

Projects Impacting Federal Power Kansas City District

Southwestern Federal Hydropower Conference
Hot Springs, AR

Pete Hentschel, P.E.
Chief, Maintenance Engineering Section
Kansas City District
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US Army Corps of Engineers
BUILDING STRONG[®]



Stockton Water Supply Reallocation

- Contract established with City Utilities of Springfield (CUS) on Oct 1993 for 50,000 ac-ft of storage between elevations 830 and 867 msl.
- CUS has began payments on their 2nd half of storage (25,000 ac-ft).
- Tri-State Water Resource Coalition held a meeting at Stockton in Feb 2012.
 - ▶ Meeting was for information and awareness, stressing the fact that water will be needed in the future due to residential/commercial growth within the Tri-State region.
 - ▶ Water supply source hasn't been identified, but they're considering options such as Grand Lake, Stockton, Truman, Table Rock, or possibly new reservoirs.
 - ▶ There is some political interest. This subject was a topic of interest during Senator Blunt's visit to Stockton in Feb 2012.



Stockton Downstream Endangered Mussels

Pink Mucket



Spectaclecase



Stockton

Downstream Endangered Mussels

- Pink Mucket has been listed as an endangered species since 1976 and the spectaclecase **was recently listed** as endangered in April 2012.
- Missouri Department of Conservation (MDC) conducted surveys downstream of the plant in 2009 and 2010.
 - ▶ Final survey report expected to be completed late 2012.
- U.S. Fish & Wildlife (USFW) wants the Corps to initiate ESA consultation for our operation of Stockton Dam.
- We have communicated to USFW that the new turbine design/replacement is a maintenance activity and does **NOT** require any operational changes.



Stockton

Downstream Endangered Mussels

- COE has maintained that the turbine replacement project is considered a Categorical Exclusion from Section 7 Consultation under the Corps' NEPA Regulation (ER 200-2-2).
- Kansas City District's Office of Counsel concurs with this determination.
- Coordination with USFW and MDC will continue.
- Controlled flows will be coordinated with USFW/MDC while plant is out of service in 2013 for additional surveys.



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

- Background

- ▶ Aug 2011 unit experienced a significant oil spill after operating the unit to flush the draft tube.
- ▶ Unit was dewatered and visual inspection revealed oil leakage around the main shaft coupling nut covers.
- ▶ Plant staff removed the nut covers and discovered two failed coupling studs.
- ▶ Unit has recorded approx. 47,000 hours of runtime since being overhauled and placed back into service in 1993.

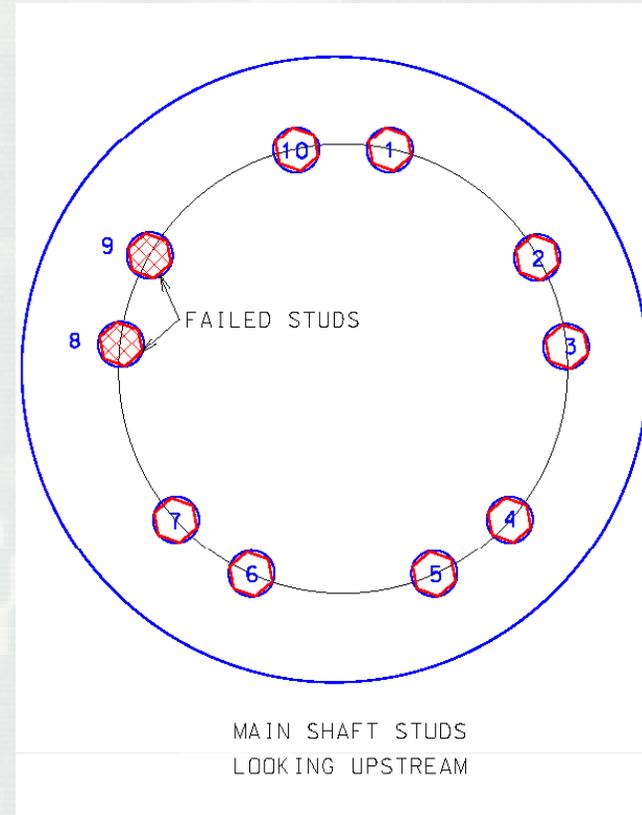


Harry S. Truman Power Plant Unit 6 Main Shaft Coupling Stud Failure

Failed Studs 8 & 9



Main Shaft Studs Layout



Harry S. Truman Power Plant Unit 6 Main Shaft Coupling Stud Failure

Failed Studs 8 & 9



Nut and Washers



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

Mainshaft/Adapter Plate
Dowel Pin



Dowel Pin (protruding out
approx 1 1/2 "



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

- Investigation/Analysis – Completed Activities
 - ▶ Removed broken studs.
 - ▶ Measured adjacent stud lengths (#7 & #10). Measurements indicate studs are stressed/damaged.
 - ▶ Pressure tested hub at 40 psi. Test indicated O-ring seal is ok.
 - ▶ Inspected main shaft flange for cracks. No cracks were found.
 - ▶ Removed stud #4 to check for corrosion, cracks, damage. Stud, washer, and nut were in satisfactory condition with minimal corrosion.



Harry S. Truman Power Plant Unit 6 Main Shaft Coupling Stud Failure

Mainshaft Flange Inspection



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

- Investigation/Analysis/Repair – Ongoing/Future
 - ▶ Procure scaffolding and inspect stub shaft coupling studs and flange. Scaffolding contract has been advertised and awaiting award.
 - ▶ Procure main shaft and stub shaft coupling studs. Contract will be advertised/awarded this Summer.
 - ▶ Procure AE services for measuring runner hub threads and completing failure analysis on broken studs (8 & 9) to confirm cause of failure. Contract will be advertised/awarded this Summer.



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

- Unit 6 Repair
 - ▶ Replace all main shaft coupling studs with new rolled thread design
 - ▶ Replace stub shaft coupling studs if inspection reveals damage
 - ▶ Secure the dowel pin
 - ▶ Upgrade vibration monitoring system
 - ▶ Return unit to service with increased monitoring and inspections
 - ▶ Goal is to have all repairs completed and unit back in service by Dec 2012
 - ▶ Estimated repair cost is \$250K



Harry S. Truman Power Plant

Unit 6 Main Shaft Coupling Stud Failure

- Units 1-5
 - ▶ Will optimize/balance unit run times
 - ▶ Upgrade vibration monitoring systems
 - ▶ Implement phased inspection (2 units/yr) and replacement of main shaft coupling studs before another failure occurs



Questions?

