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CALLAWAY PLANT
OPERATIONS DEPARTMENT PROCEDURE
ODP-ZZ-00015
REACTOR TRIP REVIEW

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REACTOR TRIP REVIEW

1.0 PURPOSE AND SCOPE

This procedure provides a systematic method for diagnosing the cause of reactor trips, ascertaining the proper functioning of safety-related equipment prior to restart, and making the determination that the plant can be restarted safely.

2.0 DEFINITIONS

2.1 Cause - the root initiator of an event, usually an equipment malfunction, procedural error, or personnel error. When the cause is corrected, the possibility of the event recurring is minimized.

2.2 Preliminary Safety Assessment - a systematic review of events preceding and following a reactor trip conducted to determine if the plant exceeded design specifications.

3.0 RESPONSIBILITIES

3.1 Shift Supervisor (SS)

The shift supervisor is responsible, with the STA, for the investigation phase of the reactor trip review. If the investigation phase is performed by another SRO licensed individual, the shift supervisor shall review and approve the results of the investigation.

3.2 Shift Technical Advisor (STA)

The STA is responsible for collecting the information on Attachment 1, Reactor Trip Report. The STA is also responsible, with the S.S., for the investigation phase of the reactor trip review.

3.3 Plant Personnel

Plant personnel involved in the unscheduled trip are responsible for providing the STA with objective comments that describe their observations of and or participation in the trip event.

3.4 On-Site Review Committee (ORC)

The On-Site Review Committee (ORC) is responsible for reviewing reactor trip reports. The ORC shall review the post-trip report prior to restart, if the cause of the trip is not positively known and/or some safety-related equipment functioned in an abnormal or degraded manner during the trip and the malfunction has not been corrected or prevents a reactor start up due to technical specification.

3.5 Independent Safety Engineering Group (ISEG)

The Independent Safety Engineering Group (ISEG) is responsible for ensuring lessons learned from unscheduled reactor trip events are used to improve plant safety and reliability and to transfer in-house experience of generic interest to the industry.

3.6 Supervising Reactor Engineer

The Supervising Reactor Engineer is responsible for reviewing Reactor Trip Reports. He shall make comments as he deems necessary and include them with the report.

4.0 PROCEDURE

4.1 Data Collection

4.1.1 The STA shall collect the data on Attachment 1.

- 4.1.2 After the plant is in a safe, stable condition the individuals involved in the reactor trip (e.g., Operating Supervisor, Unit Reactor Operator, I&C Technician, etc.) shall be interviewed, by the STA, to determine the facts surrounding the reactor trip.
- 4.2 Post Reactor Trip Investigation
 - 4.2.1 The S.S., or O.S., and the STA shall reconstruct the transient, on Attachment 1, using all of the collected data.
 - 4.2.1.1 A chronological description should be developed, using the sequence of events printout as a base. All pertinent alarms, trips, actuations and isolations should be incorporated.
 - 4.2.1.2 When possible the reconstruction should be compared with similar transients described in the FSAR or other Reactor Trip Reports. It should also be compared with the required procedure actions to determine the affect of those actions on plant response.
 - 4.2.2 The S.S., or O.S., and the STA shall analyze and evaluate the event reconstruction to determine the cause of the trip and the following:
 - 4.2.2.1 If safety related and other important equipment involved in the trip operated as expected.
 - 4.2.2.2 If the trip caused any detrimental effects on plant equipment.
 - 4.2.2.3 If it is acceptable to restart the reactor.
 - 4.2.3 The S.S., or O.S., and the STA shall also in the course of their review, look for:
 - 4.2.3.1 Abnormal indications or degraded trends in equipment performance.

- 4.2.3.2 Events occurring out of the normal or anticipated sequence
- 4.2.3.3 Failed or degraded response of equipment to its control signals
- 4.2.3.4 Unusual chemistry results or radiation readings
- 4.2.3.5 Unanticipated alarms
- 4.2.4 The Superintendent, Operations (S. O.) shall be informed during normal working hours or the Emergency Duty Officer (EDO) during OFF-NORMAL hours.
- 4.2.5 The S.S. shall ensure an Incident Report is filled out in accordance with APA-ZZ-00500, Non-conforming Operations Reporting and Corrective Actions.
- 4.3 Restart Decision
 - 4.3.1 For the following, the S.O. during normal working hours or EDO during off-normal hours shall authorize reactor start-up:
 - 4.3.1.1 The cause of the trip is positively known and has been corrected; all safety-related equipment functioned properly, or
 - 4.3.1.2 The cause of the trip is positively known and has been corrected; some safety related equipment did not function properly, however the malfunction has been corrected and a technical specification does not prohibit a start up
 - 4.3.2 For the following, the On-Site Review Committee (ORC) shall authorize reactor start up:
 - 4.3.2.1 The cause of the trip is not positively known and/or some safety-related equipment functioned in an abnormal or degraded manner during the trip and the malfunction has not been corrected.

- 4.4 Post Start Up Review
- 4.4.1 The S. S. shall send the completed Reactor Trip Report to the Superintendent, Operations (S. O.) for his review.
- 4.4.2 The S. O. shall send the Reactor Trip Report to the Supervising Reactor Engineer for his review.
- 4.4.3 The Supervising Reactor Engineer shall send the original Reactor Trip Report to the Superintendent, Compliance for inclusion into the Incident Report as an Attachment.
- 4.4.3.1 The Supervising Reactor Engineer shall send a copy of the Reactor Trip Report to the Independent Safety Evaluation Group (ISEG).
- 4.4.4 The ISEG shall review the Reactor Trip Report for:
 - 4.4.4.1 Screening, to determine its generic significance to plant safety and reliability.
 - 4.4.4.2 Evaluation, to determine additional corrective actions and/or lessons learned for operator and plant staff training
 - 4.4.4.3 Dissemination to the Industry, if justified.
- 5.0 RECORDS
- 5.1 QA Record
 - 5.1.1 Reactor Trip Report as an Attachment to the Incident Report.

REACTOR TRIP REPORT

1. Date/Time of Trip _____
2. Trip No. _____
3. I.R. No. _____
4. S.S. _____
5. STA _____
6. U.R.O.'s _____
7. Status of the Plant Prior to the Trip:
Procedure No. _____

8. Plant Response
 - a. Obtain a copy of the applicable charts
(check if included)

___ 1. Rx Pwr	___ 4. RCS Th 1,2,3,4
___ 2. Pzr Lvl	___ 5. MS Press 1,2,3,4
___ 3. Pzr Press	___ 6. SG Lvl
 - b. Obtain a printout from: (check if included)

___ 1. Event Recorder	___ 3. Post Trip Log
___ 2. Alarm Printer	___ 4. Loose Parts Monitor
 - c. Obtain copies of pertinent logs (ie, S.S., U.R.O., E.O.)
9. Sequence of Events (chronological sequence):

10. Probable Cause: _____

11. System/Component with Inadequate Performance:

System/Component	Description
_____	_____
_____	_____
_____	_____
_____	_____

12. S. O. or EDO Permission to Start-Up:

S. O./EDO	_____	_____
		Date/Time
STA	_____	_____
		Date/Time
S. S.	_____	_____
		Date/Time

13. Superintendent, Operations Review

Comments: _____

Superintendent, Operations Date/Time

14. Supervising Reactor Engineer Review

Comments: _____

Supervising Reactor Engineer Date/Time