

# Shaft Coatings

## Preventing Corrosion on Horizontal Hydro Turbines

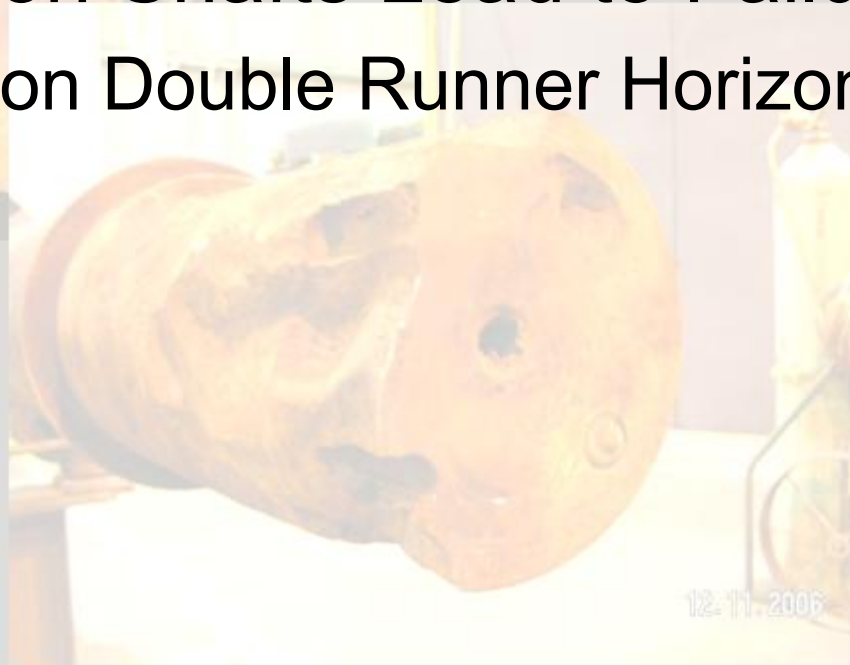
Chuck DeVane

December 3, 2008

12-11-2006

# Why - What

- Corrosion on Shafts Lead to Failures
  - Primarily on Double Runner Horizontal Units







2005 7 7





2005 7 7



# Why - What

- Corrosion on Shafts Lead to Failures
  - Primarily on Double Runner Horizontal Units
- Tried Several Coatings
  - Polyurethane paint
  - Epoxy paint
  - Epoxy coating
- More Corrosion Resistant Material was Cost Prohibitive

# Lloyd Shoals

- Polyurethane paint
- Applied in 2000/2001
- DID NOT WORK



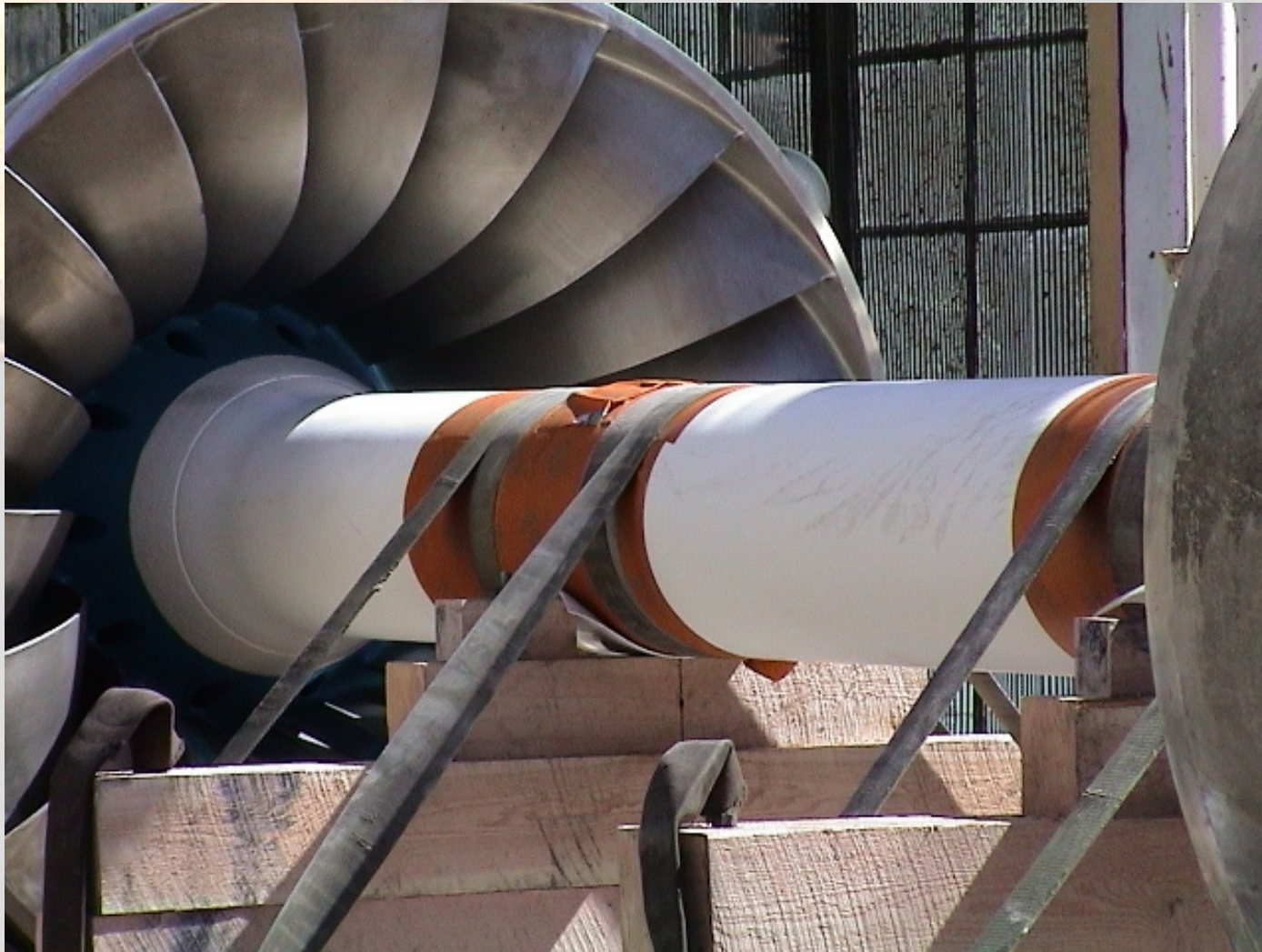


# Goat Rock U3





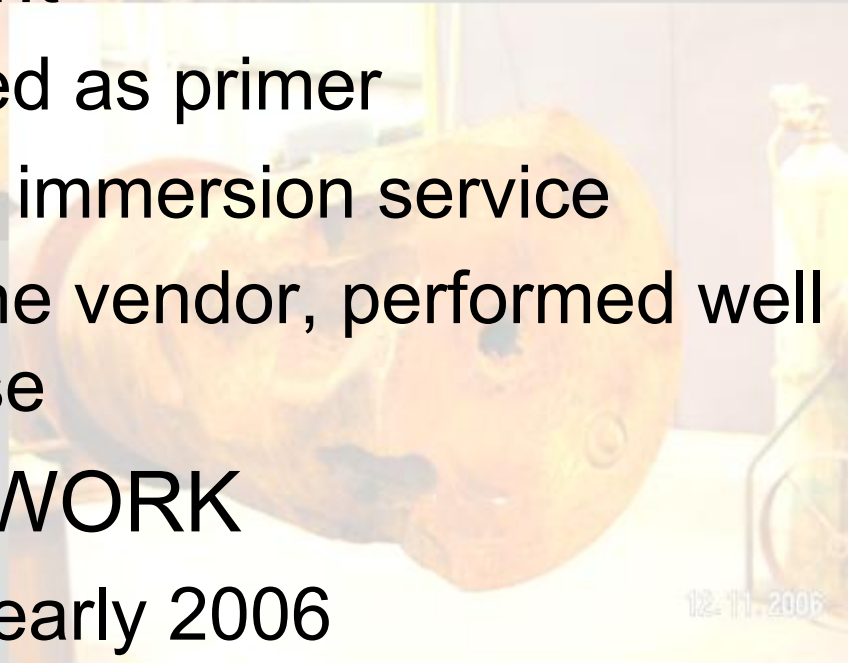
# Goat Rock U3





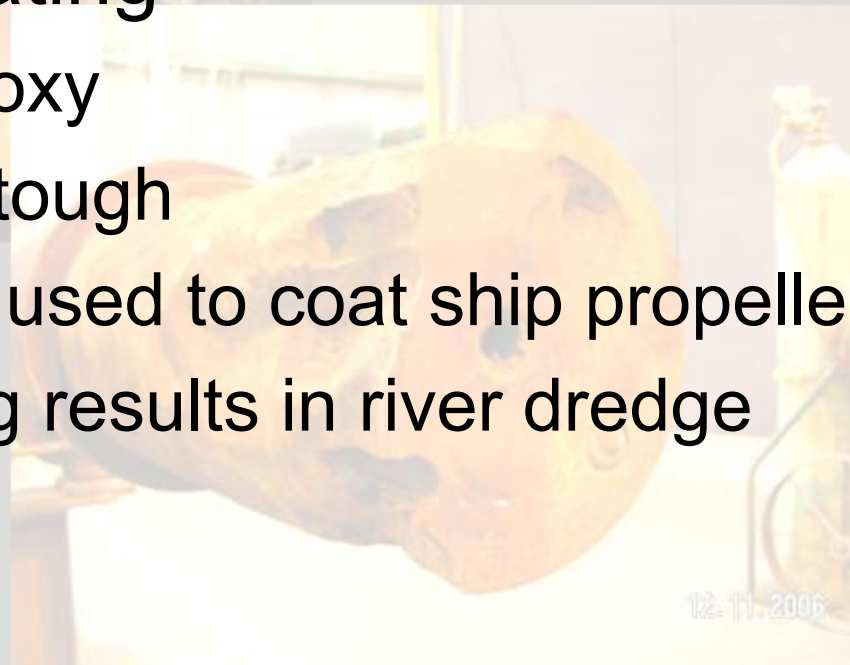
# Goat Rock U3

- Epoxy Paint
  - Often used as primer
  - Rated for immersion service
  - Per turbine vendor, performed well in P/T spiral case
- DID NOT WORK
  - Installed early 2006
  - Recently inspected - gone



# Morgan Falls U3

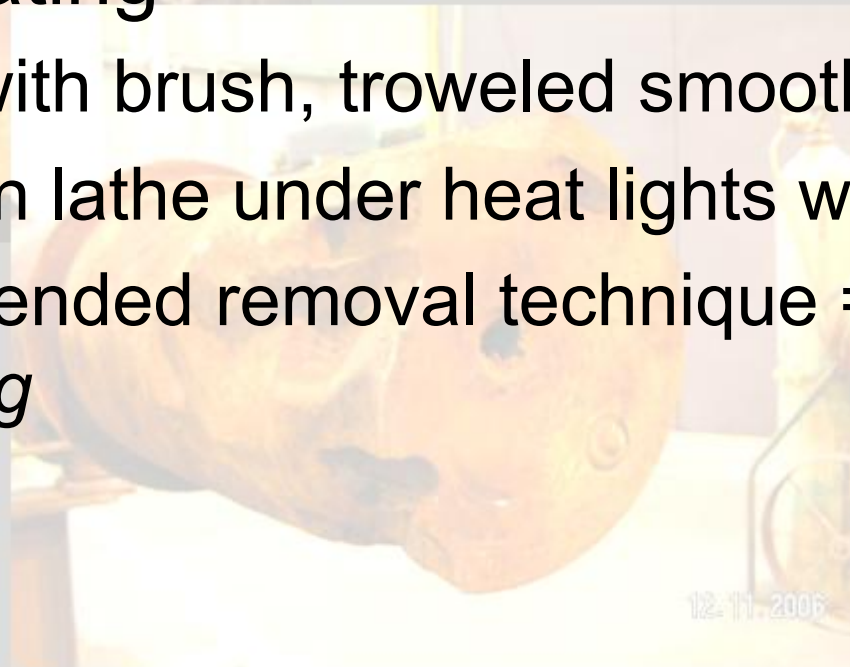
- Epoxy Coating
  - 2 part epoxy
  - Flexible, tough
  - Normally used to coat ship propeller shafts
  - Promising results in river dredge





# Morgan Falls U3

- Epoxy Coating
  - Applied with brush, troweled smooth
  - Turned on lathe under heat lights while curing
  - Recommended removal technique = *machining*



12-11-2006

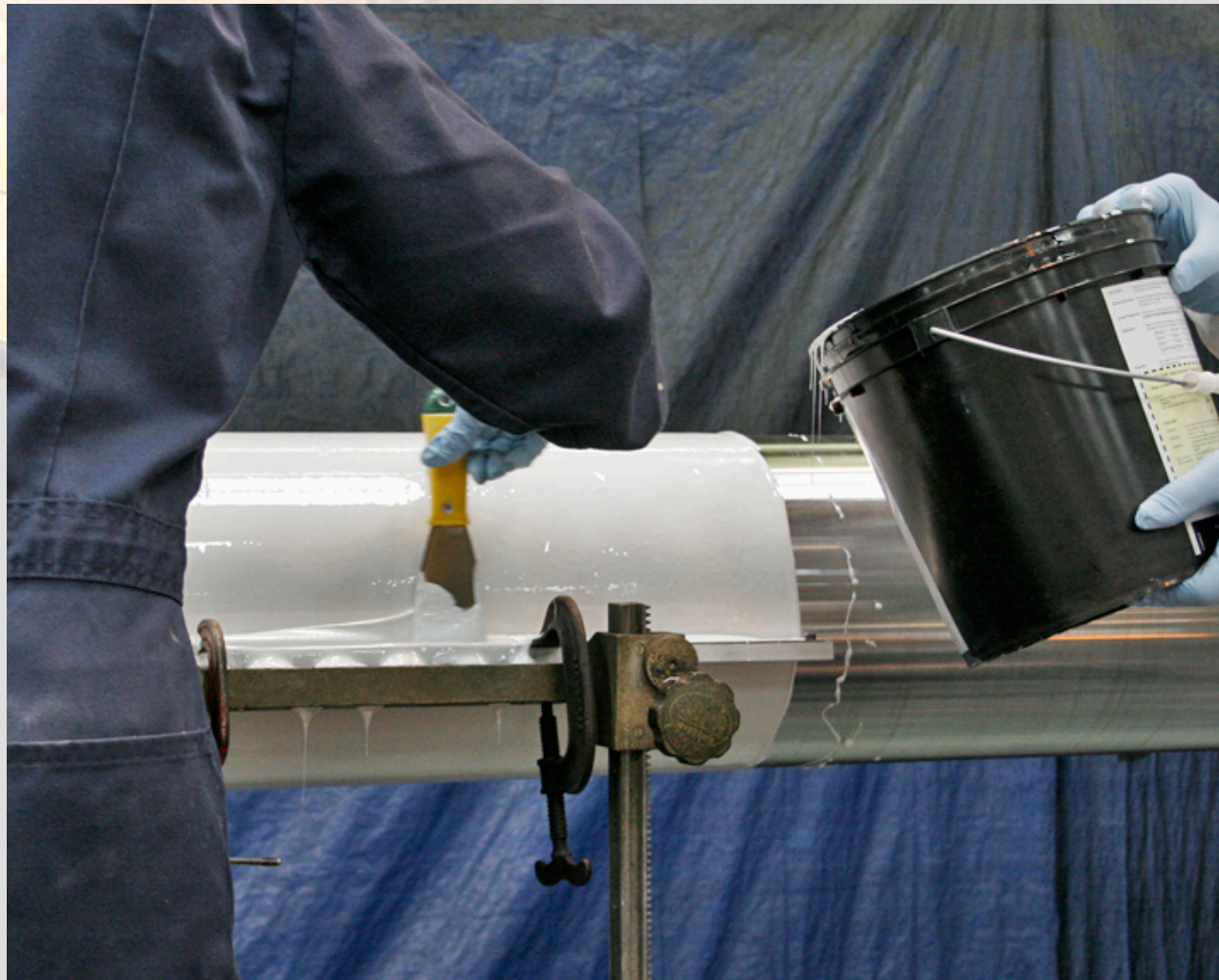


# Morgan Falls U3





# Morgan Falls U3

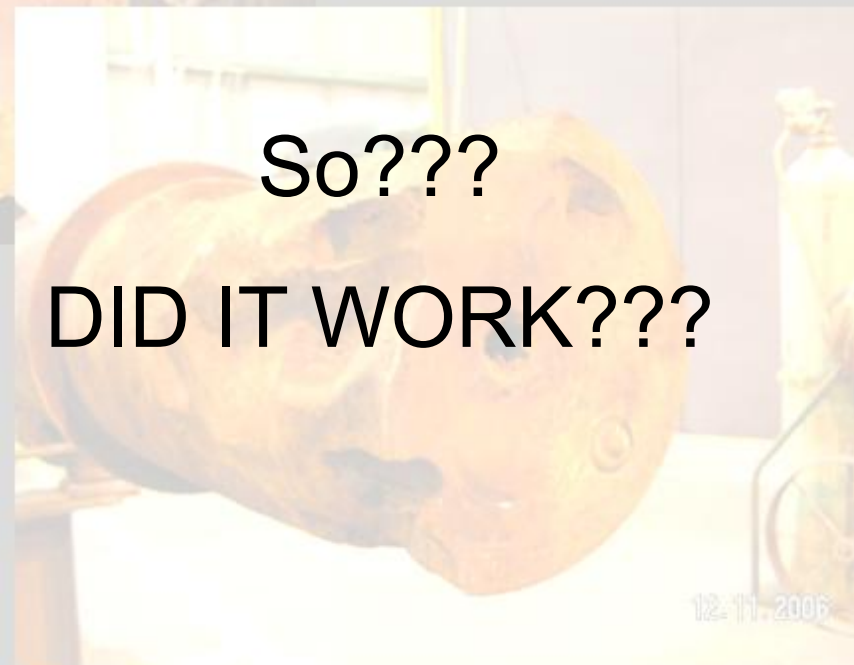


# Morgan Falls U3





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# Morgan Falls U3





# Morgan Falls U3



# Any Suggestions?

- Forward any ideas to :
  - Chuck DeVane, [cadevane@southernco.com](mailto:cadevane@southernco.com)
  - Larry Moore, [lbmoore@southernco.com](mailto:lbmoore@southernco.com)

