



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

N00164.AR.000296  
NSWC CRANE  
5090.3a

REPLY TO THE ATTENTION OF:

DRP-8J

August 12, 1997

Mr. Jim Hunsicker, Director  
Environmental Protection Department  
Department of the Navy  
Crane Division  
Naval Surface Warfare Center  
300 Highway 361  
Crane, Indiana 47522-5000

RE: Mix Recipe Selection  
Bioremediation Facility  
Naval Surface Warfare Center  
Crane, Indiana  
IN5 170 023 498

Dear Mr. Hunsicker:

The purpose of this letter is to follow-up in writing on our verbal agreement today between Chris Freeman of your staff, Adrienne Wilson of SOUTHDIV, Don Miller of MK, and myself of the final mix recipe selections that will be used during the Contaminated Soil Phase of the Pilot Scale Test at the Bioremediation Facility. The Mixes Recipes are as follows:

Mix 1:	POTW Sludge	25%
	Alfalfa	25%
	Sawdust	12.5%
	Wood Chips	12.5%
	Soil	25%
Mix 3:	Turkey Manure	25%
	Alfalfa	25%
	Wood Chips	25%
	Soil	25%

Mix 4:	Cow Manure	22.5%
	Chicken Manure	3.25%
	Potato Waste	10.75%
	Alfalfa	19.25%
	Sawdust	19.25%
	Soil	25%
Mix 5:	Turkey Manure	25.75%
	Potato Waste	10.75%
	Alfalfa	19.25%
	Sawdust	19.25%
	Soil	25%
Mix 7A:	Chicken Manure	3.5%
	Straw	71.5%
	Soil	25%
Mix 7B:	Chicken Manure	15%
	Straw	60%
	Soil	25%
Mix 8:	Chicken Manure	7.0%
	Cow Manure	10.0%
	Potato Waste	10.0%
	Straw	48.0%
	Soil	25%

These selections are hereby incorporated into your approved Pilot Scale Operations Plan.

The comments listed in Attachment I provide changes we discussed that should be made to the final version of the Interim Progress Report for the Pilot Scale Clean Soil Testing. Please make the appropriate changes and submit a revised final report within 30 days of the date of this letter.

It is our understanding that Day Zero of the Contaminated Soil Phase will begin on September 8, 1997. Our Agency will be sending contractor staff to split Day Zero samples during that week. Our contract has been asked to work directly with Chris Freeman on any logistical details for this event while I am out of the office. 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: Tom Linson, IDEM  
John Manley, IDEM  
Chris Freeman, NSWC  
Dave Beall, MK  
Don Miller, MK  
Adrienne Wilson, SOUTHDIV  
Harry Craig, Region 10  
Al Debus, WMB

# ATTACHMENT I

## Comments on the draft Interim Progress Report for the Pilot Scale Clean Soil Testing Naval Surface Warfare Center

1. Page 1-1, Section 1.1, Sentence 2

Change "...for as long as 60 days." to be the same as the text in the approved Ops Work Plan.

2. Page 1-1, Section 1.2, Sentence 3

Change "...obtaining the waste..." to "...obtaining concentrated waste..."

3. Page 2-1, Section 2.2, Par. 2, Sentence 1

Change "...oxygen readings..." to "...oxygen testing..."

4. Page 3-3, Section 3.2, Under Very Good

Add language to explain that the temperatures were brought down by timely contingency actions so that the high consistent temperatures do not mean that the temperatures will be killing the bacteria. Otherwise this contradicts the work plan that states you should have a optimum maximum of 60 degrees C.

5. Page 3-5, Section 3.3.7

Move this line to the next page.

6. Page 3-6, Section 3.4.4

Move this line to the next page.

7. Page 4-1, Table 4-1

Can Mix 7A really be rated since testing was not performed for two parameters. This gives an impression that the mix did well compared to others but all the facts are not known.

A rating column should be added prior to the economic factors, since U.S. EPA does not consider cost as a major deciding factor.

8. Page 4-1, Mix 3

Delete "Based on the desire to limit to one of the three turkey mixes" There is no limit established.

9. Page 4-2, Mix 4, Sentence 2

Change "...degradation previous full..." to "...degradation in other facility full.."

10. Page 4-2, Mix 5

State that "Mix 5 is also a duplicate of Mix 4, substituting turkey manure for the chicken and the cow. This will be an important comparison if the manure type impacts degradation.."

11. Page 4-2, Mix 7A

Indent the word "in."

Expand the context of spring months affecting ambient temperatures.

12. Page 4-2, Mix C

Change this text. You are selecting manure types that are the same as the Umatilla Mix, but the ratios are different to make up for the loss of nutrients from the alfalfa. And, the straw is meant to replace the alfalfa and sawdust bulking agents. Basically, the original mix c performed well with chicken manure only. You are trying to see if adding cow manure would help in degradation. Mix 7B will show if the chicken does well on its own.

13. Page 4-3, Table 4-2

Modify the table to list the Mixes identified in this cover letter.

SOUTHDIV and NSWC requested the addition of Mix 3 and Mix 7A due to cost reductions.

5.