C. Slesser, Director, Division of Technical Information & Classification Service

February 26, 1954

R. L. Kirk, Director
Production Division

MONTHLY REPORT FOR FEBRUARY 1954

SYMBOL: P:TPC

SUMMARY

Tests using a side agitator on an ether extraction column are being run in the Mallinckrodt Refinery. The principal advantage of a side agitator is elimination of plugging problems encountered with jet mixers now in use. In the Mallinckrodt Metal Plant, Fernald green salt was processed through to the ingot stage. One 7-1/8" diameter ingot was cast in the Metal Plant with surface quality good and results comparable to pilot plant work on these ingots. Additional development work on UO_3 additives in the larger bomb charges verified satisfactory initial test results.

At the Feed Materials Production Center, the one millionth pound of D-38 depleted UF_4 was packaged on January 30. In Metal Plant development 25 heats were made using a 1200 pound charge to cast a 7" round diameter ingot; results were good. Considerable progress from an operational and equipment standpoint was made in the Metallurgical Area of the Thorium Plant.

Rolling, machining and slug inspection for NYOO's ingot quality study IQS-5 were completed. Superior Steel Corporation rolled 52 uranium slabs to provide additional plate stock for duPont's fuel element development program and for Metals and Controls' cladding program. Evaluation tests are being made on three distinct [illegible]

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C. Slesser

A. Uranium Production

1. Mallinckrodt Chemical Works

a. Ore Refinery

The side agitator extraction column installed in the refinery has resulted in good extraction efficiencies. Results comparable to those of the production type jet mixers have been observed. After continuous operation, no apparent physical deterioration or excess caking of the agitator was noticed. Test runs so far indicate the uranium loss in the raffinate can be cut from 30-50% with these agitators. These runs also indicate that replacement of the jet mixers with these agitators will decrease maintenance costs and "down time" over present operation.

b. Metal Plant

A 100 tons of normal uranium are being prepared in the metal plant, of which 50 tons are regular 5" diameter production ingots and 50 tons are 5" diameter ingots produced from pickled 8" diameter derbies. All derbies are being fired using dolomite liners and complete data on these runs are to be compiled. Upon subsequent rolling and machining to slugs the effect of the pickling will be observed on the number of seam and striation rejects found. Completion of this 100 ton order is scheduled for early April. Approximately 50 derbies 12" in diameter and four ingots 7-1/8" in diameter have been produced in the metal plant. Yields on these larger derbies and ingots were comparable to pilot plant work. Betatron

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of end closures developed at Metals and Controls. The Flat Plate Steering Committee met at NYOO on February 8 to review development work and plan future programming. Fifty zirconium cans for Hanford size slugs were shipped to HOO.

NYOO has given National Lead of Ohio prime responsibility for procurement, design and construction of a moving bed reactor pilot plant unit to be built at FMPC.

Oak Ridge and NYOO representatives met to determine the manner in which the Oak Ridge group might assist in development work connected with the Boron Metal Plant.

C. Slesser, Director, Division of Technical Information & Classification Service

January 26, 1954

R. L. Kirk, Director
Production Division

MONTHLY REPORT FOR JANUARY 1954

SYMBOL: P:TPC

SUMMARY

Equipment on the pitchblende side of the Mallinckrodt Refinery, originally designed for 30-gallon ore drums has been modified to handle 55-gallon drums, allowing receipt of pitchblende ore in 55-gallon drums without redrumming...Slagliner as approximately 20% of the daily liner requirement was introduced into the MCW Metal Plant... Slightly lower bomb yields are under investigation in the Metal Plant... Results obtained in Metal Plant firing of 12" derbies confirm pilot plant results...

12" derby firing with good results was also reported from Fernald. The FMPC Pilot Plant reported a new weekly production record for UF_4... The Ore Refinery made fifteen digestions during the period January 14-20; in the same period, the extraction section operated at 25% capacity and ran continuously for 64 hours...Most of the start-up difficulties in the Boildown and Denitration and Combined Raffinate Areas of the Nitric Acid Recovery ~~Area~~ Unit have been overcome; minor mechanical problems in the Nitric Acid Recovery Area are being resolved... In the month ending January 20, 100 tons of U were produced in the Green Salt Plant...Pre-startup tests in the Thorium Plant, which was turned over to National Lead on January 15, are practically complete...

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