Carolina Power & Light Company Brunswick Nuclear Proj. c P. O. Box 10429 Southport, N.C. 28461-0429 OCT 3 0 1992 B09-13510C 10CFR50.73 FILE: Serial No.: BSEP-92-0039 U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D. C. 20555 BRUNSWICK STEAM ELECTRIC PLANT UNIT 2 DOCKET NO. 50-324 LICENSE NO. DPR-62 LICENSEE EVENT REPORT 2-92-007 Gentlemen: In accordance with Title 10 of the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is submitted in accordance with the format set forth in NUREG-1022, September 1983. Very truly yours, Kelllorgan R. E. Morgan, Plant Manager Unit 1 Brunswick Nuclear Project SFT/ Enclosure cc: Mr. S. D. Ebneter Mr. R. H. Lo BSEP NRC Resident Office 04000 1627 9211050047 9: PDR ADDCK 05 ADDCK 05

Not		

### U.S. NUCLEAR REGULATORY COMMISSION

#### APPROVED OMB NO. 3180-0104 EXPIRES: 4/80/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: SO,0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-50), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2035, AND TO THE PAPERWORK REDUCTION PROJECT (310-0109), OFFICE OF MANAGEMENT

AND BUDGET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER)

	AND THE COMPANY OF THE PROPERTY OF THE PROPERT	Annual way of the property of the same of
FACELTLY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Brunswick Steam Electric Plant		
Unit 2	05000324	1

THILE (4) Manual ESF Actuation Initiated Due To Failure of Reactor Building HVAC Coincident With Alpha Contamination

EV	ENT DATE	(5)		LE	R NUMBER	(6)			REPORT	DATE	(7)		OTHER FAC	BUTTES INV	OLVED (8)	
MONTH	DAY	YEAR	YEAR		SEQ. NO.		KEV. NO.	MONT	н	DAY	YEAR	FA	CILITY NAME		DOCKET NU	MER
09	30	92	92	-	007	-	000	10		30	92					
OPERA	NG		THIS REPORT	I IS SUBM	OTTED PUR	TYAUE	TO THE REQ	URCEMEN	TS OF	IO CAR	j: (Check	one or more of	the following)	(11)		
MODE		04	20.402	(6)			20.405(c)		×	56	9.73(a)(2)(iv	)	73.7	1.(6)		
POWI	CR .		20.405	(a)(13(3)			50.36(()(1)				).73(a)(2)(v)		75.7	1(0)		
LEVEL		00	30.403	(a)(1)(ii)			50,36(e)(Z)				).73(a)(2)(vi	i)		(ER (Specify	in Abstract an	Tex
			20.405	(a)(1)(lili)			50.73(a)(2)(i)			N	). Thou Grevi	ili(A)				
			20.405	(a)(Ú(iv)			50.73(a)(2)(ii)			30	).73(a)(23(vi	ii)(B)				
		5836	20.405	(a)(1)(v)			50.75(a)(2)(iii)			50	). 75(4)(2)(x)					
						Li	CENSEE CON	TACT FOR	THIS I	ER (12				MARCHINE STR. AND BO		
AME														TELEPHON	E NUMBER	
	Steve	F. T	abor, R	egula	tory C	omp.	liance	Speci	ali	st			(	919) 4	57-2178	
				COMPLE	TE ONE LIN	E FOR I	касн сомво	NENT FA	JLURE I	DESCRI	RED IN T	HIS REPORT (13)				
CAUSE	SYSTEM	COM	PONENT	MANUFA	TURER		DRTABLE NPRDS		CAUSE	SY	STEM	COMPONENT	MANUFAC	TURER	REPORTABLE TO SPRIM	
X	VA	D	MP	D6	25		Y							-473-4		
							(CTED (14)			NA SECULATION	-		NPECTED	MONTH	DAY	YEA

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

On September 30, 1992, Unit 2 was in Cold Shutdown when Operations manually started the 2A train of the Standby Gas Treatment (SBGT) system due to the presence of alpha contamination coincident with the failure of the reactor building ventilation system to maintain reactor building static negative pressure. The alpha contamination was caused by the cutting of a startup source holder containing an Americium-Beryllium source. An investigation into the cause of the source cut revealed deficiencies in verbal communication between the involved personnel performing the fuel pool cleanup activity, procedure deficiencies, and inadequate inventory management. The inability of the reactor building ventilation system to maintain negative pressure was due to misalignment of the 2A Reactor Building Supply Fan Vortex Damper, 2-VA-FV-1019A, actuator and associated linkage. On October 1, 1992, the damper was repaired, the SBGT system was secured, and the ventilation system was restored to the normal system lineup. A comprehensive effort is in progress to clean up and control the contamination. Corrective actions to prevent recurrence of the alpha contamination event include centralizing the responsibility for Spent Fuel Pool inventory control, developing an inventory program, and reviewing other radioactive control programs at Brunswick to ensure a positive link between on-site receipt of radioactive material and its incorporation into an inventory program. The safety significance is considered minimal since no off-site or occupational radiation exposure limits were exceeded.

#### APF...OVED OMB NO. 3150-0164 EXPIRES: 4/90/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HPS. FORWARD COMMENTS REGARDING SURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (\$150-0100), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 26503.

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (I)	DOCKET NUMBER (2)	PAGE (b)
Brunswick Steam Electric Plant		Company of the Compan
Unit 2	05000324	1

THIE Manual ESF Accuation Initiated Due To Failurs of Reactor Building HVAC Coincident With Alpha Contamination

EN	ENT DATE	(5)			1,	SR NUMBER	(6)		RES	ORT DAT	E: (7)	0700	ER FACILITIES INV	OLVED (8)
MONTH	DAY	YEAR		YEAR		SEQ. NO.		REV. NO.	MONTH	DAY	YEAR	FACILITY	NAME	DOCKET NUMBER
0.9	30	9.2		92	+	007	-	000	3.0	30	92			
AJEPIO	TING		THIS	KEPGST	IS SUB	BATTLE P	RSUANT	TO THE REQU	UREMENTS	OF 10 CA	R. §: (Classic on	or more of the fo	tiowing) (11)	
MODE		0.0		30.402	(b)			20.405(c)		×	90,75(a)(7)(iv)		73.71(b)	
Pow	TER	0.0		20.405	(a)(1)(i)			50.36(0)(1)			50.73(a)(2)(v)		73.71(c)	
TEAR	(10)	00		25.405	(u)(1)(ii)			50.36(c)(3)			50.75° ()(2)(vii)		OTHER (Specify	r in Abetrict and Toxi)
				30,405	(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A	0		
				20.405	(a)(1)(iv)			50.73(4)(2)(ii)		-	50.73(a)(2)(viii)(3	0		
		anto - 1880		20.4.3	(sc)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(a)			
							1	JCENSEE CON	TACT FOR T	HIS LER (	(2)			

NAME TELEPHONE NUMBER

Steve F. Tabor, Regulatory Compliance Specialist

(919) 457-2178

			COMPLETE ONE LD	REFOR EACH COMP	ONENT	FAILURE DE	ESCRIBED IN	THIS REPORT (	(3)			-
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYNTEM	COMPONEN	MARUFAC	FURER	REPORTABL TO NPRDS	195000
X	VA	DMP	D625	Y								
			SUPPLEMENTAL REPO	RT EXPECTED (14)					EXPECTED	MONTH	DAY	YEAR

-		_			
	SUPPLEMENTAL REPORT EXPECTED (14)	EXPECTED	MONTH	DAY	YEAR
×	YES (If yes, complete EXPECTED SUBMISSION DATE) NO.	SUBMISSION DATE (15)	12	15	92

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

On September 30, 1992, Unit 2 was in Cold Shutdown when Operations manually started the 2A train of the Standby Gas Treatment (SBGT) system due to the presence of alpha contomination coincident with the failure of the reactor building ventilation system to maintain reactor building static negative pressure. The alpha contamination was caused by the cutting of a startup source holder containing an Americium-Beryllium source. An investigation into the cause of the source cut revealed deficiencies in verbal communication between the involved personnel performing the fuel pool cleanup activity, procedure deficiencies, and inadequate inventory management. The inability of the reactor building ventilation system to maintain negative pressure was due to misalignment of the 2A Reactor Building Supply Fan Vortex Damper, 2-VA-FV-1019A, actuator and associated linkage. On October 1, 1992, the damper was repaired, the SBGT system was secured, and the ventilation system was restored to the normal system lineup. A comprehensive effort is in progress to clean up and control the contamination. Corrective actions to prevent recurrence of the alpha contamination event include centralizing the responsibility for Spent Fuel Pool inventory control, developing an inventory program, and reviewing other radioactive control programs at Brunswick to ensure a positive link between on-site receipt of radioactive material and its incorporation into an inventory program. The safety significance is considered minimal since no off-site or occupational radiation exposure limits were exceeded.

#### APPROVED OMB NO. 31504P04 EXPIRES: 4/30/92

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-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DX 20555, AND TO THE PAPERWORK REDUCTION PROJECT OLSG-010-0, OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (I)	DOCKET NUMBER (2)		1	ER NUMBER	(6)		PAGE (3)
Brunswick Steam Electric Plant Unit 2	05000324	YEAR		SEQ. NO.		REV. NO.	2
		92	-	007	-	000	

TEXT (If more space is required, in additional NRC Form 366A's) (17)

### TITLE

Manual ESF Actuation Initiated Due To Failure of Reactor Building HVAC Coincident With Alpha Contamination Event

### INITIAL CONDITIONS

On September 30, 1992, Unit 2 was in Cold Shutdown in day 162 of a maintenance outage. Decontamination of the Unit 2 refuel floor was in progress due to alpha contamination.

### EVENT NARRATIVE

On the morning of September 22, 1992, workers, including 2 contract waste processors and 3 Health Physics (HP) technicians were on the Unit 2 refuel floor complexing the final phase of the Spent Fuel Pool (SFP) clean-up project. All irradiated components that were planned to be disposed of had been removed from the SFP and only non-irradiated materials were being handled. These components consisted most , of poles, lights, J hooks, buckets, and cables. Between 1000 and 1030 hours, with Health Physics coverage, the workers began to remove what was believed to be an unused Start-up Source Holder (SSH). The SSH was located under a beam on the fuel pool floor east of the fuel pool gate. The SSH was raised from the bottom of the pool and underwater dose measurements taken. Due to the low dose rates, the workers decided to remove the SSH from the water. Irradiated SSHs previously handled during this project had dose rates as high as 700 R/hr when measured underwater.

Based on the SSH's shiny appearance and low dose rate, the contract waste processor determined that the SSH was not irradiated. The contract waste processor's knowledge of known sources at Brunswick was limited to Antimony which has a short half life. Additionally, previous fuel pool clean-up efforts had removed the Antimony sources. Consequently, he determined that since the SSH was not irradiated and due to the half life of Antimony and the elapsed time since plant startup that the SSH was not a neutron hazard. This was confirmed when nothing fell out of the tube as it was lifted and held upside down. It was noted however, that the SSH was bowed, rather than straight.

Additional surveys were performed on the SSH out of the w/cer. These surveys indicated a very small hot spot in the center of the SSH (approximately ? REM/hr). The SSH was sleeved in plastic and left on the refuel floor on the west side of the SFP. This area was designated as a high contamination work area. For segragation and volume reduction, the workers planned to cut a section out of the SSH (one foot on either side of the hot spot), place the "hot" section with the high dose rate waste, and place the end sections with the low dose rate waste.

At approximately 1500 hours, HP technicians prepared the area for making the cut by establishing a high volume air sample in the breathing zone where the cutting would be performed, placing extra plastic on the floor, and wetting down the area with a spray foaming agent.

# ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: SO B HRS. FORWARD COMMENTS REGARDING BURDEN ESTIKATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-320), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, RC 20555, AND TO THE PAPERWORK REDUCTION PROJECT 0150-01040, OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 4503.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

PACELITY NAME (I)
Brunswick Steam Electric Plant
Unit 2

DOCKET NUMBER (2)
05000324

	- 1	ER NUMBER	(6)		PAGE (3)
YEAR		SEQ. NO.		REV. NO.	3
92	-	007	100	000	

TEXT Of more space is required, use additional NRC Form 366A's) (17)

At approximately 1540 hours, a contract waste processor (wearing a full facu respirator with a protection factor of 50) made the cut with a porta-band saw. A Health Physics technician monitored the work from the south side of the pool, approximately 15 feet away and up-stream of the ventilation flow. He was standing next to an operating low volume air sampler.

When the cut was complete, the high dose rate piece of tubing was placed in a drum that contained other high dose rate material. The ends of the two outside pieces of tubing were taped and placed on the floor with other low dose rate material awaiting disposal. Upon completion of the cut, the Health Physics technician surveyed the work area. The survey revealed high contamination levels in the work area. Similarly, the waste processors' shoe covers were surveyed and verified to be highly contaminated. Once the shoe covers were removed, additional frisking did not reveal any contamination. Consequently, the waste processor exited the area.

One smear in the area where the SSH was cut indicated 0.32 mRad (about 500,000 DPM/100cm<sup>2</sup>) of beta-gamma contamination. The initial surveys did not include analysis for alpha contamination on the floor or in the air. Due to the high levels of contamination, a quick, preliminary decontamination of the work area was performed. At approximately 1700 hours, 2 plant decontamination personnel entered the area to complete the clean-up. Following the clean-up, all personnel frisked, found no contamination, and left the area at approximately 1830 hours.

The high volume air sample taken during the cutting was analyzed during the night shift and indicated 0.001 MPC 'Maximum Permissible Concentration). Americium (Am²41) was not included in the MPC calculation because Am²41 is not contained in the computer's library for determining MPC. The computer printout showed 3.57 E-8  $\mu$ Ci/ml Am²41 (157 MPC). The low volume air sample taken near the refuel floor contamination area access point indicated 8.6E-10  $\mu$ Ci/ml of Am²41 (3.7 MPC). This information went unnoticed by the count room personnel.

On the morning of September 23, 1992, based on concerns raised during a discussion of the refuel floor activities performed the previous day, the involved HP technicians decided to re-survey the area and have the smears counted for alpha contamination. The results indicated 230 dpm/ $100 \text{cm}^2$  at the step off pad and 19,000 dpm/ $100 \text{cm}^2$  in the work area where the tube was cut. Cutting the SSH, and apparently the source itself, released a significant quantity of  $\text{Am}^{241}$  into the reactor building on September 22, 1992.

On September 30, 1992, at approximately 0240 hours, the 2B reactor building exhaust fan tripped. Operations could identify no reason for this trip. Operations restarted the fan and notified Health Physics personnel of the concern due to the alpha contamination. At approximately 1005 hours, an Auxiliary Operator reported a loss of reactor building negative pressure as evidenced by air flowing out of the 20 foot elevation reactor building door. At this time 2 of the 3 reactor building exhaust fans were discovered tripped. These fans were restarted and negative pressure was restored. At approximately 1012 hours, all reactor building fans tripped. At this time the Operations Shift Supervisor ordered the closure of the 20 foot elevation reactor building door (routine practice is to leave these doors open when Secondary Containment is not required). Additionally, the reactor building ventilation system was secured, the 2A train of SBGT was started, the reactor building vent secured, and Health Physics personnel were notified of the potential for the spread of alpha contamination.

# ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: \$0.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-SSO), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, IC 2055, AND TO THE PAPERWORK REDUCTION PROJECT OF SO-GIOG, OFFICE OF MANAGEMENT AND BURDET, WASHINGTON, IC 2050.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)		- 1	ER NUMBER	(6)		PAGE (I)
Brunswick Steam Electric Plant Unit 2	05000324	YEAR		SEQ. NO.		REV. NO.	4
		92	-	007		000	

TENT (J. more space is required, last additional NRC Form 366A's) (17)

At approximately 1100 hours, HP personnel smeared for alpha contamination outside the 20 foot elevation of the reactor building. With the ventilation system secured, radon levels increased within the reactor building. Due to the inability to properly distinguish radon from Americium 241 alpha contamination in the reactor building, a precautionary evacuation of the reactor building was initiated at 1815 hours. Following evacuation, Health Physics established restricted individual recess control.

An investigation into the cause of the reactor building fan trips revealed that the 2A reactor building supply fan vortex damper had bound in the open position. The binding was due to misalignment of the damper control arm and worn damper linkage. Adjustment and lubrication of the damper linkage corrected the binding condition. On October 1, 1992 at approximately 1446 hours, the reactor building ventilation system was restored to the normal system lineup. At approximately 1535 hours the 2A train of SBGT system was secured. Normal reactor building access was restored at approximately 1545 hours.

### CAUSE OF EVENT

The loss of reactor building negative pressure resulted from the binding of the 2A reactor building supply fan vortex damper in the open position. An investigation into the cause of the binding revealed that the damper actuator assembly had been replaced on September 8, 1992. On September 14, 1992 the reactor building ventilation system engineer identified the damper binding (including the potential for loss of building negative pressure) and initiated a maintenance work request (WRJO 92-AYQQ1) to support repair of the damper. Efforts to resolve the concern did not occur prior to the event. The binding of the damper in the open position was caused by improper alignment of the damper actuator linkage during replacement of the actuator assembly on September 8, 1992. Additionally, normal wear of the actuator linkage contributed to the binding.

A Site Incident Investigation Team (SIIT) was assembled to determine the root cause of the alpha contamination event. The following provides the results of the team's effort:

Although the involved workers were aware of the possibility of a source being in the SSH, adequate precautionary measures were not discussed in the event a source was actually contained in the SSH. Furthermore, the workers did not identify positive detection methods although the SSH was of an unknown pedigree.

Written procedures and documents did not identify a startup source as an item or potential item in the fuel pool. Nor did the procedures identify neutron radiation as a possible hazard.

Project management did not properly assess the risks associated with the handling of a neutron source. Although project management recognized the location of neutron sources was uncertain, project management did not ensure development of specific procedures for the handling of sources.

Management monitoring of the work activity did not detect problems with the source inventory program which allowed sources to be received on-site without being added to the inventory. Consequently, this source was not included on any source inventory or labeled.

NEC FORM 366A

U. S. NUCLEAR REGULATORY COMM., 'ION

#### APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: \$6.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-SN), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, IX. 2055S, AND TO THE PAPIEWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 2050S.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (I)	DOCKET NUMBER (2)		- 1	ER NUMBER	(6)		PAGE (3)
Frunswick Steam Electric Plant Unit 2	05000324	YEAR		SEQ. NO.		REV. NO.	5
		92	-	007	-	000	

TEXT (If more space is required, use additional NRC Form M6A's) (17)

Management did not establish a fuel pool inventory program when previous problems with inventory were detected. Consequently, there was no available record of the source for planning the fuel pool cleanup project. The presence of the source had been forgotten since it was last used in 1978. The only inventory was an informal list started by Technical Support in 1990 which consisted of the visible components in the fuel pool. Cleanup procedures were only developed for the components on that list.

### CORRECTIVE ACTIONS

The following recovery actions have been initiated as a result of the alpha contamination event:

On the morning of September 23, 1992, alpha contamination surveys were performed in the stairwells leading to the refuel floor, the clean areas of the refuel floor, and the high traffic areas between the refuel floor and the Single Point Access. Except for two areas on the reactor building 20 foot elevation (4DPM/100cm² each), and one spot on the reactor building 80 foot elevation west (3DPM/100cm²), the contamination was isolated to the 117 foot elevation of the reactor building. The areas on the 117 foot elevation that were previously designated as non-contaminated had alpha contamination ranging from less than Minimal Detectable Activity (MDA) to almost 1000 DPM/100cm². The highest contamination was found in the ventilation (lowpath from the area where the SSH was cut. The work area on the 117 foot elevation that was previously poste? as contaminated had alpha contamination from less that 650 DPM/100cm² to as high as 19,000 DPM/100cm².

The surface and airborne contamination caused several of the workers to become contaminated. One of the HP Technicians and one of the decontamination personnel were found to have small amounts of contamination on their personal clothing ranging from 20 CPM to 2000 CPM as measured wit' an alpha survey instrument. A survey in the homes and automobiles of the involved individuals was performed using smears, plant alpha survey instruments, and a survey instrument provided by the NRC. No contamination was found in the homes or automobiles that were surveyed.

An extensive bioassay and whole body counting (WBC) program was begun on the individuals considered most at risk for an internal contamination. This group included the waste processors, the HP Technicians, and the decontamination personnel who entered the contaminated area. Arrangements were made with the General Electric Fuel Fabrication Facility in Wilmington, NC to perform a WBC on the individuals. Although the GE equipment was not calibrated to determine the amount of Am<sup>241</sup>, it was capable of determining the presence of Am<sup>241</sup>. The initial results qualitatively indicated positive for two of the HP technicians; however, following decontamination (showering), the analysis indicated only one potential internal contamination. This was further confirmed when the WBC data was eanalyzed by Canberra, Inc. Biological (urine and fecal) samples were collected from the workers. The samples were shipped to an independent consulting company for analysis. The results of the analysis identified a minor positive indication from 2 of the individual's fecal samples. The dose consequence of these indications is considered negligible and below NRC limits.

#### APPROVED OMB NO. 3150-0104 EXPIRES: 4/90/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION RF. EST: SO.D HKS. FORWARD COMMENTS REGARDING BURDEN ESTIM. TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), A.S. V.ELEAR REGULATORY COMMISSION, WASHINGTON, DC 20553, ANJ TO THE PAPERWORK REDUCTION PROJECT (180-0104), OFFICE O' MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

CENTY NAME (I) FULL WICK Steam Electric Plant hit 2	DOCKET NUMBER (2)			PAGE (3)			
Brun wick Steam Electric Plant Unit 2	05000324	. YEAR.		SEQ. NO.		REV. NO.	6
		92		007	-	070	

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Finally, all of the individuals received a WBC at Nuclear Fuel Services, Inc. This facility utilizes instrumentation calibrated for Am<sup>241</sup>. The analysis indicated one HP technician with a trace amount of Am<sup>241</sup> in the lungs. The results of dose calculations from the whole body count is an Effective Dose Equivalent dose of 66 mrem in the first year after uptake and a Committed Effective Dose Equivalent dose of 2000 mrem. A follow-up WbC was performed on the individual with the uptake, along with a WBC on three additional individuals who, upon further investigation, were found to have been on the refuel floor during the cutting of the SSH. The follow-up WBC indicated results similar to those indicated in the original WBC. The WBC on the 3 additional individuals indicated no detectable contamination.

A small amount of Am<sup>241</sup> is known to have been released through the monitored reactor building roof vent. The filter on the reactor building roof vent was changed on the morning of September 22, 1992 prio to the event. This filter was exchanged on September 23, 1992 and analyzed for Am<sup>241</sup>. Off-site doses were calculated using GASPAR, the computer program used by CP&L's Off-site Dose Calculation Manual. The maximum off-site dose was calculated to be 2.9E-3 mrem, which is a small percent of regulatory limits. Subsequent sampling of the reactor building roof vent revealed similar results.

Efforts to contain the contamination began immediately. Surveys were performed in the lunch room, at the plant entrance, and between these areas and the U/2 refuel floor to determine the potential scope of contamination. The area behind the ventilation room on the reactor building 80 root elevation indicated low levels of contamination. This is because the ducts from the room are under positive pressure and contamination leaks outward onto the 80 foot elevation. Freque t surveying and decontamination of the small area on the 80 foot elevation are performed to prevent the spread of contamination. The filter from the continuous air monitor (CAM) on the refuel floor was analyzed. The filter was placed in service at 0023 hours and removed at 1730 hours on September 23, 1992. The analysis indicated no airborne contamination in the area. A neutron survey was performed on the refuel floor and no neutron radiation was detected except for 45 mR/hr c., contact with the drum containing the Am<sup>241</sup> source.

The initial decontamination and survey of the previously unposted areas of the refuel floor were completed on September 23, 1992 at approximately 1230 hours. The decontamination was only partially successful, however, since levels as high as 207 DPM/100cm<sup>2</sup> were still present. Before beginning to decontaminate the more highly contaminated work area of the refuel floor, the equipment hatch and stairwells were covered to prevent spreading contamination. Additionally, a radiation control access control point was established on the 98 foot elevation to ensure positive control over the refuel floor. This checkpoint was equipped with pan, tilt, and zoom video monitors; alpha survey instruments for frisking; and a system for counting smears for alpha contamination. The major method for decontaminating the refuel floor general areas is strippable coatings. Other areas (overhead crane, catwalks, refueling bridge, etc.) require manual decontamination.

On September 29, 1992, a management team was assembled to facilitate the decontamination. This team is comprised of representatives from appropriate plant organizations.

In an effort to provide the best assessment possible of this event, a consultant experienced with alpha contamination and dose measurements was retained. The consultant arrived on-site on October 8, 1992 to review data, interview personnel, and tour the refuel floor.

#### APPROVED OMB NO. 3(50-0)64 EXPIRES: 4/30/92

DMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: SO.D HRR. FORWARD COMMENTE REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRAN\_H (P-SW), U.S. NUCLEAR RI JULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT 0150-0190, OFFICE OF MANAGEMENT AND BURSLET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACELTY NAME (I) Brunswick Steam Electric 'ant Unit 2	LOCKET NUMBER (2)	LER NUMBER (6)					PAGE (b)
	05000324	YEAR		SEQ. NO.		REV. NO.	7
		92	-	007	-	000	

CaNT (If more space is required, use additional NRC Form 366A's) (17)

The following corrective actions have been established to prevent recurrence of the alpha contamination event:

Centralized responsibility for Spent Fue. Pool positive control inventory and movement of inventory within the pool has been assigned to the Technical Support organization.

Technical Support will develop an inventory program that positively maintains control of the Spent Fuel Pool inventory by 12/15/92.

Other radioactive material control programs at Brunswick will be reviewed by 12/31/92 to ensure that a positive link between receipt of on-site radioactive material and its appropriate incorporation into an inventory program is established.

The damaged Americium source will be added to the site source inventory by 11/30/92.

Clean-up of significant alpha contamination and implementation of corrective actions to identify and safely store the damaged Americium source will be completed by 4/30/93.

A review of the event with HP personnel emphasizing the risks associated with neutron sources and the techniques for measuring alpha contamination has been performed.

This event will be reviewed with appropriate Outage Maintenance and Modification personnel by 12/31/92.

This event will be reviewed with appropriate Technical Support personnel by 12/31/92.

Special procedures for handling irradiated and non-irradiated material in the spent fuel pool to preclude handling of sources or source related material in the spent fuel pool will be revised by 4/30/93.

Computer software has been upgraded to include Americium 241 for use in MPC calculations.

The following corrective actions have been established to prevent recurrence of the binding of the 2A reactor building supply fan vortex damper:

A maintenance procedure, OPM-DMP500, has been developed to prescribe detailed instruction for maintenance and inspection of ventilation system dampers.

Mechanical Maintenance planners will be informed of the aforementioned procedure and the need to specify the use  $c^{\P}$  this procedure on future work instruction packages by 11/15/92.

HERC FORM 386A

U. S. NUCLEAR REGULATORY COMMISSION

### APPROVED OMB NO. 3186-0104 EXPL'ES: 4/86-92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS LIPORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (9-50), U.S. NUCLEAR REGULATORY COMMISSION, WARRINGTON, DC 3055, AND TO THE PAPERWORK REDUCTION PROJECT (310-6104), OFFICE OF MANAGEMENT AND BURDET, WARRINGTON, DC 3000.

# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (I) Brunswick Steam Electric Plant Unit 2	DOCKET SUMBER (2)		PAGE (8)				
	05000324	YEAR	1	SEQ. NO.		kEV, NO.	8
		92	761.	207	.60	000	

TEXT (It more upon is se ... use additional NRC Form 366A's) (17)

Recognizing that the existing damper actuator and linkage assemblies are obsolete, by 12/31/92 Direct Replacement packages will be generated to support replacement of these mechanisms.

### SAFETY ASSESSMENT

The safety significance of this event is considered minimal in that is off-site or contrational radiation exposure limits were exceeded. Additionally, the reactor building ventilation system responded as designed such that when reactor building pressure sensors sensed the loss of negative pressure caused by the binding of the damper, the system fans tripped and control room annunciation actuated. Operations personnel ensured containment of potential alpha contamination by securing the reactor building ventilation system, by more ally starting the SBGT system, and by restricting reactor building access. No additional significant spread of alpha contamination resulted from the failure of the reactor building ventilation system to maintain reactor building negative pressure.

PREV. SIMILAR EVENTS

None

EIIS COMPONENT IDENTIFICATION

System/Component
Reactor Building Environmental Control System

2-VA-F" (019A SBGT

Spent Fuel Pool

EIIS Code

VA

VA/DMP

£312

DA