E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

WILMINGTON, DELAWARE

EXPLOSIVES DEPARTMENT

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FROM: M. S. BLOOMSBURG

WEEKLY REPORT - NOVEMBER 4-10, 1955
300-M AREA - SAVANNAH RIVER PLANT

I. ITEMS REQUESTED OF ENGINEERING

Increased Productivity Program

Verbal requests to Engineering for proceeding with design of extended surface fuel and target element production facilities have been confirmed by letter. The following basic design conditions have been set up:

Facility	Shifts/week	Yearly Output (Acceptable Pieces)	Total Reactor Power Level	Reactor Cycle - Days
1. Mark III (a)	5	34,600	1800MW	32 (d)
2. Mark VI Fuel (b)	15	13,200	6400MW	67 (d)
3. Mark VI Target (c)	15	13,200	6400MW	67 (d)

- Notes: (a) Flat plates - 5 per reactor position
(b) Enriched tubes - 1 per reactor position
(c) Lithium-aluminum tubes - 1 per reactor position
(d) Cycles include downtime for charging and discharging

The following Engineering work requests have been

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received and are currently circulating for Wilmington approval:

<u>W.R. No.</u>	<u>Title</u>	<u>Amount Requested</u>
-	Mechanization of New Element Facilities	\$ 20,000
50007-II	ESLMF Facility Study (\$75,000 new total)	50,000 Part II
50026-II	ESF Facility Study (\$95,000 new total)	70,000 Part II

II. ITEMS OF INTEREST

Hollow Uranium Slugs

Sylvania has completed hot press canning of all cores received from Fernald on the first production order for hollow cores. A summary of shipments and receipts of Sylvania pieces is presented below:

a. Sylvania receipts from Fernald

Bare cores from FMPC	2,113
Cores rejected by SEP	212
Total acceptable cores	1,901

b. Shipment to SRP

Hot pressed hollow slugs passing SEP inspection	791
Hot pressed hollow slugs rejected by SEP for ID warp	166
Hot pressed hollow slugs rejected by SEP for oversize I.D.	66
Total shipments to SRP this date	1023

An additional 95 slugs rejected by SEP for eccentricity will be shipped to SRP this week bringing the over-all total shipments to 1118

c. Distribution of cores received at SRP

For extended flow tests (not reactor quality)	170
<u>Estimated reactor quality specification slugs</u>	225 - 275
Sylvania rejects (being held in 300 Area)	327
Balance (SRP rejects weld, I.D.warp etc)	346 - 396

Slugs rejected at Sylvania for I.D. warp, oversize I.D. (bottom 1/4" of bore 1-5 mils over maximum bore specifications) and eccentricity (1-3 mils oversize on total run out) were sent to SRP at our request for evaluation. These slugs carry the special designation "&" after their numbers indicating an experimental category.

Over-all yields for this first lot based on current specifications are approximately:

Core yield from FMPC	~ 90%
SEP canning yield	~ 42%
SRP welding & inspection yield	~ 28 - 35%
Over-all yield	~ 11- 13%

These over-all numbers cover essentially the entire SEP development program and include a large number of destructive tests at SEP and a significant number of destructive tests at SRP.

Current welding and inspection yields on SEP slugs received at SRP is running between 50 and 60%. Principal rejections at SEP now fall within the three categories noted above and are being studied from the standpoint of possible relaxation of current specifications.

DWB/ms

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