

Roquecruz, Carla

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**From:** Istar, Ata *INAR*  
**Sent:** Wednesday, September 14, 2011 10:55 AM  
**To:** Cheruvenki, Ganesh  
**Subject:** RE: North Anna Question?

THANKS.

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**From:** Cheruvenki, Ganesh *INAR*  
**Sent:** Wednesday, September 14, 2011 10:54 AM  
**To:** Istar, Ata  
**Cc:** Tsirigotis, Alexander  
**Subject:** RE: North Anna Question?

Ata,

Good analysis.

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**From:** Medoff, James *INAR*  
**Sent:** Wednesday, September 14, 2011 10:38 AM  
**To:** Istar, Ata  
**Cc:** Cheruvenki, Ganesh; Ng, Ching; Prinaris, Andrew  
**Subject:** RE: North Anna Question?

Ata:

If you have time, can you up and see me please regarding your email – I am in OWFN 11H3? I have not read what is assumed for the North Anna seismic basis in their UFSAR. That is how many OBE occurrences and SSE occurrences and loadings are assumed for in their UFSAR design basis and whether the recent seismic event only exceeded their OBE basis or exceeded their SSE basis. Maybe you can explain what our position in RG 1.57 is for seismic evaluations.

Thanks,

Jim ( I am acting BC for DLR's license renewal reactor systems review branch today and tomorrow)

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**From:** Istar, Ata  
**Sent:** Wednesday, September 14, 2011 10:24 AM  
**To:** Sheikh, Abdul; Auluck, Rajender  
**Cc:** Medoff, James; Holston, William  
**Subject:** RE: North Anna Question?

Referring to RG 1.57 "Design Limits and Loading Combinations...."

- (1) Under Level B Service Limits: cyclic loadings are to be included to OBE, if  $OBE \leq$  one-third of SSE.  
I believe North Anna's OBE is one-half of SSE!
- (2) Under Level C Service Limits: no cyclic loading added to SSE condition!
- (3) Under Level D Service Limits: local dynamic loadings are to be added to SSE.

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Should we consider "local dynamic loadings" as cyclic (fatigue) loading?

As well as referring to the Miner's Law, which stated that "in some circumstances, cycles of low stress followed by high stress cause more damage than would be predicted." But, I cannot find any regulatory position on this issue.

Ata Istar

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**From:** Sheikh, Abdul *msk*  
**Sent:** Tuesday, September 13, 2011 10:09 AM  
**To:** Auluck, Rajender  
**Cc:** Istar, Ata; Medoff, James; Holston, William  
**Subject:** RE: North Anna Question?

I came up with the following issues:

Impact of August 2011 earthquake at North Anna on long term operations:

1. According to the North Anna UFSAR Table 5.2-4, faulted conditions (Design Basis Earthquake) are not included in the fatigue analysis of the plant components and structures. In addition, OBE earthquakes are also not included in the fatigue analysis. Therefore, fatigue analysis of the structures and components has to be revised to include the impact of the earthquake in August 2011 for the long term operation of the plant (40-60 years)
2. Fatigue analysis of the containment penetrations has not been performed previously. Therefore, according to the GALL Report, Rev. 2, a new fatigue analysis is required to be performed on the penetrations inspected for degradations during the long term operations (40-60 years)
3. Aging management programs for containment inservice examination (ASME Section XI, Subsection IWE, Subsection IWL, Subsection IWF, and Appendix J tests) may have to be revised based on the post earthquake assessments. This may include more frequent inspections (augmented) and testing, especially if cracking or degradations is observed during the post earthquake walkdowns.
4. Aging management programs for structures, water controlled structures, and masonry walls may also have to be revised based on the post earthquake inspections. This may include more frequent inspections and testing, especially if cracking or degradations is observed during the post earthquake walkdowns.

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**From:** Auluck, Rajender *msk*  
**Sent:** Tuesday, September 13, 2011 7:18 AM  
**To:** Sheikh, Abdul  
**Subject:** FW: North Anna Question?

FYI. We need to send our questions to DORL today.

raj

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**From:** Istar, Ata  
**Sent:** Monday, September 12, 2011 12:55 PM  
**To:** Auluck, Rajender  
**Subject:** North Anna Question?

**Will the predicted cross-sectional properties at the end of the licensing period of SSCs be considered during their analytical evaluations/analyses for the justification for continued operation?** ~~and their answer is~~

**“the predicted cross-sectional properties at the end of the licensing period”** means: the cross-sectional properties of SSCs carried forward to the end of the period of extended operation by considering applicable wear-rate levels under normal operating conditions.

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