

Welcome to the first SQUG/SEQUAL Newsletter of 2006. We hope you find this brief update on SQUG/SEQUAL related activities informative and useful.

John Richards
SQUG/SEQUAL Chairman

Recent Earthquakes

A few of this year's more significant earthquakes are noted below. Additional information is available at the USGS web site (<http://earthquake.usgs.gov/eqcenter/index.php>).

South of Java, Indonesia

A very large earthquake (M7.7) occurred off the coast of Indonesia on July 17, 2006.

The earthquake caused 6 ft tsunami which lead to significant coastal damage (over 635 deaths and at least 24,000 people displaced). More than 35 M5 or greater earthquakes occurred in the 4 days following the main shock, including 4 earthquakes M6 or greater.

Mozambique

A large earthquake (M7.0) occurred in a remote area of Mozambique on February 22, 2006. Three people were killed, 27 were injured, and at least 160 buildings were damaged in the area.

Western Iran

A M6.1 earthquake hit in western Iran on March 31st. At least 70 people were killed and over 1300 people were injured. Forty villages were completely destroyed in Borujerd and many buildings were damaged or destroyed in the Borujerd-Dorud area of Lorestan province.

Java, Indonesia

A M6.3 earthquake struck the Yogyakarta province of Indonesian at 5:52 am on Saturday, May 27th. This was the deadliest earthquake this year

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with at least 5,700 people killed, 38,500 injured and as many as 600,000 people displaced in the Bantul-Yogyakarta area. More than 127,000 houses were destroyed and an additional 451,000 were damaged in the area, with the total loss estimated at approximately \$3.1 billion US dollars.

US Earthquakes

There have been a few big earthquakes in the US this year, but fortunately, they have been in remote regions of Alaska.

In their significant earthquake list for 2006, the USGS includes the following US earthquakes.

- **Illinois – M3.6:** This was a minor earthquake 2 miles from Equality, IL on January 2nd.
- **Colorado – M3.8:** This was a minor earthquake on February 10th 5 miles east of New Castle, CO.
- **Western Montana – M4.2:** This was a small earthquake 5 miles from Rexford, MT on March 22nd.



Damage from the May 27 Java, Indonesia earthquake

Who Ya Gonna Call

In the December meeting we reviewed last year's SQUG/SEQUAL member survey and one of the questions we received was ... "Who should we call for information or guidance?"

We offer a number of avenues for support so here are the recommended contacts.

If you have administrative questions about your SQUG/SEQUAL membership, you should call Bob Kassawara (650-855-2775, rkassawa@epri.com).

The SQUG/SEQUAL Web Site (<http://squgweb.mpr.com>) is probably the best source for documents. If you've lost your ID or password just send an e-mail to squgwebmaster@mpr.com.

If you have a general question for the SQUG/SEQUAL members, you can send an e-mail to the List Server at squgrkn@ort.com. Those

questions go to the entire membership around the world and are a terrific way to poll the group on SQUG/SEQUAL issues, or any other issues.

For basic questions on the GIP or NARE implementation, the first person to call would be Dick Starck (703-519-0200, rgstarck@mpr.com, note that this is a new e-mail address).

For International member support, the primary person to contact is Greg Hardy (714-556-5700, ghardy@arescorporation.com).

The other SQUG/SEQUAL contractors are also available for support on GIP and NARE issues as well as other SQUG/SEQUAL questions.

- Paul Baughman (603-773-5560, pbaughman@arescorporation.com)
- Steve Eder (256-729-7000 x 18023, sje@facilityrisk.com)

In addition, the utility Steering Group members are also available to answer questions.

- John Richards (704-382-3916, jmricha@duke-energy.com)
- Don Moore (205-992-6672, dpmoore@southernco.com)
- Rick Cutsinger (423-751-8309, rdcutsinger@tva.gov)
- Ashwin Patel (402-533-6488, apatel@oppd.com)
- Jey Sekaran (616-697-5513, jtsekaran@aep.com)

Member Requested NARE Evaluations

We just started a pilot for member requested NARE Evaluations. You should have received an e-mail from Dick Starck on July 20th with the instructions and a form for submitting

requests.

SQUG/SEQUAL members can request NARE evaluations for their plant specific applications by filling out the form and sending it to Don Moore. Don will screen the request to make sure it makes sense, and coordinate the work with the SQUG/SEQUAL contractors. The contractors will then work directly with the requesting member to complete the Evaluation.

Following approval by the requesting member, the NARE Evaluation will be cleaned up a little to remove plant-specific information and then posted on the SQUG/SEQUAL Web Site (squglist@mpr.com). This

process should help individual members use NARE as well as build the library of example Evaluations.

We are pleased to offer this new member benefit and hope that it will continue to encourage use of NARE Evaluations. We look forward to test driving this process and receiving your suggestions for improvements.

2006 Winter Meeting

At the 2005 Winter meeting the attendees voted to have the 2006 Winter meeting at the in the Hyatt Gainey Ranch in Scottsdale, AZ (site of the 2004 Winter Meeting) or in San Francisco, CA.

Bob contacted the Hyatt in Scottsdale and quickly found out that the 2004 deal he got was VERY SPECIAL and the rates for this December would be much higher. So, he moved on to San Francisco where he found a much better deal at the Hyatt Fisherman's Wharf (<http://fishermanswharf.hyatt.com/hyatt/hotels/index.jsp>).

So, mark your calendars for the 2006 SQUG/SEQUAL Winter meeting on December 6, 7, and 8 at the Hyatt Fisherman's Wharf in San Francisco, CA. The meeting will start at 1:00pm on Wednesday the 6th and end at noon on Friday the 8th. The hotel rate is \$149/night (US dollars) and it is good for 3 days before and after the meeting dates.

We'll send out an official meeting notice with additional information closer to the meeting. We hope you'll be able to join us to receive updates on our activities, network with your peers, and help us steer the organization to best meet your needs.



MCEER Partnership Update

At the 2005 Winter meeting we discussed the prospect of partnering with the Multidisciplinary Center for Earthquake Engineering Research (MCEER, <http://mceer.buffalo.edu/>) to use our earthquake experience data for evaluating equipment at commercial facilities. Commercial standards are increasing their requirements for considering the seismic performance of non-structural elements (e.g. architectural elements, suspended ceilings, electrical and mechanical equipment) and so far, they are focusing on testing and analysis to perform the evaluations. Obviously, we have a lot of data and insights on equipment performance that would be helpful.

We've had a number of conference calls among the Steering Group and with MCEER and we are close to finishing a License Agreement for MCEER to access the earthquake experience database (eSQUG) along with streamlined criteria for determining equipment classes and applying the classes for equipment qualification. MCEER will in turn, pay a licensing fee for the information and will foster application of the data for commercial facilities. We are hopeful that both organizations will benefit from this agreement and that future activities will continue to expand the application of experience data for equipment qualification.

NARE Awareness Training

Dick Starck facilitated a session of the NARE Awareness Training at Ginna. Through that experience, he worked with folks in the Ginna training

SMiRT 19

The 19th International Structural Mechanics in Reactor Technology (SMiRT) Conference will be held in August 2007 at the Fairmont Royal York hotel in Toronto, Canada. The SMiRT Conferences are usually very interesting meetings and full of international updates on a variety of nuclear power related subjects. No doubt the 2007 conference will have a fair amount of information about new plant issues along with the usual array of current operating plant issues.

The SQUG/SEQUAL Steering Group has discussed the idea of submitting a number of papers describing some of the latest activities in earthquake experience-based qualification.

So plan ahead and look out for news about SMiRT 19 in August 2007 (<http://www.engr.ncsu.edu/smirt-19/>).

department to make a few minor adjustments to tailor the training for their needs and bring it in line with their expectations for INPO accredited training. We are taking advantage of that experience to update the training materials and post the latest and greatest version on the SQUG/SEQUAL Web Site (squglist@mpr.com). If anyone else has experience using the materials we would appreciate any feedback so that we can continue to improve the training material.

G-STERI Evals

The SQRSTS organization is reviewing the current G-STERI Evaluations to see if any updates are warranted. They are working their way through the screening process and plan to work through the EPRI Plant Support Engineering (PSE) committee to perform the necessary updates. For additional information you can contact Chris Abernathy (704-595-2242, cabernat@epri.com) or Billy Goforth (205-992-6903, brgofort@southernco.com)

European Meetings

In October 2003, a team of SQUG/SEQUAL representatives held a series of meetings in Europe with our European members. As you can imagine, it is difficult for representatives of our 10 or 11 International members to travel to the U.S. for the annual SQUG/SEQUAL meeting. The 2003 meetings were an excellent forum for improving our interactions with many of our European members. We were able to provide updates to a much broader cross section of their representatives and they were able to provide feedback to us on a variety of seismic issues.

We are working on plans to hold a series of similar meetings this October in Europe. Greg Hardy has contacted most of the European members and is working on a schedule. If you are interested in attending, please contact Greg at 714-556-5700 or ghardy@arescorporation.com.

New Plant Seismic Issues

Work continues to resolve ground motions issues for potential new nuclear plants in the US. Industry representatives met with the NRC in early May and another meeting is being scheduled for late August.

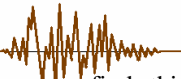
At the same time, the plant vendors are continuing to perform generic analyses and a number of utilities are performing site investigations and estimating ground motions. Needless to say, these are interesting times.

The key issues continue to revolve around the latest criteria for estimating site-specific seismic hazards and design basis ground motions. Seismic hazards in the Central and Eastern US (CEUS) tend

to have greater high frequency content than previously considered in ground motion estimates. NEI and EPRI are coordinating work to resolve questions about the estimated amplitudes, transmission characteristics, and damage potential for these higher frequency motions

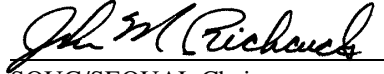
You can contact Adrian Heymer at NEI (202-739-8094, aph@nei.org) or Bob Kassawara for the latest information.

In Closing



As always, we hope you find this Newsletter valuable and that it helps keep you up to date on our SQUG/SEQUAL activities and other significant seismic issues. If you have any comments, thoughts, or contributions for the Newsletters, please let us know.

We hope everyone has an enjoyable and safe summer!



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