

Welcome to the first SQUG/SEQUAL Newsletter of 2005. We hope you find this brief update on SQUG/SEQUAL related activities informative and useful.

John Richards
SQUG/SEQUAL Chairman

Recent Earthquakes

Most of the earthquake news this year hasn't actually been about an earthquake, but a tsunami.

Sumatra-Andaman

According to the USGS, the December 26, 2004 9.0M Sumatra-Andaman earthquake is the fourth largest earthquake in the world since 1900 and is the largest since the 1964 Prince William Sound, Alaska earthquake. More recent studies suggest that the final Magnitude may be increased to 9.3.

The earthquake off the coast of Sumatra, and ensuing tsunami, devastated countries around the Indian Ocean, causing over 280,000 deaths and billions of dollars of damage.

Most of the damage was due to the earthquake induced tsunami. The length of the rupture was about 500 km with a vertical uplift at the sea floor of several meters. This abrupt movement along the north-south fault led to the tsunami, which radiated east and west, perpendicular to the fault.

There are numerous sources for more information about this earthquake and tsunami. Several

sources are noted at the end of this Newsletter.

Sumatra Part II, III, etc.

Several more large earthquakes have occurred in northern Indonesia this year. Among the largest were January 1 (6.6M), February 26, (6.8M), March 28 (8.7M), and April 10 (6.7M). Of those, only the March 28 earthquake had significant impacts (over 1,300 deaths). It also caused a small tsunami although the tsunami did not cause significant damage. The other earthquakes were either at sea or in remote areas.

Central Iran

A 6.4M earthquake occurred in a remote mountainous region of central Iran on February 22, 2005. At least 612 people were killed in local villages and 1,411 injured in Kerman Province. An estimated 8,000 homes

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were damaged or destroyed in the Zarand area.

Northeast Arkansas

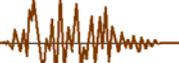
Two earthquakes of some note occurred in the northeast corner of Arkansas. The first was a 4.1M earthquake on February 10th, followed by another 4.1M earthquake



Damage zone in Lhoknga, Indonesia, showing an overturned tanker, trees snapped in half, and the high water mark on islands where vegetation was stripped away.

on May 1st. Neither earthquake caused significant damage.

Relay Evaluation Training



We are in the process of scheduling a session of the Lead Relay Reviewer Training, which we hope to hold late this summer, prior to the fall outage season. As discussed at the Winter meeting, the course will be offered on a paid basis. Look for an official training announcement early this summer.

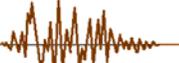
Relay GERS Advisories



In 2004, we issued two Advisories to current and former SQUG Member Representative and Alternates describing errors in the relay GERS reports. 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. Feedback at the 2004 Winter meeting indicated that members were satisfied with the Advisory process used and the information provided. Both Advisories were sent to the NRC and have been posted on their Part 21 web site.

Bob Kassawara will be issuing errata sheets through EPRI for the subject GERS reports this year.

Member Survey



This summer we will be conducting a NARE survey of our members. As you know, we do this periodically so that everyone can gain an awareness of where they stand in comparison

SQUG/NARE Awareness Training

The SQUG/NARE Awareness course materials (June 1, 2005 edition) are complete and available for downloading on the SQUG/SEQUAL Web Site. The training slides are set up so that you or another subject matter expert in your utility can provide the training to folks who would benefit from knowing about the SQUG/NARE process, but don't need all the training necessary to apply the method.

You can download the PowerPoint presentation materials from the web site (<http://squgweb.mpr.com>) by selecting the **SQUG Training** link on the left side and then selecting the **SQUG/NARE Awareness Training Course** link on the right side.

Note that you will need to log on to the web site in order to download the material. If you have any problems with your User ID or Password, please contact the web site administrator at squgwebmaster@mpr.com.

with their peers on licensing changes for GIP NARE, application of the GIP NARE method, common seismic issues, and member recommendations for future activities.

So, watch your e-mail inbox for the survey this July. We'll compile the responses and distribute them to members in the early fall.

New Evaluation Guidelines



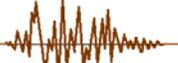
Several experience-based seismic evaluation guidelines are working their way through the EPRI publishing process.

An HVAC Evaluation Guideline was published in April 2003 as EPRI Report 1007896. Southern Co. is in the process of using the report, sponsoring a peer review, and submitting it to the NRC for review. An update to the report (Rev. 1) based on the peer reviewer's comments has been completed and is working its way through the publishing process. Significant changes include the addition of allowable duct span tables and a requirement that HVAC walkdown judgments be reviewed by an independent peer review.

A Crane Evaluation Guideline has been completed and will be published soon as EPRI Report 1012022, Experience Based Seismic Verification Guidelines for Overhead Crane Systems. Similarly, a Piping Evaluation Guideline has been completed and will be published soon as EPRI Report 1012023, Experience Based Seismic Verification Guidelines for Piping Systems. These two Guidelines were developed in support of our International members. For domestic members, the piping guideline may be a valuable tool for operability evaluations and II/I evaluations. The crane guideline should also be a helpful tool for domestic members in performing crane II/I evaluations.

Copies of the latest versions of all three of these Guidelines are posted on the SQUG/SEQUAL Web Site (<http://squgweb.mpr.com>). Look for them to be published by EPRI this summer.

SQUG/SEQUAL Web Site



Speaking of the web site, there have been a number of updates posted to the web site since late last year. Check them out by going to

<http://squgweb.mpr.com> and clicking on **What's New!**

IEEE 344 & ASME QME Standards

The latest IEEE 344 revision incorporating experience-based methods is finished and will be published this summer. It will be called IEEE 344-2004, reflecting the year it was approved. This was a long time coming and is the result of a lot of hard work by a number of dedicated individuals.

You may remember that ASME QME ran into a problem just as it was about to head out the door. Fortunately, the problems are not technical but mostly administrative. Tim Adams is working diligently through the QME Main Committee and the Board of Nuclear Codes and Standards (BNCS) to resolve the outstanding questions.

On The Regulatory Front

Here are a few highlights from recent NRC/utility correspondence...

- Vogtle Unit 2 reported a failure to maintain seismic qualification of an ESF room cooler when a system engineer found a fan compartment door improperly secured. The access door was hinged and latched at the top and bottom; but needed to be latched with either screwed clips, or a padlocked hasp; neither of which was installed. A walkdown of about 50 other ESF room coolers identified no similar problems.
- TMI reported a condition where a makeup pump was not operable due to seismic qualification concerns associated with its auxiliary oil pumps. An oversight during a mod in Feb. 1990 did not specify a required spacer when relocating both auxiliary oil pump breakers to different MCCs. Without the spacer, the breaker engagement with the MCC bus bars was not adequate to assure seismic qualification, thus affecting the operability of the pump.
- Exelon informed the NRC of the completion of "all remaining SQUG work" for Dresden. Previously they notified the NRC of delays in completing certain A-46 items related to mods affecting five 250 VDC MCCs and an automatic depressurization system auto blowdown relay. These actions have now been completed.
- Brown's Ferry Unit 1 sent the NRC the remaining portions of its response to GL 88-20, including the Seismic IPEEE Report and the

IPEEE Fire-Induced Vulnerability Evaluation. Seismic evaluations were performed using the EPRI Seismic Margins Methodology (SMA), consistent with BFN, Units 2 and 3. The SMA was performed in conjunction with evaluations for A-46. Seismic IPEEE components were added to the A-46 SSEL, and evaluated using the GIP. The combined A-46 and IPEEE relay evaluation report was previously submitted with TVA's response to GL 87-02. Outliers have been or are being resolved by maintenance-related work orders or design changes. The SMA took credit for these outlier resolutions, and for planned mods stemming from the BFN, Units 2 and 3, seismic IPEEE programs. They identified a seismic-induced fire vulnerability associated with the emergency lighting battery racks located in the cable spreading room, which will be corrected prior to restart of Unit 1.

- The NRC issued License Amendments to Sequoyah Units 1 and 2, to allow them to modify the plant licensing basis for seismic qualification of round flexible ducting, triangular ducting, and associated air bars installed as part of the suspended ceiling air delivery system in the main control room. These safety-related air delivery components were not qualified to the level described in the UFSAR in accordance with RG 1.29. A seismic qualification analysis was performed via an ANSYS nonlinear time history analysis.
- Surry identified a masonry block wall that had not been identified during IE Bulletin 80-11 reviews. During security mods, engineers identified safety-related conduit attached to a Lube Oil Room block wall. According to IE Bulletin 80-11 (Class I-N or II-N),

2005 Winter Meeting

Last December you voted to have the 2005 Winter meeting in the Miami area or in San Francisco. Bob Kassawara was able to get us a pretty good deal at a beautiful hotel in Coral Gables, Florida (a "suburb" of Miami) so ...

Mark your calendars for the 2005 SQUG/SEQUAL Winter meeting on December 7 through 9, 2005 at the Hyatt Regency hotel in Coral Gables. The meeting will start at 1:00pm on the 7th and end at noon on the 9th. We'll send out an official meeting notice with additional information closer to the meeting. In the mean time, you can check out the hotel at www.coralgables.hyatt.com. 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.

the wall would have a high probability of adversely affecting safety-related equipment upon failure. Engineering performed a field walkdown to ensure no other Class I-N or II-N block walls were inadvertently omitted. No other walls were identified.

- The NRC identified a concern during an engineering evaluation inspection at Kewaunee. The inspectors were concerned that the discharge pressure trip switches for three AFW pumps would not prevent the pumps from being damaged by air entrainment following an automatic system initiation with seismic or tornado damage to the suction line that connects the condensate storage tank to the pumps. Kewaunee identified a potential vulnerability for a run of suction pipe where a high-pressure main feedwater line rupture could create pipe whip, resulting in potential failure of the AFW suction line. They have

submitted a LAR to modify the function of the discharge pressure trip switches to provide pump runout protection and to add a new suction line pressure trip circuit. With the new scheme, operator actions may be required to prevent pump damage.

2006 Member Dues

At last December's 2004 Winter meeting we discussed the plan for 2006 activities and dues. As agreed during that meeting, the 2006 dues formula will remain the same as it is for 2005, which for domestic utilities are \$5k for each SQUG utility plus \$10k for each SQUG site within the utility. International dues will remain as a flat fee per utility

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. 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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Additional Sumatra-Andaman earthquake information

The following links are just a few of the many sources of additional information about the December 26, 2004 Sumatra-Andaman earthquake and tsunami.

1. http://neic.usgs.gov/neis/eq_depot/2004/eq_041226/ - US Geologic Survey (USGS) page with technical information about the earthquake as well as links to various reports, tsunami information, and satellite images of the tsunami damage.
2. <http://www.eeri.org/> - Earthquake Engineering Research Institute (EERI) home page with links to their reports as well as a PowerPoint presentation available for downloading.
3. www.nasa.gov/vision/earth/lookingatearth/indonesia_quake.html - NASA web page with before and after satellite images of coastal areas hit by the tsunami.
4. www.absconsulting.com/news/2005/AndamanNicobar.html - ABS page with a link to their report.
5. <http://wcatwc.arh.noaa.gov/IndianOSite/IndianO12-26-04.htm> - West Coast/Alaska Tsunami Warning Center page with information about the tsunami.