

**The 2nd Meeting of the “European MELCOR User Group”**

**Organized by Nuclear Research Institute Řež plc.**

**Hosted by Czech Republic State Office for Nuclear Safety, Prague, Czech Republic**

**March 1-2, 2010**

***Severe Accident Volatile Iodine Release from Containment vs.  
Sump Alkalinity***

by

*Gabor L. Horvath, NUBIKI, Budapest*

**ABSTRACT**

MELCOR 1.8.6 Iodine Pool Model (IPM) has been applied to VVER-440/213 severe accident using a Full Circuit Input Model (FCIM) without IMP and a simplified version called Stand Alone Containment input model (SACIM) but with IPM. The stand alone model gets mass end energy and aerosol source terms calculated by the full circuit model. This approach made possible to calculate the behaviour of volatile iodine by the IPM model several orders of magnitude faster than with the FCIM with IPM up to 1 month process time. Results show that with proper alkalinity in the sump the release of volatile iodine on the long term does not pose an extra threat to public compared to initial aerosol form release of iodine, but lack of proper alkalizing makes long term troubles. Experience of application and shortcomings of the MELCOR 1.8.6 IPM model are highlighted. Visualisation of the results using the ATLAS (GRS) software will be demonstrated.