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Davis-Besse Nuclear Power Station

SP 1105.21

Unit No. 1

System Procedure SP 1105.21

Anticipatory Reactor Trip System Procedure (ARTS)

NUCLEAR SAFETY RELATED

Record of Approval and Changes

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		Date
Submitted by	<i>[Signature]</i>	6/29/82
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Recommended by	<i>[Signature]</i>	7/6/82
	SRB Chairman	Date
QA Approved	NA	
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	Station Superintendent	Date

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1. PURPOSE

The purpose of this procedure is to provide instructions for operating the Anticipatory Reactor Trip System (ARTS). The following conditions will be covered.

Energization	Section 4
Deenergization	Section 5
Resetting After a Trip	Section 6

The ARTS system consists of four identical cabinets that receive inputs from the following systems; EHC, SFRCS, Main Feed Pump control oils and RPS.

The inputs from the EHC and the main feed pumps use pressure switches to monitor control oil pressure. When the turbine trips or both main feed pumps are tripped, a trip signal will be sent to the ARTS cabinets.

The input from each SFRCS channel will send a trip signal to the ARTS when the SFRCS channel trips unless the SFRCS trip is due to a loss of all RCP's.

The trip signals sent to the ARTS cabinets are combined in a two out of four logic for each system monitored. (I.E., two out of four EHC switches must be open to trip ARTS). When an ARTS channel is tripped, it will open its respective trip breaker. The input from the RPS is reactor power. This signal is sent to a bistable that is reset when power is below 20% full power. When the bistable is reset the input from the EHC is bypassed allowing the turbine to be taken off line without tripping ARTS.

2. PRECAUTIONS AND LIMITATIONS

- 2.1 When energizing an ARTS cabinet breaker CB-1 must be on before turning on CB-2.
- 2.2 Opening breaker CB-2 will actuate all Alarms from the ARTS.
- 2.3 AD 1803.00, Safety Tagging Procedure, shall be followed at all times.

3. REFERENCES

- (TS)
- 3.1 Davis-Besse Unit One Technical Specification Paragraph 3.3.2.3
 - 3.2 Anticipatory Reactor Trip System Instruction Manual
 - 3.3 AD 1803.00, Safety Tagging Procedure

4. ARTS ENERGIZATION

4.1 Prerequisites

- ____ 4.1.1 Essential and non-essential AC Distribution panels are energized for the channel to be energized.

<u>ARTS CHANNEL</u>	<u>ESSENTIAL</u>	<u>NON-ESSENTIAL</u>
1	Y-1	Y-3601
2	Y-2	Y-3602
3	Y-3	Y-3601
4	Y-4	Y-3602

- ____ 4.1.2 The Shift Supervisor has given permission to energize the ARTS cabinets and has issued the necessary cabinet door keys.

4.2 Procedure

- ____ 4.2.1 Check that both circuit breakers, CB-1 and CB-2 in the ARTS cabinet are off.

- ____ 4.2.2 Close the essential AC circuit breaker for the channel to be energized.

<u>CHANNEL</u>	<u>DISTRIBUTION PANEL</u>	<u>BREAKER</u>
1	Y-1	Y118
2	Y-2	Y217
3	Y-3	Y312
4	Y-4	Y412

NOTE: Also powered on Y118 is PDY 5000B (E633 SH 12), PDY 5000C, TY 5443, and FT 4909. Powered on Y217 is PDY 5014 (E633 SH 12), PDY 5014C, TY 5444 and FY 4908.

- ____ 4.2.3 Close the non-essential AC circuit breaker for the channel to be energized.

<u>CHANNEL</u>	<u>DISTRIBUTION PANEL</u>	<u>BREAKER</u>
1	Y-3601	33
2	Y-3602	32
3	Y-3601	34
4	Y-3602	39

- ____ 4.2.4 Place circuit breaker CB-1 in the ON position. Verify

that the power on lights for the +48VDC, +15VDC, -15VDC and +10VDC power supplies are on.

NOTE: The +10VDC power supply can take up to 10 sec. to come on.

- ____ 4.2.5 Place circuit breaker CB-2 in the ON position. Verify that the power on light for the +9VDC power supply is on.

NOTE: The +9VDC power supply can take up to 10 sec. to come on.

- ____ 4.2.6 If desired, reset the ARTS per Section 6.

5. ARTS DEENERGIZATION

5.1 Prerequisites

- ____ 5.1.1 The Shift Supervisor has given permission to deenergize the ARTS channel.

5.2 Procedure

- ____ 5.2.1 Open circuit breaker CB-2.
- ____ 5.2.2 Open circuit breaker CB-1.
- ____ 5.2.3 Open the non-essential AC circuit breaker for the channel to be deenergized.

<u>CHANNEL</u>	<u>DISTRIBUTION PANEL</u>	<u>BREAKER</u>
1	Y-3601	33
2	Y-3602	32
3	Y-3601	34
4	Y-3602	39

- ____ 5.2.4 Open the essential AC circuit breaker for the channel to be deenergized.

<u>CHANNEL</u>	<u>DISTRIBUTION PANEL</u>	<u>BREAKER</u>
1	Y-1	Y118
2	Y-2	Y217
3	Y-3	Y312
4	Y-4	Y412

NOTE: Also powered on Y118 is PDY 5000B (E633

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SH 12), PDY 5000C, TY 5443, and FT 4909.
Powered on Y217 is PDY 5014 (E633 SH 12),
PDY 5014C, TY 5444 and FY 4908.

6. RESETTING AFTER A TRIP

6.1 Prerequisites

____ 6.1.1 The cause of the trip has been corrected or Shift Supervisor has authorized resetting with an unknown cause.

____ 6.1.2 The Shift Supervisor has given permission to reset ARTS.

6.2 Procedure

____ 6.2.1 Verify the 1/5 lights are OFF.

____ 6.2.2 Press the Reset button and verify the TRIP light goes OFF.

____ 6.2.3 Reset the CRD trip breakers per SP 1105.09.

END