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DATE 9/12/50 INITIALS EMcC

Dr. M. M. Haring

September 11, 1950

SUBJECT: Meeting on M T R Program 9/13/50 at Argonne National Laboratory.

On Wednesday, September 6th, R. F. Keehan and E. C. McCarthy met with Dr. Stuart McLain at the Argonne National Laboratory. The purpose of the visit was to discuss generally common problems connected with irradiating our present material and proposed material in the M T R reactor at Arco.

It was obvious from the conversation that there was a great lack of knowledge on the part of each of the other's problems and that there was a common ignorance of what the A.E.C., or Washington, had in mind. Dr. McLain, who was leaving to go to Washington to discuss some matters with Mr. C. Weil, said he would endeavor to promote a common meeting to discuss the mutual problems. We said that we would ask our A. E. C. office to take steps concerning such a meeting also. An early meeting to discuss the problems at least is clearly indicated.

No decisions of any kind were made, of course, since the conversation was of an exploratory nature. The topics varied in the course of the conversation and the following is a resume of some of the points discussed:

(1) Apparently Dr. McLain had been approached on the question of how much postum he could supply. He told us that there was space available to produce 90,000 curies a year without interfering with their research program. A tentative schedule for such would be 3000# 31/50 days irradiation/6 times a year. This is based on giving us an equal strength to what we have now - 5 curies/pound average. If the M T R were to be used to produce only postum, they could make 200,000 curies/year.

(2) The flux of the M T R is 20 times that of Hanford and 10 times that of Chalk River - approximately. As we remember the flux is rated as 2×10^{14} neutrons/cm^2/sec-thermal; or 1×10^{15} n/cm^2/sec-fast.

(3) The lattice has 3" square channels about 41" long. This would mean a 3" square brick or 9 - 1" square bricks. The lengths could be cut to suit us.

(4) No provisions have been made yet concerning canning of slugs. We suggested an arrangement such as we have with Hanford and Dr. McLain made a note to check the Hanford canning.

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(5) The reactor is expected to be finished a year from now and with a couple of months for testing, they expect to load for operations about December 1951.

(6) There is no railroad spur to the reactor - about four miles of trucking is necessary.

(7) Dr. McLain has recommended to the A.E.C. that our source of supply be distributed - that is various reactors around the country such as Brookhaven be used to irradiate bismuth to avoid the danger of our only source being destroyed.

(8) There is a brief report on the postum situation written by Dr. McLain, but neither the title nor number was available.

(9) In reply to our question whether the M T R would replace Hanford as a source of supply, Dr. McLain replied that he would expect it to supplement rather than replace Hanford. If both places were to supply us we would then have to handle square slugs as well as round ones.

The following pertains to the proposed material:

(10) In a report on irradiating radium, a container made of aluminum and about the size of a fountain is proposed. This would be loaded in a square beryllium block for irradiating. Also, it is proposed that this aluminum container be platinum plated to seal it.

(11) They are interested in using much larger batches of radium than we have been planning - at least 30 - 50 gm batches - preferably 50 - 100 gms.

(12) The carbonate or oxide of radium is preferred to the bromide - this is because of the cross sections.

(13) Report No. ANL - 3M - 683, covering calculations design data etc. pertaining to irradiating radium in the M T R should be obtained immediately. G. Weil in Washington, D. C. has six copies. (Have asked M. Walker to obtain this.)

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(14) Dr. McLain was under the impression that 150 gms. of radium were all that were required.

(15) This point is based on memory and could be wrong. If 100 gms. of radium were irradiated for about 2 mos. about 2500/3000 curies of activity would be produced. In going over the term activity with Dr. McLain, there was uncertainty as to what was meant.

(16) It was mentioned by Dr. McLain that he, too, thought weight would be a better basis for keeping records of material than curies. He would like to see the curie term abandoned for this work at least and suggested some standard unit based on weight or weight-mol.

Edw. C. McCarthy

ECMcC:mg E. C. McCarthy

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4 - Mr. R. F. Meehan
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