

April 30, 1979

SUMMARY OF REVIEW OF DESIGN OF ALL SAFETY
ACTUATION SIGNAL CIRCUITS WHICH INCORPORATE A
MANUAL OVERRIDE FEATURE
FOR
EDWIN I. HATCH NUCLEAR PLANT
UNITS I & II

Valves in this summary have been arranged in accordance with the safety actuation signals which isolate them. All valve MPL numbers are identical for both units. All Unit 2 MPL numbers are prefixed by the number 2.

90-314

7909050 491

Listing I

Primary containment isolation signals to these valves are: Low reactor water level or high drywell pressure.

G11-AOV-F003, AOV-F004 (Drywell Floor Drain Isolation Valves)
G11-AOV-F019, AOV-F020 (Drywell Equipment Drain Isolation Valves)

Valve Condition: Normally Closed, Fail Closed, Energized to Open
These valves have a permissive to open from the normal status signals.
If either PCIS signal is present, the valves cannot be manually opened.

E21-MOV-F015A&B (Core Spray Test Bypass Valves)
E11-MOV-F079A&B (RHR Sample Line Valves)
E11-MOV-F080A&B (RHR Heat Exchanger Drain to Suppression Pool Valves)
E11-MOV-F011A&B (RHR Heat Exchanger Drain to RCIC Valves)
E11-MOV-F026A&B (RHR Heat Exchanger Shell Side Bypass Valve)
E11-MOV-F091A&B (RHR Steam Pressure Valves)
E11-MOV-F040 (RHR Discharge to Radwaste Valves)
E11-MOV-F049

These valves have an inhibitive circuit to prevent manual opening after PCIS signals have automatically closed the valves.

Listing II

Primary containment isolation signals to these valves are: Low reactor water level or high drywell pressure or high radiation in Reactor Building or Refueling Floor.

P70-AOV-F002 (Drywell Pneumatic Suction Valves)
P70-AOV-F003
D11-AOV-F050 (Fission Products Monitoring Sample Return Valves)
D11-AOV-F052
D11-AOV-F051 (Fission Products Monitoring Sample Valves)
D11-AOV-F053
T48-AOV-F307 (Drywell Air Purge Valves)
T48-AOV-F308
T48-AOV-F309 (Torus Air Purge Valves)
T48-AOV-F324
T48-AOV-F319 (Drywell Vent Valves)
T48-AOV-F320
T48-AOV-F318 (Torus Vent Valves)
T48-AOV-F326

These valves have a permissive to open from the normal status signals.
If any PCIS signals are present, the valves cannot be manually opened after automatic closure.

Listing II Cont.

P33-AOV-F004
P33-AOV-F012 (H₂ O₂ Sample Return Valves)

P33-AOV-F002
P33-AOV-F010 (H₂ O₂ Sample Valves)

P33-AOV-F003
P33-AOV-F011 (H₂ O₂ Sample Valves)

P33-AOV-F005
P33-AOV-F013 (H₂ O₂ Sample Return Valves)

P33-AOV-F006-7
P33-AOV-F014-15 (H₂ O₂ Sample Return Valves)

Valve Condition: Normally Open, Fail Open, Energize to Close.
These Valves can be manually opened, bypassing the PCIS signals to automatically close, by a keylock in Normal, Maintain Contact, Bypass switch for the purpose of sampling H₂ O₂ concentrations post-LOCA.

Listing III

Primary containment isolation signals to these valves are: High reactor pressure or high drywell pressure or low reactor water level.

E11-MOV-F008
E11-MOV-F009 (RHR Suction Cooling Valves)

E11-MOV-F022
E11-MOV-F023 (RHR Head Spray Valves)

Valve Condition: Normally Closed
These valves have a permissive to open from the normal status signals. If any PCIS signal is present, the valves cannot be manually opened after automatic closure.

Listing IV

All valves in this group isolate on different combinations of primary containment isolation signals.

E11-MOV-F015A&B
E11-MOV-F017A&B (RHR Inboard & Outboard Valves)

Valve Condition: F015A&B - Normally Closed
F017A&B - Normally Open

These valves open on PCIS signals: Low reactor water level and high drywell pressure or low reactor pressure. An inhibitive circuit exists so the valves cannot be closed manually with the PCIS signals present after they have been open automatically.

E11-MOV-F016A&B
E11-MOV-F021A&B
E11-MOV-F024A&B (Containment Spray Valves)
E11-MOV-F027A&B
E11-MOV-F028A&B

Valve Condition: Normally Closed.

Listing IV Cont.

These valves automatically close on the following PCIS signals: Low reactor water level or high drywell pressure. The PCIS signals can be overridden by a keylock in Normal, Bypass switch, and the valves can be opened to use for containment spray post-LOCA. If reactor water level decreases to a low-low level, these valves will close, overriding the bypass switch, with no means of manual opening.

T48-AOV-F209, AOV-F211 (Drywell to Torus Differential Pressure Valves)
T48-AOV-F210, AOV-F212

Valve Condition: Normally Open, Fail Close

These valves automatically close on the following PCIS signals: Main steam line high radiation or high drywell pressure or low reactor water level or radiation in the Reactor Building, or Refueling Floor. A permissive to open exists from the normal status signals. The valves cannot be manually opened when any of the PCIS signals exists.

E41-MOV-F002 (HPCI Steam Supply Line Valves)
E41-MOV-F003

Valve Condition: Normally Open

These valves automatically close on the following PCIS signals: High temperature in the reactor or high HPCI turbine exhaust pressure or low HPCI steam line pressure or high differential pressure (HPCI steam line break). An inhibitive circuit exists to prevent manual opening when PCIS signals are present.

E41-MOV-F012 (HPCI Minimum Flow Bypass to Suppression Chamber Valve)

Valve Condition: Normally Closed

This valve operates by the following PCIS signals: Line break in HPCI steam line to turbine; high HPCI water flow or high pump discharge pressure. A permissive circuit to open the valve automatically exists when high pump discharge pressure and low water flow signals are present. The valve will automatically close when high HPCI water flow signal is present.

E41-MOV-F104 (HPCI Turbine Exhaust Vacuum Breaker [Inboard & Outboard] valves)
E41-MOV-F111

Valve Condition: Normally Open

These valves automatically close on the following PCIS signals: Low HPCI steam line pressure and high drywell pressure. An inhibitive circuit is incorporated so manual opening when the PCIS signals are present is not possible.

Listing IV Cont.

E51-MOV-F104
E51-MOV-F105 (RCIC Turbine Exhaust Vacuum Breaker $\overline{\text{Inboard \& Outboard}}$ valves.)

Valve Condition: Normally Open

These valves automatically close on the following PCIS signals: Low RCIC steam line pressure and high drywell pressure. An inhibitive circuit is incorporated so manual opening when the PCIS signals are present is not possible.

E51-MOV-F007
E51-MOV-F008 (RCIC Steam Supply Line Valves)

Valve Condition: Normally Open

These valves automatically close on the following PCIS signals: Turbine exhaust high pressure or high temperature or low pressure in the RCIC steam line or steam line high differential pressure. An inhibitive circuit exists so manual opening of the valve cannot be performed when the PCIS signals are present.

E51-MOV-F019 (RCIC Minimum Flow Bypass to Suppression Chamber Valve)

Valve Condition: Normally Closed

This valve operates by the following PCIS signals: Line break in the RCIC steam line to turbine; high RCIC water flow or high pump discharge pressure. A permissive circuit to open the valve automatically exists when high pump discharge pressure and low water flow signals are present. The valve will automatically close when high RCIC water flow signal is present.

G51-AOV-F011
G51-AOV-F012 (Torus Vacuum Drag Valves)
G51-AOV-F013

Valve Condition: Normally Closed, Fail Closed

These valves are automatically closed by the following PCIS signals: High drywell pressure or high torus water level or MSIV closure. There is a permissive to open from the normal status signals. When any of the PCIS signals listed above are present, manual opening is not possible.

G31-MOV-F001
G31-MOV-F004 (Reactor Water Cleanup Isolation Valves)

Valve Condition: Normally Open

These valves are automatically closed by the following signals: Line break in cleanup system (High differential flow & high ambient temperature) or low reactor water level or high differential pressure between inlet and outlet or cleanup room ventilation or high temperature downstream of non-regenerative heat exchanger. Inhibitive circuits are incorporated so that if any PCIS signal is present, manual opening of the valves is not possible.

Listing IV Cont.

B21-AOV-F022A,B,C,D
B21-AOV-F028A,B,C,D (Main Steam Line Isolation Valves)

Valve Condition: Normally Open, Fail Close

These valves are automatically closed by the following PCIS signals: Low-Low reactor water level or high steam line radiation or high steam line temperature or high steam line flow or high reactor pressure and low vacuum (turbine condenser). Permissive circuits exist from the normal status signals to open the valves. When any of the PCIS signals are present, manual opening of the valves is not possible.

B21-AOV-F016
B21-AOV-F019 (Main Steam Line Drain Valves)

B31-AOV-F019
B31-AOV-F020 (Reactor water sample line valves)

Valve Condition: Normally Open, Fail Close

These valves are automatically closed by the following PCIS signals: High steam line radiation or high steam line differential pressure or high steam line temperature or low-low reactor water level or high reactor pressure and low vacuum (turbine condenser).

The main steam drain valves have an inhibitive circuit, when the PCIS signals are present, manual opening is not possible.

The reactor water sample line valves have a permissive to open from the normal status signals, when the PCIS signals are present, manual opening of the valves is not possible.

T48-AOV-F338
T48-AOV-F340 (Torus 2" Vent Relief Valves)

T48-AOV-F339
T48-AOV-F340 (Drywell 2" Vent Relief Valves)

Valve Condition: Normally Close, Fail Closed

These valves are automatically closed by the following PCIS signals: High drywell pressure or low reactor water level or high radiation in the Reactor Building or Refueling Floor. These valves can be manually opened, bypassing the PCIS signals, if the steam line pressure at the turbine stop valve is below 850 pounds, with a keylock in normal, spring return bypass switch.

T48-AOV-F118A&B (Nitrogen Makeup Inboard Valves)
T48-AOV-F103 (Nitrogen Purge Valves)
T48-AOV-F104 (Nitrogen Makeup and Regulation Master Outboard Valve)

Valve Condition: T48-AOV-F118A&B - Normally Open, Fail Closed
T48-AOV-F103, F104 - Normally Closed, Fail Closed

These valves are automatically closed by the following PCIS signals: High drywell pressure or low reactor water level or high radiation in the Reactor Building or Refueling Floor. These valves have a permissive to open from the normal status signals. When the PCIS signals are present, manual opening of these valves cannot be performed.