

  
**O R I S E**  
 OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

December 5, 2005

Mr. Theodore Smith  
 MailStop: T-7F27  
 Division of Waste Management  
 U.S. Nuclear Regulatory Commission  
 11545 Rockville Pike  
 Rockville, MD 20852

**SUBJECT: REPORT FOR ANALYSIS OF SOIL AND MISCELLANEOUS SAMPLES FROM  
 THE CONNECTICUT YANKEE HADDAM NECK PLANT, HADDAM,  
 CONNECTICUT [DOCKET NO. 50-0213; RFTA NO. 03-008]**

Dear Mr. Smith:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received fifteen soil samples and eleven miscellaneous (concrete) samples that were collected during the period of November 17, 2004 to July 21, 2005 at the Connecticut Yankee Haddam Neck Plant in Haddam, Connecticut. These samples were collected by Connecticut Yankee Atomic Power Company (CYAPCO) personnel. At the request of the U.S. Nuclear Regulatory Commission (NRC), these samples were submitted to the ESSAP laboratory and analyzed by gamma spectroscopy (Procedure CP1, Revision 15) for Co-60, Cs-137, Eu-152, Eu-154, and Eu-155 and by wet chemistry analyses for H-3 (Procedure AP6, Revision 15) and Sr-90 (Procedure AP4, Revision 13). The radionuclide concentrations for these samples are provided in Table 1.

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

If you have any questions or comments, please direct them to me at (865) 576-0065 or Scott Kirk at (865) 574-0685.

Sincerely,


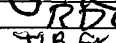
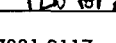


Wade C. Adams  
 Health Physicist/Project Leader  
 Environmental Survey and  
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WCA:db

Enclosure

cc: T. McLaughlin, NRC/NMSS/TWFN T-7E18 E. Abelquist, ORISE/ESSAP  
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Distribution approval and concurrence:	Initials
Technical Management Team Member	
Laboratory Manager	
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TABLE 1

**RADIONUCLIDE CONCENTRATIONS  
IN SOIL AND MISCELLANEOUS SAMPLES  
SUBMITTED TO ESSAP BY THE NRC  
CONNECTICUT YANKEE  
HADDAM, CONNECTICUT**

Sample Identification	Collected		Radionuclide Concentrations (pCi/g)						
	Date	Time	H-3	Co-60	Sr-90	Cs-137	Eu-152	Eu-154	Eu-155
<b>Soil Samples</b>									
89	3/16/05	1517	1.9 ± 1.5 <sup>b</sup>	0.06 ± 0.05	0.03 ± 0.22	0.00 <sup>c</sup> ± 0.11	0.00 ± 0.10	-0.13 ± 0.22	0.03 ± 0.06
90	3/16/05	1532	0.5 ± 1.4	0.01 ± 0.02	0.01 ± 0.23	0.02 ± 0.03	-0.02 ± 0.03	-0.03 ± 0.07	0.01 ± 0.02
91	11/17/04	1100	5.3 ± 1.6	0.02 ± 0.03	-0.04 ± 0.24	0.04 ± 0.03	0.01 ± 0.06	-0.02 ± 0.13	0.03 ± 0.04
92	11/17/04	1100	6.6 ± 1.6	0.02 ± 0.05	-0.04 ± 0.24	-0.02 ± 0.09	0.00 ± 0.10	-0.22 ± 0.21	0.03 ± 0.05
93	4/13/05	1012	0.5 ± 1.4	0.00 ± 0.04	3.88 ± 0.44	0.05 ± 0.04	-0.02 ± 0.09	0.10 ± 0.15	0.03 ± 0.05
94	3/16/05	0829	0.2 ± 1.4	0.01 ± 0.02	-0.03 ± 0.22	0.01 ± 0.03	0.01 ± 0.04	0.05 ± 0.07	0.07 ± 0.04
95	2/1/05	1030	0.7 ± 1.4	0.01 ± 0.02	0.01 ± 0.24	-0.01 ± 0.01	0.03 ± 0.03	-0.06 ± 0.06	0.02 ± 0.03
96	1/11/05	1545	-0.7 ± 1.4	0.01 ± 0.01	-0.23 ± 0.23	0.00 ± 0.01	0.01 ± 0.02	0.00 ± 0.05	0.01 ± 0.02
97	1/11/05	1545	-0.1 ± 1.4	0.02 ± 0.02	-0.16 ± 0.21	0.00 ± 0.01	0.00 ± 0.03	-0.03 ± 0.07	0.01 ± 0.02
98	6/8/05	1017	-1.4 ± 1.4	0.02 ± 0.03	-0.26 ± 0.21	0.14 ± 0.03	-0.01 ± 0.05	0.10 ± 0.09	0.10 ± 0.07
99	6/22/05	0955	0.6 ± 1.5	0.19 ± 0.05	-0.10 ± 0.23	0.84 ± 0.06	-0.03 ± 0.05	0.01 ± 0.09	0.04 ± 0.06
100	6/20/05	1430	0.5 ± 2.2	0.02 ± 0.03	0.08 ± 0.24	0.11 ± 0.03	-0.02 ± 0.04	-0.01 ± 0.10	0.02 ± 0.05
101	6/21/05	0900	0.0 ± 1.4	6.87 ± 0.28	0.19 ± 0.25	33.0 ± 1.2	0.00 ± 0.12	-0.16 ± 0.16	0.00 ± 0.09
102	7/21/05	0811	-0.1 ± 1.4	0.03 ± 0.02	-0.11 ± 0.22	0.25 ± 0.03	-0.02 ± 0.04	-0.01 ± 0.10	0.02 ± 0.03
103	7/21/05	0815	-0.9 ± 1.5	0.19 ± 0.05	-0.01 ± 0.23	0.79 ± 0.06	-0.02 ± 0.05	-0.03 ± 0.10	0.03 ± 0.05

TABLE 1 (continued)

**RADIONUCLIDE CONCENTRATIONS  
IN SOIL AND MISCELLANEOUS SAMPLES  
SUBMITTED TO ESSAP BY THE NRC  
CONNECTICUT YANKEE  
HADDAM, CONNECTICUT**

Sample Identification	Collected <sup>a</sup>		Radionuclide Concentrations (pCi/g)						
	Date	Time	H-3	Co-60	Sr-90	Cs-137	Eu-152	Eu-154	Eu-155
<b>Miscellaneous Samples</b>									
1	5/9/05	1515	3.4 ± 1.6	0.00 ± 0.04	-0.04 ± 0.22	-0.03 ± 0.04	0.04 ± 0.06	-0.01 ± 0.15	0.03 ± 0.05
2	5/9/05	1515	6.8 ± 1.7	-0.01 ± 0.04	-0.15 ± 0.22	-0.01 ± 0.03	0.04 ± 0.07	-0.16 ± 0.14	0.02 ± 0.06
3	5/9/05	1435	10.4 ± 1.9	0.04 ± 0.04	0.29 ± 0.25	0.00 ± 0.04	-0.02 ± 0.08	0.07 ± 0.20	-0.02 ± 0.06
4	6/9/05	1005	0.0 ± 1.5	0.03 ± 0.05	0.09 ± 0.23	0.08 ± 0.06	-0.08 ± 0.12	-0.09 ± 0.23	0.13 ± 0.11
5	6/9/05	1155	0.7 ± 1.5	0.03 ± 0.05	-0.07 ± 0.23	0.01 ± 0.03	-0.04 ± 0.06	0.01 ± 0.14	-0.02 ± 0.06
6	6/9/05	1400	-0.5 ± 1.5	0.01 ± 0.03	-0.11 ± 0.24	0.02 ± 0.03	-0.01 ± 0.05	-0.09 ± 0.10	0.01 ± 0.04
7	7/11/05	1005	-0.9 ± 1.4	0.00 ± 0.04	-0.04 ± 0.21	0.07 ± 0.06	0.00 ± 0.07	-0.01 ± 0.16	-0.02 ± 0.04
8	7/11/05	1100	-0.5 ± 1.5	0.00 ± 0.03	-0.17 ± 0.22	0.01 ± 0.03	0.05 ± 0.06	-0.02 ± 0.13	0.03 ± 0.04
9	7/11/05	1100	-0.4 ± 1.5	0.05 ± 0.04	-0.16 ± 0.19	0.01 ± 0.02	-0.03 ± 0.05	0.02 ± 0.12	0.01 ± 0.04
10	4/7/05	1350	3.1 ± 1.5	0.00 ± 0.04	-0.20 ± 0.21	-0.04 ± 0.04	0.01 ± 0.08	0.11 ± 0.17	-0.02 ± 0.06
11	4/7/05	1110	4.2 ± 1.6	-0.07 ± 0.07	-0.01 ± 0.23	-0.03 ± 0.07	-0.01 ± 0.15	-0.27 ± 0.40	0.05 ± 0.11

<sup>a</sup>Sample collection date and time provided by CYAPCO.

<sup>b</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

<sup>c</sup>Zero values due to rounding.