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## On the Correlations of Burnup and Material Amounts in PB-HTR Material Accounting

The pebble bed high temperature reactors (PB-HTR) presents new challenges for the nuclear safeguards and material accounting. From the point of view of material accounting, the most important issue is to determine the amounts of the key material isotopes such as the isotopes of uranium and plutonium. Since there is no practical isotope examination on the irradiated fuel elements of PB-HTR by far, the major approach to determine the isotope amounts in the PB-HTR fuels is the burnup calculations and simulations over the actual fuel recycling process in a PB-HTR. In this work, the burnup calculations based on the netronics analysis upon the HTR-10, a test PB-HTR located at Beijing, China, are implemented over different operation and shutdown status by using different depletion codes including KORIGEN and VSOP. Correlations of burnup values and material amounts in the fuel elements are concluded according to the calculation results. These correlations build a bridge from the normal operation and the safeguards of PB-HTRs. Future works are focused on the modular PB-HTRs for the commercial plants like the HTR-PM.

### Which "Key Question" does your Abstract address?

NEW1.1

### Topics

NEW1

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