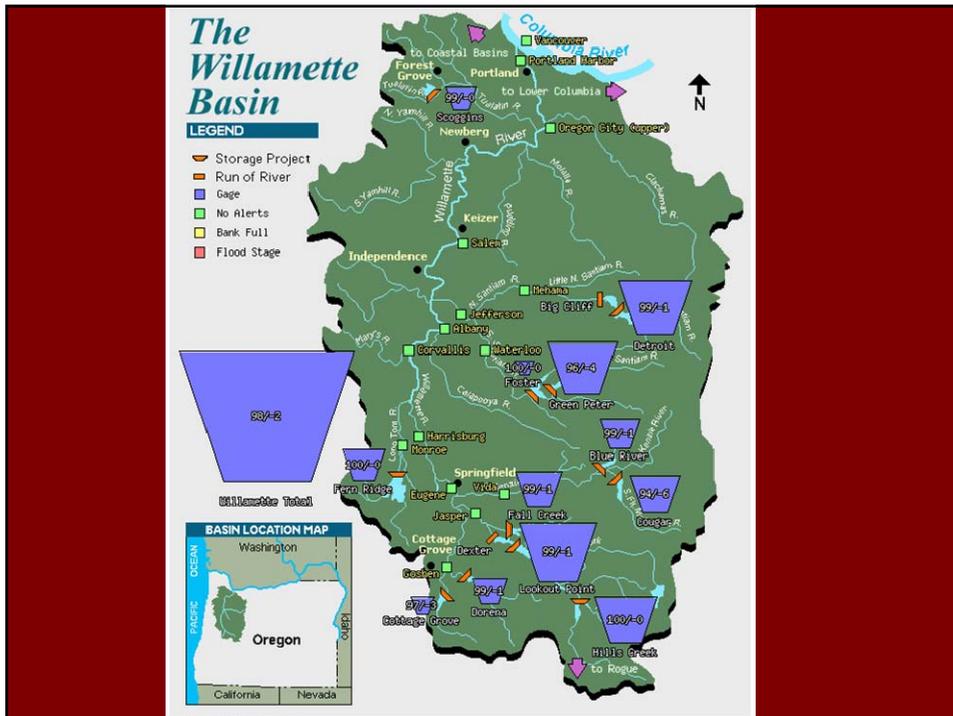


Flood Risk Management (FRM) and Dam Safety (DS) from an OPM's Perspective



History

- 1936- Congress passes Flood Control Act authorizing Corps to survey flood problems in Willamette Basin
- 1938- Flood Control Act provides for first seven storage reservoirs



1894 flood, downtown Portland, Willamette River

History

- 1940- Corps begins construction of Fern Ridge and Cottage Grove dams
- 1950 and 1962 Flood Control Acts authorize additional structures
- 1969- 13th dam is completed at Hills Creek



Construction of Dexter Dam 1954

Authorized Purposes

- Flood Risk Management
- Hydropower
- Navigation
- Irrigation
- Recreation
- Fish & Wildlife
- Water Quality
- M&I Water Supply

Assets

- System approach
- 130 data & control points
- 13 dams and reservoirs
(11 storage and 2 re-regulation dams)
- 1,702,230 total acre-feet flood storage
- 35,703 total acres of water surface area
- 23,514 total acres of land surface area
- 294 total shoreline miles
- 150 professional team members

Flood Risk Management

- Pass / Fail – no “degrees of success”
- Events - dramatic & painful
- Dynamic context
- Scrutiny / accountability / liability is intense
- Operating personnel & facilities must be ready

Normal Operations Can Quickly Become Emergencies



2008 Cold & Snow at
Lookout Point Dam Near
Lowell, OR

Normal Operations Can Quickly Become Emergencies



1996 Willamette River
Near Corvallis, OR – Rain
on Snow Event

Normal Operations Can Quickly Become Emergencies



2006 New Year's Events,
Long Tom River Near
Eugene, OR

Normal Operations Can Quickly Become Emergencies



Flood Risk Management (FRM) Dam Safety (DS)

- **FRM Activities: Maintain Readiness**
 - Normal Day to Day, Scheduled Activities
- **Dam Safety Response to events:**
 - Natural Disasters
 - Structural Problems
 - Security Events



FRM – Maintain Readiness

You Need:

- ✓ Organization (structure & functions)
- ✓ Knowledge
- ✓ Resources
 - ✓ Personnel
 - ✓ Funding
 - ✓ Tools
- ✓ Plans & budget
- ✓ Management systems

FRM – Maintain Readiness

Organization (structure & functions)

- Operations – monitor
- Maintenance – maintain/repair
- Technical – QA/monitor/support
- Dam Safety – inspect/tech authority/data analysis
- Water Management – forecast/orders
- PAO – information/outreach/risk commo
- Readiness/EM – liaison/situational support
- Operations Division & Executive Office – overhead support/manage risks

FRM - Good Organizations:

- **Efficient/Effective**
- **Responsive**
- **Adaptive/Innovative**
- **Reliable**
- **Professional**

FRM Organization - Challenges

- **Shortfall - FTE'S**
- **Resistance to Change**
- **Lack of Exposure / Development**
- **Process Inefficiencies**

FRM – Maintain Readiness

Knowledge – Must Have

- Facilities
 - Specifications / Capacities
 - Operating Parameters
 - Maintenance Histories
 - Contingency Operations
 - Design Flaws
 - Equipment Condition
 - Weaknesses, PMF and Risks
 - Mitigation Strategies
- Personnel
 - Capabilities & liabilities
 - Contingency support

FRM - Personnel



FRM Personnel – OPM's Responsibilities

- **Recruitment/Selection**
 - Permanent
 - Co-Op/Interns/STEP
 - Annuitants
 - Contractors
- **Lead/Motivate/Develop/Retain Staff**
- **Transfer of Knowledge and Skills by...**

FRM Personnel Training and Development

- **Formal**
 - Training Program
 - » In-House
 - » Web-Based
 - » Developmental Assignments
 - » PROSPECT, USDA, Etc.
 - PDT'S
- **Informal**
 - OJT
 - Workshops
 - Mentoring



FRM Personnel Challenges

- Aging Workforce
- Succession
- Hiring Processes
- Retain Trained and Knowledgeable People
- Career Path
- Workload “Peaks”



FRM Funding



FRM Funding Process

Budget Submittal:

- Routine Operations & Maintenance - CMMS
- Non-Routine Maintenance

Activities

Identify Non-Routine Work

From:

- Annual & Periodic Inspection Reports and Recommended Actions
- Condition Indices
- Daily Observations
- Risk Evaluations, Models



FRM – Funding Process

- Much Non-Routine Work Not Funded - Triage
- Routine Work Under-Funded
- Budget Process Effort
- Political Climate
- Dist/Div UFR/CI Prioritization Systems
- HQ DSAC Process



FRM - Budget Execution

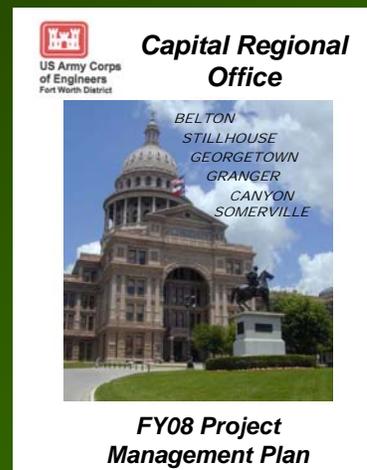


FRM - Budget Execution

- PgDT
 - PgMP- Overall Guidance for PMP Development

- PDT
 - PMP – Project Specific Plan
 - Deliverables
 - » Identify Work to be Accomplished
 - Timeline
 - Acquisition Plan
 - » On-Site Labor
 - » Contracts
 - » - Purchase Orders
 - » -IDIQ
 - » -MATOC
 - » -RFP, RFB
 - » -Design-Build
 - Trickle Down Packages

- Funds Received, Implement PMP



FRM - Budget Execution

Little River Project Office
Appendix C - Timeline for the Execution of Deliverables - FY07

* Budget Execution may be constrained by CRA's

	FY06 4th Quarter			FY07 1st Quarter			FY07 2nd Quarter			FY07 3rd Quarter			FY07 4th Quarter		
	Jul 06	Aug 06	Sep 06	Oct 06	Nov 06	Dec 06	Jan 07	Feb 07	Mar 07	Apr 07	May 07	Jun 07	Jul 07	Aug 07	Sep 07
Planning and Quantifying for FY07 Funded Non-Routine Maintenance Packages															
Deliverable 1 Routine Project Operations at all LRPO Lakes															
Deliverable 2 Routine Project Maintenance at all LRPO Lakes															
Deliverable 3 Repair spillway head-cutting, Canyon FY06 carry over, 240 Days, 1.9 million, MATOC															
Deliverable 4 De-water stilling basin/repair concrete Canyon FY06 carry over, 120 Days, 500K, MATOC															
Deliverable 5 *Repair Friendship Park Road, Granger FY06 carry over, 60 Days, 100K, RA Contract															
Deliverable 6 Repair outlet works roof, Belton 300K, 90 Days, RA Contract															
Deliverable 7 Replace piezometers, Belton 150K, 120 Days, Corps Core Drill team															
Deliverable 8 Repair air vents/service gates in tower, Stillhouse 225K, 120 Days, IDIQ-Task Order															
Deliverable 9 Repair/Replace emergency and service gate seals, Georgetown, 300K, 120 Days, IDIQ-Task Order															
Deliverable 10 De-water stilling basin/Periodic Insp, Georgetown 103K, 45 Days, IDIQ-Task Order															
Deliverable 11 De-water stilling basin/Periodic Insp, Granger 103K, 45 Days, IDIQ-Task Order															

FRM - Budget Execution

Challenges:

- CRA'S
- Software (P2)
- Re-Programming Limits
- Lack of Repetitive Contracts (IDIQ, Consolidated Services Contract)
- Lack of Authority
 - KO Warrant
 - Ordering Officer Authority

FRM Information Management



FRM Information Management

Automated Information System

- Routine/Scheduled PMI
 - Documents PMI Results
- Imagery
 - Photos
 - GIS
 - Scanned As-Builts
- Annual/Periodic Inspection Results/Recommendations
- Historical Information
 - Dates
 - Costs
 - Vendors
 - Supplies/Materials
 - Lessons Learned
 - Archived Information.



Equipment Master List - Little River Project - Belton Lake

ID	Work Item	Code	Location	Assigned	Last Price	Price Per
1	PRE-START MAINTENANCE	04	OUTLET WORKS	06/0000	100000	
2	EMERGENCY GENERATION	04	OUTLET WORKS	06/0000	100000	
3	SERVICE DATE NO. 1	04	OUTLET WORKS	06/0000	06/0000	
4	SERVICE DATE NO. 2	04	OUTLET WORKS	06/0000	06/0000	
5	SERVICE DATE NO. 3	04	OUTLET WORKS	06/0000	06/0000	
6	VEHICLE INSPECTION	04	EMERGENCY AND RELATED OFFICE SPACE	06/0000	100000	
7	File Performance	04	Belton Office	06/0000	100000	
8	Prepares	04	WELTON Dam	06/0000	06/0000	
9	Welding system	04	Belton office	11/0000	11/0000	
10	Revised equipment	04	Belton office	07/0000	07/0000	
11	Revised equipment	04	Belton Office	06/0000	06/0000	
12	PRE OFFICE GENERATION	04	BEALTON OFFICE	06/0000	100000	

FRM Information Management Challenges

FEED ME!

- Software – “One
- Program
- Tool Field Benefits for
- Lack of

A green cartoon monster with horns and a speech bubble saying "FEED ME!". The monster is depicted with a fierce expression, yellow eyes, and a wide, toothy grin. It has a pink speech bubble coming from its mouth. The background is a dark green gradient.

FRM – Summary

You Need:

- ✓ Organization (structure & function)
- ✓ Knowledge
- ✓ Personnel
- ✓ Funding
- ✓ Ability to Execute
- ✓ Information Management

A photograph of a large, dark, funnel-shaped structure, possibly a component of a ship's hull or a large industrial part, being worked on in a factory or workshop. Several people are visible around the base of the structure, and the floor is covered with various tools and materials.

Dam Safety



Dam Safety Type of Events:

- **Natural Events**



Dam Safety Type of Events:

- Natural Events
- Structural Events



Dam Safety Type of Events:

- Natural Events
- Structural Events
- Physical Security Events



Managing Dam Safety Events

OPM Responsibilities Related to Natural, Structural or Physical Security Events

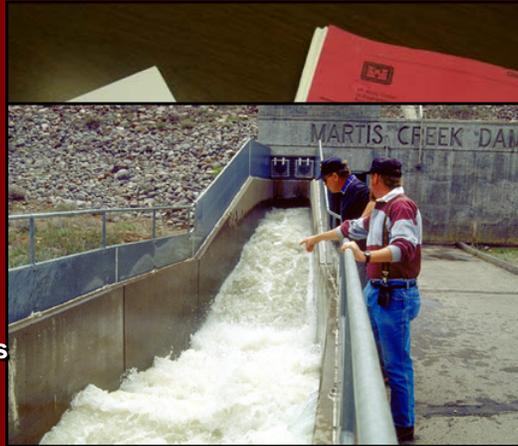


Managing Dam Safety Events - OPM's Responsibilities

- ✓ **Plan/Prepare (Pre-Event)**
- ✓ **Respond (During Event)**
- ✓ **Recover (After the Event)**

Managing Dam Safety Events Plan /Prepare

- **Plans - Flood Emergency/Physical Security**
 - Update Annually
 - Readily Available
 - Understood by Staff
- **Training**
 - OJT
 - Workshops / drills
 - ICS
 - Work w/ water managers



Managing Dam Safety Events Plan /Prepare

- **Communication Equipment**
 - Satellite Phones
- **Specialized Equipment**
 - Emergency Generators
 - Fuel Storage
- **Contingency Contracts**
 - Materials
 - Personnel Transport
 - Labor



Managing Dam Safety Events **Plan/Prepare**

- **Sustainability**
 - Utilities
 - Food
 - Drinking Water
 - Shelter



Use Lessons Learned From Other Events in Your Planning Efforts

Managing Dam Safety Events **Plan/Prepare**

- **Upgrade Physical Security Features**
 - Cameras
 - Hardened Gates
 - Access Control



Managing Dam Safety Events

Plan/Prepare

FIELD IS FIRST LINE OF DEFENSE

- Diligent Observation
- Disciplined Monitoring
- Understand Anomalies
- Empower team
- Use Systems Approach/
Manage Data
- Maintain Good
Communication With
Technical Support / Dam
Safety Officer
- Maintain External Liaisons



Managing Dam Safety Events

Respond

ICS – Clear Roles / Functions



Managing Dam Safety Events

Respond

- Secure Facility
 - In-House
 - Contracted / LECA



Managing Dam Safety Events

Respond

- Employee Accountability & Visitor Safety
- Initial Notifications, Request Outside Assistance – "IT TAKES A TEAM"
- Imp
- Acc
- Insp
- Clo

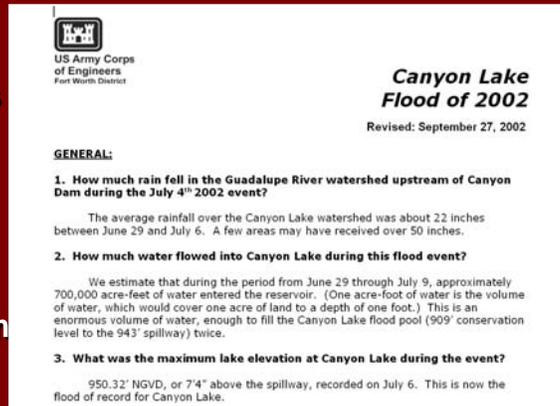


Managing Dam Safety Events

Respond

- Information Management is Critical
 - Risk Communications

- In-House
- Inter-Agency
- Political Contacts
- NGO's
- Media
- Public
- FAQ Sheet
- Updated Daily (or more)



Managing Dam Safety Events

Respond

Document the Event Well:

- Sequence
- Specific Data
- Photos
- GIS



Managing Dam Safety Events

Respond

Working with District, Local & State Agencies:

- **Good relationships in advance!**
- **Know roles / functions (joint preparedness)!**
- **Advance work builds trust, allows action!**

Managing Dam Safety Events

Respond

Watch out for signs of stress:

- **Think long-term**
- **Take care of people**
- **Watch for signs of fatigue**
- **Mitigate stress (CISM)**
- **Bring-in resources as necessary – distress breeds errors & can produce more failure**

Managing Dam Safety Events **Respond**



Maintain focus - but be compassionate and patient. Emotions run high when emergencies affect them.

Managing Dam Safety Events **Recover**

Recovery is a Long Road

- **Assess/Report Damage**
- **Prioritize**
- **Obtain Funds**



Managing Dam Safety Events Recover

Recovery is a Long Road

- Assess/Report Damage
- Prioritize
- Obtain Funds
- Perform Work
- Assist Others
- May Take Years



2007 Repair Work from 2002 Flood Damage – Canyon Spillway

Managing Dam Safety Events Recover

Document Lessons Learned:

- Project Review Report
- Presentations
- Update Your Flood Emergency Plan of things that need changing
- Implement changes and SOPS from lesson learned, i.e. barricades, generators, communications, etc.

Dam Safety - Summary

- Natural Events
- Structural Events
- Physical Security Events

Responsibilities as an OPM

- ✓ Plan/Prepare (Pre-Event)
- ✓ Respond (During Event)
- ✓ Recover (After the Event)

FRM/DS – Final Thought

Reality – Not a Perfect World

There will never be enough:

- Time
- Money
- Manpower to accomplish everything

An OPM's responsibility is to realize this and to use all available resources effectively in order to maintain readiness of FRM Facilities and meet the challenges of the Dam Safety Program.

Questions?

