

Strategic Maintenance Planning for an Aging Accelerator Facility

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During the 2014 extended maintenance outage of the Los Alamos Neutron Science Center (LANSCE) accelerator at Los Alamos National Laboratory, a 30-degree bending magnet used to send 800 MeV protons to the Neutron and Nuclear Science facility (WNR) failed catastrophically. The direct cause of the failure was a short in a 24 V power supply installed in the 1970s. As root causes we identified inadequate configuration control as well as a lack of preventive maintenance. A decision was made, some time ago, to run equipment such as this 24 V supply to failure, since the consequence was expected to be low.

Despite increasing challenges due to aging equipment, the LANSCE user facility has enjoyed high numbers of reliability and availability. However, incidents such as the bending magnet failure will become more likely to happen and recovery will become more difficult.

Perhaps a different approach to maintenance planning is required? I will briefly describe the chain of events that led to the catastrophic magnet failure, as an example of maintenance planning gone wrong, discuss how maintenance planning is presently done at LANSCE, and also solicit ideas from other facilities on how maintenance planning could be adapted to overcome the increasing challenges related to an aging facility.

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