INDIAN POINT
NUCLEAR GENERATING STATION
UNIT NO. 3
NUCLEAR STEAM SUPPLY SYSTEMS
WEDCO CORPORATION

INT-TP-4.12.1

ADDENDUM NO. 1

PROCEDURE TITLE: Service Water Functional Test

PREPARED BY: R. L. Wolfgang
WEDCO OPERATIONS

APPROVED BY: R E Barclay
WEDCO OPERATIONS — DATE 4/4/75

APPROVED FOR PERFORMANCE: R E Barclay — WEDCO OPERATIONS — DATE APR 4 1975
(JTG)
W O Jorgen — CON EDISON — DATE 4/8/75

TEST COMPLETED: WEDCO OPERATIONS — DATE 4/10/75
Thomas J. O'Neil — CON EDISON — DATE 4/10/75

TEST REVIEWED: H.H. L H Bradford — WEDCO OPERATIONS — DATE 4/15/75

RESULTS ACCEPTED: W O Jorgen — CON EDISON — DATE 5/6/75
(JTG)

REMARKS: The acceptance criteria for 6.11.6 could not be met even without changing systems loads as noted next to step. Acceptance criteria for Step 6.11.6 is in accordance with attached letters, telecopies #4439 + #4440 [illegible]

LIST OF EFFECTIVE PAGES

ISSUE	DATE	PAGE NUMBERS
Initial Issue	APR 4 1975	1 - 26
Rev.		
Rev.		
Rev.		

COPY NO. 1

APR 4 1975
INT-TP-4.12.1
ADDENDUM NO. 1

SERVICE WATER FUNCTIONAL TEST

1.0 PURPOSE

To verify, prior to initial criticality operations, that the system supplies flow through all heat exchangers and meets the specified flow requirements when operated in the normal and safeguards recirculation mode. Verification of flows will be accomplished by using existing flowmeters, or by pump head curves and pressures. Final system flow adjustments will be required by Con Edison during power operation when sufficient heat loads are available for FINAL system fine tuning.

2.0 REFERENCES

2.1 Flow Diagrams 9321-F-20333-11 and 9321-F-27223-16.

2.2 Pump curves for Layne & Bowler 2-stage 20KM pumps Curves #70-101 through 70-106.

3.0 ENCLOSURES

3.1 Valve Lineup Sheets (15 pages)

4.0 PREREQUISITES

RW RW 4/7/75 4.1 All stop logs, temporary lights and debris removed from the intake structure with the exception of the fine stationary screen stop logs.

RW RW 4/5/75 4.2 All stop logs, temporary lights and debris removed from the discharge channel.

RW RW 4/9/75 4.3 All manhole covers (or reasonable facsimile) in place over the discharge channel.

RW RW 4/9/75 4.4 The Readiness for Testing Checklist has been completed.

RW RW 4/9/75 4.5 Perform valve lineup in accordance with Enclosure 3.1. Modify valve lineup according to operating equipment requirements, if required.

RW RW 4/9/75 4.6 Maintain communication between pump control area and operating area while running service water pumps.

5.0 PRECAUTIONS

5.1 Do not run service water pumps at a complete shutoff head for more than 5 minutes.

5.2 Do not allow the differential pressure across the Zurn strainers to exceed 15 psig.

5.3 Do not exceed the expected ΔP. If the actual ΔP exceeds the expected ΔP, throttle the control valve or discharge valve to bring the actual ΔP to within the tolerance of the expected ΔP.

6.0 PROCEDURE

6.1 Verify one conventional Service Water pump operating with outlet valve open.

[illegible] 4/9/75 6.1.1 Adjust the flow through #32 Component Cooling heat exchanger until the pump discharge pressure at the pump is 134 +2 -0 psig. This corresponds to 1000 gpm on the pump curve.

Pump No. 31 psig 134 at pump discharge

4/9/75 [illegible] Test gage #017 Cal date 3/14/75

[illegible] 4/9/75 6.2 Turbine Hall Closed Cooling

[illegible] 4/9/75 6.2.1 Lower the red control hand on TC-1109. Valve should open. Leave the valve in open position.

[illegible] 4/9/75 6.2.2 Open SWT-18, inlet to #31 heat exchanger.

Record for information only.

Pump Pressure 118 psig at pump discharge

[illegible] 4/9/75 6.2.3 Open SWT-22, inlet to flash evaporator.

NOTE: Due to Construction activities, if flow cannot be established through the flash evaporator, increase flow through the Turbine Hall Closed Cooling Heat Exchanger to obtain the expected ΔP of Step 6.2.5

Record pump pressure for information only.

118 psig at pump discharge

6.2.4 Place the following equipment in service:

6.2.4.1 The blowdown on the Zurn strainer for the pump in operation and one other strainer for a pump on the same header.

6.2.4.2 The screen wash for one (1) traveling screen.

6.2.4.3 Bearing lubricating water in service to all available Circulating Water Pumps.

6.2.5 Record the pump pressure 112 psig at pump discharge.

To obtain actual ΔP subtract pressure recorded in Step 6.2.5 from Step 6.1.1

Actual ΔP 22 psi

Expected ΔP 22 psi +2 -0

6.2.6 Secure the flow through the Component Cooling water heat exchanger by closing SWN-35.

Record the pump pressure 120 psig at pump discharge.

6.3 Hydrogen Coolers, Exciter Air Coolers and Isophase Bus Duct Coolers

6.3.1 Open SWT-23D. (SWT-23B)

6.3.2 Set PC-1180 at 25 psig. Open SWT-35 to vary PCV-1180. Verify that the controller maintains 25 ±5 psig through the range of the valve.

6.3.3 Open the inlet valve to all isophase coolers.

44 6.3.4 Lower the red control hand on TC-1108. Valve should open. Leave the valve in the open position.

30 6.3.5 Close SWT-35. Lower the red control hand on TC-1101. Valve should open. Leave valve in the open position.

6.3.6 Record pressure at operating pump.

Pump No. 31 psig 94 at pump discharge.

To obtain actual ΔP subtract pressure recorded in Step 6.3.5 from pressure recorded in Step 6.2.6.

Actual ΔP 26 psi

Expected ΔP 26 psi +2 -0

Observe Precaution 5.3.

6.4 Component Cooling Water Heat Exchangers

6.4.1 Isolate Turbine plant loads by closing FCV-1112 and by stopping the screen wash and Zurn strainers.

Observe Precaution 5.1.

6.4.2 Start second conventional SW pump and record both pump pressures.

Pump No. 31 psig 141

Pump No. 32 psig 140

6.4.3 Place #32 Component Cooling Water Heat Exchanger in service.

Adjust SWN-35 for average discharge pressure of 108 psig +2 -0.

Record pump discharge pressures and valve position.

Pump No. 31 psig 108

Pump No. 32 psig 108

Valve Position 30 Turns Open

6.4.4 Reestablish total loads by opening FCV-1112 and establish loads as in Step 6.2.4.

6.5 Record non-essential header pressure in the CCR and at the discharge of both operating pumps.

CCR 85 psig

Pump No. 31 psig 92

Pump No. 32 psig 91

6.5.1 Return temperature controllers to their normal settings: TC-1109 (100°F), TC-1108 (120°F), TC-1101 (115°F).

Align the system to meet plant conditions.

NOTE: The following tests check the essential side components (nuclear):

6.6 Diesel Generator Lube Oil and Water Jacket Coolers

6.6.1 Open SWN-62B, SWN-62D, SWN-62F nuclear header SW to #31, #32 and #33 Diesel Generators.

6.6.2 Start one nuclear side SW pump.

6.6.3 Isolate the screen wash header from the pump in service (SWN-4 or SWN-5).

Test gauge used #044 Cal. date 3/10/75

Record pump pressure 140 psig

6.6.4 Deenergize SOV-1274 and 1275, verify adjustment of FCV-1176 and FCV-1176A to a total of 1350 gpm by achieving the expected ΔP from Step 6.6.3 - Step 6.6.4.

Record pressure at the operating pump.

psig 132

Expected ΔP 8 psi +2 -0 Actual ΔP 8 psi

6.7 Turbine Oil Coolers

6.7.1 Open SWT-1 and control flow by opening SWT-6 (TCV-1102 bypass).

6.7.2 Verify PCV-1179 maintains 36 ±5 psig through the full range of the valve operation.

6.7.3 Shut SWT-6 bypass.

6.7.4 Open TCV-1102 and record pressure at the operating pump. Leave TCV-1102 in the open position.

To obtain actual ΔP subtract pressure recorded in Step 6.7.4 from pressure recorded in Step 6.6.4.

Pump No. 34 psig 114 at pump discharge

Actual ΔP 18 psi

Expected ΔP 17 psig +2 -0

Observe Precaution 5.3.

6.8 Seal Oil Coolers

6.9.1 Open SWT-9

6.9.2 Lower the red control hand on TC-1106 and verify that TCV-1106 opens. Leave TCV-1106 in the open position.

6.9.3 Open SWT-12.

6.9.4 Lower the red control hand on TC-1107 and verify that TCV-1107 opens. Leave TCV-1107 in the open position.

6.9 Control Room Air Conditioning

6.9.1 Open SWN-94A, adjust PCV-1297 to 20 psig and establish flow through the CCR air conditioners.

6.10 Feedwater Pump and Turbine Lube Oil Coolers

6.10.1 Open SWT-16 to Cooler #31.

6.10.2 Place 2 Zurn strainers for the selected group of pumps in continuous blowdown.

6.10.3 Record pressure at the operating pump.

110 psig at pump discharge

To obtain actual ΔP subtract pressure obtained in Step 6.10.2 from pressure in Step 6.7.4.

Actual ΔP 4 psi

Expected ΔP 2 psi +2 -0

Observe Precaution 5.3.

6.11 Containment Ventilation Cooling Coils, Fan Motor Coolers, and Mixing Nozzle

6.11.1 Open SWN-38.

6.11.2 Set each motor cooler flow to approximately 55 gpm by adjusting flow to a total of 250-275 gpm as observed on FI-1130. All valves should be open approximately equal amounts.

JW 4/9/75

CAUTION: DO NOT EXCEED THIS VALUE. AS READ ON FI-1130.

Record valve position and lock valve in position.

#31 ~~2 1/4~~ 2 1/2 #32 ~~2 1/4~~ 2 #33 ~~2 1/4~~ 2 1/2

#34 2 1/4 #35 2 1/4

6.11.3 Adjust flow through FI-1112 (combined radiation monitor line) to 80 gpm.

JW 4/9/75

6.11.4 Adjust flow through TCV-1103 to obtain an expected ΔP of 28 +2 -0 (Step 6.10.3 - 6.11.4).

JW 4/9/75

Actual ΔP 29 psi

Record the pressure of the operating pump 81 psig

6.11.5 Record the header pressure in the CCR 69 psig

6.11.6 Open TCV-1103 until a total flow of 4577 ±225 gpm could not achieve is obtained thru the fan coolers (the sum of FI-1121, 1122, 1123, 1124, 1125 and 1130). Record pressure of the operating pump and in the CCR.

Pump # 34 psig 40 CCR psig 28

6.11.7 Return temperature controllers to their normal settings. TC-1102 (120°F), TC-1106 (100°F), TC-1107 (100°F), TC-1113 (95°F), TC-1103 (120°F).

JW 4/9/75

6.11.8 Align the system to meet plant conditions.

6.11.6 addendum - Achieved 4325 gpm in this step by shutting off flow to #32 Maintenance LO cooler and by opening fully swg-46 along with TCV-1103 open wide. Note: flow-rate spec never achieved JW 4-9-75

6.12 Recirculation Phase Flow Test

6.12.1 Isolate all plant loads from the essential service water header (pump 31, 32 & 33 header).

6.12.2 Start two essential service water pumps and record pump shutoff head. Observe precaution 5.1.

Pump # 31 psig 141

Pump # 32 psig 139

6.12.3 Establish flow through component cooling Heat Exchanger #32 and adjust SWN-35 to obtain a total of 9000 gpm through the heat exchanger. (Required ΔP 26 +2 -0). Record pressures at the operating pumps.

Pump # 31 psig 104

Pump # 32 psig 104

To obtain actual ΔP subtract the pressure obtained in Step 6.12.3 from the pressure recorded in Step 6.12.2.

4/9/75

Actual ΔP 36 psi

Required ΔP ~~22~~ 36 +2 -0 psi

Observe precaution 5.3.

Record SWN-35 valve position. Turns open 34

4/9/75

6.12.4 Record pressure at inlet to Component Cooling Heat Exchanger #32 for information only.

78 psig.

4/9/75

6.12.5 Position or verify the following valves are positioned for recirculation phase.

Valve Number	Position
✓ FCV-1111	Closed
✓ FCV-1112	Closed
✓ SWN-6	Closed
✓ SWN-7	Closed
✓ SWN-31	Open
✓ SWN-32	Open
✓ SWN-33 (2)	Closed
✓ SWN-34 (2)	Open
SWN-62A	Closed
SWN-62B	Open
SWN-62C	Open
SWN-62D	Closed
SWN-62E	Open
SWN-62F	Closed
✓ SWN-4	Closed

Valve Number	Position
✓ SWN-5	Closed
✓ SWN-27 (2)	Open
✓ SWN-70 (2)	Closed
✓ SWN-29	Open
✓ SWN-30	Open
✓ SWN-38	Closed
✓ SWN-39	Open
✓ SWN-94A	Open
✓ SWN-94B	Open
✓ SWN-95	Open
✓ SWN-108C	Closed

6.12.6 Start two non-essential service water pumps. Open SWN-35 for Component Cooling Heat Exchanger #31 the same number of turns as recorded in Step 6.12.3 for Component Cooling Heat Exchanger #32.

Observe precaution 5.1.

6.12.7 Start the third essential service water pump.

6.12.8 Open FCV-1176 and 1176A. Throttle SWN-67 (3) valves in equal amounts to obtain a total flow of 2000 +400 -200 gpm as read on FIC-1176.

Record total flow 2400 gpm

6.12.9 Open TCV-1104 and 1105. Record total flow through the fan coolers and motor coolers (the sum of FI-1121, 1122, 1123, 1124, 1125 & 1130), and flow thru the diesels (FIC-1176).

Fan Cooler Total Flow 8623 gpm

Diesel Total Flow 2100 gpm

If fan cooler total flow does not equal 8320 ±416 gpm, readjust SWN-44 valves as required to obtain 8320 ±416 gpm.

If diesel flow does not equal 2000 $^{+400}_{-200}$, readjust SWN-67 (3) valves to obtain 2000 $^{+400}_{-200}$.

Record adjusted total flow if required.

Fan Cooler N/A gpm Diesel N/A gpm

6.12.10 Record essential pump discharge pressures.

PW 4/10/75 Tal

Pump # 31 psig 87

Pump # 32 psig 86

Pump # 33 psig 87

6.2.11 Record non-essential pump discharge pressures.

PW 4/10/75 Tal

Pump # 34 psig 99

Pump # 35 psig 97

6.2.12 Record pressure at inlet to Component Cooling Heat Exchangers for information only.

PW 4/10/75 Tal

#31 39 psig #32 54 psig

6.12.13 Record convential (essential) and nuclear (non-essential) header pressure in the CCR for information only.

PW 4/10/75 Tal

Conventional 75 psig Nuclear 89 psig

6.12.14 Realign system valves for plant support and construction activities as determined by the Test Supervisors. Indicate position on post valve lineup.

Tal PW 4/10/75

NUCLEAR STEAM SUPPLY SYS. 5
WEDCO CORPORATION

APR 4 1975

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	TEST POSITION VERIFIED	POST T POSITION	POST T VERIFIED
SWN-4	Conventional header to screen wash	O	O		[illegible]	O	[illegible]
SWN-5	Nuclear header to screen wash	X		X	[illegible]	X	[illegible]
FCV-1103	Supply Screen wash	X		X	[illegible]	X	[illegible]
SWN-10	Inlet circ. water pump strainer #33	X		X	[illegible]	X	[illegible]
FCV-1102	Supply screen wash	OFF	Operational		[illegible]	X	[illegible]
FCV-1101	Supply screen wash	X		X	[illegible]	X	[illegible]
SWN-10	Inlet circ. water pump strainer #31	X		X	[illegible]	X	[illegible]
FCV-1107	Supply screen wash	Yes	Operational		[illegible]	X	[illegible]
FCV-1104	Supply screen wash	X		X	[illegible]	X	[illegible]
SWN-10	Inlet circ. water pump strainer #34	X		X	[illegible]	X	[illegible]
FCV-1105	Supply screen wash	TAGGED	Operational		[illegible]	X	[illegible]
SWN-10	Inlet circ. water pump strainer #35	X		X	[illegible]	X	[illegible]
FCV-1106	Supply screen wash	Yes	Operational		[illegible]	OPEN	[illegible]
SWN-10	Inlet circ. water pump strainer #36			X	[illegible]	X	[illegible]
SWN-52	Drain circ. water pump strainer #36	O		X	[illegible]	X	[illegible]
SWN-22	Inlet PCV-1186	O	O		[illegible]	O	[illegible]
PCV-1186	To circ. water pump #36	Yes	Operational		[illegible]	OPEN	[illegible]
SWN-22	Outlet PCV-1186	O	O		[illegible]	O	[illegible]
SWN-23	Bypass PCV-1186	X		X	[illegible]	X	[illegible]

POSITIONED by: [illegible]

VERIFIED by: [illegible]

DATE: 4/9/75

NOTES:

SYSTEM: Service Water System

APR 4 1975

PROCEDURE: Phase II Functional Test INT-TP- 4.12.F ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST T POSITION	P
SWN-2	Outlet service water pump #31	O	O		[illegible]	O	[illegible]
"	" " " " 32	O	O		[illegible]	O	[illegible]
"	" " " " 33	O	O		[illegible]	O	[illegible]
"	" " " " 34	O	O		[illegible]	O	[illegible]
"	" " " " 35	O	O		[illegible]	O	[illegible]
"	" " " " 36	X		X	[illegible]	X	[illegible]
SWN-64	Outlet PCV-1205	O	O		[illegible]	O	[illegible]
"	" " 1206	O	O		[illegible]	O	[illegible]
"	" " 1207	O	O		[illegible]	O	[illegible]
"	" " 1208	O	O		[illegible]	O	[illegible]
"	" " 1209	O	O		[illegible]	O	[illegible]
"	" " 1210	O	O		[illegible]	O	[illegible]
SWN-106	Service Water header vent (NUCL)	X		X	[illegible]	X	[illegible]
SWN-106	Service water header vent (CONV)	X		X	[illegible]	X	[illegible]

POSITIONED by: [illegible] [illegible]

VERIFIED by: [illegible] [illegible]

DATE: 4/9/75 4/10/75

NOTES:

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12-1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
SWN-65	Bypass PCV-1205	✓		X	[illegible]	✓	[illegible]
"	" PCV-1206	✓		X	[illegible]	✓	[illegible]
"	" PCV-1207	✓		X	[illegible]	X	[illegible]
"	" PCV-1208	X		X	[illegible]	X	[illegible]
"	" PCV-1209	X		X	[illegible]	X	[illegible]
"	" PCV-1210	X		X	[illegible]	X	[illegible]
SWN-104	Block to Press. Instruments	O	O		[illegible]	O	[illegible]
SWN-104	Block to Press. Instruments	O	O		[illegible]	O	[illegible]
SWN-59	Stop PC-1111AS	O	O		[illegible]	O	[illegible]
SWN-59	Stop PC-1111BS	O	O		[illegible]	O	[illegible]
PCV-1295	Stop PT-1191	O	O		[illegible]	O	[illegible]
SWN-59	Stop PC-1112AS	O	O		[illegible]	O	[illegible]
SWN-59	Stop PC-1112BS	O	O		[illegible]	O	[illegible]
PCV-1295	Stop PT-1190	O	O		[illegible]	O	[illegible]
FCV 1111	Nuclear header to 16" header	O		X	[illegible]	O	[illegible]
FCV 1112	Conventional to 16" header	O	O		[illegible]	X	[illegible]
SWN-6	Nuclear header to 10" header	✓		X	[illegible]	X	[illegible]
SWN-7	Conventional to 10" header	✓		X	[illegible]	X	[illegible]
SWN-31	Supply component cooling HX (CONV)	O	O		[illegible]	O	[illegible]
SWN-32	" " " " (NUCL)	O	O		[illegible]	O	[illegible]
	POSITIONED by:		[illegible]			[illegible]	
	VERIFIED by:		[illegible]			[illegible]	
	DATE:		4/9/75			4/10/75	

NOTES:

WEDCO CORPORATION

APR 4 - 1975

SYSTEM: Service Water

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST TEST POSITION	POST
SWN-98	Block on conventional side	O	O		[illegible]	O	[illegible]
SWN-99	Block on nuclear side	O	O		[illegible]	O	[illegible]
SWN-33	X-Con. comp. cooling HX	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
SWN-29	Supply to diesel (NUCL)	O	O		[illegible]	O	[illegible]
SWN-30	" " " (CONV)	O	O		[illegible]	O	[illegible]
SWN-77	Vent D/G cooler supply	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
SWN-62B	inlet D/G #31 (NUCL)	X		X	[illegible]	X	[illegible]
SWN-62A	" " #31 (CONV)	O	O		[illegible]	O	[illegible]
SWN-62D	" " #32 (NUC)	X		X	[illegible]	X	[illegible]
SWN-62C	" " #32 (CONV)	O	O		[illegible]	O	[illegible]
SWN-62F	" " #33 (NUC)	X		X	[illegible]	X	[illegible]
SWN-62E	" " #33 (CONV)	O	O		[illegible]	O	[illegible]

POSITIONED by:	R T Hale	[illegible]
VERIFIED by:	[illegible]	[illegible]
DATE:	4/8/75	4/10/75

NOTES:

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
SWN-75	Vent #31 D/G	X		X		X	
"	Vent #32 D/G	X		X		X	
"	Vent #33 D/G	X		X		X	
SWN-67	Outlet #31 D/G coolers	O	O			O	
"	" #32 D/G "	O	O			O	
"	" #33 D/G "	O	O			O	
SWN-68	Stop FIC-1176		O			O	
SWN-68	Stop FIC-1176		O			O	
SWN-68	Stop DPC-1134S	O	O			O	
SWN-68	Stop DPC-1176	O	O			O	
FCV-1176	Combined D/G Outlet	✓	Operational			open	
FCV-1176A	Combined D/G Outlet	✓	Operational			open	
SWN-94	Conv. to A/C Cond.	X		X		X	
SWN-94	Nucl. to A/C Cond.	O	O			O	
SWN-95	From A/C Cond.	X		X		X	
SWN-70	Inlet #31 IACC/HX Nuclear	✓		X		X	
SWN-27	Inlet #31 IACC/HX	✓		X		X	
SWN-70	Inlet #32 IACC/HX Nuclear	O	O			O	
SWN-27	Inlet #32 IACC/HX	X		X		X	
SWN-28	Outlet #31 IACC/HX		O			O	
SWN-28	Outlet #32 IACC/HX		O			O	

POSITIONED by: [illegible] [illegible]

VERIFIED by: [illegible] [illegible]

DATE: 4/9/75 4/10/75

NOTES:

WEDCO CORPORATION

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
TCV-1113	Combined IACC/HX Outlet		Operational				
SWN-87	Inlet TCV-1113		O			O	
SWN-87	Outlet TCV-1113		O			O	
SWN-47	Bypass TCV-1113 (inst. air coolers)			X		X	
SWN-37	Stop PI-1276		O			O	
SWN-37	Stop PI-1277		O			O	
PCV-1271	Supply sample cooler			X		X	
SWN-34	Inlet component cooler HX #31			X		X	
SWN-34	" " " HX #32		O			O	
SWN-49	Sample comp. cool. HX #31			X		X	
SWN-49	" " " HX #32			X		X	
SWN-35	Outlet comp. cool. HX #31		O			X	
SWN-35	" " " HX #32	X	O			X	
PCV-1271	From sample cooler			X		X	
SWN-38	Nuclear supply to recirc. fans			X		X	
SWN-39	X-Conn. nucl. to conv. (recirc. Fans			X		X	
SWN-56	Supply mixing nozzle (nucl)		O			O	
SWN-60	Supply mixing nozzle (conv)			X		X	
SWN-40	Recirc. fans damage cont.		O			O	
"	" " " "		O			O	

POSITIONED by:

VERIFIED by:

DATE: 4/6/75 4/6/75

NOTES:

APR 4 1975

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
SWN-41	Inlet recirc. fan #31	O	O		[illegible]	O	[illegible]
"	" " " #32	O	O		[illegible]	O	[illegible]
"	" " " #33	O	O		[illegible]	O	[illegible]
"	" " " #34	O	O		[illegible]	O	[illegible]
"	" " " #35	O	O		[illegible]	O	[illegible]
SWN-43	Drain recirc. from #31	X		X	[illegible]	X	[illegible]
"	" " " #32	X		X	[illegible]	X	[illegible]
"	" " " #33	X		X	[illegible]	X	[illegible]
"	" " " #34	X		X	[illegible]	X	[illegible]
"	" " " #35	X		X	[illegible]	X	[illegible]
SWN-44	Outlet recirc. fan #31	✓	Adj.		[illegible]	ADJ	[illegible]
"	" " " #32	✓	Adj.		[illegible]	ADJ	[illegible]
"	" " " #33	✓	Adj.		[illegible]	ADJ	[illegible]
"	" " " #34	✓	Adj.		[illegible]	ADJ	[illegible]
"	" " " #35		Adj.		[illegible]	ADJ	[illegible]
SWN-72	Root FT-1121	O	O		[illegible]	O	[illegible]
"	" FT-1121	O	O		[illegible]	O	[illegible]
"	" FT-1122	O	O		[illegible]	O	[illegible]
"	" FT-1122	O	O		[illegible]	O	[illegible]

POSITIONED by: T Allen

VERIFIED by: [illegible]

DATE: 4/9/75 4/9/75

NOTES:

APR 4 1975

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	SHUT	VERIFIED	POST TEST POSITION	
SWN-72	Root FT-1123	○	O		[illegible]	O	[illegible]
"	" FT-1123	○	O		[illegible]	O	[illegible]
"	" FT-1124	○	O		[illegible]	O	[illegible]
"	" FT-1124	○	O		[illegible]	O	[illegible]
"	" FT-1125	○	O		[illegible]	O	[illegible]
"	" FT-1125	○	O		[illegible]	O	[illegible]
SWN-71	Outlet fan motor #31	/	Adj.		[illegible]	ADJ	[illegible]
"	" " " #32	/	Adj.		[illegible]	ADJ	[illegible]
"	" " " #33	/	Adj.		[illegible]	ADJ	[illegible]
"	" " " #34	/	Adj.		[illegible]	ADJ	[illegible]
"	" " " #35	/	Adj.		[illegible]	ADJ	[illegible]
SWN-51	Sample fan #31	○	O		[illegible]	O	[illegible]
"	" " #32	○	O		[illegible]	O	[illegible]
"	" " #33	○	O		[illegible]	O	[illegible]
"	" " #34	○	O		[illegible]	O	[illegible]
"	" " #35	○	O		[illegible]	O	[illegible]
SWN-61	Combined sample line stop	X		X	[illegible]	X	[illegible]
SWN-61	Supply mixing nozzle	\		X	[illegible]	X	[illegible]
SWN-57	Outlet mixing nozzle	○	O		[illegible]	O	[illegible]
TCV-1104	Outlet recirc. fans (SI)	X		X	[illegible]	X	[illegible]

POSITIONED by:	[illegible]	[illegible]
VERIFIED by:	[illegible]	[illegible]
DATE:	4/9/75	4/10/75

NOTES:

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST TEST POSITION	
TCV-1105	Outlet recirc. fans (SI)	X		X		X	
TCV-1103	" " " (Normal)		Operational			Oper	
SWN-45	Inlet TCV-1103	O	O			O	
SWN-46	Bypass TCV-1103, 1104 & 1105	X		X		X	
SWN-45	Outlet TCV-1103	O	O			O	
SWT-52	Drain 16" header (PIT)	X		X		X	
SWT-22	Makeup to flash evaporator	X		X		X	
SWT-18	Inlet closed cooling system HX #31	X	O			O	
"	" " " " " #32	O		X		X	
SWT-19	Outlet " " " " #31	O	O			O	
"	" " " " " #32	O	O			O	
SWT-20	Inlet TCV-1109	O	O			O	
TCV-1109	Outlet closed cool. system HX		Operational			Oper	
SWT-20	Outlet TCV-1109	O	O			O	
SWT-21	Bypass TCV-1109	X		X		X	
SWT-23B	Inlet PCV-1180	X		X		X	
SWT-23A	Outlet PCV-1180	O	O			O	
SWT-24	Bypass PCV-1180	X		X		X	

POSITIONED by: K T Hilton

VERIFIED by:

DATE: 4/9/75

NOTES:

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION			POST T
			OPEN	SHUT	VERIFIED	POSITION
SWT-25	Inlet exciter air cooler	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
SWT-26	Outlet exciter air cooler	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
"	" " " "	O	O		[illegible]	O
SWT-46	Vent exciter air cooler	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
SWT-45	Drain exciter air cooler	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X
"	" " " "	X		X	[illegible]	X

POSITIONED by: [illegible]

VERIFIED by: [illegible]

DATE: [illegible]

NOTES:

SYSTEM: Service Wate System

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST T POSITION	POST T
SWT-45	Drains exciter air cooler	X		X	[illegible]	X	[illegible]
"	" " " "	✓		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	X		X	[illegible]	X	[illegible]
"	" " " "	✓		X	[illegible]	X	[illegible]
SWT-27	Inlet TCV-1108	○	O		[illegible]	O	[illegible]
TCV-1108	Outlet exciter air cooler	Y-S	Operational		[illegible]	[illegible]	[illegible]
SWT-27	Outlet TCV-1108	○	O		[illegible]	O	[illegible]
SWT-28	Bypass TCV-1108	X		X	[illegible]	X	[illegible]
SWT-49	Vent/drain valve	X		X	[illegible]	X	[illegible]
"	" "	X		X	[illegible]	X	[illegible]
SWT-44	Isophase Outlet	○	O		[illegible]	O	[illegible]
"	" "	○	O		[illegible]	O	[illegible]
"	" "	○	O		[illegible]	O	[illegible]
SWT-29	Supply iso. phase bus HX	○	O		[illegible]	O	[illegible]
SWT-30	Inlet ISO-Phase "A" HX	○	O		[illegible]	O	[illegible]
"	" " "B" "	○	O		[illegible]	O	[illegible]
"	" " "C" "	○	O		[illegible]	O	[illegible]
Note	Inlet ISO-Phase A	✓		X	[illegible]	X	[illegible]

POSITIONED by:	[illegible]	[illegible]
VERIFIED by:	[illegible]	[illegible]
DATE:	4/9/75	4/10/75

NOTES: Valves are not numbered on flow diagram.

SYSTEM: Service Water System APR 4 1975

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
Note	Inlet ISO-Phase A	X		X	[illegible]	X	[illegible]
"	Inlet ISO-Phase B	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	Inlet ISO-Phase C	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	Outlet ISO-Phase A	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
"	" " B	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
"	" " C	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
SWT-51	Vent ISO-Phase cooler	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
SWT-29	Return line isolation	O	O		[illegible]	O	[illegible]
SWT-39	Root PI-1187	O	O		[illegible]	O	[illegible]
SWT-32	Inlet H_2 cooler	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]

POSITIONED by: K T Nl[illegible] [illegible]

VERIFIED by: [illegible] [illegible]

DATE: [illegible] [illegible]

NOTES:

APR 4 1975

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POSITION	
SWT-32	Inlet H_2 cooler	O	O		[illegible]	O	[illegible]
SWT-47	Drain H_2 cooler	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
"	" " "	X		X	[illegible]	X	[illegible]
*	Vent H_2 Cooler	X		X	[illegible]	X	[illegible]
*	Vent H_2 Cooler	X		X	[illegible]	X	[illegible]
*	Vent H_2 Cooler			X	[illegible]	X	[illegible]
*	Vent H_2 Cooler			X	[illegible]	X	[illegible]
SWT-33	Outlet H_2 cooler		O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
SWT-34	Inlet TCV-1101	O	O		[illegible]	O	[illegible]
TCV-1101	Outlet hydro coolers	Yes	Operational		[illegible]	open	[illegible]
SWT-34	Outlet TCV-1101	O	O		[illegible]	O	[illegible]
SWT-35	Bypass TCV-1101	X		X	[illegible]	X	[illegible]
SWT-37	Stop PC-1180	O	O		[illegible]	O	[illegible]
SWT-37	Stop PC-1123S	O	O		[illegible]	O	[illegible]
SWT-50	Stop PI-1188	O	O		[illegible]	O	[illegible]

POSITIONED by:	R T Allen	[illegible]
VERIFIED by:	[illegible]	[illegible]
DATE:	4/9/75	4/9/75

NOTES: *No Number

SYSTEM: Service Water System APR 4 1975

PROCEDURE: Phase II Functional Test INT-TP- 4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	SHUT	VERIFIED	POST POSITION	
SWT-68	Strainers isolation to Brine & Vacuum Pump	X		X	[illegible]	X	[illegible]
SWT-49	Header vent			X	[illegible]	X	[illegible]
"	" " MAIN	V		X	[illegible]	X	[illegible]
"	" " DRAIN	X		X	[illegible]	X	[illegible]
SWT-1	Inlet to PCV-1179	O		X	[illegible]	O	[illegible]
SWT-2	Bypass to PCV-1179	X		X	[illegible]	X	[illegible]
SWT-1	Outlet to PCV-1179	O	O		[illegible]	O	[illegible]
PCV-1179	36 psig regulator	?	Operational		[illegible]	open	[illegible]
SWT-37	Stop PC-1179 & PC-1122S	O	O		[illegible]	O	[illegible]
"	" " "	O	O		[illegible]	O	[illegible]
SWT-53	Root PI-1185		O		[illegible]	O	[illegible]
SWT-3	Inlet turbine LO cooler #31	O	O		[illegible]	O	[illegible]
"	" " " " #32	O	O		[illegible]	O	[illegible]
SWT-4	Outlet Turbine L.O. Coolers	O	O		[illegible]	O	[illegible]
SWT-4	Outlet turbine LO coolers	O	O		[illegible]	O	[illegible]
SWT-5	Inlet PCV-1102	O	O		[illegible]	O	[illegible]

POSITIONED by: [illegible] [illegible]

VERIFIED by: [illegible] [illegible]

DATE: 4/9/75 4/10/75

NOTES:

WEDCO CORPORATION

APR 4 1973

SYSTEM: Service Water System

PROCEDURE: Phase II Functional Test INT-TP-4.12.1 ADDENDUM NO. 1

VALVE	FUNCTION		TEST POSITION OPEN	TEST POSITION SHUT	VERIFIED	POST POSITION	
SWT-5	Outlet TCV-1102	O	O		[illegible]	O	[illegible]
SWT-6	Bypass TCV-1102	✓		X	[illegible]	✓	[illegible]
TCV-1102	Outlet turbine L.O. coolers	[illegible]	Operational		[illegible]	[illegible]	[illegible]
SWT-16	Inlet F.W. pump & L.O. coolers #31	✓		X	[illegible]	X	[illegible]
"	" " " " " #32	✓		X	[illegible]	X	[illegible]
SWT-48	Root PI-1333	O	O		[illegible]	O	[illegible]
SWT-48	Root PI-1334	O	O		[illegible]	O	[illegible]
SWT-9	Inlet seal oil cooler (air side)	X		X	[illegible]	X	[illegible]
SWT-12	" " " " (hyd. side)	X		X	[illegible]	X	[illegible]
SWT-38	Stop PI-1194	O	O		[illegible]	O	[illegible]
SWT-38	Stop PI-1195	O	O		[illegible]	O	[illegible]
SWT-10	Inlet TCV-1106	O	O		[illegible]	O	[illegible]
SWT-10	Outlet TCV-1106	O	O		[illegible]	O	[illegible]
SWT-11	Bypass TCV-1106	X		X	[illegible]	X	[illegible]
TCV-1106	Outlet air side seal oil cooler	✓	Operational		[illegible]	[illegible]	[illegible]
SWT-13	Inlet TCV-1107	O	O		[illegible]	O	[illegible]
"	Outlet TCV-1107	O	O		[illegible]	O	[illegible]
SWT-14	Bypass TCV-1107	X		X	[illegible]	X	[illegible]
TCV-1107	Outlet hyd. side seal oil cooler	YES	Operational		[illegible]	[illegible]	[illegible]

POSITIONED by: [illegible] | [illegible]

VERIFIED by: [illegible] | [illegible]

DATE: 4/9/75 | [illegible]

NOTES:

Change No.	Para. No.	Change Description & Reason	WEDCO/Con Edisc Approval
1	6.3.1	Type - valve No. should be SWT 23B	Robert T Allen 4/9/75 RMG
2	6.7	Opened valve SWN-6 10" header supply	Robert T Allen 4/9/75 RMG
3	6.12.3	Changed ΔP from 22 to 36 36 ΔP required to obtain 9000 GPM total as required by step 6-12.3	RMG 4/9/75 for E. R. Klewatsky

RAC

cc: REB & RLW

United Engineers & Constructors Inc.
A Subsidiary of Raytheon Company
1400 Arch Street, Philadelphia, Pa. 19105

Telecopier #4440
Discipline 11108

April 11, 1975
J. O. 9321-094

TO: Mr. T. L. Erion
Wedco Corporation
Buchanan, NY

Mr. H. F. Clark
Wedco Corporation
Pittsburgh, PA
1-412-356-4585

FROM: Mr. G. C. Duerr
6 City Center

SUBJECT: Indian Point Generating Station
Unit No. 3
Service Water System Tests

In our review of Wedco functional test procedure IMT-TP-4.12.1, Addendum No. 1, we note that you have been provided with an incorrect value for the total flow in Paragraph 6.11.6. The calculated values are as follows:

Fan coolers only	4355 gpm
Fan coolers & motor coolers	4547 gpm

G. C. Duerr
Proj. Eng. Mgr.

GCD:mm
cc: PH Powell
HF Clark
TL Erion
PA Matrera
CC Duerr
Telecopier File