



DEPARTMENT OF THE NAVY

CRANE DIVISION  
NAVAL SURFACE WARFARE CENTER  
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CRANE, INDIANA 47522-5000

N00164.AR.000488  
NSWC CRANE  
5090.3a

IN REPLY REFER TO:

5090  
Ser 095/9211

10 NOV 1999  
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:

Crane Division, Naval Surface Warfare Center (NAVSURFWARCENDIV Crane) submits for your review three copies of the response to comments on the Summary of Percent Reduction Goal - Windrows 01 to 25 that accompanied the request to delete the 90-99 percent reduction goal and day 0 sampling for Full Scale Bioremediation Facility Operations. The responses to comments are included as enclosure (1). Enclosure (2) is the required certification statement.

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

Sincerely,

JAMES M. HUNSICKER, DIRECTOR  
ENVIRONMENTAL PROTECTION DEPARTMENT  
BY DIRECTION OF THE COMMANDER

Encl:

- (1) Windrows 01-25 Response to Comments
- (2) Certification Statement

Copy to:

ADMINISTRATIVE RECORD  
MK Cleveland (w/o encls)  
SOUTHNAVFACENGCOM. (Code 1864) (w/o encls)  
TOLTEST Crane

**NSWC Crane, Crane, Indiana**  
**Summary of Percent Reduction Goal - Windrows 01 to 25**

**RESPONSE TO COMMENTS**

*Commentor: Peter Ramanauskas, US EPA Region V*

**Comment 1:** The report is lacking in any structure or detail. The submitted information is basically all data. The report should include detailed descriptive sections such as: executive summary, introduction, procedures, analytical results, summary, conclusions, and other relevant sections.

**Response 1:** This report is only a summary of the percent reduction goal and was submitted to demonstrate that the reduction goals of 90 to 95% were being met for Mine Fill A (MFA). This data, in addition to data for Windrows 26 through 102, will be included in the Interim Measures Report Completion of Bioremediation at Mine Fill A. This report will include the detailed descriptive sections described above.

**Comment 2:** The analytical results section mentioned in Comment 1 should provide explanation for negative results (e.g., -223% TNT reduction and -20.18% 4A26DT reduction in M013) and any other anomolous data. There should also be an explanation provided for the variations in reporting limits within one sample set (e.g., S005 and S016 Day Last). Why does the reporting limit change in S016 for Day Last?

**Response 2:** The analytical results section will be incorporated in the Interim Measures Report Completion of Bioremediation at MFA. The report will include all data from Windrow 1 through Windrow 102 as well as an explanation for negative results, anomalous data, and variations in reporting limits. However, the anomalies identified above have been explained in the following text.

Each full-scale windrow is approximately 275 feet long at formation and extends the length of the building at the biofacility. These full scale windrows are monitored in 15 locations in order to assess oxygen, temperature, and explosive concentrations. Occasionally lengths and total volumes of soil and amendments are modified for operational reasons. In the case of Windrow M013, a smaller windrow was formed after Windrow M012 because mechanical problems with the tub grinder hindered the completion of a full windrow for M012. As a result, two separate smaller windrows (M012 and M013) containing the same amendment ratio were formed in the location of one full-scale windrow.

The analytical data for Windrow M013 reflected only nine monitoring locations due to the smaller windrow size. On Day 0 of monitoring, eight of the nine sampling locations did not detect the presence of 246TNT and the ninth location

had a concentration of 1620 ug/kg. On Day Last of monitoring, eight of the nine sampling locations did not detect the presence of 246TNT. The ninth location has a value of 9710 ug/kg of 246TNT reported. This single sampling location which shows a significant difference between Day 0 and Day Last results, resulted in a (-223) percent reduction in the concentration of 246TNT. Variability is expected between sampling locations due to the varied mixture of amendments in the windrow. For this reason various sample locations are selected and averaged to determine the average concentration of the windrow. The Industrial Cleanup Goal for this compound is 64,000 ug/kg and the Residential Cleanup Goal is 15,000 ug/kg, and the analytical results were well below these concentration levels.

A similar situation exists for the compound 4A26DT, 4-Amino-2,6-Dinitrotoluene for Windrow M013. All nine results for the Day 0 monitoring were not detected and during Day Last, eight of the nine sample locations reported undetectable levels of 4A26DT while the last monitoring location had a value of 704 ug/kg. This variability between sampling locations is due to the varied mixture of amendments in each windrow, however the Industrial Cleanup Goal for this compound of 680,000 ug/kg and a Residential Cleanup Goal of 65,000 ug/kg the impact of this increased variability is insignificant in the final use of these results.

Increases in reporting limits are often seen in Day 0 analytical results due to dilutions necessary for analysis. Concentrations of RDX, TNT, and HMX are at such high levels in Day 0 sampling that dilutions were performed. After the formation of Windrow S006 the lab made every effort to run all samples in an undiluted form initially which permitted consistent levels to be reported for undetectable compounds, and later performed the dilutions necessary for RDX, TNT, and HMX levels. Prior to the formation of Windrow S006, the lab performed dilutions initially to prevent over saturation of their instruments.

In the case of Windrow S005, there are changes between values in several of the locations in a particular cross section. In each cross section three locations are sampled as described in the Full Scale Quality Assurance Project Plan, SOP 3.0 found in Appendix A. Windrow S005, Location 1 has a value of LT 25,000 ug/kg reported for 246TNT, while Location 2 has a value of LT 12,500 ug/kg, and Location 3 has a value of LT 250 ug/kg. These dilutions were necessary due to the high concentrations of RDX and HMX in these samples. A 100 times dilution was performed on Location 1, a 50 times dilution was performed on Location 2, and no dilution was required on Location 3. Ideally, it would be helpful to use the same dilution on all samples, however, based on varying concentrations of compounds which can be found within the windrow, this was not possible. As a result, inconsistent reporting limits are occasionally reported within a particular windrow.

Variances in reporting limits are also the result of the sample volume used in analysis. In Windrow S016, all Day 0 results were reported at values of LT 250

ug/kg for 2,4-DNT. Day Last results also show undetectable levels of this compound at reporting limits between 239 and 250 ug/Kg. Obviously, these are all less than the 250 reported for Day 0 results, but larger sample volumes (2.10 grams on Day Last rather than 2.00 grams on Day 0) decreased the reporting limits.

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

JAMES H. HENSICKER

Director, Environmental Protection Department

by direction of

the Commander

TITLE

10 NOV 1999

DATE