GEORGIA POWER
POWER GENERATION DEPARTMENT
VOGTLE ELECTRIC GENERATING PLANT

SIMULATOR EXERCISE GUIDE

TITLE:	RESPOND TO LOSS OF ALL AC POWER	NUMBER:	LC-SE-37100-05-C
PROGRAM:	LICENSED OPERATOR	REVISION:	5
SME:	L. RAY	DATE:	3/7/90
APPROVED:	Robert J Brown	DATE:	3/12/90

INSTRUCTOR GUIDELINES:

I. PREPARATION

A. This Simulator Exercise Guide (SEG) is to be performed following completion of lesson plan(s)

- LO-LP-37031-04-C Loss of All AC Power

B. Concurrent with the performance of this SEG, ensure the students are prepared to perform the following Instructional Units (IUs):

(P = Perform; S = Simulate; O = Observe)

IU #	IU TITLE	WHO GETS CREDIT
LO-IU-37031-001	Respond to Loss of All AC Power	P - RO P - BOP P - SS if SRO
LO-IU-37031-002	Recover from Loss of All AC Power with SI Required	P - RO P - BOP P - SS if SRO

Ensure students have copies of these IU's and have been given adequate time for review prior to scheduled task performance.

C. Attachment 1 - Simulator Evaluations is provided to the instructor as a tool to evaluate team skills and individual strengths and weaknesses. The feedback can then be used by the student. The use of these evaluations is

optional, but should be used as time and manpower permit.

D. Questions are placed within the body of the SEG for the use of the instructor to evaluate student knowledge. These questions are optional for instructor use.

I. INTRODUCTION:

A. Terminal Objectives

1. Given that reactor and turbine trip have been verified, both AC emergency busses are de-energized, and power cannot be restored to either AC emergency bus, respond to a loss of all AC power.

2. AC emergency power has been restored following a loss of all AC power and a recovery using safety injection is required, use the engineered safeguards systems to recover plant conditions.

B. Enabling Objectives

1. Be able to locate all instrumentation associated with responding to a loss of all AC power and recovering from a loss of AC power with SI required

2. Be able to meet the actions required by the performance guide for the IU's associated with the SEG

II. CLASSROOM LESSON PLAN:

A. Emergency Operating Procedures

1. 19000-C Reactor Trip or Safety Injection
2. 19100-1 Loss of All AC Power
   a. LO-LP-37031-04-C Loss of All AC Power
3. 19102-1 Loss of All AC Power Recovery with SI Required

III. SELF STUDY DIRECTIVES: NOTES

A. Emergency Operation Procedure

1. 19100-1 Loss of All AC Power
2. 19101-1 Loss of All AC Power Recovery Without SI Required
3. 19102-1 Loss of All AC Power Recovery With SI Require

B. Instructional Units

1. LO-IU-37031-001 Respond to Loss of All AC Power
2. LO-IU-37031-002 Recover from Loss of All AC Power With SI Required

C. Student Handouts

1. LO-HO-37031-001 Loss of All AC Power

IV. OPERATIONS PLANS: NOTES

A. Initial Conditions

1. Reset to IC-20

2. Student Information

a. Unit in Mode 1

1) Reactor power at 99%

2) Boron 548 ppm

3) MOL approximately 8000 MWD/MTU

4) Xenon at -2968 pcm

Note: Instructor may place various equipment out of service to test students' knowledge of Tech. Specs., plant lineups, plant response, etc.

3. Student Instruction

a. Maintain plant at 100% power

Note: Surveillance procedures may be performed for training or IU makeup.

B. Simulator Operations

Note: The instructor may initiate any minor casualties for additional training or IU makeup prior to the loss of all AC power. If this is the first time the students are performing the IU's associated with this SEG, prior to the loss of AC power all other malfunctions not related should be removed.

1. Insert Malfunction 132A: Loss of 1AA02

a. Operators perform actions of AOP-18031-1

1) Trip of A DG required

2) Verify Train B power and equipment

3) Discuss effect of lock out relay locking out DG

4) Discuss Tech. Spec. requirements

b. Electrical foreman report failure in ground

fault protection circuit, required 2 to 3 hours to repair

c. Insert Malfunction 139B: DG1B Fails to Start

2. Insert Malfunction 168: Spurious Train B SI Signal, After 20 Seconds Simultaneously Enter Malfunction

- 126: Loss of Reserve Transformer 1NXRA

- 127: Loss of Reserve Transformer 1NXRB

a. Note means of entry into 19100

1) Immediate or

2) From Step 3 of 19000

3) Operators need to know immediate actions of 19100

a) Verify reactor trip

b) Verify turbine trip

c) Verify RCS isolated

d) Verify AFW > 570 gpm

b. Actions to restore power will be unsuccessful until end of 19100

1) Attempts should be a continuous action item

c. Caution requires SI to be reset

- Do students realize SI has actuated?

d. Steps 8 through 23 designed to mitigate consequences of a loss of power and prepare for power restoration

1) Local isolation of RCP seal injection flow

- RF-2 28

a) Crew concerned with RCS inventory

IV. OPERATIONS PLANS: NOTES

loss?

2) S/G depressurization

a) Did SS cover caution and notes with rest of crew?

b) Note S/G levels at start of depressurization

c) Does RO monitor reactor conditions during cooldown?

e. At Step 23 return 1BA03/BDG to service

1) Monitor B DG startup

2) Note time to start NSCW pumps

f. Operators should recognize SI actuated and transition into 19102-1

3. AC power recovery with SI

a. SS should review note that says PGG's not implemented prior to completion of Step 9 (not Step 7, that is a typo)

b. First 9 steps place ECCS in normal injection lineup

1) Manual starting of pumps

a) Diesel allowed to stabilize

b) Load monitored

c. Establish RCP seal cooling in a slow, controlled manner

1) If not performed, walk through Attachment A

d. Transition to 19010 - Loss of Reactor or Secondary Coolant

1) Freeze simulator - 19010 is covered in another SEG

2) Inform students that SI termination would occur at Step 7 of 19010

IV. OPERATIONS PLANS:

NOTES

e. Review design interlocks that prevent water hammer in NSCW when AC power is restored (REF: LO-LP-06101)

Commitment per CCP 85.003

Pump start interlocked with:

1) Pump discharge valves (time delayed)

2) Orificed bypass lines for slow fill

3) Normal and bypass valves to NSCW interlocked with pump start

f. If time permits, review Procedure 11886-1, "Recovery from ESF Actuations - Section 4.2, Recovery from Loss of Off-site Power"

g. If time permits, review Procedure 19101, "Loss of All AC Power Recovery Without SI Recovery"

h. If time permits, review questions listed at end of SEG

V. CRITIQUE:

V. CRITIQUE:

NOTES

A. Critique students' performance

1. If performed, review Attachment 1 with students

2. At a minimum, discuss the following areas:

a. Team's communication skills

b. Use of plant procedures

c. Shift supervisor's supervising skills

1) Ability to direct, command, and control the crew

d. RO/BOP board familiarity

e. Operators' awareness of integrated plant response

1) Diagnostic skills of crew members

f. Ability to respond and function as a team

3. Ask students for their input on how they thought they did.

a. Allow the crew to decide how they are going to resolve problems.

B. Evaluate student knowledge (optional)

Q. What are the two major limitations that the operator has to deal with when performing a rapid cooldown?

A. First is the potential for returning the reactor core to a critical condition, and second, possibility of introducing non-condensible gases into the RCS from the accumulators

Q. What will help the operator maintain the reactor subcritical during the cooldown?

A. Buildup of xenon

Q. Why does Procedure 19100 have priority over all other EOP's?

A. All other EOP's are written on the premise that at least one emergency bus is energized and associated equipment can be powered from that bus. Guidance in other EOPs is not applicable following loss of all AC.

V. CRITIQUE:

Q. How does the secondary depressurization minimize RCS inventory loss?

A. By (1) reducing RCS temperature to minimize RCP seal degradation, (2) reduces pressure to reduce RCP seal leakage, (3) permits injection of accumulators to replace inventory loss

Q. When power is restored while in 19100, what is the operator required to do?

A. Prior to Step 7 he will return to procedure in effect. After Step 7 he will go to Step 24 in order to minimize the deterioration of plant conditions.

Q. Why is it important to have the CST isolated from the hotwell?

A. To ensure that CSI inventory is conserved for makeup to the steam generators

Q. How come the Pzr PORV's are not used to depressurize the RCS?

A. Major objective of 19100 is to minimize RCS inventory loss

Q. When recovering from a loss of all AC power with SI, when is a motor-driven auxiliary feed pump required to be started?

A. If S/G NR level lowers to less than 5% and AFW flow is less than 570 gpm

Q. A caution statement of ECA-0.2 says not to start an RCP prior to an evaluation of the status of RCP seals. When may an RCP be started without this evaluation?

A. Upon exiting ECA-0.2 an RCP should be started if an extreme or severe CSF challenge is diagnosed and the FRG instructs to start an RCP

Q. Are there any conditions under which a charging/SI pump should be started prior to isolation of RCP seal injection?

A. A charging/SI pump should not be started in guideline ECA-0.2, or any other Optimal Recovery Guideline, until RCP seal injection is isolated. Limited field experienced indicates that the rapid introduction of relatively cold seal injection water to a hot RCP can result in RCP damage. The single exception to this is controlled by the "rules of usage" with respect to FRG implementation. In response to an extreme (red) or severe (orange) CSF challenge, the operator should start a charging/SI pump if so instructed in the associated FRG. Under a CSF challenge, potential RCP damage is an acceptable consequence.

VI. REFERENCES:

A. Procedures

1. 19000-C Reactor Trip or Safety Injection
2. 19100-1 Loss of All AC Power
3. 19101-1 Loss of All AC Power Recovery Without SI Required
4. 19102-1 Loss of All AC Power Recovery SI Required
5. 18031-1 Loss of Class 1E Electrical Systems
6. 11806-1 Recovery from ESF Actuations

B. Commitments

1. CCP-86.003 NSCW Water Hammer Modifications

ATTACHMENT 1: SIMULATOR EVALUATIONS

SIMULATOR PERFORMANCE EVALUATION

STUDENT'S NAME	POSITION(S)	OVERALL PERFORMANCE S-SAT M-MARGINAL U-UNSATISFACTORY

EXAMINER _____ DATE _____

OVERALL TEAM EVALUATION

1. Feedback - anticipating input needs, providing unsolicited feedback

1	2	3	4	5
Members wait to be asked for inputs. Input is always only the question.		Some members volunteering information. Answers complete even when questions are not.		Abundant unsolicited feedback. Few questions required. Inputs complete and useful

2. Communication Monitoring - monitoring team communications to insure fidelity

1	2	3	4	5
Members ignore other conversations. Fidelity of team communications low.		Members listened to each others conversations. Major technical errors corrected.		Members assume responsibility for fidelity of team communications. Errors corrected quickly.

3. Influencing - individuals effectively influencing team decisions

1	2	3	4	5
Team decision-making dominated by one or two individuals. Other members passive.		Major decisions made by consensus. Few members acting passively.		All individuals provide input to decisions. Decisions approved by consensus.

4. Attributions - promoting winning attitudes within the team

1	2	3	4	5
Individuals criticized for errors. Successes maintained or ignored.		Individuals rewarded for major contributions. Errors generally ignored.		Individual conversations constantly praised. Mistakes are learned from.

5. Peer Reinforcement - effectively using positive reinforcement

1	2	3	4	5
Positive reinforcement rarely used. Punishment primary tool for controlling members.		Major accomplishments rewarded. Rewards usually arrive. Members work for rewards.		Reinforcement is consistently applied, reinforcing for all levels of accomplishment. Members do not expect rewards.

6. Conflict Resolution - quickly and effectively resolving conflicts

1	2	3	4	5
Conflict is discouraged. Members who disagree are usually punished.		Conflicts are usually won by dominant members. Major conflicts distract from group performance.		Conflicts resolved through cooperative efforts. Team is usually strengthened by resolving the conflict.

SHIFT SUPERVISOR SIMULATOR EVALUATION

1. CONTROL BOARD AWARENESS

1 — 2 — 3 — 4 — 5

- did not scan annunciators panels, or other operator aids to look for information or interactions
- did not recognize changes in plant parameters or changes which should have occurred

- intermittently scanned annunciators, panels, or other operator aids and looked for changes in plant information
- recognized changes in plant parameters and when changes should have occurred

- regularly scanned annunciators, panels, or other operator aids and looked for information and interactions
- quickly identified and reacted to changes in plant parameters
- anticipated changes in plant conditions due to SAMG in progress

REMARKS:

2. EVENT DIAGNOSIS

1 — 2 — 3 — 4 — 5

- did not recognize when plant exceeded tech spec limits
- did not step back and get the big picture
- did not ask the right questions
- could not screen out irrelevant unimportant or inaccurate inputs
- incorrectly diagnosed events
- could not recognize emergency plan situations
- did not recognize when critical safety function parameters exceeded limits

- recognized when plant EXCEEDED tech spec limits
- stepped back and analyzed the whole situation
- asked the right questions
- screened out inaccurate, irrelevant, unimportant, inaccurate information
- correctly diagnosed events
- recognized emergency plan situations
- did not anticipate severe events
- recognized when critical safety function parameters EXCEEDED limits

- recognized when plant APPROACHED tech spec limits
- used EP and ER & structured diagnostic process, including:
  - prioritizing problems
  - determining root cause
  - establishing objectives and goals
  - reviewing resources and constraints
  - identifying success criteria
  - generating possible solutions
  - selecting the best solution
  - identifying an action plan
  - identifying potential reactor issues
- recognized when critical safety function parameters APPROACHED limits

MARKS:

3. IMMEDIATE ACTIONS/SHIFTER-LEVEL ACTIONS

1	2	3	4	5
• did not verify that manual or automatic actions took place • did not tell CROs proper immediate actions when appropriate • did not integrate or direct multiple casualties and procedure use • did not verify initiations of safety functions when required • did not recognize EOP entry conditions		• verified that manual and automatic actions took place • told CROs immediate actions when appropriate • directed multiple actions and procedure use • verified initiation of safety functions when required • recognized EOP entry conditions		• ensured all immediate actions were taken • ensured correct integration and directed multiple casualties and procedures

REMARKS:

4. SUBSEQUENT ACTIONS

1	2	3	4	5
• did not direct CROs response to events • did not recognize the plant exceeded tech spec limits • did not direct plant maneuvers toward more favorable conditions after limits were exceeded • made incorrect decision for events not covered by procedures or when multiple alternatives were available • could not integrate direct multiple casualties and procedure use • did not recognize conditions • did not monitor functions		• directed CROs to respond to events • recognized when plant exceeded tech spec limits • directed plant maneuvers toward more favorable conditions after limits were exceeded • made correct decisions for events not covered by procedures • correctly integrated the steps of several different procedures during multiple casualties		• recognized when plant exceeded tech spec limits • made contingency plans for unexpected problems • effectively and correctly integrated the steps of different emergency, abnormal, and normal procedures in combating a multiple casualty • corrected CROs and his own actions using appropriate means

REMARKS:

5. CONTROL BOARD:

1	2	3	4	5
• could not use the computer, SPDS, ERIS, etc., correctly obtained CRO data and manipulated when not necessary		• used the computer, SPDS, ERIS, etc., correctly • manipulated the panel when the CROs were not able to • offered direction to panel operators as appropriate		

REMARKS:

6. USE OF PROCEDURES/TECHNICAL SPECIFICATIONS/REFERENCE DATA

1	2	3	4	5
• could not locate appropriate procedures, tech specs or reference data • could not follow procedures or missed steps • caused trips or unplanned transients • relied too heavily on CRO's knowledge of procedures and limits • interpreted tech specs or reference data incorrectly		• located most required procedures, tech specs and reference data in reasonable time • followed procedures correctly • could explain bases of tech specs • interpreted tech specs correctly • verified compliance with tech spec limits and actions • LSSS and safety limit tech specs were memorized, values were quickly looked up		• requested or readily located all appropriate procedures, tech specs and reference data • followed procedures accurately and quickly • could distinguish between step-by-step procedures and guidance-only procedures • identified procedural conflicts and inadequacies and could explain how to resolve them • ensured procedure changes were made as appropriate

REMARKS:

7. COMMUNICATIONS

1	2	3	4	5
• gave unclear, garbled, confusing and inappropriate directions • failed to ask for information when necessary • ignored input or did not address unclear items • communicated with the wrong person or by the wrong method • failed to communicate with appropriate people (NRC, etc.) when required		• gave understandable directions • asked for information when necessary • occasionally asked for input from CROs • initiated communications with appropriate people (NRC, etc.) when required and by correct means		• gave clear and concise directions • actively listened and verified that the message was understood • actively sought ideas and input from team members • ensured periodic summaries of plant conditions and actions taken

REMARKS:

a. SUPERVISORY ABILITY

1	2	3	4	5
• did not implement the emergency plan when required • did not set goals or priorities for people's actions • gave unnecessary direction or failed to give direction when necessary • did not coordinate actions of operators • did not assign people to others' tasks when desirable • let administrative duties distract from leadership role • did not anticipate potential problems or operator frustrations • direction to CROs conversantly lagged behind their actions • allowed operators to become overloaded • did not maintain a professional attitude in the control room		• implemented the emergency plan when required • prioritized some of the people's actions according to his own goals • provided direction when necessary • coordinated actions of operators • assigned people to others' tasks when desirable • occasionally disrupted CROs' actions • did not allow operators to become overloaded • maintained a professional attitude in the control room		• set clear goals • prioritized and integrated the actions of the whole team as appropriate • provided guidance appropriate for the situation and the team members • coordinated CROs' actions smoothly based on their abilities • changed people's assignments as time and skills were used efficiently

REMARKS:

RO/BOP SIMULATOR EVALUATION

1. CONTROL BOARD AWARENESS

1 — 2 — 3 — 4 — 5

- inattentive to panels
- ignored some part of panels
- did not find appropriate indicators or controls in a timely manner
- left control room when assigned as CRO without relief
- unable to explain why annunciators were in alarm condition

- attended to and observed all parts of the panel
- recognized unexpected changes in important plant parameters
- found controls and indicators in a timely manner
- used process computer and sequence of events recorder when requested
- able to explain why annunciators were in alarm condition

- habitually attentive to all panels
- recognized trends before alarm conditions developed
- quickly found appropriate controls and indicators
- anticipated changes in indications due to changing plant conditions
- confirmed plant conditions with other sources

REMARKS:

2. EVENT DIAGNOSIS

1 — 2 — 3 — 4 — 5

- missed important transients
- made inappropriate responses to alarm conditions
- focused on wrong parameters
- when asked, was unable to give useful input on possible reasons for event
- gave incorrect information
- responded to symptoms/alarms rather than to conditions or causes

- noticed important transients in sufficient time
- updated most plant status changes
- responded to alarms in a timely manner
- when asked, gave input on possible reasons for transient

- responded to alarm conditions and updated all changes to plant status
- focused on significant parameters during transients
- when given incorrect information by SS/SCRO, made correct recommendations

REMARKS:

3. IMMEDIATE ACTIONS/ENTRY LEVEL ACTIONS

1	2	3	4	5
• does not verify certain automatic actions • immediate actions were not performed or were performed incorrectly • did not initiate safety functions when required • did not recognize entry conditions to emergency operating procedures		• verified that certain automatic actions took place • took correct immediate actions, but required some prompting by SS/SCRO • performed minor manipulations correctly, but independent of other CROs • recognized entry conditions to emergency operating procedures		• verified that certain automatic actions took place and informed SCRO • took corrective immediate actions from memory, without prompting • performed manipulations with other CROs in an integrated manner • initiated immediate actions without prompting

REMARKS:

4. SUBSEQUENT ACTIONS

1	2	3	4	5
• did not verify automatic or immediate actions • could not start idle plant when it was possible to • could not explain purpose of actions		• verified all automatic actions took place and all immediate actions were performed • performed appropriate subsequent actions on direction from SS/SCRO • performed manipulations correctly and independently • explained purpose of most actions correctly		• performed all automatic actions that did not take place • ensured all immediate actions were performed • performed subsequent actions without excessive supervision • performed manipulations correctly with other CROs in a coordinated manner • explained purpose of all actions correctly

REMARKS:

5a. CONTROL BOARD MANIPULATIONS—NORMAL OPERATIONS

1	2	3	4	5
• located controls and indicators hesitantly • did not control plant parameters • could not control automatic systems manually • could not recover from errors • manipulations caused problems • frequently needed guidance		• located controls and indicators unhesitantly, • manipulated the plant safely • manually operated automatic system controls with some guidance • recovered from errors without causing problems		• smoothly manipulated the plant within controlled parameters • smoothly operated automatic systems controls manually • did not make errors • did not require guidance • was able to control multiple panels

REMARKS:

5b. CONTROL BOARD MANIPULATIONS—ABNORMAL/EMERGENCY OPERATIONS

1	2	3	4	5
• responded incorrectly or did not respond to an event • could not locate controls or indicators • could not control plant parameters • could not recover from errors • manipulations caused problems • frequently needed guidance • inappropriately performed multiple problem conditions		• responded correctly to events with some hesitation • located some controls or indicators with hesitation • manipulated the plant safely • manually operated automatic system control with guidance • correctly compensated for malfunctions of automatic equipment • recovered from errors without causing problems		• responded quickly and correctly to events • located controls and indicators unhesitantly • manipulated the plant within controlled parameters • smoothly operated automatic systems manually • easily compensated for malfunctions of automatic equipment • did not make errors • did not need guidance • was able to control multiple panels • worked well with other operators as coordinating necessary

REMARKS:

6. USE OF PROCEDURES/TECHNICAL SPECIFICATIONS/REFERENCE DATA

1 2 3 4 5

- did not use or disregarded procedures
- violated procedures or administrative controls and/or limits
- missed MSPI resulting in unplanned tagw problems
- could not locate procedures, tech specs, reference data
- did not use procedures to address alarms
- did not review applicable turnover documents

- located and followed commonly used procedures
- located appropriate tech specs
- recognized plant conditions covered by tech specs
- looked up reference data when directed
- used procedures to address alarms
- performed/signed surveillances as appropriate

- readily located or requested all proper procedures
- LSSS and safety limit tech specs were memorized, others were quickly looked up
- used appropriate reference data without direction
- identified procedural conflicts and/or inadequacies

REMARKS:

7. COMMUNICATIONS

1 2 3 4 5

- did not inform others of indications of abnormal conditions
- did not inform of recommendations, responses, or actions taken
- gave irrelevant information
- did not ask for information when needed
- did not verify that information received was understood
- was not assertive or argumentative
- had problems with voice clarity, articulation, speed, roughness, direction, or volume of voice
- communicated with wrong person or by wrong means
- did not inform others when performing evaluations

- informed others of indications or abnormal conditions/ alarms
- informed of recommendations, responses and actions
- did not verify that information given was received and understood
- asked for information when needed
- verified receipt of information correctly or irregularly
- displayed passive verbal behaviors
- informed others when performing evaluations

- informed others of relevant information immediately, clearly and concisely
- made clear and timely recommendations
- communicated instructions and actions clearly
- sought feedback that information given was received and understood
- always verified that information or instruction was received and understood
- supported team process verbally and nonverbally

REMARKS:

EXTRA PERSON ON SHIFT SIMULATOR EVALUATION

1. CONTROL BOARD AWARENESS

1 2 3 4 5

- inattentive to panels
- ignored some part of panels
- did not notice plant parameter changes
- did not find appropriate indicators in a timely manner
- did not use the process computer or SER to insure an awareness of plant conditions

- attended to and observed all parts of the panel
- recognized unexpected changes in important plant parameters
- found indicators in a timely manner
- used process computer and SER when requested

- habitually attentive to all panels
- recognized trends before alarm conditions developed
- quickly found appropriate indicators
- routinely used the process computer and SER to assist in maintaining awareness of plant condition

REMARKS:

2. EVENT DIAGNOSIS

1 2 3 4 5

- did not recognize when plant exceeded tech spec limits
- did not step back and get the big picture
- did not ask the right questions
- could not screen out irrelevant unimportant or inaccurate inputs
- incorrectly diagnosed event(s)
- could not recognize emergency plant situations
- could not reconstruct events from available charts, printouts, and schematics
- did not recognize when critical safety function parameters EXCEEDED limits

- recognized when plant EXCEEDED tech spec limits
- stepped back and analyzed the whole situation
- asked the right questions
- screened out unnecessary, irrelevant, unimportant, inaccurate information
- correctly diagnosed event(s)
- recognized emergency plant situations
- did not anticipate trouble areas
- reconstructed events from available charts, printouts, and schematics
- recognized when critical safety function parameters EXCEEDED limits

- recognized when plant APPROACHED tech spec limits
- facilitated and supported a structured diagnostic process including:
  - prioritizing problems
  - determining most probable cause
  - establishing objectives and goals
  - reviewing resources and constraints
  - identify success criteria
  - generating possible solutions
  - valuating the best solution
  - specifying an action plan
  - identifying potential trouble area
- anticipated potential problem areas in progress of group diagnostic process
- determined the precise root cause of problem from the reconstructed event
- recognized when critical safety function parameters APPROACHED limits

REMARKS:

3. IMMEDIATE AND SUBSEQUENT ACTIONS

1	2	3	4	5
• did not recognize entry conditions • unaware of plant conditions • when asked, did not provide appropriate advice		• recognized entry conditions • aware of relevant plant conditions • as necessary, advised appropriate team members: — that automatic actions occurred as designed — about normal plant responses — about immediate operator actions		• recognized when plant approached entry condition • anticipated and advised in course of action to bring plant to preferred condition

REMARKS:

4. USE OF PROCEDURES/TECHNICAL SPECIFICATIONS/REFERENCE DATA

1	2	3	4	5
• could not locate appropriate procedures, tech specs, schematics or reference data • interpreted tech specs, schematics or reference data incorrectly		• located most required procedures, tech specs, reference data and schematics in reasonable time • could explain bases of tech specs • interpreted tech specs correctly • verified compliance with tech spec limits and actions • LCO and safety limit tech specs were memorized, others were quickly looked up		• recognized or readily located all appropriate procedures, tech specs, reference data and schematics • located additional schematics to further clarify problems and interpretations • could distinguish between step-by-step procedures and guidance-only procedures • identified procedural conflicts and inadequacies and could explain how to resolve them

REMARKS:

5. COMMUNICATIONS

1 — 2 — 3 — 4 — 5

- gave unclear, garbled, confusing and incomplete advice
- failed to ask for information when necessary
- ignored input or did not indicate understanding
- communicated with the wrong person or by the wrong method
- failed to communicate with appropriate people (NRC, etc.) when required

- gave understandable advice/input
- asked for information when necessary
- initiated communications with appropriate people (NRC, etc.) when required and by correct means

- gave clear and concise advice/input
- actively listened and verified that the message was understood
- actively sought ideas and input from team members

REMARKS: