Rocky Reach Hydroelectric Project

Units C-8:C-11 Turbine Damage

2014 Northwest Hydro Operators Forum

- Background
- Equipment damage
- Interim Solutions
- Final Repairs
- Questions

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Rocky Reach

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Turbines

- End of useful life in 1990's
- Replaced all turbines by 2003
- Converted 4 turbines to Kaplan
- All stainless blades
- Fish friendly design
- Riva HydroArt - Voith

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Generators

- End of useful life in 1999
- Replaced/refurbished all generators by 2006
- Alstom
- Rotor cracks

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Transformers

- Efficiency gains
- Replaced all transformers by 2001
- Converted to air cooled
- Hyundai

- Internal connections causing gassing

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Turbine Problems

- Blade control issues on unit C-10 in March
- Investigations led to total disassembly
- C-8, 9 and 11 removed from service in late September
- Interim repairs complete on all four units
- Final repairs scheduled to begin in June 2015

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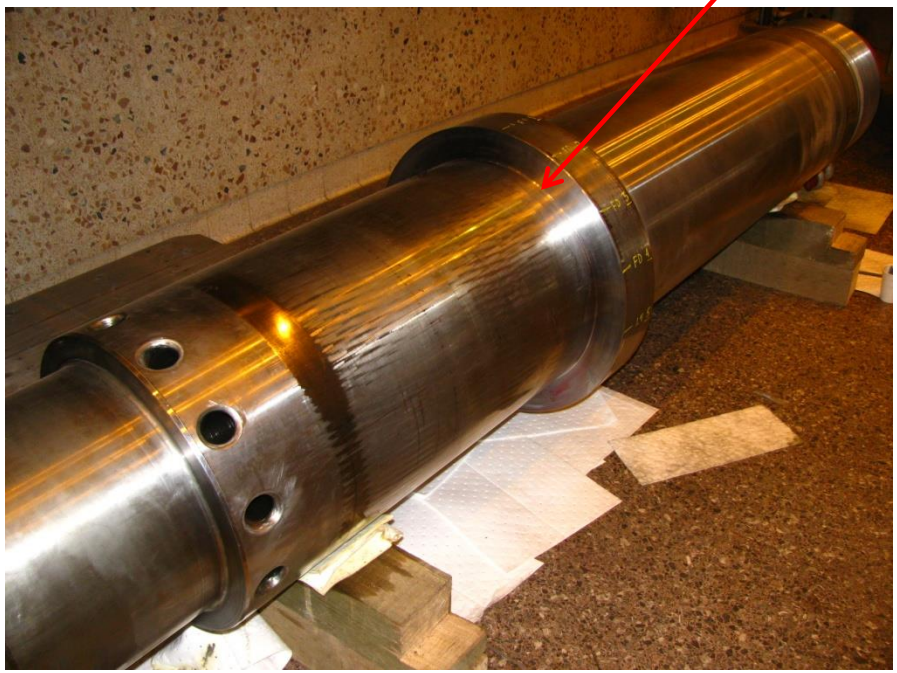
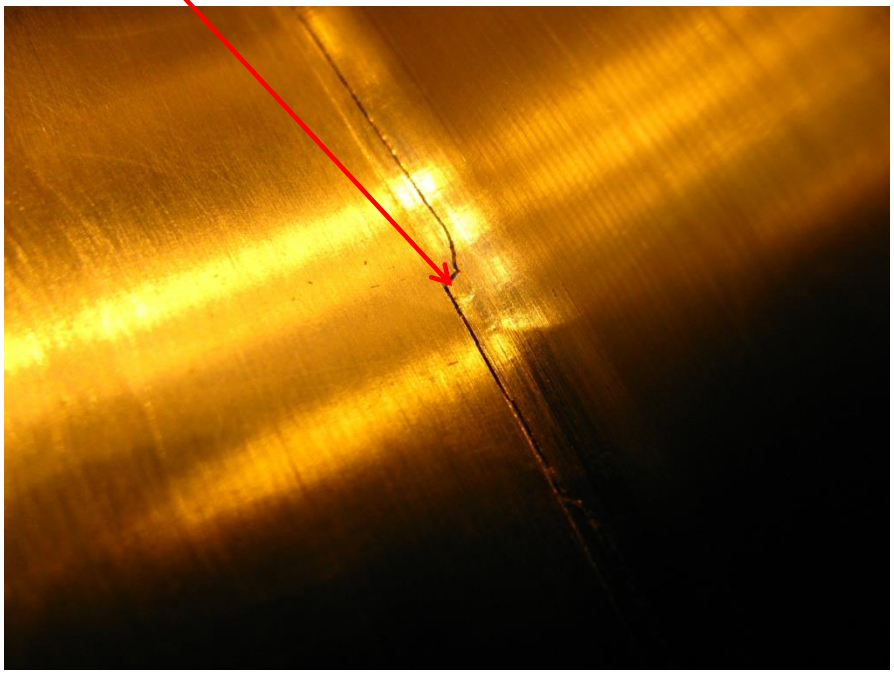
Turbine Damage

1. Servomotor Rod cracks (9/20/13)





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Turbine Damage

2. Head Cover cracks (9/26/13)

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Turbine Damage

3. Outboard Blade Bushing (10-2-13)

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Turbine Damage

4. Servomotor cylinder spider - cracks (10/14/13)

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Interim Repairs

Position and Tack Weld Block

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Interim Repairs

Weld Block

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Interim Repairs

Completed

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Final Repairs/Questions

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