

## APPENDIX 6

### Internal Dosimetry (Bioassay)

This Appendix provides additional information to that in Section 4.6, "Internal Radiation Dose" of the Radiation Safety Manual.

The need for bioassay is determined by a number of factors, including the isotope(s), the maximum activity at any one time, the chemical and physical form of the compound, and specific features of the laboratory in which the work is performed. In general, two types of routine bioassays are performed at UC Berkeley: (1) thyroid counts, for some users of high quantities of radioiodine, and (2) urine assays for users of high levels of tritium.

Bioassay is performed whenever an individual is likely to receive, in one year, an intake in excess of 10 percent of applicable limits. The RSO uses the "Table of Bioassay Criteria," below, as a guide. Special procedures, containment systems, accident conditions, or other factors may affect the type and frequency of bioassay. The RSO reviews all special bioassay issues and makes the final determination of the bioassay requirement(s). Bioassay frequency may be reduced for operations that use an established procedure and for which bioassay results are consistently minimal or negative.

Personnel anticipating routine work that will require bioassay testing should contact EH&S Radiation Safety for baseline tests. A final test should be done at termination of the exposure.

**Table of Bioassay Criteria**

Type of Exposure	Bioassay	Frequency
More than 50 mCi per week of any unsealed radioisotope (except radio-iodine).	Urinalysis	Monthly
More than 100 mCi per use of H-3.	Urinalysis	Weekly
More than 10 mCi per month of volatile or dispersible radioisotopes (except radio-iodine).	Urinalysis	Monthly
Single use of more than 25 mCi of any non-volatile compound, or of more than 10 mCi of a volatile or dispersible compound (except radio-iodine).	Urinalysis	Spot check within two (2) days of use
More than one (1) mCi per quarter of non-volatile radio-iodine compound, or of more than 0.1 mCi of volatile radio-iodine compound.	Thyroid scan	Quarterly
More than 10 mCi (at one time or cumulatively over one month) of volatile radio-iodine compound, or of more than 100 mCi of non-volatile radio-iodine compound.	Thyroid scan	Within 24–72 hours of use
If it is known or suspected that there has been an uptake of radioactive material.	As appropriate	Within 24–72 hours of use.

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