Design Review Documentation - Results No.:

Title: **Bakeout System FDR** **CAT:** ☐A1 ☒ A2 ☐A3

Type of Review: ☐Peer ☐CDR ☐PDR ☒ FDR

Cognizant Individual: **J. Petrella** **Date of Review: 1/10/20**

Review Board Members:		**Attendees:**	**Attendees:**
Chair:	T. Stevenson	J. Alicea	D. Reneau
CE	R. Ellis	W. Blanchard	A. Salazar
TA	D. Cai	J. Browning	S. Weidner
TA	J. Dellas	P. Dugan	
		A. Falcon	
TA	P. Titus	J. Galayda	
TA	M. Cropper	S. Gerhardt	
TA	G. Tchilinguirian	R. Hawryluk	
TA	D. Pryor	A. Indelicato	
PE	Y. Zhai	M. Kalish	
QA	A. Castaneda	S. Raftopoulos	
ESH	N. Gerrish H. Wetzel	M.Ramos	

Items Reviewed:	**Sat.**	**Unsat.**	**Comments or n/a if not applicable**
Appropriate requirements identified	X	☐	
Development plans and schedules	X	☐	
Reg. compliance incl. USI/USID and NEPA	X	☐	
Disposition of CHITS from previous reviews	X	☐	
Calculations (all listed are signed and filed)	X	☐	
Cost objectives	X	☐	
Other review objectives addressed	☐	☐	n/a

SUMMARY OF RESULTS:

The purpose of this final design review was to review the new design schemes per EoC recommendations for the necessary modifications of various components for Bakeout.

The scope included the design in each of the following component areas:

Helium Heating System

The FDR covered the design modifications to the Helium Heating System components including a remote control of the helium valves. It also included the addition of thermocouples on the Helium supply and rerun lines, and pipes that serve the supply and return for local piping on the vacuum vessel.

DC Power Supply

The design and implementation of all the features necessary to install the existing DC power supply at a suitable location, route its output to the top of NSTX-U, and connect its output to existing connection points on the inner (center stack casing) and outer vacuum vessel.

Vacuum Vessel Water Heating System (VVHS)

The FDR covered the design modifications to the VVHS components including the skid that provides the supply of hot, high pressure water as well as piping up to and including the ring manifolds on the NSTX-U device that serve as the supply and return for local piping on the vacuum vessel.

Requirements, Interfaces, previous chits, testing, safety, FMEA, cost and schedule were covered. Eight (8) chits were generated.

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: Timothy N. Stevenson Digitally signed by Timothy N. Stevenson Date: 2020.02.25 11:08:13 -05'00' Date:

Cognizant Individual Acceptance Joseph R. Petrella Jr. Digitally signed by Joseph R. Petrella Jr. Date: 2020.02.25 12:21:03 -05'00' 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