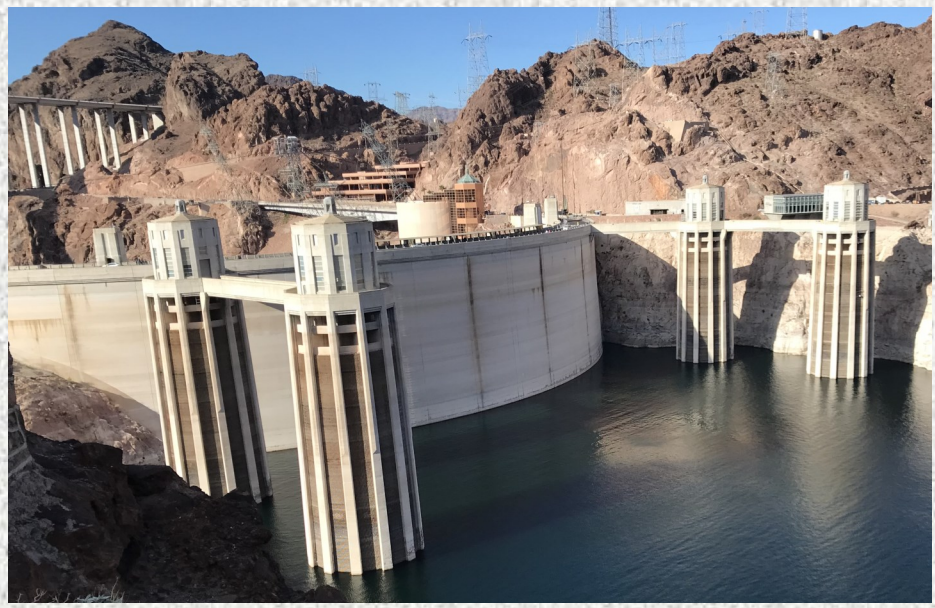
Project: Hoover Dam Stem Assembly Replacement



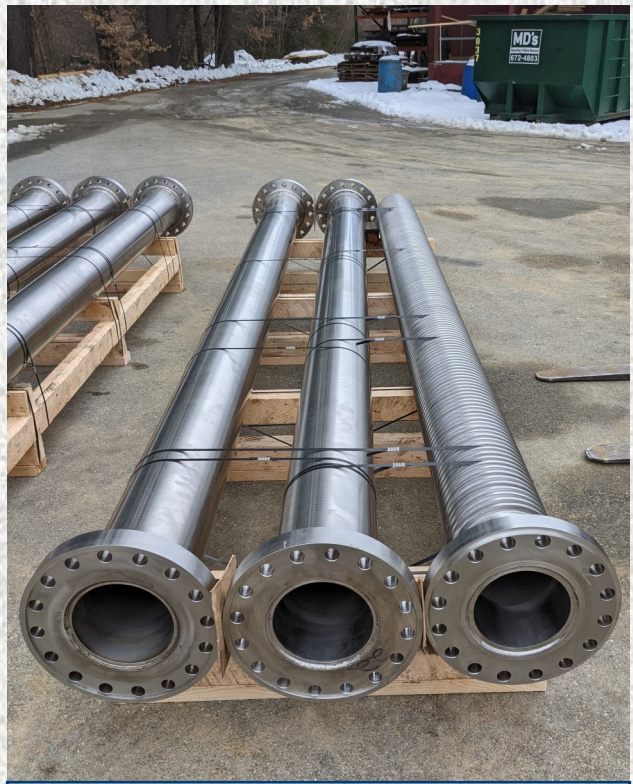
Quabbin completed Year 1 of the project "Replacement of Intake Tower Cylinder Gate Stem Assemblies" (contract 140R3020R0025): repair of assemblies in the Hoover Dam's upper Nevada Intake Tower (far right in photo). The five-year project will replace the gate stem assemblies of all four intake towers.

To make the replacement parts for just one of the four towers:

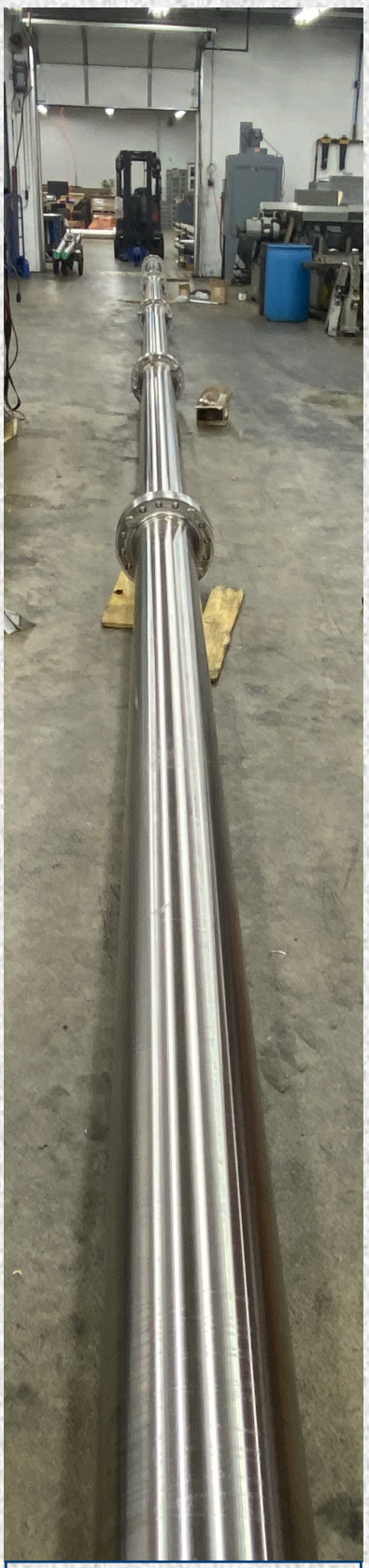
- Quabbin purchased 165,750 lbs of stainless steel.
- And machined 1,602 feet of stem, 352 feet more than the height of the upper observation deck of the Empire State Building and 148 feet more than the tip of its antenna.

Each of Hoover Dam's four intake towers has an upper and lower cylinder gate to allow Colorado River water to enter for hydroelectric generation.

- Cylinder gates are raised or lowered via three equally-spaced stem drive assemblies.
- Inner diameters of the upper stems are sized to allow the lower gate stem assemblies to slide (telescope) through them.
- Stem assemblies are supported laterally by stem guide collars attached to the concrete intake towers.
- Lower stem sections are connected via close-fitting couplings, which are held in place by tapered pins.



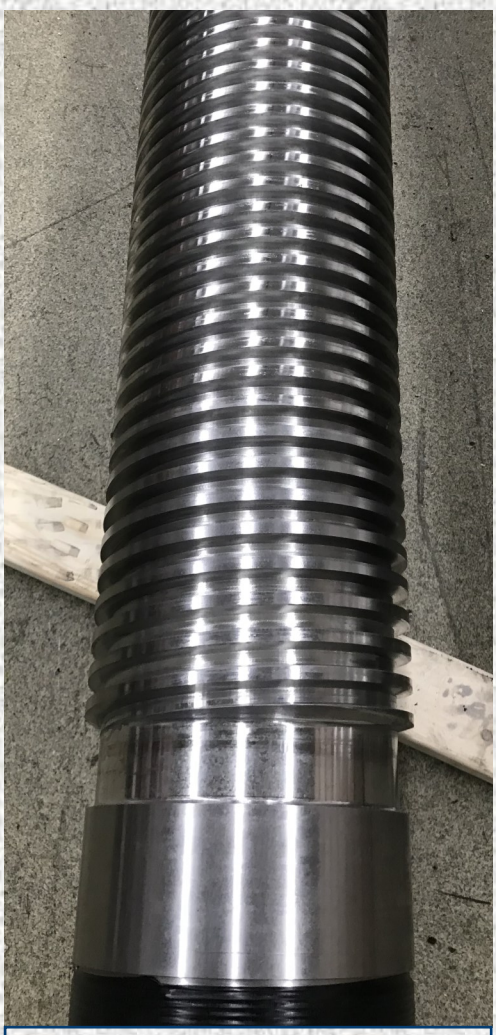
Two upper gate stems and one screw (far right) await shipment to Hoover Dam in Nevada.



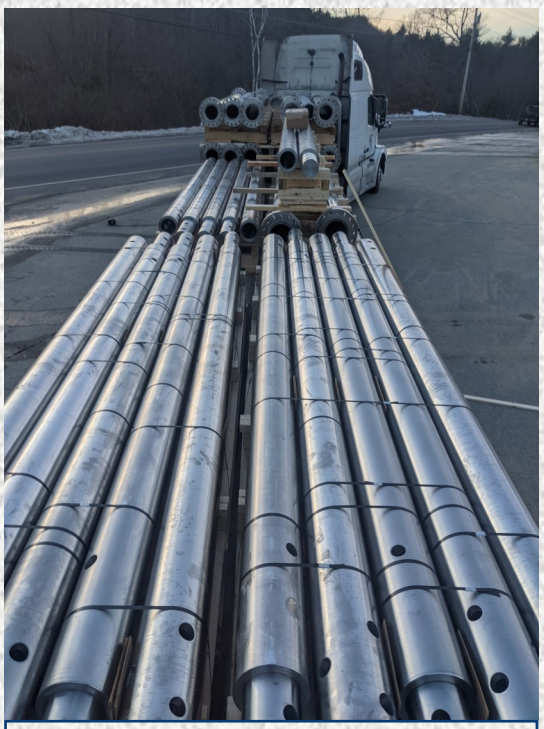
Four of the 13 sections needed to replace each of the three Upper Cylinder Gate Stems.

Gate Parts Replaced:

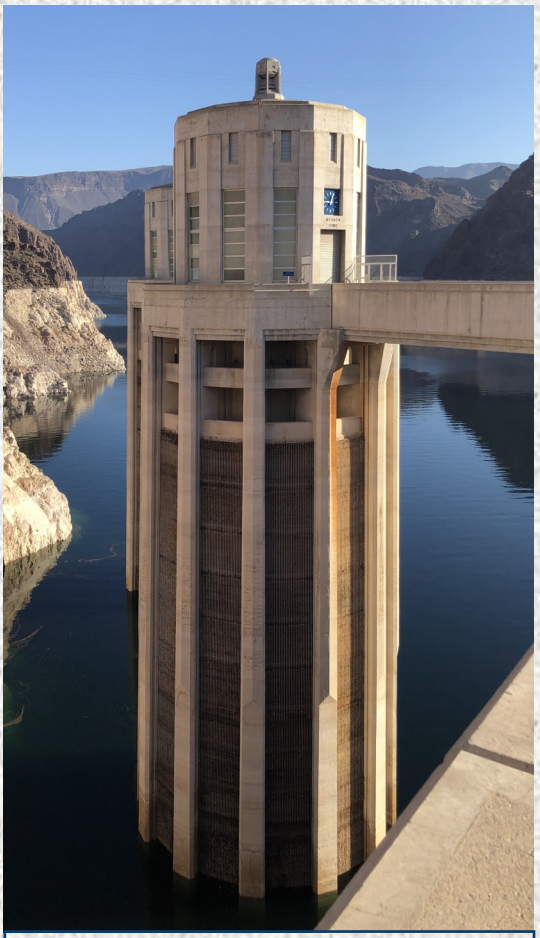
- 114 Stems
- 75 Flanges
- 75 Couplings
- 639 Taper pins
- 6 Stem connection brackets
- 6 Guide brackets
- 72 Guide collars
- 6 Stem screws
- All hardware



An upper gate stem screw, 10”-1 TPI Acme thread, 16 Ra.



One of seven truckloads of replacement components on its way to the Hoover Dam.



The Upper Nevada Intake Tower.