

REACTOR COOLANT SYSTEM
COLD HYDROSTATIC
TEST
REPORT

ER-ME-01
REVISION 1

AUGUST 18, 1988

TU ELECTRIC
COMANCHE PEAK ENGINEERING

PREPARED BY

Mike Skaggs

8808290245 880823
PDR ADOCK 05000445
A PDC

Procedure/Code Requirement(s)

CP-QAP-12.2, Paragraph 2.3 states in part:

"Pressure tests shall be documented with a Pressure Test Data Package which shall include...a Pressure Test Data Sheet, applicable drawings marked to show the test boundaries..."

CP-QAP-12.2, Paragraph 4.0 states in part:

"No leaking shall be allowed at all welded joints, connections, base metal repairs involving welding, and all regions of high stress."

ASME Section III, NA-4420 states in part that, "procedures shall include appropriate quantitative or qualitative criteria for determining that important activities have been accomplished."

Confirmatory Action

Verify through a records review of all RCS Cold Hydrostatic Test documentation that test isometrics were appropriately highlighted and annotated and the vendor spool sketches identifying welded base metal repairs and welds were attached.

Item 3

Some test isometrics indicate with notes written in red ink that no welded base metal repairs were present. After review of applicable installation documentation and spool packages, base metal repairs involving welding were identified. These base metal repair welds identified are located in the regions of circumferential butt welds. These base metal repair welds were made at the spool fabricator's shop and at the CPSES site.

Additionally, three of these test isometrics contained conflicting notes written in black ink indicating base metal repairs were located as shown. However, spool documentation packages verify that the base metal repairs identified by black ink were cosmetic and did not include welding. These repairs did not violate the minimum design wall thickness as delineated in the design specifications and ASME Section III.

Procedure/Code Requirement(s)

ASME Section III NX-6121 and NX-6224 state in part, respectively:

"All joints, including welded joints shall be ... exposed for examination during the test"

"... all joints, connections, and regions of high stress ... shall be examined for leakage."

Inspection of non-welded base metal repairs is not required by NX-2000 and NX-4000 during the hydrostatic test.

Confirmatory Action

Determine through a fabrication, installation and hydrostatic test records review where all welded base metal repairs are located and initiate appropriate retesting for repairs involving welding that are located outside the inspection zone of any field or shop welds.

Item 4

The "Pressure Data Sheet Attachment" was the cover sheet used by B&R ASME Quality Control to document inspector acceptance of a specific portion of the ASME hydrostatic test. Although not addressed in any of the applicable B&R/construction procedures, the data sheet was used to document the individual acceptance of a specific portion of the system hydrostatic test by the applicable B&R ASME Quality Control inspector and ANI. The Pressure Data Sheet Attachment lists the following categories and compliance statement:

Area (boundary)
Prints (applicable isometrics which delineate the area/boundary)
Inspectors (B&R ASME Quality Control)
Lead/Alternate Inspectors

"All welded joints, connections, base metal repairs involving welding, and all regions of high stress as shown on attached ISOs have been hydrostatic tested and found acceptable."

_____ B&R QCI

_____ ANI

Procedure/Code Requirement(s)

CP-QAP-12.2, Paragraph 4.1 states in part, "Upon completion of the pressure test the quality control inspector shall complete the Quality Checklist and check either the accept or reject space and sign and date the form."

Confirmatory Action

No action for this item is required. The Pressure Data Sheet Attachment was used by B&R as the basis of acceptance for signing the Quality Checklist. The Quality Checklist is the acceptance of the Hydrostatic Test in accordance with CP-QAP-12.2.

2. All base metal repair welds were located in the inspection zone of a shop or field circumferential butt weld inspected during the hydrostatic test weld inspection.
3. No vendor base metal repair welds existed on the primary loop piping.
4. The notes written on the test isometrics (BRPs) which stated, "no major base metal RPSS could be located," were correct (considering 2. above).
5. Fabricator documentation, relative to base metal repair welds, had been adequately reviewed to identify the subject areas.
6. Integrally welded attachments were consistently identified and located on the hydrostatic test isometric. The hydrostatic test isometrics and attached supporting documentation adequately identify the areas within the test boundary that were required to be inspected.

This review verified that the pre Cold Hydrostatic Test documentation review and test package preparation performed by B&R was completed and adequate.

IV. SUMMARY

As a result of TU Electric's assessment of the RCS Cold Hydrostatic Test the following conclusions to those actions required by NE-19869 are provided. Those actions identified are represented below by the following five objectives.

Objective #1

Determine the extent to which the Unit 1 RCS Cold Hydrostatic Test demonstrated system integrity and satisfied applicable ASME Code technical requirements.

Conclusion

The CPSES RCS Cold Hydrostatic Test was completed by Brown and Root and TU Electric Startup utilizing procedures which meet the requirements of ASME Section III, 1980 Edition through the Summer 1981 Addenda and therefore which were adequate to control the activities. The RCS cold hydrostatic test documents (e.g., hydrostatic test isometrics, B&R installation documentation, and applicable Code Data Reports) were initiated, developed, processed and maintained in accordance with Quality Assurance Programs/Manuals which were accredited under the auspices of the ASME. Additionally, the activities performed by B&R, to satisfy the requirements of ASME Section III, were monitored, verified or witnessed by an Authorized Nuclear Inspection Agency representative. The RCS cold hydrostatic test records and related documentation as delineated in Section III.F of this report provide the necessary assurance that the hydrostatic test was completed and inspected adequately.

Objective #2

Determine the extent to which procedures controlling the Unit 1 RCS Cold Hydrostatic Test provided necessary guidance for preparation, conduct, and reviews of the test.

Conclusion

The TU Electric assessment of Hydrostatic Testing Related Procedures is discussed in Section III.D of this engineering report. The confirmatory actions for this portion of the assessment verified that the pre Cold Hydrostatic Test documentation review and test package preparation including the test isometrics performed by B&R were completed and were adequate. The RCS cold hydrostatic test records and related documentation also provide the necessary assurance that the hydrostatic test was completed and inspected adequately. Therefore, the procedures were adequate in that the activity was completed satisfactorily.

Objective #3

Determine the extent to which QC personnel performing acceptance inspections were qualified to conduct those inspections.

Conclusion

As described in Section II of this report, the certification records of each of the thirty-one (31) inspectors utilized for the hydrostatic test program have been evaluated in detail and did not reveal any matters of concern regarding qualification or certification.

Objective #4

Identify and propose resolution of any potentially discrepant conditions.

Conclusion

Attachment 3 of this report provides a list of Deficiency Report (DR) or Nonconformance Report (NCR) numbers noted during the review. Each of the identified DRs and NCRs are closed and the resolution did not result in any additional testing.

Objective #5

Identify any areas where program enhancements could contribute more definitive and comprehensive test packages.

Conclusion

The procedures involved have been changed such that conversion of data packages is no longer required. Our current procedures require the as-issued BRP drawings to identify base metal repairs involving welding, untested vendor welds, and permanent attachment welds. It is no longer necessary to mark up ERP drawings for use during hydrostatic testing. Also, the procedures now require that QC inspector and ANI sign off on the applicable BRP drawing to document their examination of the inspection points noted on the subject drawing.

Attachment 3

MISCELLANEOUS DOCUMENTATION HIGHLIGHTS
NOTED DURING THE ASSESSMENT

1. A copy of NCR 12573S is contained in the test package. This NCR identifies that BRPs RC-1-RB-029, 031, 032 and 033 were not included in the test package. The NCR was dispositioned "use as is" because the plug and cap welds shown on those four BRPs were also shown and highlighted on BRP-RC-1-520-001.
2. BRP-CS-1-RB-025 has a portion of piping not highlighted in yellow as being in the test boundary. This condition was identified and retested per NCR 14575.
3. The following Deficiency Reports (DRs) and Nonconformance Reports (NCRs) were issued as a result of the conducted assessment.
 - DR C-88-03177
 - DR C-88-03178
 - DR C-88-03179
 - DR C-88-03180
 - DR C-88-03181
 - DR C-88-03190
 - NCR 88-09482
 - NCR 88-09483