

Lupold, Timothy

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**From:** Sanchez Santiago, Elba  
**Sent:** Wednesday, November 16, 2011 7:38 AM  
**To:** Murphy, Martin; Lupold, Timothy; Cameron, Jamnes; Wilson, Adam; Kimble, Daniel; Rutkowski, John; Hills, David; Rezai, Ali; Gonzalez, Hipolito; Thorp, John; Haskell, Russell; Nolan, Ryan; Mahoney, Michael; Hernandez, Pete; Mitlyng, Viktoria; Chandrathil, Prema; Neurauter, James; Cardona-Morales, Pedro; Briley, Thomas; CuadradoDeJesus, Samuel; Zimmerman, Jacob; Thomas, George; Hoang, Dan; Logaras, Herral; Barker, Allan; Auluck, Rajender; Sheikh, Abdul; Lehman, Bryce; Morey, Dennis; Snyder, Amy; Wiebe, Joel; Bozga, John; Meghani, Vijay; Stone, AnnMarie; Smagacz, Phillip; Davis-BesseHearingFile Resource; Riley (OCA), Timothy; Jessup, William; Graves, Herman; Pires, Jose; Hogan, Rosemary; Case, Michael; Richards, Stuart; Manoly, Kamal; Orth, Steven  
**Cc:** Hiland, Patrick; Shear, Gary; OBrien, Kenneth; West, Steven; Reynolds, Steven  
**Subject:** FW: Davis Besse Shield Building: Technical Review Discussion Items  
**Attachments:** 11-15-2011 briefing with licensee.docx

Good Morning,

Attached is a summary of the discussion Jim had with the licensee yesterday. Feel free to contact me if you have any questions.

Thanks,  
Elba

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**From:** Neurauter, James  
**Sent:** Tuesday, November 15, 2011 6:26 PM  
**To:** Sanchez Santiago, Elba  
**Cc:** Hills, David; Kimble, Daniel; Meghani, Vijay  
**Subject:** Davis Besse Shield Building: Technical Review Discussion Items

Elba

Pass on to technical reviewers.

Thanks

Jim

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## Davis-Besse Shield Building Laminar Cracking

Licensee had extended discussions today with Professor Darwin.

Professor Darwin could not support an analytical determination of rebar splice strength in presence of a laminar crack. Basically, the licensee needs to identify sufficient uncracked zones at top of shield building so bond at rebar splices can be credited as effective.

Licensee plan going forward [1900 on 11/15/2011]:

- Lower portion of shield building – vertical rebar controls - seismic
- Upper portion of shield building – circumferential rebar controls – thermal loads
  
- Perform additional IR / core bore mapping at top of shield building to identify uncracked concrete areas
  
- Demonstrate effective circumferential rebar is adequate for design loads. This will be somewhat subjective since actual splice locations are not known and licensee has indicated rebar mapping is ineffective.
  
- New design basis calculations:
  - At bottom: make sensitivity calculation that removed rebar in shoulder regions a design basis calculation
  - At top: based on IR / core bore mapping, show that circumferential rebar connectivity is sufficient to demonstrate adequate load capacity for design loads

NRC technical reviewer challenges:

- Is licensee's proposed success path a viable solution
- How to define good concrete areas
- What portion of the shield building requires good concrete for sufficient bond strength at splices
  - Portion of splice in crack zone vs installed splice overlap length
  - Even though rebar splices are staggered, basis to credit load transfer of failed splice to adjacent rebar

NRC reviewers need to come to a consensus: is licensee's proposed success path a viable solution to identified circumferential cracking