

Office Memorandum • UNITED STATES GOVERNMENT

TO : Lyall Johnson, Chief, Licensing Branch
 Division of Licensing and Regulation

DATE: February 20, 1958

FROM : *Lester R. Rogers*
 Lester R. Rogers, Chief, Radiation Safety Branch
 Division of Licensing and Regulation

SUBJECT: APPLICATION DATED JANUARY 27, 1958, FROM CLEVITE RESEARCH CENTER FOR
 SPECIAL NUCLEAR MATERIAL - 70-133.

SYMBOL: DLR:RFB

Conclusion:

Subject application appears satisfactory from the radiation safety standpoint.

No evaluation of methods of shipment or criticality controls was made.

We suggest it be noted in a letter to the licensee that the overall laundry must be licensed before transfers of contaminated overalls can be made.

As a courtesy, you may wish to call the issuance of such licenses to the attention of the Argonne National Laboratory or the Pittsburgh Area Office since they are administering a contract with this company.

Proposal:

The applicant wishes to obtain a license to cover the Special Nuclear Material necessary in fabricating fuel elements for Nuclear Products, ERCO. The processes will involve melting, alloying, forging, rolling, welding, pickling, both chemical and metallographic analyses, machining, stamping, and the sintering of powders and ceramic materials.

Material:

9010 grams of 90% enriched in U-235 (8109 grams of contained U-235).

Location:

Clevite Research Center, 540 East 105th Street, Cleveland 8, Ohio

Equipment:

Film badges from Landauer including wrist badges. Survey meters, Thyac, Nuclear Chicago 2112 alpha, Universal Atomic Model UACH08 - alpha, beta,

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gamma. Air samples collected with Gast pump - analyzed on windowless flow counter. Respirators - Wilson 880 with R436 filter. Dry boxes, hoods, local pickups, where grinding, transferring or packaging is not carried out in a dust hood. Protective clothing. Ventilation, including filters for dust collectors or wet scrubbers.

Health Safety Procedures:

Bioassay for personnel at least quarterly and more frequently as exposure is suspected. Respirators to be worn by operators where fumes or dust is generated. Periodic air samples. Smear samples to be taken with 1" diameter filter paper area of 100 square centimeters. Effluents-air is filtered. Stack will be sampled with a tap in the stack and stack losses will be checked both for airborne concentrations and ground fallout. Liquid effluent will be filtered, sludged and stored. Evaporation of liquid sludge by steam pipes in barrels or evaporation.

Waste Disposal:

Liquids -- all stored in 30 or 55 gallon drums after concentration. Solids - slow burning incinerator for combustibles. Survey of the area around the incinerator and collection of the ashes. Non-combustibles stored in 30 or 55 gallon drums. Chips, tailings, and so forth will be covered with mineral oil and stored in vented drums.

Contamination Control:

Rolling mill equipped with rolls and roll wipers for uranium use only. Tables at entrances to working areas and filters covered with monel or stainless steel. Concrete floor sealed with resin filler. No floor openings to the sewer. The filter on exhausts will have a pre-filter and a one micron collecting filter.

Operator coveralls to be worn only 8 hrs. Laundry service provided by Ohio Overall Cleaning Company, 8000 Central Avenue, Cleveland, Ohio.

Training and Experience:

Relying primarily on experience gained at the company. One person, Mr. Perout, has had experience in radiation instrumentation. Procedures are considered adequate. The Manager of Personnel Services has the health and safety responsibility. Executive Assistant to the Materials Division carrying out that responsibility with one health and safety inspector. Those responsible for the safety of the operation will have an engineering or scientific degree, have read literature and attended conferences on this subject.

Exposure Limits:

Part 20 for external limits.

MPC's in air in the controlled area; Alpha 110 d/m/m³ for 40 hr/wk. When in Clevite area; alpha 12/d/m/m³ for 40 hr/wk. Air outside Clevite; 4 d/m/m³. Water released from Clevite - 15,000 d/m/liter soluble alpha and no insoluble. Surveys within controlled areas; alpha 100 d/m/sq. ft. Beta, gamma, 2000 d/m/sq. ft.; Leaving the controlled area; alpha 10 d/m/sq. ft. Beta, gamma, 200 d/m/sq. ft.

Urinalysis excretion limits set at 45 d/m/24 hr sample of alpha for U-238 and 90 d/m/24 hr sample of alpha for U-235.

Shipment:

All shipments will comply with I.C.C. regulations.

Further, that shipments will be made in an all wooden box 30" wide by 6" deep by 48" long, meeting I.C.C. specifications 15(a) or (b). Six fuel elements per box with a minimum of 2" separation between elements and no more than 6 boxes per shipment (i.e., 36 fuel elements per shipment).

Non Nuclear Accident Control:

Production building is fire resistant. Storage safes and vaults made of noncombustible concrete. Employees are organized into fire brigades. The local fire department has visited the building and explanations were made and methods of handling fires were discussed and they are expected to cooperate. Fire extinguishers are available - Ansul Met-L-X-30 and CO-2 extinguishes.

The floor is 10' above the 100 yr. flood maximum.

They will confine all dusts and rubber tires will be used on all moving equipment. The vaults will have large working aisles.

Restricted Area Control:

There will be only one entrance used for the areas with two other exits, equipment with panic hardware. Entire area is fenced and a 24 hr. armed guard will check the area.

Visitors controlled at entrance.

Attachment:

Supplementary 70-133