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April 5, 1984

Mr. Ed Kennedy  
Director of Environmental Affairs  
Homestake Mining Company  
P.O. Box 93  
Grants, New Mexico 87020

Dear Mr. Kennedy:

The attached accidental overexposure report is provided for your information and use.

Sincerely,

*C. Kelley Crossman*

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Uranium Licensing Section

CKC/cvg

enc.

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## URANIUM MILL THORIUM 230/PCB CONTAMINATION

While accomplishing a soil decontamination of their old uranium mill, the Cotter Corporation did experience difficulties in properly disposing of materials contaminated with Th-230 and polychlorinated biphenyls (PCBs) and in maintaining airborne radioactive materials concentrations below the MPCa. As the contamination involved both radioactive and hazardous materials, they could not be disposed of at either a Low-Level Radioactive Waste Disposal Site or a Hazardous Waste Disposal Site without separating the materials.

The project was a soil decontamination at their old Catalyst Plant from November 28, 1983 to January 23, 1984. Sixty-one (61) employees worked on the project during which potential (respirators were used) overexposures occurred involving twenty-seven (27) of the employees.

The gamma levels were in the 0.02 mR/h range. A work permit system was used to control the operation of the project. Air sampling, both routine and special, and both general area and breathing zone, was at a higher frequency than is normally the case as specified in their procedures manual. Gross Alpha results were used for comparison against the MPCa for Th-230. The MPCa is  $2 \text{ E-12 } \mu\text{Ci/cc (soluble)}$ .

Bioassay samples (urine) were analysed for Th-230. The bioassay results were used as follows:

0.05 pCi/L	Resample
0.1 pCi/L	Investigate
0.2 pCi/L	Remove the individual from the work area

Airborne concentrations ranged from  $< 1$  to 173.4 MPC-hrs/day or 21.68 times the standard on an 8-hour-day basis. The highest air concentration measured was  $3.95 \text{ E-11 } \mu\text{Ci/cc}$ . Urine levels were measured up to 0.64 pCi/L. Such elevated urine levels dropped to 0.00 pCi/L upon the individual's removal from the work area.

Colorado's investigation of this incident is continuing.

Recognizing that the residues which resulted in the elevated Th-230 concentration were due to the materials involved (presumably Belgian Congo Raffinates) and that in order to accomplish the separation of the PCBs from the Th-230 required total dewatering of the contaminated soils, these levels of overexposure may not be experienced at other such facilities. However, this situation points out that PCB contamination may be experienced in such mills where maintenance was performed on the transformers, dryers, etc., and other such equipment. According to Cotter, this may not be an uncommon situation from past operations prior to PCBs being banned. Provision must be made for proper disposal of such material.

3/5/84