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## TESTING FORUM

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### Committee D-18 News

#### Rock Property Measurements is Focus of New ASTM Book

The measurement of rock properties at elevated pressures and temperatures is the subject of a recently published ASTM book sponsored by ASTM Committee D-18 on Soil and Rock.

STP 869, *Measurement of Rock Properties at Elevated Pressures and Temperatures*, is the only publication in this area. Eight peer review papers summarize the state of this experimental art as well as document new techniques.

The eight papers cover measurement of rock permeability at elevated temperatures and pressures; data from a new computer-controlled testing system that measures pore and bulk compressibilities of porous rocks; thermally activated crack growth; evaluation of a particular rock type (bedded salt from the Palo Duro basin in Texas); deformation of salt from a microstructural viewpoint; techniques and equipment to measure elastic wave velocities as functions of confining pressure, pore pressure, and temperature; measurement of thermal response to basalt, shale, tuff, and sandstone to 250°C and stresses to 100 MPa; and design, preparation, field work, and analysis for heated block tests in Colorado and Nevada test sites.

Anyone interested in rock geology will want to add STP 869 to their working library. To order STP 869, contact ASTM Customer Service Department, 1916 Race Street, Philadelphia, PA 19103, 215/299-5585. Member Price: \$24.00; List Price: \$30.00. ISBN: 0-8031-0237-2. Publication Code Number: 04-869000-38.

#### Symposium on Field Methods for Groundwater Contamination Studies and Their Standardization

Fifty percent of the nation's drinking water comes from groundwater, 75% of our cities obtain all or part of their supplies from groundwater, and our rural areas are 95% dependent upon groundwater. Therefore, it is imperative that every possible precaution be taken to protect the purity of groundwater.

ASTM Committees D-19 on Water and D-18 on Soil and Rock will sponsor a 4½-day Symposium on Field Methods for Groundwater Contamination Studies and their Standardization to be held 2-7 Feb. 1986 at Cocoa Beach, FL. Forty eight papers will be presented on well drilling and completion methods, geophysical methods, sampling methods, nonpoint source investigation procedures, and case studies. A session will be dedicated to Federal Efforts to Improve Field Methods for Groundwater Contamination Studies sponsored by the Federal Interagency Advisory Committee on Water Data. There will be panel discussions on nonpoint source investigation procedures and on quality assurance through education and certification.

The program for the symposium is as follows:

#### 2-7 Feb. 1986

**SYMPOSIUM CHAIRMAN:** A. Gene Collins  
National Institute for Petroleum and  
Energy Research (NIPER)  
Bartlesville, OK

**SYMPOSIUM VICE-CHAIRMAN:** A. Ivan Johnson  
A. Ivan Johnson, Inc.  
Arvada, CO

#### Sunday, 2 Feb.

Registration  
Opening remarks  
A. Gene Collins  
National Institute for Petroleum and Energy Research (NIPER)  
Bartlesville, Oklahoma  
Wine and Cheese

#### Monday, 3 Feb.

8:30 a.m.: Opening of Symposium  
A. Gene Collins  
Symposium Chairman  
National Institute for Petroleum and Energy Research  
Bartlesville, OK

#### Session I

**CHAIRMAN:** A. Gene Collins  
National Institute for Petroleum and Energy Research  
Bartlesville, OK

8:45 a.m.: OTA—(Keynote Speaker).

9:15 a.m.: Federal Efforts to Improve Field Methods for Groundwater Contamination Studies—William J. Gburek, United States Department of Agriculture, University Park, PA, plus representatives from other federal agencies

10:00 a.m.: Break.

10:30 a.m.: Federal Efforts to Improve Field Methods for Groundwater Contamination Studies—William J. Gburek, United States Department of Agriculture, University Park, PA, plus representatives from other federal agencies

12:00 noon: Lunch.

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## *Session II—Standard Activities*

**CHAIRMAN:** A. Ivan Johnson  
A. Ivan Johnson, Inc.  
Arvada, Colorado

**1:30 p.m.:** ASTM Groundwater Coordinating Subcommittee  
Chairman, Dennis G. Erinakes, United States Department of  
Agriculture, Fort Worth, TX

**1:45 p.m.:** Standards Activities D-18; (Chairman D-18 and  
A. Ivan Johnson)

**2:00 p.m.:** Standards Activities D-19  
(Chairman D-19)  
(Gene Hamilton)

**2:15 p.m.:** Standards Activities D-34  
(Chairman D-34)  
(Chuck Malloy)

**2:30 p.m.:** Quality Assurance Guidelines for Geophysical Investi-  
gations of Groundwater Contamination: The Requirements—J.  
Jeffrey van Ee and Leslie G. McMillion, United State Environ-  
mental Protection Agency, Las Vegas, NV

**2:50 p.m.:** The Development of Effective Groundwater Sampling  
Protocols—James P. Gibb and M. J. Barcelona, Illinois State  
Water Survey, Champaign, IL

**3:10 p.m.:** Break

**3:40 p.m.:** A Standardized Step-by-Step Approach to Groundwater  
Contamination Problems—Dorothy S. Brownlee, Massachusetts  
Department of Environmental Quality Engineering, Boston, MA

**4:00 p.m.:** Availability and Access to Groundwater Related Infor-  
mation and Data—Brian C. Dorwart and Carl D. Tockstein,  
Tennessee Valley Authority, Knoxville, TN

**4:20 p.m.:** Simplified Groundwater Sampling Techniques at Land-  
fills—Robert J. Schaffer, Jr. and James F. Merchie, Beling Con-  
sultants, Inc., Moline, IL

**4:40 p.m.:** Recent Advances in Well Test Methods for Groundwater  
Contamination Studies—Chin-Fu Tsang, Lawrence Berkeley  
Laboratory, Berkeley, CA

## **Tuesday, 4 Feb.**

### *Session III—Water Sampling*

**CHAIRMAN:** Conwell C. McCune  
Chevron Oil Field Research Company  
LaHabra, CA

**8:30 a.m.:** Field Verification of Sampling Methods and Materials'  
Selection for Groundwater Contamination Studies—M. J. Barce-  
lona, J. A. Helfrich, E. E. Garské, and J. P. Gibb, Illinois State  
Water Survey, Champaign, IL

**8:50 a.m.:** Achievement of Chemical Stability Prior to Ground-  
water Sampling in New and Existing Wells—A Review of Current  
Methods—Andrew W. Panko, and Peter Barth, Acres Interna-  
tional Limited, Niagara Falls, NY

**9:10 a.m.:** Recent Development of Downhole Samplers for Trace  
Organics—James H. Ficken, United States Geological Survey,  
NSTL, MS

**9:30 a.m.:** Investigations of Techniques for Purging Groundwater  
Monitoring Wells and Sampling Groundwater for Volatile Or-  
ganic Compounds—Jay Unwin, NCASI, Western Michigan Uni-  
versity, Kalamazoo, MI

**9:50 a.m.:** Field Evaluation of Seven Sampling Devices for Purge-  
able Organic Compounds in Groundwater—Thomas E. Imbri-  
giotta, Jacob Gibs, Thomas V. Fusillo, George R. Kish, and Jo-  
seph J. Hochreiter, United States Geological Survey, Trenton, NJ

**10:10 a.m.:** Break

**10:40 a.m.:** A Hermetically Isolated Sampling Method for Ground-  
water Investigations—Bengt-Arne Toratensson and Andrew M.  
Petsonk, BAT Envitech Inc., Long Beach, CA

**11:00 a.m.:** Sampling Interaquifer Connector Wells for Polonium-  
210—C. R. Oural, H. R. Brooker, and S. B. Upchurch, Univer-  
sity of South Florida, Tampa, FL

**11:20 a.m.:** Methods for Virus Sampling of Groundwater—Charles  
P. Gerba, University of Arizona, Tucson, AZ

**11:40 a.m.:** Analysis of Contaminated Groundwater by Use of  
Global-Local Finite Element Method—F. T. Chang, H. Y. Fang,  
and J. C. Evans, Lehigh University, Bethlehem, PA

**12:00 noon:** Lunch

### *Session IV—Geophysical Methods*

**CHAIRMAN:** Leslie G. McMillion  
United States Environmental Protection  
Agency  
Las Vegas, NV

**1:30 p.m.:** Electrical Geophysical Methods for Groundwater Inves-  
tigations—Gary R. Olhoeft and Dennis R. Capron, United  
States Geological Survey, Denver, CO

**1:50 p.m.:** Selection and Implementation of Geophysical Tech-  
niques for Groundwater Contamination Studies—Wayne R.  
Saunders, Woodward-Clyde Consultants, Plymouth Meeting,  
PA

**2:10 p.m.:** Integrating Geophysical and Hydrogeological Data: An  
Efficient Approach to Remedial Field Investigations of Contami-  
nated Groundwater—D. J. Stierman and L. C. Ruedisili, The  
University of Toledo, Toledo, OH

**2:30 p.m.:** The Use of Controlled Source Audio Magnetotellurics  
(CSAMT) to Delineate Zones of Groundwater Contamination—

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A Case History—Dick Tinlin, Engineering Enterprises, Inc., Norman, OK

2:50 p.m.: In Situ Time Series Measurements for Long-Term Groundwater Monitoring—Richard Benson, Matthew Turner, and William Vogelsong, Technos Inc., Miami, FL

3:10 p.m.: Break

3:40 p.m.: Combining Surface Geoelectrics and Geostatistics for Estimating the Degree and Extent of Groundwater Pollution—W. E. Kelly, University of Nebraska, Lincoln, Nebraska, I. Bogardi, Tiszadata Consulting Engineers, Budapest, Hungary, and M. Nicklin, University of Nebraska, Lincoln, NE

4:00 p.m.: Borehole Corrections for Density and Induction Tools—Kendrick Taylor and Stephen Wheatcraft, Desert Research Institute, Reno, NV

4:20 p.m.: Fourier Analysis of Surface Features of Interest in Geotechnical Engineering—K. J. Scheibengraber and H. J. Pinus, University of Wisconsin, Milwaukee, WI

4:40 p.m.: The Application of Impedance Computed Tomography to Subsurface Imaging of Polluted Plumes—U. Roeper University of Manitoba, Winnipeg, Manitoba, Canada, A. Tamburi, Tamburi Consultants, Stonewall, Manitoba, Canada, and A. Wexler, University of Manitoba, Winnipeg, Manitoba, Canada

## Wednesday, 5 Feb.

### Session V—Potpourri

CHAIRMAN: Jack W. Keeley  
United States Environmental Protection  
Agency  
Ada, OK

8:30 a.m.: Operation Ranges for Suction Lysimeters—Lorne G. Everett, Kaman Tempo, Santa Barbara, CA and Leslie G. McMillion, United States Environmental Protection Agency, Las Vegas, NV

8:50 a.m.: Application of a New Technique for the Detection and Analysis of Small Quantities of Contaminants in the Soil—Kent J. Voorhees, Petrex, Golden, CO

9:10 a.m.: Monitoring Well Construction and Recommended Procedures for Direct Groundwater Flow Measurements—William B. Kerfoot, K-V Associates, Falmouth, MA

9:30 a.m.: Measurements and Interpretation of the Small Scale Hydraulic Conductivity of Heterogeneous Porous Material in Fully Screened Wells Using a Borehole, Flowmeter—Kenneth R. Rehfeldt, Peter Hufschmied, and Lynn W. Gelhar, Massachusetts Institute of Technology, Cambridge, MA

9:50 a.m.: The Groundwater Monitoring Well as a Limited Microcosm—R. M. Burd, NUS, Aiken, SC

10:10 a.m.: Break

10:40 a.m.: Effects of Injections of EOR Chemicals on Groundwater Quality—M. E. Crocker and L. M. Marchin, National Institute for Petroleum and Energy Research, Bartlesville, OK

11:00 a.m.: The Centrifuge Moisture Equivalent and Its Use in Groundwater Investigations—A. I. Johnson, A. I. Johnson, Inc., Arvada, CO

11:20 a.m.: Measuring Effects of Permeant Composition on Pore-Fluid Movement in Soil—Harold W. Olsen, Thomas L. Rice, and Roger W. Nichols, United States Geological Survey, Denver, CO

11:40 a.m.: Determination of Aqueous Sulfide in Natural and Contaminated Water—Sharon S. Lindsay, Syntex, Palo Alto, CA and Mary Jo Baedecker, United States Geological Survey, Reston, VA

### Session VI—Field Trip (Wednesday p.m.)

## Thursday, 6 Feb.

### Session VII—Well Drilling and Completion

8:30 a.m.: An Overview of Saturated and Unsaturated Zone Monitoring Systems—Charles O. Riggs and Allen W. Hatheway, Central Mine Equipment Company, St. Louis, MO

8:50 a.m.: Checking if Wells or Piezometers are Giving Water Levels or Piezometric Levels—R. P. Chapuis and J. Lafleur, Ecole Polytechnique of Montreal, Montreal, Quebec, Canada

9:10 a.m.: Installing the Perfect Monitoring Well—Identifying, Quantifying, and Mitigating Interference from Monitor Well Installation Techniques—Richard L. Elton III and Edward Fendley, Underground Resources Management, Inc., Austin, TX

9:30 a.m.: The Chemical Composition of a Two-Week Leachate Study of PVC Well Casing and A Three-Week Leachate Study of Fiberglass Reinforced Epoxy Well Casing—U. M. Cowgill, Dow Chemical U.S.A., Midland, MI

9:50 a.m.: Adsorption of Selected Organic Contaminants Onto Possible Well-Casing Materials—Jerry N. Jones, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS, and Gary D. Miller, University of Oklahoma, Norman, OK

10:10 a.m.: Break

### Session VIII—Case Studies

10:40 a.m.: Practical Aspects of Field Data Acquisition for Contaminant Transport Assessments—Joseph F. Keely and Jerry T. Thornhill, United States Environmental Protection Agency, Ada, OK

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11:00 a.m.: Field Experimental Methods in Stratified Aquifers—Joel G. Melville, Fred J. Molz, and Oktay Guven, Auburn University, Auburn, AL

11:20 a.m.: Field Investigation of a Small-Diameter Groundwater Contaminant Plume Emanating from a Pyritic Uranium-Tailings Impoundment—Keven A. Morin, Morwijk Enterprises, Kitchener, Ontario, Canada and John A. Cherry, University of Waterloo, Waterloo, Ontario, Canada

11:40 a.m.: Report on the Investigation of Arsenic Contamination of Groundwater Near Knott, Howard County, Texas—T. Wesley McCoy, Texas Department of Water Resources, El Paso, TX

12:00 noon: Lunch

## Session XI—Nonpoint Source Investigation Procedures

CHAIRMAN: Dennis G. Erinakes  
United States Department of Agriculture  
Fort Worth, TX

1:30 p.m.: Monitoring the Effects to the Groundwater System Attributable to Agricultural Practices—Clark Gregory Kimball, South Dakota Department of Water Natural Resources, Brookings, SD

1:50 p.m.: Groundwater Contamination and Land Management in the Karst Area of Northeastern Iowa—P. Stan Mitchem, USDA Soil Conservation Service, Des Moines, IA, George R. Hallberg, Bernard E. Hoyer, and Robert D. Libra, Iowa Geological Survey, Des Moines, IA

2:10 p.m.: The Coastal Bend Salinity Investigation—Homer H. Logan and Gene C. Vittetoe, USDA Soil Conservation Service, Fort Worth, TX

2:30 p.m.: Nonpoint Source Contamination by Agricultural Chemicals in a Sole-Source Unconfined Limestone Aquifer, Dade County, Florida—Bradley G. Waller and Barbara Howie, United States Geological Survey, Miami, FL

2:50 p.m.: Comparison of Methods for Sampling Dissolved Nitrogen in a Fractured-Rock Aquifer—Patricia L. Lietman and James M. Gerhart, United States Geological Survey, Harrisburg, PA

3:10 p.m.: Break

3:40 p.m.: Characterizing Shallow Fracture Layer Controls on Subsurface Flow and Contaminant Transport—William J. Gburek and James B. Urban, United States Department of Agriculture, University Park, PA

4:00 p.m.: Panel Discussion on Nonpoint Source Investigations—Moderator: Dennis G. Erinakes, U.S. Dept. of Agriculture, Ft. Worth, TX

Friday, 7 Feb.

Session X—Panel Discussion on Quality Assurance Through Education and Certification (8:30 a.m.)

CHAIRMAN: Norbert Dee

MEMBERS: Jay Lehr  
AIH  
AIPG  
Gburek

## New Book on Sampling and Testing of Residual Soils

The volume, *Sampling and Testing of Residual Soils: A Review of International Practice*, edited by E. W. Brand and H. B. Phillipson, due for publication in April 1985, has been prepared under the auspices of the Technical Committee on the Sampling and Testing of Residual Soils of the International Society for Soil Mechanics and Foundation Engineering. It contains an important collection of review papers that cover the following countries:

Australia (B. G. Richards), Brazil (S. S. Sandroni), Britain (W. R. Dearman and N. Turk), China (Z. Q. Wang), West Germany (M. Kany and R. Herrmann), Ghana (M. D. Gidigasu), Hong Kong (H. B. Phillipson and E. W. Brand), India (M. D. Desai), Japan (H. Mori), Malaysia (K. P. Mun), New Zealand (I. R. Brown), Nigeria (M. O. Adesunloye), Pakistan (I. U. Haq), Philippines (J. R. R. Santos), Singapore (S. L. Lee, K. W. Lo, and C. F. Leung), South Africa (G. E. Blight), Sri Lanka (A. Thurairajah and V. Wijeyakulasuriya), and U.S.A. (G. F. Sowers).

The volume also contains a comprehensive review paper by E. W. Brand and H. B. Phillipson entitled "Review of International Practice for the Sampling and Testing of Residual Soils," which summarizes international practice as revealed in the national papers and in literature published elsewhere.

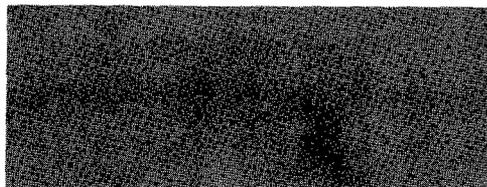
This publication contains approximately 200 pages and is hard-bound. It is a "must" for those concerned with geotechnical engineering in residual soils and is an important addition to any library. It is available at a special pre-publication price of \$19.00 (including postage) from: Scorpion Press, G.P.O. Box 90674, Tsimshatsui Post Office, Hong Kong.



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# ASTM Committee D-18 on Soil and Rock

## Scope

The promotion of knowledge; stimulation of research; the development of specifications and methods for sampling and testing; and the development of nomenclature, definitions, and practices relating to the properties and behavior of soil, rock, and the fluids contained therein. Excluded are the uses of rock for building stone and for constituent materials in portland cement and bituminous paving and structures coming under the jurisdiction of other committees. Included are the properties and behavior of: (1) soil-like materials such as peats and related organic materials, (2) geotextiles, and (3) fluids occupying the pore spaces, fissures, and other voids in soil and rock insofar as such fluids may influence the properties, behavior, and uses of the soil and rock materials.

## Officers

**Chairman:** Adrian Pelzner, U.S. Agricultural Forest Service, Engineering Div., P.O. Box 2417, Washington, DC 20013.

**First Vice-Chairman:** Robert C. Deen, University of Kentucky, Kentucky Transportation Research Program, Transportation Research Bldg., Lexington, KY 40506.

**Second Vice-Chairman:** R. E. Gray, GAI Consultants, 570 Beatty Rd., Monroeville, PA 15146.

**Third Vice-Chairman:** W. G. Shockley, 326 Lake Hill Dr., Vicksburg, MS 39180.

**Secretary:** R. J. Stephenson, U.S. Army Corps of Engineers, South Atlantic Division Lab., 611 So. Cobb Dr., Marietta, GA 30060.

**Membership Secretary:** R. S. Ladd, Woodward-Clyde Consultants, 1425 Broad St., Clifton, NJ 07012.

## Subcommittees and Their Chairmen

### TECHNICAL

#### **D18.01 Surface and Subsurface Reconnaissance**

C. P. Fisher, Jr.

#### **D 18.02 Sampling and Related Field Testing for Soil Investigations**

R. E. Brown

#### **D18.03 Texture, Plasticity, and Density Characteristics of Soils**

R. C. Horz

#### **D18.04 Hydrologic Properties of Soil and Rock**

R. S. Ladd

#### **D18.05 Structural Properties of Soils**

R. T. Donaghe

#### **D18.06 Physico-Chemical Properties of Soils and Rocks**

G. R. Olhoeft

#### **D18.07 Identification and Classification of Soils**

C. H. McElroy

#### **D18.08 Special and Construction Control Tests**

J. R. Talbot

#### **D18.09 Dynamic Properties of Soils**

M. L. Silver

#### **D18.10 Bearing Tests of Soils in Place**

G. Y. Balardi

#### **D18.11 Deep Foundations**

E. T. Mosley

#### **D18.12 Rock Mechanics**

H. J. Pincus

#### **D18.13 Marine Geotechnics**

R. C. Chaney

#### **D18.14 Geotechnics of Waste Management**

D. E. Clark

#### **D18.15 Stabilization by Additives**

M. C. Anday

#### **D18.16 Chemical Grouting**

R. H. Karol

#### **D18.17 Rock for Erosion Control**

K. L. Saucier

#### **D18.18 Peats and Organic Soils**

P. M. Jarrett

#### **D18.19 Geotextiles and Their Applications**

B. R. Christopher

#### **D18.20 Impermeable Barriers**

A. I. Johnson

### ADMINISTRATIVE

#### **D18.91 Editorial**

R. C. Deen

#### **D18.92 Papers**

E. T. Selig

#### **D18.93 Nomenclature for Soil and Rock Mechanics**

A. I. Johnson

#### **D18.94 Education and Training**

N. O. Schmidt

#### **D18.95 Information Retrieval and Data Automation**

Carl D. Tockstein

#### **D18.96 Research Steering and Standards Development**

W. G. Shockley

#### **D18.97 Special Awards**

R. G. Packard

#### **D18.98 Hogentogler Award**

R. E. Gray

#### **D18.99 Quality Control**

J. R. Forbes