



**Commonwealth Edison**

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December 30, 1983

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2  
Braidwood Generating Station Units 1 and 2  
System Leakage Monitoring  
NRC Docket Nos. 50-454, 50-455, 50-456 and 50-457

Dear Mr. Denton:

This is to provide additional information regarding the monitoring of leakage from systems outside of the containment which could be used to transport highly radioactive fluid and gases in a post-accident condition. NRC review of this information should close Confirmatory Issue 28 (a) of the Byron SER.

Enclosed are revised FSAR pages describing the leakage monitoring programs which satisfy the concern identified in NUREG 0737, Item III.D.1.1. These programs will assure that radioactive releases in a post-accident situation are minimized.

The initial system leak monitoring data will be taken after fuel load, during the startup testing. A report of this monitoring will be provided to the NRC after attaining 100% power. Leakage rates observed during this period provide a better baseline than those taken prior to fuel loading. Leak rates observed during peroperational testing are not necessarily representative of operating leak rates because of continuing adjustments to valve packing and seals, valve seat lapping, and the opening and closing of various mechanical joints. Implementation of the program described above will assure that initial leak monitoring will accurately indicate leak rates under actual operating conditions.

Please address questions regarding this matter to this office.

One signed original and fifteen copies of this letter are provided for NRC review.

Very truly yours,

T. R. Tamm

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#### E.77 Primary Coolant Sources Outside Containment (III.D.1.1)

The following program has been developed to monitor leakage from systems outside containment which could be used to transport highly radioactive fluids and gases in a post-accident condition.

The following is a list of systems outside of containment, of which portions would, or could, contain highly radioactive fluids and gases in a post-accident condition.

Systems: Chemical and Volume Control (CV)  
Containment Spray (CS)  
Radioactive Waste Gas (GW)  
Hydrogen Recombiners (VQ)  
Residual Heat Removal (RH)  
Safety Injection (SI)

Integrated leak tests will be performed on each system, or portions of systems, which could potentially contain highly radioactive fluids or gases. Station surveillances and procedures will be used to:

- a) Monitor the leak testing of piping, so that the appropriate lines are examined at the required intervals.
- b) Direct leak test examinations such that systems are tested at approximately operating pressures or higher.
- c) Align systems such that all piping tested is properly pressurized.
- d) Identify lines which contain gases that require pressure decay, and/or metered make-up testing.
- e) Quantify results of leakage examinations.
- f) Initiate corrective action.

Leakage observed during the performance of in-service tests will be documented and a work request generated to repair excessive leakage. Work requests of this type will be assigned a high priority and designated as an ALARA concern to initiate a review for possible modification to reduce leakage in the future.

In addition to this program, all class 1, 2 and 3 systems will be leak tested at prescribed intervals, in accordance with the requirements of the 1980 Edition, with Addenda through the winter of 1981, of Section XI of the ASME Boiler and Pressure Vessel Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," as described by Byron Station's "Inservice Inspection and Testing Program Plan."

Further, the piping and components which make up containment penetrations are tested every outage as part of the 10CFR50, Appendix J leakage testing program for Type A and Type B testing. Type C testing is in accordance with the Technical Specifications.

Prior to fuel load all systems or portions of systems, constructed in accordance with ASME Section III are hydrostatically tested to 125% of the design system pressure. In the case of gaseous systems, a pneumatic type pressure decay test at 125% of design system pressure, is performed. All systems in this program are tested prior to initial plant startup via the Pre-Operational Test Program. During these tests, system walkdowns are conducted by the System Test Engineer and deficiencies are generated for leaking and defective components. In addition to the individual system tests, integrated type tests such as Integrated Hot functional (IHF) and Emergency Core Cooling (ECCS) Full Flow Tests are conducted. During these integrated tests, additional system walkdowns are conducted for vibrational testing and inspection of piping thermal expansion. Deficiencies are generated during these walkdowns also.

After each unit reaches full power, Edison will submit to the NRC staff a report of all recorded leakage and all preventive maintenance performed as the direct result of the evaluation of this leakage. The report will also identify general leakage criteria to be applied during the first fuel cycle as the basis for instituting corrective action in the form of preventive maintenance. Prior to the start of the second fuel cycle, the applicant will revise the general criteria to the extent necessary based on the experience gained during the first operating cycle. These revised criteria will be used as the basis for the long term leakage monitoring program.