**SINGLE CHANNEL TH [X]**

Mass Equation:

Energy Equation:

Axial Momentum Equation:

EOS:

Steps to solve a channel:

* Solve for mass equation to get
* Using these masses solve energy equation
* Solve the axial momentum equation for pressure.
* Update density values using enthalpy and pressure
* Update temperature values using enthalpy and pressure
* Repeat until temperatures do not change any more.

**SINGLE CHANNEL DNP’s [X]**

Steps to solve:

* Get face velocities from TH solver.
* Setup advection-reaction equation with source in advection solver.
* Solve

**Loop solver (no heat source)**

1. **Arrange/setup all relevant channels**
2. **Setup flowpath from inlet of channel to outlet of channel**
3. **Solve**
4. **Iterate 1-3 using outgoing fluxes from one channel as the incoming fluxes to another channel**

**CALCULATION SET 1 – Single Channel pump startup and coastdown**

1. First order upwind DNP st.st. results (2x – startup + coastdown)
2. First order upwind DNP transient results (2x – startup + coastdown)
3. Second order QUICK scheme DNP st.st. results (2x – startup + coastdown
4. Second order QUICK scheme DNP transient results (2x – startup + coastdown)