CHAMBERLAIN MANUFACTURING CORPORATION
RESEARCH AND DEVELOPMENT DIVISION
WATERLOO, IOWA

FINAL ENGINEERING REPORT

PHASE II
PRODUCTION EVALUATION
OF
NEW SAWING CONCEPT

CONTRACT DAAA25-70-C-0353
DOCUMENT NO. C7933-ED-002

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Submitted To

Commanding Officer Frankford Arsenal
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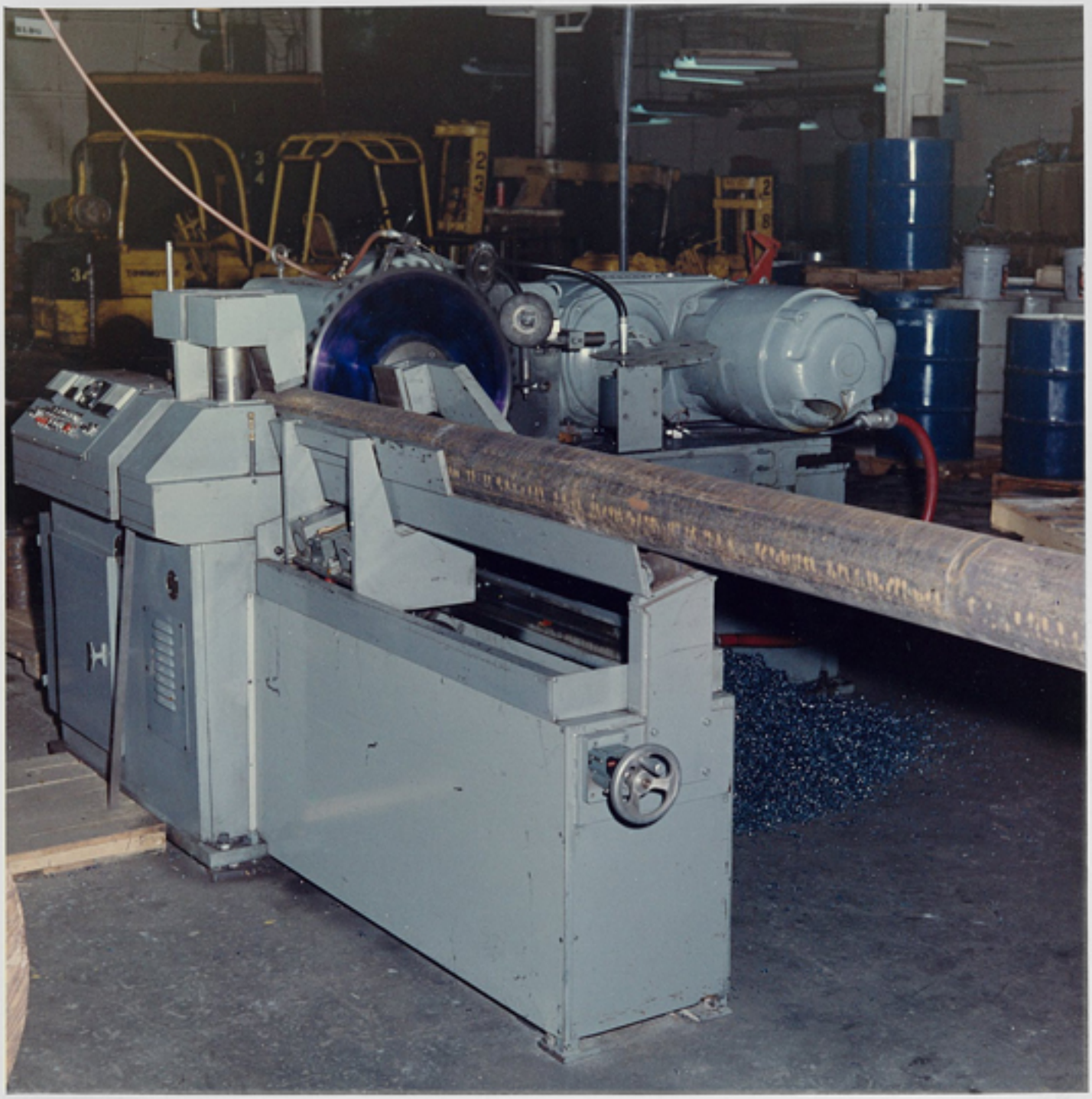
CONTRACT DAAA25-70-C-0353 (PHASE II)

ABSTRACT

Using the new METALCUT XII bar-cutoff machine, approximately 1,540,000 square inches of 1561 and 1546 steel were cut in a Phase II Program to verify its productivity as a billet-separator in the manufacture of large caliber projectiles. Operation of the saw in Chamberlain operated Scranton Army Ammunition Plant resulted in cutting 19,300 to 23,100 square inches per single blade sharpening. These results represent the mean blade life for 1561 and 1546 steel respectively.

Cost comparison with the Nick-and-Break method of separation shows the saw to be competitive. Tooling costs are higher but are compensated for by reduced labor costs. The significant advantage of the clean, square-ended sawed billet is evidenced in fewer forging rejects resulting in less labor cost for reclaim and ultimately, a better quality shell.

On the success of this program, including the previous Phase I Feasibility Study, it is recommended that bar-cutoff machines of the METALCUT XII type be utilized in the production of large caliber projectiles



PHOTOGRAPH C-1458

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