

May 28, 2009

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Ms. Aquanetta Dickens, Chief
Site Assessment and Non-NPL Federal Facilities Branch
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1650 Arch Street
Philadelphia, PA 19103

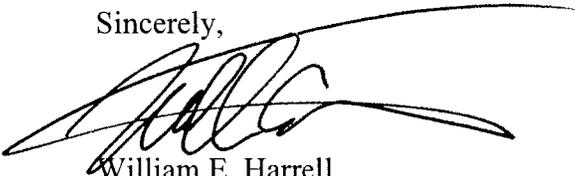
Re: Comments to the Draft Site Inspection Report Prepared
By Tetra Tech EM Inc. for the Battlefield Golf Course Site
EPA Identification No. VAN000306614
Document Tracking No. 0687

Dear Ms. Dickens:

Thank you for providing a copy of the Draft Site Inspection Report on May 1, 2009. The City of Chesapeake appreciates the opportunity to review the Draft and is providing the attached Comments to the Draft Site Inspection Report Prepared By Tetra Tech EM Inc. for the Battlefield Golf Course. In order to fully discuss this matter in greater detail, we are requesting a meeting between the City of Chesapeake, Environmental Protection Agency (EPA), our technical advisors and Tetra Tech. My office will contact you regarding scheduling a meeting in the near future.

Again, we appreciate EPA's on-going assistance on this very important matter.

Sincerely,



William E. Harrell
City Manager

WEH:MAS:sc

Attachment

cc: David Paylor, Director Virginia Department of Environmental Quality
Ronald Hallman, City Attorney
Amar Dwarkanth, Deputy City Manager
James Walski, Director of Public Utilities
Donna Santiago (3HS12), EPA Site Assessment Manager
Devlin Harris, DEQ
Chris Wagner, EPA On-Scene Coordinator
Mary Ann Saunders, Assistant to the City Manager

Comments to Draft Site Inspection Report for Battlefield Golf Course

After reviewing the Draft Site Inspection Report (SI) submitted by Tetra Tech Project Manager, Donna Davies, the City of Chesapeake asked its engineers to review the SI. Engineers working on behalf of the City have outlined three general concerns the City seeks to bring to the attention of the reporting agency:

First, background levels used to complete a comparison with detected levels on and offsite were established in the SI using limited data rather than all currently existing data. Further, there is no articulated plan within the report for gathering and evaluating necessary additional data to establish representative background levels.

Second, the report acknowledges significantly elevated levels of boron in onsite fly ash and within the residential wells without confirming significantly elevated levels of boron in onsite groundwater at the site. Onsite boron may be significantly elevated in the groundwater when compared to a comparable offsite data location. This would potentially lead to the conclusion that an observed release had occurred based on chemical analysis. There appear to be errors in application of the stated methodology for determining whether boron was significantly elevated.

Third, the recommendations of the report are incomplete. The report does not recommend necessary follow up action in light of elevated levels of boron in the groundwater migration pathway nor does it recommend follow up action to examine and monitor surface water migration in light of an extremely high reading of arsenic in one of the two Tetra Tech surface water samples of August 2008.

1. Establishing Background Levels.

For the purpose of these comments, it must be presumed this report is a “focused” SI because limited data were collected, additional data collection of fly ash is recommended and only a preliminary hazard ranking system score has been assigned. Proceeding under this assumption, the first topic will be the establishment of background levels within the report.

The first step under the HRS protocol manual is to “assemble and review all available site information.” (HRS Manual pp. 21-27). The City first notes it did not receive a request by the EPA, or its subcontractor, for information pertaining to the Battlefield Golf Course. There are several important documents which must be reviewed which are not referenced within the SI. In September 2001 and December 2001, the engineering firm URS completed and submitted to Dominion Virginia Power hydrogeologic studies providing important background data for the subject site. In addition, the firm of GIAO provided a study in 2003. These reports may now be viewed and downloaded on-line at http://www.chesapeake.va.us/services/citizen_info/battlefieldgolfclub/index.shtml

It is important to gather all available data when reaching conclusions regarding background levels. For example, the Table of Contents for the September 2001 URS

study (p. 20002) indicates monitoring wells were placed onsite, groundwater sampling occurred at each well along with a duplicate sample and an aquifer characterization was created. In addition, Table 5 of the report shows a summary of lab results for tested metals in groundwater monitoring samples. (p. 20035). This information was not included in the SI.

The SI generally appears to rely heavily upon the data summaries supplied by Kimley-Horn. The City did not receive a request for the lab sheets backing the summaries and was unaware the EPA intended rely on this data. Attached as exhibit A to these comments are the lab sheets. These lab sheets would necessarily be reviewed during an SI, if the summaries are to be used. (Site Inspection Guidance pp. 28-29.) Furthermore, Kimley-Horn was not retained by the City for the purpose of performing a preliminary site assessment. Kimley-Horn was not asked to provide expertise regarding fly ash but was merely asked to perform a presence/absence analysis for the metals which were of concern.

It is unclear whether the report relies at all upon the soil samples collected by Tetra Tech in August 2008. However, to the degree they were relied upon, the report does not mention the vast excavation which took place at the site during the construction of the golf course, other than to attach aerials which clearly demonstrate the extent of the excavation. This is important when determining whether soil samples collected at 13 data points by Tetra Tech are representative of background since most points of collection included fill material.

Furthermore, the SI does not establish a collection plan or a method of data analysis for additional samples necessary to establish background levels. The site investigator relied almost exclusively upon the Kimley-Horn tables. This may have been the result of collection problems associated with the samples collected by Tetra Tech, but the SI is unclear. The background levels should be reevaluated to include the additional data that have been posted on the website identified above. Because a sufficient data population should be available to employ statistical methods endorsed by the EPA, such methods should be applied.

2. High Levels of Boron Potentially Demonstrate an Observed Release.

The establishment of background levels for boron in the groundwater is the focus of this comment. Boron should potentially have been designated as a significantly elevated element in onsite groundwater. Boron was found to be a significantly elevated element in the fly ash, when compared to soil, and in the residential wells, when compared to other residential wells. For the purpose of the SI, significantly elevated means three times the highest reading of background level.

The SI states, "MW-4 [offsite monitoring well number 4] was used for comparison [for background levels] because it was screened at similar depth bgs as the onsite wells." (SI p. 10.) This would be the correct approach because background and release samples must come from the same aquifer. (HRS Manual pp. 62-78). However, there may have been

an error with a key conclusion reached in the SI. The SI does not list boron as one of the significantly elevated elements found in the groundwater, but the data demonstrates it could have been included.

In the summary of offsite groundwater metals analysis for MW-4 for the samples taken by Kimley-Horn (Table 2B), boron levels are at 17.5 ug/L. Multiplying 17.5 by 3 establishes a background comparison level of 52.5 ug/L. Table 2A of the Kimley-Horn summaries provides boron levels found in onsite groundwater samples. These show the following for boron: MW-1 = 113 ug/L (May 20, 2008 sample date) and 37.7 ug/L (July 14, 2008); MW-2 = 75.2 ug/L (May 20, 2008) and 40.1 ug/L (July 14, 2008); and MW-3 = 75.5 ug/L (May 20, 2008) and 56.4 ug/L (July 14, 2008). Clearly, all three onsite monitoring wells sampled showed levels exceeding 3 x MW-4 levels for Boron.

The SI relies on the samples taken from monitoring wells MW-1, MW-2 and MW-3 to reach conclusions concerning the elevated levels of arsenic, lead and other elements found in the groundwater. But it does not appear to properly compare the background level of boron with amounts detected onsite, and it should be corrected before a final version is published. After making this correction to the SI, it appears the conclusion reached for the groundwater migration pathway should include boron as a significantly elevated element. The SI should then be amended to show an observed release in the groundwater based upon the analyzed data.

3. Recommendation for Further Testing.

The onsite and offsite boron readings potentially demonstrate an observed release in the groundwater migration pathway. If evidence supports the presence of contamination, additional samples should be collected to test the hypotheses. (Site Inspection Guidance p. 106.) The SI currently states, “[i]t cannot be concluded from the available data that the fly ash placed on the site has impacted nearby residential wells.” (SI p. 15.) Based on the above analysis, a reasonable conclusion could be drawn that residential wells are receiving boron from the onsite fly ash. A recommendation for further testing of onsite and offsite groundwater should follow to procure necessary data and to test the hypothesis that an observed release of boron has occurred.

The SI does not recommend continued testing of the surface water even though Tetra Tech took only two surface water samples and one showed arsenic at 2,510 times greater than the MCL and nearly 40 times greater than the highest background level. “The most important decision after any SI is whether further investigation is necessary. If so, the investigator should establish the purpose and scope of the additional investigation.” (Site Inspection Guidance p. 97.) Here, the investigator does not recognize surface water as a pathway of concern despite high levels of arsenic, and as a result, does not recommend necessary additional investigation which would include additional test samples and a full consideration of potential interaction between the surface water and groundwater. This site has a particularly high groundwater table and an analysis of this type of interaction appears necessary.