



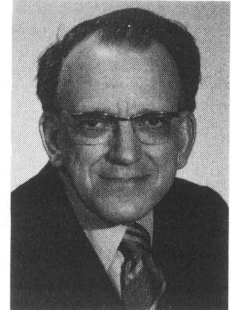
## AUTHORS — JANUARY 1977

### MATERIALS IN WASTE STORAGE

#### MATERIALS CONSIDERATIONS IN RADIOACTIVE WASTE STORAGE

*Warren K. Eister*

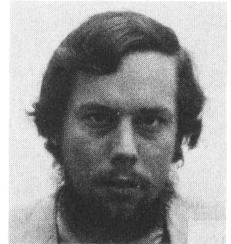
Warren K. Eister (BS, chemical engineering, Bucknell University, 1940) went to the Clinton Laboratories, now Oak Ridge National Laboratory, in 1943. Since then he has participated in laboratory, management, and licensing aspects of fuel cycle processing and nuclear materials development. He is now with the U.S. Energy Research and Development Administration, working in waste management. His son Bill has recently completed boot camp on his way to service in the nuclear subs.



#### HANFORD WASTE ENCAPSULATION: STRONTIUM AND CESIUM

*R. R. Jackson*

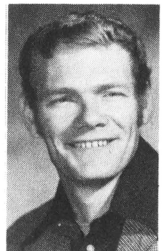
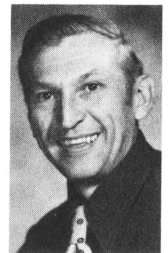
R. R. Jackson (BS, Oklahoma State University, 1967) has eight years of nuclear experience at Atlantic Richfield Hanford Company, in both process engineering and manufacturing. At present, he is a process engineer at the Waste Encapsulation and Storage Facility.



#### STABILIZATION AND STORAGE OF SOLIDIFIED HIGH-LEVEL RADIOACTIVE WASTES

*J. R. Berreth  
A. P. Hoskins  
J. A. Rindfleisch*

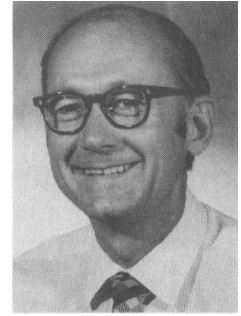
Julius Berreth (top) (MS, physical chemistry, Washington State University, 1954) leads a group in development of high-level waste (HLW) forms for ultimate disposal with Allied Chemical Corporation at the Idaho National Engineering Laboratory (INEL). He formerly conducted research in nuclear chemistry and neutron cross-section measurements. Alan Hoskins (center) (BS, chemical engineering, Montana State University, 1973) is currently a research engineer in process support to the Waste Calcining Facility at Allied Chemical Corporation at INEL. He was formerly responsible for HLW form development and process engineering. James Rindfleisch (bottom) (BS, chemistry, Idaho State University, 1967) is a group supervisor in charge of advanced graphite fuels processing at Allied Chemical Corporation at INEL. He is actively engaged in engineering and chemical research for recovering uranium from Rover and high-temperature gas-cooled reactor fuels. Previously, he conducted developmental experiments in solidification and treatment of liquid nuclear wastes.



## PACKAGING ROCKY FLATS WASTE

Charles E. Wickland (BSE, metallurgical engineering, University of Michigan, 1952) is currently manager of solid waste operations at Rockwell International's Rocky Flats Plant. He has been at Rocky Flats for 19 years.

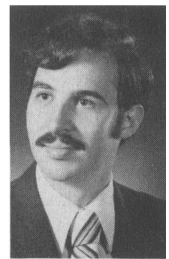
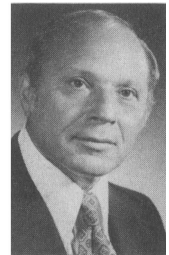
*Charles E. Wickland*



## SOME TECHNIQUES FOR THE SOLIDIFICATION OF RADIOACTIVE WASTES IN CONCRETE

Peter Colombo (top) (BS, Kent State University, 1949) has been at Brookhaven National Laboratory (BNL) since 1951. He has been project engineer on studies dealing with the separation of radionuclides from fuel reprocessing wastes, radiation chemistry of polymers and other organic materials, and the development of radiation-induced chemical processes. He is currently group leader in nuclear waste research and manages programs concerned with the evaluation of solidified radioactive waste packages, groundwater analysis at radioactive waste shallow land burial sites, tritium storage fixation, and the use of concrete and concrete polymer materials for the solidification of fuel reprocessing waste. Robert M. Neilson, Jr. (BE, 1971; MS, materials science, State University of New York at Stony Brook, 1973) joined the Department of Applied Science at BNL in 1974. Before coming to BNL, he pursued research in solid-state phase transformations. At BNL he worked on the solidification of radioactive wastes, particularly the solidification and immobilization of low- and intermediate-level fuel reprocessing wastes and high-level tritiated aqueous waste.

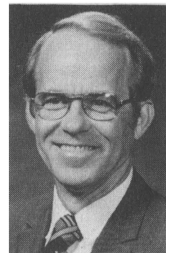
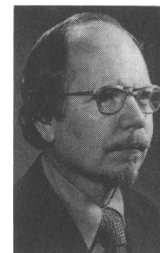
*Peter Colombo  
Robert M. Neilson, Jr.*



## LEACH BEHAVIOR OF HYDROFRACTURE GROUT INCORPORATING RADIOACTIVE WASTES

John G. Moore (top) (BS, chemistry, University of Alabama, 1948) has been at Oak Ridge National Laboratory (ORNL) since 1952. He has been active in applied solvent extraction research and is currently interested in problems associated with radioactive waste isolation. Herschel W. Godbee (center) (PhD, chemical engineering, Georgia Institute of Technology) has been associated with the Chemical Technology Division of ORNL since 1958. His work has included research and development studies in the fields of heat and mass transfer and radioactive waste disposal. Most recently he has been engaged in environmental impact studies involving the nuclear fuel cycle. Arlene H. Kibbey (bottom) attended the University of Michigan College of Engineering at Ann Arbor. She has been associated with the Chemical Technology Division of ORNL since 1948. Her work has included research and development studies in the fields of nuclear fuel reprocessing and radioactive waste disposal. Most recently she has been engaged in environmental impact studies involving the nuclear fuel cycle.

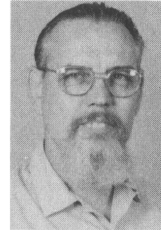
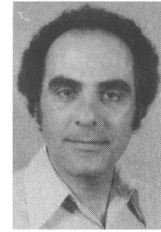
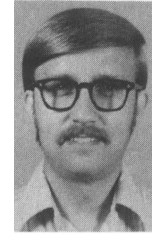
*J. G. Moore  
H. W. Godbee  
A. H. Kibbey*



## PACKAGING OF TRITIUM-CONTAMINATED LIQUID WASTE

Emil A. Mershad (top) (BS, pre-med, University of Dayton) is recovery operations manager at Mound Laboratory, Monsanto Research Corporation. His field of interest is in tritium operations, which include recovery, enrichment, and environmental control. William W. Thomasson (center) (BA, chemistry, Ohio Wesleyan University, 1964) is a development chemist at Mound Laboratory, Monsanto Research Corporation, working for several years in tritium recovery, enrichment, and environmental control. J. J. Dauby (bottom) attended Indiana University and the University of Dayton and is now a production chemist at Mound Laboratory, Monsanto Research Corporation, where he has worked for several years in tritium recovery, enrichment, and environmental control.

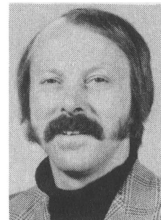
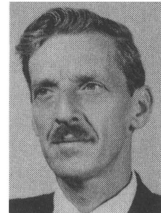
*E. A. Mershad*  
*W. W. Thomasson*  
*J. J. Dauby*



## THE CANADIAN SPENT FUEL STORAGE CANISTER: SOME MATERIALS ASPECTS

D. G. Boase (top) (BSc, chemistry, University of Durham, England, 1953) has been with Atomic Energy of Canada Limited (AECL), Whiteshell Nuclear Research Establishment (WNRE), Pinawa, Manitoba since 1966. His current interests are analytical chemistry and chemical reactions of nuclear materials, gamma-ray spectrometry, and non-destructive analyses actinide and fission product chemistry. Tjalle T. Vandergraaf (BSc, Calvin College; PhD, The Pennsylvania State University, 1969) has been with AECL, WNRE since 1969. His current interests are analyses of nuclear fuels and nuclear reactor materials burnup determination of uranium and thorium/uranium fuels and the determination of trace elements by neutron activation analysis.

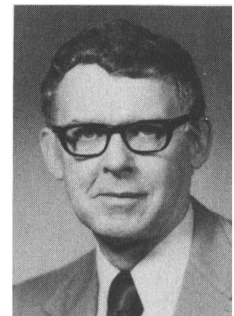
*Derek G. Boase*  
*Tjalle T. Vandergraaf*



## HIGH-LEVEL WASTE GLASS

John E. Mendel (BS, chemistry, Montana State University, 1950) is a research associate in the Nuclear Waste Processing Section at Battelle-Pacific Northwest Laboratories (PNL). He has spent 25 years at Hanford in Redox and Purex process chemistry, and has been associated with PNL's high-level nuclear waste fixation studies since shortly after their inception.

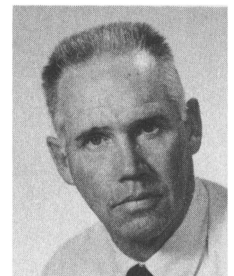
*John E. Mendel*



## HIGH-LEVEL WASTE GLASS: FIELD LEACH TEST

W. F. Merritt (BSc, chemistry and physics, McMaster University, 1946) joined the Canadian Atomic Energy Project at Chalk River, Ontario immediately as a control chemist. At present he is in charge of underground monitoring of the Chalk River Nuclear Laboratories waste management area.

*W. F. Merritt*



**HIGH-LEVEL WASTE CERAMICS: MATERIALS CONSIDERATIONS, PROCESS SIMULATION, AND PRODUCT CHARACTERIZATION**

*Gregory J. McCarthy*

Gregory J. McCarthy (BS, geology, Boston College, 1964; PhD, solid-state science, Pennsylvania State University, 1969) is a senior research associate in solid-state chemistry at the Pennsylvania State University Materials Research Laboratory at University Park. His research interests include systematic crystal chemistry and phase equilibria of oxides with application to catalyst synthesis and characterization, phosphors, crystallization of glass, and ceramic nuclear waste forms.

