APPENDIX G
MITIGATING STRATEGIES FLOOD HAZARD INFORMATION INTEGRATED ASSESSMENT

1.0 INTRODUCTION

The purpose of this appendix is to provide guidance for developing mitigating strategies and performing an integrated assessment based on the mitigating strategies flood hazard information (MSFHI). The integrated assessment process is illustrated in Figure 1.

The FLEX strategies developed in response to Order EA-12-049 assumed an ELAP with a LUHS from an unspecified event. Sections 2 and 3 of this document establish the boundary conditions and initial assumptions used for developing these strategies. In addition, Section 3 of this document provides key considerations in the development of the strategies. Sections 4 through 9 establish the reasonable protection requirements for on-site FLEX equipment. The integrated assessment defined in this Appendix is intended to make use of this guidance for either demonstrating that the FLEX strategies already developed can still be implemented as is or can be modified to remain viable, or developing different mitigating strategies specific to the flood hazard information.

A brief description of the steps in this process is as follows:

- Section 2.0- this section is used to characterize the MSFHI.
- Section 3.0- the flood hazard used to develop the FLEX strategies is compared to the MSFHI to determine if the MSFHI is bounded.
- Section 4.1- if the MSFHI is NOT bounded in all aspects per Section 3.0, then the existing FLEX strategies are evaluated against the characteristics of the MSFHI to ensure the assumptions used in the FLEX strategies are not impacted.
- Section 4.2- if the evaluation performed per Section 4.1 determines that existing FLEX strategies are otherwise impacted, then an evaluation is performed to determine if the FLEX strategies can be modified to address any vulnerability.
- Section 4.3- if the Section 4.2 evaluation determines the FLEX strategies cannot be successfully modified, then an alternate mitigating strategy (AMS) would be evaluated. Unlike the FLEX strategies which assume a given result from an undefined external event, the AMS would be based upon the flood as the initiating event and would determine the plant impacts from the flood for determining the necessary strategies for mitigating the event. As such, the AMS would not assume an ELAP and LUHS unless the flood event caused such consequences. The AMS would use a combination of plant equipment and FLEX equipment to maintain the key safety functions.
- Section 4.4- if an AMS cannot reasonably be developed to mitigate the flood, then a Targeted Hazard Mitigating Strategy (THMS) would be developed. The difference between an AMS and THMS is that the key safety function of containment will not be maintained for the THMS. The THMS also assumes the flood as the initiating event.

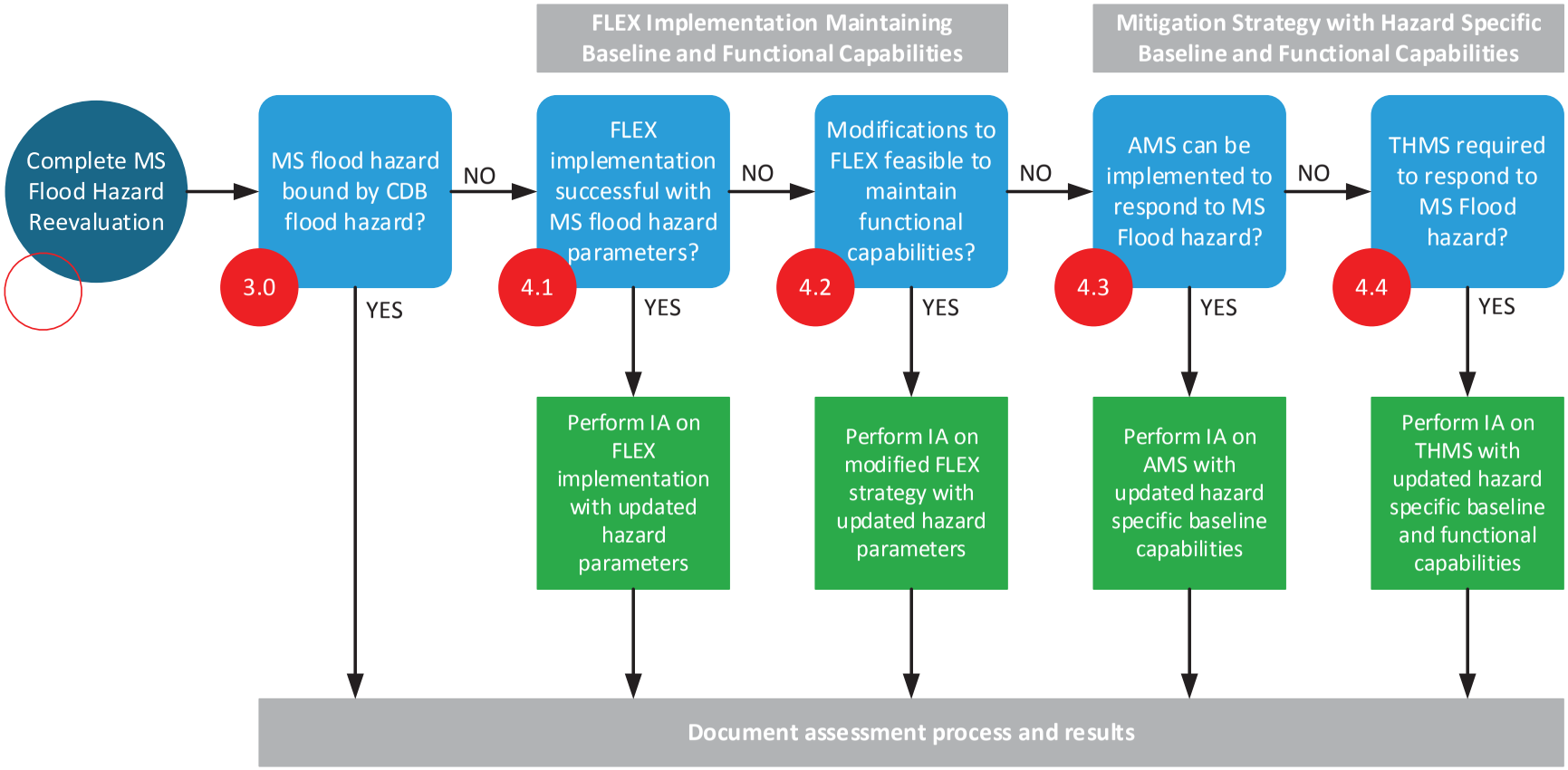

Figure 1 – Mitigating Strategies Flood Hazard Information Site Assessment and Integrated Assessment Flow Chart

2.0 CHARACTERIZATION OF THE MSFHI

IDENTIFICATION OF CONTROLLING FLOOD PARAMETERS

The controlling flood parameters from the MSFHI are determined. The site should consider the following flood scenario parameters:

- flood level(s)
- flood event duration
- relevant associated effects (e.g., wind driven waves and run-up effects, hydrodynamic loading including debris, sedimentation and erosion, etc.)
- warning time and flood event transient water surface elevations. Identify intermediate water surface elevations that trigger actions by plant personnel necessary to implement mitigation strategies
- plant mode(s) of operation prior to the event and during the flood event duration
- other relevant plant-specific factors

In some cases, only one controlling or bounding flood hazard may exist for a site. In this case, sites should define the flood scenario parameters based on this controlling flood hazard. However, sites that have a diversity of flood hazards should ensure all controlling hazard features are considered. In addition, sites may use different flood protection systems to protect against or mitigate different flood hazards. In such instances, the integrated assessment should define multiple sets of flood scenario parameters.

For simplicity, the site may combine these flood parameters to generate a single bounding set of flood scenario parameters for use in the integrated assessment. This bounding scenario (e.g., the maximum water surface elevation from one hazard combined with inundation duration, minimum warning time, and maximum impact of associated effects from other hazards) can then be used in the integrated assessment instead of considering multiple sets of flood scenario parameters.

3.0 INTEGRATED ASSESSMENT TRIGGER

This section provides guidance on comparing the MSFHI to the flood hazard used for developing the FLEX mitigating strategies. In most cases this was the Current Design Basis (CDB) flood hazard. The CDB flood hazard will be used herein to represent the flood hazard used for the FLEX mitigating strategies. When the MSFHI or the associated effects are not bound by the CDB flood hazard, then an integrated assessment of the impacts on mitigating strategies is required.

If the MSFHI is bounded by the CDB, then this information is documented in accordance with Section 6 of this appendix and no further action is required. This is a hazard to hazard comparison and does not take the plant's flood protection or design basis into consideration.

All aspects of the flood hazard must be given consideration when determining if it is bounded by the CDB. These parameters include water level, associated effects, and the identification of new flood mechanisms that were not addressed in the CDB flood analysis. The following guidance applies to the determination:

- Only those flood mechanisms whose effects exceed the CDB need to be included in the integrated assessment (e.g., if a site's CDB includes river flooding and storm surge, and the MSFHI shows that the design basis flood bounds the river flood results, but not the storm surge results, only the storm surge needs to be evaluated in the integrated assessment).
- If the MSFHI exceeds the design basis flood level, an integrated assessment (i.e., addressing applicable hazards) of the effects of the applicable flood mechanism is required.
- If the MSFHI introduces a new flood mechanism, (e.g., local intense precipitation) or a new associated effect (e.g., debris) that was not included in the CDB, then the integrated assessment must be performed on the new mechanism.
- If one or more associated effects was not considered in the CDB, those effect(s) would be treated as being not bounded and an integrated assessment (all applicable flooding mechanisms) is required, except
    - If only a single associated effect of a flooding mechanism is not bounded by the CDB, the integrated assessment needs to initially consider only the changes introduced by the new or more severe associated effect. It is only necessary to consider all the aspects of the flood hazard when there is reason to believe that the single unbounded associated effect influences other aspects of the evaluation, or when more than one associated effect differs from the CDB.

4.0 EVALUATION OF THE EFFECTIVENESS OF MITIGATING STRATEGIES WITH RESPECT TO THE MSFHI

Once it has been determined that one or more aspects of the MSFHI are not bound by the CDB of the plant, an IA of the impacts on mitigating strategies is required. The focus of the IA will be to determine the overall effectiveness of a mitigating strategy in consideration of the new flood hazard information. The following sections provide guidance for Steps 4.1 through 4.4 (as necessary).

It is anticipated that as the process in Figure 1 moves from left to right, increased justification of the effectiveness of the strategy will be required. When vulnerabilities are found in a particular step, and it is determined that one or more vulnerability cannot be resolved in the context of the parameters for that particular strategy (i.e., the guidance of the main body of this document cannot be met), only then will the evaluation continue to the next step.

The scope of this IA shall be on the SSCs, operator actions and procedures required to successfully implement the selected mitigating strategies so that a site may cope indefinitely throughout the duration of the applicable hazard. Sections 4.1 and 4.2 focus on evaluating implementation of the currently designed FLEX strategies with respect to the MSFHI. If any modifications are proposed to the existing FLEX strategy, those should be taken into account in Section 4.2.

If it is not feasible to modify FLEX to cope with the mitigating strategies flood hazard information, an Alternate Mitigating Strategy (AMS) is developed. Section 4.3 should be used to evaluate the effectiveness of the strategy in maintaining core and spent fuel pool cooling and containment function.

A Targeted Hazard Mitigating Strategy (THMS) may be developed to maintain core and spent fuel pool cooling. Maintaining the containment function is not required as part of a THMS. Section 4.4 guidance should be used for this evaluation. Similar to the AMS, MSFHI specific scenarios and baseline capabilities should be developed for use in the evaluation and documented in accordance with Section 6.

4.1 CURRENT FLEX STRATEGY REVIEW

This section applies to the condition where the current FLEX strategies ensure the key safety functions are maintained or restored without any modification required. The guidance in this section evaluates the existing FLEX strategies to verify they can be deployed in view of the MSFHI.

The IA should validate the boundary conditions and initial assumptions based on the MSFHI.

Flood protection features credited for the existing FLEX strategies should be evaluated in accordance with the guidance and performance criteria in Section 5 of this appendix.

The validation documentation for the existing FLEX strategies should be reviewed with respect to the MSFHI to determine if additional validation of the deployment actions is necessary.

If the IA demonstrates that the existing FLEX strategies can be deployed as designed, then this IA is considered complete and is documented per Section 6 of this appendix.

If this IA demonstrates that the existing FLEX strategies cannot be implemented as designed, those aspects of the FLEX strategies that could not be implemented (i.e., vulnerabilities) are documented, and the integrated assessment proceeds to Section 4.2 of this appendix.

4.2 MODIFIED FLEX STRATEGY REVIEW

This section applies to the condition where the current FLEX strategies will need to be modified based on the review conducted in Sections 3.0 and/or 4.1. This section provides guidance on modifying the FLEX strategies and performing an IA to evaluate the effectiveness of modified FLEX strategies.

The process to develop the revised FLEX strategies should mirror the original analysis used to determine FLEX baseline capabilities only using the MSFHI when completing Sections 2, 3, 4, 6 and 10 of the main body of this document. The vulnerabilities identified in Sections 3.0 and/or 4.1 of this appendix need to be addressed and alternatives such as early deployment, modifications to the flood protection features, procedures or operator actions should be considered. The sequence of events timeline established for the current FLEX design must be modified as necessary to reflect the change based on the MSFHI. If it is determined that revising the FLEX strategies is practical, then documentation of these modifications should be performed in accordance with Section 11.8 Configuration Control. Any changes proposed to the FLEX strategies must ensure that the required baseline capabilities of FLEX to cope with an ELAP and LUHS are maintained for all screened-in hazards.

The IA then evaluates the resulting design using a process similar to that discussed in Section 4.1. The following guidance aids in that evaluation:

- Each vulnerability should be evaluated separately. However it is acceptable for a change to a strategy to address more than one vulnerability.
- Evaluation of the flood protection features that are required to support FLEX strategies should meet the performance criteria provided in Section 5 of this appendix.
- Validation of new or modified actions related to FLEX strategies will be performed per App. E.
    - Timelines showing necessary manual actions, including cues, indications, notifications and dependencies of actions that need to be performed in series or parallel need to be reviewed and revised if necessary.
    - An integrated review must be performed to include all actions required to accomplish the FLEX strategy as a whole.
- If warning time was not credited in the original FLEX strategy, but is used in the modified FLEX strategy, the integrated action timeline must be modified to include the appropriate actions. Evaluation of the effectiveness of warning time includes review of the flooding event and warning time triggers needed to implement any flood protection or FLEX mitigation measure. Multiple triggers or a single trigger can be established for milestones if the response to a flood hazard is done in graduated steps (e.g. stage equipment, assemble equipment, and complete implementation). It must be documented in the IA that all triggers and resulting

implementation steps are achievable, proceduralized and can be performed in a sequence that supports a timeline that allows FLEX strategies to be implemented. The inclusion of warning time in the FLEX strategies should not invalidate the required baseline capabilities of FLEX to cope with an ELAP and LUHS.

- Information on the approach that may be utilized to evaluate appropriate warning time for the local intense precipitation flooding hazard is presented in NEI white paper "*Warning Time for Maximum Precipitation Events*", reference xx. In addition, the National Weather Service and the National Hurricane Center offer additional tools that can be helpful when establishing warning time. Warning time for other hazards such as dam failures and river forecasts should be defined based on the site's communication plans with dam operators or other organizations responsible for providing this information.
- Document the IA per Section 6 of this appendix.

If the IA demonstrates that a modified FLEX strategy would not be effective, the vulnerabilities and basis for this conclusion are documented and the IA proceeds to evaluate an AMS as described in Section 4.3.

4.3 ALTERNATE MITIGATION STRATEGIES

This section provides guidance for developing and evaluating the effectiveness of an Alternate Mitigation Strategy's (AMS) developed to address the MSFHI. The catalyst for development of an AMS is the vulnerabilities identified in the previous sections and the objective is to develop mitigating strategies specific to the MSFHI. These strategies would be supplemental to the existing FLEX strategies. Figure 2 below illustrates the evaluation process and necessary steps in performing an IA on an AMS.

The guidance of Sections 2 through 9 in the main body of this document should be used to develop the AMS. However, in this case the AMS would be based upon the flood as the initiating event and would determine the sequence of events and plant impacts from the flood for determining the necessary strategies for mitigating the event. The AMS would not assume an ELAP and LUHS at the start of the event unless the flood event caused such consequences. The boundary conditions and initial assumptions associated with an ELAP and LUHS would not apply unless these were consequences of the flood event. The evaluation to develop the AMS must ensure that the required baseline capabilities of FLEX to cope with an ELAP and LUHS are maintained for all other screened-in hazards.

The scenario should consider maximum flood height, associated effects and flood progression timeline. Once the scenario is clearly understood, the baseline capabilities of the AMS should be defined based on the mitigating strategies flood hazard specific information. The FLEX boundary conditions may not apply, depending on the mitigating strategies flood hazard conditions. The following plant conditions should be evaluated for the entire flood event duration:

- Warning time for advanced preparation
- Availability of offsite and on-site power

- Elevation, location, availability and capability of safety related SSCs
- Location and protection level of FLEX equipment
- Site access

The IA then evaluates the resulting design using a process similar to that discussed above. The following guidance aids in that evaluation:

- Evaluation of the flood protection features that are required to support FLEX strategies should meet the performance criteria provided in Section 5 of this appendix.
- Validation of new or modified actions related to FLEX strategies will be performed per App. E.
    - Timelines showing necessary manual actions, including cues, indications, notifications and dependencies of actions that need to be performed in series or parallel need to be reviewed and revised if necessary.
    - An integrated review must be performed to include all actions required to accomplish the FLEX strategy as a whole.
- If warning time was not credited in the original FLEX strategy, but is used in the modified FLEX strategy, the integrated action timeline must be modified to include the appropriate actions. Evaluation of the effectiveness of warning time includes review of the flooding event and warning time triggers needed to implement any flood protection or FLEX mitigation measure. Multiple triggers or a single trigger can be established for milestones if the response to a flood hazard is done in graduated steps (e.g. stage equipment, assemble equipment, and complete implementation). It must be documented in the IA that all triggers and resulting implementation steps are achievable, proceduralized and can be performed in a sequence that supports a timeline that allows FLEX strategies to be implemented. The inclusion of warning time in the FLEX strategies should not invalidate the required baseline capabilities of FLEX to cope with an ELAP and LUHS.
- Information on the approach that may be utilized to evaluate appropriate warning time for the local intense precipitation flooding hazard is presented in NEI white paper "*Warning Time for Maximum Precipitation Events*", reference xx. In addition, the National Weather Service and the National Hurricane Center offer additional tools that can be helpful when establishing warning time. Warning time for other hazards such as dam failures and river forecasts should be defined based on the site's communication plans with dam operators or other organizations responsible for providing this information.
- The next step in this evaluation is to determine the effectiveness of the AMS's ability to maintain key safety functions for the entire event duration utilizing the scenario specific baseline capabilities. This evaluation shall include the following attributes:
    - the plant conditions
        - plant at power or shutdown as a result of the pending flood

        - equipment affected by the consequences of scenario parameters
        - availability of offsite and on-site power
    - a detailed description of the scenario and its key components
    - a description of the approach(es) used for mitigation
    - a timeline showing necessary manual actions, including cues, indications, notifications
    - dependencies of actions that need to be performed in series or parallel
    - an evaluation of the effectiveness of active components and flood protection features in accordance with Section 5 of this appendix
    - a validation of manual actions in accordance with Appendix E
- Document the IA per Section 6 of this appendix.

Following the evaluation of the AMS, document the results and determine if the strategy is effective in maintaining the key safety functions. If effective, the IA process is complete and no further evaluation is required. If the IA demonstrates that as a result of the mitigating strategies flood hazard an AMS would not be effective in addressing the MSFHI, the vulnerabilities are documented and the IA proceeds to develop a Targeted Hazard Mitigation Strategy (THMS) as described in Section 4.4.

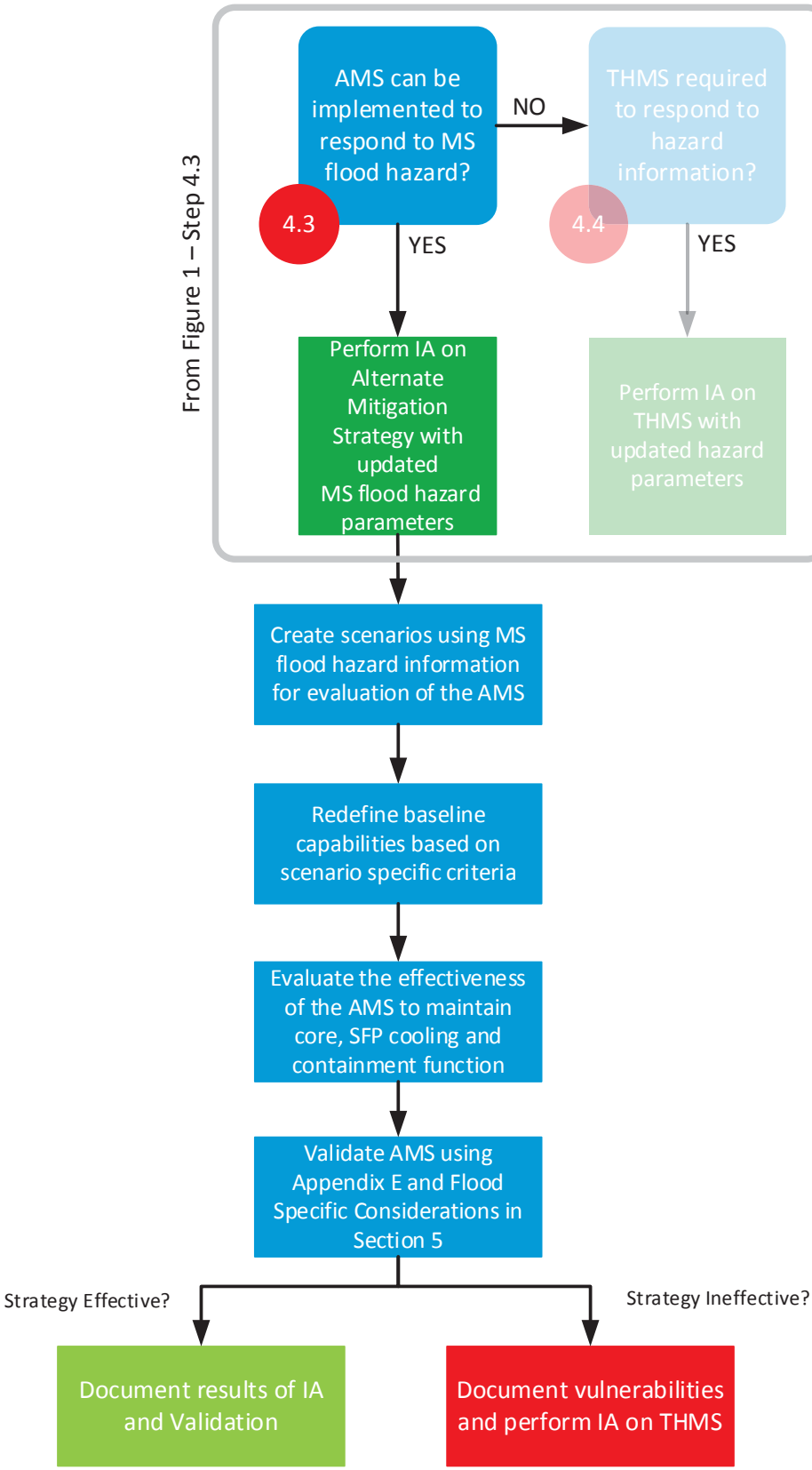

Figure 2 – Alternate Mitigation Strategy Evaluation Flowchart

4.4 DEVELOPMENT OF TARGETED HAZARD MITIGATING STRATEGIES

This section provides guidance on developing and evaluating the effectiveness of a Targeted Hazard Mitigation Strategy (THMS) to address the MSFHI. The catalyst for development of a THMS is the vulnerabilities identified in the previous sections and the objective is to define mitigating strategies to use in place of an AMS. Figure 3 below illustrates the evaluation process and necessary steps in performing an IA on a THMS.

The guidance of Sections 2 through 9 in the main body of this document should be used to develop the THMS. As in the case of the AMS, the THMS would be based upon the flood as the initiating event and would determine the sequence of events, plant impacts and the necessary strategies for mitigating the event. The THMS would not assume an ELAP and LUHS unless the flood event caused such consequences. Similarly, the boundary conditions and initial assumptions associated with an ELAP and LUHS would not apply unless these were consequences of the flood event. The difference between the THMS and AMS is that the THMS does not maintain the key safety function of containment. This provides additional options that can be considered in the development of the strategies. The evaluation to develop the THMS must ensure that the required baseline capabilities of FLEX to cope with an ELAP and LUHS are maintained for all other screened-in hazards.

The IA evaluates the resulting design using a process similar to that discussed for AMS above. The following guidance aids in that evaluation:

- Evaluation of the flood protection features that are required to support FLEX strategies should meet the performance criteria provided in Section 5 of this appendix.
- Validation of new or modified actions related to FLEX strategies will be performed per Appendix E.
    - Timelines showing necessary manual actions, including cues, indications, notifications and dependencies of actions that need to be performed in series or parallel need to be reviewed and revised if necessary.
    - An integrated review must be performed to include all actions required to accomplish the FLEX strategy as a whole.
- If warning time was not credited in the original FLEX strategy, but is used in the modified FLEX strategy, the integrated action timeline must be modified to include the appropriate actions. Evaluation of the effectiveness of warning time includes review of the flooding event and warning time triggers needed to implement any flood protection or FLEX mitigation measure. Multiple triggers or a single trigger can be established for milestones if the response to a flood hazard is done in graduated steps (e.g. stage equipment, assemble equipment, and complete implementation). It must be documented in the IA that all triggers and resulting implementation steps are achievable, proceduralized and can be performed in a sequence that supports a timeline that allows FLEX strategies to be implemented. The inclusion of warning time in the FLEX strategies should not invalidate the required baseline capabilities of FLEX to cope with an ELAP and LUHS.

- Information on the approach that may be utilized to evaluate appropriate warning time for the local intense precipitation flooding hazard is presented in NEI white paper "*Warning Time for Maximum Precipitation Events*", reference xx. In addition, the National Weather Service and the National Hurricane Center offer additional tools that can be helpful when establishing warning time. Warning time for other hazards such as dam failures and river forecasts should be defined based on the site's communication plans with dam operators or other organizations responsible for providing this information.
- The next step in this evaluation is to determine the effectiveness of the THMS's ability to maintain the core cooling and spent fuel pool cooling for the entire event duration utilizing the scenario specific baseline capabilities. This evaluation shall include the following attributes:
    - the plant conditions
        - plant at power or shutdown as a result of the pending flood
        - equipment affected by the consequences of scenario parameters
        - availability of offsite and on-site power
    - a detailed description of the scenario and its key components
    - a description of the approach(es) used for mitigation
    - a timeline showing necessary manual actions, including cues, indications, notifications
    - dependencies of actions that need to be performed in series or parallel
    - an evaluation of the effectiveness of active components and flood protection features in accordance with Section 5 of this appendix
    - a validation of manual actions in accordance with Appendix E

Following the evaluation of the THMS, document the results in accordance with Section 6.

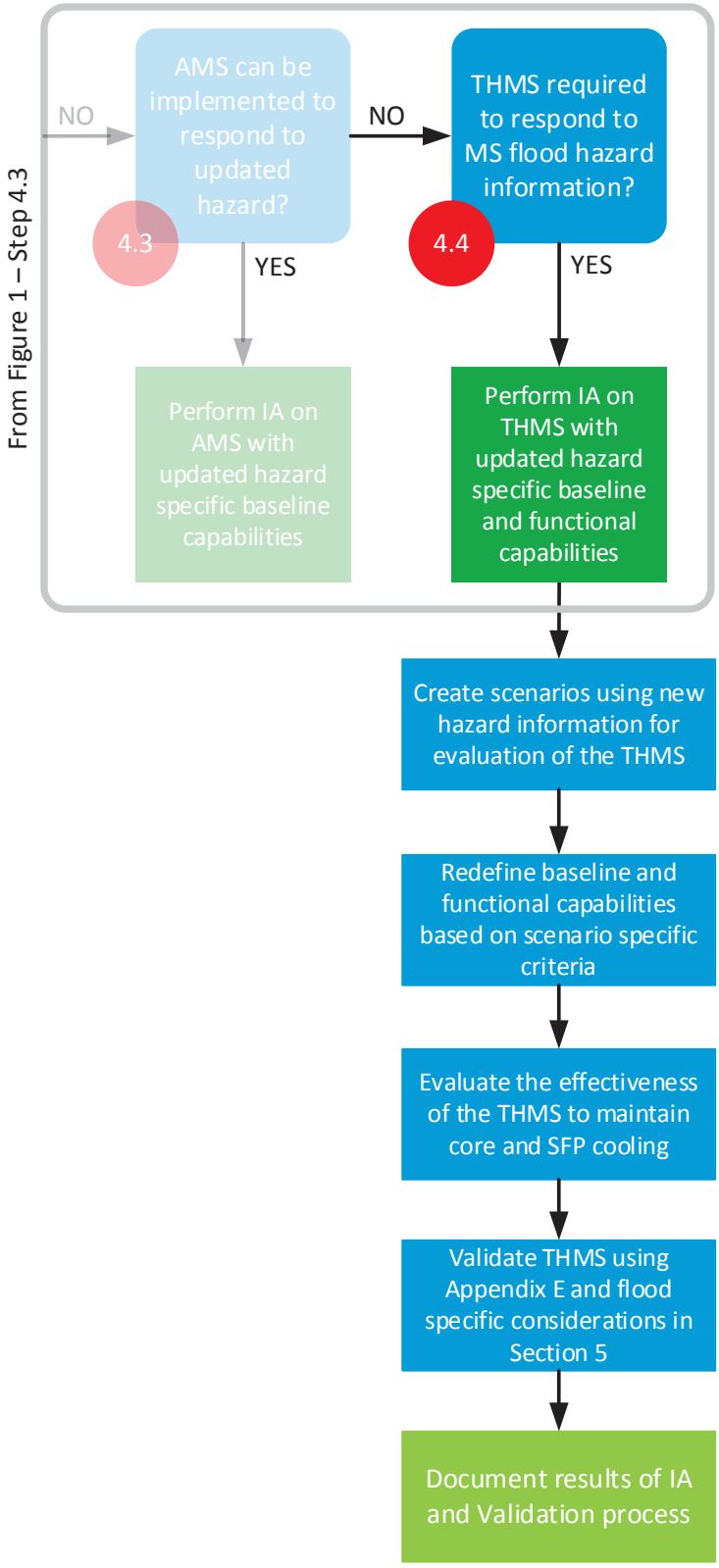

Figure 3 – Targeted Hazard Mitigation Strategy Evaluation Flowchart

5.0 PERFORMANCE CRITERIA FOR FLOOD PROTECTION

This section provides guidance on the evaluation of the capability of existing and new flood protection features required for successful implementation of a flood mitigation strategy. The IA process requires the evaluation of the effectiveness of mitigating strategies to maintain key safety functions. Throughout Section 4 above, it may be necessary to evaluate flood protection features as they pertain to the overall effectiveness of the strategy.

The evaluation is required to demonstrate that the flood protection features can accommodate the flood scenario parameters defined in Section 2.0, and justify and document the integrity of the system.

Flood protection evaluations should consider the following for any flood protection feature necessary to protect equipment or actions required to maintain key safety functions where the MSFHI exceeds the design basis flood hazard at its location[1]:

- Demonstrate the soundness of the individual flood protection features under the loads (i.e., flood height and associated effects) due to the flood scenario parameters and confirm that the features are:
    - in satisfactory condition;
    - higher than the MSFHI height; and
    - structurally adequate based on quantitative engineering evaluations.
- Demonstrate that the performance, characteristics, and configuration of the flood protection feature(s) conforms to accepted practices and is sufficiently robust (e.g., demonstrates an appropriate factor of safety)
- Perform a qualitative assessment of operational requirements such as surveillance, inspection, design control, maintenance, procurement, and testing.
- Ensure that the capacity of pumping or drainage systems is sufficient to handle any inflow through flood protection features for the entire flood event duration.

The evaluation of flood protection features should use the guidance of the appropriate codes and standards to assess whether in place or planned features conform to accepted engineering practices. The evaluation should demonstrate that the flood protection feature can perform its function when required for successful implementation of the mitigation strategy.

Permanent and Passive Features

Passive flood protection features may be incorporated, exterior, or temporary and do not require a change in state of a component in order for it to perform as intended. The following individual flood protection features are considered permanent and passive are:

- earthen embankments (e.g., earth dams, levees and dikes)
- floodwalls

[1] Flood protection features where the MSFHI does not exceed its existing design basis need not be evaluated.

- seawalls
- concrete barriers
- plugs and penetration seals *
- storm drainage systems

*For the purposes of evaluating the adequacy of plugs and penetration seals, it is sufficient to use the guidance prepared for the flooding design basis walkdowns performed in response to Near Term Task Force (NTTF) Recommendation 2.3. This guidance is described in NEI 12-07 (Reference xxxx).

Active Components

Active flood protection features may be incorporated, exterior or temporary features that requires the change in a components state in order for it to perform as intended. The following flood protection features are considered as active components:

- Rotating equipment (e.g. pumps, generators)
- Valves
- Flood Gates
- Doors
- Hatches

TEMPORARY FEATURES

Temporary flood protection features may be passive or active within the immediate area of the plant and their installation is done prior to the advent of the beyond design basis flood. It must be demonstrated that a temporary flood feature can be moved to the location where needed and installed.

Standards, codes, and guidance documents should be consulted to determine whether the configuration of the temporary barrier (e.g., configuration of a sandbag wall) conforms to accepted engineering practices. Justification of feature reliability may require laboratory- or field-testing, analytical modeling, or demonstrations. If an assessment and evaluation of temporary features reveals deficiencies and shortcomings in their capability to perform adequately as a flood barrier, the implications of the deficiencies should be summarized.

Moreover, it should be demonstrated that temporary features can be moved to the location where needed and installed. The validation process guidance found in Appendix E should be used to evaluate manual actions associated with construction or installation of temporary protective measures.

6.0 DOCUMENTATION

Describe the mitigating strategies flood information identified for the site and state the specific flood scenario parameters as identified in Section 2.0 for that hazard. Identify if a controlling flood hazard or bounding parameters are utilized.

Document and justify an evaluation that the mitigating strategies flood information is bounded or not bounded by the CDB. Document a description of any situation not bounded by the CDB and the reason as to why an IA is required.

Document the results of the evaluation applicable to the strategy that is developed (i.e., FLEX, modified FLEX, AMS or THMS) as follows:

6.1 FLEX: Document and justify the evaluation that demonstrates existing FLEX strategies are acceptable without modification for the MSFHI. Document that the set of equipment, operator actions and procedures required to successfully implement the FLEX strategies remains valid and that it can be implemented as documented in the plants BDB program document for a mitigating strategies flood hazard.

6.2 Modified FLEX: Document and justify the evaluation that identifies the vulnerabilities in the existing FLEX strategy and how proposed modifications enable FLEX to the mitigating strategies flood information, including:

- identification of the vulnerabilities,
- description of the modifications (equipment, procedures, etc.) to address each vulnerability,
- description of required modifications to the timeline
- documentation requirements of Appendix E to this document
- describe the use of early deployment/warning time if utilized

6.3 AMS or THMS Document and justify the evaluation that identifies an alternate mitigating strategy or a targeted hazard mitigated strategy in response to a mitigating strategies flood hazard including:

- a detailed description of the scenario and its key components
- a description of the approach(es) used for mitigation
- a timeline showing necessary manual actions, including cues, indications, notifications
- dependencies of actions that need to be performed in series or parallel
- a validation of manual actions in accordance with Appendix

6.4 THMS: Provide the results with justification of an evaluation demonstrating the acceptance of any flood protection feature (system) credited to include:

- A description of the flood protection features (system) that is credited in support of the respective mitigating strategy under evaluation,

- The particular manner in which the core cooling and spent fuel pool cooling is being performed and supporting equipment for those functions are being protected,
- The criteria including, as applicable, codes and standards that the flood protection feature (system) is designed to,
- The ratings, as applicable, of any flood protection feature (sump pumps).

6.5 Document the validation results.

6.6 Update the appropriate sections of the BDB Program Document.