

Disclosed herein is a method (300) pertaining to a power distribution of a reactor core of a nuclear installation, the method being executed on a general purpose computer. The method (300) comprises: measuring current values from a plurality of vanadium neutron detector assemblies (10) which are disposed in the reactor core of the nuclear installation (302); determining a measured relative core power distribution based upon the measured current values (304); producing a measured core power distribution based upon the measured relative core power distribution (306); and verifying that the reactor is operating within the licensed core operating limits based at least in part upon the measured core power distribution (308). Also disclosed herein is a vanadium neutron detector (1-5) assembly (10).