

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-263/82-14(DETP)

Docket No. 50-263

License No. DPR-22

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Facility Name: Monticello Nuclear Generating Plant

Inspection At: Monticello Site, Monticello, MN

Inspection Conducted: October 5-8, 19-21, November 8-10, 22-23, and
December 7-8, 1982

Inspectors: W. J. Key *WJ Key*
for *D Adlawson*
K. D. Ward
(October 7-8, 1982 only)

1/20/83

1/21/83

Approved By: *D Adlawson*
D. H. Danielson, Chief
Materials and Process Section

1/21/83

Inspection Summary

Inspection on October 5-8, 19-21, November 8-10, 22-23, and December 7-8, 1982 (Report No. 50-263/82-14(DETP))

Areas Inspected: Activities related to inservice inspection (ISI) including program and procedure review, observation of activities, and review of examination documentation. Activities related to the repair of stainless steel (SS) piping, including procedures review, qualification of personnel, observation of repair activities, and the review of repair documentation. The inspection involved a total of 96 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Northern States Power Company

*W. Shamla, Plant Manager
*P. Krumpas, Superintendent M&SP
*R. Nelson, QC Supervisor
*J. Shanen, M&SP Engineer
R. Colman, M&SP Engineer
M. Anderson, M&SP Engineer
G. Franse, M&SP Engineer
L. Dahlman, M&SP Specialist
M. Brant, Site Superintendent
B. Lagergren, Lead Plant Operator
M. Shaffer, Plant Equipment Operator
B. Meilke, Senior Operator Shift Supervisor

Hartford Steam Boiler Insurance (Hartford)

J. Williams, ANI
C. Lindstrom, ANI

Lambert MacGill & Thomas (LMT)

E. L. Thomas, Project Manager
D. MacGill, Level III Examiner

*Denotes those present at the final exit interview.

Functional or Program Areas Examined

See Sections I and II

Section I

Prepared by W. J. Key
Reviewed by D. H. Danielson, Chief
Materials and Processes Section

1. Procedure Review (ISI)

The inspector reviewed the following procedures used in the performance of ISI examinations during this outage for conformance to NRC, ASME Code Sections V and XI, and ASNT-TC-1A requirements.

- a. NSP-MT-1, Revision 3; Magnetic Particle Examination.
- b. NSP-PT-1, Revision 2; Liquid Penetrant Examination.
- c. NSP-UT-1, Revision 2; Ultrasonic Examination of Pipe Welds.
- d. NSP-UT-2, Revision 2; Ultrasonic Automatic Data Recording.
- e. NSP-UT-4, Revision 2; Ultrasonic Examination of Studs, Bolts, and Nuts.
- f. Magnaflux Procedure 20.A.1; Radiographic Examination of Welds.

No items of noncompliance or deviations were identified.

2. Equipment and Materials

The inspector examined the following equipment and materials used for performance of ISI examination for calibration and certification requirements.

- a. Ultrasonic Couplant; LMT Gel, Batch No. 1110812
- b. Cleaner, Spotcheck; Batch No. 82G079
SKC-NF/EC-7B.

Penetrant, Spotcheck; Batch No. 5F086
SKL-NF/ZP-9B.

Developer, Spotcheck, Batch No. 82G057
SKD-NF-ZP-9B
- c. Ultrasonic Instruments, Nortec; 131D
S/N, 311, 128, S/are Units, S/N, 146, 126, 410, 273
- d. Brush Recorder, Model 222, S/N, 3018, 01530, 00778
- e. IIW Block, LMT-1, Rampas Blocks, S/N, 012, 021, 304
- f. Thermometers, PTC, Model 310, S/N, 458, 459, 463, 464

g. Pipe Segment Calibration Blocks, S/N-27, 35, 56, 4, 22, 30

h. <u>Transducers</u>	<u>Size</u>	<u>S/N</u>	<u>Frequency</u>
Aerotech	1.0"	B12133	2.25 MHZ
Aerotech	.25"	F13118	2.25 MHZ
Aerotech	.5"	F18155	2.25 MHZ
Aerotech	1.0"	K07023	2.25 MHZ
Harsonic	.5 x .5"	Q1032	1.5 MHZ
Harsonic	1.0"	Q8141R	2.25 MHZ
Harsonic	.375 x .375"	R169	3.5 MHZ
Harsonic	.325 x .325"	R30131	3.5 MHZ
Harsonic	.25"	T3205	5.0 MHZ
Harsonic	.75	V6271	2.25 MHZ
Panametric	1.0 x 1.0"	4062	1.0 MHZ
Panametric	.5"	10940	2.25 MHZ

No items of noncompliance or deviations were identified.

3. Certification and Qualifications

The following examination personnel records were examined by the inspector for conformance to NRC and ASME Code requirements.

	<u>RT</u>	<u>UT</u>	<u>MT</u>	<u>PT</u>	<u>VT</u>
L. C. Dahlman	III	II	III	III	
M. Anderson	II	I	II	I	II
R. Colman		I			I
E. L. Thomas		III	III	III	III
D. MacGill		III	III	III	III
M. Worby		II	I	II	
M. Blew		II	II	II	
R. D. Burlingame		II	II	II	
R. Pechecek		II	II	II	I
G. Adams		II	II	II	II
D. E. Harvey		III	III	III	II
D. Johnson	II				
S. L. Samson	II	II	II	II	
R. I. Nelson	III	III	III	III	

No items of noncompliance or deviations were identified.

4. Documentation Review ISI

The inspector reviewed the following reports of weld examinations performed during this refueling outage.

Ultrasonic Report No. 82-001, Weld WR-4-897-R1
 System-Scram Discharge Header
 Calibration Report ELT-1, Calibration Block S/N-4
 Reference Block LMT-012

Ultrasonic Report No. 52-015, Weld WR-1023-4
System Scram Discharge Header
Calibration Report ELT-5, Calibration Block 56
Reference Block 402

Ultrasonic Report No. 82-026, Weld FWDJ-38
System-Feedwater
Calibration Report RWP-001, Calibration Block 23
Reference Block LMT-012

Ultrasonic Report No. 82-027, Weld CWF-2
System-Reactor Clean-up
Calibration Report RWP-002, Calibration Block 12.2
Reference Block 021

Ultrasonic Report No. 82-052, Weld RHB-29
System-RHR
Calibration Report RWP-003, Calibration Block 10
Reference Block LMT-012

Ultrasonic Report No. 82-054, Weld RHC-8
System-RHR
Calibration Report RWP-003, Calibration Block 10
Reference Block LMT-012

Ultrasonic Report No. 82-056 Weld W-1
System-Feedwater
Calibration Report ELT-8, Calibration Block 4
Reference Block LMT-012

Ultrasonic Report No. 82-061, Weld W-12A
System-Feedwater
Calibration Report ELT-8, Calibration Block 4
Reference Block 012

Ultrasonic Report No. 82-072, Weld RMA-2
System-Recirculation Manifold "A"
Calibration Report RAK-001, Calibration Block 26
Reference Block 304

Ultrasonic Report No. 82-050, Weld RCA-15
System-Recirculation Loop "A"
Calibration Report RAK-002, Calibration Block 27
Reference Block 304

Ultrasonic Report No. 82-094, Weld RCB-13
System-Recirculation Loop "B"
Calibration Report RWP-004, Calibration Block 27
Reference Block 021

Ultrasonic Report No. 82-097, Weld RCBJ-28
System-Recirculation Loop "B"
Calibration Report RWP-005, Calibration Block 27
Reference Block 304

Ultrasonic Report No. 82-116, Weld RRCJ-4
System-Recirculation Loop "B"
Calibration Report RWP-007, Calibration Block 22
Reference Block 304

Ultrasonic Report No. 82-120, Weld RCAJ-4
System-Recirculation Loop "A"
Calibration Report RWP-008, Calibration Block 27
Reference Block 304

Ultrasonic Report No. 82-129, Weld RRJF-2
System-Recirculation Manifold "A"
Calibration Report RWP-009, Calibration Block 2
Reference Block 304

Ultrasonic Report No. 82-133, Weld RMBJ-10
System-Recirculation Loop "B"
Calibration Report RDB-001, Calibration Block 26
Reference Block 304

Ultrasonic Report No. 82-146, Weld RCBJ-21
System-Recirculation Pump Nozzle to Pipe
Calibration Report RDB-002, Calibration Block 27
Reference Block 304

Ultrasonic Report No. 82-148, Weld RRAD-1
System-Recirculation Nozzle N2A
Calibration Report RWP-010, Calibration Block 30
Reference Block IIW-LMT-1

Ultrasonic Report No. 82-161, Weld RRDD-1
System-Recirculation N2D Nozzle Bore
Calibration Report, RDB-006, Calibration Block 30
Reference Block 402

Ultrasonic Report No. 82-172, N2J Nozzle Inner Radius
System-Recirculation Loop "A"
Calibration Report RWP-011, Calibration Block 30
Reference Block IIW-LMT-1

Ultrasonic Report No. 82-187, Weld RRHJ-7
System-Recirculation Loop "A"
Calibration Report RWP-017, Calibration Block 22
Reference Block 304

Ultrasonic Report No. 82-195, Nozzle NIA Inner Radius
System-Recirculation Loop "A"
Calibration Report RWP-015, Calibration Block 30
Reference Block IIW-LMT-1

Ultrasonic Report No. 82-115, Weld RMAD-16
System-Recirculation Manafold "A"
Calibration Report RDB-011, Calibration Block 26
Reference Block 021

Ultrasonic Report No. 82-223, Weld RMBJ-15
System-Recirculation Manafold "B"
Calibration Report RDB-011, Calibration Block 26
Reference Block 021

Ultrasonic Report No. 82-238, Weld RRFJ-3, Nozzle N2F
System-Recirculation Manafold "A"
Calibration Report ELT-012, Calibration Block 22
Reference Block 304

Ultrasonic Report No. 82-142, Weld RHBF-20
System-RHR
Calibration Report RDB-013, Calibration Block 24
Reference Block 304

Ultrasonic Report No. 82-253, Weld RHAI-2
System-RHR
Calibration Report DEH-002, Calibration Block 25
Reference Block 304

Ultrasonic Report No. 82-273, Weld RHBF-4
System-RHR
Calibration Report DBM-003, Calibration Block 10
Reference Block LMT-021

No items of noncompliance or deviations were identified.

4. Augmented ISI Program

During this refueling outage the licensee scheduled the replacement of all old piping insulation, and increased their examination sampling of stainless steel piping welds in the recirculation system and attached piping based on the stress rule index and carbon content. Following the discovery of extensive Intergranular Stress Corrosion Cracking (IGSCC) at the Nine Mile Point Nuclear Generating Plant the licensee increased the augmented examination program to include 100% of the nonconforming welds (as defined in NUREG-0313, Revision 1) in the reactor recirculation system and attached piping.

Welds in the following systems were examined.

Augmented ISI Examination Program 1982

<u>SYSTEM</u>	<u>NUMBER OF WELDS EXAM.</u>
A. <u>REACTOR RECIRCULATION SYSTEM *</u>	
28" - LOOP A (1.088" min. wall, 304SS)	16
LOOP B (1.088" min. wall, 304SS)	17
22" MANIFOLD (0.924" min. wall, 304SS)	23
12" RECIRCULATION RISER (Sch. 80, 304SS) (INCLUDING SAFE END WELDS)	50
4" BYPASS (XXH, 304SS)	8
B. <u>REACTOR WATER CLEAN-UP SYSTEM</u>	
(4" Diameter, Sch. 80, 304SS)	3
C. <u>RESIDUAL HEAT REMOVAL</u>	
TW20-18" / 16" 2/5 (Sch. 80, 316SS)	7
TW30-18" / 16" 2/5 (Sch. 80, 316SS)	7
REW10-18" 4 (Sch. 80, 316SS)	4
	135

* - All nonconforming welds in the recirculation and attached systems were inspected as well as many conforming welds. Welds in the recirculation system that were not inspected consisted of ten welds in the 4" Loop A Bypass Line and ten welds in the 4" Loop B Bypass Line.

Prior to completion of the augmented examination a meeting between the BWR owners group and NRC was held on September 27, 1982, in Bethesda, MD. to discuss IE Bulletin 82-03. The Bulletin required BWR's scheduled for refueling or other extended outage throught January 1983 to perform inspections of recirculation system piping and supply information to the NRC.

The licensee did not report the discovery of any indications during this meeting, but did discuss the extent of their inspection effort.

On September 28, 1982, the licensee reported to the NRC Region III office, that an indication had been found in the 22" inch diameter manifold end cap weld RMAJ-2. Further examination by radiography confirmed three (3) IGSCC cracks in the heat affected zone (HAZ) of this weld.

As the examination progressed four (4) other indications were reported in the 12" inch diameter recirculation pipe risers. These were likewise reported as IGSCC.

Three (3) of the indications were in the (HAZ) of the pipe to safe end welds. One (1) in the (HAZ) of the pipe to elbow weld.

On October 14, 1982, licensee personnel met with NRC Region III and NRR staff members at the RIII office to discuss the licensee's proposed corrective actions for the crack indications.

Following this meeting the licensee was issued a Confirmation Action Letter (CAL) on October 19, 1982. The following action and information were required by the October 19, 1982, Confirmatory Action Letter.

- (1) A report submitted for NRC review including:
 - (a) Summary of 1982 augmented examination program.
 - (b) Description of repairs.
 - (c) Basis for establishing accuracy of UT measurements.
 - (d) Description of methods and analysis used, load combinations, and results used, load combinations, and results of analysis using updated loads.
 - (e) Evaluation of reactor recirculation system stresses resulting from repairs.
 - (f) Basis for justifying continued operation with existing indications and repairs.
- (2) Obtain NRC concurrence prior to returning the unit to operation.

5. Augmented Inspection Results

Examination of the recirculation system and attached piping welds resulted in the following welds being identified as having IGSCC indications requiring repair prior to returning to power.

SYSTEM	WELD ID	INDICATION DESCRIPTION			
		ORIENTATION	DEPTH	LENGTH	LOCATION
REW 32-22" (MANIFOLD)	RMAJ-2	3-AXIAL	4-11%	1.0"	12:00-CAP
				0.5"	
				0.5"	
REW21-12" (RISER)	RRCJ-3	3-RADIAL	<50%	0.41	7:30-S.E
				0.20	8:00-S.E
				0.125	8:30 Pipe(leak)
		2-CIRC.	3.5%	0.25	ROOT-INCOMPLETE FUSION
REW20-12" (RISER)	RRDJ-5	1-RADIAL	<50%	0.43	3:30-ELBOW
REW19-12" (RISER)	RREJ-3	4-RADIAL	<50%	0.34	12:00-PIPE
				0.30	12:00-PIPE
				0.28	12:00-S.E.
		1-CIRC.	9%	-	3:00 S.E.(leak)
REW14-12" (RISER)	RRFJ-3	2-RADIALs	<50%	1.06	12:00-ROOT
				0.32	8:00-SE 4:00-SE(leak)

6. Repair Program

Following the completion of examinations and evaluation of welds with indications of IGSCC the licensee developed a repair program for depositing weld overlay material on the welds and heat affected zone on each side of the weld.

This repair program included:

- a. Welding procedures, SMAW/GTAW.
- b. Welder and Welding Operator qualifications and mock-up training.
- c. NSP approved Q.A. program.
- d. Control of preheat and Interpass temperatures.
- e. Measurement of delta ferrite.
- f. NDE examinations including:

Liquid Penetrant (PT)

Ultrasonic Examination (UT)

Radiographic Examination (RT)

Hydrostatic Examination following all repairs at 1.1 time the system operating pressure.

7. Welding Procedures

The inspector reviewed the following welding procedures developed for overlay repair of recirculation system piping.

The procedures were developed in accordance with the requirements of ASME Code Section III; IX and ANSI B31.1.

- a. Procedure No. 82-8TS8-RW-5.1; Revision 1.
PQR-82P8F6F5.1. GTAW/SMAW
Weld Overlay Repair of Stainless Steel Piping.
- b. Procedure No. 82-8S8-RW-5.1; Revision 1.
PQR-82P8F6F5.1 & 82P8F6F5.2.
SMAW Sealing of Cracks and Repair of Other Defects in Base Metal Using Interpass Temperature Measurements With or Without Water Backing For Overlay Welding on Austenitic Stainless Steel Pipes.
- c. Procedure No. 82-8T8-RW-5.2; Revision 2.
PQR, 81P8F6-1 & 82P8F6F5-1. GTAW.
Automatic GTAW Overlay Repair of Austenitic Stainless Steel Pipe With Water Flowing.
- d. Procedure No. 82-8T8-RW-5.2; Revision 0.
PQR, 82P8F6F5-1 & 82P8F6F5-2. GTAW.
Manual GTAW Repair Welding of Austenitic Stainless Steel Using Interpass Temperature Measurements With or Without Water Backing.
- e. Procedure No. 82-8T8-BR-1.1; Revision 1.
PQR, 81P8F6-1 & 82P8F6F5-1. GTAW.

Automatic GTAW Groove Welding of Austenitic Stainless Steel With Backing Metal.

No items of noncompliance or deviations were identified.

8. Welder Qualification and Training

The inspector witnessed the qualification of welders and welder training on the mockup for overlay repair of recirculation system piping.

The following welder and welding operator qualification and training records were reviewed.

<u>Name</u>	<u>Stamp No.</u>
D. Bresnahan	F96
R. Olson	F35
G. Schultz	F002
R. Gray	8950
C. Kellerman	3215
J. Lawrence	3581
S. Lawson	7815
S. MacKelprang	8976
R. Madsen	1894
M. Taft	9380
D. Urie	9169
B. Stang	F93
J. Stang	F94
J. Barnes	F50
R. Cardona	F31
M. Wall	F40
C. Coffey	F87

No items of noncompliance or deviations were identified.

9. Welding Materials

The inspector reviewed material requirements, purchase orders, receipt inspection reports, and material test reports for the welding materials ordered to the requirements of Nutech Specifications No. NSP-81-102 and NSP-81-104, to be used for repair of thru wall cracks and overlay repair of recirculation system pipe.

Control of welding materials was in accordance with Electrode Control Procedure No. ECP-2, Revision 0.

The following materials were ordered on Cherne Contracting Corporation Purchase Orders and transferred to NSP:

- a. ER-308L x.035" diameter bare wire Heat No. 43379.
- b. ER-308L x.035" diameter bare wire Heat No. 3932-57.
- c. ER-309L x.035" diameter bare wire Heat No. 05433.

Purchase Order No. MQA-63069
E-308L-16, 3/32" Rod
Heat No. 306115, Lot No. 2318158

10. Base Material Repairs

Through wall cracks were detected in recirculation riser pipe welds RRCJ-3, RREJ-3 and RRFJ-3 prior to overlay repair, and during hydrostatic testing in riser pipe RRGJ-4.

Repair of the base metal prior to overlay was by excavating the area to a depth of 3/16 or greater without going through the inside surface of the pipe, liquid penetrant examine the area, and weld using manual SMAW Procedure 82-8S8-RW-5.1, Revision 1. Weld metal overlay was then deposited in accordance with the approved repair program and procedures.

11. Observation of Activities

During the course of ISI examinations and pipe repair activities the inspector witnessed the calibration of instruments, the examination of weld RREG-3, the qualification of welders, the training of welders and welding operators on the mock-up, the repair welding of riser pipe welds RRDJ-5, RRFJ-3, RRCJ-3, and the hydrostatic testing of the system following repair welding.

No items of noncompliance or deviations were identified.

12. Documentation Review

Following all repair activities and hydrostatic testing the inspector reviewed welding and examination documentation of pipe repairs.

The following documents were reviewed:

Repair Process Traveler - Weld RMAJ-2
22" Recirculation Loop "A" Pipe Cap
Welding Material -
E-308L-16, 1/8", Heat No. 41659, Lot No. 2226176
E-308L-16, 3/32", Heat No. 41659, Lot No. 2129872
E-308L-16, 3/32", Heat No. 42554, Lot No. 21221
Calibration Block No. 60, Calibration Report ELT-013/015
UT Reports No. 82-322, 82-364, 82-363
PT Reports No. 432, 82-319

Repair Process Traveler - Weld RREJ-3
12" Recirculation Riser Loop "B"
Welding Material -
ER-308L-16, 3/32", Heat No. 306115, Lot No. 2318158
Calibration Block No. 61, Calibration Reports GRA-15/19/18/17
UT Reports No. 82-916, 82-927, 82-928
Thickness Measurement Report - UT, 82-910
PT Reports No. 82-924

Repair Process Traveler - Weld RRCD-3
12" Recirculation Riser Loop "B"
Welding Material -
ER-308L, Heat No. 3932-57
Calibration Block No. 61,
UT Report No. 82-917 - Calibration Report GRA-10
UT Report No. 82-919 - Calibration Report GRA-11
UT Report No. 82-920 - Calibration Report GRA-12
UT Report No. 82-922 - Calibration Report GRA-13
PT Report No. 82-914/82-905

Repair Process Traveler - Weld RRCJ-5
12" Recirculation Riser Loop "B"
Welding Material -
ER-308L, Heat No. 3932-57
Calibration Block No. 61,
UT Report No. 82-930 - Calibration Report GRA-20
UT Report No. 82-931 - Calibration Report GRA-20
UT Report No. 82-932 - Calibration Report GRA-21
UT Report No. 82-925 - Calibration Report GRA-15
PT Report No. 82-903

Repair Process Traveler - Weld RRFJ-3
12" Recirculation Riser Loop "A"
Welding Material -
ER-308L, Heat No. 3932-57
Calibration Block No. 61,
UT Report No. 82-916 - Calibration Report GRA-10
UT Report No. 82-921 - Calibration Report GRA-12
UT Report No. 82-923 - Calibration Report GRA-13
UT Report No. 82-918 - Calibration Report GRA-11
PT Report No. 82-915, 82-909, 82-904

Repair Process Traveler - Weld RRGJ-4
12" Recirculation Riser Loop "A"
Welding Material -
ER-308L, Heat No. 3932-59
Calibration Block No. 61,
UT Report No. 82-943 - Calibration Report GRA-29
UT Report No. 82-940 - Calibration Report GRA-26
UT Report No. 82-939 - Calibration Report GRA-25
UT Report No. 82-941 - Calibration Report GRA-27
UT Report No. 82-942 - Calibration Report GRA-28
UT Report No. 82-935 - Calibration Report GRA-23
PT Report No. 82-938, 82-937

The inspector viewed radiographs of all repaired welds.

No items of noncompliance or deviations were identified.

13. System Hydrostatic Test

On November 22, 23, 1982, the inspector reviewed Hydrostatic Test Procedure No. 0255-20-11A, Part 1. In addition, the inspector witnessed

the application of pressure and temperature to the system, and examined welds in the 12" riser pipes along with licensee and ANI personnel while at test pressure. Riser pipe RRGJ-4 was found to be leaking during the test. Pressure was maintained on the system until all required examinations were completed at which time the riser pipes were drained and repairs to the leak in RRGJ-4 started with the procedures used for the other risers. The system was tested following repairs to RRGJ-4 at unit operating pressure. No indications of leakage were noted.

No items of noncompliance or deviations were identified.

14. Exit Interview

At the conclusion of each portion of this inspection and the final inspection on December 8, 1982, the inspector discussed the findings with the licensee's ISI coordinator. The inspector summarized the scope and findings of the inspection.

Section II

Prepared by K. D. Ward
Reviewed by D. H. Danielson, Chief
Materials Processes Section

Persons Attending Validation Meeting, Battelle Columbus Laboratories, Columbus, Ohio, October 7, 1982

G. Dali, EPRI, Palo Alto, California
M. Behravesh, EPRI, Charlotte, North Carolina
G. Selby, Battelle, N. W. Labs.
K. Cook, Oak Ridge National Labs.
J. Gieske, Sandio National Labs. Albuquerque, New Mexico
J. Cook, EG&E, Idaho, Inc.
W. Hazelton, U.S. NRC, Washington
M. Hum, U.S. NRC, Washington
W. Collins, U.S. NRC, Washington
R. McBvearty, U.S. NRC, Region I
J. Coley, U.S. NRC, Region II
W. Crowley, U.S. NRC, Region II
K. Ward, U.S. NRC, Washington, Region III

Persons Present for Ultrasonic Examination (UT) Demonstration October 8, 1982

D. MacGill, Level III, Lambert, MacGill, Thomas Inc. (LMT)
E. Thomas, Level III, Lambert, MacGill, Thomas Inc. (LMT)
M. Anderson, Engineer, Northern States Power Company (NSP)

EPRI representatives met with members of the technical staff from the NRC Region's, I&E Headquarters, NRR and NRC consultants to discuss the ultrasonic examination (UT) to be performed on recirculation system pipe welds from Nine Mile Point (NMP-1) at Battelle Columbus Laboratories, Columbus, Ohio.

EPRI explained that they were not planning to monitor, offically witness or report the results of the UT. EPRI was only providing the intergranular stress convasion cracking (IGSCC) weld samples from NMP-1, and the use of their facilities to the utilities to perform the UT validation for NRC representatives.

Battelle had three weld samples of the safe end to elbow and two weld samples of the elbow to the riser of the recirculation system from NMP-1. UT personnel at Battelle Columbus plotted out the cracks in the five weld samples under the direction of EPRI. They demonstarated to the NRC how the cracks were found, including calibration methods and the liquid penetrant examinations that had been performed on the inside diameter (ID) showing the unacceptable indications.

It was agreed that Region II and Region III would witness the UT. The following instructions were given to LMT prior to them performing UT.

- . Use their procedure and perform the UT as if they were production welds.
- . The lowest Level UT person is to perform the examinations.
- . All five weld samples would be examined. They would remain stationary and the UT instruments would be moved from one weld to another.
- . The NRC would have a copy of their procedure.
- . Plot out all indications.
- . Submit all new data. Region III also requested that a grid form with crack (C) no crack (N) designation be completed prior to leaving Battelle. This form was used as a quick reference being a grid form was also used by Battelle in plotting out the cracks.
- . The NRC would give the licensee the results (acceptable/unacceptable) as soon as the final data was submitted.

LMT performed the UT validation using NSP procedure, Ultrasonic Examination of Pipe Welds, No. NSP-UT-1, Revision 2, dated August 20, 1982. This procedure is in accordance with ASME Section V and XI, 1977 Edition, Summer 1978 Addenda.

The five weld samples were equivalent to approximately one complete weld 28" diameter, 1.2" thick, made from rolled and welded stainless steel plate. It took approximately six hours for LMT to calibrate and to perform the UT on the five samples. Approximately three hours later after LMT had evaluated the raw data, NSP submitted the data to Region III stating that it was the final results.

The NRC, their consultants, etc., compared LMT results against the Battelle results to determine if LMT had found the majority of the cracks. Region III informed LMT & NSP that the LMT UT was acceptable. There were discussions between the NRC and NSP in regards to changes in their procedures to make them more specific. NSP stated that their procedures will be revised in the near future. The NRC questioned if other UT personnel in the LMT organization would interpret the same UT signals to be cracks. LMT stated that their UT personnel would interpret the same signals to be cracks.