An Evaluation of Solid Phase Extraction Disks for the Routine Analysis of Strontium-90 in Water by an On-Site West Valley Demonstration Project Laboratory[1]

M. P. Pendl and L. A. Schreiner
Dames & Moore

West Valley Demonstration Project

The Environmental Laboratory at the West Valley Demonstration Project (WVDP) has successfully used solid phase extraction disks manufactured by the 3M Company (3M Empore® Strontium Rad Disks) for the analysis of strontium-90 in water samples starting in August 1996. The use of these 3M Empore® Strontium Rad Disks was initiated after the completion of a comparative study against a classical fuming nitric acid-oxalate precipitate method already in use in the Environmental Laboratory.

The advantages of the 3M Empore® Strontium Rad Disks over the classical fuming nitric acid method are: enhanced worker safety, waste minimization, simplicity of analysis, and rapid turnaround time (TAT).

A potential interference associated with short-lived isotopes is discussed for very short TAT analyses. This interference has been noted for groundwater samples and can be identified by review of the sample=s gross alpha count-rate. An appropriate decay period between separation and counting can minimize the impact of this interference.

[1] This work and presentation were supported by John L. Mahoney, Manager of Analytical and Process Chemistry, and Sue G. Schneider, Manager of Environmental Affairs, West Valley Nuclear Services Co., Inc.