

*central file*



Oak Ridge  
Associated Universities  
Post Office Box 117  
Oak Ridge, Tennessee 37831-0117

MAIL ROOM  
RECEIVED AND  
DATE

January 26, 1989

*30-20934*

Mr. Frank Costello  
Region I  
Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Subject: ROYERSFORD SAMPLE DATA

Dear Mr. Costello:

Enclosed are the analytical results for 2 core samples and 1 vegetation sample provided to ORAU by Ms. Sophie Simon, Royersford Wastewater Treatment Plant. The core samples were taken from a test plot in which sludge from the secondary digester was placed in layers on top of a planter bed of gravel and sand. The vegetation was grown 6 months in this environment. There is up to a 10 times difference in the radionuclide concentrations of the two core samples. The reason for this is unknown. A possible reason for this would be an inhomogeneity of radionuclide concentrations in the sludge since the 2 core samples were taken at different locations within the plot.

If you have any questions or comments give me a call at (FTS) 626-9073.

Sincerely,

Scott A. Vical  
Health Physics Team Leader  
Radiological Site Assessment Program

SAV:jws

Enclosure

- cc: L. Rouse, NRC/6H3
- G. LaRoche, NRC/6H3
- D. Tiktinsky, NRC/4H3
- V. Tarpe, NRC/6H3

9306140241 890126  
REGD LYC30  
37-23341-01 CF

*1/27/89*  
*11*

*B/T*

TABLE 1  
ROYERSFORD TEST PLOT SAMPLES<sup>a</sup>

Radionuclide	Core Sample #1 (pCi/g)	Core Sample #2 (pCi/g)	Vegetation Sample (pCi/g)
Cr-51	<1.8	<1.5	<0.6
Mn-54	194.1 ± 4.0 <sup>b</sup>	17.7 ± 0.5	3.8 ± 0.1
Cn-68	12.2 ± 2.7	1.1 ± 1.0	<0.1
Fe-59	<6.0	<0.8	<0.1
Co-60	1039.0 ± 8.1	104.2 ± 1.0	1.4 ± 0.1
Zn-65	221.5 ± 8.0	18.5 ± 0.9	2.4 ± 0.2
Sr-90	44.4 ± 0.8	2.9 ± 0.2	37.5 ± 1.8 <sup>c</sup>
Zr-95	<4.6	<0.5	<0.1
Nb-95	<2.8	<0.3	<0.1
Ag-110m	<2.6	<0.3	<0.1
Sb-125	<6.3	<0.5	<0.1
Cs-134	25.5 ± 1.5	1.9 ± 0.3	0.5 ± 0.1
Cs-137	284.1 ± 3.7	24.8 ± 0.4	4.5 ± 0.1
U-234	8.0 ± 0.5	0.6 ± 0.2	<0.1
U-235	0.3 ± 0.1	<0.1	<0.1
U-238	4.9 ± 0.4	0.5 ± 0.2	<0.1
Pu-238	0.1 ± 0.1	<0.1	<0.1
Pu-239/240	0.7 ± 0.2	0.1 ± 0.1	<0.1

<sup>a</sup>Dry weight used unless otherwise stated.

<sup>b</sup>Uncertainties represent the 95% confidence levels, based only on counting statistics; additional laboratory uncertainties of 6 to 10% have not been propagated in these data.

<sup>c</sup>Ashed weight used. Ash to dry weight ratio 0.041.



Oak Ridge  
Associated  
Universities

Post Office Box 117  
Oak Ridge, Tennessee 37831-0117

*Tennessee*

*Ms. V. Dierpe*  
Office of Nuclear Materials  
Safety and Safeguards  
Nuclear Regulatory Commission  
Hall Stop 6H3  
Washington, DC 20555

