



ENG-033 - FDRS - FDR SUMMARY

Final Design Review Summary for the NSTX-U Passive Plate and He Tube Supports

NSTXU_1-1-1-1-6_FDRS_100

Work Planning #:

Effective Date:

Prepared By:

02/10/2020

Timothy N. Stevenson

Approved By

Kathleen Lukazik, Preparer

02/10/2020

09:52:33 AM



DESIGN REVIEW DOCUMENTATION – RESULTS – No: _____ #

Title: NSTX-U Passive Plate and He tube supports

CAT: X A1 ☐ A2 ☐ A3

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

Cognizant Individual: Ankita Jarawala

Date of Review: 8/21/19

Review Board Members:	Attendees:	Attendees:
Chair: T. Stevenson	J. Mitchell	S. Horst
RE: D. Loesser	J. Winkelman	W. Slavin
R. Ellis	M-A. DeLooz	D. Reneau
Y. Zhai	A. Khodak	W. Wang
M. Safabakhsh	J. Levine	D. Hasanyan
P. Dugan	P. Titus	S. Ziaei
D. Cai	S. Tiwari	W. Syeb
Castenada, A.	G. Swider	M. Cropper
S. Gifford	R. Hawryluk	A. Brooks
J. Petrella	W. Gattoni	D. Kidd
J. Klabacha	L. Hill	J. Alicia
C. Murphy, GA	M. Styer	D. Boyer
R. Roccella, ITER	V. Riccardo	K. Lukazik
J. Malo	D. Battaglia	C. Rana
	D. Nieminski DOE PSO	

Items Reviewed:	Sat.	Unsat.	Comments or n/a if not applicable
Appropriate requirements identified	X	<input type="checkbox"/>	
Development plans and schedules	X	<input type="checkbox"/>	
Reg. compliance incl. USI/USID and NEPA	X	<input type="checkbox"/>	USI N/A; NSTX-U
Disposition of CHITS from previous reviews	X	<input type="checkbox"/>	
Cost objectives	X	<input type="checkbox"/>	
Other review objectives addressed	X	<input type="checkbox"/>	Human performance factors

SUMMARY OF RESULTS:

This review covered the passive plate as built deficiency findings, addressed the loads on PP and Helium tubes, presented the design solutions for improvements. There are 48 PP half above and half below midplane. The review board and attendees were properly constituted including two external reviewers. The review took the adequate time to fully discuss issues and write chits when necessary. The charge, agenda, presentations, documentation, drawings, calculations, and chit log and responses are available on the Recovery dashboard for this review. The review covered the needs, requirements, interfaces, loads including disruptions, design improvements, analysis, He line supports, electrical strap design and analysis, fabrication and installation, SAD/ASE considerations (none), cost and schedule, and previous chits. The design improvements include stiffeners, tube supports, an electrical strap, an external biscuit support, and blocks. Extensive sampling of in vessel as built status, conditions, accessibility, and human performance were evaluated with the use of 3-D printed prototyping. Technical staff were engaged for feasibility, development of design solutions and improvements, and accessibility. Seventeen chits were accepted; one chit was deemed out of scope for this review as it requires that knowledge of operation inform the strap resistance tuning but the recommendation to consider developing a type of trimming method for resistance can be evaluated as part of installation and developed in the future.

Disposition: [check one]

Acceptable

☒ **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: _____ **Date:** _____

Cognizant Individual Acceptance _____ **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

Revised 8/10/18