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ACCESSION NBR:9503130162 DOC.DATE: 95/03/06 NOTARIZED: NO DOCKET #
FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
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SUBJECT: LER 94-006-01,cancelling LER 94-006-00.

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March 6, 1995

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Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following report is being submitted:

94-006-01
This revision shall serve to cancel LER 94-006-00

Sincerely,

A. Alan Blind

A. A. Blind
Plant Manager

/sb

Attachment

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NRC FORM 366 (5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Donald C. Cook Nuclear Plant - Unit 1	05000 315	1 OF 15

TITLE (4)
Cancellation of LER 94-006-00

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	04	94	94	-- 006 --	01	03	06	95	Cook Unit 2	05000 316
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	6
POWER LEVEL (10)	0

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER
20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
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 (Include Area Code)
W. M. Hodge - Plant Protection Superintendent	616/495-5901

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

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 15 single-spaced typewritten lines) (16)

On April 4, 1994, with Unit 1 in Mode 6, a seismic gap filled with untreated styrofoam was discovered in the Unit 1 East Main Steam Valve enclosure. The gap was covered with a fireproof silicone sheeting, which had degraded, exposing the styrofoam underneath. Two adjacent gap seals were examined, and were also found to contain untreated styrofoam. All three seals were declared inoperable, and compensatory actions per Technical Specification 3.7.10 were initiated.

An interim LER was submitted on June 10, 1994, under 10CFR50.73(a)(2)(i)(B). LER 94-006-00 stated that an inspection program had been undertaken to determine the total number of gaps filled with the unqualified material. When the entire population of gap seals was inspected, a revision to LER 94-006-00 would be submitted.

The inspections were completed in July 1994. The results of the inspections were evaluated and it was determined that this event was not reportable. This submittal outlines the evaluation performed to reach and support the conclusion of "Not Reportable", and serves to cancel LER 94-006-00.

Event

On April 4, 1994, with Unit 1 in Mode 6, a seismic gap filled with untreated styrofoam was discovered in the Unit 1 East Main Steam Valve enclosure. The gap was covered with a fireproof silicone sheeting, which had degraded, exposing the styrofoam underneath. Two adjacent gap seals were examined, and were also found to contain untreated styrofoam. All three seals were declared inoperable, and compensatory actions per Technical Specification 3.7.10 were initiated.

It could not easily be determined if other gaps had this discrepancy since the styrofoam fill is normally covered entirely by silicon sheeting. An inspection program was instituted to determine the total number of gaps filled with unqualified material.

All 490 gap seals were inspected and 106 were found to be deficient. Filler material was used during construction when the barriers were being poured to create the seismic expansion gaps. In several cases, styrofoam filler was left in place and not removed. This created a problem since many of these gaps existed in fire barriers and contained combustible material. To resolve this issue, the filler material was to be either removed or protected. A design change was initiated which included excavating the styrofoam to a depth of several inches, then protecting the remaining filler material with fireproof silicon sheeting.

The fireproofing of Unit 1 styrofoam seismic gaps was completed entirely by a contract group under an existing maintenance contract. The gaps seals in Unit 2 were later included in the work to be performed by the same contractor. In September 1979, the work order completion notice was issued and indicated that the seismic gaps in both Unit 1 and Unit 2 containments and auxiliary building have been filled with fireproof styrofoam. It could not be conclusively determined why this job was not completed in the manner specified in the contract.

Evaluation

A total of 106 gap seals were found to be deficient. Ninety-four gap seals were found to contain unprotected or unapproved materials and were scheduled for repair. Four additional gap seals were identified as containing silicone foam in non-conforming configurations. Upon further review, these four configurations were found to be acceptable. One gap seal was found to be filled with concrete and was determined to be acceptable from a fire protection standpoint. Five gap seals were found to be painted. The paint was removed from the silicone sheeting materials. Two gap seals had the silicone sheeting missing and were repaired by installing the missing sheeting or removing the combustible filler material from the seals, as applicable.

The 94 gap seals with combustible or unapproved filler material can be further categorized into several broad groups, as follows:

- Twenty gap seals interface with grade or exterior yard and were determined to be acceptable from a fire protection standpoint.
- Eighteen gap seals interface with the same fire zone or adjacent fire zone within the same fire area and are therefore acceptable from a fire protection standpoint.
- Twenty-three gap seals are located at the fire area boundary interface with the containment building and are considered acceptable from a fire protection standpoint due to the existence of an exemption granted by the NRC for these seals. The exemption analysis also covers six additional gap seals which are located in the same fire zones as those reviewed.
- Fifteen gap seals are located in fire area or fire zone boundaries which are protected by the presence of suppression systems located on each side of the barrier.
- Thirty-seven gap seals require individual boundary analysis.
- Six gap seals were found to contain unapproved caulking materials and were repaired.

The gap seals that currently exist in the barriers of zones protected by gaseous suppression systems must still remain sealed and maintained in order to contain the gaseous fire suppression agent during system discharge. In addition, gap seals located within 18" of the floor must still remain sealed and maintained in order to perform their flood barrier protection number.

Evaluation of Gap Groups

The following evaluations look at the 106 gap seals grouped by type of deficiency, as previously defined .

Non-Conforming Gap Seal Configurations

The four non-conforming seal configurations were located in the auxiliary feed water (AFW) complex between Fire Zones (FZs) 17F/17C, 17F/17G and 17G/17F. The gaps in FZs 17C through 17G are sealed with silicone foam assemblies.

It is acceptable from both a fire protection and a seismic interaction standpoint that these gaps are sealed in this fashion per the design requirement in Specification DCC-FP101-QCN. The installation of the silicone foam is to a minimum of twelve inches with or without the silicone sheeting to provide a fire resistant seal. The design of the AFW complex seals between Fire Zones 17D and 17E and between 17F and 17G are in accordance with Technical Boundary Evaluation 11.26 of the Fire Protection Program Manual. Other gap seals within the AFW complex may also be in accordance with this design. The gap seal between the AFW corridor and the pump rooms contains conduit penetrations sealed in accordance with existing drawings. The silicone sheeting is sealed to the silicone foam at the conduit penetration using caulking approved on the drawing or in specification DCC-FP102-QCF.

Concrete or Grout Installed in Gap

Floor gap seal 61G-11 contains concrete or grout installed to a depth of at least five inches. This depth of concrete or grout is acceptable to provide a fire resistance in excess of the combustible loading. The combustible loading in Fire Zone 11 is 26, 400 BTU/sq.ft. for a fire severity of approximately 20 minutes. The combustible loading in the fire zone below is approximately 600 BTU/sq.ft. for a fire severity of one minute. Three and one half inches of carbonate aggregate concrete will provide a fire resistance of one hour.

A technical evaluation of the event findings determined that the presence of combustible or other unapproved materials in the identified fire barriers did not jeopardize the fire safety of the plant.

Gap Seals That Interface with Grade or Exterior

Gap seals that interface with grade or exterior yard are not required to be rated. Gaps that interface with grade will not contribute to the spread of fire and any combustible materials within the gap would be considered to be consumed by the fire. Gaps that interface with the exterior yard are not considered to be required as they do not represent a threat to other areas. Any fire spreading to the exterior can easily be contained by the fire brigade using hoses from the yard hydrant system.

Gap Seals Within the Same Fire Zone or Fire Area

Gap seals that interface with other portions of the same fire zone or fire area are not required to be provided with rated seals. Previous evaluations have accounted for the effects of a fire within all portions of a particular zone or fire that passes through a barrier from one zone to another within the same fire area.

Containment Boundary Gap Seals per FPPM Evaluation 7.14

An exemption has been granted by the NRC from fire rating the gap seals for the seismic gaps that exist at the fire area boundary interface between the containment building and walls, ceilings and floor of structure immediately adjacent to containment. This exemption is contained in the Fire Protection Program manual (FPPM), Section 7.14.

This exemption also support fire zones protected by suppression systems and the confinement of the fire to the zone of origin. In addition, this analysis has evaluated the impact of the gaps on other zones that did not contain suppression systems. This evaluation determined that safe shutdown and fire safety of the plant were not impacted by the presence of these gaps.

Fire Zones Protected by a Suppression System

Non-conforming gap seals were found in fire zones/fire areas that were protected by a suppression system on at least one side of the barrier. Twenty-six fire zones contain a fire suppression system. Seventeen of these zones contain manual CO_2 suppression systems and automatic cross zones ionization and infrared detection systems. Two of the fire zones contain automatic CO_2 suppression systems and automatic cross zones ionization and infrared detection systems. Seven fire zones contain automatic wet pipe sprinkler systems.

A fire originating within these zones containing the fire suppression systems would be confined to that zone. For the CO_2 systems, the ionization detectors would have detected the fire while it was still small in size. Detection by either the detector circuits or operation of a CO_2 suppression system would be alarmed in the respective control room. Upon annunciation of the alarms in the control room, the operators would initiate the fire brigade response. Operation of the automatic water suppression system would also alarm in the appropriate control room and initiate the fire brigade response. Upon arrival at the fire scene, the fire brigade would have assessed the situation and , where necessary, manually trip the CO_2 suppression system to ensure extinguishment of the fire. Manual fire fighting equipment is also readily available for the fire brigade use.

It is therefore concluded that the fire would not have spread beyond the room of origin and the defense in depth fire protection provided in these areas adequately protected the fire safety of the plant.

Individual Boundary Analysis

The following evaluations are based on specific Fire Zones and the deficient gaps seals that they contained.

Fire Zones 9 to 10 and 24 to 25 Gap Seals

Several floor gap seals contained unprotected styrofoam in Units 1 and 2 which extend beneath fire barrier walls. The styrofoam was covered with approximately 1 inch of caulking. In unite 1 the gap seals pass between FZs 9 and 10. In Unit 2, the gap seals pass between FZs 24 and 25.

These gaps are to be sealed to prevent the passage of fire from one side of the barrier to the other via the styrofoam located in the floor gap. Appendix A to the BTP APCSB 9.5-1, Section F.3, requires cable spreading areas to be separated from adjacent areas by rated construction. Each fire zone is protected by cross zoned ionization and infrared detectors and a manually actuated CO_2 suppression system. As stated above for fire zones containing a suppression system, the fire would have been confined to the zone of origin and extinguished.

In Unit 1, FZs 9 and 10 are part of the Fire Area H. In Unit 2, FZs 24 and 25 are part of Fire Area BB. Therefore, the effect of a fire passing from one zone to the other has already been analyzed and determined not to affect safe shutdown of the plant. The containment of the fire in the room of original and the defense in depth protection provided in these areas adequately protects the fire safety of the plant

Fire Zone 23 to 117 Gap Seals

Two gap seals exist in the barrier between Fire Zones 23 and 117. Fire Zone 23 is in the Unit 2 Quadrant 3N Cable Tunnel at elevation 596' 3.5". This zone has a low combustible loading of approximately 29,000 BTU/sq.ft. for a fire severity of less than 22 minutes. this zone is protected by cross zones ionization and infrared detectors and a manually actuated CO_2 suppression system. As sated above for fire zones containing a suppression system, the fire would have been confined to the zone of origin and extinguished.

Fire Zone 117 is the Unit 2 Underground Tank Area Pipe Tunnel at elevation 586'. This zone has a very low combustible loading of approximately 600 BTU/sq.ft. for a fire severity of less than 1 minute. Manual fire fighting equipment is available in adjacent fire area.

Where FZs 23 and 117 interface, FZ 117 is located below FZ 23. With a lack of combustible within FZ 117, there is insufficient hazard present to threaten the existing gap seal. Additionally, the underground pipe tunnel does not normally contain personnel except for maintenance or inspections and is not a normal path of travel. As a result, transient combustibles would not be expected within this zone. A fire in this area would not spread beyond the room of origin and the fire safety of the plant is adequately protected.

Fire Zones 33A to 11 and 41 Gap Seals

Three gap seals exist in the barrier between FZs 33A and 41. Fire Zone 33A is the Unit 1 Main Steam Line area at lower containment access at elevation 612'. The combustible loading within this zone is considered to be low at approximately 9,300 BTU/sq.ft. for a fire severity of 7 minutes. This zone is provided with automatic ionization and infrared detectors that annunciates in the control room upon detection of a fire. Manual fire fighting equipment is also readily available for fire brigade use.

Fire Zone 11 is the Unit 1 Quadrant 3S Cable Tunnel at elevation 596'3.5". this zone has low combustible loading of approximately 26, 400 BTU/sq.ft. for a fire severity of 20 minutes. This zone is protected by cross zoned ionization and infrared detectors and a manually actuated CO_2 system suppression system. As stated previously for fire zones containing a suppression system, the fire would have been confined to the zone of origin and extinguished.

Fire Zone 41 is the Unit 1 Engineered Safety System and MCC Room at elevation 609' 6". This zone has a low combustible loading of approximately 28,200 BTU/sq.ft. for a fire severity of 22 minutes. This zone is protected by cross zoned ionization and infrared detectors and a manually actuated CO_2 suppression system. As stated above for fire zones containing a suppression system, the fire would be confined to the zone of origin and extinguished.

If a fire were to occur in either FZ 33A, 11 or 41, it would most likely be a class "A" type fire involving ordinary combustibles such as trash, cable jacketing, etc. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fir fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2

suppression system and use the available manual fire fighting equipment to extinguish the fire, as needed.

The fire would be contained in the room of origin and the defense in depth protection provided in these areas would adequately protect the fire safety of the plant.

Fire Zone 42C to 43 Gap Seal

One gap seal exists in the barrier between FZs 42C and 43. Fire Zone 42C is the Unit 1 Electrical Power Systems MCC Room at elevation 609' 6". This zone has a very low combustible loading of approximately 2,400 BTU/sq.ft. for a fire severity of 2 minutes. This Zone is protected by cross zones ionization and infrared detectors and a manually actuated CO_2 suppression system. As stated previous for fire zones containing a suppression system, the fire would be confined to the zone of origin and extinguished.

Fire Zone 43 is the Access Control Area at elevation 609'. The combustible loading within this zone is approximately 76,600 BTU/sq. ft. for a fire severity of 58 minutes. This zone is provided with automatic ionization detectors that annunciate within the Unit 1 control room upon detection of a fire. Manual fire fighting equipment is also readily available for fire brigade use.

If a fire were to occur in either FZ 42c or 43, it would most likely be a class "A" type fire involving ordinary combustibles such as trash, cable jacketing, etc. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire A fire would not, therefore, spread beyond the room of origin and the defense in depth fire protection provided in these areas adequately protects the fire safety of the plant.

Fire Zone 45 to 34A Gap Seal

One gap seal exists in the barrier between FZs 34A and 45. Fire Zone 34A is the

Unit 2 Main Steam Line area at lower containment access at elevation 612'. The combustible loading within this zone is considered to be very low at approximately 5, 200 BTU/sq.ft. for a fire severity of 4 minutes. This zone is provided with automatic ionization and infrared detectors which annunciate in the control room upon detection of a fire. Manual fire fighting equipment is readily available for fire brigade use.

Fire Zone 45 is the Unit 2 Engineered Safety System and MCC Room at elevation 609" 6". This zone has a low combustible loading of approximately 21, 800 BTU/sq.ft. fore a fire severity of 17 minutes. This zone is protected by cross zoned ionization and infrared detectors and a manually actuated CO2 suppression system.. Protected in this manner, a fire would be confined to the zone of origin and extinguished.

If a fire were to occur in either of these zones, it would most likely be a class "A" type fire involving ordinary combustibles such as trash, cable jacketing, etc. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire A fire would not, therefore, spread beyond the room of origin and the defense in depth fire protection provided in these areas adequately protects the fire safety of the plant.

Fire Zone 114 to 33A Gap Seal

One gap seal exists in the barrier between FZs 114 and 33A. Fire Zone 33A is the Unit 1 Main Steam Line area at lower containment access at elevation 612'. The combustible loading within this zone is considered to be low at approximately 9,3000 BTU/sq.ft. for a fire severity of 7 minutes. This zone is provided with automatic ionization and infrared detectors which annunciate in the control room upon detection of a fire.

Fire Zone 114 is the Unit 1 ESW Pipe Tunnel at elevation 587'. This zone has a very low combustible loading of approximately 200 BTU/sq.ft. for a fire severity of less than 1 minute. Manual fire fighting equipment is available in adjacent fire areas.

If a fire were to occur in FZ 33A it would most likely be a class "A" type fire involving ordinary combustibles such as trash, cable jacketing, etc. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire Fire Zones 33A and 114 interface along a wall gap. With a lack of combustibles within FZ 114, there is insufficient hazard present to threaten the existing gap seal. Additionally, the underground pipe tunnel does not normally contain personnel except for maintenance or inspection and is not a normal path of travel. As a result, transient combustibles would not be expected within this zone.

A fire, therefore, would not spread beyond the room of origin if one were to start in these areas. The defense in depth provided in these areas adequate protect the fire safety of the plant.

Fire Zone 114 to 11, 41, 42B, and 42C Gap Seals

Two gap seals exist in the barrier between FZs 114 and 11. One gap seal exists in the barrier between FZs 114 and 41. Four gap seals exist in the barrier between FZs 114 and 42B. Two gap seals exist in the barrier between FZs 114 and 42C.

Fire Zone 114 is the Unit 1 ESW Pipe Tunnel at elevation 587'. This zone has a very low combustible loading of approximately 200 BTU/sq.ft. for a fire severity of less than 1 minute. Manual fire fighting equipment is available in adjacent fire areas.

Fire Zone 11 is the Unit 1 Quadrant 3S Cable Tunnel at elevation 596'3.5". this zone has low combustible loading of approximately 26, 400 BTU/sq.ft. for a fire severity of 20 minutes. This zone is protected by cross zoned ionization and infrared detectors and a manually actuated CO_2 system suppression system. As stated previously for fire zones containing a suppression system, the fire would have been confined to the zone of origin and extinguished.

Fire Zone 41 is the Unit 1 Engineered Safety System and MCC Room at elevation 609' 6". This zone has a low combustible loading of approximately 28,200 BTU/sq.ft. for a fire severity of 22 minutes. This zone is protected by cross zoned ionization

and infrared detectors and a manually actuated CO_2 suppression system.

Fire Zone 42B is the Unit 1 Electrical Power Systems MCC Room at elevation 609'6". This zone has a very low combustible loading of approximately 2,400 BTU/sq.ft. for a fire severity of 2 minutes.

Fire Zone 42C is the Unit 1 Electrical Power Systems MCC Room at elevation 609' 6". This zone has a very low combustible loading of approximately 2,400 BTU/sq.ft. for a fire severity of 2 minutes. This Zone is protected by cross zones ionization and infrared detectors and a manually actuated CO_2 suppression system. As stated previous for fire zones containing a suppression system, the fire would be confined to the zone of origin and extinguished.

If a fire were to occur in either FZ 11, 41, 42B or 42C, it would most likely be a class "A" type fire involving ordinary combustibles such as trash, cable jacketing, etc. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire

Fire Zone 114 is located beneath FZs 41, 42B and 42C and interfaces along a floor/ceiling gap. Fire Zone 114 is located adjacent to FZ 11 and interfaces along a wall gap. With a lack of combustibles within FZ 114, there is insufficient hazard present to threaten the existing gap seal. Additionally, the ESW Pipe Tunnel does not normally contain personnel except for maintenance or inspections and is not a normal path of travel. As a result, transient combustibles would not be expected within this room.

It is not expected that fire in one of these areas would spread beyond the room or origin. The defense in depth fire protection provided in these areas adequately protected the fire safety of the plant.

Fire Zone 14 to 42D Gap Seal

One gap seal exists in the barrier between FZs 114 and 42D. Fire Zone 114 is the Unit 1 ESW Pipe Tunnel at elevation 587'. This zone has a very low combustible loading of approximately 200 BTU/sq.ft. for a fire severity of less than 1 minute. Manual fire fighting equipment is available in adjacent fire areas.

Fire Zone 42D is the Unit 1 Electrical Power Systems AB Battery Room at elevation 609'6". This zone has a low combustible loading of approximately 44,600 BTU/sq.ft. for a fire severity of 34 minutes. The combustibles within this zone are predominately the plastic battery cells. this zone is protected by ionization detectors.

If a fire were to occur in FZ 42D, it would most likely be a class "A" type fire involving ordinary combustibles such as the plastic battery cells. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire

Fire Zone 42D is located above FZ 114 and interfaces along a floor/ceiling gap. With a lack of combustibles within FZ 114, there is insufficient hazard present to threaten the existing gap seal. Additionally, the underground pipe tunnel does not normally contain personnel except for maintenance or inspection and is not a normal path of travel. As a result, transient combustibles would not be expected within this zone.

If a fire were to occur in these area, it is not expected that the fire would spread beyond the room of origin. The defense in depth fire protection provided in these areas adequately protected the fire safety of the plant.

Fire Zone 115 to 45, 46B and 46C Gap Seals

Three gap seals exist in the barrier between FZs 115 and 45. Four gap seals exist in the barrier between FZs 15 and 46B. Two gap seals exist in the barrier between FZs 115 and 46C.

Fire Zone 115 is the Unit 2 ESW Pipe Tunnel at elevation 587'. This zone does not normally contain combustibles. Manual fire fighting equipment is available in adjacent fire area.

Fire Zone 45 is the Unit 2 Engineering Safety System and MCC Room at elevation 609'6". This zone has a low combustible loading of approximately 21,800 BTU/sq./ft/ for a fire severity of 17 minutes.

Fire Zone 46B is the Unit 2 Electric Power Systems MCC Room at elevation 609'6". This zone has a very low combustible loading of approximately 5,600 BTU/sq.ft. for a fire severity of 4 minutes.

Fire Zones 45, 46B and 46C are protected by cross zoned ionization and infrared detectors and a manually actuated CO_2suppression system. For fire zones containing suppression system, it is assumed that the fire would have been confined to the zone of origin and extinguished.

If a fire were to occur in either FZ 45, 46B or 46C, it would most likely be a class "A" type fire involving ordinary combustibles such as the plastic battery cells. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire.

Fire Zone 115 is located beneath FZs 45, 46B and 46C and interfaces along a floor/ceiling gap. With a lack of combustibles within FZ 115, there is insufficient hazard present to threaten the existing gap seal. Additionally, the underground pipe tunnel does not normally contain personnel except for maintenance or inspection and is not a normal path of travel. As a result, transient combustibles would not be expected within this zone.

If a fire were to occur in these area, it is not expected that the fire would spread beyond the room of origin. The defense in depth fire protection provided in these areas adequately protected the fire safety of the plant.

Fire Zone 115 to 46D Gap Seals

One gap seal exists in the barrier between FZs 115 and 46D.

Fire Zone 115 is the Unit 2 ESW Pipe Tunnel at elevation 587'. This zone does not normally contain combustibles. Manual fire fighting equipment is available in adjacent fire area.

Fire Zone 46D is the Unit 2 Electrical Power Systems AB Battery Room at elevation 609'6". This zone has a low combustible loading of approximately 44,600 BTU/sq.ft. for a fire severity of 34 minutes. The combustibles within this zone are predominately the plastic battery cells. This zone is protected by ionization detectors.

If a fire were to occur in FZ 46D, it would most likely be a class "A" type fire involving ordinary combustibles such as the plastic battery cells. A fire of this type can go through a prolonged pre-burning (incipient) stage in which visible smoke and heat is produced before flaming combustion begins. The hot gases produced during the incipient stage would set off the automatic detection system in the area while the fire is still small. Activation of the detection systems would be annunciated in the control room. The detection system would alert the control room to initiate manual fire fighting activities. The fire brigade would assess the fire situation, determine the need for manual actuation of the total flooding CO_2 suppression system (where provided) and use the available manual fire fighting equipment to extinguish the fire.

Fire Zone 46D is located above FZ 115 and interfaces along a floor/ceiling gap. With a lack of combustibles within FZ 115, there is insufficient hazard present to threaten the existing gap seal. Additionally, the underground pipe tunnel does not normally contain personnel except for maintenance or inspection and is not a normal path of travel. As a result, transient combustibles would not be expected within this zone.

If a fire were to occur in these area, it is not expected that the fire would spread beyond the room of origin. The defense in depth fire protection provided in these areas adequately protected the fire safety of the plant.

Conclusions

The defense-in-depth fire protection for Cook Nuclear Plant includes automatic systems, manual fire fighting equipment, ionization smoke detectors, etc. The described deficiencies do not significantly degrade the defense-in-depth fire protection for the plant, and have been reviewed in accordance with the guidance provided in Generic Letter 86-10. As such, the event is not reportable as a violation of Technical Specification 3.7.10.

This event was also evaluated for design basis requirements. The applicable design basis associated with this event involves the general requirement to maintain defense in depth fire protection measures and specific requirements to fireproof styrofoam in the Unit 1 containment seismic gaps.

To address specific design basis requirements, it is noted that an Appendix R exemption request was submitted in 1984 for unsealed seismic gaps between the containment and the auxiliary building. The request was later supported by consultant technical evaluations which demonstrated successful safe shutdown capability while assuming fire propagation via seismic gaps.

An NRC SER, transmitted in 1985, concluded that not sealing these seismic gaps was "an acceptable deviation from the guidelines of Section D. 1(j) of Appendix A to BTP APCSB 9.5-1". Although Section III.G To Appendix R was considered in the referenced NRC evaluation, the acceptance criteria for fire area boundaries are set forth in Appendix A to BTP APSCB 9.5-1. Therefore, an exemption was not required or granted for unsealed seismic gaps pursuant to the requirement of Section III.G.

In conclusion, the subject event is not reportable under the LER system. The condition does not constitute operation prohibited by the Technical Specifications nor did it result in an unanalyzed condition that significantly compromised plant safety.