



US Army Corps
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Northwestern Division



Libby Dam After Action Review

Public Meeting
November 6, 2006



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AGENDA



- Introduction
- After Action Review
- 2006 Libby Dam Operations (Summary / Lessons Learned)
- 2006 Emergency Response (Summary / Lessons Learned)
- 2006 Communications (Summary / Lessons Learned)
- Planning for 2007 Operations
- Question and Answer Session
- Closing Comments



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Background



- **September 6, 2006 – Part One**
 - 2006 Libby Dam Operations
 - Emergency Flood Fight Operations
- **Today – Part Two**
 - After Action Review (AAR)
 - Planning for 2007 Operations



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After Action Review

- Corps process to document flood event, describe actions taken, and identify lessons learned
- Large team from Libby project, Seattle District and Northwestern Division
- Independent Technical Review
- Federal Agencies Review
- Document posted on Web under: Corps Topics – Kootenai River Spring Flood Event
www.nws.usace.army.mil



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Libby Dam Operations:



Summary / Lessons Learned (1 of 3)

- **2006 Operations**

- Operated to provide local and system flood damage reduction, sturgeon flows, and refill for salmon flow augmentation

- **AAR Lessons Learned**

- Adhering to VARQ Refill Guidance with fish flows in 2006 would have resulted in no spill
- Adhering to VARQ Refill Guidance in 2002-2005 would have resulted in not refilling the reservoir
- Conclusion:
 - Need ability to make adjustments
 - Need to improve risk management



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Libby Dam Operations:



Summary / Lessons Learned (2 of 3)

- **VARQ Modification Process**
 - Forecast tools used to assess operations
- **AAR Lessons Learned**
 - Corps working with River Forecast Center on their review of forecasting procedures
 - Corps will review risk assessment process to improve information available for in-season operational changes



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Libby Dam Operations:



Summary / Lessons Learned (3 of 3)

- **Information Obtained from 2006 Event**
 - 2006 provides information on conditions of levees, fishery impacts, and risks to flood damage reduction and refill probability
- **AAR Lessons Learned**
 - Assess ability to meet multiple objectives under VARQ (flood damage reduction, ESA, etc.)
 - Review VARQ objectives with USFWS & NOAA
 - Assess 2006 information in making long-term decision on UCEIS



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Emergency Response: Summary / Lessons Learned



- **2006 Action**
 - \$1.4 Million in federal direct and technical assistance
- **AAR Lessons Learned**
 - Effective flood damage reduction depends on system approach to Libby Dam operations, non-federal levees, effective disaster planning and emergency response.
 - Evaluating Boundary County levees: current conditions, maintenance recommendations, eligibility status in Corps levee program.
 - Provide technical information to National Weather Service for review of the Bonners Ferry flood stage.



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Communications: Summary / Lessons Learned



- **2006 Event**
 - Variety of media used – many calls into Libby Dam
- **AAR Lessons Learned**
 - Room for improvement in both internal and public communication
 - Provide on-site help to respond to inquiries
 - Review internal process to ensure up-to-date information available at all levels



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AAR

Next Steps



- AAR Report completed Nov 3
- Submitting to Corps HQ
 - Seattle District Commander's Assessment
 - Northwestern Division Commander's Assessment
- Input from today's meeting and review of AAR received by Nov 10 will be considered in transmittal to Corps HQ



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Planning for 2007 Operations (1 of 6)



- **Key Principles:**

- Public life safety is always the first priority
- Libby operations: we have been trying to satisfy too many competing/conflicting demands at the same time
- Use conservative approach: comprehensive risk assessment, and communication of risk
- Use system approach to integrate Libby Dam operations, non-federal levees, effective disaster planning and emergency response for most effective flood damage reduction (local and system)
- VARQ: need complete review, ensure it has provisions for meeting all competing requirements



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Planning for 2007 Operations (2 of 6)



- **What are the options?**
 - Standard Flood Control
 - VARQ
- **What factors are considered in evaluating these options?**
 - Public Life Safety
 - Apply AAR Lessons Learned
 - Risk Management for Meeting Multiple Purposes (Flood Damage Reduction, ESA/NEPA, CWA, etc.)
- **Public Input**
- **Schedule**
- **National Weather Service – Bonners Ferry Flood Stage Assessment**



- **Options:**

- **Standard Flood Control**

- Deeper winter drafts in moderate years
 - Less risk of flooding, and increased risk of not refilling reservoir

- **VARQ**

- Less winter reservoir draft in moderate years
 - Provides flood damage reduction, but risks are higher than under standard flood control
 - Reservoir refill improved
 - Need ability to make adjustments



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Planning for 2007 Operations (4 of 6)



- **Factors Considered:**

- **Public Life Safety:**

- Committed to provide public life safety with safe Libby Dam operations
 - Continue to work with community on levee conditions

- **Risk Management:**

- Operation which provides opportunity to make adjustments in case of eroding levee conditions, system flood control, listed species, etc.
 - Corps and River Forecast Center review of forecasting tools
 - Improved procedures to make in-season changes
 - Improved communications



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Planning for 2007 Operations (5 of 6)



- **Factors Considered, cont.**

- **NEPA/ESA**

- NEPA documentation - 2002 Environmental Assessment
 - Coordinate anticipated effects on listed sturgeon and salmon with NOAA and USFWS

- **Public Input:**

- Today's meeting /accept input through November 17
 - Coordinate with States, Tribes, Resource Agencies
 - Coordinate with Canada under Columbia River Treaty



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Planning for 2007 Operations (6 of 6)



- **Schedule**

- Public Input (Nov 17)
- Assess risk management procedures
- Assess NEPA documentation
- Coordinate with USFWS & NOAA
- Decision on variable end-of-December draft and 2007 operations
- Implement 2007 flood control operations (Jan 1)
- Public meeting on 2007 operations (Jan-Feb)

National Weather Service

- NWS Forecast Offices in Spokane and Missoula
 - Work with Local and State Officials
 - Issue local flood products
- Northwest River Forecast Center in Portland OR
 - Works with Federal Water Management Agencies
 - Produces Guidance Forecasts

National Weather Service Forecast Offices

- NWS Spokane issues Flood Warnings for two Rivers in Boundary County, Idaho
 - Kootenai River at Bonners Ferry
 - Moyie River at Eastport
- NWS Missoula issues Flood Warnings for two rivers in Lincoln County, Montana
 - Yaak River near Troy
 - Fisher River near Libby

Flood Stage

- Flood Stage is defined by the NWS as:
 - An established gage height for a given location above which a rise in water surface level begins to create a hazard to lives, property, or commerce.
- Determining the Flood Stages is done by the NWS in coordination with Local, State, and Federal agencies as well as private interests and the local public.

The Kootenai River near Libby

- Before Libby Dam (pre-1972)
 - Yearly peak flows of 40,000 to 120,000 cfs.
 - There was a flood stage for this point.
- After Libby Dam (1972 - 2005)
 - Yearly peak flows up to 41,000 cfs
 - A flood stage was not needed.
- Flood stage was set for the Kootenai River near Libby MT due to events of June 2006
 - 27.5 ft
 - 48,000 cfs

The Kootenai River at Bonners Ferry

- The Kootenai River has a long history of flooding in the Bonners Ferry area.
- In May of 1961 the river crested at 1780.13 feet.
- Between 1972 and 2005 there was some flooding.
- The river crested at 1766.63 feet on June 18, 2006.

The Kootenai River at Bonners Ferry

- Flood stage was lowered to 1764.0 feet in 1996.
- At 1764.0 river flooding begins in agricultural lands along the river.
- NWS Spokane begins issuing River Statements with forecasts of water levels of 1757.0 feet or higher.
- Seepage into agricultural lands begins at levels below 1764.0 feet, somewhere near 1757.0 feet

The Kootenai River at Bonners Ferry

- Information is being gathered and evaluated from the June 2006 flood.
 - City
 - County
 - US Army Corps of Engineers
- Letter from The City of Bonners Ferry and Boundary County received earlier today
- Proposal to Lower the Flood Stage to 1762.0 feet
- Action by 12/15/06



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Questions and Answers



- After the break