



ENG-033 - FDRS - FDR SUMMARY

NSTX-U Private Flux Region Injector FDR Summary

NSTXU_1-3-4-2-5_FDRS_100

Work Planning #:
Effective Date: **01/21/2020**
Prepared By: **George D. Loesser**

Reviewed By	George D. Loesser, Design Review Chair	01/21/2020 11:19:59 AM
Approved By	Dang Cai, Responsible Engineer	01/21/2020 11:32:42 AM

**DESIGN REVIEW DOCUMENTATION – RESULTS – No: #NSTXU 1-3-4-2-5-FDRS****Title: NSTX-U PRIVATE FLUX REGION INJECTOR****FINAL DESIGN REVIEW****CAT: A3****Type of Review: Peer CDR PDR X FDR****Cognizant Individual: Danny Cai Date of Review: 25 Nov 2019**

D. Loesser	Design Review Chairperson
M. Smith	COG Polar Region Design and Fabrication
S. Gerhardt	System Integration
S. Ratfopoulos	Construction Manager
P. Titus	Analysis
B. Ellis	Chief Engineering and ME TA
T. Stevenson	Operations
Y. Zhai	NSTX-U Recovery Project Engineer
QA Representative	Kevin Cortes
ES&H	N. Gerrish

Other Attendees

D. Battaglia
W. Blanchard
B. Gattoni
G. Swider
J. Galay
P. Dugan
D. Cai
M. Cropper
P. Schita
G. Tchilinguirian
J. Mitchell

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

SUMMARY OF RESULTS:

This FDR covered the mechanical, electrical and I&C software design of two Private Flux Region injectors to be installed on the NSTX-U vacuum vessel. Two injectors will be designed, manufactured and installed to inject gas into the private flux region in NSTX-U vacuum vessel via the 285 degree organ pipe at vessel top and the 15 degree organ pipe at vessel bottom. These injectors are used to support operations through deuterium or impurity fueling to mitigate heat flux to plasma facing components and support physics research activities. Stainless steel plenum and piezo-electrical valves will be used together to control a

specific flow rate and total injected mass. NSTXU_1-3-4-2-5_FDRS_100

A single CHIT was generated and dispositioned. The review committee deemed the design review successful pending resolution of the chit.



Dashboard:

<https://sites.google.com/pppl.gov/20191125pfrfuelingfdr/home>

Charge Letter:

<https://drive.google.com/open?id=1HyoaLO9hYxUFHghDF0H2rb9NGiWOPPr9>

Zoom Link:

<https://zoom.us/j/6104504777>.

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 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

Revised 8/10/18