DMB

American Electric Power System
INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT
P.O. Box 458, Bridgman, Michigan 49106
(616) 465-5901

PRIORITY ROUTING

First		Second
RA		RC
DRA		EJC
DRP		SGA
DRS		ML
DRSS		OL
DRMA		OT
		PAO

orig +1
FILE

May 1, 1986

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

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

Dear Mr. Keppler,

In accordance with Technical Specification 3.12.1 we are submitting this special report to advise you that the minimum lower limits of detectability in the lake water sampiing stations and the drinking water stations exceeded the limits of Table 4-12.1.

During 1985 samples of water from Lake Michigan were composited by three (3) indicator and three (3) background stations. Samples collected throughout the year for the three (3) background stations were composited on a monthly basis and analyzed for gamma emitters and gross beta. Samples for the three (3) indicator stations were composited on a bi-monthly basis and analyzed for gamma emitters and gross beta. The results were included in the Annual Environmental Operations Report for 1985 which was submitted on May 1, 1986.

It was identified by plant personnel that the radiochemistry counting equipment was unable to meet the required technical specification Lower Limits of Detection (LLD of T/S 4-12.1) and that the Minimum Detectable Activity (MDA) in some cases exceeded the reporting values as specified in T/S 3.12.1. The LLD is defined as the detection capability for the instrument only using the equation in T/S Table 4.12-1 and the MDA as the detection capability for a given instrument, procedure and type of sample. This was not previously identified because the LLD values were never compared to the maximum values for LLD in Table 4.12-1 or the reporting levels required by T/S 3.12.1. We do not have the data to prove compliance with the LLD values required by T/S 4.12-1 since April 15, 1983 when the Radiological Environmental Technical Specifications went into effect. However, the system backgrounds would have increased with time and efficiency reduced, both of which we believe, would generate LLD values equal to or lower than those presently obtainable. Prior to this date, no maximum values for LLD were required.

In two instances for Cs-134 and I-131 the MDA values obtained exceeded the reporting levels in Technical Specification Table 3.12-2. The following is a comparison of the D. C. Cook Plant MDA, the Technical Specifications maximum value for the LLD (Table 4.12-1), Cook LLD limits, and the reporting levels required by Table 3.12.2.

delete IE23 1/0
RIII MAY 7 1986

RADIONUCLIDE	MAXIMUM LLD pCi/l (T/S TABLE 4.12-1)	COOK MDA VALUE pCi/l	COOK LLD LIMITS pCi/l	REPORTING LEVEL pCi/l (T/S TABLE 3.12-2)
Gross Beta	4	2700 - 3540	2700 - 3540	N/A
H-3	2000	500 - 610	500 - 610	20,000
Mn-54	15	29	2.8	1,000
Fe-59	30	57	15.4	400
Co-58, 60	15	58, 49	15.8, 18.6	1,000 - 300
Zn-65	30	40	15.6	300
Zr-95	30	75	10.6	400
Nb-95	15	75	10.7	400
* I-131	1	48	4.9	2
° Cs-134	15	50	8.4	30
Cs-137	18	45	12.8	50
Ba-140	60	196	12.6	200
La-140	15	196	21.8	200

* LLD > Reporting Level
° MDA > Reporting Level

In addition to the cases of Cs-134 and I-131 MDA values exceeding the reporting level, there was one instance where although the LLD value was less than the reporting level, the quarterly average concentration exceeded the reporting level. This occurred during the first quarter of 1985 for the lake water sample station L1 for Cs-137. The cause of this occurrence has been determined to be the elevated MDA values for two (2) months of the quarter when combined with the somewhat higher results for the third month of the quarter.

No elevated releases which would have been expected to increase the environmental sampling radioactivity levels above the maximum LLD were made at anytime. It is believed that the MDA being over the required reporting level is an analytical problem and not a result of plant operations. These findings are summarized below:

RADIONUCLIDE	SAMPLE STATION	CALENDAR QUARTER	CAUSE
Cs-134, I-131	L1, L2, L3	1, 2, 3, 4	MDA > Reporting Level
	St. Joseph	1, 2, 3, 4	MDA > Reporting Level
	Lake Township	1, 2, 3, 4	MDA > Reporting Level
	New Buffalo	1, 2, 3, 4	MDA > Reporting Level
Cs-137	L1	1	Elevated MDA caused average quarterly concentration to exceed reporting level.

To prevent recurrence we have started and will continue sending the lake and drinking water samples to the radiological environmental monitoring program contractor, Controls for Environmental Pollution, Inc. (CEP), or another qualified laboratory with the capability to reach the required limits.

In addition, a plant procedure now directs the review and comparison of the Radiological Environmental Monitoring Program Data to Technical Specification requirements.

The required LLD values currently achievable by CEP are summarized below:

RADIONUCLIDE	CEP DETECTION LIMITS - pCi/l	MAXIMUM LLD - pCi/l (T/S TABLE 4.12-1)
Gross Beta	3	4
H-3	500	2000
Mn-54	2	15
Fe-59	3	30
Co-58, 60	5	15
Zn-65	15	30
Zr-95	5	30
Nb-95	5	15
I-131	1	1
Cs-134	7	15
Cs-137	2	18
Ba-140	4	60
La-140	4	15

Sincerely,

A. Alan Blind for

W. G. Smith, Jr.
Plant Manager

/sg

cc: John E. Dolan
M. P. Alexich
R. F. Kroeger
C. A. Erikson
R. W. Jurgensen
J. F. Stietzel
R. C. Callen, EPSC
G. Charnoff, Esq.
D. Hahn
INPO
PNSRC
S. R. Brewer
B. A. Svensson
A. A. Blind
Dottie Sherman, ANI Library
T. A. Kriesel
R. J. Clendenning
NRC Resident Inspector