GILBOA DAM RECONSTRUCTION PROJECT

PROJECT GOALS: Ensuring Public Safety
Sustaining Public Water Supply
Agenda

- Project Scope and Current Schedule
- Design & Construction Status
- Dam Monitoring & Reservoir Status
- Permitting, ITRT and Public Coordination
- Significant Accomplishments to Date
- Questions
Project Scope

- Phase 1: CAT-359 Crest Gates Installation
- Phase 2: CAT-212A Site Preparation
- Phase 3: CAT-212B Dam Reconstruction
  - CAT-212C Low-Level Outlet Works
- Phase 4: CAT-212D Shandaken Intake Improvements
- Phase 5: CAT-212E Site Restoration
## Current Project Schedule

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interim Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Debris Barrier, Siphons,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notch, Anchors)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preliminary Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Release Environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Document</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Rehab. Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1 - Crest Gates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2 - Site Preparation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 3 - Dam Reconstruction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 4 - Stairaken Intake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 5 - Restoration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Phase 1: Crest Gates Installation (CAT-359)

- Anticipated Completion: Spring 2011
- Gate Equipment Fabricated & Delivered
- Completion Delayed
GILBOA DAM RECONSTRUCTION PROJECT

Phase 2: Site Preparation (CAT-212A)

- Order To Commence Work – September 30, 2009
- Anticipated Completion – Spring 2011
Phase 2: Site Preparation (CAT-212A)
GILBOA DAM RECONSTRUCTION PROJECT

Phase 2: Site Preparation (CAT-212A)
GILBOA DAM RECONSTRUCTION PROJECT

Phase 3: Dam Reconstruction and New LLO

- Proposed Low-Level Outlet Works
- Spillway & Training Wall Reconstruction
- Embankment Improvements
Phase 3: Dam Reconstruction (CAT-212B)

CAT-212B Dam Reconstruction

- Construction Bids Received – December 16, 2010
- Order to Commence Work (OTC) – 2nd Qtr. 2011
- 5-Year Construction Period

- Major Scope Items
  - Install Post-Tensioned Anchors
  - Extend Downstream West Training Wall
  - Stabilize North Training Wall and Improve Drainage
  - Refurbish Upper Gate Chamber
  - Refurbish Existing Stone Masonry
  - Enhance East Overlook Area
  - Improve Instrumentation and Surveillance Systems
  - North Training Wall Service Ramp
  - Reconstruct Intermediate Channel Step, Plunge Pool, and East Upstream Retaining Wall
Phase 3: Dam Reconstruction (CAT-212B)
Spillway Control Section Improvements

Major Scope Items (Cont.)
- Demolish and Reconstruct Spillway Control Section, Channel Slab
- New Drainage Gallery and Access Stair Tower
GILBOA DAM RECONSTRUCTION PROJECT

Phase 3: Dam Reconstruction

CAT-212C Low-Level Outlet Works

- 60% Design Complete – January 2011
- ITRT Workshop – February 2011
- Final Design Complete – December 2011
- Order to Commence Work: January 2013
- 3+ Year Construction Period
GILBOA DAM RECONSTRUCTION PROJECT

Low-Level Outlet (CAT-212C)

Major Scope Items

- 96 inch Diameter Tunnel
- Intake Structure / Dredging
- Gate 15 Access Area
- Gate Shaft
- Portal / Hydropower Wye
- Valve Chamber Site Work
- Valve Chamber
Dam Monitoring

- Last quarterly monitoring (Oct 2010) – No unusual observations
- DEC Biennial Inspection – Conducted November 9, 2010
- Next quarterly monitoring – January 2011
- Sentinel Anchors
  - Minor damage to housing during construction; successfully repaired
  - Performing as anticipated
GILBOA DAM RECONSTRUCTION PROJECT

Instrumentation System Enhancement

- Add instruments (weirs) to monitor foundation drain flows
- Replace surface monuments disrupted by construction
- Install load cells in west wall anchors
- Automate data collection (piezometers, inclinometers, extensometers, new & existing load cells)
- Remote Monitoring and Operation of Crest Gates and Low-Level Outlet
Permitting & Coordination

- Coordination continues with DEC; expect declaration of complete application and public notice in early 2011
- ITRT Coordination
  - 4 of 5 workshops held to date
  - Next workshop – Tentatively February 2011
  - ITRT has endorsed dam design; “Interim” report received May 17, 2010
- Coordination with County Engineer continues
Significant Accomplishments to Date

- Debris Boom – Installed 2005
- Spillway Notch – Constructed 2006
- Siphons – Constructed 2006 (Continue to operate)
- Spillway Anchors – Installed 2006
- Shandaken Intake Dredging – Completed 2008
- Spillway Crest Gates – Construction 60%+ Complete
- Gilboa Dam Site Preparation – Construction 50%+ Complete
- Gilboa Dam Reconstruction – Bids Received
- Low-Level Outlet Design – ~60% Complete
- Enhanced Monitoring & Surveillance - Ongoing
QUESTIONS?