



DEPARTMENT OF THE NAVY

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5000

IN REPLY REFER TO:
5090
Ser 095/9133.

28 JUN 1999

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Illinois, Indiana, and Michigan Section
Attn: Mr. Peter Ramanauskas (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

The Morrison Knudsen Corporation forwarded to your office revisions, per previous comments provided by the U.S.EPA, for the Crane Division, Naval Surface Warfare Center (NAVSURFWARCENDIV Crane) Audit Demonstration Report - Field Test Kits and Wiley Mill Riffle Splitter for Full Scale Bioremediation Operations. The Audit Demonstration Report revisions were dated June 3, 1999. This letter is to acknowledge that submittal and to provide the required certification statement as enclosure (1).

NAVSURFWARCENDIV Crane point of contact is
Ms. Christine D. Freeman, Code 09511, telephone 812-854-4423.

Sincerely,

A handwritten signature in black ink, appearing to read "James M. Hensicker".

JAMES M. HENSICKER
Director, Environmental Protection Department
By Direction of
The Commander

Encl:
(1) Certification Statement

Copy to: (w/o encl)
ADMINISTRATIVE RECORD
COMNAVSEASYS COM (SEA OOT)
IDEM
MK Cleveland
SOUTHNAVFACENCOM (Code 1864)
TolTest Crane

**RESPONSE TO COMMENTS
DRAFT AUDIT DEMONSTRATION REPORT
FIELD TEST KITS AND WILEY MILL RIFFLE SPLITTER
DATED MARCH 1999
FULL-SCALE BIOREMEDIATION
NAVAL SURFACE WARFARE CENTER CRANE, INDIANA**

Comments by: U.S. EPA Region 5

COMMENT 1: Table 2-1

Two columns should be added indicating the standard variation in each of the five sample results that were averaged to produce the values shown in Columns 4 and 5. This added information will demonstrate how widely distributed the values are which have been used as the basis of procedural comparison. While the samples used to derive these numbers cannot be regarded as "replicates", a lesser variance would fortify the proposed conclusions.

RESPONSE 1:

Comment noted. Table 2-1 has been revised to include standard deviation of the five sample results that were averaged to produce the values shown in Column 4 and Column 6. In addition, the individual results of the five samples that were averaged have been added for any detected explosive compound, and the % difference between the two sampling methods has been calculated.

COMMENT 2: Table 2-2, Page 2-8

Data for Tetryl, is there a typo in the data for Sample B10S00500053, and its duplicate? (see 650 UX and 6500 UX).

RESPONSE 2:

No typographical errors were made in Table 2-2. Sample BIOS00500053 and its duplicate (BIOS00500053-FD) were analyzed at two different dilutions. The sample identified as FD had a higher RDX concentration, which required dilution of the sample to bring the concentration within the linear range of the instrument. The raw data from the laboratory is provided in Appendix G on page 10 and page 12. All compounds from the FD were reported at a 10 times higher reporting limit than the initial sample.

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COMMENT 3: Page 2-10, 3rd full Paragraph

Although the meaning is implicit, it should be stated whether these samples are Wiley Mill/Riffle Splitter samples or samples produced through regular homogenization.

RESPONSE 3:

The text has been revised to state that three matrix spikes were performed during the Wiley Mill/ Riffle Splitter sampling, two matrix spikes were performed on samples produced through regular homogenization, and one matrix spike was performed on a sample collected using the Wiley Mill/Riffle Splitter.

COMMENT 4: Table 2-3

The RDX MSD data really is atrocious. There's no way to disguise this.

RESPONSE 4:

RDX spike recoveries for Day 0 often show a high degree of variability due to the high concentration of RDX initially found in the compost matrix. Raw data for the matrix spike samples is provided in Appendix H. This data shows that the concentration of RDX initially in the sample is more than 100 times the spiking concentration. The relative proportion of the spiked amount to that found in the sample is very low and results in the poor recoveries exhibited in these samples. Page 2 and page 9 of Appendix H provides the raw data for these Day 0 spiked samples. In the last page of Table 2-3, provided on Page 2-13, acceptable matrix spike and matrix spike duplicate data was obtained for RDX. The concentration of RDX in the Day Last sample was below the reporting limit, and the matrix spike was at a sufficient level to detect in the compost. Raw data is provided on Page 16 of Appendix H.

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COMMENT 5:

It would be meaningful if some Quality Control data representing the samples which were homogenized using conventional techniques could be summarized or tabulated as well in this report.

RESPONSE 5:

Field QC sampling followed standard sampling protocol. QC in the form of field duplicates, rinse blanks, and field blanks were collected and results are summarized in Table 2-2. The duplicates were collected using conventional techniques. Duplicates of Wiley Mill/Riffle Splitter samples were not collected. However, because this study compares homogenization using conventional techniques as well as homogenization using the Wiley Mill/Riffle Splitter, every sample was collected in duplicate.

Laboratory quality control in the form of matrix spike analysis was performed on a purely random basis at a frequency of one per 10 samples. In this study, one of the Wiley Mill/Riffle Splitter samples was chosen for spiking. Results of this sample are provided in Table 2-3 on page 2-11. Two samples chosen for spiking were from the conventional technique and these results are provided on pages 2-12 and 2-13. These quality control samples represent batch QC for the preparation and analysis of explosive samples in the laboratory.

COMMENT 6: Page 2-14

There is a minor typo. The word "be" should be deleted from the last sentence in the 4th paragraph.

RESPONSE 6:

Comment noted. Text has been revised.

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COMMENT 7: Table 3-1

The table indicates that 11 out of 12 RDX field test kits suffered from false negatives in Day 60 samples. Then, on page 3-15, it is noted that the detection limits for laboratory reporting limits were considerably less than was achieved in test kits. This same paragraph also indicates that "In cases where the laboratory detected either TNT or RDX below the level achievable by the appropriate field test kit, results were deemed to be in agreement since both the field test kits and off-site laboratory analysis achieved their specific objectives." However, this would appear to be a hanging conclusion because my impression is that the data in Table 3-15 may not reflect this reconsideration of whether or not "agreement" was achieved.

RESPONSE 7:

RDX has a reporting limit of 0.88 mg/kg in the field test kit, and a laboratory reporting limit of 0.25 mg/kg by Southwest Laboratories. The industrial clean-up objective for RDX is 17 mg/kg. Because of the difference in method sensitivities, values above the laboratory method reporting limits and the field test kit reporting limits are felt to be in agreement. In Day 60 samples, the laboratory reported all 12 samples with RDX concentrations greater than 1.66 mg/kg and an average RDX concentration of 7.77 mg/kg. Since all the RDX concentrations were greater than 1.66 mg/kg, RDX should have been detected in the field test kits that have a reporting limit of 0.88 mg/kg. The field test kits had one positive value of 1.1 mg/kg detected. The remaining eleven sample results have been flagged as false negatives for RDX.

The high level of false negatives on Day 60 samples appears to be due to an interference in these samples at the laboratory as the field test kits, and previous days confirmation results do not support the presence of RDX. The Day 60 concentration levels are well below the clean-up objectives and near the method reporting limits where you would expect greater variability. Since the clean-up levels are significantly above these values, the results are felt to be in agreement with our objective. The field test kits would successfully identify that it was acceptable to collect Day Last confirmation samples for analysis by the laboratory.

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COMMENT 8: Page 3-14, last paragraph in Section 3.4.3

A verb should be inserted into the first sentence.

RESPONSE 8:

Comment noted. Text has been revised.

COMMENT 9: Page 3-15; second paragraph, 3rd sentence

It is mentioned that reanalysis was performed. Did this entail re-extraction, and if so was this accomplished within proper sample holding times? Is this the sole reason for the RDX high false negative rate in Day 60 samples? Were detection limit differences between laboratory confirmatory and field test kit methods already factored into account?

RESPONSE 9:

Re-analysis did not entail re-extraction. Re-analysis was performed by the laboratory to confirm values detected in the primary column because of the increased variability seen between the primary and secondary column. This analysis was performed within holding time, but was not reported by the laboratory. The high false negatives are most likely due to interferences seen in the analysis of RDX as discussed above in Response 7. Detection limit differences between the laboratory and the field test kits were already factored in the development of Table 3.1.

**Audit Demonstration Report
Field Test Kits and Wiley Mill/Riffle Splitter
Full-Scale Bioremediation
NSWC Crane, Crane, Indiana**

ERRATA SHEET

Comments from EPA have been addressed in the enclosed response to comments. The following pages incorporate changes made to the Audit Demonstration Report as a result of the EPA comments.

1. Remove binder cover and spine and discard. Replace with attached "green-colored" binder cover and spine.
2. Remove insider cover and signature page and discard. Replace with attached cover and signature page.
3. Remove Page 2-2 through 2-5 dated 3/10/99 and discard. Replace with new pages 2-2 through 2-4 dated 5/14/99.
4. Remove page 2-9 and 2-10 dated 3/10/99 and discard. Replace with new page 2-9 and 2-10 dated 5/14/99.
5. Remove page 2-13 and 2-14 dated 3/10/99 and discard. Replace with new page 2-13 and 2-14 dated 5/14/99.
6. Remove page 3-14 and 3-15 dated 3/10/99 and discard. Replace with new page 3-14 and 3-15 dated 5/14/99.

5090
Ser 095/9133

28 JUN 1999

The letter Ser 095/9133 was for the
submittal of response to comments and
replacement pages for the Draft
Bioremediation Audit Demonstration Report.
The replacement pages have been
incorporated into the previously submitted
report on 03/29/99.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



SIGNATURE

DIRECTOR, ENV. PROT. DEPT.

TITLE

6/28/99

DATE