NUCL 402 HMWK 8

1. BWR One Stage Separation System

|  |  |  |  |
| --- | --- | --- | --- |
| Point | p (kPa) | x ( ) | h (kJ/kg) |
| 1 | 6890 | 1.00 | 1192.4 |
| 2s | 1380 | 0.846 | 1067.09 |
| 2 | 1380 | 0.861 | 1079.6 |
| 3 | 1380 | 1.00 | 1199.3 |
| 4 | 1380 | 0.00 | 355.6 |
| 5s | 1380 | 0.800 | 898.30 |
| 5 | 6.89 | 0.797 | 896.95 |
| 6 | 6.89 | 0.00 | 69.7 |
| 7s | 1380 | -- | 70.29 |
| 7 | 1380 | -- | 70.39 |
| 8 | 1380 | -- | 110.5 |
| 9s | 6890 | -- | 117.06 |
| 9 | 6890 | -- | 118.22 |

* 1. Cycle Thermal Efficiency
  2. Cycle Thermal Efficiency with pumps and turbines having 100% isentropic efficiency
  3. Work Lost due to Irreversibility, Conservation of Work

1. Thermal Efficiency of Brayton Cycle
   1. Perfect Gas
   2. Real Fluid
   3. Real Fluid, Compressor Turbine have 95% efficiency