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## Industry/TSTF Standard Technical Specification Change Traveler

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**AFW train operable when in service**

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Priority/Classification: 1) Correct Specifications

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NUREGs Affected:  1430  1431  1432  1433  1434

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**Description:**

Add a note to SR 3.7.5.1 similar to the Note for RHR in SR 3.5.3.1, "An AFW train may be considered OPERABLE during alignment and operation for steam generator level control, if capable of being manually realigned to the AFW mode of operation."

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**Justification:**

AFW is a dual use system. AFW valves may not be in their AFW required position during MODES 2, 3, 4, and 5 when used for steam generator level control or during MODE 1 during a transient (i.e., loss of main feed pump). Adding the note would clarify the intended flexibility allowed and prevent unnecessary Action entry.

This position was put forward to the NRC in a letter from S. E. Quinn, Vice President, Consolidated Edison Company of New York, Inc. to the USNRC dated February 13, 1997. The NRC responded in a letter from J. F. Harold, USNRC, to S. E. Quinn. Copies of the letters are attached.

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### Revision History

**OG Revision 0**

**Revision Status: Closed**

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Revision Proposed by Indian Point 2

Revision Description:  
Original Issue

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#### Owners Group Review Information

Date Originated by OG: 04-Jun-97

Owners Group Comments  
(No Comments)

Owners Group Resolution: Approved Date: 04-Jun-97

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#### TSTF Review Information

TSTF Received Date: 21-Jul-97 Date Distributed for Review 06-Jan-98

OG Review Completed:  BWOG  WOG  CEOG  BWROG

**TSTF Comments:**

2/5/98 - Revise Bases on page B3.7-30, delete last sentence of paragraph, add Insert Bases Note, Delete reviewer's Note on page B3.7-31. WOG only.

TSTF Resolution: Approved Date: 05-Feb-98

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5/27/98

**NRC Review Information**

NRC Received Date: 03-Mar-98 NRC Reviewer:

NRC Comments:  
(No Comments)

Final Resolution: Superseded by Revision

Final Resolution Date: 28-May-98

**TSTF Revision 1**

**Revision Status: Active**

**Next Action: TSTF**

Revision Proposed by WOG

Revision Description:

Revision 1 developed to indicate that the SR Notes and corresponding Bases are in brackets and optional depending on plant design. The IP-2 / NRC letter is also attached.

**Owners Group Review Information**

Date Originated by OG: 23-Feb-98

Owners Group Comments  
(No Comments)

Owners Group Resolution: Approved Date: 23-Feb-98

**TSTF Review Information**

TSTF Received Date: 23-Feb-98

Date Distributed for Review 28-May-98

OG Review Completed:  BWO  WOG  CEOG  BWROG

TSTF Comments:  
(No Comments)

TSTF Resolution: Date:

**Incorporation Into the NUREGs**

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

NUREG Rev Incorporated:

**Affected Technical Specifications**

SR 3.7.5.1 AFW System  
Change Description: LCO Notes

SR 3.7.5.1 Bases AFW System

SR 3.7.5.3 AFW System

SR 3.7.5.3 Bases AFW System

SR 3.7.5.4 AFW System

SR 3.7.5.4 Bases AFW System

5/27/98

INSERT: SR Notes

AFW train(s) may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually realigned to the AFW mode of operation.

INSERT: Bases SRs 3.7.5.1 & 3.7.5.3 Notes

The SR is modified by a Note that states one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW system, OPERABILITY (i.e., the intended safety function) continues to be maintained.

INSERT: Bases SR 3.7.5.4 Note

... one or more AFW trains may be considered OPERABLE during alignment and operation for steam generator level control, if it is capable of being manually (i.e., remotely or locally, as appropriate) realigned to the AFW mode of operation, provided it is not otherwise inoperable. This exception allows the system to be out of its normal standby alignment and temporarily incapable of automatic initiation without declaring the train(s) inoperable. Since AFW may be used during startup, shutdown, hot standby operations, and hot shutdown operations for steam generator level control, and these manual operations are an accepted function of the AFW system, OPERABILITY (i.e., the intended safety function) continues to be maintained.

----- NOTE -----  
 INSERT SR NOTE

AFW System  
 3.7.5  
 TSTF 245  
 REV 1

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	Verify each AFW manual, power operated, and automatic valve in each water flow path, [and in both steam supply flow paths to the steam turbine driven pump,] that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	<p style="text-align: center;">----- NOTE -----            Not required to be performed for the turbine driven AFW pump until [24 hours] after <math>\geq</math> [1000] psig in the steam generator.</p> <p>Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.</p>	[31] days on a STAGGERED TEST BASIS
SR 3.7.5.3	<p style="text-align: center;">----- NOTE -----            Not applicable in MODE 4 when steam generator is relied upon for heat removal.</p> <p>Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	[18] months

INSERT SR NOTE

(continued)

SURVEILLANCE REQUIREMENTS (continued)

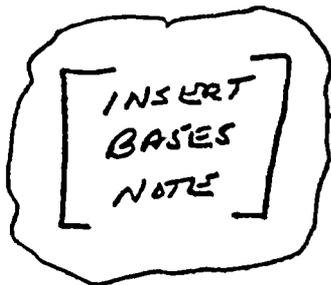
SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.4 -----NOTES-----</p> <div style="border: 1px solid black; padding: 5px;"> <p>1. Not required to be performed for the turbine driven AFW pump until [24 hours] after <math>\geq</math> [1000] psig in the steam generator.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>2. <del>Not applicable in MODE 4, when steam generator is relied upon for heat removal.</del></p> </div> <p>Verify each AFW pump starts automatically on an actual or simulated actuation signal.</p>	<div style="border: 1px solid black; border-radius: 15px; padding: 5px; width: fit-content; margin: 10px auto;"> <p>[INSERT SR NOTE]</p> </div> <p>[18] months</p>
<div style="border: 1px solid black; padding: 5px;"> <p>SR 3.7.5.5 Verify proper alignment of the required AFW flow paths by verifying flow from the condensate storage tank to each steam generator.</p> </div>	<div style="border: 1px solid black; padding: 5px;"> <p>Prior to entering MODE 2, whenever unit has been in MODE 5 or 6 for &gt; 30 days</p> </div>

BASES (continued)

SURVEILLANCE  
REQUIREMENTS

SR 3.7.5.1

Verifying the correct alignment for manual, power operated, and automatic valves in the AFW System water and steam supply flow paths provides assurance that the proper flow paths will exist for AFW operation. This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to locking, sealing, or securing. This SR also does not apply to valves that cannot be inadvertently misaligned, such as check valves. This Surveillance does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position.



The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.5.2

Verifying that each AFW pump's developed head at the flow test point is greater than or equal to the required developed head ensures that AFW pump performance has not degraded during the cycle. Flow and differential head are normal tests of centrifugal pump performance required by Section XI of the ASME Code (Ref 2). Because it is undesirable to introduce cold AFW into the steam generators while they are operating, this testing is performed on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. Performance of inservice testing discussed in the ASME Code, Section XI (Ref. 2) (only required at 3 month intervals) satisfies this requirement. The [31] day Frequency on a STAGGERED TEST BASIS results in testing each pump once every 3 months, as required by Reference 2.

This SR is modified by a Note indicating that the SR should be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.

(continued)

BASES

SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.7.5.3

This SR verifies that AFW can be delivered to the appropriate steam generator in the event of any accident or transient that generates an ESFAS, by demonstrating that each automatic valve in the flow path actuates to its correct position on an actual or simulated actuation signal. This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The [18] month Frequency is acceptable based on operating experience and the design reliability of the equipment.

INSERT  
BASES  
NOTE

This SR is modified by a Note that states the SR is not required in MODE 4. In MODE 4, the required AFW train is already aligned and operating.

SR 3.7.5.4

This SR verifies that the AFW pumps will start in the event of any accident or transient that generates an ESFAS by demonstrating that each AFW pump starts automatically on an actual or simulated actuation signal in MODES 1, 2, and 3. In MODE 4, the required pump is already operating and the autostart function is not required. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

INSERT  
BASES  
NOTE

This SR is modified by [a] [two] Note[s]. [Note 1 indicates that the SR be deferred until suitable test conditions are established. This deferral is required because there is insufficient steam pressure to perform the test.] [The] Note [2] states that the SR is not required in MODE 4. [In MODE 4, the required pump is already operating and the autostart function is not required.] [In MODE 4, the heat removal requirements would be less providing more time for operator action to manually start the required AFW pump.]

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.5.4 (continued)

~~Reviewer's Note: Some plants may not routinely use the AFW for heat removal in MODE 4. The second justification is provided for plants that use a startup feedwater pump rather than AFW for startup and shutdown.~~

SR 3.7.5.5

This SR verifies that the AFW is properly aligned by verifying the flow paths from the CST to each steam generator prior to entering MODE 2 after more than 30 days in MODE 5 or 6. OPERABILITY of AFW flow paths must be verified before sufficient core heat is generated that would require the operation of the AFW System during a subsequent shutdown. The Frequency is reasonable, based on engineering judgement and other administrative controls that ensure that flow paths remain OPERABLE. To further ensure AFW System alignment, flow path OPERABILITY is verified following extended outages to determine no misalignment of valves has occurred. This SR ensures that the flow path from the CST to the steam generators is properly aligned. (This SR is not required by those units that use AFW for normal startup and shutdown.)

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REFERENCES

1. FSAR, Section [10.4.9].
  2. ASME, Boiler and Pressure Vessel Code, Section XI.
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Stephen E. Quinn  
Vice President

TSF 245  
REV 1

Consolidated Edison Company of New York, Inc.  
Indian Point Station  
Broadway & Bleakley Avenue  
Buchanan, NY 10511  
Telephone (914) 734-5340

February 13, 1997

Re: Indian Point Unit No. 2  
Docket No. 50-247

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, DC 20555-0001

SUBJECT: Indian Point 2 Technical Specification Interpretation

As discussed with members of the regulatory staff, Consolidated Edison requests an interpretation of the Technical Specification as to the definition of the term operable as it applies to the Auxiliary Feedwater System (AFW) under certain scenarios. A question was raised during operator training as to the need to declare an LCO (Limiting Condition for Operation) entry for 21 and/or 23 AFW pumps when an operator places auxiliary feed control in manual to control steam generator level(s).

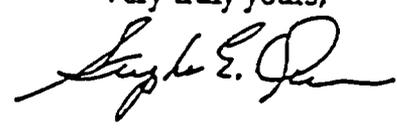
In general, if the pump(s) are in service, this is considered operable (i.e., operating is operable). If on the other hand the pump(s) are placed in off and pull to lock, they are neither operating nor operable. NUREG-1431, Rev. 1, Standard Technical Specifications, Westinghouse Plants, addresses dual use components for RHR (Residual Heat Removal) "An RHR train may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned to the ECCS mode of operation". Using this position a similar intent can be interpreted for AFW.

NRC Inspection Manual Part 9900: Technical Guidance, OPERABLE/OPERABILITY: Ensuring the Functional Capability of a System or Component, 10/31/91, section 6.7, Use of Manual Action in Place of Automatic Action, states, in part, "the licensee's determination of operability with regard to the use of manual action must focus on the physical differences between automatic and manual action and the ability of the manual action to accomplish the specified function". The differences include "... emergency operating procedures written for automatic mode of operation". The Indian Point Emergency Operating Procedures contain the required instructions in steps 9, 19, and 20 of procedure E-0, Reactor Trip Or Safety Injection, to ensure that the AFW pumps are running and supplying water to all steam generators.

TSTF 245  
REV 1

Since Indian Point intends to convert to the NUREG-1431 Standard Technical Specifications, and since this could be considered a generic change to NUREG-1431, a proposed change to NUREG-1431 has been submitted through the approved industry process.

Very truly yours,



cc: Mr. Hubert J. Miller  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 23, 1997

TSTF 245  
R2V1

Mr. Stephen E. Quinn  
Vice President, Nuclear Power  
Consolidated Edison Company  
of New York, Inc.  
Broadway and Bleakley Avenue  
Buchanan, NY 10511

SUBJECT: MANUAL VS. AUTOMATIC OPERATION AS IT RELATES TO AUXILIARY FEEDWATER  
OPERABILITY AT INDIAN POINT NUCLEAR GENERATING UNIT NO. 2  
(TAC NO. M98056)

Dear Mr. Quinn:

The NRC staff has reviewed your request for an interpretation of the technical specification as to the definition of OPERABLE as it applies to the auxiliary feedwater (AFW) system under certain scenarios, submitted by letter dated February 13, 1997. The question raised was; does one declare the AFW system inoperable when the operator places AFW control in manual to control steam generator level(s)?

"NRC Inspection Manual Part 9900: Technical Guidance, OPERABLE/OPERABILITY: Ensuring the Functional Capability of a System or Component" specifically addresses this condition in Section 6.7 "Use of Manual Action in Place of Automatic Action." In general, it is not appropriate to take credit for manual action in place of automatic action for protection of safety limits to consider equipment operable. This does not preclude operator action to put the plant in a safe condition, but operator action cannot be a substitute for automatic safety limit protection. However, the licensing of specific plant or system designs includes consideration of automatic and manual action. While approvals have been granted for either or both type actions, not every combination of circumstances has been reviewed from an operability standpoint. Although it is possible, it is not expected that many determinations of operability will be successful for manual action in place of automatic action. Credit for manual initiation to mitigate the consequences of design basis accidents should have been established as part of the licensing review of a plant.

For any other situation in which substitution of manual action for automatic action may be acceptable, your determination of operability with regard to the use of manual action must focus on the physical differences between automatic and manual action and the ability of the manual action to accomplish the specified function. The physical differences to be considered include, but not limited to, the ability to recognize input signals for action, read access to or recognition of setpoints, design nuances that may complicate subsequent manual operation such as auto-reset, repositioning on temperature or pressure, timing required for automatic action, etc., minimum manning requirements, and emergency operation procedures written for automatic mode of operation.

With regards to the AFW system, the staff has already made a determination based on the above discussion and the typical PWR AFW system design of when manual versus automatic operation is permissible. The staff recognizes that

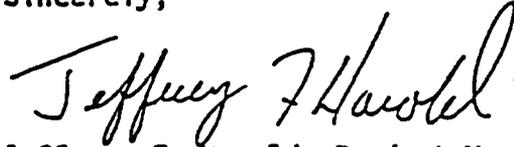
Stephen E. Quinn

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TSTF 245  
REV 1

this system may be used during startup of the plant, normal shutdown, and hot standby conditions and that it is controlled and operated during these conditions in the manual mode of operation. In such situations, the AFW system is considered OPERABLE with regards to the limiting condition for operation and the TS definitions of OPERABLE/OPERABILITY.

Sincerely,



Jefferey F. Harold, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-247

cc: See next page

TSTF 245  
REV 1

Stephen E. Quinn  
Consolidated Edison Company  
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Indian Point Nuclear Generating  
Station Units 1/2

cc:

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