



Consumers
Power
Company

Stephen H. Howell
Senior Vice President

General Offices: 1945 West Parnall Road, Jackson, Michigan 49201 • (517) 788-0453

January 19, 1979
Howe-19-79

Mr J G Keppler, Regional Director
Office of Inspection and Enforcement
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

UNSPECIFIED VOLTAGE IN AWS PREQUALIFIED WELDING PROCEDURES

- Reference: (1) NRC IE Inspection Report No 50-329/78-03 and No 50-330/78-03; dated May 4, 1978
- (2) S H Howell letter to J G Keppler; Midland Nuclear Plant - NRC Items of Noncompliance, Inspection Report No 50-329/78-03 and No 50-330/78-03; Serial Howe-89-78;
- (3) R F Heishman letter to S H Howell; Docket No 50-329 and 50-330; dated September 13, 1978
- (4) S H Howell letter to J G Keppler; Unspecified Voltage in Bechtel WPS No Pl-A-LH; Serial Howe-223-78; dated October 31, 1978
- (5) R F Heishman letter to S H Howell; Docket No 50-329 and 50-330; dated November 22, 1978
- (6) NRC IE Inspection Report No 50-329/78-17 and No 50-330/78-17

The referenced correspondence deals with the subject identified in reference 1 as UNSPECIFIED VOLTAGE IN BECHTEL WPS NO Pl-A-LH. An infraction was issued for not specifying voltage in an AWS Welding Procedure Specification (WPS). References 3 and 5 identify as NRC specified "requirements" two items as follows:

- a. "The welding procedure specification and qualification record must identify an acceptable combination of voltage and amperage for each electrode size, and welding shall be performed at values within $\pm 15\%$ of these nominal values."
- b. "...we request that your sampling measurement system provide assurance that all welding machines are covered by your amperage and voltage measurements."

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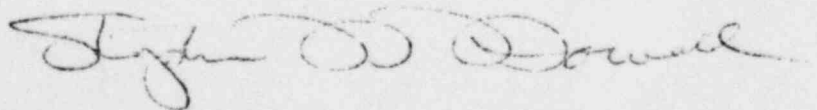
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In regard to a., Consumers Power has maintained that this is an incorrect interpretation of the AWS D1.1 Code for prequalified welding procedures. Attachments 1 and 2 to this letter are correspondence to and from the AWS Structural Welding Committee on this subject. The reply as given in Attachment 2 completely substantiates the Consumers Power position. The voltage and amperage checks being made will use the range specified in the procedures as the accept/reject criteria.

In regard to b., we discussed with Mr Vandel on December 18, 1978, the possibility of doing a monthly voltage check on each welding supply grid to satisfy the NRC's request to include all machines. The information necessary to define the grid systems and the appropriate measurement locations is expected to be available February 1, 1979. The surveillance system presently implemented, as described in reference 2, will be continued for both voltage and amperage measurements until such time as agreement can be reached with the NRC to discontinue them.

Measurements were initiated on December 2, 1978. After December 9, 1978, the recording form was revised to record each individual weld machine which is subject to the surveillance checks. The records show, for the month of December, that starting on the 9th, 17 checks were made on 17 different machines. The total number of measurements made in December represent over 7 percent of the listing of qualified welders for the month of November.

Consumers Power Company has expended significant effort to comply with the NRC specified "requirements." Concurrently, we have sought to obtain additional information to clarify the usefulness of voltage measurements as an aid in assuring the quality of welding required to meet the AWS D1.1 Structural Welding Code. In this regard, Messrs T E Vandel and K Naidu attended a demonstration at Ohio State University on December 14, 1978. A technical report on the study conducted at Ohio State is expected to be released by March, 1979. This report and the videotapes of the effect of voltage variations on the shielded metal arc welding process will be made available to you and the Headquarters Staff. Our conclusion is that a usable arc length (voltage) is easily discernable by the welder. Only where the voltage is significantly outside the specified range does it abruptly cause poor weld quality. This breakdown is clearly visible to the welder in the welding arc.



- Attachments: (1) J W Walvoord letter to Dr Moss V Davis, Secretary of AWS Structural Welding Committee, Serial Walv 60-78, dated November 2, 1978
- (2) Dr Moss V Davis letter to J W Walvoord, Response to Inquiry on Prequalified Welding Procedures, dated November 15, 1978

CC: Director, Office of Inspection & Enforcement
Att: Mr John G Davis, Acting Director, USNRC (15)

✓ Director, Office of Management
Information and Program Control, USNRC (1)



Consumers
Power
Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

November 2, 1978
Walv 60-73

Dr. S. V. Davis, Secretary
AWS Structural Welding Committee
American Welding Society
2501 Northwest 7th Street
Miami, FL 33125

Dear Dr. Davis:

Inspection agencies have recently been interpreting Paragraph 5.5.2.1(4) of the AWS D1.1 Structural Welding Code as applying to prequalified welding procedures. This paragraph deals with limitations of variables for the shielded metal arc welding process. Consumers Power Company believes that the limitations of variables listed under Paragraph 5.5.2.1 apply only to welding procedure specifications which require qualification and that the requirements of Paragraph 4.10.2 apply for these variables (current and voltage) for prequalified welding procedures. We at Consumers Power Company would gratefully appreciate your interpretation of the Structural Welding Code in this matter.

Sincerely,

A handwritten signature in cursive script that reads "John W. Walvoord".

John W. Walvoord

CC: RCBauman
WRBird
AJBirkle
RLBull
CJMaynard
DEMiller/TCCooke

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QUALITY ASSURANCE



AMERICAN WELDING SOCIETY

2501 NORTHWEST 7th STREET • MIAMI, FLORIDA 33125 • (305) 642-7090

TELEX: AMWELD SOC MIA
NO: 51-9245

November 15, 1978

FILE

WRB
JLW

Mr. John Walvoord
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Re: Your inquiry regarding Prequalified Welding Procedures

Dear Mr. Walvoord:

This is in response to your letter asking for an interpretation of 5.5.2.1 (4) of AWS D1.1 as it applies to Prequalified Welding Procedures.

Please be advised that the limitation of variables in 5.5.2 of Section 5, Part B, only apply to welding procedure qualification established by tests; they do not apply to prequalified SMAW procedures which are governed by 4.10 in AWS D1.1 Rev2-77 or 4.6 in AWS D1.1-79.

I trust this answers your question with regard to this matter.

Sincerely,

Moss V. Davis

Moss V. Davis, Secretary
AWS Structural Welding Committee

MVD/sd
File: D1-30.1

cc: J. T. Biskup
D. L. Sprow

F. H. Ray
L. R. Colarossi
D. W. Blodgett