



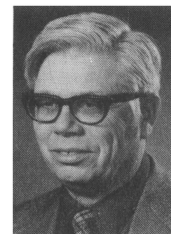
## AUTHORS — JUNE 1973

### CHEMICAL PROCESSING

#### A NEW SOLVENT EXTRACTION PROCESS FOR PREPARING PuO<sub>2</sub> SOLS

M. H. Lloyd (left) (MS, Creighton University, 1954) is a group leader in the Chemical Technology Division of the Oak Ridge National Laboratory where he coordinates and directs research and development of transuranium element separations. He has had extensive work experience in the chemistry of plutonium. At present he is on temporary assignment to the Swiss Federal Research Institute at Würenlingen, Switzerland, where he is carrying out further studies on plutonium colloid chemistry. O. K. Tallent (BS, University of Tennessee, 1966) is the principal investigator of mixed urania-plutonia sol-gel systems in the Chemical Technology Division of Oak Ridge National Laboratory. His recent work experience includes fundamental chemical studies of transuranium elements in molten fluoride salt systems.

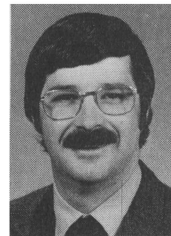
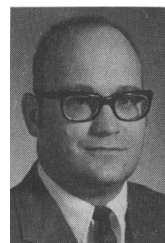
*M. H. Lloyd  
O. K. Tallent*



#### ENRICHED URANIUM METAL-SOLUTION SYSTEMS SEPARATED BY NEUTRON POISONS

Grover Tuck (top) (MS, physics, University of Idaho, 1961), a senior research physicist, Harold E. Clark (center) (MS, physics, Colorado School of Mines, 1972), a senior physicist, and Donald L. Alvarez (bottom) (MS, physics, Central Missouri State University, 1971), a physicist, are all associated with the Critical Mass Laboratory of the Dow Chemical Company's Rocky Flats Plant. Their work is associated with providing criticality safety analyses for use in fissile material processing operations.

*Grover Tuck  
Harold E. Clark  
Donald L. Alvarez*



#### CRITICALITY OF PLUTONIUM NITRATE SOLUTIONS IN SLAB GEOMETRY

Leo E. Hansen (BS, nuclear engineering, Kansas State University, 1965), Raymond C. Lloyd (MS, South Dakota State College, 1951), and S. R. Bierman (MS, University of Washington, 1963) (seated left to right) are staff members at the Plutonium Critical Mass Laboratory of Battelle's Pacific Northwest Laboratory. Their primary area of endeavor is the acquisition and analysis of criticality data for plutonium systems. E. Duane Clayton (PhD, physics, University of Oregon, 1952) (standing) is manager of the Nuclear Criticality Research Section at the Pacific Northwest Laboratory and associate professor in the University of Washington's Department of Nuclear Engineering.

*R. C. Lloyd  
E. D. Clayton  
L. E. Hansen  
S. R. Bierman*

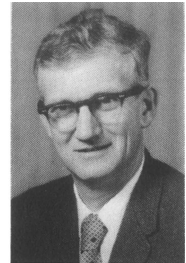


## FUELS

### FACTORS AFFECTING THE SWELLING OF NUCLEAR FUELS AT HIGH TEMPERATURES

Walston Chubb (top) (MS, metallurgical engineering, University of Missouri, 1949) has been associated with the development of zirconium alloys and uranium carbide. Since 1967 he has provided technical direction to a program of research on the mechanisms of swelling and gas release from refractory nuclear fuels. Victor W. Storhok (center) (BS, metallurgical engineering, Michigan Technological University, 1959) has studied nuclear fuels and fuel rods at Battelle Memorial Institute since 1954. He is currently involved in postirradiation examinations and failure analysis of irradiated fuel elements and other reactor components. Donald L. Keller (bottom) (BS, metallurgical engineering, Virginia Polytechnic Institute, 1950) has been responsible for several major atomic energy programs at Battelle since 1950; at present he is manager of the Nuclear Energy Section.

*W. Chubb  
V. W. Storhok  
D. L. Keller*

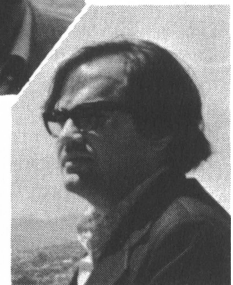


## ECONOMICS

### A MONETARY CORRECTION MODEL OF ECONOMIC ANALYSES APPLIED TO NUCLEAR POWER COSTS

Stephen A. McGuire (left) (PhD, nuclear engineering, University of Wisconsin, 1970) was professor of nuclear engineering at the Instituto Militar de Engenharia in Rio de Janeiro specializing in nuclear power safety and economics and previously worked at Bechtel Corporation in San Francisco. He is currently with the U.S. Atomic Energy Commission (Regulatory Standards) working on occupational exposure. José G. Martín (PhD, nuclear engineering, University of Wisconsin, 1970) is visiting professor of nuclear engineering at the Instituto on leave of absence from the Instituto Politécnico Nacional in México City. He is interested in the theory of physical systems (plasmas, statistical mechanics) and in social cost-benefit analysis.

*Stephen A. McGuire  
José G. Martín*

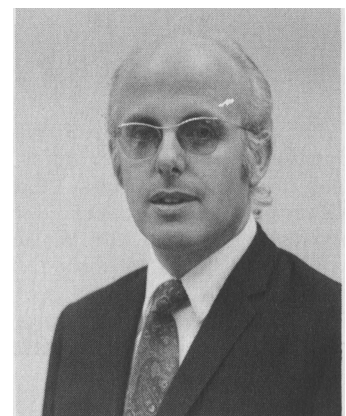


## MATERIALS

### THE LEAKAGE OF WATER INTO SODIUM IN STEAM GENERATORS AND TEST RIGS

David A. Greene (M. Inst. P., MIMC), educated in England, worked in the rubber and glass industries before joining the UKAEA to work on the United Kingdom reactor program. He has spent the last six years with General Electric at Sunnyvale, California, and is presently working on the steam generator development program.

*David A. Greene*

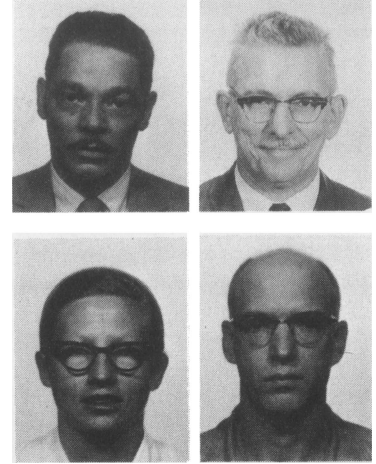


## RADIOISOTOPES

### PREPARATION OF HIGH LEVEL ALPHA-PARTICLE SOURCES FOR THE SURVEYOR ALPHA SCATTERING EXPERIMENT

James H. Patterson (top left) (PhD, chemistry, Iowa State University), Harry E. Griffin (top right) (BS, chemistry, Roosevelt University), E. Philip Horwitz (bottom left) (PhD, chemistry, University of Illinois), and Carol A. A. Bloomquist (bottom right) (BCh, chemistry, University of Minnesota) were members of the Argonne National Laboratory staff during the course of this work. Patterson is now on the staff at Los Alamos Scientific Laboratory. Patterson and Griffin are specialists in the preparation of alpha sources, and Horwitz and Bloomquist are specialists in separations chemistry.

*James H. Patterson  
Harry E. Griffin  
E. Philip Horwitz  
Carol A. A. Bloomquist*

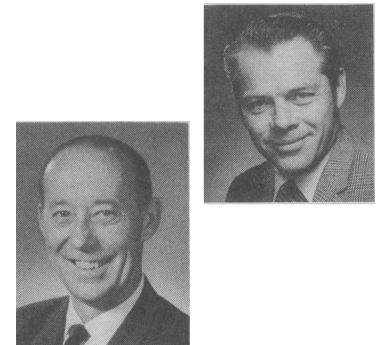


## NUCLEAR EXPLOSIVES

### EJECTA FROM A ROW-CHARGE CRATERING EXPLOSION

Luke J. Vortman (left) (MS, engineering, University of Illinois, 1949) has been a member of the technical staff of Sandia Laboratories since 1949. His experience in nuclear explosion effects, particularly in the areas of airblast and underground explosion phenomena, is a result of participation in many nuclear explosion tests and of conducting large numbers of corollary chemical explosion experiments. He is a pioneer in the field of cratering research including possible uses of nuclear explosives for excavation of a sea-level inter-oceanic canal. Jerald W. Long is a technical staff assistant at Sandia Laboratories where he has been employed since 1956. He has participated in nuclear and chemical explosion test activities, and is the originator of a number of special procedures for retrieval, analysis, and presentation of test data.

*L. J. Vortman  
J. W. Long*



## CHEMICAL PROCESSING

### A STORAGE VESSEL FOR FISSILE SOLUTIONS

C. L. Schuske (left) (MS, physics, University of Southern California) is the director of nuclear safety at Dow Chemical USA's Rocky Flats Plant. An ANS and APS member, he is primarily interested in critical mass physics and process plant nuclear criticality safety. Sidney J. Altschuler (BChE, The Cooper Union for the Advancement of Science and Art, 1957) is a research physicist at Dow Chemical USA's Rocky Flats Plant working on computer calculations for nuclear criticality safety purposes.

*C. L. Schuske  
S. J. Altschuler*

