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MCRD PARRIS ISLAND  
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LETTER REGARDING U S EPA REGION IV COMMENTS ON GEOTECHNICAL  
INVESTIGATION AT SITE 27 EQUIPMENT PARADE DECK MCRD PARRIS ISLAND SC  
12/21/2007  
U S EPA REGION IV



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**

**Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8960**

December 21, 2007

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

4SD-FFB

Naval Air Station, JAX  
Navy Facilities Engineering SE  
Installation Restoration, SC IPT  
Attn: Charles Cook  
PO Box 30  
North Ajax Street, Bldg 135  
Jacksonville, FL 32212-0030

And

Commanding General  
Marine Corps Recruit Depot  
Natural Resources & Environmental Affairs  
Attn: Heber Pittman  
PO Box 5028  
Parris Island, SC 29905-9001

SUBJ: EPA Review of the Request for Approval of Geotechnical Investigation at Site 27 Equipment Parade Deck (Pittman, November 29, 2007).

Dear Sirs:

Site 27, the Parade Deck at Parris Island, Marine Corps Recruit Depot (MCRD) is proposed for a motor pool/parking garage type construction project, referred to as the Motor Transportation Facility (MTF). There are three other sites in this area; Site 9, the former Paint Waste Storage Area, Site 16, the former Pesticide Waste Disposal Area and Site 55, the Fiber Optic Vault. Collectively these Sites are identified as OU9. Preliminary Assessment and Site Investigation data indicated potential soils and ground water contamination in portions of these areas. Additional groundwater analytical data for Sites 55 and 27 have been unofficially reported in September 2007. Some initial data and findings were submitted on December 20<sup>th</sup> as well. For this review, only the information pertinent to the borings was reviewed. Vapor Intrusion (VI) data will be reviewed and responded to at a later time. The data point to possible groundwater contamination with volatile organic compounds and pesticides. The Site status is very early in the investigation process and data is limited at this time.

The primary goal of this review is to assess the potential conflicts between the construction project and the on-going investigation. The U.S. Environmental Protection Agency (EPA) has completed its review of the above referenced request. EPA herein offers a conditional approval for the investigation via geotechnical borings at OU9 (Site 27 specifically, Equipment Parade Deck), along with specific conditions and comments. This approval should allow the Navy/MCRD to move forward with planning and contracting the work, however, please note the conditions requiring final approval via Sampling and Analysis/Waste Characterization and Disposal Plans. Furthermore, please note that approval of the geotechnical borings does not necessarily indicate that a favorable response will be given for future approval requests with respect to constructing a facility on Site 27, the Equipment Parade Deck. Nor does it indicate the ability to make those determinations within any given time frame. Any further decisions will be made as needed, and likely after additional data is gathered from Sites 27 and 55. Many factors will play into the decision regarding facility construction. Footprint location and vapor intrusion mitigation will be two major factors to be considered in conjunction with source material location(s) and potential future remediation needs.

### Comments:

1. The request for approval to conduct geotechnical borings in support of the MTF construction provided the location for nine borings and two hand auger locations. Borings 1, 2, 3, 4, 6, 7 and 8 are projected to a depth of 40 feet below land surface (bls), Boring 5 is projected to 15 feet bls, Boring 9 is projected to a depth of 10 feet bls and the two hand auger locations are projected to a depth of 4 feet bls. When these locations are projected onto the contaminant distribution maps, only B-5 and the two hand auger locations are potentially beyond the limits of the chlorobenzene plume. The other contaminants do not have quite as wide a footprint and the highest concentrations of all reported groundwater contaminants are to the east and outside of the proposed boring locations. It is important to note that the complete nature and extent of these various groundwater contaminants has not been determined. It is possible that portions of the Limits of Construction boundary for the MTF, especially the eastern and southeastern portions, do overlap with areas that may require remedial action once the RI/FS process is completed. It is suspected that the distal ends of the groundwater plumes do extend well into the construction zone for the MTF.
2. The chlorobenzene and benzene concentrations are indicative of a dissolved plume, not DNAPL level concentrations. The source for this contamination has not yet been identified. The solubility limit for chlorobenzene is 466,000 µg/L and it has a density of 1.1. The higher concentrations of these VOCs could be in the area of Borings 1 & 2 and in the upper sand interval of the aquifer.
3. The PA/SI cross section of the area shows three sand layers and three clay layers. This is a very localized cross section. The recent data showed a cross section of three layers of sand and two layers of clay. It is not clear if these clay layers are competent confining units of areal extent or semi-continuous, localized confining layers. When contaminant concentrations from the 2002 SI report and the 2007 preliminary RI data are plotted on the cross section, there is apparent downward migration of contaminants from the upper

sand to the middle sand and, in one case, to the lower sand, however, this is based on limited sampling.

4. It is apparent that there is a downward head indicated between the wells completed in the intermediate sand and the deeper sand, however, additional information might be needed to validate hydraulic head assumptions (tidal influence, timing of samples as related to changes in water table levels, etc.), as opposed to simply diffusion.
5. In your letter, MCRD states that "There is some groundwater contamination (pesticides and volatile organic compounds) in the wells nearest these geotechnical boring locations, but there is no groundwater data right at these locations. Assuming the nearby wells are good surrogates for the geotechnical borings, caution will be required to avoid unnecessary dermal contact, inhalation, or ingestion of this groundwater." It is important to note that there may also be contaminated soils and/or "sediment" in these locations. Caution should be taken with these as well. Conditions have been stated below pertaining to Sampling and Analysis/Waste Characterization and Disposal Plans, as well as Health and Safety Plans.
6. At this juncture, the performance of the geotechnical borings for the MTF is not necessarily incompatible with the continued Remedial Investigation activities. Data collected during the geotechnical investigation may provide valuable information for the Remedial Investigation, if conducted in a certain manner (see conditions below).
7. While it is tempting to employ these borings to collect analytical data for soil and/or groundwater analytical data, these samples would be grab samples at best and not recommended for making remedial decisions. It would be better for the geotechnical borings to proceed at their normal, rapid speed than try to enforce more stringent and time consuming environmental sampling protocols, therefore, conditions of approval will be implemented which will require that the boring be conducted in a timely manner and filled immediately upon completion (see conditions below).

Geotechnical borings at Site 27 are approved provided the following conditions:

**Conditions:**

8. This review is focused on CERCLA requirements and impacts associated with portions of OU9 (Sites 27 and 55). MCRD and the Navy must comply with all regulatory requirements associated with drilling geotechnical borings in general.
9. The proposed geotechnical drilling operations should follow the precautions of hazardous waste drilling. The borings will be advanced through VOC plumes. Exposure of the workers and spreading of the contamination are concerns. Therefore, the following conditions must be met:

The drilling equipment should be decontaminated prior to commencing drilling operations and all down-hole equipment should be decontaminated between locations. Materials removed from these borings should be sampled and analyzed, containerized, and then disposed of in accordance with regulations. Be sure to consider if these contaminants may be considered RCRA listed wastes (be they D, F, P or U), which may cause special requirements for handling and disposal, even if they are only Investigation Derived Wastes (IDW). **The Navy/MCRD should submit a Sampling and Analysis/Waste Characterization and Disposal Plan as it pertains to Site 27/55 contaminants and media. This work plan must be submitted to EPA and SC DHEC for review and approval prior to implementation.**

The drillers should be 40 hour HAZWOPER trained and should follow standard hazardous waste operational guidelines. Therefore, please submit the Health and Safety Plan to be developed by the contractor, showing requirements as they pertain to Site 27/55 contaminants and worker safety. **Please submit this work plan to EPA and SC DHEC for review prior to implementation.**

10. **No boring shall exceed 40 feet in depth below ground surface (bgs). No boring will be allowed to penetrate the marl layer as defined in MCRDs letter: "a gray to olive green silty sand (SM) or sandy silt (ML/MH) with standard penetration test (SPT) blow counts in excess of 30 blows per foot."**
11. **No boring shall be located other than on the boring location map, except for the typical few feet which may be necessary in case obstructions are encountered.**
12. It is assumed that the geotechnical borings will involve the use of a slide hammer to collect blow counts on a continuous basis to the projected total depth of the boring. Also, that the drill rig will employ a split spoon to collect continuous soil samples to the projected total depth of the boring **and these soils will be logged in detail to provide a continuous lithologic log of the boring, comparable to the most recent data submitted to EPA.** All of this data would inform the ongoing Remedial Investigation by providing lithologic and stratigraphic data **and should be reported to the Partnering Team.**
13. **While the split spoon samples are being examined for lithologic characteristics, the samples should be conscientiously screened with an organic vapor analyzer (OVA) to determine the presence or absence of any organic vapors in the samples, in a manner comparable to the most recently submitted data set, and this new data should be submitted to the Partnering Team.** While it is important for the health and safety of the person examining the split spoon samples, the OVA screening of the samples can also generate high quality, qualitative screening data regarding the presence or absence of VOCs in the subsurface. With a working hypothesis that relatively low level VOC groundwater contamination exists within the footprint of the MTF and future removal actions will not be required within that footprint, the conscientious collection of continuous screening data could go a long way in supporting the working hypothesis.

14. In order to minimize any potential contaminant migration or cross contamination, the borings should be drilled in a timely manner and *immediately* upon completion of each boring, the boring hole should be abandoned in accordance with SC DHEC well abandonment regulations and requirements. Given the various potentiometric heads within the several sand units and the potential for cross contamination, the drilling should proceed without delay and the boring should be promptly grouted upon the completion of the drilling activities at that location. Should completion of a boring be delayed due to equipment failure or other reasons, that location should be grouted promptly and an offset location should be drilled upon completion of repairs or resolution of the cause for delay.
15. A Schedule for project implementation must be submitted to the EPA and SCDHEC prior to beginning work in the field. Sufficient notice should be provided in order to plan a field over sight visit if desired.

The Navy/MCRD should respond to this letter, providing any requested information (e.g. SAP, H&S Plan, project field schedules, etc.) and should state that they accept the conditions for this approval prior to implementing the field work.

EPA appreciates the coordination efforts put forth by the Base and Navy, and looks forward to working together throughout this project. Please do not hesitate to contact me at (404) 562-9969 about these comments and conditions.

Sincerely,



Lila Llamas  
Senior RPM

cc: Meredith Amick, SCDHEC  
Sommer Barker, SCDHEC  
Mark Sladic, TiNUS ✓