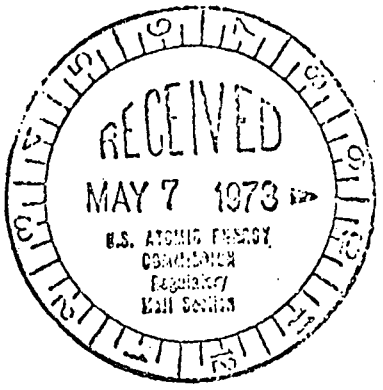
Carolina Power & Light Company

May 1, 1973



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

50-261

Dear Mr. O'Leary:

H. B. ROBINSON UNIT NO. 2
LICENSE DPR-23
REFUELING WATER STORAGE TANK
SPILL TO THE PLANT DRAINAGE SYSTEM

In accordance with paragraph 6.6.2.D, Technical Specifications, it is reported that on April 23, 1973, with the reactor in a refueling shutdown condition, a spill of water from the Refueling Water Storage Tank (RWST) to the plant storm drainage system occurred.

Following core reload, the lower levels of the containment refueling cavity were being drained to the Reactor Coolant Drain Tank and then pumped to the RWST. At approximately 1530, the level in the RWST as indicated on the RTCB was 98%. The cavity was being drained at approximately 35 gpm. Draining continued until, at 2300, it was discovered that the RWST was overflowing to the plant drainage system. The cavity draining was immediately stopped, and transfer of the water from the RWST to the Spent Fuel Pit was begun. Overflow of the RWST immediately diminished, and by 0013, April 24, all flow to the storm drainage system had ceased.

It is estimated that the RWST filled to overflow level at 1845. Assuming that all water pumped from this time until the pump was stopped flowed to the drain, this would amount to approximately 8,925 gallons. The water which was released flowed to the storm drain and subsequently into Black Creek below the Robinson impoundment dam.

A sample was collected from the RWST and analyzed by gamma spectrometry for total activity and isotopic identification. Since the water was released from the RWST overflow line, the activity in this sample is identical to that which was released. Concentrations of specific radionuclides from this sample are shown in the attached table. Based on the total release of 8,925 gallons of water, 379.29 millicuries of radioactivity, excluding tritium, were released to the drainage ditch and subsequently to Black Creek. At the time of the release there was a flow

of 680 gpm in the drainage ditch and a flow of 260 CFS in Black Creek resulting in concentrations in these streams averaged over 24 hours as shown in the table.

This release resulted in a concentration, averaged over 24 hours, of 180% of MPC values shown in 10CFR20 in the drainage ditch and 1% of these values in Black Creek. Due to the dilution flow in Black Creek at the time of the release no adverse environmental effects would result. An automatic water sampler was in operation on Black Creek downstream of where the drainage ditch enters during the entire period of the release. Gross beta and gamma spectrum analyses of this sample showed no detectable radioactivity which verifies that no adverse environmental effects would result from the release.

Since Technical Specification limits for liquid discharge are based on equilibrium values of radionuclides which are released to the lake, a comparison of this release (to the stream below the impoundment) to those limits has no meaning. This release does represent, however, 77.5% of the total liquid activity released to the environment during 1973.

This incident is not reportable under 10CFR20 because the 24-hour average concentration in the drainage ditch did not exceed 10 times the MPC values and because the 8-hour average (reference Tech. Spec. Section 3.9.1.2) did not exceed 10 times the permitted values of Technical Specifications and Bases.

To prevent recurrence of this incident, the following corrective measures have been or will be initiated:

1. Plant management will review methods to prevent recurrence of these type incidents.

2. All operators have been cautioned to exercise extreme caution when transferring radioactive liquids.

3. Normal water level in the Refueling Water Storage Tank will be maintained at 92% instead of the previous level of 98%.

4. A high level alarm will be installed to annunciate on the RTGB should the refueling water storage tank level reach 95%.

5. A modification to route the overflow from the RWST to the plant liquid waste system has been under investigation and will be pursued further.

The Plant Nuclear Safety Committee reviewed this incident on April 24, 1973, and it was reported to Mr. Herb Whitener of DRO by telephone and to Mr. Norman C. Mosely of the same office by telegraph on the same date. The South Carolina State Board of Health has also been informed of the incident.

Very truly yours,

E. E. Utley
Vice-President
Bulk Power Supply

DBW/za

Attachment

cc: Mr. C. D. Barham
Mr. N. B. Bessac
Mr. B. J. Furr
Mr. D. V. Mencer

ISOTOPE	RWST SAMPLE ANALYSIS	MPC 10 CFR 20	CONCENTRATION IN DRAINAGE DITCH (1)	MPCF	CONCENTRATION IN BLACK CREEK (2)	MPCF	MILLICURIES RELEASED (3)
Co-57	2.23×10^{-5}	4×10^{-4}	2.02×10^{-7}	0.0005	1.18×10^{-9}	.000003	0.75
Cr-51	1.37×10^{-3}	2×10^{-3}	1.25×10^{-5}	0.00625	7.28×10^{-8}	.000036	46.28
Co-58	6.69×10^{-3}	9×10^{-5}	6.09×10^{-5}	0.677	3.55×10^{-7}	.003944	255.99
Cs-134	2.98×10^{-4}	9×10^{-6}	2.71×10^{-6}	0.301	1.58×10^{-8}	.001756	10.07
Cs-137	3.53×10^{-4}	2×10^{-5}	3.21×10^{-6}	0.1605	1.87×10^{-8}	.000935	11.92
Nb-95	1.03×10^{-4}	1×10^{-4}	9.38×10^{-7}	0.0094	5.47×10^{-9}	.000055	3.48
Mn-54	3.82×10^{-4}	1×10^{-4}	3.48×10^{-6}	0.0348	2.03×10^{-8}	.000203	12.90
Co-60	2.01×10^{-3}	3×10^{-5}	1.83×10^{-5}	0.610	1.07×10^{-7}	.00356	67.90
		TOTALS		1.804		.0105	379.29
H-3	9.89×10^{-3}	3×10^{-3}	9.0×10^{-4}	0.30	5×10^{-7}	.0002	334.0

(1) Based on a 24 hour average and a flow in the ditch of 680 gpm

(2) Based on a 24 hour average and a flow in Black Creek of 260 ft^3/sec

(3) Based on a release of 8925 gallons.