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CENTRAL FILES

May 1, 1961

EXPLOSIVE FORMING

C. E. Polson

H. Davis

I talked with Mr. William Carey, Metallurgist, Union Carbide Nuclear Company, Oak Ridge, Tennessee, on April 26, 1961. He informed me that the National Northern Division, American Potash & Chemical Corporation in West Hanover, Massachusetts, is performing explosive forming studies for the Union Carbide Nuclear Company (UCNC). The work at National Northern Division is under the supervision of Basil Philipchuck, Manager of Special Products.

The work to date has been performed with 430 stainless steel and uranium metal - both hot and cold work have been performed at pressures from 100,000 to 900,000 psi. The shape of the pieces was not disclosed. In addition work has been done with both green and sintered uranium-base powders. These powders have been formed in a die into discs approximately 4-1/2 in. diameter and 1 in. thick.

The National Northern Division does not have an AEC license but operates under the supervision of a health physics consultant and assumes responsibility for nuclear health functions. Accountability for materials is assumed by the UCNC. A representative of UCNC takes a physical inventory upon receipt of nuclear materials by the National Northern Division and before shipment of nuclear materials from the National Northern Division.

I described our interest in the densification of Mg-UF₆ powders by explosive forming. Mr. Carey was of the opinion that this work could be performed at National Northern Division. He suggested that we should write him a letter describing the work which we contemplated and request permission to discuss the Union Carbide program with the National Northern Division. The letter should be addressed to UCNC, Engineering Liaison, Oak Ridge, Tennessee.

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We also learned from Mr. Carey that Y-12 has a 7000 ton hydraulic press with 18 in. platen and the press is equipped with a die shuttle mechanism.

It is recommended that the UCNC explosive forming project be inspected and that the feasibility of forming large UF_6 - Mg briquettes by this means be discussed with the National Northern Division personnel. The inspection could be made in connection with other visits that carry our engineers into that area.

Original Signed By
HERBERT DAVIS

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HD/bjb

cc: **F. L. Cuthbert**
J. F. Schiltz
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