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RECIP. NAME RECIPIENT AFFILIATION
ADENSAM, E. G. BWR Project Directorate 3

SUBJECT: Forwards revises FSAR Pages 3.7A-2 & 3.7A-23a & explanation for exception taken to Paragraph III NE-4429 of ASME Code, in response to NRC concerns. Changes will be incorporated into Amend 26 to FSAR.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

May 6, 1986
(NMP2L 0703)

Ms. Elinor G. Adensam, Director
BWR Project Directorate No. 3
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, DC 20555

Dear Ms. Adensam:

Re: Nine Mile Point Unit 2
Docket No. 50-410

During a recent discussion, your staff identified three concerns to our Mr. D. Hill. The following provides our responses to those concerns.

The staff questioned the Final Safety Analysis Report (FSAR) page 3.7A-23a statement that "ASME allowables are not exceeded by 10 percent..." This position has not been utilized, and the paragraph has been deleted from the attached FSAR change page.

The staff requested that the equations on FSAR pages 3.7A-1 and 3.7A-2 be clarified. The attached FSAR Change to page 3.7A-2 shows the clarification. This and the other identified FSAR changes will be incorporated into Amendment 26.

Last, the staff requested additional explanation for the exception taken to Paragraph III NE-4429 of the ASME code as discussed in FSAR Section 3.8.1.6.3, page 3.8-25. The requested explanation is provided in Attachment A.

Very truly yours,

CVMangan

C. V. Mangan
Senior Vice President

NLR/CVM:ar
1534G

xc: R. A. Gramm, NRC Resident Inspector
Project File (2)

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
Niagara Mohawk Power Corporation	)	Docket No. 50-410
(Nine Mile Point Unit 2)	)	

AFFIDAVIT

C. V. Mangan, being duly sworn, states that he is Senior Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

CVMangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 5th day of May, 1986.

Christine Austin
Notary Public in and for
Onondaga County, New York

My Commission expires:
CHRISTINE AUSTIN
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4787687
My Commission Expires March 30, 1987

ATTACHMENT A

Explanation for the Exceptions to NE-4429

Reason:

The primary containment liner is constructed in accordance with Section III of the ASME Code (but not N-stamped) with the exceptions as listed in FSAR Section 3.8.1.6.3. ASME III, Subsection NE, paragraph NE-4429 requires that weld-deposited cladding on the liner be examined by a liquid penetrant (PT) method. The following welds, associated with the stainless steel wallpaper on the PC liner lower knuckle were not originally examined by a PT method:

Type 1) Multi-pass fillet weld overlay welds attaching the wallpaper to the knuckle plate.

Type 2) Seams between wallpaper plates which were not coincident with knuckle plate seams.

Type 3) Weld overlay around beam seat shelf plates and gussets.

In addition, a small percentage of the Type 1 and 2 welds above and approximately 28% of the Type 3 welds are inaccessible for any further examination.

The inaccessible welds were examined by an alternate method which still satisfies the intent of the ASME Code requirements, but the provisions of ASME III, NE-4429 will not be fully met. Therefore, an exception was added to FSAR Section 3.8.1.6.3 describing how the provisions of NE-4429 are not met for all welds and the alternate examination technique employed.

Discussion:

1. Accessible Welds - All welds which were determined to have been made with a two-layer weld technique were visually examined. Welds in this category include the Type 1 multi-pass overlay welds, the Type 3 weld overlay, and a portion of the Type 2 seam welds.

   The portion of the Type 2 seam welds which could have been made with a single-layer weld technique was PT examined.

   All rejectable PT indications and any indications rejected by visual examination were repaired.

2. Inaccessible Welds - All inaccessible welds were determined to have been made with two-layer weld techniques and were accepted as-is.

Technical Justification:

The subject welds can be considered non-load bearing, with the prime function of providing corrosion resistance to the carbon steel knuckle plate. A visual inspection for the presence of rejectable indications in the final weld surface will provide adequate assurance that the welds will perform their intended function.

The use of a visual examination instead of a PT examination in accordance with NE-4429 is technically acceptable for a weld made with a two-layer weld technique. The two layers of austenitic stainless steel weld metal provide the added assurance that the final weld joint surface is fully austenitic stainless steel for both maximum corrosion resistance and freedom from cracking. It also eliminates any problems that might result from over dilution of the carbon steel in the stainless steel weld metal. The defects which might affect corrosion, such as cracking or porosity, are easily detectable by visual inspection. In addition, the use of E309 (welding electrode) chemistry with its higher chromium and nickel content results in increased corrosion resistance capability over the base metal composition.

The single layer welding process with E309 electrodes is intended to handle the expected dilution levels from the carbon steel base metal. The higher chromium and nickel content of the E309 chemistry results in increased ability to handle the dilution and, in addition, provides the necessary corrosion resistance. The PT examination is used to provide additional assurance that the welds will perform their intended function as a corrosion resistant barrier.

Inaccessible Type 2 and 3 welds were accepted as-is based on a satisfactory visual examination performed by the contractors when the welds were accessible. Inaccessible Type 1 multi-pass overlay welds were accepted as-is based on the satisfactory results of the accessible plug weld examinations.

Where:

T_n = Period n in spectrum computation

T_{n-1} = Period (n-1) in spectrum computation

$$\lambda = \left(\frac{T_f}{T_i}\right)^{\left(\frac{1}{N-1}\right)} = 1.0724$$

T_i = Initial period = 0.02 sec

T_f = Final period = 5.0 sec

N = Total number of periods = 80

The acceleration time history yields ground response spectra at damping values of 1, 2, 5, 7, and 10 percent that envelop the smoothed site design ground response spectra (SSE) for damping values as shown on Figures 3.7A-3 through 3.7A-17. The calculated response spectra and design response spectra of Regulatory Guide 1.60 are compared. Based on this comparison, the artificial earthquake is used as the design time history for structural analysis.

Details of the artificial acceleration record and its development are presented in Section 3.7.2.5A.

3.7.1.3A Critical Damping Values

3.7.1.3.1A Structures

Seismic analysis is performed using total system damping characterized by modal damping. The modal damping value is calculated as a ratio of the sum of the energy dissipated in each component element (based upon the assigned damping ratio of each element) to the total available modal energy. Further discussion of modal damping appears in Section 3.7.2.15A.

In determining the modal damping ratios, component damping values consistent with the stress intensities are used. For example, component damping for welded structural steel is assigned a value of 2 percent for OBE and 4 percent for SSE.

The damping ratios in Regulatory Guide 1.61 and Table 3.7A-1 for various components, are used in the design.

show the as-installed configuration in accordance with requirements. For small bore piping, the as-built drawings are the piping design drawings marked up to show the as-installed configuration in accordance with the specification requirements. For both large and small bore pipe supports, the as-built drawings are the engineering pipe support design drawings and associated change documents which have been verified in accordance with the specification requirements. In all cases, the information is compiled by groups responsible for the final analysis where as-built, as-analyzed comparisons are performed. Either the differences in configuration or input information are justified on a case-by-case basis or the necessary changes are issued to the field. The engineering small bore piping design drawings and large bore piping as-built drawings are revised to incorporate as-built information.

The design attributes that are reviewed and the source documents that provide these attributes are provided in Table 3.7A-11 for large bore piping and 3.7A-12 for small bore piping. A list of applicable safety-related piping systems is provided in Table 3.2-1. Load combination and stress criteria are described in Section 3.9.1.5A.

The final documentation of this program occurs at the time of N-5 signoff, when a review is conducted to ensure that all input information is still valid and that any revisions that have taken place do not change the basis for the final analysis.

3.7.3.8.2A Analytical Techniques

General Criteria

Piping systems are rigidly supported, where possible, to assure a first mode natural frequency above the peak frequency after peak spreading.

Qualification of Small Size Piping

The scope of small size piping is limited to: