Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

March 23, 1973

Mr. John F. O'Leary, Director
Directorate of Licensing
US Atomic Energy Commission
Washington, DC 20545

Re: Docket No 50-155
License No DPR-6

Dear Mr. O'Leary:

This letter is written to inform you of the results of our investigation concerning the Big Rock Point Plant's emergency condenser tube bundle leak and is referenced to the submittal on the same subject dated January 16, 1973.

We detected a minor leak (via emergency condenser radiation vent monitor) from the primary coolant side into the emergency condenser secondary (shell side) during plant start-up at approximately 850 psig on December 15, 1972. As the reactor pressure was increased to normal operating pressure of 1340 psig, the emergency condenser stack vent monitors decreased to their normal background level and remained there throughout power operation. No primary system leakage was detected during normal system power operation.

A hydrostatic test was conducted during the refueling outage on the tube side at 1685 psig. A slight weepage on the return water box Flexitallic gasket of the south tube bundle was detected. The weepage amounted to only a slight wetting of the gasket material and occurred in the 12:00 to 3:00 quadrant, facing east to west. The return water box studs were tightened one and one half flats and a rehydro of the south tube bundle was successful. The north tube bundle was also hydroed with no leakage detected.

Following is a summary of the radiological consequence of the occurrence:

The maximum direct radiation measurement in contact with the emergency condenser vent, as recorded by the radiation vent monitor and verified with a calibrated radgun, was 30 mR/h. First increase above background was at 2000 hours on December 16 and continued through 1600 hours on December 17, a period of 20 hours.

In order to estimate the release, a direct radiation measurement was made at the off-gas line using the same calibrated radgun. This reading corresponded to a stack release rate (following 16-minute holdup) of 20,000 µCi/second.

The delay time between the reactor and off-gas line is approximately the same as to the condenser vent ($\approx$ 2 minutes). Therefore, the detector energy efficiency is the same. Due to different geometry (3" diameter off-gas line vs 14" diameter vent), it is conservatively assumed that the geometric efficiency was a factor of four (4) less at the vent. (A factor of 1.5 is more realistic.)

Based on the above assumptions, the maximum vent release rate, corresponding to 30 mR/h, for an equilibrium nuclide mixture with two (2)-minute decay was 700 µCi/second. From the vent monitor strip chart, the weighted average reading was determined to be 6.8 mR/h over the 20-hour period. Thus, the calculated maximum total release via the emergency condenser vent was 11.2 Ci. This would correspond to a site boundary radiation dose of 0.014 mRem.

Since no smearable contamination existed in the vent, it is assumed the release consisted only of noble gas and no internal or thyroid dose could have occurred.

Yours very truly,

Gerald J. Walker

Gerald J. Walker
Nuclear Fuels Administrator

GJW/map

CC: BHGrier,
USAEC

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TO:	ORIG	CC	OTHER	SENT AEC PDR	X
John F. O'Leary	1 SIGNED	39		SENT LOCAL PDR	X

CLASS: (U) PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
		40	50-155

DESCRIPTION:
Ltr re their 1-16-73 submittal....furnishing results of investigation on emergency condenser tube bundle leak.....

ENCLOSURES:

ACKNOWLEDGED DO NOT REMOVE

PLANT NAMES: Big Rock

FOR ACTION/INFORMATION 3-26-73 fod

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