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Atomic Energy Commission

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BAPEL  
1979

JK

Gentlemen:

Because of the mishap at the Three Mile Island nuclear plant we have begun to question the safety of radioactive materials in our apartment. Since we have no experts to advise us perhaps you could help us in terms of guidelines and suggestions.

I am a former geologist and keep two known radioactive mineral specimens in a mineral display cabinet.

The first is approximately 8 oz of carnotite, primarily yellowish although with purple in a sandstone (quartzose type material) texture which I assume is approximately 2-3% uranium oxide. The sample was found in a Kerr McLee copper uranium mine in central Wyoming, perhaps near Rawlins.

The second mineral specimen is a 4 or 5 oz piece of solid, very dense samarskite I do recall from 20 years back that it was highly responsive to a scintilometer at 20 feet and possibly as much as 40 feet distance despite its relatively small size.

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Among the questions we have are the following: In light of new minimal guidelines relative to cumulative frequency what kind of a problem do we have in terms of passing by these two specimens perhaps 20 times a day at four feet distance and 100 times at 10 feet distance?

2) Since Smaragdite contains rare earth minerals rather than uranium, does the radioactivity from these other sources affect us differently than uranium? Is cerium and yttrium radio active? Do these affect us differently?

3) Would small amounts of possible radium in the carnotite have a different affect than the radonium in the mineral?

4) Is vanadium, which is present in the carnotite, radioactive? What if any is its impact?

5) Is it OK to handle these minerals occasionally.

6) Should these be kept in lead shields? How thick? Where can you obtain the lead shields? Is there a government agency nearby that could precisely measure the potential danger of these minerals?

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Any information or suggestions  
you could give us would be very  
much appreciated.

Very truly yours,

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