disadvantages of using a CLP-like reporting format will be discussed, as will the specific caveats associated with the DVD package

97-32 REDUCING Pu(IV) TO Pu(III) WITH HYDROXYLAMINE IN NITRIC ACID SOLUTIONS. S.L. Yarbro*, S.B. Schreiber, E.M. Ortiz and R.L. Ames, Los Alamos National Laboratory, Nuclear Materials Technology Division, P.O. Box 1663 MS E511, Los Alamos, New Mexico 87545, USA

At the Rocky Flats Environmental Technology Site (RFETS), several thousand liters of various process solutions have been stored since the plant operations were stopped several years ago. Because it is undesirable to store plutonium in solution for long periods of time, Los Alamos National Laboratory (LANL) completed a systematic evalution, in colloboration with RFETS, of different techniques to concentrate plutonium from solution. Pu(III) oxalate precipitation was chosen to treat the nitric acid solutions because it was simple and demonstrated a high plutonium removal efficiency. Reducing Pu(IV) to Pu(III) is a key process step which affects the rest of the processing sequence. However, there is some controversy in the literature (Crouse, 1983) over the kinetic relationship of the reaction. Therefore, additional data was taken and compared with existing literature data to examine the kinetic relationship and determine an appropriate relationship for future process design. The results and conclusions of this work, along with the experimental data will be discussed. Reference: D.J. Crouse. "Use of Hydroxylamine Nitrate as a Reductant for Plutonium," Chemistry of the Nuclear Fuel Cycle Symposium, American Chemical Society Meeting, March 20-25, 1983, Seattle, WA

97-34 DETERMINATION OF RARE EARTH ELEMENTS IN THE BIOLOGICAL REFERENCE MATERIALS PINE NEEDLES AND SPRUCE NEEDLES BY NEUTRON ACTIVATION ANALYSIS C.N. MachadoJr., S.P. Maria, M. Saiki, A.M.G.Figueiredo. Instituto de Pesquisas Energéticas e Nucleares IPEN-CNEN/SP CP 11049 - CEP 05422-970 - São Paulo - SP - BRAZIL

Investigations of rare earth elements (REE) in the environment have been limited due to the lack of sensitive analytical techniques to determine trace levels of these elements in environmental samples like sediments and plants. In addition, there is little information about the ecotoxicological aspects of REE. Rare earth elements are becoming more and more technologically significant, due to their widespread utility as fine chemicals in modern industry. The main applications of REE are in the areas of solid state laser and superconducting materials. The demand of REE for industrial applications is growing rapidly, and the environmental contamination of REE will also increase in the near future. In this context, the determination of REE in biological samples as plants and human organs will become essential to investigate their impact on humans and wildlife. Most of the analytical techniques make use of certifed reference materials in order to assure the reliability of the data. However, few certified biological reference materials for the REE are avaliable. The aim of the present work is to provide concentration values for the REE La, Ce, Nd, Sm, Eu, Tb, Yb e Lu in the reference materials Pine Needles (NIST-1575) and Spruce Needles (CRM-101). The analytical technique employed was Instrumental Neutron Activation Analysis (INAA).

97-36 APPLICATION OF INSTRUMENTAL RADIOANALYTICAL TECHNIQUES TO NUCLEAR WASTE TESTING AND CHARACTERIZATION. S. F. Wolf Argonne National Laboratory, Chemical Technology Division, Argonne, IL 60439-4837, USA.

Inductively coupled plasma-mass spectrometry (ICP-MS) has become an established technique for elemental and isotopic analysis of samples from many sources. The capability of measuring the concentration at a given nominal mass makes ICP-MS suitable for the analysis of materials containing transuranic nuclides and other radionuclides whose long half-life makes direct determination using radiometric techniques difficult. However, ICP-MS analyses can be complicated by isobaric interferences. This lack of specificity can frequently be overcome by supplementing data from ICP-MS analyses with