

NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
OPERATIONS DEPARTMENT STANDING ORDER

TITLE: POST TRIP EVALUATION*

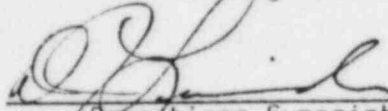
PROCEDURE NO. 23

REVIEWED BY: Plant Operations Review Committee

Meeting No. 84-005

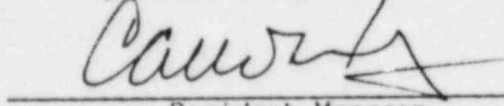
Date 02/07/84

APPROVED BY:


Operations Superintendent

Date 2/8/84

APPROVED BY:


Resident Manager

Date 2/9/84

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1.0 PURPOSE:

The purpose of this procedure is to collect pertinent information concerning a reactor scram, to analyze the scram, to assure the plant responded as designed, and to assure a safe and timely return to power operation.

2.0 APPLICABILITY:

This procedure is used to evaluate the causes of unplanned plant shutdowns.

3.0 REFERENCES:

1. FSAR
2. Cycle Reload Analysis
3. Technical Specification

4.0 DEFINITIONS:

- 4.1 Data Sheet 1 - A summary of plant operating conditions before and during the transient.
- 4.2 Data Sheet 2 - A log for deficiencies noted during the event and subsequent analysis.
- 4.3 Cause - The origin of an event (usually an equipment malfunction, procedural, or personnel error).

5.0 RESPONSIBILITIES:

5.1 Shift Technical Advisor

Following a reactor scram, complete Data Sheet 1 to the extent possible. This should not interfere with his primary responsibilities and in fact may aid him in diagnosing potential plant problems.

5.2 On-Shift Operators

Aid Shift Technical Advisor in completing Data Sheet 1, not to interfere with their primary responsibility of controlling the plant.

5.3 Shift Supervisor

1. Ensure this standing order is implemented.
2. Ensure plant personnel attend post-trip briefing.

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3. Aid Operations Superintendent in the transient analysis.
- 5.4 Operations Superintendent or designated SRO.
 1. Analyze data collected to ensure that the plant responded as designed.
 2. Ensure deficient items are noted and corrective actions initiated.
- 5.5 Plant Operations Review Committee
 1. Review all unanticipated reactor trips prior to restart where the cause is:
 - a. Unknown or
 - b. Safety related equipment functioned in an abnormal manner and the cause is undetermined or deficiencies remain unresolved.
 - c. Abnormal radiation or chemistry occurred.
 2. Recommends to the Resident Manager or designated alternate course of action to be taken in cases a, b, and c above.
- 5.6 The Resident Manager or his designated alternate makes the decision to restart the reactor.

6.0 SPECIAL INSTRUCTIONS/REQUIREMENTS:

7.0 PROCEDURE:

- 7.1 When a reactor scram occurs, the Shift Technical Advisor with the aid of plant operators shall complete Data Sheet 1. Any data not collected during the event should be obtained from records, computer printouts, or post trip logs.
- 7.2 The operating shift, when relieved from duty, shall conduct a post event critique. Any plant personnel who were involved in maintenance and testing related to the event shall attend the critique. The critique shall be documented on an Occurrence Report Critique Form per AP-8.2. Any system abnormalities, procedure inadequacies, equipment malfunctions shall be noted in Data Sheet 2. The critique form shall be attached to the scram report along with any written statements pertaining to the event.

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- 7.3 The Operations Superintendent or a designated SRO shall review the data collected following the event. He shall complete Data Sheet 2 for each significant material discrepancy found during the event. Generally, these should include major equipment failures such as failure to isolate, failure to initiate, and the like.
- 7.4 1. The Operations Superintendent or alternate shall review the data sheets and post event critique sheet. He shall write a brief summary of the event. Included will be recommendations for restart and any corrective actions required prior to restart.
2. If the post trip evaluations result in any of the following, the Plant Operations Review Committee shall analyze the event and determine corrective action required prior to restart.
- 7.4.2.1 The cause of the scram cannot be positively determined, or deficiencies remain unresolved.
- 7.4.2.2 Safety related equipment functioned in an abnormal manner and the cause is undetermined or deficiencies remain unresolved.
- 7.4.2.3 Chemistry results and/or radiation readings are not normal.
- 7.5 The Resident Manager or his designated alternate shall make the decision to restart.
- 7.6 The Operations Superintendent or alternate shall review the event and initiate any training that is appropriate to prevent reoccurrence.
- 7.7 This report shall be forwarded to Document Control Center for filing.

8.0 FIGURES:

- 8.1 Figure 1 - Scram Report Cover Sheet
- 8.2 Data Sheet 1
- 8.3 Data Sheet 2

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DATA SHEET 1
CONDITIONS PRIOR TO EVENT

Figure 8.2

Shift Personnel

Shift Supervisor	_____
Shift Technical Advisor	_____
Assistant Shift Supervisor	_____
Control Room Operator	_____
Senior Nuclear Operator	_____
Auxiliary Operators	(1) _____
	(2) _____
	(3) _____
	(4) _____

Initial Conditions

Mnde Switch Position	_____
Power Level	Thermal _____ Elect _____
Reactor Pressure	_____ psig
Reactor Water Level	_____ in
Core Flow	_____ mlb/hr
Steam Flow	_____ mlb/hr
FW Flow	_____ mlb/hr
Procedures in Progress	_____

Major equipment, protection and control systems out of service or inoperable
at time of event _____

Completed By: _____

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DATA SHEET 1 (CONTINUED)
SCRAM/TRANSIENT CHECKLIST

Event Leading Up To Scram/Transient _____

RPS Sensor Causing Scram _____

SCRAM Discharge Volume Hi Level Trip _____

SCRAM Bus Lights Extinguished _____

SCRAM Discharge Volume Vent and Drain Valves Close _____

All Rods Verified Full In _____

Isolations (Yes/No or N/A)

GP I Cause	_____	Time Reset	_____
GP II Cause	_____	Time Reset	_____
HPCI	_____	Time Reset	_____
RCIC	_____	Time Reset	_____
RWCU System	_____	Time Reset	_____

Recirc Pump Trip A _____ B _____ NA _____

Cause _____
Time _____ Time Restarted A _____ B _____

ADS Initiation (Y/N) _____ All Valves Open (Y/N - List) _____

HPCI Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

RCIC Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

CS A Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

CS B Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

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LPCI A Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

LPCI B Start Auto _____ Manual _____ Inject(Y/N) _____ Trip(Y/N) _____ Cause _____

Feedpump A Trip _____ Cause _____ Restarted _____

B Trip _____ Cause _____ Restarted _____

Level Control _____
(narrative) _____

Level Highest _____ in. Source _____
Lowest _____ in. Source _____

Pressure Control _____
(narrative) _____

Pressure Highest _____ psig Lowest _____ psig

SRV's that lifted: Auto _____
Manual _____

AC Electrical Busses Energized: 4160V 10100 10200 10300 10400 10500 10600

600V L-15 L-16 L-25 L-26 10300 10400
Load Centers Load Centers

EDG A Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

EDG B Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

EDG C Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

EDG D Start Auto _____ Manual _____ Tied _____ Trip _____ Cause _____

All DC Electrical Busses Energized: _____

Protective Relay Trips: _____

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DATA SHEET 1 (CONTINUED)

SBG T A Start Auto _____ Manual _____

SBG T B Start Auto _____ Manual _____

Abnormal Alarms: Rad. Monitor, Electrical, etc.

Notifications Made: NRC Time _____ Method _____

Load Dispatcher _____

Management _____

Emergency Notifications _____

Other _____

Misc Notes, LCO's initiated, equipment, problems, etc.

Completed By: _____

Reviewed By: _____

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DATA SHEET 1 (CONTINUED)

LOGIC CHECK SECTION

Drywell Pressure

For each setpoint, ensure that all required actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	Set point (psi)	Action	Verification (Y/N or N/A)
	2.7	Reactor Scram	_____
		Group II Isolation	_____
		HPCI Initiation	_____
		RHR Pump Starts	A _____ B _____
			C _____ D _____
		CS Pump Starts	A _____ B _____
		Stdb. D/G Starts	A _____ B _____ C _____ D _____
		SBG1 Starts	_____
		ADS Perm alarm	_____
		Alarm	_____

Reactor Water Level

For each setpoint, ensure that all required actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	(inches above) Setpoint (instr. zero)	Action	Verification (Y/N or N/A)
	222.5	Main Turbine Trip	_____
		RFP Turbine Trip	_____
		HPCI Turbine Trip	_____
		RCIC 13-MOV-131 Closed	_____
	206.5	High Level Alarm	_____
	196.5	Low Level Alarm	_____
		Runback (if any FWP \leq 20%)	_____
	177	Reactor Scram	_____
		Group II Isolation	_____
		SBG1 Initiation	_____
		RWCU Isolation	_____
	126.5	Group I Isolation	_____
		RCIC Auto Initiation	_____
		HPCI Auto Initiation	_____
		Recirc. Pump Trip	A _____ B _____
	59.5	RHR Pumps Start	A _____ B _____
			C _____ D _____
		CS Pumps Start	A _____ B _____
		Standby D/G Start	A _____ B _____ C _____ D _____

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DATA SHEET 1 (CONTINUED)

CORE AVERAGE FLUX

For the following values of power on the appropriate neutron instrumentation, verify the below listed automatic actions occurred. Indicate highest level reached with a bar graph.

Bar Graph	Setpoint (APRM)	Action	Verification (Y/N or N/A)
	120%	Reactor Scram (fixed)	_____
	117%	Reactor Scram (Flow Biased, Clamped)	_____
	.66W + 54%	Reactor Scram (Flow Biased)	_____
	15%	Reactor Scram (When Not in Run)	_____
	<2.5%	Reactor Scram (With Comp. IRM Hi or INOP In Run Mode)	_____
	Setpoint (IRM)	Action	Verification (Y/N or N/A)
	120/125 of Scale	Reactor Scram (When Not In Run)	_____

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Reactor Pressure

For each setpoint verify that all actions occurred and indicate maximum and minimum values with a bar graph.

Bar Graph	Setpoint (psig)	Action	Verification (Y/N or N/A)
	1140	7 SRV's Lift	
	1120	ATWOS Recirc. Trip.	A <u> </u> B <u> </u>
	1105	2 SRV's Lift	<u> </u>
	1090	2 SRV's Lift	<u> </u>
	1045	Reactor Scram	<u> </u>
	1025	High Pressure Alarm	<u> </u>
	825	Group I When In Run	<u> </u>

Bar Graph	Setpoint (psig)	Action	Verification (Y/N or N/A)
	450	Permissive for Opening CS & RHR Injection Valves	<u> </u>
	310	Recirc. Discharge Valve Close	A <u> </u> B <u> </u>
	75	SDC Isolation	<u> </u>
	50	HPCI Isolation	<u> </u>
	50	RCIC Isolation	<u> </u>

Reactor Protection System (RPS)

Action	Verification (Y/N or N/A)
1. All rods go in	<u> </u>
2. Scram discharge volume trip	<u> </u>

Recirculation System

Runback to No. 2 Limiter	<u> </u>
Runback to No. 1 Limiter	<u> </u>

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Turbine

Turbine tripped Cause _____ Manual _____ Auto _____

TSV Scram (if > 30% power) Annunciated _____
Computer _____

Lift Pumps Auto Start _____

Standby EHC Auto Start _____

Turning Gear Auto Start _____

Motor Suction Pump Auto Start _____

Turning Gear Oil Pump Auto Start _____

Emergency Bearing Oil Pump Auto Start
(if turning gear oil pump didn't) _____

Bypass Valves Controlled Pressure at _____ psig
Setpoint at _____ psig

CONDENSER VACUUM

For the following values of condenser vacuum. Verify that the listed automatic actions occurred. Indicate minimum values of vacuum during the event with a bar graph.

Bar Graph	Setpoint ("Hg)	Action	Verification (Y/N or N/A)
	8"	*Group I Isolation	_____
		Bypass Valve Closure	_____
	20	Reactor Feed Pump Trip	_____
	22.9	Main Turbine Trip	_____
	24.8	Low Level Alarm	_____
	25 to 29	Normal Vacuum	_____

*-Verify closure of: all MSIV's: Main steam line drain isolation valves:
Reactor water sample isolation valves.

Containment Parameters

Maximum Drywell Pressure _____ psia

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Maximum Torus Pressure _____ psia

Drywell Temperatures _____ °F

Maximum Torus Water Temperature _____ °F

Torus Level Max _____ in. Min _____ in.

Causes for Significant Increases in any of above: _____

Drywell Leak Rate
Equipment Drain _____ gpm
Floor Drain _____ gpm

Any system behavior indicative of unusual leakage into drywell

Hydrogen Level	Before	_____ %	After	_____ %
Oxygen Level	Before	_____ %	After	_____ %

Explanation for any change:

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