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July 20, 1984

Director
Office of Inspection and Enforcement
U S Nuclear Regulatory Commission
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Supplement to June 19, 1984
Report of Defective Components (SSH-M-84/01)

On June 29, 1984 we submitted a 10 CFR Part 21 report related to manufacturing defects in components intended for use as replacement residual heat removal (RHR) piping at the Monticello Nuclear Generating Plant. The purpose of this letter is to transmit additional information related to this matter.

Attached is a report entitled, "Interim Report #1 - Defects in 18" Carbon Steel RHR Pipe, NQNSP-0701". This report contains additional information which supplements our original report.

David Musolf
Manager - Nuclear Support Services

DMM/dab

c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
G Charnoff
W J Collins, EGCB, NRC

Attachment

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Date July 16, 1984

From G E Crosby, Lead QA Engineer

Location Monticello

To D M Musolf, Manager Nuclear Support Services
W V Jokela, Director Power Supply QALocation Midland Sq 4
Midland Sq 3Subject MONTICELLO NUCLEAR GENERATING PLANT
E-82M003 Recirculation System Piping Replacement
Interim Report #1 - Defects in 18" Carbon Steel RHR Pipe
NQNSP-0701

This report is being provided in accordance with paragraph 5.6.2 of NOP-10-GF2 to provide information to support reporting under 10CFR21 for the subject pipe defects.

a. Identification of facility, activity and basic component:

The basic component is ASME Class 1, 18 inch carbon steel pipe, furnished to specification SA-333 Grade 6, with examination to the requirements of SA-655. The pipe was furnished to the Monticello Nuclear Generating Plant for use in replacing portions of the RHR suction and discharge lines which were removed to facilitate work on the recirculation system lines.

b. Identification of the firm supplying the basic component:

The RHR pipe was furnished to NSP by Bechtel Power Corporation, San Francisco Power Division. Bechtel procured the pipe from Tioga Pipe Supply Company under purchase order 10040-P-201(Q)-7. Mill test reports supplied to NSP indicate that the pipe was manufactured by United States Steel Corporation.

Ultrasonic examination of the pipe was subcontracted by Tioga to Carson Nondestructive Testing, and was performed in two circumferential directions as required by SA-655. No defects were reported.

The total quantity of SA-333 Grade 6 pipe furnished to NSP under Bechtel purchase order 10040-P-201(Q)-7 was 32' 3½" of 18 inch pipe, and 84' 7½" of 16 inch pipe.

c. Nature of defect and safety hazard created by the defect:

c.1 Defect:

The defect is two laminar type discontinuities detected visually, and confirmed by ultrasonic examination to exceed code allowables. One defect extends 360° around the inside diameter and as much as 43% through the pipe wall. The second defect extends 330° around the pipe and as much as 19% through the wall. See details below.

c. Nature of defect and safety hazard created by the defect: (Continued)

c.2 Safety Hazard:

The 360°, 43% through wall defect was discovered in pipe cut for RHR suction line piece A-S-MK-1. This piece is placed at the top of the RHR suction line expansion loop. The only isolation valve between this piece and the 28 inch recirculation system suction piping is RHR-9. This valve is locked open during normal plant operation. The result of a break in piece A-S-MK-1 would be a loss of reactor cooling water.

c.3 Details:

On June 4, 1984 spool pieces were being fabricated for the RHR suction line. After cutting piece A-S-MK-1, a discontinuity was visually detected on the inside surface of the pipe. The inservice inspection group was requested to perform a ultrasonic examination of the area. An attempt was made to duplicate the examination performed by Carson Nondestructive Testing. Two circumferential angle beam scans were done as required by SA-655. The discontinuity was noted in several areas, however it was within acceptable limits.

In addition, axial scans were performed in each direction. The discontinuity was seen 360° around the pipe. In several areas, the discontinuity exceeded acceptable limits and was off screen at reference sensitivity. Since it appeared the circumferential angle beam scans were inadequate to locate this type of discontinuity, a decision was made to 100% UT inspect the remaining 18" diameter and 16" diameter SA-333 RHR piping using a circumferential straight beam scan followed by an axial angle beam inspection in two directions. In addition, the 18" diameter RHR piping would be internally inspected visually.

On June 7, 1984 internal surfaces of a 21' section of 18" diameter RHR pipe were visually inspected. An area similar to that found in the short section was found. Visually, the discontinuity ran approximately 180° around the inside of the pipe. This area was UT examined with a straight beam and axial angle beam. Ultrasonically, the discontinuity is 330° around the pipe. The discontinuity was also located using the circumferential angle beam scans, but was within acceptable limits. When scanned axially the discontinuity exceeds acceptable limits.

On June 11, 1984, UT examination was done in an attempt to determine the size of the discontinuities in the 18" diameter piping.

The discontinuity in the 18" diameter x 37" long section (initially cut for A-S-MK-1) runs 360° with a maximum depth of .44" (as indicated by straight beam examination) which is 43% through wall.

c. Nature of defect and safety hazard created by the defect: (Continued)

c.3 Details: (Continued)

The discontinuity in the 18" diameter x 21' section runs 330° with a maximum depth of .2" (as indicated by straight beam examination) which is 19% through wall. Because of the plane of the discontinuities, it is possible the through wall depth of the discontinuities is greater than ultrasonically indicated.

Based on the UT examinations done, it is our opinion the angle beam circumferential scans are inadequate to locate and evaluate this particular type of discontinuity.

The 37" long section initially cut for A-S-MK-1 and a 36" length containing the second defect were placed on hold in a secured area within the Nuclear Engineering and Construction warehouse pending possible further investigations.

At the time of the above described examinations, various lengths of 18" and 16" pipe had been cut and were in various stages of fabrication. Refer to Section f. of this report for details of further examinations conducted.

d. The date on which information of defect was obtained:

The defect in piece A-S-MK-1 was initially detected on June 4, 1984. The chronology of events leading to the reportability decision is listed below:

6/4/84	General Electric (GE) prepared Nonconformance Report GEM-NR-0154 to describe defect.
6/7/84	GE prepared Nonconformance Report GEM-NR-0170 to describe second defect.
6/9/84	Technical Review Board (TRB) meeting to discuss potential reportability of the defects. Result was recommendation to perform preliminary investigation per NOP-10-GF2.
6/18/84	Preliminary investigation report issued.
6/25/84	TRB members polled for evaluation of preliminary investigation. The preliminary determination was that the defects were reportable.
6/28/84	Preliminary investigation and determination were presented to the Operations Committee, and Manager Nuclear Support Services was notified of reportability conclusion.

e. Number and location of all such components supplied:

The total quantity of 18" SA-333 Grade 6 pipe supplied under Bechtel order 10040-P-201(Q)-7 was one piece 32' 3½" long.

Since NSP is not the supplier of this pipe, we cannot determine the number and location of similar pipe furnished to facilities or activities subject to regulation under 10CFR21.

f. Corrective Action taken or to be taken:

As a result of the defects discovered in the 18" pipe, the decision was made to perform ultrasonic examination of the total quantity of 18" and 16" pipe received using a straight beam circumferential scan, and axial angle beam scans in two directions. The pieces examined are identified in Attachment 1. No other defects were detected.

Corrective action report (CAR) M-27 was issued to Bechtel on July 5, 1984 requesting Bechtel to identify the cause of the defects, address the possibility of occurrence in other pipe materials or sizes and identify actions to be taken to prevent future delivery of defective pipe. Further corrective actions by NSP, if any, will be determined based on the results of Bechtel's evaluation.

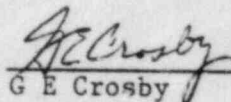
The length of time which will be required for corrective action by Bechtel or others in the supply chain is unknown at this time. Corrective action response from Bechtel was requested within thirty days of the issue of CAR M-27.

g. Advice related to the defect being given to purchases or licenses:

Advice being given to other purchasers or licenses by Bechtel or others in the supply chain is unknown to NSP at this time. However, NRC has begun their followup action which is expected to result in an NRC Information Notice as a minimum.

The next report, interim or final, will be provided following Bechtel's response to CAR M-27.

Prepared by


G E Crosby

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TRB Concurrence:

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Nuclear Projects QA

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Project Engineer

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Lead Construction Supt

R. H. M. M. M.
Plant Representative

slm

Attachment: 1. RHR Pipe Pieces Examined

c: P F Suleski
P A Johnson
J A Bystrzycki
A M Kuroyama
R L Scheinosc
W A Shamla
F P Tierney (FHF)
J F Schanen
File B400, B000 (Field & GO)

RHR PIPE PIECES EXAMINED

18 Inch Pipe:

<u>Piece #</u>	<u>Length^{1,3}</u>	<u>UT Report²</u>	<u>Remarks</u>
A-S-MK-1	36"	84-024 RHR & 84-030 RHR	
A-S-MK-3	36"	84-023 RHR & 84-029 RHR	
A-S-MK-6	16-3/4"	84-035 RHR	
Spare	18' 7-7/8"	003	
Rejected	37"	-	Was designated A-S-MK-1 GEM-NR-0164 (Original Defect)
Rejected	36"	003	GEM-NR-0170
Total:	32' 1-5/8"		

16 Inch Pipe:

A-D-MK-1	90"	84-009 RHR & 84-015 RHR
A-D-MK-3	43"	84-013 RHR & 84-016 RHR
A-D-MK-5	79"	84-022 RHR & 84-028 RHR
A-D-MK-7	58"	84-011 RHR & 84-014
A-D-MK-9	14-5/8"	84-003 RHR & 84-007 RHR
A-D-MK-11	14-5/8"	84-004 RHR & 84-006 RHR
A-D-MK-13	18"	84-001 RHR & 84-005 RHR
B-D-MK-1	83-5/8"	84-020 RHR & 84-026 RHR
B-D-MK-3	42-7/8"	84-021 RHR & 84-027 RHR

B-D-MK-5	79"	84-012 RHR & 84-018 RHR
B-D-MK-7	96"	84-010 RHR & 84-017 RHR
B-D-MK-9	11-3/4"	84-031 RHR & 84-032 RHR
B-D-MK-11	15"	84-019 RHR & 84-025 RHR
B-D-MK-13	18"	84-002 RHR & 84-008 RHR
Spare	24'-3"	84-033 RHR & 84-034 RHR
Spare	22"	84-036 RHR

Total: 81' 4½"

1. Lengths were as measured during ultrasonic examination with the exception of the spare 18" length which was measured after UT and removal of one or more pipe pieces which were separately examined.
2. UT reports are filed in NSP receipt inspection files.
3. Difference between total length examined and total length received is assumed to be due to losses from cutting and weld end preparation.