UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

December 13, 1996

John McCloud, District Manager
Acton Water District
P.O. Box 953
Acton, MA 01720

Subject: RESULTS OF SOIL SAMPLES OBTAINED FROM ACTON WATER DISTRICT PROPERTIES

Dear Mr. McCloud:

With your permission, on December 5, 1995, representatives of the U.S. Nuclear Regulatory Commission (NRC) and the Commonwealth of Massachusetts Department of Public Health, Radiation Control Program (MDPH-RCP), obtained a soil sample (G-1) from the Acton Water District Property located near Knox Trail. In addition, a second soil sample (J-1), was taken from the field to the rear of your facility, to be representative of natural background. These samples were brought back to the NRC Region I laboratory and MDPH-RCP laboratory and analyzed for the concentration of uranium-238 (U-238) in the soil. The analysis would determine if there were concentrations of U-238 from depleted uranium processing at Nuclear Metals, Inc., (NMI), in addition to naturally occurring U-238.

The amount of naturally occurring U-238 varies in soil sampled from areas in Massachusetts at least 5 miles from NMI. Gamma spectrometry results from past and present soil sampling conducted by the NRC, MDPH and the Oak Ridge Institute for Science and Education (ORISE) range from 0.7 to 5.0 picocuries per gram (pCi/g) of U-238 in soil, with an average background for U-238 of 1.9 ± 1.1 pCi/g of soil. Sample J-1 indicated a background U-238 concentration of 3.1 pCi/g. The NRC and MDPH-RCP results for sample G-1 indicated a U-238 concentration of 1.3 pCi/g and 2.0 pCi/g of soil, respectively. The criteria that the NRC is using to determine when soil remediation is necessary for residual uranium contamination from NMI is 35 pCi of depleted uranium per gram of soil. Based on the results of analyzing this sample, the measured soil concentration is within the range typical for natural background in the area. The 35 pCi/g of soil concentration specified by the NRC may be compared with naturally occurring uranium ore concentration of 1.3 pCi/g in igneous (volcanic) rock, 1.9 to 4 pCi/g of uranium in western Pennsylvania soils, 50 to 80 pCi/g of uranium in Tennessee bituminous shale and 120 pCi/g uranium in Florida phosphate rock.

Enclosed for your information is a copy of the Joint Report of Offsite Soil Sampling by the MDPH-RCP and NRC RI. Should you have any questions, please contact me at (610) 337-5200 or Marie Miller of my staff at (610) 337-5205.

Sincerely,

Ronald R. Bellamy, Chief
Decommissioning and Lab Branch
Division of Nuclear Material Safety

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PDR

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Enclosure: Joint Report

cc: w/o encl.
Mr. Doug Haley
Acton Health Department
472 Main Street
Acton, MA 01720