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TRIP REPORT

TR NO.

ASTRONUCLEAR LABORATORY

Author: R. A. Pahler

Security Classification

Date: November 4, 1970

INFORMATION CATEGORY

Trip to: Westinghouse Industrial
Equipment Division
Sykesville, Maryland

Unclassified
E. M. Duran 11/4/70
Authorized Classifier Date

Date of Trip: October 27, 28, 1970

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Purpose of Trip: To ultrasonically clean the Core Support/Plena Plate, 60° Sector 711J566, to satisfy scope of test 61-DC-245-1.

Persons Present: Westinghouse Industrial Equipment Division
Mr. Carl Riegel, Sales Engineer
Mr. George Sietz, Assembly Area Foreman
Westinghouse Astronuclear Laboratory
Mr. Edward A. Walewski, Quality Control
Mr. Robert A. Pahler, Manufacturing Engineer

MASTER

SUMMARY

Following several unsuccessful attempts to clean the Core Support/Plena Plate, ultrasonic cleaning was investigated and proposed as a method for removing the minute particles trapped in the plates complex network of holes. Equipment with an above average capacity was finally located at the Westinghouse Industrial Equipment Division, Sykesville, Maryland.

Following is a description of the equipment utilized for this cleaning procedure:

- (1) Tank - 304 Stainless steel, 36" square x 48" deep
- (2) Ultrasonic Generator - Solid State Magnatnak, 6 Kw.
- (3) Three (3) Immersable Transducers, 8" x 20"
10 watts/square inch at 20 Kc.
- (4) Two (2) Immersable Heaters, 440 V, 12 Kw. each

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The tank was filled to a depth of 28" with 150 gallons of distilled water and heated to 180°F. Thirty (30) grams of chromic oxide (Cr_2O_3) was added to the water. A clean white lint free cloth was placed on the bottom of the tank, under the transducers, to collect any particles dislodged from the plate.

The cleaning procedure was planned with the plate to be suspended in solution in three (3) different positions, as follows:

Position No. 1 - First set of radial holes in the vertical position, hole A-1 near surface of solution.

Position No. 2 - Second set of radial holes in the vertical position, hole A-1 near surface of solution.

Position No. 3 - Plate in horizontal (flat) position. All "A" holes vertical, surface -A- near the surface of the solution.

The plate was suspended with two nylon slings and placed in the tank. The entire plate was submerged and cleaned in each position (described above) for exactly five (5) minutes, total immersion time, fifteen (15) minutes.

Immediately following the ultrasonic cleaning procedure, the plate was placed in a clean polyethylene bag and moved to an instrument laboratory, unwrapped and blown dry with ultra pure helium. The plate was then sealed in two polyethylene bags, crated and returned to WANL for inspection.

The inspection, performed October 30, 1970, revealed the presence of metal chips and undefinable foreign matter of a magnitude that exceeded the maximum dimensional requirements established by Reactor Design letter, RD 2517 dated April 9, 1970, which states "The internal flow-passages of the plate should be free of all particles greater than .004 inch".

Visual inspection of the lint free cloth showed that no dirt, visible to the naked eye, was removed from the plate.

CONCLUSION

From all indications, ultrasonic cleaning is not an effective method for cleaning the Core Support/Plena Plate.

Additional cleaning shall be performed in-house. The current plan is to create a clean room environment and clean each hole individually.

APPROVED: E. M. Duran
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