NRC FORM 195 (2-76)

U.S. NUCLEAR REGULATORY COMMISSION

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

DOCKET NUMBER: 50-315

FILE NUMBER: ENVIRO

TO: Mr. J. G. Keppler

FROM: Indiana & Mich Power Co
Bridgman, Mich 49106
R.W. Jurgensen

DATE OF DOCUMENT: 3-17-77

DATE RECEIVED: 4-12-77

X LETTER
X ORIGINAL
☐ COPY
☐ NOTORIZED
X UNCLASSIFIED

PROP

INPUT FORM

NUMBER OF COPIES RECEIVED: 1 SIGNED

DESCRIPTION: Ltr furn info on release of low-level radioactive gas from the plant & the failure of the vent header drain traps.... 3P
(AEO No. 50-315/77-01)

ENCLOSURE

ACKNOWLEDGED

DO NOT REMOVE

PLANT NAME: Donald C. Cook Unit 1

DHL

FOR ACTION/INFORMATION

SAFETY		ENVIRO
ASSIGNED AD:		ASSIGNED AD:
BRANCH CHIEF:	Ziemann (6)	BRANCH CHIEF:
PROJECT MANAGER:	Fletcher	PROJECT MANAGER:
LIC. ASST.:	Diggs	LIC. ASST.:

INTERNAL DISTRIBUTION

REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
OELD		LAINAS	
GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
MIPC	MACARRY	KIRKWOOD	ERNST
CASE	BOSNAK		BALLARD
HANAUER	SIHWEIL	OPERATING REACTORS	YOUNGBLOOD
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT	STEPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
MELTZ		GRIMES	VOLLMER
HELTEMES	AT & I		BUNCH
SKOVHOLT	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION

			CONTROL NUMBER
LPDR: St Joseph, MI	NAT. LAB:	BROOKHAVEN NAT. LAB.	
TIC:	REG V.IE	ULRIKSON (ORNL)	
NSIC:	LA PDR		
ASLB:	CONSULTANTS:		
ACRS 1 CYS HOLDING/SENT As CAT B			7710050227

NRC FORM 195 (2-76)

American Electric Power System
INDIANA & MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT
P.O. Box 458, Bridgman, Michigan 49106

March 17, 1977

Mr. J. G. Keppler, Regional Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Operating License DPR-58
Docket No. 50-315
AEO No. 50-315/77-01

Dear Mr. Keppler:

On March 10, 1977 a written report was sent to you describing an event which occurred at the Donald C. Cook Nuclear Plant, Unit 1. In that letter we stated that an unplanned release of low level radioactive gas from the plant occurred from 0001 hours on March 5, 1977 to 1600 hours on March 7, 1977 in violation of Technical Specifications, Appendix B, Section 2.4.4.e.

As a result of a similar occurrence that took place on March 30 and 31, 1976 the vent header drain traps at WD-20 and WD-21 are normally isolated from the system. Periodically, however, these traps are valved into the system in order to clear the vent system of excess moisture. The traps were valved in at approximately 0001 hours on March 5, 1977 and were inadvertently left in that position.

By 1800 hours on March 5, 1977, essentially all the gas in the waste gas system at that time had escaped through the traps, to the waste holdup tanks, past R-22 and into the Unit 1 vent stack. From 1800 hours on March 5, until approximately 1600 hours on March 7, 1977 it is conservatively assumed that the gas released from letdown of reactor coolant to the chemical volume and control system holdup tanks was released by the same flow path. It is estimated that the total volume of gas that was released was equivalent to 2½ gas decay tanks. At 1600 hours on March 7, 1977 after a review of the gas inventory was made, the traps were found open and were isolated at that time.

The release was monitored by the ventilation stack gaseous, the liquid off gas, and the vent stack particulate monitors which indicated an increase above normal, but which did not at any time reach the monitor alarm point.

MAR 21 1977

7710502227

A sample of the CVCS holdup tanks gas space was taken at 1640 hours on March 7, 1977 and the results were as follows:

Isotope	Activity/μci/cc
Xe-133	2.19×10^{-4}
Xe-133m	5.34×10^{-6}
Xe-135	4.97×10^{-5}
I-133	$< 9.16 \times 10^{-8}$
I-131	$< 7.99 \times 10^{-8}$
Kr-85m	$< 1.40 \times 10^{-7}$
Kr-87	$< 3.40 \times 10^{-7}$
Kr-85	$< 2.72 \times 10^{-7}$
Ar-41	$< 1.73 \times 10^{-7}$
Kr-88	$< 4.07 \times 10^{-7}$

On the basis of gas decay tank pressure history, the largest volume of gas escaped in the first sixteen hours of the release. Using this as a basis with the CVCS holdup tank sample gives the following average release rate over the 16 hours:

Isotope	Release Rate ci/sec.
Xe-133	$8.63 \times 10^{-7} \pm 1.12 \times 10^{-8}$
Xe-133m	$2.10 \times 10^{-8} \pm 6.43 \times 10^{-9}$
Xe-135	$1.96 \times 10^{-8} \pm 1.21 \times 10^{-9}$
I-133	$< 3.61 \times 10^{-10}$
I-131	$< 3.15 \times 10^{-10}$
Kr-85m	$< 5.52 \times 10^{-10}$
Kr-87	$< 1.34 \times 10^{-9}$
Ar-41	$< 6.83 \times 10^{-10}$
Kr-85	$< 1.07 \times 10^{-9}$
Kr-88	$< 1.61 \times 10^{-9}$

which is 1.63×10^{-3}% of Technical Specifications limit; and did not present a hazard to the health and safety of the public.

Request for Change No. DC-12-1328 to have the vent header drain system modified is in the engineering process. Since this release occurred, we have expedited the purchasing of the new equipment required. The vent header drain trap isolation valves have been tagged closed under a shift operating engineer's clearance, requiring prior permission from the shift operating engineer any time the valve needs to be opened.

Sincerely,

R. W. Jurgensen
Plant Manager

RWJ/mj

cc: R. S. Hunter
J. E. Dolan
G. E. Lien
R. Kilburn
R. J. Vollen BPI
R. C. Callen MPSC
K. R. Baker RO: III
P. W. Steketee, Esq.
R. Walsh, Esq.
G. Charnoff, Esq.
G. Olson
J. M. Hennigan
PNSRC
R. S. Keith
T. A. Kriesel
Dir., IE (20 copies)
Dir., MIPC (2 copies)
Dir., Licensing (1 copy)