Preparing for Extraordinary Flood Flow on the Green River in 2009

Presentation to the Advisory Committee
November 19, 2009

Protecting public safety, the regional economy and critical infrastructure.
Presentation Overview

- Overview of Howard Hanson Dam Situation
- Technical Analyses to Develop Temporary Containment Options
- Implementation of Temporary Containment Structures
- FCD Support for Planning, Outreach, and Communications
Howard A. Hanson Dam is a U.S. Army Corps of Engineers flood control dam

Designed, built, operated and maintained by the U.S. Army Corps of Engineers (operational since 1962)

Primary purposes are flood control in the winter, fish enhancement in the summer, and water supply
Lower Green River Valley
Technical Analyses: Identifying Emergency Measures for the Lower Valley

- 2007 - Flood Study and Model
- May 2009 - Inundation Maps (Corps)
- June 2009 - Levee overtopping maps
- August 2009 - Impacts of levee raising on flood elevations
- September 2009 - Levee Stability Geotechnical Analyses
- Active BTC Participation throughout
Maps Reflect Major Assumptions

- Inflow to Reservoir
- Performance of Dam
- Local Inflow (below dam)
- Performance of Levee System
Forecast Dilemma

Confidence

Lead Time
Flood Risk Reduction Actions

- HHD Grout Curtain – USACE
- Levee Raising and Pump Stations ($8.4M)
  - FCD
  - Cities
  - USACE
- Outreach and Communications
- Regional Emergency Response Planning Efforts
- Expert Review of Green River Strategy
Grouting Operations
- Boulders
- Drill casing
- Primary Grout
- Secondary Grout
- Ancient Silt layer

Landslide Materials

Bedrock

Lower Aquifer

USACE Grout Curtain Construction

Slide Courtesy USACE, Seattle District
Examples of Overtopping

Mason Thorson Extension
Middle Fork Snoqualmie River
Wednesday, January 7, 2009

SR 202 Overtopping and Substantial Damage
Green River Levee Raising

NOTES:

1. ALL BULK BAGS SHALL BE FILLED TO MINIMUM 3' HIGH UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. SEE LOCATION MAPS.

2. EXACT PLACEMENT OF BULK BAGS SHALL BE AS DIRECTED IN THE FIELD BY THE ENGINEER.

3. EDGE OF POLY UNDERNEATH BOTTOM BULK BAG SHALL NOT BE MORE THAN 12" FROM OUTSIDE FACE OF THE BAG, AS SHOWN.
Black River Pump Station

- Outlet channel containment
- Electrical generators
- Fuel
- Debris control
- Back-up pumps
Outreach and Planning

- Direct mailings to 170,000 addresses
- Extensive media coverage
- Public meetings, community groups, businesses
- Support for regional preparedness planning

Green River Flooding
Are You Ready?
Prepare now for a higher risk of flooding

Prepared
1. Make an emergency plan for your family, pets or livestock.
2. Assemble an emergency kit.
3. Buy flood insurance now – it takes 30 days to take effect. www.floodsmart.gov
4. Get a radio and keep fresh batteries.

In the Event of a Flood
1. Monitor area news.
2. Move vehicles and equipment to higher ground.
3. Do not walk or drive through standing water or closed roads.
4. Listen for alerts about evacuation notices and routes. Heed evacuation instructions.
5. Bring medications and supplies with you.
6. Relocate animals and livestock, if needed.

www.kingcounty.gov/floodplans
Expert Review

- Panel of 8 external experts
  - Licensed Engineers, geotechnical experts, floodplain management experts
- Review Green River Flood Risk Reduction Strategy in light of Howard Hanson Dam operational changes
- Recommendations due end of November