

SUCCESSFULLY INTEGRATING DAM SAFETY IN TO PLANNING STUDIES: TRICKS AND TREATS

PCoP WEBINAR SERIES

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31 October 2017



US Army Corps
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TODAY'S TOPICS

- Brief background on USACE Dam Safety
- Key policies
- Tricks and treats
- Questions



BLUF

- Communication and coordination are key.
- Know the key dam safety professionals in the district/MSC.
- Look for the relevant policies and ask questions.
- Dam Safety is on the critical path for all decisions involving a proposed or existing dam.
- Today's focus: Feasibility Studies



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BACKGROUND ON USACE AND DAMS



SOME (BUT NOT ALL) KEY DAM SAFETY PEOPLE



**I KNOW WHO MY DISTRICT/MSC DAM SAFETY
OFFICER AND DAM SAFETY PROGRAM MANAGERS
ARE.**

Yes

No

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DAM SAFETY ACTION CLASSIFICATION (DSAC)

USACE Levee Safety Action Classification Table*

Urgency of Action	Actions for Levee Systems and Leveed Areas in this Class <i>(Adapt actions to specific levee system conditions.)</i>		Risk Characteristics of this Class
Very High (1)		Based on risk drivers, take immediate action to implement interim risk reduction measures. Increase frequency of levee monitoring; communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning systems and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as very high priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in very high risk.
High (2)		Based on risk drivers, implement interim risk reduction measures. Increase frequency of levee monitoring; communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as high priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in high risk.
Moderate (3)		Based on risk drivers, implement interim risk reduction measures as appropriate. Verify risk information is current and implement routine monitoring program; assure O&M is up to date; communicate risk characteristics to the community in a timely manner; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as a priority.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in moderate risk.
Low (4)		Verify risk information is current and implement routine monitoring program; assure O&M is up to date; communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions to further reduce risk to as low as practicable.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in low risk.
Very Low (5)		Continue to implement routine levee monitoring program, including operation and maintenance, inspections, and monitoring of risk. Communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure community is aware of flood warning and evacuation procedures; and recommend purchase of flood insurance.	Likelihood of inundation due to breach and/or system component malfunction in combination with loss of life, economic, or environmental consequences results in very low risk.
No Verdict		Not enough information is available to assign an LSAC.	

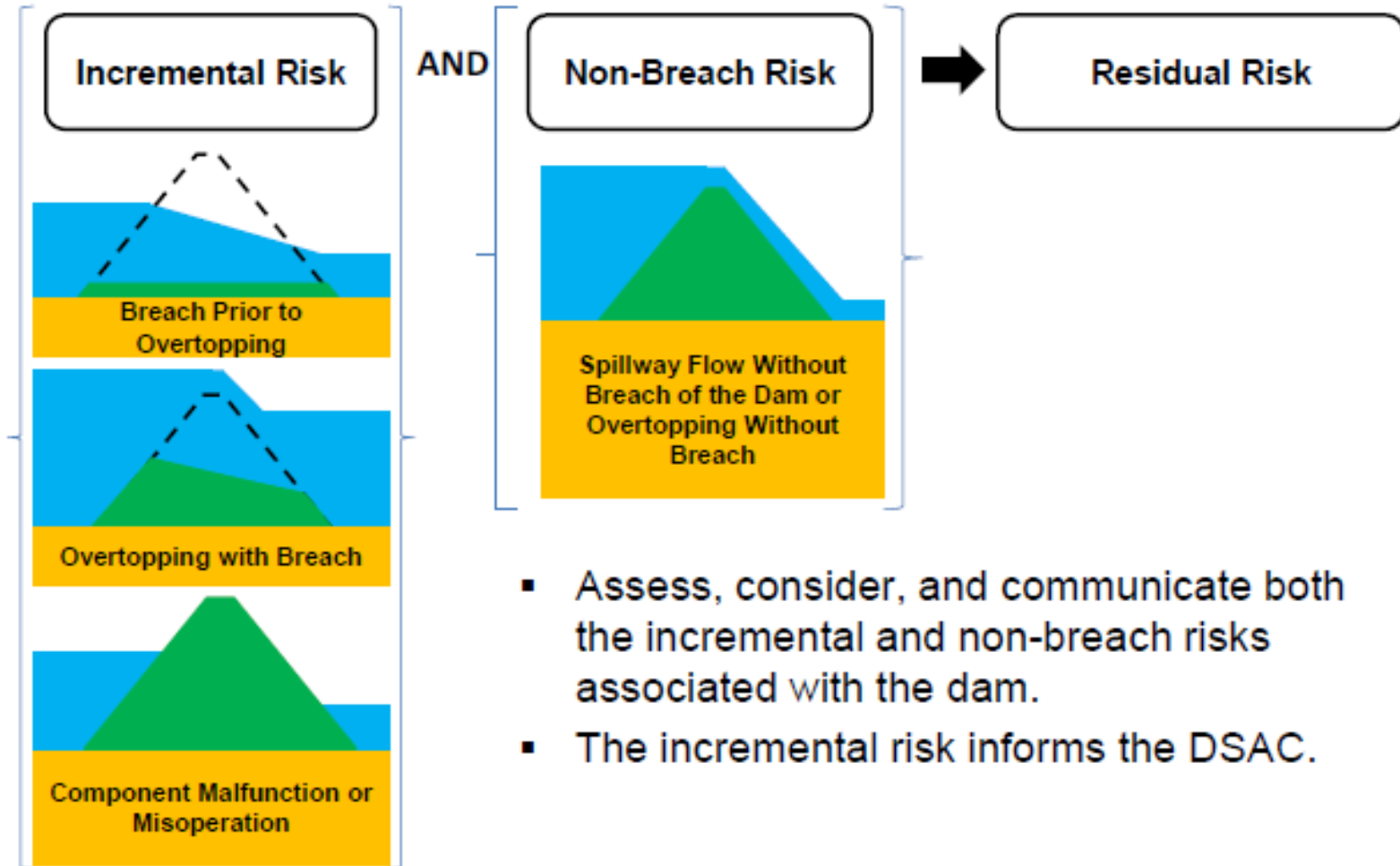
*Levee risk is the risk that exists due to the presence of the levee system and this is the risk used to inform the decision on the LSAC assignment.
The information presented in this table does not reflect the overtopping without breach risk associated with the presence or operation of the levee system.



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INCREMENTAL, NON-BREACH, AND RESIDUAL RISK



- Assess, consider, and communicate both the incremental and non-breach risks associated with the dam.
- The incremental risk informs the DSAC.



MOST USACE DAMS ARE CLASSIFIED AS:

DSAC 1

DSAC 2

DSAC 3

DSAC 4

DSAC 5

File Name



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MOST USACE DAMS ARE CLASSIFIED AS:

DSAC 1

14

DSAC 2

61

DSAC 3

192

DSAC 4

433

DSAC 5

13



CONTINUUM OF CONSIDERATIONS

- High Uncertainty
- Little Existing Information
- High Consequences
- Poor Condition Dam

Where most
of our
projects are.

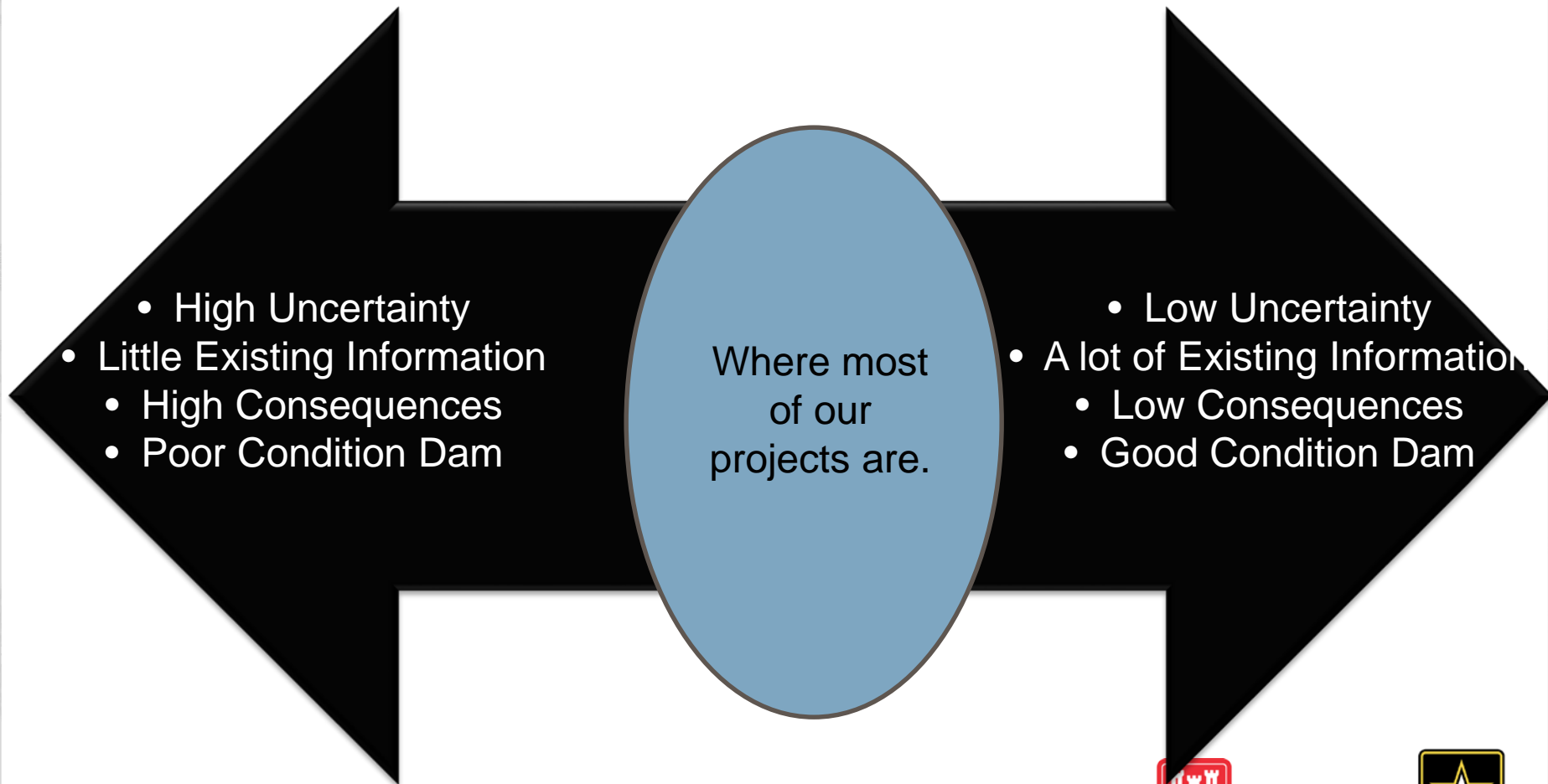
- Low Uncertainty
- A lot of Existing Information
- Low Consequences
- Good Condition Dam



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CONTINUUM OF CONSIDERATIONS



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WHERE DO I FIND INFORMATION ON DAM SAFETY AND PLANNING



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I KNOW WHICH REGULATIONS CONTAINS USACE'S DAM SAFETY POLICIES AND PROCEDURES.

Yes

No

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PLANNING AND DAM SAFETY

- ER 1110-2-1156
 - Chapter 1 – Definition of a Dam
 - Chapter 4 – Management of USACE DS Program
 - Key people: Dam Safety Program Manager and Dam Safety Officer
 - Chapter 5– Tolerable Risk Guidelines
 1. Risks society is willing to live with so as to secure certain benefits
 2. Risks society does not regard as negligible or something it might ignore
 3. Risks that society is confident are being properly managed by the owner
 4. Risks the owner keeps under review and reduces further if and as practicable



KEY POLICY AND PROCEDURES: ER 1110-2-1156

- Chapter 21– Policies for Planning and PED
 - Modifications for non-safety related reasons and new dams
 - Applies to all structures meeting the definition of a dam
 - Lead Engineer – approved by the DSPC in consultation with District DSO
 - Scoping the Dam Safety related work during feasibility (21.4.2)
 - Most required by law, some by policy
 - PED scoping to ascertain costs
 - Coordinate with State Dam Safety Officials



KEY POLICY AND PROCEDURES: ER 1110-2-1156

- Chapter 21– Evaluation and Recommendation Considerations
 - Understand current risks...
 - ...and changes to the risk...
 - OMRR&R costs
 - Turnover plan
 - PCA containing all dam safety requirements
 - Risk assessment and preventative measures (WRDA 86)
 - More...



WHY?

- Manage risks to people, economy, environment
- Explicitly consider public safety (OSE) in decision-making
- Disclose potential cost and risks to non-Federal partners and stakeholders
- Account for all costs associated with dam modification or new construction



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WHAT ABOUT FOR WATER SUPPLY AND RELATED STUDIES?

- ER 1110-2-1156
 - Chapter 24– Considerations for Storage Allocation, Reallocation, and Related Studies
 - No studies on DSAC 1, 2, or 3 dams, levees, dikes, or appurtenant structures except when approved by USACE DSO
 - Coordination: District/MSC/HQ DSOs & District/MSC/HQs Planning & WMRS PCX
 - May 2015 webinar for WS Working Group
(https://team.usace.army.mil/sites/SWD/pdt/wmrs/_layouts/15/WopiFrame.aspx?sourcedoc=/sites/SWD/pdt/wmrs/Shared%20Documents/2015%20Webinars/WaterSupplyDamSafety_20150508_mmw.pptx&action=default)



KEY POLICY AND PROCEDURES CONTINUED

- ER 10-1-51 Roles and Responsibilities – Dam Safety Modification Mandatory Center of Expertise
- ER 10-1-55 Organization and Functions – Roles and Responsibilities Risk Management Center



TRICKS AND TREATS



IDENTIFYING THE NEED TO COORDINATE WITH THE DSO/DSPM IS THE RESPONSIBILITY OF...

Planning

PM

Not me

**Lead
Engineer**

Other
(type in the
chat box
who you
think is
responsible)

File Name



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COORDINATION!

- Engage Dam Safety in the District, Division, HQ, and the Centers of Expertise
 - Engineering and Planning involvement
- Early consultation with the DSO is mandatory
 - District DSO coordinates Dam Safety side with planners involvement.
 - District Planning coordinates with the Planning side with Dam Safety involvement.
 - Both sides coordinate with one another throughout the vertical team.



PLAN FORMULATION AND EVALUATION CONSIDERATIONS

- How do risks change with modifications?
- How might modification (or a new dam) change or transform downstream and upstream risks?
- How and who will manage residual risks?
- Are additional measures necessary to address potential failure modes— structural performance or consequences?
- Completeness: account for all costs to implement, maintain, meet legal and technical requirements
- How will the project perform over a range of events, including large or extreme events?



THE DAM IN MY STUDY AREA IS NOT A USACE DAM...WHAT DO I DO?

- Coordinate with USACE Dam Safety
 - District, MSC, HQ, CXs
- Modifying a non-Federal or non-USACE dam = USACE project
 - Meet USACE requirements for authorization
 - Assess risks
 - Study cost and cost-shared
 - Achieve Tolerable Risk Guidelines
 - Designed to Federal Guidelines
 - USACE standards
 - USACE doesn't design to the state standard



Questions?

Type questions in the chat box.
We will answer as many
as time allows.

This webinar will be posted to the
Planning Community Toolbox:
<http://www.corpsplanning.us>



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