



Association of Environmental and Engineering Geologists
California Central Coast Chapter, Southern California Section

www.aegsc.org/chapters/centralcoast

Robert J. Urban, President
William "Bill" Tracy, Vice President

Diane Love, Treasurer
Else Wolff, Secretary

APRIL 2006 MEETING NOTICE

AEG STUDENT NIGHT 2006

**GEOLOGIC CONTROLS ON POOL FORMATION
AND LOW-FLOW HABITAT: RATTLESNAKE
CREEK, SANTA BARBARA, CALIFORNIA**

GARRET BEAN

**A COMPARISON OF HYDROGEOLOGIC MODELS,
TRITIUM/³HE, AND DELIBERATE TRACER
EXPERIMENTS TO UNDERSTAND GROUND
WATER RESIDENCE TIME**

JENI MCDERMOTT

Wednesday, April 26, 2006

Rusty's Pizza, Goleta

(RSVP/Directions below)

6:00 pm- 7:00 pm Social Hour

7:00 pm – 8:00 pm Chapter Meeting

The March meeting is sponsored by:



OILFIELD ENVIRONMENTAL AND COMPLIANCE
Environmental, Laboratory and Geoprobe Services

This month's meeting is highlights student

geologists in the region. We look forward to seeing you at the meeting!

Speakers:

Mr. Garret Bean, Graduate Student,
University of California at Santa Barbara
&

Ms. Jeni McDermott, Graduate Student,
University of California at Santa Barbara

Speakers' Brief Biographies:

Mr. Garret Bean is currently pursuing a master's degree in geology the University of California at Santa Barbara where he received a Bachelor's of Science degree in Geological Sciences with an emphasis in engineering geology and hydrogeology. Mr. Bean's research interests are in fluvial geomorphology and hydrogeology. He is currently studying geologic controls on channel form and processes, as well as the geologic influence on low-flow habitat for

endangered southern steelhead trout. Mr. Bean has recently volunteered to serve as our Chapter's Student Liaison.

Ms. Jeni McDermott is a graduate student at the University of California at Santa Barbara. Further biographic details for Ms. McDermott are not available at this time.

Student Abstracts

Geologic Controls on Pool Formation and Low-Flow Habitat: Rattlesnake Creek, Santa Barbara, CA

Garret Bean and Edward Keller

Department of Geological Sciences, University of California, Santa Barbara, CA 93106 USA

Channel morphology and low-flow habitat play a critical role in the spawning and rearing of endangered steelhead trout. To aid the recovery of steelhead, it is imperative to determine how pools are formed and maintained in steep boulder-bed mountain streams. Previous work in boulder-bed streams has mainly focused on boulder or bedrock constrictions and gradient to explain spatial distribution and pool morphology. Rattlesnake Creek, a typical boulder-bedrock stream in the Santa Ynez Mountains, Santa Barbara, California, was studied to determine the geologic influence on the quality and quantity of steelhead trout habitat.

The goals of this study were to: 1) evaluate the geologic influence on the pool morphology and spacing; and 2) examine the role of geology on low flow habitat of endangered southern steelhead trout. Two hypotheses were tested: 1) Lithology is an important control in determining characteristic channel morphology; and 2) Intrinsic lithologic and geologic properties such as porosity, fracture density and faulting are primary factors in providing low-flow habitat. To test the hypotheses, three reaches with different rock types including sandstone and shale were surveyed. Geologic and morphologic characteristics such as rock strength, fracture density and pool type, length, depth, width, and spacing were measured and compared to determine if morphology is specific to rock type. Geologic influence on low-flow habitat was examined by mapping aquifer recharge and discharge zones during low-flow conditions.

Results indicate that step pools and forced pools are found where cascades should be expected. Statistical analysis shows that there is no significant difference between pool length, width and depth in each rock type; however, there is a significant difference in pool spacing. Mapped aquifer recharge and discharge zones indicate that the Coldwater Sandstone creates important refugia for trout during extremely low-flow conditions; and in general the sandstone units maintain flow longer than units in shale. By understanding the geologic influences on pool morphology and low-flow habitat, this research is useful both in identifying refuge for steelhead trout and in the selection of channel reaches for restoration or naturalization.

A COMPARISON OF HYDROGEOLOGIC MODELS, TRITIUM/³HE, AND DELIBERATE TRACER EXPERIMENTS TO UNDERSTAND GROUND WATER RESIDENCE TIME.

Jeni McDermott¹, Jordan F. Clark¹, Dror Avisar², & G. Bryant Hudson³

¹Department of Geological Sciences, University of California, Santa Barbara, CA 93106 USA
(jeni_mcdermott@umail.ucsb.edu, jfclark@geol.ucsb.edu)

²Department of Geography and Environmental Sciences, Tel Aviv University, Israel
(droravi@post.tau.ac.il)

³Chemical Biology and Nuclear Science Division, Lawrence Livermore National Laboratory,
Livermore, CA 94550, USA (hudson5@llnl.gov)

Assessment of subsurface residence time of ground water, used for determining flow paths and travel times, is an important criterion for understanding and monitoring water quality and *in situ* biogeochemical reactions. Established methods of determining travel time include hydrogeologic modeling, transient tracers and deliberate tracers. A comparison of these three methods was completed near the Montebello Forebay recharge site in Los Angeles County, California. Sulfur hexafluoride (SF₆) gas tracer was injected into the Rio Hondo and San Gabriel recharge basins in early 2003. During this two-year experiment, SF₆ was detected at nine monitoring wells, indicating that SF₆ was successfully transferred from surface water to groundwater during percolation at spreading basins. SF₆ tracer was detected at 11 of the 18 production wells sampled during this study, indicating travel time for recharge water to some of the wells is less than two years. All tritium/³He ages are greater than 10 years for the production wells, indicating mixing of young and old ground water. Because tritium/³He ages do not mix linearly—the mixed age is weighted by each flow path's initial tritium content—this technique leads to over-estimation of ground water age. At four of the eleven wells with SF₆ detections, the hydrogeologic travel times determined in a previous study by Bookman-Edmonston Engineering were less than 10 weeks and are in basic agreement with the SF₆ travel times determined in the present study. However, at the other seven wells, estimated hydrogeologic travel times were greater than 200 weeks, significantly longer than indicated by the tracer data. Leakage through low permeability layers leading to earlier tracer arrival provides a likely explanation. At all wells with no detected tracer, the hydrogeologic times were greater than three years. In 2005, the SF₆ tracer experiment was repeated after a packer was placed in one of the production wells to isolate water in the deep portion of the well.

Chapter President Message

Greetings CA Central Coast Chapter:

Last month, the Board of Geologists and Geophysicists (Board) convened to evaluate the performance of the Board's Executive Officer, Mr. Paul Sweeney and to re-evaluate their previous decision to eliminate the California Specific Examination (CSE) as part of the requirements for becoming a licensed Professional Geologist in California. To the pleasure of many California Professional Geologists, the Board has decided to rescind their prior decision and therefore retain the CSE. However, the Board intends to again review the function and need for the CSE as part of the requirement for licensure. Please send your comments, perspective, or thoughts to the Board regarding this matter as this is an ongoing issue.

This month's meeting is our first AEG Annual Student Night. We have two student presenters from UC Santa Barbara speaking about topics relevant to our professional practice. Please come and attend this month's meeting to show your support for the future of our profession and take part in helping decide which of these students will be the first to receive our Chapter's Dr. John W. Williams Scholarship. The student presenter that delivers the best presentation, as determined by the meeting's attendees, will receive the scholarship that honors Dr. Williams' contributions to AEG and our profession.

I am pleased to announce that our Chapter now has a Student Liaison. Mr. Garret Bean, one of our student presenters this month, has volunteered to serve as Student Liaison. Mr. Bean will aid our Chapter in helping establish a link with regional academia and encourage student participation. Thank you, Garret! AEG's outreach to the future of our profession, that is young professionals and students, is part of AEG National's strategic plan.

I look forward to seeing at the upcoming meeting!

*Best of regards,
Robert J. Urban
President
AEG CA Central Coast Chapter*

Announcements

Please email announcements to lavapoet@verizon.net, thank you.

First Annual North American Landslide Conference, Vail, CO

The Conference will hold four days of technical sessions on Monday and Tuesday, June 4-5, 2007, and on Thursday and Friday, June 7-8, 2007. Wednesday, June 6, 2007, will be devoted to 1-day **Technical Excursions** that are included within the registration fees.

The technical program is designed to address the **Conference Themes**, which include **13 Principal Topics**.

The Technical Program will consist of plenary sessions in the mornings and multiple parallel technical sessions in the afternoons. The morning sessions will contain Keynote and Invited Addresses, supplemented in some cases by debates or panel discussions. A total of 15-20 individual addresses are planned. The afternoon technical sessions will accommodate 125-150 presentations. Additional presentations will be accommodated as posters – these will be presented for review and debate during morning and afternoon breaks and luncheons.



**Augered Cast-in-Place Piles
Short Course – May 4, 2006
Specialty Seminar – May 5, 2006
Radisson Hotel at Los Angeles Airport**
Please see the ad for the Deep Foundations Institute's short course for cast in place piles at the end of this newsletter.

Annual Student Night

The CA Central Coast Chapter is pleased to host the First Annual Student Night this April

meeting. This is an important Chapter event that is designed to establish a link between academia and the profession, as well as encourage student participation in AEG. Come attend to meet potential 'new hires' or to learn about current research from regional universities.

Student presenters will deliver a 15 to 20 minute presentation of their research or projects that are pertinent to our profession. As a token of the Chapter's appreciation, each student presenter will be offered an Annual Student Membership to AEG. In addition, the student that gives the best presentation, as voted by attending members that night, will receive the Central Coast Chapter's - Dr. John W. Williams scholarship.

CA Central Coast Chapter Dr. John W. Williams Scholarship

Dr. John W. Williams is an active AEG member of the San Francisco Section, professor of engineering geology and Department Chair at San Jose State University (1976 – present), and former AEG National President (1988), secretary, and Vice President. Dr. Williams has served as the Association of State Boards of Geology (ASBOG) President and a founding Officer and President of the Engineering Geology Foundation (1996). In addition to acting as President for a number of additional organizations, Dr. Williams has served as Chair on: the Examination Committee for the California Board of Registration for Geologists and Geophysicists (1978-2000), the Ethics Committee for the ASBOG (2002 – present), and the Examination Committee for ASBOG (2002 – present). Dr. Williams acts as the advisor to the San Francisco Section Student Chapter and has throughout his career encouraged student membership and participation in AEG.

Dr. Williams has received numerous awards

over the years of service to AEG and our profession. He has received the Floyd T. Johnston Service Award (1998) from AEG and the Meritorious Service Award (1992) from the Engineering Geology Division of the Geological Society of America.

Dr. Williams earned doctorate (1970) and masters of science (1968) degrees in geology from Stanford University and a bachelors of science (1967) degree in geology from the College of William and Mary, VA. Dr. Williams is a licensed Professional Geologist, Certified Hydrogeologist, and a Certified Engineering Geologist. He began his career working for the California Division of Mines and Geology (now the California Geological Survey) from 1971 through 1976 then became a professor at San Jose State University in 1976 and has continued teaching through the present. Many consulting geologists have received mentorship from Dr. Williams.

The CA Central Coast Chapter recognizes the important contributions of Dr. Williams to AEG and our profession. We hope that our scholarship brings awareness of Dr. Williams' contributions to future professional geologists.

To make a donation to the Dr. John W. Williams Scholarship fund, please contact Robert Urban at robert_urban@urscorp.com or Diane Love at Diane.Love@tetrattech.com. All scholarship donors will be recognized on our Chapter's website.



Last Month's Meeting

Our March meeting featured Bill Tracy (County of Santa Barbara) and James Steele (TetraTech). Dr. Larry Gurrola

presented a short rebuttal presentation to Tracy and Steele.

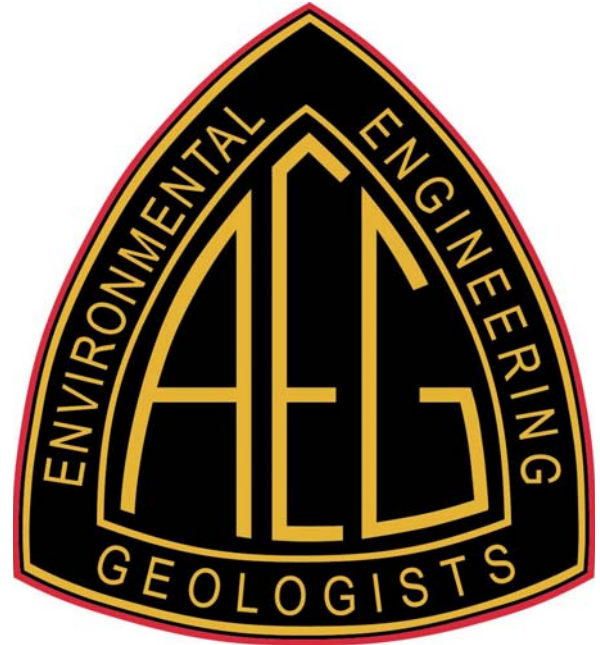
Tracy's and Steele's presentation was of special interest because it presented a conflicting view to recent research interpretations by Gurrola about the structural geology of Mission Ridge to the north of downtown Santa Barbara.

Alluvial deposits were studied by Tracy and Steele during a two year period on weekends and without outside funding. The Older Alluvium (or fanglomerate) was evaluated on both sides of the Mission Ridge fault where it crosses an old alluvial fan on Mission Ridge (the Riviera). Three outcrops of the fanglomerate contain elongated pebbles and cobbles that have their elongated axes plunging northward indicating a southward current direction. Imbrication is commonly used by geologists to estimate the direction of current flow along with bedding surfaces and other features. The lack of rotation of these clasts is indicated because they are all plunging northwards, and this conflicts with Larry Gurrola who recently completed his doctorate at UC Santa Barbara. Mr. Gurrola believes that Mission Ridge is an anticlinal fold.

In addition, there are additional paleocurrent channels beyond those mapped by Keller and others in the late 1990's. An outcrop of fanglomerate along Mountain Drive near Tremonto Road exhibits bedding surfaces that dip at a low angle towards the south and also contain hundreds of imbricated clasts and those long axes plunge northward. Both data sets collaborate each other and indicate that Mission Ridge is not folded.

Larry Gurrola rebuked the first two speakers by saying that the fanglomerate lacks bedding features shown by Tracy and Steele. He also indicated that the work was not credible because it was not peer reviewed as much as his dissertation was, therefore, their findings cannot be trusted.

He indicated that north dipping beds are present in now backfilled trenches east of the old Sheffield reservoir and show that Mission ridge is folded into an anticline structure. Age dates presented by Gurrola yield conflicting dates as some dates are as young as 1,000 years, which would post date the fanglomerate.



Chapter Sponsors

URS

URS Corporation
130 Robin Hill Road, Suite 100
Santa Barbara, CA 93117
805.964.6010



MICHAEL F. HOOVER
Consulting Geologist • Hydrologist

Michael Hoover
Consulting Geologist – Hydrologist
Santa Barbara, CA
805.569.9670



OILFIELD ENVIRONMENTAL AND COMPLIANCE

Environmental, Laboratory and Geoprobe Services

307 ROEMER WAY, SUITE 300

SANTA MARIA, CA 93454

(805)922-4772

info@oecusa.com

oecusa.com

SATELLITE OFFICE: HWY 33, McKITTRICK, CA

(661)762-914

The Association of Environmental & Engineering Geologists CA Central Coast Chapter is currently seeking monthly meeting sponsorship. Benefits of becoming a monthly meeting sponsor include: 1) sponsor's name or logo placed on our Chapter website indicating the month of sponsorship, 2) listing as a Corporate Sponsor in our monthly newsletter, and 3) recognition at the monthly meeting. Our Chapter is asking for a donation of \$150 for becoming a monthly meeting sponsor . . . a small price for the recognition that you contribute to the professional society that best embodies our professional practice.

Directions to Meeting

Monthly Meetings

Monthly meetings will take place on the last Wednesday of every month at Rusty's Pizza in Goleta. Social hour begins at 6 pm; the meeting begins at 7pm.

For more information or to be added to the CA Central Coast Chapter email list, please contact Robert Urban via email at robert_urban@urscorp.com.

Location:

Rusty's Pizza, 270 Storke Road, Goleta (Santa Barbara)

Directions:

1. Driving Northbound or Southbound on Highway 101;
2. Exit on Storke Road;
3. Turn Left (if you were traveling northbound), Right (if you were traveling southbound);
4. Turn Left at the first stoplight past Hollister Road;
5. Rusty's is on the left.

Donation/Cost:

AEG members = \$15; non-AEG members = \$20; Students = \$5

Please: If you plan on attending the meeting, please email lavapoet@verizon.net a confirmation of your attendance by the Tuesday preceding the meeting date. This greatly helps in ordering the food for attendees. However, if you forget to email, please still do attend the meeting. Thank you.

JOB POSTINGS

If you would like to place a job announcement, please email the listing to lavapoet@verizon.net, thank you!



Lawson & Associates
Geotechnical Consulting, Inc.
Lawson & Associates Geotechnical Consulting, Inc.

2045 Royal Avenue, Ste. 125

Simi Valley, CA 93065

Tele: (805) 579-3434 Fax: (805) 579-3435

Email: kesmond@lgcgeo.com

Website: www.lgcgeo.com

LGC is looking for dynamic individuals to join our team and work on some of Orange, Los Angeles, Ventura, San Bernardino, Santa Barbara and Kern Counties' most interesting

and technically challenging projects. If you are an experienced geotechnical professional, or just starting your career, please do not hesitate to contact us. All inquiries will be considered in the utmost confidence. We look forward to hearing from you.

Lawson and Associates looking for Project Engineer

Work under the supervision of registered geotechnical engineer to perform field geotechnical investigations, analysis and design of shallow & deep foundation, seismic hazard assessments, liquefaction analysis, and static and pseudo-static slope stability analysis; prepare geotechnical reports; participate in inspecting existing engineering projects and formulating recommendation on project design improvements; present the engineering aspect of the project to clients and interact with clients on the technical parts of the projects.

Requirement: MS degree in Civil Engineering with specialization in Geotechnical Engineering.

Send resumes to 2045 Royal Avenue, Suite 125, Simi Valley, CA 93065

**AEG CA Central Coast Chapter
Contact Information**

President

Robert Urban
URS Corporation
130 Robin Hill Lane, Suite 100
Santa Barbara, CA 93117
Phone: 805.964.6010
robert_urban@urscorp.com

Vice President

Bill Tracy
County of Santa Barbara
4415 Cathedral Oaks Blvd.
Santa Barbara, CA

Treasurer

Diane Love
Tetra Tech, Inc.
4213 State Street
Santa Barbara, CA 93117

Phone: 805-681-3100 ext 141

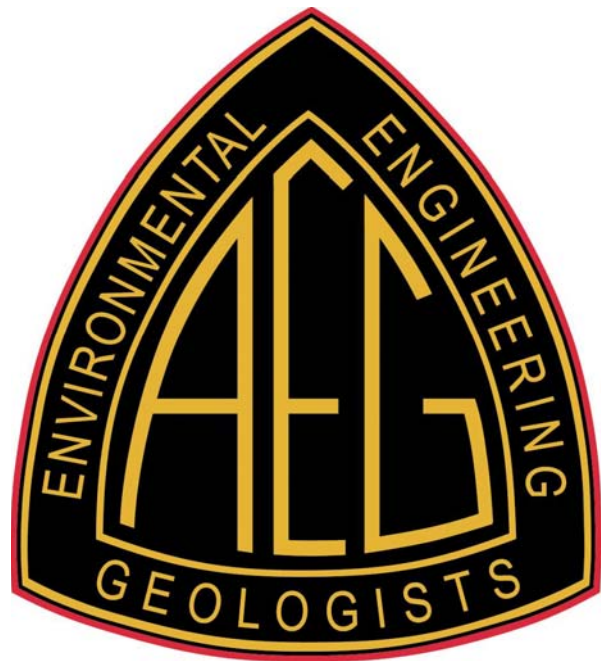
Diane.Love@tetrattech.com

Secretary

Else Wolff
URS Corporation
130 Robin Hill Lane, Suite 100
Santa Barbara, CA 93117
Phone: 805.964.6010
else_wolff@urscorp.com

Student Liaison

Garret Bean
Graduate Student
Department of Geological Sciences
University of California at Santa Barbara
gbean@umail.ucsb.edu





**Augered Cast-in-Place Piles
Short Course – May 4, 2006
Specialty Seminar – May 5, 2006
Radisson Hotel at Los Angeles Airport**

The DFI Augered Cast-in-Place Pile Committee is presenting two events in Los Angeles, California on the subject of Augered Cast-in-Place Piles and Drilled Displacement Piles. The technical program* for each event is as follows:

May 4 ACIP Pile Short Course

- 8:30-8:40 **Welcome:** Introduction to Program & Instructors
Willie NeSmith, P.E., Berkel & Company
Michael Moran, Cajun Constructors
Matthew Meyer, P.E., Langan Eng. & Env. Services
- 8:40-10:15 **Part 1:** Introduction - Historical Perspective, Terminology, Course Organization
Part 2: Installation Processes and Equipment
- 10:30-12:00 **Part 3:** Pile Materials
Part 4: Effects of Pile Installation on Performance
Part 5: Design - Axial Design of ACIP Piles in Fine-Grained and Granular Soils, and Intermediate Geo-materials
- 1:00-2:30 **Part 5 Continued:** Design - Axial design of Drilled Displacement Piles, Lateral and Seismic Issues
Part 6: Geotechnical Characterization
Part 7: Specifications
- 2:45-4:00 **Part 8:** Inspection
Part 9: Automated Monitoring Equipment
Part 10: Load Testing
Part 11: Non-destructive Testing
- 4:00-4:30 **Panel Discussion:** All Presenters

*programs subject to change

May 5 ACIP Specialty Seminar

- 8:30-8:40 **Introduction, Program Moderator:**
Chris Shewmaker (Richard Goettle, Inc.)
- 8:40-9:00 **Historical Perspective on ACIP Piles**
Willie NeSmith PE (Berkel & Company)
- 9:00-10:15 **Installation & Design of ACIP Piles**
Dan A. Brown PhD (Auburn University)
- 10:30-11:15 **ACIP Pile Inspector's Video CD-ROM**
- 11:15-12:00 **ACIP and DD Pile Quality Control**
Rudolph P. Frizzi, PE (Langan Eng & Env. Svcs)
- 1:00-1:30 **Extensive Static & Dynamic Load Test Program on ACIP Piles at U.C. Davis Medical Center**
Camilo Alvarez MS PE (GRL Engineers Inc.)
- 1:30-2:00 **ACIPP Load Test Program for the Solano County Government Center**
Kenneth G. Sorensen (Kleinfelder)
- 2:00-2:30 **Orange County Advanced Water Treatment Facility: A Case Study of Design & Application of DD Piles**
Gordon King (Morris Shea Bridge Company)
- 2:30-3:00 **DD Pile Load Test Program, MacArthur Place, Santa Ana**
W. Morgan NeSmith Jr. (Berkel & Company)
- 3:15-3:45 **Deep Foundations Aspects of the Playa Vista Development, Los Angeles**
Michael D. Reader (Group Delta Consultants)
- 3:45-4:15 **Consideration of DD Piles for Liquefaction Mitigation**
Timothy C. Siegel (Berkel & Company)
- 4:15-4:45 **Panel Discussion:** All Presenters

Sponsor: Deep Foundations Institute
326 Lafayette Avenue; Hawthorne, NJ 07506
Tel: (973) 423-4030 Fax: (973) 423-4031
Web: www.dfi.org

Venue: Radisson Hotel at Los Angeles Airport
6225 W Century Blvd; Los Angeles, CA 90045
Tel: (310) 670-9000 Toll Free: (800) 333-3333
Web: www.radisson.com/losangelesca_airport

Accommodation: Contact Radisson Hotel at Los Angeles Airport directly for special DFI rate* of \$100.00.
*subject to cut-off date of April 12, 2006 and availability.

Non-member Registration: \$325.00 each event
DFI Member Registration: **\$275.00 each event (AEG MEMBERS ALSO RECEIVE THIS RATE!)**
Student Registration: \$50.00 each event (Students must provide a copy of their ID card. Spaces are limited.)
Exhibitor Registration: \$600.00 (Includes one attendee registration and 6'x2' table- Table top displays only)

Short Course Registration Fees Include: technical session, breaks, lunch, handout binder and registration materials.

Seminar Registration Fees Include: technical session, breaks, lunch, reception, registration materials and seminar proceedings.

Cancellation: Sorry, No Refunds after **April 21, 2006**. If you are unable to attend, your registration may be transferred to another individual. Cancellations prior to April 21, 2006 must be made in writing via fax or mail.

Payment: Payment must accompany your registration. **Register on-line (www.dfi.org)** or fax (973-423-4031) your registration with credit card information included, or mail with credit card information, check or money order to Deep Foundations Institute (address above).

ATTENDEES WILL RECEIVE A CERTIFICATE VERIFYING 6 PROFESSIONAL DEVELOPMENT HOURS* FOR EACH DAY ATTENDED.

*In recognition of the fact that an increasing number of professional engineering licensing bodies are requiring members to pursue professional development on a more formal basis, DFI provides Certificates of Participation in our programs. DFI issues certificates certifying Professional Development Hours relating to attendance at Conferences, Seminars, Workshops and Short Courses arranged by DFI. This documentation should assist the attendees in maintaining records of their professional development credits. The record keeping of PDH's is the responsibility of the individual.

