

DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 70--
373-4083

July 30, 1981

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Re: Catawba Nuclear Station
Units 1 and 2
Docket Nos. 50-413, -414

Dear Mr. O'Reilly:

Pursuant to 10 CFR 50.55e, please find attached Significant Deficiency
Report SD 413-414/81-14.

Very truly yours,


William O. Parker, Jr.

RWO/php
Attachment

cc: Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector
Catawba Nuclear Station



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REPORT NUMBER: SD 413-414/81-14

REPORT DATE: July 30, 1981

FACILITY: Catawba Nuclear Station - Units 1 & 2

IDENTIFICATION OF DEFICIENCY

During Code PT of some 1" socket welds, linear indications were detected in the base metal. Further investigation disclosed both linear and transverse indications which in some cases encroached on material specification minimum wall thickness. These are covered on Duke Power Non-conforming Item Reports 10,311; 10,479; 10,637; 10,638; and 10,799.

INITIAL REPORT

On June 30, 1981, Mr. J. Bryant of NRC Region II Atlanta, Georgia, was notified of the deficiency by Messers W. O. Henry and J. M. Curtis of Duke Power Company, Charlotte, North Carolina 28242. This notification was a result of Potentially Reportable Item CA-81-26.

SUPPLIER AND/OR COMPONENT

The material in question is 1" Schedule 40 welded stainless steel pipe to ASME SA-312 TP304, Heat Number 490269. Pipe was manufactured by ARMCO Incorporated and supplied to Duke Power by Guyon Alloys Inc., located at Charlotte, North Carolina.

DESCRIPTION OF DEFICIENCY

Investigation of these indications disclosed two distinct types. These are as follows:

1. Longitudinal - These are straight tight indications running intermittently down the length of the pipe. The indication occurs from 1/16" to 1/4" away from the weld and varies in appearance from a lap to a step (offset in surface). These are visually detectable.
2. Transverse - These are sharp "W" shaped indications transverse to the centerline of the pipe and starting about 20° to 30° away from the weld. These are visually detectable.

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These indications were not detected by the ARMCO Eddy current test during manufacture. Samples of these have been examined by ARMCO and they attribute them to the following causes:

1. Longitudinal - These probably resulted from scoring caused by a forming roll insert which was subsequently peened over during the weld bead finishing operation.
2. Transverse - Based on the regularity of these defects, they are concluded to be the result of a mill mark or crack which was subsequently rolled over.

The depth of these indications was investigated by Duke Power and ARMCO and the deepest were found to be:

Longitudinal = .0063"

Transverse = .0087"

Both of the above represent some encroachment on the material specification minimum wall thickness of .116".

ANALYSIS OF SAFETY IMPLICATIONS

A check was made and none of this heat of pipe was found at Oconee, McGuire, or Cherokee.

A review of our records at Catawba indicate that we received approximately 2700' of this heat of pipe. Of this, approximately 1760' have not been installed.

According to our records, this pipe has been installed in Safety Related Systems with design conditions as listed below:

<u>SYSTEM</u>	<u>DESIGN CONDITIONS</u>	<u>NUMBER OF WELDS</u>
WL - Liquid Waste	35 psia @ 200°F	14
WL - Liquid Waste	65 psia @ 200°F	2
WL - Liquid Waste	165 psia @ 200°F	52
WG - Liquid Waste	165 psia @ 200°F	52
NB - Borated Water	165 psia @ 200°F	52
NB - Borated Water	165 psia @ 250°F	4
FD - Diesel Gen. Fuel Oil	210 psia @ 100°F	2
NV - Nuclear Volume Control	315 psia @ 250°F	2
NV - Nuclear Volume Control	615 psia @ 400°F	4
NI - Safety Injection	715 psia @ 300°F	2

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Based on the number of welds involved, we estimate that approximately 800' of this pipe has been installed in the above systems.

All of this pipe passed a mill hydrotest of 2500 psig.

Based on the deepest defect found, this pipe would be good for at least 2300 psig based on Code requirements for pressure and temperature alone.

This is stainless steel pipe which from experience would inherently leak before breaking.

Based on the above, it is our judgement that any of the pipe used at Design Conditions of less than 315 psia at 250°F is acceptable for the intended service.

Due to the sharpness of these indications and their potential as stress raisers, we will further evaluate the suitability of this pipe for higher pressure and temperature service on a case by case basis.

CORRECTIVE ACTION

All of the uninstalled pipe will be re-examined by ARMCO and any found to have rejectable indications will be replaced.

A visual inspection will be made of the installed pipe in systems having design conditions equal to or greater than 315 psia at 250°F. Any visual indications found will be PT'd and if found rejectable, the pipe will be replaced.