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404/657-8600

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MEMORANDUM

To: Brent Rabon, Coordinator, DoD Remediation Unit

Through: Jane Hendricks, Coordinator, Response Development Unit

From: Carrie Williams, P.G., Geologist

Subject: Site Investigation Work Plan (WP) Review
MCA Barracks Site, Hunter Army Airfield, Savannah, Georgia, HSI# 10521

Please let us know if you have any questions regarding our comments. The memo is located in S:\RDRIVE\CWilliams\HSI\DoD Facilities Compliance Program\MCA Barracks Site WP Review.doc.

General Comments

1. Section 391-3-19-.06 - The compliance status report (CSR) submittal must meet the requirements set forth in Sections 391-3-19-.06(3), 391-3-19-.06(4), and 391-3-19-.06(5) of the Rules for Hazardous Site Response (Rules). Satisfactory delineation of the horizontal and vertical extent of groundwater and soil contamination shall consist of an appropriate number of data points at sufficient locations with concentrations at *background concentrations*. Note that delineation to notification concentrations, risk reduction standards (RRS), and/or target concentrations is not acceptable for the purposes of defining the horizontal and vertical extent of contamination.

2. Section 391-3-19-.06(3)(a) - The CSR must document delineation of all regulated substances detected at the site. In addition to VOCs, the CSR must address the extent of petroleum hydrocarbon regulated substances and any other regulated substances that may be detected during WP sampling activities. Although petroleum-based fuels are excluded from release notification requirements (Section 391-3-19-.04(2)(h)), petroleum-related constituents are still regulated under the Hazardous Site Response Act and Rules and must be addressed in the CSR unless they are being investigated and/or cleaned up with regulatory oversight from the Georgia Underground Storage Tank Program.

3. Section 391-3-19-.06(3)(a) - Non-regulated substances, such as 1,3,5-trimethylbenzene and n-propylbenzene, do not need to be addressed in the CSR. The term "regulated substance" means any substance defined in the Hazardous Waste Management Act, O.C.G.A. §12-8-62, by the terms "hazardous waste" or "hazardous substance," or any substance defined in the

DOCUMENT 7

Rules as a "hazardous substance" (all such regulated substances are listed in Appendix I).

4. Section 391-3-19-.02(2)(d) - The CSR should report analytical results to the practical quantitation limit (PQL) and not to the method detection limit (MDL), which may be lower than the detection limit and result in estimated ("J") values.

Potential Source Area Investigation

1. Section 391-3-19-.06(3)(b)(1) – As part of the source area(s) investigation, it is necessary to sample all potential sources that could reasonably contribute to a release at the site. Before a potential source area can be dismissed, sampling data are required to demonstrate the area is not a source. Soil sampling is required in the following areas, in addition to those areas identified in Section 4.0 of the WP (Aircraft Hanger Buildings, Aircraft Wash Racks, and the Industrial Waste Treatment Plant):

   a. Old Hospital Area (Dry Cleaning Related Area) – Soil sampling must be performed in the area of the of the former underground storage tanks (USTs) associated with the former dry-cleaning company operations. Soil samples must be analyzed for full-scan VOCs (EPA Method 8260B). Please provide a figure that shows the location of the USTs as shown in the 1955 map of the area in the CSR.

   b. Old Hospital Area (Former Boiler Room and Associated Disposal Area) - Soil sampling must be performed in the vicinity of the boiler room and associated disposal area. Soil samples must be analyzed for full-scan semi-volatile compounds (SVOCs) and RCRA metals. Please provide a figure that shows the location of the former boiler room and disposal area(s) in the CSR.

   c. Motor Repair Shop Area – Soil sampling must be performed in areas where regulated substances may have been used or stored. The WP states that solvents, kerosene, engine oil, diesel fuel, paint remover, petroleum oils and lubricants, antifreeze, lead, and sulfur are associated with the facility. Samples must be analyzed for VOCs and RCRA metals. Please note that if the sulfur was from sulfuric acid, then samples must also be analyzed for sulfur and pH as release indicators.

   d. Railroad Spur - Soil sampling must be performed in the vicinity of the USTs and any unloading areas associated with the railroad spurs. Soil samples must be analyzed for full-scan VOCs.

   e. Georgia Air Guard Motor Pool – Soil sampling must be performed in the former painting area. Samples must be analyzed for full-scan VOCs and RCRA metals.

2. Section 391-3-19-.06(3)(b)(1) - In addition to VOC analysis, soil samples collected from the Aircraft Hangars must also be analyzed for RCRA metals. Also provide a drawing/figure that shows the location of the floor drain and associated storm sewer system described in Section 4.0 of the WP (Building 811).

3. Section 391-3-19-.06(3)(b)(1) - Source investigation soil samples must be collected at appropriate locations and depths. Perimeter soil samples are not appropriate for a source area investigation; however they may be collected to provide supplemental data. Soil samples must be collected from all areas of potential contamination and from depths where the highest concentrations are likely to occur. For example, when investigating the Aircraft Hanger buildings, samples should be collected from the former degreasing room and floor drain area directly beneath the floor.

4. Section 391-3-19-.06(3)(b)(1) - Section 5.2 of the WP states that if there are no photoionization detector (PID) readings above background then a sample from the deepest interval will be collected. Please note this is not acceptable for the purpose of investigating potential source areas. Whenever possible, samples should be collected as described in comment 3 directly above.

Groundwater Investigation

1. Section 391-3-19-.06(3)(b)(3) - In addition to the direct-push technology (DPT) locations specified in Section 5.1 of the WP, a groundwater sample must be collected in the vicinity of MVP-5 to confirm the detection of TCE at 6.83 µg/L in the deep portion of the Surficial Aquifer. The groundwater sample must be analyzed for full-scan VOCs. In the event that regulated substance(s) are detected at this location, a permanent monitoring well must be installed.

2. Section 391-3-19-.06(3)(b)(3) - The WP does not propose to vertically delineate the extent of contamination in the areas of the highest groundwater contamination occurring in the deep portion of the surficial aquifer. A monitoring well must be installed to vertically delineate the extent of contamination in the area of monitoring wells XX-20 and XX-03, which had TCE concentrations during the last sampling event of 818 µg/L and 997 µg/L, respectively.

3. Section 391-3-19-.06(3)(b)(3) - Groundwater samples collected for VOC analysis must be collected according to the *U.S. Environmental Protection Agency Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual* (EISOPQAM) [USEPA, 2001]. The Field Sampling Plan (FSP) states that samples will be collected using a peristaltic or bladder pump, where applicable. Section 7.0 of the EISOPQAM states that, "samples for volatile organic compound analyses cannot be collected using peristaltic pumps. Groundwater samples collected for VOC analysis must be collected with a Teflon® or stainless steel bailer or by other approved methods, such as the straw method. The straw method involves allowing the tubing to fill, by either lowering it into the water column or filling it via suction applied by the pump head. Upon filling, the tubing is removed from the well and allowed to drain into the sample vial." (Appendix E.1.3 EISOPQAM).

4. Section 391-3-19-.06(3)(b)(3) - Section 4.7.1.2 (Low-Flow Groundwater Sample Collection Procedures) of the FSP should be updated to state that state that stabilization occurs when pH measurements remain constant within 0.1 Standard Unit (SU), specific conductance varies no more that 10 percent, and the temperature is constant for at least three consecutive readings. An adequate purge is achieved when the pH, specific conductance, and temperature of the groundwater have stabilized and the turbidity has either stabilized or is below 10 NTUs (twice the Primary Drinking Water Standard of 5 NTUs). Although 10 NTUs is normally considered the minimum goal for most ground water sampling objectives, 1 NTU has been shown to be easily achievable and reasonable attempts should be made to reach this level (Section 7.2 EISOPQAM).

5. Section 391-3-19-.06(3)(b)(3) – Section 4.7.1.2 (Low-Flow Groundwater Sample Collection Procedures) of the FSP states that, "in-line filters will be used to filter samples for dissolved metal analysis, if required". Please note that in-line filtering of groundwater samples for metals analysis is not appropriate. Samples should be collected with a turbidity of less than 10 NTUs as specified in the EISOPQAM. Field filtering of samples may not be used to make up for inadequate purging and sampling techniques, or for improper filter pack placement, or for inadequate well design. In the event that turbidity problems cannot be avoided, a filtered sample may be collected in addition to an unfiltered sample for comparison purposes only. Filtered samples cannot be used to certify compliance with RRS or to delineate to background concentrations.

6. Section 391-3-19-.06(3)(b)(3)(viii) - The CSR must provide background concentrations and laboratory analytical data from upgradient monitoring well(s) used to support the determination of "background levels" in groundwater at the site for lead and chromium.

Surface Water Sampling

1. Section 391-3-19-.07(4)(c) - Please collect a sediment sample at each surface water sampling location.

Risk Reduction Standards

1. Section 391-3-19-.06(4)(a) - The CSR submittal must include a compliance certification regarding the responsible party's own determination as to the status of a site or individual property at the site with regard to the RRS for all regulated substances evaluated by the CSR. The CSR should include a table that summarizes the certification type and RRS for all regulated substances detected in soil and/or groundwater. If site-specific RRS are presented, please ensure that all supporting calculations, documentation, and exposure assumptions are provided.

2. Section 391-3-19-.07(6)(b) - Section 1.0 of the WP states that, "HSRA does not specify a target concentration for cis-1,2-dichlorothene (cis-1,2-DCE), therefore the MCL of 70 µg/L (from the Clean Water Act) will be used as the target concentration for this compound."

Please note that the Rules state that for regulated substances not listed in Table 1 of Appendix III, the criteria shall be the background (for naturally occurring substances) or detection limit concentration. However, because there is a federal maximum contaminant level (MCL), EPD will allow its use as Type 1 or Type 3 groundwater RRS at this site. The text also states that the "target level" for isopropylbenzene is not provided, which is incorrect. Please revise the text to state that the default RRS for isopropylbenzene in groundwater is the detection limit.