

# ORISE

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

October 14, 1997

Ms. Marie Miller  
U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

**SUBJECT: REPORT FOR ANALYSIS OF DUST SAMPLES FROM SHIELDALLOY METALLURGICAL CORPORATION, NEWFIELD, NEW JERSEY (RFTA NO. 97-24)**

Dear Ms. Miller:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) performed gamma spectroscopy analysis of four dust samples from Shieldalloy Metallurgical Corporation, located in Newfield, New Jersey. The samples were evaluated for natural uranium, thorium, associated progeny and other identifiable photopeaks. Results are presented in Table 1. Uranium concentrations ranged from 6.1 to 34.0 pCi/g for U-238. Ra-226 results were consistent with U-238 values in all samples except LP-1, demonstrating equilibrium in all samples except LP-1. Thorium concentrations ranged from 15.4 to 128.7 pCi/g for Th-232 and 16.6 to 131.2 pCi/g for Th-228 demonstrating equilibrium, except for LP-1 which shows the same lack of equilibrium for Th-232 as was demonstrated for U-238. No other radionuclides were identified above normal background levels. Per your phone conversations with Mark Laudeman on October 1, 1997, gamma spectroscopy analysis provided sufficient data for your purpose. Consequently, isotopic uranium and thorium analyses specified in the original RFTA were not performed.

Uncertainties represent the 95% confidence level, based on total propagated uncertainties. ESSAP's QC procedure was followed for these analyses and all QC results were within acceptable limits and are available upon request. The daily QC and detector background for the counting instrumentation used in the analyses were within acceptable limits.

If you have any questions, please call me at (423) 241-3242 or Mark Laudeman at (423) 576-3561.

Sincerely,



Dale Condra  
Technical Resources Manager,  
Environmental Survey and  
Site Assessment Program

RDC:MJL:ma

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**TABLE 1**  
**RADIONUCLIDE CONCENTRATIONS**  
**IN DUST SAMPLES**  
**SHIELDALLOY METALLURGICAL CORPORATION**  
**NEWFIELD, NEW JERSEY**

ESSAP Sample ID	NRC Region I ID	U-238 based on Th-234	Ra-226 based on Pb-214	Th-232 based on Ac-228	Th-228 based on Pb-212
695M001	LP-1	9.4 ± 1.5 <sup>a</sup>	22.8 ± 1.7	47.9 ± 4.9	27.6 ± 1.7
695M002	LP-2	25.3 ± 5.7	25.5 ± 2	80.4 ± 8.4	84.7 ± 5.4
695M003	LP-3	6.1 ± 1.7	5.5 ± 0.5	15.4 ± 1.7	16.6 ± 1.1
695M004	LP-4	34 ± 6.5	36.3 ± 2.9	128.7 ± 13.4	131.2 ± 8.3

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

