

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-455/85-31

Docket No. 50-455

License No. CPPR-131 Priority - Category A

Licensee: Commonwealth Edison
P.O. Box 767
Chicago, Illinois 60690

Facility Name: Byron Station Unit 2

Inspection At: Byron, Illinois

Inspection Conducted: October 15-25 and October 28 - November 7, 1985

Inspectors:	<u>Harry W. Kerch</u>	<u>11/25/85</u>
	Harry W. Kerch, Lead Reactor Engineer	Date
	<u>Richard H. Harris</u>	<u>11/20/85</u>
	Richard H. Harris, NDE Technician	Date
	<u>Audrey J. Lodewyk</u>	<u>11/25/85</u>
	Audrey Lodewyk, Reactor Engineer	Date
Approved by:	<u>James T. Wiggins</u>	<u>11/26/85</u>
	James T. Wiggins, Chief Materials and Processes Section	Date

Inspection Summary: Inspection on October 15-25 at Region I office and
October 28 - November 7, 1985 at Byron site (Report No. 50-455/85-31)

Areas Inspected: A routine, announced NRC independent measurements inspection was conducted using the NRC Mobile Non-destructive Examination (NDE) laboratory. Selected safety related piping weldments fabricated to ASME Code, Section III, Classes 1 and 2 were inspected. Three region-based inspection personnel assisted by two NRC NDE contracted personnel were utilized during this inspection.

The inspection involved 462 onsite hours and 104 offsite hours.

Results: No violations were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison

*R. Tuetken	Startup Superintendent
*V. I. Schosser	Project Manager
*E. L. Martin,	QA Superintendent
*J. L. Woldridge	QA Supervisor
*G. Sorensen	Project Construction Manager
*B. E. Harl	Staff Assistant QA
*J. T. Porter	Construction Supervisor
R. Friedel	PCD
*R. J. Moravec	Project Mechanical Supervisor
E. Woiber	QA Inspector
M. V. Della Betta	QA Supervisor
R. B. Klingler	Project QA Supervisor

EBASCO

*J. Sengenberger PSI/ISI Site Supervisor

Pittsburgh Test Lab. (PTL)

J. Becker	Site Manager
G. Schmolze	Assistant Manager

U.S. NRC

J. M. Hinds	Senior Resident Inspector
*K. D. Ward	Reactor Inspector
*P. G. Brochman	Resident Inspector

*Attended exit meeting.

2.0 Independent Measurements - NRC Nondestructive Examination and Quality Records Review of Safety Related Systems:

During the period of October 15 - 25, 1985 quality records received from Byron Nuclear Power Plant, Unit 2 were reviewed in the Region I office for completeness and for compliance to the licensee's FSAR commitments to applicable codes, standards and specifications.

Subsequently, an onsite independent verification inspection was conducted during the weeks of October 28 through November 7, 1985 using the NRC Mobile Nondestructive Examination (NDE) laboratory. This inspection was

performed by NRC Region I personnel in conjunction with NRC contracted NDE personnel.

The purpose of this examination was to verify the adequacy of the licensee's welding Quality Control program. This was accomplished by duplicating those examinations required of the licensee by regulations and codes, and evaluating the results. In addition to those examinations, several other confirmatory examinations designed to verify conformance with material specifications were performed and compared to quality assurance records.

The NRC inspectors performed the examination on randomly selected weldments representing samples of piping systems, components, pipe sizes, shop and field weldments fabricated to ASME, Section III Code.

The items selected were previously inspected and accepted by the licensee, as indicated by vendor shop and onsite QA/QC records.

2.1 Quality Documents Review

Forty-seven safety related piping systems documentation packages, covering the items shown in Attachment #3, were reviewed. The review also included other documents which provided background information and acceptance criteria necessary for the conduct of the inspection. The following documents were reviewed:

<u>Document</u>	<u>Attributes Reviewed</u>
Material Certifications (CMTRS) (Base)	Material chemical and physical (Base) properties were compared to standards and code requirements.
NDE Records	Examinations were verified to meet codes and standard requirements, licensee procedures and other commitments. Personnel were verified to be properly qualified. Appropriate examinations were performed.
Fabrication Records	A review of fabricators, traveler and fabrication records was conducted and these records were compared against other corresponding records and sign off sheets.

Drawings (Isometrics)	Drawings were reviewed for design of weldments, location and classification.
Procedures	Procedures were reviewed for completeness, and to verify the implementation of the licensee's commitments to code requirements.
Welding Material	Material certifications for welding materials were reviewed to determine if physical and chemical properties were as required by licensee's commitments to codes and industry standards.

Results: No violations were identified.

2.2 Nondestructive Examination

Nondestructive examinations were performed using NRC procedures with addenda written specifically to comply with the licensee's PSAR commitment to the ASME B&PV Code. The intent of these examinations was to duplicate, to the extent practicable, the techniques and methods of the original examinations.

The following nondestructive examinations were performed:

Radiographic Examinations

Thirty-six (36) safety related pipe weldments were radiographed using an Iridium 192 source. The technique and procedure were in accordance with NRC procedure, NDE-5, Rev. 0 and addendum BR-2-5-1, Rev. 0. The weldments examined were ASME Class 1 and 2. The resulting radiographs were evaluated per applicable code requirements and compared to the licensee's corresponding radiographs.

During a field walkdown of Southwest Fabrication and Welding Co. spool piece RH-14-1 the inspector noted two (2) weldments on the spool piece identified as weld W2 by the weld stamps. The Inspector then reviewed the documentation packages for these two welds and found that there were, in fact, two separate packages, each labeled as weld W2. However based on a review of the data in these packages, the inspector determined that correlation between each weld package and its associated weld was possible.

The inspector then reviewed the Southwest Fabrication and Welding Co's drawings for this spool piece and found that a pipe modification had been made and new identification numbers had been assigned to the above identified spool piece.

Weld W2 on the manufacturers records sheet for spool piece Q6050 RH-60RR (R4-14-1) was reassigned and replaced with weld W7. On November 7, 1985 the licensee issued letters to Hunter Corp. and Ebasco Services Inc. which directed changes to be made to the site drawings to reflect actual conditions found on spool piece. This item is considered unresolved pending completion of drawing changes and NRC verification (50-455/85-31-01).

Results: No violations were identified.

Liquid Penetrant

Twenty-six (26) safety related pipe weldments and adjacent base material ($\frac{1}{2}$ " either side of weld) were examined using color contrast liquid penetrant techniques per NRC procedure NDE-9, Rev. 0 and addendum BR-2-9-1, Rev. 0. Samples included ASME Class 1 and 2 stainless steel type 316 and 304.

Results: No violations were identified.

Thickness Measurements

Twenty-two (22) pipe weldments and adjacent base materials were examined for wall thickness using a NOVA-D 100 digital thickness gage. Examinations were performed per NRC procedure NDE-11, Rev. 0.

Minimum wall thickness was determined by use of ASTM standard pipe size and nominal thickness chart.

Results: No violations were identified.

Ferrite Measurements:

Eleven (11) safety related pipe weldments were checked for delta ferrite content using a Type II ferrite indicator (Severn Gauge). This test was intended to verify that welding filler metal composition had achieved adequate as-deposited microstructure with delta ferrite content adequate to eliminate possible hot cracking.

Results: No violations were identified.

Visual Examination:

Forty-nine (49) safety related pipe weldments were visually examined per NRC procedure NDE-14, Rev. 0. The examinations were performed using visual aids such as lights, mirrors and English welding gages. Examinations were performed to determine the general condition of the piping weldment and the adjacent surfaces specifically checking for reinforcement, cracks, misalignment or other rejectable visual indications.

Results: No violations were identified.

Ultrasonic Examination:

Two (2) safety related pipe weldments were examined ultrasonically using a Sonic Mark I ultrasonic flaw detector per NRC procedure NDE-1 Rev. 0 and Ebasco Ultrasonic data sheets UT-A-23 and UT-A-33. The weldments identified were 2RH01AB-12" J3 and 2RH01AB-12" J35 as indicated on UT data sheets.

Instrument calibration was performed using NRC procedure NDE-2, Instrument linearity verification. Distance Amplitude Correction (DAC) was constructed using Ebasco Calibration Block 12-A-316-1.08-1. Instrument settings and search unit (transducer) were matched as closely as possible to those indicated by UT data sheets in an attempt to duplicate the original examination.

During the ultrasonic examination and review of the ultrasonic data reports it was noted that the associated data did not reflect the proper contour, or thickness of the area for the actual welds tested. Also during this review, the data reports referenced a Delta technique which had been used to determine the ultrasonic beam angle within the material. An inquiry was made to see if there was an approved procedure that referenced the use of this delta technique. The licensee was unable to furnish any procedure or other reference to this technique.

The inspector expressed concern over these two findings to the licensee. The licensee agreed to review these concerns.

Results: This area is considered unresolved pending completion of the licensee's review of the above described NRC concerns.(50-455/31-03).

Alloy Analyzer:

Four (4) safety related pipe weldments and adjacent base material were examined using a Texas Alloy Analyzer. The Alloy Analyzer is

capable of making selected qualitative and quantitative nondestructive analysis of metal alloys and verification of material types.

Results: No violations were identified.

Hardness Measurements:

Eleven (11) safety related pipe weldments and adjacent base material were tested using the Equo-tip hardness tester per NRC procedure NDE-12, Rev. 0. Measurement values taken from the impact device are processed into "L" values as a digital read out; the numbers ("L" values) are then converted to Brinell hardness values and approximate tensile strength by means of a conversion table.

Results: No violations were identified.

Magnetic Particle Examination:

Six (6) safety related pipe weldments and adjacent base materials were examined by the magnetic particle method per NRC procedure NDE-6, Rev. 0 and addendum BS-2-6-1. Samples examined were ASME Code Class 2.

Results: No violations were identified.

3.0 Review of NDE Procedures

The following NDE procedures were reviewed to verify their technical adequacy and conformance to code requirements:

Pittsburgh Testing Lab (PTL)

Magnetic Particle Examination	QC-MT-2 Rev. 5
Liquid Penetrant Testing	QC-PT-1 Rev. 9
Radiographic Examination	QC-RT-1 Rev. 11

Southwest Fab.

Magnetic Particle Examination	MT-3 Rev. 0
Liquid Penetrant	PT-3 Rev. 0
Radiographic Examination	RT-74-2 Rev. 0

Results: No violations were identified.

4.0 Radiographic Review

A sampling of the licensee's radiographs was reviewed. The inspector reviewed radiographs for twenty shop welds and one hundred and six field welds to verify compliance with ASME III code requirements, accuracy of radiographic film interpretation and the adequacy of the licensee's ra-

diographic program. Twenty-six of the welds were re-radiographed by the NRC during this inspection and the NRC film was compared to site file film to independently verify that correct radiographic file film was on hand (see Attachment #2, line items with asterisk). During review of radiographic films for welds 2H-FSK-57-7 FW54R1 and 2HFSK-57-8 FW55, the inspector noted that each film contained an apparent indication which was not properly documented on the licensee's radiographic reader sheet. In response to these findings the licensee and NRC performed an ID surface check to resolve the indications. The welds were found to contain ID mismatches which should have been documented on the radiographic inspection reports. The inspector determined, however, that the actual welds were acceptable to code requirements. The NRC had no further concerns.

Results: No violations were identified.

5.0 Preservice Inspection (PSI) Program

The inspector reviewed various PSI ultrasonic data reports. Data reports for weld 2RCO3AD27½J12 did not clearly reflect the extent of the weld joint volume which had been ultrasonically examined. The weld joint data sketch illustrated the volume required to be examined by the ASME code. However a thorough review of the data by the inspector revealed that 25% of the ASME code required volume had not been examined for this weld. Discussions with the ISI vendor personnel indicated that he had known the exact extent of the volume which had been examined. To avoid confusion, the licensee should consider methods to more clearly show the extent of the weld examined.

Further review of the licensee ultrasonic data revealed that the cast stainless steel elbows in the primary piping system were not scheduled for complete ultrasonic examinations (see Attachment #4 for listing of welds and extent of examinations). A meeting was conducted on November 5, 1985, with the licensee regarding the cast stainless steel elbow ultrasonic examinations and Steam Generator ID girth indications. This meeting did not resolve these issues. On November 7, 1985, the inspector held a phone conversation with a representative of NRR: MTEB regarding the examinations of the primary loop elbows. The outcome of this conversation was NRR's intent that the licensee perform the required ASME code examinations for each of the cast stainless steel elbow welds and subsequently report the examination results.

Results: The NRC concerns regarding clarification of the PSI records and the examination of the cast stainless steel elbow welds remain unresolved pending licensee's evaluation and subsequent NRC review (50-455/85-31-02).

6.0 Attachments

Attachment No. 1 is a tabulation of the specific items examined and the results achieved. Attachment No. 2 is a list of specific radiographs reviewed. Attachment No. 3 is a list of specific document packages reviewed. Attachment No. 4 is a list of welds and extent of examination. Attachment #5 is a list of attendees to a meeting to discuss cast elbow examinations.

7.0 Unresolved

Unresolved items are those for which more information is necessary for the NRC to determine whether the items are acceptable, violations or deviations. Unresolved items are contained in paragraph 2.2, and 5.0.

8.0 Exit Interview

An exit interview was held on November 7, 1985 with members of the licensee's staff. The inspector summarized the scope and findings of this inspection. No written material was provided to the licensee during this inspection.

INDEPENDENT MEASUREMENT PROGRAM

ATTACHMENT NO. 1

WELD NUMBER LINE/ISO	CLASS	ALLOY ANAL	FERRITE	THICK	M.T.	R.T.	U.T. ANAL.	P.T.	HARDNESS	VISUAL	REMARKS
FW45 2H-CBE-Surge	1	ACC	ACC	N/A	N/A	N/A	N/A	ACC	ACC	ACC	
FW 188 2H-CBE-1	1	ACC	ACC	"	"	"	"	ACC	N/A	ACC	
FW691 W0-7-1	2	N/A	N/A	"	ACC	ACC	"	N/A	"	ACC	
FW610 H-W0-5-1A	2	"	"	ACC	ACC	ACC	"	"	"	ACC	
FW2693 2SX-42-1	2	"	"	N/A	ACC	N/A	"	"	"	ACC	
FW626 SI-37	2	"	"	ACC	N/A	ACC	"	"	"	ACC	
FW922 SI-33-11	1	"	"	N/A	"	N/A	"	ACC	"	ACC	
FW774 SI29-2	2	ACC	ACC	"	"	ACC	"	N/A	"	ACC	
FW296 RH-15-1	1	N/A	ACC	"	"	ACC	"	ACC	"	ACC	
FW327 RC-14-5	1	"	N/A	"	"	ACC	"	N/A	"	ACC	
FW331 RC-14-4	1	"	ACC	"	"	ACC	"	ACC	ACC	ACC	
FW330 RC-14-4	1	"	ACC	"	"	ACC	"	ACC	N/A	ACC	

INDEPENDENT MEASUREMENT PROGRAM

ATTACHMENT NO. 1

WELD NUMBER LINE/ISO	CLASS	ALLOY ANAL.	FERRITE	THICK	M.T.	R.T.	U.T. ANAL.	P.T.	HARDNESS	VISUAL	REMARKS
FW394 RC-11-12	1	N/A	N/A	ACC	N/A	ACC	N/A	ACC	N/A	ACC	
FW379 RC-11-3	1	"	"	ACC	"	ACC	"	N/A	"	ACC	
FW378 RC-11-3	1	N/A		ACC	N/A	ACC	"	"	"	ACC	
FW452 MS-60-8	2	"	"	N/A	ACC	ACC	"	"	"	ACC	
FW343 MS-56A-9	2	"	"	"	ACC	ACC	"	"	"	ACC	
FW616 CV18-4	2	"	"	ACC	N/A	ACC	"	ACC	ACC	ACC	
FW206 CS-18-3	2	"	"	ACC	"	ACC	"	ACC	N/A	ACC	
FW194 CS-16-11	2	"	"	ACC	"	ACC	"	ACC	ACC	ACC	
FW85 CS-15-9	2	"	"	ACC	"	ACC	"	N/A	N/A	ACC	
FW673 AF-27-1	2	"	"	N/A	"	ACC	"	"	"	ACC	
SW4 SX-39-2	2	"	"	ACC	"	ACC	"	"	"	ACC	
SW2 CS-16-1	2	"	"	ACC	"	ACC	"	"	"	ACC	

INDEPENDENT MEASUREMENT PROGRAM

ATTACHMENT NO. 1

WELD NUMBER LINE/ISO	CLASS	ALLOY ANAL.	FERRITE	THICK	M.T.	R.T.	U.T. ANAL.	P.T.	HARDNESS	VISUAL	REMARKS
SW2 CS-18-3	2	"	"	ACC	"	ACC	"	ACC	"	ACC	
SW2 CS-17-17	2	"	"	ACC	"	ACC	"	ACC	ACC	ACC	
SW2 CV-18-4	2	"	"	ACC	"	ACC	"	ACC	ACC	ACC	
SW3 MS-61-7	2	"	"	N/A	ACC	N/A	"	N/A	N/A	ACC	
SW3 RH-9-6	2	N/A	N/A	ACC	N/A	ACC	N/A	ACC	ACC	ACC	
SW2 RH-10-1	2	"	"	ACC	"	ACC	"	ACC	ACC	ACC	
SW3 RH-14-1	1	"	"	N/A	"	ACC	"	N/A	N/A	ACC	
SW4 SI-39-1	2	"	ACC	ACC	"	ACC	"	ACC	"	ACC	
SW2 SI-32-2	1	"	N/A	ACC	"	ACC	"	N/A	"	ACC	
SW5 SI-34-10	2	"	ACC	ACC	"	ACC	"	ACC	"	ACC	
SW5 SX-42-1	2	"	N/A	ACC	"	ACC	"	ACC	"	ACC	
RW784 SI-34-10	2	"	ACC	N/A	"	N/A	"	ACC	ACC	ACC	

INDEPENDENT MEASUREMENT PROGRAM

ATTACHMENT NO. 1

WELD NUMBER LINE/ISO	CLASS	ALLOY ANAL	FERRITE	THICK	M.T.	R.T.	U.T. ANAL.	P.T.	HARDNESS	VISUAL	REMARKS
SW1 CV-17-17	2	"	N/A	"	"	"	"	ACC	N/A	ACC	
SW2 RH-9-6	2	"	ACC	"	"	"	"	ACC	"	ACC	
SW10 2H-CBE-Surge	1	ACC	ACC	"	"	ACC	"	ACC	"	ACC	
SW3 CS-18-3	2	N/A	N/A	"	"	N/A	"	ACC	"	ACC	
SW3 RH-10-1	2	"	"	"	"	"	"	ACC	"	ACC	
SW4 CS-18-3	2	"	"	"	"	"	"	ACC	ACC	ACC	
SW5 CS-18-3	2	"	"	"	"	ACC	N/A	ACC	ACC	ACC	
F4498 SX-39-2	2	"	"	"	"	ACC	"	N/A	N/A	ACC	
FW1115 FW-54-5	2	"	"	ACC	"	ACC	"	"	"	ACC	
FW498 RH-10	2	"	"	ACC	"	ACC	"	"	"	ACC	
SW2 SI-33	2	"	"	N/A	"	ACC	"	"	"	ACC	
151/PSI J3 2RH01AB-12	1	"	"	"	"	N/A	ACC	"	"	ACC	

INDEPENDENT MEASUREMENT PROGRAM

ATTACHMENT NO. 1																				
1	151/PSI J35	12RH01AB-12	"	"	"	"	"	"	"	ACC	"	"	"	ACC	"	"	ACC	"	"	ACC

ATTACHMENT 2

C - CRACK
SL - SLAG
P - POROSITY
T - TUNGSTEN

LF - LACK FUSION
IP - INADEQUATE PENETRATION
LI - LINEAR INDICATION
UI - UNFUSED INSERT

A - ARTIFACTS
S - SURFACE
CC - CONCAVITY
CV - CONVEXITY

Page 1 of 6

SYSTEM/LINE	WELD ID	ACC	REJ	C	SL	P	T	LF	IP	LI	UI	A	S	CC	CV	COMMENTS
RL-11	FW979R2	X														
MS60A	FW452	X														
MS56A	FW343	X														*
FW28A	FW824	X														*
FW27A	FW828	X														*
CV-18	FW617	X														
WQ7-1	FW691	X														*
CS-16	FW194	X														
CS-15	FW85	X														
WQ5-1A	FW610	X														*
SX-42 (R1)	FW2693	X														
2M-CBE-Purge	FW45	X														*
SI-29	FW774	X														
SI-33-11	FW992	X														*
SI-37 (R3)	FW626	X														*
SX-39-2	FW2613	X														
AF-27	FW672	X														
AF-27-1	FW673	X														*
CS-10	FW20	X														
FSK-318-3	FW3388	X														
MS60B (1)	FW328	X														
FW27A	FW721	X														

*Those licensee file film compared with NRC film to verify correctness of file film

ATTACHMENT 3

REVIEW OF DOCUMENTATION PACKAGES

Page 1 of 3

LINE NO/ISO	WELD NO	REVIEW	COMMENTS
2H-CBE-Surge	FW 45	ACC	N/A
2H-CBE-1	FW 188	"	"
WO-7-1	FW 691	"	"
H-WO-5-1A	FW 610	"	"
2SX-42-1	FW 2693	"	"
SX-39-2	FW 2613	"	"
SI-37	FW 626	"	"
SI-33-11	FW 922	"	"
SI-29-2	FW 774	"	"
RH-15-1	FW 296	"	"
RH-13-5	FW 375	"	"
RH-10-7	FW 101	"	"
RC-14-5	FW 327	"	"
RC-14-4	FW 330	"	"
RC-14-4	FW 331	"	"
RC-11-12	FW 394	"	"
RC-11-3	FW 379	"	"
RC-11-3	FW 378	"	"
MS-60-8	FW 452	"	"
MS-56A-9	FW 343	"	"

ATTACHMENT 3

LINE NO/ISO	WELD NO	REVIEW	COMMENTS
FW-28-A	FW 824	"	"
FW-27-A	FW 828	"	"
CV-18-4	FW 617	"	"
CS-18-3	FW 206	"	"
CS-16-11	FW 194	"	"
CS-15-9	FW 85	"	"
AF-27-5	FW 672	"	"
AF-27-1	FW 673	"	"
SX-39-2	SWF 4	"	"
AF-27-1	SWF 3	"	"
CS-17-1	SWF 2	"	"
AE-27-6	SWF-2	"	"
CS-16-1	SWF-2	"	"
CS-18-3	SWF 2	"	"
CV-17-17	SWF 2	"	"
CV-18-4	SWF 2	"	"
FW-77-2	SWF 6	"	"
MS-57-5	SWF 5	"	"
MS-61-7	SWF 3	"	"
RC-14-5	SWF 6	"	"
RH-9-6	SWF 3	"	"
RH-10-1	SWF 2	"	"
RH-14-1	SWF 3	"	"
SI-29-1	SWF 4	"	"
SI-32-2	SWF 4	"	"

ATTACHMENT 3

LINE NO/ISO	WELD NO	REVIEW	COMMENTS
SI-34-10	SWF 2	"	"
SX-42-1	SWF 5	"	"

ATTACHMENT 4

Page 1 of 2

CAST STAINLESS ELBOW

<u>AREA</u>		<u>DESCRIPTION</u>	<u>EXTENT OF VOLUMETRIC EXAMINATION</u>
Loop A	27½"	2-Pipe to Elbows	Pipe Side only
	29"	1-Steam Generator to Elbow	SG side only
		2-Elbow to Valve	No Volumetric
	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
	1-Elbow to Pump	No volumetrics	
Loop B	27½"	2-Pipe to Elbow	Pipe side only
	29	1-Steam Generator to Elbow	SG side only
		1-Elbow to Valve	No volumetrics
	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
	1-Elbow to Pump	No volumetrics	
Loop C	27½	2-Pipe to Elbow	Pipe side only
	29"	1-Steam Generator to Elbow	SG side only
		1-Elbow to Valve	No volumetrics

ATTACHMENT 4

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Loop C	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
		1-Elbow to Pump	No volumetrics
Loop D	27½"	2-Pipe to Elbow	Pipe side only
	29"	1-Steam Generator to Elbow	SG side only
		1-Elbow to Valve	No volumetric
	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
		1-Elbow to Pump	No volumetrics
Material	Elbows	Cast Stainless Steel	SA-351-CF8A

ATTACHMENT 4

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Loop C	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
		1-Elbow to Pump	No volumetrics
Loop D	27½"	2-Pipe to Elbow	Pipe side only
	29"	1-Steam Generator to Elbow	SG side only
		1-Elbow to Valve	No volumetric
	31"	1-Steam Generator to Elbow	SG side only
		4-Pipe to Elbow	Pipe side only
		1-Elbow to Pump	No volumetrics
Material	Elbows Cast Stainless Steel	SA-351-CF8A	

ATTACHMENT 5

BYRON PROJECT CONSTRUCTION/NUCLEAR REGULATORY
COMMISSION MEETING OF NOVEMBER 5, 1985

Attendance

<u>Name</u>	<u>Title</u>	<u>Organization</u>
R. P. Tuetken	Start-Up Superintendent	CECo. Byron Station
Ram Gaitonde	Supervising Staff Engineer	CECo. System Material Analysis Department
W. W. Witt	General Supervisor NDE	CECo. System Material Analysis Department
R. Moravec	Lead Mechanical Engineer	CECo. Project Construction Department
D. Christiana	Mechanical Engineer	CECo. Project Engineering Department
J. Porter	Construction Supervisor	CECo. Project Engineering Department
H. Kerch	Lead Reactor Engineer	USNRC RI
K. Ward	Lead Reactor Engineer	USNRC RIII