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LETTER REGARDING POTENTIAL RESIDUAL HERBICIDE ORANGE CONTAMINATION  
NCBC GULFPORT MS  
9/20/1989  
IDAHO NATIONAL ENGINEERING LABORATORY



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September 20, 1989

Mr. J. J. Short  
HQ AF/LEEVO  
Bolling Air Force Base  
Washington, D. C. 20332-5000

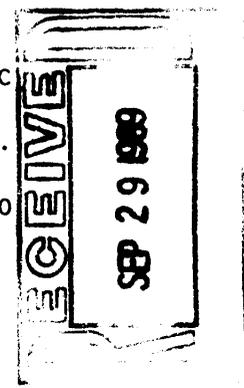
POTENTIAL RESIDUAL HERBICIDE CONTAMINATION AT NCBC - DJH-25-89

Dear Mr. Short:

In June, representatives from the Air Force and Navy met with Mr. R. Smith and Mr. C. Dana of the Mississippi Department of Natural Resources to discuss the NCBC decision document. Although that meeting resulted in favorable opinions regarding the dioxin clean-up, there were no discussions concerning the level of herbicide contamination that may remain on the remediated site. As a result, I recommended that EG&G investigate the ramifications and risks of potentially remaining herbicides; you verbally concurred with that plan. This letter reports our investigations and recommends a course of action.

Upon return from the aforementioned meeting, I asked the EG&G Environmental Sciences Group to expand the existing groundwater model to include a calculation of the potential herbicide concentration in a hypothetical drinking water well located down gradient from the site. The results show that to exceed the drinking water standard of 0.1 mg/l for 2,4-D (40 CFR 264.94), the sixteen acre remediated site would have to be uniformly contaminated to approximately 250 ppb to a depth of two feet. This calculation is based upon several very conservative assumptions.

Complete modeling of 2,4,5-T was not conducted because 2,4-D is considered to be a more conservative case. Within the groundwater model, the only difference between the two herbicides is the organic to water distribution coefficient term,  $K_{oc}$ . For 2,4-D the  $K_{oc}$  is 20 mg/l, where as for 2,4,5-T the value is approximately 50 mg/l. This basically means that 2,4-D is more soluble than 2,4,5-T. Because 2,4-D is more soluble, it would be more likely to leach into the groundwater. Therefore, a model prediction of a 2,4-D concentration would be more conservative than a model prediction of 2,4,5-T.



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Comparison of a model calculated concentration of 2,4,5-T to a specific drinking water standard is not conspicuous. 40 CFR 264.94 does not give a drinking water standard for 2,4,5-T. However, the *Superfund Public Health Evaluation Manual* gives a chronic acceptable dose of  $3.00E-2$  mg/kg/day for 2,4,5-T. This correlates to an allowed drinking water concentration of 1.05 mg/l by assuming that a 70 kg man drinks 2 liters of water per day. This pseudo standard is 10 times higher than the standard for 2,4,-D. This tends to confirm the previous assumption that 2,4-D represents a conservative worst case.

However, regardless of the model predictions, we lack data from the bottom of the hole samples that could confirm compliance to those pseudo soil concentration standards for herbicides. Therefore, I recommend that the INEL determine a statistically based average herbicide concentration on the remediated NCBC site. That information would be included in the NCBC Decision Document to defend the cleanliness of the remediated site.

To determine the average herbicide concentration, we would examine the existing grid system and soil maps to determine a statistically defensible sampling protocol for bottom of the hole samples. Once a sampling protocol is established, we would retrieve select archived bottom of the hole samples from storage at NCBC and send them to one of our contracted laboratories for herbicide analysis. Appropriate splits and blanks would be included in the analysis. The resulting data would be reported in the NCBC decision document.

Performance of this task is not without risks, however. There is a possibility that the average herbicide concentration will exceed acceptable limits. This could result in additional regulatory agency involvement which would certainly delay the return of the site to the Navy. One could also postulate an extreme case of additional remediation. However, I feel such action is unlikely. I cannot speculate on the likelihood of detecting an unacceptably high average concentration of herbicide.

I feel that this additional analyses is necessary because it is quite likely that either the regulating agencies or citizen groups will ask us for the herbicide data. By performing the analysis now, we not may only avoid additional costly delays but also appear pro-active. Most importantly, however, we are ethically (and perhaps legally) responsible to assure that the site does not represent a threat to human health or the environment.

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With your permission, I will begin planning the aforementioned tasks. Prior to work implementation, I will send you a cost estimate, task description, and assessment of any additional funds needed. Because these tasks are clearly covered under the existing scope of work, no change to the Program Management Plan will be necessary.

Please consider this proposal and then call me at (208) 526-9959, if you have any questions. In order for the INEL to commence with these tasks, we will need a letter of requisition. For your convenience, I have attached a draft letter that you may use as a model.

I look forward to hearing from you.

Very truly yours,



Daniel J. Haley  
Sr. Programs Specialist  
Waste Engineering Development

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Attachment:  
As Stated

cc: L. P. Leach, EG&G Idaho  
T. R. Sarros, NCBC  
Maj. M. Shelley USAF RDVW  
J. O. Zane, EG&G Idaho, (w/o Att.)

Attachment  
DJH-25-89

## DRAFT LETTER OF REQUISITION

Date

Reply to the Attention of: AFLEEVO

Subject: REQUISITION OF ADDITIONAL HERBICIDE ANALYSIS FOR  
REMEDiated NCBC STORAGE AREA

To Mr. D. J. Haley  
EG&G Idaho  
Idaho National Engineering Laboratory  
P. O. Box 1625  
Idaho Falls, ID 83415

1. This letter is in response to you letter of September xx, 1989 concerning the need for additional analysis of archived samples stored at NCBC. We concur with your assessment that such additional analysis is necessary to confidently demonstrate the cleanliness of the remediated site.
2. Please submit a cost estimate and work plan for the intended work. The work plan should include:
  - a. a description of how you intend to determine the correct number of samples to be analyzed.
  - b. a schedule of deliverables.
  - c. the estimated cost of the tasks including analytical costs, planning costs, travel expenses, and data analysis and reporting costs.

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J. J. Short  
Title