



# DOC - DOCUMENT

## CCS PDR Design Review Results

*NSTXU\_1-7-3-8\_DOC\_100*

Work Planning #: **3032**  
Effective Date: **11/25/2019**  
Prepared By: **Joseph Petrella**

|                    |                                       |                           |
|--------------------|---------------------------------------|---------------------------|
| <b>Reviewed By</b> | Joseph Petrella, Cognizant Individual | 11/25/2019<br>07:13:35 AM |
| <b>Approved By</b> | John Dellas, Design Review Chair      | 11/25/2019<br>08:08:15 AM |



**DESIGN REVIEW DOCUMENTATION – RESULTS –** No: \_\_\_\_\_ #

Title: Centralized Control System (CCS)

CAT: ☐ A1 ☐ A2 ☒ A3

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

Cognizant Individual: Joseph Petrella Date of Review: 10/18/19

| Review Board Members:                          | Invited Attendees:      | Other Attendees:                 |
|--|-------------------------|----------------------------------|
| Chairperson <u>J Dellas</u>                    | <u>S Gerhardt</u>       | <u>J Galayda</u>                 |
| RE <u>T Stevenson</u>                          | <u>G Tchilinguirian</u> | <u>R Hawryluk</u>                |
| TA ( <i>Elect</i> ) <u>T Stevenson</u>         | <u>M Cropper</u>        | <u>S Weidner</u>                 |
| TA ( <i>Control and Data</i> ) <u>P Sichta</u> | <u>J Corl</u>           | <u>M D'Agostino</u>              |
|  | <u>W Blanchard</u>      | <u>X Zhao</u>                    |
|  | <u>S Depasquale</u>     | <u>A Falcon</u>                  |
| QA <u>K Cortes</u>                             | <u>B Smith</u>          | <u>Y Zhai</u>                    |
| ESH <u>J Malo</u>                              |                         |                                  |
| Regulatory Compliance _____                    | <u>P Dugan</u>          | <u>T Estes</u> <u>J Browning</u> |

| Items Reviewed:                                | Sat.                                | Unsat.                   | Comments or n/a if not applicable        |
|--|-------------------------------------|--------------------------|--|
| Appropriate requirements identified            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| Development plans and schedules                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Tightly interfaced to SIS and TKS</u> |
| Reg. compliance incl. USI/USID and NEPA        | <input type="checkbox"/>            | <input type="checkbox"/> | <u>N/A</u>                               |
| Disposition of CHITS from previous reviews     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| Calculations (all listed are signed and filed) | <input type="checkbox"/>            | <input type="checkbox"/> | <u>N/A</u>                               |
| Cost objectives                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| Other review objectives addressed              | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>COE feedback on new COE station</u>   |

**SUMMARY OF RESULTS:**

This review presented the design for the Centralized Control System (CCS), which receives status input from the PSS Safety Instrumented System (SIS) and the Trapped Key System (TKS). The fundamental part of the design is replacement of the contents of the electromechanical relay based COE (Chief Operating Engineer) station with a modern PLC system including an updated front panel physical key and button interface and associated touch screen, monitor-based HMI. The scope boundary for the CCS is up to the connection terminals of the isolation transformers.

Significant areas of discussion included the assigning of unique COE passwords, COE key operations and the display and operation of the new COE display board and key transfer. Past chits from the DVVR era, relating to drawing updating was discussed and clarity was provided on the scope and nature of the updates.

There was a review and discussion of the logic diagrams pertaining to the transferring of the relay based logic (keys and pushbuttons) into the PLC system for the experimental subsystems, including neutral beam lines 1 and 2, FCPC, HHFW and the SLD.

It was demonstrated that failure modes were included in the Recovery project FMECA for the CCS cabinets and no medium or high risks were identified.

In regard to cost and schedule, it was clarified that the costs for the post-FDR activities for the CCS are covered in the planning package for the PSS due to the tightly coupled nature of the activities within the two WBS.

Additionally it is noted that organizing the supporting documentation for the review into a digital design book facilitated the understanding of the design and scope.

Approved 11/25/2019

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There were a total of eight chits generated. The review board recommendation was to concur with seven and to



one (to be investigated).

**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