



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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REPLY TO THE ATTENTION OF:

December 31, 1996

DRP-8J

Mr. Thomas Brent
Environmental Protection Department
5090 SER 095/6228
Department of the Navy
Naval Surface Warfare Center
300 Highway 361
Crane, Indiana 47522-5000

RE: Quality Assurance Plan
Bioremediation Facility
Naval Surface Warfare Center
Crane, Indiana
IN5 170 023 498

Dear Mr. Brent:

The purpose of this letter is to transmit our technical comments on the Standard Operating Procedures (SOPs) for the Bioremediation Facility. Our specific comments are included in Attachment I. We would like you to be aware that there is language in the Quality Assurance Plan (QAP) that refers to off-site disposal of the composted material. The Agency has reviewed the QAP and the SOPs not to include this option. The goal of the technology is to either dispose of the material as daily cover at the solid waste landfill on-site or for the material to be returned for use at the units or other areas of the facility as a soil material. Based on this, Allen Debus is streamlining his SOP reviews so that only the SOPs relative to the pilot scale operation will be reviewed first. Several SOPs such as PCBs which may be needed for full-scale operations shall be reviewed later, and we need to reassess if all the other organic SOPs are necessary if off-site disposal will not take place. We hope that this approach will streamline the review and revision time.

Please have your contractor create a response to comments document along with the revisions in order to speed the final review. If you would like to have a conference call or meeting to discuss any of these issues, please call me or Allen Debus to arrange a time. If you have any questions regarding this matter, please contact me at (312) 886-6146.

Sincerely,



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

cc: Jim Hunsicker, NSWC
Steve Downey, MK at NSWC
Adrienne Wilson, SOUTHDIV
Tom Linson, IDEM
Allen Debus, WMB

ATTACHMENT I

Comments on the Standard Operating procedures for the Bioremediation Facility Naval Surface Warfare Center Crane, Indiana

A. Comments Concerning the Metals Analyses

1. The original comment I.3 from the U.S. EPA's notice of deficiency letter, dated September 11, 1996 was inadequately addressed. Will a decision level of 22,000 ug/kg be sufficient for project purposes? This is partly a toxicological matter which should be resolved after consulting with staff toxicologists.
2. According to Table 1-5 of the QAPP, the project involves both Toxicity Characteristic (TC) and RCRA metals, although the meaning of these terms should be clarified. For instance, does the term "RCRA metals" refer to "total metals"? The final row in Table 1-5 indicates that some material will be shipped off-site for disposal, which would necessitate that Crane collect data for complying with the LDR standards. However, in a discussion with Carol Witt-Smith, it was understood that this row of the table should be deleted because this activity will not be performed.
3. The TC metals levels of interest are not indicated in Table 1-4 of the QAPP. Why or how is it the case that the reporting limits indicated in Table 1-4 are somehow "acceptable" for project purposes with respect to PRG levels for "RCRA metals" analyses specified in Table 1-5? For all elements indicated in Table 1-4, why are there both residential and industrial standards presented in the table? Note that many additional metals can be reported than are indicated in this table. Why does the list of metals to be reported exclude the additional elements?
4. The ICP SOP from Southwest Laboratories refers to sample preparation SOP, no. SWL MT600B, that was not included in the package of SOPs. The sample preparation procedure should conform to Dave Payne's July 16, 1996 memorandum for metals in soils, (although this approach would be relevant for non-TC data).
5. From examination of QAPP tables 1-4 and 1-5, as well as the package of Southwest SOPs, it is evident that it is unintended to submit data for hexavalent chromium. Is this appropriate given that some of the levels targeted for decision making purposes are based on human health based Preliminary Remedial Goals (PRGs)?
6. On page 5 of 11 in the ICP SOP, there appears to be a conflict between statements made in sections H.1.a and H.1.c, as both scenarios pertain to instances where the PB concentration is <PQL, yet differing outcomes are prescribed. Could these sections be clarified?

7. Referring to page 6 of the ICP SOP, section L, the post-digest spike isn't procedurally defined. Nor are the control limits of 75% to 125% stated in this section.
8. On page 6 of the ICP SOP, section K, MS/MSD criteria should be 80% to 120%, and % RSD should be <20%. This section should indicate that the frequency of analysis of MS/MSD samples should be 1 per 20 investigational samples.
9. Reporting limits specified in Table 1-4 of the QAPP should be reported for all metals. Note that ICP method 6010 will provide data for additional elements besides those indicated in Table 1-4.
10. Referring to Section II.D of the mercury analysis (methods 7470/7471), MS/MSD recoveries should be 85% to 115%.
11. Referring to section III.B of the SOP for mercury analysis, the soil sample size for mercury extraction should be 2 grams instead of only 0.6 grams.
12. Referring to section IV.C of the SOP for mercury analysis, it should be mentioned that initial calibrations shall consist of 3 levels plus a blank.
13. It is not indicated whether serial dilutions will be performed for mercury analyses.
14. Table 3-4 of the QAPP should be modified accordingly to reflect the nature of these comments as well as the actual laboratory capability specified in the SOPs.
15. Table 1-4 of the QAPP should be modified to reflect PQLs stated in Appendix B. For metals, some demonstration that MDLs are achievable should be made, or else, utilize low level ICP for metals having particularly low PRGs (i.e. arsenic, cadmium). How do the MDLs specified in Appendix B compare to the reporting limits indicated in Table 1-4 for metals? Note that for waters, in several cases, the MDLs stated in Appendix B for metals are greater than the Acceptable Reporting Limits indicated in Table 1-4 of the QAPP. Does this imply the SOPs proposed by Southwest are unacceptable for blank analysis?

B. Comments concerning the VOCs SOPs (methods 8240 & 8015)

1. In QAPP Table 1-5, it should be clarified whether "~~VOCs~~" are intended to be the toxicity characteristic or "~~total~~ VOCs, or both. (See row #2, column#2 of page 23 of 29.)

2. The reporting limits for naphtha as indicated in QAPP Table 1-4 are less than those indicated in Appendix B. (Are they therefore unacceptable?) The PQLs are presented as "quantitation limits" in Table 10 of the 8240 SOP.)
3. Isopropanol is not included in Appendix B, yet included in QAPP Table 1-4. Reporting limits should be developed for isopropanol, MEK and MIBK (4-methyl-2-pentanone) when reported using method 8015.
4. Both MEK and MIBK are listed in Appendix B as 8240 analytes. However, in Table 1-4 of the QAPP, they are represented as 8015A parameters. MIBK and MEK data should be reported using both methods.
5. For all VOCs indicated in Appendix B, are the PQLs or MDLs intended to be the reporting limits? Relevant information presented in Appendix B should replace preliminary information presented in Table 1-4 of the QAPP.
6. Will all VOCs parameters indicated in Appendix B be reported?
7. In Appendix B the " $< \text{L}$ " and " $> \text{U}$ " information associated with acceptance criteria for CCC and SPCC compounds is missing for the VOCs analysis. Also, on this page, for bromoform, the RF acceptance level of .25 does not agree with information presented in the SOP.
8. A ketone should be added to the matrix spiking solution because acetone happens to be a key compound of concern. (See Table 9 and section VII.B.10 of the 8240 SOP.)
9. The procedure stated in section IX.B of the 8240 SOP will most certainly introduce results that are biased low. Ramifications of this difficulty should be understood prior to QAPP approval, and if this will cause adversity with respect to meeting pertinent project objectives, then procedural alternatives should be selected (such as methanol preservation).
10. With reference to section XI.E of the 8240 SOP, note that MS/MSD samples are requested.
11. Referring to section XII.C of the 8240 SOP, none of the VOCs indicated in the QAPP, Table 1-4 should be reported as TICs.
12. The proposed 8015/TPH SOP is not written for measurement of ethanol, isopropanol, MEK, or MIBK as specified in the QAPP, Table 1-4. (An SOP based on 8015 that will report these parameters was apparently not submitted as part of the QAPP.)

13. Referring to section VI.A.4 of the 8015 SOP, what is the source of the naphtha standard? (Why are there no standards for ethanol, isopropanol, MEK, and MIBK listed in this section?) Will a series of n-alkane standards also be used for defining the retention time range for the naphtha parameter?
14. The temperature that the heated purge & trap device will be adjusted to in the analysis of ketone and alcohol parameters in soil should be indicated. Note that a purge & trap technique would be unexpected to provide highly reliable data due to poor purging efficiencies.
15. QC sample types and associated acceptance criteria were not stated for the ketone and alcohol parameters.

C. Non-explosive SVOC, herbicide, and PCB/pesticides SOPs

1. Non-explosives SVOCs, herbicides and PCB/pesticides SOPs & data seems to be only associated with off-site disposal sampling, which according to Carol Witt-Smith, will not be performed in conjunction with this study. (Note that specific SVOCs do not appear in QAPP Table 1-4. Also see Tables 1-3 and 1-5, under Task #6.) Therefore, methods 8270, 8080, and 8150 will not be reviewed or approved under scope of this QAPP.

D. TOC SOP

1. References to Method 415.1 for analysis of TOC in soils is incorrect as this method applies to water and industrial wastes, not strictly soil. In section 5.2 of the referenced method, it is stated that, "This procedure is applicable only to homogeneous samples which can be injected into the apparatus reproducibly by means of a microliter type syringe or pipette."
2. Dave Payne has reviewed other RCRA projects where it has been proposed to measure the TOC content of soil samples. His comments and concerns can be summarized briefly in the following manner:

- a. Should soil sample aliquots be air dried and homogenized prior to analysis, or does intended data use require analysis of wet sample aliquots? The sample preparation procedure will have bearing on the analytical precision. Can errors of 25% to 50% be tolerated for this analysis?

- b. Total carbon is a more accurate, valid test than is TOC when it comes to soil analysis. For the Crane compost study, is the TOC parameter truly needed, or would a TC measurement suffice? For information on how to measure TC in soil, refer to chapter 29, "Total Carbon, Organic Carbon, and Organic Matter", by D.W. Nelson and I.E. Sommers in Methods of Soil Analyses: Chemical and Microbiological Properties, Part 2, 2nd ed, American Society of Agronomy.