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PNL 10-90

FOR FIVE U

FROM: C. D. Shadinger  
15 1956SUMMARY AREA  
CLASSIFIED FILESREMOVAL OF RUPTURED SLUG FROM TUBE 1963-D

The 105-D pile was shut down at 6:32 A.M. on July 28, 1951, to permit removal of a ruptured slug from tube 1963-D. Removal was accomplished by hydraulically ejecting the charge downstream of the ruptured piece, back seating the charge, removing the ribs up to the offending piece and discharging the remainder of the metal with a hydraulic jack and a charge machine. Total time expended in the actual removal operation was 15 hours; however, the outage extended 26.5 hours because of minimum pile downtime requirements.

DETECTION

The rupture was initially indicated by the effluent water monitoring system. Header sample analysis gave additional evidence of a rupture and the pile was shut down. A reading of 3.5 R/hr. was obtained on the rear pigtail of tube 1963-D.

REMOVAL

Initial efforts to discharge the tube with the pneumatic charge machine were unsuccessful. The rear dummy pattern and 26 metal pieces were ejected by 250 psi water pressure and the remaining charge was backseated 4 5/8 inches at 5000 psi. The ribs were then cut from the rear of the tube up to the ruptured piece. The hydraulic jack was employed and the charge released at 3000 psi. The pressure dropped to 500 psi permitting utilization of a charge machine.

Tube 1963-D was removed from the pile, replaced and charged with regular metal.

DATA ON THE CHARGE

This tube contained regular metal, charged February 2, 1951. The ruptured slug was an M3 type, canned January 19, 1951, processed truck No. 11, Line H., and had been autoclaved. The tube was operating at a 280 KW power level, and had reached 52% of current goal concentration.

The ruptured piece was the 38th piece from the front. The rupture was a diagonal failure extending from one end to the other dividing the slug into two separate pieces of approximately equal volume.

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August 2, 1951

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Health Aspects

Approximately 20 minutes after isolation of the tube, the effluent flow was diverted from the north to the south basin on 107-D. Samples of the effluent water taken at the north basin outlet before diversion, and of the south basin inlet and outlet after changing basins, indicated that no detectable amount of product was flowing into the river. Subsequent samples of the storage basin and retention basin permitted both basins to be returned to normal.

There was one case of personnel contamination which was successfully removed after several washings. An informal investigation was held.

SLUG DISPOSAL

The ruptured slug has been canned and is currently being held in the 105-D storage basin pending shipment to 111-B.

*C D Shadigan*

PRODUCTION UNIT  
REACTOR SECTION

CLS:mtc

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