

UNION ELECTRIC COMPANY
CALLAWAY PLANT
POST OFFICE BOX 620
FULTON, MO. 65251

LICENSE: NPF-30

Technical Specification 6.9.1.5
End of Year Report 1993

WORK & JOB FUNCTION	# PERSONNEL (> 100 MREM)			TOTAL MAN-REM		
	STATION	UTILITY	CONTRCT	STATION	UTILITY	CONTRCT
REACTOR OPERATIONS & SURVEILLANCE						
MAINTENANCE & CONSTRUCTION	0	0	107	.371	.000	35.982
OPERATIONS	67	0	2	17.458	.135	.665
HEALTH PHYSICS & LAB	22	0	33	5.113	.000	9.551
SUPERVISORY & OFFICE STAFF	4	0	0	1.915	.034	.164
ENGINEERING STAFF	3	0	0	.947	.018	.018
ROUTINE PLANT MAINTENANCE						
MAINTENANCE & CONSTRUCTION	84	0	58	20.552	.000	18.924
OPERATIONS	4	0	0	1.794	.001	.022
HEALTH PHYSICS & LAB	0	0	0	.368	.000	.225
SUPERVISORY & OFFICE STAFF	2	1	0	.643	.312	.037
ENGINEERING STAFF	3	0	1	.682	.000	.349
INSERVICE INSPECTION						
MAINTENANCE & CONSTRUCTION	0	0	81	.523	.000	38.503
OPERATIONS	6	0	1	1.307	.000	.337
HEALTH PHYSICS & LAB	1	0	14	.508	.000	2.993
SUPERVISORY & OFFICE STAFF	1	0	0	.205	.000	.000
ENGINEERING STAFF	8	0	5	2.044	.020	2.896
SPECIAL PLANT MAINTENANCE						
MAINTENANCE & CONSTRUCTION	4	0	60	.831	.000	22.113
OPERATIONS	0	0	1	.014	.000	.117
HEALTH PHYSICS & LAB	0	0	0	.007	.000	.043
SUPERVISORY & OFFICE STAFF	1	1	0	.203	.203	.000
ENGINEERING STAFF	1	0	10	.344	.000	6.426
WASTE PROCESSING						
MAINTENANCE & CONSTRUCTION	0	0	0	.006	.000	.094
OPERATIONS	14	0	0	5.630	.000	.113
HEALTH PHYSICS & LAB	3	0	0	.946	.000	.322
SUPERVISORY & OFFICE STAFF	1	0	0	.407	.000	.000
ENGINEERING STAFF	0	0	0	.000	.000	.000
REFUELING						
MAINTENANCE & CONSTRUCTION	3	0	25	1.378	.000	11.863
OPERATIONS	4	1	0	1.088	.154	.000
HEALTH PHYSICS & LAB	0	0	18	.064	.000	4.973
SUPERVISORY & OFFICE STAFF	0	0	0	.059	.035	.000
ENGINEERING STAFF	1	0	1	.483	.000	.303
TOTALS						
MAINTENANCE & CONSTRUCTION	91	0	331	23.661	.000	127.479
OPERATIONS	95	1	4	27.291	.290	1.254
HEALTH PHYSICS & LAB	26	0	65	7.006	.000	18.107
SUPERVISORY & OFFICE STAFF	9	2	0	3.432	.584	.201
ENGINEERING STAFF	16	0	17	5.000	.038	9.992
GRAND TOTALS	237	3	417	66.390	.912	157.033

TOTAL = 224.335

REACTOR COOLANT SPECIFIC ACTIVITY IN
EXCESS OF TECHNICAL SPECIFICATION 3.4.8 LIMITATION

This report is submitted in accordance with Technical Specification (T/S) 6.9.1.5 which requires submission of detailed information when the specific activity of the Reactor Coolant System (RCS) exceeds 1.0 microCurie per gram ($\mu\text{Ci/gm}$) dose equivalent I-131.

On 10/1/93 at 0235 CDT the dose equivalent I-131 of the RCS was sampled and found to be 1.12 $\mu\text{Ci/gm}$. The value during normal operation for the past two months had been approximately 0.28 $\mu\text{Ci/gm}$. This increase in activity followed a normal shutdown of the reactor for refueling. The high dose equivalent I-131 level was caused by fuel cladding defects. Licensed operators entered the applicable action statement as follows:

"With the specific activity of the reactor coolant greater than 1.0 microCurie per gram DOSE EQUIVALENT I-131 or greater than 100/E microCuries per gram of gross radioactivity, perform the sampling and analysis requirements of Item 4.a) of table 4.4-4 until the specific activity of the reactor coolant is restored to within its limits. . ."

Appropriate sampling and analysis requirements were performed until 0451 CDT on 10/1/93, at which time the RCS specific activity was restored within limits.

The following information is provided per T/S 6.9.1.5 requirements:

a. Reactor power history:

At 0000 CDT on 9/29/93 reactor power was 79%. At 1700 on 9/30/93 reactor power was decreased 10% an hour. At 2300 reactor power was held at 20% until the reactor was shutdown at 0150 on 10/1/93.

Power remained at 0% for the duration of the time that the dose equivalent I-131 (DEI-131) limit was exceeded.

b. Isotopic analysis:

Date	Time	DEI-131 ($\mu\text{Ci/gm}$)	I-131 ($\mu\text{Ci/gm}$)	I-132 ($\mu\text{Ci/gm}$)	I-133 ($\mu\text{Ci/gm}$)	I-134 ($\mu\text{Ci/gm}$)	I-135 ($\mu\text{Ci/gm}$)
9/30/93	0150	.194	.053	.586	.305	.514	.041
10/1/93	0235	1.12	.827	.664	.837	.102	.431
10/1/93	0451	.92	.702	.462	.647	.025	.292

- c. The cleanup flow through the Chemical Volume and Control System mixed bed demineralizer was at 125 gal/min from 0235 on 9/29/93 until the reactor was shutdown. Cleanup remained at 125 gal/min while the DEI was above 1 $\mu\text{Ci/gm}$.
- d. The DEI-131 exceeded 1 $\mu\text{Ci/gm}$ for 2 hours 16 minutes from 0235 to 0451 on 10/1/93.

Also provided for your information is a time line graph comparing I-131 specific activity and I-133 specific activity.

RCS Iodine

