
Title: Bam, Iran Earthquake of December 26, 2003

Abstract: As part of Earthquake Engineering Research Institute’s (EERI) Learning from Earthquakes (LFE) program supported by the National Science Foundation, EERI sent a team of engineers and medical specialists to Iran to investigate and report on the effects of the 6.6 magnitude earthquake that destroyed the city of Bam on December 26, 2003. The earthquake resulted in the deaths of more than 43,000 people (about half of the city’s population), with an additional 20,000 seriously injured, and left another 20,000 to 30,000 people homeless. The devastating quake took more than lives; it also laid waste to the city’s restored old town and massive citadel of Arg-e-Bam (the largest mud-brick complex in the world).

Iran is located in the middle of Arabian and Eurasia Tectonic Plates. The city of Bam is in a highly seismically active area southeast of the Lut block at the eastern end of the Zagros Mountain Range. The Arabia-Eurasia convergence is translated into shear on major north-south striking, right-slip faults on the east and west margins of the rigid Lut Block. More than ten major earthquakes, with magnitudes ranging from 5.0 to 7.0, were reported within a 100 km distance from the city of Bam during the past quarter century. However, this historical city was not significantly shaken within recent history. The epicentral region was located in the city, producing peak horizontal and vertical accelerations of 0.8g and 1g, respectively, with a high directivity pulse. The earthquake caused destruction of most of the adobe and some of the more recent structures in the city. The other effects of the earthquake included damage to the city’s potable water pipelines and qanat systems, which provided half of the irrigation water required for the agricultural use in the area.
Biographical Information:
Ali Bastani is a Senior Project Engineer with Leighton Consulting, Inc. Dr. Bastani received his B.S. from the Polytechnic of Tehran, and his M.S. and Ph.D. from the University of California at Davis. He has been involved in many public work projects during the past ten years, including municipal solid waste landfills, water reservoirs, transportation, and commercial design projects. He also pursues research in liquefaction and liquefaction-induced deformation of embankments. Dr. Bastani was also part of the Pacific Earthquake Engineering Research Center reconnaissance team for the 2001 Nisqually Earthquake in Seattle, and EERI’s team for the 2003 Bam Earthquake.

CHAIR COLUMN

The Chair’s Column will return next month.

2004 MEMBERSHIP RENEWAL

You should have received your 2004 dues statement from AEG Headquarters by now. If you have not received it, or are unsure about your membership status, please contact AEG Headquarters at www.aegweb.org, or Tania Gonzalez. You can now conveniently renew your membership online by going to www.aegweb.org.

We are also currently looking for a new Membership Chair. Please contact Tania Gonzalez you wish to volunteer.

2003-2004 CONTRIBUTORS (Thank You!)
Earth Consultants International
Eldon Gath
Joe Cota

YEAR 2004 CONTRIBUTORS NEEDED

Contributions from corporations and individual members for 2004 will be greatly appreciated. Contributors will be listed in our newsletter throughout the year and can post their logo or business card in the newsletter if so desired. Please mail contributions made out to AEG to our section chair, Tania Gonzalez.

NEWSLETTER ADVERTISING

Business Card $10/month $100/year
1/2page $20/month $200/year
1/4 page $35/month $350/year
Full page $50/month $500/year

REMINDER!
You will save our local section a substantial sum by receiving this newsletter via email or downloading from our website www.aegsc.com.

ANNOUNCEMENTS

GRAC
The Groundwater Resources Association of California is presenting their 10th Symposium in the Series on Groundwater Contaminants, Investigation and Remediation of Dry Cleaner Release Sites, in April. Please visit the following website for program and registration specifics http://www.grac.org

ENGINEERING GEOLOGY PRACTICE IN NORTHERN CALIFORNIA

Modeled after the 1992 publication, ENGINEERING GEOLOGY PRACTICE IN SOUTHERN CALIFORNIA, edited by B.W. Pipkin and R.J. Proctor; this new publication contains an overview of Northern California Geology. Indexed topics include landslides, faults, facilities (landfills, dams, bridges, and plants), tunnels, transportation, residential, and a “kaleidoscope” section related to environmental and seismic issues. It also contains a few projects from Southern California.

This publication is a must for your reference library. If you are interested please contact William Godwin, SF-Section Chair at wgodwin@mactec.com, or phone (707) 793-3841. The publication cost is $85.50 + $6.50 shipping to AEG members. Please send check payable to AEG “SF-Section”
EMPLOYMENT OPPORTUNITIES, OTHER

National Park Service (4-04)
The National Park Service is seeking qualified women to staff the Geologists-in-the-Parks program. All appropriately qualified women are welcome to apply, including students. As long as credentials match a position, any application is welcome. Stipend for each position is a flat rate of $2500, payable in three installments. For more information on the Geologist in the Parks program and full descriptions of the above positions, park geology, and park contacts visit http://www.awg.org/about/gip.html.

To apply for any of the AWG GIP positions, write a cover letter detailing your relevant experience for each position, provide a well-constructed resume or CV, and the names and contact information of three people who can speak directly about your work experience and qualifications. Application information should be sent to AWG's GIP Coordinator, Dr. M. A. Toscano, via email to awg-gip@awg.org. Word, rtf, pdf, Star Office and Word Perfect files are acceptable. DEADLINE IS APRIL 1, 2004.

PAI Corp. (3-04)
PAI Corporation is currently seeking a Hydrogeologist to assist in its environmental protection and restoration program at the NASA Ames Research Center in Mountain View, California. The incumbent works as part of a team to support the NASA Ames Research Center's Environmental Program. This is a senior level position. Job qualifications include, but are not limited to, the following:

1.) Bachelor's degree in hydrogeology, geology, or engineering, and 5 to 10 years relevant experience.
2.) Knowledge of general computer applications plus hydrological modeling, databases and GIS.
3.) Excellent verbal and written communication and organizational skills.
4.) Detail-oriented team player willing to support diverse environmental program responsibilities.
5.) Ability to understand the environmental issues affecting NASA Ames Research Center.
6.) Ability to perform fieldwork, including the collection of groundwater and/or soil samples.
7.) Knowledge of EPA analytical methods.
8.) Ability to work on multiple projects of varying priorities.
9.) Knowledge of federal, state of California, and local environmental laws and regulations and standards.

This is a summary statement of the responsibilities and qualifications for this position. PAI Corporation offers an excellent starting salary and benefits package. For consideration, please email your resume and salary requirements to job4001@paicorp.com. PAI Corporation is an Equal Opportunity Employer.

A Comprehensive benefits package is included.

Company Job ID: 4001
Job Title: Hydrogeologist
Location: San Jose, CA (NASA Ames Research Center, Mountain View, CA)
Company Homepage: www.paicorp.com
Contact: HR Manager
By E-mail: job4001@paicorp.com

Gold Coast GeoServices, Inc. (3-04)
Gold Coast GeoServices, Inc., in Camarillo has job openings for engineering geologists, geotechnical engineers, and soils technicians/laboratory technicians of all levels. Prior work experience or college level experience in Ventura and Los Angeles Counties is preferred. Please email resume with experience and qualifications to general@goldcoastgs.com, or fax to 805-484-4295.
Hargis + Associates, Inc. (3-04)
Hargis + Associates, Inc., a San Diego based consulting firm specializing in hydrogeology and engineering, currently has opportunities in both our Mesa, Arizona and San Diego, California offices. We are currently looking to fill the following positions:

**Staff Hydrogeologist–Modeler**: Candidate would possess a M.S. Degree in Hydrogeology, and 2 to 4 years relevant experience, including experience with groundwater modeling and GIS. Candidate should possess strong writing and presentation skills. California registration is a plus. OSHA 40-hour training preferred, but not mandatory. Position may be based in San Diego, CA, or Mesa, AZ. Some travel may be required.

**Entry Level Engineer**: Candidate would possess B.S. Degree in Chemical, Civil, or Mechanical Engineering. Position will be based in San Diego, and may require some travel and field work. OSHA 40-hour training preferred, but not mandatory.

**Staff Engineer**: Candidate would possess B.S. Degree in Chemical, Civil, or Mechanical Engineering and EIT Certification, and two to four years of relevant experience, including design, operation, and maintenance of remediation systems. Masters degree and registration is a plus. Candidate should possess strong writing and presentation skills. Position will be based in San Diego, and may require some travel and field work. OSHA 40-hour training preferred, but not mandatory.

**Senior Engineer**: Candidate would possess B.S. Degree in Civil Engineering and registration in Arizona with ten+ years of relevant experience, including design, operation, and maintenance of remediation systems. Masters degree and/or California registration is a plus. Strong leadership, writing and presentation skills required. Position will be based in Mesa and may require some travel and field work. OSHA 40-hour training and MSHA training preferred, but not mandatory. Excellent opportunity for an experienced, registered Arizona Civil Engineer.

Hargis + Associates offers competitive salaries and benefits, and a challenging work atmosphere. Hargis + Associates is an Equal Opportunity Employer. To learn more about Hargis + Associates, please visit our website at: [www.hargis.com](http://www.hargis.com). Qualified candidates should send resumes, along with a cover letter summarizing experience and salary requirements to:

Hargis + Associates, Inc.
Attention: Kim Stransky
2365 Northside Drive, Suite C-100
San Diego, CA  92108

TURN-KEY ENGINEERING GEOLOGY BUSINESS (2-04)
Thriving 16-year old consultancy for sale by founder who is moving out of state mid April. Located in beautiful Santa Cruz

- Excellent reputation
- Well-known phone number
- In-place long-time Yellow Pages ad
- Files of completed jobs with client records
- Fully stocked office with all the needed equipment
- Field equipment
- Extremely valuable reference materials
- Every thing in place for you
- IMMEDIATE entry to the fantastic Monterey Bay Area

GREAT opportunity for California Certified Engineering Geologist. $75K or best offer. Call: Cynthia Deno at (831) 335-7024 or (831) 295-2083 (cell); Fax: (831) 335-5327; Email: cynthia@surfnetusa.com
Ecology and Environment, Inc. (1-04)
Ecology and Environment, Inc., an international consulting firm, is seeking a geologist to fill an USEPA emergency response contract position in Long Beach or San Francisco, California. The candidate will be field-oriented with hazardous materials experience. The applicant must possess a minimum Bachelors in Geology or closely related field with at least two years experience and OSHA 40 hour training. Field experience will consist of multimedia environmental sampling, experience with air monitoring instrumentation, subsurface sampling and logging plus driller subcontractor oversight. The applicant will have experience in writing sampling/work plans, disseminating data, and preparing final reports. The candidate will have a working knowledge of environmental regulations and USEPA analytical methods. The position requires periodic travel and on-call pager duty, office and field work related to hazardous materials investigations and removals. Emergency response, counter terrorism, GIS/GPS and radiation experience desired. Salary is dependent on relevant project experience.

Send resumes, cover letter and salary expectations to: Caren Welch at cwelch@ene.com or fax to (562) 435-6687. Please refer to our website for more information on our company at www.ene.com. No phone calls please. AA/EOE.

Petra Geotechnical, Inc. is currently seeking geotechnical engineers, geologists, soils technicians, and deputy inspectors at their Costa Mesa, Murrieta, San Diego, and Santa Clarita offices. Petra is a geotechnical, environmental, and materials testing firm that has provided professional earth science services throughout southern California since 1975. Typical projects include residential developments, commercial structures, educational and infrastructure facilities. We offer competitive salaries, excellent benefits, a comfortable working atmosphere, and a pleasant commute! Please submit your resume with references to Ms. Jennifer Griffin at email address jgriffin@petra-inc.com, fax number 714.668.3770, or mailing address 3185-A Airway Ave., Costa Mesa, CA 92626

ENSR International (12-04)
ENSR International is currently we're looking for talented professionals who are interested in working on an exciting project in our Sacramento, Alameda, Santa Ana, and Camarillo, CA locations. To learn more about ENSR and other career opportunities, please visit our website at www.ENSР.com.
# Association of Engineering Geologists
## Southern California Section
### Publication Order Form

<table>
<thead>
<tr>
<th>Ordered By/Shipping Address:</th>
<th>Mail Order Form To:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>AEG Southern California Section, Publications Chairperson</td>
</tr>
<tr>
<td>ADDRESS</td>
<td>C/O Petra Geotechnical, Inc.</td>
</tr>
<tr>
<td>CITY, STATE, ZIP</td>
<td>3185-A Airway Avenue</td>
</tr>
<tr>
<td>PHONE</td>
<td>Costa Mesa, California 92626</td>
</tr>
</tbody>
</table>

**Attention: Brian Villalobos**

Phone (714) 549-8921 (Inquiries only, orders must be mailed with payment)

<table>
<thead>
<tr>
<th>TITLE / DESCRIPTION</th>
<th>PRICE</th>
<th>QTY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Highway and Railroad Slope Maintenance</em></td>
<td>$10.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leighton, F.B. <em>Mitigation of geotechnical litigation in California</em></td>
<td>$20.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sieh, K.E., and Matti, J.C., 1992, <em>Earthquake geology, San Andreas fault system, Palm Springs to Palmdale</em></td>
<td>$10.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cann, L.R., Cobarrubias, Hollingsworth, B., 1992, <em>Engineering Geology Field Trips Orange County, Santa Monica Mountains, and Malibu</em></td>
<td>$10.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Los Angeles Metro Rail System Field Trip Guidebook</em>, Association of Engineering Geologists, 35th Annual Meeting October 2-9, 1992 Long Beach, California</td>
<td>$10.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DELIVERY CHARGES ARE $3.50 FOR THE FIRST BOOK, $1.00 FOR EACH ADDITIONAL BOOK**

<table>
<thead>
<tr>
<th>SUBTOTAL</th>
<th>DELIVERY</th>
<th>TOTAL ORDER</th>
</tr>
</thead>
</table>
This page intentionally blank