

# Avoid “0 = 0”

- Geothermal reservoir problem; VPL, non-condensable gas: use EOS4; modify gas (molecular weight, solubility)
- Bottom boundary (P, T, Pair) = (30.e5, 250., 1.e3)
- Water injection

```
GENER-----1-----*-----2-----*-----3-----*-----4-----*-----5-----*-----6-----*-----7-----*-----8
A27 1inj 1          COM1          5.0          1.e5
A27 1inj 2          COM2          1.e-15
```

# Injection at Specified Temperature

Task: inject 25 °C water into grid block \*A27 1\* in domain 'LAY 1'.

Solution: assign \*A27 1\* to a domain 'LAY1i' with properties identical to 'LAY 1', except give it "infinite" specific heat by assigning "infinite" rock grain density.

Initialize 'LAY1i' with desired injection temperature. Inject with arbitrary enthalpy.

```
ROCKS-----1-----*-----2-----*-----3-----*-----4-----*-----5-----*-----6-----*-----7-----*-----8
LAY 1      2      2600.      .04  43.2e-15  43.2e-15  43.2e-15      2.1      1000.

          7          .4438          0.80          1.          .05
          7          .4438          0.00E-2  5.792E-07          5.e8          1.0
LAY1i     2  2600.e40          .04  43.2e-15  43.2e-15  43.2e-15      2.1      1000.

          7          .4438          0.80          1.          .05
          7          .4438          0.00E-2  5.792E-07          5.e8          1.0
```

```
ELEME-----1-----*-----2-----*-----3-----*-----4-----*-----5-----*-----6-----*-----7-----*-----8
A27 1      LAY1i      1.e3
```

```
INDOM-----1-----*-----2-----*-----3-----*-----4-----*-----5-----*-----6-----*-----7-----*-----8
LAY1i      30.000e5          25.0          0.0
```

```
GENER-----1-----*-----2-----*-----3-----*-----4-----*-----5-----*-----6-----*-----7-----*-----8
A27 inj 1      COM1          5.0          0.0
```