RELEASE AUTHORIZATION

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Document Title: BCP Selector Valves and Limit Switches

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**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz

January 9, 1995

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TEST TITLE BCP Selector Valves and Limit SwitchesLOCATION Building 221 BPROJECT NUMBER W-007HWORK ORDER CR1238PROJECT TITLE B-Plant Process Condensate Treatment Facility

Prepared By
ICF Kaiser Hanford Company
Richland, Washington

For the U.S. Department of Energy
Contract DE-AC06-93RL12359

PROCEDURE APPROVAL

ICF KAISER HANFORD COMPANY (ICF KH)

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Projects Department	Date	Quality Assurance	Date
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Safety	Date	Operations	Date

EXECUTION AND TEST APPROVAL

EXECUTED BY

R. D. Shinsigal / BPEE
Test Director/Organization

12/5/94
Date

ICF
R. Young - KEH
Test Operator/Organization

11-30-94
Date

Michael Snyder ICF KH
Recorder/Organization

11/30/94
Date

WITNESSES

B. J. Jackson
Witness/Organization

11-30-94
Date

Michael Snyder
Title III Inspector

11/30/94
Date

S. Berg - WHC
Witness/Organization

11/30/94
Date

S. Berg - WHC
Witness/Organization

11/30/94
Date

A-E APPROVAL

ICF Kaiser Hanford Company (ICF KH)

Without exceptions X

With exceptions resolved _____

With exceptions outstanding _____

W. J. Roe
Acceptance Inspection

12/5/94
Date

Kenneth J. Lavin
Design Engineer

12/12/94
Date

B. R. Lang
Project Manager

12/12/94
Date

TEST APPROVAL AND ACCEPTANCE

Westinghouse Hanford Company (WHC)

Without exceptions X

With exceptions resolved _____

With exceptions outstanding _____

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Date

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1/6/95
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1 PURPOSE

This Acceptance Test Procedure (ATP) has been prepared to demonstrate that the Electrical/Instrumentation systems for the BCP stream function as required by project criteria.

2 REFERENCES

2.1 DRAWINGS

H-2-818311, Sh 2, Rev 0	Electrical/Instm - Interface Panel, Intcon Wiring Diagram, with ECN W-007H-14.
H-2-818318, Sh 1, Rev 0	Electrical - Wire Run List, Wiring Diag
H-2-818334, Sh 1, Rev 0	Instrumentation - Interconnection Diagram, BCP Stream

2.2 SPECIFICATIONS

W-007H-C2, Rev 0	Construction Specification
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2.3 ENGINEERING CHANGE NOTICES (ECN)

Prior to final test approval, enter ECNs written against this ATP.

3 RESPONSIBILITIES

3.1 GENERAL

Each company or organization participating in this ATP will designate personnel to assume the responsibilities and duties as defined herein for their respective roles. The designees shall become familiar with this ATP and the systems involved to the extent that they can perform their assigned duties.

3.2 WHC PROJECT ENGINEER

- 3.2.1 Designates a Test Director.
- 3.2.2 Coordinates testing with the Building Manager.
- 3.2.3 Acts as liaison between the participants in acceptance testing.
- 3.2.4 Distributes the approved testing schedule before start of testing.
- 3.2.5 Schedules and conducts a pretest kickoff meeting with test participants when necessary.
- 3.2.6 Notifies the persons performing and witnessing the test 2 days before the start of testing.
- 3.2.7 Schedules a dry run when necessary.

- 3.2.8 Notifies concerned parties when a change is made in the testing schedule.
- 3.2.9 Signs Execution and Test Approval page when test is approved and accepted.
- 3.2.10 Takes necessary action to clear exceptions to the test.
- 3.2.11 Signs Exception Form when exception has been resolved.
- 3.2.12 Provides a distribution list for the approved and accepted ATP(ATR).
- 3.3 TEST DIRECTOR
 - 3.3.1 Coordinates and directs acceptance testing.
 - 3.3.2 Confirms that field testing and inspection of the system or portion of the system to be tested has been completed.
 - 3.3.3 Stops any test which, in his or her judgment, may cause damage to the system until the problem has been resolved.
 - 3.3.4 After verifying there is no adverse impact, may alter the sequence in which systems or subsystems are tested.
 - 3.3.5 Ensures that required environmental conditions are maintained.
 - 3.3.6 If a test is to be suspended for a period of time, ensures that the system is left in a safe mode.
 - 3.3.7 Before restarting suspended test, re-verifies the test prerequisites.
 - 3.3.8 Initiates ECNs to document required changes to the ATP.
 - 3.3.9 Reviews recorded data, discrepancies, and exceptions.
 - 3.3.10 Obtains information or changes necessary to clear or resolve objections during the performance of the test.
 - 3.3.11 Signs Execution and Test Approval page when test has been performed.
 - 3.3.12 Signs Exception Form when exception has been resolved.
 - 3.3.13 Obtains required signatures on the ATP Master prior to reproduction and distribution.
- 3.4 WITNESSES (Provided by Participating Organizations. One witness shall be a Title III acceptance inspector.)
 - 3.4.1 Witness the tests.
 - 3.4.2 Review results of testing.
 - 3.4.3 Assist the Test Director when requested.
 - 3.4.4 Sign Execution and Test Approval page when test has been performed.
 - 3.4.5 Sign Exception Form when exception has been resolved.

3.5 RECORDER (Provided by ICF KH)

- 3.5.1 Prepares a Field copy from the ATP Master.
- 3.5.2 Records names of all designated personnel on Field copy of ATP prior to start of testing.
- 3.5.3 Records test instrument identification numbers and calibration expiration dates.
- 3.5.4 Initials and dates every test step on the Field copy as it is completed next to the step number or on a data sheet, when provided. Records test data. On data sheets where there is not room for both the initial and date, date may be entered at bottom of column.
- 3.5.5 Records objections and exceptions on an Exception form. Uses additional Exception forms as needed. Notifies the Test Director at time the objection is made.
- 3.5.6 Signs Execution and Test Approval page when test has been performed.
- 3.5.7 After test is finished; assigns alpha numeric page numbers to added data sheets and Exception forms. Records page numbers in the Table of Contents.
- 3.5.8 Transfers Field copy entries for each step to the Master in ink or type, signs, and dates. Transmits the completed Master to the Test Director for approval signature routing. Transmits the Field copy to Construction Document Control for inclusion in the official project file.
- 3.5.9 Signs Exception Form when exception has been resolved and transmits to Test Director.

3.6 TEST OPERATOR

- 3.6.1 Performs test under direction of the Test Director.
- 3.6.2 Provides labor, equipment, and test instruments required for performing tests which have not been designated as being provided by others.
- 3.6.3 Requests in writing from the Test Director those services, materials, or equipment that have been designated as being supplied by others.
- 3.6.4 Confirms that all equipment required for performing test will be available at the start of testing.
- 3.6.5 Signs the Execution and Test Approval page.

3.7 A-E ACCEPTANCE INSPECTION, DESIGN ENGINEER, AND PROJECT MANAGER

- 3.7.1 Evaluate results.
- 3.7.2 Sign for A-E Approval on Execution and Test Approval page.

4 CHANGE CONTROL

Required changes to this ATP must be processed on ECNs in accordance with company procedures. If a need for change is discovered in the course of running the test, the test shall be stopped until the ECN is approved. However, this does not prevent the running of another portion of the test unaffected by the change.

5 EXECUTION

5.1 OCCUPATIONAL SAFETY AND HEALTH

Individuals shall carry out their assigned work in a safe manner to protect themselves and others from undue hazards and to prevent damage to property and environment. Facility line managers shall assure the safety of activities within their areas to prevent injury, property damage, or interruption of operation. Performance of test activities shall always include safety and health aspects.

5.2 PERFORMANCE

5.2.1 Conduct testing in accordance with ICF KH Procedure CON 3.5 (Performance and Recording of Acceptance Test Procedures).

5.2.2 Perform test following the steps and requirements of this procedure.

6 EXCEPTIONS

6.1 GENERAL

Exceptions to the required test results are sequentially numbered and recorded on individual Exception forms. This enables case-by-case resolution and approval of each exception.

Errors/exceptions in the ATP itself shall NOT be processed as test exceptions (see Section 4 CHANGE CONTROL).

6.2 RECORDING

6.2.1 Number each exception sequentially as it occurs and record it on an Exception Form (KEH-428), sample appended.

6.2.2 Enter name and organization of objecting party for each exception.

6.2.3 Enter planned action to resolve each exception when such determination is made.

6.3 RETEST/RESOLUTION

Record the action taken to resolve each exception. Action taken may not be the same as planned action.

6.3.1 When action taken results in an acceptable retest, sign and date Retest Execution and Acceptance section of the Exception Form.

6.3.2 When action taken does not involve an acceptable retest, strike out the Retest Execution and Acceptance section of the Exception Form.

6.4 APPROVAL AND ACCEPTANCE

The customer provides final approval and acceptance of exceptions by checking one of the following on Exception Form:

- 6.4.1 Retest Approved and Accepted: Applicable when Retest Execution and Acceptance section is completed.
- 6.4.2 Exception Accepted-As-Is: Requires detailed explanation.
- 6.4.3 Other: Requires detailed explanation.

The customer signs and dates the Exception Form and obtains other customer internal approvals, if required.

6.5 DISTRIBUTION

A copy of the approved Exception Form is distributed to each participant. The signed original is attached to the ATP Master.

7 PREREQUISITES, EQUIPMENT/INSTRUMENTS, ABBREVIATIONS, AND ANNUNCIATORS

7.1 PREREQUISITES

The following conditions shall exist at start of testing for that portion of the system being tested.

- 7.1.1 Systems have been inspected for compliance with construction documents.
- 7.1.2 Reference documents (including this ATP) have been verified for correct revision number and outstanding ECNs.
- 7.1.3 A Prejob Safety Analysis has been prepared and a Prejob Safety Meeting has been conducted.
- 7.1.4 Test instruments have a valid calibration stamp attached. Test instrument identification numbers and calibration expiration dates have been recorded in Para 7.2.
- 7.1.5 Power is available to the interface panel.
- 7.1.6 Voice communications are available between Building 221 B and Building 221 BF.
- 7.1.7 Air is available to the solenoid valves.

7.2 EQUIPMENT/INSTRUMENTS

Supplied by Test Operator unless otherwise noted.

- 7.2.1 Digital Multimeter (DMM) (2): 4-1/2 digit or better, 0.5 percent accuracy minimum, range 0-120 V ac.

Instrument No. 074 Expiration Date 2/15/98

Instrument No. 053 Expiration Date 1/5/95

7.2.2 Shorting jumpers: Lengths as required with insulated clips.

7.2.3 Shorting jumpers with ON-OFF switch: Lengths as required with insulated clips.

7.3 ABBREVIATIONS

ECN Engineering Change Notice

DMM Digital Multimeter

8 SELECTOR VALVES AND LIMIT SWITCHES TEST

This test will verify the operation of the solenoid valves and associated limit switches installed for the BCP portion of W-007H.

8.1 PREPARATION

11/30/94 8.1.1 Verify all prerequisites of Para 7.1 have been met.

11/30/94 8.1.2 Notify Building Manager.

11/30/94 8.1.3 Notify building occupants, as required.

NOTE: Keep appropriate personnel informed as to test status.

8.2 Selector Valve EV-221BF-BCP-1 and Limit Switches ZSA-221BF-BCP-1 and ZSB-221BF-BCP-2.

This test will operate the solenoid valve and verify the proper operation of the associated limit switches based on the position of the solenoid valve.

Reference drawings: H-2-818311, Sh 2 with ECN W-007H-14; H-2-818318, Sh 1; and H-2-818334, Sh 1.

11/30/94 8.2.1 Open the fusible switch terminal blocks and the non-fused isolating switch terminal blocks: EV-221BF-BCP-1-H, EV-221BF-BCP-1-H1A/H1, ZSA-221BF-BCP-1-H, ZSA-221BF-BCP-1-H1A/H1, ZSB-221BF-BCP-2-H, and ZSB-221BF-BCP-2-H1A/H1 on interface panel 221B-W007-TBX-1.

11/30/94 8.2.2 Disconnect wires at Terminals EV-221BF-BCP-1-H and EV-221BF-BCP-1-H1A associated with Wire Run W007-075.

11/30/94 8.2.3 Connect shorting switch (in the open position) to the terminals on the terminal board that the two wires were disconnected from in Step 8.2.2.

11/30/94 8.2.4 Disconnect wires at Terminals ZSA-221BF-BCP-1-H1A and ZSA-221BF-BCP-1-N associated with Wire Run W007-075.

11/30/94 8.2.5 Connect DMM 1 to the terminals on the terminal board that the two wires were disconnected from in Step 8.2.4.

11/30/94 8.2.6 Disconnect wires at Terminals ZSB-221BF-BCP-2-H1A and ZSB-221BF-BCP-2-N associated with Wire Run W007-075.

11/30/94 8.2.7 Connect DMM 2 to the terminals on the terminal board that the two wires were disconnected from in Step 8.2.6.

11/30/94 8.2.8 Close the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.2.1.

11/30/94 8.2.9 Verify reading on DMM 1 is zero and the reading on DMM 2 is approximately 120 V ac.

11/30/94 8.2.10 Close the shorting switch.

- 11/30/94 8.2.11 Verify reading on DMM 1 is approximately 120 V ac and the reading on DMM 2 is zero.
- 11/30/94 *2. P. 100* 8.2.12 Verify visually in the field that the solenoid valve changed positions.
- 11/30/94 8.2.13 Open the 1 A fusible switch terminal block EV-221BF-BCP-1-H.
- 11/30/94 8.2.14 Verify reading on DMM 1 is zero and the reading on DMM 2 is approximately 120 V ac.
- 11/30/94 *2. P. 100* 8.2.15 Verify visually in the field that the solenoid valve changed positions.
- 11/30/94 8.2.16 Open the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.2.1.
- 11/30/94 8.2.17 Disconnect shorting switch and the two DMMs and reconnect the wires to the appropriate terminals.
- 11/30/94 8.2.18 Close the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.2.1.

8.3 Selector Valve EV-221BF-BCP-2 and Limit Switches ZSO-221BF-BCP-3 and ZSC-221BF-BCP-4.

This test will operate the solenoid valve and verify the proper operation of the associated limit switches based on the position of the solenoid valve.

Reference drawings: H-2-818311, Sh 2 with ECN W-007H-14; H-2-818318, Sh 1; and H-2-818334, Sh 1.

- 11/30/94 8.3.1 Open the fusible switch terminal blocks and the non-fused isolating switch terminal blocks: EV-221BF-BCP-2-H, EV-221BF-BCP-2-H1A/H1, ZSO-221BF-BCP-3-H, ZSO-221BF-BCP-3-H1A/H1, ZSC-221BF-BCP-4-H, and ZSC-221BF-BCP-4-H1A/H1 on interface panel 221B-W007-TBX-1.
- 11/30/94 8.3.2 Disconnect wires at Terminals EV-221BF-BCP-2-H and EV-221BF-BCP-2-H1A associated with Wire Run W007-077.
- 11/30/94 8.3.3 Connect shorting switch (in the open position) to the terminals on the terminal board that the two wires were disconnected from in Step 8.3.2.
- 11/30/94 8.3.4 Disconnect wires at Terminals ZSO-221BF-BCP-3-H1A and ZSO-221BF-BCP-3-N associated with Wire Run W007-077.
- 11/30/94 8.3.5 Connect DMM 1 to the terminals on the terminal board that the two wires were disconnected from in Step 8.3.4.
- 11/30/94 8.3.6 Disconnect wires at Terminals ZSC-221BF-BCP-4-H1A and ZSC-221BF-BCP-4-N associated with Wire Run W007-077.
- 11/30/94 8.3.7 Connect DMM 2 to the terminals on the terminal board that the two wires were disconnected from in Step 8.3.6.

- 11/30/94 8.3.8 Close the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.3.1.
- 11/30/94 8.3.9 Verify reading on DMM 1 is zero and the reading on DMM 2 is approximately 120 V ac.
- 11/30/94 8.3.10 Close the shorting switch.
- 11/30/94 8.3.11 Verify reading on DMM 1 is approximately 120 V ac and the reading on DMM 2 is zero.
- 11/30/94 *J. P. [signature]* 8.3.12 Verify visually in the field that the solenoid valve changed positions.
- 11/30/94 8.3.13 Open the 1 A fusible switch terminal block EV-221BF-BCP-2-H.
- 11/30/94 8.3.14 Verify reading on DMM 1 is zero and the reading on DMM 2 is approximately 120 V ac.
- 11/30/94 *J. P. [signature]* 8.3.15 Verify visually in the field that the solenoid valve changed positions.
- 11/30/94 8.3.16 Open the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.3.1.
- 11/30/94 8.3.17 Disconnect shorting switch and the two DMMs and reconnect the wires to the appropriate terminals.
- 11/30/94 8.3.18 Close the fusible switch terminal blocks and the non-fused isolating switch terminal blocks designated in Step 8.3.1.

END OF SECTION 8

EXCEPTION NO.		Project No.		ATP No.		Rev.		
Recorded by			Organization		Date Recorded		ATP Page No.	
Step No.		Requirement						
Description of Problem								
Objector 1 (Name/Organization)				Objector 2 (Name/Organization)				
Planned Action								
Action Taken								
RETEST EXECUTION AND ACCEPTANCE								
Retest Installation Contractor		Date		Recorder		Date		
Witness 1 (Name/Organization)		Date		Witness 2 (Name/Organization)		Date		
Field Engineering		Date		Test Director (Name/Organization)		Date		
Design Engineering (Author of ATP)		Date		A-E Project Engineer		Date		
APPROVAL AND ACCEPTANCE - OPERATING CONTRACTOR								
☐ Retest Approved and Accepted ☐ Exception Accepted-as-is* ☐ Other*								
* Explanation								
Approver 1		Date		Approver 2		Date		
Approver 3		Date		Approver 4		Date		

KEM-428 (8-03)