

We hope the new year has started successfully for everyone. Here are a number of SQUG activities we'd like to update you on. There are also a number of non-SQUG items included that you might be interested in hearing about.

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

## The Final A-46 SER Update



The NRC issued the **final** A-46 SERs late last year. In the next to the last one (North Anna), there was an outstanding issue concerning a potential restriction on use of Method A for NARE. The SER seemed to say that North Anna would have to get permission from the NRC each time they wanted to use Method A anywhere other than where used in their A-46 resolution. Jim Fisicaro and John Richards contacted the NRC (Gene Imbro, Kamal Manoly, Bob Rothman, Cliff Munson) and it became clear their actual concern was fairly easy to resolve (see the next Newsletter item for a description) and that they were OK with future use of Method A involving the GIP scope of equipment.

North Anna verified this understanding via e-mail correspondence with their Project Manager. The PM discussed the issue with Bob Rothman and Kamal Manoly, who confirmed that it was acceptable to use Method A "for classes of equipment in the GIP Generic Implementation Procedure."

This resolved the issue to North Anna's satisfaction and will allow them to use Method A consistent with the other A-46 plants.

## NRC Method A Concern



In our discussions with the NRC concerning North Anna's SER, they explained what they were trying to accomplish with their restrictions on future use of Method A. They didn't want North Anna (or any SQUG plant) using Method A ISRS for equipment outside the scope of equipment in the GIP. For example, they didn't want us to use Method A when evaluating NSSS equipment or performing piping analyses without first getting NRC concurrence.

We agreed that those types of applications were outside the SQUG NARE Guidelines. Section 1.2 of the

NARE Guidelines clearly limits the scope to equipment covered by the GIP. Therefore, the current NARE Guidelines (Rev 4, June 2000) already include appropriate criteria for future use of Method A. Beware that applications of Method A ISRS for equipment beyond the scope of the NARE Guidelines will require additional review by the NRC.

## Procedure for Gathering New Earthquake Experience Data



The NRC is almost done with their review of the SQUG Procedure for Gathering and Validating Earthquake Experience Data. Their last concern related to QA controls for calculations related to ground motion response spectra estimates.

In the future, we want to be able to perform these ground motion estimates and use them without the NRC reviewing them each time. In past reviews, the NRC has identified some formatting and numerical errors in the calculations. Therefore, if they get out of the review loop, they want to make sure we have the information checked under a QA program. It was a little hard to argue with that request so on March 22<sup>nd</sup> we submitted a letter saying we would perform and check future ground motion estimates under a Nuclear QA program. We also noted that previous estimates reviewed by the NRC were considered to have received adequate independent reviews and would not be recreated under a QA program.

## NARE for Parts



Ron Knott (Progress Energy, formerly CP&L) has been spending some time with the NARE Guidelines and asked an interesting question ... do you have to do a design difference evaluation under NARE for Parts using Section 5.3.4.4.2, *Part Specific Qualification Data or GERS*?

Section 5.3.4.4.1 of the Guidelines, *Representation of Part in GIP Equipment Classes* includes the requirement to perform a Design Difference evaluation but the same words are missing from 5.3.4.4.2.

If you are buying parts based on previous seismic qualification testing (including GERS), you need to make sure the parts you buy today are equivalent to the parts that were tested. If the parts come from an Appendix B, Nuclear QA vendor, the vendor controls

the design and manufacturing process so that they can provide assurance that the parts are the same. If the parts are procured through your Commercial Grade process, you need to make sure the new parts are the same as the qualified parts ... which will drive you through a process similar to the Design Difference review.

The recent EPRI CCASSI report (Critical Characteristics for Acceptance of Seismically Sensitive Items, TR-112579) provides a helpful guideline for performing the assessment along with several evaluations.

As a heads up, you should know that it will be difficult to show that the Commercial Grade relay you buy today will have a similar seismic performance to the relays tested for GERS. The GERS are still valuable for evaluating installed relays but baseline information critical to the procurement process for new parts isn't readily available.

## NARE Training

Speaking of NARE, SQUG will be offering the New and Replacement Equipment (NARE) training course July 23-24 in the Washington, D.C. area and a second course in December after the SQUG Winter meeting. The course is free for SQUG members this year. Future sessions of the course may require that a fee be charged.

The NARE process has been used by several SQUG members to save time and expenses. For example, members have used the NARE process to (1) quickly replace a transformer within a one week LCO and avoid bringing a unit off line, (2) shortened an outage by three weeks when a molded case circuit breaker failed, (3) avoid scheduling conflicts and heroic (read late evenings and weekends) effort to expedite the testing/procurement process for equipment that was inadvertently procured without the necessary seismic qualification reports, and (4) saved the expense of shake table testing equipment.

Look for the course announcement to be sent to you shortly. We look forward to helping you and your staff fully enjoy the benefits of using the NARE process as an additional seismic qualification method at your plant.

## NERP Team

Don Moore is working on some draft procedures for the NARE Example Review Panel (NERP) team. He plans to issue these to the NERP members soon for review and comment.

In case you forgot, the NERP team is a group of SQUG members who have volunteered to review utility NARE examples so that we can share high quality examples with SQUG members. NERP reviews will focus on the portions of the NARE evaluations most common to everyone (inclusion rules, caveats, design difference evaluations). Utility specific information will be removed from the evaluations prior to distribution to SQUG members. Members will be able to use the examples in support of their own station specific NARE evaluations.

The group is still looking for example NARE Evaluations to review. So, if you've performed any NARE Evaluations at your plant, please consider submitting these to Don so that the team can get started. You can contact Don at (205) 992-6672 or e-mail him at [DPMOORE@southernco.com](mailto:DPMOORE@southernco.com).

## Recent Earthquakes

Here is some info on recent earthquakes...

**El Salvador, Jan 13, 2001, Magnitude 7.6 and Feb 13, 2001, Magnitude 6.6:** These were large magnitude earthquakes with significant damage and loss of life (more than 1,000 deaths combined). However for SQUG's purposes, there wasn't a significant number of industrial facilities or high enough ground accelerations to warrant significant investigations.

**Gujarat, India, Jan 29, 2001, Magnitude 7.9:** This was a VERY large earthquake with extensive damage and loss of life (~20,000 confirmed deaths). The effected area includes a significant number of industrial facilities, some of which were damaged. As is often the case, many unreinforced masonry structures collapsed as well as some reinforced concrete structures. It appears that the Indian building codes are pretty good but the seismic provisions are not mandatory so they were not frequently applied.

Power facilities generally performed all right. We initially had a lot of interest in a nuclear plant in the area (400km away) but there was no reported damage

and the ground motion at the plant appears to be insignificant. There are reports of significant damage at a 220KV substation where a building collapsed onto equipment and transformers derailed but the bushings didn't break and unanchored cabinets didn't topple. This seems to be typical of the types of equipment problems we are aware of ... buildings collapsing on top of equipment. There have not been extensive reports of other equipment failures.

Unfortunately, ground motion estimates have been very hard to come by which has made it difficult to correlate equipment performance to accelerations. We are continuing to seek additional information to determine the need/value of performing an investigation.

**Seattle (Nisqually), Feb 28, 2001,**

**Magnitude 6.8:** While the Magnitude of this earthquake was fairly large, it was centered about 35 miles below the surface; therefore, it did not produce high ground accelerations. Most of the recorded PGAs were less than 0.1g. A few structures experienced some damage (most notably the Sea Tac Airport control tower) and some tourists went for a fun ride in the Space Needle. However, at this point, there doesn't seem to be much valuable data for SQUG in this event.

Additional information for all three of these earthquakes is available at EQE's web site ([www.eqe.com](http://www.eqe.com)) as well as the Earthquake Engineering Research Institute's web site ([www.eeri.org](http://www.eeri.org)).

**No SIM**



At the last SQUG meeting, Duke and CP&L (now Progress Energy) were considering hosting a Seismic Information Meeting (SIM) this summer. Unfortunately, work loads and short schedules have caused them to abandon plans for this summer. There still seems to be a need for a place to exchange seismic experiences so hopefully we can put something together next summer.

As an alternate, you might want to consider the Structural Mechanics in Reactor Technology (SMiRT) Conference this August in Washington (8/12-17). This



is only the 3<sup>rd</sup> time in 30 years that this Conference will be in the US so you might want to take the chance to check it out. Additional information is available at <http://www.engr.ncsu.edu/SMiRT-16/>.

**RISC 3 Equipment Criteria**



Patricia Campbell (W&S) attended an NRC workshop on special treatment of RISC 3 equipment. You may recall that the general background on this subject was discussed at the SQUG Winter meeting. Here is a brief update from Patricia...

The NRC and the industry have yet to come to an agreement on the special treatment for low risk significant safety-related (i.e., RISC-3) structures, systems, and components (SSCs). Three major areas are still being discussed: seismic qualification, environmental qualification (EQ), and codes and standards. In a workshop held on February 21-22, 2001, in Rockville, Maryland, the NRC Staff indicated that its goal is "a simple approach with [10 C.F.R. § 50.69] treatment focused to preserving design function." The NRC Staff asked attendees "What is the best way to do that?"

"What is industry's concern with the approach? Is it that treatment would be applied indiscriminately to important-to-safety equipment that ends up in RISC-3?" NEI and industry representatives responded a

resounding “YES.” Retaining the current level (or an increased level as proposed for certain in-service testing) of special treatment is a major incentive for licensees to not adopt a risk-informed approach. NEI urged the NRC Staff to allow licensees to use commercial seismic standards, EQ experience and practice, and ASME Code Cases for RISC-3 SSCs. NEI concluded that Option 2 is not viable if a new treatment category is created (between “Q” and commercial), and that the industry needs a timely decision by the Commission so that neither NRC nor industry resources continue to be expended if no one will use the approach.

Before the workshop concluded, it became apparent that an internal disagreement exists within the NRC Staff as to the level of special treatment necessary to continue to “preserve the design function” of RISC-3 SSCs. Perhaps, as NEI suggested, this must ultimately be a policy decision made at the Commission level.

---

Subsequent meetings with industry, NEI and NRC representatives were held in late March and early April. The EQ folks suggested a 3 tiered approach for evaluation of RISC 3 equipment depending on the way the items are procured.

Identical Replacement: No new EQ review required.

Equivalent Replacement: Perform an equivalency evaluation to show that the item is capable of performing the same design function.

Plant Design Change: perform analysis (or perhaps test) to evaluate non-equivalent replacements or new designs. The analysis would be based on test data but would not require new testing or documentation in accordance with current 50.49 criteria.

So far, the NRC appears to have accepted this approach although they are still considering if they will accept the general guidance or request more detailed criteria.

EPRI seismic experts (i.e. Bob Kassawara, et. al.) suggested using the International Building Code criteria for seismic evaluation of RISC 3 equipment. The IBC criteria includes an equipment anchorage evaluation along with some specific equipment characteristics (derived from the SQUG inclusion rules and caveats). The NRC's initial response was that the IBC does not use the site SSE or computed ISRS as its seismic input

and therefore is redefining the seismic design inputs. Discussions are ongoing to determine if this is acceptable within the overall direction for RISC 3 equipment.

NEI continues to gather support for determining special treatment requirements for RISC-3 SSCs. Bob Kassawara is coordinating seismic issues with NEI. Adrian Heymer is the NEI Project Manager for this activity. He may be contacted at [aph@nei.org](mailto:aph@nei.org) or (202)-739-8094.

## SQUG Meeting



Just a quick reminder that the SQUG Winter meeting will be in Orlando on December 3 and 4. Bob is in negotiations with a few hotels to see who will offer the best deal ... or zing us the least. Obviously, December is a popular month in Florida.

As noted earlier, there will also be a NARE Training course offered after the meeting.

## That's It



Well that's all for now. We hope you find this valuable. If you have any comments, thoughts, or contributions for this Newsletter, please let us know.

John Richards

SQUG Chairman  
Duke Power Co.  
Phone: (704) 382-3916  
Fax: (704) 382-3993  
[jmricha@duke-energy.com](mailto:jmricha@duke-energy.com)

Bob Kassawara

Program Manager  
EPRI  
Phone: (650) 855-2775  
Fax: (650) 855-1026  
[rkassawa@epri.com](mailto:rkassawa@epri.com)