

Ice Harbor Downstream Gate Hoist Machinery Replacement

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Project Manager

Walla Walla District

May 27, 2015

Columbia-Snake River Navigation System

Spring Stakeholder Meeting



US Army Corps of Engineers
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Ice Harbor Downstream Gate Hoist Machinery Replacement

Background Information:

- 1962 Navlock put into service
 - ▶ 1,773 avg. cycles per year
 - ▶ 94,000+ cycles to date
- Gate was replaced in 1995
 - ▶ 90' tall
 - ▶ 1.44M pounds
- Wire ropes replaced in 2012

Project Goals:

- Replace worn-out equipment
- Increase reliability
- Modernize controls
- Easier to maintain



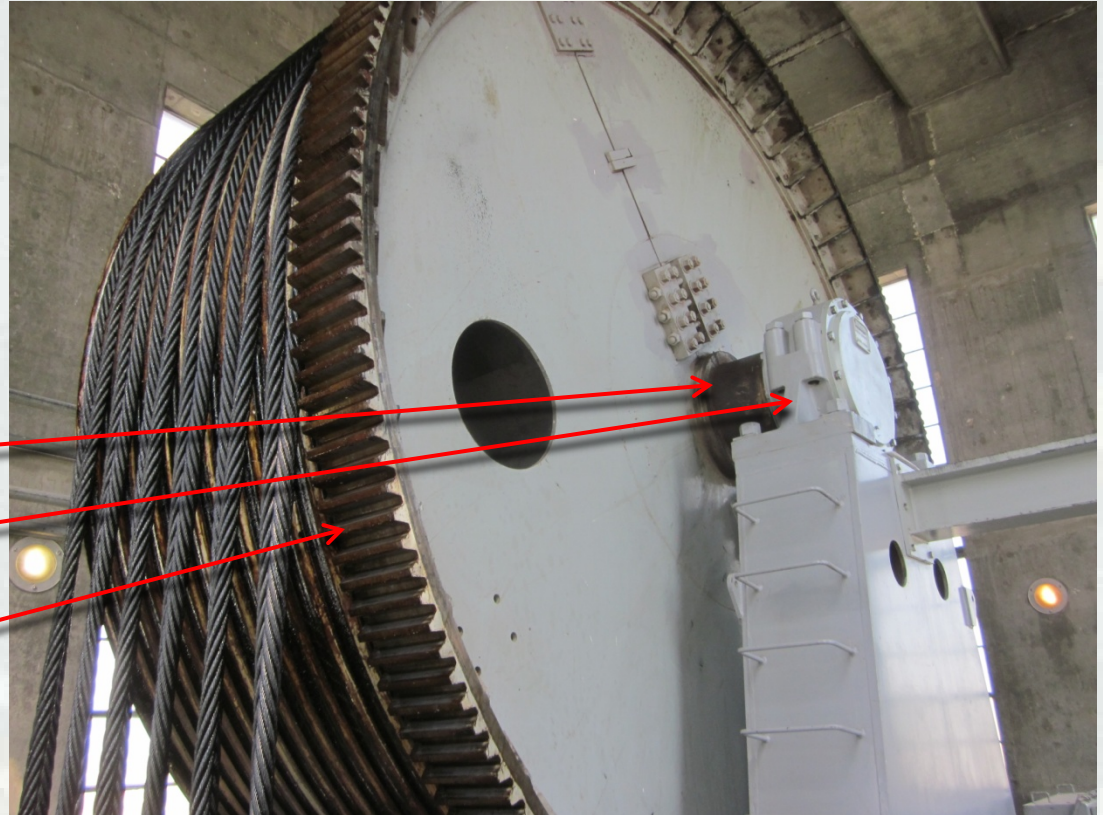
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- **Retain:**

- ▶ Wire ropes
- ▶ Friction sheave drum

- **Replace:**

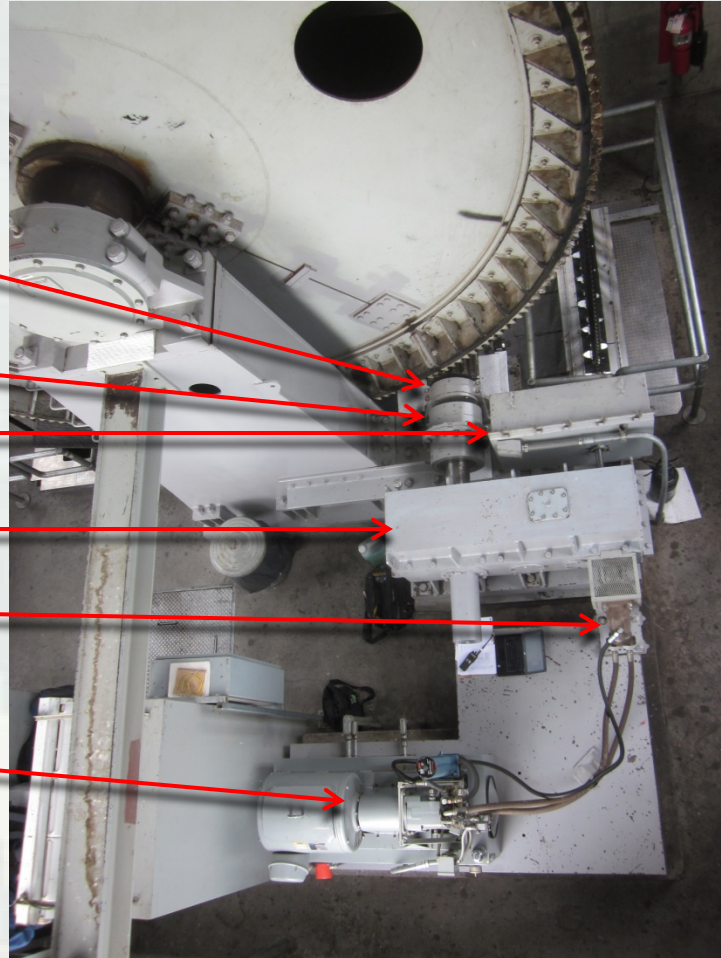
- ▶ Friction sheave shaft
- ▶ Friction sheave bearings
- ▶ Ring gear



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■ Replace :

- ▶ Pinion gear & bearings
- ▶ Couplings
- ▶ Primary brake
- ▶ Gearbox
- ▶ Hydraulic motor
- ▶ Electric motor, pump, and hydraulic equipment



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- Damage to pinion gear teeth



- Damage to ring gear teeth



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Electrical and Controls Upgrades:

- Remove hydraulic control panels and motor control centers
- Update controls with modern Programmable Logic Controllers (PLC's)
- New motor control panels
- New Variable Frequency Drives (VFD's) and Hoist Motors
- New D/S lock-stand operator control console modeled after John Day



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Electrical and Controls Upgrades:

- New functionalities
 - ▶ Graphic touch screen displays
 - ▶ Automated operation
 - ▶ Changes to operation are programmable
 - ▶ Soft start and stop capability (extends life)
 - ▶ Ability to troubleshoot system
 - ▶ Tool for maintenance personnel



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Tower Upgrades:

- Reinforce crane rail corbel
- Upgrade to 4 ton overhead service crane (from 2.5 ton)
- New safety rails at roof parapet
- New roofing membrane



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Schedule:

- Late Aug 2015 Advertise Contract package
- Oct – Nov 2015 Receive & evaluate Proposals
- Dec 2015 Contract Award
- Apr – Oct 2016 Procure/fabricate long lead time equipment
- Oct - Nov 2016 Pre-outage installation: New overhead service cranes, electrical & control panels, conduit, and wiring, safety rails (Lock remains in service)
- 12 Dec 2016 – 20 Mar 2017 Navigation Lock Outage Work Window



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Questions?



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