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Mr. Sunil Weerakkody  
Chief, Fire Protection  
US NRC  
Mail Stop O-11-D-22  
Washington, DC 20555-0001

Dear Sunil:

On March 1, 2006, at the NRC public meeting a statement was made by the NRC that taking manual actions for the non-protected safe shutdown train is acceptable as long as the manual actions are feasible (per the guidelines in inspection manual 71111.5). EPM (and the industry) will benefit by having some clarification and common understanding of what is considered an "acceptable manual action."

Based on the statement that was made during the March 1<sup>st</sup> meeting and my discussions with your staff during the March 3<sup>rd</sup> NRC public meeting that I attended, it is our collective understanding here at EPM that taking manual actions for the protected safe shutdown train is not allowed (unless pre-approved). However, taking manual action to address spurious actuation of a component in the non-protected train is acceptable as long as such manual actions are feasible. It is crucial for us (and the industry) to have a clear understating of what the NRC had in mind when this statement was made.

As we all know, the subject of manual actions has been one of the most controversial issues for the nuclear industry. As such, it will be very beneficial if the NRC can provide a clear understanding of what was meant when the statement "manual actions for non-protected trains are acceptable (as long as they are feasible)" was made. While we understand the feasibility part, we need clarification on the "acceptable manual actions" part.

In order to help us to understand the NRC's position on this issue and to make sure that everyone addresses this issue correctly, EPM has provided some examples below. Our request is that the NRC review these examples and provide feedback to us so that there is a clear understanding and uniform application and compliance of this important issue when performing safe shutdown analysis, deterministically or performance-based.

**The following are some examples for BWR Plants:**

**1) ADS System**

Assume that a BWR plant is provided with a total of eight (8) ADS valves, a minimum of three (3) of the ADS valves are required to actively operate for safe shutdown. That means that these three have been protected to remain free of fire damage. The remaining five (5) ADS valves are not protected and could potentially spuriously operate during certain postulated fire scenarios.

Since the three ADS valves are protected, can manual actions be credited to mitigate the spurious operation of the non-credited ADS valves, provided that such manual operator actions are feasible?

**2) RCIC System**

Assume that RCIC is protected and is the credited system for safe shutdown. However, due to cable damage, a non-credited system like HPCI may be subject to spurious start due cable damage in the fire area. For such a scenario, can a manual action be credited to mitigate spurious start of HPCI provided that such manual operator action is feasible (i.e., the action can be taken in a timely manner such that RCIC operation is not affected)?

**3) RHR System**

Assume that RHR LPCI Train A is protected and is the credited system for safe shutdown. However, a non-credited flow path like the LPCI Train A header to Drywell Spray may be subject to spurious operation. (In this case we have two valves in series that are normally closed). Due to cable damage, there is the potential that during the postulated fire, eventually both MOV's may spuriously open. For such a scenario, can a manual action be credited to mitigate the spurious operation of these MOVs provided that such manual operator action is feasible?

**The following are some examples for a PWR Plants:**

**1) PORV and the Block Valves**

Assume that one PORV and its associated block valve are protected and are required to actively operate to achieve safe shutdown. However, the other PORV and associated block valve are not required for safe shutdown and are not protected therefore; they can be subject to spurious operation.

In this scenario, can manual action (e. g., pulling fuses or closing the block valve from the MCC) be credited to mitigate spurious operation of the non-credited PORV valve provided that the manual operator action is feasible?



**2) CVCS (Charging) System**

Assume that the Charging Train A System is protected and is the credited charging system for fire in area X. During a postulated fire in area X Train A charging is unaffected. However, there is the potential that the other two Charging Pumps may spuriously operate. Can manual actions be taken to mitigate spurious operation of the non-credited Charging Pumps provided that the manual operator actions to secure these non-credited pumps are feasible?

**3) AFW System**

Assume that the Turbine-Driven Auxiliary Feedwater (TDAF) Pump is protected and it is the credited safe shutdown system for a fire in area X. During a postulated fire in area X the TDAF pump and the associated safe shutdown flow path components are all protected and unaffected by the fire. However, there is the potential that the other two Motor-Driven AFW Pumps (which are not credited for safe shutdown in this area) may be subject to spurious operation. Can manual actions be credited to mitigate spurious operation of the non-credited Auxiliary AFW Pumps provided that such manual operator actions are feasible?

**4) Reactor Coolant Pumps**

Operation of the Reactor Coolant Pumps (RCPs) is not required for safe shutdown. However, in most plants tripping of the RCPs may be required. Therefore the circuits for tripping the pumps are identified as required circuits for safe shutdown and are protected up to the switchgear. However, there is no way to protect the tripping circuits that are in the switchgear itself. A fire at the switchgear can prevent tripping the breaker that feeds the RCP pump. In some cases, there may be the mechanism to trip the upstream breaker either from the control room or from the switchgear itself. In this scenario, can manual action be taken to trip the upstream breaker at the switchgear?

**The following are some examples that applies to both PWR and BWR plants**

A 4kV safe shutdown Switchgear can have both safe shutdown loads as well as loads not required for safe shutdown (i.e., non-safe shutdown loads).

As a result of fire, due to cable damage, there is the potential that some of the non-safe shutdown loads may fail (spuriously operate or malfunction) in such a way such that can prevent the 4kV Switchgear from being re-energized post LOOP and, consequently, prevent the required safe shutdown loads from operating. Can manual actions be credited to trip the non-required load breakers and re-energize the 4kV Switchgear to power the required safe shutdown loads assuming that the manual operator actions are feasible and can be performed in a timely manner?



### Tripping of Non-Credited Safe Shutdown Systems

In most plants the Main Feedwater System is not a credited safe shutdown system and, as such, not protected from the effects of fire. However, tripping of the motor-driven Feedwater pumps post-fire may be required to prevent a reactor (or Steam Generator) overfill condition. Since the Main Feedwater System is not a credited system (and is not a protected train), can manual actions be credited to trip the Main Feedwater pumps post-fire provided that the manual operator actions are feasible and can be performed in a timely manner?

These are some real life examples of the cases where manual actions may be necessary to support safe shutdown. Based on what was discussed at March 1<sup>st</sup> meeting, it is our understanding that the above scenarios of manual actions are examples of "acceptable manual actions." It will be a great benefit to EPM and the industry if the NRC can provide concurrence with our interpretation.

As you know, we are in the middle of performing NPFA 805 transition projects for several plants. In addition, plants which are not transitioning to NPFA 805 need to take action on this issue as well. We would appreciate your timely response to our request for clarification regarding this important issue. Should you have any questions or require further clarification, please feel free to contact me directly at 508-875-2121, Ext. 239. EPM will also be receptive to meet with you or your staff to discuss this issue if needed.

Very truly yours,



Robert Kalantari  
Engineering Services  
Division Manager

