



**U.S.NRC**

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

# **Concepts Under Consideration for the Integrated Assessment**

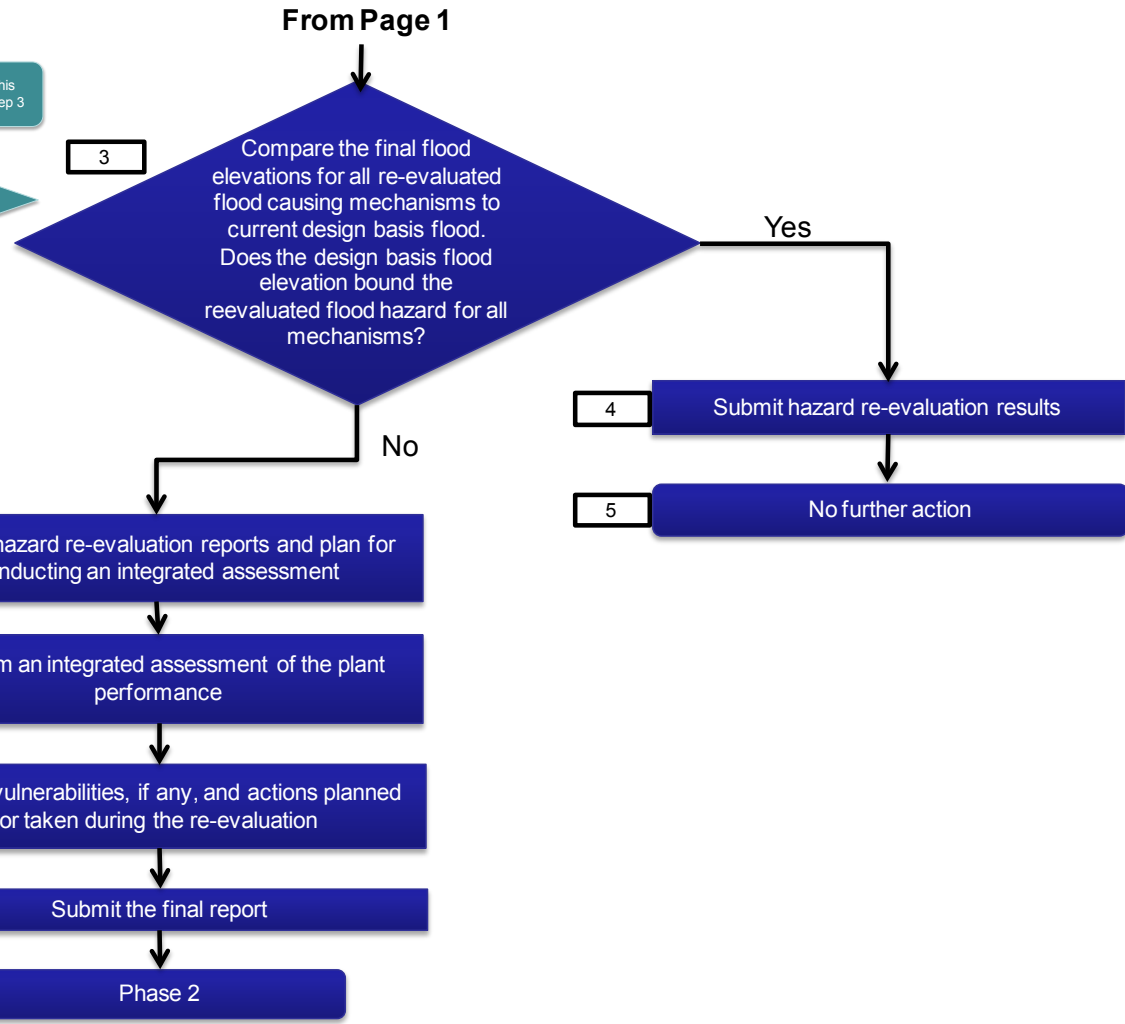
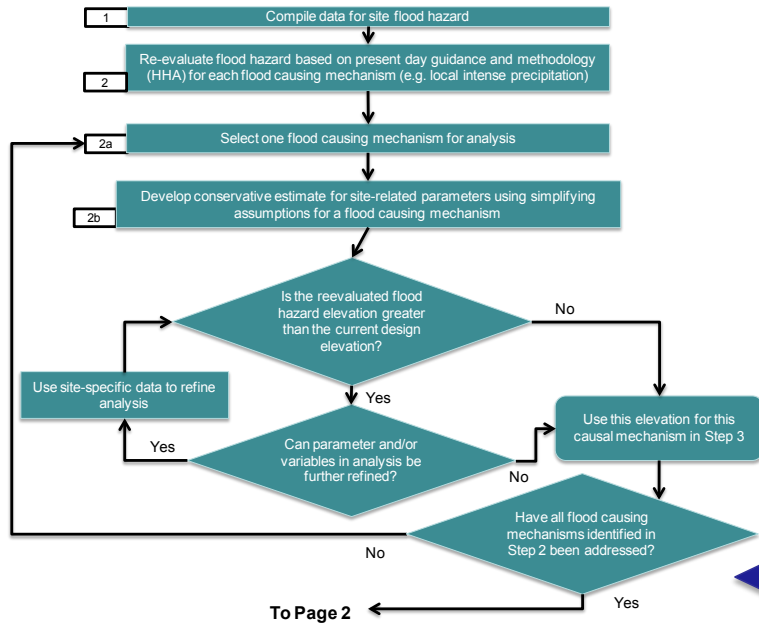
2.1 Flood Team

Public Meeting

July 11, 2012

# Goal and Outline of Presentation

- **Goal**
  - Describe the approach for the Integrated Assessment that is currently under consideration by NRC staff
- **Presentation outline**
  - Purpose
  - Key concepts
  - Graded approach
  - Status of key issues; ongoing activities



**Integrated Assessment**

# Purpose of the Integrated Assessment

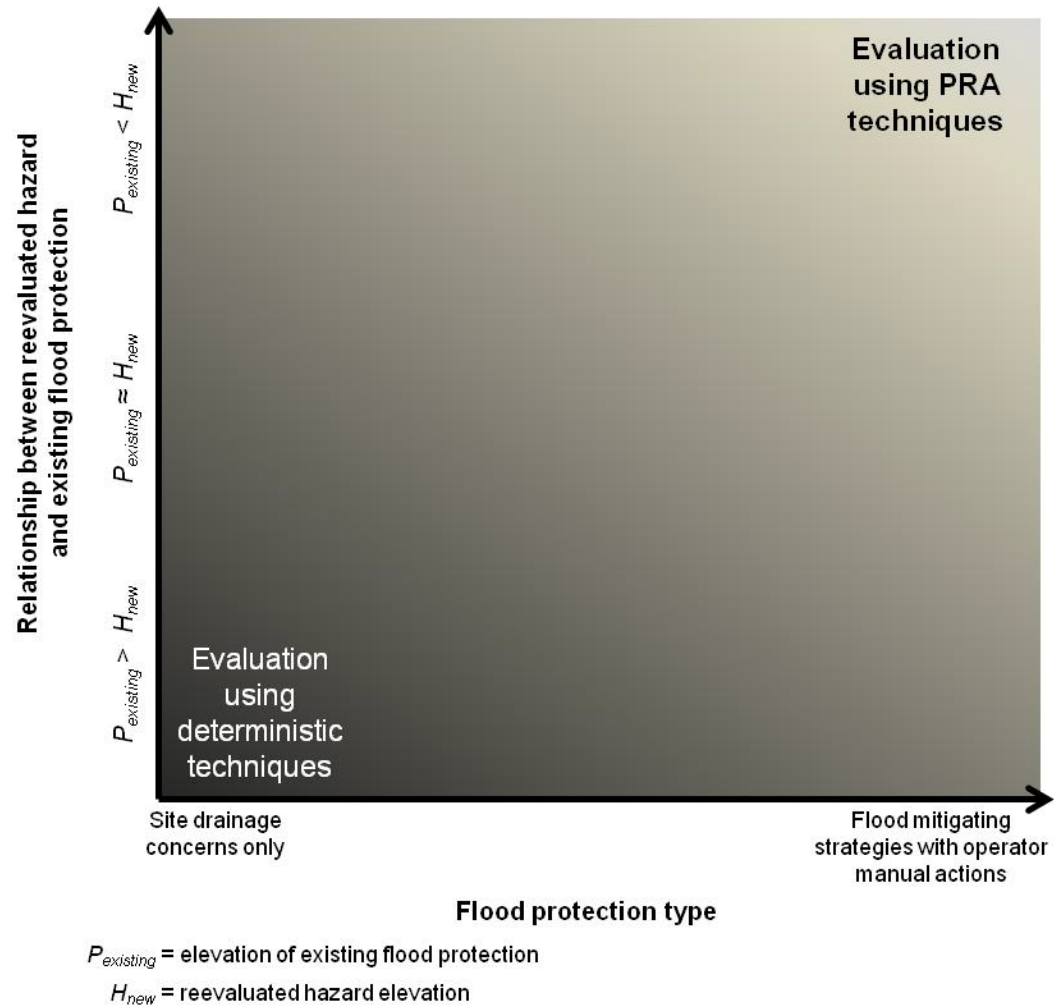
- The Integrated Assessment builds upon existing concepts to evaluate the total plant response to flood hazards
- Integrated Assessment purpose
  - Evaluate the effectiveness of the existing licensing basis
  - Identify plant-specific vulnerabilities
  - Assess the effectiveness of existing or planned plant systems and procedures in protecting against flood conditions and mitigating consequences

# Key Concepts Under Consideration for IA

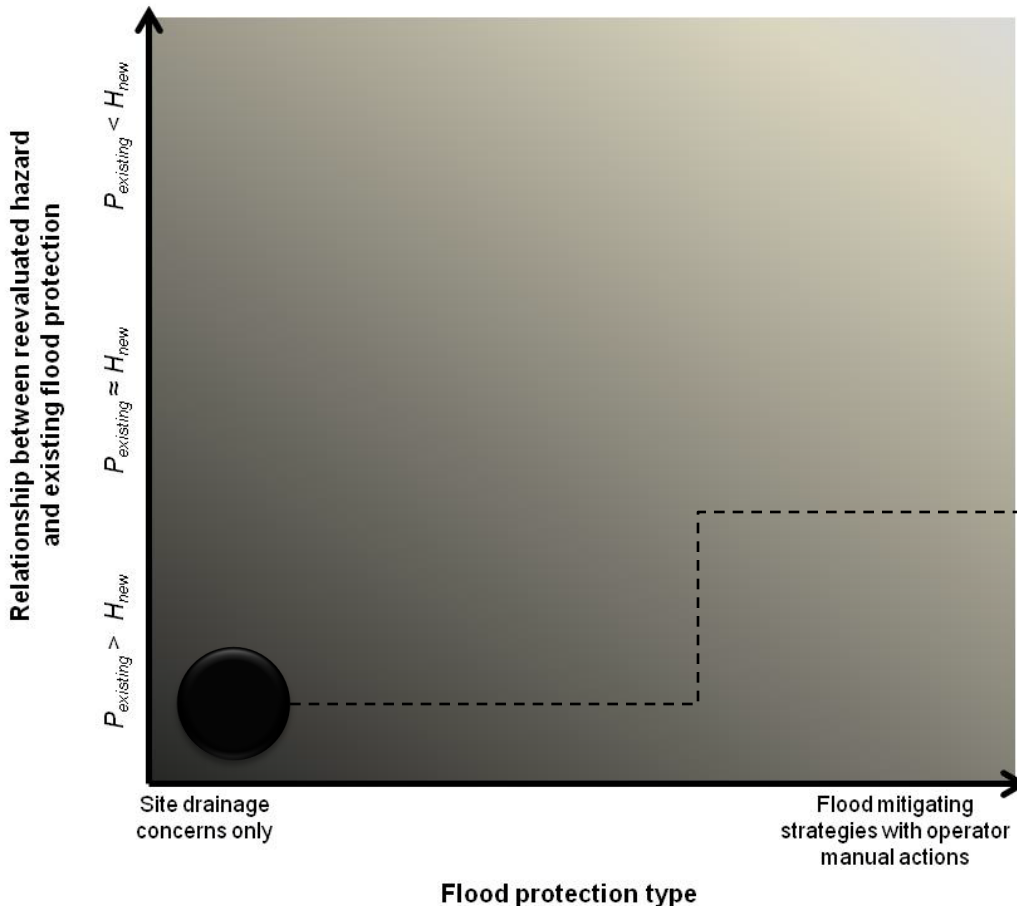
- **Hazard definition**
  - Deterministic hazard reevaluations performed under Recommendation 2.1 provide information about flood elevations and associated effects (e.g., duration, debris, dynamic forces)
- **Flood protection feature performance**
  - Evaluation of the effectiveness of the plant flood protection system considering multiple and diverse features (e.g., barriers, temporary measures, procedures)
  - For a given flood elevation, the effectiveness of the flood protection may be evaluated using a range of potential methods
- **Evaluation of plant response**
  - Evaluation of the capability of the plant to maintain critical safety functions in the event that the flood protection is compromised
- **Compilation and assessment of the results of the evaluations**
  - Evaluation of available margin
  - Identification of vulnerabilities
  - Description of risk insights

# Graded Approach Under Consideration

- The Integrated Assessment must
  - Accommodate the unique characteristics of all sites
  - Ensure sufficient information is collected to facilitate decision-making
- To help ensure flexibility and consistency, a graded approach is under consideration
- The complexity of the Integrated Assessment will vary based on
  - The relationship between the re-evaluated hazard and the existing flood protection elevation at a plant
  - The type(s) of flood protection utilized at a plant



# Graded Approach Under Consideration



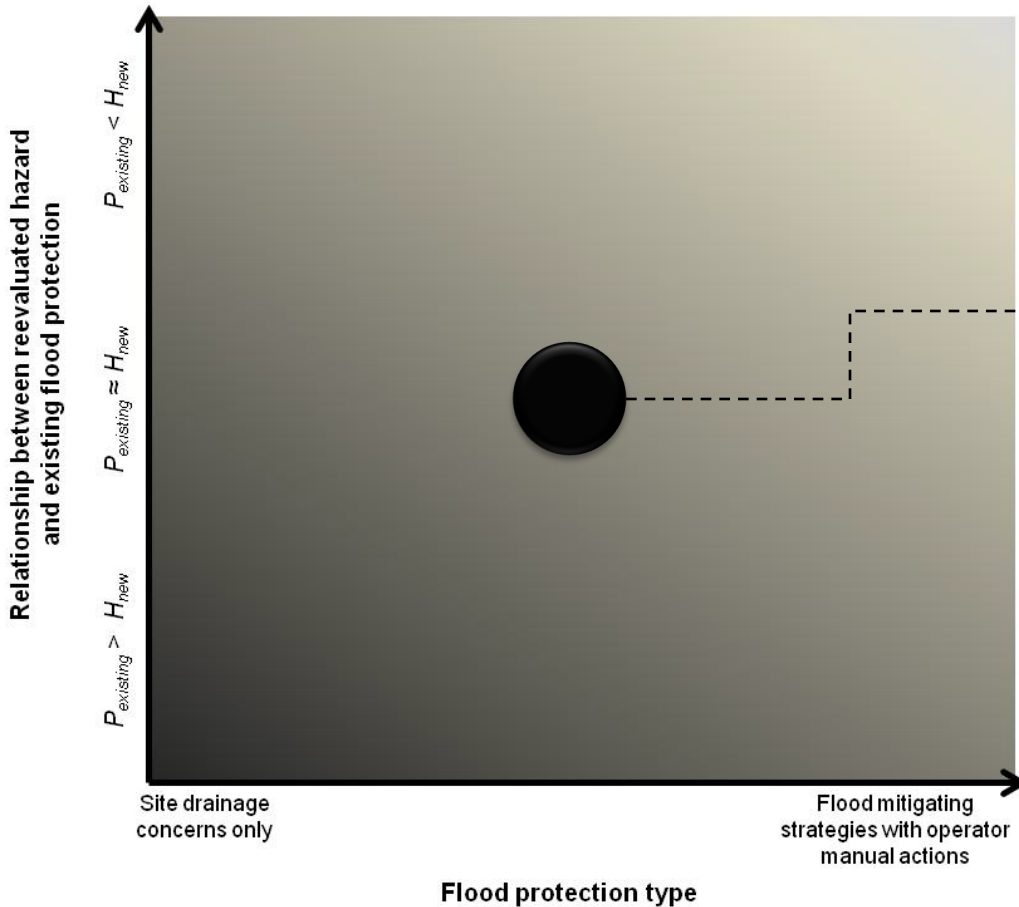
Demonstration of the effectiveness of the flood protection system using evaluations such as:

- Engineering evaluations
- Walkdowns (R2.3)
- APM

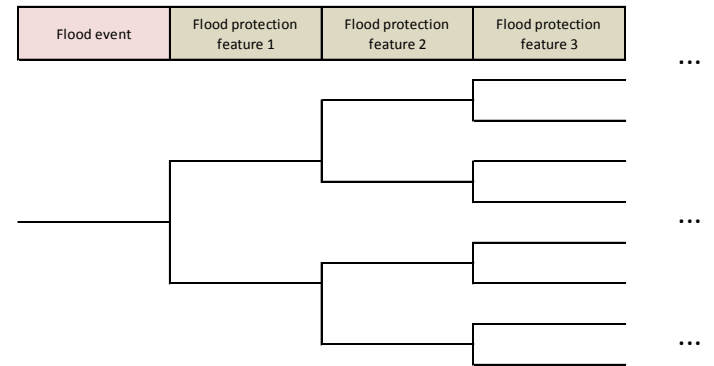
$P_{existing}$  = elevation of existing flood protection

$H_{new}$  = reevaluated hazard elevation

# Graded Approach Under Consideration



Demonstration of the effectiveness of the flood protection system based on risk-informed evaluations



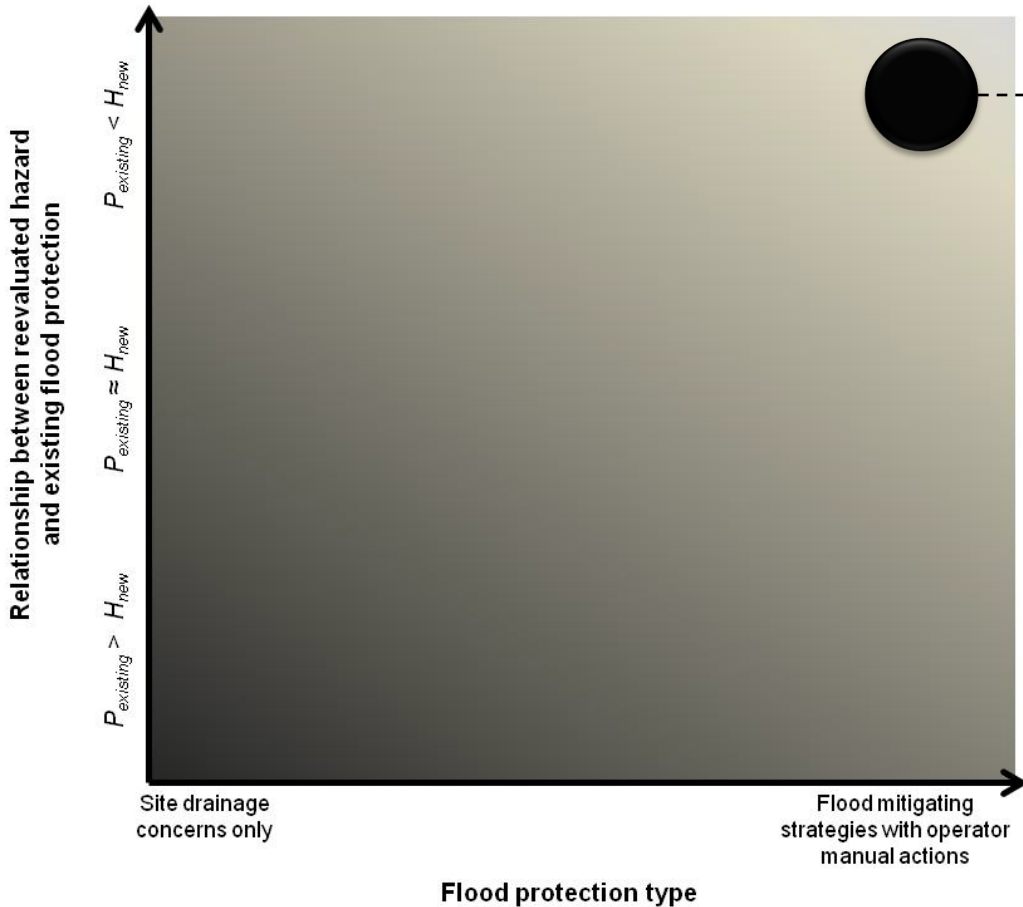
[conceptual figure – not intended to represent an actual event tree]

$P_{existing}$  = elevation of existing flood protection

$H_{new}$  = reevaluated hazard elevation



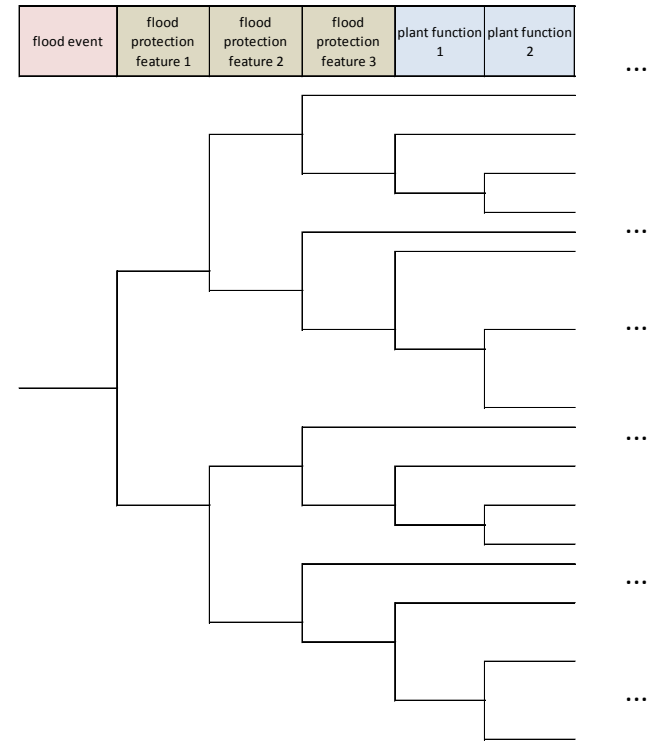
# Graded Approach Under Consideration



$P_{existing}$  = elevation of existing flood protection

$H_{new}$  = reevaluated hazard elevation

Evaluation of the effectiveness of the flood protection systems and plant response using PRA techniques



# Status of Key Issues and Ongoing Activities

- NRC staff is developing Interim Staff Guidance on the performance of the Integrated Assessment
- NRC staff is preparing examples to support the development and implementation of the Integrated Assessment ISG
- Guidance documents scheduled to be issued by November 30, 2012