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Federal Energy Regulatory Commission



Leaburg-Waltonville Project No. 2496
Information Meeting

Leaburg Community Center
April 24, 2003
7:00 – 9:30 pm

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Meeting Agenda



- Overview of Federal Energy Regulatory Commission (FERC)
- FERC Dam Safety Program
- Clearing of Canal Embankments
- Recreation Plan
- Leaburg Lake Level
- Waltonville Chevrons
- Other Construction Activities

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Written Comments



- Your comments must be in writing and sent to the Commission in order for them to become part of the record, and to be considered by the Commission in making its determinations.
- Put "Project No. 2496" at the top of your letter
- Send your comments to:
Office of the Secretary
FERC, Attn: DHAC – PJ12
888 First Street, N.E.
Washington, DC 20426

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Federal Energy Regulatory Commission



- Independent regulatory commission
- Regulatory Authority – Federal Power Act – Title 18 of Code of Regulations
- Oversees:
 - electric utilities
 - natural gas industry
 - hydroelectric projects
 - oil pipelines

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Hydropower

Licensing

Compliance

Dam Safety

Licensing



- Issues licenses and relicenses for non-federal hydropower projects
- Comprehensive development of the water resource – power generation, environmental resources, recreation
- Coordination of federal & state agencies, organizations, tribes, with public input
- This project received a relicense in March, 1997.

Compliance-Responsibilities



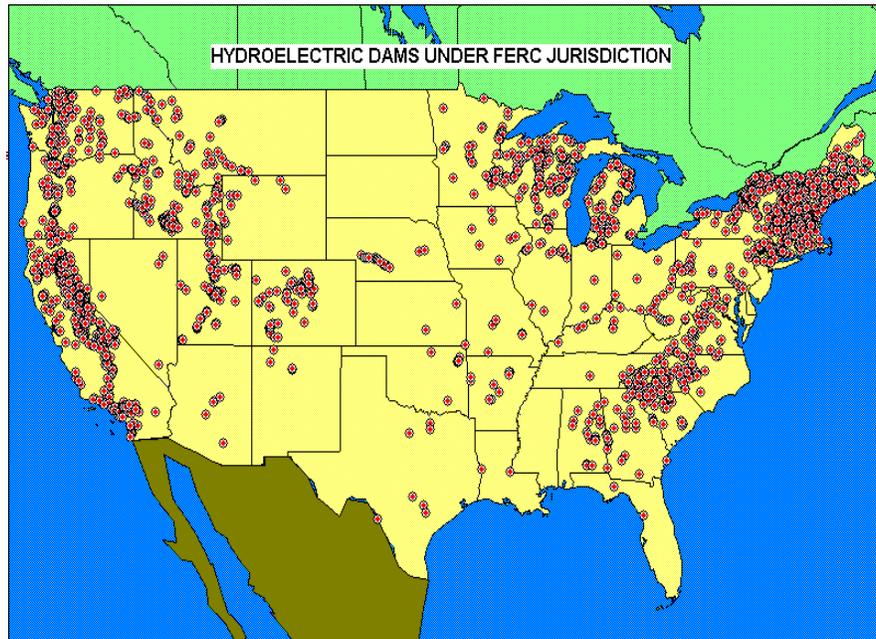
- Post-licensing administration of the license and its terms and conditions
- Amendments of License
- Compliance Actions

Dam Safety-Responsibilities



- 2,600 Dams
- Engineering inspections, evaluations, studies, and modifications
- Oversee over \$1 billion in construction activities

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FERC DAM SAFETY PROGRAM



KEY ELEMENTS



- Design
- Construction
- Operation

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Functions and Responsibilities

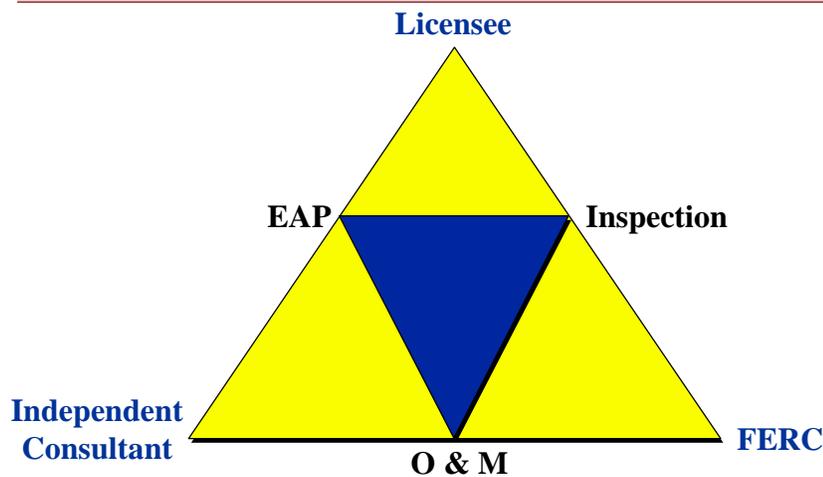
Division of Dam Safety and Inspections
D2SI



- Construction, operation, exemption, special, prelicense, and environmental and public use inspections
- Engineering evaluations and studies
- Independent Consultant Report reviews
- Emergency Action Plan development and testing

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The Dam Safety Triad



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Hazard Potential Classifications



- Low hazard potential
- Significant hazard potential
- High hazard potential

Hazard Potential Classifications



- Low Hazard Potential
 - Dams assigned the Low Hazard Potential classification are those where failure or mis-operation results in no probable loss of human life and low economic losses, low environmental damage, and no significant disruption of lifeline facilities. Losses are principally limited to the owner's property.

Hazard Potential Classifications



- Significant Hazard Potential
 - Dams assigned the Significant Hazard Potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns.

Hazard Potential Classifications



- High Hazard Potential
 - Dam assigned the High Hazard Potential classification are those where failure of mis-operation will probably cause the loss of one or more human lives.

Hazard Potential Posed by Large Canals



- Canals can impound large volumes of water
 - Leaburg canal impounds 477 acre-feet (155 million gallons) of water; more water than Leaburg Lake
- Houses have been constructed immediately downslope of canals
 - At Leaburg homes have been constructed immediately adjacent to the canal embankments

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Embankment height
approximately 60 feet



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Swift 2 Project
Embankment height approximately 75 feet



Well-Established Safety Requirement



Controlling Trees and Vegetation
on Earthen Dams

Bruce A. Tschantz, P. E.
Professor of Civil & Environmental Engineering
University of Tennessee, Knoxville

2001 ASDSO Northeast Regional Technical Seminar
& Animal Penetrations of Earthen Dams

November 15-16, 2001
Westborough, MA



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The establishment and control of
proper vegetation on an earthen dam
is essential to dam maintenance & safety.

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Trees and significant vegetation should be prevented from being established for the following reasons:



1. To allow for proper surveillance and inspection
2. To allow for adequate access for normal and emergency operation and O&M activities
3. To prevent structural damage, embankment voids, toppled trees, concrete wall/slab joint damage, and blocked drainage drains
4. To discourage animal/rodent activity by eliminating food source and habitat
5. To allow adequate flow-carrying capacity of all water conveyance channels

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- * Existing trees should not be allowed to mature on earthen dams, abutment groins, or around water conveyance structures
- * Grass & shallow-rooted native vegetation is the most desirable surface covering for an earthen dam.

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Vegetative Management on Dams



- ❖ Control of Vegetation
 - No deep-rooted plants – use native grasses
 - Visibility of surfaces for inspection
- ❖ Vegetative Control Practices
 - Regular mowing
 - Vegetative thinning and trimming
 - Herbicidal use
 - Deep-rooted plants 2-ft in height or less are sprayed
 - Deep-rooted plants over 2-ft in height are stump cut and sprayed

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Re-Vegetation on Dams



Re-Vegetation Method

- Seed Mix is Specific for Each Dam
- No Deep-Rooted Plants in Seed Mix
- Slopes are Hydroseeded
- Dozer Tracked Over Seeded Areas
- Germination is by Rainfall



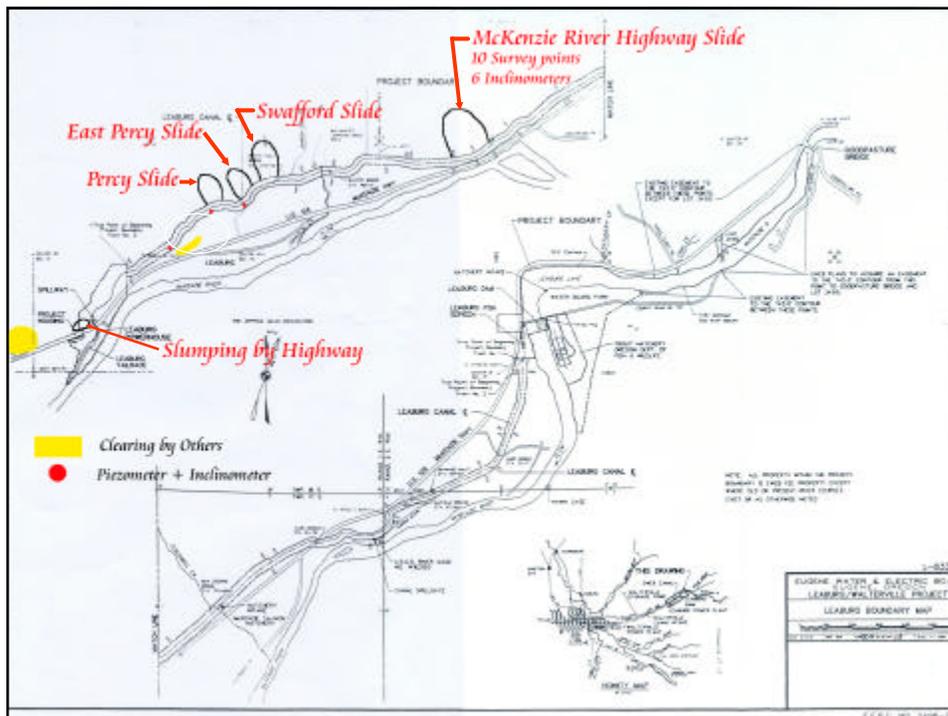
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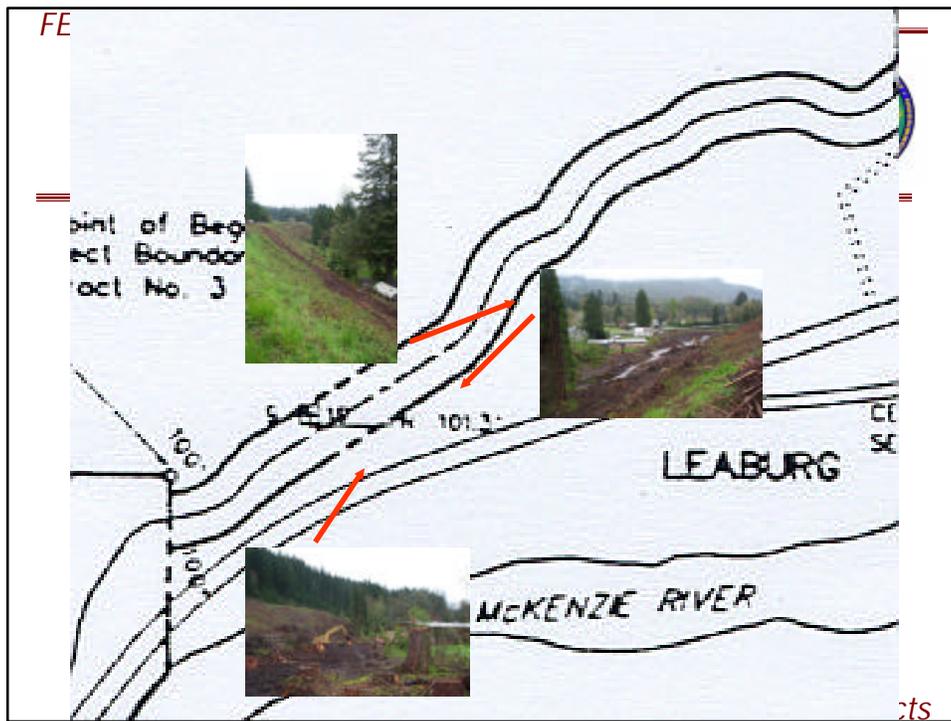
US Bureau of Reclamation Guide for Tree Clearance Zones



- No trees on any part of earth dam embankment
- Maintain 25-ft. zone beyond each contact line (toes and groins)
- Maintain 15-ft. zone beyond outside toes for fills/embankments for open channels (may need to be extended for special seepage or surveillance areas)
- Spillway inlet & outlet channels should be free of vegetative growth
- Maintain 15-ft. zone each side of laterals & drains (especially perforated pipes)
- Maintain 25-ft. zone adjacent to all concrete structures.

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Leaburg Canal



- **Change in Hazard Potential Classification**
 - The Hazard Potential of the Leaburg Canal was revised to High by August 31, 2001 letter.
- **FERC Operation Inspection and follow-up letter**
 - During a September 5, 2001 inspection, the FERC requested that EWEB continue to remove vegetation overgrowth at the Leaburg dam and power canal embankments.

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Leaburg Canal



- **Dam break study**
 - Performed to determine impacts from a hypothetical breach of the canal
- **Maximum Flow**
 - Peak outflow was determined to be 4,400 cfs - approximately 2 million gpm
- **Depth of flow adjacent to canal**
 - The estimated water depth at houses in the immediate vicinity of a hypothetical breach will be on the order of 3 feet, and could be swiftly-moving water

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Leaburg Canal



- A Part 12D Independent Consultant report was submitted in May 2002. The consultant stated:
 - "EWEB crews have removed some brush and trees from the embankment in past years, but there are many sections of the canal embankment that still cannot be observed for slope anomalies or deformities. Large vegetation root growth and eventual decay, and possible upheaval of root balls by windstorms, create openings and voids that can affect the embankment integrity, possibly resulting in leakage areas or areas of slope instability. It is recommended that a sustained program of large brush and tree removal be initiated, or accelerated if one is in place, to clear the downstream slope of trees and brush."

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Environmental Compliance



- Recreation Plan
- Leaburg Lake Level
- Walterville Chevrons