Abstract

The Spallation Neutron Source (SNS) injection and extraction kicker systems were designed by Brookhaven National Laboratory for SNS. The kicker control systems were integrated using EPICS and has been used for supporting SNS ring commissioning and now for SNS beam production operations. One of the major challenges for SNS operations is to control beam loss. SNS injection and extraction kicker waveform monitor system has been implemented to support SNS high power operation. In this paper we present a method for the kicker power supply waveform monitor system by using current industrial technology and summary of operation evaluation.

SNS INJECTION AND EXTRACTION KICKER CONTROL SYSTEM WAVEFORM MONITOR AND MACHINE PROTECTION

WEP068
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NEUTRON SCIENCES

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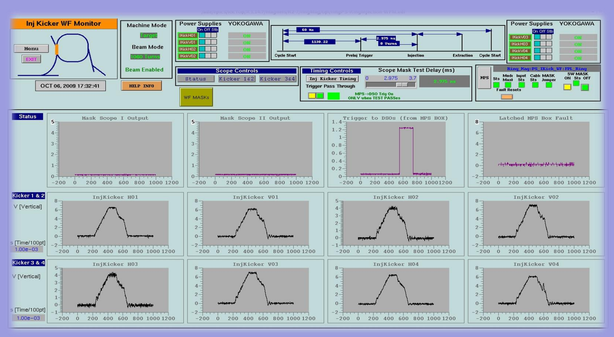
Methodology

Use industrial products

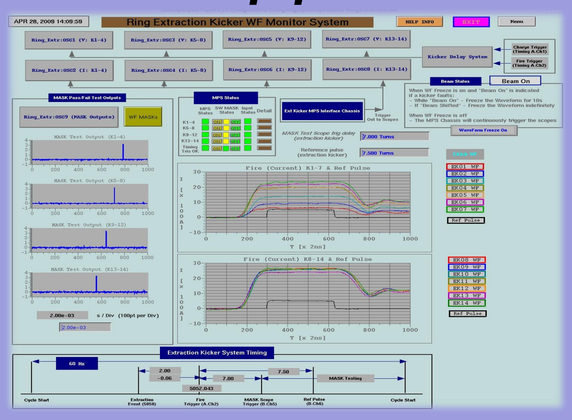
Perform MASK Pass/Fail Test

Make Actions when Test Failed

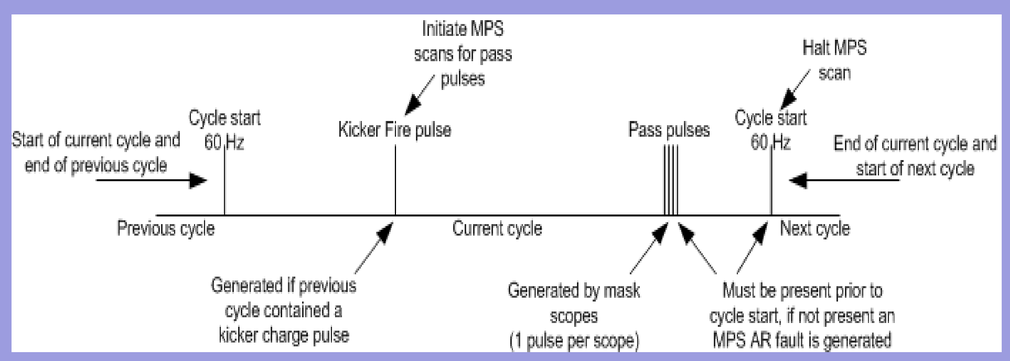
Applications



SNS Injection Kicker Waveform Monitor



SNS Extraction Kicker Waveform Monitor



Timing

Operation Evaluation

Scope Optimization is necessary

- Turn Display Off
- Turn Auto Calibration Off
- Minimum Samples
- Performance Optimize for Analysis

60 Hz Over 18 Hours

	Caught by Scope	Fail Rate	Chatter Fault	Latched Faults
Scope 1 (Kicker 1-4)	2 Faults	51 u%	57	3
Scope 2 (Kicker 5-8)	7 Faults	180 u%	87	5
Scope 3 (Kicker 9-12)	0 Faults	0 u%	14	0
Scope 4 (Kicker 13-14)	0 Faults	0 u%	4	0