A scenic landscape photograph of a lake, forest, and mountains. The lake is in the foreground, reflecting the sky and the surrounding forest. The forest is dense with evergreen trees. In the background, there are mountains with patches of snow under a cloudy sky.

Bull Run Dam 2 Towers Improvement Project Post Project Evaluation Report to Council

Michael Stuhr, Chief Engineer
Portland Water Bureau

Tim Collins, Senior Engineer
Portland Water Bureau



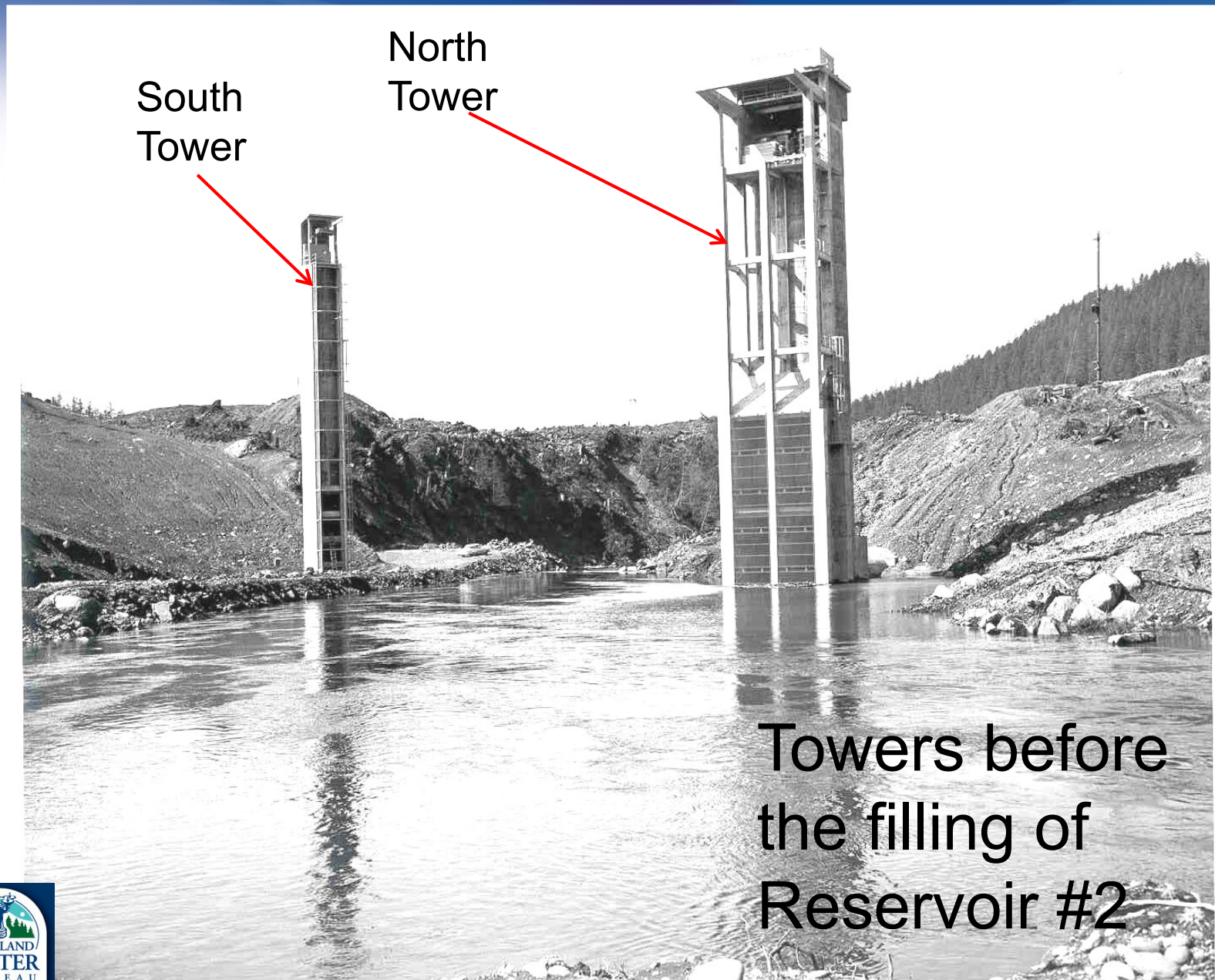
Major Participants

- Portland Water Bureau/City of Portland
- Advanced American Construction (Contractor, CM/GC Contract)
- Oregon Iron Works (Wetwell Fabricator)
- Black & Veatch Inc. (Consultant)
- Many others

Project Description

- Key component to the Water Bureau's Habitat Conservation Plan (HCP)
- Designed to manage water temperature in lower Bull Run River
- Massive steel wetwell placed in front of and attached to the existing North Tower
- Allows selection of water from 3 elevations (originally only at the reservoir bottom)

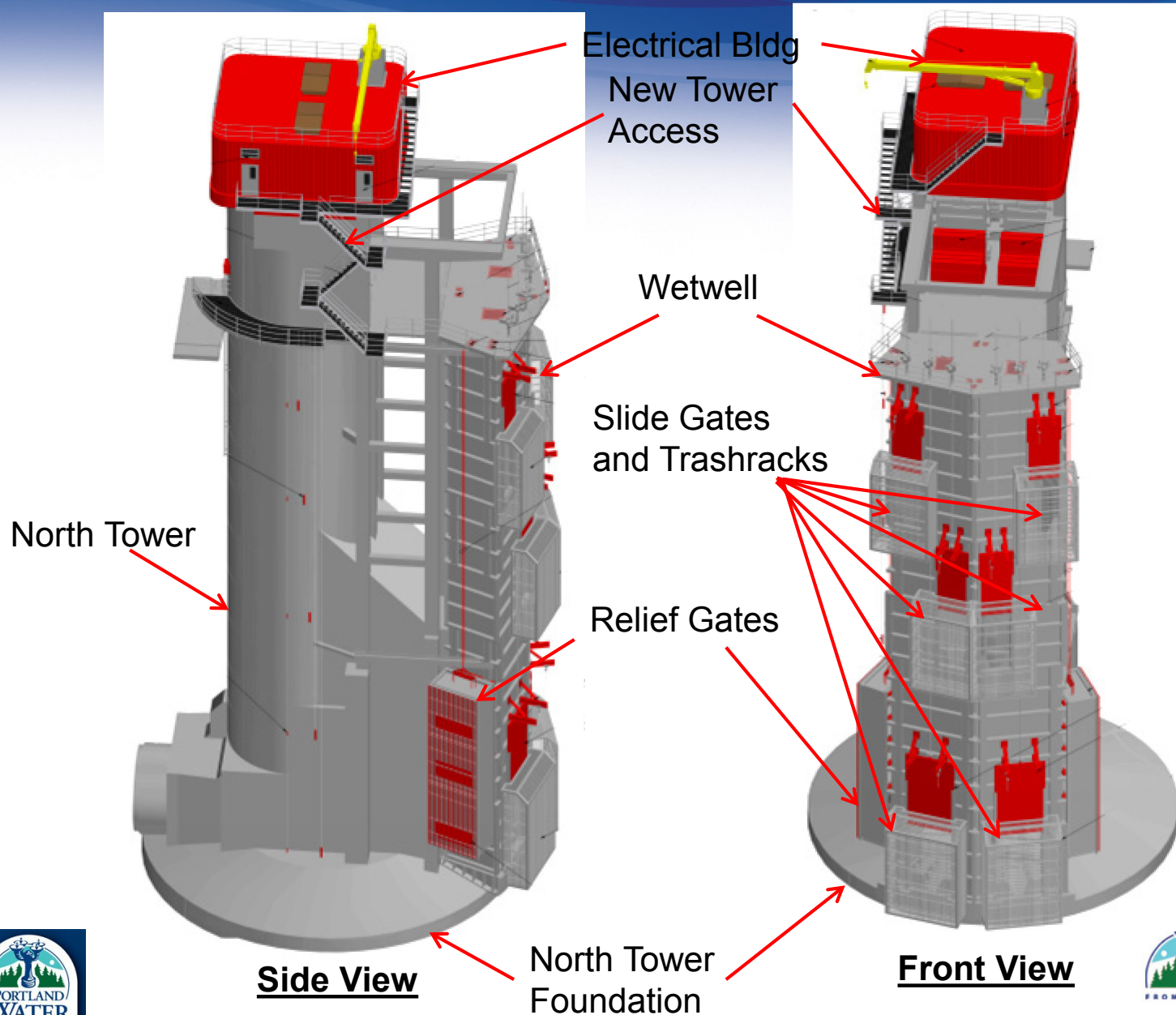
North and South Towers 1960's



Major Project Components

- Wetwell installed in front of and attached to existing North tower
- Installation of prefabricated building on top of tower
- Tower and safety improvements
- Fish flow piping improvements at Headworks facility

North Tower/Wetwell Schematic



Electrical-Control Bldg.



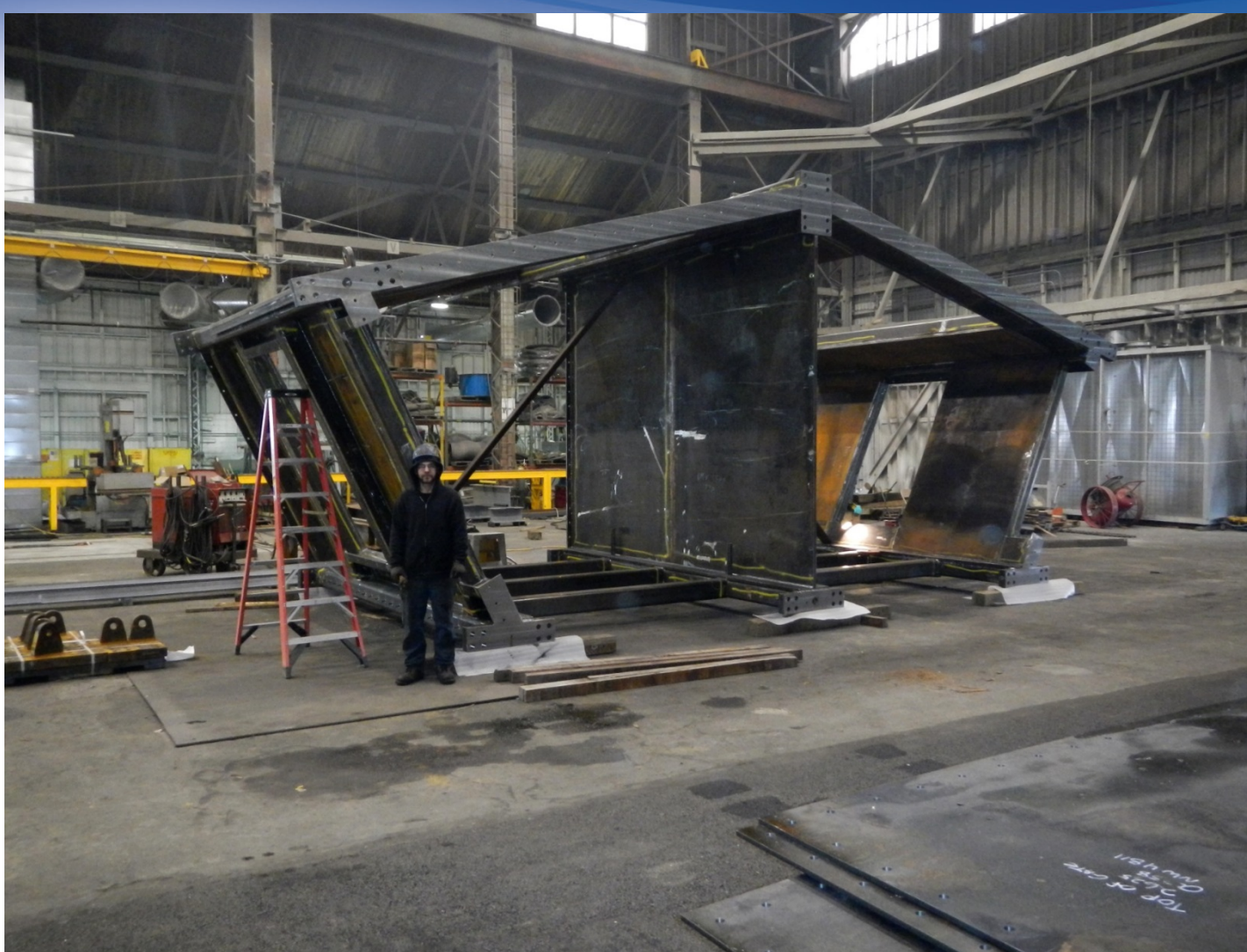
- Existing roof of tower cut off.
- Prefabricated on shore.
- Lifted onto tower in one piece.



Wetwell Base Fabrication (Oregon Iron Works)



Wetwell Segment #1



Trapezoidal shape allowed for placement of large slide gates.

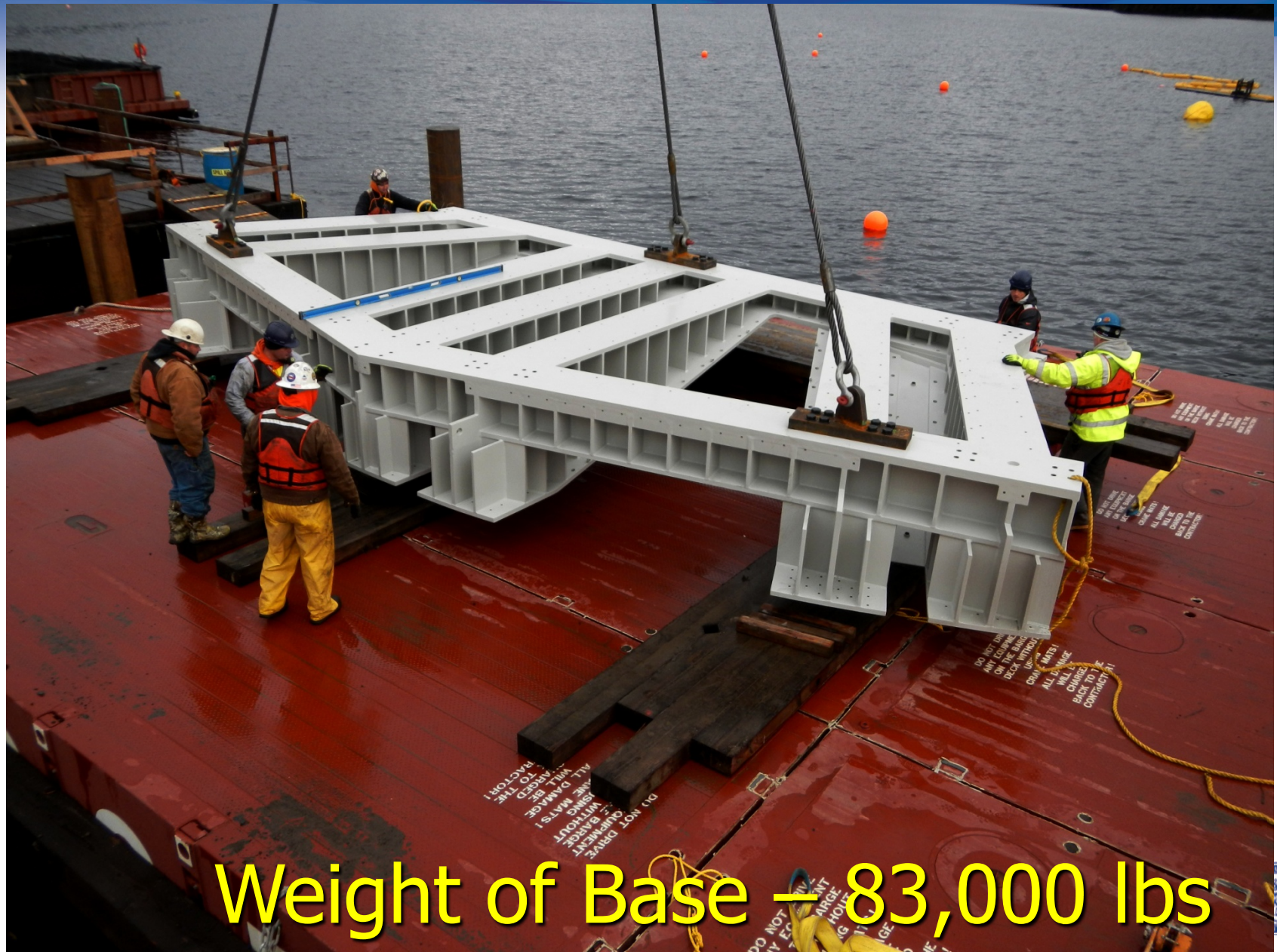
Wetwell Segment in Transit



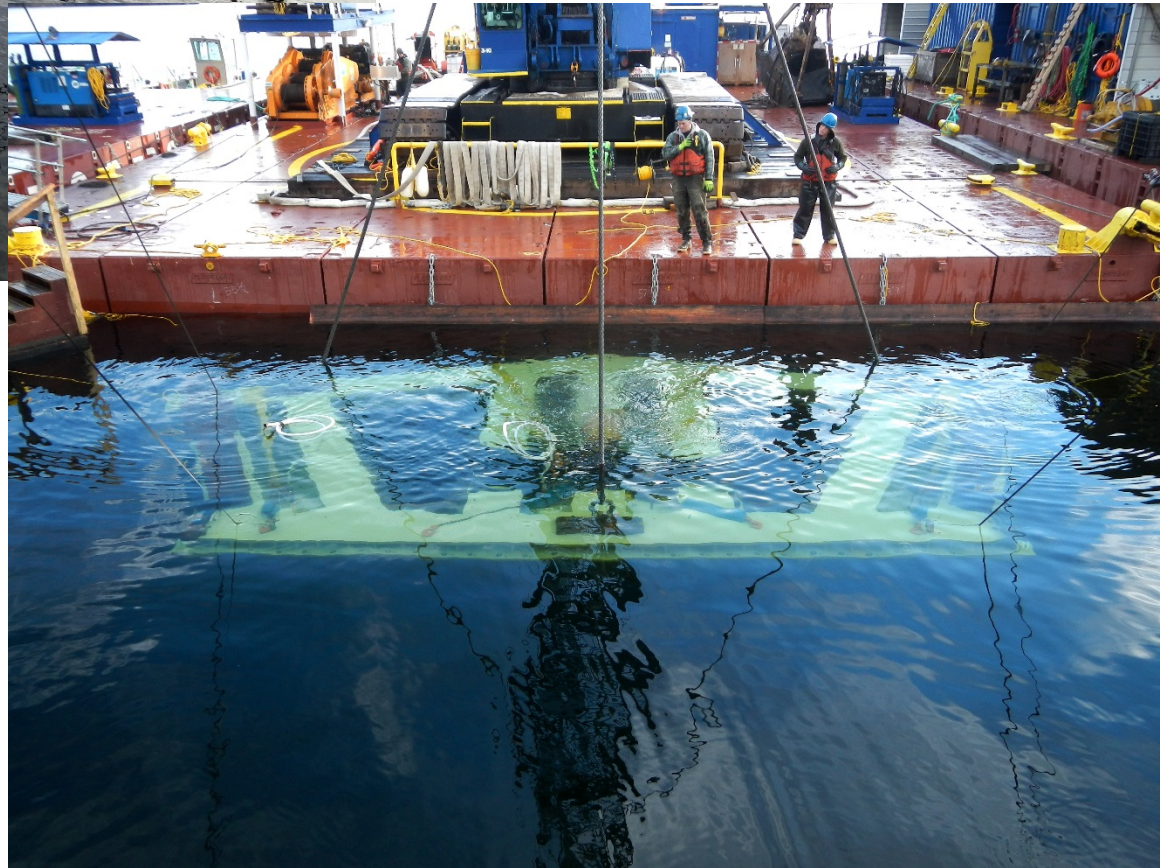
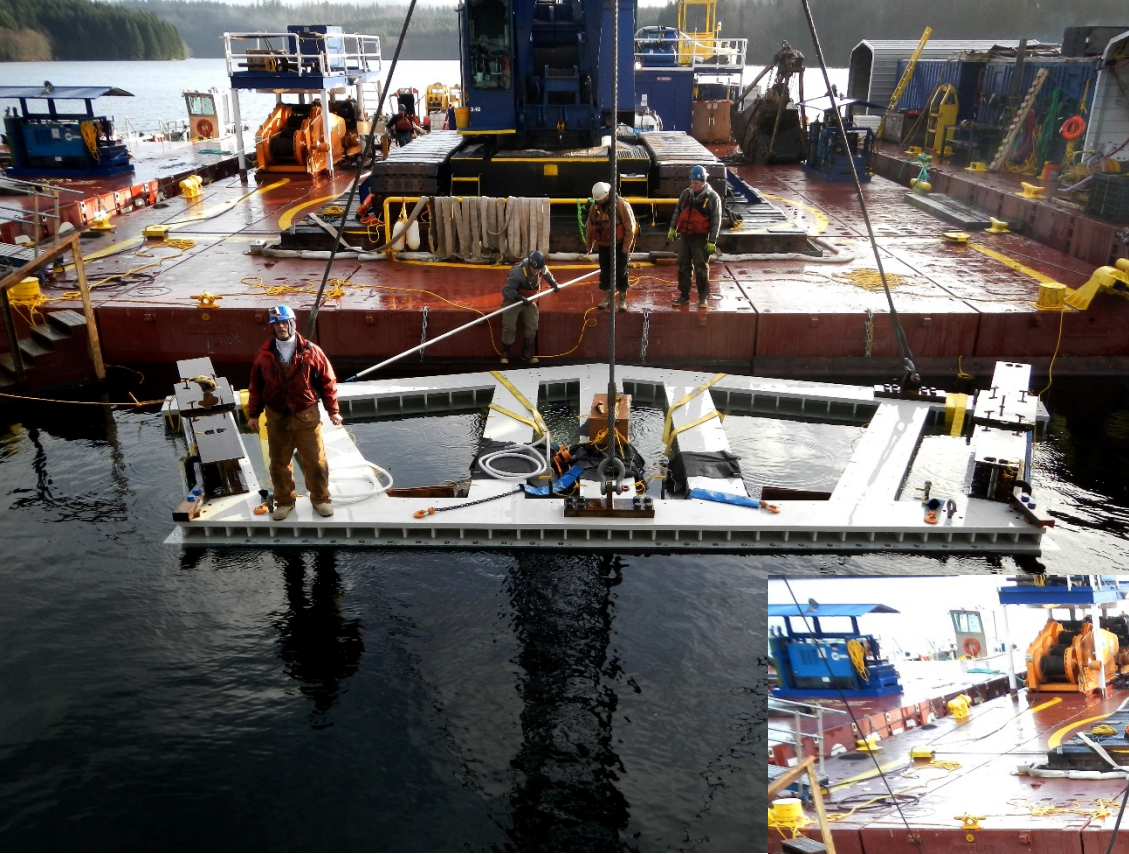
Within inches of the largest legal load for the roads to the site.



Finished Base Section



Placing Base Segment



- 120' down to the top of the tower foundation.

Wetwell segment placement

Takes
planning,
experience
and skill to
move
segments
around
without
damage.



Extensive Diving Effort

Thousands of dive hours required to anchor base and bolt segments together.



Segment 7 rests just below the water surface. All segments bolt together



Top segment 8 finally extends out of the water.

Completed North Tower



East side of
tower, showing
top of wetwell



South side of tower

Headworks Piping Revisions



96" Diameter
Outfall Structure



Project Costs

	Cost
Construction Estimate (2009)	\$30,000,000
GMP Construction Contract (2012)	\$31,552,701
Final Construction Cost (2015)	\$29,889,640
Owner's Savings	\$1,663,061 (5.2%)
B&V Consulting Fees	\$5,221,787
% MWESB Subcontracting fees	>30%
Total Project Costs (2009-2015)	\$39,740,000

Project Awards

- Associated General Contractors of America, Alliant 2014 National Build America Award, Utility Infrastructure Renovation
- Daily Journal of Commerce, 2014 Top Projects Award
- Engineering News Record, First Place Infrastructure, Best Water/Environmental



Questions?