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1.0 PURPOSE

The purpose of the Post Trip Review (PTR) is to document conditions prior to, during, and following an unscheduled Reactor Trip; to identify any malfunction or abnormality during the event; and to provide the necessary information in making the determination that the plant can be restarted safely. A Post Trip Review is a prerequisite for a reactor restart following an unscheduled reactor trip.

2.0 REFERENCES

2.1 NUREG - 1000, Vol. 1 Section 2.2

2.2 INPO - OP-211, Post-Trip Reviews

3.0 DEFINITIONS

3.1 CAUSE - The root initiator of an event (usually an equipment malfunction or procedural or personnel error). When the cause is corrected the possibility of the event recurring is minimized.

3.2 REACTOR TRIP - A manual or automatic insertion of control rods into the reactor core to interrupt the reactor's ability to sustain a chain reaction.

3.3 SEQUENCE OF EVENTS - A hard copy display of the chronological sequence of major plant alarms, trips, and actuations.

3.4 TYPE I EVENT - An event in which the cause of the reactor trip and malfunction of safety related and/or other important plant equipment was positively identified and corrected. In addition Technical Specification constraints were also positively identified. The Shift Supervisor, with Operations Superintendent concurrence, can make a restart decision in a Type I Event.

3.5 TYPE II EVENT - Any reactor trip that cannot be classified as a Type I Event. The Duty Plant Manager is responsible for a restart decision in a Type II Event.

4.0 RESPONSIBILITIES

4.1 DUTY PLANT MANAGER - The Duty Plant Manager is responsible for evaluating the recommendations made by the personnel performing the trip investigation and for making the decision for a reactor restart following a Type II Event.

4.2 SHIFT SUPERVISOR - The Shift Supervisor is responsible for safety assessment, review and approval of the PTR, and for making the decision for a reactor restart following a Type I Event, with the concurrence of the OSN.

4.3 SHIFT TECHNICAL ADVISOR (STA) - The STA is responsible for collecting information and documenting the information on the PTR. The STA may consult plant personnel for their observation and/or participation in the unscheduled reactor trip event. The STA is also responsible for assisting the shift supervisor in identifying the cause(s) of a reactor trip.

4.4 CONTROL ROOM SUPERVISOR - The Control Room Supervisor is responsible for assisting the STA in the reconstruction of the unscheduled reactor trip, if needed.

4.5 STA SUPERVISOR AND OPERATION SUPERINTENDENT - The STA Supervisor and the Operations Superintendent are responsible for the review of the PTR if the cause of the reactor trip is not positively identified within 8 hours.

5.0 PROCEDURE

5.1 The Post Trip Review shall not distract the Shift Supervisor, operating personnel, or STA from their primary responsibility of maintaining the plant in a safe condition.

5.2 Complete Attachment 6.1, Post Trip Review Cover and Turnover Sheet, as the other Post Trip Review Attachments and Reports are obtained or completed.

5.2.1 The turnover portion of this attachment should be completed if any section of the Post Trip Review is incomplete at shift turnover.

5.2.2 The on-shift STA and SS at the Post Trip Review completion should sign off on Attachment 6.1.

5.3 Plant conditions before the trip should be documented on Attachment 6.2, Post Trip Review - Initial Conditions.

5.4 Plant response during and after the trip should be documented on Attachment 6.3, Post Trip Review - Plant Response.

5.4.1 Any abnormal response of the plant should be explained in the comment section.

5.5 Obtain photographs or strip chart traces for the parameters listed on Attachment 6.4, Post Trip Review - Transient Data.

5.5.1 Use the normal recorders listed on the attachment, if available, or note the substitute recorder used.

5.5.2 Determine and record the minimum and maximum parameter values during and immediately following the reactor trip.

5.5.3 If any of the parameters lie outside the normal range listed, give an explanation of the occurrence.

5.6 Complete Attachment 6.5, Post Trip Review - Safety Assessment.

5.7 Attachment 6.5, Post Trip Review - Analysis and Evaluations by SS/CRS/STA, should be completed with the concurrence of the CRS and SS.

5.7.1 From the Sequence of Events or Computer Alarm History determine and report the type PPS trip, channels tripped, and time of trip. Include a brief explanation of events leading to the trip.

5.7.2 Describe any abnormal behavior, follow up actions, or Technical Specification violations that may have occurred.

5.7.3 Determine whether the event was Type I or Type II.

5.8 Complete Attachment 6.7, Post Trip Review - Notifications, as the listed notifications are performed.

5.9 Obtain and submit written statements from plant personnel whose actions are important in developing an understanding of the event in accordance with Attachment 6.8.

5.10 Obtain and submit any EOP Attachments, the Pre and Post Trip Primary Chemistry Reports, the Plant Monitoring Computer Sequence of Events and Post Trip Review, and the CPC Snapshot if the Shift Supervisor requests it.

5.11 Forward the completed Post Trip Review to the Event Analysis and Reporting Coordinator and a copy to the Independent Safety Engineering Group (ISEG) for review.

6.0 ATTACHMENTS

6.1 Post Trip Review Cover and Turnover Sheet

6.2 Post Trip Review - Initial Conditions

6.3 Post Trip Review - Plant Response

6.4 Post Trip Review - Transient Data

6.5 Post Trip Review - Safety Assessment

6.6 Post Trip Reveiw - Analysis and Evaluations by SS/CRS/STA

6.7 Post Trip Review - Notifications

6.8 Plant Personnel Statements

POST TRIP REVIEW COVER & TURNOVER SHEET

Trip No. _____ Trip Date/Time _____
(Next Sequential)

STA During Trip _____ SS During Trip _____

STATUS OF POST TRIP REVIEW

Attachments	Initials	Comments
6.2 Initial Conditions	_____	_____
6.3 Plant Response	_____	_____
6.4 Transient Data	_____	_____
6.5 PTR Safety Assessment	_____	_____
6.6 Analysis and Evaluation	_____	_____
6.7 Notifications	_____	_____

Reports		
Statements obtained	_____	_____
EOP Attachments	_____	_____
Primary Chemistry (Pre Trip)	_____	_____
Primary Chemistry (Post Trip)	_____	_____
PMC Sequence of Events	_____	_____
PMC Post Trip Review	_____	_____
CPC Snapshot (If SS Requires)	_____	_____

TURNOVER

Oncoming STA SS _____ Date/Time _____

Title	Status
_____	_____
_____	_____
_____	_____
_____	_____

All Attachments and Reports Complete

STA _____ SS _____
Date/Time _____ Date/Time _____

POST-TRIP REVIEW - INITIAL CONDITIONS

Trip No. _____ Trip Date/Time _____

PERCENT RX POWER: _____

GEN GROSS OUTPUT: _____

(CIRCLE)		(CIRCLE)	
MAN/AUTO	MFW MASTER CONT. A	MAN/AUTO	MFW MASTER CONT. B
MAN/AUTO	MFW SPEED CONT. A	MAN/AUTO	MFW SPEED CONT. B.
MAN/AUTO	MFW MAIN REG VALVE A	MAN/AUTO	MFW MAIN REG VALVE B
MAN/AUTO	MFW BYPASS VALVE A	MAN/AUTO	MFW BYPASS VALVE B
MAN/AUTO	PZR PRESS CONTROL	MAN/AUTO	PZR LEVEL CONTROL
MAN/AUTO	PZR HEATER CONTROL	MAN/AUTO	PZR SPRAY CONTROL
A B	MFW PUMP OPERATING	A A/B B	CHARGING PUMPS ON

CEDMCS STATUS _____

SBCS STATUS _____

RPC STATUS _____

OFF NORMAL STATUS OF ANY SAFETY TRAIN/COMPONENT: (Give Details)

RPS _____

SIS _____

CSS _____

CIS _____

EFW _____

MSIS _____

EDG _____

EVOLUTIONS/TESTING/SURVEILLANCES IN PROGRESS: _____

_____

OTHER MAJOR EQUIPMENT OUT OF SERVICE _____

_____

POST-TRIP REVIEW - PLANT RESPONSE

Trip No. _____ Trip Date/Time _____

Reactor Protection System:

Type Trip: Manual/Auto All CEAS Inserted: Yes/No

ESFAS Actuations	Channel (Circle)	Actuation Time
EFAS 1	A B C D	_____
EFAS 2	A B C D	_____
SIAS	A B C D	_____
CIAS	A B C D	_____
CSAS	A B C D	_____
MSIS	A B C D	_____

Equipment Response	Trains Responding		Actuation Time
HP Safety Injection System	A B		_____
LP Safety Injection System	A B		_____
Cntmt Spray System	A B		_____
Cntmt Isolation System	A B		_____
Emergency Feedwater	A B	A/B	_____
Emergency Diesel Generator	A B		_____

		Comments
Did Turbine Trip Actuate	Yes/No	_____
Did PZR Heaters Respond Normally	Yes/No	_____
Did PZR Level Respond Normally	Yes/No	_____
Did PZR Spray Respond Normally	Yes/No	_____
Did PZR Code Safeties Lift	Yes/No	_____
Reset	Yes/No/NA	_____
Did SIT's Empty	Yes/No	_____
Did S/G Level Respond Normally	Yes/No	_____
Did S/G Press Respond Normally	Yes/No	_____
Did Main Stm Code Safeties Lift	Yes/No	_____
Reset	Yes/No/NA	_____
Unplanned Radiological Release	Yes/No	_____
Abnormal Radmonitor Indications	Yes/No	_____
Did Additional Chg Pumps Start	Yes/No	A A/B B
Reactor Power Cutback	Yes/No	Time: _____
Initiating Event _____		Subgroups: _____

Any MAN/AUTO Station put in MAN _____

_____

_____

POST-TRIP REVIEW TRANSIENT DATA

Attach Parameter Recorder Plots or Plot Photographs

Parameter	Normal Recorder	Substitute Recorder	MAX	MIN	Requires Explanation
Reactor Power (Log)	ENI-IJR-0001				> 100%
Pressurizer Level	RC-ILR-0110				< 15%, >55.6%
Pressurizer Pressure	RC-IPR-0100				< 1800 psia, >2275 psia
RC Th 1	RC-ITR-0112-1				< 545°F, > 611°F
RC Th 2	RC-ITR-0112-2				< 545°F, > 611°F
RC Tc 1	RC-ITR-0115				< 545°F, > 554°F
RC Tc 2	RC-ITR-0125				< 545°F, > 554°F
M.S. Pressure 1	MS-IPR-0301A				< 900 psia, > 1050 psia
M.S. Pressure 2	MS-IPR-0301B				< 900 psia, > 1050 psia
S/G Level 1	SG-IPR-1013A				< 15%, > 70% (NR)
S/G Level 2	SG-IPR-1023A				< 15%, > 70% (NR)
M.S. Flow 1	FW-IFR-1011				NA
M.S. Flow 2	FW-IFR-1021				NA
Subcool Margin	RC-IUR-0101-AS1				< 28°F

Explanations _____

POST-TRIP REVIEW - SAFETY ASSESSMENT

		(Circle)
(a)	RCS pressure remained above setpoint for automatic SI actuation	Yes / No
(b)	RCS pressure remained below setpoint for PZR code safety valve actuation	Yes / No
(c)	RCS temperature decreases less than 100 deg. F per hour	Yes / No
(d)	Was reactor coolant contained within the primary RCS and Quench Tank?	Yes / No
(e)	No indication no head voiding occurred	Yes / No
(f)	Were OP-902-000 and OP-902-001 the only EOPs implemented	Yes / No
(g)	Did RCS activity remain within normal levels after the trip	Yes / No

POST TRIP REVIEW - ANALYSIS AND EVALUATIONS BY SS/CRS/STA

CAUSE OF TRIP _____

PPS CHANNELS _____ Time _____

SEQUENCE OF EVENTS _____

_____

_____

_____

_____

DESCRIBE ANY UNEXPECTED TRANSIENT BEHAVIOR OR ANY SYSTEMS/OR COMPONENTS INADEQUATE PERFORMANCE. INCLUDE ANY DATA ACQUISTION PROBLEMS.

_____

_____

_____

IDENTIFY ANY FOLLOW UP ACTION REQUIRED, INCLUDE CIs GENERATED.

_____

_____

_____

LIST ANY TECHNICAL SPECIFICATIONS THAT WERE EXCEEDED.

_____

_____

EVENT CONDITION DETERMINATION (BY SS/CRS/STA)

WAS THE CAUSE OF THE REACTOR TRIP, MALFUNCTION OF SAFETY-RELATED AND/OR OTHER IMPORTANT PLANT EQUIPMENT POSITIVELY IDENTIFIED AND CORRECTED AND WERE TECHNICAL SPECIFICATION CONSTRAINTS POSITIVELY IDENTIFIED?

(Circle) Yes No

IF ANSWER IS YES, TYPE I EVENT

IF ANSWER IS NO, TYPE II EVENT

POST TRIP REVIEW - NOTIFICATIONS

WAS NUCLEAR REGULATORY COMMISSION NOTIFIED IN 1 HOUR? ____

4 HOURS? ____

WAS DUTY PLANT MANAGER NOTIFIED _____

WERE THE STA SUPERVISOR AND OPERATIONS SUPERINTEDENT NOTIFIED IF THE CAUSE OF THE TRIP WAS NOT IDENTIFIED IN LESS THAN EIGHT HOURS? _____

HAS PERMISSION BEEN GRANTED BY SHIFT SUPERVISOR, WITH OPERATIONS SUPERINTENDENT CONCURRENCE, TO RESTART (TYPE I ONLY) _____ IF ANY SAFETY LIMITS WERE EXCEEDED, VERIFY THE ACTION OF T.S.6.7.1.d IS COMPLETED PRIOR TO RESUMING CRITICAL OPERATIONS.

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PLANT PERSONNEL STATEMENTS

Attach statements from personnel involved with the trip concerning the events that preceded and followed the trip. Each individual should submit a statement concerning the way he remembers the event.

Example:

Name:_____ Position:_____

For handwritten statements, include the plant conditions prior to the trip, your indications that a problem existed, your action as a result of those indications, noted equipment malfunctions or inadequacies, and any identified procedure deficiencies. Also, include any information you consider important to review this unscheduled reactor trip and actions to prevent recurrence.

_____/_____

Signature Date/ Time