PRINCETON PLASMA PHYSICS LABORATORY

ENG-033 - FDRS - FDR SUMMARY

Neutral Beam Duct Shield

NSTXU_1-2-4-3-1_FDRS_100

Work Planning #:
Effective Date: **12/17/2019**
Prepared By: **William R. Blanchard**

Reviewed By	Yusi Cao, Cognizant Individual	12/17/2019 09:49:04 AM
Reviewed By	Robert A. Ellis, Chief Engineer	12/17/2019 15:32:35 PM
Approved By	William R. Blanchard, Design Review Chair	12/17/2019 15:35:57 PM

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

APPROVED
PPPL

DESIGN REVIEW DOCUMENTATION – RESULTS – No:

Title: NB Duct Shield (WBS# 1.04.01.03) _____

CAT: ☐A1 ☒A2 ☐A3

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

Cognizant Individual: A. Cao _____ **Date of Review: 12/16/19**

Review Board Members:	**Other Attendees**
W. Blanchard, Chairperson	R. Upcavage
T. Stevenson (for M. Cropper), Operations	S. Gerhardt
D. Cai, Vacuum RE	G. Guttenfelder
R. Ellis (for M. Kalish), Mechanical TA	D. Niemenski
P. Titus, Analysis TA	
M. Safabakhsh, Fabrication TA	
P Dugan, Systems Engineering	
Y. Zhai, NSTX-U Project Engineer	
H. Wetzel, ES&H	
A. Castaneda, QA	

Items Reviewed:	**Sat.**	**Unsat.**	**Comments or n/a if not applicable**
Appropriate requirements identified	☒	☐	_____
Development plans and schedules	☒	☐	_____
Reg. compliance incl. USI/USID and NEPA	☒	☐	NEPA 1631 _____
Disposition of CHITS from previous reviews	☒	☐	_____
Cost objectives	☒	☐	_____
Other review objectives addressed	☐	☐	_____

SUMMARY OF RESULTS:

The purpose of this FDR was to review the design of the molybdenum shield to be installed in the NB Bay K duct to protect the wall from re-ionized NB beam ions. A. Cao reviewed the segmented shield that was designed to reduce the loads that would be present in a single continuous shield. He further reviewed the resolution to the CDR chits, the thermal and disruption analysis, manufacturability and cost and schedule. There were three chits generated during the review. Two chits pertained to documentation and one concerned the temperature compatibility of the insulating parts of the shield. The review committee concurred with all three chits and deemed the FDR to be successful pending resolution of the chits.

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 _____ 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