



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

N00164.AR.000529
NSWC CRANE
5090.3a

REPLY TO THE ATTENTION OF:

April 20, 2000

DW-8J

Mr. Tom Brent
Naval Surface Warfare Center
EPD, Code 095 B-3260
300 Highway 361
Crane, IN 47522-5001

Re: Draft SWMU 6 & 7 Phase III Soils
RFI Comments

Dear Mr. Brent:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the Draft SWMU 6 & 7 Phase III Soil RFI Quality Assurance Project Plan (QAPP) Revision 1 dated February 2000.

The QAPP is well constructed and is nearing approval. The U.S. EPA commends the authors on their use of analysis of variance, spatial statistics, discussion of data distribution, and quality assurance/quality control procedures. However, there are certain areas that require attention. Comments on the QAPP are provided as an attachment to this letter. The comments were assembled from several independent reviewers, including Allen Debus, U.S. EPA Quality Assurance Chemist; Dr. Arthur Lubin, U.S. EPA Statistical Expert; Doug Griffin, Indiana Department of Environmental Management Corrective Action Project Manager; and myself. Please revise the QAPP to address these comments.

If you have any questions regarding this matter, please contact me at (312) 886-7890.

Regards,

Peter Ramanauskas
Environmental Engineer
WMB, Corrective Action Section

Enclosure

Filename: RFI QAPP Comments SWMU6&7.wpd

cc: Core Team Members: Bill Gates, SOUTHDIV (w/ encls)
Doug Griffin, IDEM (w/ encls)

Project Team Members: Allen Debus, U.S. EPA (w/ encls)
Dr. Arthur Lubin, U.S. EPA (w/ encls)

U.S. EPA/IDEM COMMENTS
Draft Phase III Soils RFI Quality Assurance Project Plan Revision 1 (February 2000)
For Solid Waste Management Units 6 (Demolition Range) & 7 (Old Rifle Range)
Naval Surface Warfare Center - Crane, Indiana

Comment 1:

Referring to the Project Objectives in Section 1.1.1., the objective for the Demolition Range should be modified to state that if groundwater data do not indicate that a hot spot exists at the Demolition Range, the project should move to the next phase of work at the DR (e.g., Corrective Measures Study). For this section and the last sentence of Section 12.4.2., Statistical Ground Water Analyses (SWMU 6 Only), it should be understood that the U.S. EPA together with IDEM will make the final determination to terminate investigation of SWMU 6 under this QAPP based upon a review of the groundwater data. Please revise the language to reflect this.

Comment 2:

Referring to Section 1.1.2, what is the rationale for setting the subsurface sampling interval at the ORR at 2 to 4 feet?

Comment 3:

Referring to Section 1.2.7, the last sentence states that there are no known land use or community actions under consideration or proposed at this time and cites a 1997 Brown & Root Environmental document. Have there been any changes in this area in the past three years?

Comment 4:

The groundwater concentration which will trigger soil and geophysical sampling at the DR-Navy is defined in Section 4.1.1. A 5 times factor has been applied to the definition of a "hot spot", yet there is no rationale explaining how this factor was derived or why it is appropriate. Provide a detailed discussion of the derivation of the 5 X factor in both Sections 4.1.1. and 1.4.2.1. of the QAPP. Provide a similar discussion of the 2 X factor for the ORR.

Comment 5:

As noted in Sections 1.4.2.2 and 4.1.1., at the DR Navy, the need for soil and geophysical testing will be triggered by a combination of measured values: 1) exceeding the risk based target level (RBTL) and 2) exceeding the mean background by a factor of 5 times. This combination thereby defines the boundary of the "hot spot", but appears to be a liberal definition as the RBTL could be exceeded without exceeding the mean background by as much as a factor of 5. Please provide an explanation of the appropriateness of this approach in light of the contamination known to be present in DR Navy soils.

Similarly, for the ORR, provide an explanation for the appropriateness of setting the contamination boundary at the areas exceeding both RBTLs and 2 times the mean background.

Comment 6:

Referring to Section 4.1.1., was X-Ray Fluorescence (XRF) considered as a field-screening tool for Manganese detection?

Comment 7:

Referring to Table 2-1, Page 2-11, the correct phone number for Peter Ramanauskas is (312) 886-7890.

Comment 8:

Referring to Sections 4.1.1. and 4.3.2., please provide rationale for submitting only the top and bottom intervals of each soil boring for subsurface laboratory analysis.

Comment 9:

On Page 2-3, the second to last sentence states that "This section identifies the QA responsibilities for the soils RFI." However, given that groundwater samples will also be taken, the word "soils" should be deleted from this sentence.

Comment 10:

There should be a signatory space added to the title page for the Navy QA Manager. Also, once this person has been identified, he/she should be introduced into both Figure 2-1 and Table 2-1.

Comment 11:

In Section 2.2.5, Page 2-6, it should be mentioned that the Laboratory QA Officer will also conduct internal audits.

Comment 12:

Referring to the last sentence in Section 4.1.1, Page 4-4, the vague phrase, "...elevated region of manganese has not been bounded in the vertical direction...." should be clarified.

Comment 13:

In Section 4.1.1, Page 4-4, it is stated that "the presumed rectangular grid ... is expected to contain no more than 25 sampling location." We do not believe that an upper limit on the number of sampling locations is presently advisable. Rather, we would advise a statistically based sampling plan for hot spot detection which evaluates the number of sampling locations required

given several considerations. The considerations are: 1) expected shape and size of a hot spot; 2) acceptable probability of a false negative conclusion (e.g. not detecting an actual hot spot); 3) shape of grid partitions (apparently they will be rectangular); and, 4) size of the area of concern. A statistical procedure certainly would be more credible than merely using professional judgement though professional judgement certainly should be used to facilitate the development of a maximally efficient design. The considerations listed on Page 4-4 as bullets certainly may be used for decisions, such as whether or not to stratify within the area of concern in order to use different sampling densities in different portions of the site. For example, it may be reasonable to sample with greater density in subareas with greater likelihood of having hot spots. The statistical procedure is discussed in the following document which is available upon request:

Lubin, A.N.; Williams, M.H.; and Lin, J.C. Statistical Techniques Applied to Sediment Sampling (STATSS): Draft 03. U.S. Environmental Protection Agency - Region 5: Chicago, Illinois, 1995.

Comment 14:

In Section 4.1.2, Page 4-6, the second paragraph on this page is not entirely clear. What depths do the data points correspond to in Figures 4-2 and 4-3? Please add this information to the QAPP. When performing a krig of the historical soil sampling data, it may be worthwhile to look at each COC individually and then overlay them.

Comment 15:

Referring to Section 4.4.1, Page 4-11, there is no rationale for why it wouldn't be advantageous to perform quarterly groundwater monitoring, and apply the decision rules to each quarter. From our perspective, it would be more conservative to sample for manganese on a quarterly basis as opposed to conducting a single collection event.

Comment 16:

Criteria for determining which IDW should be sent offsite for disposal should be added to Section 4.10, Page 4-19.

Comment 17:

Procedures for validating the explosives chemical data should be inserted into Section 9.2.2. This is because neither of the cited references for performing data validation contain procedures for validating SW-846 method 8330 data.

Comment 18:

Referring to the first paragraph of Section 12.4.3., be aware that a 3 dimensional map is acceptable with the understanding that it is to be used as an approximation of the extent of contamination. In order for a 3 dimensional map to be valid, the soils must be homogeneous and

isotropic, neither of which occurs in nature. A more accurate method would be to make 2 dimensional maps by soil horizon and stack them. A common alternative is to make the 2 dimensional maps by depth, since the data is collected that way. All raw data sets utilized for kriging should be submitted in electronic format to the U.S. EPA and IDEM.

Comment 19:

On Page 12-6 it is stated that "All data, including statistical outliers, will be retained as part of the final record even though they may not be used in decision making." Does this statement mean that the analysis will be done without the outliers? Analysis should be done both with and without statistical outliers unless the outliers are individually checked and found to be inaccurate information.

Comment 20:

Are the aerial photograph dates given for the Demolition Range and Old Rifle Range on Page A-5 correct?

Comment 21:

In the Health and Safety Plan, please provide revisions to Section 1.2 and Table 2-1 when the FOL/SSO, Field Technician, UXO/EOD Specialist, Equipment Manager, Analytical Laboratory, and Surveyor have been identified. Hasn't the analytical laboratory been identified as Laucks Testing Laboratories, Inc.?