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HOPE CREEK GENERATING STATION
EVENT CLASSIFICATION GUIDE TECHNICAL BASIS
February 28, 2002

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CHANGE PAGES FOR
REVISION #16

The Table of Contents forms a general guide to the current revision of each section and attachment of the Hope Creek ECG Technical Basis. The changes that are made in this TOC Revision #16 are shown below.

1. Check that your revision packet is complete.
2. Add the revised documents.
3. Remove and recycle the outdated material listed below.

ADD			REMOVE		
Pages	Description	Rev.	Pages	Description	Rev.
ALL	TOC	16	All	TOC	15
All	Section 11.2	03	All	Section 11.2	02
All	Section 11.3	04	All	Section 11.3	03
All	Section 11.6	02	All	Section 11.6	01
All	Section 11.7	04	All	Section 11.7	03

HOPE CREEK ECG TECHNICAL BASIS
TABLE OF CONTENTS/SIGNATURE PAGE

HOPE CREEK ECG TECHNICAL BASIS
TABLE OF CONTENTS/SIGNATURE PAGE

REVISION SUMMARY Biennial Review Performed: Yes X No ___

- 11.2.2.b Technical Basis - added statement that RCIC system failure or inoperability is not reportable in accordance with 10 CFR 50.72(b)(3)(v).
- 11.3.1 Technical Basis - added statement that manual actuations as directed by abnormal or emergency operating procedures are reportable.
- 11.3.3 Technical Basis - added RPS trip functions to list of reportable actuation signals and added statement that manual actuations as directed by abnormal or emergency operating procedures are reportable.
- RAL 11.6.1 and Technical Basis - revised after-the-fact reporting to conform to the guidance in the ECG Introduction
- RAL 11.7.1.b and Technical Basis - revised to state that loss of all met data for a single parameter (temperature, wind speed or direction) is reportable.

SIGNATURE PAGE

Prepared By: Paul Duke — 01/17/02
(If Editorial Revisions Only, Last Approved Revision) — Date

Section/Attachments Revised: Section 11.2, 11.3, 11.6 & 11.7 — _____
(List Non-Editorial Only - Section/Attachments) — Date

Reviewed By: _____ — 1/17/02
10CFR50.54q Effectiveness Reviewer — Date

Reviewed By: _____ — 020502
Department Manager — Date

Reviewed By: _____ — 1/28/02
Manager – Licensing — Date
(Reportable Action Level (Section 11) and associated Attachments marked by "L")

Reviewed By: _____ — 1/31/02
Emergency Preparedness Manager — Date

Reviewed By: N/A — _____
Manager – Quality Assessment - NBU — Date
(If Applicable)

SORC Review and Station Approvals

N/A — _____
Mtg. No. Hope Creek Chairman — Vice President - Nuclear Operations

_____ — 2/12/02
Date — Date

Effective Date of this Revision: 2-28-02
Date

11.0 Reportable Action Levels

11.2 Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.1

IC ANY EVENT OR CONDITION THAT RESULTS IN THE CONDITION OF THE PLANT BEING SERIOUSLY DEGRADED [10CFR50.72(b)(3)(ii)]

RAL

As judged by the OS/EDO, an event or condition that results in ANY one of the following:
- The condition of the plant, including its principal safety barriers, being seriously degraded.
- The plant being in an unanalyzed condition that significantly degrades plant safety.

OPERATIONAL CONDITION - All

BASIS

Reporting at the component, system, and structure level is required per the above condition.

The condition of the plant, including its principal safety barriers, being seriously degraded includes material (e.g., metallurgical or chemical) problems that cause abnormal degradation of or stress upon the principal safety barriers, (Fuel Clad, RCS, Containment). Examples include:
- Fuel clad failure in reactor or spent fuel pool that exceed expected values, or that are unique or wide spread, or that are caused by unexpected factors.
- Cracks and breaks in RCS piping, reactor vessel or major RCS components.
- Significant welding or material defects in the RCS.
- Serious temperature or pressure transients.
- Loss of containment function or integrity including excessive containment leakage, loss of containment isolation valve function, loss of containment cooling.

The plant being in an unanalyzed condition that significantly compromises plant safety refers to conditions potentially affecting a system, structure or component which are more than of a minor safety significance. It is not intended that this Action level (RAL) apply to minor variation in parameters or to problems concerning single pieces of equipment. The NRC understand that PSEG Nuclear will use engineering judgement and experience to determine if an unanalyzed condition exist.

If when applying engineering judgement there is doubt as to whether to report or not the NRC recommends that the licensee make the report.

REFERENCES

10 CFR 50.72(b)(3)(ii)
NUREG 1022, Rev. 2, section 3.2.4

11.0 Reportable Action Levels

11.2 Design Basis / Unanalyzed Condition

REPORTABLE ACTION LEVEL - 11.2.2.b

IC EVENT/CONDITION THAT AT THE TIME OF DISCOVERY COULD HAVE PREVENTED CERTAIN SAFETY FUNCTIONS [10CFR50.72(b)(3)(v)]

RAL

Any event or condition that **at the time of discovery could have prevented** the fulfillment of the safety function of structures or systems that are needed to perform ANY one of the following:

A. Shutdown the reactor and maintain it in a safe shutdown condition
B. Remove residual heat
C. Control the release of radioactive material
D. Mitigate the consequences of an accident

OPERATIONAL CONDITION - All

BASIS

The intent of this RAL is to require reporting of events or conditions that could have prevented safety systems or structures from performing their safety functions (actually or potentially) regardless of whether the system was needed at the time, or whether an alternate system or means was available to perform the safety function. If the event or condition could have prevented fulfillment of the safety function at the time of discovery, an ENS notification is required. If it could have prevented fulfillment of the safety function at any time within three years of the date of discovery, an LER is required.

In determining the reportability of an event or condition that affects a system, it is not necessary to assume an additional random single failure in that system; however, it is necessary to consider other existing plant conditions.

This RAL covers an event or condition where structures, components or trains of a Safety System could have failed to perform their intended functions because of:

- One or more personnel errors including procedure violations or inadequate maintenance.
- Design analysis, fabrication, equipment qualification, construction, or procedural deficiencies.
- Equipment failure, if the failure constitutes a condition where there is reasonable doubt that the redundant train or channel is operable.

Note: For systems with 3 or more trains the failure of ≥2 trains should be reported if the functional capability of overall system is/was jeopardized.

For a single train safety system, loss of the single train would prevent the fulfillment of the safety function of that system and is therefore reportable even though the plant technical specifications may allow such a condition to exist for a limited time. RCIC system failure or inoperability is not reportable in accordance with 10 CFR 50.72(b)(3)(v).

Individual component failure need not be reported under this RAL if redundant equipment in the same system was operable and available to perform the required safety function.

REFERENCES

10 CFR 50.72(b)(3)(v)
NUREG 1022, Rev. 2, section 3.2.7
RIS 2001-14

11.0 Reportable Action Levels

11.3 System Actuations

REPORTABLE ACTION LEVEL - 11.3.1

IC ANY EVENT THAT RESULTS OR SHOULD HAVE RESULTED IN ECCS DISCHARGE INTO THE RCS AS THE RESULT OF A VALID SIGNAL EXCEPT WHEN THE ACTION RESULTS FROM AND IS PART OF A PRE-PLANNED SEQUENCE DURING TESTING OR REACTOR OPERATION [10CFR50.72(b)(2)(iv)(A)]

RAL

Valid ECCS Actuation, Manual or Automatic, has or should have occurred

AND

ECCS Actuation results or should have resulted in discharge to the vessel

AND

Actuation is NOT part of a pre-planned sequence during testing or reactor operation.

OPERATIONAL CONDITION - All

BASIS

Those events that result in either automatic or manual actuation of ECCS or would have resulted in actuation of the ECCS if some component had not failed or an operator action had not been taken are reportable.

For example, if a valid ECCS signal was generated by plant conditions and the operator put all ECCS pumps in pull-to-lock position, although no ECCS discharge to the vessel occurred, the event is reportable.

A **valid** signal refers to an intentional manual actuation, unless it is part of a preplanned test, or actual plant conditions or parameters satisfying the requirements for ECCS initiation. Excluded from this reporting requirement would be those instances in which instruments drift, spurious signals, human error or other invalid signal causes action (e.g. jarring a cabinet, an error in the use of jumpers or lifted leads, error in actuation of controls or switches, or equipment failures).

Preplanned actuations are those which are expected to actually occur due to preplanned activities covered by procedures. Such actuations are those for which a procedural step or other

appropriate documentation indicates the specific actuation is actually expected to occur. Control room personnel are aware of the specific signal generation before its occurrence or indication in the control room. Manual actuations as directed by abnormal or emergency operating procedures (i.e., not part of a preplanned test or operational evolution) are reportable.

IF the ECCS discharges or should have discharged into the RCS as result of an INVALID signal, THEN a report under this RAL is not required

REFERENCES

HCGS UFSAR
10 CFR 50.72(b)(2)(iv)(A)
10 CFR 50.73
NUREG-1022, Rev. 2, section 3.2.6

11.0 Reportable Action Levels

11.3 System Actuations

REPORTABLE ACTION LEVEL - 11.3.2

IC ACTUATION OF REACTOR PROTECTION SYSTEM WHEN CRITICAL EXCEPT PREPLANNED SEQUENCE [10CFR50.72(b)(2)(iv)(B)]

RAL

Any event or condition that results in actuation of the Reactor Protection System (RPS) when the reactor is critical except when the actuation results from and is part of a preplanned sequence during testing or reactor operation

OPERATIONAL CONDITION - 1, 2

BASIS

An event involving a critical scram is reportable under RAL 11.3.2 unless it resulted from and was part of a pre-planned sequence. Manual RPS actuation in anticipation of receiving an automatic RPS actuation is reportable.

Preplanned actuations are those which are expected to actually occur due to preplanned activities covered by procedures. Such actuations are those for which a procedural step or other appropriate documentation indicates the specific actuation is actually expected to occur. Control room personnel are aware of the specific signal generation before its occurrence or indication in the control room.

REFERENCES

10 CFR 50.72(b)(2)(iv)(B)
10 CFR 50.73
NUREG-1022, Rev. 2 section 3.2.6

11.0 Reportable Action Levels

11.3 System Actuations

REPORTABLE ACTION LEVEL - 11.3.3

IC VALID ACTUATION OF LISTED SYSTEM EXCEPT PREPLANNED [10CFR50.72(b)(3)(iv)(A)]

RAL

Any event or condition that results in valid actuation of any system listed in Technical Basis 11.3.3 except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

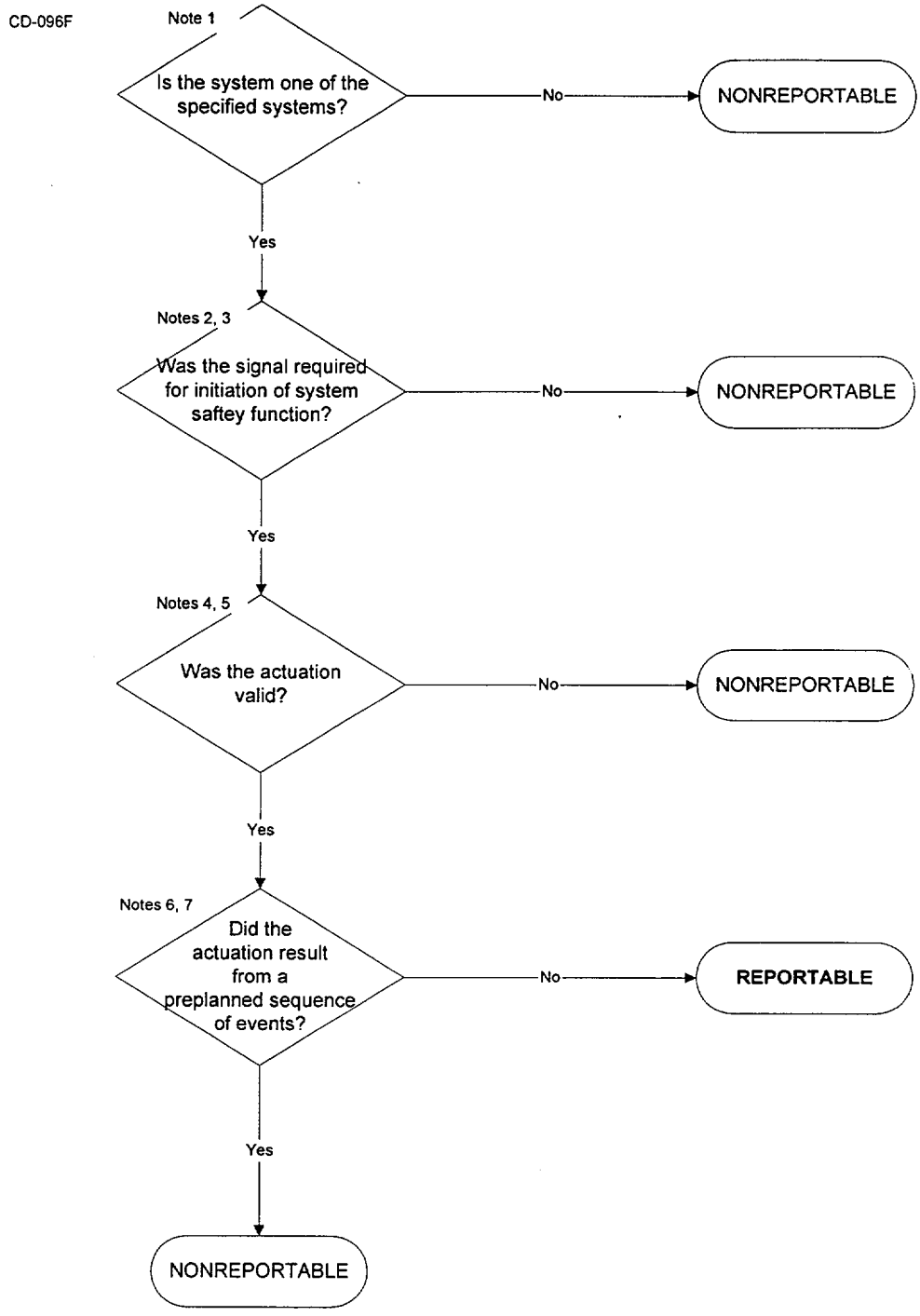
OPERATIONAL CONDITION - All

BASIS

An eight hour report is required for a valid actuation of any of the systems named in 10 CFR 50.72(b)(3)(iv)(B) unless the actuation resulted from and was part of a pre-planned sequence during testing or reactor operation. Except for critical scrams, invalid actuations are not reportable by telephone under 10 CFR 50.72.

The system actuation flow chart provides guidance to determine reportability.

SYSTEM ACTUATION FLOW CHART



NOTES

1. Systems for which this RAL applies are listed on page 4.

2. See page 4 for the list of reportable actuation signals (signals required for initiation of system safety function).

3. An ESF signal actuates equipment to mitigate the consequences of an accident, assure safe shutdown, minimize radioactive releases, etc. Process signals provided to protect equipment or as the result of good engineering judgment for system operating requirements (e.g., low flow starts, low suction pressure pump trips) are not ESF signals. If an actuation signal occurs, but distinction between "ESF" and "Process" cannot be determined immediately, the actuation is considered reportable. Retraction should be considered later, if necessary.

4. Valid actuations are those actuations that result from VALID SIGNALS or from intentional manual initiation, unless it is part of a preplanned test. Valid signals are those signals that are initiated in response to actual plant conditions or parameters satisfying the requirement for initiation of the safety function of the system.

   An "actuation" is considered valid even if the resultant function (e.g., reactor SCRAM) has already been accomplished as a result of a prior actuation or a plant evolution, such as a routine shutdown.

5. Invalid actuations are by definition those that do not meet the criteria for being valid. Invalid actuations include instrument drift, spurious signals, human error, jarring a cabinet, an error in the use of jumpers or lifted leads, an error in the actuation of switches or controls, equipment failure, or radio frequency interference.

6. Manual system actuation to mitigate the consequences of an accident, assuring safe shutdown of plant is reportable. Manual actuation as directed by normal operating or test procedures is not reportable. Manual actuations as directed by abnormal or emergency operating procedures (i.e., not part of a preplanned test or operational evolution) are reportable.

7. Preplanned actuations are those which are expected to actually occur due to preplanned activities covered by procedures. Such actuations are those for which a procedural step or other appropriate documentation indicates the specific actuation that is actually expected to occur. Control room personnel are aware of the specific signal generation before its occurrence or indication in the control room.

10 CFR 50.72(b)(3)(iv)(B) Specified Systems

NOTE: Numbers in parentheses indicate UFSAR Chapter

RPS (unless reported under RAL 11.3.2)
- Reactor Protection System

PCIS (6.2)
- Containment Heat Removal

ECCS (6.3)
- HPCI
- ADS
- Core Spray
- LPCI

Plant Systems
- MSIVs (5.4.5)*
- RCIC

Emergency AC Electrical Power
- AC Power Systems (8.3.1)
- DG Systems (9.5.4 - 9.5.8)

ESF Components
- Primary Containment (6.1)*

* Containment isolation valves in more than one system or multiple MSIVs

Hope Creek Reportable Actuation Signals
(FSAR Table 7.3-15)

RPS (unless reported under RAL 11.3.2)
- ANY RPS Trip Function (TS Table 3.3.1-1)

PCIS/ECCS//Plant Systems/ Power Systems
- Hi Drywell Pressure
- Reactor High Pressure
- Low Reactor Water Level (Level 2)
- Low Reactor Water Level (Level 1)
- Reactor Building Exhaust Hi Rad
- Refuel Floor Exhaust Hi Rad
- Bus Under voltage
- Reactor building/suppression chamber high differential pressure
- Suppression chamber/drywell high differential pressure
- LPCI injection valve pressure

Automatic Depressurization System
- Core Spray pump discharge line flow
- RHR pump discharge line flow

MSIV Isolation
- Hi Steam Line Flow
- Low Condenser Vacuum
- Low Steam Pressure (Run Mode)
- Low Reactor Water Level (Level 1)
- Steam Tunnel Temperature
- Main Steam Line Hi Rad

REFERENCES

CD - 096F
HCGS UFSAR
10CFR50.72(b)(3)(iv)(A)
10CFR50.73
NUREG-1022, Rev. 2, section 3.2.6

11.0 Reportable Action Levels

11.6 After-the-Fact

REPORTABLE ACTION LEVEL - 11.6.1

IC EMERGENCY CONDITIONS DISCOVERED AFTER-THE-FACT

RAL

Discovery of events or conditions that had previously occurred (event was NOT ongoing at the time of discovery) which EXCEEDED an Emergency Action Level (EAL) and was NOT declared as an emergency

AND

More than ONE HOUR has elapsed since the condition occurred

AND

There are currently NO adverse consequences in progress as a result of the event

OPERATIONAL CONDITION - All

BASIS

In the event a condition is discovered to have previously occurred or existed that exceeded an Emergency Action Level threshold, but no emergency was declared and the basis for the Emergency Classification no longer exists at the time of discovery, then a one hour report is required.

An 'After the Fact' event is defined as an event that exceeded an EAL threshold and was not recognized at the time of occurrence, but is identified greater than 1 hour after the condition has occurred (e.g., as a result of a routine log review, record review, post trip review, engineering evaluation) and the condition no longer exists. For an 'After the Fact' event, the Control Room Staff, at the time of occurrence, was either not aware of the event and/or did not realize that an EAL was exceeded.

The NRC does not consider actual declaration of the emergency classification to be necessary in these circumstances.

REFERENCES

Hope Creek ECG Introduction Section
NUREG 1022, Rev. 2, Section 3.1.1

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capabilities

REPORTABLE ACTION LEVEL - 11.7.1.a

IC SAFEGUARDS EVENTS THAT ARE DETERMINED TO BE NON-EMERGENCIES, BUT ARE REPORTABLE TO THE NRC WITHIN ONE HOUR [10CFR73.71(b)(1)]

RAL

Any Non-Emergency safeguards event that is reportable in accordance with 10CFR73.71 as determined by Security (SCP-15)

OPERATIONAL CONDITION - All

BASIS

This RAL addresses those conditions requiring a one hour report in accordance with 10CFR73.71(b)(1). These non-emergency events are outlined in Security Contingency Procedure #15. The on-duty PSE&G Security Supervisor should provide information concerning the specific event.

REFERENCES

10 CFR 73.71(b)(1)
NC.SP-AP.SC-0015 (SCP-15)

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capabilities

REPORTABLE ACTION LEVEL - 11.7.1.b

IC MAJOR LOSS OF EMERGENCY ASSESSMENT CAPABILITY, OFFSITE RESPONSE CAPABILITY, OR OFFSITE COMMUNICATIONS CAPABILITY [10CFR50.72(b)(3)(xiii)]

RAL

OS/EC determines that an event(s) (excluding a scheduled test or preplanned maintenance activity) has occurred that would impair the ability to deal with an accident or emergency as indicated by the Loss of ANY one of the following:

- Nuclear Emergency Telecommunications System (NETS) for **> 1 hr**
- ENS for **> 1 hr** in the Control Room, TSC, and EOF (N/A if reported by the NRC)
- More than 17 Offsite Sirens for **> 1 hr**
- Use of the EOF for **> 8 hrs**
- All Meteorological data (Hope Creek AND Salem) for one parameter for **> 8 hrs**
- Site access due to Acts of Nature (snow, flood, etc.)

OPERATIONAL CONDITION - All

BASIS

NOTE: IF losses are part of a scheduled test or preplanned maintenance activity AND WHEN compensatory actions have been taken, THEN NO report is required.

This RAL addresses conditions that are COMMON to both Hope Creek and Salem and may be reported to the NRC by EITHER station as a Common Site Event.

1. Loss of the NETS or all ENS for > 1 hour directly affects the ability to promptly notify and communicate with the NRC and/or offsite officials.

   IF a total loss of communications capabilities has occurred,
   THEN REFER to ECG Section 8.3.

   IF notified by the NRC Operations Officer of an inoperable ENS line,
   THEN NO further notification is necessary.

2. Loss of Offsite Sirens (>25%) represents a loss of ability to promptly notify a large portion of the population, and warrants an immediate notification. There are 71 offsite sirens in the Plume EPZ and therefore a loss of $\geq$ 18 is a > 25% loss which represents a loss of Offsite Response Capability.

3. Use of the EOF may be vital in responding to an emergency. Loss of use of this facility or its supporting equipment, or ability to staff represents a significant loss of emergency response capability. Equipment losses that occur but still allow the facility to be used SHOULD NOT constitute a Loss of the EOF.

4. Loss of meteorological data for an extended period of time limits the ability to predict radiological conditions during an emergency situation. An extended loss of all data for a single parameter (temperature, wind speed or direction) warrants notification of the loss of this capability.

5. Limited site access may affect the ability to staff the site personnel and/or emergency response facilities, and the ability of off-site agencies to implement emergency plan requirements.

   WHEN site reaction to anticipated conditions is commenced,
   THEN notification should be made, if possible.

6. For a partial loss of ENS, the NRC Operations Center should be informed so that repairs can be ordered; but an eight hour report is not required.

REFERENCES

10 CFR 50.72(b)(3)(xiii)
NUREG-1022, Rev. 2, Section 3.2.13

11.0 Reportable Action Levels

11.7 Security / Emergency Response Capabilities

REPORTABLE ACTION LEVEL - 11.7.1.c

IC MAJOR LOSS OF EMERGENCY ASSESSMENT CAPABILITY, OFFSITE RESPONSE CAPABILITY, OR COMMUNICATIONS CAPABILITY [10CFR50.72(b)(3)(xiii)]

RAL

OS/EC determines that an event(s) (excluding a scheduled test or preplanned maintenance activity) has occurred that would impair the ability to deal with an accident or emergency as indicated by the Loss of ANY one of the following:

- Use of the TSC for **> 8 hrs**
- SPV, NPV, or FRVS vent effluent radiation monitors with no alternate method of monitoring for **> 72 hrs**
- SPDS OR CRIDS for **> 8 hrs**
- More than 75% of the OHAs
- Concurrent multiple accident or emergency condition indicators which in the judgment of the OS significantly impairs assessment capabilities

OPERATIONAL CONDITION - All

BASIS

NOTE: IF losses are part of a scheduled test or preplanned maintenance activity AND
WHEN compensatory actions have been taken,
THEN NO report is required.

1. Use of the TSC may be vital in responding to an emergency. Loss of use of this facility or ability to staff represents a significant loss of emergency response capability. Equipment losses that occur but still allow the facility to be used SHOULD NOT constitute a Loss of the TSC.

2. Loss of ALL effluent radiation monitors on ANY one of the plant vents with no alternate method of monitoring for an extended period of time (72hrs) limits the ability to predict radiological conditions during an emergency situation. An extended loss warrants notification of the loss of this capability.

3. Loss of SPDS or CRIDS for > 8 hours is considered an event that significantly impairs safety assessments capabilities.

4. Loss of OHAs for a short period of time (< 15 minutes) is considered a loss of emergency assessment capability in ALL operating conditions.

   IF OHAs are lost or were lost for ≥ 15 minutes when in OP Con 1-3,
   THEN REFER to ECG Section 8.2.

5. Concurrent multiple accident or emergency condition indicators which in the judgment of the OS significantly impairs assessment capabilities is specific to Hope Creek in this RAL.

   IF the loss of assessment capability is COMMON to both Hope Creek and Salem,
   THEN REFER to RAL 11.7.1.b.

6. If the NRC phone line or modem used for ERDS data transmission is inoperable, the NRC operations center should be informed so that repairs can be ordered. However, an eight hour report is not required.

REFERENCES

10 CFR 50.72(b)(3)(xiii)
NUREG-1022, Rev. 2, Section 3.2.13