

Title			
Project Requestor	Jon Hawkins		
Date	9/17/08		
Group Leader(s)	Greg Markovich		
Machine or Sector Manager			
Category			
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*This row is filled in automatically on check in to ICMS. See Note ¹

Description:

Start Year (FY)	FY08	Duration (Yr)	FY15
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Objectives:

The PSS Generation 1 design has been reviewed by the SIG, RSPPC and the BSDRSC. The result of this review was a list of changes/upgrades to be made to the PSS G1 that will eliminate impending PSS GE PLC hardware and software obsolescence, provide improved testability, better diagnostics and functionality that is consistent with the latest DOE guidelines regarding accelerator safety interlock system design. Also, the existing DIW interface to the PSS, using Love Controllers, will be replaced by PLC analog modules.

Benefit:

The 44 beamlines that use the current PSS G1 system will experience shorter intervals to troubleshoot PSS problems and less time to validate the PSS during its annual testing.

Risks of Project: See Note ²

The risk to the facility is minimal in that all the systems that are directly impacted by changes to the PSS G1 units (i.e .ACIS, FEEPS and BLEPS) are the responsibility of the SIG with well defined interfaces. Clearly changes will be made in a manner such that the current users of the PSS G1 systems would not loose any beam time. This project is straining the resources of the group and will affect the ability of the group to perform modifications to existing PSS or take on new BLEPS.

Consequences of Not Doing Project: See Note ³

The current beamline down time rate would likely stay the same or worsen due to aging hardware. User initiated changes to the PSS G1 code, which occur at a rate of about one per beamline per year, would require more effort to support than with the upgraded PSS G1 unit. If this project is not implemented then the entire SI Group resources would be needed for PSS validations during facility shutdowns.

Cost/Benefit Analysis: See Note ⁴

The benefit to the USERS of the current installed base of 44 PSS G1 systems would be shorter PSS validation times, quicker trouble shooting. The utility to the SIG is that the PSS G1 upgraded design will provide a software architecture that is more modular with standardized internal bit mapping thus requiring less programming effort to support. Also, the PSS G1 upgraded system will take less effort to validate.

Description:

The PSS G1 upgrade project will change/improve both hardware and software in these systems. The nature of these changes will include but not be limited to the following: latch faults in PSS chain B, restructure the PSS G1 code to reflect modular design, eliminate intrusive testing methods by implementing less invasive methods within both the front and beamline G1 PSSs.

This project will require several years to complete.

To complete this project per the below schedule additional resources will be required in FY10.
 1 Engineer, 1 Technician, 1 Designer
 Without these additional resources the upgrade will be pushed out to FY18

Funding Details

Cost: (\$K)

Use FY08 dollars.

Cost (\$k)

Year	AIP	Contingency	Scheduled Installs
1(FY08)	33K+60K		1
2(FY09)	50K		3
3(FY10)	80K		6
4(FY11)	100K		9
5(FY12)	100K		9
6(FY13)	100K		9
7(FY14)	100K		9
8(FY15)	70K		6

Contingency may be in dollars or percent. Enter figure for total project contingency.

Effort: (FTE)

APS Strategic Planning Proposal

The effort portion need not be filled out in detail by March 28

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1		3		2	1	1.25		7.25
2		2		2	2	1.25		7.25
3		3		2	2	1		8
4		3		3	2	2		10
5		3		3	2	2		10
6		3		3	2	2		10
7		3		3	2	2		10
8		2		2	2	2		8
9								0

Notes:

¹ **ICMS.** Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. *Check Out* the previous version and *Check In* the new version. Be sure to complete the *Document Date* field on the check in screen.

² **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work include ... (If no assessment is appropriate then enter NA.)

³ **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the facility. (If no assessment is appropriate then enter NA.)

⁴ **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ____ will also result in improved reliability of _____. (If no assessment is appropriate then enter NA.)