

BIOASSAY TO DETERMINE EXPOSURES FROM A HISTORICAL AMERICIUM SPILL. , T. L. Rucker¹, K. N. Fleming¹, W. W. Lilly² and J. R. Moos³ (¹Science Applications International Corporation, 301 Laboratory Road, Oak Ridge, TN 37831; ²Southeast Missouri State University, Department of Biology, Cape Girardeau, MO 63701; ³Science Applications International Corporation, 500 Northwest Plaza, Suite 1250, St. Ann, MO 63074

A bioassay program was initiated July 2000 in an attempt to determine internal exposure to individuals that may have potentially been exposed to an ²⁴¹Am spill at a university setting. (The date of the spill has not been confirmed, but may have occurred January 1997.) Due to the large number of site individuals that may have been exposed during that timeframe, it was determined that a graded approach would be used to sample those individuals that had the greatest potential for being exposed (e.g., carpenters, plumbers, painters, HVAC technicians, other maintenance workers). A questionnaire was developed and distributed to all individuals that may have spent time in the area and was utilized to categorize individuals into exposure groupings as a means of determining what individuals had the highest potential for exposure. An analytical laboratory subcontract was let to attain highly sensitive measurements for urine. Urine samples were obtained from each individual in the group with the highest potential for exposure. Additional random urine samples were obtained from individuals from other exposure groupings and employment categories to strengthen the sampling methodology. No sample result for university personnel exceeded the analytical decision level. Samples results from three remediation workers, however, were confirmed as being positive and doses assessed. Maximum committed effective and committed dose equivalents are estimated at 0.16 and 2.9 (bone surface) Sv respectively. This presentation will discuss the difficulties experienced in obtaining reliable bioassay data from the laboratory and the lessons learned from the expedited laboratory subcontracting experience.