

## **Abstract:**

This report describes a systematic review regarding validations of calculations by measurements of isotopic compositions, or decay heat, on spent nuclear fuel, SNF. 15 relevant or otherwise interesting studies, were found. Two reports were chosen among the found studies and analyzed. One of the studies described validations made with experimental data from measurements of isotopic compositions on samples from SNF from three different BWR in Germany, Japan and USA. The other report treated validation of the ORIGEN code by calorimetric measurements of decay heat from SNF. The measurements were made at CLAB in Sweden. The design requirements for decay heat from the SNF in the final repository is in the order of a few percentage. The results from calculations of isotopic compositions is significantly higher for key isotopes regarding decay heat, like  $^{137}\text{Cs}$ ,  $^{90}\text{Sr}$  and  $^{241}\text{Am}$ . Calorimetric measurements gives, more accurate results but the precision is not high enough for design purposes. Another observation from both the review and from analyzing selected reports is the need for much more experimental measurements on SNF. Both regarding isotopic composition and measurements based on other methods eg. calorimetric measurements of decay heat.