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10 CFR Part 50
Section 50.55a

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station 0-P1-17
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Request for Additional Information Regarding the Duane Arnold Energy
Center Risk Informed Inservice Inspection Program
Reference: Letter dated March 29, 2002, NG-02-0259, G. Van Middlesworth to NRC
File: A-100, A-286

By the referenced letter, Nuclear Management Company, LLC (NMC) submitted a proposed Risk Informed Inservice Inspection (RI-ISI) Program for the Duane Arnold Energy Center (DAEC). The RI-ISI Program was submitted as an alternative to existing ASME Section XI requirements for the selection and examination of Class 1 and 2 piping welds.

A draft Request for Additional Information (RAI) regarding the proposed RI-ISI Program was transmitted electronically to NMC on June 26, 2002. A draft response was provided electronically to the Staff on July 24, 2002. A follow-up question was transmitted to NMC on August 16, 2002. The NRC's questions and the DAEC's responses are provided in the attachment.

Please contact this office should you require additional information regarding this matter.

Sincerely,



Kenneth S. Putnam
Manager, Licensing

Attachment

cc: G. Park (w/a)
C. Rushworth (w/a)
M. Peifer (w/a)
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DAEC Response to NRC Request for Additional Information

NRC Question 1

In your letter dated March 29, 2002, you state that the DAEC Level 1 and 2 Probabilistic Safety Assessment (PSA) was used to evaluate the consequences of pipe ruptures in the RI-ISI assessment. What is the model name and date of the PSA version used in your RI-ISI assessment?

DAEC Response

Level 1 and Level 2 PSA models were developed as part of the Individual Plant Examination (IPE) submitted to the NRC in November 1992 in response to Generic Letter 88-20. The DAEC has maintained these PSA models to conform to plant configuration and operating procedure changes subsequent to the original development, i.e., it is a "living PSA."

The RI-ISI assessment was done using revision 4B of the DAEC PSA (which used the EPRI Risk and Reliability Workstation Suite of Codes (CAFTA)). The level 1 4B model was put into use in June of 2000. The level 2 4B model was put into use February of 2001.

NRC Question 2

Will DAEC's RI-ISI program be updated every 10 years and submitted to the NRC consistent with the current ASME Code, Section XI, requirements?

DAEC Response

The ISI program will be updated and submitted to the NRC consistent with regulatory requirements in effect at the time such update is required (currently every 10 years). This may again take the form of a relief request to implement an updated RI-ISI program depending on future regulatory requirements.

NRC Question 3

Under what conditions would DAEC's RI-ISI program be resubmitted to the NRC before the end of any 10-year interval?

DAEC Response

The RI-ISI program will be resubmitted to the NRC prior to the end of any 10-year interval if there is some deviation from the RI-ISI methodology described in the initial submittal or if industry experience determines that there is a need for significant revision to the program as described in the original submittal for that interval. DAEC has initiated tracking documents to ensure that the RI-ISI program is monitored and periodically reviewed for risk ranking as discussed in Section 4 of the initial submittal. Revisions made as a result of these reviews will be considered for submittal as outlined above.

NRC Question 4

In your letter, you state that 61.3% of the RI-ISI examinations will be performed during the second and third periods of the third inspection interval. What percentage will be examined by the end of the second period and by the end of the third period?

DAEC Response

DAEC is currently in the middle of the second period of its third inspection interval. DAEC currently plans to perform 32.8% (23 out of 70) of the RI-ISI program examinations during the second period and 28.5% (20 out of 70) of the RI-ISI program examinations during the third period of the third interval for a total of 61.3%.

NRC Question 5

What percentage of RI-ISI examinations was covered in the 38.7% of ASME Code, Section XI, examinations conducted in the first inspection period of the current interval?

DAEC Response

DAEC performed 107 ASME Code, Section XI (1989 Edition) examinations during the first and second inspection periods to date. Of those examinations that were completed, 10% (7 out of 70) in the first period and 11% (8 out of 70) in the second period are included in the RI-ISI selection.

NRC Follow-up Question

The draft response to our RAI states that the licensee has performed 38.7% of ASME Section XI examinations in the first period of the third 10-Yr ISI interval and plans to perform 61.3% of the RI-ISI exams in the second and third period of the interval. The staff wants to identify the Code requirement which states that the licensee can take maximum credit for 34% exams conducted in the first period. Therefore, the licensee must perform 66% of exams in second & third period instead of 61.3% as stated in the response. The staff also wants that the exams planned should cover high safety significant welds.

DAEC Response

The applicable ASME Section XI Code for the third interval at the DAEC is the 1989 Addition, no Addenda. This edition of the Code includes Table IWX-2412-1 (as shown below), which limits examinations credited in the first period to 34%.

Inspection Interval	Inspection Period, Calendar Years of Plant Service Within the Interval	Minimum Examinations Completed, %	Maximum Examinations Credited, %
All	3	16	34
	7	50	67
	10	100	100

Code Case N-598 (as shown below) increases the percentage of examinations that may be credited in the first period to 50%, with a stipulation that if the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations shall be performed in the second period.

Inspection Interval	Inspection Period, Calendar Years of Plant Service Within the Interval	Minimum Examinations Completed, %	Maximum Examinations Credited, %
All	3	16	50
	7	50 ¹	75
	10	100	100

- 1 If the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations shall be performed in the second period.

The use of Code Case N-598 was authorized for the DAEC by NRC letter dated October 18, 1999. Since the first period completion percentage of 38.7% exceeds the 34% discussed in the footnote to the table in Code Case N-598, at least 16% must be performed in the second period. As discussed in the response to Question 4, the DAEC currently plans to perform 32.8% of the RI-ISI program examinations during the second period.