

NUCLEAR POWER BUSINESS UNIT
OPERATIONS REFUELING TESTS

ORT 6
MAJOR
Revision 16
March 17, 1997

CONTAINMENT SPRAY SEQUENCE TEST
UNIT 2

Date _____
DSS _____
Operations Manager _____

RECORD

PROCEDURE VERIFIED CURRENT AND CHECKED FOR TEMPORARY CHANGES. IF FIELD
COPIES REQUIRED, USE PBF-00261 LAW NP 1.2.4 AND DO NOT COMPLETE THIS BLOCK.

BY: _____ DATE: _____

1.0 PURPOSE

To test the actuation of the containment spray system as required by Technical
Specification 15.4.5.I.B.1 and 2.

2.0 INITIAL CONDITIONS

INITIALS

2.1 Unit 2 is in cold or refueling shutdown condition.

2.2 Spray pump breakers in test.

2.3 Purge supply and exhaust valve cleaning NOT in progress.

2.4 Four stopwatches available.

Stopwatch ID #1 _____
Stopwatch ID #2 _____
Stopwatch ID #3 _____
Stopwatch ID #4 _____

2.5 Perform the following valve lineup:

2SI-868A	Spray isolation	Shut
2SI-868B	Spray isolation	Shut
2SI-831A	Spray additive tank isolation	Shut
2SI-831B	Spray additive tank isolation	Shut
2SI-870A	2P14A Suction from RWST	Shut
SI-870B	2P14B Suction from RWST	Shut
2SI-871A	2P14A Suction from RHR	Shut
2SI-871B	2P14B Suction from RHR	Shut

2.6 Controllers for 2SI-836A and 2SI-836B are in AUTO and
NORMAL/power on.

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2.7 I&C Group notified for relay verification.

2.8 **Permission to Perform Test**

The conditions required by this test are consistent with required plant conditions, including equipment operability. Permission is granted to perform this test.

DSS _____ TIME _____ DATE _____

3.0 PROCEDURE

NOTE: *Timing 2SI-836A&B using the C-01 status lights.*

3.1 Station individuals to time 2P-14A&B and 2SI-836A&B.

3.2 At time zero, push the manual spray buttons for Unit 2 and start the stopwatches for pump and valve timing.

3.3 Verify the following:

3.3.1

2SI-860A	Open
2SI-860B	Open
2SI-860C	Open
2SI-860D	Open

3.3.2 Record as-found time delay for closing of containment spray pump breakers.

2P-14A _____ seconds 2P-14B _____ seconds

3.3.3 Record as-found time delay for opening of 2SI-836A and 2SI-836B.

2SI-836A _____ seconds 2SI-836B _____ seconds

3.3.4 Containment spray and containment ventilation isolation annunciators alarm.

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3.4 Reset both trains of containment spray (Rear C-01) and containment ventilation isolation (Rear 2C-04).

3.5 Check acceptability of spray components:

		Acceptable Range	(Circle One)
2B52-38A	2P-14A breaker close time	9.0 sec to 11.5 sec	SAT/UNSAT
2B52-27A	2P-14B breaker close time	9.0 sec to 11.5 sec	SAT/UNSAT
*2SI-836A	NaOH addition AOV open time	108 sec to 144 sec	SAT/UNSAT
*2SI-836B	NaOH addition AOV open time	108 sec to 144 sec	SAT/UNSAT

*includes operator response time

3.6 I&C adjust the associated time delay per ICP 5.58 for any components that are outside the acceptable range. Repeat Steps 3.1 through 3.5 as required to obtain acceptable time delay(s). Record as-left time delays.

2P-14A	TDR is TDR-18 in 2C-156	_____	seconds
2P-14B	TDR is TDR-28 in 2C-166	_____	seconds
2SI-836A	TDR is 2/926A in C-01	_____	seconds
2SI-836B	TDR is 2/926B in C-01	_____	seconds

3.7 I&C to verify automatic containment spray actuation:

3.7.1 Verify the following containment spray logic bistable trip switches are in NORMAL position.

(Red)	P/945	_____	
(White)	P/946	_____	P/949 _____
(Blue)	P/947	_____	P/948 _____
(Yellow)	P/950	_____	

3.7.2 At "A" Train Safeguards Cabinets 2C-156, 2C-157, verify test switches are in normal position.

	2PC-945B	_____	2PC-946B	_____	
(A2)	2PC-947B	_____	2PC-948B	_____	(B2)
	2PC-949B	_____	2PC-950B	_____	

INITIALS

3.7.3 At "B" Train Safeguards Cabinets 2C-166, 2C-167, verify test switches are in normal position.

	2PC-945B	_____	2PC-946B	_____	
(A2)	2PC-947B	_____	2PC-948B	_____	(B2)
	2PC-949B	_____	2PC-950B	_____	

3.7.4 Place the following containment spray logic bistable trip switches to trip position.

(White)	P/946	_____	P/949	_____
(Blue)	P/947	_____	P/948	_____

3.7.5 Verify the following relays pulled in:

2-CSA in (2C-156) _____
 2-CSB in (2C-166) _____

3.7.6 Place the following containment spray logic bistable trip switches to normal position.

(White)	P/946	_____	P/949	_____
(Blue)	P/947	_____	P/948	_____

***CAUTION* USE CARE TO AVOID ELECTRIC SHOCK AND SHORTING TERMINALS WHEN CHECKING AND ADJUSTING LATCH CLEARANCE.**

***CAUTION* CHECK CLEARANCE WITH A PLASTIC FEELER GAUGE.**

3.7.7 Check relay latching clearance between 0.010" and 0.015" on the following relays.

Adjust as necessary.

	Found		Found
2-CSA		2-CSB	

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3.8 Reset both trains of containment spray.

NOTE: *If adjustments were made in Step 3.7.7, then perform Step 3.9. If no adjustments were made, N/A Steps 3.9 through 3.10 and go to Step 3.11.*

3.9 Recheck the latch clearance on 2-CSA and 2-CSB by performing the following:

3.9.1 Place the following containment spray logic bistable trip switches to trip position.

(White)	P/946	_____	P/949	_____
(Blue)	P/947	_____	P/948	_____

3.9.2 Verify the following relays pulled in:

2-CSA in (2C-156) _____
2-CSB in (2C-166) _____

3.9.3 Place the following containment spray logic bistable trip switches to normal position.

(White)	P/946	_____	P/949	_____
(Blue)	P/947	_____	P/948	_____

CAUTION USE CARE TO AVOID ELECTRIC SHOCK AND SHORTING TERMINALS WHEN CHECKING AND ADJUSTING LATCH CLEARANCE.

CAUTION CHECK CLEARANCE WITH A PLASTIC FEELER GAUGE.

3.9.4 Check relay latching clearance between 0.010" and 0.015" on the following relays.

Adjust as necessary.

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NOTE: *If adjustments were made in Step 3.9, then repeat Steps 3.9 through 3.10. If no adjustments were made, go to Step 3.11.*

3.9.5 Record as left clearance. _____

	Left		Left
2-CSA		2-CSB	

3.10 Reset both trains of containment spray. _____

3.11 Return safeguard test switches to the test position. _____

3.11.1 At "A" Train Safeguards cabinets 2C-156, 2C-157, place the following switches to the test position.

	2PC-945B	_____	2PC-946B	_____	
(A2)	2PC-947B	_____	2PC-948B	_____	(B2)
	2PC-949B	_____	2PC-950B	_____	

3.11.2 At "B" Train Safeguards Cabinets 2C-166, 2C-167, place the following switches to the test position.

	2PC-945B	_____	2PC-946B	_____	
(A2)	2PC-947B	_____	2PC-948B	_____	(B2)
	2PC-949B	_____	2PC-950B	_____	

3.12 Verify that 2SI-836A&B sodium hydroxide addition valves are shut. _____

3.13 Place control switches for **BOTH** containment spray pumps 2P-14A and 2P-14B in PULLOUT. _____

3.14 Open breakers for **BOTH** containment spray pumps. _____

2B52-38A	2P-14A Breaker
2B52-27A	2P-14B Breaker

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3.15 Perform the following lineup, or as directed by DSS:

2SI-860A	2P-14A discharge MOV	AUTO & SHUT	/
2SI-860B	2P-14A discharge MOV	AUTO & SHUT	/
2SI-860C	2P-14B discharge MOV	AUTO & SHUT	/
2SI-860D	2P-14B discharge MOV	AUTO & SHUT	/
2SI-870A	2P-14A Suction from RWST	OPEN	/
2SI-870B	2P-14B Suction from RWST	OPEN	/
2SI-871A	2P-14A Suction from RHR	SHUT	/
2SI-871B	2P-14B Suction from RHR	SHUT	/
2SI-836A	NaOH addition AOV	NORMAL/AUTO/(energized)	/
2SI-836B	NaOH addition AOV	NORMAL/AUTO/(energized)	/
2SI-868A	Spray isolation	LO	/
2SI-868B	Spray isolation	LO	/
2SI-831A	Spray add tank isolation	LO	/
2SI-831B	Spray add tank isolation	LO	/
2B52-38H	2P-14A Breaker racked position	IN	/
2B52-27A	2P-14B Breaker racked position	IN	/
2P-14A	Control switch	AUTO	/
2P-14B	Control switch	AUTO	/

3.16 Inform I&C to schedule containment spray and containment ventilation isolation reset continuity checks per ICP 3.11.

4.0 ANALYSIS

TO BE COMPLETED BY OPERATIONS MANAGER OR HIS REPRESENTATIVE.

- 4.1 Comparisons of test data recorded in Steps 3.3.2, 3.3.3, and 3.6 with the test criteria listed in 3.5 are within allowable tolerances. _____
- 4.2 Comparisons of test data recorded in Steps 3.7.7 and 3.9.5 with the test criteria listed in these steps are within allowable tolerances. _____

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- 4.3 Out of tolerance data forwarded to IPE/NPE for further analysis. (N/A if data within tolerance).

Results of analysis attached.

- 4.4 Any requirements for corrective action?

Yes: _____ No _____

(If yes, give details in the remarks section.)

- 4.5 Data Analyzed By: _____

Time and Date: _____

Remarks:

ATTACHMENT A

MG-6 LATCH CLEARANCE ADJUSTMENT INSTRUCTIONS

- 1.0 Loosen the latch adjustment lock screw located on the upper front of relay between the two adjustment screws.

NOTE: *Turning the latch adjustment screw CCW increases latch clearance.*

- 2.0 Adjust the latch clearance by turning the latch adjustment screw located just above the lock screw (1/4 turn = ~0.015").
- 3.0 Tighten the lock screw and check clearance using a nonmetallic feeler gauge.
- 4.0 Repeat Steps 1 through 3 until latch clearance is 0.012" to 0.015". Document as-left clearance in the appropriate space after electrical operation of relay.