PRINCETON PLASMA PHYSICS LABORATORY

ENG-033 - FDRS - FDR SUMMARY

Final Design Review Summary for Machine Instrumentation Slings and VV Displacement

NSTXU_1-7-3-4_FDRS_101

Work Planning #:
Effective Date: **02/10/2020**
Prepared By: **Peter Dugan**

Reviewed By	Christopher Freeman, Cognizant Individual	02/10/2020 12:51:53 PM
Approved By	Peter Dugan, Design Review Chair	02/10/2020 16:05:53 PM

PRINCETON PLASMA PHYSICS LABORATORY
P.O. BOX 451 PRINCETON, N.J. 08543

APPROVED PPPL

REVIEW DOCUMENATION – RESULTS – NO: NSTXU_1-7-3-4_FDRs_101

Title: Machine Instrumentation Slings and VV Displacement **CAT:** ☐ **A1** ☒ **A2** ☐ **A3**

Type of Review: ☐ **Peer** ☐ **CDR** ☐ **PDR** ☒ **FDR**

Cognizant Individual: C. Freeman **Date of Review: 30 January 2020**

Review Board Members:	**Invited Attendees:**	**Other Attendees:**
Chairperson P. Dugan	D. Loesser	John Mitchell
RE: B. Stratton	Steve Raftopoulos	Roman Rozenblatt
TA: P. Sichta (CI&C)	Greg Tchilinguirian	D. Loesser
TA: P. Titus (Analysis)	S. Gerhardt	
TA:	R. Ellis	
QA: A. Castaneda	Y. Zhai	
ESH: Neil Gerrish		

Regulatory Compliance N/A

Items Reviewed:	**Sat.**	**Unsat.**	**Comments or n/a if not applicable**
Appropriate requirements identified	☒	☐	SRD-011 & RD-008
Development plans and schedules	☐	☐	Complete Nov. 2020
Reg. compliance incl. USI/USID and NEPA	☐	☐	USI Screening DR86
Disposition of CHITS from previous reviews	☐	☐	NSTXU_1-7-3-4_CRR_100
Calculations (all listed are signed and filed)	☐	☐	N/A
Cost objectives	☐	☐	CPI 1.04
Other review objectives addressed	☐	☐	Sling Alignment Memo, FMECA

SUMMARY OF RESULTS:

This was a follow on FDR to specifically address the Fiber-Bragg sensors that were attached to the slings and centerstack vertical displacement as the Sling design was required to be completed before the machine instrumentation job could be completed. The specifics of the design were presented in great detail specifically addressing the tolerance risk. As a result, Bare fiber FBG sensors will be used to minimize sensor thickness and to handle bakeout temps. In order to handle the interface and the tolerance constraints, MCS team developed a memo was developed providing limits to the space claims. While damage of the sensors during installation remains a risk due to the tight tolerances, the design considered this and designed to minimize the impact.

Disposition: [check one]

_____ **Acceptable**

__X__ **Acceptable pending resolution of concerns**- CHITS identified above must be resolved prior to installation.

_____ **Incomplete** - Additional design work is required prior to another design review.

_____ **Unsuccessful** – Corrective actions must be taken and another review process must be initiated.

Design Review Chair Person P. Dugan Date: _____

Cognizant Individual Acceptance C. Freeman Date: _____

Distribution: Review Board Members, Operations Center, Responsible Engineer (RE), Cognizant Individuals, Project Manager, Project Director, relevant Technical Authorities (TAs), Chief Engineer (CE), Fire Protection Engineer, Attendees, QA, ES&H, Security, Requesting & Performing Dept. Head