

Here is the second SQUG/SEQUAL Newsletter of 2004. It's a quick update on a variety of activities and a preview of the topics we'll discuss at the Winter meeting on December 8 through 10 in Scottsdale.

As always, we encourage you to send in your comments and thoughts so that we can make the Newsletters as valuable as possible.

**John Richards**  
**SQUG/SEQUAL Chairman**

## Recent 2004 Quakes

### Honshu Japan

Japan was hit by a series of earthquakes recently starting with a M6.6 earthquake along the west coast on October 24th.

At least 36 people were killed, 2,900 more were injured and 6,000 buildings destroyed or damaged in the area. Other damage included a derailed high-speed train, damage to several roads, bridges and rail lines, 1,300 landslides, and 11 fires. Numerous subsequent earthquakes ranging from M4.3 to M5.5 occurred following the main shock.

The nearby Kashiwazaki-Kariwa Nuclear Power Plant had horizontal and vertical ground motions of approximately 0.05g. No damage was reported and the plant continued to

operate through the earthquake.

### Parkfield, CA

A M6.0 earthquake occurred near Parkfield CA on September 28th. This is one of the world's most seismically active areas and is located on the San Andreas Fault. The town has been described as "a half-dozen buildings on either side of a street in a valley surrounded by oak-studded hills" ... so there is no real value for SQUG. However, Parkfield is extensively monitored and should provide a wealth of valuable data for seismologists.

### CEUS Earthquakes

The Central and Eastern United States (CEUS) continues to have periodic, small earthquakes. Examples include:

- M2.7 earthquake near Newburgh, New York on October 14<sup>th</sup>

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- M3.0 earthquake near Carlsbad, New Mexico on October 28<sup>th</sup> (actually, a little to the west of CEUS)
- M2.5 earthquake near New Madrid, Missouri on October 21<sup>st</sup>
- M4.2 earthquake near Tuscaloosa, Alabama on November 7<sup>th</sup>

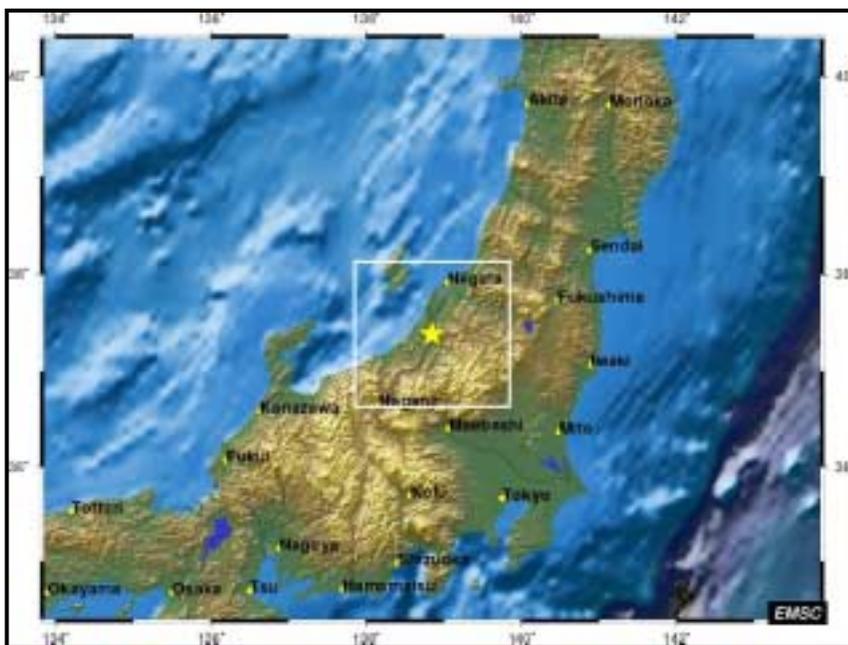
These are all small earthquakes with no real consequence for a nuclear power plant.

We'll receive a complete update of significant 2004 earthquakes at the Winter meeting.

## NERP Evaluations

We now have all seven of our initial NERP Evaluations done and they'll be posted on the SQUG/SEQUAL Web site (<http://squgweb.mpr.com>) by the end of the Thanksgiving holiday. From the home page, click on the **NARE** link on the left and then the **examples** link in the last paragraph. The following NERP Evaluations are posted for your use:

1. Pump, Siemens (2BE1152)
2. Damper, Johnson Controls (COPBS-150x300)



3. Pressure Gauge, Ashcroft (60-1379SS-02L-60)
4. Pressure Regulator, Fisher (95H: ½" NPT, Cast Steel Body)
5. Hoffman Panel-1 (6' x 6' x 2')
6. Hoffman Panel-2 (5' x 3' x 2')
7. Hoffman Panel-3 (3' x 3' x 1')

NERP Evaluations are posted in the member's only portion of the Web site so you'll need your User ID and password to get past the home page.

We are collecting background information on 2 more evaluations; a replacement transformer in a battery changer and a replacement motor for a pump. The NERP team should be receiving that information for review in a few weeks.

Please contact Don Moore at [dpmoore@southernco.com](mailto:dpmoore@southernco.com) or 205-992-6672 if you have any additional information or ideas to offer on NERP.

## GIP-3A

On February 16, 2004, we submitted GIP-3A to the NRC for review. You may recall that GIP-3A is a compilation of GIP-3 + SSER 2 + SSER 3 + NRC Guidance on using the GIP for NARE; it includes no new, unreviewed technical or licensing positions. You may also recall that our rules for revising the GIP require us to send any changes to the NRC for review. We created GIP-3A because it was very difficult for people to use all of those separate documents together and know they had the latest guidance.

The NRC responded with a letter on August 23, 2004, which includes a number of important statements as follows:

*"The staff considers the NRC's SSER No. 2, SSER No. 3, and Commentary on the NARE to represent the staff*

*position for supplementing the SQUG's GIP-2, GIP-3, and the guidance on NARE. These are also the documents against which the staff will judge the adequacy of plant modifications involving the seismic adequacy of new and replacement equipment at these facilities."*

*"Since GIP-3A is not considered by the SQUG to contain new technical positions that have not previously been reviewed and approved by the NRC staff, we do not see a need to review and approve GIP-3A."*

*"We would also point out that SQUG only needs to submit for review and approval future revisions to the commitments in GIP-2 that materially change technical positions previously reviewed and approved by the staff."*

This is consistent with what we expected and is acceptable for our needs. In fact, it is similar to the NRC's previous review of GIP-2A, which just about everyone used to resolve USI A-46.

Based on this response, we recommend that you use GIP-3A when you update your licensing basis and perform NARE evaluations. It is consistent with the NRC's expectations and vastly improves your ability to correctly implement the collective agreements between SQUG

and the NRC for NARE.

The last quoted paragraph above was a considerate and practical additional comment by the NRC. Our current criteria for revising the GIP requires us to submit any GIP revisions to the NRC for review; even typo corrections. The NRC's statements in this letter now allow us to make minor changes to the GIP that do not "materially change technical positions", without requiring their review. This was a nice little "extra" that will allow us to make minor corrections, if necessary, without unnecessary regulatory reviews.

## NARE Awareness Training

We are working on a ½ day GIP/NARE Awareness Training course that could be presented to a broad range of plant personnel by a utility subject matter expert. We had a good review of draft material at the Steering Group meeting and will be discussing the training at the Winter meeting. We'll send you a draft of the training materials by the end of the year so you can review it, try it out, and send us comments by March. Following that review, we'll make any necessary minor adjustments and post it on the SQUG/SEQUAL Web site.

## [Relay GERS Advisories 2004-01 and 2004-02](#)

On June 8<sup>th</sup> we sent an advisory to current and former SQUG Member Representative and Alternates describing an error in the GERS capacity for the General Electric IAC66K relay. That Advisory prompted a review of all of the relay GERS reports, which led to a second Advisory sent out on September 8<sup>th</sup>.

Most of the errors were minor in nature and occurred in reports issued after utilities completed their USI A-46 resolutions; however, we believed we had an obligation to inform members of the errors. Fortunately, the Advisories do not appear to have significantly affected our members A-46 resolutions. Both Advisories were sent to the NRC and are posted on their Part 21 web site.

If your utility's SQUG Rep or Alternate did not receive the Advisory, please contact John Richards.

## SCE Walkdown Training



As we mentioned in the last Newsletter, we're working on an update of the Seismic Capability Engineering (SCE) Walkdown Training materials. We're not making big changes to the materials, just adding a few notes in the notebooks addressing updates and NARE, and updating the way we distribute the information.

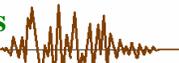
The video tapes have been migrated to DVDs. The Instructor's and Student's Notebooks have been migrated to CDs, and we're trying to collect all of the reference EPRI reports into one CD. At the Steering Group meeting in early November, it was clear that we're almost finished.

There are a few pages in the Workbooks that are dark on the CDs so we're looking for cleaner copies. A quick review showed that the original printed pages weren't too good to start with but we're doing our best. We also have a few steps to complete before we get all of the EPRI references on one CD.

When we're done, the complete training package will be a very nice set of DVDs and CDs. You may need to get part of them from EPRI and part from the SQUG/SEQUAL Web site but a page on the Web site will provide the complete instructions.

This process will also put the information in a form that is easier to maintain and distribute. We'll have samples at the Winter meeting.

## Guidelines for HVAC, Piping & Cranes



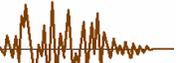
Over the last few years, we've been working on several guidelines that extend the SQUG GIP classes to address HVAC, piping, and cranes.

The HVAC guideline was published in 2002 and Don Moore is in the process of using it for an application at Hatch. He is having it peer reviewed by Bob Kennedy, and will submit the whole package to the NRC for review. When all of that is complete (likely next year), we'll update the guideline to include comments from these reviews.

Evaluation guidelines for piping and cranes are being developed in support of our International members. Final versions of both guidelines will be completed by the end of the year and published through EPRI early next year.

For domestic members, the piping guideline may be a valuable tool for operability evaluations as well as II/I evaluations. The crane guideline could be a valuable tool for II/I evaluations.

## eSQUG Updates



Each year we provide an update to the electronic earthquake experience database, eSQUG. This year, we'll be releasing eSQUG Version 2.1 including:

- Equipment performance data from the AES Placerita Cogen, Taiwan M7.6 Chi-Chi Earthquake sites and Turkey Kocaeli Earthquake sites
- Special equipment damage investigations conducted by SQUG up to 2003
- HVAC duct and damper experience data
- Piping experience data

We're making plans for next year's update; release Version 2.2. We're considering a number of options including downloadable digitized data for site response spectra, adding crane experience data, and linking equipment data records to multiple earthquakes to improve the

independent sample count and make it easier to identify equipment that experienced more than one earthquake.

We'll discuss these Version 2.2 ideas at the Winter meeting and solicit your input on priorities and needs.

## SEQUAL



In our Steering Group meetings this year, we've had a number of discussions about options for pursuing SEQUAL.

At this point, we continue to believe that the best opportunities for SEQUAL success are to select individual applications at non-A-46 plants and seek approval for those applications via License Amendment Requests (LAR). Over time, those applications could build a case for broader approval of the method.

There also appears to be opportunities to apply experience-based methods to evaluate Cable Tray. The latest version of IEEE 628-01, *IEEE Standard Criteria for the Design, Installation, and Qualification of Raceway Systems for Class 1E Circuits for Nuclear Power Generating Stations*, incorporates criteria similar to the GIP. In addition, most plant UFSARs don't include specific commitments for seismic design of cable tray; therefore, applying experience-based seismic design for cable tray in accordance with the latest IEEE Standard should be valuable for non-A-46 plants and acceptable under the existing license.

Revisions to the ASME QME and IEEE 344 Standards (see article below) also offer opportunities for experience-based seismic qualification at newer plants. We'll have to wait to see what the NRC says in their revision of Reg. Guide 1.100, but the new Standards offer reasonable opportunities for use of

experience-based methods for seismic qualification of equipment.

If you're aware of Cable Tray or individual equipment applications at non-A-46 plants where experience-based methods may be valuable, please let us know.

## IEEE 344-2004

The latest draft of IEEE 344 (draft 27!) passed the balloting process and we're hoping it will be published this year! This revision of IEEE 344 incorporates earthquake and test experience-based qualification methods. It includes criteria for developing and using GIP-like equipment classes and earthquake-based capacities. It also includes criteria for developing and using GERS-like test-based classes and capacities.

Special recognition is due the following Subcommittee "core working group" members whose persistent work over several years brought this to completion.

Jim Parello, Westinghouse,  
Chairman

Mostafa Ahmed, Westinghouse

Paul Baughman, ABS

Suresh Channarasappa,  
Westinghouse

Garry Chapman, Trentec

P. Y. Chen, NRC

Walter Djordjevic, S&A

Bruce Lory, EMS

Don Moore, Southern, Co.

John Richards, Duke Power

Bill Schmidt (MPR)

Dick Starck, MPR

The next step in publishing the Standard will be to submit it to the IEEE-SA Standards Board Review Committee (RevCom). They will examine the submittal documentation, review it for procedural compliance, and possibly provide comments for

consideration. After consideration of their comments, the recommendation of RevCom will be presented to the IEEE-SA Standards Board for their consideration and final approval. Keep your fingers crossed!

## Seismic Qualification Training Task

The Seismic Training development task we co-funded with SR&I, PSE, and SQRSTS has published the final training materials. They are available on EPRIWeb as report number 1009738, "Fundamentals of Equipment Seismic Qualification (FESQ) for Nuclear Utility Engineers."

The training course consists of the following of modules:

- Course Introduction and Overview
- Module 1 - Seismic Design Basis / Structural Dynamics / Response Spectra
- Module 2 - Seismic Testing Methods
- Module 3 - Seismic Analysis Methods
- Module 4 - Seismic Qualification Using Similarity Analyses
- Module 5 - Impact of Plant Changes on Seismic Qualification

There is a possibility EPRI will host a session of this training in 2005. If you have any interest in sending someone to this class, or if you have any other questions about these training modules, contact Ken Huffman at EPRI (704-547-6055, [khuffman@epri.com](mailto:khuffman@epri.com)).

## Winter Meeting

We hope you're planning to join us on December 8 through 10 for the SQUG/SEQUAL Winter meeting at the Hyatt Gainey Ranch Resort (<http://scottsdale.hyatt.com>) in

Scottsdale Arizona (just outside of Phoenix).

The meeting will start at 1:00pm Wednesday, December 8<sup>th</sup> and will end around noon on Friday December 10<sup>th</sup>. You should have received the meeting announcement and draft agenda sent out by e-mail on October 29<sup>th</sup>.

In addition to the items discussed in this Newsletter, we'll provide complete updates on the SQUG / SEQUAL 2004 activities and the 2005 plan. We'll also provide updates on a number of other important seismic issues such seismic regulatory issues, standards developments, Risk-Informed seismic activities, and ISFSI seismic issues.

We're also planning a NARE discussion and a separate session where everyone can briefly describe the SQUG and seismic activities going in at their plants, so please come prepared to participate!

We look forward to seeing you in December!



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