



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 WASHINGTON, D. C. 20555

Dr. Charles G. Interrante, Program Manager
 Metallurgy Division - Corrosion Section
 National Institute for Standards and Technology
 U.S. Department of Commerce
 Gaithersburg, MD. 20899

Dear Dr. Interrante:

We have reviewed the September 1988 NIST Monthly Letter Report for FIN A-4171, "Evaluation and Compilation of DOE Waste Package Test Data." Comments on the MLR are presented below in Attachment 1.

Actions resulting from this letter are considered to be within the scope of FIN A-4171. No changes in costs or delivery of contracted products are authorized. Please notify me immediately if you feel this letter will result in additional costs or delay in delivery of contracted products.

Sincerely,

Charles H. Peterson
 Engineering Branch
 Division of High-Level Waste Management
 Office of Nuclear Material Safety
 and Safeguards

Enclosure: Att. 1

cc: w/Att. 1:

Dr. Neville Pugh, Director
 Metallurgy Division, NIST

Dr. David Anderson, Group Leader
 Metallurgy Division, NIST

8903170048 890314
 PDR WMRES EUSNBS
 A-4171 PDC

NHIT
 A-4171
 ulm-11

ATTACHMENT 1

COMMENTS ON THE MONTHLY LETTER STATUS REPORT
SEPTEMBER 1988 (FIN A4171-9)

Task 1 - Review of Waste Package Data Base

1. To facilitate comparisons between the current month and the previous month as well as to improve clarity, please present the material on the status of the database and the reviewable documents in tabular form, such as the following:

STATUS OF DATABASE

	<u>Current Month</u>	<u>Previous Month</u>
Number of citations		
Number of completed reviews		
Number of reviews in progress		

STATUS OF REVIEWS IN PROGRESS

	<u>Metals</u>	<u>Spent Fuel</u>	<u>Glass</u>	<u>Site Materials</u>	<u>Other</u>	<u>Total</u>
<u>Status of Document</u>						
Newly identified						
Received						
Categorized						
Category 1						
Cumulative						
Category 2						
Cumulative						
Category 3						

Thus, the current month's search may have located 20 documents that appear relevant to waste package concerns. At the least, all of these should be entered into the database by title, author, and source. Of the documents

ordered, perhaps only 14 are available and 12 are received. The meaning of the categories remains the same:

Category 1	Assign for review
Category 2	Review when time permits
Category 3	File with cross reference to other documents.

Of the 12 received, perhaps the distribution among categories is 5, 3, and 4. For the month, then, the number of Category 3 documents would be $20 - 12 + 4$ or 12. Presumably, these can be entered into the database readily so there is no carryover to the next month.

2. In view of the recent redirection of the NIST work on reviewing the DOE data base, many of the documents listed on pages 3 and 4 as "under review" or "to be reviewed as time permits" should now be entered into the NIST database without detailed review. NIST focus should shift to reviewing those documents which are relevant to the preparation of interpretive papers dealing with specific degradation phenomena for materials.
2. In the tabulation on page 4 showing the status of reviews not yet sent to the NRC, please indicate the name of the reviewer instead of merely an x. Also indicate the date the document was assigned. Similarly, indicate the date when the first draft of the review was completed.

Task 3 - Laboratory Testing

1. In anticipation of preparation of final reports on each of the laboratory investigations, please submit in the next monthly letter report:
 - a. Outlines for each such report.
 - b. Major details of test plans for the remainder of the test work contemplated for FY89 in the current projects.
 - c. Brief summaries of the major milestones reached and findings to date.
 - d. Recommended direction of any further work in these projects.
2. With respect to the study on detection of crack propagation, we are interested in answers to questions such as the following:
 - a. Is there evidence that the acoustic emission method is more sensitive than other methods, such as compliance?
 - b. Is the sensitivity of the acoustic emission method sufficient for detecting slow cracking of steels in a repository environment?
 - c. Will the stresses experienced by waste containers in a repository environment be similar in magnitude to those in the NIST test specimens?

3. In the work on resistivity and transport:

- a. How do the oxygen concentrations relate to those expected in the repository?
- b. What concentration gradient can be established?
- c. Is there any measurable effect of ion concentration on oxygen gradient?

4. In the work on Zircaloy:

- a. To what potential might the Zircaloy rods be exposed on contact with J-13 well water, and where is this on the potentiodynamic plot?
- b. What is the corrosion rate in the "passive" region, and how does this compare to the maximum permissible rate?
- c. Do these tests shed any light on long-term effects?

Financial Report

1. As discussed, please resubmit the financial report to show corrected figures for Pay Period 20. The balance at the end of FY88 will then be \$9766 in stead of \$93369.

Dr. Charles G. Interrante, Program Manager
 Metallurgy Division - Corrosion Section
 National Institute for Standards and Technology
 U.S. Department of Commerce
 Gaithersburg, MD. 20899

Dear Dr. Interrante:

We have reviewed the September 1988 NIST Monthly Letter Report for FIN A-4171, "Evaluation and Compilation of DOE Waste Package Test Data." Comments on the MLR are presented below in Attachment 1.

Actions resulting from this letter are considered to be within the scope of FIN A-4171. No changes in costs or delivery of contracted products are authorized. Please notify me immediately if you feel this letter will result in additional costs or delay in delivery of contracted products.

Sincerely,



Charles H. Peterson
 Engineering Branch
 Division of High-Level Waste Management
 Office of Nuclear Material Safety
 and Safeguards

Enclosure: Att. 1

cc: w/Att. 1:

Dr. Neville Pugh, Director
 Metallurgy Division, NIST

Dr. David Anderson, Group Leader
 Metallurgy Division, NIST

DISTRIBUTION WITH ATT. 1

Central File	NMSS/RF	HLEN/RF	
REBrowning, HLWM	BJYoungblood, HLWM	RLBallard, HLGP	JOBunting, HLEN
JJLinehan, HLPN	RAWeller, HLEN	CHPeterson, HLEN	KCChang, HLEN
DChery, HLGP	MSilberberg, RES		

CONCURRENCES

OFC	:HLEN	:HLEN	:HLEN	:	:	:	:
NAME	:CHPeterson	:RAWeller	:JOBunting	:	:	:	:
DATE	:89/03/14	:89/03/14	:89/03/14	:	:	:	: