



**NUCLEAR SAFETY
RESEARCH INSTITUTE**

Offline presentation of MELCOR 1.8.6 results using the ATLAS-5 simulator tool

- **6th Meeting of European MELCOR User Group (EMUG)**
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ATLAS-5 OFFLINE SIMULATOR TOOL - GRS



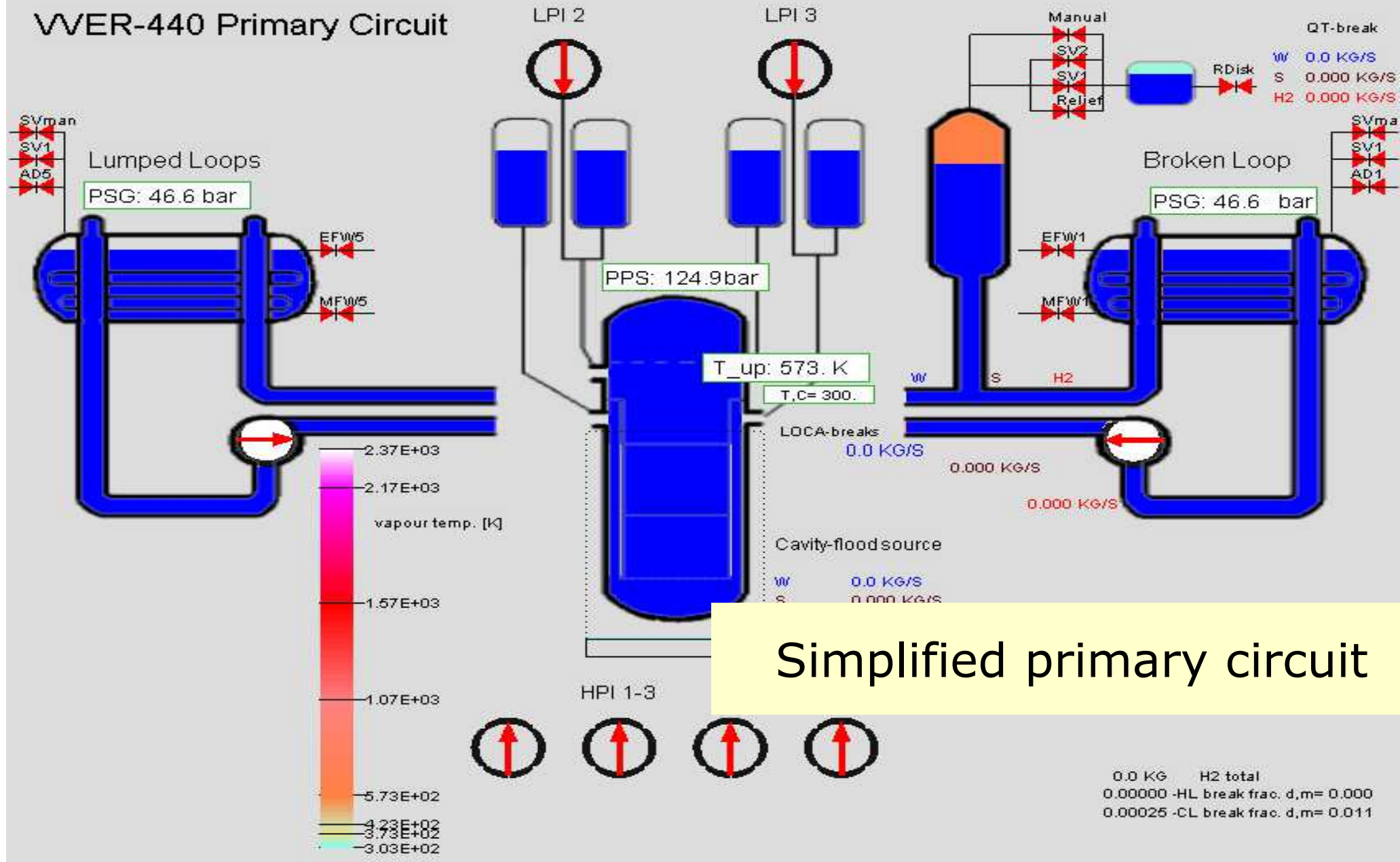
APG is a Microsoft Windows based program for graphics development. It uses **OpenGL** (**Open Graphics Library**)



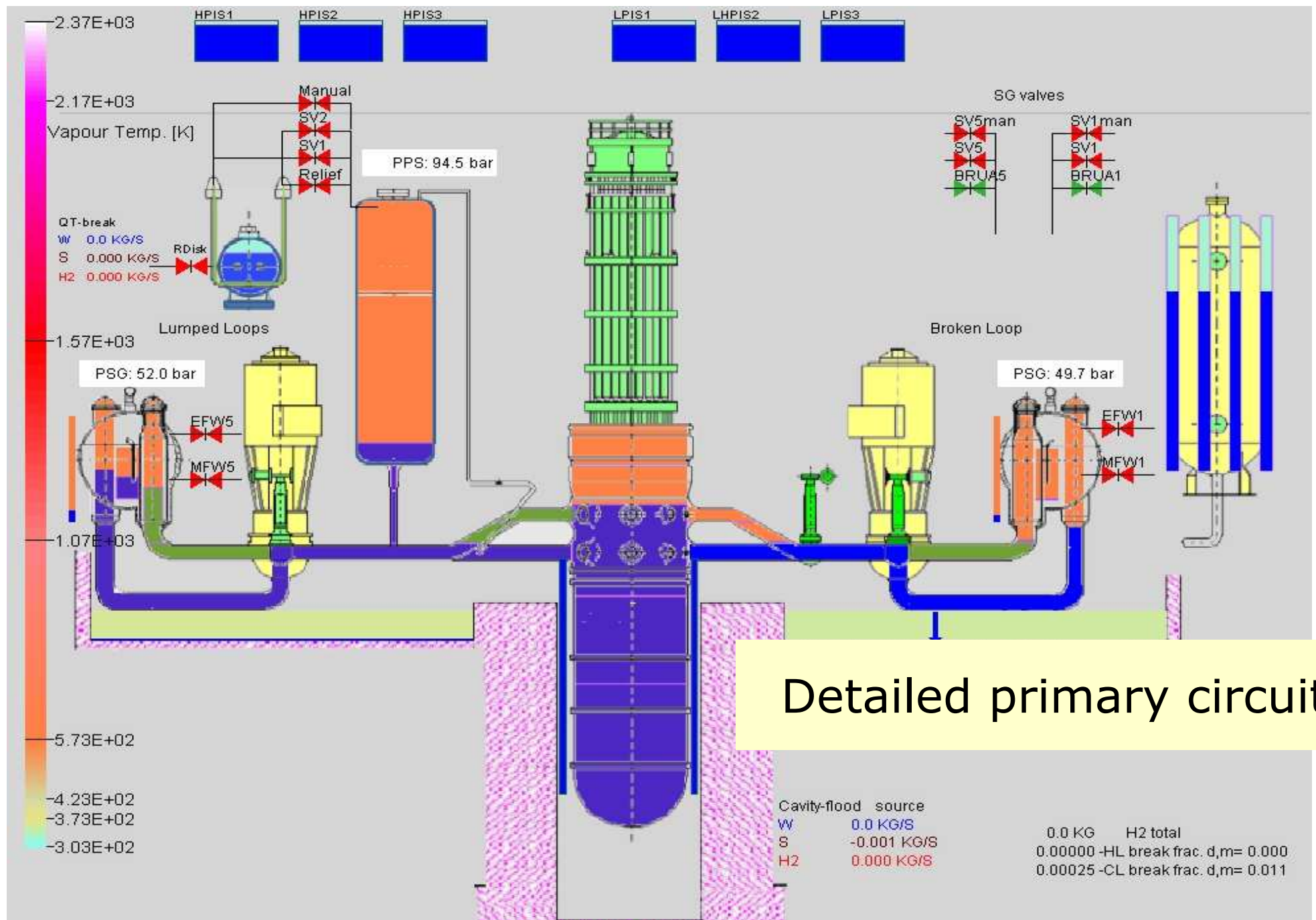
ATLAS (**ATHLET Analysis Simulator**) is a simulation tool for power plant processes.

Main goal of SIMULATOR is to train HAEA Emergency Center staff for severe accident processes

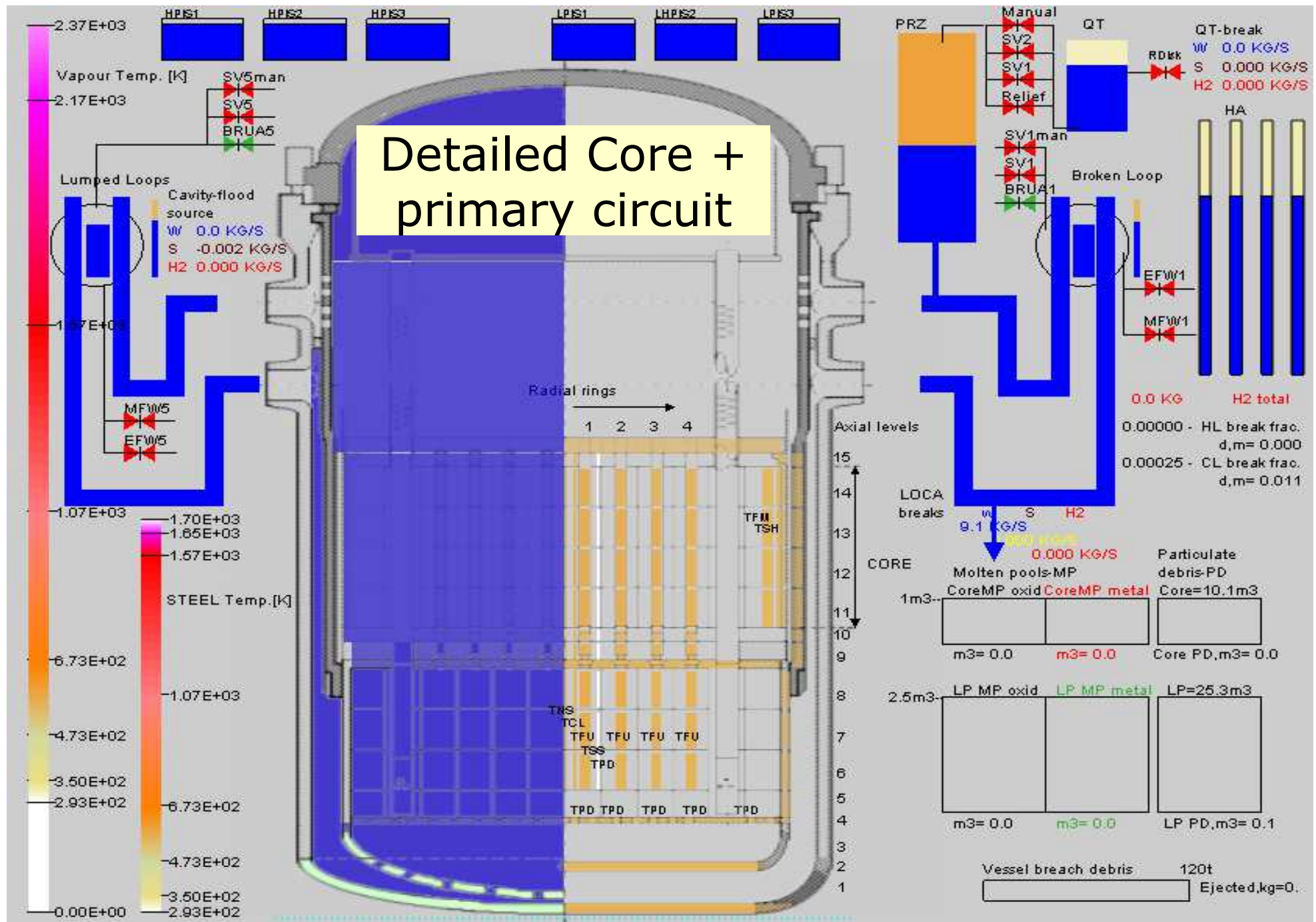
VVER-440 Primary Circuit

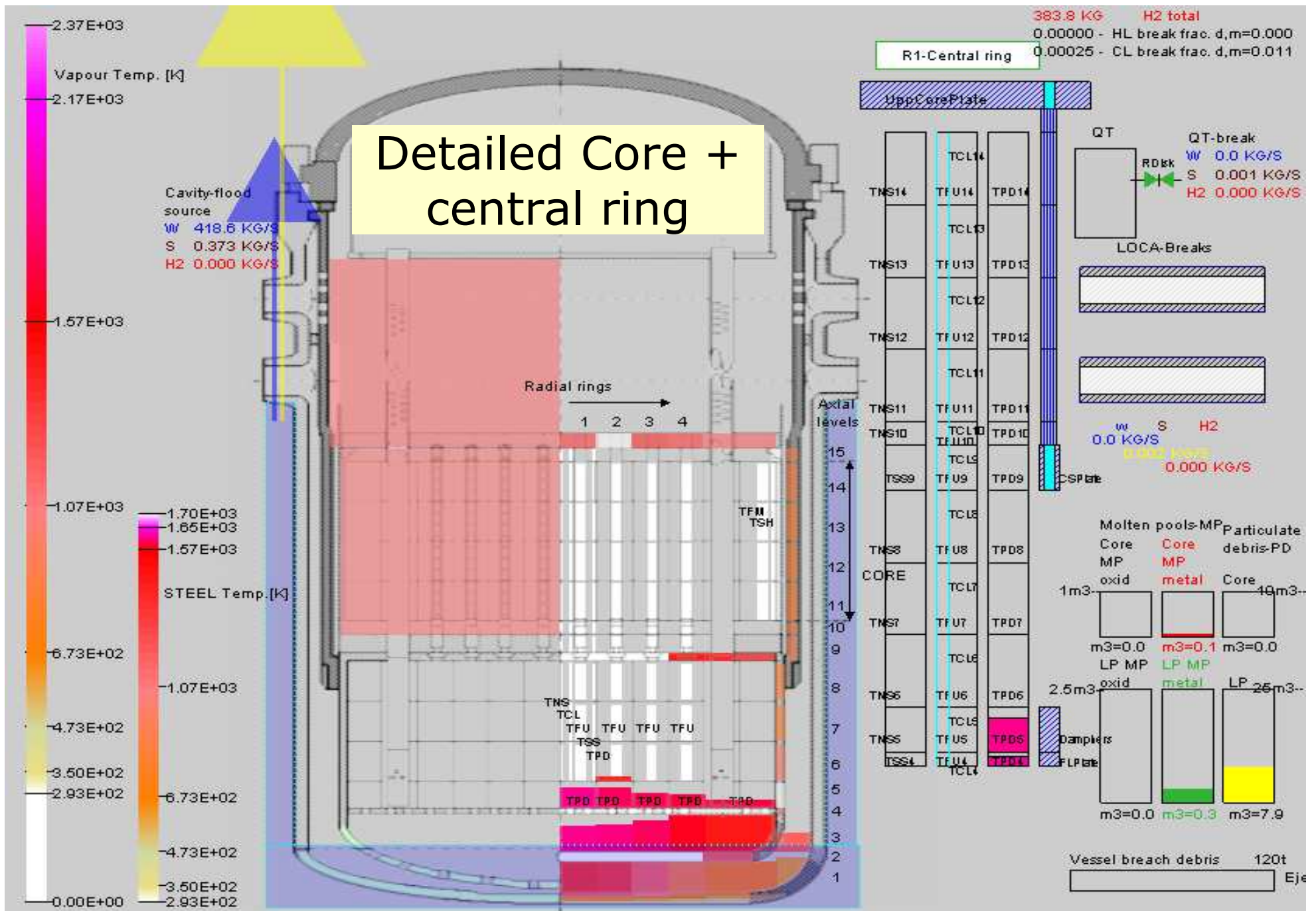


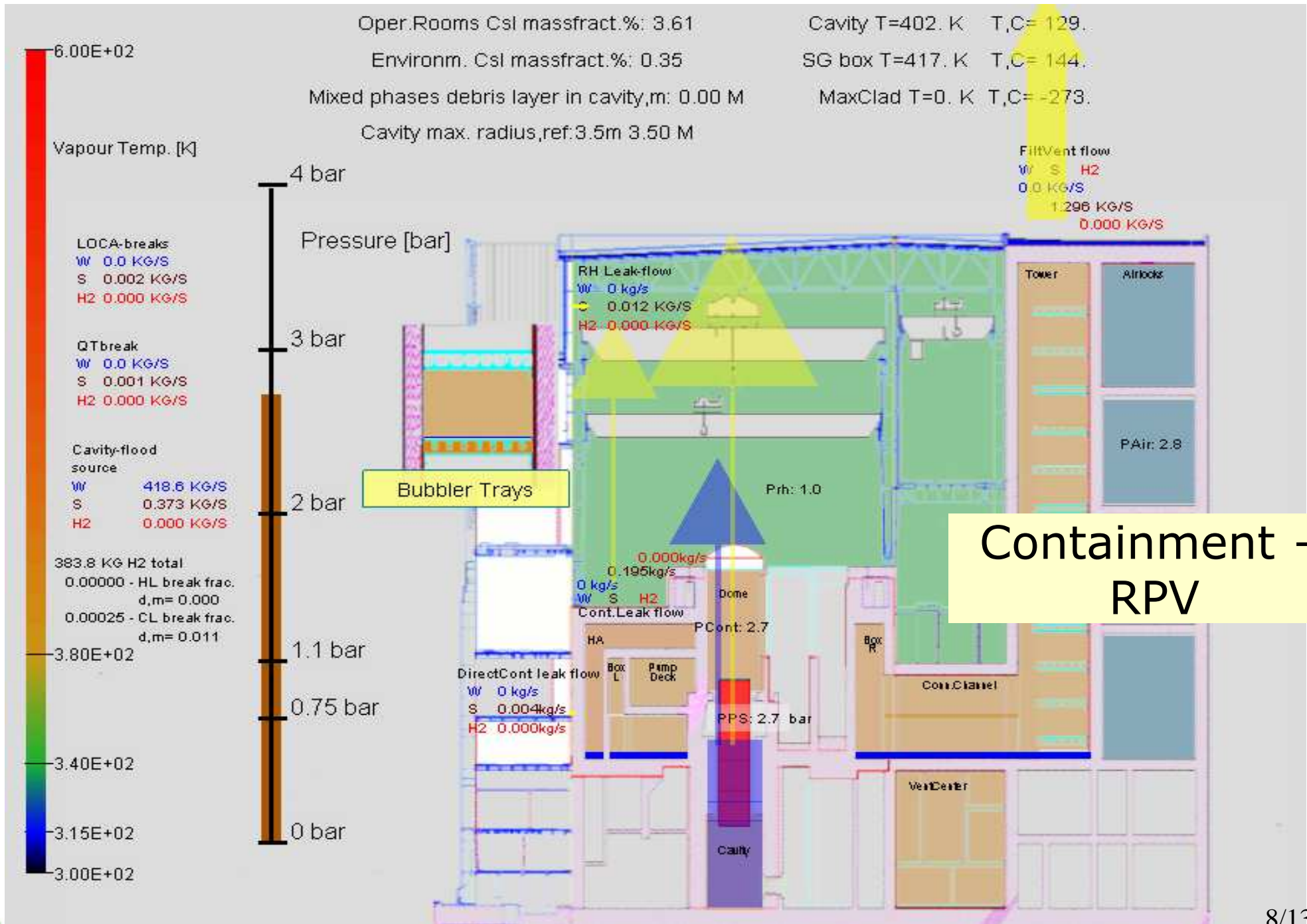
Simplified primary circuit



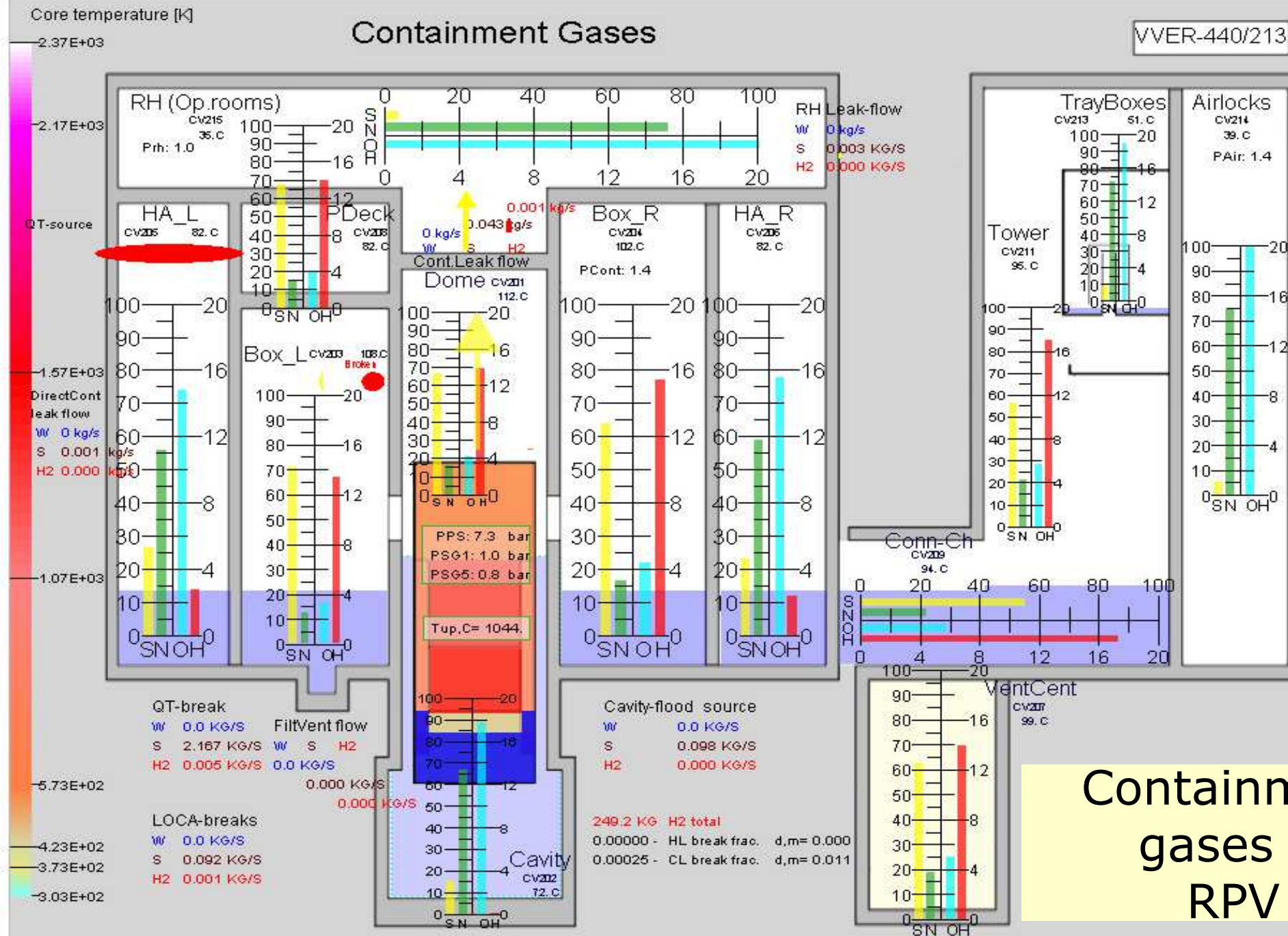
Detailed primary circuit



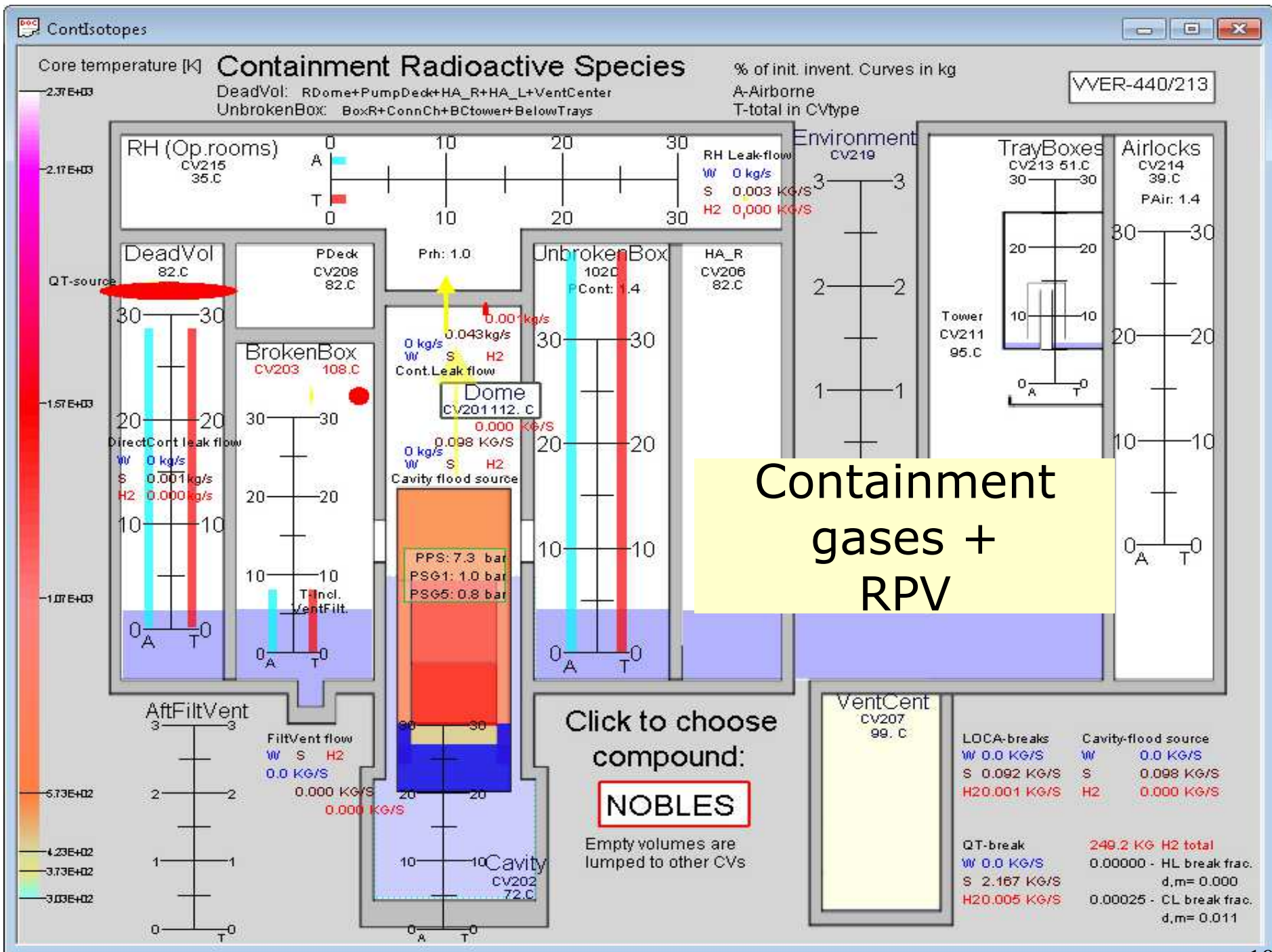




Containment Gases



Containment gases + RPV



Shapiro-diagramm H2-Air-Steam - Mixture

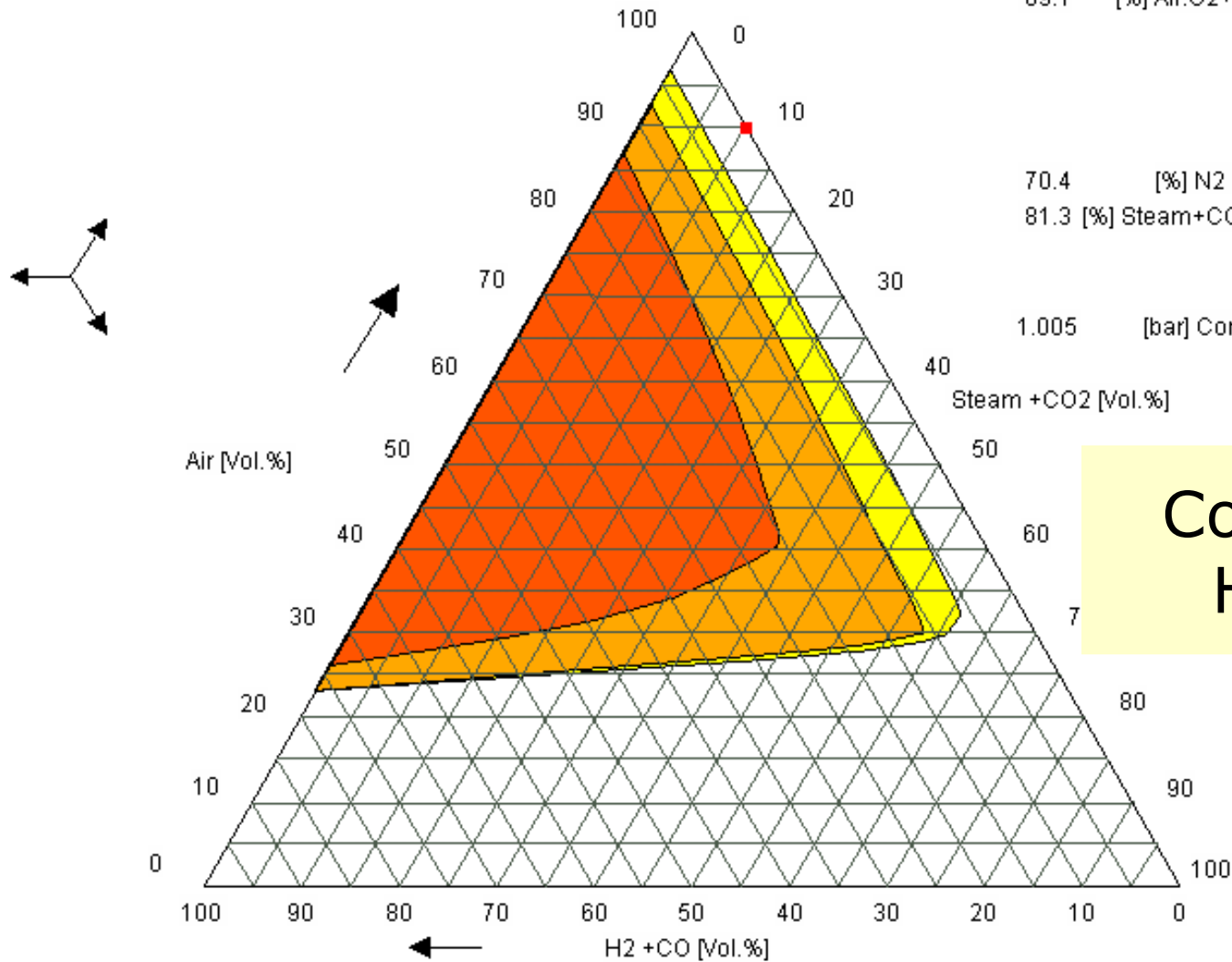
Legend:

Click to select

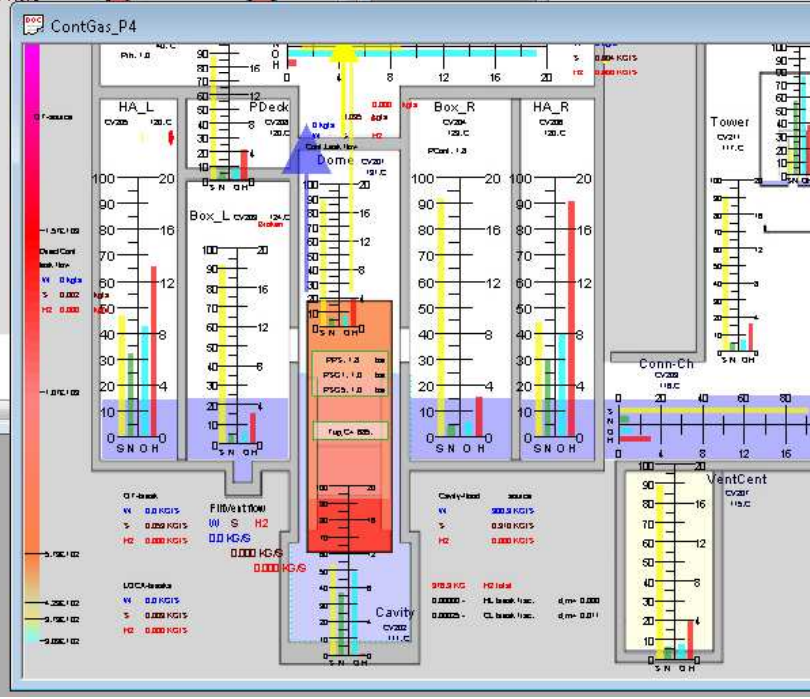
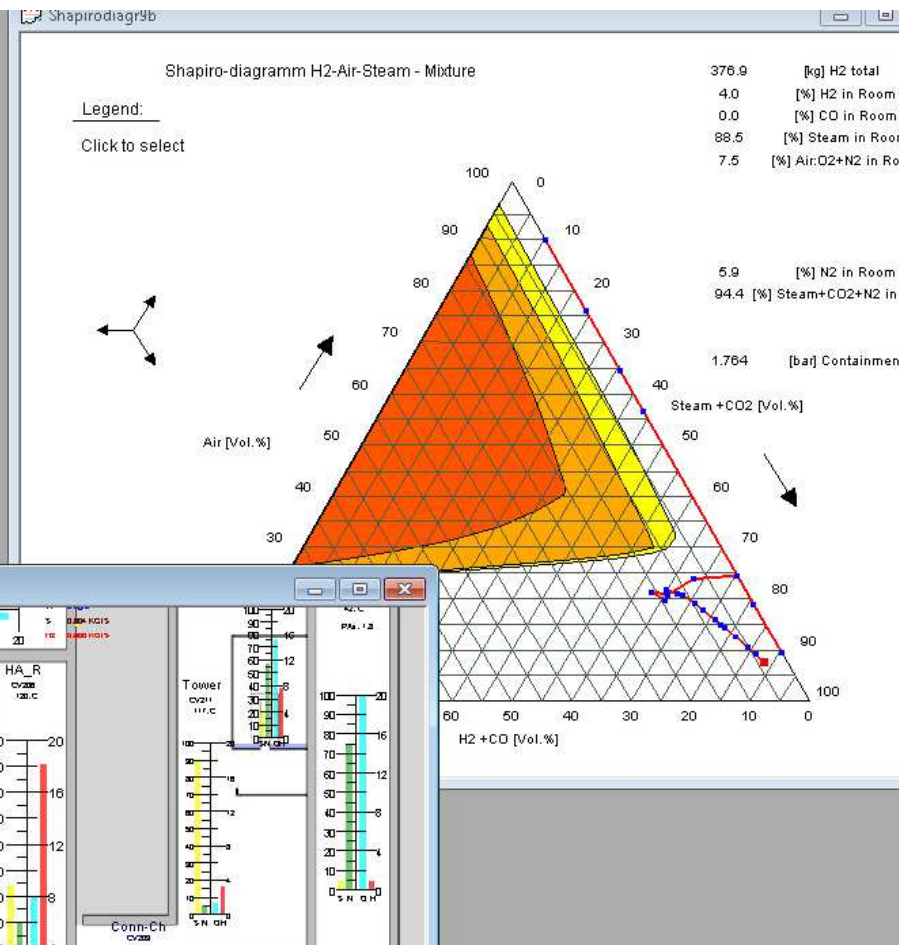
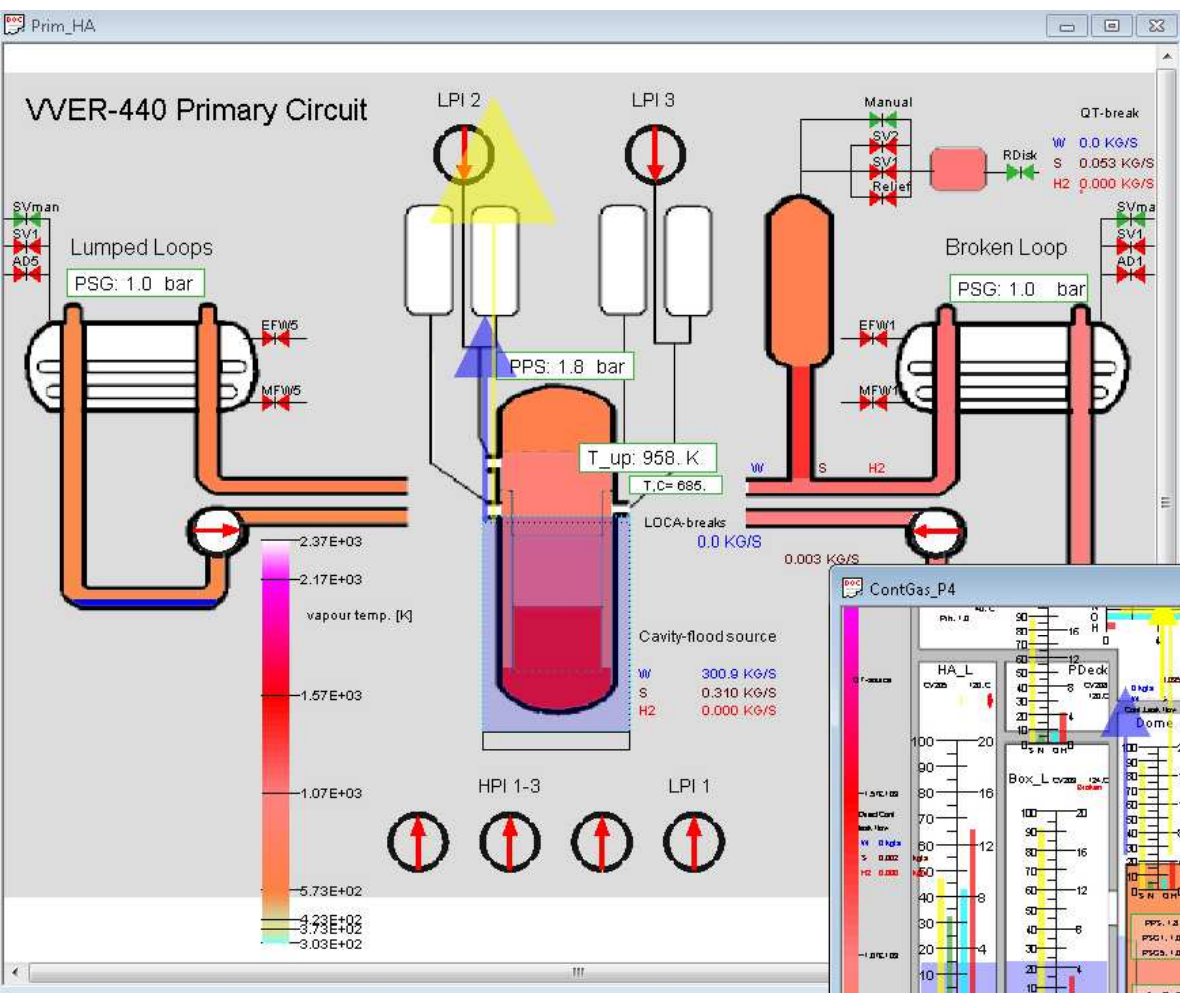
0.0 [kg] H2 total
 0.0 [%] H2 in Room
 0.0 [%] CO in Room
 10.8 [%] Steam in Room
 89.1 [%] Air:O2+N2 in Room

70.4 [%] N2 in Room
 81.3 [%] Steam+CO2+N2 in Room

1.005 [bar] Containment



Containment
 Hydrogen



**Combined
Primary+Cont.
Gases +
Shapiro H2**

Summary

ATLAS has been applied for VVER-440/213 to:

- Large break LOCA $d=2*100\%$
- Small break LOCA $d=0.011\text{m}$

Acknowledgement:

Special thanks are expressed for GRS and personally to

- Martin Sonnenkalb and
- Thomas Voggenberger

for help in development of these schemes