FEB 7 1977

MEMORANDUM FOR: Part 40 Files

FROM: J. Henry, Transportation and Product Standards Branch, SD

SUBJECT: TELECON CONCERNING THORIUM-COATED LENSES

On February 3, 1977, J. Brown, NMSS, called to say that he had received an inquiry from John Goodyear, Hughes Co., California, about infra-red lenses coated with thorium tetrafluoride. Mr. Brown asked me to call Mr. Goodyear (213-391-0771, Ext. 6309).

Upon calling Mr. Goodyear, I learned that his organization is manufacturing a forward looking infra-red instrument for transfer to Chrysler Corp. for ultimate use by the Department of Army. The contract for lenses in the Hughes system specifies that the lenses contain no more than 0.05% by weight thorium, per 10 CFR 40.13 (a). Mr. Goodyear could not see how he could meet that contract specification unless he summed up the weight of the lens and the coating and then divided that weight into the weight of the thorium tetrafluoride coating.

I told Mr. Goodyear that the contract specification was not appropriate for germanium lenses coated with thorium tetrafluoride. (The question of treating the coating as part of the lens in order to make the coated lens exempt from licensing has been raised before by the U. S. Air Force.) I read to Mr. Goodyear portions of two letters sent to the U. S. Air Force in 1974 that stated: (1) the coating is greater than 75% by weight thorium and must be considered as source material; and (2) the thorium is not distributed in the finished lens, but is a coating on the lens. Thus, the coated lenses are not exempt under Sec. 40.13(a) that exempts any material containing less than 0.05% source material or under Sec. 40.13(c)(7) that exempts finished optical lenses containing less than 30% thorium.

Together, Mr. Goodyear and I worked step by step through the subcontractor-vendor-contractor process in which commercial and industrial firms may, for commercial purposes make, test, install, and transfer coated infra-red lenses under a general license for small quantities of source material (10 CFR 40.22 (a) (4) or Agreement State equivalent. Mr. Goodyear said that he would negotiate with the contract writer to get the thorium coating specification changed to a maximum weight of thorium per lens, and if he couldn't explain the needed difference in specifications, he would ask the Chrysler person to call the NRC.

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The contract specification referencing 10 CFR 40.13 (a) stems from a military standard, MIL-G 174-1974, that places the 0.05% by weight source material limit on glass used in lenses. Apparently, the contract writer did not recognize the contract specification differences between glass, which is transparent to light, and germanium, which is transparent to infra-red (but opaque to light).

[illegible] Signed by
[illegible] J. Henry

James J. Henry
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