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THE MARTIN COMPANY

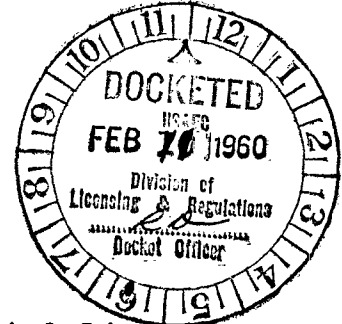
Alan
2/17/60

Baltimore 3, Maryland
Nuclear Division
Mail Number W-722
February 9, 1960

Refer to: NMC-5

Director
Division of Licensing and Regulation
United States Atomic Energy Commission
Washington 25, D. C.

Attention: Mr. Lyall Johnson
Chief, Licensing Branch



Gentlemen:

Reference is made to our Special Nuclear Material License SNM-53 as amended. We desire to further amend this license in order that we can (1) proceed to fabricate an additional element type not previously described and (2) receive and use a Plutonium-Beryllium neutron source in connection with our critical facility experiments.

Accordingly, we wish to add to Appendix B of our License application the process description and SN material flow chart, Attachment (1).

The Plutonium-Beryllium source will be used to supply neutrons for starting the ERDL critical assembly and it is anticipated that it will be kept by The Martin Company for an indefinite period of time for use in other critical experiments. For details on the Martin Critical Facility see reports MND-1110, 1111, 1112 and MND-E-1157.

The source consists of Beryllium intimately mixed with Plutonium and seal welded in an inner tantalum capsule. This inner capsule is in turn welded in an outer capsule of stainless steel whose dimensions are 1.55 inch diameter by 3.4 inch length. The source contains 160 grams of Plutonium isotope 239. Reference the Mound Laboratory catalog of Polonium and Plutonium sources, November 1, 1959, pages 24 through 26.

The source will be stored in the original shipping container and kept in a controlled area until it is installed in the source shield in the critical assembly tank. The source

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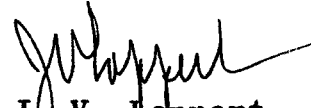
will be raised to operating position for start-up of the assembly. Swine tests will be performed no less frequently than once every three months. The Martin Company has been using a Polonium-Beryllium Source as covered under License Number 19-1398-1.

Since there have been revisions in our facilities and handling of SNM materials we are enclosing the latest revised copy of our Criticality Manual, MND-1063, revised as of February 1, 1960. Please return our Criticality Manual that you now have in your possession.

I certify that the statements made in this letter and the referenced enclosures are true, complete and correct to the best of my knowledge and belief, and are made in good faith.

Very truly yours,

THE MARTIN COMPANY

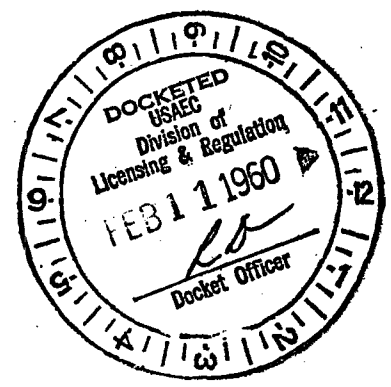


J. V. Loppert
Operations Manager
Nuclear Division

ALUMINUM CLAD ALUMINUM-URANIUM ALLOY FLAT PLATE FUEL ELEMENTS
(Form VI-c)

A predetermined quantity of uranium metal (maximum range 5 to 30 weight percent) and aluminum are melted in Work Area 33. A billet is then trimmed and hot rolled (Work Area 17) into a billet approximately 1/4 inch thick. Fuel cores are punched (Work Area 35) from the billet, and identified. The fuel cores are then assembled into aluminum (picture frames) and hot rolled to a reduction of about 50 percent. Aluminum cladding sheets are tack welded on each side of the pre-rolled core and the elements are reduced to final size causing bonding to occur between the aluminum cladding and the uranium-aluminum core. Radiography, non-destructive testing and blister-annealing are done in Work Areas 23, 25 and 37 respectively. The fuel plates are assembled into fuel elements in Work Area 41.

Attachment (1)



NUCLEAR FUEL MANUFACTURING FLOW CHART

