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 MANGAN, C. V. Niagara Mohawk Power Corp.  
 RECIP. NAME RECIPIENT AFFILIATION  
 ADENSAN, E. G. BWR Project Directorate 3

SUBJECT: Forwards addl info re 860506 explanation for exception taken to Paragraph III NE-4429 of ASME Code in response to NRC request. Info includes summary of welding insp results, weld qualification & potential for carbon steel liner corrosion.

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July 2, 1986  
(NMP2L 0764)

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 several telephone conferences, your staff requested additional information related to our explanation, dated May 6, 1986 (NMP2L 0703) for the exception taken to paragraph III NE-4429 of the ASME code. This letter provides the requested information.

The specific information requested by your staff; a summary of welding inspection results, weld qualification, and potential for corrosion of the carbon steel liner, is provided in the attachment.

Very truly yours,

*C. V. Mangan*

C. V. Mangan  
Senior Vice President

LL:ja  
1754G

Attachment

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 )  
(Nine Mile Point Unit 2) )

Docket No. 50-410

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.

C. Mangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 2<sup>nd</sup> day of July, 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

CHRISTINE AUSTIN  
Notary Public in the State of New York  
Qualified in County of No. 4187687  
My Commission Expires March 30, 19\_\_

## ATTACHMENT

### Summary of Welding Inspection Results:

The enclosed table summarizes the results of inspections performed on welds associated with the stainless steel wallpaper on the primary containment liner lower knuckle. A brief explanation relating to the development of this table follows:

The Type 1 welds were visually inspected subsequent to additional erection activities in the area which had resulted in 194 welds being inaccessible for the inspection. Inspection of the accessible welds recorded nine indications as requiring additional engineering evaluation. This evaluation reduced the number of welds not meeting the design intent to one weld which exhibited localized underfill. As this is a localized condition in one weld of the 2326 welds inspected, acceptance of the 194 welds inaccessible for inspection is justified.

Type 2 welds which could have possibly been made using a single layer overlay technique (Type 2b) were liquid penetrant inspected. The base metal near four of these 31 welds showed indications which were judged to be mechanically induced noninjurious indications unrelated to the welding process and are, therefore, not included in the table. They were removed by lightly grinding to a depth of 1/16 inch or less. The table does address two Type 2b welds which were found to have between them a total of eight rounded indications which exceeded the acceptance levels of ASME III NE-5352, 1977 edition. The eight rounded indications varied in size from 7/32 inch to 1/2 inch. These indications were repaired in accordance with ASME requirements.

Type 3 welds and the multiple layer Type 2 welds (Type 2a) were inspected by the contractor and records show that the welds are acceptable in their final condition. Records of the in-process inspections and repairs were not required to be maintained.

In accordance with standard site procedures, recorded indications discussed above were repaired.



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1. The first part of the report deals with the general situation in the country. It is noted that the economy is still in a state of depression and that the government is facing a serious financial crisis. The report also mentions that the population is suffering from a lack of food and clothing.

2. The second part of the report discusses the political situation. It is noted that the government is still in a state of instability and that there are many factions vying for power. The report also mentions that the military is still a major force in the country.

3. The third part of the report discusses the social situation. It is noted that the population is still suffering from a lack of education and that there is a high level of unemployment. The report also mentions that there is a growing awareness of the need for social reform.

4. The fourth part of the report discusses the international situation. It is noted that the country is still isolated and that there are few friends in the world. The report also mentions that the country is still a target of foreign aggression.

5. The fifth part of the report discusses the future of the country. It is noted that the country needs a strong and stable government and that there is a need for social and economic reform. The report also mentions that the country needs to be more open to the world.



### Weld Qualification:

Welding associated with the stainless steel wallpaper on the Primary Containment liner lower knuckle was performed by two contractors - Graver and CBI. One Graver procedure was used on all three weld types, and one CBI procedure was used on weld Types 2 and 3. (CBI did not do any welding of the Type 1 welds.) Both contractors' welding procedures were qualified to ASME IX, which requires the qualification be performed with a reasonable duplication of the actual application. Graver, who performed the multipass fillet weld overlays, used as one of its qualification tests an exact duplication of the field seam welds, except that a one inch thick plate was used to represent the 1-1/4 inch thick knuckle. This was performed using the geometry of the wallpaper seam weld (Type 2), since it permitted the welding of a sufficiently large sample from which to cut specimens for the required testing. This test weld was liquid penetrant inspected to verify the integrity of the deposit, chemically analyzed to verify the corrosion resistance, and sectioned and subjected to bend testing to verify the metallurgical integrity of the weld and the fusion zone.

Since the three weld types are essentially the same from a welding/corrosion resistance point of view, the above constitutes a mockup of the welding of the stainless steel wallpaper to the lower knuckle.

### Potential for Corrosion of the Carbon Steel:

The stainless steel wallpaper has been provided to prevent corrosion of the carbon steel liner and to maintain water purity in the suppression chamber. The inaccessible welds are located above the beam seats, behind the ends of beams and just under the drywell floor. Both the stainless steel wallpaper and the beam seats are made of SA-240, Type 304L stainless steel. They are well above the suppression pool water surface. (High water level is 201 ft. - see FSAR Figure 1.2-11.) Thus, the inaccessible welds are only exposed to the suppression chamber air space environment which is nitrogen inerted during normal operation.

Weld procedure qualification and the visual and/or liquid penetrant inspections of the welds have ensured and verified the integrity of the overlay welds. Inspection of the accessible welds has shown that the size of any potential defect is very small and on the surface (see Table 1). Therefore, the presence of a defect going completely through the weld and not being detected is unlikely. In the unlikely instance that a defect did exist in the overlay plate weld, corrosion of the carbon steel plate would be minimal and self limiting.



[The text in this section is extremely faint and illegible due to low contrast and noise. It appears to be a multi-paragraph document.]

EVALUATION OF WELDS ASSOCIATED WITH  
STAINLESS STEEL WALLPAPER ON  
PRIMARY CONTAINMENT LINER LOWER KNUCKLE

	Amount of Welds	Amount Inspected	Type of Inspection	Number Unacceptable	Type of Indication
Type 1					
Multi-pass fillet (Note 1) weld overlays	2520 welds	2326 (Note 2) welds	Visual	1	Underfill
Type 2					
Seam welds					
a) By Graver (Note 1)	Approx. 102 linear ft	Approx. 102 linear ft	Visual	All welds acceptable in final condition	
b) By CBI (Note 3)	Approx. 73 linear ft (31 welds)	Approx. 73 linear ft (31 welds)	PT	2 welds	Rounded indications
Type 3					
Weld overlays (Note 1) around beam seats	Approx. 1000 linear ft	Approx. 1000 linear ft	Visual	All welds acceptable in final condition	

Notes

- (1) Weld procedure required a minimum of two layers.
- (2) The remaining 194 welds were inaccessible for inspection at the time of this study (approx. 7.7% of total welds).
- (3) A single or multiple overlay may have been used.



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