CIVIL WORKS ASSET CONDITION

AGENDA:

- 1. How we assess condition
- 2. How we use condition
- 3. Risk Analysis/Assessment

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Operational Condition Assessment (OCA)

An OCA is the process of determining a condition rating for the components being assessed at a facility.

✓ Will be conducted on an interval of **NO GREATER THAN EVERY FIVE YEARS.**

Steps:

- 1. A qualified team is assembled.
- 2. A facility model is built or updated to appropriately represent the facility's systems and their components.
- 3. The OCA is conducted using the appropriate rating scales.



EP 1130-2-553 RATING SCALES

OCA Rating	Index Value	Descriptor	Physical Condition	Performance	Likelihood of Failure
Α	9	Excellent	No signs of degradation and recently put into service.	No performance issues and was recently put into service.	Extremely unlikely to fail within the next 5 years.
A -	8				
В	7	Good	Minor deficiencies.	No performance issues.	Low likelihood of failure within the next 5 years.
B-	6				·
с	5	Fair	Moderate deficiencies.	Deficiency is beginning to affect component's performance, operational procedures, and/or maintenance requirements	Potential failure mode with a moderate likelihood of failure within the next 5 years.
C-	4				
D	3	Poor	Significant deficiencies affecting a substantial portion or critical feature of the component.	Deficiency increasingly affects component's performance, operational procedures, and/or maintenance requirements.	Potential failure mode with a high likelihood of failure within the next 5 years.
D-	2				
F	1	Failing	Severe deficiencies affecting a substantial or critical feature of the component.	Deficiency substantially affects component's performance, operational procedures, and/or maintenance requirements.	Potential failure mode that could fail imminently.
CF	0	Completely Failed	Due to degradation, component has failed and does not perform its intended function.	Component has failed or does not perform its intended function.	Component is failed.
U	n/a	Unratable	Unratable.	Unratable.	Unratable.

OCA - A Portfolio Perspective



Operational Risk assessment

- Operational Risk Assessment (ORA) starts with condition.
- A-F ratings are given to facility assets such as lock or dam gates, gate operating machinery, lock walls, dam piers, etc.
- Example OCA Rating:

OCA:	Lii	ndy Claiborne Boggs	5	Assessment Team:	
	INAV MVD>Vicksburg>Lindy Claiborn		ne Boggs	Dziuk Kevin; Tomlinson Andrew;	
Report Date		Last Assesment Creation:	10/16/20 18		
9/2/2022		Last Update:	10/30/20 18		
Dam Gates and Operating Machinery					
	Dam Gate Structures				
	Tainter Gate 1				
		Horizontal Girders (Corrosion)	D	The girder bracing and diaphragm bracing members below the middle girder are in critical condition due to the severe section loss and severe knife edging. The girder bracing and diaphragm bracing are in poor condition above the middle girder. Some of the bracing members have failed due to damage by debris, others are near failure due to significant loss of section.	
				Component deficiencies related to corrosion have advanced to the point that function may be impaired and the HSS program manager states that the gates condition warrants a structural review. At this point the HSS PM has determined that a deficiency is significant such that a clear mode of failure can be substantiated.	



Operational risk assessment

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Component reliability models in use today were parameterized using expert judgment.

 More objective and data driven estimates are needed that reflect the agency's experience managing its assets.

• Condition ratings translate into probabilities of failure that correspond to the asset's degradation life cycle.









Problem

IMPROVING COMPONENT PROBABILITY OF FAILURE ESTIMATION





SYSTEM RELIABILITY



- Consensus about the mission performance requirements for assets.
- Consensus about desired performance of assets over a period of time (i.e., one year) which is relevant to communicate to stakeholders...and useful to maintenance managers to craft a maintenance strategy.
- Consensus about "on demand" performance requirement for assets.







Questions?