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HW--31519

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SPECIAL REVIEW
FINAL INTERVIEW
DECLASSIFICATION CONTINUED

BY J. P. Dennis DATE 6-15-81
BY J. J. Jordan DATE 6-16-81

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April 20, 1954

COPY 1 of 1, MASTER

PROCESS TEST MR-105-19
EVALUATION OF THE SLIP JOINT C-REACTOR
REAR PIGTAIL REPLACEMENT

References

- (1) Drawing SK-1-1527, "Experiment Rear Pigtail"

INTRODUCTION

The C-Reactor is currently equipped with neoprene covered stainless steel bellows connectors between the rear face nozzles and crossheaders. These bellows are failing at an excessive rate and must be replaced at an early date. The replacement design, developed by Pile Technology Sub-Section, utilizes

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a relatively short length of stainless steel tubing and a slip joint sealed by "O"-rings (1).

OBJECT

The purpose of this test is to evaluate the suitability of the slip joint pigtail as a replacement rear face connector.

BASIS AND JUSTIFICATION

The rear crossheader connector on C-Reactor process tubes must accommodate both angular displacement and linear expansion between the nozzle and header fittings. These movements are caused by thermal and charging forces on the process tube. The connectors are also subjected to radioactive reactor effluent water at approximately 100°C and 30 psig.

The proposed slip joint replacement pigtail embodies several desirable features as follows:

1. It will cause no interference with the existing standard "Quickie" cap remover equipment.
2. Its installation may be scheduled over several successive outages to interfere least with reactor production.
3. It is constructed of stainless steel which has been demonstrated as a practical material to withstand maintenance handling.
4. It can utilize the existing nozzle adaptor, elbow and union nut.

There are, however, several factors concerned with the slip joint pigtail which should be evaluated on a reactor test basis. Among these are the durability and sealing characteristics of the "O"-rings under effluent water radiation, the effect of stagnant water in the "crevice" at the joint and the general suitability of the connector.

PROCEDURE

A minimum of twenty-five slip joint connectors, constructed according to the design of Pile Technology will be installed on the C-Reactor rear face, predominantly on process tubes which will have high effluent temperatures. The actual selection of tubes will be made at the time of installation. These connectors will be visually examined during subsequent outages for adverse developments, particularly with regard to the condition of the slip joint "O"-ring, the "crevice" between the tube and housing, and the degree of motion. Visual monitoring for the development of leaks will be made at both low and high reactor flow rates and with the rear crossheader to the drain.

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COSTS

Installation and subsequent Mechanical Maintenance stand-by during inspection: -
Charge Code: xxx-6141-601.

RESPONSIBILITY

Operations Sub-Section, 100-C is responsible for production continuity and operational safety of the reactor and will assist in examining the test connectors. Process Sub-Section is responsible for coordinating this test with Pile Technology, for examination of the connectors and for preparing a final report.

R. D. Schilling

R. D. Schilling
Reactor Operation Engineering
Process Sub-Section
REACTOR SECTION

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