

COMANCHE PEAK STEAM ELECTRIC STATION
INITIAL STARTUP ADMINISTRATIVE MANUAL

CONTROLLED COPY NO. 051

CONDUCT OF INITIAL STARTUP TESTING

PROCEDURE NO. ISA-004

REVISION NO. 2

SAFETY-RELATED

SUBMITTED BY: *Dw Brownell* DATE: *3/18/85*
ENGINEERING SUPERINTENDENT

APPROVED BY: *R. U. Jones* DATE: *3/28/85*
MANAGER, PLANT OPERATIONS

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| <p style="text-align: center;">CPSES INITIAL STARTUP ADMINISTRATIVE MANUAL</p> | <p style="text-align: center;">ISSUE DATE APR 01 1985</p> | <p style="text-align: center;">PROCEDURE NO. ISA-004</p> |
| <p style="text-align: center;">CONDUCT OF INITIAL STARTUP TESTING</p> | <p style="text-align: center;">REVISION NO. 2</p> | <p style="text-align: center;">PAGE 2 OF 14</p> |

1.0 Purpose

The purpose of this procedure is to specify requirements for conduct of Initial Startup testing.

2.0 Applicability

This procedure applies to personnel involved in conducting Initial Startup tests.

3.0 Definitions

3.1 Shift Test Director - The engineer responsible for supervising all initial startup testing during one shift.

3.2 Test Engineer - An individual qualified to direct or supervise the conduct of initial startup testing as specified in ISA-003.

3.3 Occurrence - Any event which by itself causes or could cause a deviation from the analyzed transient or safety analysis or an event which is a deviation from established procedures such that the intent of the procedure is changed.

4.0 Instructions

4.1 Responsibilities

4.1.1 The Shift Test Director is responsible for supervising and/or directing the conduct of Initial Startup testing during his shift and for coordinating testing with the Shift Supervisor.

4.1.2 The Test Engineers are responsible for directing the conduct of approved test procedures as assigned by the Shift Test Director.

4.2 General Instructions for Test Conduct

4.2.1 Shift Turnover

4.2.1.1 An Initial Startup Turnover Sheet (Attachment 1) shall be completed, indicating plant and test status. Both the off-going and on-coming shift test directors shall review, date, and sign the Initial Startup Turnover Sheet. Turnover briefings shall be held as required. The Initial Startup Turnover Sheet shall then be placed in the appropriate sequencing test procedure.

| | | |
|--|---------------------------|--------------------------|
| CPSES INITIAL STARTUP ADMINISTRATIVE MANUAL | ISSUE DATE APR 01 1985 | PROCEDURE NO. ISA-004 |
| CONDUCT OF INITIAL STARTUP TESTING | REVISION NO. 2 | PAGE 3 OF 14 |

4.2.2 Log Maintenance and Entries

4.2.2.1 A test log (Attachment 2) shall be maintained for each test procedure containing a narrative of test status. The log shall indicate the person responsible for directing the test and all test participants. The sequence procedure test log may be maintained in a separate bound log book.

4.2.2.2 The Shift Test Director shall maintain the test log for the sequencing procedure. The Test Engineer responsible for directing a specific procedure shall maintain the test log for that procedure.

4.2.2.3 All log entries shall be typed or legibly written or printed in black ball point ink. Corrections shall be handled in accordance with paragraph 4.2.5.

4.2.2.4 The following additional log entries shall be made in the test log of the applicable test procedure:

4.2.2.4.1 Pretest reference review completed.

4.2.2.4.2 Performance of the pretest briefing, including the name of the person responsible for directing the test and the test participants.

4.2.2.4.3 Notification of special conditions, including the name of the Shift Supervisor informed.

4.2.2.4.4 Receipt of approval to start the test, including the name of the Shift Supervisor granting approval.

4.2.2.4.5 Performance of retesting, including the reason for retesting and the reason for any "N/A's" in the signature blocks.

4.2.2.4.6 Notification of test completion or termination, including the name of the Shift Supervisor notified; and for test termination, the reason for termination. The actions performed to restore the equipment shall also be logged.

4.2.2.4.7 Performance of reverification of prerequisites, including the reason for the reverification and reason for "N/A's" in the signature blocks.

4.2.2.4.8 Identification of test problems. When applicable, the problem report number and/or MAR number should also be logged.

4.2.2.4.9 The implementation of procedure changes or procedure revisions.

4.2.2.4.10 The bases for Q.A. waiving a Q.A. surveillance, including the section or step(s) that were waived. This entry shall be made by Q.A. personnel prior to submitting the test procedure to SORC.

4.2.2.5 The following additional log entries shall be made in the test log of the applicable sequence procedure:

4.2.2.5.1 Receipt of approval to start a test, including the name of the Shift Supervisor granting approval.

4.2.2.5.2 Notification of test completion or termination, including the name of the Shift Supervisor notified; and for test termination, the reason for the termination.

4.2.3 Operation of Equipment

4.2.3.1 Permanent plant equipment shall be operated in accordance with STA-601, Authority for Equipment Operation. Test Engineers may operate test equipment.

4.2.4 Procedure Data and Sign Off Entries

4.2.4.1 All signatures required by ISU procedures shall contain at least the first initial and the last name.

4.2.4.2 Only a Test Engineer qualified in accordance with ISA-003, "Training and Qualification Requirements for Initial Startup Personnel" may sign steps in initial startup test procedures.

APR 01 1985

4.2.4.3 Personnel assigned to take data for initial startup tests are not required to be qualified in accordance with ISA-003. Personnel who record data shall date and sign or initial the data sheet.

4.2.4.4 All procedure entries shall be typed or legibly written or printed in black ball point ink. Corrections shall be handled in accordance with paragraph 4.2.5.

NOTE: Steps that contain a verification signature do so in order that temporary modification tags need not be hung to perform the step. This is done in accordance with STA-602, "Temporary Modifications and Bypassing of Safety Functions".

4.2.4.5 A temporary modification performed in accordance with STA-602, "Temporary Modifications and Bypassing of Safety Functions" may be used to replace the verification signature on steps that contain verification signature blocks. If a temporary modification is used in place of the verification signature, place the modification number in the space that has been provided for the verification signature and date.

4.2.4.6 When an "N/A" is required to be recorded in a signature block or on a data sheet, it shall be initialed and dated.

4.2.5 Entry Corrections

4.2.5.1 The entry to be corrected shall be lined through once such that the data may still be read. The correction shall be signed or initialed and dated. The new data or wording shall be entered near the correction.

4.2.5.2 Data or wording shall not be erased, covered by whiteout or made unreadable by any other means.

4.2.6 Trial Use of Test Procedures

4.2.6.1 Prior to fuel load, some approved test procedures may be use-tested with equipment operation to familiarize personnel with the tests and to assure the adequacy of the procedures.

4.2.6.2 The copy of the procedure used during a trial use may not be informally altered to accommodate special plant conditions or to make procedural changes. All changes made to trial use procedures shall be made in accordance with ISA-006, "Initial Startup Test Procedure Changes".

4.3 Pretest Instructions

4.3.1 Reference Review

4.3.1.1 The Test Engineer shall check all references listed in section 4.0 of each procedure prior to conduct of each section of the test to ensure that all of the references are current. The latest revision of any references which are not current shall be reviewed for impact on the procedure and the procedure shall be changed or revised as necessary. The reference review shall be documented in the test log. The reference review may be waived provided the references have been checked within the last 7 days.

4.3.2 Pretest Briefing

4.3.2.1 The Test Engineer shall conduct a pretest briefing with the test participants. The briefing should include a summary of the test, precautions and limitations, special conditions, assignment of personnel and other information as necessary. The performance of the briefing shall be logged.

4.3.3 Notification of Special Conditions

4.3.3.1 Prior to performing a section to which a special condition applies, the Test Engineer shall ensure that the Shift Supervisor, or his designee is notified of the special condition. The Test Engineer shall sign the appropriate block in section 6.0 of the appropriate test procedure after notification is given and shall document the notification in the test log.

4.3.4 Prerequisites

4.3.4.1 The Test Engineer shall ensure that all prerequisites applicable to the test section to be performed have been completed. Prerequisites should be verified and signed off as close to the start of testing as practical.

4.3.4.1.1 Prerequisites which need to be reverified as a result of retesting shall be signed off again on new copies of the pages in accordance with the instructions specified below for Retesting.

4.3.4.1.2 Prerequisites which need to be reverified for reasons other than retesting shall be signed off again on new copies of the pages which are stamped "Test Copy" and inserted in the procedure as follows:

4.3.4.1.2.1 Pages added should be given unique, sequential, alpha-numerical page designations and should be inserted immediately after the last page containing prerequisites which are to be reverified (e.g., if pages 3, 7, 8, and 9 in section 8.1 contain steps that are to be verified, add pages 9a, 9b, 9c, and 9d immediately after page 9).

4.3.4.1.2.2 Enter "N/A" in each Name/Date sign-off, on added pages, for prerequisites which do not pertain to the reverification of prerequisites. Initial and date each "N/A" entered.

4.3.4.1.2.3 Record the added pages on ISA-005-5, Additional Pages Index.

4.3.4.1.2.4 Make a test log entry in the test log describing why the reverification is being performed and why any prerequisite or group of prerequisites is annotated "N/A".

4.3.5 Shift Supervisor Approval

4.3.5.1 The Shift Test Director shall obtain approval from the Shift Supervisor prior to beginning each test, and shall document this approval in the test log of the applicable sequence procedure and in the test log of the applicable test procedure. Prerequisites that do not affect plant conditions may be completed prior to obtaining the Shift Supervisor's approval.

4.4 Test Performance

4.4.1 Instruction Sequence

4.4.1.1 Test procedure sections and steps within sections shall be performed in the order written unless stated otherwise in the procedure.

4.4.2 QA Notification

4.4.2.1 QA shall be notified prior to conducting testing which requires QA surveillance. If QA decides to waive the entire surveillance section, the Test Engineer shall record the name of the QA person waiving the surveillance in the "Q.A. Witness Waived By" block immediately after "Q.A. Notification" and sign and date in the space provided. Testing may continue thereafter. QA may decide to waive individual steps, in which case the Test Engineer shall record the name of the QA person waiving surveillance in the "Q.A. Witness Waived By" block and place "N/A" with initials and date in the Q.A. signoff block. Place "N/A" with initials and date in the "Q.A. Witness Waived By" block if that step has been witnessed by a QA representative.

4.4.3 Retesting

4.4.3.1 New copies of the pages to be repeated, including special conditions and prerequisites, shall be obtained from control copy 063 or 11B of the Initial Startup Test Manual, stamped "Test Copy", and added appropriately into the procedure.

APR 01 1995

4.4.3.1.1 Pages that are added in order to perform a Retest should be inserted in a separate Retest section. Each Retest section shall be numbered sequentially and placed immediately after the last page of the test procedure.

4.4.3.1.2 Enter the "Retest" number in the page number block of each added page (i.e., Retest #1, Retest #2, etc.).

4.4.3.2 Make a note in the margin of the procedure at the point where the Retest is to begin (e.g., "Go to Retest #1.>").

4.4.3.3 Enter "N/A" in each Name/Date sign-off on the Retest pages for steps which are not to be repeated. Initial and date each "N/A" entered.

4.4.3.4 Make a test log entry describing why any step or group of steps is annotated "N/A".

4.4.3.5 Make a note in the margin of the Retest section of the procedure at the point of return to the original procedure (e.g., "Return to step 9.3.4 of the original test procedure.>").

4.4.3.6 The requirements of section 4.3 and 4.4 shall be observed during performance of retesting.

4.4.4 Problem Reporting

4.4.4.1 Test problems and occurrences shall be reported in accordance with STA-504, "Problem Report." All problem reports written against ISU testing should be stamped "ISU" on the first page of the problem report. Copies of all problem reports associated with a procedure shall be maintained with that procedure. During the conduct of thermal expansion testing (e.g., ISU-008A, "Thermal Expansion"), the reporting of deficient supports shall be accomplished in accordance with STA-405, "Control of Nonconforming Materials" in lieu of a problem report.

4.4.5 Procedure Changes

4.4.5.1 Testing shall be performed in accordance with approved test procedures.

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|--|---------------------------|--------------------------|
| CPSES INITIAL STARTUP ADMINISTRATIVE MANUAL | ISSUE DATE APR 01 1985 | PROCEDURE NO. ISA-004 |
| CONDUCT OF INITIAL STARTUP TESTING | REVISION NO. 2 | PAGE 10 OF 14 |

4.4.5.2 The preparation, review, approval, distribution, and implementation of Initial Startup Test Procedure changes which become necessary during the conduct of testing, shall be in accordance with ISA-006, "Initial Startup Test Procedure Changes".

4.4.6 Contingencies

4.4.6.1 If a test is terminated prior to completion, the Shift Test Director shall notify the Shift Supervisor. Proper plant restoration shall be determined by the Shift Supervisor and the Shift Test Director and implemented. Plant restoration may be performed by proceeding to and performing all or part of the restoration steps of the procedure.

4.4.6.2 The circumstances which required stopping the test shall be recorded in the appropriate test log, along with any plant restoration performed.

4.4.6.3 The Shift Supervisors, Assistant Shift Supervisors, Reactor Operators, and Test Engineers have the authority to terminate or disallow testing at any time.

4.4.7 Identification of Additional Data Sheets

4.4.7.1 Any additional paperwork or copies of additional paperwork on which test data is recorded (e.g., strip chart, computer printout) shall be stamped "Test Copy" and retained with the test copy of the appropriate procedure. For permanent plant recorder paper or computer printout, a copy should be retained.

4.4.8 Notification of Test Completion

4.4.8.1 The Shift Test Director shall notify the Shift Supervisor upon completion of each test or test section, and shall document this notification in the test log of the applicable sequence procedure and in the test log of the applicable test procedure. The Shift Test Director shall keep the Shift Supervisor informed of the status of testing.

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|--|---------------------------|--------------------------|
| CPSES INITIAL STARTUP ADMINISTRATIVE MANUAL | ISSUE DATE APR 01 1985 | PROCEDURE NO. ISA-004 |
| CONDUCT OF INITIAL STARTUP TESTING | REVISION NO. 2 | PAGE 11 OF 14 |

4.5 Post Test Instructions

4.5.1 Records Compilation (Test Package)

- 4.5.1.1 The test package for each initial startup test shall be assembled and reviewed for completeness by a Test Engineer each time testing is completed for a given test phase or power level. Contents of the test package shall be in accordance with ISA-005, "Initial Startup Test Package Preparation Review and Approval."
- 4.5.1.2 The test package shall be reviewed to ensure no signature or data spaces have been left blank.
- 4.5.1.3 All Data Sheets contained in the test package shall be reviewed and signed in the space provided by a Test Engineer.
- 4.5.1.4 All computations contained in the test package shall be performed by a Test Engineer who shall sign in the space provided. The computations shall be reviewed by a second Test Engineer who shall sign in the space provided for review.

4.5.2 Test Verification

- 4.5.2.1 The ISU Coordinator or his designee shall review the test package. If the test data contained in the procedure satisfies the acceptance criteria, then he shall sign the Test Verification Sheet. If the test data contained in the procedure does not satisfy the acceptance criteria, he shall enter the Problem Report number in the applicable signature block.

4.5.3 Incomplete test packages shall be made available to the SORC with the appropriate completed ISU sequence procedure test package.

4.5.4 Upon completion of an entire test procedure, the original test package shall be distributed to the ISU Coordinator for test summary preparation.

5.0 References

- 5.1 CPSES FSAR, Chapter 14
- 5.2 Regulatory Guide 1.68, Rev. 2, Initial Test Programs for Water-Cooled Nuclear Power Plants

- 5.3 STA-202, Preparation, Review, Approval and Revision of Station Procedures
- 5.4 STA-405, Control of Nonconforming Materials
- 5.5 STA-504, Problem Report
- 5.6 STA-601, Authority for Equipment Operations
- 5.7 STA-602, Temporary Modifications and Bypassing of Safety Functions
- 5.8 ISA-003, Training and Qualification Requirements for Initial Startup Personnel
- 5.9 ISA-005, Initial Startup Test Package Preparation, Review and Approval
- 5.10 ISA-006, Initial Startup Test Procedure Changes
- 6.0 Attachments
 - 6.1 Initial Startup Turnover Sheet, Form ISA-004-1.
 - 6.2 Initial Startup Test Log, Form ISA-004-2

ATTACHMENT 1
PAGE 1 OF 1

INITIAL STARTUP TURNOVER SHEET

OFF-GOING SHIFT: DAYS SWINGS MIDS (circle one)

PLANT CONDITIONS

| | |
|----------------------------|----------------------------------|
| RX POWER _____ % | ROD CONTROL: AUTO MAN |
| RMUWT LEVEL _____ % | ROD POSITION: BANK C _____ steps |
| CCW PUMPS #1 #2 | BANK D _____ steps |
| RHR PUMPS #1 #2 | RCS Tavg _____ F |
| RWST LEVEL _____ % | STEAM DUMP MODE: _____ |
| RCS PRESS _____ % | FEED PUMPS #1 #2 |
| PZR LEVEL _____ % | S/G LEVELS #1 #2 #3 #4 |
| RCP's #1 #2 #3 #4 | AUX FEED PUMPS MD #1 MD #2 TD |
| CHG PUMPS PD CCP #1 CCP #2 | CONDENSATE PUMPS #1 #2 |
| PLANT MODE _____ | CST LEVEL _____ % |
| | GROSS MWe _____ |
| | NET MWe _____ |

TESTS COMPLETED: _____

TESTS IN PROGRESS: _____

TESTS SCHEDULED FOR NEXT SHIFT: _____

OFF-GOING STD: _____
NAME DATE

ON-COMING STD: _____
NAME DATE

