June 9, 1997

MEMORANDUM TO: C. F. Frazier, Acting Chief, Materials Licensing Branch

FROM: B. L. Jorgensen, Chief, Decommissioning Branch Orig. Signed by

SUBJECT: DB REVIEW FINDINGS REGARDING AN U.S. ARMY LICENSE TERMINATION (CONTROL NO. 398206)

As requested in the MLB June 5, 1997, Technical Assistance Request, my staff has reviewed the licensee's June 25, 1996, letter (with attachments) requesting termination of source material license SUB-1340.

Based on our review of the attachments and license back-up information, and our evaluation bounding the potential dose to an individual, we believe that this license can be terminated, if an accountability provision, cited below, is addressed. Further, we do not believe that confirmatory survey(s) are warranted based on the minimal hazard associated with these sources.

The bases for the above position are as follows:

1. The Army has attempted to recall these sources over a number of years, with four recalls for disposal of the check sources since 1978. The Army believes they have identified the majority of the sources distributed. If there are other sources in the public domain they are not being identified by repeated recalls and that further recalls may not be productive.

   Mr. Thomas Young, NRC Region III inspector who inspected this license on January 29 and 30, 1997, was contacted and asked about the above. Mr. Young indicated that the Army's conclusion was valid. It was also indicated that the Army was in the process of conducting one last recall. This recall and resulting information could be handled via one of the positions described below.

   Since the Army possesses several licenses, whether or not this license remains active or is terminated is not the issue. The issue is what will be done if a source is identified after this license has been terminated, and should the Army be requested to take additional steps to insure the NRC that more of these sources do not remain in the public domain.

As far as terminating the license, we believe that it would be unwarranted to delay the termination request, in light of the actions taken by the Army to date to recall the sources. However, the issue regarding the discovery of another source after the license has been terminated can be addressed by adding a line item to another of the Army's active licenses.

Since there is some question about the total accountability of these sources, we believe it would be prudent to recommend to the Army that a line item be added to an Army license authorizing the possession of these sources, unless they already possess a license which authorizes possession of these materials for disposal.

2. The potential radiation doses from exposure to the uranium 238 (U_3O_8) contained in the check sources (ingestion or direct exposure) are negligible. Uranium 238 (U_3O_8) is classified as solubility class Y, and would essentially pass through the body without contributing any dose. Further, the dose due to direct body contact would be low, since the material predominately emits alpha particles. Since the uranium 238 (U_3O_8) has already been physically and chemically reduced, it is not feasible that any further mechanical or chemical processes normally encountered in the public domain would create a inhalation exposure problem.

   Review of the license back-up information revealed that these sources are large in size (Model M-7 (1 - 1/8" x 4" x 5 - 1/4"), M-8, 1 3/8" in diameter), as well as being labeled. The M-7 source is labeled "Danger Radioactive Material, Radioactive Test Sample, Uranium, Alpha, M-7, 100,000 +/- 20% cpm: Alpha, Date of MFR, If found notify military authorities, (with the radiation symbol imprinted on the source with the printing)." The M-8 source is labeled "uranium oxide (with radiation symbol imprinted on the surface with the print)." Therefore, in light of the labeling, size and the security provisions associated with the use of these check sources (nuclear missile sites), it is unlikely that many of the check sources (if any) would have been lost to the public domain.

   The license back-up information indicated that the total quantities of uranium 238 per source was 0.002 pounds for the M-7 and 0.0002 pounds for the M-8 source. This calculated to be approximately 0.54 microcuries for the largest source. Appendix B of Part 30, *Quantities of Licensed Materials Requiring Labeling* indicates that natural uranium would not require labeling if less than 100 microcuries.

3. Notwithstanding the above, the provisions of 10 CFR 40.22, *Small quantities of source material*, may be another alternative for addressing further discovery of sources. If MLB determines that other Army license provisions would not conflict, and it is believed that the accountability issue has been satisfactorily addressed in an Army license, further action may not be warranted.

Should you or your staff have any questions, or need clarification of the above, please do not hesitate to contact me or Mr. McCann.

cc: L. Hueter, RIII

bcc: PUBLIC (IE 07)

License No. SUB-1340
Docket No. 040-08700

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