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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station  
Docket No. 50-219  
Weld Overlay Repairs

Attached are weld overlay repair details for NRC staff information and review. As a result of inspections performed during our current Cycle 13R refueling outage, intergranular stress corrosion crack indications found at four welds were determined to require full structural weld overlay repairs. The four weld locations include one in Shutdown Cooling System piping (NU-3-5) and three in Core Spray System piping (NZ-3-43, 44 and 95).

Very truly yours,

J. C. DeVine, Jr.  
Vice President and Director  
Technical Functions

JCD/PFC/amk

Attachment

cc: Administrator, Region I  
Mr. Alex Dromerick, NRC Project Manager  
NRC Resident Inspector

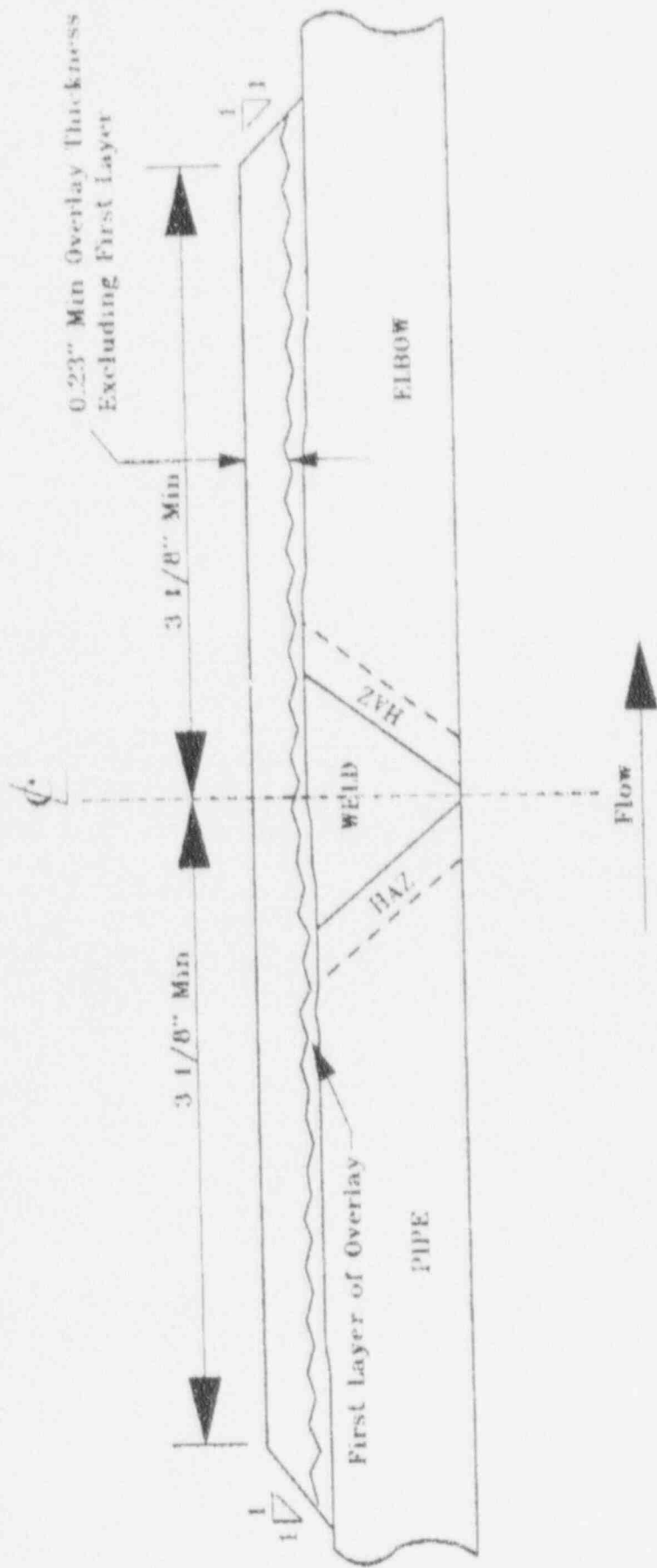
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OYSTER CREEK SHUTDOWN COOLING SYSTEM  
PIPE-TO-ELBOW WELD NU-3-5

FIGURE 1

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PLANT ID: OYSTER CREEK \*  
USE ID: NH 3-5

REC'D ID: NO-3-3

\* PIPE THICKNESS = 0.76 INCH \*

\* PIPE DIAMETER = 14.00 INCH \*

PRIMARY STRESSES:

\* PRESSURE - 5.87 KSI \*

\* DEAD WEIGHT BENDING = 1.66 KSI

* DRY WEIGHT DENSITY	=	1.05 KSI
SEISMIC MEMBRANE	=	0.00 KSI

SEISMIC BENDING = 0.21 KSI

SM WELD MATERIAL	= 16.95 KSI
SM PIPE MATERIAL	= 16.05 KSI

\* SM PIPE MATERIAL = 16.95 KSI \*

	PM	PD (RS+)	PN+PD	PN+PD/3
* .....	.....	.....	.....	.....

[illegible]

.....

0.235	0.270	0.330	0.400	0.500	0.600	0.700
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\* 010100 010100 010100 010100

★ PRIMARY STRESSES:

PRIMARY STRESSES: BM 4 676

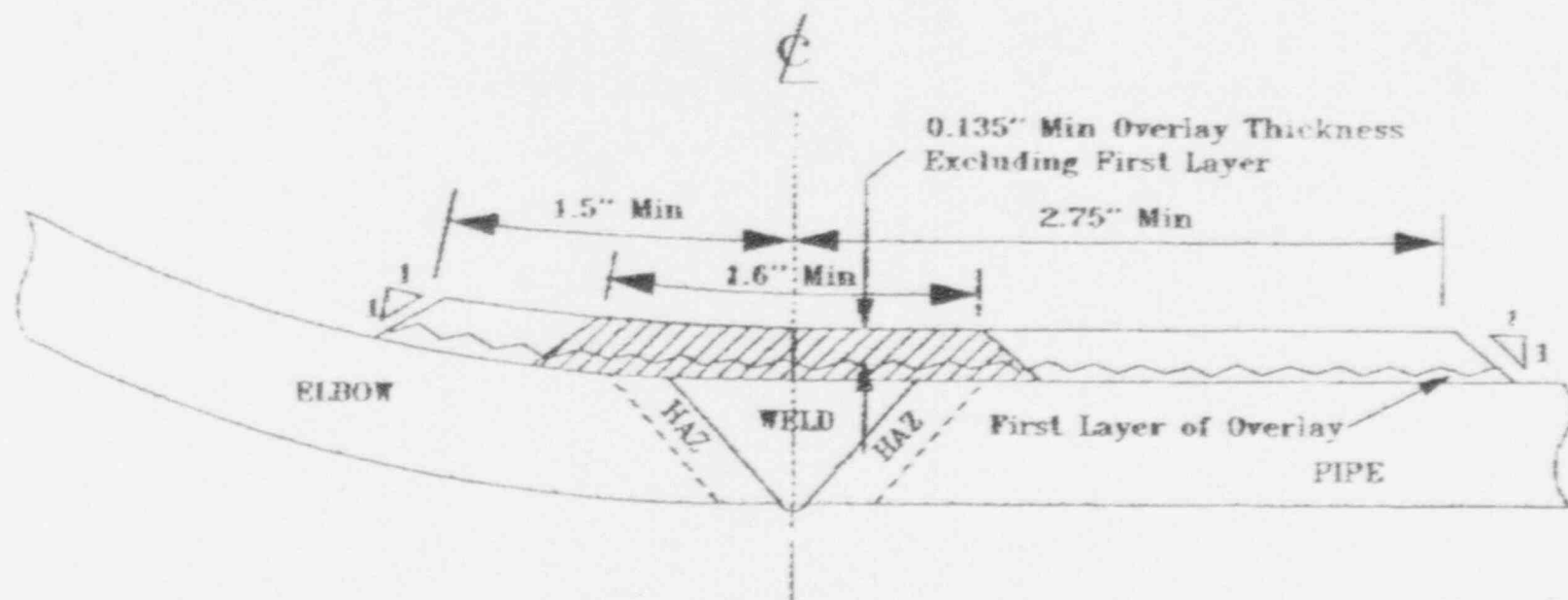
PM+PB	5.078
PM+PB	5.078

★

\* MINIMUM REQUIRED WELD OVERLAY THICKNESS = 0.225 INCH

\* MINIMUM REQUIRED WELD OVERLAY WIDTH = 2.3 INCH

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- Notes: A. 1.6" min. width required for structural reinforcement; minimum overlay thickness is required for this section.
- B. Minimum overlay thickness is optional outside the minimum width; however, a flat surface for UT inspection is required.

FIGURE 2 OYSTER CREEK CORE SPRAY SYSTEM  
PIPE TO ELBOW WELD, NZ-3-43

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PLANT ID: OYSTER CREEK  
WELD ID: NZ-3-43

PIPE THICKNESS = 0.53 INCH  
PIPE DIAMETER = 8.63 INCH

PRIMARY STRESSES:

|                      |   |           |
|----------------------|---|-----------|
| PRESSURE             | = | 5.09 KSI  |
| DEAD WEIGHT MEMBRANE | = | 0.00 KSI  |
| DEAD WEIGHT BENDING  | = | 1.06 KSI  |
| SEISMIC MEMBRANE     | = | 0.00 KSI  |
| SEISMIC BENDING      | = | 0.31 KSI  |
| SM WELD MATERIAL     | = | 16.95 KSI |
| SM PIPE MATERIAL     | = | 16.95 KSI |

|       | T     |       | PB (KSI) |        | PM+PB    | PM+PB/3 |
|-------|-------|-------|----------|--------|----------|---------|
|       | ----- |       | -----    | -----  | -----    | -----   |
|       | T+WOT | PM    | REMOTE   | WOT    | (REMOTE) | (WOT)   |
|       | ----- | (KSI) | -----    | -----  | -----    | -----   |
| 0.135 | 0.797 | 4.180 | 1.072    | 12.083 | 5.252    | 5.421   |

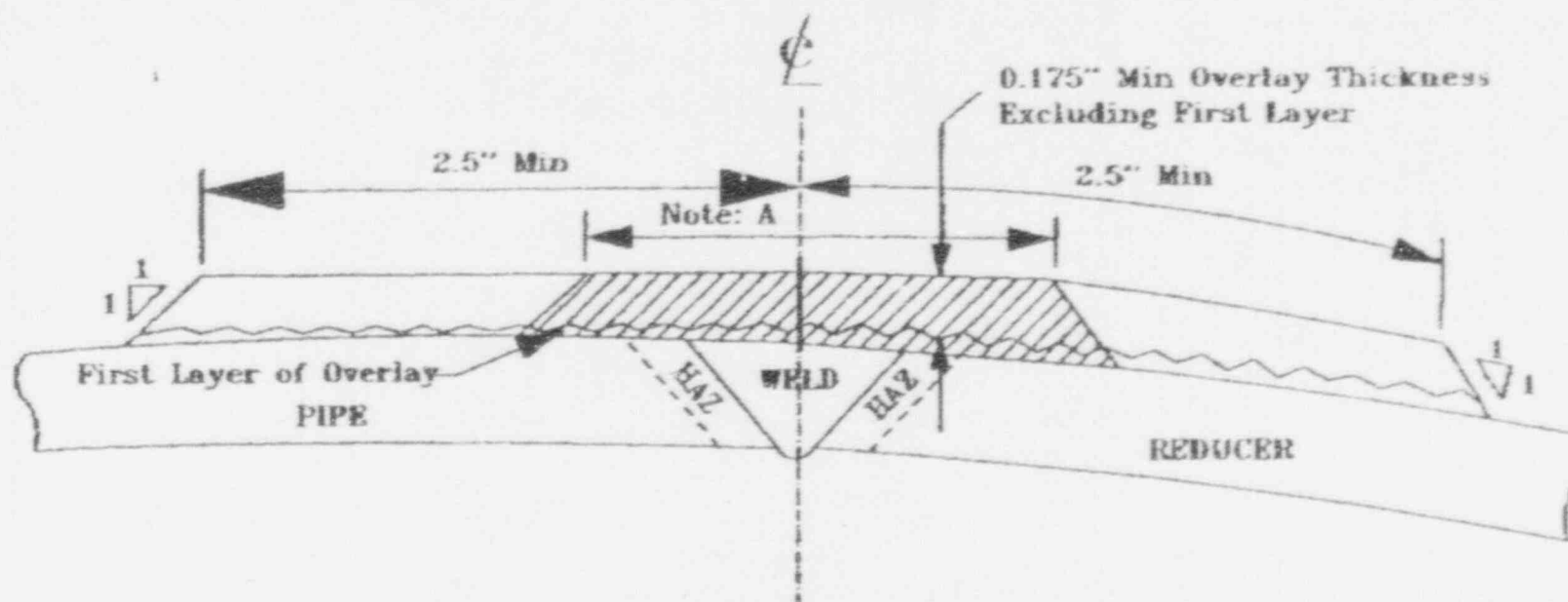
PRIMARY STRESSES:

|       |   |       |
|-------|---|-------|
| PM    | = | 4.180 |
| PM+PB | = | 5.252 |

MINIMUM REQUIRED WELD OVERLAY THICKNESS = 0.135 INCH  
MINIMUM REQUIRED WELD OVERLAY WIDTH = 1.5 INCH

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- Notes:
- A. 1.7" min. width required for structural reinforcement; minimum overlay thickness is required for this section.
  - B. Minimum overlay thickness is optional outside the minimum width; however, a flat surface for UT inspection is required.

**FIGURE 3 OYSTER CREEK CORE SPRAY SYSTEM  
PIPE TO REDUCER WELD - NZ-3-44**

Table 3 Overlay Design Analysis

PLANT ID: OYSTER CREEK  
WELD ID: NZ-3-44

PIPE THICKNESS = 0.53 INCH  
PIPE DIAMETER = 8.63 INCH

PRIMARY STRESSES:

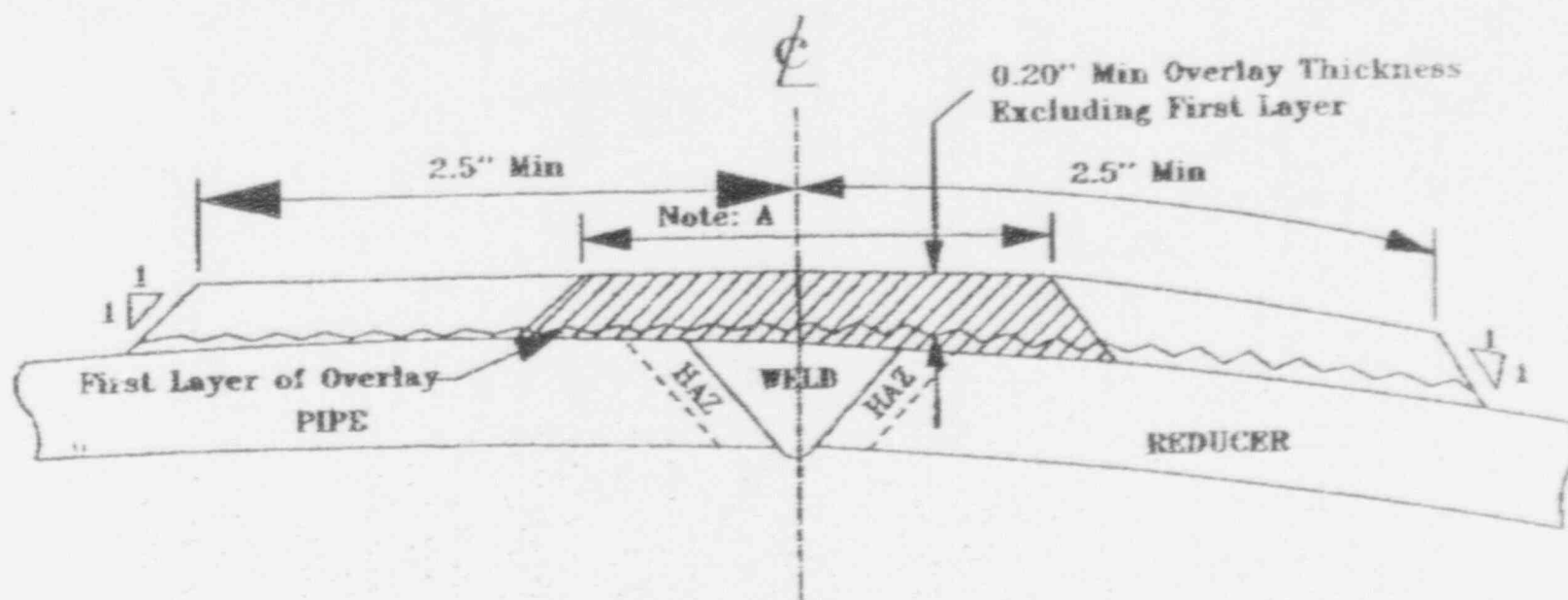
PRESSURE = 5.09 KSI  
DEAD WEIGHT MEMBRANE = 0.00 KSI  
DEAD WEIGHT BENDING = 3.13 KSI  
SEISMIC MEMBRANE = 0.00 KSI  
SEISMIC BENDING = 0.72 KSI  
SM WELD MATERIAL = 16.95 KSI  
SM PIPE MATERIAL = 16.95 KSI

|       | T     | PM    | PB (KSI)     | PM+PB    | PM+PB/3 |
|-------|-------|-------|--------------|----------|---------|
|       | ----- | (KSI) | -----        | -----    | -----   |
| WOT   | T+WOT |       | REMOTE WOT   | (REMOTE) | (WOT)   |
| ----- |       |       |              |          |         |
| 0.175 | 0.752 | 3.978 | 2.813 16.765 | 6.791    | 6.915   |

PRIMARY STRESSES:

PM = 3.978  
PM+PB = 6.791

MINIMUM REQUIRED WELD OVERLAY THICKNESS = 0.175 INCH  
MINIMUM REQUIRED WELD OVERLAY WIDTH = 1.5 INCH



- Notes: A. 1.7" min. width required for structural reinforcement; minimum overlay thickness is required for this section.
- B. Minimum overlay thickness is optional outside the minimum width; however, a flat surface for UT inspection is required.

FIGURE 4 OYSTER CREEK CORE SPRAY SYSTEM  
PIPE TO REDUCER WELD, NZ-3-95



Table 4 Overlay Design Analysis

PLANT ID: OYSTER CREEK  
WELD ID: NZ-3-95

PIPE THICKNESS = 0.53 INCH  
PIPE DIAMETER = 8.63 INCH

PRIMARY STRESSES:

PRESSURE = 5.09 KSI  
DEAD WEIGHT MEMBRANE = 0.00 KSI  
DEAD WEIGHT BENDING = 2.47 KSI  
SEISMIC MEMBRANE = 0.00 KSI  
SEISMIC BENDING = 2.85 KSI  
SM WELD MATERIAL = 16.95 KSI  
SM PIPE MATERIAL = 16.95 KSI

|       | T     |       | PB (KSI) |        | PM+PB    | PM+PB/3 |
|-------|-------|-------|----------|--------|----------|---------|
|       | ----- | PM    | -----    |        | -----    | -----   |
| WOT   | T+WOT | (KSI) | REMOTE   | WOT    | (REMOTE) | (WOT)   |
| 0.200 | 0.726 | 3.863 | 3.742    | 19.346 | 7.605    | 7.736   |

PRIMARY STRESSES:

PM = 3.863  
PM+PB = 7.605

MINIMUM REQUIRED WELD OVERLAY THICKNESS = 0.200 INCH  
MINIMUM REQUIRED WELD OVERLAY WIDTH = 1.5 INCH