

FAQ Number 18-0014

FAQ Revision 0 (Draft A)

FAQ Title The time to Detection is Zero for Manual Non-Suppression
Probability (NSP) Calculations

Plant: Various

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Purpose of FAQ:

This FAQ provides an interpretation of when to begin crediting the empirically based manual Non-Suppression Probability (NSP) curves to align with the data used to develop the curves.

Relevant NRC document(s):

NUREG/CR-6850

NUREG/CR-6850 Supplement 1 (FAQ 08-0050)

NUREG 2169

Details:

NRC document needing interpretation (include document number and title, section, paragraph, and line numbers as applicable):

See list of relevant NRC documents

Circumstances requiring interpretation or new guidance:

The guidance in NUREG/CR-6850 Appendix P implicitly and through example directs that the detection time be subtracted from the overall time until target damage when developing the manual non-suppression probability. Although NUREG/CR-6850 Supplement 1 (FAQ 08-0050) and NUREG 2169 remove the brigade response time from the NUREG/CR-6850 approach, the subtraction term for the detection time remains. As a result, the risk associated with the manual non-suppression probability is artificially high.

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Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:

None.

Potentially relevant existing FAQ numbers:

FAQ 08-0050, “Manual Non-Suppression Probability”

Response Section:

Proposed resolution of FAQ and the basis for the proposal:

The manual non-suppression probability (NSP) curves by nature of the data collection process already include the detection time in addition to the brigade response time. Once a fire event is logged in a Nuclear power plant, it is detected.

NUREG-2169 used the Updated Fire Events Database (EPRI 1025284) in the development of the NSP curves. Whether the fire is detected by a detector, plant equipment failure, or personnel, the $T=0$ from which the fire is detected is inherently included in the manual response time curves.

If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:

The following are proposed revisions to NUREG 2169:

The time of detection for manual NSP curves, T_{det} , is considered zero ($T_{det}=0$). The time of detection, T_{det} , for other automatic suppression systems must still be calculated. $T_{det}=0$ is only applicable to the empirically based manual NSP curves which already include the detection time in the data.