

NRC Question Response Form

Request Number: 14

Status:

Requested By (Inspector name):

Date Requested:

Question / Document Request: Q D (circle one)

System:

Detailed Question or Request:

PI is an "AND" plant – i.e. high energy piping is defined as > 200 F and > 275 psig. Why is it appropriate to use the MEB-3-1 relaxation criteria if a pipe is high energy less than 2% of the cycle?

Initiated By (individual taking the request): Ritter

Assigned To (Person responding to request):

Date Assigned:

CAP / Work Order Issued? Yes / No (circle one) Number: _____

Response (include a list of documents provided):

This screening criteria is being used for a significance determination, not a design basis evaluation. Therefore, judgment of this criteria is that the SDP should not be evaluated against compliance to MEB-3-1. Rather, it should be evaluated against how much risk the screened out lines add to the overall significance determination.

From a design basis perspective, it can be argued whether is a pipe de-energized 98% of the time should or should not be included in a program. Many plants do have within their licensing basis the exclusion of pipes which are energized less than 2% of the time from their HELB programs even though they are "AND" plants. The 2% criteria is based upon exposure time. Less time at conditions meeting HELB conditions equals less risk. What this effectively means is that, from a design basis perspective, the NRC deems that the risk of a pipe energized less than 2% of the time is so small that evaluating its consequence is not beneficial.

It should also be noted that 2% of an 18 month cycle is 10.96 days.

The following interactions were excluded in EC 16270 based upon being energized less than 2% of the nominal operating time.

1 through 6, 8, 17, 86 through 94, 96, 97 and 108

Use of this form as a procedural aid does not require retention as a quality record.

These interactions are associated with the following high energy lines.

Unit 1: 8-MS-35, 12-MS-35, 6-MS-35, 16-MS-37

Unit 2: 8-2MS-35, 12-2MS-35, 6-2MS-35, 16-2MS-37

For lines 8-MS-35, 12-MS-35, 6-MS-35, 8-2MS-35, 12-2MS-35 and 6-2MS-35, operations personnel identified no current procedures which places these lines in service. Therefore, in the past year of assessment the likelihood of these lines being in service is virtually zero.

Lines 16-MS-37 and 16-2MS-37 are used during startup and shutdown when MSIVs are open and turbine is not on line. For startup, this would be Mode 3 until Mode 1 with turbine connected to grid; for shutdown this would be from the time the turbine is tripped until the MSIVs are closed which could be Mode 5 if the condenser was available for cooldown.

A one year period starting from 4/15/2008 through 4/15/2009 was reviewed. This period represents the evaluation period for the subject significance determination. Unit 1 experienced one shutdown at approximately 0600 7/31/2008 and started at approximately 0000 8/4/2008 (the resolution of the data used was 6 hours). During this period of time steam line pressure remained greater than 0 psig and the turbine was offline. This period represents 3.5 days, which was less than 2% of a calendar year (7.3 days).

Unit 2 was reviewed in a similar manner. During startup from a refueling outage, the time where the steam line pressure greater was than 0 psig was 1800 10/31/2008 and turbine was loaded to the grid at 0500 11/3/2008. This represents a period where the steam dumps may have been used. This period of time is 59 hours (approximately 2.5 days), which was less than 2% of the calendar year.

It is acknowledged that the steam dump valves are used during shutdown of the unit but the length of time was much less than during startup.

Therefore, considering modes 1,2,3 during startup and mode 5 during shutdown, the period of time this line may have been energized is less than 2%. There are two other steam dump paths available, the atmospheric steam dumps and steam generator PORV. These paths are also used during startup and shutdown and could have been used for a portion of the time described earlier.

Considering this evaluation is in support of a probabilistic risk assessment, a pipe designed to contain 275 psig of pressure would not be expected to fail catastrophically when at zero psig. In fact, as no jet would come from the pipe (actually in many of our cases, the pipe is normally at condenser vacuum, no whip would be expected and thus no target impacted).

If pipes with less than 2% duty cycle were to be included, it would only be appropriate to multiply their risk contribution by 2%. Therefore, their risk contribution would be 1/50th that of a normally energized pipe/interaction of the identical conditions. By logical extension, the risk contribution for all other pipes should also be considered based on their actual duty cycle. For example, both units at PINGP are on 18 month cycles and refueling outages have taken greater than 40 days (in some cases 60 days). Therefore, the overall risk profile could be reduced to approximately 17/18 or approximately 95%.

Again, the application of the 2% is a simplifying assumption of this analysis. The fact is no high energy line at PINGP has been in service 100% of the time (i.e. been in service, energized, since plant start up). Thus use of 2% as a criteria is based upon NRC guidance in MEB 3-1 for similar programmatic application and therefore was deemed appropriate rather than an arbitrary number of 5% or 1% with zero regulatory basis. In the determination of service time, all modes of operation were considered. The duty cycle was determined to be less than 2%

Is this an equipment issue that affects plant operability? Yes No

If yes, contact the Shift Manager immediately. _____

Date/Contacted By

Completed By: *[Signature]*

Date Completed: *7/16/10*

Peer / Tech Review / Validation By: *[Signature]*

Date Completed: *7-16-10*

Team Leader / Supervisor Review / Approval: *[Signature]*
Sean Ford

Date Completed: *7-16-10*

Additional Info Attached? Yes No [forward a copy to Regulatory Affairs]

NRC Question Response Form

Reviewer Verification Guidance

- Data Requests:
 - Is the information provided complete? Was any material removed from the information provided?
 - Is the information provided correct? Was the preparer of the response a subject matter expert?

Use of this form as a procedural aid does not require retention as a quality record.

- Information Requests:
 - Does the response answer the question being asked? Is the response on topic and clear?
 - Are inputs and assumptions appropriately validated?
 - If there is an embedded calculation, is the math correct?
 - Is the response well formulated? Was enough work put into the response?
 - Does the response reflect a differing professional opinion between the preparer and the inspector? Is the response professional in tone? Is the response argumentative?
 - Is there a condition adverse to quality? Has a CAP been initiated?