

# TESTING FORUM

## Committee D-18 News

### Test Method for Distribution Ratios Developed

A new standard for the determination of distribution ratios of chemical species for site-specific geological media by a batch sorption technique is available from ASTM.

ASTM Test Method for Distribution Ratios by the Short-Term Batch Method (D 4319) was developed by members of ASTM Subcommittee D18.14 on Geotechnics of Waste Management, a branch of Committee D-18 on Soil and Rock. It is based on a knowledge and understanding of important site-specific factors,  $R_d$  values, and may be used by qualified experts for estimating the value of the distribution coefficient  $K_d$  for a given set of underground geochemical conditions.

The test is a short-term laboratory method primarily intended for ionic species subject to migration in granular porous material; application of the results to long-term field behavior is not known. Distribution ratios for radionuclides in selected geomedias are commonly determined for the purpose of assessing potential migratory behavior at waste repositories. This test is also applicable to studies of intrusion waters and for parametric studies of the effects of variables and of mechanisms that determine the measured distribution ratios.

Copies of ASTM D 4319 may be purchased from ASTM Customer Services Department, 1916 Race Street, Philadelphia, PA 19103, 215/299-5585.

Subcommittee D18.14 members will next discuss a proposed standard practice for uniform sampling for inorganic contaminants in groundwater from wells or boreholes. Various standards needs of the Environmental Protection Agency will also be considered. All interested persons are urged to participate.

For more information on the new activities of Subcommittee D18.14, contact Donald E. Clark, Battelle PMD, 505 King Avenue, Columbus, OH 43201, 614/424-7913; or Bob Morgan, ASTM Standards Development Division, 1916 Race Street, Philadelphia, PA 19103, 215/299-5505.

### Laboratory Preparation of Soil Specimens Standard

The laboratory preparation of chemically grouted soil specimens for use in design strength parameter tests is described in a new ASTM standard.

ASTM Test Method for Laboratory Preparation of Chemically Grouted Soil Specimens for Obtaining Design Strength Parameters (D 4320) was developed by members of ASTM Subcommittee D18.16 on Grouting, a branch of ASTM Committee D-18 on Soil and Rock. The standard requires the injection of grout into soil specimens already fabricated to a desired density with the use of molds. The specimens are intended for both strength and modulus determination in unconfined and confined compression testing, when the data are to be used for design purposes.

Report criteria and precision and bias information are also given in the standard.

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Copies of ASTM D 4320 may be purchased from ASTM Customer Services Department, 1916 Race Street, Philadelphia, PA 19103, 215/299-5585.

For more information on this new ASTM standard or any subcommittee activities, contact Subcommittee D18.16 Chairman R. H. Karol, Rutgers University, P.O. Box 909, Piscataway, NJ 08854, 201/932-4454.

Information on any activities of Committee D-18 is available from Bob Morgan, ASTM Standards Development Division, 1916 Race Street, Philadelphia, PA 19103, 215/299-5505.

### Symposium on Consolidation Behavior of Soils

ASTM is sponsoring a Symposium on Consolidation Behavior of Soils to be held at Ft. Lauderdale, FL, on 24 Jan. 1985. Sponsored by ASTM Committee D-18 on Soil and Rock, this symposium will provide a forum for the presentation of new information, the development of ideas, and the discussion of consolidation behavior of soils. The symposium will be based on over 30 papers prepared by experts from Canada, France, The Netherlands, Japan, Poland, Mexico, and the United States.

The one-day event will include a morning session on Theory and Laboratory Testing Requirements, and an afternoon session on Evaluation and Special Tests. Two state-of-the-art presentations will focus on "Laboratory Consolidation Testing," and "Evaluation and Interpretation of Test Data."

An ASTM Special Technical Publication (STP) is expected to result from the papers prepared for this symposium.

ASTM Committee D-18 is composed of over 500 members devoted to the development of standard specifications and methods for sampling and testing, definitions and practices relating to soil, rock, and the fluids contained therein. The committee will hold standards-writing meetings preceding the symposium on Sunday, 20 Jan. through Wednesday, 23 Jan. at the same location.

Attendance at these meetings and at the symposium is free of charge and open to all interested persons. ASTM membership is not required.

For more information on the symposium, contact the Symposium Chairmen, Raymond N. Yong, Geotechnical Research Center, McGill University, 817 Sherbrooke Street, West, Montreal, PQ H3A 2K6, Canada, 514/392-4751; or Frank Townsend, Civil Engineering Department, University of Florida, Gainesville, FL 32611, 904/392-0296.

For more information on ASTM Committee D-18, contact Robert Morgan, ASTM Standards Development Division, 1916 Race Street, Philadelphia, PA 19103, 215/299-5505.

The following is a list of the presentations scheduled for 24 Jan. 1984.

#### *Morning Session: Theory and Laboratory Testing Requirements*

- Chairman: R. T. Donoghe, U.S. Army Engineering, Waterways Experiment Station (USAEWES), Vicksburg, MS
- Moderator: R. N. Yong, McGill University, Montreal, Canada

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- State-of-the-Art Speaker: "Laboratory Consolidation Testing," R. E. Olson, University of Texas, Austin, TX
- Reporters: V. Drnevich, University of Kentucky, Lexington, KY; and V. Silvestri, Ecole Polytechnique, Montreal, Canada
- Presentation of prepared discussions by authors: Panelists for Panel Discussion—Reporters and State-of-the-Art Speaker
- Panel discussion follows prepared discussions by authors.

## *Afternoon Session: Evaluation and Special Tests*

- Chairman: E. T. Selig, University of Massachusetts, Amherst, MA
- Moderator: F. C. Townsend, University of Florida, Gainesville, FL
- State-of-the-Art Speaker: "Evaluation and Interpretation of Test Data," C. B. Crawford, DBR/NRC, Ottawa, Canada
- Reporters: D. G. Bloomquist, University of Florida, Gainesville, FL; and J. Peters, USAEWES, Vicksburg, MS
- Presentation of prepared discussions by authors: Panelists for Panel Discussion—Reports and State-of-the-Art Speaker
- Panel discussion follows prepared discussions by authors.

The following papers are in preparation for the ASTM symposium.

## *State-of-the-Art Papers*

Laboratory Consolidation Testing—R. E. Olsen, University of Texas, Austin, TX

Evaluation and Interpretation of Test Data—C. B. Crawford, Division of Building Research, NRC, Ottawa, Ontario, Canada

Authors of the following papers will present prepared discussions.

Consolidation of Soil Stabilized Ground—T. Adachi, Department of Transportation Engineering, Kyoto University, Yoshida Honmachi, Sakyo-ku, Kyoto, Japan

Consolidation Behavior of Industrial Sludge—P. M. Alvi, Geo-Mechanics, Inc., Belle Vernon, PA

Soil Volume Change Due to Decomposition of Organic Solids—O. B. Anderson, Department of Civil Engineering, Michigan State University, East Lansing, MI; and A. W. N. Al-Khafaji, University of Evansville, Evansville, IN

General Theory of Consolidation for Clays—E. Juarez-Badillo, Graduate School of Engineering, National University of Mexico, Coyoacan, Mexico

Oedometer Testing at the Norwegian Geotechnical Institute—G. Sandbaekken and T. Berre, Norwegian Geotechnical Institute, Tasen, Oslo, Norway

Unsaturated Soil Consolidation Theory and Laboratory Experimental Data—D. G. Fredlund and H. Rahardjo, Department of Civil Engineering, University of Saskatchewan, Saskatchewan, Canada

Improved Techniques for the Constant Rate of Strain Consolidation Test—V. P. Drnevich, Department of Civil Engineering, University of Kentucky, Lexington, KY

Consolidation of Sand-Clay Mixtures—M. Fukue, S. Okusa, and T. Nakamura, Faculty of Marine Science Technology, Tokai University, Shimizu, Shizuoka, Japan

A Laboratory Comparative Study of Wick Drains—V. A. Guido, Department of Civil Engineering, The Cooper Union School of Engineering, New York, and N. Ludewig, New York State Department of Transportation, New York, NY

Consolidation of Natural Clays and Laboratory Testing—M. Kabaj, S. Leroueil, and F. Tavenas, Department of Civil Engineering, Cite Universitaire, Quebec, Canada

Automatic Continuous Consolidation Testing in Sweden—R. Larrson, Swedish Geotechnical Institute, Linkoping, Sweden; and G. Sallfors, Chalmers University of Technology, Goteborg, Sweden

Interpretation of Consolidation Tests—G. A. Leonards, School of Civil Engineering, Purdue University, West Lafayette, IN

Compressibility and Settlement of Compacted Fills—S. O. Nwaboukei and C. W. Lovell, School of Civil Engineering, Purdue University, West Lafayette, IN

Nondestructive Measurement of Soil Consolidation in Marine Soils—A. Richards, Research and Development FUGRO B. V., Leidschendam, The Netherlands

Consolidation or Shear Strain Testing of Moist Loess—C. O. Riggs, Central Mine Equipment Company, St. Louis, MO; and N. O. Schmidt, University of Missouri-Rolla, Rolla, MO

Large Scale Self-Weight Consolidation Test—J. D. Scott, Department of Civil Engineering, University of Alberta, Edmonton, Alberta, Canada; M. B. Dusseault, University of Waterloo, Waterloo, Ontario, Canada; and W. D. Carrier, III, Bromwell Engineering Inc., Lakeland, FL

Determination of Density Dispersed Solids Concentration Profile in a Settling Column Using Fall Drop Technique—A. J. Sethi, D. E. Sheeran, N. Skiadas, and S. Alammawi, Geotechnical Research Centre, McGill University, Montreal, Canada

An Experimental Assessment of the Restricted Flow Consolidation Test—G. Sills and S. D. Hoare, Department of Engineering Science, University of Oxford, Oxford, England

Controlled-Strain, Controlled-Gradient and Standard Consolidation Testing of Sensitive Clays—V. Silvestri, M. Soulie, and F. Gabriel, Department of Civil Engineering, Geotechnical Section, Ecole Polytechnique, Campus de l'Universite de Montreal, Montreal, Canada; and R. N. Yong, McGill University, Montreal, Canada

Ultrasonic Testing of Strain Characteristics of Soils—W. Wolski and T. Baranski, Warsaw Agricultural University, Warszawa, Poland

A New Consolidation Testing Procedure and Technique for Very Soft Soils—K. Zen and Y. Umehara, Foundation Laboratory, Soils Division, Port and Harbour Research Institute, Yokosuka, Japan

Desk Top Computer Application for Consolidation Testing and Analysis—J. G. Byers and K. Von Fay, U.S. Department of the Interior, Bureau of Reclamation Engineering and Research Center, Denver Federal Center, Denver, CO

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CRL (Constant Rate of Loading) Consolidation Test—C. E. Cotton and K. Von Kay, Bureau of Reclamation, Denver, CO

Determination of Coefficient of Consolidation  $C_v$  for Large Strain and Variable  $C_v$  Value—M. Mikasa and N. Takada, Civil Engineering Department, Osaka City University, Osaka, Japan

Determination of Consolidation Parameters by Selfweight Consolidation Test in Centrifuge—N. Takada and M. Mikasa, Civil Engineering Department, Osaka City University, Osaka, Japan

The Effect of Pre-Fabricated Drains on the Laboratory Consolidations of Soils—L. D. Suits, R. L. Gemme, and J. J. Masi, Soil Mechanics Bureau, New York State Department of Transportation, Albany, NY

Determination of Diffusion Coefficients for Prediction of Settling of Suspended Solids—R. N. Yong and D. S. Elmonayeri, Geotechnical Research Center, McGill University, Montreal, Canada

Brittle Behavior of a Varved Clay During Laboratory Consolidation Tests—S. M. Bembem, Department of Civil Engineering, University of Massachusetts, Amherst, MA

A Biaxial Consolidation Test for Anisotropic Soils—J. F. Peters and D. A. Leavell, U.S. Army Waterways Experiment Station, Vicksburg, MS

Oedometric Testing in French Laboratoires des Ponts et Chaussées (LPC)—P. Ducasse, C. Mieussens, M. Moreau, and B. Soyeux, Laboratoire Central des Ponts et Chaussées, Paris, France

Consolidation in the Intergranular Viscosity of High Compressible Soils—L. Zeevaert, Faculty of Engineering, U.N.A.M., Professor Graduate School of Engineering, Delegacion Centro, Mexico

Difficulties in Obtaining Consolidation Parameters from Centrifugal Model Tests—F. C. Townsend and D. G. Bloomquist, University of Florida, Department of Civil Engineering, Gainesville, FL

## Call for Papers

ASTM is sponsoring a Symposium on Geotechnical Applications of Remote Sensing and Remote Data Transmission on 30 Jan. 1986 in Coco Beach, FL. Organized by ASTM Committee D-18 on Soil and Rock, the one-day symposium will be one part of the four-day spring meeting of that committee. A. Ivan Johnson, Woodward-Clyde Consultants, is the symposium chairman.

The purpose of the symposium will be to develop information that can be used to prepare guidelines for the use of new remote sensing techniques for a variety of projects involving geotechnical engineering and to the use of satellite transmission for on-site instrumentation data. The program will be designed to show advantages and disadvantages of various remote sensing and remote transmission techniques, equipment, and programs related to soil mechanics, rock mechanics, geologic engineering, groundwater hydrology, and other scientific input to geotechnical engineering studies.

Offered and invited papers will be scheduled for oral or poster presentation. All papers will be reviewed and considered for publication in an ASTM special technical publication. Presentations will be selected by a Program Committee on the basis of submitted abstracts.

Prospective authors are requested to submit a title, a 300-500 word abstract with the ASTM paper submittal form by 2/1/85 to Kathy Greene, 1916 Race Street, Philadelphia, PA 19103, (215) 299-5414. Submittal forms can be obtained from Kathy Greene or the symposium chairman.

To receive information on the symposium or instructions for submittal of abstracts, contact the symposium chairman, A. Ivan Johnson, Consultant, Woodward-Clyde Consultants, Harlequin Plaza-North, 7600 East Orchard Road, Englewood, CO 80111 (303/425-5610 or 303/694-2770).

ASTM may print and distribute accepted abstracts at the symposium with the approval of the chairman.

# 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**

H. E. Davis

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

R. S. Ladd

**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. W. Britzius

**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