



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

N00164.AR.000381
NSWC CRANE
5090.3a

REPLY TO THE ATTENTION OF:

December 24, 1998

DW-8J

Mr. Tom Brent
Environmental Protection Department
Code 095 B-3260
Naval Surface Warfare Center
300 Highway 361
Crane, Indiana 47522-5001

RE: Ground Water QAPP
Naval Surface Warfare Center
Crane, Indiana

Dear Mr. Brent:

The purpose of this letter is to follow up with more Notice of Deficiency (NOD) comments that the United States Environmental Protection Agency (U.S. EPA) found for the Ground Water QAPP and the Field Sampling Plan. Please include these additional changes required in the final revisions of the document coming in January. If you have any questions regarding this matter, please contact me at (312) 886-6146.

Sincerely,

A handwritten signature in cursive script, appearing to read "Carol Witt-Smith".

Carol Witt-Smith
Corrective Action Expert
WMB, IL/IN/MI Section

cc: Core Team Members: Phil Keith, NSWC
Chris Freeman, NSWC
Doug Johnson, CAAA
EP Johns, SOUTHDIV
Bill Gates, SOUTHDIV

Project Team Members: Ralph Basinski, Tetrattech
Michelle Timmerman, IDEM
Allen Debus, USEPA
James May, ACOE
Noel Krothe, IU

Management Team Members: Hak Cho, USEPA
Jim Ferro, SOUTHDIV
Jim Hunsicker, NSWC
Mark Shultz, NTC
Tom Linson, IDEM

Comments on the Field Sampling Plan

1. In the FSP, SOP for groundwater monitoring, section 5.7.3, Crane does not intend to use dissolved oxygen as a "stability" criterion, although it will be measured in an online cell.

However, in Agency guidance which we still recognize (so far as I am aware), "Ground Water issue: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504, Dec. 1995, by Robert Puls and Michael Barcelona, pp. 7-8, it is stated that dissolved oxygen (DO) is the most sensitive parameter of groundwater stability and that it should be done in all cases. Recommended acceptance criteria for stability are plus or minus 10%.

2. We need to clarify the exact timing of the sampling event. How long does it take to fill the bottles per well and purging the well using low-flow sampling techniques. Also, if the crew is required to leave the well due to Navy activities, how are the well and samples left? This may need to be discussed in a conference call also.
3. The time of each individual sample bottle must be recorded. This is not an option and must be included in the plan, on tags, and log sheets.

QA Comments for U.S. Navy Crane Groundwater QAPP

With exception of additional SOPs, Al Debus managed to complete review of the Groundwater QAPP. Previously, he had only managed to get through Sections 1 through 3, and several of the analytical SOPs from Laucks Laboratories. We have discussed some of the other QAPP portions as they pertain to the Groundwater Field Sampling Plan (i.e. customized chain of custody forms, sampling equipment decontamination procedures, field QC and sample nomenclature). The QAPP should be further revised to address the following items as well as those the Navy have already been instructed to modify. Please understand that not all of these comments may be actual deficiencies. It is possible we may have misinterpreted information stated in the submitted plans.

A. **Sampling procedures - Section 4 - referred to FSP:**

1. Perhaps just my confusion at large here, straying outside of my field, but in Table 3-1, "Screened Formation" column, last two rows, why does it seem as if the Beaver Bend formation is at lesser depth than Beech Creek, when possibly it should be the other way around.... (also see p. 3-6)?

2. In the FSP, SOP for ground water monitoring, section 5.7.3, Crane does not intend to use dissolved oxygen as a "stability" criterion, although it will be measured in an online cell. However, in Agency guidance which we still recognize (as far as I am aware), "Ground Water issue: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504, Dec. 1995, by Robert Puls and Michael Barcelona, pp. 7-8, it is stated that dissolved oxygen (DO) is the most sensitive parameter of groundwater stability and that it should be done in all cases. Recommended acceptance criteria for stability are plus or minus 10%. There will be "trickle down" effects regarding this comment pertaining to the field SOPs (CTO-38-1, p. 19 of 20) and other references within the QAPP itself.
3. In section 4.2.8 of the FSP, the introduction of nonaqueous solvents for purposes of sampling equipment decontamination is not recommended. Also see p. 3 of 4 in CTO-38-5, Appendix C.
4. In section 4.2.10 of the FSP, p. 4-26, the sample nomenclature does not indicate the year, date, or well location. In the last paragraph of this section, how does the stated procedure ensure that duplicate (including MS/MSD) samples will be "blind" to the laboratory when, as in the case of the cited example, the sampling code would identify the samples as "FD" field duplicates as well as on forms and sample labels? Also, corresponding changes should be made to SOP CTO-38-9.
5. I concur that a chain of custody form, customized for this application, should be prepared per your instructions.
6. In Table 4-11 of the FSP, why was sulfide omitted from the ABG when it does appear in analogous tables representing the other units? Is it the case that sulfide analysis is only being performed on an annual basis? Also, there seems to be a presentation inconsistency in this regard with respect to QAPP Table 1-1.
7. In Table 4-11 of the FSP, under the column labeled "Samples", why are some sample parameter groups being taken 11 times and in other cases 21 times?
8. In Table 4-13, p. 4-36 of the FSP, were RCRA metals, both dissolved and unfiltered, inadvertently omitted? Note that field parameters would apply to the annual sampling event.
9. In Table 4-15, why is it the case that RCRA metals (both dissolved and filtered) have been omitted?

10. Besides the Project Schedule diagram, is it stated with sufficient clarity both in the FSP and QAPP that the annual groundwater sampling event will be performed in the fourth quarter? Will a single event occur in the fourth quarter to satisfy both requirements?
 11. With respect to field duplicates, described in section 4.3.2, benchmark acceptance criteria should be established for all parameter groups.
 12. Referring to Rinsate Blanks, discussed in section 4.3.3, benchmark acceptance criteria should be proposed.
 13. The utility of ambient blanks, outlined in section 4.3.5, remains doubtful, except in the case of VOCs. To my knowledge, particulates are not a concern here as might be the case for a RCRA incinerator trial burn. What sort of field conditions might lead the FOL to collect ambient blank samples? Would the burns be a concern while sampling is occurring?
 14. Referring to p. 4-43 of the FSP, second bullet, note that this discussion should focus on what will be done with generated field data, not validation of laboratory data. This is a Field Sampling Plan.
 15. It is disconcerting to find that the set of Field SOPs contained in Appendix C does not have an Effective Date expressed in the page header.
 16. SOP CTO-38-3, pp. 8 to 9 of 17, does not contain instructions for sulfide.
- B. Custody Procedures, Section 5**
1. The chain of custody procedures expressed here will be modified when a customized form is devised per your former instruction.

C. Internal Quality Control Checks, Section 8

1. Although referred to on p. 8-2 and other places, the NFESC requirements were not divulged in this document. What are these procedures and how might they compare or differ from RCRA SW-846 guidance? With respect to the MS/MSD mixes, I do not have problems with the "representative list". However, as many target analytes of concern as possible should be included in the LCS QC samples, discussed on p. 8-3 for the Annual Appendix IX monitoring event (not including the SEEPs methane analysis).

D. Data Reduction, Validation, and Reporting, Section 9

1. Referring to Section 9.2.2, what flagging system will be used to report data? (If this information is available in the Laucks and other laboratories SOP compilations, then it should be referenced here.) How will certain data qualifiers be assessed and utilized by U.S. Navy in a Final RFI Report?
2. The assessment of data should be discussed here to greater degree. Guidance found in the April, 1998 Region 5 QAPP Policy might be of service here.

E. Performance and System Audits, Section 10

1. The second bullet on p. 10-1 discusses the validation process, and is little concerned with audits. The paragraph should be moved to an appropriate section. Also, the "timely basis" of data validation should be such that the data packages have been fully prepared as part of the Final Evidence File by the time the RFI Report is submitted (in timely fashion).
2. The first two sentences in the paragraph in Section 10.2.2.1 should be read as; "An external audit may be performed by the IDEM and is being conducted by the U.S. EPA Region 5 for the Laucks Testing Laboratory. External audits of the other two proposed laboratories may be performed at discretion of either Agency. Each laboratory is also involv ed....."

F. Preventive Maintenance Procedures

1. Table 11-1 does not sufficiently detail which maintenance procedures correspond to SEEPs, Triangle or Laucks, except by name of analysis parameter, although it is implicit). A 4th column should be added indicating the laboratory name.
2. On p. 11-4, Table 11-1, 2nd column, last point in 2nd row, the word "pump" should be spelled correctly.

G. Specific Routine Procedures.....Section 12

1. Referring to Section 12.2, MS/MSD and field duplicate samples should not be prepared by splitting of other environmental samples. The QAPP should indicate specific locations where MS/MSD and field duplicate samples will be collected. These should be separate samples submitted to the Laucks and Triangle laboratories. Note that the stated "splitting" approach would not be allowed for VOCs samples.
2. This Section should discuss field and laboratory data separately. Also, contrary to the statement in the first paragraph, precision and accuracy shouldn't be assessed through data validation. Data validation is an activity that occurs prior to data assessment. However, plans for assessing the data now should be incorporated into this section of the QAPP, (per the April, 1998 Region 5 QAPP Policy).
3. Referring to the equation at the top of p. 12-2, precision should also be described in terms of spiked duplicates as well. The equation is apparently intended for determining the precision of a field duplicate or possibly a sample duplicate in the case of a metals sample, which are both unspiked samples. (Also see comment A.11) General utility of this equation for purposes of expressing precision should result if the terms, "sample" and "duplicate" were changed, respectively, to "sample 1" and "sample 2".

H. Corrective Action, Section 13

1. In Section 13-3, the important task of the TOM described here isn't mentioned in the FSP, pp. 1-6 to 1-7 when that should be the case.

I. Quality Assurance Reports to Mgt., Section 14

1. Insert the phrase, "... or if other significant plan deviations resulted from unanticipated circumstances." at the end of the next to last sentence.

J. Audit Inspection Checklist (Appendix C - QAPP Volume 2)

1. In item # 33, note that a peristaltic pump should not be used for sampling.
2. Note that in item # 35, bailers will not be used for groundwater sampling.
3. Referring to item # 48, note that this section is very light on other field equipment which will be used that also must be calibrated. (There is only emphasis placed on the PID.) Also, calibration of equipment should be inspected much earlier in the course of field inspection than in the sequence of inspection evident here.
4. In items # 59 and # 60, the use of nonaqueous solvents in the field is not recommended.
5. There are a number of references to the use of field SOPs with numbers (i.e. "SA" and "SF") which are not contained in the QAPP. The field methods proposed have designations beginning with "CTO". See items # 61, 73, 74, 76, 90 and 91 for example.
6. In item # 77, is it necessary to have COC forms completed for onsite analysis? A "streamlined" COC procedure and record trail would suffice for samples to be analyzed in the field.
7. Item # 87 is not relevant to this RFI.