toward groundwater over time, and the groundwater protection criteria allow for an assessment of the likelihood that groundwater may become contaminated above acceptable levels. Even if groundwater is not used on-site, downgradient receptors could be at risk. Thus, it is important that soil data be compared to groundwater protection criteria or that relatively recent groundwater data be compared to appropriate screening levels.

GHD Response:

A groundwater evaluation was submitted under separate cover to U.S. EPA on October 15, 2018.

Comment 4:

The memo should document how detected concentrations were evaluated for those constituents and constituent classes that do not have established screening levels (e.g., gasoline range organics, diesel range organics). According to Table 3, one boring location (SB-05542 at a depth of 4-6 feet below ground surface [bgs]) was analyzed for petroleum hydrocarbons, reporting a total concentration over 10,000 mg/kg. This finding should be discussed, along with an indication as to why only one soil sample from site appears to have been analyzed for this petroleum compounds.

GHD Response:

The diesel and oil TPH fractions are treated separately and should not be summed. The TPH diesel is most comparable to medium range with U.S. EPA. The TPH diesel exceeds both of U.S. EPA's generic industrial mid-range TPH Risk Screening Levels (RSLs). The TPH oil is most comparable to high range

TPH with U.S. EPA. The oil does not exceed either of U.S. EPA's generic industrial high-range TPH RSLs.

A review of historical documentation was conducted to identify why only one sample from the Site was sampled and analyzed for petroleum compounds. No justification for the sampling was identified in the Work Plans. As such, RACER proposes to re-install a boring at SB-05442 and collect samples from the 0-2 ft bgs 4-6 ft bgs and 8-10 ft bgs to confirm the results. In addition, four 10-ft step-out borings are proposed with sampling proposed at the same depth intervals. The soil samples will be submitted and analyzed for SVOCs so that results can be compared to applicable MDEQ Part 201 risk based criteria.

Comment 5:

Be sure to make a distinction between the number of locations showing contaminant concentrations above screening levels and the number of samples showing exceedances. If several sampling intervals within one boring were found to be impacted, or if duplicate samples were collected, the number of locations would be less than the number of samples indicating exceedances. For example, PCBs were detected above high occupancy levels in eight samples, but only from six separate boring locations. This clarification must be made regarding PCB results for IU G, cyanide results for IU H, manganese results for IU I, and formaldehyde results for IU I.

GHD Response:

The memorandum will be updated to make the distinction between the number of locations showing contaminant concentrations above screening levels and the number of samples showing contaminant concentrations above screening levels.

Comment 6:

The memo includes several references to the water table at this site. However, because no supporting water level elevation data is provided in the memo, claims regarding the thickness of the vadose zone and appropriateness of specific screening criteria cannot be verified. Expand the memo to include a table of water level elevations in each of the IUs.

GHD Response:

As requested, a table will be prepared and included in the memorandum to provide water elevations for each of the IUs.

Comment 7:

Data tables in this memo should clearly identify those constituents for which a given sample was not analyzed using the term "NA" instead of dashes, and a footnote should be added to the tables to define the acronym.

GHD Response:

A footnote is included in the legend of the tables identifying that a dash indicates not analyzed. No changes are proposed to the data tables.

Specific Comments

IU G – Former Nodular Iron Plant, pages 2 and 3

Comment 1:

Clarify whether the May 8, 2015 delineation memo documenting horizontal and vertical delineation of PCB and manganese impacts at IU G was formally approved by EPA.

GHD Response:

The May 8, 2015 delineation memorandum was formally approved by EPA on March 8, 2017 via email. The memorandum will be revised to include this information.

Comment 2:

Clarify whether the proposed deed restriction limiting areas with PCB contamination in soil to low occupancy levels will be applied just to IU G or if it will cover the entire site. This same clarification should be made in the conclusions section of the memo on page 6.

GHD Response:

The memorandum will be updated to indicate that the proposed deed restriction limiting areas with PCB contamination in soil to low occupancy levels will be applied to IU G and all or a portion of the Secondary Pond (with PCBs remaining less than 50 ppm).

Comment 3:

Expand the discussion of PCB results to explain how vertical delineation was completed at boring locations SB-04533d and SB-04534d, both of which reported PCB exceedances in the deepest sampling intervals (2-4 and 4-6 feet bgs, respectively). Although PCB exceedances were not reported at 4-6 feet bgs in boring SB-04434 (the nearest boring to SB-04534d), that boring was sampled three years prior to sampling at SB-04534d and may not account for any additional PCB migration (however slow) that may have occurred between 1998 and 2001.

GHD Response:

Samples were collected in 2001 from SB-04534D at depth intervals 0-2 ft bgs, 2-4 ft bgs and 4-6 ft bgs and analyzed for PCBs. The results for PCBs were 1.11 mg/kg, 13.4 mg/kg, and 5.24/4.04 mg/kg, respectively. Samples were collected in 2002 from the same location (SB-04534DR) at depth intervals 0-2 ft bgs, 2-4 ft bgs and 4-6 ft bgs and analyzed for PCBs. The results for PCBs were 0.539J mg/kg,

0.257/0.262J mg/kg, 0.12 U mg/kg, and 0.12 mg/kg. Therefore, the 2001 results from SB-04534D could not be replicated and no further delineation was necessary.

Samples were collected in 2001 from SB-04533d at depth intervals 0-2 ft bgs and 2-4 ft bgs and analyzed for PCBs. The results for PCBs were 0.329/0.318 mg/kg and 1.36 mg/kg, respectively. No further vertical delineation was completed at SB-04533d, however, location SB-04533-A is located approximately 10-ft to the northwest and was sampled at depth intervals 0-2 ft bgs and 4-6 ft bgs. The results for PCBs were 0.316 mg/kg and 0.275 mg/kg, respectively. Therefore, no additional vertical delineation was completed at SB-04533d. The additional delineation of PCBs was summarized in a memorandum submitted to U.S. EPA on February 15, 2017. U.S. EPA approved the memorandum and the recommendation to address the PCB impacts through deed restrictions as an interim measure via email on March 8, 2017.

The memorandum will be revised to include the additional detail provided above.

Comment 4:

Expand the arsenic discussion at the top of page 3 to further discuss soil excavation conducted around boring EB-114 during closure of the calcium carbide desulfurization slag treatment bunker in 1988. The text states that excavation extended to either 4 feet bgs or to the water table in the area, but it is unclear whether the exceedance at boring EB-114 (4.5-5 feet bgs) was removed. Expand the discussion to indicate whether confirmation sampling was conducted to ensure that all arsenic exceedances were removed. If so, a deed restriction may not be needed for this area. If that information is unavailable, we agree that RACER's proposed approach (including administrative controls) is conservative.

GHD Response:

Review of the closure documentation of the calcium carbide desulfurization slag treatment bunker (RMT, 1991), identified that, "soils were not removed below the ground water table," and "In general, the ground water depth was approximately 4 feet below grade." It is not clear from the historical report that EB-114 (4.5-5 ft bgs) was removed. Confirmation sampling was not completed for arsenic impacts in soil, therefore, as previously identified RACER will include a deed restriction for this area identifying the potential impacts of arsenic in soil.

The memorandum will be revised to include the information identified above.

Comment 5:

Clarify the first two full bullets on page 3 to refer to the proposed nonresidential direct contact criteria and the proposed nonresidential infinite source VSIC.

GHD Response:

The first two bullets on page 3 are part of the preceding paragraph, which identifies that the criteria are associated with the DRAFT 2017 Non-Residential MDEQ Part 201 criteria. No further clarification is required.

Comment 6:

Correct the second full bullet on this page to cite a total cyanide concentration of 9.9 J mg/kg at location MW-04831. As shown in Table 2, this concentration was estimated by the laboratory.

GHD Response:

The memorandum will be corrected to cite a total cyanide concentration of 9.9 J mg/kg at location MW-04831.

IU H-Former Wastewater Treatment System and Stormwater Discharge Ditch, pages 3 and 4

Comment 7:

Expand the discussion of manganese results to explain how vertical delineation was completed at boring SO-320-13. The only depth sampled in this location (5-6 feet bgs) indicated a concentration above the particulate soil inhalation level. Although deeper intervals may not be of concern for particulate inhalation, shallower intervals could be.

GHD Response:

Soil sample SO-320-13 was collected from below 5 feet of sediment in a ditch that maintains water year round, therefore, particulate inhalation is not an applicable pathway. This information will be added to the memorandum for clarification.

Comment 8:

Expand the discussion at the top of page 4 regarding vehicle traffic near manganese exceedances in soil at the southern corner of IU H. Figure 3 appears to show impacted borings within approximately 100 feet of a road leading to the Bluewater Thermal Solutions facility west of the site. How limited is traffic expected to be in this location, and what will be the risk impact if usage of the area increases traffic flow in the future?

GHD Response:

The particulate soil inhalation criteria for manganese (1,500 mg/kg for manganese) developed by MDEQ included an assumption that significant vehicle traffic (i.e., 50 truck trips per day, 238 days/year) is crossing an unpaved area of impacted soil. This assumption is not consistent with the actual Site conditions, which have approximately three trucks per day hauling foundry sand to the GM LLC landfill. In addition, it is GHD's understanding that the landfill is nearing capacity and there are plans to close the landfill which would reduce the amount of truck traffic. This information will be added to the memorandum for clarification.

Comment 9:

RACER should consider resampling the 4-6 feet bgs interval at/near location MW-05443 which previously was analyzed using a high detection limit and, thus, could not be used to vertically

delineate the cyanide exceedance in the sample from 0-2 feet bgs. This location was last sampled in 1998. Given the relatively shallow depth, resampling should be relatively straightforward. Actual data would be preferable to making assumptions as to the extent of cyanide contamination.

GHD Response:

RACER proposes to install a boring adjacent to MW-05443 and collect samples from the 0-2 ft bgs and 4-6 ft bgs to confirm the results. In addition, four 10-ft step-out borings are proposed with sampling proposed at the same depth intervals, but placed on hold pending the results of the samples collected from the boring adjacent to MW-05443. The soil samples will be submitted and analyzed for cyanide.

IUl I-Former Classified Sand Staging Area, page 5

Comment 10:

Vertical delineation of manganese exceedances in soil appears to be incomplete at boring locations in the center of IU I. Nine of these borings were only sampled in one shallow soil interval (0-2 or 1-3 feet bgs). Although deeper intervals may not be of concern for typical particulate inhalation exposures, it is important to know what contaminant levels may be present at depths that could be encountered during intrusive activity on the property. Although the memo proposes to prohibit construction of subsurface structures without prior MDEQ and RACER approval, more effective safeguards could be implemented during such activities if manganese concentrations in the subsurface at IU I were better defined.

GHD Response:

Sufficient data was collected to support the completion of the HHRA which was submitted with the RFI in 2012. No unacceptable risks were identified for manganese in the center of IU I. In addition, there were no exceedances of the DRAFT 2017 Non-Residential MDEQ Part 201 criteria in IU I. Furthermore, Michigan imposes due care obligations (including the health and safety of workers) on all owner/operators under Michigan law specifically Section 20107a of Part 201 and Section 21304c of Part 213 of the Natural Resource and Environmental Protection Act, 1994 PA 451 and Part 201's Rules which identifies that all owners and operators of property that is contaminated above Residential criteria, are required to take actions to ensure that the contamination does not cause unacceptable exposures, and the contamination is not exacerbated or worsened.

Comment 11:

Expand the discussion of vehicle traffic near the manganese exceedance in soil at IU I location MW-07959. This location is situated along North Outer Drive, which appears to be a primary access road to several industrial properties east of the site. How limited is traffic expected to be in this location, and what will be the risk impact if usage of the area increases traffic flow in the future? Although the depth of the exceedance (32-34 feet bgs) may not warrant concern over particulate inhalation, additional discussion would be appropriate to support the current recommendation of no further action.

GHD Response:

The particulate soil inhalation criteria for manganese (1,500 mg/kg for manganese) developed by MDEQ included an assumption that significant vehicle traffic (i.e., 50 truck trips per day, 238 days/year) is crossing **an unpaved area of impacted soil**. This assumption is not consistent with the actual Site conditions, which has no regular truck traffic over MW-07959. This information will be updated in the memorandum.

Comment 12:

Expand the formaldehyde discussion to note exceedances of indoor air screening levels, or explain why those exceedances are not of concern (e.g., no buildings within 100 feet of the sample location, proposed requirement to conduct a vapor intrusion evaluation or implement vapor intrusion controls prior to constructing or occupying buildings or structures on the property). Figure 5 should highlight the location of existing buildings on- or off-site near those borings reporting indoor air screening level exceedances.

GHD Response:

Formaldehyde exceeded the 2013 Non Residential MDEQ Part 201 VSIC criteria, however, these exceedances are not of concern since there are no buildings within 100-ft of the sample location and there is a proposed deed restriction for the Site that requires conducting a vapor intrusion evaluation or implementation of vapor intrusion controls prior to constructing or occupying buildings or structures on the property. Please note that there are no buildings on-Site or off-Site near the borings reporting indoor air screening levels, therefore, Figure 5 does not need to be updated. This information will be updated in the memorandum.

Conclusions, page 6

Comment 13:

Clarify item (d) to prohibit treating, storing, disposing, or releasing any hazardous waste or hazardous substance in the property without prior approval from MDEQ or EPA.

GHD Response:

The following language is proposed to replace item (d) in the conclusions of the memorandum, "Treatment", "storage", "disposal" or release of any Hazardous Substances, on, at or below the Property, in a manner that would require a permit under RCRA or Part 111 of NREPA, except pursuant to a plan, permit or license approved in writing by MDEQ or U.S. EPA, pursuant to these statutory authorities. This language has been approved by both U.S. EPA and MDEQ in other DRCs for RACER properties.

Comment 14:

Expand this section to include implementation of potable water use restrictions across the site, as indicated on pages 1 and 2 of the memo. These restrictions should also apply to any off-site,

downgradient areas that may have been impacted by site-related groundwater contamination. Has the current extent of groundwater contamination been delineated by appropriate data and trends analysis?

GHD Response:

This memorandum specifically reviewed the soil data for the Site. A groundwater evaluation was submitted under separate cover to U.S. EPA on October 15, 2018.

Figure 1, IU G South Summary of Exceedances of MDEQ (2013) Criteria in Soil

Comment 15:

Expand this figure to show the extent of soil excavation conducted around boring EB-114 during closure of the calcium carbide desulfurization slag treatment bunker in 1988.

GHD Response:

For additional details on the calcium carbide desulfurization slag treatment bunker refer to the Description of Current Conditions (EMCON, 1995) and Documentation Report for RCRA Closure of an Existing Calcium Carbide Desulfurization Slag Treatment Bunker (RMT, 1991). Copies of the documents can be made available upon request.

Comment 16:

Clarify the scope of contamination by identifying the two duplicate sample results in the legend on this figure.

GHD Response:

Figure 1 of the memorandum will be updated to identify the two duplicate sample results in the legend.

Comment 17:

Clarify that the direct contact criteria in the legend apply to nonresidential properties and identify these criteria with the designation "e".

GHD Response:

Figure 1 of the memorandum will be updated to clarify that the direct contract criteria in the legend applies to non-residential properties and these criteria will be designated with an "e".

Comment 18:

Revise the listing for manganese at location TMW-04127 to note that only the nonresidential particulate soil inhalation criterion ("g") was exceeded. Also revise the listing for arsenic at location EB-114 to note that only the nonresidential direct contact criterion ("e") was exceeded.

GHD Response:

Figure 1 of the memorandum will be revised to note that only the non-residential particulate soil inhalation criterion ("g") was exceed and to revise the listing for arsenic at location EB-114 to note that only residential direct contact criterion ("e") was exceeded.

Figure 3, IU H Summary of Exceedances of MDEQ (2013) Criteria in Soil

Comment 19:

Revise the listing for manganese at location SB-05542 to note that only the nonresidential particulate soil inhalation criterion ("g") was exceeded.

GHD Response:

Figure 1 of the memorandum will be revised to note that the listing for manganese at location SB-05542to note that only the nonresidential particulate soil inhalation criterion ("g") was exceeded.

Figure 5, IU I Summary of Exceedances of MDEQ (2013) Criteria in Soil

Comment 20:

Identify the location of North Outer Drive on this figure, and explain the significance of the thin black line in the vicinity of borings SB-002-05 and SB-013-05.

GHD Response:

Figure 5 of the memorandum will be revised to identify the location of North Outer Drive. The black line in the vicinity of borings SB-002-05 and SB-013-05 is the Former Nodular Iron Quench Slag Staging Area. The figure will be updated to include a note identifying what the black line is.

Comment 21:

Revise the screening criteria footnotes to maintain consistency with Table 5, and expand the legend to also include the indoor air screening level for formaldehyde. Revise the listing for formaldehyde at location MW-06951 to note that the detection also exceeded the indoor air criterion.

GHD Response:

The screening criteria footnotes in Figure 5 of the memorandum will be revised to be consistent with Table 5. In addition, the legend on Figure 5 will be revised to include the indoor air screening level for formaldehyde and to list location MW-06951 to note that the detection also exceeded the indoor air criterion.

Table 4, Historical Soil Data Screened Against Draft 2017 MDEQ Soil Criteria – IU H

Comment 22:

Expand this table to include soil data for location MW-04757, even if that well is not formally associated with IU H. Figure 4 identifies exceedances for total cyanide in this location, but that data cannot be confirmed.

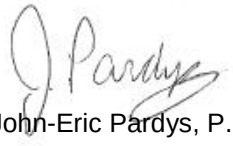
GHD Response:

Table 4 in the memorandum will be updated to include soil data for location MW-04757.

Should you have any questions on the above, please do not hesitate to contact us.

Sincerely,

GHD



John-Eric Pardys, P. Eng.

JEP/kf/43

Encl.

cc: Dave Favero, RACER