

Inquiry Form – NRC Submittal

A. TOPIC: Applicable Features for Quantifying APM

Source document: NEI 12-07

Section: 3.13 & 5.8

B. DESCRIPTION:

Sections 3.13 and 5.8 provide a definition, description, and examples for Available Physical Margin (APM). In Section 3.13, APM is defined as “the difference between licensing basis flood height and the flood height at which water could affect an SSC important to safety”. This inquiry is intended to clarify the latter part of this definition, considering that that some features will not have a clearly defined exceedance height.

D. RESOLUTION: (Include additional pages if necessary. Total pages: 2)

Inquiry number: 006

Priority: H

Sections 3.13 and 5.8 provide a definition, description, and examples for Available Physical Margin (APM). In Section 3.13, APM is defined as “the difference between licensing basis flood height and the flood height at which water could affect an SSC important to safety”. The latter (underlined) part of the definition can be interpreted as the height at which the flood protection capability of a feature is exceeded. For some features, the exceedance height can be clearly defined (e.g. flood walls, levees, dikes, cofferdams, flood gates, the elevation of unsealed penetrations or other openings, etc.). For other features (e.g. seal, plug, or water-tight door pressure ratings, pump flow rates, etc.), the exceedance height cannot be clearly defined without performing an engineering analysis that is beyond the scope of the flooding walkdowns. As a result, it is appropriate to record APM as a simple measurement of height difference, however additional considerations apply.

There is a concern that recording a large APM on the Walkdown Record Form could be misleading if the APM is interpreted as margin that is available for additional flood protection without further evaluation. For example, for a flood protection wall that is 10-ft high and the CLB water height is 9.5-ft., it is reasonable to state that the APM is 6-inches for the wall. However, if the previous wall is now 20-ft high and CLB water height is still 9.5-ft, it cannot be stated that the wall’s APM is 10.5-ft based on engineering judgment alone. In order to verify a large APM that is not already defined in the existing design documents, an analysis would have to be performed to evaluate the effect of the additional flood height on wall loads and pressure retention capability for any associated penetration seals. As a result, the manner in which an APM should be recorded on the Walkdown Record form depends upon whether the APM is considered large (an interpretation of what constitutes a “large” APM is at the discretion of the utility).

The following guidance applies.

For walkdowns that have not yet been performed and/or documented:

Recording APMs on the Walkdown Record Sheet as a difference in height is a reasonable statement of the available margin based on engineering judgment unless the APM is large. For large APMs , three options are available: (1) record a smaller, but defensible, APM value based on engineering judgment with a corresponding note in the “comments” section; (2)

Inquiry Form – NRC Submittal

record no value for the APM with a corresponding note in the "comments" section that an engineering analysis is necessary to determine the maximum APM the wall can withstand before a functional failure; or (3) reference the existing FSAR section or design document that supports the APM.

Note that this notation should be made in the response to Q11, Q23, or Q27 of the Walkdown Record Form, as applicable.

For walkdowns that have been completed:

Recognizing that it is not resource effective to revise completed paperwork, it is not necessary to change the way the APM was recorded in completed portions of the Walkdown Record Form. In these cases, APMs that have been recorded as simple measurements of height differences are acceptable as long as the APM determination process did not result in overlooking some potential small margins, as defined by the site per Section 5.8 of NEI 12-07.

Notes:

1. Typically, the CLB for the site will indicate what the probable maximum flood level is and the level to which the SSC important to safety is protected. If the recorded APM exceeds the difference between these two values and the margin is to be credited for additional flood protection, the margin must be justified by one of the following methods:
 - a. Documented application of reasonable and independently verified engineering judgment
 - b. Performance of new engineering analysis
 - c. Reference to an existing document or analysis that supports the higher protection level

Revision: 3 Date: 8/27/12

E. NRC Review:

Not Necessary _____ Necessary X _____
Explanation: _____

F. Industry Approval:

Documentation Method: _____ Date: _____

G. NRC Acceptance:

Interpretation _____ Agency Position _____

Documentation Method: _____ Date: _____