

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

Docket Nos: 50-277, 50-278

Report No: 50-277/96-12, 50-278/96-12

Licensee: Philadelphia Electric Company

Facility: Peach Bottom Atomic Power Station

Location: P.O. Box 195  
Wayne, PA 19087-0195

Dates: November 19-21, 1996

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## EXECUTIVE SUMMARY

### Peach Bottom Full-Participation Emergency Preparedness Exercise Evaluation Inspection Report 50-277/96-12, 50-278/96-12

This inspection evaluated the licensee's performance during its biennial full-participation emergency preparedness (EP) exercise. The inspectors observed emergency response facility (ERF) staffing, procedure implementation, effectiveness of mitigation actions, communications, command and control, emergency classification, off-site notifications, and protective action recommendation (PAR) formulation. The inspectors also assessed licensee activity pertaining to one open item that was identified in the previous exercise.

The licensee's overall onsite performance was very good. The ERFs were generally staffed and activated in a prompt manner. Event classifications were correct and timely. Off-site notifications were completed within 15 minutes. However, there was a 26-minute time period between the Alert declaration and ERO pager activation, which was considered unusually long by the inspectors. This did not affect ERF activation during this exercise, but could affect an off-hours activation.

Facility directors exhibited good command and control. Damage control efforts were appropriately prioritized, and damage repair teams were effectively briefed and debriefed. The site evacuation could have been more timely, but protective actions were generally good. The Emergency Response Manager (ERM) in the Emergency Operations Facility performed well with the exception of not consistently briefing his staff on plant status. However, the ERM did interface well with State officials, especially concerning the bases for the two PARs which were provided.

The first PAR was provided to the states within the required 15 minutes of the general emergency declaration. The PAR upgrade, based on dose projections, was adequate. Both PARs included an unaffected geographic sector for evacuation, which was not in accordance with the licensee's procedure and was not brought to the ERM's attention. However, this did not affect the offsite protective actions that were taken. The Emergency News Center provided frequent news releases and timely media briefings.

The licensee's post-exercise critique was good, although it was very general, did not identify all NRC findings, and could have included more specific critical feedback to licensee staff and management.

## Report Details

### IV. Plant Support

#### **P4 Staff Knowledge and Performance**

##### a. Exercise Evaluation Scope

During this inspection, the inspectors observed and evaluated the licensee's biennial full-participation, emergency preparedness exercise in the simulator control room (SCR), technical support center (TSC), operations support center (OSC), emergency operations facility (EOF), and the emergency news center (ENC). The inspectors assessed licensee recognition of abnormal plant conditions, classification of emergency conditions, notification of off-site agencies, development of protective action recommendations (PARs), command and control, communications, and the overall implementation of the emergency plan. In addition, the inspectors attended the post-exercise critique to evaluate the licensee's self-assessment of the exercise.

##### b. Emergency Response Facility (ERF) Observations and Critique

###### b.1 Simulator Control Room (SCR)

The Shift Manager (SM) performed well as the Emergency Director (ED). His unusual event and alert declarations were correct and timely. The notifications provided to offsite agencies were also timely. The Control Room Supervisor (CRS) demonstrated very good command and control directing the crew in the use of the emergency operating procedures. The shift technical advisor provided very good assessment of plant trends and possible causes of problems. The reactor operators performed very well in controlling plant conditions and reporting plant parameters, including possible entries into off-normal and operational transient condition procedures.

The inspector noted two minor issues in the SCR: 1) The safety parameter display system (SPDS) was not used by the CRS early in the scenario. Instead he used actual plant instrumentation readings as reported by the reactor operators. While operators need to be able to respond to an accident condition without the SPDS, when it is available, it should be used as a tool to enhance the trending of plant parameters, and to minimize the interruption of reactor operators for reports on plant indications, and 2) Following the loss of a safety-related electrical bus, the operators did not identify that the associated annunciator response card required that a closed high pressure service water pump breaker needed to be opened for bus recovery, until prompted by the OSC. Overall, the operating crew performed very well during the scenario.

###### b.2 Technical Support Center (TSC)

The TSC was staffed and activated within one hour of the alert declaration after a thorough turnover by SCR personnel. The ED demonstrated excellent command and control throughout the exercise. He conducted frequent informative, and timely briefings with the TSC group leaders, the TSC staff, and the other ERFs via

telephone conferencing. These briefings generally kept emergency response organization (ERO) personnel informed of changing plant conditions. The ED solicited information from the TSC group leaders to discuss and incorporate their input. He also gave clear guidance to TSC and OSC personnel by prioritizing repair activities based upon the current plant conditions.

Inspectors observed one deficiency in the TSC. Information flow to the engineering staff on plant conditions that were not on the SPDS was generally slow. For example, when they were tasked with developing a method to vent primary containment, the engineers were unaware of the loss of the E12 electrical bus, which made the containment spray system unavailable. After the exercise, the inspector discussed this matter with the TSC engineering supervisor who agreed to look into why the information was being delayed.

The ED accurately classified the site area emergency (SAE) and the general emergency (GE) conditions. The associated notifications to offsite agencies were completed in a timely manner. The TSC staff regularly reviewed the emergency action level (EAL) tables to ensure that no emergency classifications were overlooked.

Overall, TSC staff performance was very good: individuals performed their duties, communications were strong, and the ED provided effective leadership throughout the exercise.

The inspector observed that the TSC staff pagers actuated 26 minutes after the alert declaration, which initiates the pager actuation process. The inspectors considered the 26-minute time period to be unusually long. This did not impact the activation of the TSC because the exercise occurred during normal work hours and personnel were readily available. However, the inspectors questioned the licensee's ability to staff the TSC in a timely manner during an off-hours activation if pager actuation was delayed by that length of time. The licensee had also noted the delayed actuation of the pagers in its critique as an issue to receive heightened attention. The delay resulted from the communicator first notifying the offsite agencies (in accordance with procedure) and then initiating the pager activation system. There was about a five-minute delay between initiating the pager signal and the actual broadcast of the pager signal, due to heavy system usage at that time. As corrective action, the licensee stated that it has contracted to implement a community alert network (CAN) by December 1996. This system will notify ERO personnel and offsite agencies simultaneously to expedite the ERF staffing.

The inspectors also determined that the licensee's Emergency Plan (the Plan) does not specify a length of time from the alert declaration to when the TSC is to be activated. There was a stated goal for the staffing of the EOF and there was a memorandum communicating licensee management's expectations to ERO members stating a response time to their assigned facility within one hour of notification. The licensee recognized this lack of specificity regarding facility staffing and stated that staffing expectations would be included in a future revision to the Plan.

### b.3 Operations Support Center (OSC)

The OSC was activated within 20 minutes of the Alert declaration and in accordance with ERP-230, "Operations Support Center (OSC) Activation." The inspectors noted that the OSC emergency response equipment was properly stored and in good condition. The Maintenance Team Leader (MTL) effectively coordinated the OSC activities and conducted frequent briefings with the ED over the OSC public address (PA) system to keep OSC personnel informed of plant status and repair priorities. However, the PA system was sometimes garbled due to placement of the PA microphone over the speaker-phone (which carried the ED briefing) and improper PA system speaker balance. Otherwise, the inspectors noted that the communications between the ERFs over the three way telephone speaker systems were good.

Inspectors noted during the last exercise inspection that the damage repair teams (DRTs) received their task and health physics briefings separately, which delayed team deployment. Additionally, the inspectors noted that sometimes licensee personnel did not perform repair tasks in parallel, which increased the time required to effect repairs. During this inspection the inspectors noted that the briefings by the MTL, operations team leader, and the health physics team leader were given together. Also, the briefings were concise and provided the DRTs with the necessary task information and safety requirements. These actions allowed the OSC to dispatch approximately 25 DRTs during a 5-hour time period. Therefore, IFI 50-277/ 94-20-01 is closed.

During one of the DRT debriefings, the team noted that procedure T-260 for instrument reference leg back-fill identified a specific piece of required equipment, which could not be located. The DRT members took appropriate actions to make immediate changes to the procedure and tried to locate the missing equipment. The licensee was following up on this discrepancy at the close of the inspection.

During the exercise, OSC status boards were well-maintained. However, job priorities were not consistently listed on a status board. The MTL knew at all times what the job priorities were, and communicated them verbally to the other team leaders. However, the team leaders were often out of the room briefing their teams, and were not always apprised of changing priorities. The inspector concluded that this had no negative impact on OSC performance, but that an up-to-date status board would have been beneficial.

### b.4 Emergency Operations Facility (EOF)

Overall, the licensee performance in the EOF was good. The licensee activated the EOF 32 minutes after the SAE declaration, well within the one-hour goal. No responders were prepositioned at the facility, and all responders processed in correctly. The licensee activated the facility after the applicable turnovers were complete.

The Emergency Response Manager's (ERM's) command and control of the EOF was generally effective. He kept the noise and distractions to a minimum and effectively directed his subordinates. However, he gave infrequent and incomplete briefings to the EOF staff. For example, the ERM was informed when the SAE was declared, and the status board was updated in a timely manner, but the event was not announced over the PA system until approximately thirty minutes later.

The ERM demonstrated excellent interaction with the offsite officials during the exercise. He convened three separate conferences with representatives of the affected states. He gave clear explanations of the two PARs, including their bases, and he responded quickly to concerns raised by the state officials. He also kept state officials informed of major scenario events.

The Dose Assessment Team Leader (DATL) promoted good team work and provided radiological updates to the ERM when requested. She assigned the Health Physics Support Liaison as the contact person to keep state representatives updated on environmental and plant radiological conditions, a good initiative. This allowed the DATL to focus on command and control of her area. However, the DATL provided only one staff briefing, approximately 25 minutes after the GE declaration. This delayed informing the offsite field survey teams that a radiological release was in progress.

The Field Survey Group Leader (FSGL) tracked the offsite survey teams and kept them informed of changing plant conditions. Prior to team dispatch, the FSGL noticed that two team members were approaching their annual radiation dose limits. He immediately requested and received from Health Physics, dose extension for those team members.

The Dose Assessment Team (DAT) was very good at questioning occasional erroneous information on plant conditions from the TSC engineering group. When the dose assessment computer malfunctioned at the GE declaration, the DATL immediately called the dose assessment coordinator at the TSC and requested that a dose projection be performed and faxed to the EOF. This action resulted in enabling the licensee to make a timely PAR. However, the DAT did not perform any "what if" dose projection calculations. The DAT continuously monitored current meteorological and radiological conditions, but did not discuss or explore other possible radiological release pathways, worst case scenarios, or potential field team relocations for weather changes.

The ERM made two PARs to the offsite agencies during the scenario. The first was based on the existing plant conditions, and was made within the 15-minute time requirement. Approximately 30 minutes later, the DATL recommended a PAR upgrade based on changing radiological conditions. The PAR procedure states that the affected geographic sectors, and the two adjacent sectors, should be recommended for evacuation. The DATL added one additional geographic sector for evacuation for both PARs, based on the wind direction earlier in the exercise. This sector was added as a precaution in case the wind shifted back to its original course. When the DATL provided the PAR recommendation to the ERM, he did not

question the recommendation, which included the additional sector, and the DATL did not bring it to the ERM's attention. The inspectors concluded that, although the DATL did not follow the procedure, which does not provide for this discretion, the additional sector did not alter the protective actions ultimately taken, since the Commonwealth of Pennsylvania and State of Maryland evacuated all sectors in the emergency planning zone out to 10 miles.

b.5 Emergency News Center (ENC)

The ENC, co-located with the EOF at PECO Energy's Coatesville, PA Service Building, was well-staffed with knowledgeable personnel. News releases were frequent and informative and media briefings, with mock media representatives in attendance, were timely, well-controlled and provided accurate information for the public. However, the use of graphics was limited. This may have contributed to an increase in the number of questions asked by the mock media representatives. Two health physics consultants were available to respond to questions about radiation health effects as a result of the postulated accident. At the conclusion of the 8:00 p.m. media briefing, senior officials from the Commonwealth of Pennsylvania (Pennsylvania Emergency Management Agency and the Bureau of Radiation Protection) conducted a briefing in Harrisburg, PA with interactive capability (voice only) with the ENC. This permitted media representatives in the ENC to ask questions of the officials in Harrisburg directly. Overall, ENC performance was very good.

b.6 Licensee Exercise Critique

Immediately following the exercise, the licensee began its critique process. Players and controllers assembled in their assigned facilities and critiqued their exercise performance. These findings were collected and presented to the NRC on November 21, 1996. Although this formal critique was assessed as good, it was very general in nature, did not identify all the items identified by the inspectors, and could have included more specific critical feedback to licensee staff and management. Findings were classified as strengths or areas for improvement. There was one item noted (pager activation) as an issue to receive heightened attention.

c. Overall Exercise Conclusions

The licensee's overall performance was very good. The facilities were generally staffed and activated in a prompt manner. A delay in ERO pager activation could have delayed the response, but it did not negatively impact this exercise. Good command and control was observed at all of the facilities. Event classifications were timely and accurate, and off-site notifications were completed within 15 minutes. The PARs were timely, but an additional geographic sector was included for evacuation that was not brought to the ERM's attention. This did not affect the protective actions which were implemented. There were many good discussions observed within individual facilities and among the facilities.

## **P8 Miscellaneous EP Issues**

- P8.1 (Closed) Inspector Follow-up Item 50-277,278/94-20-01 : Deployment of teams delayed. During the last exercise, damage repair teams received separate task and health physics briefings, which delayed their deployment. Additionally, sometimes tasks were not performed in parallel, which increased the time to complete repairs.

During this inspection, briefings were concise and given together, which greatly decreased the time necessary to deploy the DRTs. Additionally, work items were completed in parallel, where possible, which improved the timeliness of repair efforts. This also allowed the OSC to dispatch approximately 25 DRTs during the exercise. Therefore, this item was closed.

### **P8.4 Updated Final Safety Analysis Report (UFSAR) Review**

A recent discovery of a licensee operating its facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures, and/or parameters to the UFSAR or the emergency plan. During this exercise, the inspectors observed the licensee's compliance with the Plan regarding ERO structure, facility activation and usage, classification of simulated events, and notification of off-site agencies. No discrepancies were noted.

### **P8.5 In-Office Review of Licensee Procedure Changes**

An in-office review of revisions to the Plan and its implementing procedures submitted by the licensee was completed. A list of the specific revisions reviewed are included in Attachment 1 to this report. Based on the licensee's determination that the changes do not decrease the overall effectiveness of the Plan, and that it continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to Part 50, NRC approval is not required for those changes. Implementation of those changes will be subject to inspection in the future.

## **V. Management Meetings**

### **X.1 Exit Meeting**

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on November 21, 1996. The licensee acknowledged the inspectors' findings.



## PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Allshouse, Director, Maintenance  
 G. Bird, Manager, Emergency Preparedness (EP)  
 V. Cwietniewicz, Director, Training  
 W. Eckman, Nuclear Quality Assurance  
 R. Gambone, Senior Manager, Operations  
 R. Kinard, Manager, Nuclear Security EP, Peach Bottom (PB)  
 S. MacAinsh, Manager, Support Services  
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R. Lorson, Resident Inspector, Peach Bottom  
 C. Munson, Resident Inspector, Peach Bottom  
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## INSPECTION PROCEDURES USED

82301: Evaluation of Exercises for Power Reactors  
 82302: Review of Exercise Objectives and Scenarios for Power Reactors

## ITEMS CLOSED

Closed

50-277,278/94-20-01      IFI      Delay of DRTs

## LIST OF ACRONYMS USED

CAN	Community Alert Network
CRS	Control Room Supervisor
DAT	Dose Assessment Team
DATL	Dose Assessment Team Leader
DRT	Damage Repair Team
EAL	Emergency Action Level
ED	Emergency Director
ENC	Emergency News Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ERM	Emergency Response Manager
FSGL	Field Survey Group Leader
GE	General Emergency
IFI	Inspector Followup Item
MTL	Maintenance Team Leader
NRC	Nuclear Regulatory Commission
OSC	Operations Support Center
PA	Public Address
PAR	Protective Action Recommendation
SAE	Site Area Emergency
SCR	Simulator Control Room
SM	Shift Manager
SPDS	Safety Parameter Display System
TSC	Technical Support Center
UFSAR	Updated Final Safety Analysis Report

## ATTACHMENT 1

### Emergency Response Procedures Reviewed

<u>Document</u>	<u>Document Title</u>	<u>Revision(s)</u>
ERP-101	Classification of Emergencies	17, 18, 19
ERP-110	Emergency Notifications	10
ERP-130	Site Evacuation	10, 11
ERP-140	Emergency Response Organization (ERO) Call Out	14, 15
ERP-200	Emergency Director (ED)	13
ERP-205	Emergency Preparedness Coordinator/TSC	6
ERP-206	Support Services Group	5
ERP-220	Operations Group	6
ERP-230	Operations Support Center (OSC) Activation	14
ERP-301	Dose Assessment Coordinator (DAC)	1
ERP-325	Shift Dose Assessment Personnel	4
ERP-500	Security Team Leader (STL)	9
ERP-520	Security Group Leaders	5
ERP-620	Health Physics Group (HPG)	10
ERP-800	Maintenance Team Leader (MTL)	4
ERP-810	Maintenance Group	8
ERP-C-1400	Engineering Support Team	2
ERP-C-1500	Logistics Support Team	3