COLORADO DEPARTMENT OF HEALTH

Richard D. Lamm
Governor

Frank A. Traylor, M.D.
Executive Director

September 23, 1983

John E. Baublitz, Director
Division of Remedial Action Projects
Office of Terminal Waste Disposal
& Remedial Action
Office of Nuclear Energy, NE-24
Department of Energy
Washington, D.C. 20545

Dear Mr. Baublitz:

After several months' experience in observing the gradual reduction in the number and extent of tailings deposits the DOE deems significant enough to warrant corrective action, the Colorado Department of Health has decided to approve or officially concur on only those remedial action plans that address adequately all the contamination on each site.

The currently-used DOE criteria for deciding what deposits are significant enough to warrant corrective action are, in our opinion, seriously flawed. In reality, the majority of the significantly contaminated sites are not wind-strewn but buried deposits. The current DOE procedure is to rely heavily on surface in-situ measurements (gamma) that can only detect contaminating deposits within a few inches of the surface. Additionally, this aspect of the technique cannot determine where in the material volume, the contamination is located. This procedure also utilizes auger hole and logging data to determine depth of deposits and then utilizes that data in calculations of volume of deposits and radioactive concentration of the entire deposit. However, in most instances there is only one such measurement per $100m^2$ area and this hole's logged contamination depth accuracy is plus or minus 2-3 inches. Also, the logging data value for radium content has an error range. The intended use of these measurements should be to obtain a "ball-park" idea of depth and volume of contamination. However, as these are now being used, the DOE procedure is considered to be able to accurately measure to the nearest centimeter the depth of a deposit and to within 1 pCi the radium content, as that is the precision represented when this information is used in the radium content formula. This is done regardless of the known problems and error terms seriously limiting the accuracy of each of the measurements.

4210 EAST 11TH AVENUE DENVER,COLORADO 80220 PHONE (303) 320-8333

Our experience in the Grand Junction Remedial Action Program and the Grand Junction Building Permit Gamma Survey Program shows that most tailings deposits are partially or completely buried, and therefore partially or completely shielded. Bore hole logging helps to locate and partially define these deposits, but it cannot be used to accurately define either the extent of the deposit or its volume, as in all cases the boundaries of the deposit are irregular.

It has been the experience of the Colorado Department of Health that, quite often, in cleaning up very small and seemingly insignificant surface deposits to background levels, the very small amounts of contamination were often found to be the wispy edge of very large buried and shielded deposits, which were producing radon affecting the structures. All efforts at placing auger holes in the most likely spots had failed to detect these deposits or had failed to show their true extent and intensity. Only by cleaning up all contaminated areas to background were we able to reasonably expect to have defined and eliminated the bulk of the radon-producing tailings deposits.

The pre-remedial engineering assessments done on over 500 GJRAP locations, coupled with over 700 building site removal efforts over the past 11 years, have taught the State, at least, to trust only total removal to background levels of all detected deposits within 10 to 30 feet of a structure, if we expect to significantly reduce or eliminate the effects of a tailings deposit on a structure (current or future).

Our experience also indicates that we have been unable to locate some buried deposits despite our best efforts, and since we do not or cannot expend our resources in augering and logging every 5 square feet of ground around structures, there will be some buried deposits undetected and left behind. For that reason, it is important that we remove everything that we do find. The reassignment of problem locations in GJRAP clearly illustrates the wisdom of this concept.

We urge DOE to re-examine its policy and procedures as they pertain to the concerns expressed above. CDH has found itself in a position of being asked by DOE to approve remedial action plans we cannot recommend as to appropriateness, completeness or accuracy. The current DOE policies and procedures, at best, will result in an incomplete effort that only slightly reduces the off-site tailings problem and creates a situation where it will be necessary to deal with these newly buried deposits either at the expense of property owners under much more difficult and expensive conditions or require the location be redone under the program.

We will be happy to meet with DOE to address this problem at your earliest convenience. However, we find that the State's position must be clear: "that remedial action plans will be approved by the State only if those plans address all contaminated areas on the location in such a manner as to insure adequate clean-up and control."

Sincerely,

Albert J. Hazle, Director
Radiation Control Division

AJH/ms

cc: James Morley
Michael Tucker