

HERBERT HOOVER DIKE REHABILITATION PROGRAM MANAGEMENT

**GEER Conference
July 2010**

**Jacksonville District
Ingrid Bon, P.E.**



**US Army Corps of Engineers
BUILDING STRONG®**



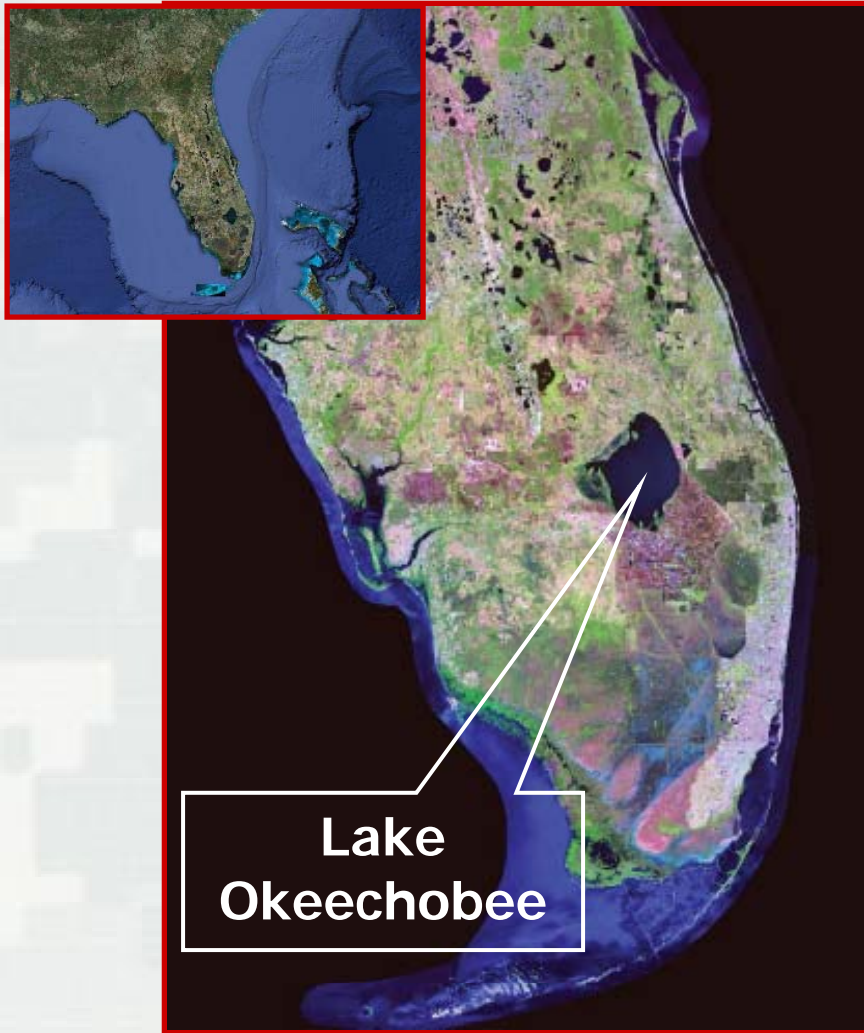
Presentation Agenda

- Herbert Hoover Dike Project Background
- Adaptive Project Management
- Parallel Activities
- Funding Challenges



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Orientation and location of Lake Okeechobee and Herbert Hoover Dike (HHD)

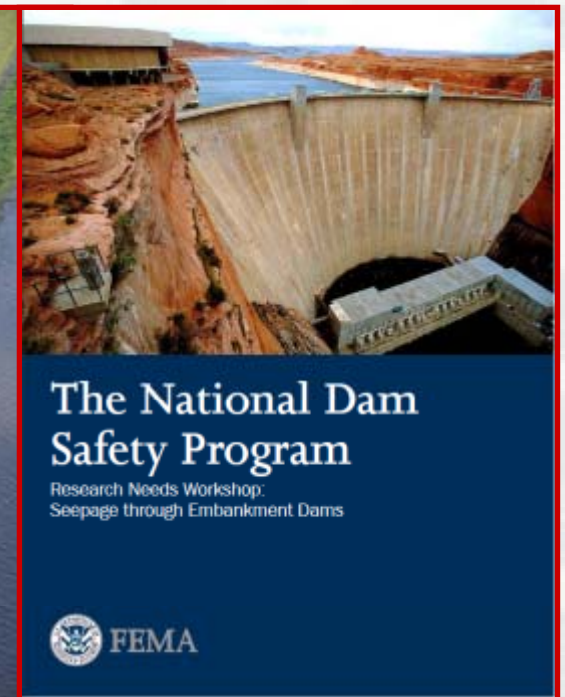


- Lake Okeechobee is 720 square-miles – twice the size of NYC
- Average water depth is 9 feet
- Water volume equal to 2.2 million Olympic-size pools
- Basin is 5,600 square-miles
- One foot of rain in the basin equates to a three to four-foot rise of the lake
- Lake can fill six times faster than water can be released



Purpose of the HHD Project

- Bring the Dike up to Dam Safety Requirements



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Previously Observed Problems



Sinkholes



Heaves



Piping



Saturated Toe



Complex System

5 gated outlets

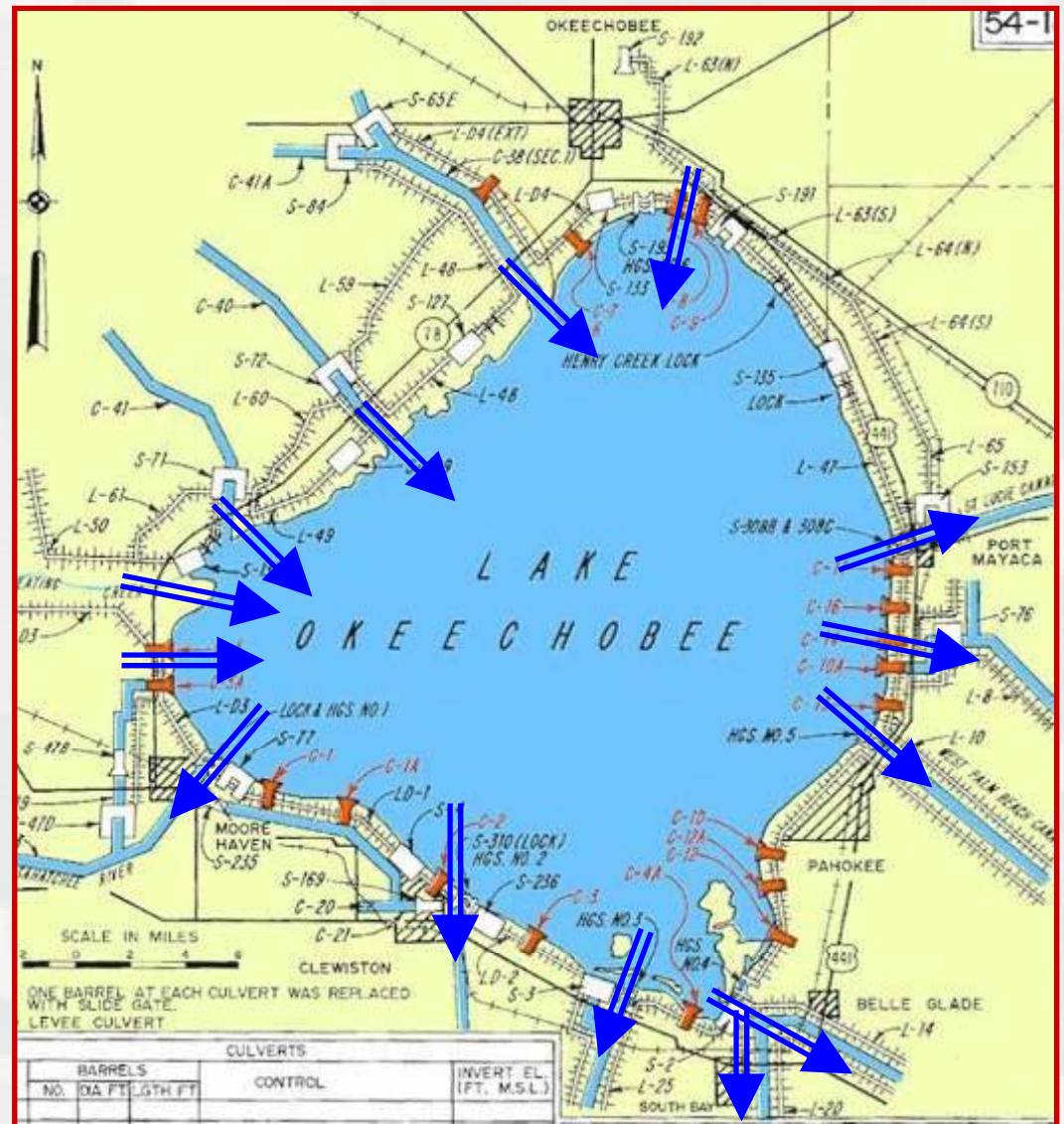
5 gated inlets

33 primary & secondary culverts

9 navigation locks

9 pump stations

No overflow capacity



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Findings and Solutions

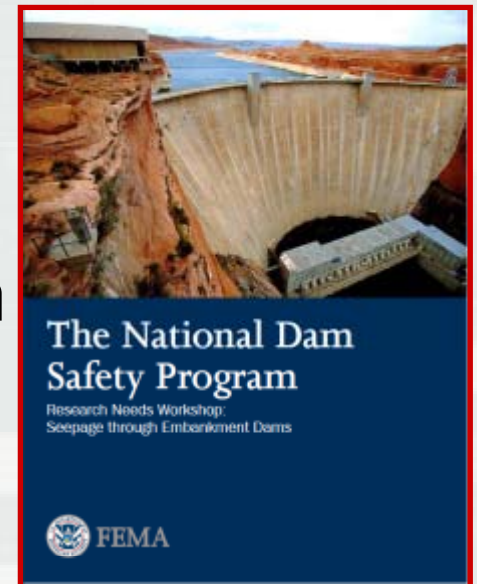
- 1990s Corps studies initiated by evidence of damage to the HHD
- 2000 Congress approves Corps proposal for fix; analysis and design begins
- 2005 Corps starts construction



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More Recent Developments

- Hurricane Katrina strikes in 2005
- Corps overhauls procedures for managing dams and levees (ongoing)
- Corps sponsors HHD repair evaluation with state and independent experts
- Consensus reached on a modified fix concept



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Adaptive Project Management

New Guidelines
and Policies

Risk Assessment
DX Process

Variations
in Geology and
Socio-economic
Conditions

Dam Safety
Guidance, an Ongoing
Evolution

Recent
Weather
Extremes

**Aging Dike
Structure**

Varying Local
Interests Coordination:
CERP, Lake Level Regulation,
Flood Protection,
Water Supply, etc.

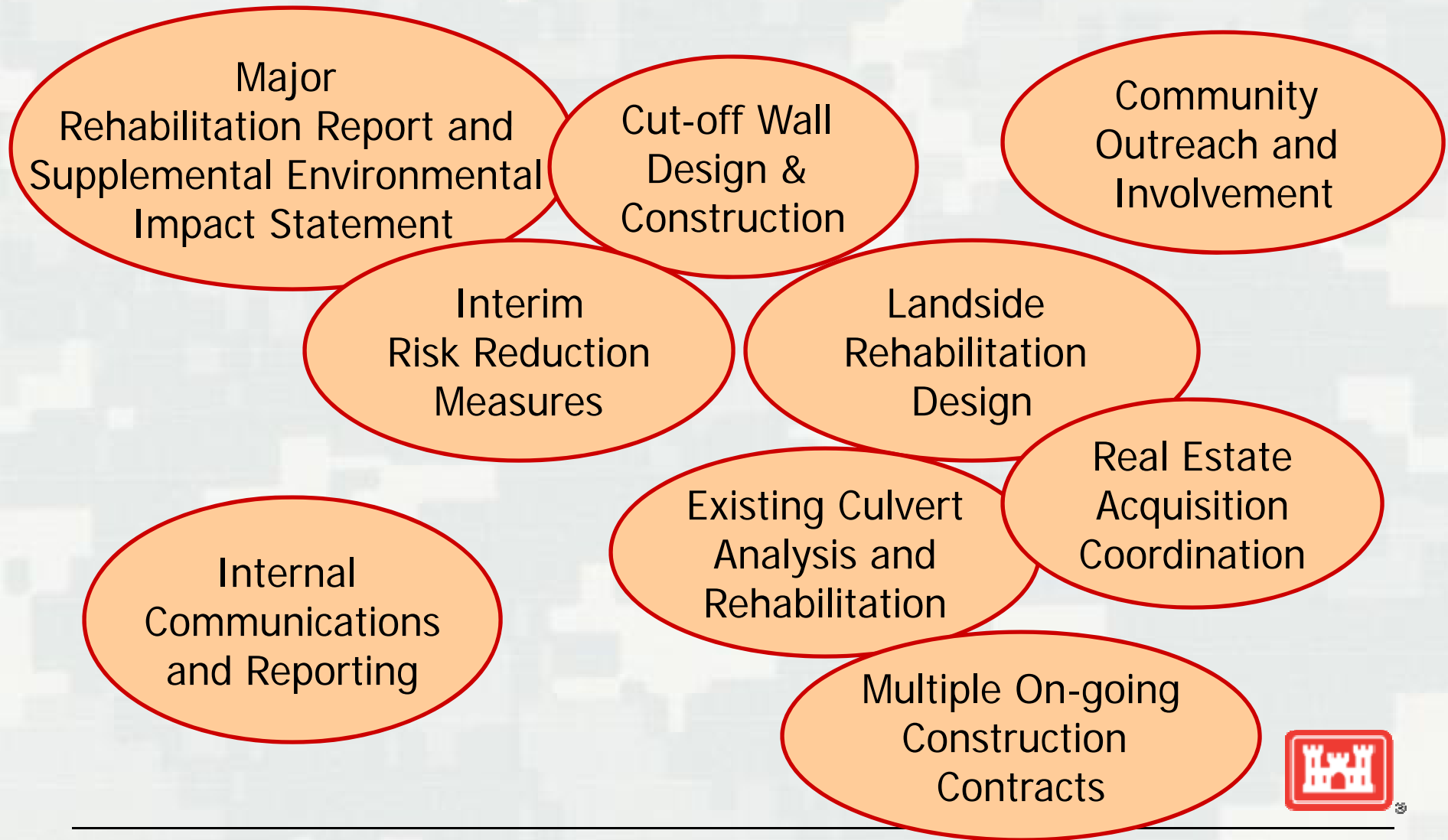
New Team
Members

New
Projects by Others
(lock, quarry,
equestrian park,
River of Grass)



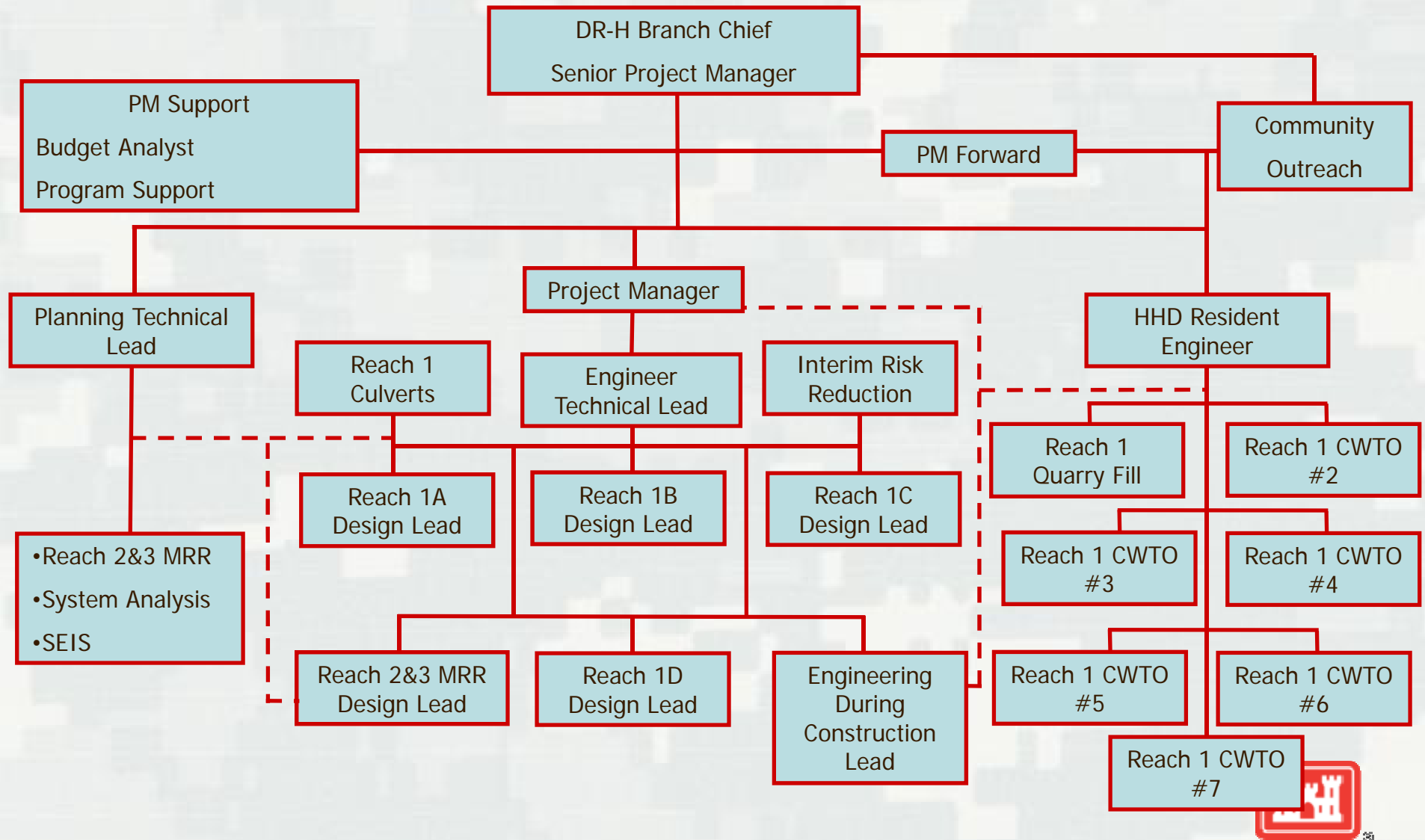
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Parallel Phases and Activities



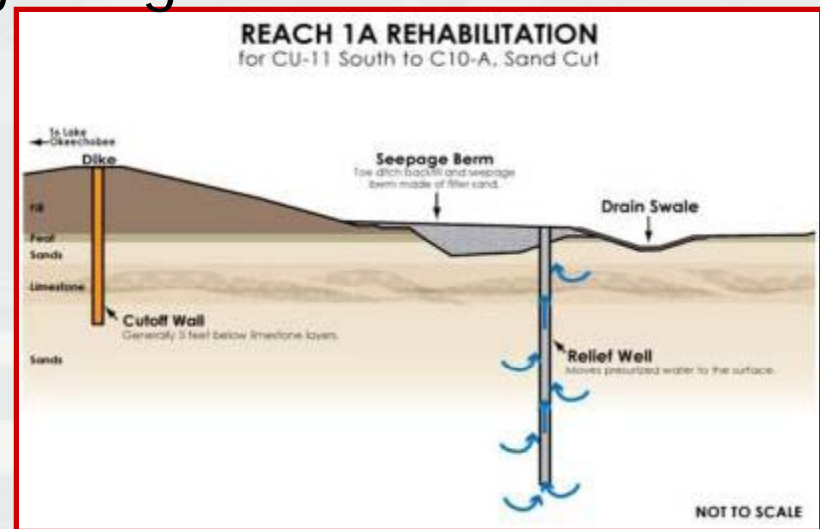
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Herbert Hoover Dike - Organization Structure



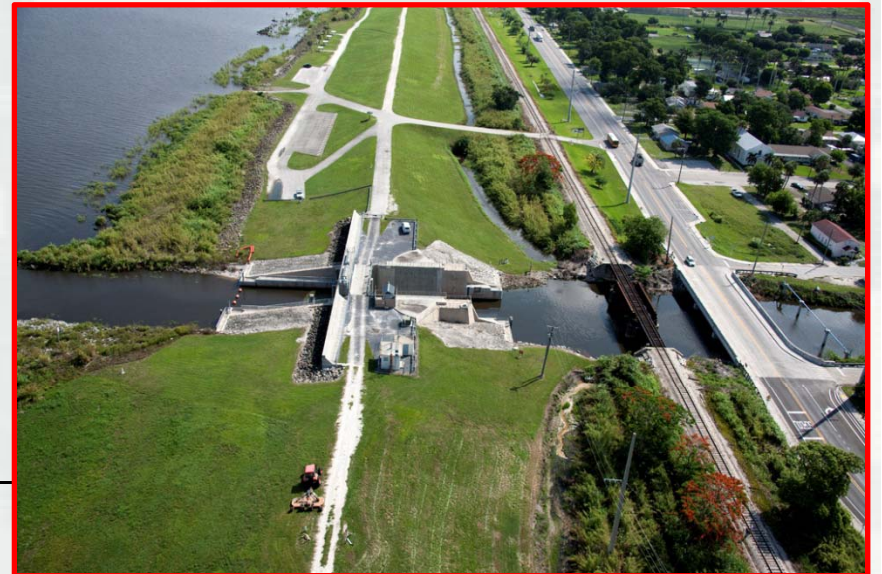
Landside Design Criteria

- Geotechnical engineering design is the initial criterion for analysis
- Each design is ranked based on reliability, resiliency and redundancy
- Other factors in the determining design solution -
 - Initial cost
 - Operations and maintenance
 - Community resources
 - Visual and human interest
 - Flora and fauna
 - Social factors – impacts to local communities
 - Land use



Environmental and Public Involvement Processes

- Public meeting during review of Environmental Impact Statement (EIS)
 - Design process description
 - Design alternatives
 - Recommended alternative
 - Public comment is encouraged
 - Final EIS and Record of Decision
-



Interim Risk Reduction Measures

- New lower lake regulation schedule
- Increased inspection frequency
- Emergency management
- Immediate actions



Tree removal
and filling the
landside ditch



Interaction with local communities and drainage districts

- Interaction with communities and Counties around Lake Okeechobee
 - ▶ Local initiatives that may conflict with HHD rehabilitation
 - ▶ Local concerns (noise, employment, economic benefits)
 - ▶ Building and maintaining trust
- Local drainage districts
 - ▶ Historic usage
 - ▶ Data gathering/collection
 - ▶ Obtaining data
 - ▶ Incorporating current conditions (permitted usage) into design solutions



Funding Challenges

**Double Annual
Funding
2007 thru 2010**

**Resources Stretched Thin as Funding Increases
(Labor, AE, Suppliers, Construction)**

**Multiple Phases
(Planning, Design
& Construction)
Competing for the
Same Resources**

\$ \$
**Competition for Dam Safety Funding
With other Dams Throughout
the USA**
\$ \$



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Lessons Learned

- What works

- ▶ Competent staff and strong PM support
- ▶ Accountability
- ▶ Early identification of resource needs
- ▶ Culture of identifying problems AND solutions
- ▶ Continuous and organized communication
- ▶ A healthy budget

- What we need to improve

- ▶ Communication
- ▶ Garnering support from Corps-wide programs
- ▶ Ability to resolve scarcity of resources



Questions?



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