DETECTION OF ROUGH LOAD ZONE IN FRANCIS TURBINES

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Abstract

Mostly in multi disciplinary hydropower machines runner cavitations occur due to the operation in partial loads and running closer or below minimum operating level. That is operation in rough zone. In Francis turbines it is visible in the edges of the runner and draft tube. The damages to the above makes not only the replacement cost, also the down time cost and hence water release to irrigation without producing power.

Considerable interests have been shown over years in prevention of runners from cavitations through condition monitoring. It has been demonstrated that investment in equipment to monitor the state of health of machinery can reduce down time, improve efficiency and enhance safety, thus producing great economic as well as social benefits.

This study basically discusses the process of vibration-based elimination of rough zone using Microlog CMVA 60 portable data collector and PRISM4 data analyzer. This data collector is basically developed to analyze general bearing related problems in small and medium size rotating machines.

It is expected that the research work followed by the proposed design will result a greater benefit in the long run.

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Declaration

I hereby declare that the work presented in this report is my own and not has been submitted earlier or concurrently for any other degree.

Name: ..A.S. Kalansooriya.....

Signature: .....

Date: .....13/12/2004.....

I certify that this work was supervised by me and that the above declaration is true.

Name: ....Dr. UKDLP Udawatt.....

Signature: ***UOM Verified Signature*** .....

Date: .....17.12.2009.....

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