



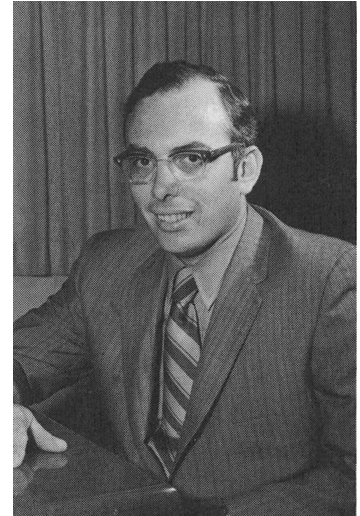
## AUTHORS — APRIL 1971

### SYMPOSIUM ON REACTOR CONTAINMENT SPRAY SYSTEM TECHNOLOGY

#### PREFACE:

Tom Row (MS, nuclear engineering physics, Virginia Polytechnic Institute and State University, 1959), with the Reactor Division at ORNL since 1959, is technical coordinator for the USAEC Spray and Absorption Technology Program. In this capacity he is responsible for the ORNL program, as well as for maintaining liaison between containment spray system research groups in industry and those sponsored by USAEC.

*Thomas H. Row*

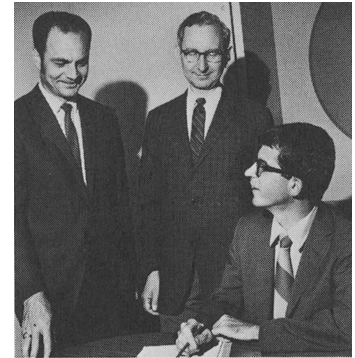


#### REACTORS

#### DESIGN OF SPRAY ADDITIVE SYSTEMS

Jim Gallagher (right) (MS, chemical engineering, University of Pittsburgh) has been with Westinghouse-NES for six years and is manager of Containment Systems. Lou Green (center) (MS, mechanical engineering, University of Pittsburgh), manager of Fluid Systems Design for Westinghouse-NES, has been involved in power plant design, startup, and testing during the major part of his career. Tom Marchese (left) (BS, chemical engineering, Carnegie-Mellon University) is a senior engineer in the Containment Systems Section.

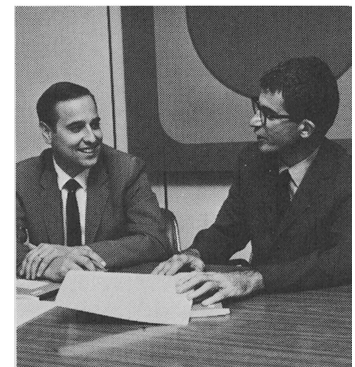
*J. L. Gallagher  
L. D. Green  
R. T. Marchese*



#### DROP SIZE DISTRIBUTION AND SPRAY EFFECTIVENESS

Walter Pasedag (left) (BS, engineering science, State University of New York at Stony Brook), an engineer in the Containment Systems Section of W-NES, has been active in the area of safeguards systems analysis at Westinghouse and Siemens (Germany). Jim Gallagher (MS, chemical engineering, University of Pittsburgh) has been with W-NES for six years and is manager of Containment Systems.

*W. F. Pasedag  
J. L. Gallagher*



## POST-LOCA HYDROGEN GENERATION IN PWR CONTAINMENTS

Doug Fletcher (seated) (MS, chemistry, Fordham University) is presently manager of Systems Applications and has responsibility for Westinghouse PWR containment systems, radiation shielding and analysis, and plant systems chemistry. M. J. Bell (standing, center) (BS, chemistry, University of Pittsburgh), an engineer in the W-NES Chemistry Section, has been involved in PWR water chemistry research for 13 years. Tom Marchese (right) (BS, chemical engineering, Carnegie-Mellon University) is a senior engineer in the Containment Systems Section. Jim Gallagher (left) (MS, chemical engineering, University of Pittsburgh) has been with Westinghouse-NES for six years and is manager of Containment Systems.

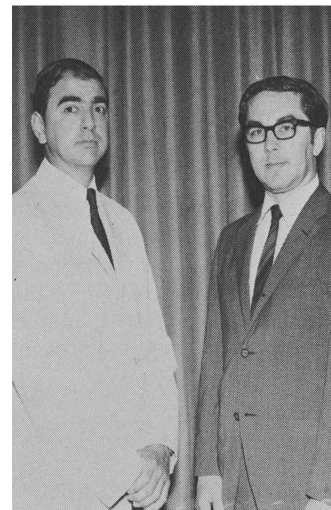
*W. D. Fletcher  
M. J. Bell  
R. T. Marchese  
J. L. Gallagher*



## IODINE REMOVAL IN THE ICE CONDENSER SYSTEM

D. D. Malinowski (right) (MS, nuclear chemistry, Massachusetts Institute of Technology, 1963) is a senior engineer in the Chemistry Section of W-NES, with primary involvement in nuclear safety research. L. F. Picone (BS, chemistry, Manhattan College) joined Westinghouse in 1956 and is manager of the Chemistry Section of W-NES. Their paper gives the reader an opportunity to savor his spray additive "on the rocks."

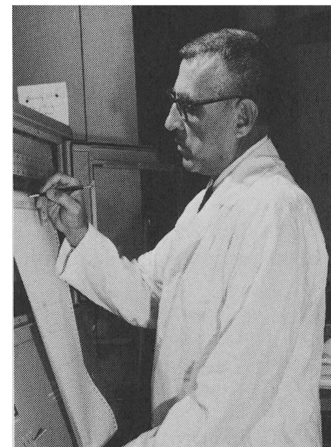
*D. D. Malinowski  
L. F. Picone*



## RADIATION AND THERMAL STABILITY OF SPRAY SOLUTIONS

Bud Zittel (right) (PhD, chemistry, Vanderbilt 1953) associated with ORNL since 1958, is a project leader and senior research scientist. He is responsible for all radiation and thermal stability studies in the spray program and serves as a consultant to the USAEC Division of Reactor Licensing. Tom Row (MS, nuclear engineering physics, Virginia Polytechnic Institute and State University, 1959), with the Reactor Division at ORNL since 1959, is technical coordinator for the USAEC Spray and Absorption Technology Program. In this capacity he is responsible for the ORNL program, as well as maintaining liaison between containment spray system research groups in industry and those sponsored by USAEC. (For photo see Preface.)

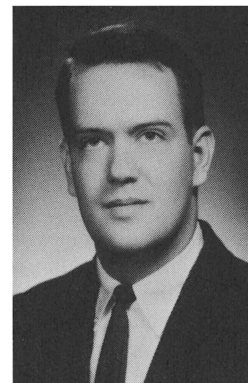
*H. E. Zittel  
T. H. Row*



## SODIUM THIOSULFATE SPRAY SYSTEM FOR RADIOIODINE REMOVAL

Bill Joyce (BChE, University of Connecticut) joined Babcock & Wilcox in June 1968 and worked in the Safety Analysis Section, developing spray system design criteria. He is currently with Combustion Engineering.

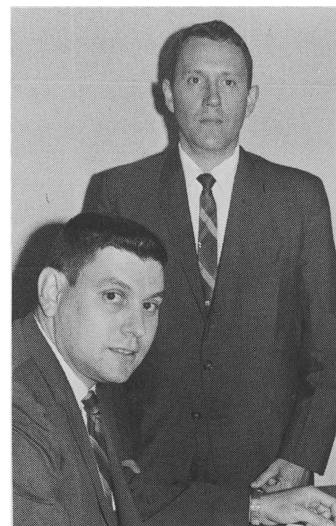
*W. E. Joyce*



## STABILITY OF THIOSULFATE SPRAY SOLUTIONS

Bill Bishop (standing) (PhD, chemistry, University of Florida, 1961) joined Babcock & Wilcox in 1965 and is presently the chief of the Experimental Chemistry Section at B & W's Nuclear Development Center in Lynchburg, Virginia. He also serves as task leader for the research on radiation and chemical behavior of spray solutions. Don Nitti (MS, chemical engineering, University of Cincinnati) is the project engineer responsible for the research and development program on the removal of radioiodine in chemical spray solutions.

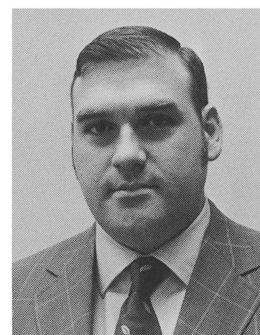
*W. N. Bishop  
D. A. Nitti*



## POST-ACCIDENT HYDROGEN GENERATION AND CONTROL

Danny LaBelle (MS, nuclear engineering, Kansas State University, 1969) joined Babcock & Wilcox in 1969, where he is presently working on safety-related analyses for PWR nuclear steam systems which include hydrogen generation and control, material compatibility with chemical spray solutions, and steam line failure.

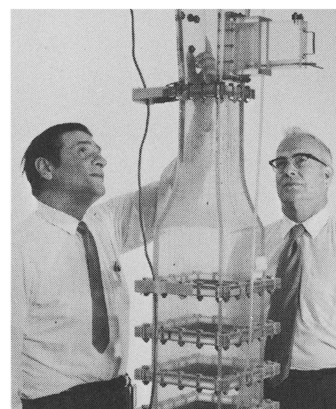
*D. W. LaBelle*



## A STUDY OF THE ABSORPTION OF CH<sub>3</sub>I BY AQUEOUS SPRAY SOLUTIONS

Benny Soldano (left) (PhD, physical chemistry, Wisconsin) has been employed at ORNL for 20 years as a physical chemist. Prior to involvement in the spray program, he worked in the fields of ion exchange, aqueous solution chemistry, and solvent extraction. Bill Ward (BS, chemical engineering, Virginia Polytechnic Institute and State University), Reactor Chemistry Division at ORNL, has worked more than 25 years on a variety of research and development projects in the atomic energy field.

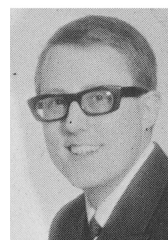
*B. A. Soldano  
W. T. Ward*



## STUDIES ON IODINE TRAPPING BY WATER SYSTEMS AT STUDEVIK

Lennart Devell (top left) (nuclear chemistry, Royal Institute of Technology, Stockholm) is a group leader in the Health and Safety Section at the Studsvik Research Station. Studsvik is the center of most of the research conducted by AB Atomenergi, a Swedish government-owned company for research and development within the nuclear field. R. Hesböl (right) is a nuclear chemist working on iodine release and removal processes. E. Bachofner (bottom left) was involved in problems such as containment spray modeling and containment leakage while at Studsvik. He is currently with Atomkraftkonsortiet, a privately owned nuclear power production firm.

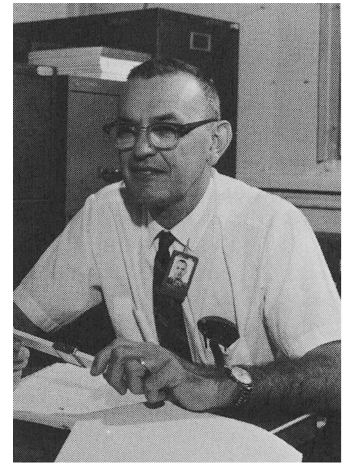
*L. Devell  
R. Hesböl  
E. Bachofner*



## SPRAY PROGRAM AT THE NUCLEAR SAFETY PILOT PLANT

*L. F. Parsly*

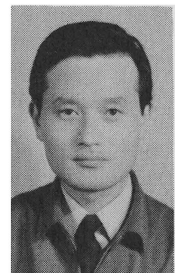
Lewis F. Parsly (PhD, chemical engineering, University of Pennsylvania) has been involved in plant design, reactor development, and fission product research since first coming to Oak Ridge in 1951. Lew has been responsible for the research program at the Nuclear Safety Pilot Plant since its startup in 1963.



## REMOVAL OF IODINE FROM ATMOSPHERE BY SPRAYS

*Y. Nishizawa  
S. Oshima  
T. Maekawa*

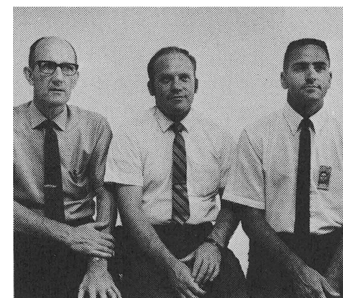
The authors are all members of the Nuclear Chemistry Section, Mitsubishi Atomic Power Industry, Inc., Japan. Y. Nishizawa (top left) (MS, chemical engineering), chief engineer, and S. Oshima (right), staff engineer, have been engaged in containment spray and iodine behavior experiments and are concerned with chemical problems in design and operation of nuclear plants. T. Maekawa (bottom left) (PhD, inorganic chemistry), manager, has been engaged in studies on metal corrosion and nuclear safety.



## REMOVAL OF IODINE AND PARTICLES BY SPRAYS IN THE CONTAINMENT SYSTEMS EXPERIMENT

*R. K. Hilliard  
A. K. Postma  
J. D. McCormack  
L. F. Coleman*

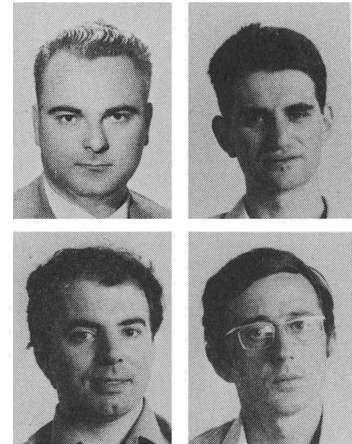
The authors were all members of the staff at the Containment Systems Experiment Facility at Battelle Memorial Institute, Pacific Northwest Laboratory. Bob Hilliard (top left) (MS, chemical engineering, University of Idaho) has been in nuclear safety research and development for the past 14 years, 5 of these as technical leader of Fission Product Containment Study Group at CSE. L. F. Coleman (top center) (MS, chemistry, Washington State University) also has been involved in nuclear safety research and nuclear waste management since coming to Richland in 1960. He is currently with the General Electric Co., San Jose, California. Al Postma (top right) (PhD, chemical engineering, Oregon State) joined Hanford Laboratories in 1958. His research into the removal of methyl iodide from containment atmospheres by hydrazine spray solutions, some of the first work on sprays as an engineered safety feature, also served as his PhD thesis research. Jerry McCormack (bottom) (BS, chemical engineering, Oregon State University) has been active in instrument development, aerosol generation research, and fission product sampling development. He is currently with WADCO.



## SCALBATRAIO CENTER FOR RESEARCH IN NUCLEAR SAFETY

The authors are all staff members of the University of Pisa, Italy. Bruno Guerrini (top left) (PhD, mechanical engineering, University of Pisa) was appointed Libera Docente of nuclear engineering in 1965. He is currently professor of the Nuclear Engineering Institute. Salvatore Lanza (top right) (PhD, nuclear engineering, University of Pisa) is currently assistant professor of nuclear power plants. Marino Mazzini (bottom left) (PhD, nuclear engineering, University of Pisa) is assistant professor of nuclear safety. Roberto Mirandola (bottom right) (PhD, nuclear engineering, University of Pisa) is assistant professor of mechanical engineering.

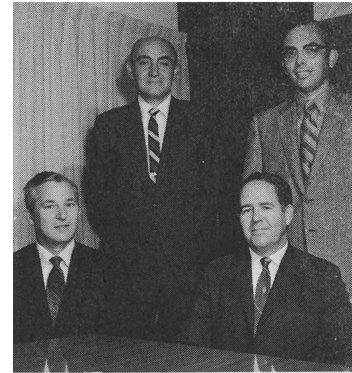
*B. Guerrini  
S. Lanza  
M. Mazzini  
R. Mirandola*



## PROTECTIVE COATINGS (PAINTS) FOR PWR AND BWR REACTOR CONTAINMENT FACILITIES

Clyde Watson (seated, right) (BChE, University of Tennessee) is a group leader in research and development in the Chemical Technology Division at ORNL where he is involved in the reprocessing of spent nuclear fuels, radiation damage to engineering materials, and engineering separation of macromolecular substances. John Griess (standing, left) (MS, chemistry, Indiana University, 1947) has been involved in corrosion and electrochemical studies at ORNL for the past 23 years. George West (seated, left) (BS, East Tennessee State University) is a development engineer in the ORNL Chemical Technology Division where he is involved in materials testing and evaluation and nuclear fuel reprocessing research. Tom Row (standing, right) (MS, nuclear engineering physics, Virginia Polytechnic Institute and State University, 1959), with the Reactor Division at ORNL since 1959, is technical coordinator for the USAEC Spray and Absorption Technology Program. In this capacity he is responsible for the ORNL program, as well as maintaining liaison between containment spray system research groups in industry and those sponsored by USAEC.

*C. D. Watson  
J. C. Griess  
T. H. Row  
G. A. West*



## THE CORROSION OF MATERIALS IN REACTOR CONTAINMENT SPRAY SOLUTIONS

A. L. Bacarella (left) (PhD, physical chemistry, Florida State University), Reactor Chemistry Division of ORNL, has concentrated his efforts in the corrosion and electrochemical field. John Griess (MS, chemistry, Indiana University, 1947) has been involved in corrosion and electrochemical studies at ORNL for the past 23 years.

*J. C. Griess  
A. L. Bacarella*



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## Corrigendum

The February 1971 issue printed a corrected version of Goldschmidt's Letter to the Editor but failed to note earlier publication of Ott's reply. Ott's reply was printed in the October 1970 issue (with an incorrect version of Goldschmidt's letter).