



UNITED STATES
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

FEB 23 1972

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J. P. O'Reilly, Director
CO - Region I

REQUEST FOR INVESTIGATION
SPECTACLE LENSES CONTAINING
THORIUM - REFERENCE - MEMO TO FILES
DATED 1/24/72 FROM CO:V, ENCLOSED

Recently, routine radiation surveys of personnel at Mare Island Naval Shipyard have disclosed low level radioactivity on spectacle lenses in safety glasses issued by Mare Island to their employees. Analysis of the lenses by Mare Island disclosed that they contain thorium which is used to alter the refractory properties of glass. As the enclosure indicates, the survey showed that 6 pairs of prescription glasses (out of 125 pairs surveyed) contained varying amounts of thorium. Mare Island was advised to contact their supplier (American Optical Co.) to request them to provide spectacle lenses free of thorium.

10 CFR 40 appears to be ambiguous with respect to this kind of problem. Discussions with a representative of REP confirmed that the intent of the regulations is to prohibit the use of thorium in eyepieces. However, commercial firms, under the general license provisions of 10 CFR 40.22, can use up to 15 lbs. of thorium at any one time for any commercial purpose including the introduction of thorium into glass and subsequent grinding and polishing of lenses. Once the lenses are ground and polished, the lenses are exempt from regulatory control (provided they contain less than 30% by weight of thorium) under the provisions of 40.13(c)(7). However, this exemption does not authorize the receipt, possession or use of thorium contained in contact lenses, or in spectacles or in eyepieces. Therefore, wearers of contact lenses or spectacles containing thorium technically would require a specific license. Again, however, the intent of the regulations is to preclude the use of thorium in eyepieces rather than attempt to license the wearers.

In order to determine what type of regulatory action may be appropriate, such as changing or clarifying the regulations (which appears to be the real basis of the problem), we need to better understand the scope of the problem. This would require an examination of the mechanisms of the glass manufacturing operations, such as whether the thorium is introduced into glass in the United States (or abroad and imported) and who performs the polishing and grinding operations and the distribution of finished lenses. Therefore, we request that CO:I conduct an investigation to determine the operations involved in the chain. It appears that such investigation should begin with American Optical Company in Southbridge, Massachusetts,

EXHIBIT A

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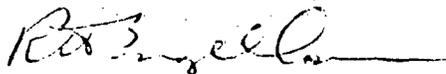
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Request for Investigation
Lenses Containing Thorium

because the thorium lenses found at Mare Island were supplied by that firm and they are a major lens supplier. However, American Optical should be informed that the purpose of the investigation is to obtain information as to the use of thorium in glass and in particular, the thorium glass that ends up in eyepieces in order that AEC may evaluate whether present regulatory controls are adequate. And, in keeping with earlier studies by CO on other types of general licensees, we would not expect to take any enforcement action based on the results of this investigation. Also, we should be careful not to imply that there may presently be a serious health problem.

We have also enclosed a letter from the Department of the Army Materiel Command dated August 16, 1971, with enclosures, asking for an interpretation of "eyepiece" as it pertains to the regulations with respect to a complex lens system. The enclosed letter of interpretation by OGC dated September 17, 1971, concludes that such an eyepiece is exempt from the regulations because of the intervening material between the eye and thorium lens. We should, therefore, be cognizant of this difference in eyepieces during the investigation.

In this investigation effort, we may need to obtain samples of glass or lenses for analysis. If it is determined that samples are needed, we can establish a system for payment of the samples. It is also suggested that you contact Gen Roy prior to initiating the investigation to discuss the matter further and to offer any suggestions you may have.


R. H. Engelken, Assistant Director
for Inspection and Enforcement
Division of Compliance

Enclosures:

1. Memo to Files dtd 1/24/72 frm
CO:V re: Spectacle Lenses
Containing Thorium
2. Ltr dtd 8/16/71, w/enclosures,
frm Dept. of Army Materiel Command