



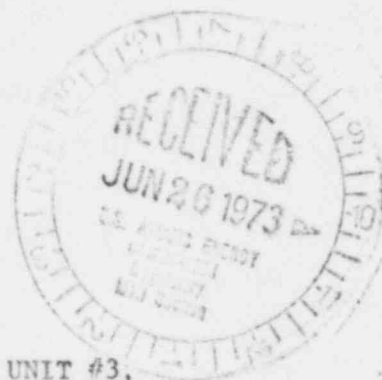
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WPW Ltr.#468-73

Dresden Nuclear Power Station  
R. R. #1  
Morris, Illinois 60450  
June 20, 1973

Mr. A. Giambusso  
Deputy Director for Reactor Projects  
Directorate of Licensing  
U. S. Atomic Energy Commission  
Washington, D. C. 20545



SUBJECT: LICENSE DPR-25, DRESDEN NUCLEAR POWER STATION, UNIT #3,  
SECTION 6.6.C.1 OF THE TECHNICAL SPECIFICATIONS.

Dear Mr. Giambusso:

This letter reports a condition relating to the unit, in which local leak rate testing of the primary containment revealed seven containment penetrations with leakage in excess of Technical Specifications limits.

INVESTIGATION AND CORRECTIVE ACTION

The unit was shutdown for a maintenance outage from March 3, 1973 to May 26, 1973. During that period, primary containment local leak rate tests were performed in accordance with Technical Specifications Section 4.7.A.2.e. The tests revealed that four feedwater check valves, two main steam isolation valves, one reactor head cooling check valve and the personnel air lock had leak rates in excess of Technical Specifications Section 4.7.A.f. The Technical Specifications local leak rate limits are 5%  $L_{to}$  (48) or 29.3 standard cubic feet per hour (scfh) for any one penetration or isolation valve and 11.5 scfh at 25 psig for any one main steam isolation valve.

A) Feedwater Check Valves Reference (P&ID M-347)

Initial testing of the feedwater check valves revealed the following leak rates:

<u>Valve No.</u>	<u>Leak Rate (scfh)</u>
220-62A	1941.5
220-58A	4295.0
220-62B	3136.6
220-58B	144.7

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All four valves were disassembled and repaired by machining the valve seating surfaces. The seat ring and disc were replaced on valve 220-62B because machining did not remove all the irregularities in its seating surfaces. These check valves have two seating areas: one consists of the valve disc and seat ring and the other is a seat ring to valve body seal. The majority of the leakage through the valves was determined to be via the seat ring to valve body seal. Because of similar problems with the Unit 2 feedwater check valves, a modification was performed on these valves whereby the stainless steel body to seat seal ring was replaced with a "Silastic" silicone rubber "O"ring. The stainless steel seal ring requires a large differential pressure across the check valve in order to provide a tight seal. Changing to the silicone rubber "O"ring produced a much better seal even at the low leak test pressure of 48 psig. Following the extensive repairs outlined above, the valves were reinstalled and retested satisfactorily. The leak rates exhibited after repair of the valves were as follows:

<u>Valve No.</u>	<u>Leak Rate (scfh)</u>
220-62A	0.0
220-58A	20.0
220-62B	11.0
220-58B	6.1

As previously mentioned, these valves are designed to seal under a high differential pressure condition. Under operating conditions, the valves would experience this high differential in conjunction with a water seal on the valve seating surfaces thereby reducing leakage through the valves.

B) Main Steam Isolation Valves (Reference P&ID M-345)

The initial leak test of MSIV 203-2C revealed a leakage through the valve of 49.0 scfh. The valve was disassembled and its seating surfaces refinished under the supervision of the valve manufacturer's technical representative. After repair of the valve, a subsequent leak test showed the combined leakage through MSIV 203-2C and MSIV 203-1C to be only 1.6 scfh. Valve 203-1C is located in the same steam line as 203-2C and is between the reactor vessel and MSIV 203-2C. Therefore, MSIV 203-1C would be the limiting leak rate in an accident situation and leakage through this valve was well within Technical Specifications limits.

Main Steam Isolation Valve 203-2B exhibited an initial leak rate of 29.224 scfh. This valve was repaired in the same manner as MSIV 203-2C and retested. The retest showed the combined leakage through MSIV 203-2B and MSIV 203-1B to be 4.847 scfh. Leakage through MSIV 203-1B would be the limiting leak rate for the "B" steam line in an accident situation.

C) Reactor Head Cooling Check Valve 205-2-7 (Reference P&ID M-357)

The initial leak test of reactor head cooling check valve 205-2-7 showed a leak rate of 254.8 scfh. The valve was disassembled and repaired by lapping the disc. The valve was then reassembled and retested. The leak rate for valve 205-2-7 after repair was only 0.3 scfh.

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As with all check valves, the reactor head cooling check valve is designed to seal under a high differential pressure condition. Also, motor operated valve 205-2-4 which is immediately downstream of the check valve exhibited no measurable leakage.

D) Personnel Air Lock

The initial leakage from the personnel air lock of 52.7 scfh was determined to be via the handwheel shaft seals. After tightening the seal packing glands, the lock was retested and showed no measurable leakage. The packing in the air lock handwheel shaft seals will be replaced during the next unit shutdown. In addition, a surveillance routine will be established to renew the packing in these seals each operating cycle so as to prevent a recurrence of this problem.

Sincerely,

*Fred S. Worden*  
for W. P. Worden  
Superintendent

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UNIT 3 PRIMARY CONTAINMENT PENETRATIONS

EXHIBITING EXCESSIVE LEAKAGE

<u>PENETRATION</u>	<u>INITIAL LEAKAGE (scfh)</u>	<u>REPAIR</u>	<u>LEAKAGE AFTER REPAIR (scfm)</u>
Personnel Air Lock	52.771	Tightened Stem Seals	0.0
Main Steam Valve 203-2C	49.001	Lapped Seat	1.615
Reactor Head Cooling Valve 205-2-7	254.810	Lapped Disc	0.256
Feedwater Valve 220-62A	1941.550	Machined Seat & Disc	0.0
Feedwater Valve 220-62B	3136.600	Replaced Seat & Disc	10.999
Feedwater Valve 220-58A	4295.700	Machined Seat & Disc	20.0
Feedwater Valve 220-58B	144.700	Machined Seat & Disc	6.057
Main Steam Valve 203-2B	29.224	Lapped Seat	4.847

- 1) Leak rate limit for any one penetration or isolation valve is 5%  $L_{to}$  (48) or 29.3 scfh.
- 2) Leak rate limit for MSIV's is 11.5 scfh @ 25 psig for one valve.
- 3) All four feedwater check valves were modified by replacing stainless steel seat to body seal ring with "silastic" silicone rubber "O"ring.