

SECTION I

INSPECTION OBJECTIVES

To ascertain whether plant emergency procedures are prepared to adequately control safety related functions in the event of system or component malfunction indication.

SECTION II
INSPECTION REQUIREMENTS

1. Procedure Administration

Verify that Procedure 42400B has been completed for plant procedures identified in 3. below.

2. Procedure Scope

Obtain an index of the plant emergency procedures and review it for completeness.

3. Procedure Content

Conduct a review of the sample size indicated of the plant emergency procedures included in each of the following categories:

- . Procedures for correcting abnormal, offnormal, or alarm conditions (10% plus all annunciator alarms at the operators console.)
- . Procedures for combating emergencies and other significant events, i.e., those procedures which specify operator actions involving manipulation of plant controls to prevent an accident, to prepare for anticipated acts of nature, or to reduce the consequences of an accident or a hazardous condition which has already occurred or developed. (All Procedures identified in RG 1.33)

4. During the review of procedures conducted in item 3 above verify that each is in the appropriate format as specified in the administrative controls and is technically adequate to accomplish its stated purpose.

SECTION III
INSPECTION GUIDANCE

2. Procedure Scope

The listing of Emergency Procedures should include those identified in Regulatory Guide 1.33 in the following categories:

Procedures for correcting abnormal, offnormal, or alarm conditions

Procedures for combating emergencies and other significant events

Special Note:

Although some of the review of licensee's facility procedures will be performed by the inspection staff at the site, it may be advantageous to borrow certain procedures for effective technical review in the office.

Note: The specific procedures must not be identified until needed, so that the licensee will not know in advance which ones will be reviewed.

In each case, the inspector shall inform the licensee that:

- (1) The procedures so borrowed do not consequently become part of the docket;

- (2) Future changes in the procedures by the licensee are not restricted because of the loan;
- (3) The IE review is for the purpose of understanding the scope and depth of the procedure and does not constitute a step-by-step review or an approval of the procedure in any way; and
- (4) The procedures will be returned at the approximate time specified by the licensee.

If the licensee informs the inspector that requested procedures are not available because they are in draft form, not yet approved internally, or some other similar reason, procurement may be deferred temporarily, but not later than is necessary to have adequate review time. The licensee should be informed that, in reviewing them, the inspector will take into account their tentative status. If a licensee refuses to lend a copy of a necessary procedure, refer the case to Headquarters for action.

3. Procedure Content

Guidance is provided in ANSI N18.7 regarding the general content of the emergency procedures. In addition, the following specific guidance should be followed:

a. Abnormal Conditions and Emergency Procedures

General

A distinction is drawn in this chapter between emergencies in the plant and abnormal conditions which may degenerate into emergencies if not attended to. The following are examples of abnormal conditions:

- Control Rod Accumulator Leak
- Recirculating Pump Pressure High or Low
- Recirculating Pump Motor Temperature High
- Off-gas Filter High Delta Pressure
- Purification Water Temperature High
- Reactor Water High Conductivity
- Demineralizer Delta Pressure High
- Component Cooling System Surge Tank Level High

Some licensees group the procedures for emergencies and abnormalities into one category. This is convenient, since audible and visible annunciation usually occurs with both, but proper emphasis should be placed on identifying a true emergency. An abnormal condition is usually annunciated by a single annunciator; whereas, an emergency may be annunciated by a single or several plates, and the operator may have to use logic, after looking at the alarms and operating conditions, to determine the emergency he is faced with.

Abnormal Conditions

These procedures are probably best when grouped separately and titled according to the types of annunciator (alarm) plates; e.g., nuclear, condensate, reactor coolant, electrical, control rod system, etc. However, another of several acceptable methods incorporates corrective actions for abnormal conditions within the particular systems operating procedures. Regardless of location, however, the procedural steps should specify routine operator actions after an alarm is received, similar to those shown below:

- (1) Alarm sound and annunciator plate lights.
- (2) Operator acknowledges by pressing button and sound is silenced.
- (3) Operator takes action called for in the important step in abnormal conditions procedure. Procedural instructions should require operators to clear the trouble shortly after acknowledgement. Operator actions should be sequentially listed and should include verification that automatic actions have occurred, if any are identified in the procedure.
- (4) When trouble clears, plate may automatically reset and extinguish; if not, operator resets.

Emergency Procedures

These procedures should be clear, concise, and easily readable.

The following is one of several good formats and includes all necessary steps:

- (1) Title - This should be descriptive of the emergency, such as "Primary System Line Break," or "Loss of Coolant."
- (2) Symptoms - This should include alarms which may relate to the emergency, and operating conditions which will manifest this condition. The direction and probable magnitudes of parameter changes should be included.
- (3) Automatic Actions - The procedure should include all automatic actions that will probably occur as a result of this emergency.
- (4) Immediate Operator Actions - These actions might include:
 1. Verification of automatic actions.
 2. Assuring that reactor is in safe condition.
 3. Notification of plant personnel of the nature of the emergency.
 4. Determining that primary system is intact and capable of removing decay heat.
 5. Determining that a heat sink for decay heat is available.
 6. Establishing auxiliary power for pumps to remove decay heat and provide control power.

7. Confirming that containment and exhaust systems are operating properly to prevent uncontrolled release of activity.

(5) Subsequent Actions

Subsequent actions should include recovery steps necessary to return the reactor to a normal condition or to provide a safe extended period of shutdown under normal or emergency conditions.

The emergency procedures should require the operator to perform the automatic action required by a protection circuit, if the automatic function failed. If, for example, the neutron flux has exceeded 120% on two of three monitors and no scram occurs, the operator should scram the reactor and proceed to the "Flux exceeds 120%" emergency procedure. Some procedures require a manual scram any time an automatic scram is indicated, as an immediate backup action.

Licensees usually group the procedures that require emergency actions and make these a separate volume or section of the procedures manual. Some licensees, however, prefer to include some of the emergency actions within the particular system procedure. The effectiveness of this method depend on whether the operators can use these procedures proficiently.