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FOLLOW-UP INSPECTION REPORT - 10-CFR-40 - WAH CHANG CORPORATION,  
ALBANY, OREGON - LICENSE NO. C-3966

SYMBOL: IS:AB

Four copies of subject follow-up inspection report are forwarded in accordance with AEC Manual Chapter 0705.

The items of noncompliance noted in the previous initial inspection dated March 27, 1958, and listed below, were found to have been corrected.

1. Section 20.201 - No surveys were made of air contamination.
2. Section 20.203(b) - The storage room containing the bulk of the thorium oxide was not posted.
3. Section 20.203(e)(2) - The room containing the six electric furnaces was not posted as required.
4. Section 20.203(f)(2) - The four furnaces containing approximately 160 pounds of  $\text{ThO}_2$  each were not posted as required.

The licensee had made only one survey of air contamination. The frequency of air sampling was discussed with the licensee. The inspector's answer to this question was that air sampling should be done during any special operations with the licensed material and at such times that concentrations during all intervening periods could not reasonably be expected to exceed those found at the time of sampling.

The following indicated use of the licensed material is quoted from the license, "You are hereby licensed to receive possession of and title to twenty-five hundred (2,500) pounds of thorium oxide during the term of this license for use as an analytical reagent and in the manufacture of thoriated tungsten wire and columbite and tantalum metal." The licensee has used the  $\text{ThO}_2$  as a refractory furnace liner in production of columbium metal only.

No items of noncompliance were observed or otherwise noted during the course of the inspection.

6. Inspection findings (and items of noncompliance) continued:

4. The four furnaces containing approximately 160 pounds of  $\text{ThO}_2$  each were not posted as required by Section 20.203(f)(2)

Each of the six electric furnaces were posted with the yellow and magenta symbol and radiation warning sign.

No items of noncompliance were observed or otherwise noted during the course of the inspection.

DETAILS

Premise for Inspection

9. During the initial inspection made by the Hanford Operations Office on March 27, 1958, items of noncompliance were noted in that no surveys of air contamination had been made, and posting requirements were not adhered to. The licensee was notified of these deficiencies by letter from the Division of Licensing and Regulation, symbol: DLR;CMF 40-943, dated May 9, 1958. The licensee replied by letter dated June 3, 1958, indicating action taken to correct the deficiencies noted. A letter dated June 18, 1958, from the Division of Licensing and Regulation to the licensee noted the corrective action reported by the licensee as apparently adequate.

Inspection Party

10. The facility of the licensee, in North Albany, Oregon, was inspected by Arthur Brumstad of the Hanford Operations Office on October 16, 1958. Mr. R. G. Jones, assistant manager for manufacturing, and W. T. Walker, personnel safety director, were contacted. Mr. William Applegate of the Oregon State Board of Health was present during the inspection.

Corrective Action

11. 1. Section 20.201 - No surveys were made of air contamination.

The licensee had procured an air sampler, Model AD 440 made by Gast Manufacturing Company, Benton Harbor, Michigan, and a flow meter made by Dyer Manufacturing Company, Michigan City, Indiana. Two air samples were taken on June 16, and submitted to Radiation Detection Company, Chemistry and Physics Laboratory, 1047 Transport Street, Palo Alto, California, for evaluation. The samples were said to be taken during a typical operating period. The alpha activity of a 100 liter sample showed  $1.44 \times 10^{-4}$  mc per milliliter, or about 3% of the maximum permissible concentration of natural thorium specified in column 1, Appendix B, 10-CFR-20, for adult personnel in a restricted area.

2. Section 20.203(b) - The storage room containing the bulk of the thorium oxide was not posted.

The thorium oxide was stored in a cabinet measuring approximately 6'x15'x10' high. The yellow and magenta symbol and caution sign were posted on the door and front of this cabinet. This cabinet was located inside of the main building, but preparations were being made to move this storage to an adjacent concrete foundation.

3. Section 20.203(e)(2) - The room containing the six electric furnaces was not posted as required.

The yellow and magenta symbol and sign, "Caution, Radiation Hazard", was conspicuously displayed at several locations in the manufacturing area.

4. Section 20.203(f)(2) - The four furnaces containing approximately 160 pounds of ThO<sub>2</sub> each were not posted as required.

The yellow and magenta symbol and sign, "Radiation Hazard", was posted on each of six induction furnaces containing thorium oxide.

The licensee indicated in the course of the last inspection that the wearing of film badges would be inaugurated for legal protection of the plant. Film badge service has been established with Radiation Detection Company on a monthly basis. Reports from these laboratories showed the maximum exposures to be 20 mr per month.

