
TESTING FORUM

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 Investigations of Groundwater Contamination: The Requirements—J. Jeffrey van Ee and Leslie G. McMillion, United States Environmental 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 Information and Data—Brian C. Dorwart and Carl D. Tockstein, Tennessee Valley Authority, Knoxville, TN

4:20 p.m.: Simplified Groundwater Sampling Techniques at Landfills—Robert J. Schaffer, Jr. and James F. Merchie, Beling Consultants, 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. Barcelona, J. A. Helfrich, E. E. Garske, and J. P. Gibb, Illinois State Water Survey, Champaign, IL

8:50 a.m.: Achievement of Chemical Stability Prior to Groundwater Sampling in New and Existing Wells—A Review of Current Methods—Andrew W. Panko, and Peter Barth, Acres International 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 Organic Compounds—Jay Unwin, NCASI, Western Michigan University, Kalamazoo, MI

9:50 a.m.: Field Evaluation of Seven Sampling Devices for Purgeable Organic Compounds in Groundwater—Thomas E. Imbriotta, Jacob Gibb, Thomas V. Fusillo, George R. Kish, and Joseph J. Hochreiter, United States Geological Survey, Trenton, NJ

10:10 a.m.: Break

10:40 a.m.: A Hermetically Isolated Sampling Method for Groundwater 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, University 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 Investigations—Gary R. Olhoeft and Dennis R. Capron, United States Geological Survey, Denver, CO

1:50 p.m.: Selection and Implementation of Geophysical Techniques 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 Contaminated 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 Baedeker, 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. Gidigas), 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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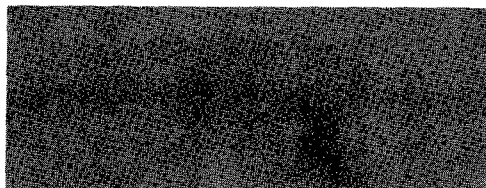
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ASTM Committee D-18 on Soil and Rock

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

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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

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B. R. Christopher

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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

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D18.96 Research Steering and Standards Development

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D18.97 Special Awards

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D18.98 Hogentogler Award

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D18.99 Quality Control

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