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Metallurgical Laboratory

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January 6, 1944

now #07035

Prof. A. E. White
Department of Engineering Research
University of Michigan
Ann Arbor, Michigan

Dear Professor White:

The following is an outline of the work which we would like to have Prof. Firestone carry out under the proposed contract between the University of Chicago and the University of Michigan. The purpose of this work is to develop methods for testing the adequacy of coatings which we are applying to pieces of uranium metal. The pieces which will be submitted for examination and for which test methods will be developed are of a simple cylindrical shape 1.440" in diameter. The coatings which we are applying are designed for the purpose of protecting the uranium from the corrosive action of its environment and it is necessary that the coating be impervious and that it make perfect thermal contact with the base metal. It is particularly with regard to the perfection of the thermal contact that we expect to utilize the supersonic testing methods. Thermal contact will, of course, be diminished by any discontinuity beneath the surface of the coating or between layers of a multiple coating or by failure to secure complete adherence to the base metal and it is desired to develop a method for detecting such flaws.

Prof. Firestone has expressed the thought that this might be achieved more simply by using a two-crystal system than by the single crystal used in his supersonic reflectoscope. It is requested that he carry out any test necessary to verify or disprove this idea and devise such equipment as may be necessary to establish a practical testing procedure. It is further desired that this equipment be constructed at the University of Michigan under Prof. Firestone's supervision and delivered to us for use at Chicago.

I wish to emphasize that the testing of this material is urgent, that such time has already been lost and that every effort ought to be put on expediting this work. Also, I wish to point out that

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For the Atomic Energy Commission	
ROBERT L. JACKSON <i>RLJ</i> for the Chief, Declassification Branch	

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the only purpose for which we expect to utilize the equipment which Mr. Firestone is asked to develop is in the testing of pieces made principally of uranium metal. For reasons of secrecy, this fact was not stated in the proposed contract but you may use this letter to assure Mr. E. G. Sperry of the Sperry Products Company that our interests in anything which Mr. Firestone may develop for us are strictly confined to this field.

Very truly yours,

TECHNICAL DIVISION
J. Chipman, Assoc. Director

John Chipman

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