



**Commonwealth Edison**  
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*Central file  
 headquarters*

May 1, 1980

Mr. James G. Keppler, Director  
 Directorate of Inspection and  
 Enforcement - Region III  
 U.S. Nuclear Regulatory Commission  
 799 Roosevelt Road  
 Glen Ellyn, IL 60137

Subject: Dresden Station Units 1,2 and 3  
 Quad Cities Station Units 1 and 2  
 LaSalle County Station Units 1 and 2  
 Response to IE Bulleting 80-02  
 "Inadequate Quality Assurance for  
 Nuclear Supplied Equipment"  
 NRC Docket Nos. 50-10/237/249, 50-254/265  
 and 50-373/374

Reference (a): J. G. Keppler letter to C. Reed dated January  
 22, 1980

Dear Mr. Keppler:

Reference (a) transmitt. IE Bulletin 80-02 requesting a  
 response to concerns identified with BWR reactor internals feedwater  
 spargers manufactured by the Marvin Engineering Company.

Commonwealth Edison Company's responses are provided in  
 Enclosure 1 for Dresden 2/3 and Quad Cities 1/2 and Enclosure 2 for  
 LaSalle County 1/2. Dresden Unit 1 does not have spargers in the  
 reactor, and therefore this bulletin does not apply.

Please address any questions you may have concerning this  
 matter to this office.

Very truly yours,

*for* *Robert E. James*  
 D. L. Peoples  
 Director of  
 Nuclear Licensing

Enclosure

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ENCLOSURE 1

DRESDEN STATION UNITS 2 AND 3  
QUAD CITIES STATION UNITS 1 AND 2  
Response to I.E. Bulletin NO. 80-02;  
Inadequate Quality Assurance for  
Nuclear Supplied Equipment

- 1 a) General Electric, the company which has supplied the feedwater spargers for Dresden and Quad Cities was contacted to determine if any of the spargers were fabricated by Marvin Engineering Co. They informed us that Marvin Engineering was subcontracted to fabricate the new double seal/triple thermal sleeve design spargers which are to be used as part of the "final fix" solution to the generic nozzle cracking problem occurring on BWR plants. These were purchased for Dresden Units 2 & 3 and Quad Cities Units 1 & 2. Quad Cities 2 is the only unit with these spargers installed.
- 1 b) The attached table contains the information requested concerning the purchase order dates for the spargers bought from Marvin Engineering.

The basic requirements of the feedwater spargers is to distribute the feedwater uniformly within the reactor so that it will form a homogeneous mixture with the reactor recirculating coolant water. The feedwater is injected through spargers which form a ring, made up of four segments. The sparger is situated, in elevation, below the steam separator discharge. The High Pressure Coolant Injection flow also enters the vessel through two of the feedwater spargers.

The feedwater system delivers feedwater at temperatures ranging from a low of 40<sup>0</sup>F to temperatures varying between plants from 300<sup>0</sup> to 420<sup>0</sup>F at rated boiler flow conditions. The sparger pressure drop has been limited to 25 psi maximum at 105 percent of rated feedwater flow. With this pressure drop the required uniformity of flow can be achieved while limiting the pump power to a practical minimum.

- 2) Since none of the spargers previously used or in use now were supplied by Marvin Engineering and since Quad Cities Unit 2 has not yet been operated with the new spargers, no operational history for Marvin Engineering fabricated spargers exists.
- 3 a) A review of the Quality Assurance Programs implemented provided the following:

Even though the spargers are non safety related, design and

procurement activities for the feedwater spargers utilized the same procedures and controls that would have been applied to a safety essential component. General Electric implements ANSI N45.2 and 10CFR50 Appendix B requirements which are applicable to engineering activities (Design Control, Procurements Document Control, Document Control, and Nonconforming Items) through the use of controlled Engineering Operating Procedures. Under these procedures, deviations in procured equipment are processed on a Deviation Disposition Request (DDR) form. According to procedure the GE resident QC Representative signs each DDR to validate the accuracy of the non-conformance description. The responsible Design Engineer evaluates the disposition and provides a statement of justification or of traceability to the design record files. These design record files are controlled and auditable in San Jose. The GE QC Engineer signs each DDR to signify that quality aspects of the disposition are acceptable.

To implement the requirements as requested by Commonwealth Edison for a quality product, General Electric imposed Quality Assurance Requirements II and Supplements 28, 29 and 30, from the GE QA Program, on Marvin Engineering Company and applied Marvin Engineering Company Quality Control Manual No. 7, Revision 0 to these jobs by purchase orders listed on the attached table from GE to Marvin Engineering Company. Marvin Engineering Co. Quality Assurance Manual No. 7, Revision 0 meets the requirements of ANSI N45.2 in all areas except Design, which was not an activity required by this contract. Material procurement was covered by separate purchase orders to CBI Nuclear and Marvin Engineering Company which did not impose N45.2 requirements but did specify the required material certifications.

- b) Concerns identified in I.E. Bulletin 80-02 were resolved prior to installation of the spargers at Quad Cities Unit 2. The documentation provided by G.E. for the spargers was reviewed and accepted as if the sparger was a safety related piece of equipment. The audit was conducted and the documentation package was accepted and discrepant items were resolved. The spargers were then cleared for installation.
- c) A review of the deficiencies noted in the NRC audit was conducted by Commonwealth Edison to determine the impact that they would have on the structural integrity of the spargers for Dresden and Quad Cities. Since the spargers are non-safety related this review was conducted to provide confidence in the reliability of the spargers to assure unit availability. Based on the results of our review we requested GE to evaluate the impact of specific deviations from welding procedures cited by the audit and assess their impact if they had gone undetected on the final product. It was determined in the evaluation that the structural integrity of the spargers is adequate for the service intended.

In summary, General Electric imposed an extensive (safety related type) Quality Assurance Program on a non-safety related piece of equipment, an audit was conducted of the QC-2 sparger documentation package, and an evaluation of the reliability of the spargers was performed. Based on the above it is our judgement that the spargers are adequate for the service intended.

NRC IE BULLETIN 80-02  
MARVIN ENGINEERING COMPANY  
FEEDWATER SPARGERS AND THERMAL SLEEVES

<u>UNIT</u>	<u>VENDOR</u>	<u>GE P.O. NO.</u>	<u>DATE</u>	<u>QC NO. &amp; DATE</u>	<u>REMARKS</u>
QC 1 & 2 D 2 & 3 (Multiple Project Purchase)	Marvin Eng.	205-AM050	4/9/79	LL821 - 8/27/79	Sparger Material for P.O. 205-AM190, 205-AM191, 205-AM192, 205-AM193.
				LL822 - 8/27/79	
				LL823 - 8/27/79	
				LL824 - 8/27/79	
				LL833 - 9/7/79	
				LL837 - 9/19/79	
				LL838 - 9/19/79	
				LL827 - 8/27/79	
				LL843 - 10/2/79	
				LL844 - 10/2/79	
				LL867 - 10/18/79	
				LL871 - 11/8/79	
				LL872 - 11/8/79	
				LL883 - 12/11/79	
				LL900 - 12/10/79	
				PP153 - 11/28/79	
				PP161 - 11/30/79	
PP179 - 12/20/79					
QC 1	Marvin Eng.	205-AM190	7/20/79	In Progress	Feedwater Sparger Assembly Complete
QC 2	Marvin Eng.	205-AM191	6/18/79	BB100 - 1/29/80 PP183 - 12/27/79	Feedwater Sparger Assembly Complete
D 2	Marvin Eng.	205-AM192	7/5/79	In Progress	Feedwater Sparger Assembly Complete
D 3	Marvin Eng.	205-AM193	7/5/79	In Progress	Feedwater Sparger Assembly Complete
D 3	Marvin Eng.	205-AK440	2/23/78	DD256 - 6/15/78 DD257 - 6/5/78	Pins, Stops, Bolts, Bearing Bar

ENCLOSURE 2

LaSalle County Station, Units 1 & 2  
Response to IE Bulletin 80-02 on  
Inadequate Quality Assurance for  
Nuclear Supplied Equipment

1. The LaSalle spargers and thermal sleeves were manufactured or fabricated by Marvin Engineering Company. They are installed. The Unit 1 hardware was delivered in January 1979. The Unit 2 hardware was delivered in August 1979. The design function is described in NEDE 21821A (Feb., 1980) document and included references.
2. No usage has accumulated on the LaSalle equipment yet.
3. Subsequent to delivery, each piece of hardware supplied by Marvin Engineering Company was PT examined and passed by qualified inspectors. Additionally, a records check was made on the fabrication/inspection records by GE's QA people. The resulting findings were that no unqualified welders worked on the LaSalle equipment. LSCS equipment met the approved GE QA program requirements. Results are on file at GE (San Jose); no unanswered issue remains as to the integrity of the LaSalle feedwater sparger equipment following these inspections by GE.

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