



Department of Energy  
Oak Ridge Operations  
P.O. Box E  
Oak Ridge, Tennessee 37830

March 18, 1980

*File  
Solid Waste  
Shipments.*

Mr. J. E. Kunkel  
Metropolitan Edison Company  
Post Office Box 400  
Middletown, Pennsylvania 17057

Dear Mr. Kunkel:

#### WATER SAMPLE ANALYSES

Reference is made to my telecommunication message to you dated March 11, 1980, subject as above. Our investigation of your ten-sample shipment to ORNL on Thursday, March 6, 1980, which contained four (4) leakers, is complete. A report on the incident along with recommendations follows:

#### 1. Investigation Report

A 55-gallon drum (identified as a DOT Specification 7A) container was received at ORNL on Thursday evening, March 6, 1980, containing two types of water samples: (a) a Reactor Coolant Bleed Tank (RCBT) "Beta" sample reading ca. 1 R/hr, and (b) nine low-level water samples. Each was in a capped polyethylene bottle. The RCBT sample was inside a thin plastic bag, wrapped in a lead "blanket," and placed in the bottom of the drum. All other samples were placed in a plastic bag, wrapped with a lead blanket and put in an open bucket on top of the RCBT sample. The drum was then packed with rags and closed. The RCBT sample was crushed by the weight of other materials; about 20% of the liquid leaked out and was absorbed by the packing material, contaminating drum internals. When received, six of the other sample bottles were full, one was half full, one was one-third full, and one was empty. No information accompanied the shipment.

#### 2. Recommendations

- a. It is imperative that ORO and ORNL obtain the proper paperwork at a minimum of several days prior to receipt of the actual shipment. ORNL must have details about the contents of each shipment before any container is opened. There are potential

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safety hazard; without complete knowledge of the contents of the container and the samples themselves can be invalidated if not opened in a safe location and in a proper manner. ORO received its copy of the MEC letter on the ten-sample shipment on March 6, 1980, by facsimile. ORNL was provided a photocopy on March 10, 1980.

- b. In addition to the letter correspondence detailing what is intended to be shipped and the scope of work, we recommend that a diagram be provided which shows the location and identity of all samples in the container. This diagram should be provided with the initial paperwork and should also be affixed directly to the shipping container.
- c. High-level and low-level samples should be packaged separately. High-level samples are opened and processed under significantly different conditions.
- d. Double containment should be utilized. Plastic bottles tend to leak so they should be placed inside a second bottle and/or a heavy (sealed) plastic bag. Shipping containers are available that segregate bottles and contain them; these are preferred over bagging several bottles together.
- e. Plan to have your shipments arrive at ORNL during normal daylight working hours (preferably in the morning). Arrival of shipments after this time creates administrative problems, is expensive, and in event of sample leakage may be hazardous.

If you accept the above recommendations, we are willing to resume our working relationship under MSOF-ERD-79-058.

If you wish, we can make available to MEC, on a consulting basis, an ORNL employee who is an expert on shipping containers.

Sincerely,

*for* *RLE*  
Joseph A. Lenhard  
Assistant Manager for Energy  
Research and Development

ER-10:RLE

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