



Environmental
Science &
Engineering, Inc.

VIA FACSIMILE

August 22, 1990

Code 1822
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Attn: Ms. Laurie Boucher

Dear Laurie:

As requested by you, below are my recommendations regarding the inconsistencies between EPA Region IV SOPs and the Camp Lejeune plan documents. The recommendations correspond to items listed in my letter to you, A. Kissel and S. Ashton, dated August 10, 1990.

(1) SAMPLING EQUIPMENT CONSTRUCTION MATERIAL (Section 4.2.3)

The Camp Lejeune plan documents propose collection of groundwater samples from monitoring wells using dedicated PVC bailers, rather than samplers constructed of Teflon, glass, or stainless steel, as required by EPA Region IV.

I anticipate that EPA will readily approve the use of PVC bailers, as the monitoring wells at Camp Lejeune are, themselves, constructed of PVC. EPA's general concern with the use of PVC is PVC's ability to adsorb low concentrations of certain contaminants. By not commenting on well construction materials at Camp Lejeune, EPA has indicated that adsorption is not a concern. In addition, the use of dedicated bailers eliminates any risk of cross-contamination between wells. PVC bailers have been used at Camp Lejeune for all prior sampling events.

I recommend that LANTDIV get written approval of the PVC bailers from EPA Region IV prior to initiation of sampling.

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(2) BLANK SAMPLES (Section 4.4.5 and 4.4.7)

(a) Trip Blanks:

In addition to requiring trip blanks for aqueous VOC samples, EPA Region IV requires trip blanks for soil/sediment VOC samples.

The trip blank requirement for soil/sediment samples has been discontinued by other EPA regions (e.g. Region II). Trip blanks are included in sampling programs to monitor the occurrence of cross-contamination between samples during shipment. It can be reasoned that a liquid (i.e. trip blank water) will not be subject to cross-contamination in the same way that a solid (i.e. soil/sediment) would. As a result, trip blanks are ineffective monitors of cross-contamination between soil/sediment samples and are, therefore, inappropriate.

(b) Preservation Blanks:

EPA Region IV requires two preservation blanks per field investigation.

Although I have never encountered this requirement by any other federal or state agency, this is a technically reasonable request.

(3) SURFACE WATER SAMPLING:

EPA Region IV requires surface water samples to be measured for dissolved oxygen (DO).

This is not an unreasonable request, however, it is my experience that accurate, reliable field measurements of DO are few and far between due to the extreme sensitivity of the DO probe.

(4) MONITORING WELL INSTALLATION (Section 4.7.3.2):

EPA Region IV requires a sample of the drilling mud used for monitoring well installation.

This is a reasonable request in that this sample allows us to monitor material introduced into the borehole.

(5) MONITORING WELL PURGING TECHNIQUES (Section 4.7.5.3):

EPA Region IV requires Teflon or stainless steel intake lines on purging pumps.

The Camp Lejeune plans propose the use of dedicated PVC intake lines. The use of PVC can be rationalized as outlined in Item (1).

(6) SOIL SAMPLING (Section 4.9.6):

EPA Region IV requires thorough mixing of soil samples prior to filling VOC sample vials.

This requirement is technically flawed as mixing of soil enhances the loss of VOCs from the sample.

(7) pH METER CALIBRATION (Section 6.3.2.2):

EPA Region IV requires calibration of the pH meter at every sampling location.

Based on my field experience, one calibration event per day is sufficient. pH meters are generally reliable and do not lose their calibration easily. Other EPA regions are satisfied with one calibration per day.

(8) STANDARD CLEANING PROCEDURES (Appendix B.1 and B.4):

EPA Region IV's standard decontamination procedure requires hot tap water and solvents, with a 24-hour air dry step.

Decontamination with solvents is required by many state and federal agencies, and can be considered "general practice". The requirement of hot tap water and 24-hours of air dry time is considered excessive and impractical. Hot water is generally not available in a field setting, although it is conceivable to design a field station with portable stoves to heat large pots of water. The 24-hour air-dry step may be eliminated with the use of heat guns and lamps. This would require additional personnel on site.

(9) DEIONIZED WATER BLANKS (Section B.2.1):

EPA Region IV requires one deionized water (DI) blank per week.

I recommend that LANTDIV propose one DI blank per lot of DI water. ESE can attempt to obtain all DI water necessary for the entire field operation from a single lot. This practice is accepted by EPA Region II.

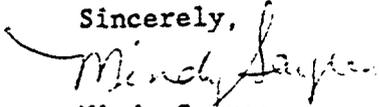
(10) EQUIPMENT CLEANING - LARGE SOIL BORINGS AND DRILLING RIGS (Sections B.7.4, B.4, and B.8.3):

EPA Region IV requires the same decontamination procedure (i.e. solvents and 24-hour air dry) for auger flights as that for split-spoons and other small sampling equipment. This procedure is impractical due to the large size of the auger flights. Decontamination procedures for auger flights in other EPA regions and under state agency direction usually consists of high-pressure steamcleaning only. This procedure is generally considered sufficient because auger flights never actually come in contact with environmental samples. Auger flights follow sampling equipment down the hole. Steamcleaning serves to minimize cross-contamination between borings.

As I mentioned in Item 1, it would most likely be to LANTDIV's advantage to obtain written approval on all items that deviate from EPA's SOPs prior to the

initiation of field work at Camp Lejeune. If you have any questions or comments, please feel free to call me at (201) 896-0363.

Sincerely,



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cc: S. Del Re'-Johnson
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