STANDARD FORM NO. 64 CT-11-3 [redacted]

Office Memorandum • UNITED STATES GOVERNMENT

CT. 11

TO : D. Sturges, Chief, Operations Division, Hanford Operations Office, Richland, Washington

DATE: November 8, 1950

FROM : R. J. Smith, Chief, Operations Branch, Production Division, New York Operations Office

SUBJECT: URANIUM FABRICATION LETTER - LACEY TO REICHARD DATED OCTOBER 13, 1950

SYMBOL: PO:RJS:hb

[redacted]

ATTENTION: R.E.L. Stanford

We appreciate very much having received the subject letter because of its significant bearing on our current fabrication developments.

The following actions are contemplated for refinements in our rolling practice and for finishing operations with a view towards eliminating surface machining:

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1. Rolling Improvement Studies:

We will continue to explore the variables of billet preheating temperature, pass schedule, and rolling time in an effort to obtain the optimum feasible combination of oxide loss, rolling cost, rod dimensional control, uniformity of structure (finishing temperature) and rod surface quality. We have noted your conclusion that choice of rolling temperature level within the alpha range appears to be unimportant relative to pile behavior of metal canned by the present triple-dip process. We also recognize that any fabrication process we evolve for production must permit exact duplication of a fixed standard time-temperature relationship during handling of each rod.

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Materials - Uranium 1950

The next tests are planned for mid-November at Simonds, using an intermediate mill in addition to the present roughing and finishing mill so that rolling may be accomplished without rest periods.

2. Machining Cost Reduction Studies:

We will continue the experimental work on room-temperature swaging and also on cold-drawing.

The swaging tests will be conducted at the Fenn Manufacturing Company in Hartford, Connecticut using a heavier swaging machine and effecting a reduction of 6% in cross-sectional area on a 1 7/16" diameter hot-rolled bar. We have noted that it is important to have square-cut ends and medart-straightened rods to get the best dimensional tolerances on the bars.

[redacted] MATERIALS Uranium

An experiment is to be conducted soon at the Bridgeport Brass Company in which 1 7/8" hot-rolled rod will be drawn, at room temperature if possible, to effect a reduction of approximately 5% in cross-sectional area. The variables of drawing lubricants, surface preparation and drawing speeds will be explored. A 125,000 pound, hydraulic, variable speed draw bench will be used.

3. Powder Metallurgy Slugs:

Sylvania Electric Products is now fabricating a special die from which a 4" long x 1.4" diameter slug can be made by the hot-pressing of uranium metal powder (hydride process) in vacuum. It is expected that such slugs will be made within four weeks.

If successful results are obtained, samples from all the above tests will be furnished to you. More specific details of the tests will also be sent to you as the work progresses. We would be interested in any further comments and/or visits your office and General Electric may make relative to the program.

CC: C. E. Lacey - Pile Technology Div.
General Electric Co.
Hanford, Washington
F. G. Stroke - Technical Advisers,
NYOO

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