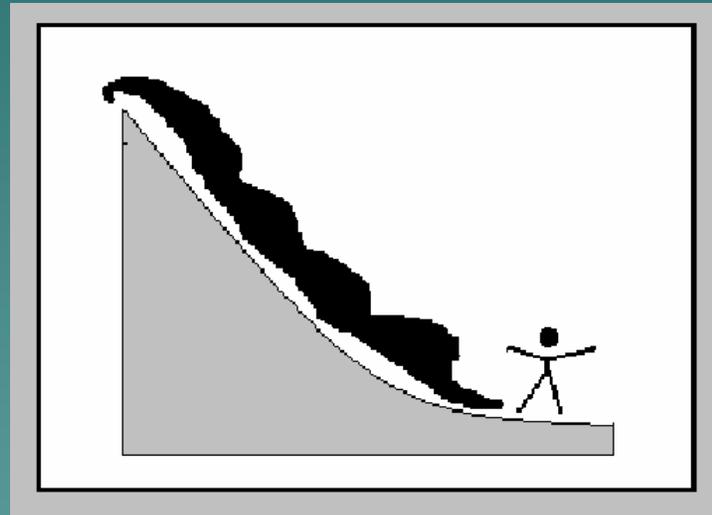


# Practical Improvements to Emergency Action Plans



By Terri Loun  
Southern California Edison  
January 2009

# Introduction

What is Southern California Edison doing?

- Research
- Analyses
- Relationships
- New Tools



# EAP Improvement Program Development

- ◆ Reviewed Existing Emergency Plans
  - Corporate Emergency Response and Recovery Plan
  - Department Plans
  - Site Emergency Plans
  - Facility Emergency Plans
  - Emergency Action Plans
  - County Emergency Operations Plans



# EAP Improvement Program Development

- ◆ Performed Field Reconnaissance to Determine Extent of Potential Inundation
- ◆ Attended ASDSO EAP Training
- ◆ Participated in Joint-agency Emergency Preparedness Development Workshops for Lake Isabella Dam
- ◆ Meetings w/Offices of Emergency Services
- ◆ Visited BC Hydro, Vancouver
- ◆ Explored Other Resources



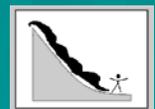
# Other Resources

- ◆ FERC EAP website
- ◆ FEMA website – Dam Safety Program
- ◆ National Weather Service (NOAA) website – Inundation Mapping Interface
- ◆ Natural Resources Conservation Service (USDA) website – Fillable EAP Form



# EAP Improvement Program

- ◆ Risk Assessment Program (In Progress)
  - Seismic Hazard Analyses
  - Potential Failure Mode Analyses
  - Probable Maximum Flood
  - Dambreak Analyses
  - Monitoring Equipment Upgrades
- ◆ Risk Matrix
- ◆ Manage/Mitigate Risks



# EAP Improvements

- ◆ Two versions of each Emergency Action Plan
- ◆ Include Potential Failure Mode Analyses
- ◆ Include Time Estimates of Outflow
- ◆ Add Glossary, Pictures, and Sketch
- ◆ Add Decision-making Tools



# EAP Improvements

- ◆ Two versions of the EAP
  - Internal – Contains confidential information such as Implementation Guidance Document, Dambreak Analysis Summary, PMFA results.
  - External – Contains information important to EMA's such as Inundation Maps, Contact List, Outflows.

*Excludes Critical Energy Infrastructure Information*

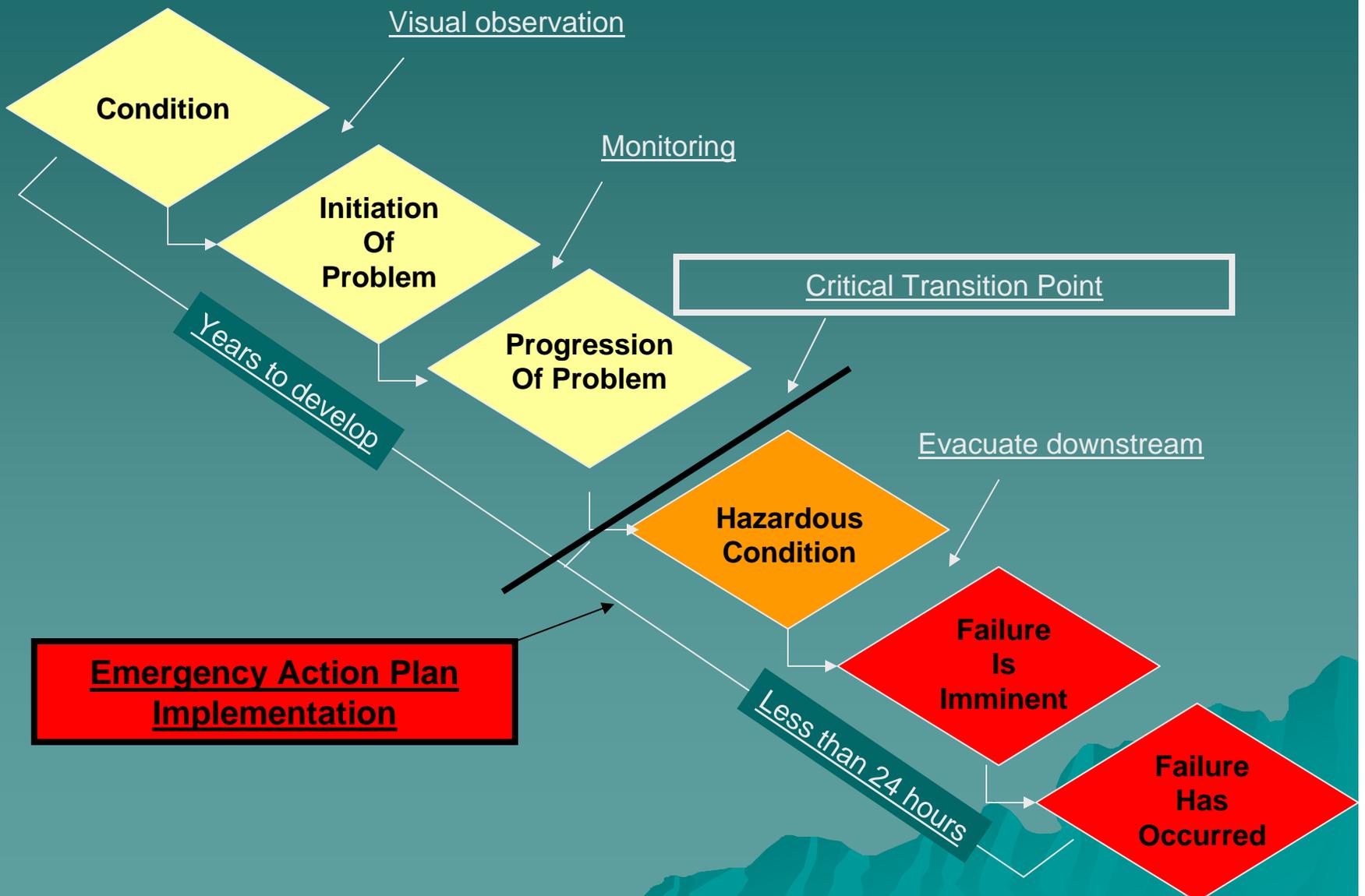


# EAP Improvements

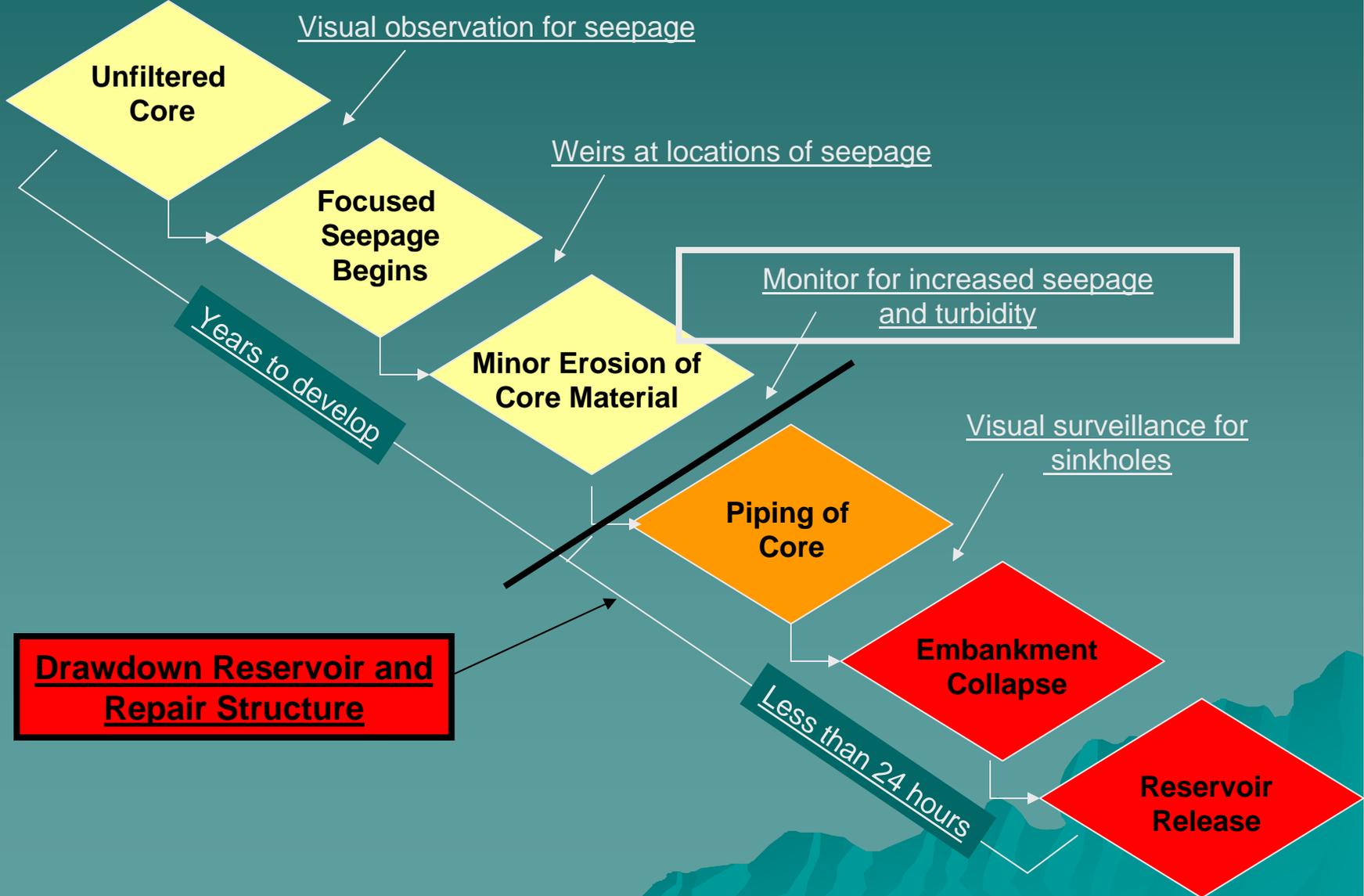
- ◆ Decision-making Tools
  - EAP Implementation
  - Hazardous Condition vs. Imminent Failure
  - Evacuation of the Public
  - Outflow Data
  - Fair Weather vs. Flood Inundation Maps
  - EAP Termination



# Potential Failure Mode



# Piping Failure Example



# Guidance for Determining the Emergency Level

## Example - Piping

Event Level	1 Unusual event	2 Hazardous Condition	3 Failure is Imminent
Action	Call for assistance	Implement EAP, stand-by alert, rapidly drawdown reservoir, repair dam	Evacuate
Notification	SCE Dam Safety Engineers, FERC/State Dam Engineers	EMA's FERC/State Engineers	EMA's FERC/State Engineers
Problem			
PIPING	Small amounts of sediment in seepage or drains	Significant amounts of sediment in seepage, drains. Muddy water.	Sinkholes in dam, vortex in reservoir, or settlement. Significant muddy water.

# EAP Improvements Work in Progress

- Which Inundation Maps Should be Used?  
(Fair Weather or Flood)
- Termination of EAP

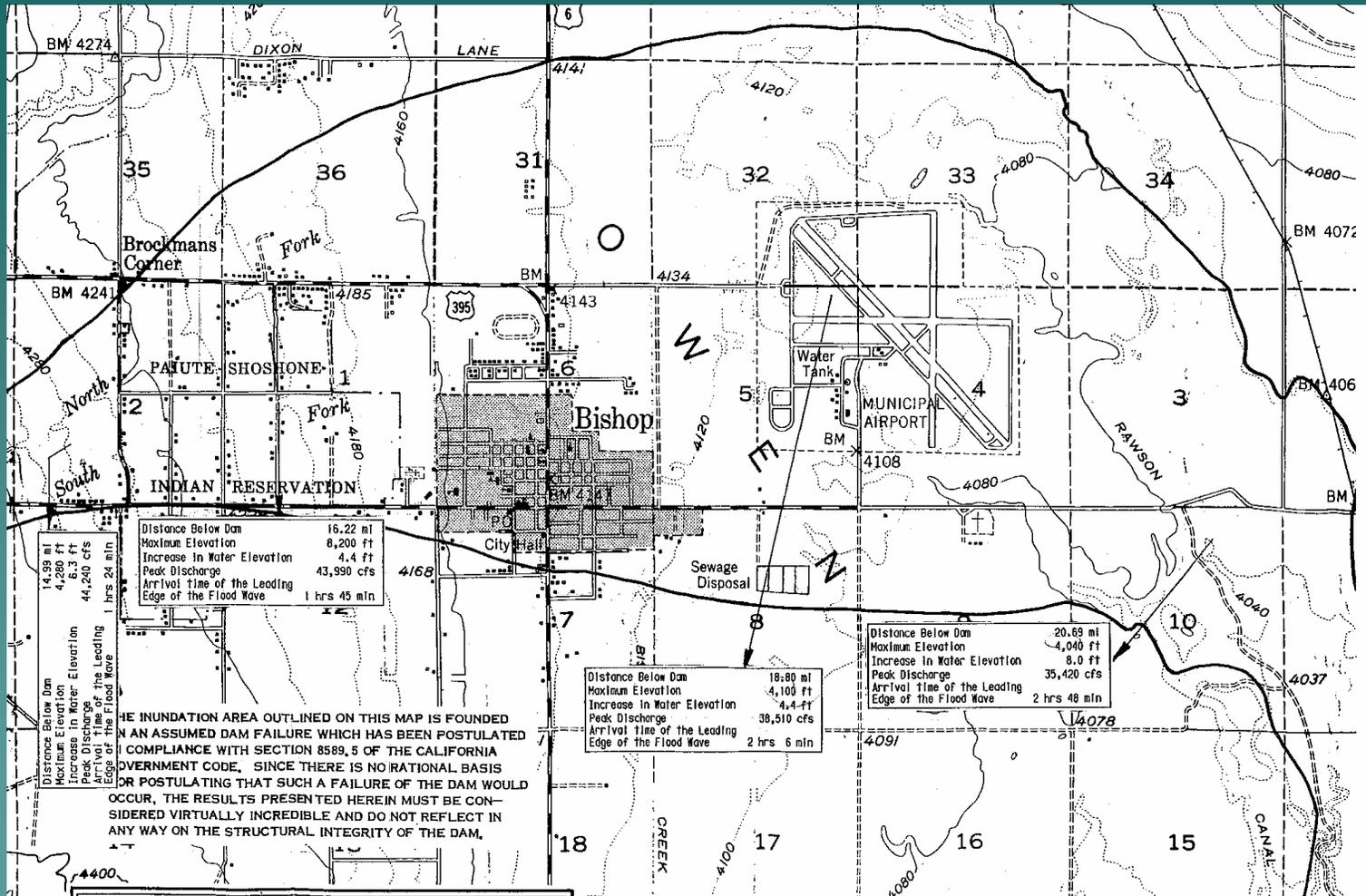


# EAP Improvements

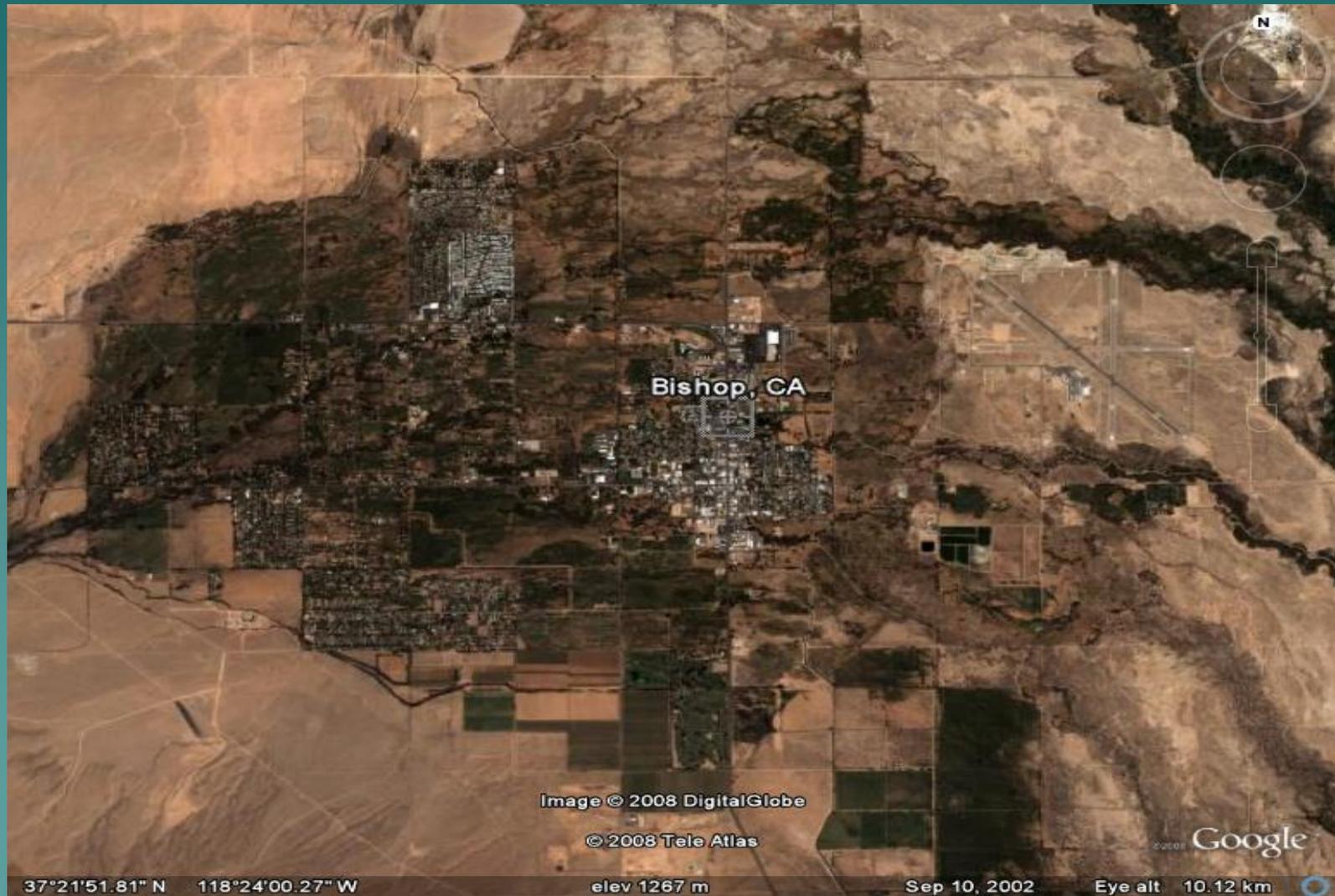
- ◆ GIS-based Inundation maps – Updated base maps



# Bishop 1950's



# Bishop Today



# Emergency Preparedness Training Focus

- ◆ Support Staff
- ◆ Employee and contract personnel working in remote areas
- ◆ Employees and their families living in Company housing
- ◆ Private residents in isolated areas
- ◆ Camper Awareness Program



# Efficient/Reliable Early Warning

- ◆ Reliable Detection Devices
  - Strong Motion Detection, Lake Level Monitoring, Downstream Gaging Stations
- ◆ Sirens at Campgrounds
- ◆ Satellite Phones
- ◆ Strong Working Relationships with Emergency Management Agencies



# Summary

- ◆ EAP's not just another Emergency Plan
- ◆ Value of Potential Failure Mode Analyses
- ◆ Importance of Decision-Making Tools
- ◆ Importance of Accurate Mapping



## Contact:

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## Resources:

### National Weather Service, NOAA

<http://www.weather.gov/ahps/inundation.php>

[http://ahps.srh.noaa.gov/ahps2/inundation/inundation\\_mapping\\_user\\_guide.pdf](http://ahps.srh.noaa.gov/ahps2/inundation/inundation_mapping_user_guide.pdf)

### Nation Resources Conservation Service

[http://directives.sc.egov.usda.gov/M\\_180\\_500\\_F.htm](http://directives.sc.egov.usda.gov/M_180_500_F.htm)

<http://www.nrcs.usda.gov/news/thisweek/2008/091708/EAP%20factsheet%209%2007.pdf>

### FEMA

<http://www.fema.gov/plan/prevent/damfailure/ndsp.shtm>

### U.S. Army Corps of Engineers – Lake Isabella Inundation Map for Bakersfield

<http://www.co.kern.ca.us/ess/LakeIsabellaFloodArea.asp>