

FILE:

FROM: Carolina Power & Light Company Raleigh, N.C. 27602 Mr. E.E. Utley		DATE OF DOC 7-15-74	DATE REC'D 7-19-74	LTR X	TWX	RPT	OTHER
TO: J.F. O'Leary		ORIG 2 signed	CC	OTHER	SENT AEC PDR XXX SENT LOCAL PDR XXX		
CLASS XXX	UNCLASS	PROP INFO	INPUT	NO CYS REC'D 40	DOCKET NO: 50-261		

DESCRIPTION:  
Ltr reporting an abnormal occurrence...trans the following.....

ENCLOSURES:  
Abnormal occurrence concerning....Exposure of an individual to excessive airborne concentrations of radioactive materials....

**ACKNOWLEDGED  
DO NOT REMOVE**

(40 cys encl rec'd)

PLANT NAME: H.B. Robinson

FOR ACTION/INFORMATION

7-19-74

JB

BUTLER (L)	SCHWENCER (L)	ZIEMANN (L)	REGAN (E)
W/ CYS	W/ CYS	W/ CYS	W/ CYS
CLARK (L)	STOLZ (L)	DICKER (E)	LEAR
W/ CYS	W/ CYS	W/ CYS	W/7 CYS
W/ CYS	VASSALLO (L)	KNIGHTON (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS
KNIEL (L)	PURPLE (L)	YOUNGBLOOD (E)	
W/ CYS	W/ CYS	W/ CYS	W/ CYS

# INTERNAL DISTRIBUTION

✓ REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
✓ AEC PDR	✓ HENDRIE	GRIMES	DIGGS (L)	BRAITMAN
✓ OGC	✓ SCHROEDER	GAMMILL	GEARIN (L)	SALTZMAN
✓ MUNTZING/STAFF	✓ MACCARY	KASTNER	GOULBOURNE (L)	B. HURT
✓ CASE	✓ KNIGHT	BALLARD	KREUTZER (E)	
GIAMBUSSO	✓ PAWLICKI	SPANGLER	LEE (L)	PLANS
BOYD	✓ SHAO		MAIGRET (L)	MCDONALD
MOORE (L)(LWR-2)	✓ STELLO	ENVIRO	REED (E)	CHAPMAN
DEYOUNG (L)(LWR-1)	✓ HOUSTON	MULLER	SERVICE (L)	DUBE w/input
SKOVHOLT (L)	✓ NOVAK	DICKER	SHEPPARD (L)	E. COUPE
✓ GOLLER (L)	✓ ROSS	KNIGHTON	SLATER (E)	
P. COLLINS	✓ IPPOLITO	YOUNGBLOOD	SMITH (L)	✓ D. THOMPSON (2)
DENISE	✓ TEDESCO	REGAN	✓ TEETS (L)	✓ KLECKER
✓ REG OPR	✓ LONG	PROJECT MGR	WILLIAMS (E)	✓ EISENHUT
✓ FILE & REGION (3)	✓ LAINAS		WILSON (L)	
✓ MORRIS	✓ BENAROYA	HARLESS		
✓ STEELE	✓ VOLLMER			

# EXTERNAL DISTRIBUTION

✓ 1 - LOCAL PDR Hartsville, S.C.	(1)(2)(10)-NATIONAL LABS	1-PDR-SAN/LA/NY
✓ 1 - TIC (ABERNATHY)	1-ASLBP(E/W Bldg, Rm 529)	1-BROOKHAVEN NAT LAB
✓ 1 - NSIC (BUCHANAN)	1-W. PENNINGTON, Rm E-201 GT	1-G. ULRIKSON, CRNL
1 - ASLB	1-B&M SWINEBROAD, Rm E-201 GT	1-AGMED (RUTH GUSMAN)
1 - P. R. DAVIS	1-CONSULTANTS	Rm B-127 GT
✓ 16 - AGRS SENT TO LIC ASST Teets	NEWARK/BLUME/AGBABIAN	1-RD..MUELLER, Rm F-30
7-19-74		GT

Regulatory

File C

**CP&L**

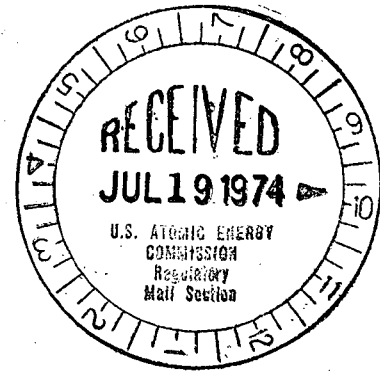
Carolina Power & Light Company  
July 15, 1974

File: NG-3513 and NG-3514

Serial: NG-74-873

Mr. John F. O'Leary, Director  
Directorate of Licensing  
Office of Regulation  
~~U. S. Atomic Energy Commission~~  
Washington, D. C. 20545

Mr. Norman C. Moseley, Director  
Directorate of Regulatory Operations  
U. S. Atomic Energy Commission  
Region II, Suite 818  
230 Peachtree Street, N.W.  
Atlanta, Georgia 30303



Dear Sirs:

**50-261**

H. B. ROBINSON UNIT NO. 2  
LICENSE DPR-23  
EXPOSURE OF AN INDIVIDUAL TO EXCESSIVE AIRBORNE  
CONCENTRATIONS OF RADIOACTIVE MATERIALS

In accordance with 10CFR20, Paragraph 20.405 (a) the attached report is submitted for your information.

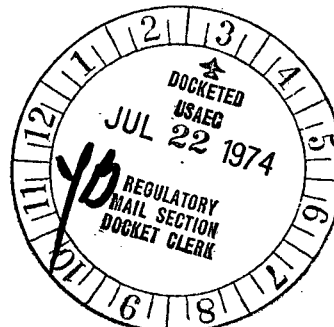
Yours very truly,

*E. E. Utley*  
E. E. Utley

Vice-President  
Bulk Power Supply

JLH:DBW:mvp  
Attachment

cc: Messrs. N. B. Bessac  
T. E. Bowman  
B. J. Furr  
W. E. Graham  
D. V. Menscer  
D. B. Waters  
R. A. Watson



6535

VIOLATION OF 10CFR20, PARAGRAPH 20.103 (b)

1. Report Number 74-13
- 2a. Date July 10, 1974
- 2b. Occurrence Date June 15, 1974
3. Facility H. B. Robinson Unit No. 2  
Hartsville, South Carolina 29550

4. Identification of Occurrence

Personnel exposure of an individual to airborne concentrations such that MPC<sub>A</sub> x stay time was greater than 1.

5. Conditions Prior to Occurrence

Reactor in a refueling shutdown condition.

6. Description of Occurrence

Contractor employee opened a vacuum cleaner being used to clean the channel heads of steam generators following tube plugging. As a result the individual was exposed to a very localized high airborne concentration of radiation contaminates.

7. Designation of Apparent Cause of the Occurrence

Lack of awareness by the individual involved of radiological hazards presented by vacuum cleaners containing radioactively contaminated dust. Although the individual involved is very well-trained and experienced from many years of work with nuclear systems, he failed to consider possible radiological hazards when opening the vacuum cleaner which was clearly marked as being contaminated.

8. Analysis of the Occurrence

Following plugging of steam generators on June 14 and 15, 1974, cleanup of the channel heads was begun. The individual involved was supervising the effort. In his desire to speed the job up he decided to directly aid in the work. After properly dressing for work in the steam generators, but prior to obtaining his respirator, the man checked the vacuum cleaner and found it to be inoperable. He, therefore, opened the vacuum cleaner to attempt to repair it.

When attempts to repair the vacuum cleaner proved unsuccessful, he donned respiratory equipment and entered the steam generator for five minutes.

Immediately exiting the containment, the individual discovered himself to be contaminated when checking through the control point. Extensive showering appeared to remove the contamination and the individual cleared himself through the control point.

Shortly thereafter the individual returned to the control point area to conduct a conversation. Upon attempting to clear himself through the personnel monitors he found himself to be still contaminated. Further efforts were made to remove the contamination by showering and sweating the man. Radiation readings appeared to be centered about old scar tissue on his abdomen. After further efforts to lower radiation levels proved unsuccessful, the suspected area of contamination was enclosed in gauze and tape and the individual sent to get some sleep.

Early the next morning, June 16, medical advice was obtained and a skin cleansing agent acquired from the local hospital. Use of the cleansing agent showed no results. This fact when coupled with the now generalized radiation levels throughout the abdominal cavity indicated that the contamination was probably internal rather than external. Accordingly, the chest and abdominal areas of the man were wrapped in towels and he was given a bottle and plastic bag for collection of urine and fecal samples.

These samples became available the morning of June 17. Analysis of these samples proved conclusively that significant levels of radioactive contaminants were present internally in the individual. In ensuing conversations with the man's supervisors, he was scheduled for a whole body count on June 19.

The whole body count was made on June 19; followed by subsequent counts on June 21 and July 2. As a result of these counts it was determined that the man had lung burdens of Co-60 of 1.4 microcuries and of Co-58 of 1.63 microcuries.

Lung burdens of these magnitudes will result in a lung exposure in one year of 16.6 rem and a lifetime exposure of 17.4 rem. Calculations of initial intake of these isotopes indicate that 13 microcuries of cobalt 60 and 15.2 microcuries of cobalt 58 was inhaled.

Further calculations as to actual air concentrations to which the individual was exposed are complicated by the individual not being certain as to the amount of time he was working on the vacuum cleaner and by the individual being a mouth breather. However, if conservative assumptions are made that the exposure lasted two minutes at average respiratory rate and tidal volumes, air concentrations of cobalt 60 of  $3.0 \times 10^{-4}$  uCi/cc and cobalt 58 of  $3.5 \times 10^{-4}$  uCi/cc can be assumed to be ingested by the individual.

Based on a two-minute stay time maximum permissible airborne concentrations of cobalt 58 and cobalt 60 are, respectively,  $6.0 \times 10^{-5}$  uCi/cc and  $1.08 \times 10^{-5}$  uCi/cc. Therefore, this incident resulted in a violation of 10CFR20, Paragraph 20.103 (b).

9. Corrective Action

Locks have been placed on all vacuum cleaners to ensure that this type of incident does not recur. In addition, the potential of this type of incident occurring from radioactive dusts is to be discussed with all plant employees.

10. Previous Failure Data

None