



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

November 7, 1990

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: Dresden Station Units 2 and 3
Quad Cities Station Units 1 and 2
Supplemental Response to NRC Generic Letter 88-14
NRC Docket Nos. 50-237/249, 50-254/265

References: (a) NRC Generic Letter 88-14, dated August 8, 1988.
(b) M. Richter letter to U.S. NRC, dated February 6, 1989.

Dear Sir:

Reference (a) requested that all holders of operating licenses or construction permits for nuclear power reactors review NUREG-1275, Volume 2, and perform a design and operations verification of the instrument air system. Reference (b), which presented Commonwealth Edison Company's (CECo) initial response to Reference (a), indicated that a supplemental response would provide the results of the design verification for Dresden and Quad Cities Stations. This letter presents that response.

As indicated in Reference (a), CECo determined that the design verification should address the following:

- identify safety-related systems and equipment which use instrument air and/or nitrogen,
- review the manufacturer's air quality recommendations for the safety-related equipment identified,
- evaluate the design basis and failure modes, of the identified safety-related equipment, for technical adequacy,
- review past and present testing (i.e., pre-operational, startup, inservice testing program, surveillances, etc.) to ensure proper performance of safety-related equipment upon loss of air,
- evaluate accumulator sizing to assure safety-related equipment will operate as designed,
- review safety-related air accumulator check valve applications and tests verifying design adequacy,
- review air quality requirements (FSAR, Regulatory Guides, vendor input),
- review the instrument air anomalies listed in NUREG-1275, Volume 2 for applicability,
- assess the potential for common mode failures (i.e., due to poor air quality),

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- assess the failure of non-safety related or reliability related systems on the performance of safety-related equipment using instrument air, and
- review the Braidwood Station loss of instrument air event for applicability.

CECo was assisted in the design verification by the original design architect engineer for Dresden and Quad Cities Stations. The actions taken in addressing the objectives of the design verification are summarized below.

- Safety-related systems and equipment which use instrument air and/or nitrogen were identified.
- The failure modes of safety-related equipment were evaluated for technical adequacy to the design basis. Current air-operated safety-related component failure positions were verified to be correct for assuring required safety functions.
- The Inservice Testing (IST) Program and various operational surveillances were reviewed and evaluated to ensure safety-related equipment will perform as expected upon loss of air. Based on tests reviewed, no equipment performance concerns were identified except as noted below.
- All safety-related air-operated valves with accumulators were identified, and those accumulators were verified to be adequately sized to permit valve operation. No improperly sized accumulators were found. Additionally, safety-related air accumulator check valve design applications on vendor drawings were reviewed and determined to be correct. Seating material selection for check valve application was also verified.

During the performance of the design verification, surveillance testing at Quad Cities Station revealed twelve improperly applied accumulator check valves on Pressure Suppression System air operated valves. The specifics of this event were documented in LER 89-008 for Quad Cities Station. It was determined that this situation did not exist at Dresden Station.

Based on the design review, Dresden Station will begin implementing accumulator leak check tests (which will also perform fail safe testing) for the two Standby Gas Treatment System flow control valves at Dresden Station during scheduled surveillance testing of the charcoal and HEPA filters of the Standby Gas Treatment System in June 1991.

- The Dresden and Quad Cities FSARs did not specify specific instrument air quality requirements, but rather general requirements such as 'clean, dry, compressed air' and 'high quality air to prevent clogging of precision air openings'. Manufacturer specifications and vendor manuals were reviewed for air quality requirements. No requirements were found which conflict with the Dresden or Quad Cities FSAR. Manufacturers were also contacted to obtain air quality recommendations for safety-related components they supplied to the stations. Those that responded reiterated a "general" requirement of clean, dry, oil-free air.
- Potential common mode failures, such as those described in NUREG 1275 (Volume 2), were evaluated for applicability to Dresden and Quad Cities Stations. The failure of safety-related valves due to poor air quality was investigated. The potential for such a failure does exist, but is not likely to occur, because the instrument air is dried and filtered at each station. The station instrument air quality monitoring program (which was implemented in 1989 as indicated in Reference (b)) and the preventative maintenance program ensure that consistently high quality instrument air is supplied.
- The potential for failures in non-safety related or reliability-related systems to affect the performance of safety-related equipment using instrument air was reviewed. The postulated worst case scenario would be one that will cause a total loss of instrument air due to a failure of a non-safety related or reliability-related system. Total loss of instrument air would cause a forced power reduction or plant shutdown, but all safety-related instrument air users would perform as designed.
- The cases of instrument air anomalies described in NUREG 1275 (Volume 2) were reviewed for applicability to Dresden and Quad Cities Stations. No design safety deficiencies were discovered which required the initiation of corrective actions.
- The dual unit shutdown at Braidwood Station on November 15, 1988 was reviewed for applicability to Dresden and Quad Cities Stations. The Dresden and Quad Cities instrument air systems are designated specifically for each unit. The air systems at Dresden and Quad Cities do not normally operate cross-connected to both units as at Braidwood Station. This dedicated configuration isolates events occurring in one unit's air system from affecting another unit. Dresden and Quad Cities both have the capability to operate cross-connected to both units but do so only on those seldom occasions when one air compressor becomes unavailable and there is an unusually high sudden demand on the instrument air system.

It should be noted that the design verification was performed in 1989, however, it was subsequently determined that additional line walkdowns were necessary to obtain additional data on air line supports. These walkdowns were completed in 1990, and the results of these walkdowns are being evaluated by CECO to determine if any routing or support enhancements should be implemented.

As indicated in Reference (b), an instrument air quality monitoring program was implemented on a quarterly basis at Dresden and Quad Cities Stations. This program was found to be effective in monitoring and maintaining air quality. It was determined that this program should be continued on a quarterly basis.

This correspondence completes the reporting requirements for Generic Letter 88-14 for Dresden and Quad Cities Stations.

Please address any questions concerning this response to this office.

Respectfully,

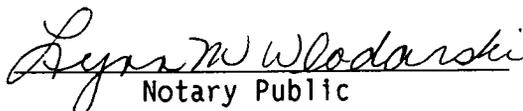


D. L. Taylor
Generic Issues Administrator

DL:lmw
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cc: A.B. Davis - Regional Administrator, RIII
L.N. Olshan - Project Manager, NRR
B.L. Siegel - Project Manager, NRR
Resident Inspector - D, QC

Subscribed and Sworn to
before me this 7 day
of November, 1990


Notary Public

