First quarter FY '63 production was approximately normal. However, the October 25, 1962 forecast anticipated continuous neptunium removal at Purex (J-Cell package) to start in November 1962, and the ion exchange purification facility (Q-Cell) in December 1962. The actual startup dates were December 1962 and the end of May 1963, respectively. The long delay in Q-Cell startup was the result of a discovery during startup tests in January 1963 which revealed that permanently installed screens in the Q4 Column were passing resin. Redesign of these was made providing for replaceable screens which were not fabricated and installed until April 1963. In February 1963, the J-Cell package started but in March, gassing of the neptunium reducing stream (3AS) upset the Purex HS Column. It was found that this was because three streams: the HSS, HSR, and 3AS, were all vented to a common vent header. The J-Cell package was shut down for about six weeks until the gas from the hydrazine-ferrous iron reductant could be rerouted. The J-Cell package was then loaded with most of the Purex neptunium inventory and shut down awaiting the Q-Cell completion. J-Cell product was then sent to Q-Cell, but due to startup conditions, only 35% was received, and the remainder (15 kg) went to the backcycle waste system. Hot operability tests of Q-Cell continued into May; and in early June, Q-Cell operation was completely successful, with purification of 1.4 kg in a problem-free run. This was shipped to SROO on June 10.

During the last half of FY '63, forecast shipments were 6 kg; to date 3,975 kg have been shipped with expected shipment of possibly one additional kg on June 24. Expected shipment of Redox neptunium to Q-Cell the end of June 1963 has led to the forecasting of 1 kg shipments to SROO on each of the two following shipping dates in July.

Other problems contributing to permanent loss of neptunium to boiling waste tanks have been the following:

1. In September 1962, erratic Purex HA Column performance led to the neptunium retention in the Purex system being reduced to less than 70% of theoretical production. In October and November, accumulation continued at a 75% average or lower.

2. Several minor processing problems at the Redox Plant contributed to brief periods of high loss rate. Erratic LA Column operation in May and June has resulted in high loss rate both as a result of extensive rework of waste and because of throw-away of waste batches fairly high in neptunium.

3. In November 1962, the initial hot startup of the J-Cell package was attempted, but non-optimum operating conditions and imbalance of the uranium and nitric acid concentrations in the 3B Column product recycle stream resulted in a substantial loss not reported quantitatively.
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