

# SAXTON NUCLEAR EXPERIMENTAL CORPORATION

## GENERAL PUBLIC UTILITIES SYSTEM

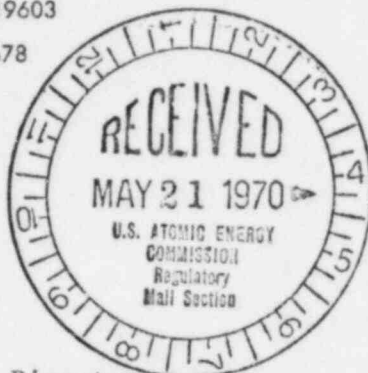
JERSEY CENTRAL POWER & LIGHT COMPANY  
NEW JERSEY POWER & LIGHT COMPANY  
PENNSYLVANIA ELECTRIC COMPANY  
METROPOLITAN EDISON COMPANY

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Saxton, Pa.  
May 18, 1970

DOCKET NO. 50-146

Dr. P. A. Morris, Director  
Division of Reactor Licensing  
U.S. Atomic Energy Commission  
Washington, D.C. 20545

Dear Dr. Morris:

In accordance with Paragraph 3.E.(1)(b) of License DPR-4, Saxton herewith reports the accidental release of a small quantity of radioactive gases. This occurrence was reported, by telephone, to Mr. Robert McDermott, Region I, Division of Compliance on May 15, 1970.

An accidental release of radioactive gases occurred on May 14, 1970, while venting gases from the primary coolant system to the gas compressor system following a scheduled shutdown of the reactor. This release occurred as a result of rupture of a diaphragm in a gas compressor vacuum regulating valve. The rupture allowed radioactive gases to escape into the RWDF gas compressor room where they were picked up by the RWDF ventilation system and exhausted via the plant stack.

The events leading up to this release are as follows. In preparation for the scheduled shutdown of the reactor, initial venting of gaseous activity from the low pressure surge tank to the No. 3 gas decay tank via the gas compressor system was made between 1300 hours and 1400 hours on May 14. The alignment of gas compressors for this operation had No. 2 unit running with No. 1 unit in standby. The scheduled shutdown of the reactor was initiated at 1630 hours and was completed at 1700 hours. Charging and letdown of primary coolant to the surge tank for degassing was initiated at 1630 hours, and further venting of the surge tank to the gas compressor system was again initiated at 1700 hours. At approximately 1740 hours, the control room got a high radiation alarm on the stack monitor, RIC-3. The control room immediately terminated venting of the surge tank, stopped charging and letdown and opened the calibration damper to the stack in an effort to reduce the radiation levels in the stack. The radiation levels remained high and subsequent actions, to locate the source of activity, were taken by a stepwise isolation of various pieces of equipment in the gas compressor system. The source of activity was finally traced to the

*IS/OR Staff 7/19/70*

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No. 1 gas compressor vacuum regulating valve. The diaphragm in this valve had ruptured allowing radioactive gases to escape to the compressor room where they were being picked up by the ventilating system and exhausted to the plant stack. The compressor was isolated and the activity levels in the stack were subsequently returned to normal.

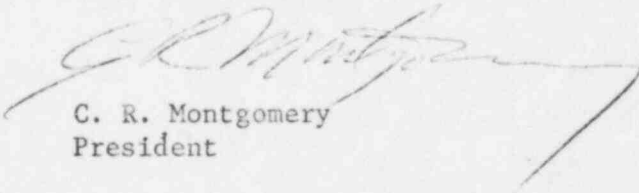
Based on a specific activity of  $14.2 \text{ uCi/cc}$  in the No. 3 gas decay tank and a release of approximately 18 cubic feet ( $5.1 \times 10^5 \text{ cc}$ ) of gas from the tank, we estimate 7.32 curies of gaseous activity were released to the environs over a 4 hour period. The activity was predominantly Xe-133, and the concentration determined by sampling the stack gas was  $1.2 \times 10^{-5} \text{ uCi/cc}$ . The Iodine associated with this release is calculated to be 41.4 uCi, with an average concentration of  $6.93 \times 10^{-11} \text{ uCi/cc}$ .

There were no personnel overexposures, but there was some exposure as a consequence of operating personnel entering the gas compressor room to isolate equipment in order to locate the source of activity. The maximum concentration of gaseous activity, to which personnel were exposed, while in the room, was  $3.3 \times 10^{-4} \text{ uCi/cc}$ . As a result of consultation with our medical-radiation consultant and as a precautionary measure, we have obtained bio-assays on all personnel involved.

In Amendment No. 5 to Change Request No. 32, we submitted calculations which established the maximum allowable activity in a gas decay tank. For a release of 7.32 curies of gaseous activity from the stack and using a value of  $2.3 \times 10^{-4} \text{ sec/m}^3$  for the short term dispersion factor and 1 Mev for E, we calculate the off-site whole body dose to be  $3.87 \times 10^{-4} \text{ rem}$ .

The above calculations confirm that this accidental release of radioactivity does not constitute a possible unsafe condition relative to the operation of the facility or to the health and safety of the public; nor does it involve an unreviewed safety question. We will review the events and circumstances associated with this release and take the necessary action to prevent a recurrence.

Very truly yours,



C. R. Montgomery  
President

cc: G. F. Trowbridge  
R. W. Kirkman