



**HITACHI**

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MFN 08-780

Docket No. 52-010

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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

Subject: Response to Portion of NRC Request for Additional Information Letter  
No. 208 - Related To NEDE-33338P, "ESBWR Feedwater  
Temperature Operating Domain For Transient And Accident Analysis"  
– RAI Number 4.3-24

The purpose of this letter is to submit the GE Hitachi Nuclear Energy (GEH)  
response to the U.S. Nuclear Regulatory Commission (NRC) Request for  
Additional Information (RAI) sent by the Reference 1 NRC letter. GEH response  
to RAI Number 4.3-24 is addressed in Enclosure 1.

If you have any questions or require additional information, please contact me.

Sincerely,

Richard E. Kingston  
Vice President, ESBWR Licensing

D068  
MRW

Reference:

1. MFN 08-508, Letter from U.S. Nuclear Regulatory Commission to Robert E. Brown, Request For Additional Information Letter No. 208 Related To NEDE-33338P, "ESBWR Feedwater Temperature Operating Domain For Transient And Accident Analysis", dated June 3, 2008.

Enclosure:

1. MFN 08-780 – Response to Portion of NRC Request for Additional Information Letter No. 208 - Related to NEDE-33338P, "ESBWR Feedwater Temperature Operating Domain For Transient And Accident Analysis" – RAI Number 4.3-24

cc: AE Cabbage      USNRC (with enclosure)  
RE Brown          GEH/Wilmington (with enclosure)  
DH Hinds          GEH/Wilmington (with enclosure)  
eDRF                0000-0091-6549

**Enclosure 1**

**MFN 08-780**

**Response to Portion of NRC Request for**

**Additional Information Letter No. 208**

**Related to NEDE-33338P, "ESBWR Feedwater Temperature**

**Operating Domain For Transient And Accident Analysis"**

**RAI Number 4.3-24**

**NRC RAI 4.3-24**

*Provide heat balance for SP1M and SP2 points.*

*For operating points SP1M and SP2, provide a heat balance sheet similar to the one in Figure 10.1-2 of DCD Chapter 10.*

**GEH Response**

GEH has evaluated the heat balance conditions at the two points identified in the Feedwater Temperature Operating domain – points SP1M and SP2. The associated heat balance diagrams are attached.

**DCD Impact**

No changes to LTR NEDO-33338 will be made in response to this RAI.

No changes to the DCD will be made in response to this RAI.

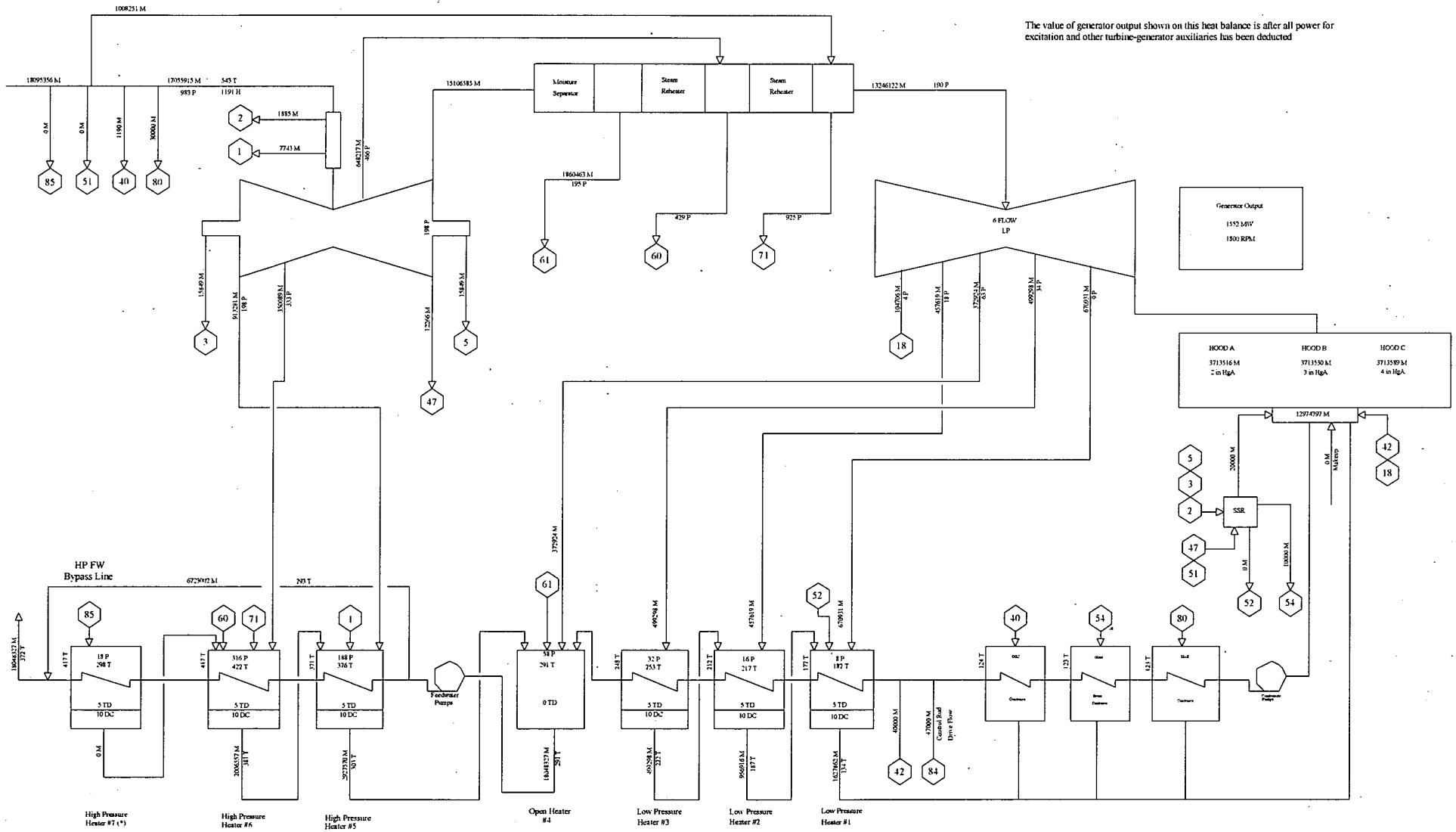
**Attachments:**

1. Heat Balance Diagram at FW Operating Point SP1M
2. Heat Balance Diagram at FW Operating Point SP2

# Heat Balance at FW Operating Point SP1M

Turbine and extraction arrangement is schematic only

The value of generator output shown on this heat balance is after all power for excitation and other turbine-generator auxiliaries has been deducted



LEGEND - CALCULATIONS BASED  
ON 1967 ASME STEAM TABLES  
M - FLOW (lb/hr)  
P - PRESSURE (psia)  
H - ENTHALPY (BTU/lbm)  
T - TEMPERATURE (Degrees F)

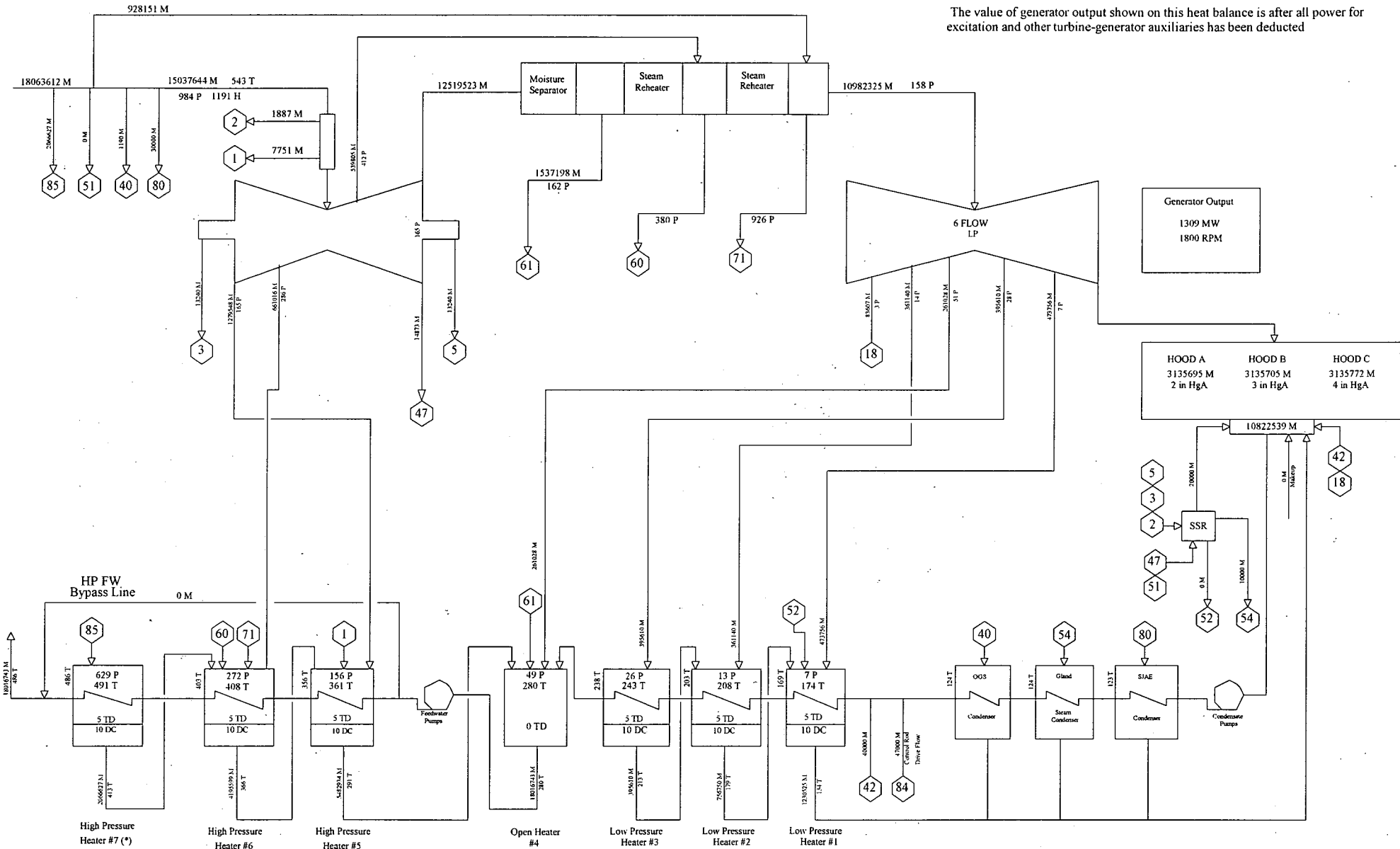
TD - TERMINAL DIFFERENCE (Degrees F)  
DC - DRAIN COOLER APPROACH (Degrees F)

\* Alternate drain options for #7 FW heater are being evaluated to optimize plant efficiency/operation.

# Heat Balance at FW Operating Point SP2

Turbine and extraction arrangement is schematic only

The value of generator output shown on this heat balance is after all power for excitation and other turbine-generator auxiliaries has been deducted



LEGEND - CALCULATIONS BASED ON 1967 ASME STEAM TABLES  
 M - FLOW (lb/hr)  
 P - PRESSURE (psia)  
 H - ENTHALPY (BTU/lbm)  
 T - TEMPERATURE (Degrees F)  
 TD - TERMINAL DIFFERENCE (Degrees F)  
 DC - DRAIN COOLER APPROACH (Degrees F)

\* Alternate drain options for #7 FW heater are being evaluated to optimize plant efficiency/operation.