

Understanding SERA Data and its Role in Emergency Action Plans (EAPs)

Introductory Paragraph:

This FAQ section is intended to help dam owners and stakeholders better understand the purpose and limitations of SERA data in the context of Emergency Action Plans (EAPs). Developed by North Carolina Emergency Management (NCEM), SERA provides standardized inundation modeling to support emergency preparedness. However, its use in regulatory EAPs must be carefully evaluated based on dam classification, size, and applicable policy and/or rule requirements.

Frequently Asked Questions

1. What is SERA data?

SERA (Statewide Emergency Response Analysis) is a project developed by NCEM to support emergency response planning. It provides a complete HEC-RAS 2D model for each dam, which includes terrain data, dam characteristics, watershed delineations, boundary conditions, and simulated inundation extents based on the 100-year storm event. These files may serve as a starting point for developing the inundation mapping portion of an Emergency Action Plan (EAP).

However, HEC-RAS is a technically advanced hydraulic modeling software, and interpreting the data requires specialized knowledge. While the SERA data includes valuable components such as elevation surfaces, breach parameters, and flow paths, it is not a plug-and-play solution. Dam owners may need professional assistance to fully utilize the SERA data in their EAPs.

2. What storm scenario does SERA model?

SERA uses the 100-year storm event and assumes a full pond overtopping failure. This modeling approach is intentionally conservative and does not reflect the operational design of individual dams, many of which are engineered to avoid overtopping during such events.

3. Can SERA data be used in my EAP?

It depends. Most Class C (High Hazard) dams—especially small-sized ones—are generally expected to include breach analysis utilizing the 1/3 PMP storm event in their Emergency Action Plan (EAP). SERA's 100-year storm event overtopping scenario does not meet this standard and is typically not sufficient on its own.

However, in some cases, a dam owner working with a qualified engineer may be able to justify the use of a smaller Spillway Design Flood (SDF), as allowed under 15A NCAC 02K .0205(e). This provision enables a rational selection of a lesser SDF based on site-specific analysis. If such justification is successfully demonstrated, the SERA data could potentially be appropriate for use in the EAP.

This path typically involves a level of technical effort comparable to modifying the existing SERA model or conducting a new analysis. While not common, it may be a viable option for some owners depending on their dam's characteristics and downstream conditions.

4. Is SERA data a substitute for a full inundation map?

No. SERA data is not a regulatory substitute for required breach analyses. It may be included in an EAP alongside the required Sunny-Day Breach Scenario and Rainy-Day Spillway Design Flood (SDF) scenarios, but it is not sufficient on its own for regulatory compliance.

5. Why was SERA developed if it doesn't meet all EAP requirements?

SERA was created to provide emergency managers with a baseline inundation analysis to aid in emergency planning. It is also useful for owners who lack the resources to commission a full breach modeling. Please note that SERA data was not designed to fulfill regulatory EAP mapping requirements, and its use must be evaluated on a case-by-case basis.

6. Who decides if SERA data is acceptable for my dam's EAP?

Final determination is made by the Dam Safety Program, based on dam classification, size, and applicable policy/rule requirements. If you're unsure, contact your reviewer or refer to the EAP guidance documents.

7. What should I ask when I contact the Dam Safety Program?

To help us assist you more effectively, consider asking the following questions:

- Does my dam require the 1/3 PMP storm event breach analysis?
- Can SERA data be used in my EAP?
- What are the required inundation scenarios for my dam's classification?
- Who can help me interpret the SERA data?

8. Where can I access SERA data for my dam?

SERA data links are provided by the Dam Safety Program upon request. Please contact the Dam Safety Program (DamSafety@deq.nc.gov) or your technical contact to initiate this process.