

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

December 22, 2004

Mr. Gene Bonano
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

**SUBJECT: ANALYTICAL RESULTS FOR SOIL SAMPLES FROM THE GREAT LAKES
NAVAL TRAINING CENTER, GREAT LAKES, ILLINOIS [DOCKET NO. 040-
08306] (RFTA NO. 05-001)**

Dear Mr. Bonano:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received seven soil samples on December 7, 2004 that were collected at the Great Lakes Naval Training Center, Great Lakes, Illinois between September 29, 2004 and November 30, 2004. The samples were analyzed by gamma spectroscopy for thorium-228 (Th-228) using the 238.63 keV photopeak of lead-212 and thorium-232 (Th-232) using the 911.07 keV photopeak of actinium-228 (Procedure CP1, Revision 14). The gamma spectroscopy results are presented 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, please call me at (865) 241-3242 or Wade Ivey at (865) 576-9184.

Sincerely,

Wade P. Ivey for
Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

Enclosure

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27 E. Abelquist, ORISE/ESSAP
E. Knox-Davin, NRC/NMSS/TWFN T8A23 T. Vitkus, ORISE/ESSAP
File 1646

Distribution approval and concurrence:	Initials	Date
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ORISE TABLE 1

**CONCENTRATIONS OF THORIUM
GAMMA EMITTING RADIONUCLIDES
IN SOIL SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 14
GREAT LAKES NAVAL TRAINING CENTER
GREAT LAKES, ILLINOIS**

ESSAP Sample ID	NRC Region III Sample ID	Radionuclide Concentrations (pCi/g dry weight) ^a		
		Th-228 by Pb-212	Th-232 by Ac-228	Total Th ^b
1646S0001	NRC-1	1.04 ± 0.09 ^c	0.94 ± 0.18	1.98 ± 0.20
1646S0002	NRC-2	4.35 ± 0.30	4.30 ± 0.40	8.65 ± 0.50
1646S0003	NRC-3	0.96 ± 0.09	0.92 ± 0.18	1.88 ± 0.20
1646S0004	NRC-4	0.76 ± 0.07	0.84 ± 0.15	1.60 ± 0.17
1646S0005	NRC-5	1.19 ± 0.09	1.23 ± 0.16	2.42 ± 0.18
1646S0006	NRC-6	0.21 ± 0.03	0.21 ± 0.07	0.42 ± 0.08
1646S0007	NRC-7	0.92 ± 0.08	0.99 ± 0.16	1.91 ± 0.18

^aThe average MDCs for these radionuclides are 0.04 pCi/g for Th-228 by Pb-212 to 0.11 pCi/g for Th-232 by Ac-228.

^bTotal thorium is the sum of Th-228 and Th-232.

^cUncertainties represent the 95% confidence level, based on total propagated uncertainties.