REGENERATIVE RANKINE CYCLE

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Background & description:

This process flow sheet shows the ideal Regenerative Rankine Cycle with one open feed-water heater. Steam enters the turbine at 9 MPa, 480℃ and is then condensed in a condenser at a pressure of 7 kPa.

WORKING:-

- Turbine- Steam with elevated temperature and pressure expands through the turbine to produce work and then is discharged to the condenser with relatively low pressure.
- Condenser- Steam from the turbine is condensed to liquid water in the condenser.
- Pump- Pump pressurized the liquid water from the condenser prior to going back to the boiler.
- Boiler- Liquid water enters the boiler and is heated to superheated state in the boiler

Flowsheet:
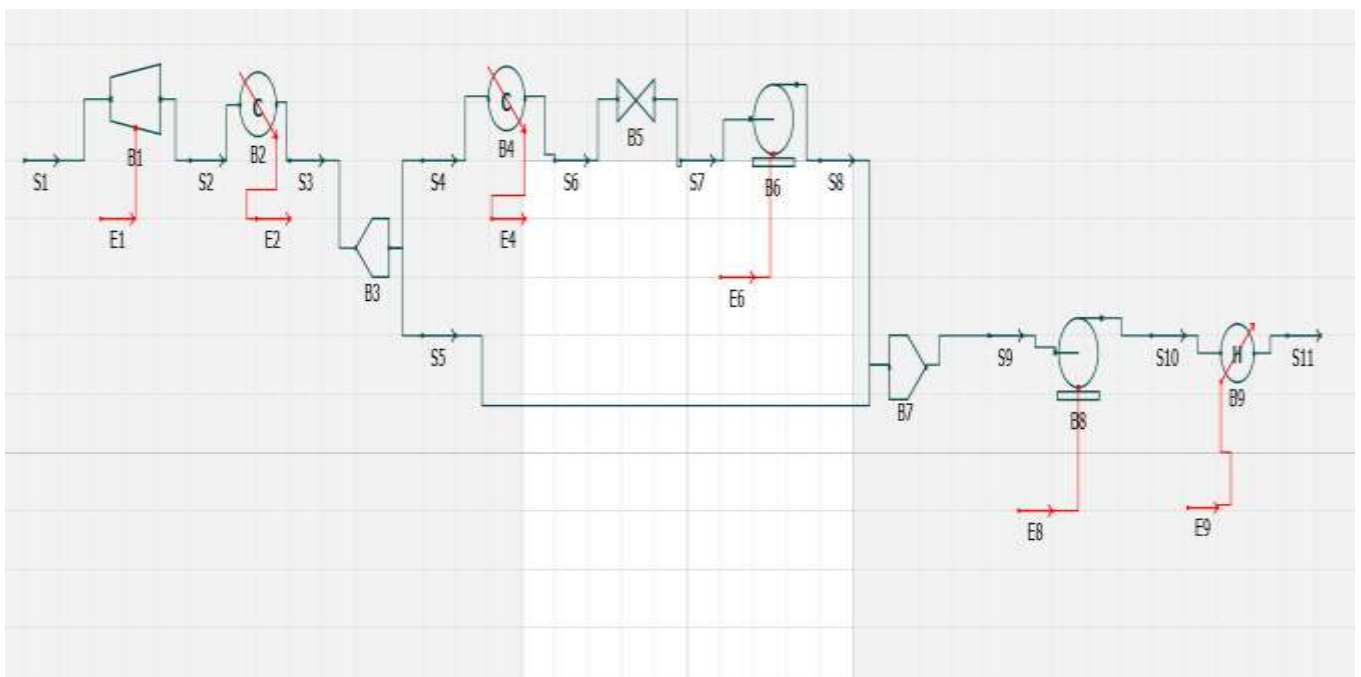
Results:

Object	S1	S5	S7	S8	S9	S11	Units
Temperature	1506.04	1493.89	1460.8	1481.14	1486.24	1506.04	**K**
Pressure	9.00E+06	9.00E+06	9.00E+06	9.00E+06	9.00E+06	9.00E+06	**Pa**
Molar Flow	21.6483	8.65932	12.989	12.989	21.6483	21.6483	**mol/s**
Molar Fraction	1	1	1	1	1	1	

Reference:

- http://romulus.sdsu.edu/testcenterdev/testhome/Test/problems/chapter09/chapter09Local_1.html