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Subject: CF 57-6-27 (Unclassified)

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Very truly yours,

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N. T. Bray, Supervisor
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/jr

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57-6-27

EXTERNAL TRANSMITTAL AUTHORIZED

COPY NO. 66

DATE: June 6, 1957

SUBJECT: LIQUID LEVEL CALIBRATION OF FUEL AND BLANKET HEAT EXCHANGERS
HRT Test No. V. A. 7 a

TO: R. Van Winkle

FROM: J. D. Perret, Jr.

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LIQUID LEVEL CALIBRATION OF FUEL AND BLANKET HEAT EXCHANGERS
HRT Test No. V. A. 7 a

I. Fuel Heat Exchanger

The fuel heat exchanger liquid level was calibrated by filling the shell with condensate to the top flanges, draining the condensate in increments which were weighed and recording the weight removed vs the indicated reading on level recorder LR-545. Lines 583 and 584 were used for the signal to the d/p cell, which is the primary instrument for the level recorder.

The original data appear on page 29 of the Data Log Book. The results are as follows:

1. The capacity to the top of the flanges is 3920.5 lb.
2. 100% reading, corresponding to 10 in. above the center line, is 3340 lb.
3. 0% reading, using 20-in. range d/p cell with bottom connection on line 584, which is 10 in. below the center line, is 610 lb.
4. The original data, adjusted to a 28-in. d/p cell with bottom connection on line 587 18 in. below center line, are plotted in Fig. 2. Figure 1 shows the arrangement of the level taps on the heat exchangers.

II. Blanket Heat Exchanger

The blanket heat exchanger was calibrated in a manner similar to the fuel side calibration. The indicated reading was read on level recorder LR-546. Lines 585 and 586 (see Fig. 1) were used for the signal to the d/p cell, which is the primary instrument of the level recorder.

The original data appear on page 31 of the Data Log Book. The results are as follows:

1. The capacity to the top of the flanges is 3933 lb.
2. 100% reading, corresponding to 10 in. above the center line, is 3370 lb.
3. 0% reading, using 20-in. range d/p cell with bottom connection on line 586, which is 10 in. below the center line, is 600 lb.
4. The original data, adjusted to a 28-in. d/p cell with the bottom connection on line 588 18 in. below center line, are plotted in Fig. 3.

The quality of the data is indicated by the fact that both sets of data can be combined in a single smooth curve.

FIGURE 1
 - FUEL & BLANKET HEAT EXCHANGERS -
 LIQUID LEVEL INST. LINES

ORNL-IR-Dwg. -21981

FIG. 2

ORNL-LA-Dev.-21982

CALIBRATION OF LEVEL RECORDER

FUEL SIDE HEAT EXCHANGER

USING LINES 581 AND 587

28-IN. RANGE

Liquid Column in Pounds of Water

3600

3200

2800

2400

2000

1600

1200

800

400

0

RECORDED RANGE IN % ON LA-215

ORNL-LR-Dwg.-21983

Fig. 3
CALIBRATION OF LEVEL RECORDER
PLANET SIDE HEAT EXCHANGER
USING LINES 585 AND 508
28-in. RANGE

LIQUID CONTENTS IN POUNDS OF WATER