NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
DONALD C. COOK NUCLEAR PLANT UNIT 1	0 5 0 0 0 3 1 5	1 OF 0 2

TITLE (4)

RADIATION MONITORING SYSTEM SETPOINTS

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 9	1 2	8 4	8 4	0 2 2	0 0	1 0	1 0	8 4	D. C. COOK UNIT 2	0 5 0 0 0 3 1 6
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
T. A. KRIESEL - TECHNICAL/PHYSICAL SCIENCES DEPARTMENT	AREA CODE 6 1 6 4 6 5 - 5 9 0 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

ON SEPTEMBER 12, 1984 WITH UNIT 1 AND UNIT 2 REACTOR COOLANT SYSTEMS IN MODE 1 AND BOTH UNITS AT 100 PERCENT REACTOR THERMAL POWER IT WAS DISCOVERED DURING A REVIEW OF THE SETPOINT ADJUSTMENT FORMULA THAT INCORRECT DOSE RATE FACTORS WERE BEING CALCULATED, PER PROCEDURE, WHEN USING THE "SETPOINT 3" COMPUTER PROGRAM. THE "SETPOINT 3" COMPUTER PROGRAM IS USED TO CALCULATE THE DOSES AND DOSE RATES FOR BATCH GASEOUS RELEASES FROM THE PROVIDED LABORATORY ANALYSIS. THE ERROR RESULTED IN THE RADIATION MONITORING SYSTEM (RMS) BEING IN NONCOMPLIANCE WITH THE OFF SITE DOSE CALCULATION MANUAL (ODCM). THE RMS ALARM SETPOINT FOR BATCH RELEASES WAS 1.7 TIMES HIGH FOR SKIN DOSE RATE AND 2.0 TIMES HIGH FOR THE TOTAL BODY DOSE RATE PER THE ODCM. THE ERROR WAS CAUSED WHEN THE GASEOUS WASTE RELEASE WAS BEING CALCULATED BASED ON THE EFFLUENT DOSE CALCULATION OPTION TO THE "SET-POINT 3" COMPUTER PROGRAM. AS A CORRECTIVE ACTION THE GASEOUS WASTE RELEASES PROCEDURE WAS CHANGED SO THAT THE DOSE RATES USED TO CALCULATE THE RELEASE LIMIT COMPLIANCE AND RMS SETPOINT CALCULATIONS ARE AS PER THE ODCM. THE DISCOVERY OF THE PROCEDURAL ERROR WAS PART OF A RECENTLY DEVELOPED PROGRAM OF INDEPENDENT PROCEDURE REVIEW BY CORPORATE PERSONNEL. CORPORATE PERSONNEL ARE CONTINUING TO INDEPENDENTLY REVIEW PLANT PROCEDURES TO INSURE TECHNICAL ACCURACY.

THE HEALTH AND SAFETY OF THE PUBLIC WERE NOT AFFECTED.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
D. C. COOK NUCLEAR PLANT UNIT 1	0 5 0 0 0 3 1 5	8 4	— 0 1 2	— 0 0	0 2 OF 0 2

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

ON SEPTEMBER 12, 1984 WITH UNIT 1 AND UNIT 2 REACTOR COOLANT SYSTEMS IN MODE 1 AND BOTH UNITS AT 100 PERCENT REACTOR THERMAL POWER IT WAS DISCOVERED DURING A REVIEW OF A SETPOINT ADJUSTMENT FORMULA THAT INCORRECT DOSE RATE FACTORS WERE BEING CALCULATED, WHEN USING THE "SETPOINT 3" COMPUTER PROGRAM. THE "SETPOINT 3" COMPUTER PROGRAM IS USED TO CALCULATE THE DOSES AND DOSE RATES FOR BATCH GASEOUS RELEASES. THE ERROR RESULTED IN THE RADIATION MONITORING SYSTEM (RMS) SETPOINTS BEING IN NONCOMPLIANCE WITH THE OFF SITE DOSE CALCULATION MANUAL (ODCM). THE RMS ALARM SETPOINTS WERE 1.7 TIMES HIGH FOR SKIN DOSE RATE AND 2.0 TIMES HIGH FOR THE TOTAL BODY DOSE RATE. A RANDOM SAMPLE OF 25 PERCENT OF THE 1983 GASEOUS WASTE RELEASES WERE RECALCULATED USING THE CORRECT DOSE RATE FACTORS AND NONE OF THE NEW DOSE RATES EXCEEDED THE TECHNCIAL SPECIFICATION LIMIT OF 500 mREM/YR TO THE TOTAL BODY 3000 mREM/YR TO THE SKIN OR 1500 mREM/YR TO ANY ORGAN. ALL RE-CALCULATED DOSE RATES WERE A SMALL FRACTION OF THE TECHNICAL SPECIFICATION LIMITS.

THE ERROR WAS CAUSED WHEN THE GASEOUS WASTE RELEASES DOSE RATES WERE BEING CALCULATED BASED ON THE EFFLUENT DOSE CALCULATION OPTION TO THE "SETPOINT 3" COMPUTER PROGRAM. THE SETPOINT OPTION WAS NOT BEING USED AND THEREFORE, THE DOSE RATES DEVELOPED ON THE EFFLUENT DOSE CALCULATION WERE UTILIZED. THE ODCM REQUIRES DOSE RATES TO BE DEVELOPED FOR THE TOTAL BODY, SKIN AND ANY ORGAN, THE EFFLUENT DOSE CALCULATION DOES NOT PROVIDE THESE CALCULATIONS. THE EFFLUENT DOSE CALCULATION OPTION DEVELOPED DOSES FOR AIR GAMMA, AIR BETA AND PARTICULATES/ IODINES WITH HALF LIVES GREATER THAN EIGHT DAYS. THE DOSE RATES DEVELOPED IN THIS OPTION WERE DERIVED AS FOLLOWS:

$$\frac{\text{TOTAL DOSE mREMS}}{\text{DURATION OF RELEASE HRS.}} \times \frac{\text{8760 HRS.}}{\text{YEAR}} = \text{mREM/YR}$$

THE PROCEDURE INCORRECTLY IDENTIFIED THE ABOVE DOSE RATES AS WHOLE BODY AND SKIN IN THE CASES OF AIR GAMMA AND AIR BETA, WHICH GAVE THE IMPRESSION THE DOSE RATES WERE BEING CALCULATED AS PER THE ODCM.

AS CORRECTIVE ACTION THE GASEOUS WASTE RELEASES PROCEDURE WAS CHANGED SO THAT THE DOSE RATES USED TO CALCULATE THE RELEASE LIMIT COMPLIANCE AND RMS ALARM SETPOINTS CALCULATIONS ARE PER THE ODCM.

THE DISCOVERY OF THE ERROR WAS PART OF A RECENTLY DEVELOPED PROGRAM OF INDEPENDENT PROCEDURE REVIEW BY CORPORATE PERSONNEL. CORPORATE PERSONNEL ARE CONTINUING TO INDEPENDENTLY REVIEW PLANT PROCEDURES TO INSURE TECHNICAL ACCURACY.

THE HEALTH AND SAFETY OF THE PUBLIC WERE NOT AFFECTED.