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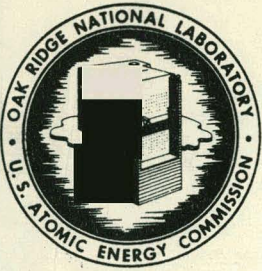
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POST OFFICE BOX P
OAK RIDGE, TENNESSEE

ORNL
CENTRAL FILES NUMBER

CF- 56-6-165



DATE: June 28, 1956
SUBJECT: Results of Package Boiler Test
HRT Test No. V 4a
TO: R. Van Winkle
FROM: J. L. Gory

COPY NO. 57

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RESULTS OF PACKAGE BOILER TEST HRT Test No. V 4a

Summary

The package boiler was operated at a maximum steam rate of 1750 lb/hr at 1500 psi. The operation of the pumps, relief valves, gauges, and pressure controller were checked. The time required for the boiler to come up to full operation was approximately 15 to 20 minutes. On the basis of the test reported here, the boiler is considered to meet the manufacturer's specifications.

Testing

A number of attempts were made to operate the package boiler at the rated capacity of 1670 lb/hr of saturated steam at 1500 psi. However, the maximum steam rate during these trial runs was only 1200 to 1400 lb/hr at 1500 psi. Measurements of the spill-over rate, feedwater rate, feedwater by-pass rate, fuel consumption rate, and steam rate indicated the fuel consumption rate was too low. It was found that the fuel oil differential relief valve was set so as to by-pass too much oil back to the fuel oil storage tank. After correcting the oil relief valve and cleaning the boiler heat transfer surfaces, the maximum steam rate obtained was 1750 lb/hr at 1500 psi, slightly greater than the rated capacity of the boiler.

The conditions during the final test were as follows:

Pressure	1500 psi
Steam Temperature	602°F
Stack Pressure at Base	2.5 mm H ₂ O
Fuel Pressure at Burner	32 psi
Atomizing Air Pressure	33 psi
Steam Rate	1750 lb/hr
Spill-over Rate	37.5 lb/hr
Fuel Oil Rate	144.3 lb/hr
Flue Gas Analysis--	
CO ₂	8.2 %
CO	0 %
O ₂	10.0 %
Residue	81.8 %

Since this test indicates that the boiler meets the manufacturer's specifications, no further testing of the boiler capacity is planned. The ability of the boiler pressure regulator to maintain a constant steam pressure will be observed during the oxygenated water and natural uranium runs.

J. L. Gory
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