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MEMORANDUM LRL-2 NO. 1 OF 18 COPIES. SERIES 4

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VISIT OF I. PERLMAN AND H. W. CRANDALL TO LOS ALAMOS TO DISCUSS POLONIUM TARGET PROBLEMS - AUGUST 28, 1950

One general meeting was held, in attendance at which were D. K. Freman, Eric Jette, D. T. Vier, M. G. Holloway, and McMillan from Los Alamos; I. Perlman of UCRL and H. W. Crandall of CR&D. The excitation function data compiled in LRL-1 was presented and discussed, following which the Los Alamos people answered questions. Two copies of LRL-1 were left with D. K. Freman.

As an outgrowth of the discussion the following points were clarified:

1. It is apparent that Los Alamos is definitely interested in Po^{208} for several reasons. First, little modification of present handling and fabrication methods are necessitated; second, stockpiling requirements will be more easily met because of the longer half-life; and third, this modification to present techniques is on a firm basis and could be advantageously used at the present time, whereas other alternate proposals to supplant existing methods are considered to be several years away from realization due to the research and testing program involved. Vier stated that polonium urchins will last six years without harmful penetration; that actinium is almost out of the picture, and that external initiators are five to ten years away from practical realization.
2. Production at the rates contemplated under the Mark I program will constitute a substantial portion of existing requirements. Increased production may be necessary to handle projected requirements. On amounts needed, we infer that a factor of 2-3 above that contemplated would satisfy all needs.
3. The polonium, as obtained, using protons and a thick target, would be acceptable for use without an extensive testing program.
4. The polonium, as obtained from an optimum deuteron target, would probably be acceptable; however, a fairly expensive testing program would be required to prove this point. It was pointed out that this program would partially offset the cost of converting the Mark I accelerator to protons. It should also be pointed out that the target design for deuterons involves a considerably larger development program than for protons.
5. The calculated allowable ^{LOWER} upper limit to the 208/209 ratio was 1/6. No further definition would be obtained between this value and the 6/1 obtainable by a proton machine. The reason for their hedging is their desire

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