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Craver, Patti

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**From:** Ring, Mark  
**Sent:** Thursday, September 01, 2011 10:09 AM  
**To:** Gavula, James  
**Cc:** Pelton, David; Grobe, Jack  
**Subject:** RE: Perry Earthquake 1986

Jim,

Thanks for responding, the phone connections were difficult. The reason we were looking for Perry 1986 earthquake info was that an article on the earthquake affecting North Anna came out in conjunction with the NRC sending an AIT. The article stated that only one other time in NRC history has a plant suffered an earthquake that exceeded the design basis and that was Perry in 1986. I didn't remember that the earthquake exceeded the design basis, so we sought more info. Initially we were having difficulty retrieving a copy of the 86 AIT report, so we cast about/called people we thought might have been on the AIT to see what they could remember. Turns out we were eventually able to locate a copy of the report and send it to Mark Franke, the North Anna AIT Team Lead. For Perry, Carl Paperiello was the Team Lead, with you, Jacobson, Danielson, Jones, JJ Harrison, Muffet, and 2 HQS specialists on the team. Jack Grobe was on the AIT team as the then-Perry SRI and Kevin Connaughton as the RI. I told Public Affairs to direct all inquiries to Jack because I was sure he would remember everything. Seriously, according to the AIT report, the quake did in fact exceed the Perry design basis in certain discrete frequencies, but the report essentially dismissed that as insignificant due to the limited severity of the quake. Coincidentally, the quake occurred Jan 31, 1986, the day after the SER for the initial license was issued. Normally the license follows the SER directly. However in Perry's case, the initial license was held up until Mar. 17, 1986, due to evaluations associated with the quake. That also complicated the regulatory situation because the plant did not yet have a license, so most of the requirements were not yet in effect. If you are interested, I have a copy of the report. I think we have all the info we need now. Much thanks for your reply.

-Mark

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**From:** Gavula, James  
**Sent:** Wednesday, August 31, 2011 9:02 PM  
**To:** Ring, Mark  
**Cc:** Pelton, David  
**Subject:** Perry Earthquake 1986

Mark,

Sorry about the delay in getting back to you.

Yes, I participated in the response to the Perry seismic event in 1986. I had just started with the NRC and went out with Jim Muffet, and others to perform walk-downs at the plant.

I have vague recollections of the effort. In walking-down the plant I don't remember finding evidence of any damage that we could conclusively attribute to seismic damage. To some extent we were trying to determine if we could discern **any** piping movements through dents in insulation or scrape marks on piping or equipment, etc. due to spatial interaction between components. I don't remember seeing anything to validate that any significant seismic motion occurred at the site.

There was an issue with the "seismic detectors" which consisted of sets of styluses which would respond to various seismic frequencies that were supposed to leave scratch marks on mirrored plates (or something like that, I never saw them myself). Anyway, when they pulled these out to try to determine the magnitude of the seismic motion, the plates showed traces that would have indicated an "end of the world" type seismic event,

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which obviously didn't happen. The conclusion was that the detector traces resulted from a bad installation or some other construction activities at the plant, and as a result could not be used to determine the magnitude of the ground motion at the site.

I don't remember much else, and don't know if you were looking this type of information or if it was in the least bit helpful.

Let me know if you have any questions.

Jim G.  
630-829-9755