

Radiobioassays

Thyroid Radioiodine Bioassays

The Florida Department of Health, Bureau of Radiation Control (BRC) specifies that thyroid bioassays be performed on persons working with 1 mCi (3.7 MBq) or more of unsealed radioiodine in a three month period ([Chapter 64E-5.1320, FAC](#)). The bioassay is a procedure for determining the amount of radioiodine body burden by in-vivo measurements of the thyroid. It is the responsibility of the Principal Investigator (PI) to assure that radioiodine users, of quantities listed above, have their thyroids checked accordingly. The Radiation Safety Officer (RSO) can perform these bioassays.

If the calculated concentration of the subject's thyroid exceeds 0.121 microcuries of ¹²⁵I or 0.04 microcuries of ¹³¹I, action must be taken to reduce the subject's uptake; such as, investigating the operations involved to determine the cause of the dose and the potential for further dose and restricting the subject from further exposure to radioiodine until a new procedure is established to reduce the exposure. Also, follow-up bioassays will be performed to confirm that the thyroid burden is decreasing. If excessive levels persist, medical advice must be sought.

Tritium Bioassays

[U.S. NRC Regulatory Guide 8.32](#) specifies that tritium bioassays be performed on persons working with 10 mCi (37 MBq) or more of tritium in a three month period (on an open laboratory bench top). The bioassay is a procedure for determining the amount of tritium body burden by in-vitro measurements of a urine sample. It is the responsibility of the PI to assure that tritium users, of quantities listed above, submit urine specimens to the RSO.

If the calculated concentration of tritium exceeds the calculated minimum detectable concentration determined prior to sample analysis, the Radiation Safety Office will take the corrective action outlined in the internal "FSU STANDARD OPERATING PROCEDURE for TRITIUM BIOASSAYS".