

Production of on-specification green salt from the pilot plant equipment was sufficient during late 1957 and the first nine months of 1958 to support the production of metal required during 1958. Metal plant facilities for the production of uranium metal from uranium tetrafluoride or green salt were therefore engineered and constructed at the same time as the moving bed reactor pilot plant work was proceeding. Construction of the metal plant was completed in February 1958 and the first Canadian produced uranium metal on a commercial scale was turned out in April 1958.

There follows below a brief description of the refinery operations under five headings:

- I Feed Material Operations
- II Solvent Extraction Operations
- III Green Salt Operations
- IV Metal Operations
- V Service Operations

I. FEED MATERIAL OPERATIONS

The gravity concentrates produced at Port Radium until September 1959 were initially shipped in jute bags with inner liners via the Northern Transportation Company to Waterways and thence to Port Hope by railroad. Due to the limited navigation season, accumulated production was shipped out by water during the summer months for entry to the refinery in the ensuing year. From January 1958, 25-gallon steel drums were used.

Air transportation is used to ship the precipitate in steel drums from the Beaverlodge area to railhead. Precipitate produced in the Blind River area is transported directly to Port Hope by rail.

Gravity concentrates, which are still being entered to the refinery from inventory, range in size up to $\frac{1}{2}$ inch and are reduced in size to minus 40 mesh prior to entry into the refinery circuit. Size reduction is carried out in the dry state by means of a rod mill. All precipitates are entered directly without further treatment.

Precipitate drums are colour coated to identify them with the respective producer. Empty drums are returned in carload lots, or if requested by the producer, shipped to raw material suppliers in eastern Canada for loading with chemicals. Precipitate drums usually make many round trips before deteriorating and subsequent scrapping.

Weighing, Sampling and Uranium Accountability

Contracts with the United States Atomic Energy Commission have designated the Port Hope refinery as the official agency for weighing and sampling of feed materials.

Each producer is required to identify his production with a coded lot number, drum number, gross and tare weights.

Upon receipt of a shipment at the refinery railroad siding the cars are unloaded by means of a fork-lift truck and drums are placed on a roller conveyor. The lot number, drum number, gross and tare weights stencilled on the drums are recorded. Drums are then directed to the official weight scale and the Eldorado weight recorded. From the scale the drums are then conveyed to an automatic Auger type sampler which removes a $1\frac{1}{4}$ " core of product from the drum. After sampling has been completed, the drums are placed on pallets and conveyed by fork-lift truck to storage.

The sample from each lot is reduced by means of a Vezin sampler and laboratory blenders. The final sample is packaged in four separate sealed