

Volume 05

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Section 02

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OFF-NORMAL EVENT PROCEDURE

LOSS OF FEEDWATER FLOW

SAFETY RELATED

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List of TCN's Incorporated:

Revision	TCN No.
10	None
11	None

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## 1.0 PURPOSE/DISCUSSION

- 1.1 The purpose of this procedure is to provide instructions for the operator in the event of a partial or total Loss of Feedwater Flow.
- 1.2 This procedure may interface with the Emergency Plan and Emergency Procedures.
- 1.3 A Loss of Feedwater Flow results in a net decrease in coolant inventory available for core cooling. This may be caused in startup by a failure of the Startup Level Control Valve or a Condensate Booster Pump, or a Reactor Feed Pump Trip. In run, a partial Loss of Feedwater may be caused by a Heater Drain Pump, Condensate Booster Pump, or Reactor Feed Pump Trip. A total Loss of Feedwater may be caused by a trip of all running feed/condensate pumps. If a total Loss of Feedwater is experienced, a Reactor Scram will occur and HPCS or RCIC will be utilized to restore and maintain Reactor Water Level.

## 2.0 SYMPTOMS

- 2.1 Heater Drain Tank Level Problems
- 2.2 Condensate Pump Trip Alarms
- 2.3 Condensate Booster Pump Trip Alarms
- 2.4 Heater Drain Pump Trip Alarms
- 2.5 Reactor Feed Pump Trip Alarms
- 2.6 Reactor Water Level Low Alarms
- 2.7 Decreasing Feed Flow
- 2.8 Reactor Scram

## 3.0 AUTOMATIC ACTIONS

- 3.1 A recirc flow control valve runback will occur at +31.7" with <2 RFPT's running.
- 3.2 Recirculation Pumps will shift to slow speed if feed flow is <35% for 15 seconds with the FCV at minimum.
- 3.3 A Reactor Scram at +11.4".
- 3.4 A Group III Isolation at +11.4".

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- 3.5 Recirculation Pump Trip at -51"
- 3.6 HPCS and RCIC initiate at -41.6".
- 3.7 Group VI, VII, VIII, X and Auxiliary Building Isolations at -41.6".

#### 4.0 IMMEDIATE OPERATOR ACTIONS

- 4.1 Verify automatic actions occur.
- 4.2 If reactor water level decreases below +11.4", verify the reactor scrams and enter EP-1, Level Control.
- 4.3 If the reactor has not scrammed, perform any or all of the following as necessary to maintain reactor water level between +32" and +42":
  - 4.3.1 Reduce reactor power level.
  - 4.3.2 Start a standby condensate pump, Condensate Booster Pump, Reactor Feed pump, and/or Heater Drain Pump, if available.
  - 4.3.3 If the Startup Level Control Valve has failed closed and should be controlling level, open the FW SU BYP VLV 1N21-F040 using 1N21 HS-M631 on 1H13-P680.

#### 5.0 SUBSEQUENT ACTIONS

- 5.1 Determine and correct cause of loss of feedwater flow.
- 5.2 Once feedwater has been restored, refer to IOI 03-1-01-2, Power Operation.
- 5.3 If RCIC has started, establish at least 2000 gpm in SSW Loop A, in accordance with SOI-04-1-01-P41-1 Standby Service Water System.