

February 1, 1977  
L-77-36

*Central File*  
50-250  
251

Norman C. Moseley, Director  
Office of Inspection & Enforcement, Region II  
U. S. Nuclear Regulatory Commission  
230 Peachtree Street, N. W., Suite 818  
Atlanta, Georgia 30303

Dear Mr. Moseley:

Re: IE: II: AKH  
50-250/76-1  
50-251/76-1

This letter is submitted in accordance with the commitments made in my letter dated March 29, 1976. The status of the Turkey Point Drawings Program is as follows:

1. As of January 31, 1977, a total of eight hundred & forty-five (845) drawings have been updated as built in the field.
2. Of these, six hundred & forty-two (642) have received final approval and released to the field; eighty-six (86) in the final approval cycle; and one hundred & seventeen (117) are undergoing drafting and final review for adequacy.

During this period, nineteen (19) new drawings were generated by Engineering and released to the field, and eighty-six (86) are in the final approval cycle.

Very truly yours,

*Robert E. Uhrig*  
Robert E. Uhrig  
Vice President

REU/NFA/hlc

cc: Robert Lowenstein, Esq.



NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

TO: Mr Lear

FROM: Florida Power & Light Co  
Miami, Fla  
R E Uhrig

DATE OF DOCUMENT  
1-21-77

DATE RECEIVED 1-28-77

LETTER  
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DESCRIPTION

Ltr re our NRC request....trans the following:

1p

PLANT NAME: Turkey Point #3 & 4

ENCLOSURE

Add info re steam Generator Tube Integrity  
....(40 cys encl rec'd)

6p

**ACKNOWLEDGED**

**DO NOT REMOVE**

SAFETY	FOR ACTION/INFORMATION	ENVIRO	1-28-77	ehf
ASSIGNED AD:		ASSIGNED AD:		
BRANCH CHIEF:	Lear (5)	BRANCH CHIEF:		
PROJECT MANAGER:	Elliott	PROJECT MANAGER:		
LIC. ASST. :	Parrish	LIC. ASST. :		

INTERNAL DISTRIBUTION			
<input checked="" type="checkbox"/> REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
<input checked="" type="checkbox"/> NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
<input checked="" type="checkbox"/> I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
<input checked="" type="checkbox"/> OELD		LAINAS	
<input checked="" type="checkbox"/> GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
MIPC	MACARRY	KIRKWOOD	ERNST
CASE	KNIGHT		BALLARD
HANAUER	SIHWEIL	OPERATING REACTORS	SPANGLER
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT	STEPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
MELTZ		GRIMES	VOLLMER
HELTMES	AT & I		BUNCH
SKOVHOLT	SALTZMAN		J. COLLINS
	RUTBERG		KREGER

EXTERNAL DISTRIBUTION			CONTROL NUMBER
<input checked="" type="checkbox"/> LPDR: Miami, Fla	NAT. LAB:	BROOKHAVEN NAT. LAB.	1986 may
<input checked="" type="checkbox"/> TIC:	REG V. IE	ULRIKSON (ORNL)	
<input checked="" type="checkbox"/> NSIC:	LA PDR		
ASLB:	CONSULTANTS:		
<input checked="" type="checkbox"/> ACRS 16 CYS HOLDING/SENT	As CAT B / 128/77		

1. Re

11-20-

2. 3. 4.

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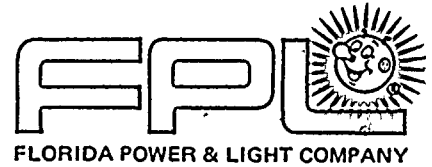
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Regulatory Docket File



January 21, 1977  
L-77-30

Director of Nuclear Reactor Regulation  
Attention: Mr. George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555



Dear Mr. Lear:

Re: Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
Steam Generator Tube Integrity  
Supplemental Information

The attached information is submitted in response to a request from your staff. It supplements previous information submitted in our letters L-76-432, L-76-434, and L-77-3.

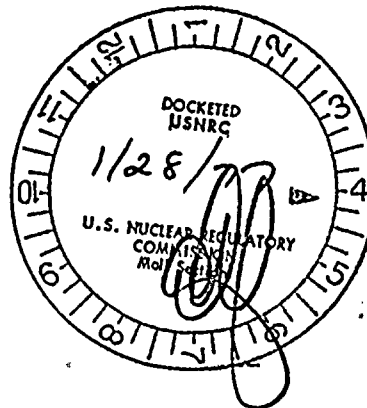
Very truly yours,

Robert E. Uhrig  
Vice President

REU/MAS/ms

Attachment

cc: Norman C. Moseley, Region II  
Robert Lowenstein, Esquire



986



ATTACHMENT

Turkey Point Units 3 and 4  
Request for Information  
Steam Generator Tube Integrity

Q13. Provide a tabulation summary of the total strains in the circumferential, longitudinal and radial direction at the U-bend apex for tubes at flow slot locations in rows 1 to 4. The summary should indicate the effects due to manufacturing, service induced ovality (hourglassing), change in U-bend radius, operating thermal and pressure loads and accident loads. Also compute the effective strains at the U-bend apex.

Clarification of above question.

- a. Provide the requested tabulation for a total of 32 tubes (eight tubes adjacent to the flow slot in rows 1 through 4.)
- b. For the tubes in row 1 provide the requested tabulation for the following two cases.
  - (1) Flow slot hourglassing based on current field data for the top support plate in Steam Generator 4B
  - (2) Assuming full closure of the flow slot
- c. For those tubes in rows 2, 3 and 4 provide the requested tabulation assuming full closure of the flow slot.

A13. As indicated in our response to Question 1, the operating thermal and pressure strains are trivial and can be neglected. Similarly, the strains due to SSE and other accident loads are quite small and are effectively zero when compared to those due to hourglassing. Our table will only include manufacturing and in-service (hourglassing) strains and a summation for each quantity requested. The summation is inclusive of operating and accident conditions.

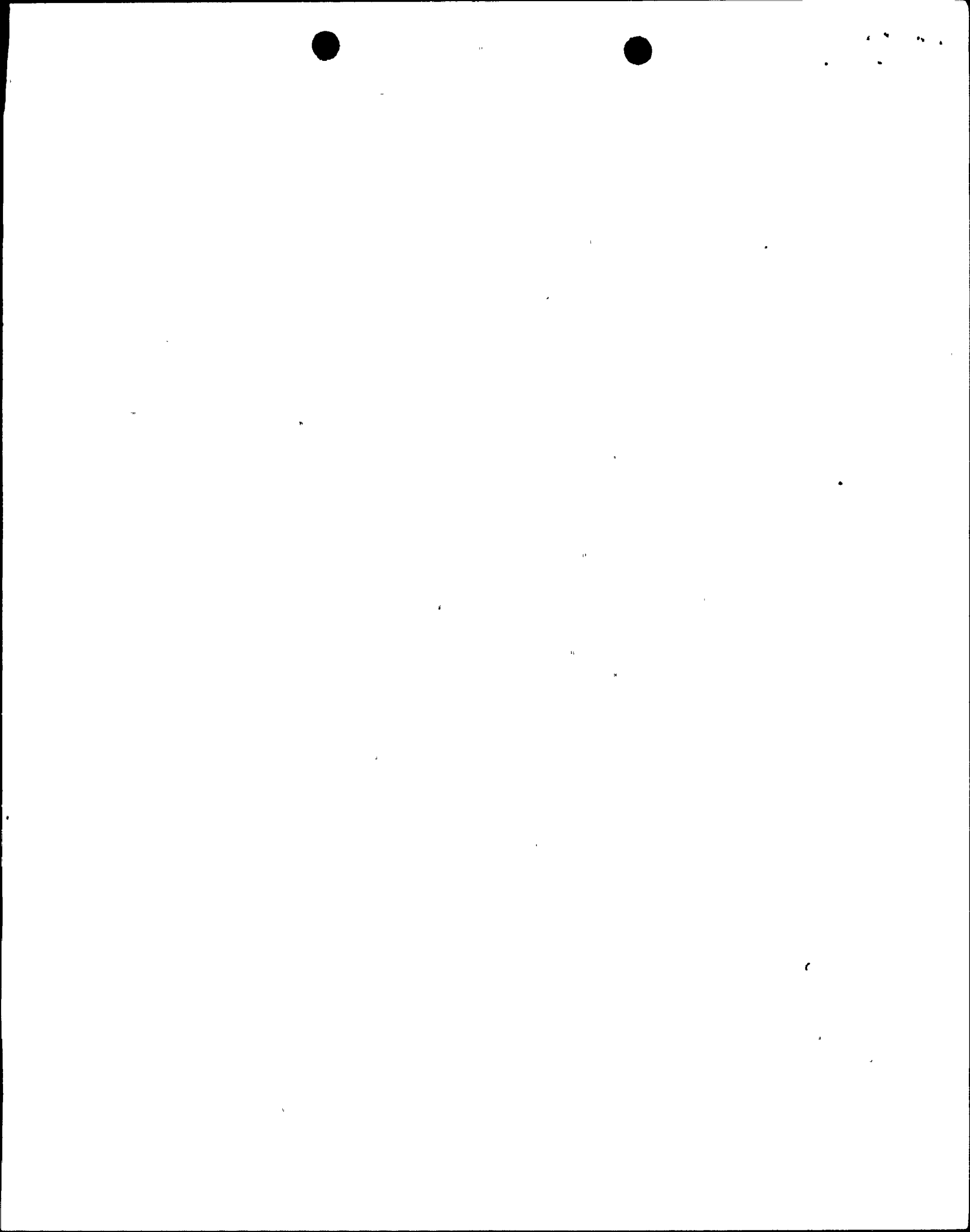




TABLE 1

ROW 1 @ CURRENT HOURGLASSING (UNIT 4)

|                 |   | $\epsilon_{axial}$ | $\epsilon_{hoop}$ | $\epsilon_{radial}$ | $\epsilon_{equ.}$ |
|-----------------|---|--------------------|-------------------|---------------------|-------------------|
| Mfg. $\epsilon$ |   | .177               | .004              | -.040               | .133              |
| Column          |   |                    |                   |                     |                   |
| 85              | H | .014               | .008              | -.004               | .141              |
|                 | T | .191               | .012              | -.044               |                   |
| 86              | H | .013               | .009              | -.004               | .140              |
|                 | T | .190               | .013              | -.044               |                   |
| 87              | H | .012               | .009              | -.004               | .140              |
|                 | T | .189               | .013              | -.044               |                   |
| 88              | H | .010               | .008              | -.003               | .138              |
|                 | T | .187               | .012              | -.043               |                   |
| 89              | H | .007               | .004              | -.002               | .137              |
|                 | T | .184               | .008              | -.042               |                   |
| 90              | H | .004               | .003              | -.001               | .134              |
|                 | T | .121               | .007              | -.041               |                   |
| 91              | H | *                  | *                 | *                   | .133              |
|                 | T | .177               | .004              | -.040               |                   |
| 92              | H | *                  | *                 | *                   | .133              |
|                 | T | .177               | .004              | -.040               |                   |

\* - No Leg Displacement

H - Strains due to hourglassing

T - Total Strains

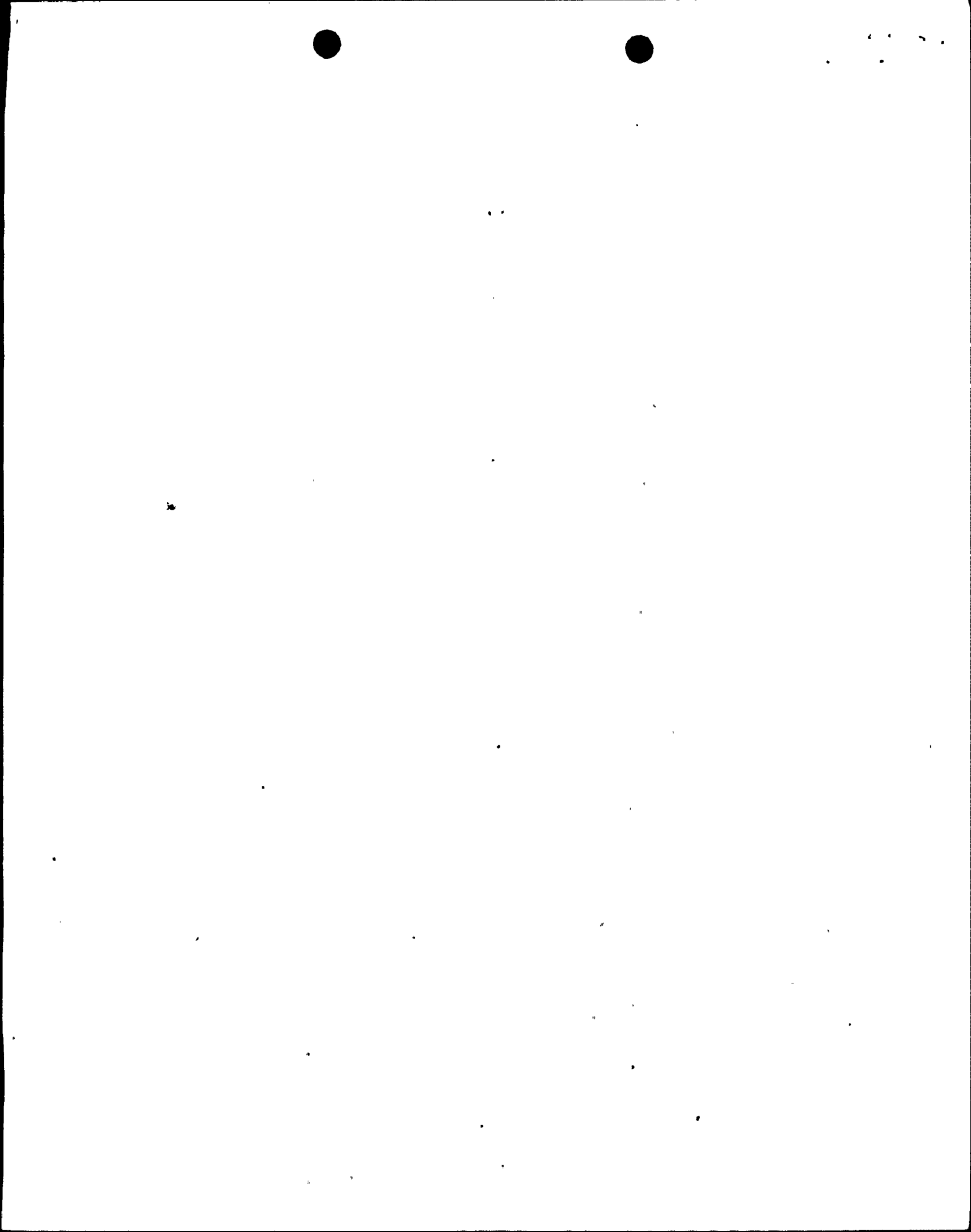


TABLE 2  
ROW 1 @ FULL CLOSURE

| Mfg. $\epsilon$<br>Column |   | $\epsilon_{axial}$ | $\epsilon_{hoop}$ | $\epsilon_{radial}$ | $\epsilon_{equ.}$ |
|---------------------------|---|--------------------|-------------------|---------------------|-------------------|
|                           |   | .177               | .004              | -.040               | .132              |
| 85                        | H | .044               | .043              | -.014               | .160              |
|                           | T | .221               | .047              | -.054               |                   |
| 86                        | H | .043               | .043              | -.014               | .160              |
|                           | T | .220               | .047              | -.054               |                   |
| 87                        | H | .038               | .039              | -.012               | .156              |
|                           | T | .215               | .043              | -.052               |                   |
| 88                        | H | .031               | .032              | -.010               | .131              |
|                           | T | .208               | .036              | -.050               |                   |
| 89                        | H | .023               | .019              | -.007               | .146              |
|                           | T | .200               | .023              | -.047               |                   |
| 90                        | H | .012               | .009              | -.004               | .139              |
|                           | T | .189               | .013              | -.044               |                   |
| 91                        | H | *                  | *                 | *                   | .133              |
|                           | T | .177               | .004              | -.040               |                   |
| 92                        | H | *                  | *                 | *                   | .133              |
|                           | T | .177               | .004              | -.040               |                   |

\* - No Leg Displacement

H - Strains due to hourglassing

T - Total Strains



TABLE 3

ROW 2 @ FULL CLOSURE

| Mfg. $\epsilon$<br>Column |   | $\epsilon_{axial}$ | $\epsilon_{hoop}$ | $\epsilon_{radial}$ | $\epsilon_{equ.}$ |
|---------------------------|---|--------------------|-------------------|---------------------|-------------------|
|                           |   | .112               | .003              | -.030               | .085              |
| 85                        | H | .022               | .034              | -.024               | .109              |
|                           | T | .134               | .037              | -.054               |                   |
| 86                        | H | .022               | .034              | -.023               | .108              |
|                           | T | .134               | .037              | -.053               |                   |
| 87                        | H | .021               | .027              | -.021               | .106              |
|                           | T | .133               | .030              | -.051               |                   |
| 88                        | H | .018               | .021              | -.018               | .104              |
|                           | T | .130               | .024              | -.048               |                   |
| 89                        | H | .013               | .011              | -.013               | .099              |
|                           | T | .125               | .014              | -.043               |                   |
| 90                        | H | .008               | .006              | -.008               | .093              |
|                           | T | .120               | .009              | -.030               |                   |
| 91                        | H | *                  | ** .003           | *                   | .085              |
|                           | T | .112               | .006              | -.030               |                   |
| 92                        | H | *                  | ** .004           | *                   | .085              |
|                           | T | .112               | .007              | -.030               |                   |

\* - No Leg Displacement

H - Strains due to hourglassing

T - Total Strains

\*\* - These strains result from dimensions taken from the removed tubes. A possible explanation is that these tubes had higher ovality, as manufactured, than the statistical average.

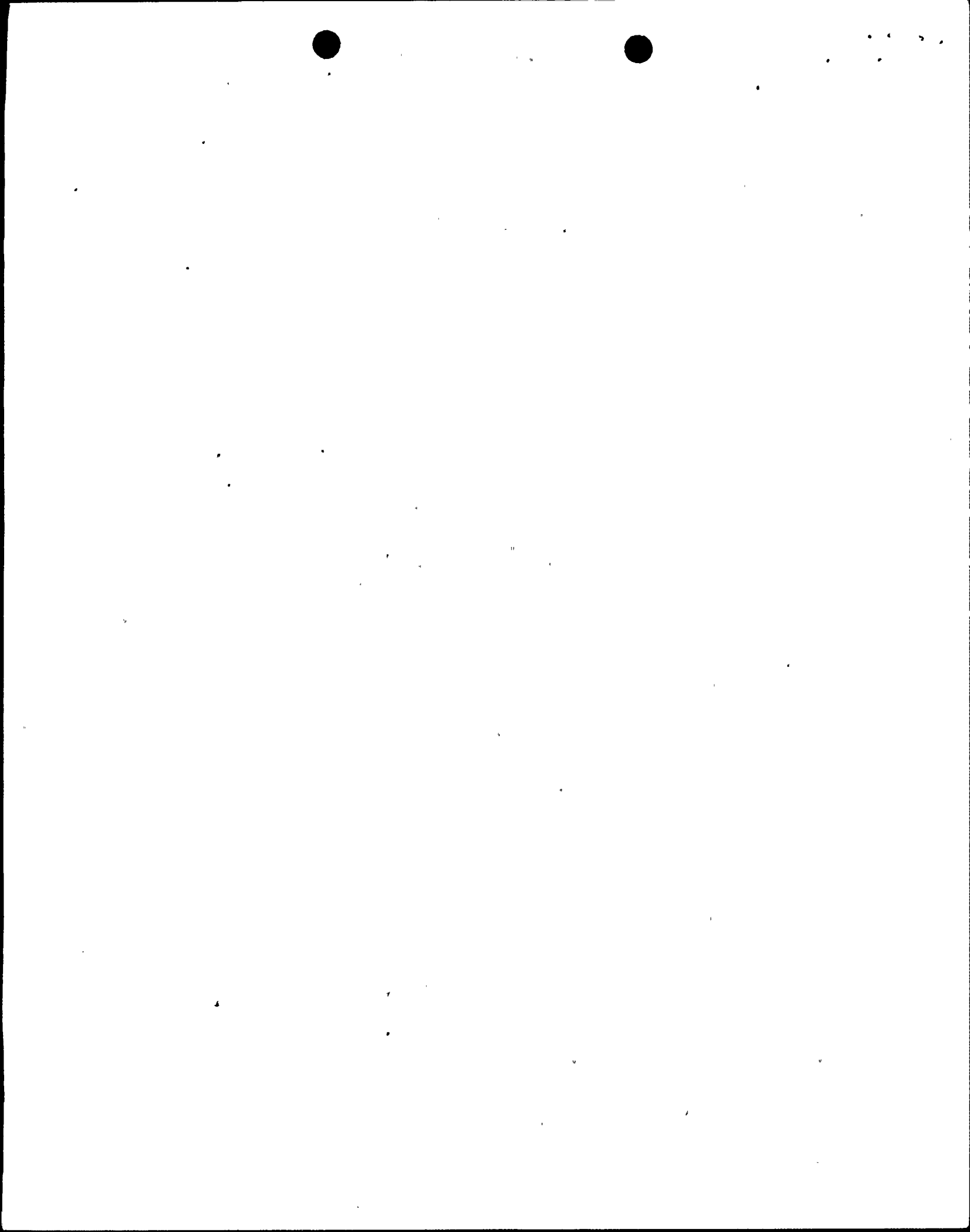


TABLE 4

ROW 3 @ FULL CLOSURE

| Mfg. $\epsilon$<br>Column |   | $\epsilon_{axial}$ | $\epsilon_{hoop}$ | $\epsilon_{radial}$ | $\epsilon_{equ.}$ |
|---------------------------|---|--------------------|-------------------|---------------------|-------------------|
|                           |   | .082               | .005              | -.020               | .061              |
| 85                        | H | .015               | .018              | -.024               | .081              |
|                           | T | .097               | .023              | -.044               |                   |
| 86                        | H | .015               | .018              | -.023               | .081              |
|                           | T | .097               | .023              | -.043               |                   |
| 87                        | H | .013               | .013              | -.021               | .079              |
|                           | T | .095               | .013              | -.041               |                   |
| 88                        | H | .011               | .009              | -.017               | .075              |
|                           | T | .093               | .014              | -.037               |                   |
| 89                        | H | .009               | .004              | -.012               | .072              |
|                           | T | .091               | .009              | -.032               |                   |
| 90                        | H | .005               | .001              | -.006               | .067              |
|                           | T | .087               | .006              | -.026               |                   |
| 91                        | H | *                  | *                 | *                   | .061              |
|                           | T | .082               | .005              | -.020               |                   |
| 92                        | H | *                  | *                 | *                   | .061              |
|                           | T | .082               | .005              | -.020               |                   |

\* - No Leg Displacement

H - Strains due to hourglassing

T - Total Strains



4 4 4 4



TABLE 5

ROW 4 @ FULL CLOSURE

| Mfg. $\epsilon$<br>Column |   | $\epsilon_{axial}$ | $\epsilon_{hoop}$ | $\epsilon_{radial}$ | $\epsilon_{equ.}$ |
|---------------------------|---|--------------------|-------------------|---------------------|-------------------|
|                           |   | .064               | .002              | -.020               | .050              |
| 85                        | H | .012               | .014              | -.024               | .069              |
|                           | T | .076               | .016              | -.044               |                   |
| 86                        | H | .012               | .014              | -.023               | .069              |
|                           | T | .076               | .016              | -.043               |                   |
| 87                        | H | .011               | .011              | -.021               | .067              |
|                           | T | .075               | .013              | -.041               |                   |
| 88                        | H | .010               | .007              | -.017               | .064              |
|                           | T | .074               | .009              | -.037               |                   |
| 89                        | H | .007               | .003              | -.012               | .060              |
|                           | T | .071               | .005              | -.032               |                   |
| 90                        | H | .004               | .002              | -.007               | .056              |
|                           | T | .068               | .004              | -.027               |                   |
| 91                        | H | *                  | *                 | *                   | .050              |
|                           | T | .064               | .002              | -.020               |                   |
| 92                        | H | *                  | *                 | *                   | .050              |
|                           | T | .064               | .002              | -.020               |                   |

\* - No Leg Displacement

H - Strain due to hourglassing

T - Total Strain

