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: _____ Date 2/8/84
Operations Superintendent

APPROVED BY: _____ Date 2/9/84
Resident Manager

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Rev. No. 0

Date 02/07/84

TITLE: POST TRIP EVALUATION* PROCEDURE NO. 23

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.

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.

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 re-start 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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FIGURE 8.1

DATE _____

SCRAM REPORT

EVENT DESCRIPTION _____

PORC REVIEW REQUIRED _____ MEETING NUMBER _____

TRAINING REQUIRED YES/NO

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DATA SHEET 1 Figure 8.2
CONDITIONS PRIOR TO EVENT

Shift Personnel

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

Initial Conditions

Mode 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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DATA SHEET 1 (CONTINUED)

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:	10100	10200	10300	10400	10500	10600
4160V	____	____	____	____	____	____

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

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)

SBGT A Start Auto _____ Manual _____

SBGT 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: _____

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
		Stdby. D/G Starts	A B C D
		SBGT 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	Setpoint (inches above (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	
		SBGT Initiation	
		RWCU Isoltion	
	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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DATA SHEET 1 (CONTINUED)

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 ____ B ____
	1105	2 SRV's Lift	
	1090	2 SRV's Lift	
	1045	Reactor Scram	
	1025	High Pressure Alarm	
	825	Group I When In Run	

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

Reactor Protection System (RPS)

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

Recirculation System

Runback to No. 2 Limiter _____
Runback to No. 1 Limiter _____

DATA SHEET 1 (CONTINUED)

Turbine

Turbine tripped Manual _____ Auto _____
Cause _____

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 valves 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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DATA SHEET 1 (CONTINUED)

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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DATA SHEET 2 Figure 8.3

ABNORMALITY DISCOVERED IN ANALYSIS

Function or Operation in Question _____

_____

_____ _____ _____ _____

Resolution: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Completed By: _____ Date _____