

ENGELHARD INDUSTRIES, INC.

D. E. MAKEPEACE DIVISION

PINE & DUNHAM STREETS
ATTLEBORO, MASS.
ATTLEBORO 1-0080

Myrtle-5-9358

April 24, 1961



Director, Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: Report of Radiation Overexposure in Accordance with
Standards for Protection Against Radiation, Part 20,
Par. 20.405.

Gentlemen:

On March 27, 1961, a film badge exposure report was received from Controls for Radiation, Inc. listing radiation exposures for the period 2-6-61 - 3-5-61. Using the data from this report, it was determined that two (2) of our personnel had exceeded allowable quarterly doses as specified in Title 10-Part 20-Par. 20.101. A copy of form AEC-5 for each man is enclosed showing his cumulative radiation exposure for 1961. The two (2) men, each of whom is a melter, were transferred to other jobs involving little or no radiation exposure on March 28, 1961.

An investigation was immediately started in an effort to determine the cause of exposure. As shown on form AEC-5, film badge reports indicated that films were contaminated, which prevented an accurate evaluation of exposure. This fact was confirmed through a visit to Controls for Radiation where the films involved and numerous others showed large amounts of contamination. Upon request, Controls for Radiation made a re-evaluation of the films, and submitted their report, a copy of which is attached.

The main source of exposure to the two (2) men in the course of their normal work is beta radiation which would be received from the radioactive decay of U-238 while melting depleted uranium ingots. Surveys of the melting

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area are taken quite frequently and beta levels as high as 5,000 mr/hr. have been noted on crucibles used in melting 350 pound depleted uranium ingots. Exposure to personnel is effected by the handling of crucibles and molds, and also by entrance into the furnace chamber for short periods of time. It is evident that film badges become highly contaminated during the performance of normal melting operations, and therefore, the values which are reported are not true indications of actual exposure.

In an effort to eliminate the contamination problem, we have covered all of our film badges with polyethylene, which is changed bi-weekly along with the film. Also, as of April 17, new badge holders have been put into use by all personnel. We feel that these measures will insure that any future film badge report will be indicative of a true exposure and not contamination.

Summary:

It is our opinion that the high readings reported on the films of the two (2) men were mainly due to contamination rather than a true exposure. To prevent a recurrence, we have issued protective coverings and new badge holders to all personnel. The two (2) men have been transferred from the melting furnace to other jobs which will allow them to receive little or no radiation exposure for a period of three (3) months, at which time their cumulative exposures will be within allowable limits.

In addition, new handling procedures are being instituted which will minimize the handling time in crucible cleaning and other furnace maintenance operations, in an effort to reduce direct exposure of personnel. The two (2) men have been notified in accordance with 20.405 (b.) of 10 CFR 20.

We trust that the information as stated is sufficient in nature and scope to conform with requirements. Should further data be required, it will be transmitted upon request.

Very truly yours,



Norton M. Weiss
Health & Safety Manager

Copy to: (1) Manager, N.Y. Operations Office, N.Y.C.
(1) USAEC - Chicago, Ill., Mr. D. M. Gardiner
(1) Commonwealth of Mass., Dept of Labor & Industries
Mr. T. F. Kelly

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