



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

April 7, 2016

MEMORANDUM

SUBJECT: Data Gaps in the Environmental Characterization
Grenada Manufacturing Site, Grenada, MS

FROM: Ben Bentkowski, P.G. *JEB*
Scientific Support Section
Resources and Scientific Integrity Branch

THROUGH: Glenn Adams, Chief *GA*
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TO: Brian Bastek
RCRA Corrective Action and Permitting Section

The Superfund Division's Scientific Support Section (SSS) has recently reviewed several documents, primarily the Moose Lodge Road Area Additional Investigation Report, February 2016. As you requested, this memorandum lists out the data gaps which were identified. Please be aware that there is a large backlog of reports and files to review. Additional data gaps may be identified later.

1. EPA would like to understand the characteristics of the aquifer and the groundwater near MW-20. This well has a total depth of 24.20 feet with a screen length of 15 feet. The top of the shaley clay aquitard is approximately 55 feet below land surface and there is no monitoring of the lower portion of the upper aquifer. This area is just north of the former equalization basin which received large amounts of both hexavalent chromium and trichloroethylene throughout its active life. The construction of the equalization basin appears in one figure to have breached the surficial clay. This would have allowed fluids disposed of in the basin to percolate into the higher permeability sediments of the upper aquifer. Given the reported high volumes of disposal, it is not known if the disposed of liquids caused a mounding effect such as it overcame the natural groundwater flow

direction (east to west) and allowed contamination, specifically TCE, TCE DNAPL and hexavalent chromium to migrate northward beyond the property/permit boundary. The scope of work required to fill that data gap would be the installation of a deeper groundwater monitoring well adjacent to MW-20 which would have a screen of 10' in length placed just above the shaley clay aquitard. As the former equalization basin is a large structure, additional aquifer and groundwater characterization will be needed approximately 150 feet just east and approximately 150 feet just west of MW-20. Two additional well pairs should be installed with the screen intervals be approximately 15'-25' below land surface and 45' – 55' below land surface. Boring logs should be constructed for the deepest location of each well pair which note the lithology and any significant variations from the geology of the area. Additionally, the soil samples produced during the boring of the deeper well should be screened for VOCs and the results recorded on the boring log. Once completed and developed, these wells should be sampled for VOCs, metals and hexavalent chromium.

2. MW-19 is the only monitoring well located to the west of Richland Creek and was last sampled in February 1993. This well has a total depth of 49.32 feet below top of casing and a 20 foot long screen. Given the poor performance of the permeable reactive barrier wall and the long term detection of VOCs at depth, please sample this well for VOCs, metals and hexavalent chromium. There may be a need for additional monitoring wells on the west side of Richland Creek. That need will be assessed within the work plan for the rehabilitation of the PRB wall and taking into account the analytical results of the sampling of MW-19.
3. The groundwater to the northeast of the site, beyond the arc of the railroad tracks just beyond the property boundary has not been sufficiently characterized with respect to the presence of metals and hexavalent chromium. There are many wells of varying depths from south of Moose Lodge Road to the land between and either side of the north/south railroad tracks and within the triangular shape rail/stone yard. The Respondent should propose a sampling plan which would provide, in the opinion of USEPA and MDEQ's judgement, a representative sampling of the available wells and depths for metals and hexavalent chromium. Based upon those results, additional wells may be recommended for sampling and analysis for metals and hexavalent chromium. All these wells should continue to be sampled on a regular basis for VOCs.

4. This proposed groundwater characterization and sampling event should include the collection of field parameters including temperature, pH, dissolved oxygen, turbidity and oxidation reduction potential for each well sampled. Please include water level measurements and integrate those results into future water level maps.
5. There is a need for lithologic and groundwater characterization of the lower aquifer; that is the aquifer below the shaley clay aquitard. MW9 is completed to a depth of 75' in the lower aquifer and analytical data shows non-detects in the VOC analytical results as it has been sampled over the years. Interestingly, the boring log does indicate some OVA screening detections from the interval of the lower aquifer. There are four production wells cited in the 1994 Eckenfelder Investigation report well survey. Their number and total depth are #67/250', #68/250', #87/170 and #91/210. Please provide the boring logs, construction logs and geophysical logs, if any, for the production wells. Please collect water levels from all available wells that are screened in this lower aquifer so that a groundwater potentiometric map of the Lower Aquifer may be prepared. This would be initial steps prior to the selection of drilling locations for the installation of groundwater monitoring wells in the Lower Aquifer. Likely candidate locations would be just downgradient of AOC-A, along Hwy 332 paired with several of the wells west of the main building and likely a number of wells in the Moose Lodge Road/stone yard area where there are numerous likely release locations based upon the 2015 Additional Information report maps. Although there is only one well pair, MW-9/MW-12 which demonstrates an upward gradient between the Lower Aquifer and the Upper Aquifer, the release of TCE DNAPL does operate under the effect of gravity and it may have migrated below the shaley clay aquitard. The condition of the Lower Aquifer is a data gap that needs to be filled.
6. As the 1994 Eckenfelder investigation report and other historical documents are reviewed, additional data gaps may be discovered.

If you have any questions, please let me know.

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