

CP&L

Carolina Power & Light Company

Brunswick Nuclear Project
P. O. Box 10425
Southport, N.C. 28461-0429

February 28, 1991

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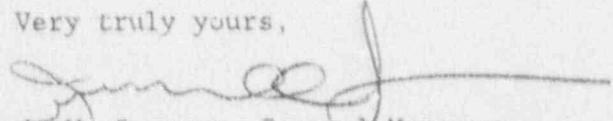
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1
DOCKET NO. 50-325
LICENSE NO. DPR-71
SUPPLEMENT TO LICENSEE EVENT REPORT 1-91-001

Gentlemen:

In accordance with Title 10 of the Code of Federal Regulations, the enclosed Supplemental Licensee Event Report is submitted. The original report fulfilled the requirement for a written report within thirty (30) days of a reportable occurrence and was submitted in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,


J. W. Spencer, General Manager
Brunswick Nuclear Project

TH/

Enclosure

cc: Mr. S. D. Ebnetter
Mr. N. B. Le
BSEP NRC Resident Office

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Brunswick Steam Electric Plant Unit 1

DOCKET NUMBER (2) 05000325

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TITLE (4) Dropped Fuel Bundle During Refuel Outage 7

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQ. NO.	REV. NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
01	03	91	91	-	001	-	01	02	28	91	

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

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)
5	20.402(b) 20.405(c) 50.73(a)(2)(iv) 72.71(b)
POWER LEVEL (10) 000	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)(vi) OTHER (Specify in Abstract and Text)
	20.405(a)(1)(iii) 50.73(a)(2)(i) 50.73(a)(2)(vii)(A)
	20.405(a)(1)(iv) X 50.73(a)(2)(ii) 50.73(a)(2)(vii)(B)
	20.405(a)(1)(v) 50.73(a)(2)(iii) 50.73(a)(2)(x)

LICENSEE CONTACT FOR THIS LER (12)

NAME TONY HARRIS, REGULATORY COMPLIANCE SPECIALIST

TELEPHONE NUMBER

(919) 457-2038

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE)

X NO

DATE (15)

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

On January 2, 1991, during refueling reloading operations, fuel bundle LHG612 was dropped when a momentary loss of power to the refuel grapple occurred when the bundle encountered resistance with the adjacent control blade as it was being lowered to core position 09-16. The bundle fell approximately 127" into its core position against the fuel support piece. No releases occurred as a result of this event. The event investigation determined that a reversal of the grapple solenoid air lines and grapple control switch resulted in the grapple not being "fail-safe" on loss of power. The bundle dropped as a result of the refuel grapple opening when the bundle load was lost, concurrent with the loss of power to the grapple. The event investigation was unable to determine whether the as-found configuration of the grapple was from original delivery or the result of modification of the assembly during plant maintenance activities.

Only the Unit 1 refuel grapple configuration was involved. Unit 2 was determined to be properly configured with respect to loss of power. Corrective actions include correcting the configuration, testing of other refuel grapples on both units for correct fail-safe loss of power configuration, revising procedures to incorporate loss of power testing of the refuel grapple upon loss of load, inspection of the dropped bundle, the core position internals and related areas, and conducting design feature reviews of the Unit 1 and Unit 2 refuel bridges. The safety significance of the event was relative to the potential free fall of a fuel bundle on a loss of power concurrent with a loss of load. A resulting bundle fall would be restricted to the length of the fuel bundle; therefore, any resulting event would remain bounded by the current PSAR analysis for a Refuel Accident.

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TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 386A'S) (17)

EVENT

Failure of testing procedures to appropriately detect a deficiency on the Unit 1 Refuel Bridge grapple with respect to failure mode of the refuel grapple on loss of power.

INITIAL CONDITIONS

Unit 1 was in Mode 5, Refueling. Fuel was being reloaded into the reactor vessel per Fuel Handling Procedure (FH)-11, in preparation of completion of the current refuel outage. Secondary Containment and the Standby Gas Treatment System were operable.

EVENT DESCRIPTION

On 1/2/91, at approximately 1440, during Step 306 of FH-11, bundle LYG612 was being loaded into core position 09-16. The bundle was approximately 2 feet into core position 09-16 when it encountered resistance against the top of its adjacent control blade 10-15, causing the grapple load to be momentarily removed. At the same time, a momentary loss of power also occurred. The bundle then became dislodged from the grapple. The bundle fell approximately 127" into its core position, with the nose piece of the fuel bundle entering the mating surface of the fuel support casting.

Immediately following the bundle drop, the Refuel Floor Senior Reactor Operator (SRO) notified the Control Room of the incident. The refuel bridge was determined to be in a safe configuration, and was left "as-is" to facilitate investigation. Refuel floor personnel were evacuated per Abnormal Operating Procedure (AOP)-7.0, Spent Fuel Damage. Radiation monitors associated with the area were checked (roof vent monitor, ARMs and CAMs), with no increases noted. Chemistry was notified to initiate sampling on the reactor coolant. Health Physics obtained air samples to verify that no release had occurred. On-call management and the Resident NRC Inspector were notified. Once it was determined that no releases had occurred, photographs of the refuel bridge were obtained to further ensure preservation of the evidence. Access to the refuel bridge was restricted, and the refueling floor Radiation Work Permit (RWP) was restricted to ensure no entry into the refuel bridge area without Site Incident Investigation Team (SIIT) authorization.

Initial assessment of the event determined that the event did not meet the reportability requirements of 10CFR50.72, nor were any Emergency Plan Emergency Action Levels (EALs) exceeded. No radioactivity release was observed by instrumentation or HP personnel and by water chemistry analysis. Fuel movement was suspended at this time, pending investigation of the incident. At approximately 1700 on 1/2/90, the Site Incident Investigation Team (SIIT) was assembled to investigate the event.

The cause of the bundle drop was initially believed to be the result of a failure of the grapple to remain closed following a loss of power which had occurred at about the same time that the fuel bundle encountered resistance as it was being lowered into its core position. At 0910 on 1/3/91, the grapple assembly vendor, General Electric, notified the Brunswick Plant that the correct failure mode of

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the grapple is such that the grapple remains in the closed position on a loss of power. This is considered to be a design safety feature of the grapple assembly. The event was thus considered to be reportable due to a failure of the grapple acceptance testing to identify an installation deficiency as it applies to safety-related equipment. Therefore, this event was determined reportable under 10CFR50.72(b)(1)(ii)(C), a condition not covered by the plant's operating or emergency procedures, and a Red Phone report was made on 1/3/91 at 0959. In addition, at approximately 0800 on 1/4/91, after further inspection of the fuel bundle, it was determined that damage to the bundle was in excess of \$2,000.00. Therefore, the event was also considered reportable under 10CFR20.403(b)(4), damage to property involving licensed material which causes damage in excess of \$2,000.00. A Red Phone report was made on 1/4/91 to fulfill the reporting criteria of 10CFR20.403(b)(4).

EVENT INVESTIGATION

Initial review of the event by the SIIT centered on determining whether the event was caused by personnel error. Written and oral interviews were obtained from the involved individuals. The following is an account of the SIIT investigation.

SIIT INVESTIGATION

As a result of review of the interviews and written statements, it was determined that there was no indication that personnel error was involved with the actual drop; however, there were indications that the grapple opened when the refuel bridge temporarily lost power as the bundle encountered resistance while being lowered into position. The following is an account of the incidents leading up to the dropping of bundle LYG612:

Four people were on the refuel bridge at the time of the incident:

CP&L Refuel Floor SRO
GE Refuel Project Manager
GE fuel handler
GE spotter

Fuel Handling Operations were on Step 306 of FH-11, the controlling Fuel Handling Procedure. The bundle in the Spent Fuel Pool to be carried to the core (LYG612) was identified, the main grapple was positioned on the bundle, and, following SRO concurrence, the bundle was latched by the fuel handler. The concurrence step is used prior to all lifts and prior to unlatching once in the core. The bundle was lifted and movement to the core position was begun. Upon engagement of the bundle, the fuel handler noted that the "slack cable" light was out, the "grapple close" light was on, and the "hoist loaded" light on, as expected.

As bundle movement towards the core position was begun, the GE Refuel Project Manager noted what he thought was a piece of foreign material on the channel clip. Fuel movement was halted, and further investigation determined that no foreign material was present. Movement of bundle LYG612 was restarted, and the bundle was moved to the core position.

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Upon positioning the bundle at the core coordinates, the bundle was lowered at full speed (approximately 20 fpm) to within several feet of the core top guide. The fuel handler then aligned the bundle for initial entry into core position 09-16, and proceeded to slowly lower the bundle into the core. As the bundle entered the top guide, the fuel handler felt the bundle touch the top guide and continue down through the grapple telescoping mast intersection. The "mast faster" control was then moved forward, increasing the bundle downward speed. At this time, the fuel handler felt the bundle hit what felt to be a control blade. At the same time, the refuel grapple power went off. The bundle fell approximately 127" into core position 09-16. The fuel handler, thinking that the bundle was still engaged, had cleared the interference, and was continuing on its way down, pressed the "power on" button to restore power to the grapple. The spotter then informed the fuel handler that the bundle had disengaged from the grapple, and had fallen into its core position. The bridge panel was not touched after that point. The crew informed the control room of what had happened, and were told to leave the refuel bridge and clear the refuel floor elevation of personnel.

Since initial SIIT review of the circumstances of the event noted that the grapple may have opened on the loss of power, troubleshooting was begun on the Unit 2 grapple on 1/2/91 at 1900, to confirm failure modes of the refuel grapple assembly. Initial troubleshooting of the Unit 2 bridge grapple assembly was begun to determine the proper configuration of the refuel grapple, without disturbing the Unit 1 grapple. The configuration of a refuel grapple, as demonstrated by testing performed on the Unit 2 grapple, would result in a loaded or unloaded grapple remaining closed on a loss of power, a "Fail-Safe" configuration; however, indications were that the Unit 1 grapple assembly may have failed in the open position upon loss of power. Troubleshooting was thus begun on the Unit 1 grapple assembly by CP&L I&C technicians, assisted by the GE Refuel Project Manager.

Troubleshooting of the Unit 1 refuel grapple identified two problems:

1. The air hoses to the grapple solenoid valves were found reversed. This would require the solenoid to be energized to close the grapple. When the power was lost to the bridge, the grapple thus failed open.
2. After the hoses were restored to their proper configuration, the grapple operating switch was found to be rotated in its mounting opposite from its intended configuration. The rotation of the switch in its mount compensated for the reversed air hoses. This condition was also corrected.

Further contact with GE confirmed that the grapple configuration should be such that the grapple would remain closed (safe position) on a loss of power to the solenoid with no load. The as-found configuration of the Brunswick Plant Unit 1 refuel grapple assembly would allow the grapple to come open on a loss of power to the grapple; however, because of a mechanical interlock provided between the grapple hooks and a load lifting bail when this type grapple is loaded, the grapple could only open if unloaded on a loss of power.

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As bundle LHG612 encountered resistance while being lowered, the grapple load was momentarily lost. This load loss, coupled with the concurrent loss of power, allowed the grapple to come open and the bundle to drop.

On the intended failure mode of the grapple was confirmed, a Red Phone report was made on 1/3/91 at 0959, notifying the NRC of this event with respect to 10CFR50.72 (b)(1)(ii)(C), in that the grapple acceptance testing was not adequate to identify an installation deficiency with the safety-related grapple.

Investigation into the cause of the power loss to the grapple continued. The investigation of the power loss to the grapple determined that the power loss was the result of tripping of the Hoist Overload (HOL) relay in the grapple circuitry. Testing confirmed that the relay would periodically trip as the speed of the grapple is suddenly reduced from full speed (approximately 20 fpm) to a lower or no speed.

Additional operational design safety features of the refuel bridge assembly were reviewed to determine if current testing was adequate. As a result, a concern was identified with the testing of the bridge braking assembly. Although PT-18.1 tests the brake assembly, the assembly is actually made up of 2 sets of brakes, electrical and mechanical. The testing being performed did not uniquely test both the electrical and mechanical portions of the braking assembly.

The SIIT subsequently developed a Recovery Action Plan, to facilitate restart of refuel operations (attached). The Action Plan was presented to the Plant Nuclear Safety Committee (PNSC), and approved. Upon completion of the Action Plan items, refuel operations were restarted on January 5, 1991.

CAUSE(S) OF THE EVENT

The event was caused by the reversing of the grapple assembly air lines and switch configuration at some point in time. Review of site preoperational testing documentation did not indicate any specific preoperational testing on the grapple for a loss of power condition concurrent with a loss of load. Loss of power testing performed with the grapple loaded would not indicate whether the grapple would remain closed on loss of load due to the mechanical interlock between the grapple and its load. Review of historical maintenance activities on the refuel bridge grapple did not reveal sufficient information to determine whether the as-found configuration of the switch and hoses may have been the result of plant maintenance activities. The investigation was therefore unable to conclude whether the as-found configuration of the air line hoses and switch mechanism was an original delivery condition, or the result of modifications to the grapple assembly during plant maintenance activities.

Contributing/potential causes of this event have been determined to be as follows:

1. Acceptance testing of the grapple assembly failed to detect the fail-open configuration of the grapple on loss of power.
2. Current design configuration documentation of the grapple handling assembly/refuel bridge lacks sufficient detail. This may have

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contributed to the misconfiguration.

3. The power loss to the bridge is still being investigated. The power loss was created when the mast was stopped suddenly from a maximum speed of 20 fpm. Adjustments have been made to tune the grapple circuitry, which now limits the maximum grapple lowering speed to 14 fpm. This action has temporarily reduced the loss of power concern with the grapple assembly.
4. The use of blanket work requests in the past on the refuel bridge grapple has resulted in inadequate work documentation being maintained. This hampered the effort of the team in determining possible instances where work on the grapple assembly may have affected the grapple configuration.

CORRECTIVE ACTIONS

SIIT review of the immediate actions taken by the Control Room determined that appropriate actions were taken; however, it was also noted that no immediate response guidance for the Refuel Floor SRO is readily available that would facilitate a prompt and adequate initial response, such as in the Fuel Handling Procedure (FH-11). An action item is being established for Operations to review their procedures relative to providing immediate response guidance for a bundle drop incident.

A recovery action plan was established to facilitate restart of refuel operations. This list (attached) was completed on 1/4/91. The actions deemed necessary for refueling restart were as follows:

1. Revise PT-18.1 to include testing that the grapple remains closed during a loss of power with no load.
2. Develop a Special Procedure for inspection of Unit 1 fuel cell 10-15, the dropped fuel bundle, and adjacent areas.
3. Ensure special pre-job briefings addressing the recent event, unique aspects of the operation of the refuel bridge, correct response for loss of power events, and actions to minimize losses of power are conducted for Unit 1 refuel bridge operators, spotters, and test directors.
4. Perform revised PT 18.1 on Unit 1 refueling bridge to verify proper operation.
5. Conduct independent checks of the electrical and mechanical brakes on the refueling bridge during performance of PT 18.1 to ensure proper operation.
6. Once the above items have been satisfactorily performed, obtain duty manager approval to perform Special Procedure to remove the Unit 1 dropped fuel bundle and inspect for damage.

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Special Procedure (SP)-91-01 was developed to inspect core cell internals, related areas, and the dropped fuel bundle for possible damage. Included in this review were portions of adjacent control blades and exposed portions of adjacent fuel bundles. The videotaped results of the inspection were reviewed by CP&L Technical Support engineers on site, CP&L Nuclear Fuels Section engineers in Raleigh, and General Electric (GE) representatives both on-site and at the San Jose Nuclear Engineering Facility. Engineering Evaluation Report (EER) 91-011 is being prepared to provide documentation of the results of the evaluation of the video taping, and an evaluation for the continued operation of the core cell internals following the dropped fuel bundle incident.

The dropped fuel bundle apparently impacted the fuel support piece in the ported area where the fuel bundle seats. No damage was detected to the upper tie plate; however, the bundle upper channel clips had broken and the channel had slipped down approximately three inches. A rib on the nose piece of the lower tie plate was bent. Fuel bundle LYG612 was removed from the reactor core and placed in the spent fuel pool. The bundle will not be reused, although it may be moved to accommodate future inspection plans.

Various areas of the two adjacent control blades exhibited areas of possible contact with the dropped bundle. The indications appear to be superficial contact marks and pose no operability concerns.

The fuel support piece exhibited slight damage in the area where the fuel bundle seats. The damage appears to be insignificant. The impacted surface is a seating surface, not a sealing surface, and should not impair moderator flow through the fuel bundle.

Friction testing was performed on Control Rod 10-15 which demonstrated that there are no apparent interferences between the control rod, fuel support, and the guide tube in the affected cell. Scram time testing on the control rod successfully demonstrated control rod operability. Additionally, an Oscilloscope Test was performed on control rod 10-15, indicating that there is no abnormal drive line friction for the control rod. Successful completion of these tests ensured that the safety related function of the control rod was not adversely affected by the dropped fuel bundle.

ADDITIONAL CORRECTIVE ACTIONS

Further corrective actions have been determined necessary by the SIIT as a result of this event. Attached is a list of these actions (SIIT RECOMMENDED CORRECTION ACTION PLAN).

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SIIT TEAM RECOMMENDED CORRECTIVE ACTION PLAN

<u>NO.</u>	<u>ACTION</u>	<u>STATUS</u> <u>EXPECTED DUE DATE</u>
1	Develop fuel load plan to address replacement of dropped fuel bundle.	Complete
2	Provide resolution for deficiencies identified from inspection of core internals and dropped fuel bundle	Complete
3	Complete investigation of the power loss problem when operating the Unit 1 refuel bridge at 20 fpm and recommend corrective actions.	Open <hr/> 6/1/91
4	Establish controls to assure PT 18.1 and the electrical and mechanical brake tests are performed on the Unit 2 refuel bridge prior to use.	Complete Caution tags and Shift Foreman clearance were developed.
5	Provide Operations with list of equipment to be tested, including fail-safe condition, on Unit 1 and Unit 2 refuel bridges.	Complete
6	Establish controls to ensure the remaining grapples/tools on Unit 1 and Unit 2 refuel bridges are tested prior to use to ensure they fail safe on loss of power and air.	Complete
7	Verify power to solenoid valves on Unit 1 and Unit 2 refuel bridges for the frame-mounted and monorail hoist grapples when they are disengaged.	Complete Power determined to be correctly configured.
8	Revise appropriate procedures to address testing requirements for Unit 1 and Unit 2 refuel bridge equipment identified by Item #5.	Open <hr/> 9/1/91

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<u>NO.</u>	<u>ACTION</u>	<u>STATUS</u> <u>EX. DATED</u> <u>DUE DATE</u>
9	Implement short term actions to ensure refuel bridge repairs are properly controlled and documented and that post maintenance testing, shift foreman review, LCO reviews, etc., are performed.	Complete Maintenance Notice issued.
10	Review the use of blanket maintenance work orders for refuel bridge repairs to ensure work is properly controlled and documented and that post-maintenance testing, shift foreman review, LCO reviews, etc., are performed.	Open 9/1/91
11	Provide Real Time Training to appropriate Operations, Maintenance, OM&M, and Technical Support personnel.	Open 6/30/91
12	Perform 10CFR21 review of event.	Complete
13	Initiate Nuclear Network entry for this event.	Complete
14	Request General Electric Co. to issue a RICSIL or SIL regarding this event.	Complete
15	Review preoperational test for Unit 1 refuel bridge to determine if grapple operation fail safe feature was tested for loss of power while unloaded.	Complete No pre-operational testing of fail-safe feature identified.
16	Revise procedures to ensure electrical and mechanical refuel bridge brakes are independently tested.	Open 9/1/91
17	GE to conduct an independent review of Maintenance and Operations procedures for the refuel bridge to identify recommended changes. Provide schedule for implementing required changes.	Open 4/1/91

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TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 309A'S) (17)

<u>NO.</u>	<u>ACTION</u>	<u>STATUS</u> <u>EXPECTED DUE DATE</u>
18	Establish design features on air lines for Unit 1 and Unit 2 refuel bridge grapples such as: a) color coding of air lines; b) use of male and female fittings; c) use of left and right hand threaded fittings.	Open <hr/> 4/1/91
19	Implement the design features identified by Item #18.	Open <hr/> 9/1/91
20	Conduct a design review of the Unit 1 and Unit 2 refuel bridges, including all grapples and hoists to identify design features, incorporate into system documents and design drawings, and identify necessary changes to plant procedures/drawings.	Open <hr/> 9/1/91
21	As-build the refuel bridges and equipment. Verify as-built configuration conforms to design features and requirements.	Open <hr/> 9/1/91
22	Generate electrical and mechanical inter connection and layout drawings for both Unit 1 and Unit 2 refuel bridges based on the design review and as-built information.	Open <hr/> 9/1/91
23	Develop or supplement an existing System Description to include the refuel bridges and associated equipment.	Open <hr/> 7/31/91
24	Evaluate the need to revise Operations procedures to incorporate guidance on immediate actions to be taken following a fuel bundle drop, such as clearing the refueling floor, air and water samples, etc.	Open <hr/> 4/11/91

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

FACILITY NAME (1) Brunswick Steam Electric Plant Unit 1	DOCKET NUMBER (2) 05000325	LER NUMBER (6)				PAGE (3) 11 of 11
		YEAR 91	-	SEQUENTIAL NUMBER 001	-	

TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC FORM 865A'S) (17)

EVENT ASSESSMENT

This event had safety significance in that the refuel grapple may not have been "Fail-Safe" with respect to the grapple remaining closed on loss of power for a considerable length of time; however, the mechanical interlock between the bundle handle and grapple would ensure that the grapple remained closed on a loss of power as long as the bundle was loaded on the grapple. This would mean that, if at some point a grapple load would come to rest, and the grapple would become unloaded, in conjunction with a loss of power to the grapple assembly, the grapple may lose the load, and the load free fall. The fall, however, would be restricted to the length of the fuel bundle. Any resulting event would remain bounded by the FSAR analysis for a Refueling Accident, which assumes a bundle drop from a height of 32 feet, the maximum allowed by the refueling equipment.

No other LERs in the past 5 years have been due to failure modes of refuel grapples; however, other LERs in the past 3 years have involved failure modes of various equipment being configured differently than necessary for the intended safety function. These include LERs 1-90-08 (CBEAF System), 1-90-013 (CAD System), 2-90-015, 1-89-019 (SW system), 1-88-032 (SBGT System), and 1-88-034 (Secondary Containment Dampers). As a result, CP&L committed to the NRC, in the Integrated Action Plan (IAP) Response to the Diagnostic Evaluation Team (DET) report, to evaluate the past events and Safety System Functional Inspection (SSFI) results to determine the necessity of additional corrective actions. As discussed with the NRC Region II in Atlanta in December, 1990, CP&L has initiated a Design Basis Reconstitution Project on Safety Related systems. Part of this project is a verification of existing design to meet licensing basis requirements. This project is considered necessary due to recommendations of the SSFI review, as well as recent events involving design deficiencies.

EIIS SYSTEM/COMPONENT CODES

SYSTEM/COMPONENT

EIIS CODE

Refuel Bridge Grapple	DF/FMB/*
Secondary Containment	JM
Standby Gas Treatment (SBGT) System	BH
Fuel Bundle	DB/*
Radiation Monitors	IL
Grapple Solenoid Valve	DF/FMB/PSV
Grapple Operating Switch	DF/FMB/33
Bridge Assembly Brakes	DF/FMB/BRK

* No EIIS Component Code Available