

Description of ECRI (CNEA'S MTR Fuel Fabrication Plant)

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ABSTRACT

The ECRI Plant is dedicated to the development and fabrication of high-density fuel elements and targets for ^{99}Mo .

In this sector had been done the start up Fuel Elements for the Reactors of Peru, Iran, Algeria and Egypt. All of them were made with U_3O_8 . The targets for ^{99}Mo using HEU were fabricated too in the last years.

The new material of high-density for Fuel Elements as U_3Si_2 were done in this sector, three prototypes were fabricated, two are still under irradiation. (P06 and P07).

As new developments we are working with U-Mo (7%) Fuel Plates with both material Korean and HMD. This work is under the RERTR Program and two fuel elements, manufactured by us, with both powders, will be irradiated in Petten.

For ^{99}Mo targets, we are fabricating miniplates of LUE with an AlUx powder by pulvi-metallurgy technique. And it is under development the foils targets under the RERTR Program.

A general view of the fabrication facilities and control sector will be shown. The different operations that are done in each sector will be explained.

All our activities will be certified under the ISO 9000 and we are working hard to get it in the middle of 2003.

1. INTRODUCTION

At the beginning this Plant had fabricated the HEU fuel elements for the domestic reactor RA-3. Then it was done the conversion to LEU using as fissile material U_3O_8 .

In this sector had been done the start up Fuel Elements for the Reactors of Peru, Iran, Algeria and Egypt with U_3O_8 .

The targets for ^{99}Mo using HEU were fabricated too in the last years. These targets were a U-Al alloy 90% enrichment. They were used until 2001.

2. RECENTLY

The new material of high-density for Fuel Elements as U_3Si_2 were done in this sector, three prototypes were fabricated, two are still under irradiation. (P06 and P07).

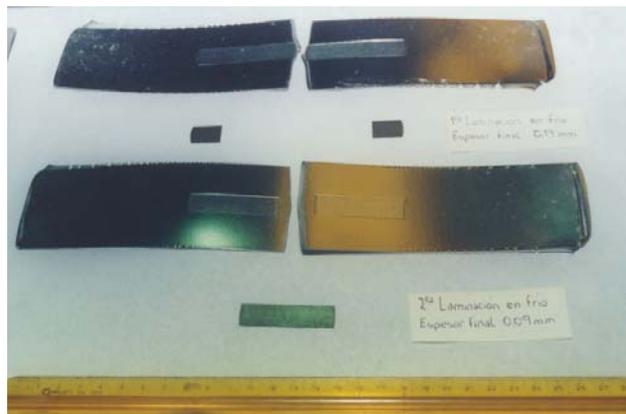
A view of this prototype can be seen.



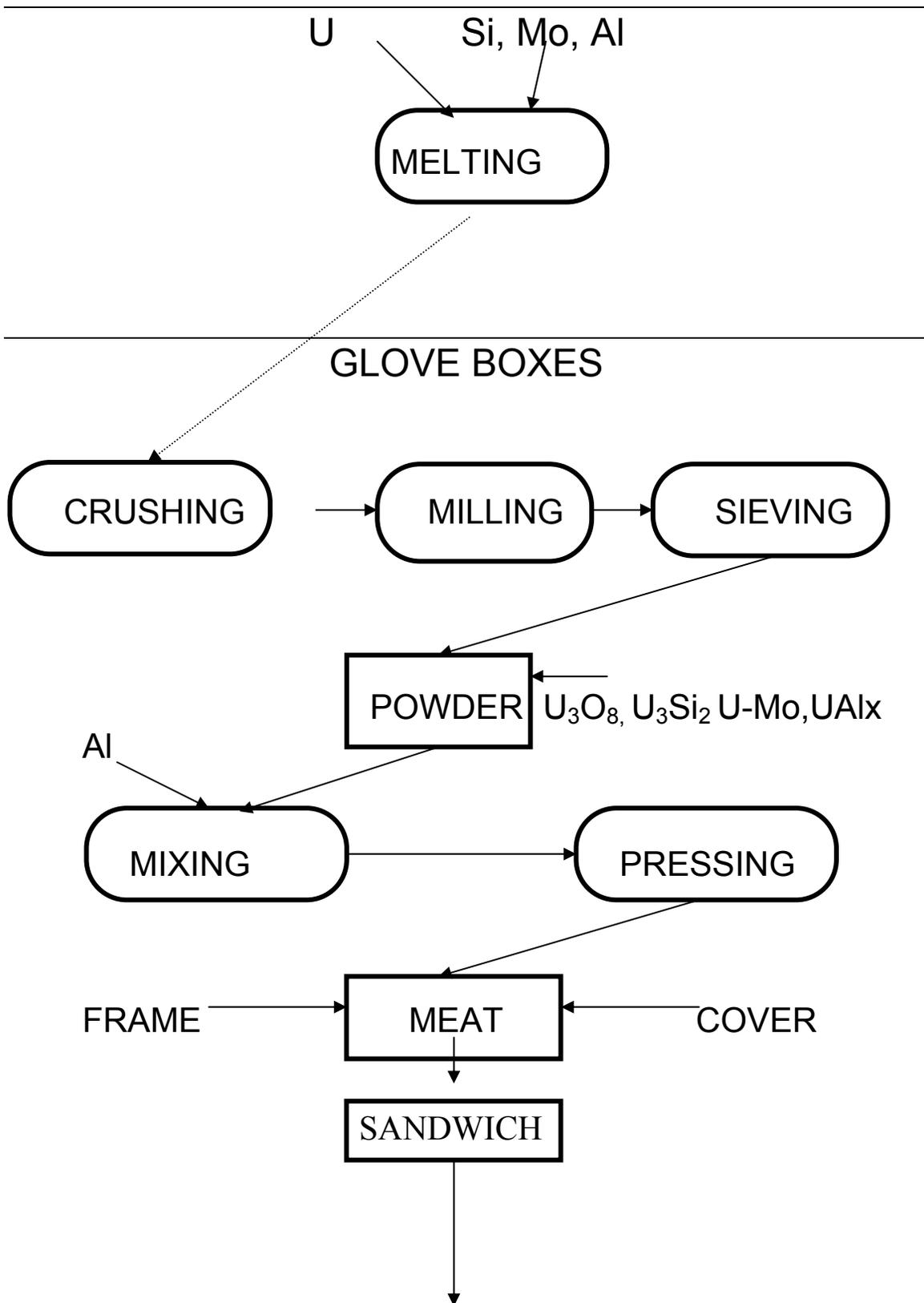
For ^{99}Mo targets, we are fabricating miniplates of LUE with an AlUx powder by pulvi-metallurgy technique. They are used in the Ra- reactor and ^{99}Mo is obtained without no problem.

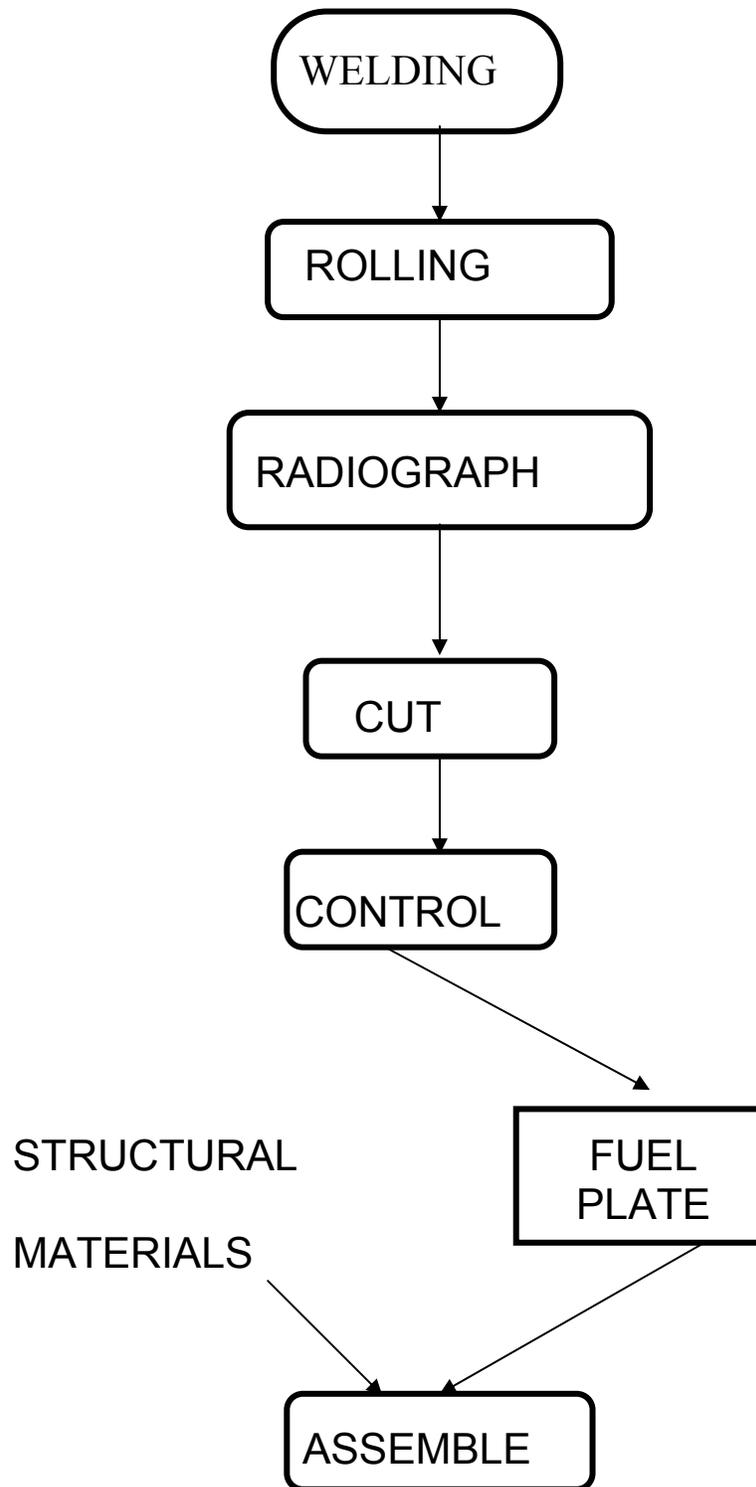
3. NEW DEVELOPMENTS

As new developments it is working with U-Mo (7%) Fuel Plates with both material Korean and HMD. This work is under the RERTR Program and two fuel elements, manufactured in this Plant, will be irradiated in Petten in the HFR Reactor. It has beginning too with the developments of foils for ^{99}Mo . The first results can be seen.



In the following flow-chart can be seen the different operations steps that are done in the plant.





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