

From: [Clearwater, Scott](#)
To: [Christensen, Randy](#)
Subject: FW: RACER Lansing plants - Response to MDEQ Work Plan Comments
Date: Monday, May 07, 2012 2:31:11 PM

Counting this as the approval date

From: Quackenbush, Peter (DEQ) [mailto:QUACKENBUSHP@michigan.gov]
Sent: Tuesday, April 24, 2012 9:22 AM
To: Clearwater, Scott; Rogers, Joseph (DEQ); McCabe, John (DEQ)
Cc: Dave Favero; Grant Trigger; Hoeksema, Amy; Curry, Patrick; Powers, Amy
Subject: RE: RACER Lansing plants - Response to MDEQ Work Plan Comments

Scott, We have reviewed your response to the work plan comments and find them to be acceptable. You can proceed with finalizing the document for submittal.

Thanks!

*Peter Quackenbush
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517-373-7397*

From: Clearwater, Scott [mailto:Scott.Clearwater@arcadis-us.com]
Sent: Friday, April 20, 2012 10:24 AM
To: Quackenbush, Peter (DEQ); Rogers, Joseph (DEQ); McCabe, John (DEQ)
Cc: Dave Favero; Grant Trigger; Hoeksema, Amy; Curry, Patrick; Powers, Amy
Subject: RACER Lansing plants - Response to MDEQ Work Plan Comments

Pete,

Please see below for a direct response to the MDEQ Phase 2 Work Plan comments. A redline edit of the work plan text is also provided for your review, as is the updated figures and Matrix table. Upon approval of the revised work plan text, a final hardcopy will be prepared and submitted to the MDEQ.

Thanks,
Scott

[Response to Comment:](#)

1. Section 2.1.2.5, Soil and Groundwater Impacts; Metals:

- a. Existing data must be evaluated to determine if the presence of the site-wide manganese impacts in soil and groundwater is related to the fill material present on-site or is naturally occurring as stated. If necessary, the Work Plan should be modified to provide for additional data collection as part of the Phase 2 Investigation to assist in this evaluation.

Manganese (and other metals) will continue to be collected during the Phase 2 activities and additional analysis will be completed to determine if manganese is a site related or background issue at the Site.

We completed a quick assessment for manganese distribution in fill versus native material. All but 4 of the 77 groundwater samples collected during the Phase 1 activities were collected from native materials. In soil, of the 12 manganese exceedances, between 1 and 5 (some uncertainty in the descriptions) were collected from fill material. The data set for soil and groundwater in fill is very limited, but the Phase 1 data suggests that manganese occurs within both native and fill materials at the Site.

- b. In DEQ review of the Phase 1 Activities Summary Report for the site, it was noted that the generic residential Part 201 Particulate Soil Inhalation Criteria (PSIC) criteria was used for comparison to site data. The Work Plan must be modified to evaluate the Phase 1 data with a PSIC criteria calculated based on a larger source size (Plant 2 and 6 entire combined, and plant 3 entire) as previously agreed upon with DEQ. In addition, the non-residential PSIC should be used for comparison to site data if it is more restrictive than the residential criteria (e.g. manganese) unless it is known that the site end-use will be residential.

ARCADIS will use the more restrictive PSIC as suggested for comparison to the Phase 2 data. As the Phase 2 investigation progresses the PSIC source area modifier will be scaled to the size of the individual identified sources for metals, as appropriate.

- c. The Phase 1 investigation determined that AOI 3-51 required further action on the basis of soil metals exceedances of various Part 201 criteria. The work plan does not propose any further investigation or delineation in this area. The work plan must be revised to include discussion as to proposed future activities in this area.

In addition to the elevated metals at SB-27 as noted above, several borings in the northern half of AOI 3-51 have low-level detections of bis(2-ethylhexyl)phthalate. This compound was inadvertently dropped from the Phase 1 figures because there was no criteria for comparison and therefore no criteria for normalization. To address this, two additional investigation areas have been added to the investigation scope: Area 20 - to assess the occurrence of bis(2-ethylhexyl)phthalate encompassing the northern portion of AOI 3-51, and Area 21 to assess metals in the SB-27 area.

The new areas have been added to the revised Matrix (attached) and figures for each investigation area are attached for your review (Figures 31 and 32).

2. **Section 3.1, Data Quality Objectives Summary:** Objective #1 in the Table in Section 3.1 states

that the DQO for the bedrock groundwater investigation (i.e. installation and sampling of the four new bedrock monitoring wells) is a fixed, delineation level investigation. This is not consistent with the DEQ's understanding of the bedrock investigation as discussed with Arcadis via phone on March 9; at that time, it was represented that the installation and sampling of the four new bedrock monitoring wells was meant to determine if there was certain and obvious contamination in the bedrock that would require immediate attention, and that it was not meant to be used a documentation that no impacts to bedrock groundwater exist (i.e. delineation). The work plan should be revised to clarify this issue.

Arcadis agrees with this comment and the text has been revised accordingly. If the Phase 2 data suggests impacts to bedrock on Site, we will complete further bedrock characterization to assess bedrock aquifer conditions. The DQO table in the work plan was updated to better reflect this approach.

3. **Section 3.4, Drilling Methods:** the Work Plan must be modified to describe the procedures that will be implemented to grout/seal boreholes after completions. In order to insure a good seal and minimize the potential for downhole migration of contamination, for deep boreholes (i.e. > 15'), installation using a tremie pipe is recommended.\

As discussed with Joe Rogers on April 13th, drilling will utilize a dual-tube drilling system consisting of an outer 3.25" casing with inner rods and Macrocore or other sampling device. The casing and sampler are advanced together during drilling and the outer casing remains in place creating a seal along the total depth of the borehole. Upon completion, if the borehole is in unsaturated vadose soils, bentonite pellets or bentonite grout will be added to outer casing to seal the borehole. Once full, the casing will be retracted and periodically topped off with additional pellets or grout to assure a proper seal from the ground surface to the total depth of the borehole. If the boring penetrates a perched groundwater zone or is completed to a depth extending below the water table, a tremie line will be used to deliver grout to the casing from the bottom up so as to displace any water trapped within the outer casing. Once the outer casing is full of grout, the casing will be extracted and periodically topped off the grout as needed to create a good seal.

The HPT tool is driven into the formation without an outer casing so that the tool has an uninterrupted connection with the surrounding soils. Therefore, upon completion of the HPT, an expendable drive-point and drilling rods will be driven to the total depth of the borehole. Grout will then be pumped through the rods as they are slowly retracted thereby sealing the borehole.

4. **Section 4.5, Sampling Frequency for Groundwater:** The work plan must be modified to specify the use of bladder or reciprocating pumps for groundwater sample collection at all depths. Use of a peristaltic pump is not recommended for VOC/SVOC sampling.

The text will be modified to reflect that Arcadis will employ reciprocating Waterra pumps, or equivalent, for all groundwater sample collection.

The Work Plan must be modified to clarify the collection and analytical methods to be used for saturated soils.

Saturated soil collection will only be employed in areas suspected as source zones for COCs. The analytical and sampling methods used to collect and analyze the saturated soil are the same as would be used for dry vadose zone soils. However, the DQOs for saturated soils are different. Saturated soils will be utilized as a general indication of “hot or not” in source areas and corrections for relative concentration will not affect the “screening level” decision based on the data. Therefore, a correction for dry weight will not be completed on saturated soils.

5. **Section 4.6, Calibration of Field-Screening Approaches:** the Work Plan must be modified to address how the field screening approaches will be modified if the calibration results do not confirm they will be appropriate for use at the site.

If calibration of the field screening tools (i.e. HPT, LIF, colorimetric kits) indicates the tools are unable to meet the DQOs for the project as specified in the work plan, the methods will be discontinued and the following methods will be used to complete the characterization as outlined below:

Colorimetric Kits: If the laboratory analysis does not correlate to the colorimetric kit results, then the colorimetric kits will not be used at Area 14, and all groundwater samples from the area will be submitted for laboratory analysis of hexavalent chromium.

The work plan text has been edited to better reflect the calibration methods for the colorimetric kit: During the assessment phase of the investigation, groundwater samples will be collected from monitoring well CH-14-RO and from several step out locations near monitoring well CH-14-RO in the plating area and analyzed using the colorimetric method as well as submitted for laboratory analysis. If comparison of the colorimetric results to laboratory samples leads to the same decision 90% of the time, then the remaining work completed as the characterization phase in Area 14 will utilize the colorimetric kit to screen groundwater samples.

LIF: If follow-up confirmation of the LIF results suggest LIF is not an efficient way to characterize the LNAPL distribution, or data suggests the LIF results are misleading (i.e. false positives), then LIF will be discontinued and the LNAPL distribution will be assessed with traditional drilling, field screening and sampling methodology.

Samples of the LNAPL from Plants 2 and 3 were sent to Dakota Technologies in March 2012 to verify the applicability of UVOST for the target LNAPL types. This laboratory calibration verified UVOST is applicable and ideal response curves were provided for comparison to the LIF logs produced at the Site. The additional confirmation methods are outlined in the text.

HPT: Methods of HPT confirmation include sieve analysis and continuous soil logging. As outlined in the work plan: “if the HPT is not able to distinguish meaningful changes in soil types that are controlling contaminant transport, then HPT will be discontinued, and other methods will be used to map the aquifer stratigraphy (e.g., cone penetrometer testing, logged borings with sieve analysis, etc.)”.

- Section 6, Communication Plan:** The Work Plan must be modified to provide additional discussion regarding how information from the different phases on the RFI will be summarized and presented to the DEQ. It is anticipated that some type of interim summary report will need to be developed, since an informal presentation at a milestone meeting would not likely be sufficient to present the detailed information necessary for decision-making and additional planning.

Prior to milestone meetings following each phase of the investigation, summary figures and tables will be provided to the MDEQ for review and discussion. Summary figures will include graphical representations of contaminant distribution in soil and groundwater, as well as updated depictions of the Site geology and overall conceptual site model. The plan is to engage the MDEQ in the decision making process as the investigation progresses. This process becomes increasingly important during the characterization phase of the investigation when direct MDEQ involvement with the investigation planning will be a key to completing the delineation of each investigation area. During the characterization phase the investigation results, including analytical data, LIF, HPT and soil boring logs, will be transmitted to the MDEQ prior to the planned bi-weekly calls.

Please contact Patrick Curry or Scott Clearwater with additional questions.

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