

Yes, per
10 CFR 20.2201(b)
10 CFR 20.2201(a)(ii)

James J. Olson
TCRC Closure Team
201 Federal Drive (Ft. Snelling)
St. Paul, MN 55111
Phone: 612-725-0737 (Ext: 4560)
Fax: 612-725-0800
Internet: olson@tcrc.usbm.gov
May 28, 1997

Department of Interior

U. S. Nuclear Regulatory Commission
Regional Administrator, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Re: NRC Materials License 22-19667-01 - 03019058
Missing Source Material

Dear Sir:

On May 28, 1997 we reported by telephone to the NRC Operations Center in Rockville, Maryland the information contained in this letter. That telephone report and this letter are in accordance with 10 CFR 1.20.2201 "Reports of theft or loss of licensed material".

We are hereby reporting that five Becon® smoke detectors, each containing less than 5 mCi Krypton-85, are presently unaccounted for from our inventory (copy enclosed). These smoke detectors are identified as follows:

<u>Item No.</u>	<u>Manufacturer</u>	<u>Manufacturer Serial No.</u>	<u>USBM#</u>
15	Wormald International	C121B/0001-81	7275
33	Wormald International	C121B/2471-81	7271
52	Wormald International	B122B/A80-1593	N/A
53	Wormald International	B122B/A80-1594	N/A
54	Wormald International	B122B/A80-1595	N/A

These units are Becon® Mk II Ionization Smoke Detectors which were designed for early warning fire detection in the mining industry. The units consist of a right circular cylindrical, white, molded plastic body 10 in. high by 7 in. OD, with a black cap sometimes installed. The radioactive source material is KR-85 gas sealed in a glass vial of wall thickness 0.2 mm. The glass vial is held in position by a flexible shock mount. Once assembled, the low mass per vial combined with the flexible shock mount give a high degree of immunity to mechanical shock. Since their introduction in the early 1970s, approximately 3000 of these units were installed in

9706260292 970528
PDR ADOCK 03019058
C PDR



1E-72

JUN 02 1997

South African gold mines with no reported instances of vial breakage. The units were marked with radiation tri-foil and warning. They may or may not be identified as property of the U. S. Bureau of Mines, Twin Cities Research Center. There is no known exposure to any individuals as a result of this occurrence.

Over the last year, we have been actively involved in resolving issues associated with the closure of the U. S. Bureau of Mines Twin Cities Research Center (TCRC) and the termination of our NRC Materials License. One key element of the license termination process has been to conduct a final inventory and disposition of the source material. In preparation for the License Termination Survey at TCRC, all available historical data on the Becon® smoke detectors used since 1983 was integrated into a single database. In performing an actual hands on inventory (May 8, 1996), it became apparent that several units listed on the inventory were not located where the inventory stated and some of the units were not at any known location. We started to search around TCRC and also to inquire about the Becons® that had been used in underground mines throughout the United States. During this inquiry we talked to ex-employees and mining company representatives. These initial searches went on for several weeks as part of the initial attempts to gather the facts necessary to close out our NRC License. Some of the inventory discrepancies were resolved, but others remained.

We then explored several alternatives for getting help in closing out the license and finally, in early 1997, obtained a contract with Dynamac and ATL International. Representatives from these firms came on site during the week of February 24-28, 1997 and helped with the disposal of source material that was found and located on site or at a remote location.

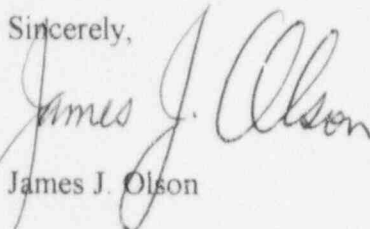
When all material at all locations was reinventoried on February 26, 1997, as part of the preparation for the final steps in the license closure, it was confirmed that six Becon® smoke detectors were still missing. We discussed this problem with our contractors and decided to conduct some additional searches and inquiries. Accordingly, equipment was removed completely from one area of the center that ex-employees had identified that was occasionally used as a place for staging the Becons® prior to field trips. It was during this process of equipment removal, on March 17, 1997, that one of the missing Becons® was found. We followed up with an exhaustive search of TCRC buildings, and more interviews with former TCRC employees. In addition more calls were placed to mining company representatives and ex-employees of equipment supply firms that had cooperated with the U. S. Bureau of Mines during the years when active field research in fire detection and warning had taken place. None of these efforts turned up additional leads for locating any of the missing Becons®.

Three of the units identified as missing on the list were carried on two old inventories dated June 1983 and March 1984. From that time forward, these units were not included on any other inventory, nor were mentioned in any notes or correspondence found in the TCRC files. All efforts to find these Becons® or either of the other two missing units have been unsuccessful.

In summary, an exhaustive search of TCRC buildings, interviews with former TCRC employees, and with personnel or ex-employees of mining companies and equipment supply firms that had cooperated with the Bureau have yielded no further information on the missing units. The complete, detailed report on the search for these missing units will be included as part of the Nuclear Materials License Termination Report. The possibility exists that the missing Becons® were at some point returned to a commercial vendor for maintenance or remanufacture and that the serial numbers were changed. However, present documentation of the many historical events surrounding the use of the Becon® detectors in the Bureau's fire detection and warning programs, while voluminous, does not document this occurrence.

If you have any questions regarding this information, please give me a call.

Sincerely,



James J. Olson

cc: Bob Doyle, U. S. Bureau of Mines Closure Team, DOI, Washington, DC
Harvey Blank, Office of the Solicitor, DOI, Washington, DC
Ken Morin, Bureau of Land Management, Denver, CO
Howard Dahlby, TCRC Closure Team, Twin Cities, MN
Shelby Leonard, ATL International, Los Alamos, NM

Summary of Bacon Inventories (1983 to Present)

[illegible]