

A 08/10/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)  
DISTRIBUTION FOR INCOMING MATERIAL 50-335

REC: REID R W  
NRC

ORG: UHRIG R E  
FL PWR & LIGHT

DOC DATE: 07/31/78  
DATE RCVD: 08/08/78

DOCTYPE: LETTER NOTARIZED: NO COPIES RECEIVED  
SUBJECT: LTR 3 ENCL 3  
FORWARDING FOLLOWUP REPT, CONTAINING MORE DETAILED INFO ON THE RESULTS OF  
THE FIRST UNIT 1 STEAM GENERATOR INSERVICE INSPEC, ORIGINALLY FORWARDED ON  
06/01/78.

PLANT NAME: ST LUCIE #1

REVIEWER INITIAL: XJM  
DISTRIBUTOR INITIAL: M

\*\*\*\*\* DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS \*\*\*\*\*

RESPONSES TO STEAM GENERATOR QUESTIONNAIRE  
(DISTRIBUTION CODE A023)

FOR ACTION: BR CHIEF ORB#4 BC\*\*W/7 ENCL

INTERNAL:

REG FILE\*\*W/ENCL  
I & E\*\*W/2 ENCL  
HANAUER\*\*W/ENCL  
ENGINEERING BR\*\*W/ENCL  
PLANT SYSTEMS BR\*\*W/ENCL  
EFFLUENT TREAT SYS\*\*W/ENCL

NRC PDR\*\*W/ENCL  
OELD\*\*W/ENCL  
AD FOR SYS & PROJ\*\*W/ENCL  
REACTOR SAFETY BR\*\*W/ENCL  
EEB\*\*W/ENCL

EXTERNAL:

LPDR'S  
FT PIERCE, FL\*\*W/ENCL  
TERA\*\*W/ENCL  
NSIC\*\*W/ENCL  
RON GAMBLE\*\*W/6 ENCL  
KEN HERRING\*\*W/6 ENCL  
ACRS CAT B\*\*W/16 ENCL

DISTRIBUTION: LTR 50 ENCL 50  
SIZE: 1P+9P

CONTROL NBR: 782210336

MA 460

\*\*\*\*\* THE END \*\*\*\*\*



1950

Dear Mr. [Name]

I am writing to you regarding the [Subject]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

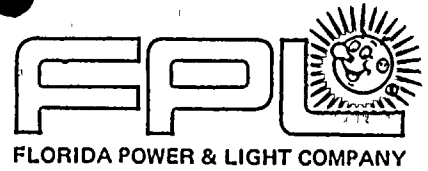
I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]

I am sure you will find this information [Useful]



July 31, 1978  
L-78-249

US NRC  
DISTRIBUTION SERVICES  
BRANCH

1978 AUG 8 AM 11 53

UNIT 1 DISTRIBUTION  
SERVICES UNIT

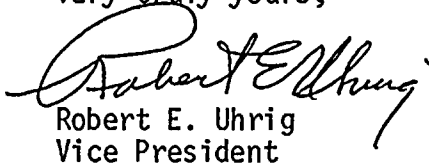
Office of Nuclear Reactor Regulation  
Attention: Mr. R. W. Reid, Chief  
Operating Reactors Branch #4  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Reid:

Re: St. Lucie Unit 1  
Docket No. 50-335  
Steam Generator Information

A followup report, containing more detailed information on the results of the first Unit 1 steam generator inservice inspection, is attached. It is being submitted to satisfy a commitment in our letter L-78-193 of June 1, 1978.

Very truly yours,

  
Robert E. Uhrig  
Vice President

REU/MAS/cpc

Attachment

cc: Mr. James P. O'Reilly, Region II  
Harold F. Reis, Esquire

REGULATORY DOCKET FILE COPY

782210336

A023  
5/3  
3/3



1945

1946

1947

ATTACHMENT

Re: St. Lucie Unit 1  
Docket No. 50-335  
Steam Generator Information

A steam generator operating history questionnaire for St. Lucie Unit 1 was forwarded to the NRC on June 1, 1978. The questionnaire was complete except for Section VII (Steam Generator Tube Degradation History). Section VII is now being submitted to complete the questionnaire.

Additional information will be submitted with the final steam generator inspection report submitted in accordance with Technical Specification 4.4.5.5.b.

VI. TURBINE STOP VALVE TESTING (applicable to Babcock & Wilcox (B&W) S.G. only)

Frequency of Testing

Actual: N/A

Manufacturer Recommendation: N/A

Power Level At Which Testing Is Conducted

Actual: N/A

Manufacturer Recommendation: N/A

Testing Procedures (Stroke length, stroke rate, etc.)

Actual: N/A

Manufacturer Recommendation: N/A

VII. STEAM GENERATOR TUBE DEGRADATION HISTORY

(The following is to be repeated for each scheduled ISI)

Inservice Inspection (ISI) Date: April, 1978

Number of EFP Days of Operation Since Last Inspection: 399.138

(The following is to be repeated for each steam generator)

Steam Generator Number: 1A (1B not inspected)

Percentage of Tubes Inspected At This ISI: 1A=7.9647

Percentage of Tubes Inspected At This ISI That Had Been Inspected At  
The Previous Scheduled ISI: First ISI

Percentage of Tubes Plugged Prior to This ISI: First ISI

Percentage of Tubes Plugged At This ISI: 1A = 0%

Percentage of Tubes Plugged That Did Not Exceed Degradation Limits: 1A = 0%

Percentage of Tubes Plugged As A Result of Exceedance of Degradation  
Limits: 1A = 0%

Sludge Layer Material Chemical Analysis Results: None

Sludge Lancing (date): None

Ave. Height of Sludge Before Lancing: 1A = .9"

Ave. Height of Sludge After Lancing: No Lancing done

Replacement, Retubing or Other Remedial Action Considered: (Briefly  
Specify Details)

Support Plate Hourglassing: N/A

Support Plate Islanding: N/A

Tube Metalurgical Exam Results: N/A

Fretting or Vibration in U-Bend Area (not applicable to B&W S.G.) AS OF (4)

Percentage of Tubes Plugged	Other Preventive Measures
	N/A

Wastage/Cavitation Erosion AS OF (4) None observed

Hot Leg: (Repeat this information for the cold leg on Combustion Engineering (C.E.) and Westinghouse (W) S.G.)

Area of Tube Bundle (1)	a	b	c	d	e
% of Tubes Affected by Wastage/Cavitation Erosion					
% of Tubes Plugged Due to Exceedance of Allowable Limit (2)					
% of Tubes Plugged That Did not Exceed Degradation Limit					
Location Above Tube Sheet (3)					
Max. Wastage/Cavitation Erosion Rate for Any Single Tube (Tube Circum. Ave) (Mills/Month)					
Max. Wastage/Cavitation Erosion in Any Single Unplugged Tube (Tube Circum. Ave) (Mills)					

Cracking AS OF (4)

Caustic Stress Corrosion Induced in C.E. and W S.G.

Flow Induced Vibration Caused in B&W S.G.

Cracking (Con't) None observed

HOT Leg: (Repeat this information for the cold leg on C.E. and W S.G.)

Area of Tube Bundle (1)	a	b	c	d	e
% of Tubes Affected By Cracking					
% of Tubes Plugged Due to Cracking					
% of Tubes Plugged That Did Not Exceed Degradation Limit					
Location Above Tube Sheet (3)					
Rate of Leakage From Leaking Cracks (gpm)					

Denting (Not applicable to B&W S.G.) AS OF (4)

Hot Leg: (Repeat this information for the cold leg on C.E. and W S.G.)

Area of Tube Bundle (1)	a	b	c	d	e
% of Tubes Affected by Denting					
% of Tubes Plugged Due to Exceedance of Allowable Limit (2)					
% of Tubes Plugged That Did Not Exceed Degradation Limit					
Rate of Leakage From Leaking Dents (gpm)					
Max. Denting Rate for Any Single Tube (Tube Circum. Ave) (Mills/Month)					
Max. Denting in Any Single Unplugged Tube (Tube Circum. Ave) (Mills)					



Denting (Con't)

Support Plate Levels	Max. Denting in Any Single Tube in Bundle Area (Tube Ave) (Mills) (1)					% of Tubes Affected By Denting in Bundle Area				
	a	b	c	d	e	a	b	c	d	e
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

For information on denting, see attached Figures 1 and 2.

TABLE KEY

NOTE: All percentages refer to the percent of the tubes within a given area of the tube bundle.

(1)

Area of the Tube Bundle	No. of Tubes Within the Area
a. Periphery of Bundle (wi/20 rows for B&W; wi/10 rows for C.E. and <u>W</u> )	For information on locations of dented tubes, see attached Figures 1 and 2.
b. Patch Plate (wi/4 rows)	
c. Missing Tube Lane (B&W only) (wi/5 rows)	
c. Flow Slot Areas (C.E. and <u>W</u> only) wi/10 rows)	
d. Wedge Regions (C.E. and <u>W</u> only) (wi/8 rows)	
e. Interior of Bundle (remainder of tubes)	

(2)

Allowable Limit for Wastage/Cavitation Erosion:

Allowable Limit For Denting:

(3)

1. Specifies area between the tube sheet and the first support plate

2. Specifies in the following locations: (list the additional locations)

Wastage/Cavitation Erosion:

Cracking:

(4)

Specify the date of the inspection for which results have been tabulated.

TABLE I  
 SUMMARY OF EDDY CURRENT TEST RESULTS  
 STEAM GENERATOR 1A

TOTAL TUBES (by design)	8,519 'U' Tubes
TUBES THROUGH PARTIAL SUPPORT PLATE No. 9	2,225 (26.1%)
TUBES THROUGH PARTIAL SUPPORT PLATE No. 10	771 (9.1%)

TUBES EXAMINED

	<u>No.</u> of <u>Tubes</u>	<u>%</u> of <u>Total</u>
HOT SIDE DEFECT DETECTION	583	~6.8% No Tube Wall Degradation Indications
COLD SIDE DEFECT DETECTION	100	~1.2% No Tube Wall Degradation Indications
HOT SIDE SLUDGE MEASUREMENT	62	0.73% Maximum 4 Inches
COLD SIDE SLUDGE MEASUREMENT	62	0.73% Maximum 3.5 Inches

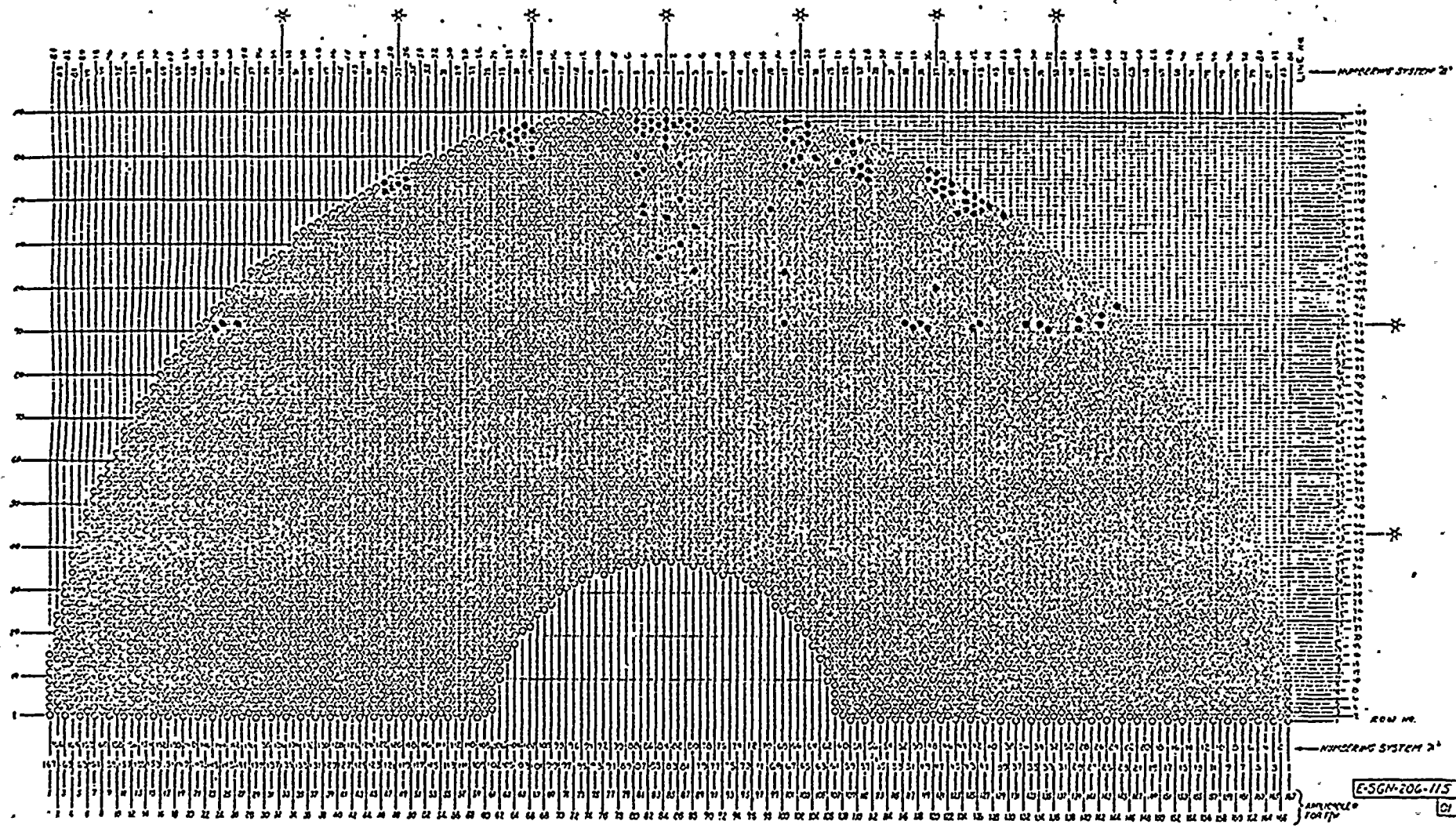
ST. LUCIE S/G 1A - DENTED TUBES

APRIL 1978

- NOTES
- 1 \* DENOTES STAYS
  - 2 TUBE NUMBER OF TUBES = 0219
  - 3 1" COORDINATE DIMENSION = 0.004
  - 4 1/2" COORDINATE DIMENSION = 0.006
  - 5 TUBE MATERIAL = INCONEL 600
  - 6 TUBE OR = 0750
  - 7 TUBE WALL (NOMINAL) = 0.010

QUAD #

QUAD #



STEAM GENERATOR IDENT  
TUBE SHEET TYPED FROM PRIMARY DOC

HOT LEG

FIGURE 1

PLANT  
NUP SUPERVISOR  
NUCLEAR SYSTEM  
COMMENTS  
DATE

<p>REVISIONS</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION				<p>DESIGNER</p> <p>CHECKED</p> <p>APPROVED</p>	<p>DATE</p> <p>SCALE</p> <p>PROJECT NO.</p> <p>FIGURE NO.</p> <p>SHEET NO.</p>
NO.	DATE	DESCRIPTION						

E-SGN-206-115  
APPROVED FOR TV

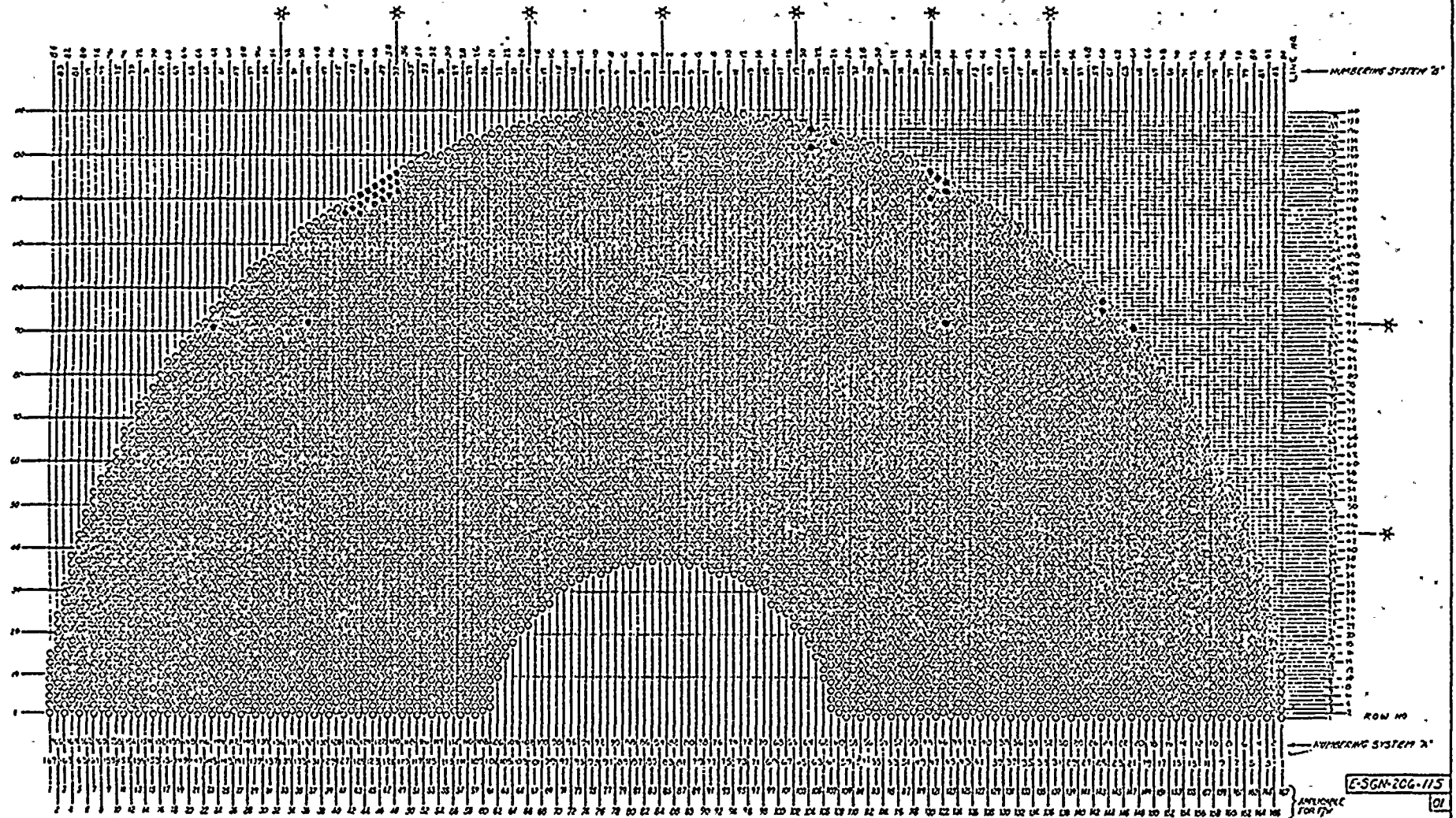
# ST. LUCIE 5/G 1 A - DENTED TUBES

APRIL 1978

- NOTES**
- 1 \* - DENOTES STAYS
  2. TUBE NUMBER OF TUBES = 6519
  3. X" COORDINATE DIMENSION = 0.840
  4. Y" COORDINATE DIMENSION = 0.800
  5. TUBE MATERIAL = INCONEL 600
  6. TUBE OD = 0.750
  7. TUBE WALL (NOMINAL) = 0.040

COORD #

COORD #



STEAM GENERATOR IDENT  
TUBE SHEET VIEWED FROM PRIMARY SIDE

PLANT:  
MSPB 206-115  
NUMBERS SYSTEM:  
COMMENTS:  
DATE:

COLD LEG  
FIGURE 2

DATE	BY	CHKD	APP'D	REVISION
BUILDING SPECIFICATIONS				
MATERIALS SPECIFICATIONS				
CONSTRUCTION SPECIFICATIONS				
OPERATION SPECIFICATIONS				
MAINTENANCE SPECIFICATIONS				
REVISIONS				
1. ST. LUCIE 5/G 1 A 2. COLD LEG 3. TUBE SHEET 4. FIG. 206-115				

E-SGN-206-115  
01