

Kulesa, Gloria

From: Khanna, Meena *MEK*
Sent: Friday, September 09, 2011 11:09 AM
To: Ulses, Anthony; McMurtray, Anthony; Dennig, Robert; Mendiola, Anthony; Pelton, David; Fairbanks, Carolyn; Lupold, Timothy; Mitchell, Matthew; Pham, Bo; Murphy, Martin; Casto, Greg
Cc: Kulesa, Gloria; Martin, Robert; Wood, Kent; Clifford, Paul; Bedi, Gurjendra; Cheruvenki, Ganesh; Manoly, Kamal; Wilson, George; McCoy, Gerald; Franke, Mark; Holian, Brian; Giitter, Joseph; Galloway, Melanie; Evans, Michele; Lubinski, John; Howe, Allen; Lund, Louise; Ruland, William; Bahadur, Sher
Subject: North Anna Seismic Issue - Path Forward for Restart
Attachments: The KK report .pdf; Untitled
Importance: High

Based on Bob's email that was sent to several folks, as provided below, I'd like to share a few things that may be helpful in coming up with the list that Bob has requested. First of all, there is a link attached that includes the KK report (see pages 42 and on) that provides some useful insights that may be helpful to us in addition to the EPRI guidelines. I've also attached George Wilson's initial thoughts on what needs to be addressed in accordance with the EPRI guidelines as well as lists that he came up with as a result of speaking to several of the NRR BCs. Bob has requested that we each provide a list of questions that you need responses to from the licensee in support of the restart effort (short term and long term) by the 13th.

Bob plans to set up a meeting early next week to address this initiative. Thanks for all of the support.

Here are the tac nos:

TACS ME7050, ME7051 are for North Anna seismic issue.

Thanks,
Meena

MEK
From: Martin, Robert
Sent: Friday, September 09, 2011 10:28 AM
To: Khanna, Meena
Subject: KK report link

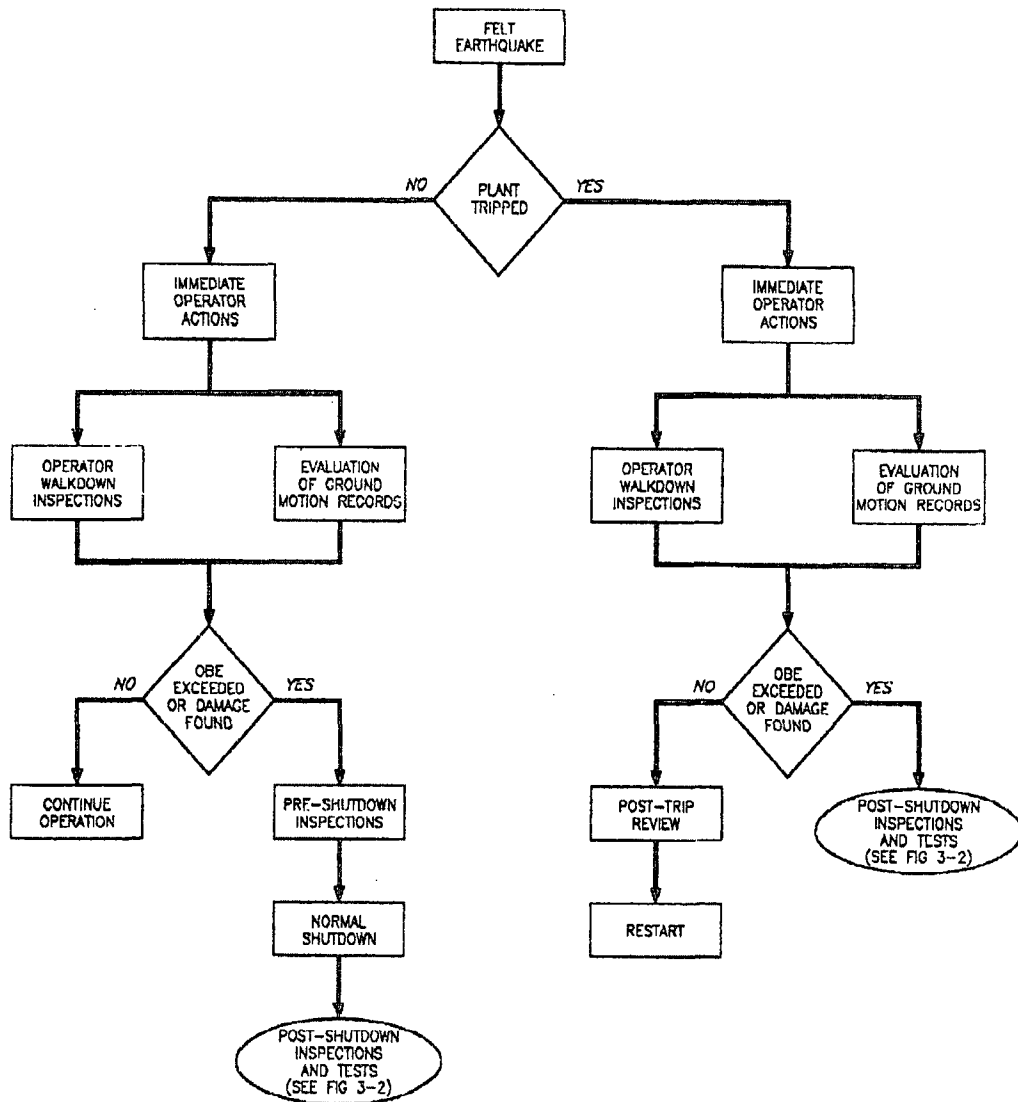
Following today's meeting with Dominion Resources, I propose a process for the forthcoming review of the licensee's basis for restarting the two North Anna units. The discussions today indicate that many staff have given thought to the issue and currently have questions that will require an answer to support the restart review.

I propose that we ask every branch in DSS, DCI, DE, DRA and the appropriate branch in DLR to forward any questions they have that are related to restart to DORL by September 13, cob. Many of these questions appear to be already written up or could be shortly. We would issue them to the licensee and then conduct meetings with the licensee, resolve issues in the meetings, followed by licensee documentation of the resolution. We would meet with the licensee each Thursday for example, and resolve issues as rapidly as licensee resources would support.

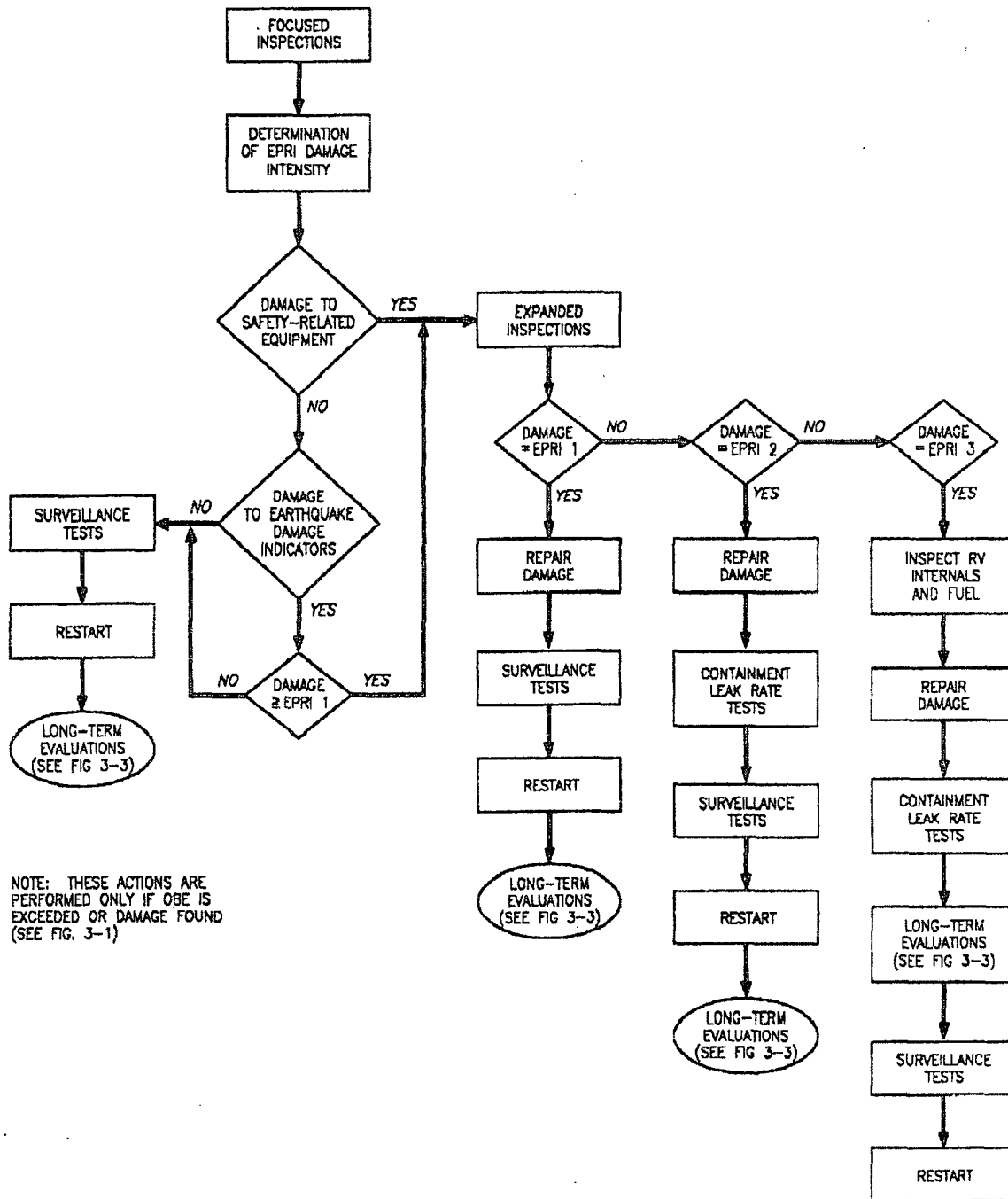
We may need management support in getting a dedicated 33 person conference room each Thursday, for example. It can take hours and hours of effort to get a large conference room. The process used for today's meeting is too expensive for a series of multiple meetings. Just the administrative support costs about 3 PM days of time.

Holding meetings at the site may not be practical or productive unless there is a site-specific issue to be addressed. It's said that there is a scarcity of motels near the site. Dominion's engineers are near Richmond. It may be useful to hold one meeting in the vicinity of the site at the conclusion of the series of meetings noted above.

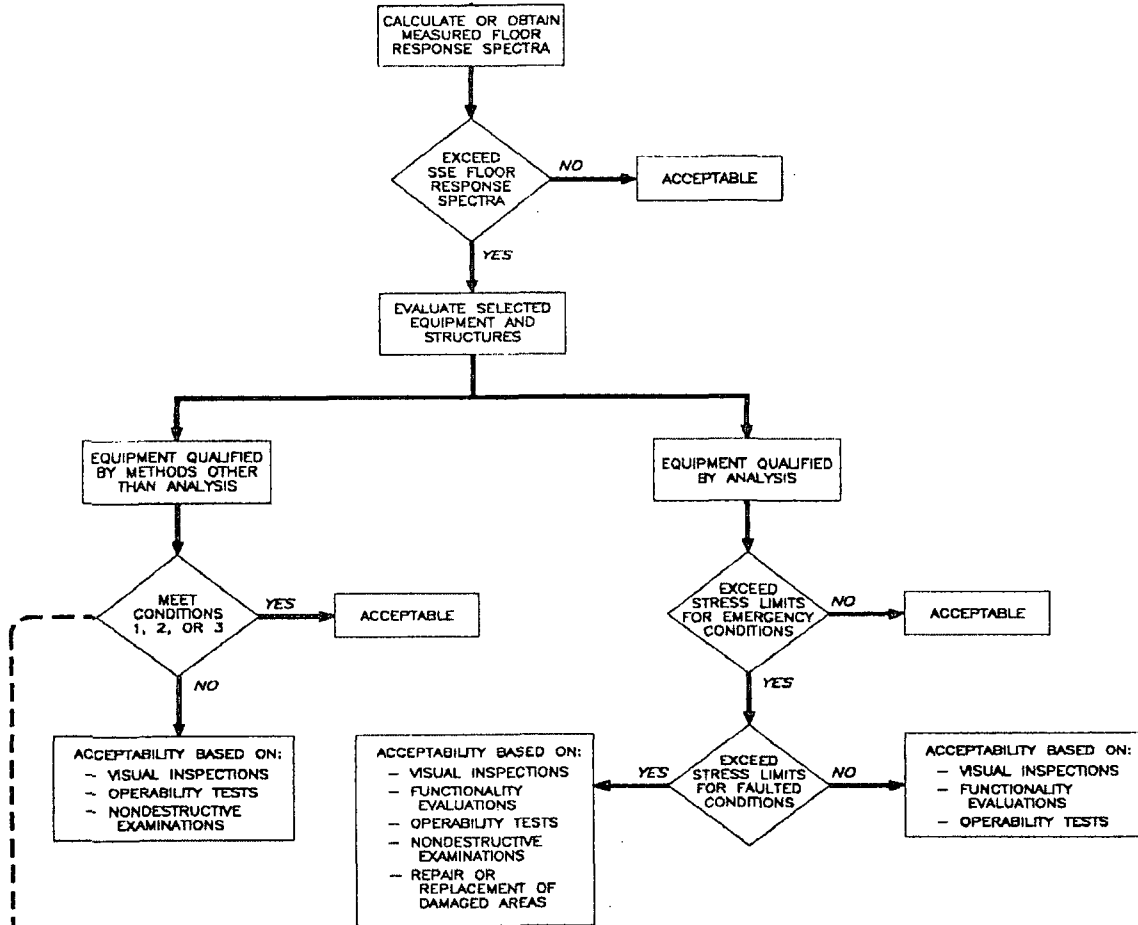
Initial Tests



Follow Up Tests



Analysis flow path



CONDITIONS:

1. TRS EXCEEDS FLOOR RESPONSE SPECTRA BASED ON ACTUAL EARTHQUAKE RECORD.
2. GERS DIVIDED BY 1.3 EXCEEDS FLOOR RESPONSE SPECTRA BASED ON ACTUAL EARTHQUAKE RECORD.
3. QUALIFIED ON BASIS OF SEISMIC EXPERIENCE DATA.

Testing Requirements

- Measurement of the opening and closing times of motor-operated valves.
- Measurement of the closing time and leak rate of containment isolation valves.
- Measurement of the flow and discharge pressure of pumps and fans.
- Measurement of the concentration, pressure, temperature, and fluid level of tanks and heat exchangers.
- Verification of automatic startup of standby components and systems (e.g., emergency core cooling pumps, diesel generators, etc.)
- Testing and calibration of instrumentation.
- Monitoring of reactor coolant system leakage.
- Visual inspection and disassembly of components.
- Verification of the control logic in reactor protection systems and engineered safety systems.
- Measurement of scram insertion times of control rods.

(Lessons learned KK plant 2007 in Japan)

Snubbers

North Anna Units 1 and 2 "Code of Record" for fourth 10-year inservice inspection program is 2004 Edition of ASME Section XI for snubber examination and testing. ASME Section XI, Article IWF-5000 references ASME/ANSI OM Part 4 (OM-4), 1987 Edition with OMa-1988 Addenda.

Currently North Anna Units 1 and 2 are using Technical Requirement Manual (TRM) Section 3.7.5 for snubber examination and testing in lieu of the ASME Section XI requirements. The use of alternative TRM 3.7.5 were approved by NRC as relief requests submitted by North Anna 1 and 2.

ASME Code's Snubber Testing requirements are as follows:

10% testing sample plan or 37 snubber sample plan for snubber testing is to be used. If there is failure in test, additional sample of 5% sample or 19 snubbers (depending upon plan selected) shall be tested until no failure (test) achieved.

Or

North Anna 1 and 2 can use the NRC approved relief requests alternative for snubber testing which are equivalent to the Code requirements.

Vessel Internals

Since the design basis seismic loading exceeded during the seismic event dated August 23, 2011, the licensee should provide an evaluation of the structural integrity of the following RVI components which were originally designed using seismic loadings e.g., SSE and DBE as a part of its design basis (Reference—Westinghouse Report—WCAP-14577, 2001). These are considered “Primary” components that require routine inspections during every ISI interval.

(a) Lower Support Forging; (b) Baffle Former Assembly; (c) Upper Core Plate; (d) Guide Tube; and (e) Core Barrel Assembly.

Fuel

Plan to talk with AREVA today about fuel. Note North Anna has AREVA fuel now, but will load Westinghouse fuel during the reload (Evaluate fuel to the fuel seismic rating)

TWO issues regarding the fuel.

1 – Seismic (structural) performance – the fuel is analyzed to behave in a safe manner (structurally) in the event of a OBE/SSE. If OBE/SSE is exceeded, fuel vendor warranties and regulatory analysis judgments are considered void until proven otherwise.

2- Thermal Hydraulic performance – Possibility of mixing flow vane damage could challenge the thermal margin performance of the fuel as well as the accident analyses of the core.

EPRI guidance for vessel internals and fuel

- Check each control rod drive mechanism for operability.
- Check in-core instrumentation readouts for changes.
- Check primary coolant radiation monitors for changes.
- Check primary coolant flow, temperature, and pressure for changes.
- Check loose parts monitoring equipment for changes in noise signatures.
- Compare primary coolant sample chemistry with pre-earthquake samples.

Spent Fuel

There is some confusion over whether or not North Anna is crediting Boraflex. NAPS UFSAR Rev 46 Section 9.1.2 indicates they are still crediting Boraflex for sub-criticality. There is a LAR from September 27, 2000, (ML003758403) that was removing the credit for the Boraflex. There have been indications at other sites that Boraflex can shift during normal operations, let alone an earthquake. If they are crediting Boraflex they should not move any fuel in the SFP it can be evaluated.

The storage racks should be inspected for any damage or deformation that would affect cooling water flow or the criticality analysis.

Containment

We believe that the licensee likely has a list of IST tests scheduled to be performed if a shutdown will exceed 72 hours. These tests would provide an adequate sample of valve functionality, absent any visible evidence of damage.

We recommend a general visual inspection of the containment consistent with Appendix J and industry guidance, NEI 94-01 and ANSI/ANS 56.8.

Welds

If any part exceeded design then do UT of those welds

Typical Systems PWR

Control Rod System
Protective Instrumentation
Containment Spray System
Safety Valves and PORVs
Reactor Coolant System Isolation Valves
High Pressure Injection System
Low Pressure Injection System
Shutdown Cooling System
Containment Isolation Valves
Containment Vacuum Relief Valves
Shock Suppressors (Snubbers)
Emergency Ventilation System
Control Room Ventilation System
Alarms
Emergency AC and DC Power Supplies
Diesel Generators
Fire Detection and Suppression
Remote Shutdown Panel
Radioactive Effluent Treatment and Instrumentation
Accident Monitoring Instrumentation
Auxiliary Feedwater
Service Water
Component Cooling Water
Reactor Protection System