

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

August 6, 1980

RECEIVED DISTRIBUTION  
SERVICES UNIT

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
Attn: Mr. Steven A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Serial No. 693  
NO/FHT:ms  
Docket No. 50-280  
License No. DPR-32

Dear Mr. Denton:

SURRY POWER STATION UNIT NO. 1  
STEAM GENERATOR INSPECTION AND PLUGGING

The results of the recently completed Surry Unit 1 steam generator inspection are presented in Attachment 1. The total number of tubes plugged in Surry Unit No. 1 is now 2593, or approximately 25.4%.

Amendment No. 59 to Operating License DPR-32, issued on July 28, 1980, allowed the plant to operate for six months equivalent full power operations from May 11, 1980. To date, approximately 80 days of equivalent full power operation have been completed of the six months permitted by Amendment No. 59. Accordingly, start-up from the current outage can be made under the provisions of Amendment No. 59. We expect to operate for an additional five to six weeks before shutting the unit down in mid-September for steam generator replacement.

Your review and approval of the enclosed inspection report is required prior to start-up from the current outage. Based on the results of this inspection, we have determined that the existing analyses regarding safe operation of the unit under normal and accident conditions are applicable. It has been

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determined that a Class III approval fee is required as payment for staff review of the enclosed inspection report. Accordingly, a voucher check in the amount of \$4,000.00 is enclosed. We expect the unit to be ready for start-up early Friday, August 8, 1980, and would appreciate your prompt approval of this request.

Very truly yours,



B. R. Sylvia  
Manager - Nuclear  
Operations and Maintenance

Attachments:

1. Report
2. Voucher Check No. 02607 for \$4,000.00

cc: Mr. James P. O'Reilly

SURRY POWER STATION UNIT 1  
STEAM GENERATOR INSPECTION AND PLUGGING  
AUGUST 5, 1980

Reference: Steam Generator Inspection and Preventive Plugging Program, Surry Power Station Unit No. 1, Serial No. 325, dated April 15, 1980.

1. Inspection Program

The steam generator tube inspection program performed on August 5 and 6, 1980, encompassed those areas in Unit 1 "C" steam generator surrounding leaking tubes identified during hydrostatic testing after the unit shut down on August 1, 1980, with primary to secondary leakage of approximately 0.3 gpm.

Eddy current inspections were performed on tubes surrounding the leakers as indicated on Figure 1, Unit 1 "C" Steam Generator, Inspection Boundary. This inspection boundary was determined to surround the leaking tubes and other tubes in the same vicinity which may exhibit significant tube denting or wastage activity. The larger area near the center of the tube sheet was inspected for wastage using a .650" probe. This area included Columns 69 through 79 and Rows 13 through 24 and covered 132 tubes. The smaller area located adjacent to the plugged tubes along the tube lane included 17 tubes. These 17 tubes were inspected for indications of denting.

2. Visual Inspection Results

The unit shut down on August 1, 1980, due to primary to secondary leakage. No leakage was detected in Steam Generators A or B, four leaking tubes were identified in Steam Generator "C": Row 17/Column 75, Row 19/Column 76, Row 16/Column 71 and Row 5/Column 64. Three of these leaking tubes are adjacent to the leaking tube in "C" Steam Generator identified in our referenced April 15, 1980, report. It appears that additional wastage activity is occurring in this region of the tube sheet resulting in the formation of small leaks at the tube sheet which do not propagate to ruptures. The fourth leaker is located adjacent to tubes previously plugged due to denting adjacent to the tube lane.

3. Evaluation of Inspection Results

The results of the inspection program are shown in Figure 2. These results support the adequacy of the inspection program and the plugging criteria.

A. Wastage Inspection Results

- 1) Three leaking tubes exhibited 100% wastage defect signals about one-half inch above the tube sheet. The wastage signals were detected over an area of zero to one-half inch above the tube sheet and are similar in character to wastage signals detected during previous inspections and are indicative of a large volume defect.
- 2) Six additional tubes within this wastage inspection boundary (see figure 2) were determined to exhibit wastage of about 40%, although the signals were somewhat distorted. One of these six tubes (Row 15, Column 69) had been previously inspected in March, 1980, and at that time exhibited wastage of about 20%. Two of the six tubes are next to a leaker and would have been plugged for that reason. No other previously inspected tubes showed any significant increase in wastage since the March, 1980, inspection. Only one other tube exhibited wastage in excess of 30%, the remainder were less than 30%.
- 3) Tubes in this area that had been previously inspected are located in Columns 69 and 70. The remaining tubes, including the three leaking tubes, had never been inspected prior to this outage.
- 4) All tubes inspected within the wastage boundary passed the .650" probe to past the seventh support plate. This indicates that little if any denting activity is occurring in this region.

B. Denting Inspection Results

- 1) The one leaking tube (Row 5, Column 64) passed the .610" probe to past the seventh support plate. A .650" probe was stopped at the third support plate indicating the location of the dent.
- 2) Sixteen other tubes surrounding the leaking tube were inspected with the .650" probe, which passed all tubes to past the seventh support plate. None of these tubes, then, exhibited significant denting activity.

4. Plugging Criteria

The plugging rationale and criteria as defined below are consistent with those applied in previous inspections.

- A. All tubes surrounding any known leakers including the diagonally next tube were plugged.
- B. All tubes with significant wastage ( $\geq 40\%$ ) and all tubes where wastage measurement could not be considered accurate due to masking effects were plugged.

5. Actual Plugging Pattern

Figure 3 indicates the plugging pattern for Surry 1 "C" steam generator based on the plugging criteria described above. During this outage, 35 tubes were plugged, bringing the total tubes plugged in "C" steam generator to 1064. Steam Generators "A" and "B" have 885 and 662 tubes plugged, respectively.

A total of 2593 or 25.4% of the steam generator tubes are now plugged.

SERIES 51

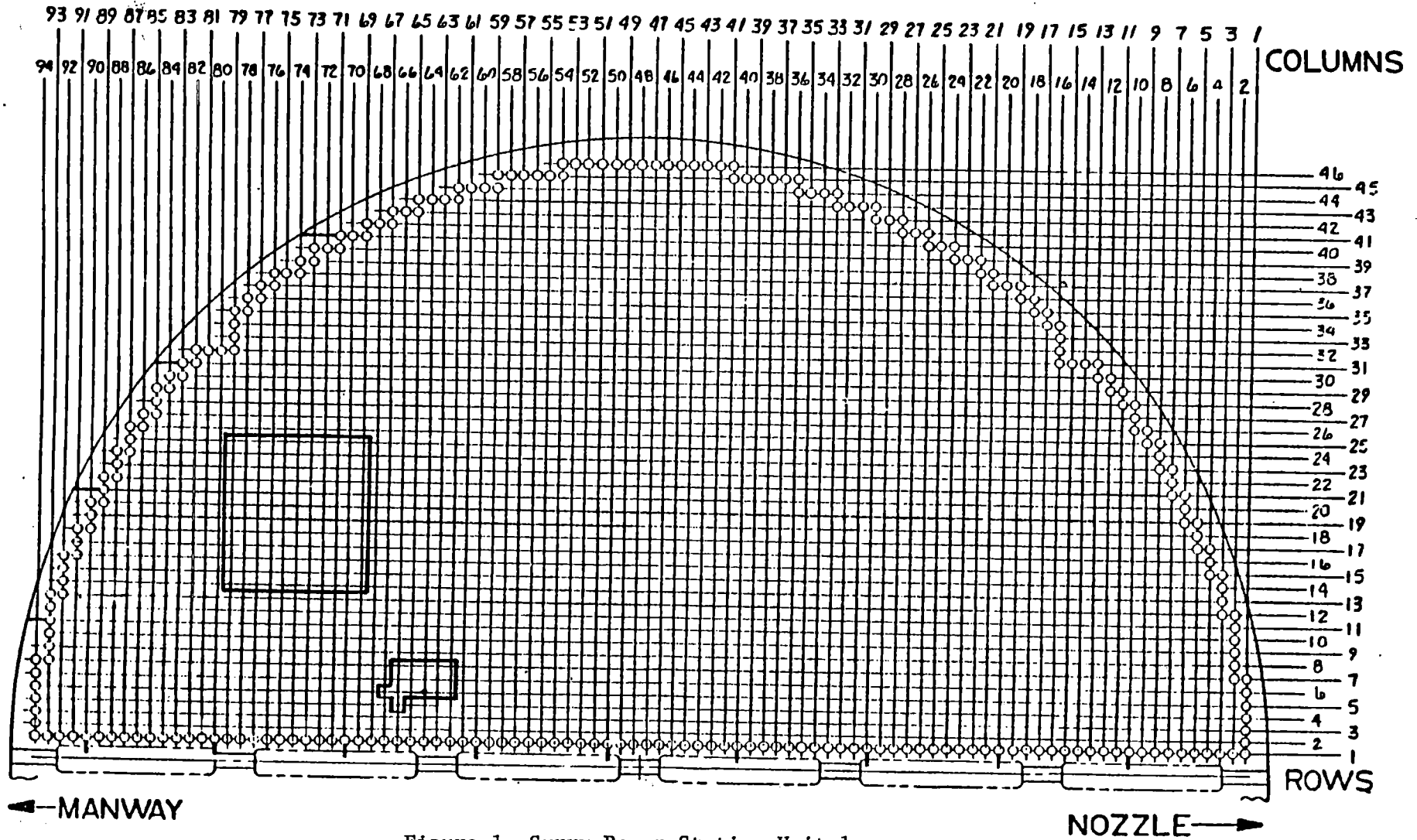


Figure 1 Surry Power Station Unit 1  
 C Steam Generator  
 Gauging Program

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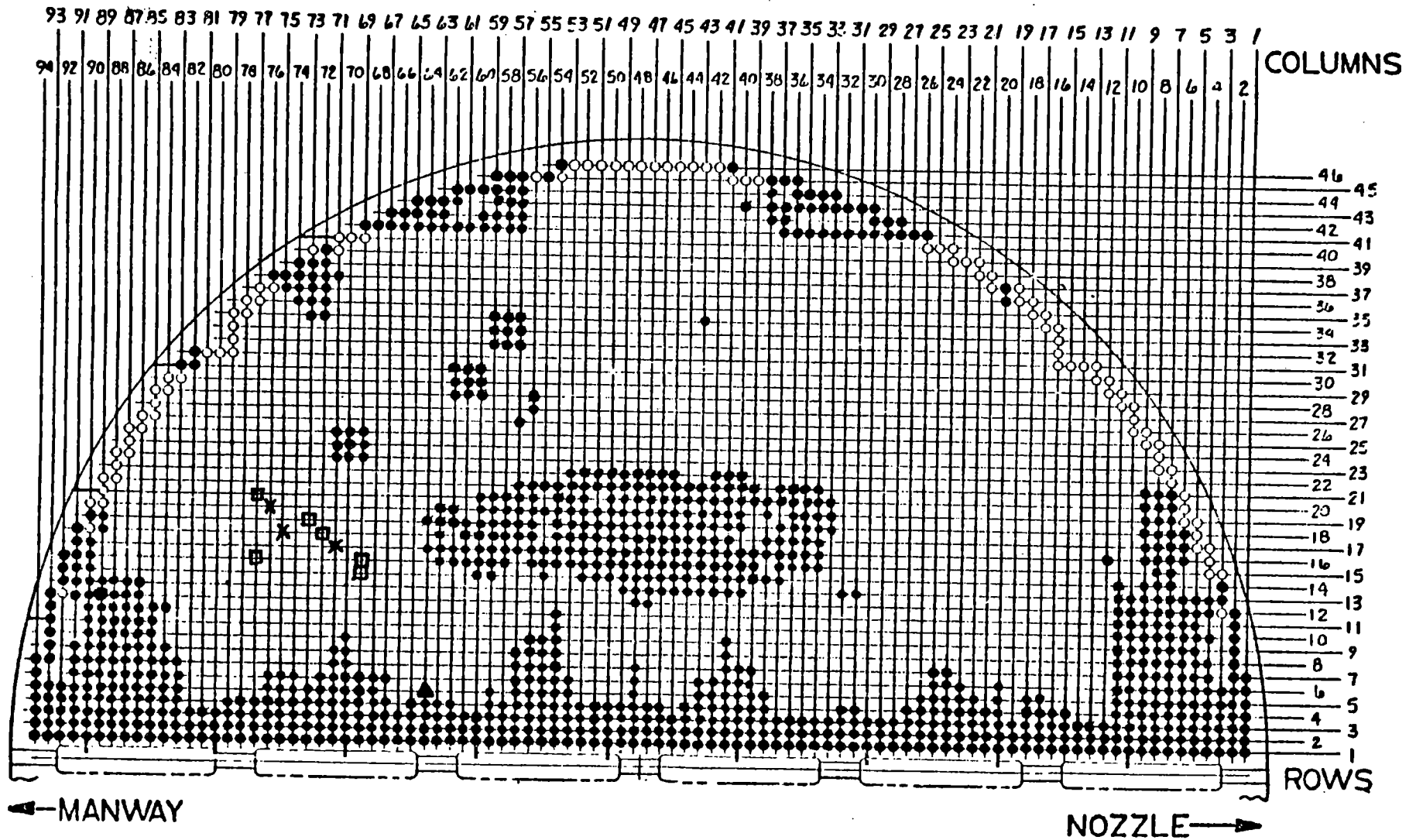


Figure 2 Surry Power Station Unit 1  
 C Steam Generator  
 Gauging Results

X = O.D. Wastage = 100% (3 leakers)  
 Δ = Did not pass .650" probe (1 leaker)  
 □ = O.D. Wastage  $\geq$  40%

SERIES 51

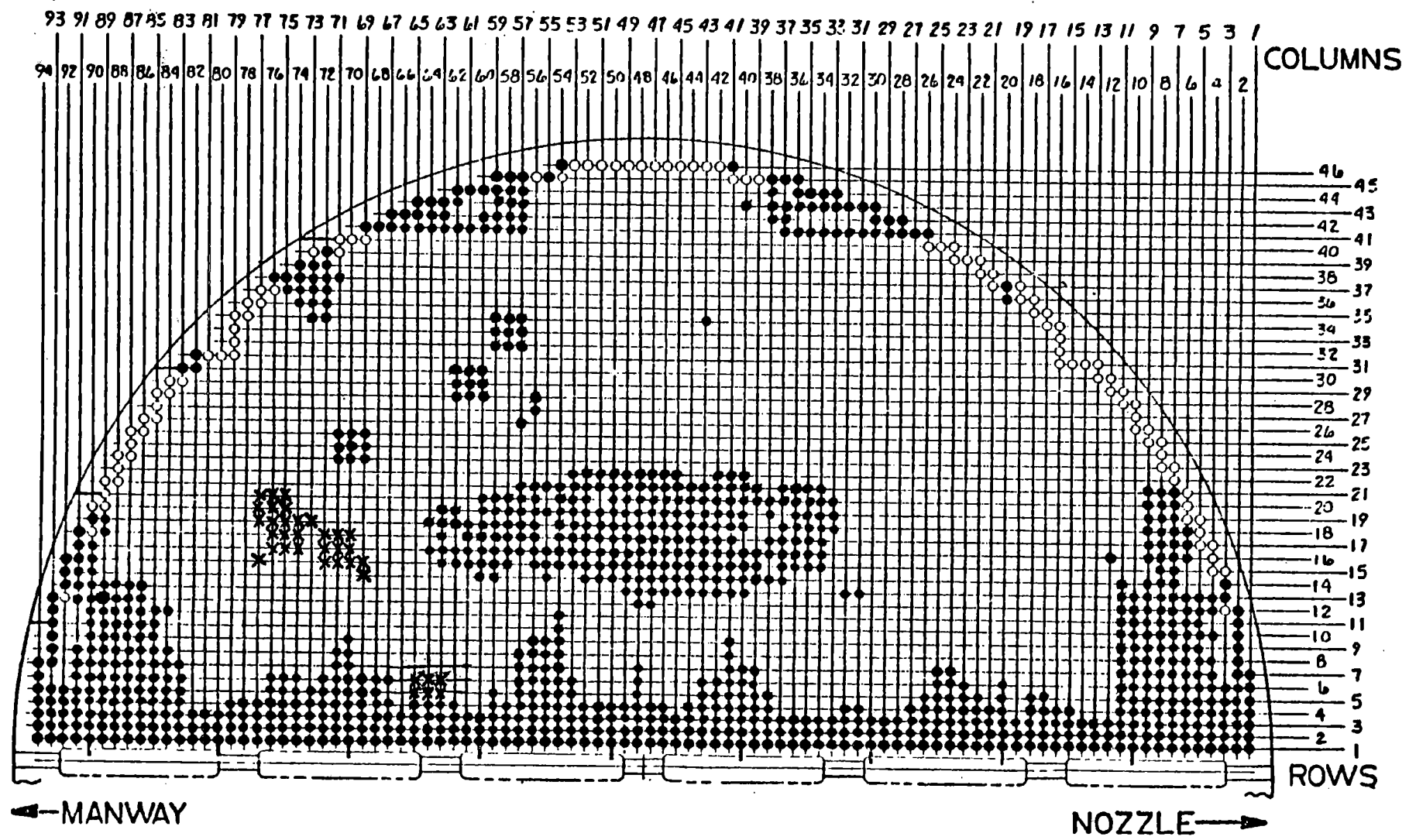


Figure 3 Surry Power Station Unit 1  
C Steam Generator  
Plugging Pattern

X = tube plugged this outage