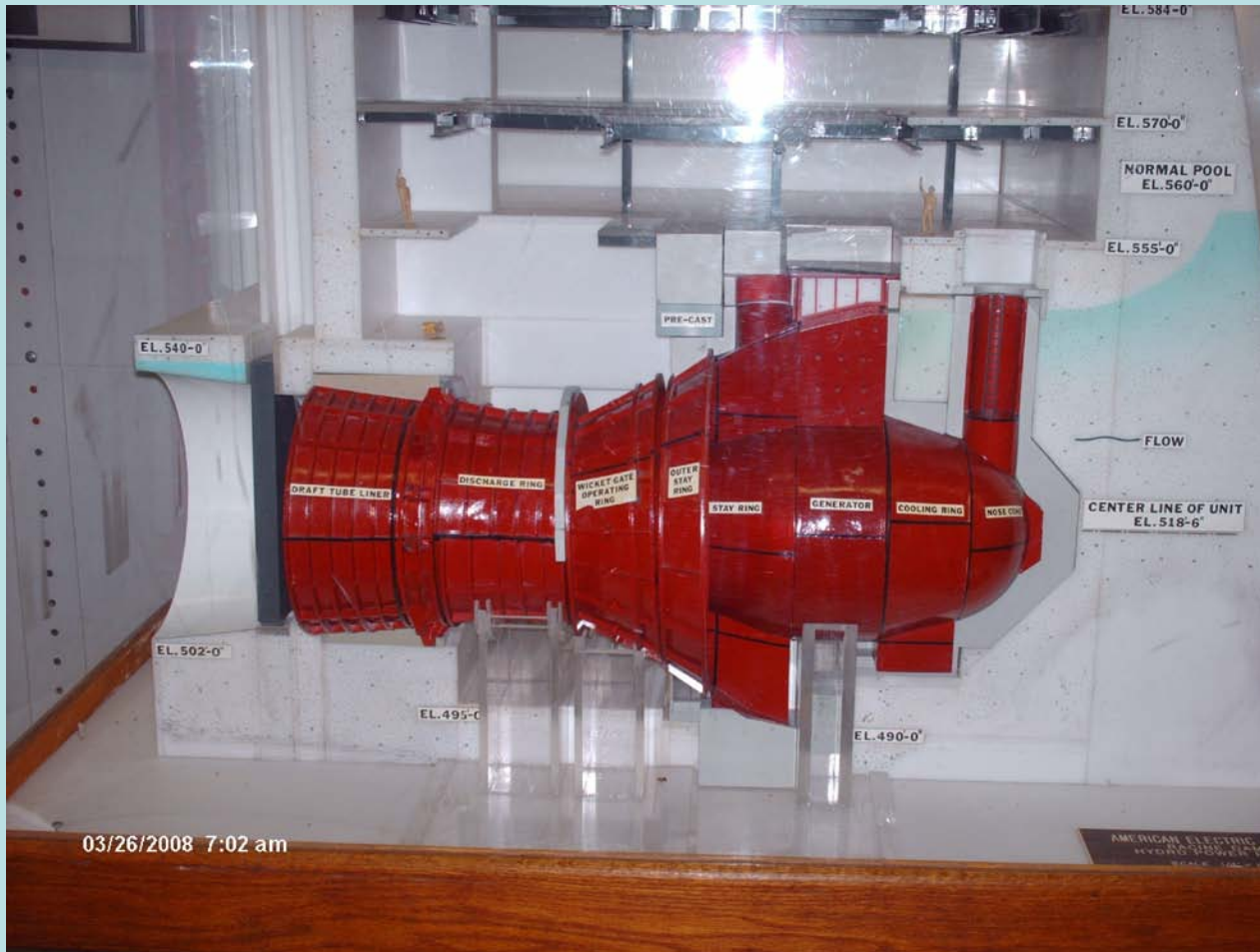


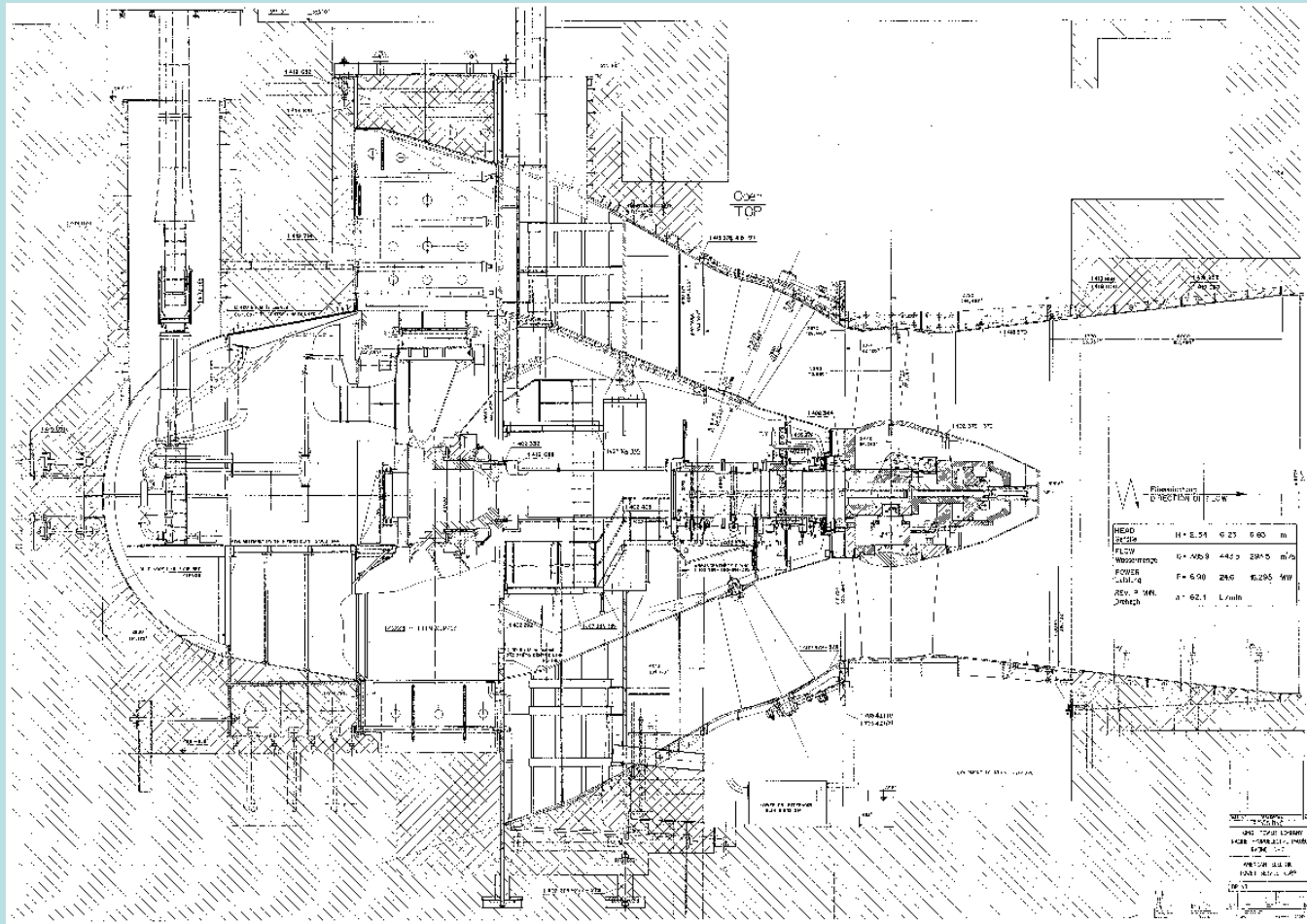
Racine Unit One

Overhaul 2009-2010

Cross Section of A Racine Unit



Cross Section of A Racine Unit



Top of Discharge Ring



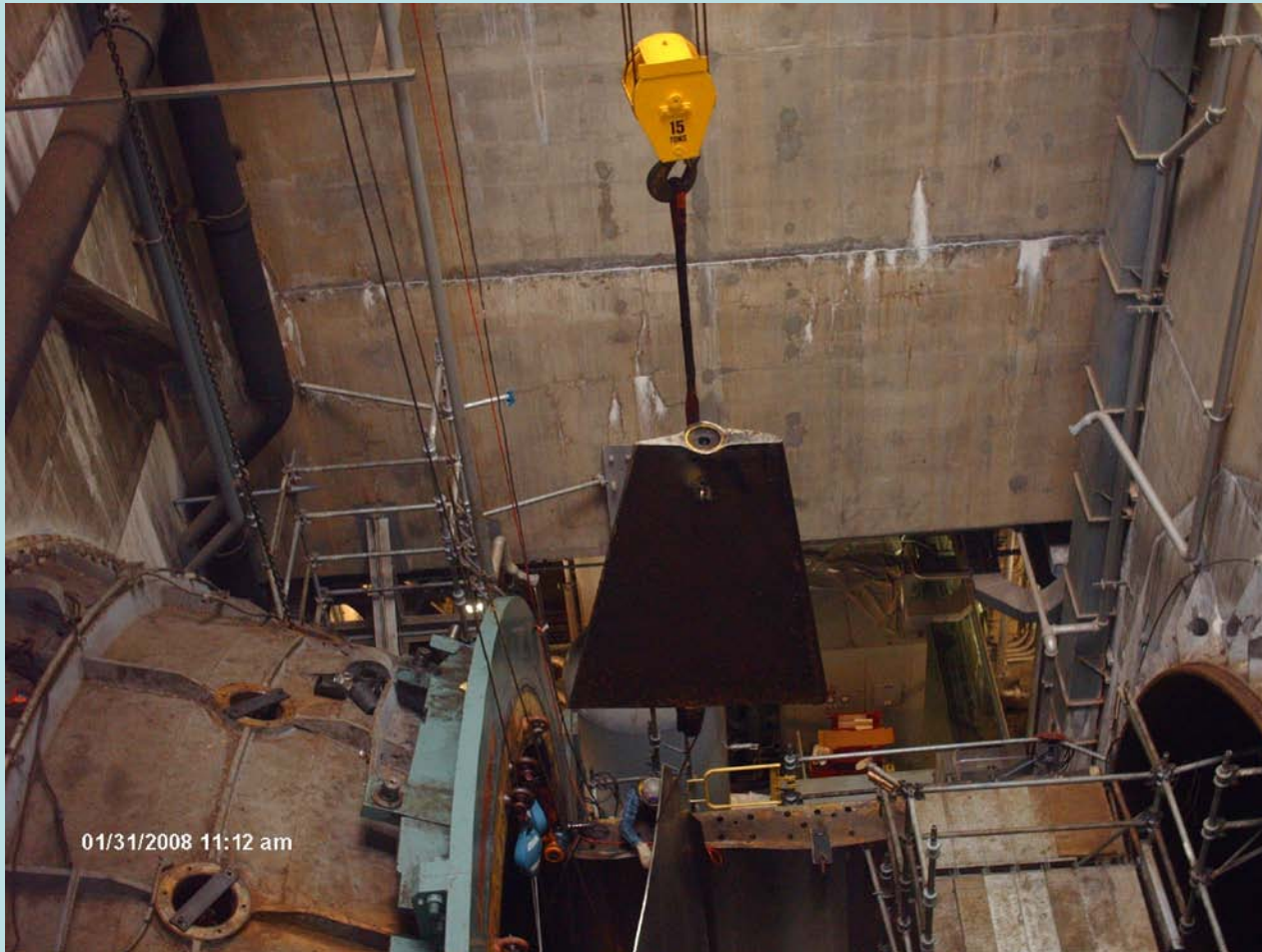
View of Runner



View of Runner Blade



View of Wicket Gate



Background

- 24 MW capacity unit
- Diameter = 25.3-feet
- Weight: 143-tons
- Shaft Diameter: 2.95-feet
- Year placed in service: 1982
- OEM recommends overhaul at 25-years of service

Scope of Work 1/2

- Replace shaft seal
- Replace generator profile band
- Replace wicket gate bushings
- Replace wicket gate cartridges
- Repair wicket gate stem/leaf interface

Scope of Work 2/2

- Replace shaft coupling bolts
- Replace runner blade bushings
- Replace blade trunnion seals
- Repair wicket gate servos
- Repair runner blades servo
- Repair vapor extraction system

Costs

- Capital: \$1,550,000
- O&M: \$2,600,000