

MA.18-3

NATIONAL LEAD COMPANY

Folder # 7

04.12

~~SECRET~~

OF OHIO

P. O. BOX 158
MT. HEALTHY STATION
CINCINNATI 31, OHIO

THIS DOCUMENT CONSISTS OF 8 PAGES
NUMBER 2 OF 8 COPIES, SERIES a

*file permitted
MAY*

August 3, 1955

SPECIAL REREVIEW
FINAL DETERMINATION
UNCLASSIFIED

By: *D. F. Brown*
Date: *4-3-84*

Mr. C. L. Karl, ~~Area Manager~~
U. S. Atomic Energy Commission
P. O. Box 128, Mt. Healthy Station
Cincinnati 31, Ohio

SUBJECT: RESUME ACTIVITIES JULY 1955

Dear Mr. Karl:

The following resume of the activities of this company for the month of July 1955 is submitted for your information.

TECHNICAL DIVISION:

CHEMICAL DEPARTMENT

The 33-1/2% TBP flow sheet as established during the Pilot Plant program was introduced in the Plant 2 Refinery system on July 5. Tests completed to date have shown that the new flow sheet will meet the required production capacity increase (25%) as anticipated. An OK liquor containing 100-105 g/l can be produced at a flow rate of 32 GPM. At these rates, no overloading of the extraction, scrub or re-extraction columns occurs with respect to column throughput. However, the nitric acid (0.035-0.045N) and iron (17-25 ppm) concentration in the product stream exceed the present specifications. Efforts are being made to reduce the concentration of these contaminants by increasing scrubbing efficiency of the B column.

A test conducted in Plant 4 to determine the corrosion effects of thorium oxide produced from thorium nitrate (TNT) containing approximately 500 ppm sulfate has been completed with results indicating that excessive corrosion and early reactor screw failure would be obtained, should this material be used.

Tests indicate that the use of TVA blended acid results in the reduction of the diuranate uranium assay from an average 37% (dry basis) to an average 27% (dry basis). This difference is believed due to uranium precipitating with the phosphates contained in the TVA acid. Lab results indicate that a maximum of 4 g/l phosphate could be tolerated in the leach liquor provided that all controls were rigidly maintained and that the assay of the C. oxide was no lower than 6.5% uranium.

RESTRICTED DATA

This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmittal or the disclosure of its contents in any manner to an unauthorized person is prohibited.

71631

~~SECRET~~

ORGANIZATION

Al reduction tests are scheduled in the Pilot Plant starting September 1 to evaluate Plant 4 green salt which has been sintered at Oak Ridge. Sintering is a means of increasing green salt density.

Laboratory studies are being conducted to determine the feasibility of reprocessing off specification thorium metal by dissolution in nitric acid - sodium fluoride solution followed by thorium oxalate precipitation.

The survey of uranium scrap inventory and generation at the various AEC sites throughout the country has been completed and a formal report is being prepared on this subject.

The results of a limited study in bank 6 of the Green Salt Plant indicate that a maximum of 275#/hr. feed may be obtained using 350 ppm sulfated UO_3 . However, it should be pointed out, that at the period of this test, operational difficulties were being experienced in all banks of this plant. Bank 2 is being modified to permit development of techniques which will permit production of specification product utilizing activated feed at higher feed rates.

METALLURGICAL DEPARTMENT

A surplus crusher formerly located in the Metals Production Plant has been installed in the Pilot Plant and will be used to crush thorium sponge and scrap prior to sintering into electrode form, in further efforts to develop a satisfactory process for production of thorium electrodes.

A test lot of 1500 SRO slugs will be thread rolled September 14-15 at Reed Rolled Thread and Die Co., Worcester, Mass. Plans to thread roll slugs using the Acme Gridley have been temporarily postponed pending the outcome of the above tests.

Open reduction of thorium fluoride with calcium, in five brief tests, indicated that this method was not suitable for thorium production; reaction products were thrown out of the pots and slag metal separation was incomplete.

Test results indicate that remelt cycle E is superior to the heating cycle currently being used in the Metal Production Plant, resulting in ingots with lower carbon, higher density, shorter melting cycle, and slightly higher yields. Adoption of this heating cycle has been recommended on a production basis.

The OH concentration of a potassium-lithium carbonate bath appears to be directly related to atmospheric humidity. The addition of 100 pounds carbon dioxide gas per 24 hours controls the OH concentration during the dry months.

~~SECRET~~

ORGANIZATION & MANAGEMENT

A. H. H. 2

OUTGOING DOCUMENT CONTROL FORM

891329		FUSRAP DOCUMENT DESCRIPTION	
REF. NO.:	PA. O., WI. O., (MA. 18) FILE NO.: OTS	DATE: 12/17	CLIENT: DOE-SAFUF
ADDRESSEE: A. Williams		CONTRACT: DE-ACD1-88NE46125	
SIGNATORY: D. Stout		ACTION NO.:	
OTS AUTHOR: D. Stout		W. O. # 3762-0X-12-1000 ²	
SUBJECT: Potential considered sites			
SITES/PROJECTS: FUSRAP			
KEYWORDS:			

REVIEW/APPROVAL	INITIAL	DATE	COMMENTS	DISTRIB.	LTR ONLY	CC	BCC
PREPARED BY:	DSS	12/17	Create new file		Over		
REVIEW BY:			MA. 18		Doug		
					Ed		
					4 File copies		
APPROVED: J. Timney							
DATE: 12/17/90							
DISPOSITION: Please distribute							