



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 09 1979

Mr. William Cliadakis
175 West 93rd Street
New York, NY 10025

Dear Mr. Cliadakis:

This acknowledges receipt of your letter to the Director, Office of Administration, U.S. Nuclear Regulatory Commission, expressing your concern with radioactivity of the two mineral specimens--Carnotite and Samarskite--you have in your apartment.

According to our information partly obtained from the reference A Dictionary of Mining, Minerals, and Related Terms, 1968, published by the U.S. Department of Interior:

Carnotite has the chemical composition $K_2(UO_2)_2(VO_4)_2 \cdot 3H_2O$. It is strongly radioactive and is used as a source of radium. Radioactive elements possibly present in this mineral, besides uranium, are potassium and radioactive decay products of uranium including radium. Vanadium in carnotite is not radioactive.

Samarskite has the chemical composition $(Y,Er,Ce,U,Ca,Fe,Pb,Th)(Cb,Ta,Ti,Sn)_2O_6$. It is moderately to strongly radioactive. Radioactive elements possibly present in this mineral, besides uranium and thorium, are radioactive decay products of uranium and thorium. Thorium, and some isotopes of lead in samarskite are themselves members of the radioactive decay chain that begins with uranium. Yttrium and cerium in samarskite are not radioactive.

Regarding other questions in your letter, we do not believe that your mineral specimens pose a significant hazard to you. However, since it is difficult to evaluate the different types of radiation which may be present in your specimens without making measurements, we advise you to contact Mr. James McLaughlin, Director of Environmental Measurements Laboratory, U.S. Department of Energy, New York, N.Y. 10014, and arrange an appointment to bring in your samples. This laboratory is equipped to perform measurements on your specimens and provide you guidance on the basis of the results of measurements as to how you should handle or store them.

Sincerely yours,

Frank J. Congel, Acting Chief
Radiological Assessment Branch
Div. of Site Safety & Env. Analysis
Office of Nuclear Reactor Regulation

cc: Mr. James McLaughlin

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