NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
PALISADES NUCLEAR PLANT	0 5 0 0 0 2 5 5	1 OF 1 6

TITLE (4)
Loss of Communications

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 1	0 8	8 4	8 4	— 0 0 1 —	0 0	0 2	0 7	8 4	NA	0 5 0 0 0
									NA	0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
David W. Rogers; Technical Engineer; Palisades	6 1 6 7 6 4 - 8 9 1 3

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
A	F K	B K R	A 1 8 0	N	A	E K	D G	A 2 5 7	Y
X	E B	B K R	A 1 8 0	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On January 8, 1984, the Palisades Nuclear Plant experienced a complete loss of all normal communications links between the Plant, the NRC and state/local authorities. The event was precipitated by the need to isolate a faulty switchyard breaker. To accomplish the isolation, it was necessary to interrupt the offsite power supply to the Plant. At the time of the event, Palisades was in a refueling outage with all fuel removed from the reactor and one diesel generator inoperable. While Operating Procedures require two operable diesel generators prior to removing offsite power, the Shift Supervisor proceeded with the evolution after determining the safety of the fuel would not be jeopardized. In preparing for the evolution, the operators failed to realize that there would be no operable service water pumps supplied by the operating diesel. Consequently, after approximately 50 minutes the diesel overheated due to lack of cooling water and was manually tripped. The resulting loss of onsite AC power caused a loss of all plant telephones and radios for approximately 45 minutes. Onsite power was subsequently re-energized from the switchyard, resulting in the restoration of normal communications. The incident resulted in the declaration of an Unusual Event, however, there was no increased threat to the public's health or safety.

I. EVENT DESCRIPTION

On Sunday, January 8, 1984, at 0700 hours, a low air pressure alarm was received on the isolator column of switchyard breaker 25R8 [BKR;FK]. The Plant, in a refueling outage since August 1983, was receiving station power from the switchyard's 345 kv "R" Bus [BU;FK] through the Plant's start-up transformer [XFMR;EA]. The Company's Regional Power Control expressed concern on several occasions throughout the morning to the Plant Shift Supervisor regarding the condition of breaker 25R8. Regional Power Control had been having some difficulties along the power lines and was concerned that if a fault developed on the line, breaker 25R8 would not be capable of opening. For this reason, Regional Power Control requested the R Bus be removed from service for the purpose of isolating and repairing breaker 25R8.

At 1215 hours, the Shift Supervisor made the decision to comply with the Regional Power Control request to de-energize the R Bus. The Shift Supervisor, in reaching his decision, took two factors into consideration. First, there was no immediate threat to the Plant or public in that the reactor [RCT;AB] was completely de-fueled with all fuel being maintained in the storage pool [DA] at approximately 88 degrees F. Secondly, the Standard Operating Procedure for removing the R Bus from service (SOP-32) stipulates that the Plant be shut down with station power load supplied by Diesel Generators 1-1 and 1-2 [DG;EK] or through the main [XFMR;EL] and station power transformers 1-1 and 1-2 [XFMR;EA]. The Shift Supervisor immediately realized that neither of these requirements could be fully met because both the main transformer and the 1-2 diesel generator were out of service. Accordingly, he reasoned the SOP-32 requirement for a backup power source was provided for occasions when maintaining core cooling to a fueled reactor was the utmost priority. Consequently, the Shift Supervisor decided to proceed with the request to de-energize the R Bus, with diesel generator 1-1 loaded to the 1C bus [BU;EB] to supply the station power load.

Diesel Generator 1-1 was started at 1227. Bus 1C was subsequently loaded to the diesel generator at 1230. At approximately 1248, the appropriate breakers [BKR;FK] were opened to de-energize the R Bus, leaving the Plant powered solely by Diesel Generator 1-1.

As a result of de-energizing the R Bus, two events occurred: Plant Security Systems [IA] experienced a loss of power; and all Plant service water flow was lost. The three plant service water pumps (P-7A, B and C) [P;BI] are powered from buses 1C and 1D [BU;EB] such that P-7B comes off the 1C bus, while P-7A and P-7C are powered from the 1D bus. With P-7B tagged out of service since mid December, service water on this day was being provided by P-7A and P-7C. The Shift Supervisor was cognizant of P-7B being out of service, however, he did not relate the fact to the situation at hand. When the R Bus was de-energized, the two operable service water pumps were lost, leaving diesel generator 1-1 to supply station power with no service water cooling available.

By approximately 1336, breaker 25R8 had been isolated, and the appropriate breakers closed to re-energize the R Bus. At this time, however, the R Bus was not supplying the plant load because supply breakers [BRK;EB] to buses 1C, 1D and 1E [BU;EB] were still open.

At approximately 1337, an operator reported smoke in the area of the 1C bus. The Shift Supervisor immediately went to the 1C bus area and determined the origin of the smoke to be the 1-1 diesel generator room. Diesel Generator 1-1 was locally tripped using the manual overspeed trip at 1339. The smoke/steam resulted from overheating the diesel, which caused a gasket to rupture on the jacket water heat exchanger [HX;EK]. There was, in fact, no fire present.

Tripping the diesel generator resulted in the loss of all AC power with the exception of preferred AC. All onsite telephones [TEL;FI] and radios [TMRC;FI], except two offsite-powered pay phones were rendered inoperable. Additionally, the Control Room fire detector alarm panels [ANN;IC] became inoperable. At the time, hourly fire tours were being conducted as compensatory measures for inoperable penetration fire barriers per Technical Specifications 3.22.5.1. The loss of the fire detector alarm panel necessitated the establishment of continuous fire watches to comply with T.S. 3.22.5. The operators failed to recognize this requirement; consequently, the fire watches were not established.

Since the R Bus was already energized, attempts were made to restore AC power by closing the supply breakers to buses 1C, 1D and 1E. Although unsuccessful on the first attempt, the breaker to bus 1D was closed on the second attempt, restoring partial AC power to the Plant at 1425. With this action, Plant Security Systems and radios regained power, however, all Plant telephones remained inoperable (except for pay phones).

At 1511, the R Bus was purposely de-energized to attempt closing the supply breaker to bus 1C (breaker 152-106) [BKR;EB] on a "dead" bus. The attempt failed, and R Bus was subsequently re-energized. Bus 1D was restored to power at 1550. During this time (1511 to 1550), the Plant was again without AC power, and consequently, without power for Security Systems and radios.

Investigation into the inability to close the supply breakers to the 1C and 1E buses revealed that bus 1E was locked out due to Safety Injection load shed relay [RLY;EK] actuation and bus 1C supply breaker (152-106) was locked out by an automatic transfer interlock.

At 1618, bus 1E was energized, resulting in partial restoration of the phone system. The NRC was then notified of the loss of power at 1625. With the exception of the pay telephones, the Plant was without offsite phone communication capability until 1618.

There was a general reluctance on the part of the Shift Supervisor to classify the condition as an emergency because all fuel was in the storage pool, and the probability of a radiological release was substantially nonexistent. However, at approximately 1630, the Site Emergency Plan was activated, classifying the incident as an Unusual Event. The Shift Supervisor, with assistance from the Duty Health Physics Supervisor, completed some of the immediate notification requirements.

At 1930, previously inoperable phones were jumpered to an energized source, resulting in a complete restoration of plant-powered telephones. The NRC hotline (Red Phone) was subsequently verified to be working properly at approximately 1945.

On January 9, 1984 (Monday), at 0215, the instrument AC bus (Y-01) [BU;EC] was re-energized, resulting in the fire detection alarm panels being returned to service. At 0350, following several unsuccessful attempts at repairing breaker 152-106 (1C supply breaker), a replacement breaker was installed and bus 1C was re-energized.

The NRC was contacted at 1800 on January 9, 1984 to clarify the Unusual Event status of the previous day. Some additional notifications of a clarification nature were also completed.

II. EVALUATION AND CORRECTIVE ACTIONS

Extensive review of the incident resulted in the categorization of eight significant sub-events. In analyzing the safety significance of each of these sub-events, it is important to keep in mind that all fuel was removed from the reactor and that the Plant had been shut down for over four months. Consequently, the most significant sub-event was the loss of communications. As depicted in Figure 1, five of the sub-events clearly lead to the loss of communications. While the two remaining sub-events would not have occurred without the other six, their proximate and root causes are not directly related to the other sub-events. The evaluation and corrective action for each sub-event is presented separately.

Loss of Communications
Sub-events

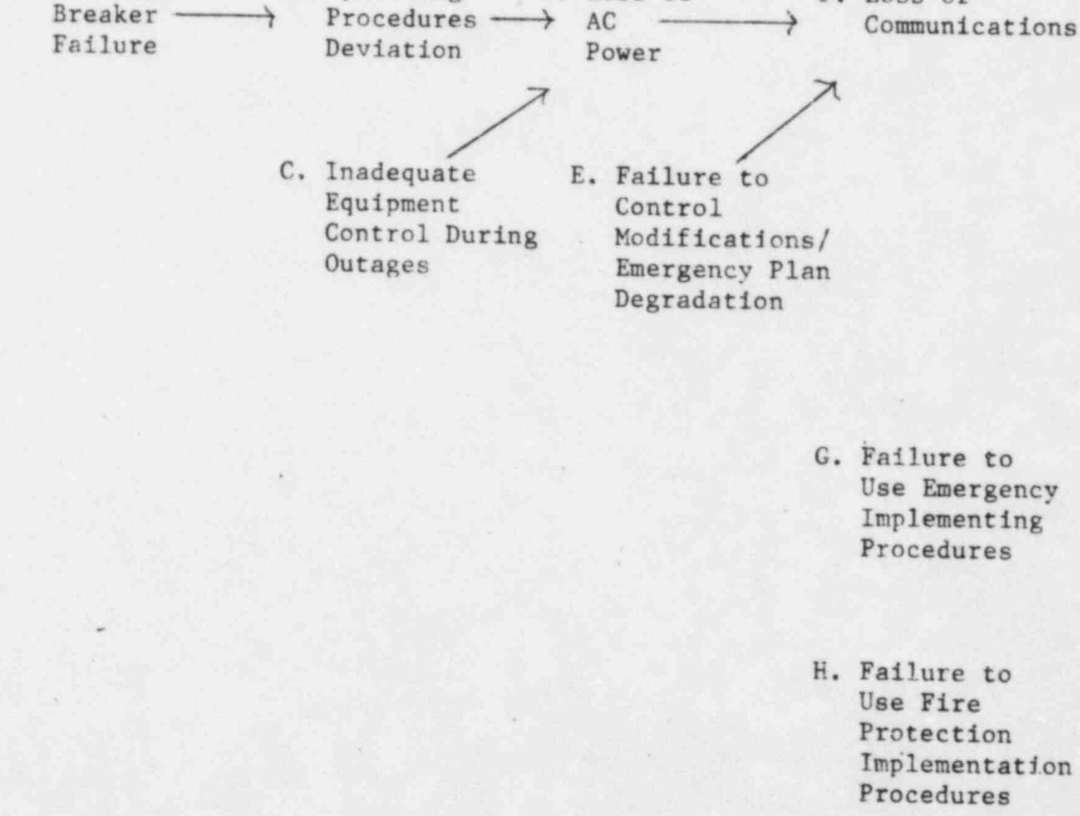

FIGURE 1

A. SWITCHYARD BREAKER FAILURE

1. Evaluation

The triggering event for the entire incident was the failure of a switchyard breaker.

The switchyard breakers at Palisades are designed such that low air pressure in a single isolator column will cause its associated breaker to fail shut and remain shut. In this instance, the pressure switch which provides the interlock failed due to an internal ice buildup, resulting from moisture ingress through an improperly installed gasket. Consequently, its breaker was rendered inoperable and would not have performed its fault isolation function. The failed breaker (25R8) is located such that it cannot be isolated from the R bus without first de-energizing the bus and opening manual disconnects [DISC;FK].

Since all startup power is provided from the R bus, the Shift Supervisor could not immediately isolate 25R8. Instead, Plant maintenance personnel were sent to investigate, but were unable to locate and correct the breaker problem for several hours. The time delay was due, in part, to a lack of drawings at the switchyard.

2. Corrective Actions

As a result of the 25R8 breaker failure, the following corrective actions have been, or will be, completed:

a) Repair the pressure switch and return 25R8 to service.

b) Improve the availability of drawings for switchyard troubleshooting.

c) Investigate the possibility of powering the startup transformers from either the R-bus, or the F-bus.

d) Review the incident with maintenance personnel. Emphasize the need for attention to detail in completing routine tasks (eg, gasket installation).

B. OPERATING PROCEDURE DEVIATION

1. Evaluation

In the early stages of the event, the Shift Supervisor was under significant pressure from the Region Power Controller to isolate or repair the 25R8 breaker due to unstable grid conditions. Aware of a procedural requirement to have both diesel generators operable before de-energizing the R bus, the Shift Supervisor delayed as long as possible, anticipating repair of the breaker. When he could delay no longer, he reviewed the procedural requirement and determined that its intent was to minimize risk to fuel integrity when fuel was in the reactor vessel. While the Shift Supervisor maintains ultimate control of the switchyard, in this instance he acceded to pressure from the Power Controller and agreed to de-energize the R-bus. In doing so, he knowingly deviated from the operating procedure requirement, and inadvertently violated an administrative requirement to notify the Duty and Call Superintendent prior to deviating from any procedure.

2. Corrective Actions

As a result of the procedural violation, the following corrective actions have been, or will be, completed:

a) Discuss with all Operations Department personnel the need for strict adherence to Operating Procedures.

b) Review the requirements of the electrical distribution procedures with Operations Department personnel.

c) Review/discuss this incident with Power Control personnel.

1) Identify Power Control influence on the event.

2) Ensure Power Control understands the priority that should exist on re-energizing the R bus.

3) Determine exactly what the nature of the unstable grid conditions were prior to the event.

C. INADEQUATE EQUIPMENT CONTROL DURING OUTAGES

1. Evaluation

At the time of the event, Palisades was in an extended refueling outage, performing major maintenance on steam generators [SG;AB]. Consequently, management attention was focused on critical path items and there was reduced emphasis on promptly restoring other inoperable equipment to service. In particular, the 'B' Service Water Pump and the main transformer had been out of service for extended periods of time. Therefore, when the 1-2 Diesel Generator was declared inoperable two days before this event, it left the Plant with one diesel generator, but no service water pump powered from that diesel. Consequently, any loss of offsite power could have resulted in the Plant having no operable diesel generators.

Currently, there exists very little administrative guidance detailing the limiting conditions of operation while the Plant is in cold or refueling shutdown. Therefore, in many cases, it has been left up to the Shift Supervisor to determine how much additional equipment can be removed from service and what level of risk he is willing to assume. Additionally, because of the large volume of maintenance in progress during a refueling outage, it is extremely difficult for the operators to keep track of the constantly changing equipment status.

2. Corrective Actions

As a result of the inadequate control of equipment during outages, the following corrective actions have been, or will be, completed:

a) A review of the management control of equipment for plant conditions not covered by Technical Specifications requirements. The review shall specifically address electrical system requirements during cold shutdown.

b) Establish limiting conditions of operation for conditions not covered by Technical Specifications.

c) Implement a policy of removing workman's protective tags when clearance has not been taken within an established amount of time.

d) Review the use and effectiveness of equipment status boards during cold and refueling shutdowns, and determine alternative means, if necessary.

D. LOSS OF AC POWER

1. Evaluation

When the Shift Supervisor acceded to pressure from Power Control and decided to de-energize the R bus, he knew he would only be able to power one-half of the safety related buses. What he failed to do was determine which equipment would be de-energized, and what redundant system would remain available. Consequently, when R-bus was de-energized, the operators did not realize cooling water to the diesel was lost. The Control Room alarm indication which should have warned the operators was apparently masked by the large number of simultaneous alarms received when the R-bus was de-energized, and by the lack of reflash capability on the diesel alarm panel.

Approximately 50 minutes after de-energizing the R bus, smoke was reported in a switchgear room adjacent to the 1-1 Diesel Generator. On receiving the report of smoke, the Shift Supervisor went to the scene. Upon determining the smoke was from the 1-1 Diesel Generator, the Shift Supervisor ordered the diesel tripped, unaware that power had been restored to R bus. Had the Shift Supervisor remained in the Control Room, it is likely that he would have re-energized startup power to the safeguards buses before tripping the diesel, thereby avoiding the loss of AC power.

Once the diesel was tripped, all station power was lost, with the exception of the station batteries [BTRY;EK] and their associated DC and preferred AC buses. The loss of power was further extended because the breaker supplying startup power to bus 1C (152-106) could not be closed. In attempting to identify the problem with 152-106, the R bus was intentionally de-energized, resulting in a loss of power to bus 1D for another 39 minutes. It was later determined that the 152-106 breaker did not operate because of an interlock associated with an automatic instantaneous transfer feature. This interlock is present on bus 1C, but not on bus 1D, and was not recognized by the operators. During manual cycling for troubleshooting, breaker 152-106 sustained minor damage and was subsequently replaced.

Diesel Generator 1-1 sustained no apparent degradation as a result of the incident. Subsequent to the event, the lube oil was changed and the blown gasket on the jacket water heat exchanger was replaced. A service representative from the diesel manufacturer was called to the site to inspect the diesel; no problems were reported. The diesel has since been tested satisfactorily and returned to service.

Based on previous experience during the outage, the operators knew spent fuel pool cooling could remain secured for several days before any action was necessary. Therefore, the items of immediate concern should have been the loss of communications, the loss of power to security systems and the loss of fire detection equipment. Rather than attempting to resolve the three

separate problems, the operators attempted to resolve all three by restoring a normal electrical lineup. However, as a result of the 152-106 breaker problem, restoration of a normal electric lineup took much longer than anticipated and therefore extended the loss of communications, security systems and fire detectors. Security guards promptly compensated for the loss of security systems, but the communications and fire detectors were neither compensated for nor restored until power was restored.

2. Corrective Actions

As a re[illegible] of the loss of AC power, the following corrective actions have been, or will be, completed:

a) Determine the extent of damage to the 1-1 Diesel Generator and complete any necessary repairs.

b) Determine the cause of failure of breaker 152-106 and repair. Verify the failure is not generic to similar breakers. If warranted, initiate a periodic inspection program of similar breakers.

c) Review the operation of the 1C, 1D and 1E breakers, including their associated interlocks, and determine why the breakers did not initially close. Initiate the necessary training, repairs or modifications necessary to prevent recurrence.

d) Train Operations Department personnel on the operation of 2400 V breakers, specifically the differences between local and remote operation.

e) Review the interlocks associated with the 480 V distribution system and provide training to the operators.

f) Review the recent safety injection load shed modification and identify any equipment or procedure changes required.

g) Review the Loss of AC Procedure and revise, if necessary, based on the evaluation of this incident.

h) Investigate the possibility of a procedural requirement to cross-connect the fire pumps to the service water headers in the event of a loss of the B Service Water Pump.

i) Provide drawings, readily accessible to the Shift Supervisor, depicting power supplies to security and communications equipment.

j) Review all alarms which should have been available to the operators to warn of the impending loss of the 1-1 Diesel Generator. Identify any design deficiencies, whether electrical or human factors, which may have masked this vital information from the control room operators.

k) Identify any other remote alarm panels lacking a reflash capability and determine the need to modify these panels to provide reflash.

l) Initiate a practice of routinely verifying the operation of remote and local alarm panels.

E. FAILURE TO CONTROL MODIFICATIONS/EMERGENCY PLAN DEGRADATION

1. Evaluation

The communications systems listed in the Site Emergency Plan include the commercial telephone system and dedicated telephones (NRC hot line, etc). The commercial phone system, as described, contained a number of "power failure" phones. These phones were supplied from an independent offsite power source isolated from the Palisades Plant and switchyard.

While the importance of these telephones was recognized, their installation and modification was not previously controlled within the Plant's formal modification process. Consequently, during expansion of the phone system, power to the "power failure" phones was shifted to a plant source without a formal review process. The net result was a loss of all phones due to the loss of onsite power.

2. Corrective Actions

As a result of the failure to control modifications and the subsequent Emergency Plan degradation, the following corrective actions have been, or will be, completed:

a) Review the modification which transferred the power failure phones to site power. Determine when, and why, it was performed, how it was authorized, and the extent of the modification.

b) Verify that other changes to the Security or communication systems have not been made which may have degraded the Security Plan or Site Emergency Plan.

c) Process all future changes to communications and security systems through the formal modification process.

F. LOSS OF COMMUNICATIONS

1. Evaluation

The loss of communications was the most significant sub-event of the entire incident. As a result of a loss of AC power, all normal communications links between Palisades, the NRC and state/local authorities were interrupted for approximately 45 minutes. Consequently, the operating staff was unable to promptly inform the authorities of the events in progress or obtain the additional support necessary to promptly terminate the event. The inability to satisfy the communications requirements of the Security Plan resulted in the declaration of a Major Security Event, the details of which are explained in Security Event Report 84-001. While the proximate cause was the loss of AC power, the root cause of the loss of communications was a failure to control communications equipment modifications, resulting in degradation of the Emergency Plan.

While all normal communications systems were lost, the Shift Supervisor was able to establish limited contact using a pay telephone onsite. If the loss of communications had been the Shift Supervisor's highest priority, there were additional methods available for establishing communications, including the use of portable emergency generators to power radio transmitters and a portion of the phone system. These back-up methods were not utilized because the Shift Supervisor felt it was more important to restore the electric system.

2. Corrective Actions

As a result of the loss of communications, the following corrective actions have been, or will be, completed:

a) Train Operations Department personnel on the normal and emergency power supplies for the phone system.

b) Review the redundant communications systems available and disseminate this information to Operations and Security personnel.

c) Revise the Site Emergency Plan to better define the existing alternative power supplies available to support the Emergency Plan equipment.

d) Review the reliability of power sources supplying equipment required by the Emergency Plan and make modifications as necessary.

G. FAILURE TO USE EMERGENCY IMPLEMENTING PROCEDURES

1. Evaluation

The Shift Supervisor failed to properly classify this event as an emergency and therefore did not activate the Site Emergency Plan. The Shift Supervisor promptly evaluated the condition of the fuel and properly concluded the effects of the power outage were minimal. However, he was not sensitive to the implications of this event on the Fire Protection and Security Plans and therefore failed to refer to the Emergency Implementing Procedures. Approximately three hours after the start of the event, the oncoming Shift Supervisor did indeed activate the Site Emergency Plan and declare an Unusual Event. However, in notifying the NRC, the Shift Supervisor failed to inform them that an Unusual Event had been declared. Further, he failed to make some of the additional notifications required by the Emergency Implementing Procedures. The notification requirements were not completed because the Shift Supervisor focused his efforts on restoring power, and failed to delegate any of his responsibilities as Site Emergency Director.

2. Corrective Actions

As a result of the failure to use the Emergency Implementing Procedures, the following corrective actions have been, or will be, completed:

a) Provide classroom training for all licensed operators and candidates on the use and the intent of the Site Emergency Plan.

b) Integrate the use of the Site Emergency Plan into simulator training. Where possible, involve actual Duty and Call Superintendents in the training.

c) Provide classroom training for Duty and Call Superintendents on their role in managing emergency and off-normal conditions.

d) Review the need to provide additional management personnel onsite at all times to assist the Shift Supervisor in controlling emergency and off-normal conditions.

H. FAILURE TO USE FIRE PROTECTION IMPLEMENTATION PROCEDURES

1. Evaluation

At the time of the event, there were inoperable fire barriers in 14 vital areas. Prior to the loss of power, hourly inspections were being performed in accordance with Technical Specification 3.22.5. When power was lost, fire detection capability was also lost. A continuous fire watch should have been established in the 14 areas to comply with T.S. 3.22.5. The licensed operators, however, failed to realize that all fire detection equipment was inoperable and therefore failed to establish the increased fire watches. Hourly inspections of the 14 vital areas continued to be performed throughout the event.

2. Corrective Actions

As a result of the failure to use the Fire Implementing Procedures, the following corrective actions have been, or will be, completed:

a) Review the Technical Specifications requirements concerning fire protection with all Operations Department personnel.

b) Review all alarms which should have been available to the operators to warn of the loss of fire detection capability. Identify any design deficiencies, either electrical or human factors, which may have masked this information from the control room operators.

I. GENERAL CORRECTIVE ACTIONS

The following corrective actions are general in nature and address all of the sub-events:

1. Distribute the lessons learned from this incident to appropriate individuals throughout the Nuclear Operations Department.

2. Review this event with all management personnel in the Operations Department. The specific topics covered shall include:

a) Administrative procedure requirements.

b) Fire protection requirements.

c) Security systems.

d) Adherence to operating procedures.

e) Communications with the Duty and Call Superintendent.

f) Management of off-normal and emergency conditions.

g) Planning requirements for significant or complicated evolutions.

II. LESSONS LEARNED

While the evaluation of this incident resulted in numerous corrective action items, the following are considered to be the significant lessons learned:

A. The Technical Specifications limiting conditions of operation (LCOs) do not provide sufficient guidance to adequately control equipment outages during cold and refueling shutdowns. Plant administrative guidelines should be established to ensure sufficient equipment remains available to maintain the Plant in a safe condition, and to meet the commitments of the Site Emergency, Security and Fire Protection Plans.

B. Equipment status boards routinely used during power operation are inadequate to monitor equipment status during major outages. The Shift Supervisor should be provided with a more effective means of tracking the status of equipment and work in progress.

C. The licensed operators should have an adequate knowledge of the communications and security systems. System training and readily accessible system prints are essential to allow the operators to quickly assess system malfunctions and effect restoration.

D. Communications systems are a vital portion of both the Site Emergency Plan and the Security Plan. Consequently, all modifications must be formally controlled.

E. During a casualty, the Shift Supervisor needs to be in a location where he can maintain an overview of the situation and best direct the available resources. While this location may not always be the Control Room, the Shift Supervisor should be cautious about leaving the Control Room during casualties.

F. In the conduct of routine maintenance activities, attention to detail is essential. Seemingly minor errors on non-safety related systems can have a serious impact on the safe operation of the Plant.

III. SAFETY ASSESSMENT

At the time of the event, all fuel had been removed from the core and placed in the spent fuel pool. Fuel pool cooling was in service and pool temperature was approximately 88 degrees F. Based on heat-up rates determined earlier in the outage, it was clear that fuel pool cooling could be secured for several days before any temperature limits would be approached. Consequently, there was no significant increase in the potential for fuel degradation or an offsite release.

The loss of communications significantly hampered the notification process, however, existing plant conditions precluded any increased risk to the public or plant staff. If additional casualties had occurred such that immediate notification to local authorities became necessary, there were sufficient means available to the Shift Supervisor.

In assessing the event under alternative conditions, the possibility of a similar event in other than cold shutdown condition is not considered credible due to the limiting conditions of operation required by Technical Specifications. Additionally, the probability of a similar scenario with fuel in the reactor is considered extremely remote. While the failure of the switchyard breaker is still credible, the ensuing procedural deviation would not have occurred. The Shift Supervisor knew of the SOP-32 requirement regarding the R bus and had correctly determined that it could not be violated with fuel in the reactor. Therefore, it is reasonable to assume the R bus would not have been de-energized without first restoring the 1-2 Diesel Generator or establishing a back-feed through the main transformer to the station power transformers. The only other reasonable scenario involves a grid fault requiring operation of the 25R8 breaker with fuel in the reactor.

The protective relaying scheme at Palisades is such that failure of the 25R8 breaker under fault conditions would have caused the remaining switchyard breakers supplying the R-bus to open. Additionally, the startup transformer feeder breakers would have opened, protecting the Plant. The 1-1 Diesel Generator would have started and loaded, and again there would not have been any cooling water to it. The Shutdown Cooling System [CC] would be re-established, but it would soon be obvious that there was no heat sink due to the loss of service water. The Fire Water System [KP] could then have been connected to the Service Water System to cool the Component Cooling Water System, which in turn cools the Shutdown Cooling System [BP]. This action would have also supplied cooling to the 1-1 Diesel and prevented it from overheating. In the interim, it is reasonable to assume the operators would have isolated the 25R8 breaker and re-energized the R bus and startup power to the Plant. While there is no assurance that offsite power or cooling to the diesel could be restored before the diesel overheated, it is reasonable to assume power could have been restored before any significant heatup occurred in the Primary Coolant System. This assumption is based on the operator's increased sensitivity to shutdown cooling requirements with fuel in the reactor. Consequently, there would not have been any adverse effects on the fuel and no significant increase in the probability of an offsite release.

Consumers Power Company

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February 7, 1984

US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 -
PALISADES PLANT - LICENSEE EVENT REPORT 84-001 (LOSS OF COMMUNICATIONS)

Attached please find Licensee Event Report 84-001 (Loss of Communications) which is reportable to the NRC per 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73 (a)(2)(v)(B).

Brian D Johnson

Brian D Johnson
Staff Licensing Engineer

CC Administrator, Region III, USNRC
Director, Office of Nuclear Reactor Regulation
NRC Resident Inspector - Palisades

Attachment

IE22
1/1

OC0284-0004AA-NL02