



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

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NSWC CRANE  
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REPLY TO THE ATTENTION OF:

October 16, 1998

DW-8J

Mr. Thomas Brent  
Environmental Protection  
Naval Surface Warfare Center  
300 Highway 361  
Crane, Indiana 47522-5000

RE: Dye Water Disposal Plan  
Dye Burial Grounds  
Naval Surface Warfare Center  
Crane, Indiana  
IN5 170 023 498

Dear Mr. Brent:

The United States Environmental Protection Agency (U.S. EPA) hereby approves your "Dye Water Disposal Work Plan", dated October 7, 1998. The results of the disposal activity will be included in the Interim Measures Report as described in the work plan. It is our understanding that the Navy shall comply with all the Clean Water Act requirements for discharge, treatment and monitoring of the water.

Enclosed are the final comments concerning the dye analysis from Mr. Eric Weber, from our Office of Research and Development Athens Lab. If the Crane Lab is used for any further analytical activities for the Dye Burial Grounds, the comments attached and received previously from Mr. Allen Debus, our Regional Chemist, shall be incorporated in the creation of any future Quality Assurance Work Plans. An performance audit of the lab will also be required. The Region will work with the Navy on having quality plans for any future work performed for soil and ground water. 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: NSW Core Team: Chris Freeman (NSWC), Bill Gates (SOUTHDIV)

NSWC Management Team: Jim Hunsicker (NSWC), Jim Ferro (SOUTHDIV), Hak  
Cho (USEPA), Mark Shultz (Great Lakes)

NSWC Project Team: Dave Beall (MK), Brent Robinson (NSWC), Al  
Debus (USEPA WMB), Eric Weber (USEPA  
Athens Lab),  
Nancy Maegerlein (NSWC Lab)

enclosure: Eric's Comments (hardcopy)  
filename: fndyedisposal.usn



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
NATIONAL EXPOSURE RESEARCH LABORATORY  
ECOSYSTEMS RESEARCH DIVISION  
960 COLLEGE STATION ROAD • ATHENS, GA 30605-2700

October 5, 1998

OFFICE OF  
RESEARCH AND DEVELOPMENT

**SUBJECT:** Review of U.S. Navy CRANE Dye Tank Water Study Data  
(sample package)

**FROM:** Eric J. Weber, Ph.D. *ESW*  
Research Chemist

**TO:** Allen A. Debus  
IL/IN/MI Section

Carol Witt-Smith  
IL/IN/MI Section

**General Comments:**

I concur with your decision to conditionally approve the dye study sample data package. I do have some concerns that are addressed below. Some of these concerns might be invalidated based on the complete data set for the dye tank water study. Although I find the study to be acceptable, I would strongly urge that these concerns be addressed prior to the analysis of further samples.

**Specific Comments:**

1. I am concerned about the method used for the analysis of explosives in the dye water. My concern is that any chemical with sufficient volatility could be lost during the nitrogen blow down of the water sample. I realize that an EPA method (Method 8330) was used, however, it is not clear if this method is specific for nitroaromatics and nitroamines, or for the general analysis of organics in water. Regardless, in my opinion this is an archaic method for concentrating aqueous samples. I am surprised that there is not an EPA method available that requires solvent or solid phase extraction of the aqueous phase, or removal of the aqueous phase by freeze drying.
2. The fact that a non-linear calibration curve was not obtained for the uranine dye is not of great concern, as long as it is realized and dealt with appropriately. I have observed non-linear calibration curves for other dyes. I would add that the analysis of the uranine dye is quite difficult. The CRANE

staff is to be commended for their ability to analyze the dye by liquid chromatography.

3. The Lotus spread sheet for the blue dye indicates that the analysis of replicate samples was not performed. It was apparent, however, that duplicate analyses were performed. Without the analysis of replicate samples, it is not possible to determine the error associated with each measurement. Of greater concern is the fact that there is no indication that a total UV-vis spectrum of the water samples was performed. Measurements were made at 408 nm, which is the maximum adsorbance for the blue dye. What is the evidence that the absorbance at 408 nm is actually due to the dye and not some other component in the sample?
4. The LC chromatogram of the standards of munitions was of poor quality. The peaks were quite broad, which significantly lowers the detection limit for the munitions. With some effort this analysis could be improved significantly.