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ALEXICH,M.P. Indiana & Michigan Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards Westinghouse 850614 ltr providing details on reactor vessel beltline region weld chemistry,including as-deposited copper,nickel & phosphorus weight percentages for weld wire & flux used for weld seams.

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July 3, 1985
AEP:NRC:0894C

Donald C. Cook Nuclear Plant Unit No. 1
Docket No. 50-315
License No. DPR-58
DATA FOR REACTOR VESSEL BELTLINE
REGION WELD CHEMISTRY

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

The purpose of this letter is to transmit the Westinghouse letter which provides details on the Donald C. Cook Unit 1 reactor vessel beltline region weld chemistry (Attachment 1).

Pursuant to our discussion with your staff on June 5, 1985, enclosed are the as-deposited copper, nickel, and phosphorus weight percentages for the weld wire and flux used to fabricate the weld seams in the core beltline region of the Donald C. Cook Unit 1 reactor vessel. This data will provide the basis for forthcoming Technical Specification revisions pertaining to the Donald C. Cook Nuclear Plant operating curves. This document supersedes any others provided on this subject.

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

MPA/rjn

cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
E. R. Swanson, NRC Resident Inspector - Bridgman
G. Bruchmann

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ATTACHMENT 1

TO AEP:NRC:0894C

Attachment
AEP:NRC:0894C

Westinghouse Electric Corporation - Water Reactor Divisions

Nuclear Services Integration Division
Box 2728
Pittsburgh Pennsylvania 15230-2728

AEP-85-641

June 14, 1985

Mr. M. P. Alexich, Vice President
and Director Nuclear Operations
American Electric Power Service Corporation
One Riverside Plaza
Columbus, Ohio 43216

AMERICAN ELECTRIC POWER SERVICE CORPORATION
D. C. COOK UNIT 1
Reactor Vessel Beltline Region Weld Chemistry

Dear Mr. Alexich:

A review of the weld wire and flux used to fabricate the weld seams in the core beltline region of the D. C. Cook Unit 1 reactor vessel was conducted per the request of D. Hafer of American Electric Power Service Corporation to determine the as deposited copper, nickel and phosphorous content of the as deposited weld seams.

The circumferential girth seam between the intermediate and lower shell is considered to be the limiting weld seam in the vessel. This seam was fabricated with weld wire heat number 1P3571 and Linde 1092 flux lot number 3958. Eight separate chemical analyses are known to have been performed on this combination of the wire and flux and the results are presented below:

Source	Cu	Ni	P
CE Weld Qualification Test (Single Wire)	.40	.82	.017
CE Weld Qualification Test (Tandem Wire)	.37	.75	.017
Kewaunee Unirradiated Surveillance Weld	.20	.77	.016
Maine Yankee Unirradiated Surveillance Weld	.36	.78	.015
Maine Yankee Irradiated Charpy Specimen	.25	.70	.030
Maine Yankee Irradiated Charpy Specimen	.25	.66	.020
Maine Yankee Irradiated Charpy Specimen	.33	.71	.040
Maine Yankee Irradiated Charpy Specimen	.33	.70	.040
Average	.31	.74	.024

Based upon the above data, it is Westinghouse's recommendation that the average of the above data points be used for the Cu and Ni content, since this would be more realistic than using any single data point. This approach has been accepted by the NRC on other applications.

Attachment
AEP:NRC:0894C

The phosphorous content reported for the irradiated specimens is considered to be highly suspect. Westinghouse considers the average of the four unirradiated values (.016 WT%) to be a realistic phosphorous content for the weld.

The longitudinal weld seams in the beltline region of the vessel were made with a tandem submerged arc process using weld wire heats 12008 and 13253 with Linde 1092 flux lot 3791. No as deposited weld chemistry exists for this combination of wires and flux. Four other tandem welds which contained wire heat number 12008 showed as deposited copper contents of 0.19 to 27%. The surveillance weld which was made from wire 13253 and Linde 1092 flux lot 3791 and which has a copper content of 0.27% is considered to be highly representative of the longitudinal weld seams and the use of its chemistry for the longitudinal weld seams appears appropriate.

The application of new copper and nickel values to the beltline region girth weld seam of the D. C. Cook reactor vessel will not result in the vessel exceeding the PTS screening limits imposed by the NRC.

Please call should you require more information

Very truly yours,

for

A: P. Suda, Manager
Great Lakes Area
Projects Department

APS/debi
4496f:12

cc: M. P. Alexich, IL
D. Hafer, IL
H. G. Smith, IL
J. Feinstein, IL